Date: 25 June 2020
Our ref: 317330
Your ref: Click here to enter text.

Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

T 0300 060 3900

Greater Cambridge Planning Policy,
Strategy & Economy team

BY EMAIL ONLY
localplan@greatercambridgeplanning.org

Dear Sir / Madam

Greater Cambridge Integrated Water Management Study

Thank you for your email of 13 May 2020 informing Natural England of the appointment of consultants Stantec to undertake an Integrated Water Management Study as an evidence base for the Greater Cambridge Local Plan. In response to your request for any information that would be useful for the study we have provided some comments and advice below. We hope you will find this helpful and would be grateful if this could be taken into full consideration through the study.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

General comments
Natural England is aware that the revised Local Plan proposes significant growth through to 2040 including >40k new homes (representing c.40% growth), along with other development. We welcome the approach being taken by Greater Cambridge to collate a robust environmental evidence base to inform its preparation of the Local Plan. The Integrated Water Management Study (IWMS) will form an important part of the evidence base alongside a Biodiversity and Green Infrastructure Plan, both of which will inform the Habitats Regulations Assessment (HRA) and Sustainability Appraisal (SA). The recommendations and conclusions of these reports will play a significant role in guiding the quantum and location of Plan development.

We welcome preparation of the note by Stantec (May 2020) confirming that the Study will examine all aspects of the water environment, the sustainability of the growth being proposed through the Local Plan, the water infrastructure that will be required, and the measures needed to manage and protect the water environment. We note that the study will consist of the following three reports:

- An Outline Water Cycle Strategy, which will report on the baseline conditions of water resources, water quality, wastewater and flood risk in the area (as existing conditions, including development to date and the effects of climate change).
- A Detailed Water Cycle Strategy, which will consider the sustainability of the growth being proposed and the measures needed to protect the water environment, including new policies to be included in the Local Plan.

- A Strategic Flood Risk Assessment, which will look at all sources of flood risk in the area, including the effects of climate change, noting the Councils' duty to prepare this report as a stand-alone document.

The IWMS project brief, prepared by Greater Cambridge Shared Planning (SCDC Invitation to Tender 2019), recognises the current water crisis across Greater Cambridge noting that the area is water stressed and that low flows in the River Cam and its tributaries are already having an adverse impact on the natural environment. This issue will require a considerable level of detailed assessment through the Study. The brief also alludes to pressure on groundwater resources, through abstraction from the chalk aquifer to meet growing consumer demand. The brief notes that Cambridge Water's Water Resource Management Plan indicates that meeting the demand of significant Plan growth will be a challenge with less available supplies for mitigating the effect of abstraction on the environment. Our concern is that the brief does not sufficiently highlight the severity of the water abstraction issue. Data available from the Environment Agency indicates that current abstraction may need to be reduced by around 60% to achieve levels that can be considered sustainable. This is an alarming figure which lends strong support to the view that current abstraction levels are already unsustainable, before the effects of climate change and further development have even been considered. Evidence indicates that residual groundwater flows are unable to supply adequate water quantity and quality to maintain SSSI favourable condition. Measures implemented through the Environment Agency's Restoring Sustainable Abstraction (RSA) programme, commenced in 1999, has had some limited beneficial effect and work/progress is still ongoing; however, current evidence demonstrates that most groundwater dependent sites across the district are being damaged through existing abstraction. Another potentially significant issue that requires further detailed investigation is the effect of abstraction on spring-fed SSSIs and other important sites and priority habitat.

Demonstrating the sustainability of Plan growth will be a challenging task for the WCS based on this significant negative baseline. We are aware from discussion with the Environment Agency that this issue requires a much wider regional/supra-regional strategic approach and can only be resolved through significant levels of investment in water resource management over many decades. In light of this we believe the WCS should focus on an interim solution to the delivery of sustainable Plan growth. This is likely to require the identification of a package of measures to enable a quantum of development to be delivered, in appropriate locations, without further significant damage to the natural environment including SSSIs. The WCS should ideally be seeking to identify appropriate options / measures to ensure availability of sufficient water quantity / quality to:

- reduce / limit abstraction and reverse the damaging effects this is having on the natural environment including SSSI favourable condition;
- contribute towards mitigating the impacts of climate change; and
- meet the additional water demands of planned growth, where such growth is planned and located to minimise impacts.

