Herefordshire Council

Agricultural development Supplementary Planning Guidance November 2022

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About the Public Consultation

This draft SPD is published for public consultation. The consultation period will run between 28 November 2022 and 23 January 2023. We welcome your views on the document during this time.

The public consultation will be carried out in accordance with the Council's Statement of Community Involvement.

The document does not introduce new policy but is designed to provide supplementary guidance on the adopted Herefordshire Local Plan - Core Strategy. When adopted, it will be a material consideration in the determination of planning applications.

All feedback during the consultation will be considered, before the final draft is put forward for formal adoption by the council.

Following public consultation the SPD will be revised as appropriate and be subject to screening assessments for Strategic Environmental Assessment (SEA) and Habitats Regulation Assessment.

For more information on how you can take part in the consultation, please click here

Introduction

1.1 Herefordshire is a predominately rural county and therefore agriculture plays an important part in the county contributing to its landscape, ecology and economy. It accounts for almost 10% of employment and gross domestic product and has some of the most productive agricultural land in the country. Therefore the county's agricultural sector has an important role to play in contributing to national food supply and security.

1.2 The council's planning department deals with many applications for agricultural development, some of which are complex and involve consideration of issues that can potentially impact on both the environment and local amenity. This means determining planning applications for some types of agricultural development can be complex requiring a large amount of supporting information to be submitted in order for the application to be determined.

1.3 This SPD seeks to identify the various issues and consider how they can be addressed as part of the planning application process. The issues raised will vary according to the type and location of the proposed development.

1.4 When a planning application is assessed there are a number of issues that need to be considered in relation to the impact on the environment. Of these there are two areas that are particularly of concern in relation to the impact of farming on protected sites.

1.5 Firstly, the relationship between some agricultural developments and the impacts these can have on the River Wye and River Clun Special Areas of Conservation which have significantly declined in quality over recent years. The River Wye Special Area of Conservation (SAC) is under significant threat from phosphorus entering the river system, with the River Lugg sub catchment exceeding its limits and with the River Wye at risk of doing so. A relatively small part art of the River Clun catchment is located in the northern part of the county and recent water quality monitoring shows nutrient concentrations of nitrogen and phosphates within the River Clun SAC to be exceeding the favourable condition limits.

1.6 Secondly the agricultural sector can result in ammonia pollution and nitrogen deposition arising from livestock housing, slurry storage, and application of fertiliser and spreading of manure. Airborne ammonia can travel significant distances and deposits as Nitrogen. This can have a negative effect on some species by fertilising other species which then 'out compete' more sensitive flora. It can also have a particular impact on ancient woodland with the Woodland Trust State of the UK's Woods and Trees Report 2021 found that between 70 and 80% of broadleaved woodland habitat area across the UK exceeds the critical levels of ammonia.

1.7 The Herefordshire Core Strategy 2015 and emerging Minerals and Waste Local Plan include a number of relevant policies that are used when determining planning applications relating to agriculture as outlined in section 2. However given the increasing complexity and scale of some applications, together with the decline in the quality of the River Wye, a decision was taken to provide additional guidance on these issues in the form of supplementary planning guidance.

1.8 Therefore this guidance identifies the planning policy issues that can be associated with proposals for agricultural development. It also sets out the requirements such proposals will be expected to address. Because there is a variety of types of development of

agriculture and they can have varying impacts, it is not possible to be identify all of these in detail in this SPD. In seeking to help address the issues identified above, the SPD provides a methodology for assessing the potential phosphate loading of a proposed new agricultural development for which planning permission is sought. It also provides an update on the latest approaches to the measuring of ammonia. The aim of the SPD is to work towards a higher quality of development in the county and to strive towards betterment of the County' river system.

1.19 This SPD, when adopted by the council will be a material consideration in making planning decisions regarding agricultural development. Proposals for farming related residential housing are not covered by this SPD but will continue to be subject to the policies of the Core Strategy. Additionally those housing developments with pathways into the River Wye and River Clun SACs, should follow the guidance in the Council's Interim Phosphate Plan and use the Nutrient Budget calculator as appropriate.

1.10 In summary, the purpose of the SPD is to:

a) Outline the issues that may arise in relation to agricultural development and what assessments / supporting information may be required to support the planning application. This applies across the county.

b) **Provide a methodology to determine the phosphate loading of a proposed development to inform the determination of planning applications within the River Wye Catchment.**

1.11 The SPD expands on the relevant Core Strategy policies but it does not introduce additional policies to those in the adopted core strategy. It will help potential developers prepare their planning applications. It also provides useful information to council officers, local residents and other interested parties, about how we expect planning considerations to be addressed within applications. This SPD does not cover issues associated with the development of polytunnels. The Council published a planning advice guide on polytunnels in 2018 and this remains the guide for potential developers preparing planning applications for polytunnels in Herefordshire.

1.12 The principles of the SPD applies to all agricultural development that requires planning permission. The National Planning Portal provides information about whether planning permission is required and if so what type. Some projects are considered to be 'permitted development' and there is no requirement to secure planning permission from the local authority. However, in all cases a 'prior approval' application to the local planning authority is required to confirm whether this is the case. This SPD will not apply to the prior approval process as this confirms whether planning permission is required or not. Any proposal that is refused prior approval will require planning permission which will then be subject to the requirements of the SPD. If you want to be certain that the existing use of a building is lawful for planning purposes or that your proposal does not require planning permission, you can apply for a Lawful Development Certificate.

1.13 Herefordshire Council offers a pre-planning professional advice service where a planning application or prior notification is required. A planning officer will advise on all aspects of the planning process relevant to your application including whether the proposal is likely to gain planning permission.

1.14 It should be recognised that the planning system does not have any control or management of day to day farming operations. There are regulatory systems and various national and local initiatives which allow farmers to adopt good practice into their operations. These include projects such as Catchment Sensitive Farming, Schemes, work by Farm Herefordshire, Herefordshire Wildlife Trust and the Wye and Usk Foundation. The Farming Advice Service (FAS) is a service funded by the Department for Environment, Food and Rural Affairs (Defra) to help farms understand and meet the requirements of Cross Compliance, Greening (the Basic Payments Scheme) and the European Directives on both water protection and sustainable pesticide use. The FAS website hosts a number of technical articles and webinars, covering a range of useful topics.

1.15 The issues that this SPD addresses, and the approach to these issues, may require updating as further guidance on these areas is published. Any required changes to the SPD will be approved, as and when appropriate, under the Council's Scheme of Delegation decision making process.

2.0 Local Policy Background

2. 1 When planning applications are submitted to the local planning authority they must be determined in accordance with the local development plan, unless material considerations indicate otherwise. In Herefordshire the overarching development plan is the Herefordshire Local Plan Core Strategy 2011 – 2031 (adopted in October 2015).

2.2 Town and parish councils can prepare Neighbourhood Development Plans (NDPs) for their areas. These allow the local community to create a vision and planning policies for the use and development of land in an area, so long as these are in accordance with the Herefordshire Core Strategy. These can be general or more detailed, depending on what is important to local people. Once adopted, they are used in the determination of any planning applications that fall within their designated neighbourhood development area. Over 80 NDPs have been 'made' or adopted in the County and several of these have specific policies on agricultural development. Therefore applicants and agents should check their local NDP for any policies that are relevant to their planning application.

2.3 Applications for agricultural development will continue to be considered against the relevant policies of the Core Strategy and the emerging Minerals and Waste Local Plan the following table sets out the relevant policies of these documents. Core Strategy and the Minerals and Waste local plan.

Key Core Strategy policies	**Issues addressed through policies**
SS1 Presumption in favour of sustainable development	• Positive approach to sustainable • Proactive engagement to secure development will improve social, economic & environmental conditions • Where there are no specifically relevant polices, decisions will take into account: whether the adverse impacts of granting permission would outweigh the benefits when assessed against national policy; and whether specific elements of national policy indicate that development should be restricted

Key Core Strategy policies	Issues addressed through policies
SS2 employment provision	• Support for continued development of farming, food and drink sectors • Diversification of the county's business base where there is no adverse impact on the community or local environment
Policy SS5	• Supports the continuing development of the more traditional employment sectors such as farming and food and drink manufacturing. • Supports affordable, local food production, processing and farming to reduce the county's contribution to food miles
SS6 environmental quality and local distinctiveness	• Conservation and enhancement of environmental assets • Maintain and improve effectiveness of important ecosystems • Development should demonstrate an integrated approach to planning and environmental considerations • Management plans and local conservation objectives relating to internationally and nationally important areas will be material considerations • Local assessments, other DPDs, NDPs and SPDs should inform decisions
SS7 addressing climate change	• Proposals to include measures which mitigate their impact on climate change
RA6 rural economy	• Employment generating proposals which diversify the rural economy will be supported • Planning applications will only be permitted where they are of an appropriate scale, do not cause unacceptable effects impacts, and do not undermine the achievement of water quality targets on nearby residents, do not generate unacceptable traffic
MT1 traffic management, highway safety and promoting transportation active travel	• Development proposals should incorporate a number of specified principle requirements covering movement and transportation
E1 Employment provision	• Employment proposals will be encouraged where they: are appropriate in connectivity, scale, design and size; make better use of brownfield land; are appropriate extensions to existing businesses
LD1 landscape and townscape	• Sets out criteria surrounding conservation, restoration and enhancement of landscape and townscape when considering development proposals
LD2 biodiversity and geodiversity	• Sets out how developments should conserve, restore and enhance the biodiversity and geodiversity assets of the county.
LD3 green infrastructure	• Development proposals should protect, manage and plan for the preservation of existing and delivery of new green infrastructure. Sets out objectives to be achieved.
LD4 historic environment and heritage assets	• Set out requirements for the protection, conservation and enhancement of heritage assets and their settings

Key Core Strategy policies	Issues addressed through policies
SD1 sustainable design and energy efficiency	• Development proposals should create safe, sustainable, well integrated environments for the community. A number of requirements are set out.
SD3 sustainable water management and water resources	Measures for sustainable water management will be required to be an integral element of new development
SD4 wastewater treatment and river water quality	Development should not undermine the achievement of water quality targets within the county.
Minerals and Waste Local Plan (Submitted to the Secretary of State for public examination 22 March 2022) Policy W3 Agricultural waste management And subject to a proposed modification to address comment raised in the representation to clarify the policy/	Recognises the importance that the agricultural sector can make to achieving nutrient neutrality. It recognises the role that anaerobic digestion can play in managing natural agricultural wastes and effectively reducing the amount of raw manure that is deposited on farmland. By requiring the implementation of best practice for water protection and waste management the amount of nutrients and pollutants released to waterbodies should be reduced. It also requires a waste management method statement to be submitted with all to be submitted with all applications for livestock unit(s) on agricultural holdings and sets out what this should include. Main Modification: All development proposals will be required to demonstrate at least nutrient neutrality within the River Wye SAC.
Polytunnels Planning Advice Guide	Guide for potential developers preparing planning applications for polytunnels in Herefordshire. Given the continued increase in the use of polytunnels for agricultural soft fruit production in the county, this planning guide will help potential developers prepare their planning applications. It also provides useful information to council officers, local residents and other interested parties, about how we expect planning considerations to be addressed within applications.

2.4 Herefordshire Council declared a climate change emergency on 8 March 2019. Following this in September 2019, Herefordshire Council committed to take a major step to minimise detrimental impact on the environment by agreeing to:

- Accelerate a reduction of emissions and aspire to become carbon neutral by 2030/31.
- Deliver an updated carbon management plan and associated action plan for council emissions by April 2020.
- Work with strategic partners, residents and local organisations to develop a revised countywide carbon dioxide reduction strategy aspiring for carbon neutrality by 2030.
- Use 100% renewably sourced energy where this provides the best carbon reduction return on investment.

2.5 At the meeting of the Council on 11 December 2020, the 'climate emergency' declared in March 2019, was strengthened by declaring a Climate and Ecological Emergency. Addressing the health of the Rivers Wye and Lugg is a key problem to be addressed as part of this emergency. Some farming practices can have implications for climate change

particularly in relation to releasing stored carbon, for example through ploughing but many of these are outside the remit of the planning system and are being addressed through various other initiatives as outlined in section 1. However Herefordshire Council has checklists for Climate Change Compliance and Biodiversity and Ecology Compliance. These checklists have been prepared in order for applicants to demonstrate to decision makers that the relevant policies have been complied with, in that sustainability measures have been incorporated in development proposals where possible. They should be submitted by the applicant as supporting evidence of compliance with the relevant policies of the Core strategy (mainly SS6, SS7 SD1, LD2 and LD3). In the event of non-compliance, sufficient justification would need to be provided as to why this is necessary.

2.6 A new Climate and Nature Partnership Board has been set up to coordinate action across the county to tackle climate change, with the vision of a zero-carbon Herefordshire by 2030. A number of evolving action plans on a range of topics, including farming and land use have been produced to identify and address key challenges.

Adult and Well-being Scrutiny committee Task and Finish Group

2.7 Herefordshire Adult and Well-being Scrutiny committee established a Task and Finish Group to consider the potential public health impacts of the intensive poultry industry. This group investigated the impacts of ammonia, nitrogen deposition, phosphates and particulate matter from intensive poultry on human health and considered what is known about the impact on rural health and living conditions as a result of intensive poultry units. To ensure the widest possible input, the group invited residents who feel that their health and wellbeing has been impacted, to share their evidence and experiences with the group. A report setting out findings and recommendations was presented to the Health, Care and Wellbeing scrutiny committee in July 2022.

3.0 Issues and Assessments

3.1.1 This section sets out the issues that may arise and how they should be evaluated as part of the planning permission process. The list is not exhaustive, but outlines the key planning issues that most frequently arise. These will obviously vary according to the type of planning proposal that is applied for and will vary depending on the scale and location of the development.

3.1.2 The Council recognises that planning applications are often submitted to the local planning authority that seek to improve a particular situation and these are welcomed by the Council. It also recognises that new technologies and approaches develop on an ongoing basis to address and ameliorate particular issues. However sometimes the proposed measure could have its own impacts and therefore careful consideration needs to be given to all the potential impacts that may arise from a development.

3.1.3 Herefordshire Council offers a pre-planning advice service which provides an opportunity for discussions to take place with a development management officer prior to submission to ascertain what additional documentation may be deemed necessary. Applications for planning may fail due to lack of sufficient evidence. Details about what needs to be provided with a planning application to ensure it can be validated can be found on the Council's website.

3.1.4 New development may require an overall design concept to be submitted which is based on survey and analysis data to explain the detailed design of the scheme. This will assist in assessing the application against the primary objectives and policies set out in the Core

Strategy and relevant Neighbourhood Development Plans. A design and access statement would typically include the following:

- Design principles and design concept;
- Justification for the layout, scale, visual appearance and landscape;
- Relationship of the design to the site and wider area, including how the impacts on the environment have been minimised; and
- A summary of the above where this would be of value in public consultation

3.1.5 This design and access statement provides an overview of the planning proposal. However further detailed assessments on particular issues as described below may be required to demonstrate the potential impacts on various issues.

3.2 Habitats Regulation process

3.2.1 A Habitats Regulations Assessment (HRA) may be required as part of the application process to determine whether the proposal could have a likely significant effect on a Ramsar Site, Special Protection Areas and Special Areas of Conservation. These sites are included in the National Network of Sites. Although there are no Ramsar Sites or Special Protection Areas in Herefordshire, the Council has to consider the potential impacts on these in other administrative areas as appropriate. An HRA refers to the several distinct stages of Assessment which must be undertaken in accordance with the Conservation of Habitats and Species Regulations 2017 as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and the Conservation of Offshore Marine Habitats and Species Regulations 2017 to determine if a plan or project may affect the protected features of a European site before deciding whether to undertake, permit or authorise it. (The explanatory memorandum to the 2019 regulations states that current references to "European site", "European Marine Site", "Special Area of Conservation" and "Special Protection Area" are retained as there is no operability reason for these to change.) If a proposed plan or project is considered likely to have a significant effect on a protected site (either individually or in combination with other plans or projects) then an Appropriate Assessment of the implications for the site, in view of the site's conservation objectives, must be undertaken.

3.2.2 The first step in the Habitats Regulations Assessment is a screening process. The screening process identifies any potential effect pathways by which the proposal might impact upon the relevant designated sites. If any potential effect pathways are identified then the proposal is deemed to potentially have a 'Likely Significant Effect'.

