Stodmarsh and Nutrients - Frequently asked questions – to accompany Natural England's Nutrient Neutral Methodology Advice for Local Planning Authorities for Stodmarsh November 2020

Nesting Bittern

How to use this FAQ Document

This document must be read in conjunction with the October version of the Nutrient Neutral Methodology. The Frequently Asked Questions are to supplement the published methodology document only.

Each question is summarised in the table below with the location of information in the methodology related to this question. Clicking on the FAQ question in the table takes you to the answer in this document.

Frequently Asked Question	Location In methodology
Where does the methodology apply?	Section 4.7 Figure 1, Table A1.1 & 1.2 Appendix 1
What type of development does the methodology apply to?	Section 4.9- 4.12
What WwTWs are included in the methodology?	Figure 1, Table A1.2 Appendix 1
How do I find out the permit values for the WwTW?	Table A1.2 Appendix 1
Can I rely on the 2024 permit values shown in Table A1.2 for my calculations?	Not explicitly covered in the methodology. 2024 permit values are given in Table A1.2.
Why is the Nitrogen discounting value (of 2 mg/l) used in the Solent methodology not applied to the Stodmarsh methodology?	Section 5.23 to 5.27
How do I apply the methodology if my development is not within Figure 1 but discharges to a WwTW that is in Appendix 1?	Figure 1, Appendix 1, Table A1.2, Flow chart
Is Stodmarsh hydrologically connected to the Stour?	Appendix 3.9
Why are water use restrictions only acceptable as mitigation in some cases?	Sections 5.7 to 5.22
Can I offset nutrients with mitigation in a different catchment?	Section 6
What is the difference between offsetting and interceptor wetlands?	Section 6.2. Information on wetland mitigation Appendix 7
Can I use package treatment plants as mitigation?	Section of 5.51 and 5.55 of the methodology
What is the WINEP investigation?	See Appendix 3.9

FREQUENTLY ASKED QUESTIONS – STODMARSH NN METHODLOGY

Where does the methodology apply?

The methodology (at least in part) applies to all developments that generate overnight stays (such as housing) that are within, or partly within, or discharge wastewater within the boundaries shown in figure 1.

Stages 1 and 4 (see flow chart) apply to all housing whose wastewater goes to treatment works that discharge into the Stodmarsh catchment shown on figure 1. A list of these existing water company Wastewater Treatment Works (WwTW) works is given in appendix 1, Table A1.1 & 1.2 of the full methodology. Stages 2 and 3 of the methodology apply to all development generating overnight stays whose boundary is within or partially within the area mapped on figure 1.

Developments outside of the boundary shown in figure 1 but discharge to a WwTW in the boundary are included in the methodology but only apply to stages 1 and 4 as the land use change does not drain to the Stodmarsh catchment and cannot be used to offset the development's nutrients from WwTW discharges.

If part of the development land is within the catchment boundary and part is outside, then only the area of the land within the Figure 1 boundary is included within stages 2 and 3 calculations. In such cases it may be that all the development wastewater goes to the same wastewater treatment works. If the works to which the development is proposed to drain discharges into the Stodmarsh boundary then all of the development will be in stages 1 and 4 even though only the part within the boundary is included within stages 2 and 3.

What type of development does the advice apply to?

This advice within the provided methodology is for all types of development that would result in a net increase in population served by a wastewater system, including new homes, student accommodation, tourist attractions and tourist accommodation. This development will have inevitable wastewater implications.

Other commercial development, not involving overnight accommodation will generally not be included unless it has other (none sewerage) water quality implications. It is assumed that anyone living in the catchment also works and uses facilities in the catchment, and therefore wastewater generated by that person can be calculated using the population increase from new homes and other accommodation. This removes the potential for double counting of human wastewater arising from different planning uses.

