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## River Axe Nutrient Management Plan

### Report summary:

The River Axe, upstream for 13 kilometres from close to Seaton, is designated in the highest tier of wildlife sites in the United Kingdom. However the water quality, assessed against Natural England measures (in respect of relevant wildlife interest), is recorded as 'unfavourable declining'. The key concerns arise from excess phosphates in the river, most of which come from agricultural run-off, though a sizable proportion are from treated sewage. In the absence of mitigation measures to reduce phosphate levels water quality is predicted to deteriorate further.

A River Axe Nutrient Management Plan has been produced which highlights problems and identifies options to deliver mitigation measures. This report specifically comments on the fact that extra built development, specifically extra housing, in the river catchment will lead to increased phosphate levels. Unless mitigation measures are implemented it may be that further development in the catchment should be refused planning permission and should not be built.

This report summarises work undertaken to date, it provides links to the management plan, it also highlights work being undertaken by the East Devon Catchment Partnership project which is a collaborative group working on seeking to more fully understand the challenges facing the river and to identify and deliver projects that will improve water and environmental quality overall, specifically for wildlife. The report includes comment on potential future mitigation.

### Recommendation:

1. **That Strategic Planning Committee note the work being undertaken at and for the River Axe and endorse the River Axe Nutrient Management Plan as evidence to inform council and partner decisions.**
2. **Note that the report should have specific relevance, as a material consideration, to inform local plan policy making and determination of planning applications.**

**Reason for recommendation:** To advice committee of emerging work in respect of the River Axe and to highlight relevance to local plan production and wider council work streams.

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Portfolio(s) (check which apply):

- Climate Action
- Corporate Services and COVID-19 Response and Recovery
- Democracy and Transparency
- Economy and Assets
- Coast, Country and Environment

- Finance
- Strategic Planning
- Sustainable Homes and Communities

### **Financial implications:**

There is no direct financial implication on the Council at this stage from the recommendation in the report. There is likely to be implications and indirect consequences as mitigations are implemented but any specific financial consequence will require a further report and recommendations for members to consider.

### **Legal implications:**

The River Axe Nutrient Management Plan identifies problems and identifies options to deliver mitigation measures. The Plan and data generated will be used as a material consideration to inform Local Plan preparation as well as cross-boundary issues and development proposals which may impact on the River Axe. There are no legal implications other than as set out in the report.

**Equalities impact** Low Impact

**Climate change** Low Impact

**Risk:** Low Risk;

**Links to background information** [River Axe Nutrient Management Plan](#)

**Link to [Council Plan](#):**

Priorities (check which apply)

- Outstanding Place and Environment
- Outstanding Homes and Communities
- Outstanding Economic Growth, Productivity, and Prosperity
- Outstanding Council and Council Services

## **1 Introduction and wildlife value of the River Axe**

- 1.1 The River Axe rises in Dorset and the wider catchment also includes land in Somerset. However, for most of its length the river and its various catchments run through East Devon entering the sea, Lyme Bay, at Axmouth. Whilst the river and watercourses feeding into it are of importance for wildlife along their whole length it is a 13 kilometres long stretch of the Axe in East Devon, which is designated as a Site of Special Scientific Interest (SSSI) and a Special Area of Conservation (SAC), that is of particular importance.
- 1.2 The wildlife importance, the reason for the SAC designation of the River Axe, derives from the underlying geology of limestone and sandstone which give rise to calcareous (calcium rich) waters. The river supports important vegetation types and of secondary importance for the designation is the presence of the fish species of sea lamprey (*Petromyzon marinus*), brook lamprey (*Lampetra planeri*) and bullhead (*Cottus gobio*). The plant and fish species are, however, being adversely affected by impacts from high concentrations of phosphates in the river.