3.2.3 Where there is a 'Likely Significant Effect' the council must carry out an 'Appropriate Assessment' in order to be able to determine, with scientific certainty, that there would be no' Adverse Effect' on the Integrity of the designated site, from the plan or project, either alone or in combination with other plans and projects. The council is bound by the outcomes of the HRA process and the views of Natural England in determining whether planning permission can be granted. If it cannot be proven that there would not be an adverse effect on integrity, then planning permission cannot be granted without further stringent consideration under the Habitats Regulations

3.2.4 Where an adverse effect on the site's integrity cannot be ruled out, a consideration of alternatives must be made, and where there are no available mitigation measures, the plan or project can only proceed if there are imperative reasons of over-riding public interest and if the necessary compensatory measures can be secured. This would be determined by the Secretary of State but is not a usual route to the granting of planning

permission. It should also be recognised that the condition of sites could change over time and this needs to be taken into account when considering the impact on sites within Herefordshire and elsewhere.

3..2.5 For applications in Herefordshire the relevant sites that form part of the new national network which may be potentially affected are all Special Areas of Conservation (SACs):

- River Wye SAC (incl. River Lugg up to Hampton Court Bridge)
- Wye Valley & Forest of Dean Bat SAC (Wigpool Iron Mines SSSI)
- River Clun SAC
- Wye Valley Woodlands SAC
- Downton Gorge SAC

3.2.6 However it is important that consideration is also given to the potential impact on sites outside Herefordshire, The location of protected sites in neighbouring authorities can be found using the MAGIC website managed by Natural England.

3.2.7 Each SAC has one or more component Sites of Special Scientific Interest (SSSIs). An assessment of any potential impacts to these component sites will also need to be assessed by the local planning authority. The location of these and assessment of Impact Risk Zones for the SSSIs can be found using the MAGIC website.

3.2.8 When carrying out an Appropriate Assessment, the council has a legal requirement to consult Natural England, the statutory nature conservation advisory body and to have regard to their advice.

3.2.9 The council will require sufficient detailed information to be provided by the applicant prior to planning permission being determined, in order to be able to make the assessment. This will sometimes include specialist technical reports. The council must be able to consider the effects of the new development on its own merit as well as considering how the proposals could affect European sites 'in combination' with other developments that could have a similar effect on the site and are not yet able to be assessed as part of the existing baseline as for example, they may be within the planning system or are consented but not yet built or operational.

3.2.10 Further information on the Habitats Regulation Assessment process can be found in the Government's Planning Practice Guidance section on Appropriate Assessment.

3.2.11 In the case where it is determined that planning permission is not required and prior approval is granted there still be may be a requirement for a Habitats Regulations Assessment. Regulation 75 of the of the Conservation of Habitats and Species Regulations 2017, as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 states " that it is a condition of any planning permission granted by a general development order made on or after 30th November 2017, that development which—

(a) is likely to have a significant effect on a European site (either alone or in combination with other plans or projects), and
(b) is not directly connected with or necessary to the management of the site,

must not be begun until the developer has received written notification of the approval of the local planning authority under regulation 77 (approval of local planning authority).

3.2.12 The applicant should therefore be satisfied before commencing works that the development will not have any likely effect on any European site. In addition, applicants are advised that they can, if they choose to, apply to Natural England as the appropriate Nature Conservation body, under Regulation 76 of Regulations (as amended) prior to making any necessary application to the Local Planning Authority under Regulation 77. Further information on this process and the information required to be submitted with a planning application is included in the Council's Guidance Note and Checklist for applicant/agents relating to HRA and planning applications.

3.3 Environmental Impact Assessment

3.3.1 Applications for major developments will be screened by the Council to determine whether a proposed project is likely to have significant effects on the environment and whether an Environmental Impact Assessment (EIA) is required. Schedule 1 and Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 set out the circumstances when an EIA will be required for agricultural related development. National Planning Practice Guidance states that an EIA will enable the local planning authority when determining a planning application to have full knowledge of the likely significant effects on the environment of the proposal and therefore it can take this into account in the decision making process. It also aims to ensure that the public are given early and effective opportunities to participate in the decision making procedures. There are five broad stages to EIA as follows:

- Screening
- Scoping
- Preparing an Environmental Statement
- Making a planning application and consultation
- Decision making

3.3.2 It should be noted that the Levelling Up and Regeneration Bill proposes to replace Environmental Impact Assessments (EIAs) and Strategic Environmental Assessments with new Environmental Outcomes Reports.

3.4 Phosphorus Levels in Rivers

3.4.1 The Herefordshire Core Strategy 2015 states that the water quality of Herefordshire's main rivers and their tributaries is of strategic importance and that unacceptable levels of nutrients along part of the rivers need to be addressed.

3.4.2 Most of Herefordshire is in the catchment of the River Wye and its waters are a measure of the health of the county's environment. In Herefordshire, the River Wye has a high level of protection under european law as a Special Area of Conservation (SAC) being one of the best examples of a natural watercourse in Europe and for its associated aquatic ecological interest. The SAC designated area includes the River Lugg sub catchment. A small part of the River Clun SAC is within the northern part of Herefordshire is failing for nitrates and suspended solids as well as Phosphorus.

3.4.3 Regular monitoring of nutrient levels in the river water quality has identified high levels of nutrients, particularly phosphorus, and sediment as a problem, with the River Lugg part of the River Wye SAC continuing to exceed its limits. Furthermore stretches of the Upper Wye continue to be at risk of failure. The high levels of phosphorus in the rivers is a significant issue for impacting on water quality and ecology. Furthermore water quality monitoring shows nutrient concentrations within the River Clun SAC to be exceeding the targets for Phosphorus and Nitrogen.

3.4.4 Following the 'Dutch Case', all new development is required to demonstrate 'nutrient neutrality' (no net additional losses of nutrient from the land holding and associated activities) through mitigation before it can be approved, to ensure that it would not contribute additional nutrient loads to a European site that is close to unfavourable condition or in an unfavourable condition due to nutrient pollution and to ensure that it is compliant with the 'Habitats Regulations'. This would be identified when a Habitats Regulations Assessment (HRA) is undertaken.

3.4.5 Phosphorus levels were identified as an issue during the preparation of the 2015 Herefordshire Core Strategy. There were concerns raised that the proposed levels of development set out in the Core Strategy would result in unacceptable additional amounts of phosphorus entering the River Wye catchment. In response to this a Nutrient Management Plan (NMP) was developed by the Environment Agency in partnership with Natural England and Herefordshire Council to support the Core Strategy policies that seek to protect the quality of the rivers in the county and also to address the impacts of practices not under the jurisdiction of the land use planning system.

3.4.6 A Nutrient Management Board oversees the implementation of the NMP. It includes representatives from a wide range of organisations including local authorities and statutory agencies. The ultimate aim of the NMP is to ensure that the River Wye SAC achieves and maintains favourable conditions with respect to phosphorus, taking into account proposed growth by predicting the impact of development on phosphorus levels within the SAC. Therefore, the Core Strategy was able to proceed to adoption in October 2015 on the basis of the ongoing development and implementation of the NMP and its strategic policies, particularly Policy SD4.

3.4.7 However since adoption, a judgment in the case of Cooperatie Mobilisation handed down in November 2018 by the Court of Justice of the European Union (Joined Cases C-293/17 and C-294/17) (known as the Dutch Case), has had implications for many parts of the country. The Dutch judgement deemed that where a site is failing its water quality objectives and is therefore classed as being in unfavourable condition, there is limited scope for the approval of planning applications that give rise to additional damaging effects. Furthermore, the future benefit of mitigation measures cannot be relied upon in an appropriate assessment, where those benefits are uncertain at the time of the assessment.

3.4.8 In Herefordshire, this has effectively resulted in restrictions on various types of development that could lead to an increase in the levels of phosphorus in the SAC. This has had the greatest impact on housing development, with restrictions in place in the Lugg Catchment which amounts to approximately 40% of the County's administrative area.

3.4.9 The Council in consultation with Natural England and legal advice, provides information on the council's webpages. Please note the webpages that include the above documents may be subject to further updates and it is recommended that they are checked for the latest information when considering these issues.

3.4.10 In order to address the levels of phosphorus and the resulting restrictions on housing development in particular, Herefordshire Council has produced Nutrient Neutrality budget calculators to enable applicants to demonstrate nutrient neutrality. The purpose of the calculators is to enable developers of residential development to proactively seek to demonstrate nutrient neutrality. This allows them to provide sufficient certainty to enable Herefordshire Council as competent authority to determine no likely significant effect to the SAC, through the HRA. A set of potential measures to offset the identified phosphorus load of projects and plans and an alternative potential methodology for costing the offsetting of phosphorus via Section 106 contributions is available. Herefordshire Council are currently working to develop a number of integrated constructed wetlands within the River Lugg catchment area. These wetlands will help to address both the existing water quality of the river and to deliver mitigation for phosphate from residential development. These initiatives have been developed as a council response to the issues faced and are outside of the planning policy process.

3.4.11 However these calculators do not cover agricultural development but it is recognised that diffuse pollution from some agricultural operations can also significantly increase phosphorus levels entering the river system. This can include different nutrients and sediment which can negatively impact on the river system. One of the objectives of this SPD is to help reduce diffuse agricultural pollution that is associated with development that requires planning permission but with a particular focus on phosphorus as it is levels of this nutrient that are having a significant impact on the River Wye SAC. Therefore, the purpose of the **technical appendices** to this SPD is to complement the various steps that are being taken to address this serious issue by focusing on development on farms that is subject to planning control and that could potentially lead to increases in phosphorus in the catchments of the Rivers Wye, Lugg and Clun.

3.4.12 Policy SD4 of the Core Strategy essentially requires development to be nutrient neutral and therefore is line with Natural England's advice to prevent the situation from worsening. However, the Council is keen to encourage proposals which aim to achieve an improvement of the situation. This approach is in line with Policy LD2 of the Core Strategy which, amongst other things, requires development proposals to conserve, restore and enhance the biodiversity of Herefordshire.

3.4.13 Herefordshire Council has been unable to approve planning consent for new developments within the River Lugg Catchment area unless it is certain that the development will not lead to an increase in phosphate levels discharged into the river Lugg. Herefordshire Council must use the best scientific knowledge in the field and adopt a "precautionary" approach when considering developments to establish that there are no adverse effects from the proposed development. Therefore the technical appendices have been produced to be used for planning applications within the Lugg catchment. However, it is recognised that the River Wye is deemed to be at risk of failing and therefore it would be good practice for the methodology to be applied to development proposals in the whole River Wye catchment. Furthermore it can be applied to planning applications in any other part of the county to ensure that there is no adverse impact on any watercourses. This will help to safeguard the water quality throughout the county and beyond.

3..4.14 **The technical appendices of this document provide a mechanism, through the use of Farmscoper modelling, for applicants to assess and quantify the impacts of the proposal on phosphorus levels so that mitigation measures can be identified and provided with the application submissions. The Farmscoper system provides different options for mitigation depending on the local circumstances and potential**

impact. It should be noted that the term mitigation is used in this sense as it relates to Farmscoper guidance to be consistent. Farmscoper uses a series of predefined practices (agricultural practices systems/equipment or methods) which have a known positive impact on many emissions from farms. These include, for example, elements such as livestock housing, slurry covers, and nutrient application practices.

All planning applications for agricultural development in the River Wye Catchment are required to complete the Farmscoper tool or other suitable assessment process agreed with the local planning authority to demonstrate the phosphorus loading of their development.

This should be carried out or verified by a suitably qualified person or company.

Planning permission will not be granted if Phosphorus neutrality cannot be demonstrated.

If the development will not generate any additional phosphorus loading then the applicant should provide a statement confirming this to be the case.

3.4.15 Farmers are required to operate within various regulations that are outside the remit of the local authority's control. It is not for the Council to determine whether a farm is operating on a legally compliant basis or not as part of the planning application process. The Reduction and Pre Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018 is particularly relevant to this SPD. The 2018 regulations are explained in the policy document 'Farming Rules for Water' . These rules require good farming practice, so that farmers manage their land both to avoid water pollution and to benefit their business. Concern has been expressed that if farms are not legally compliant in terms of this legislation, then applications for further development on these farms should not be accepted for determination by the council as the local planning authority. However the Council recognises that sometimes development is necessary to achieve legal compliance. In these cases the applicant should make this clear and explain what steps are being taken to achieve compliance, establishing the legal baseline for the farm. If the proposed development would cause further damage to the environment through failure to comply with these regulations it is also likely that the development may therefore fail to meet the requirements of the Conservation of Species and Habitats Regulations 2017 as amended and therefore could be refused in any event due to there being insufficient scientific certainty of no likely significant effect.

3.4.16 A planning permission may be subject to a range of conditions including those securing the use of buildings, ensuring the provision of infrastructure and controlling livestock numbers. The use of appropriate planning conditions and other legal mechanisms to control development and to ensure that mitigation measures are secure is an integral part of providing the certainty required within the Habitats Regulations Assessment process.

3.4.17 Sediment Erosion and 'poaching' of the soil by livestock can contribute to increased sediment laden run off being washed off farmland and into the river system. This has implication for the rivers ecosystem as well as contributing to increased risk of flooding. This can be controlled through certain measures e.g. restricting livestock access to the river bank through fencing and using techniques such as sediment traps. The addition of sediment to the river system may be associated with agricultural processes that are

outside the planning system. However applications with increased livestock in proximity to the river will be expected to demonstrate that such measures have been considered and addressed. Many of the mitigation measures set out in technical appendices that help to reduce the release of phosphorus into the river system will also help to reduce the amount of sediment that is entering the system. The local hydrology and flood risk will be particularly relevant.

3.5 Ammonia and Nitrogen Deposition

3.5.1 There are high background levels of Ammonia in Herefordshire which affects both human health and the environment. Agriculture is the dominant source of ammonia emissions, arising from the storage and spreading of manures, slurries and fertilisers. Other sources include free range chicken ranging areas, intensive poultry units, livestock housing, and spreading of digestate etc. Losses occur when the material comes into contact with air. The more that this occurs, the more nitrogen is lost as ammonia. The deposition of nitrogen onto protected sites can impact upon their condition and therefore any activities which may increase the loading of nitrogen to a designated site must be assessed. Impacts upon european sites are covered under the Habitats Regulations Assessment process but impacts upon SSSIs, ancient woodlands, local wildlife sites and irreplaceable habitats must also be considered and are material considerations.

3.5.2 In particular, ammonia itself and the nitrogen deposition resulting from ammonia emissions can affecting the diversity of plant species where fast-growing species adapted to high nutrient availability out-compete species which are more sensitive, smaller or rarer. It can also lead to soil acidification, direct toxic damage to leaves and by altering the susceptibility of plants to frost, drought and pathogens. This can be particularly significant for ancient woodlands and rivers and watercourses which are being detrimentally impacted as a result of increasing concentrations of ammonia in the air and levels of nitrogen deposition.

3.5.3 Herefordshire Council as the statutory planning authority has responsibility for assessing the impacts of planning proposals on designated sites and as such has sought specialist advice on how to approach this issue in relation to planning applications. Defra, and the Joint Nature Conservancy Council (JNCC) have developed new approaches which will provide compliant technical assessment of developments with associated risk of ammonia impacts and further information on this will be included when available.

Reports / Assessments

3.5.4 Therefore at this stage any planning applications and the need for associated assessments will be dealt with on a case by case basis until the new approaches by Defra and the JNCC are finalised. The SPD will be updated as necessary to incorporate these new approaches when finalised.

3.5.5 However planning applications which are likely to result in aerial emissions of ammonia and deposition of nitrogen must be supported by an assessment of those impacts in relation to locally, nationally and internationally designated sites. For smaller scale applications it may be appropriate to use the SCAIL model which is freely available to use at http://www.scail.ceh.ac.uk/ . For larger applications in close proximity to designated

sites and applications for which SCAIL modelling shows significant process contributions. The application should provide detailed emissions modelling carried out by a specialist consultant.

3.5.6 The Woodland Trust has published practical guidance, Assessing air pollution impacts on ancient woodland – ammonia, which provides a decision making process for assessing ammonia air pollution on ancient woodland sites. This assessment process ensures that developments do not result in deterioration of ancient woodland habitats, and is designed to help local planning authorities in their decision making. This is therefore currently recommended as a useful tool for assessing ammonia impacts on ancient woodland.

3.5.7 Such assessments will need to be completed for extensions and / or changes to existing sites as well as new development. For existing sites, assessments should set out clearly current emissions, the proposed situation with no mitigation, and the proposed situation with mitigation measures included.