Tourist attractions and tourist accommodation are exceptions, as these land uses attract people into the catchment and generate additional wastewater and consequential nutrient loading on the Stodmarsh designated sites. This includes self-service and serviced tourist accommodation such as hotels, guest houses, bed and breakfasts, self-catering holiday chalets and static caravan sites. Other applications will be considered on their individual merits, for example conference facilities that generate overnight stays.

FREQUENTLY ASKED QUESTIONS – STODMARSH NN METHODLOGY

There may be cases where planning applications for new commercial or industrial development such as waste management facilities, road schemes or changes in agricultural practices could result in the release of additional nitrogen and/ or phosphorus into the system. In these situations, a case-by-case approach will be adopted. Early discussions with Natural England via our chargeable Discretionary Advice Service (DAS) are recommended.

How can I find out the permit limits of the Wastewater Treatment works?

A list of Southern Water's existing WwTW that discharge within the boundary shown in Figure 1 is given in Table A1.2 of the methodology. This includes the current limit but also future limits that have been agreed for the Water Framework Directive investigation for delivery by 2024. Developers can use these 2024 future limit values for their calculation provided the permissions are issued with a Grampian-style condition that links first occupancy to the implementation of these secured upgrades.

What is the hydrological connection to the main river and the WwTW?

Hersden lake is fully connect to the river. The other lakes have limited or unknown connection to the main river apart from the NNR lake which was historically connected to the main river but in 2017/18 Natural England working with others in an attempt to reduce the water quality challenges in the NNR by attempting to manage the connection to the nature reserve pool. The WINEP investigation will take account of the need to reconnect some of the lakes more closely to the main river Stour in future to ensure sufficient water for the wildlife of Stodmarsh in the face of climate change and in light of recent experience of NNR staff of insufficient water for the conservation management of the site in the hot, dry summer of 2018. The primary objective of the WINEP investigation is to assess what improvements are required (if any) to the water company assets needed to enable the achievement of the agreed lake standards.

What is the WINEP investigation?

The wastewater treatment works (WwTW) that enter into the catchment of Stodmarsh are the subject of an investigation under the Water Industry National Environment Programme (WINEP) which will determine the extent of the connection of WwTW and sewerage assets to the Stodmarsh lakes and to what extent the existing WwTW discharges and other company assets are contributing to the existing water quality failures and risk of failures. The investigation will take account of the need to reconnect some of the lakes more closely to the main river Stour in future to ensure sufficient water for the designated sites in the face of climate change and in light of recent experience of NNR staff of insufficient water for the conservation management of the site in the hot, dry summer of 2018. The primary objective of the WINEP investigation is to assess what improvements are required (if any) to the water company assets needed to enable the achievement of the agreed lake standards.

FREQUENTLY ASKED QUESTIONS – STODMARSH NN METHODLOGY

Why is the Nitrogen discounting value (of 2mg/l) used in the Solent methodology not applied to the Stodmarsh methodology?

In the nutrient neutral methodology for Solent sites a discount is made for an amount of N that would be present in the groundwater and river water if they were in a more natural condition and an amount considered at this stage to be likely to meet the restoration objectives for the Solent international sites. In part this is due to the absence of numeric targets for nutrients for the Solent and in part it is due to likelihood that a proportion of the nitrogen in a groundwater catchment would eventually reach the sea.

The acceptable load of nitrogen and phosphorous levels in the Stour catchment are taken into account in the numeric nutrient standards for the lakes in line with the water quality targets agreed with Environment Agency in 2017 and 2019 for Hersden Lake. The WINEP investigation will calculate values of N and P in the Stour that are acceptable in the determination of the existing treatment works effects on Stodmarsh designated sites. For these reasons Natural England do not consider it is appropriate to discount groundwater background values from the Stodmarsh nutrient neutral calculations.

How do I apply the methodology if my development is not within Figure 1 but discharges to a WwTW that is in Appendix 1?