## **2 Phosphates in the river**

- 2.1 Phosphates are naturally occurring and are essential nutrients for plant growth. Under typical natural conditions (specifically where human activities or impacts are not present) phosphate levels in rivers will usually be low and river communities will have evolved according to levels present. Problems arise, however, where there are high or excessive levels of phosphates (or other nutrients) entering a watercourse this can lead to a state called eutrophication. The high nutrient levels lead to excessive growth of algae and depletion of oxygen to the detriment of overall aquatic ecology and biodiversity. It is eutrophication, caused by excess phosphates, that is leading to the 'unfavourable declining' status of the length of river designated as an SAC.
- 2.2 Most of the phosphates entering the River Axe come from agricultural activity. Farm animal waste entering the river is high in phosphates whilst fertilisers used to support crop growth, which runs off fields, are also a major contributory factor. Furthermore the problems in the Axe catchment are increased by soil loss. Intensive agriculture makes soil vulnerable to erosion whilst measures that keep soil out of the river and support better soil husbandry will automatically reduce phosphate losses. Of specific relevance to planning, and falling under planning controls and regulations, are however the impacts of development activity, specifically sewage discharges. Sewage contains high phosphate levels and whilst treatment plants will typically remove or capture most of this before fluid waste is discharged into the river or enters tributaries some phosphates are not removed.
- 2.3 There are regulations and legal controls on agricultural activity (though not always effectively enforced) that manage levels of agricultural run-off and more generally there are good farming practices that will limit run-off. There is also some potential for better management of sewage treatment plant discharges that could reduce emissions. However, removing more or all of the phosphates at or from treatment plants would be difficult and expensive, and amongst other matters could lead, compared to current treatments, to significant energy use and associated increases in greenhouse gas emissions.
- 2.4 There are a range of management activities and measures at and on the river, and tributaries that feed into it, that can help reduce phosphate levels and strip them from the water. To more fully understand the full range of options available a Nutrient Management Plan for the river was commissioned. This Nutrient Management Plan was specifically concerned with ensuring that new development could go ahead given wildlife protection legislation (see below for more details). However, it also has wider relevance and importance given the significance of the River Axe and wider objectives around improving water quality and promoting biodiversity.

## **3 Legal context and planning policy**

- 3.1 SACs sit at the top of the highest tier of wildlife sites in England. Where plans, policies or projects (this specifically includes planning policy production and determination of planning applications) could adversely impact on such sites there is a requirement for proposals to be subject to assessment under the Habitat Regulations. The need for Habitat Regulation Assessment is/was set out within Article 6 of the EC Habitats Directive 1992, and interpreted into British law by the Conservation of Habitats & Species (Amendment) Regulations 2011.

- 3.2 Under the regulations, other than under very exceptional circumstances, development proposals that may lead to adverse impacts will not be allowed to proceed, that is unless mitigation measures are put in place. Such mitigation should ensure that the net overall impact post development is no worse than the situation before development. Furthermore the expectation under national planning policy is actually that development should lead to a net improvement in biodiversity.
- 3.3 The East Devon Local Plan recognises the importance of the River Axe and also the sensitivity to development. Strategy 20 of the local plan includes text to advise:

*“Prior to the granting of planning permission for any major residential schemes at Axminster, the Council will agree, with the Environment Agency and Natural England, a timetable for the review or development of a Nutrient Management plan for the River Axe. This plan will set out detailed actions that allow for new growth at Axminster to progress with adequate mitigation in place to negate the additional phosphate load that would be caused. The Nutrient Management Plan will work in collaboration with the diffuse Water Pollution Plan, and will seek to restore water quality for the River Axe SAC to enable it to meet its conservation objectives within a specified timescale, and in accordance with commitments to European Directives. Depending on the findings of the plan, growth will only proceed in accordance with the mitigation delivery set out within that plan. Growth at Axminster will also be informed by the current status of the relevant discharge consents for waste water treatment works, and any upgrade required to support new growth will be the subject of Habitats Regulations Assessment prior to planning permission being given. The determination of such development applications will be informed by Habitat Regulations Assessment that takes account of the consent requirements.”*

- 3.4 With planning applications submitted for large scale development to the north east of Axminster it was local plan policy that initiated the need for Nutrient Management Plan production.