3.6 Biodiversity and Geodiversity

3.6.1 Biodiversity can be defined as the variety of sites, habitats and species within a specified locality and is influenced by factors such as geology, topography and climate. Geodiversity refers to the natural processes and variety of rock. Minerals, fossils, soils, landforms and natural processes that have shaped the landscape. It is important to ensure that proper consideration is given to biodiversity and geodiversity issues in addition to those related to nutrient impact when proposing any new schemes.

3.6.2 Herefordshire has also experienced biodiversity loss in line with national trends. Evidence from the Building Biodiversity 2009, attributes much of this loss to the post-war changes in agricultural practices, in particular agricultural intensification. There have been increasing declines in key habitats such as semi-natural grassland and woodland once common species such as hares, hedgehogs and turtle doves are at risk of disappearing.

3.6.3 The Environment Act 2021 makes provision for specific improvement of the environment, including measures on waste and resource efficiency, air quality and environmental recall, water, nature and biodiversity through conservation covenants. These measures include the establishment of a Nature Recovery Network and Biodiversity Net Gain.

3.6.4 Geosites are locations where a distinctive landscape can be appreciated or where there is an exposure of rock or sediment. In both cases, they have value in helping us understand our world and its history. Geodiversity value includes nationally significant sites and such features are within remit of Natural England and are designated as Sites of Special Scientific Interest (SSSI). If there are development applications that will affect a site, the developer should seek to avoid damage.

3.6.5 Therefore consideration should be given to the potential impact of any sites designated for geology and/or geomorphology and they can be searched for on the government's MAGIC website. Locally Herefordshire Council works with Herefordshire & Worcestershire Earth Heritage Trust to identify and record Local Geological Sites that are a local consideration within the planning process.

3.6.6 National guidance on 'biodiversity, geodiversity and ecosystems' sits within the Natural environment section of the Planning Practice Guidance.

3.6.7 Biodiversity net gain is defined by Natural England as"...an approach to development, and/or land management, which aims to leave the natural environment in a measurably better state than beforehand The Biodiversity metric tool is a habitat based approach used to assess an area's value to wildlife. The tool can be used or specified by any development project, consenting body or landowner that needs to calculate biodiversity losses and gains for terrestrial and/or intertidal habitats. It will be this metric that underpins the Environment Act's provisions for mandatory biodiversity net gain in England. Currently Herefordshire Council's approach to this is to ensure that there is no net loss of biodiversity but this will be reviewed as part of the Local Plan update. There is an opportunity for farmers to play a part in the provision of off-site biodiversity net gain where landowners and farmers will be encouraged to register land suitable for habitat enhancement or creation on a national register of biodiversity net gain sites.

Reports / Assessments

3.6.8 The Council's Biodiversity and ecology compliance checklist is a good starting point to identify potential impacts and requirements for ecological appraisals. Where these are required they should assess potential impacts upon habitats, species and designated sites. Assessments must be carried out by a qualified and experienced ecologist, at an appropriate time of year and in line with established survey guidelines.

3.6.9 The assessment should cover species and habitats protected under the Wildlife and Countryside Act 1981, the Conservation of Habitats and Species Regulations 2010, the Protection of Badgers Act 1992 or identified in the Natural Environment and Rural Communities Act (NERC) 2006. Surveys for habitats, flora and fauna including badgers, bats, certain reptiles, amphibians, dormouse, otter and breeding birds among others may be required.

3.6.10 The assessment must determine the impact of the development on the habitats and species identified and propose mitigation to minimise the impact. Recommendations relating to licencing should be made where appropriate. Long term habitat management plans may also be required.

3.7 Landscapes and Visual Impact

3.7.1 In Herefordshire where the high quality of the landscape is part of the intrinsic character of the area, the visual impact of major agriculture development can be a significant negative planning issue. Valued landscape is irreplaceable and must be conserved if sustainable development is to be achieved.

3.7.2 Applications for major agricultural development will be expected to fully address the landscape impacts of the proposal, both individually and in the context of other similar developments within the visual envelope of the proposal site. The policies of the Core Strategy (policies LD1 to LD4) provide the guidance necessary to enable applicants to ensure that development proposals comply with environmental quality objectives. These promote the use of landscape appraisal as part of the development management process, both to increase awareness of the countryside's character and to ensure that future development is compatible with that character.

3.7.3 It is often inevitable that proposals for development in the countryside will alter the appearance of the landscape. However, the council's planning policies and associated text detail the importance of ensuring that change is appropriate to its setting and is not permitted to overwhelm the inherent character of the landscape. The landscape's ability to accept a proposed development without undue harm will be a primary consideration.

3.7.4 Certain types of agricultural development have the potential to have a detrimental impact on the landscape, particularly industrial scale agriculture such as large poultry units, silage covers, anaerobic digesters and storage buildings. Potential impacts include:

- Increased scale of buildings that are not characteristic of Herefordshire's rural landscape.
- Visual impact of development and infrastructure where there was previously open countryside.
- Loss of tranquillity due to introduction of movement, light, sound.
- Reduction in quality of landscape character, such as loss of key landscape features (hedgerow, trees, alteration of the natural topography).
- Increased highways infrastructure require road widening and visibility splays, therefore loss of characteristic rural lanes.
- The incremental effect of development eroding the landscape character, including consideration of extensions to existing sites.

3.7.5 The capacity of different landscape types to accommodate change should be assessed. Some landscapes may be less sensitive, such as those that are intensively farmed, which could tolerate a wider range and higher (although not unlimited) level of change. It is most often the large scale, cumulative impact and prominent visibility of such schemes that causes harm to landscape character. Given that the effect on the landscape can be significant, the cumulative impact of new developments will be fully considered during the planning application process. Reference should be made to the Landscape Character Assessment which promotes the use of landscape assessment as part of the development control process. The aim is to increase awareness of the countryside's character and to make sure that future development is compatible with that character.

3.7.6 Furthermore the landscape quality and rural character of the county are important attractors for tourism and other leisure pursuits. These bring an income to the wider rural economy and are important factors in relation to farm diversification schemes.

3.7.7 The Core Strategy sets out the importance of the concepts of conservation, restoration and enhancement in the strategic approach to landscape management. Policy LD1 provides guidance for development in areas of important landscape value, such as AONBs, through the protection of the areas' special character and by enabling appropriate uses, design and management.

3.7.8 There are two Areas of Outstanding Natural Beauty (AONB) within Herefordshire: the Malvern Hills AONB and the Wye Valley AONB. AONBs are national statutory landscape designations and local planning authorities have a duty of care to protect, conserve and enhance the natural beauty and character of these nationally important, high quality landscapes. The NPPF refers to the great weight that should be afforded to the need to conserve landscape and scenic beauty in AONBs. Policy LD1 of the core strategy provides guidance for development in areas of important landscape value, such as AONBs, through the protection of the areas' local character and by enabling appropriate uses, design and management

3.7.9 Herefordshire Council is a member of the Malvern Hills AONB Joint Advisory Committee and the Wye Valley AONB Joint Advisory Committee. Both AONBs have adopted management plans in place. These plans include the constituent member Local Authority policy "for the carrying out of their functions in relation to" the management of the AONB. The Plan is a material consideration in local plans and development management decisions.

3.7.10 Each application within the AONB will be decided on its merits, and the potential impact on the AONB will be considered along with the wider economic and social benefits. Consideration of the cumulate effect of the development will also be taken into account to within the AONBs.

3.7.11 Proposals within the AONBs account must take account of the Malvern Hills AONB Management Plan and Wye Valley AONB Management Plan in addition to Core Strategy policies. The Malvern Hills AONB has also produced a number of additional guidance documents which provide direction on a number of issues related to new development. These include:

- Guidance on identifying and grading views and view points
- Guidance on how development can respect landscape in views
- Landscape Strategy and Guidelines
- Guidance on building design
- Guidance on the selection and use of colour in development
- Guidance on lighting

3.7.12 Whilst these have been produced for the Malvern Hills Area of Outstanding Natural Beauty they are a useful source of information and include recommendations for general good practice they can be useful references and principles that can be applied elsewhere in the county.

3.7.13 In addition to the NPPF, the Core Strategy, Neighbourhood Development Plans and the AONB management plans, the local planning authority takes account of landscape character assessments guidance which has been prepared by the council, for guidance when determining a planning application.

Reports / assessments required

3.7.14 The following paragraphs set out the reports and assessments required for all major agriculture development which should be submitted in support of the application. However some proposals that are not classed as major developments may also require submission of this supporting information.

3.7.15 A Landscape and Visual Appraisal (LVA) or landscape assessment is likely to be required to assess the effects of change. The Landscape Institute provides guidelines about Landscape and Visual Impact Assessment and a list of member Landscape architects. The type of assessment required will depend on the scale and type of the development. But it is generally recommended for the appraisal or assessment to demonstrate that the applicant has undertaken a rigorous investigation of the site, context, impacts and It should address both effects on the landscape as a resource in its own right and effects on views and visual amenity. This should also consider cumulative impacts with other developments, together with impacts on historic settings. The LVA should be used to inform the siting and landscape scheme for the development.

3.7.16 A landscape scheme should be submitted with the planning application and it is required to show how the proposed development will integrate into its surrounding. This should cross reference any ecological and biodiversity enhancements that are required and show integrated drainage solutions. The plan should include:

- Proposed contours, levels and sections of the proposal
- Hard landscape details such as surfaces and boundary treatments
- Soft landscape proposals such as existing and new planting.
- Details of external materials, colours and finishes. These should be chosen with the surrounding landscape in mind and with reference to the local geology and seasonal changes.
- Details of any ecological and biodiversity enhancements that are required and integrated drainage solutions.
- Details on how the rural landscape character will be protected in accordance with LD1 of the core strategy including consideration of the impact of any proposed road widening.

3.7.17 A photo montage of the proposed development can be a very useful landscape tool for demonstrating impacts, as they can be easy to understand, compared to looking at plans. Therefore although not a requirement, photo montages of how the development will sit in the landscape when completed and when any new planting is well established, would be welcomed by the local planning authority to help its assessment of the impact on the landscape setting. Further advice on this is available from the Landscape Institute.

3.8 Noise

3.8.1 Noise is recognised by the World Health Organization (WHO) ('WHO Environmental Noise Guidelines for the European Region 2018') as the second most harmful environmental stressor in Europe behind air pollution. Government guidance states that noise needs to be considered when development may create additional noise, or would be sensitive to the prevailing acoustic environment (including any anticipated changes to the environment from activities that are permitted but not yet commenced). When preparing plans, or taking decisions about new development, there may also be opportunities to make improvements to the acoustic environment. Good acoustic design needs to be considered early in the planning process to ensure that the most appropriate and cost-effective solutions are identified from the outset.

3.8.2 Noise can be created by machinery, power plants and vehicle movements associated with some agricultural operations and its impact on local residents and the general amenity of the area needs to be carefully considered as part of the planning application process. Noise may arise from a variety of sources and mitigation measures to reduce the noise impact should be included in the design as appropriate. However care needs to be taken to ensure that the mitigation measures themselves do not create any other adverse impacts.

3.8.3 The local planning authority, in line with government guidance, will consider the following factors:

- Whether or not a significant adverse effect is occurring or likely to occur;

- Whether or not an adverse effect is occurring or likely to occur; and
- Whether or not a good standard of amenity can be achieved.

Reports / assessments

3.8.4 Noise assessment is a complex technical issue and therefore it is appropriate to seek experienced specialist assistance. The BS4142 methodology assessment should be used to determine the likely impact on noise sensitive properties. The methodology described in BS 4142 uses outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incidental. This assessment determines the likely noise impact by comparing the rating noise level from the proposed development with the background noise levels of the locality

3.8.5 As every site will be different it is difficult to set thresholds for when a noise assessment will definitely be required. Therefore an assessment of the constraints and sensitive receptors / locations is often necessary. A noise survey and report is likely to be required if the proposed application is likely to give rise to noise which may affect nearby noise sensitive properties Noise sensitive receptors are those areas or land used that are potentially sensitive to noise and vibration.

3.8.6 A noise assessment is required for all proposals for intensive broiler livestock units. The BS4142 methodology should be used for these and should include but not be limited to the assessment of vehicular noise on site, feedstock delivery, broiler catching and fan noise

3.8.7 A noise survey required for a pre planning application or full planning application should include:

- Identification of all nearby noise sensitive receptors
- Determination of the impact on any receptors with reference to noise standards
- Detailed control measures when necessary to reduce noise to acceptable levels

3.9 Air Pollution

3.9.1 Different types of agricultural developments may have an impact on air quality with a range of pollutant gases and particulates, and especially nitrogen compounds emitted to the atmosphere. Section 3.5 has considered the impact of ammonia emissions on biodiversity but it can also have an impact on human health. In particular:

- Intensive poultry units can generate particulates from ventilation systems
- Any development that includes a combustion process. For example, biomass plants for heating poultry units, combined heat and power (CHP) units and bio digesters for heating and energy production, depending on the size of the plant. Pollutants from these can include particulates, NO2, CO and potentially volatile organic compounds in bio digesters.

3.9.2 The following documents provide helpful guidance to local authority officers as well as developers and consultants. These include:

- Land-Use Planning & Development Control: Planning For Air Quality – Institute of Air Quality Management 2017

- Local Air Quality Management Technical Guidance (TG16) – DEFRA 2021

Reports and assessments.

3.9.3 Some proposals will require a screening assessment. This will apply where the proposal will house over 400,000 birds and there is a relevant receptor nearby. In cases where biomass and CHP are proposed an air quality assessment may be required.

3.9.4 Where a development is close to, or will generate significant traffic movements through, an Air Quality Management Area (AQMA) an air quality assessment may in some circumstances be required. There are two AQMAs in Herefordshire in Leominster and Hereford. The thresholds for an assessment is as follows:

Types of vehicles	**Threshold A change of flows;**
Heavy Duty Vehicles : Goods Vehicles and buses greater than 3.5tonne gross vehicle weight	- more than 25 Annual Average Daily Traffic* (AADT) within or adjacent to an AQMA - more than 100 AADT* elsewhere *Annual average daily traffic (AADT) is **the total volume of vehicle traffic on a highway or road for a year divided by 365 days**.

3.10 Light pollution

3.10.1 Careful consideration should be given to any artificial lighting that is included as part of the development proposals. Artificial lighting can be source of annoyance to people, harmful to wildlife and undermine enjoyment of the countryside or the night sky, especially in areas with intrinsically dark landscapes. Intrinsically dark landscapes are those entirely, or largely, uninterrupted by artificial light. A CPRE study found that Herefordshire was in the top five counties in England that have the highest percentage of pristine night skies, free of light pollution. Therefore it is important that this is maintained and enhanced.

3.10.2 Proposals that include lighting should consider the following pointers in relation to light design: Any artificial external lighting should have:

- a clear purpose ,
- be directed to where need
- be no brighter than necessary,

- be used only when needed
- Include warmer colour lights where possible.

3.10.3 Policy SD1 of the Core strategy requires that the impact of artificial light in proposed new development is considered. Several of the county's Neighbourhood Development Plans include more detailed policies that seek to minimise light pollution with a view to achieving dark skies. Malvern Hill AONB has produced a guidance note on light pollution.

3.10.4 Government guidance on how to consider light within the planning system provides useful information for applicants and planners about the various issues that need to be considered and how they can be mitigated. They also point to other sources of available information that could inform approaches to lighting and help reduce light pollution:

- Guidance notes available from the Institute of Lighting Professionals including the reduction of obtrusive light and Bats and artificial lighting in the UK.
- Information from the Bat Conservation Trust on artificial lighting, and Eurobats guidelines for consideration of bats in lighting projects
- The Chartered Institution of Building Services Engineers (CIBSE) – Society of Light and Lighting (SLL) Code for Lighting
- The Chartered Institution of Building Services Engineers (CIBSE) – Society of Light and Lighting (SLL) Lighting Guide 6: The Exterior Environment

3.11 Odour

3.11.1 Opinions can vary as whether some smells arising from agricultural operations are a negative issue. The type and strength of odour will vary according to the land use and weather conditions and individual perception.

3.11.2 Odours arising from farming activities can be quite common and may be associated with the storing and spreading of animal manures and slurries which are often linked to operational matters outside of the planning system. However developments requiring planning permission, e.g. intensive livestock units can generate strong odours which vary over the production cycle and can be affected by weather conditions. The impact of this needs to be carefully considered on local residents and the general amenity of the area including the in combination effect.