We welcome that a key requirement of the Study is to identify the environmental capacity for growth in terms of water resources and flood management and any constraints to development with regard to quantity and location. Natural England fully supports this requirement. How this can be achieved is less clear given that existing pressure on water resources is unsustainable and having a detrimental impact on the natural environment including SSSIs, local wildlife sites and other supporting habitat. This issue will require robust assessment through the WCS and is likely to require the identification of radical and novel options to mitigate existing and future impacts in order to demonstrate the sustainability of proposed Plan growth.

Designated sites

Natural England has particular concerns with the sites listed in Table 1, although additional sites may be at risk, including those identified in the Cambridge Region Drought Management Plan 2018. These include the following internationally designated sites:

- Ouse Washes Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar site, also designated as a Site of Special Scientific Interest (SSSI);
- Wicken Fen SSSI, Ramsar site, a component of Fenland SAC;
- Chippenham Fen SSSI and Ramsar site, a component of Fenland SAC.

Whilst these sites are located some distance from the Greater Cambridge district boundary there is significant potential for hydrological impacts associated with Plan development, particularly through increased abstraction affecting groundwater flows and water quality, as discussed above. Any changes in surface water flows and quality also pose a potentially significant risk to some of these sites.

Chippenham Fen Ramsar / Fenland SAC is dependent upon adequate supply of high quality groundwater from the chalk aquifer serving Greater Cambridge, East Cambridgeshire and parts of Norfolk and Suffolk. Abstraction from the aquifer to meet the current demand is already affecting the availability of adequate supply of high quality groundwater to the SAC. The further effects of additional drawdown on the aquifer, to meet the needs of Plan development alone, and in-combination, and its ability to maintain SAC favourable condition will require rigorous assessment through the WCS.

Water quality is critically important for Wicken Fen Ramsar /Fenland SAC which is believed to be largely rainwater fed and has hydrological connectivity with the River Cam. The site is highly sensitive to changes in water quantity and quality hence the effects of Plan development on Wicken Fen, alone and in-combination, will require robust modelling of groundwater related impacts and changes in flows and water quality in the River Cam.

Whilst there appears to be no direct hydrological connectivity between the Plan area and the Ouse Washes SAC, SPA and Ramsar site, the IWMS will need to confirm this, including through consideration of any planned abstraction. The study will also need to consider any likely changes in the flow and volume of water entering the River Cam and Ely Ouse, which discharge into the Hundred Foot River downstream of the Washes. Reduced flows would have the potential to exacerbate siltation problems downstream of Denver. Siltation causes the Hundred Foot river to back up and this plays a significant role in the increased and prolonged flooding of the Ouse Washes.

Our advice is that consideration must be given to any potential implications for European sites associated with the recent CJEU judgment relating to the Dutch Nitrogen cases[1].

Many of the sites listed in Table 1 are dependent on adequate supply of high quality ground and/or surface water supplied by the underlying chalk aquifer. As already highlighted, the aquifer is under significant pressure from current abstraction and the effects of this on water quantity / quality is having an adverse impact on many of these sites and the wider natural environment. Current abstraction rates are clearly not sustainable and the WCS will need to identify how growth requirements can be met in light of this. Alternative options to limit and ideally reduce abstraction will be required to ensure, as a minimum, that there is no further adverse impact to the natural environment or additional deterioration in the favourable condition status of designated sites.

The IWMS / WCS will provide critical evidence to inform the assessment of impacts of Local Plan development on internationally designated sites through the Habitats Regulations Assessment (HRA) and Sustainability Appraisal (SA). The SA will also need to consider impacts to nationally designated sites and the wider natural environment. The evidence provided will need to be sufficiently robust to ensure the HRA meets the requirements of the Conservation of Habitats and

[1] Judgment in Joined Cases C-293/17 and C-294/17 *Coöperatie Mobilisation for the Environment UA and Others v College van gedeputeerde staten van Limburg and Others,* found at https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:62017CJ0293

Species Regulations 2017 (as amended) (the Habitats Regulations) with regard to the assessment of effects alone and in-combination with other development within and beyond the district boundary and application of the precautionary principle.