## **4 The River Axe Nutrient Management Plan**

- 4.1 The River Axe Nutrient Management Plan was commissioned in late 2019 and the final report was received in late 2020. The consultancy firm of Wood, with FWAG South West, undertook the work to a brief that was produced through partnership working of the council with:

- The Environment Agency;
- Natural England;
- Persimmon Homes; and
- The Crown Estate.

- 4.2 Involvement of the first two above reflects their regulatory roles and expertise and the latter two the fact that they have submitted planning applications that would provide for a large scale urban extension on the north-east side of Axminster.

- 4.3 The Nutrient Management Plan should be read in full for a complete picture but in its executive summary it advises:

*“The report includes a calculation of the potential increase in phosphate loading to the river that could result from housing growth in the catchment, and specifically the proposed NE Axminster Urban Extension. It then describes a series of measures which could be put in place in the catchment to reduce this loading, or to reduce the phosphate loading from the agricultural sector. It is shown that it is feasible to put in place sufficient mitigation to ensure that the NE Axminster Urban Extension can be delivered with no net increase in phosphate loading to the river.*

*Recommendations are made for the formation of a Working Group to oversee the delivery of the Nutrient Management Plan, to work with existing catchment initiatives to deliver improvements in water quality and to provide verification that development is phosphate neutral.”*

- 4.4 Most larger scale development sites in the catchment of the River Axe will be greenfield land and currently, or most recently, will have been in agricultural use. With limited exceptions the expectation is that there will have been some phosphates leaving the land as a consequence of farming activity. Many variables such as soil type, rates of runoff and proximity to watercourses will impact on phosphates entering the river though it will frequently be the type of farming activity undertaken that is key (pig farming for example can lead to high levels). Through survey and assessment work it is possible to calculate a baseline phosphate loading that a site generates pre-development.
- 4.5 In considering proposals for development, whether for housing for other uses, it is possible to calculate the phosphate levels that will leave the site and after sewage treatment will enter the river. Deducting the predicted developed site levels from the baseline agriculture (or previous use) levels gives a net change figure of phosphates that will be leaving the site. Typically this net figure will be an increase on phosphates though in some circumstances, potentially for example through very low density development, the net impact could actually be a reduction.
- 4.6 The Nutrient Management Plan provides means to calculate the net impact, though this will for any site require detailed site assessment work. The plan also advises on other non-farming sources of phosphates entering the river including from sewage treatment plants (both South West Water and private) as well as septic tanks. There are, as well, minor additional sources of phosphates entering the river.
- 4.7 Having established a means to calculate a net change in phosphate levels entering the river the Nutrient Management Plan turns its attention to options for providing mitigation. Options broadly fall into one of three groups;
- a) **On-site measures** – these would take place on an actual development/building site itself and are within the remit of the developers to implement. These are measures that seek to reduce the polluted water flows leaving any development site through such means as water efficiency measures, on-site sewage treatment and additional on-site green infrastructure.

- b) **Catchment measures** - which mostly pertain to the agricultural sector. The Nutrient Management Plan highlights a wide range of measures that can be implemented on farms and on farmland near to or next to the river and its catchments that can result in net decreases in phosphates in the river. These include actions on the river itself or adjacent to it, such as creation of wetlands and planting of trees, through to improvement in farm waste management practices and relating to the types of crops grown and planting, cropping and fertilizing regimes.
- c) **Measures within the remit of the sewerage undertaker** - including South West Water and private systems. Measures can include upgrading treatment and managing waste plants

- 4.8 The Nutrient Management Plan provides commentary on each approach and also gives an indication of costings and quantified assessment of potential benefits. It should be noted that of the above it is item b), in catchment methods, that offer the greatest scope and potential for delivering the most effective and the most significant levels of mitigation. Effective engagement with landowners and farmers is likely, therefore, to be essential.
- 4.9 The Nutrient Management Plan recommends the establishment of a Working Group to take proposals forward, with members to include:
- The Lead Local Planning Authority;
  - Housing developers;
  - Regulators (Environment Agency, Natural England);
  - Catchment management groups (e.g. AONB partnerships, Catchment Sensitive Farming) with local agronomy knowledge;
  - Farmers or their representatives (e.g. the National Farmers Union); and
  - South West Water.
- 4.10 There is longer term work needed to consider the formation and constitution of any group but as a starting point (and potentially running into the much longer term) there is already a multi-agency partnership called the East Devon Catchment Partnership. This partnership lacks developer input or involvement but includes representatives from the other bullet pointed sectors. The partnership is currently focussing particular efforts specifically on the River Axe.