3.11.3 Local planning Authorities are required to take account of the effects of odour pollution on health, the natural environment or general amenity when considering planning applications for uses that may or are likely to generate odour. They should ensure that significant sources of odour should be separated as much as is possible from odour-sensitive users of the surrounding land (sensitive receptors. Where a sufficient separation is not achievable, it may be possible to employ control and mitigation measures to make a proposed development acceptable from a land-use perspective.

3.11.4 The Institute of Air Quality Management (IAQM) publishes guidance and recommendations of air quality issues. Applicants should consider the Institute's Guidance on the assessment of odour for planning which sets current best practice in relation to assessments in the UK. Please note that this document is likely to be revised and therefore applicants should ensure they are referring to the latest document.

Reports / assessments

3.11.5 New proposals for such developments may require an odour impact assessment to be submitted, either as a stand-alone assessment or as part of an Environmental Statement, to accompany the planning application.

3.11.6 Different types of development will require different thresholds for odour assessments and therefore it is important to discuss the assessment requirements with the development management team at the council. Information regarding potential cumulative impact of other odour generating sources in the vicinity is also usually required to be submitted. The threshold for this will be determined on a case by case basis.

3.11.7 The cumulative assessment should include consideration of any existing developments or those that have been granted planning permission or are currently applying for planning permission. The distance that the cumulative impact will be required to consider will vary according to the type of application.

3.12 Highway safety and access

3.12.1 The primary cause for concern in relation to transport issues is the increase in the number and frequency of large farm machinery and lorry movements on narrow rural lanes. This can lead to worries over highway safety, noise, damage to highway surfaces and their verges as well as small narrow bridges over time and the mud and dust in the roads causing hazardous driving conditions.

3.12.2 Therefore full consultation should take place with the local highways authority prior to the determination of planning applications to ensure that issues of highway safety are addressed. Where appropriate planning conditions should be imposed as recommended.

Reports and assessments

3.12.3 Some large-scale developments may require a Transport Assessment/Study. This will be dependent upon existing and anticipated vehicular movements, including heavy or large vehicles. However, in all other instances applications should be accompanied by a written statement (which could be incorporated in the Design and Access Statement addressing the amount and type of traffic to be generated and the adequacy of the local highway network to cater with that traffic both in terms of design and capacity. Other matters such as the adequacy of the vehicular means of access to the application site and the adequacy or otherwise of visibility splays should be addressed

3.12.4 Therefore the applicant will need to demonstrate that the vehicular means of access and the local highway network (in terms of both design and capacity) are adequate to cater for the traffic generation, addressing both numbers and types of vehicles**.**

3.13 Public Rights of Way

3.13.1 The Public Rights of Way service (PROW) of Herefordshire Council has a legal duty to assert and protect the rights of the public to the use and enjoyment of any public right of way (PROW) within the county. In addition, the NPPF recognises that rights of way are an important recreational facility, which local authorities should protect and enhance. Local rights of way in Herefordshire are part of our heritage and form a major recreational resource. They help boost tourism and contribute to local rural economies, in addition to providing a convenient means of travel. If a proposed new agricultural development directly affect a Public Rights of Way an assessment will be required to accompany the application.

3.13.2 It is important to ensure that the agricultural developments, whilst taking into account the need for the new development, does not have a significant impact on public rights of way

3.13.3 Both the use and enjoyment of public rights of way should not be adversely affected and the Herefordshire Council has a legal duty to assert and protect the rights of the public in these respects.

3.14 Flood Risk

3.14.1 The Strategic Flood Risk Assessment (SFRA) assesses the levels of flooding within the county. It aims to ensure that planning policies and any allocated development sites will not increase the risk of flooding onsite or in their surrounding areas. It identifies the county's main flood risk areas, taking into account all sources of flooding and other flooding strategies in the area, this will include not only those areas identified by the Environment Agency but also county and local intelligence to identify a more complete record of flood prone areas. A more detailed SFRA will be required as development sites begin to be identified for the Local Plan.

3.14.2 In addition to the issues already referred to in relation to the impact on the quality of the county's rivers, flood risk and surface water run-off should be carefully addressed. Active management techniques and mitigation measures proposed should also be taken into account. One area that the council has been leading on is the use of Natural Flood Management (NFM). NFM involves working with natural processes to both slow and temporarily store water within the landscape, helping to reduce the peak and flood risk to downstream communities. NFM not only helps to reduce flood risk, but is also capable of delivering multiple benefits including improved water quality, reduced nutrient and soil runoff, enhanced biodiversity and carbon sequestration. Through partnership working, the council has already successfully delivered the Defra funded River Wye and Lugg NFM Pilot project, which supported over 140 landowners within seven catchment areas to implement a wide variety of NFM measures that are now helping to slow the flow e.g. leaky dams, attenuation areas, tree planting and soil improvement works. The council has secured further funding to continue and expand the NFM pilot project over the period 2022/23 to 2026/27. Whilst other parts of the county outside of the pilot's areas are also keen to get involved in NFM, at this stage the project is intending to restart working within the already identified seven catchments. Any further opportunities for NFM within other areas of Herefordshire will be identified and considered for future inclusions, subject to being able to secure additional funding.

3.14.3 Many NFM techniques can be implemented without the need to obtain consents or permissions, however some measures such as attenuation areas and earth bunds are considered to be an engineering or excavation operation which require planning permission. Whilst in certain circumstances, these works may fall under permitted development rights, in other situations an application to the Local Planning Authority is needed to determine whether prior approval is needed, this can be done through a 'Prior Notification' application. Fencing may also require planning permission, depending on its location and height. Further guidance on NFM and planning requirements will be available through the consenting flow charts for each of the NFM measures.. The flow charts will direct applicants through all of the relevant consents/ permissions that they will need to obtain in order to implement each NFM measure.

3.14.4 Features such as leaky dams, attenuation areas, sediment traps and in-ditch seepage barriers may also require an Ordinary Watercourse Flood Defence Consent. Other site constraints and designations may also mean that additional consents and assessments are required e.g. Habitat Regulations Assessment, Site of Special Scientific Interest consent, Environment Agency environmental permit.

Reports and assessment

3.14.5 In areas particularly prone to flooding and in respect of planning applications for major agriculture developments (sites of 1 hectare or more), the Environment Agency will be consulted. A Flood Risk Assessment may be necessary in accordance with the requirements of the NPPF, paragraph 103. Where such a Flood Risk Assessment is deemed necessary, it should be appropriate to the scale and nature of the development and should consider:

(a) Flood risk and surface water run-off implications;
(b) Any increase risk arising elsewhere;
(c) Measures proposed to deal with these risks and effects, e.g. restricting run-off to the Greenfield rates;
(d) Explaining what attenuation measures are in place designed to the 1% with climate change standard to prevent flood risk; and
(e) How the scheme is designed to prevent run-off and erosion issues.

3.14.6 Herefordshire Council's Sustainable Urban Drainage SuDS Handbook and related documents sets out the role of SuDS in achieving sustainable development across Herefordshire, where the Lead Local Flood Authority (LLFA) is Herefordshire Council. Clarity is also provided on the requirements for foul drainage where adoption is not proposed. All SuDS features should be designed in accordance with the Ciria SuDS Manual

3.15 Private water supplies

3.15.1 Should the development proposal be reliant on the use of a private supply, consideration should be given as to whether any increased abstraction will impact on the water supplies of local residents and businesses. In the event that this may be a concern, the applicant may be requested to supply a hydrogeological assessment which examines the impacts.

3.16 Historic Environment

3.16.1 Herefordshire's historic environment and heritage assets (those elements of significance with statutory protection) are significant contributors to sustainable development. Together they contribute to the distinctiveness of the county and help to create a sense of place. A well cared for historic environment is key attractor for tourism and investment and generally contributes to a good quality environment.

3.16.2 As the location for some of the development proposals associated with agriculture might be in close proximity or be located within historic farmsteads, they could potentially have a significant impact on the setting of designated and other national or regionally important sites. These impacts will be assessed at the pre-determination stage of a planning application and, where appropriate, mitigation measures to address any adverse impacts.

3.16.3 The effect of a development on the character and setting of listed buildings and other heritage assets is a material consideration in determining planning applications, since there are a plethora of such buildings throughout the Herefordshire countryside. The Planning (Listed Buildings and Conservation Areas) Act 1990 requires the local planning authority to have special regard to the desirability of preserving listed buildings or their settings. The NPPF, set out the exceptional circumstances of achieving substantial public benefits, whereby significant harm to or loss of designated heritage assets may be sufficient to outweigh the adverse impacts. The Core Strategy similarly contains policy LD4 which seeks to protect the historic environment and heritage assets.

3.16.4 Agricultural development and, their associated works, such as the installation of irrigation systems and the creation of access roads or hard standings, have the potential for impacting on archaeological interests. Careful design of reservoirs will be required to mitigate their impact on the landscape and historical features. Any associated ground works such as surface water drainage and sustainable drainage systems will be expected to follow the requirements of policy LD4 and any associated planning guidance and evidence base documents.

Reports and Assessments

3.16.5 A detailed heritage impact statement will be required in order to help determine whether or not a proposed development would adversely affect such a heritage asset. This statement can provide an understanding of the significance of a heritage asset and the potential impact of the proposed scheme upon it. This should be prepared by a suitably qualified buildings/conservation expert. This will allow the local planning authority to determine whether or not impacts are sufficiently detrimental to warrant refusal of an application on these grounds or suggest mitigation measures where appropriate.

3.17 Economic need and impacts

3.17.1 Food production and processing businesses are major employers across the country. The UK food and farming sector is worth about £110 billion to the economy, representing around 4 million jobs. In Herefordshire, agriculture, food and drink processing, and

manufacturing continue to comprise a significant proportion of the county's economy and service industries are under-represented. The Council supports objectives of reducing food miles and providing a sustainable and affordable food.

3.17.2 Planning policies at national, and local levels recognise the importance of the agricultural sector. The NPPF seeks to promote strong rural economies through the support of sustainable growth and expansion of businesses in rural areas and the promotion of development and diversification or agricultural and other land-based rural businesses

3.17.3 The Core Strategy's overall development plan was produced in the light of the need to promote a diverse and strengthening rural economy, whilst protecting its quality landscapes and making sustainable use of natural resources. It also recognises that the rural areas of the county have consistently played a strong role in local, regional and national food and drink production, particularly in areas such as agriculture and farming.

3.17.4 The economic argument is of particular importance when major agriculture developments are proposed in AONBs. In such instances an applicant must show clear evidence that the development is necessary in terms of providing direct benefits to the local community for example in relation to local services or facilities, particularly in the light of any potential harm to the landscape which may be identified. Where applications relate to undesignated landscapes these economic arguments are still appropriate since economic benefits to the county (and the UK) are important planning considerations.

3.18 Residential amenity

3.18.1 The amenity of those living close to agriculture development may be adversely affected by negative visual impact, or general nuisance caused by odour emissions, dust, smoke, chemical fumes, noise or increased traffic movements for example. All these factors need to be carefully considered as part of the application process. The supporting specific statements on individual impacts will be used to help consider the impact on residential amenity.

3.19 Other Issues:

3.19.1 In addition to these there may be a variety of other studies or assessments that may need to accompany certain planning applications depending on their scale and location. The council's development management officers will be able to discuss such requirements with potential applicants on a case -by-case basis. It is therefore important for potential developers to engage in pre-application discussions.

3.19.2 Proposals for major agricultural development may result in significant public interest and concerns about the impact on the amenity of nearby residents. Where this is likely to be the case, it is advised that the applicant enter into early discussions with Parish Councils and local people in order to discuss any potential problems and solutions before planning permission is sought. Sometimes this will also involve important consultees such as the Environment Agency, Natural England and Highways England. Planning officers will, at this early stage, advise applicants if their proposals are likely to be considered 'significant' and therefore need to be the subject of specific community involvement measures. This advice is contained formally within the Council's Statement of Community Involvement.

Technical Guidance for Assessment and Mitigation of Nutrient Impacts on the Natural Environment from Agricultural Development Planning Applications

Final report for Herefordshire Council

Ref: ID 101960

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7 February 2022

Contents

1 GUIDANCE FOR SETTING UP A FARM DEVELOPMENT NUTRIENT BUDGET

1.1 BACKGROUND TO THE GUIDANCE

Expansion of farming operations and associated developments often include complex and interrelated requirements and infrastructure development. These can include the need to seek planning consent, the complexity of these developments often require large amounts of supporting information to enable planning authorities to determine if planning consent can be awarded. Herefordshire Council has produced this Supplementary Planning Guidance to assist in the preparation of planning applications.

This document provides guidance on the assessment of agricultural phosphorus outputs. Following the Court of Justice of the European Union ruling known as the 'Dutch Nitrogen Case'[1], mitigation to achieve 'nutrient neutrality' is required for new developments that would otherwise contribute additional nutrient loads to a European designated site that is close to unfavourable condition or in unfavourable condition due to nutrient pollution. Thus, all new developments that increase nutrient discharges to parts of a designated site that are close to or in unfavourable condition due to nutrient pollution must be able to demonstrate nutrient neutrality (no net additional losses of nutrient from the land holding and associated activities) in order to be compliant with the 'Habitats Regulations' as demonstrated through a Habitats Regulations Assessment (HRA). A Habitats Regulations Assessment (HRA) refers to the several distinct stages of assessment which must be undertaken in accordance with the Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017 to determine if a plan or project may affect the protected features of a habitats site before deciding whether to undertake, permit or authorise it[2]. This is important as where there is potential for additional nutrients to be loaded into sensitive sites, such as the River Wye Special Area of Conservation (SAC), this can be a barrier to receiving planning consent for proposed developments.

This technical guidance document has been prepared to support agricultural development planning applications and guides applicants in the development and provision of evidence in support of their application. This information is required to determine any potential phosphorus impacts of new or replacement agricultural developments and any associated activities (for example the establishment of a new poultry unit with associated increase in poultry litter being applied to farmland in the vicinity of the development). It also provides useful information to officers of the council and other interested parties, local residents for example, on how the council expects the many planning considerations to be addressed when determining applications for planning permission.

This planning guidance document is supported by an Agricultural Development Input Template (Input Template), which captures information relevant to your current agricultural business structure as well as any changes expected under the proposed development. This guidance supports the assessment of phosphorus output levels through the Farmscoper modelling tool using the information you have entered in the Input Template. **Section A2.1** of the Input Template presents phosphorus values for the baseline, proposed development and planning application with any additional measures, which will be used within the Council's assessment of your planning application. The filled in Input Template should be included as a document within your agricultural planning application to record baseline data for your farm and details of the proposed development, expected phosphorus outputs and allow for further assessment of values produced by the model if required.

[1] 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 Other

[2] Gov.UK (2019), Appropriate assessment: Guidance on the use of Habitats Regulations Assessment

1.2 PURPOSE OF THE GUIDANCE

This guidance provides a review to identify areas where increased phosphorus inputs through agricultural developments could cause impacts to the River Wye SAC. This is important as an excess of phosphorus can cause eutrophication of water sources leading to excessive growth of algae and plants which can adversely affect the water quality and damage aquatic ecology[3].

An overview map (**Figure 1**) showing areas within the River Wye catchment requiring further assessment is presented in **Section 2** below. If potential phosphorus inputs could impact the River Wye then the guidance and tools described in this document will provide a baseline assessment of phosphorus for the existing farm structure and an assessment of phosphorus under the proposed planning application. This guidance also provides information on applying mitigation measures to the farm or proposed agricultural development, to reduce phosphorus loading to the River Wye SAC.

This guidance should be used as part of an agricultural planning application for any farm structure. It is a requirement to follow this guidance document and provide a copy of the completed Agricultural Development Input Template associated with this guidance, including phosphorus values provided by the Farmscoper tool and presented in **Section A2.1** of the Input Template, as part of your agricultural planning application. This includes any planning application for the like for like replacement of buildings and structures as well as applications for any new agricultural development requiring planning permission. It should be noted that permitted developments may also need to undertake this assessment where they may impact upon the loading of phosphorus to a designated site.