In this case your development will not have surface water impacts on the Stodmarsh sites resulting from changes in land uses. Therefore as shown in the Nutrient Assessment Methodology – Decision Tree (Figure 2) Stages 2 & 3 can be bypassed in the methodology. As such you're only required to: calculate the developments' total nutrients that would be discharged (via treatment works) into Stour catchment, calculate overall change in total nutrients as a result of the proposed development and then determine if the proposal is nutrient neutral.

Why are water use restrictions only acceptable as Mitigation in some cases?

As explained in paragraphs 5.17 to 5.22 implementing water use restrictions in existing dwellings as a potential mitigation option is only appropriate where these dwellings connect to a WwTW with a Total Nitrogen (**TN**) and/or Total Phosphorous (**TP**) **permit** limit which is operating **without headroom**.

For these WwTWs - with TN and/or TP consents where operation is at the permit concentration or close to it (i.e. 90% of the permit values) - there is a direct relationship between TN/TP and water use. For example, for WwTWs with a permit of 9mg/l TN and 2mg/l TP, it can be calculated that for each litre of water that passes through the works, 8.1mg of nitrogen and 1.8mg phosphorous (90% of permit values) could be discharged.

If a household uses 150 litres, this equates to 1215mg/TN and 270mg of TP; if water use is reduced to 100 litres this equates to release of 810 mg of the TN and 180mg of TP. As there is this clear relationship it is therefore possible to calculate the effect of applying water

efficiency measures to **existing development** and therefore this can be considered as potential mitigation in these circumstances.

For works with TN and/or TP permits that do not operate at permit headroom (considerably below 90% of permit limits) it is likely that where the influent concentration increases, then there could be an increase in the concentration of the WwTW effluent.

As such applying water efficiency measures to existing properties that discharge to works with permit headroom has uncertain or potentially no mitigating/ offsetting benefit for new development, because increasing water efficiency will also increase the concentration of TN and TP.

For works without a TN and/or TP limit applying water efficiency measures to existing properties that discharge to works with permit headroom will also have uncertain or potentially no mitigating / offsetting benefit for new development, because increasing water efficiency could also increase the concentration of TN and TP in effluent water.

Can I offset nutrients with mitigation in a different catchment?

Nutrient offsetting as mitigation, such as the measures described in section 6 and appendixes 5 & 6 should ideally be delivered in the **same operational catchment** where the relevant works your development connects to discharges. However, upstream mitigation in both upstream catchments can be interchangeable.

As such in line with Figure 1 offsetting mitigation can be delivered in the Lower Stour catchment for development discharging in the Upper Stour catchment (and vice-versa).

What is the difference between offsetting and interceptor wetlands?

As outlined in section 6 and appendix 7 offsetting is the practice of delivering mitigation for a proposal's increased nutrients by permanently changing existing land to another type of land use with a lower nutrient leaching value, thereby reducing the total nutrients entering the Stour; offsetting is often achieved by taking arable land permanently out of production.

Interceptor wetlands, however, are wetlands created downstream of a nutrient source such as a treatment works but upstream of a sensitive site such as Stodmarsh; if interceptor wetlands receive nutrient-rich water they can remove a proportion of TN and/or TP through natural processes. Appendix 7 details various aspects of interceptor wetlands, however it is vital to note is that Environment Agency advice should always be sought in design of any wetland creation scheme, nutrient removal efficacy of a wetland is dependent on various factors and as such will require specialist design.

Can I use Package Treatment Plants (PTP) as mitigation?

As set out in Section 5.18 and 5.51 water companies often use chemical dosing to achieve permit limits on nutrients in particular phosphorus. They can dose the measured influent concentration to achieve permit compliance, therefore when influent becomes less concentrated they can reduce the chemical dosing. For this reason, mitigation that reduces the influent concentration at a works (such as an intervening package plant before sending to mains WwTW) does not have a guaranteed nutrient reduction in the corresponding effluent discharged and therefore is not certain as a mitigation measure.