## **5 East Devon Catchment Partnership and the Axe Catchment Project**

- 5.1 The East Devon Catchment Partnership is administered by Devon Wildlife Trust and Westcountry Rivers Trust with the Environment Agency. The Partnership engages a wide group of partners including East Devon and Blackdown Hills AONBs, Natural England, South West Water, FWAG SW, East Devon District Council, NFU/farmer groups, Somerset and Dorset colleagues and other local interest groups.
- 5.2 The Axe Catchment Project developed out of the East Devon Catchment Partnership with Devon County Council hosting the project, led through Blackdown Hills AONB. The primary aim of the project is to align existing and define new activity in the Axe catchment required to address key issues impacting the catchment's ability to function more naturally (through natural processes), support thriving habitats and species, be resilient and provide a range

of public goods and services to Axe communities and wider society. The project does, therefore, have a broader remit than just matters specifically addressed through and relevant to the work associated with the Nutrient Management Plan, however the key priority driver is the river Axe SAC and therefore the Axe Catchment Project could be a key contributor to the Axe Nutrient Management Plan delivery.

5.3 A workshop was held with key Axe catchment stakeholders in July 2020, at which there was agreement that a piece of pivotal planning and development work was needed (in 2020/21) in order to:

- Underpin focussed delivery (from 2021) and add value to existing work - to tackle the issues and root causes identified in the workshop;
- Develop, strengthen and diversify an Axe partnership, better aligning activity;
- Secure/ signpost additional funding to enable delivery; and
- Articulate a clear, shared ambition for a resilient Axe catchment by 2050.

5.4 The scope of the work being:

- The area of interest for the project is the entire Axe catchment;
- Integrate delivery of the 'pillars' (elements) of the project - nature recovery and climate resilience, other objectives (e.g. flood, drought) and engaging with local communities, all underpinned by regulation (primarily linked to water quality);
- Make direct links to delivery of and alignment with statutory plans e.g. Diffuse Water Pollution Plan, SSSI River Restoration Plan, Axe Nutrient Management Plan (for River Axe SAC);
- AONB Nature Recovery Plans integration; and
- Nature Recovery Network integration.

5.5 Through the Catchment Partnership, £17,500 has been secured to undertake phase 1 – the planning and development of the Axe Catchment Project. Consultants have now been appointed and are, planning, developing and consulting on an assessment of the current context in the Axe and project formation. By spring 2021, the plan is to have a costed integrated Delivery Plan that focusses on key priorities and can be used to secure external funding to deliver these.

## **6 Conclusions**

6.1 From the Nutrient Management Plan work it is clear that there are now and there will continue to be ongoing concerns in respect of phosphates adversely impacting on the wildlife importance of the River Axe. This report summarises problems and signposts some possible solutions and ways forward. However identifying real practical schemes that can provide mitigation and that can be implemented and run for the long term (in perpetuity) is likely to prove to be challenging. Positive engagement with farmers and landowners appears essential and there will be cost implications associated with delivery of any mitigation measures. Whilst developers may have some scope to provide mitigation as part of a development scheme the expectation is that developer contributions will be needed on larger scale developments, and in the longer term potentially all development schemes, to allow for mitigation to offset adverse impacts that would otherwise arise.

6.2 From work undertaken to date we have therefore developed a good understanding of issues surrounding phosphates in the River Axe and some of the potential options for mitigation. The work ahead will need to concentrate on identifying and implementing actual real mitigation schemes and measures that will allow for built development to proceed.