The IWMS will need to be sufficiently evidence based to ensure Local Plan compliance with the requirements of:

- the Planning and Compulsory Purchase Act 2004, for SA;
- the National Planning Policy Framework (NPPF) with regard to the protection and enhancement of designated sites and application of the ecological mitigation hierarchy.

With regard to statutorily designated sites the Councils have a duty under section 28G of the Wildlife and Countryside Act 1981 (as amended) to take reasonable steps, consistent with the proper exercise of their functions, to further the conservation and enhancement of SSSIs. This will be an important consideration for the WCS with regard to abstraction and other water related impact. For example, any development that compromises movement towards restoration of sustainable abstraction would not be consistent with the statutory duties of the local authority.

In preparing their Local Plan the LPAs are required to comply with their Duty to Cooperate responsibilities under section 110 of the Localism Act 2011. Appropriate consideration of cross-boundary issues and effects, and liaison with relevant stakeholders will be an important consideration in the preparation of the IWMS.

A key topic for consideration through the IWMS will be the proposed re-location of the Cambridge Waste Water Treatment Works (WWTW). An assessment of the potential direct and indirect impacts through each phase of the project will be required including the operation and de-commissioning of the existing WWTW and construction and operation of the replacement WWTW facility. Potential impacts to the Cam Washes SSSI and sites further downstream stream including Wicken Fen SSSI, Ramsar site and Upware North Pit SSSI will require robust assessment. Careful consideration should be given to options for this scale of development to deliver significant environmental enhancements including biodiversity net gain.

Our comments above apply equally to the WCS and SFRA elements of the study, where relevant. The SFRA should provide a robust assessment of flood risk to statutorily designated sites and supporting habitat and will need to identify opportunities for environmental enhancement and delivery of biodiversity net gain.

Mitigation considerations

The potential implications for proposed Plan growth on designated sites will need to be robustly assessed through the WCS and associated HRA and SEA. The approach will need to consider the impacts of proposed Plan growth (quantum and location) against a range of alternative options to determine whether / how this can be delivered sustainably. Given the issues discussed above this is likely to require the implementation of a range of mitigation measures. Our brief initial thoughts, for possible further consideration, are as follows:

- options should be investigated for implementing and maintaining much tighter water efficiency standards, for example 80 litres/person/day and rainwater harvesting is being achieved at the Cambridge Eddington site. This is being maintained by Cambridge Water in perpetuity. It would be helpful if calculations could be undertaken to identify the benefits this could deliver in terms of restoring sustainable GW levels, even strict implementation of the optional 110 litres/person/day standard, compared with the current 140 litres/person/day;
- Useful reference could be made to work undertaken for OxCam on implementing more stringent water efficiency standards;
- Options for implementing greywater recycling should be investigated, for delivery through robust plan policies.

The continued licensing of historic abstractions, including those from 1970's, is a significant problem

requiring a review of government policy to help restore abstraction to sustainable levels.
The EA has modelling data to indicate what sustainable abstraction would look like - a regional ground water model could be run to identify sustainable levels for designated sites.

In order to fully assess and mitigate the impacts of abstraction on designated sites it will be important to establish the locations of the relevant water company boreholes, some of which are likely to be as far away as Thetford. Any development within the Anglian Water (AW) catchment has the potential to impact on designated sites within Greater Cambridge and beyond, including Norfolk and Suffolk. The Environment Agency should be able to provide a map of the Water Resource Zone and hydrological connectivity.

Additional information
We assume that the IWMS will take an evidence based approach to identifying the 'hydrological zone of influence' to scope in all of the relevant water-dependent designated sites. The study will need to consider site Conservation Objectives, Site Improvement Plans (SIPS) and Supplementary Advice Packages (SAPs) and reference to Natural England's SSSI Impact Risk Zones which are available via this link.

We are aware from discussion with the Environment Agency that they can provide useful information including data to indicate what healthy abstraction would look like.