Further advice from the Environmental Agency on the use of PTP may be found at - https://www.gov.uk/guidance/discharges-to-surface-water-and-groundwater-environmental-permits. Additional guidance may also be available via local planning authorities. The advice provided in section 5.51 to 5.55 is only provided in relation to nutrient neutrality and is provided on the basis that the developer and/or planning authority have ensured that the Environment Agency is satisfied that a PTP is appropriate for the proposed development.

Figure 1

Note developments outside of these boundaries may drain to Wastewater Treatment Works inside these boundaries.

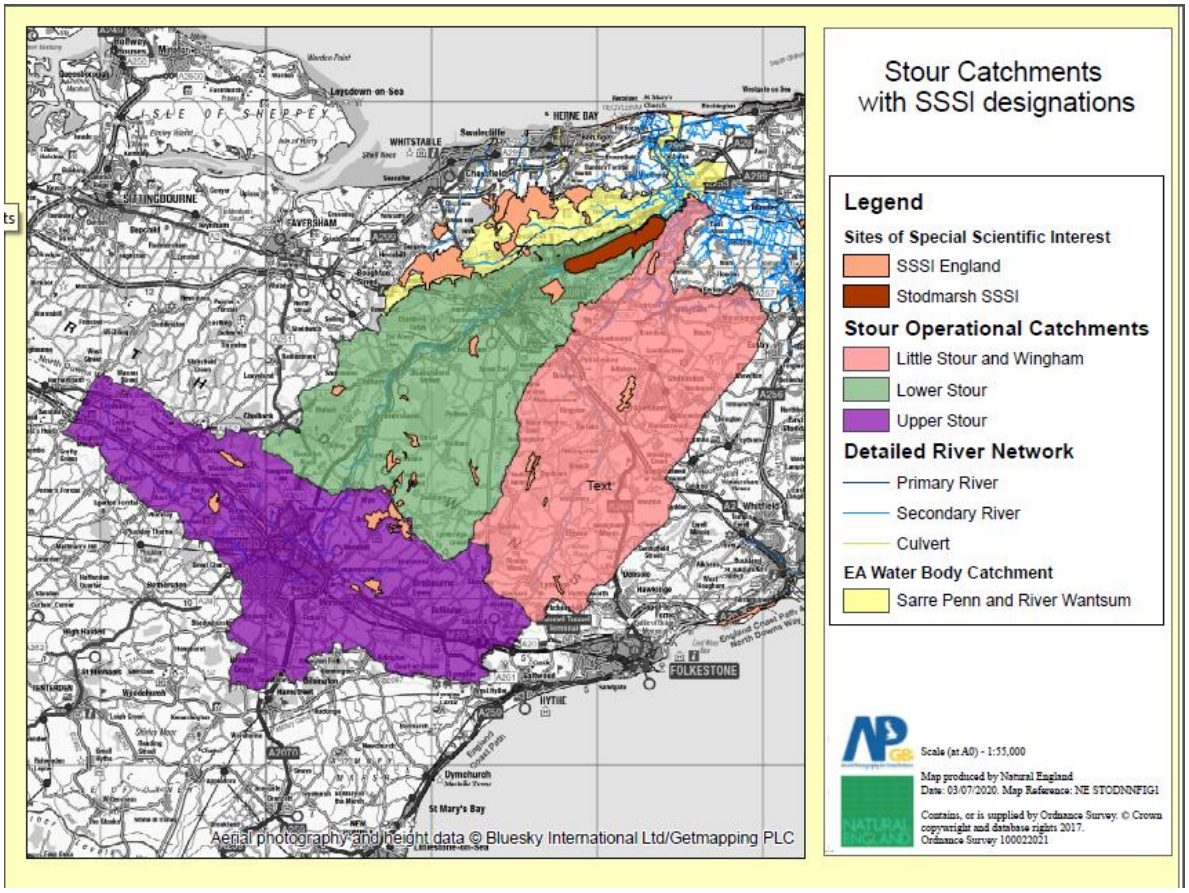

Figure 2 - Nutrient Assessment methodology – Flow Chart