This document provides guidance on how to model the pollutant losses to the environment for your farm for these three key stages:

Stage 1: Pre-development baseline
(Pre-development with pre-development mitigation measures)

Stage 2: Planning development application
(Proposed development with proposed mitigation measures)

Stage 3: Planning application plus additional measures
(Proposed development with proposed and additional mitigation measures)

2 LOCATIONAL SCREENING

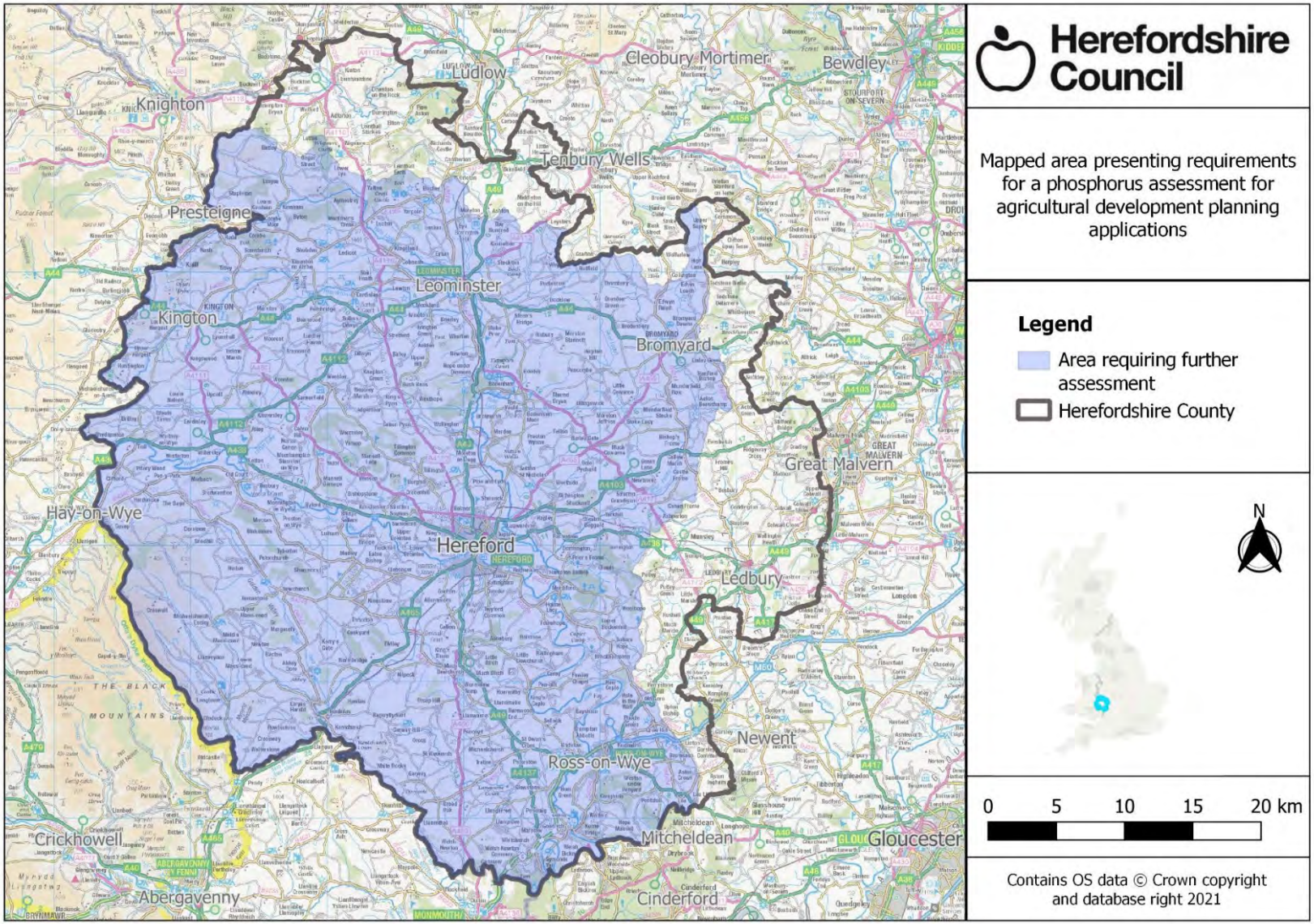
Figure 1 presents an overview of the areas within Herefordshire County requiring further phosphorus assessment. The area presented in blue shows the catchment of the River Wye, selected at this scale due to the interconnected nature of the river and land within the catchment, where inputs to land and agricultural areas can have direct impacts to the River Wye and its upstream tributaries if not managed correctly. The area requiring further assessment is presented in blue.

Inside of blue area:
If the proposed area of your planning application is within this blue area you ARE REQUIRED to follow the phosphorus assessment methodology presented from **Section 3** below.

Outside of blue area:
If the proposed area of your planning application is outside of the blue area you will not need to complete a phosphorus assessment as detailed below. You are NOT REQUIRED to complete any further steps within this guidance document.

[3] Environment Agency (2019), Phosphorus and Freshwater Eutrophication Pressure Narrative, Accessed at https://consult.environment-agency.gov.uk/++preview++/environment-and-business/challenges-and-choices/user_uploads/phosphorus-pressure-rbmp-2021.pdf

Figure 1: Overview map of areas requiring further phosphorus assessment



3 OVERVIEW OF THE PHOSPHORUS ASSESSMENT METHODOLOGY

As part of the phosphorus assessment, data on the current farm and proposed development will be input to Farmscoper V5, a freely available Microsoft Excel tool built by ADAS Ltd. It enables the generation of nutrient export estimates for eight different farm types, including dairy, beef, sheep, indoor pigs, outdoor pigs, poultry, imported manure and cropping.

The steps to attain values to support your planning application, as presented in this guidance and associated input template, are as follows:

Step 1 Follow guidance in **Section 4** below to download the Farmscoper tool and find climate and soil type information for the location of your proposed development.

Step 2 Input data for the current farm baseline and proposed changes under the development in **Sections A1.1-A1.6** of the Input Template document.

Step 3 Follow guidance in **Section 5.1** below to input data to Farmscoper and generate the Stage 1: Pre-development baseline phosphorus values.

Step 4 Follow guidance in **Section 5.2** below to input data to Farmscoper to generate the Stage 2: Planning development application phosphorus values.

Step 5 If the individual phosphorus (kg) output value is higher under Stage 2 (Planning development application) than Stage 1 (pre-development), then additional mitigation measures will need to be included to support the planning application. These should be implemented to decrease phosphorus emissions and to bring them below or equal to that of the current farm enterprise (Stage 1: Pre-development). Additional measures should be selected in **Section A1.6** of the Input Template.
Follow guidance in **Section 5.3** below to input data to Farmscoper to generate the Stage 3: Planning application plus additional mitigation measures phosphorus values. The individual phosphorus (kg) output from Farmscoper should be input to **Section A2.1** of the Input Template document. For guidance sources on the mitigation practices please see **Section 6** below.

Step 6 Ensure Farmscoper output values are included for both Stage 1 and Stage 2 within **Section A2.1** of the Input Template document. Ensure Stage 3 values are included if it is necessary for additional measures to be implemented.
Attach the document to your agricultural planning application to support a Habitats Regulation Assessment (HRA).

A decision flow chart of these steps is also presented in **Figure 2** below.

The following sections provide information:

Section 4.1: Where and how to download Farmscoper V5

Section 4.2: Online tutorial with information on using Farmscoper

Section 5.1.1: Climate and soil type information requirements

Sections 5.1.2 and **5.1.3**: How to model the current farm baseline phosphorus pollutant level

Section 5.2: How to model the farm phosphorus pollutant level under the proposed planning application

Section 5.3: How to model the farm phosphorus pollutant level under the proposed planning application with additional mitigation measures

Section 6: Information to support mitigation selection

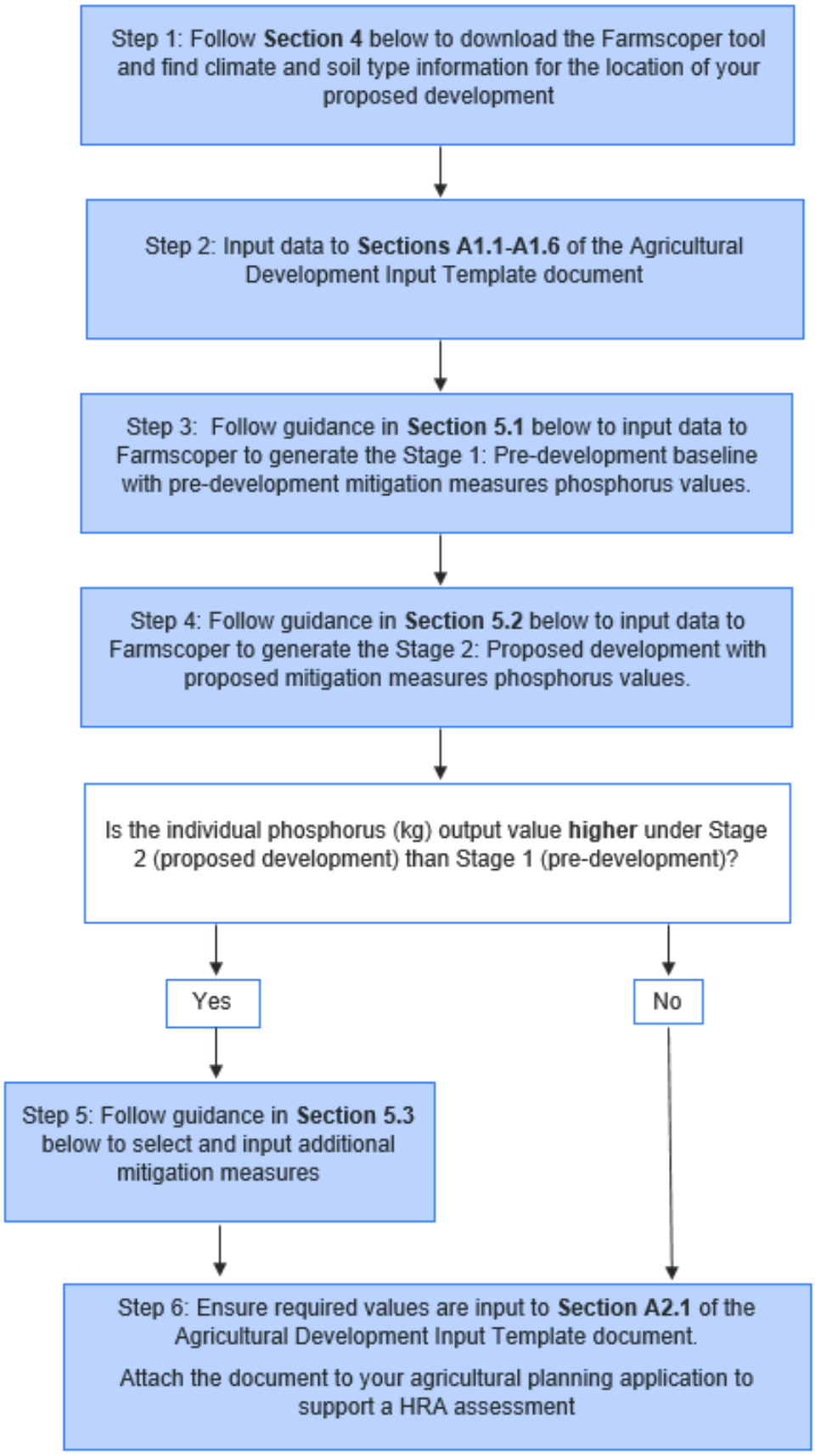


Figure 2: Phosphorus assessment requirements decision flow chart

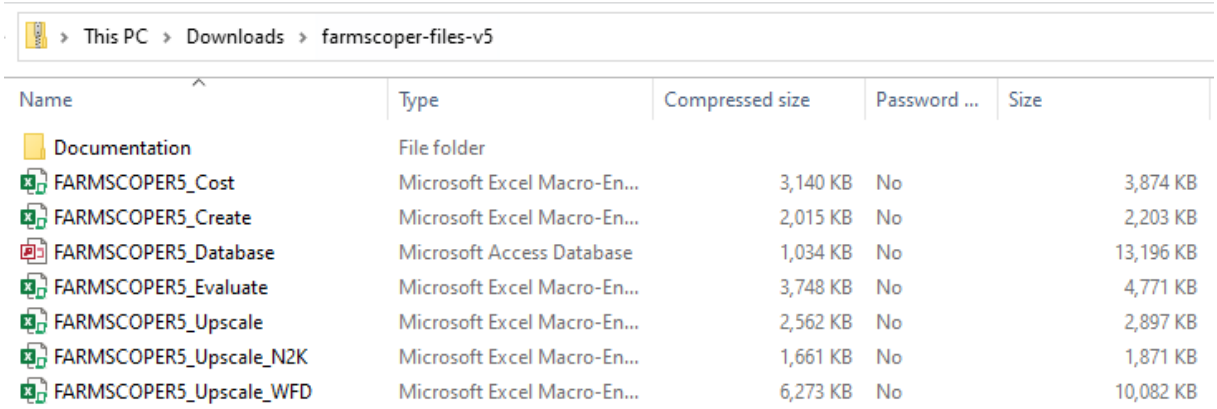
4 SETTING UP FARMSCOPER

4.1 DOWNLOADING FARMSCOPER

Farmscoper is available for download at this web address: https://adas.co.uk/services/farmscoper/
The current version available for download is V5. Downloading the Farmscoper V5 files will require 28.2MB of space on your computer.

Note: Farmscoper doesn't install as a program as it is a tool built in Microsoft Excel, an icon is not created to be found on your desktop or on the programme menu. The files that are used for calculating nutrient export coefficients can be found in the 'Farmscoper-files-v5' folder. On a Windows computer, the default location is the 'Downloads' folder on the main drive. ***Figure 3*** *shows the default location of the Farmscoper files on a Windows computer and the names of the different files which contain the tools needed for this assessment.*

Figure 3: The default location of Farmscoper on a Windows computer and the different files which contain the different tools



4.2 USING FARMSCOPER

4.2.1 Farmscoper tutorials:

A number of tutorial videos are also available on the Farmscoper website[4]. These videos can be used to learn how to run the Farmscoper tool. It is recommended that all of the introductory videos are downloaded and viewed, although the three videos that will provide the most relevant guidance are:

1. Calculating Baseline Pollutant Losses for a Farm[5]
2. Customising farm systems[6]
3. Calculating impacts of Mitigation Methods for a Farm[7]

An explanation of the process for running Farmscoper to generate nutrient export coefficients is provided below.

[4] See: https://adas.co.uk/services/farmscoper/
[5] See: https://adas.co.uk/wp-content/uploads/2021/04/Calculating_Baseline_Pollutant_Losses_for_a_Farm-1.avi
[6] See: https://adas.co.uk/wp-content/uploads/2021/04/Customising_Farm_Systems-1.avi
[7] See: https://adas.co.uk/wp-content/uploads/2021/04/Calculating_Impacts_of_Mitigation_Methods_for_a_Fa-1.avi

5 GENERATING PHOSPHORUS VALUES

5.1 STAGE 1: GENERATING THE PRE-DEVELOPMENT BASELINE PHOSPHORUS OUTPUT

The pre-development baseline pollutant losses to the environment associated with the farm need to be calculated to provide a baseline value of the current pollutant losses. This is a two-step process that is to be completed using the Farmscoper V5 application. The first stage involves 'building' the user's farm and generating pollutant values without mitigation measures. The second stage involves selecting the mitigation measures relevant to the user's current farming practice in order to generate the best estimate of the current, pre-development, pollutant losses to the environment.

5.1.1 Information required before beginning the baseline pollutant losses

The data inputs required for the Farmscoper tool are found below with guidance on how to obtain this information if unknown.

1. Climate information (received annual rainfall volume at the site):
    a. Go to this link: https://nrfa.ceh.ac.uk/data/station/spatial/55023. This link will bring the user to the Wye at Redbrook flow gauge catchment information page.
    b. Click on the dropdown list next to the title 'Select spatial data type to view:' on the left of the map and select 'Rainfall'. Next select the Legend tab.
    c. Zoom in on the map to find the location of the development and find the corresponding rainfall range from the Legend.
    d. Select the corresponding Farmscoper rainfall band (an annual rainfall of 675.1 – 700 would be in the 600 – 700mm Farmscoper band; 1400.1 – 1600 is in the > 1500 mm band etc.) in **Section A1.2** of the Input Template.
2. Soil Type (the predominant soil drainage characteristics at the site if the user is unsure):
    a. Go to this link: http://www.landis.org.uk/soilscapes/#
    b. Find the specific area of the development on the map by using the search bar on the right side of the map in the 'Search' tab or zooming to the site on the map. Searching an area will generate a pop-up window in which you can view the soil information by clicking 'View soil information'. If this is not an option then click on the relevant soil type on the map and click on the 'Soil information' tab on the right-hand side of the map, below the 'Search' tab.
    c. The 'Soil drainage type' value can be found in the 'Soil information' under the title 'Drainage:'.
    d. See **Table 1** to convert soil type to Farmscoper equivalent.
3. Further detailed farm information is also required, further information is included in the Input Template. The steps in Sections A1.1-A1.6 need to be completed before beginning the input to the Farmscoper Tool.