We recommend reference to South Staffordshire Waters Cambridge Region Drought Management Plan 2018 and emerging revised Drought Plan.

Other useful references include the recent Water Resources East (WRE) publication which contextualises the longer-term supply of water to the region. It doesn't address the existing pressures or the short-term other than WRE's actions on pilot projects to look for better, greener, more efficient and sustainable multi-sector use of water: https://wre.org.uk/wp-content/uploads/2020/04/WRE-Initial-statement-of-resource-need-FINAL.pdf This document provides key timelines for delivery of the regional water resources plan (September 2023) however there are key interim dates that may provide data and environmental assessments that could feed into the greater Cambridge IWMS.

A key consideration for WRE is also the impact of the OxCam arc and there is a sub regional planning group which may be able to provide information into the water cycle study. The water resource model will be providing initial outputs in December 2020 and these may help provide an understanding of the potential deficits in the greater Cambridge area and any initial environmental concerns that could again feed into the greater Cambridge IWMS.

In terms of the water Regulators' Alliance for Progressing Infrastructure Development (RAPID) the south Lincolnshire Reservoir is the major infrastructure project in the East and it is hoped will be part of a wider future fenland adaptation strategy with benefits such as priority habitat restoration, net environmental gain, flood risk management, water supply. Studies are underway to determine a location

You should be aware that the Environment Agency, Anglian Water and Natural England have all signed up to the Joint Advice to the Local Planning Authorities: Optional Higher Water Efficiency standard for new housing (January 2019 updated February 2020). Where there is clear local need LPAs can set out Local Plan policies requiring new dwellings to meet the tighter Building Regulations optional requirement of 110l/person/ day. However, please note our advice above with regard to the stricter 80l/p/d efficiency measures.

Enhancement opportunities
We would expect the Study to identify opportunities for biodiversity enhancements in line with Defra 25 YEP & Cambridgeshire & Peterborough Combined Authority Doubling Nature objectives / related

Local Plan policy requirements. The Study should cross-reference the Biodiversity & Green Infrastructure Study also being prepared as an evidence document for the Local Plan – which should focus on the Cambridgeshire Biodiversity Partnership's Habitat Opportunity Mapping project.

Enhancement opportunities which contribute towards the delivery of the objectives of the Cambridgeshire Green Infrastructure Strategy for habitat enhancement and improved connectivity.

We understand that this is just the initial 'baseline evidence gathering' stage of the Study and expect that we will be consulted on the next phase in due course. We trust that information, comments and advice will be sought from all relevant stakeholders including the Cam Valley Forum.

Natural England's advice is that the findings and recommendation of the separate WCS and SFRA studies will be combined to present a fully integrated water management study which has considered the in-combination and cumulative effects of other relevant projects including Ox Cam. Natural England would expect this to demonstrate that Local Plan development will not contribute any further deterioration in water quantity / quality to water-dependent designated sites; at the very least this should ensure that delivery of any future options for dealing with existing problems will not be compromised.

Please ensure that you seek input from other key consultees including the Wildlife Trust and Cam Valley Forum.

Natural England will be pleased to review the draft IWMS documents in due course through our Discretionary Advice Service (DAS). Given the short consultation period we have had limited opportunity to liaise with colleagues and the Environment Agency. Consequently we may raise additional comments through later stages of consultation.

I hope the above comments are helpful. If you have any queries relating to the advice in this letter please contact me on 020 802 65894.

Yours sincerely

Janet Nuttall
Sustainable Land Use Adviser

Annex 1: Water-dependent statutorily designated sites potentially requiring consideration through the Greater Cambridge IWMS