Table 1: Soilscape drainage term equivalent

Soilscape drainage term	Farmscoper term	Definition
Freely draining	FreeDrain	Free Draining
Slightly impeded drainage	DrainedAr	Drained for arable
Impeded drainage	DrainedArGr	Drained for arable and grassland
Variable	DrainedArGr	Drained for arable and grassland
Surface Wetness	DrainedArGr	Drained for arable and grassland
Naturally wet	FreeDrain	Free Draining

5.1.2 Stage 1 - Part 1: Constructing the farm

The Farmscoper Create tool must be used in order to generate the required input values for your farm. The general guidance for input is described below. Video 2 'Customising farm systems'[8] from ADAS Ltd can be used alongside the steps below as an aid to help.

Running the Farmscoper Create tool requires the following steps:

1. Input data for the current farm baseline and proposed development to **Sections A1.1-A1.5** of the Input Template document. This Input Template provides input tables covering the farm types listed within Farmscoper and reflects the Farmscoper input tables. Instructions on inputting data are included within the Input Template. It should be noted that some tables will not be relevant to your farm and agricultural development, if not relevant these tables/cells should be left blank.
2. Open 'FARMSCOPER5_Create' (as seen in **Figure 3**) and save a copy in a suitable location with a meaningful name, e.g. 'FARMSCOPER5_Create_Stage 1'.
3. Copy and paste the 'FARMSCOPER5_Database' (**Figure 3**) into the same folder/location as the 'Create' file.
4. Navigate to the 'Control' worksheet/tab in the 'Create' file. To switch between worksheets click on the tabs along the bottom of the opened excel file.
5. Select 'Climate' by selecting a rainfall band within the box next to the map of England. This value is based on the climate information steps described in **Section 5.1.1** above. This value will remain the same throughout.
6. Select a 'Soil Type' and an associated 'Drain Status' if necessary. This value is based on the soil type information steps described in **Section 5.1.1** above. This value will remain the same throughout.
7. Select the 'Blank Farm' type and click 'Customise Farm'. This will take the user to the 'Farm' tab/worksheet. To switch between worksheets click on the tabs along the bottom of the opened excel file.
8. Enter the baseline information from **Sections A1.1-A1.5** of the Input Template (highlighted by a green column header colour) within the corresponding orange or tick box cells in Farmscoper. Tables within the input template should directly correspond to tables within the Farmscoper 'Farm' tab.
9. Click 'Build Farm', near the top of the worksheet, to generate the pollutant losses without mitigation measures in place.
10. Save the Farmscoper 'Create' document. It is important to save each Farmscoper file for each stage of this assessment to provide a record of the data input and output.

5.1.3 Stage 1 - Part 2: Generate the pre-development pollutant losses associated with the pre-development mitigation measures in place

The Farmscoper Evaluate tool is used to generate the estimated 'baseline' pollutant losses from your farm. Farmscoper Evaluate includes a total of 115 mitigation measures which may be relevant to your farm. However, only 72 of these are relevant to phosphorus pollution and are therefore the only measures to be included in **Section A1.6** of the Input Template, also presented in **Section 6** below. This template is used to help define your farm and aid with data collection and entry into the Farmscoper tool, it is required to support the planning application to give clarity on the definition of your farm enterprise.

Phosphorus mitigation measures currently undertaken by the farm should be entered into **Section A1.6** of the template document. Before entering the mitigation methods relevant to the farm to Farmscoper the user should turn off all mitigation measures and set the percentage implementation to zero (see steps 5 and 6 below).

Running the Farmscoper Evaluate tool requires the following steps:

[8] See: https://adas.co.uk/wp-content/uploads/2021/04/Customising_Farm_Systems-1.avi

1. Input data for the current farm baseline to **Sections A1.6** of the Input Template document. Instructions on inputting data are included within the Input Template.
2. Open 'FARMSCOPER5_Evaluate' (as seen in **Figure 3**) and save a copy in the same folder/location as the 'Create' file. Saving the file with a meaningful name, e.g. 'FARMSCOPER5_Evaluate_ Stage 1'.
3. Navigate to the 'Control' tab/worksheet.
4. Click the 'Load Create Data' button in Box 1 and select the completed 'Create' file which contains your farm information from Part 1 in **Section 5.1.2** above.
5. Click 'Select Method List' in Box 2 of the 'Control' worksheet. This will bring the user to the 'Method List' tab/worksheet.
6. Set all of the mitigation methods to 'FALSE' in the 'Active' Column (Column I).
7. Set the 'Prior Implementation' and 'Maximum Implementation' columns (Columns J and K) to 0 (zero).
8. Set the mitigation measures currently implemented as a measure on your farm to active (Column I) and the percentage of your farm area for which they are implemented in the 'Maximum Implementation' column (Column K), according to what was reported in Column A of **Section A1.6** of the Input Template.
9. Make sure that the correct methods have been set to active and all of the methods are set to zero in the 'Prior Implementation' column.
10. Navigate back to the 'Control' tab/worksheet and click 'Evaluate Methods Together' and wait for the tool to run.
11. After receiving notification that the tool has successfully finished processing, click 'OK'. The user must then navigate to the 'Output' worksheet tab and make note of the phosphorus export located within cell H4 under the 'Set' row and 'Phosphorus (kg) column. This value should be entered into the correct Stage 1 location in **Section A2.1** of the Input Template.
12. Save the Farmscoper 'Evaluate' document.

5.2 STAGE 2: GENERATING THE PLANNING DEVELOPMENT APPLICATION PHOSPHORUS OUTPUT

This stage requires the user to model the on-farm, planning development application changes with the proposed mitigations measures in place using Farmscoper. This process is almost the same as Stage 1. However, the key difference is including the proposed development changes to the farm and mitigation measures. A high-level overview can be seen below. For further guidance on how to operate Farmscoper correctly, revisit Stage 1 and the videos at ADAS Ltd[9]**Error! Bookmark not defined.**.

The Stage 2 proposed planning proposal should be entered into the relevant 'under proposed development' cells of **Sections A1.1-A1.5** of the Input Template (highlighted by a yellow column header colour), this will help you to define how to best represent the planning application within Farmscoper. This should include both the proposed infrastructure (where applicable) and also all associated changes to farm operation such as livestock numbers, manure and slurry management and any mitigation measures that will be associated with the proposals. These steps provide the evidence to assess if the proposal is nutrient neutral as required under the Habitats Regulations.

5.2.1 Stage 2 - Part 1: Constructing the farm

1. Open the 'Create' file created and saved in Stage 1 and resave your farm specific 'Create' file with an appropriate new name, e.g. 'FARMSCOPER5_Create_Stage 2'.
2. Navigate to the 'Farm' tab/worksheet. To switch between worksheets click on the tabs along the bottom of the opened excel file.
3. Edit the Create file to include the proposed development farm information according to information entered into **Sections A1.1-A1.5** of the Input Template (highlighted by a yellow column header colour) so it captures the on-farm changes associated with the development.

[9] See: https://adas.co.uk/wp-content/uploads/2021/04/Customising_Farm_Systems-1.avi

Please note, not all cells will require changes, only those relevant to changes expected under the planning development application.

4. Save the Farmscoper 'Create' document.

5.2.2 Stage 2 - Part 2: Generate the proposed development pollutant losses associated with the proposed development mitigation measures in place

1. Open 'FARMSCOPER5_Evaluate' (as seen in **Figure 3**) and save a copy in the same folder/location as the 'Create' file. Saving the file with a meaningful name, e.g. 'FARMSCOPER5_Evaluate_ Stage 2'.
2. Navigate to the 'Control' tab/worksheet.
3. Click the 'Load Create Data' button in Box 1 and select the completed 'Create' file for Stage 2 which contains your farm information from Part 1 in **Section 5.1.2** above.
4. Click 'Select Method List' in Box 2 of the 'Control' worksheet. This will bring the user to the 'Method List' tab/worksheet.
5. Set all of the mitigation methods to 'FALSE' in the 'Active' Column (Column I).
6. Set the 'Prior Implementation' and 'Maximum Implementation' columns (Columns J and K) to 0 (zero).
7. Set the mitigation measures as active according to Column B (total of the currently implemented and proposed to be implemented under the planning development measures) of **Section A1.6** of the Input Template. Input the percentage of your farm area for which they will be implemented in the 'Maximum Implementation' column (Column K). Note, this requires both the current and proposed mitigation measures to be input. If a proposed mitigation measure is to increase the percentage farm area of an already implemented measure, make sure the percentage reflects this increase to farm area,
   e.g. percentage recorded = existing + proposed additional implementation to farm area.
8. Make sure that the correct methods have been set to active and all of the methods are set to zero in the 'Prior Implementation' column.
9. Navigate back to the 'Control' tab/worksheet and click 'Evaluate Methods Together' and wait for the tool to run.
10. After receiving notification that the tool has successfully finished processing, click 'OK'. The user must then navigate to the 'Output' worksheet tab and make note of the phosphorus export located within cell H4 under the 'Set' row and 'Phosphorus (kg) column. This value should be entered into the correct Stage 2 location in **Section A2.1** of the Input Template.
11. Save the Farmscoper 'Evaluate' document.

5.3 STAGE 3: GENERATING THE PLANNING APPLICATION PLUS ADDITIONAL MEASURES PHOSPHORUS OUTPUT

This stage supports the user to identify any additional mitigation measures that could be implemented to further reduce emissions to ensure the phosphorus outputs of the farm are the same or below the current baseline. Stage 3 of this guidance helps you to produce the evidence required in support of an assessment as required under the Habitats Regulations. Outputs from farmscoper, to be input to **Section A2.1**, should be submitted in support of a planning application where required. If your phosphorus outputs in Stage 2 (under the proposed developments) are above those listed in Stage 1 (current farm baseline pre-development) you should select additional mitigation measures and complete Stage 3 steps below. If your Stage 2 outputs are equal to or below the Stage 1 phosphorus outputs you do not need to complete Stage 3 steps. A decision flow chart is presented in **Figure 2**.

To select further measures, the list of phosphorus mitigation measures pre-set within Farmscoper are presented in **Section A1.6** of the Input Template. To understand more about what these measure entail and how to implement them please review the supporting sources presented in **Section 6** below. The steps for generating Stage 3 phosphorus output values are explained below. For further guidance on how to operate Farmscoper, revisit Stage 1 and Stage 2 steps and the videos on the ADAS website[10].

[10] See: https://adas.co.uk/wp-content/uploads/2021/04/Customising_Farm_Systems-1.avi

5.3.1 Stage 3 - Part 1: Constructing the farm

1. Open the 'Create' file created and saved in Stage 2 and resave your farm specific 'Create' file with an appropriate new name, e.g. 'FARMSCOPER5_Create_Stage 3'. As the farm information for the proposed development will remain the same this file is a direct copy of data entered for Stage 2.

5.3.2 Stage 3 - Part 2: Generate the proposed development pollutant losses associated with the proposed development and additional mitigation measures in place

1. Open the 'Evaluate' file created in Stage 2 and re-save (Save As) the evaluate file with an appropriate new name, e.g. 'FARMSCOPER5_Evaluate_Stage 3'.
2. Edit the mitigation measures within the 'Method List' tab/worksheet to include all of the mitigation options selected for Stage 3 as detailed in Column C in **Section A1.6** of the Input Template. Note, this requires both the current, proposed and additional mitigation measures to be input. If an additional mitigation measure is to increase the percentage farm area of an already implemented measure (included in Column B of the table in **Section 6** of the Input Template), make sure the percentage reflects this increase to farm area,
   e.g. percentage recorded = existing + proposed + additional implementation to farm area.
3. Run the new, post-development with additional measures farm scenario by clicking the 'Evaluate Methods Together' button located within the 'Control' tab/worksheet.
4. After receiving notification that the tool has successfully finished processing, click 'OK'. The user must then navigate to the 'Output' worksheet/tab and make note of the phosphorus export located within cell H4 under the 'Set' row and 'Phosphorus (kg) column. This value should be entered into the correct location in **Section A2.1** of the Input Template.
5. Save the Farmscoper 'Evaluate' document.

5.4 WHAT IF YOUR MITIGATION MEASURE IS NOT LISTED WITHIN FARMSCOPER

There are an array of pre-defined mitigation measures related to phosphorus within the Farmscoper Evaluate tool. However you may want to include a measure which is not included within Farmscoper as part of your planning application assessment, this guidance does not provide details of how to add additional mitigation measures to the Farmscoper model. If you plan to use mitigation measures outside of those included in farmscoper, you will be required to demonstrate the impact this would have on the potential phosphorous loading that would result from the proposal.

To include an alternative mitigation measure as part of your planning application you will need to provide thorough evidence of the efficacy of the mitigation measure and its applicability to your farm and proposed development. Information to provide includes:

1. Details of the alternative mitigation measures, and their phosphorus reduction potential. This should include a defined reduction value (i.e. 0.5kg reduction per m^2) and should come from a reputable source, ideally from peer reviewed research, such as a scientific journal article or a governmental publication.
2. Details of the data source used for the reduction value, including either a reference or weblink.
3. Details of how the measure would be implemented on the farm as well as the extent the measure is currently implemented or is proposed to be implemented.
4. The expected phosphorus reduction value for your farm using this measure.

Details of these additional measures can be used against the information provided from the farmscoper model to provide evidence of nutrient emissions against the pre-planning baseline. This information should be submitted alongside a filled-out version of Input Template as part of your planning application to be reviewed by Herefordshire Council.

6 INFORMATION TO SUPPORT MITIGATION SELECTION

A list of online sources providing further information and guidance on mitigation measures relevant to agricultural phosphorus reductions, including information on their implementation, which could be useful for your planning application are detailed in **Table 2** below.

Regulations or guidance relating to each mitigation measure included within Farmscoper are presented in **Table 3** below (represented by a Y). Relevant guidance or regulations for mitigations presented within Farmscoper includes Farming Rules for Water (FRfW), Storing Silage and Agricultural Fuel Oil (SSAFO), Nitrate Vulnerable Zones (NVZ), Countryside Stewardship (CS) and Catchment Sensitive Farming (CSF). Mitigation measures are expected to be applied in line with the relevant regulation or guidance, e.g. a 12m to 24m watercourse buffer strip on cultivated land for mitigation '14. Establish riparian buffer strips', in line with Countryside Stewardship guidelines[11].

There are some mitigation measures (those without a Y) included which do not link to the regulations or guidance listed, such as better health planning for animals. These should be adopted following reasonable guidance, e.g. working with your vet to create an animal health plan.

Table 2: Sources of guidance and information to support mitigation selection

Source	Title	Link
Gov.UK	Farming rules for water (Relevant from 2 April 2018 for all farmers in England)	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/695598/farming-rules-for-water-policy-paper-v2.pdf
Gov.UK	Countryside Stewardship (Current agri-environment scheme information)	https://www.gov.uk/government/collections/countryside-stewardship
Gov.UK	Environment Land Management (ELMs) schemes: - Sustainable Farming Incentive - Local nature Recovery - Landscape Recovery (Launching between 2022-2024, with the full range of schemes available from 2025)	https://www.gov.uk/government/publications/environmental-land-management-schemes-overview/environmental-land-management-scheme-overview
Gov.UK	Sustainable Farming Incentive: how the scheme will work in 2022	https://www.gov.uk/government/publications/sustainable-farming-incentive-how-the-scheme-will-work-in-2022
Gov.UK	Guide to cross compliance in England 2022	https://www.gov.uk/guidance/guide-to-cross-compliance-in-england-2022
Gov.UK	Guidance: Create and use a nutrient management plan	https://www.gov.uk/guidance/create-and-use-a-nutrient-management-plan
Gov.UK	Catchment Sensitive Farming: advice to help farmers and land managers reduce pollution	https://www.gov.uk/guidance/catchment-sensitive-farming-reduce-agricultural-water-pollution
Gov.UK	Guidance: Storing silage, slurry and agricultural fuel oil (SSAFO) regulations	https://www.gov.uk/guidance/storing-silage-slurry-and-agricultural-fuel-oil

[11] Gov.UK (2021). SW4: 12m to 24m watercourse buffer strip on cultivated land. Accessed at: https://www.gov.uk/countryside-stewardship-grants/12m-to-24m-watercourse-buffer-strip-on-cultivated-land-sw4

Source	Title	Link
Gov.UK	Nitrate Vulnerable Zones: Rules farmers and landowners must follow if their land is in a nitrate vulnerable zone (NVZ)	https://www.gov.uk/government/collections/nitrate-vulnerable-zones
Defra	Protecting our Water, Soil and Air: A Code of Good Agricultural Practice for farmers, growers and land managers	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/268691/pb13558-cogap-131223.pdf
Natural England (CSF)	Catchment Sensitive Farming Publications and Case Studies	http://publications.naturalengland.org.uk/category/6919090 http://publications.naturalengland.org.uk/category/45002
Environment Agency, Natural England and Natural Resources Wales	River Wye SAC: Nutrient Management Plan, Phosphate Action Plan	https://www.herefordshire.gov.uk/downloads/file/23069/river-wye-sac-nutrient-management-plan-phosphate-action-plan-november-2021
Catchment Based Approach (CaBa)	Information on Catchment Sensitive Farming	https://catchmentbasedapproach.org/learn/catchment-sensitive-farming/
Championing the Farmed Environment (CFE)	Nutrient management for your farm business	https://www.cfeonline.org.uk/cfe_leaflet_nutrients_web/
Championing the Farmed Environment (CFE)	Prevent contamination of water to protect your farm and other users	https://www.cfeonline.org.uk/environmental-management/water/
Championing the Farmed Environment (CFE)	Enhance your productivity and protect the environment by taking care of your soils	https://www.cfeonline.org.uk/environmental-management/soils/
AHDB	Nutrient Management Guide (RB209)	https://ahdb.org.uk/nutrient-management-guide-rb209
Wye Catchment Partnership	The Wye Catchment Partnership Plan	https://catchmentbasedapproach.org/wp-content/uploads/2020/04/Wye-Catchment-Partnership-Plan_2019.pdf
The Wye and Usk foundation	Nutrient Offsetting	https://www.wyeuskfoundation.org/nutrient-offsetting-service
Westcountry Rivers Trust and South West Water	Upstream thinking projects	https://wrt.org.uk/project/ust2/ https://wrt.org.uk/wp-content/uploads/2020/11/j121-sww-ust-v7-290920.pdf

Table 3: Sources of legislation or guidance linked to each mitigation measure

Method Name	Farm type applicability	Farming Rules for Water (Required) (FRfW)	Farming Rules for Water (Reasonable) (FRfW)	Storing Silage and Agricultural Fuel Oil (SSAFO)	Nitrate Vulnerable Zones (NVZ)	Countryside Stewardship (CS)	Catchment Sensitive Farming (CSF)
4. Establish cover crops in the Autumn	Spring crops		Y			Y	Y
5: Early harvesting and establishment of crops in the autumn	Potatoes and Maize		Y				Y
6: Cultivate land for crops in spring rather than autumn, retaining over-winter stubbles	Spring crops		Y				Y
7: Adopt reduced cultivation systems	Drained arable soils						Y
8: Cultivate compacted tillage soils	Arable		Y				Y
9: Cultivate and drill across the slope	Slopes						Y
10: Leave autumn seedbeds rough	Winter cereals		Y				Y
11: Manage over-winter tramlines	Winter cereals		Y				Y
13: Establish in-field grass buffer strips	Arable					Y	Y
14: Establish riparian buffer strips	Riparian fields (field area next to a river or stream)		Y			Y	Y
15: Loosen compacted soil layers in grassland fields	Grass		Y				Y
16: Allow grassland field drainage systems to deteriorate	Drained grass soils						Y
19: Improved livestock through breeding	All animal farm types						

Method Name	Farm type applicability	Farming Rules for Water (Required) (FRfW)	Farming Rules for Water (Reasonable) (FRfW)	Storing Silage and Agricultural Fuel Oil (SSAFO)	Nitrate Vulnerable Zones (NVZ)	Countryside Stewardship (CS)	Catchment Sensitive Farming (CSF)
22: Use a fertiliser recommendation system	All farm types	Y			Y		Y
23: Integrate fertiliser and manure nutrient supply	All farm types	Y			Y	Y	Y
25: Do not apply manufactured fertiliser to high-risk areas	High risk areas within all farm types	Y			Y		Y
26: Avoid spreading manufactured fertiliser to fields at high-risk times	All farm types	Y			Y		Y
27: Use manufactured fertiliser placement technologies	All farm types						Y
32: Do not apply P fertilisers to high P index soils	Fields with a high phosphorus index	Y					Y
35: Reduce the length of the grazing day/grazing season	Grazing farm types					Y	Y
36: Extend the grazing season for cattle	Dairy / Beef						Y
37: Reduce field stocking rates when soils are wet	Grazing farm types		Y			Y	Y
38: Move feeders at regular intervals	Grazing farm types		Y				Y
39: Construct troughs with concrete base	Grazing farm types					Y	Y
52: Increase the capacity of farm slurry stores to improve timing of slurry applications	Dairy / Beef / Pigs						Y
60: Site solid manure heaps away from watercourses/field drains	All animal farm types	Y			Y		Y
61: Store solid manure heaps on an impermeable base and collect effluent	All animal farm types					Y	Y

Method Name	Farm type applicability	Farming Rules for Water (Required) (FRfW)	Farming Rules for Water (Reasonable) (FRfW)	Storing Silage and Agricultural Fuel Oil (SSAFO)	Nitrate Vulnerable Zones (NVZ)	Countryside Stewardship (CS)	Catchment Sensitive Farming (CSF)
62: Cover solid manure stores with sheeting	All animal farm types						Y
63: Use liquid/solid manure separation techniques	All animal farm types						Y
64: Use poultry litter additives	Poultry						
68: Do not apply manure to high-risk areas	High risk areas within all animal farm types	Y			Y		Y
69: Do not spread slurry or poultry manure at high-risk times	All animal farm types	Y			Y		Y
71: Use slurry injection application techniques	All animal farm types						Y
72: Do not spread FYM to fields at high-risk times	All animal farm types	Y			Y		Y
73: Incorporate manure into the soil	All animal farm types		Y		Y		Y
76: Fence off rivers and streams from livestock	Livestock farm types with river and stream access within fields		Y			Y	Y
77: Construct bridges for livestock crossing rivers/streams	Livestock farm types with river and stream crossings within fields					Y	Y
78: Re-site gateways away from high-risk areas	High risk areas within all farm types					Y	Y
79: Farm track management	All farm types					Y	Y
80: Establish new hedges	All farm types, suitable for new hedges only						Y

Method Name	Farm type applicability	Farming Rules for Water (Required) (FRfW)	Farming Rules for Water (Reasonable) (FRfW)	Storing Silage and Agricultural Fuel Oil (SSAFO)	Nitrate Vulnerable Zones (NVZ)	Countryside Stewardship (CS)	Catchment Sensitive Farming (CSF)
81: Establish and maintain artificial wetlands - steading runoff	Farm types with yards					Y	Y
102: Management of woodland edges	Farm types with woodland						
103: Management of in-field ponds	Farm types with in-field ponds					Y	
105: Management of arable field corners	Arable						
106: Plant areas of farm with wild bird seed / nectar flower mixtures	Arable					Y	
107: Beetle banks	Arable					Y	
108: Uncropped cultivated margins	Arable						
110: Uncropped cultivated areas	Arable					Y	
111: Unfertilised cereal headlands	Cereals						
112: Unharvested cereal headlands	Cereals						
113: Undersown spring cereals	Spring cereals		Y				
114: Management of grassland field corners	Grass					Y	
117: Use correctly inflated low ground pressure tyres on machinery	Arable and grass		Y				Y
118: Locate out-wintered stock away from watercourses	Outwintered livestock		Y				

Method Name	Farm type applicability	Farming Rules for Water (Required) (FRfW)	Farming Rules for Water (Reasonable) (FRfW)	Storing Silage and Agricultural Fuel Oil (SSAFO)	Nitrate Vulnerable Zones (NVZ)	Countryside Stewardship (CS)	Catchment Sensitive Farming (CSF)
119: Use dry-cleaning techniques to remove solid waste from yards prior to cleaning	Farm types with yards						
120: Capture of dirty water in a dirty water store	Farm types with yards			Y			Y
122: Avoid irrigating at high risk times	Arable, irrigated crops						
123: Use efficient irrigation techniques (boom trickle, self closing nozzles)	Arable, irrigated crops						
126: Increased use of maize silage	Arable, maize crops						
132: Better health planning: dairy	Dairy						
133: Better health planning: beef	Beef						
134: Better health planning: sheep	Sheep						
135: Improve livestock through genetic modification	Dairy / Beef						
180: Ditch management on arable land	Drained arable soils					Y	Y
181: Ditch management on grassland	Drained grass soils						
331: Reduce dietary N and P intakes: Dairy	Dairy						Y
332: Reduce dietary N and P intakes: Pigs	Pigs						Y
333: Reduce dietary N and P intakes: Poultry	Poultry						Y

Method Name	Farm type applicability	Farming Rules for Water (Required) (FRfW)	Farming Rules for Water (Reasonable) (FRfW)	Storing Silage and Agricultural Fuel Oil (SSAFO)	Nitrate Vulnerable Zones (NVZ)	Countryside Stewardship (CS)	Catchment Sensitive Farming (CSF)
341: Adopt phase feeding of livestock: Dairy	Dairy						Y
342: Adopt phase feeding of livestock: Pigs	Pigs						Y
570: Minimise the volume of dirty water produced (sent to dirty water store)	Dairy / Beef				Y	Y	Y
571: Minimise the volume of dirty water produced (sent to slurry store)	Dairy / Beef				Y	Y	

APPENDICES

Appendix 1 Agricultural Development Input Template

Please see separate document.

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APPENDIX 1 AGRICULTURAL DEVELOPMENT INPUT TEMPLATE

This document provides input tables for the current baseline of your farm set up (pre-application status of farm) and any changes expected under the proposed development. Data provided within this document will be used as part of the agricultural planning application to assess the changes to nutrient outputs from the proposed development, as well as a guide to mitigation measures.

To use this document please follow the sections as applicable below:

Farmscoper Create tool inputs:

- Section A1.1: Fill in information for all fields
- Section A1.2: Fill in applicable fields
- Section A1.3: Fill in applicable fields
- Section A1.4: Fill in applicable fields
- Section A1.5: Fill in applicable fields

Farmscoper Evaluate tool inputs:

- Section A1.6: Fill in applicable fields

Farmscoper Evaluate tool outputs:

- Section A2.1: Fill in information for applicable fields (Stage 1 and Stage 2 for all applications, Stage 3 where additional mitigation measures are required)

SECTION A1.1: INFORMATION ON THE PROPOSED PLANNING APPLICATION

Part 1. Describe the proposed planning application including details of associated changes to farming activities within the boxes below. This provides further information on the development and how the proposal will influence the wider activities on the farm and impact nutrient inputs and potential losses. This helps capture the elements that should be considered within the Farmscoper and planning application assessments but does not form part of the farmscoper input values.

Briefly describe the planning application

Describe the development type (animal house/barn/cubicle, slurry store, parlour, cereals store, etc.)

Describe the scale of the development in m^2

Are you planning to increase the number of animals? (Please tick) Yes ☐ No ☐

If yes, please provide further details below

SECTION A1.2: GENERAL FARM INFORMATION

Part 1. Fill in the relevant farm information within the tables below. This forms part of the information to be input to the farmscoper 'Control' tab in the initial Farmscoper Create file. This data will remain the same throughout the stages.

Note: for soil status, if selecting either 'Drained for Arable Use' or 'Drained for Grassland Use' then 'Other' will need to be selected in the 'Soil type' box.

Annual rainfall (Tick one option)		**Corresponding CEH website annual rainfall**
< 600mm	☐	508 - 600mm
600-700mm	☐	600.1 – 700mm
700-900mm	☐	700.1 – 900mm
900-1200mm	☐	900.1 – 1200mm
1200-1500mm	☐	1,200.1 – 1,400mm
> 1500mm	☐	1,400.1 – 1,600mm

Soil type (Tick one option)	
Free draining	☐
Other (drained)	☐

If you selected 'Other (drained)' as the soil type above, please now select the drain status (Tick one option)	
Drained for Arable Use	☐
Drained for Grassland Use	☐

Part 2. Fill in the relevant farm information within the tables below. This forms part of the information to be input to the farmscoper 'Farm' tab from cells A1 to L32.

Farm type	**Current baseline (Tick all applicable options)**	**Under proposed scenario (Tick all applicable options)**
Dairy	☐	☐
Beef	☐	☐
Sheep	☐	☐
Indoor Pigs	☐	☐
Outdoor Pigs	☐	☐
Poultry	☐	☐
Imported Manure	☐	☐
Cropping	☐	☐

General farm information	Percentage under current baseline (%)	Percentage under proposed development (%)
Fields on farm next to watercourses		
Area of organic soils (e.g. peat)		

Soil P Indices	Percentage under current baseline (%)	Percentage under proposed development (%)
Low (Index 2 or less)		
Moderate (Index 3)		
High (Index 4 of higher)		

Please note this should provide a combined total of 100%.

Connectivity	Percentage under current baseline (%)	Percentage under proposed development (%)
Runoff: Free draining fields (Surface run-off)		
Runoff: Drained fields (Fields with at least one drainage ditch along one side, connected to a watercourse)		
Drain flow (In field water flowing into a drain or other subsurface lateral flow connected to a watercourse)		

Please note these percentage values are unconnected and can each total up to 100%.

The connectivity table represents the proportion of run-off (and potential pollution) that could reach watercourses. For example surface run-off on free-draining fields typically has to travel some distance overland, so the proportion to reach the watercourses could be expected to be lower unless located next to a river. On drained fields with a drainage ditch connected to the river, the percentage connectivity would generally be expected to be higher. Water flowing through drains could also be expected to be high (a default of 90% could be assumed for well-maintained drainage channels, though this might be lower for old or poorly maintained drains).

Field boundary types	Percentage under current baseline (%)	Percentage under proposed development (%)
Hedge		
Wall		
Fence		
Other		

Please note this should provide a combined total of 100%.

Dirty water options	Current baseline (Tick one option)	Change under proposed development (Tick one option)
Minimal dirty water collected and sent to dirty water store	☐	☐
Yard runoff and parlour washing sent to dirty water store	☐	☐
Yard runoff and parlour washings sent to slurry store	☐	☐

Farm grazing type	Current baseline (Tick one option)	Change under proposed development (Tick one option)
Intensive grazing	☐	☐
Extensive grazing	☐	☐
Other/Not applicable	☐	☐

Grazing options	Current baseline (Tick all applicable options)	Change under proposed development (Tick all applicable options)
Livestock have access to watercourses whilst grazing	☐	☐
Livestock cross water between fields and yard	☐	☐

SECTION A1.3: ANIMAL PRODUCTION ON THE FARM

Part 1. Fill in the relevant farm information within the tables below, if not applicable leave cells blank. This forms part of the information to be input to the farmscoper 'Farm' tab from cells D35 to D71.

Livestock type	Livestock subcategory	Count (number of heads) under current baseline	Count (number of heads) under proposed development
Dairy	Dairy Cows and Heifers		
	Dairy Heifers in Calf (2 years +)		
	Dairy Heifers in Calf (< 2 years)		
Beef	Bulls (2 years +)		
	Beef Cows and Heifers		
	Beef Heifers in Calf (2 years +)		
	Beef Heifers in Calf (< 2 years)		
	Other Cattle (2 years +)		
	Other Cattle (1 - 2 years)		
	Other Cattle (< 1 year) & Calves		
Sheep	Sheep		
	Lambs (< 1 year)		
Poultry	Layers (Caged)		
	Layers (Uncaged)		
	Pullet		
	Broilers		
	Turkeys		
	Breeding Birds		
	Other Poultry		

Livestock type	Livestock subcategory	Count (number of heads) under current baseline	Count (number of heads) under proposed development
Indoor pigs	Sows in Pig & Other Sows		
	Gilts in Pig & Barren Sows		
	Gilts Not Yet in Pig		
	Boars		
	Other Pigs (> 110kg)		
	Other Pigs (80 - 110kg)		
	Other Pigs (50 - 80kg)		
	Other Pigs (20 - 50kg)		
	Other Pigs (< 20kg)		
Outdoor pigs	Sows in Pig & Other Sows		
	Gilts in Pig & Barren Sows		
	Gilts Not Yet in Pig		
	Boars		
	Other Pigs (> 110kg)		
	Other Pigs (80 - 110kg)		
	Other Pigs (50 - 80kg)		
	Other Pigs (20 - 50kg)		
	Other Pigs (< 20kg)		

SECTION A1.4: CROP PRODUCTION ON THE FARM

Part 1. Fill in the relevant crop information under the current baseline within the tables below, if not applicable leave cells blank. Please note percentages for each column should total 100%. This forms part of the information to be input to the farmscoper 'Farm' tab from cells D81 to M101.