Designated site	Current condition	Comments on risks and opportunities
Ouse Washes SSSI, SAC, SPA, Ramsar	Unfavourable No Change – mainly – some units are favourable or unfavourable recovering	Silt/sediment on the riverbed at Denver slows drainage of flood water and is the biggest cause of problematic flooding. The flows along the Ely Ouse are thought to help distribute the silt, but modelling hasn't been carried out. Effects of the reductions of summer and winter flows are likely to be different, but without modelling any reduction of flows should be considered potentially damaging. 1999 report monitoring investigation proposed (AMP3)
Chippenham Fen and Snailwell Poor's Fen SSSI, also designated as Chippenham Fen Ramsar, a component of Fenland SAC. Also NNR.	Favourable / Unfavourable Recovering	Over abstraction of the chalk aquifer, particularly from the borehole close to Newmarket, has been demonstrated to reduce upwellings from springs on and close to the site. Detailed information in the Review of Consents (EA). Mitigation through pumped water from the aquifer into the drainage system in dry years, but this changes the hydraulic functioning of the site (there are thought to be upwellings across the fen, and surface water won't achieve the same effect). Concerns about changes in water chemistry from pumped water deep in the aquifer. Abstraction from the aquifer needs to be reduced to have confidence in no effect on the site in the future. 1999 report suggests remedial action completed PWS; compensation borehole.
Wicken Fen SSSI & Ramsar, component of Fenland SAC. Also NNR.	Unfavourable Recovering / Favourable	The hydrology at Wicken Fen isn't well understood, but other than a few years recently when the groundwater levels has been high, summer water levels have been worryingly low, too low to support the interest features of the SAC, and a wind pump has been installed to take water from Monks Lode (which also originates in a spring near Exning). There are indications that Wicken Fen must be groundwater fed, but the mechanism for this isn't known. Wicken Fen doesn't lie within the influence of the Cambridge chalk aquifer (known partly because of the location, partly because of the chemistry of the water)
Dernford Fen SSSI	Unfavourable recovering	Ground water fed site with open fen and wet woodland habitats. The site is subject to monitoring by EA through the 'Restoring Sustainable Abstraction' (RSA) programme Current management under an Agri-environment scheme is excellent, but full recovery is dependent upon the maintenance of consistently suitable water levels. 1999 report states monitoring proposed

		(AMP3)
Fulbourn Fen SSSI	Favourable / Unfavourable Recovering	Historically this site was fed by springs which now run only in very wet years. Additionally deep drains surround the site and intercept any ground water flow. The site is subject to monitoring by EA through the 'Restoring Sustainable Abstraction' (RSA) programme and relies on water supplied via the Lodes Granta Groundwater Support Scheme. Following some modification to the way in which the support scheme water is delivered to the site, the WT are satisfied that the site is sufficiently wet. 1999 report suggests abstraction not significant issue – drainage.
Fowlmere Watercress Beds SSSI	Favourable / Unfavourable Recovering	Over abstraction of the aquifer means that springs across the site don't flow in dry years. Mitigation in the form of pumping from deeper in the aquifer, but in dry years this is insufficient to keep the site wet, or potentially impossible because the water drops below the accessible level. The large scrape/shallow lake on this site has dried completely in the last 2 years or so causing problems. This has not happened regularly in the past. 1999 report states monitoring proposed (AMP3)
Sawston Hall Meadows SSSI	Unfavourable Recovering	A ground water fed site subject to monitoring by EA through the 'Restoring Sustainable Abstraction' (RSA) programme. During botanical monitoring of the site in Aug 2015 and July 2018 the whole site was drier than expected with no dampness in the ditches. In 2015 Saw sedge (*Cladium mariscus*) was seen where it had been seen in the past (in the ditch between Middle and Parsley Meadows), but it was not found anywhere on the site in 2018. 1999 report monitoring investigation proposed (AMP3)
Thriplow Peat Holes	Unfavourable Recovering	A SSSI with spring-fed habitats and wet woodland, subject to monitoring by EA through the 'Restoring Sustainable Abstraction' (RSA) programme. Water supply is at risk from fully licenced abstraction during drought summers. The ground water supply is supported as required by water discharged into the Hoffer Brook. 1999 report suggests remedial action completed – PWS; compensation borehole
Whittlesford to Thriplow Hummocky Fields SSSI	Favourable / Unfavourable Declining	This site in notified for the plant grass-poly (*Lythrum hyssopifolia*) and the crustacean fairy shrimp (*Chirocephalus diaphanus*) which are found in pingos (hollows or dips formed by glacial action) found in these arable fields.