		Fertilisers applied		Plant protection products (%)	Manure received					Dirty water (%)
Crop type	**Area (ha)**	**N (kg/ha)**	**P2O5 (kg/ha)**		**Cattle Slurry (%)**	**Cattle & Sheep FYM (%)**	**Pig Slurry (%)**	**Pig FYM (%)**	**Poultry Muck (%)**	
Permanent Pasture										
Rotational Grassland										
Rough Grazing		-	-		-	-	-	-	-	-
Winter Wheat										
Winter Barley										
Spring Barley										
Winter OSR										
Maize										
Potatoes										
Sugar Beet										
Peas										
Beans										
Fodder Crops										
Other Crops										
Vegetables (Brassica)										
Vegetables (Other)										
Orchards										
Soft Fruit										
Bare Fallow		-	-	-	-	-	-	-	-	-
Set Aside		-	-	-	-	-	-	-	-	-
Woodland		-	-	-	-	-	-	-	-	-

Part 2. Fill in the relevant crop information under the proposed development within the tables below, if not applicable leave cells blank. Please note percentages for each column should total 100%. This forms part of the information to be input to the farmscoper 'Farm' tab from cells D81 to M101.

Crop type	Area (ha)	Fertilisers applied		Plant protection products (%)	Manure received					Dirty water (%)
		N (kg/ha)	P2O5 (kg/ha)		Cattle Slurry (%)	Cattle & Sheep FYM (%)	Pig Slurry (%)	Pig FYM (%)	Poultry Muck (%)	
Permanent Pasture										
Rotational Grassland										
Rough Grazing		-	-		-	-	-	-	-	-
Winter Wheat										
Winter Barley										
Spring Barley										
Winter OSR										
Maize										
Potatoes										
Sugar Beet										
Peas										
Beans										
Fodder Crops										
Other Crops										
Vegetables (Brassica)										
Vegetables (Other)										
Orchards										
Soft Fruit										
Bare Fallow		-	-	-	-	-	-	-	-	-
Set Aside		-	-	-	-	-	-	-	-	-
Woodland		-	-	-	-	-	-	-	-	-

SECTION A1.5: MANURE MANAGEMENT

Manure produced on farm

Part 1. Fill in the relevant farm information within the tables below, if not applicable leave cells blank. This forms part of the information to be input to the farmscoper 'Farm' tab from cells E35 to E55.

Please note within the farmscoper entry cells manure 'Managed at FYM' is already set at 100%. The percentage included in the 'Managed as slurry' boxes presented below, will reduce the total slurry managed as FYM, so that slurry and manure management total 100% together.

Livestock type	Livestock subcategory	Percentage of manure managed as slurry under current baseline (%)	Percentage of manure managed as slurry under proposed development (%)
Dairy	Dairy Cows and Heifers		
	Dairy Heifers in Calf (2 years +)		
	Dairy Heifers in Calf (< 2 years)		
Beef	Bulls (2 years +)		
	Beef Cows and Heifers		
	Beef Heifers in Calf (2 years +)		
	Beef Heifers in Calf (< 2 years)		
	Other Cattle (2 years +)		
	Other Cattle (1 - 2 years)		
	Other Cattle (< 1 year) & Calves		
Sheep	Sheep		
	Lambs (< 1 year)		
Indoor pigs	Sows in Pig & Other Sows		
	Gilts in Pig & Barren Sows		
	Gilts Not Yet in Pig		
	Boars		
	Other Pigs (> 110kg)		

	Other Pigs (80 - 110kg)		
	Other Pigs (50 - 80kg)		
	Other Pigs (20 - 50kg)		
	Other Pigs (< 20kg)		

Imported Manure

Part 2. Fill in the relevant farm information within the tables below, if not applicable leave cells blank. This forms part of the information to be input to the farmscoper 'Farm' tab from cells D74 to F77.

Imported Manure	**Imported slurry under current baseline (t)**	**Imported slurry under proposed development (t)**	**Imported FYM under current baseline (t)**	**Imported FYM under proposed development (t)**	**Imported poultry muck under current baseline (t)**	**Imported poultry muck under proposed development (t)**
Dairy					-	-
Beef					-	-
Pig					-	-
Poultry	-	-	-	-		

Exported Manure

Part 3. Following entry of the above information in **Section A1.5** Part 1 and 2 to Farmscoper, fill in the relevant farm information within the tables below, if not applicable leave cells blank. This information is presented in cell H104 to M104 of the 'Farm' tab. This information will be automatically calculated by Farmscoper based on values entered in previous cells (percentage produced and applied on farm), the 'Manure Use Warnings' box in cells H103 to M103 will explain the remaining value further. If you do not think this value is accurate, you will need to reallocate the manure percentage values used in the tables above. If you make any changes, make sure you update the values in this document to ensure it is an accurate representation of the values you have used.

Exported Manure	**Manure remaining for export off farm under current baseline (%)**	**Manure remaining for export off farm under proposed development (%)**
Cattle Slurry		
Cattle & Sheep FYM		
Pig Slurry		
Pig FYM		
Poultry Muck		
Dirty Water		

If you currently export manure, please include further details below (including whether this will be used within or outside of the Wye catchment area presented in **Figure 1** of the guidance document).

If you plan to export manure under the proposed development, please include further details below (including whether this will be used within or outside of the Wye catchment area presented in **Figure 1** of the guidance document).

SECTION A1.6: MITIGATION MEASURES

Mitigation measures related to phosphorus as presented in the Farmscoper Evaluate tool are presented below. The percentage uptake of each measure is related to the area of farm the mitigation is relevant to, this is presented in the 'Farm Type Applicability' column of the measures table below. For example, the percentage uptake of mitigation measure '5: Early harvesting and establishment of crops in the autumn' is only related to potato and maize crops areas within the farm.

E.g. Varying percentage uptakes of a farm with 20 hectares of maize crop would be as follows:

10% = the measure would be applied to 2ha of maize.

50% = the measure would be applied to 10ha of maize

100% = the measure would be applied to 20ha of maize

Steps to fill in the mitigation measures table are as follows:

1. Fill in the relevant farm information for the current, pre-development, farm baseline (Stage 1) in Column A, if not applicable leave cells blank. This information will be input in the Farmscoper Evaluate tool, in cells I2 to K116 of the 'Method List' tab.
2. Fill in the relevant farm information for the panning development application (Stage 2) in Column B, this should include totals for both current existing measures and proposed measures,
   E.g. Percentage uptake = existing + proposed measures.
   If a measure is not applicable leave cells blank. This information will be input in the Farmscoper Evaluate tool, in cells I2 to K116 of the 'Method List' tab.
3. Complete the steps presented in **Section 5.1** and **Section 5.2** of the development guidance document, inputting the phosphorus output values to **Section 2.1** below.
4. Assess the phosphorus output value of Stage 1 and Stage 2 in **Section A2.1** below (see **Figure A1**). If the phosphorus output value for Stage 2 is higher than the Stage 1 value additional mitigation measures will have to be selected and a further Farmscoper run will need to be completed, steps are presented in Stage 3 (**Section 5.3**) of the guidance document.

Steps if additional mitigation measures are required are as follows:

5. Fill in the relevant farm information for Stage 3 (Planning application plus additional measures) in Column C, this should include totals for current existing measures, proposed measures and additional proposed measures,
   E.g. Percentage uptake = existing + proposed + additional proposed measures.
   If a measure is not applicable leave cells blank. This information will be input in the Farmscoper Evaluate tool, in cells I2 to K116 of the 'Method List' tab.

Phosphorus mitigation measures

Further information on regulations or guidance relating to each mitigation measures are presented in **Section 6** of the guidance document.

Method Name	Farm type applicability	Column A Stage 1 Percentage uptake of existing measures (%)	Column B Stage 2 Percentage uptake of proposed and existing mitigation measures under the proposed development (%)	Column C Stage 3 Percentage uptake of additional, proposed, and existing mitigation measures under the proposed development (%)
4. Establish cover crops in the Autumn	Spring crops			
5: Early harvesting and establishment of crops in the autumn	Potatoes and Maize			
6: Cultivate land for crops in spring rather than autumn, retaining over-winter stubbles	Spring crops			
7: Adopt reduced cultivation systems	Drained arable soils			
8: Cultivate compacted tillage soils	Arable			
9: Cultivate and drill across the slope	Slopes			
10: Leave autumn seedbeds rough	Winter cereals			
11: Manage over-winter tramlines	Winter cereals			

13: Establish in-field grass buffer strips	Arable			
14: Establish riparian buffer strips	Riparian fields (field area next to a river or stream)			
15: Loosen compacted soil layers in grassland fields	Grass			
16: Allow grassland field drainage systems to deteriorate	Drained grass soils			
19: Improved livestock through breeding	All animal farm types			
22: Use a fertiliser recommendation system	All farm types			
23: Integrate fertiliser and manure nutrient supply	All farm types			
25: Do not apply manufactured fertiliser to high-risk areas	High risk areas within all farm types			
26: Avoid spreading manufactured fertiliser to fields at high-risk times	All farm types			
27: Use manufactured fertiliser placement technologies	All farm types			
32: Do not apply P fertilisers to high P index soils	Fields with a high phosphorus index			
35: Reduce the length of the grazing day/grazing season	Grazing farm types			
36: Extend the grazing season for cattle	Dairy / Beef			
37: Reduce field stocking rates when soils are wet	Grazing farm types			
38: Move feeders at regular intervals	Grazing farm types			
39: Construct troughs with concrete base	Grazing farm types			
52: Increase the capacity of farm slurry stores to improve timing of slurry applications	Dairy / Beef / Pigs			

60: Site solid manure heaps away from watercourses/field drains	All animal farm types			
61: Store solid manure heaps on an impermeable base and collect effluent	All animal farm types			
62: Cover solid manure stores with sheeting	All animal farm types			
63: Use liquid/solid manure separation techniques	All animal farm types			
64: Use poultry litter additives	Poultry			
68: Do not apply manure to high-risk areas	High risk areas within all animal farm types			
69: Do not spread slurry or poultry manure at high-risk times	All animal farm types			
71: Use slurry injection application techniques	All animal farm types			
72: Do not spread FYM to fields at high-risk times	All animal farm types			
73: Incorporate manure into the soil	All animal farm types			
76: Fence off rivers and streams from livestock	Livestock farm types with river and stream access within fields			
77: Construct bridges for livestock crossing rivers/streams	Livestock farm types with river and stream crossings within fields			
78: Re-site gateways away from high-risk areas	High risk areas within all farm types			
79: Farm track management	All farm types			
80: Establish new hedges	All farm types, suitable for new hedges only			
81: Establish and maintain artificial wetlands - steading runoff	Farm types with yards			
102: Management of woodland edges	Farm types with woodland			

103: Management of in-field ponds	Farm types with in-field ponds			
105: Management of arable field corners	Arable			
106: Plant areas of farm with wild bird seed / nectar flower mixtures	Arable			
107: Beetle banks	Arable			
108: Uncropped cultivated margins	Arable			
110: Uncropped cultivated areas	Arable			
111: Unfertilised cereal headlands	Cereals			
112: Unharvested cereal headlands	Cereals			
113: Undersown spring cereals	Spring cereals			
114: Management of grassland field corners	Grass			
117: Use correctly inflated low ground pressure tyres on machinery	Arable and grass			
118: Locate out-wintered stock away from watercourses	Outwintered livestock			
119: Use dry-cleaning techniques to remove solid waste from yards prior to cleaning	Farm types with yards			
120: Capture of dirty water in a dirty water store	Farm types with yards			
122: Avoid irrigating at high risk times	Arable, irrigated crops			
123: Use efficient irrigation techniques (boom trickle, self closing nozzles)	Arable, irrigated crops			
126: Increased use of maize silage	Arable, maize crops			

132: Better health planning: dairy	Dairy			
133: Better health planning: beef	Beef			
134: Better health planning: sheep	Sheep			
135: Improve livestock through genetic modification	Dairy / Beef			
180: Ditch management on arable land	Drained arable soils			
181: Ditch management on grassland	Drained grass soils			
331: Reduce dietary N and P intakes: Dairy	Dairy			
332: Reduce dietary N and P intakes: Pigs	Pigs			
333: Reduce dietary N and P intakes: Poultry	Poultry			
341: Adopt phase feeding of livestock: Dairy	Dairy			
342: Adopt phase feeding of livestock: Pigs	Pigs			
570: Minimise the volume of dirty water produced (sent to dirty water store)	Dairy / Beef			
571: Minimise the volume of dirty water produced (sent to slurry store)	Dairy / Beef			

SECTION A2.1: FARMSCOPER OUTPUTS

Input the phosphorus (kg) output value found in cell H4 of the Output tab of FARMSCOPER5_Evaluate for each of the three Farmscoper runs below.

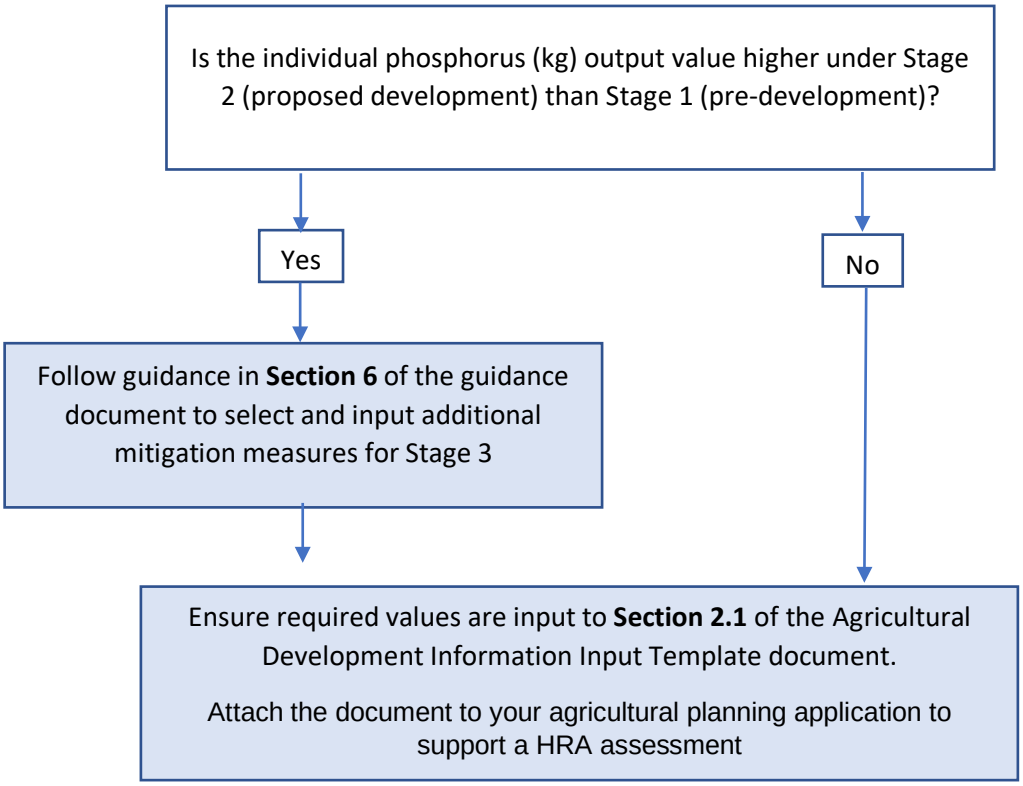
Stage 1: Pre-development baseline

Individual Phosphorus (kg) output from Farmscoper: _____

Stage 2: Planning development application

Individual Phosphorus (kg) output from Farmscoper: _____

Figure A1 – Phosphorus assessment requirements decision flow chart



Stage 3: Planning application plus additional measures

Individual Phosphorus (kg) output from Farmscoper: _____