		Grass-poly needs the hollows to be flooded in winter and spring and the shrimp requires occasional flooding in summer. The site is subject to monitoring by EA through the 'Restoring Sustainable Abstraction' (RSA) programme. Fully licenced abstraction can risk the hollows not being water-filled at the appropriate time of year. Monitoring for grass-poly in August 2019 showed that only one of the 8 hollows on the site had any grass-poly and even here there were few specimens. The requirement is that the total population of grass-poly should exceed 1000 individuals at least once every 6 years. 1999 report suggests not significantly impacted by abstraction – drought; drainage
Wilbraham Fen SSSI	Favourable / Unfavourable Recovering / Unfavourable Declining	Water supply to this site partly from the upward flow of ground water from the chalk and partly from the adjacent Little Wilbraham River. It is subject to monitoring by EA through the 'Restoring Sustainable Abstraction' (RSA) programme. Since 1991 the flow in the Little Wilbraham River has been supported under the Lodes Granta Groundwater Support Scheme upstream of the SSSI. Monitoring in August 2011 showed the site to be very dry with some quite deep ditches completely dry and water seen only approx. 2m below ground level. 1999 report suggests abstraction not significant issue
Alder Carr	Unfavourable No Change	This site is mostly ground water fed with a network of low-lying springs and channels across the site. Some surface water flows onto the site from the adjacent arable field. It is subject to monitoring by EA through the 'Restoring Sustainable Abstraction' (RSA) programme. The site is in an area subject to abstraction for the public water supply and also through a licence held by a local farmer. Monitoring over more than 10 years has noted the spread of sycamore and common nettle suggesting that the site is drying out. However dipwell data from the EA suggested that abstraction was not causing damage to the notified flora. It is possible that modification to a ditch on the edge of the site may help to retain water on the site in dry years 1999 report suggests not significantly affected by abstraction but evaporation from carr woodland.
Thriplow Meadows	Favourable	Ground water fed wet meadows subject to monitoring by EA through the 'Restoring Sustainable Abstraction' (RSA) programme and at risk from over abstraction. Supported by water pumped into the adjacent watercourse and dams to hold the water up. Managed under a Agri-environment scheme and plants monitored by the Wildlife Trust

		1999 report suggests remedial action specified - PWS
L-moor Shepreth	Unfavourable Recovering	Ground water fed wet meadows subject to monitoring by EA through the 'Restoring Sustainable Abstraction' (RSA) programme. WT reserve 1999 report suggests abstraction not significant issue – fractured water main repaired.
Cam Washes SSSI	Favourable / Unfavourable No Change	NE site officer currently unavailable. We believe this site is only affected by surface water, in which case any reduction of flows along the Cam could have an effect.
Upware North Pit SSSI	Unfavourable Recovering	NE site officer currently unavailable but the 1996 WLMP suggests that there is greater reliance on groundwater than surface water, although there is a connection to the Cam, and an indication that the area is considered over abstracted for both ground and surface water. Site important for water germander, but limited info on current status of this.
Stow-cum-Quy Fen SSSI	Unfavourable Recovering	NE site officer currently unavailable but the only water dependent features seem to be the drains and pond. Is this linked to the River Cam? Potentially lower risk if GW is not an issue for this site.
Snailwell Meadows SSSI	Unfavourable Recovering	NE site officer currently unavailable. The site is part spring-fed (chalk aquifer) damp grassland. We believe that this site is as affected by over abstraction as Chippenham Fen. There's dipwell data on NE TRIM files dating back to 1987 but nothing more recent. The site is important for having the only other extant population of Selinum carvifolia in addition to Chippenham Fen. It has hugely decreased over the last 20-30 years, but management hasn't always been ideal.
Soham Wet Horse Fen SSSI	Mainly Unfavourable Recovering	NE site officer currently unavailable. Originally groundwater dependent, but water control structures were installed in the '80s/'90s to try and restore water levels through holding back surface water. It was part of the AMP4 process in 2005, but unable to find in files. From the obvious changes in hydrology it must be affected by over abstraction of the aquifer – but not necessarily from Anglian Water boreholes, so may not have been taken any further under the AMP4 process. 1999 report monitoring investigation proposed.
Given the extent of the aquifer there may be additional sites, including in Norfolk and Suffolk.		