Guide to understanding and addressing the impact of new developments on peat soil

Adopted March 2021

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1. Introduction

Historically peat was extracted for fuel. The diggings were eventually abandoned and left to flood creating the shallow stretches of water now known as the broads (lakes). Today peat is considered as a finite and precious resource. In the Broads, development on occasion may be proposed that can affect peat because it is excavated or removed, or actually developed on.

Peat is formed from plant material that decays slowly in a waterlogged environment. Over thousands of years, peat becomes several metres thick. Because the main component is organic matter, peat is very spongy, highly compressible, and combustible. Here we use the definition used by soil scientists who define peat as organic soil with organic content of greater than 35% organic matter. Organic content is partially decomposed plant matter which has carbon stored within it.

Peat soils have many important qualities (see section 3). The Local Plan for the Broads includes a policy (see Appendix A) that aims to reduce the impact on these important qualities by reducing the amount of peat removed. It goes on to ensure that any peat excavated is disposed of in a way that takes into consideration and protects its properties and qualities.

This guide provides additional information to help applicants meet the requirements of the policy. The process for considering schemes that are located on peat is as follows and this guide talks through the stages in more detail.

Stage	Section of this report
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It should be noted that the NPPF refers to peat in terms of *extraction*, rather than development on peat. Therefore, for any schemes relating to the *extraction* of peat, it is important to note paragraph 205d of the NPPF that says planning permission should not be granted for peat *extraction* from new or extended sites.

2. Consultation

The Peat Guide was consulted on in 2020. The consultation ran from 25 September to 20 November 2020. The comments that were received, the Broads Authority's response to the comments and the amendments which comments may have resulted in, can be found here.

3. Why should we protect peat?

Peat is one of the main soil types in the Broads and an important asset with important qualities, providing many **ecosystem services**[1].

The soils formed by the Broads wetland vegetation store 38.8 million tonnes of carbon[2]. Peat soils release stored **carbon** if they are drained and allowed to dry out. The protection of peat soils is therefore critical to help address climate change.

Peat soils support internationally important fen, fen meadow, reedbed, wet woodland and lake **habitats**. For example, milk parsley, the food plant of the Swallowtail caterpillar, tends to grow only on peat soils in the Broads.

Historic England has identified the Broads as an area of 'exceptional waterlogged heritage'[3]. Because of the soil conditions in the Broads, there is great potential for **archaeology** to be well preserved, giving an insight into the past.

The peat has accumulated over time and incorporates a **record** of past climatic and environmental changes that can increase knowledge of the evolution of the landscape.

Peaty soils help prevent flooding by absorbing and holding **water** like a sponge as well as filtering and purifying water. But that does not mean that peat soils should be considered as a water treatment process.

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[1] The diverse benefits that we derive from the natural environment are sometimes referred to as ecosystem services. Examples of these services include the supply of food, water and timber (provisioning services); the regulation of air quality, climate and flood risk (regulating services); opportunities for recreation, tourism and education (cultural services); and essential underlying functions such as soil formation and nutrient cycling (supporting services). Payments for Ecosystem Services: A Best Practice Guide

[2] NCA Profile 80, Natural England and the Broads Authority's Carbon Reduction Strategy: www.broads-authority.gov.uk/__data/assets/pdf_file/0011/400052/Carbon-reduction-strategy.pdf

[3] Historic England has identified the Broads as an area of exceptional waterlogged heritage. Because of the soil conditions in the Broads, there is great potential for archaeology to be well preserved, giving an insight into the past.

4. Assessing if the site to be developed is on peat soil– Stage 1.

4.1. Sources of data.

The British Geological Society peat layer (which is accessible through our internal mapping system and here: http://mapapps.bgs.ac.uk/geologyofbritain3d/) is the starting point, but it is not accurate in all locations, particularly around the boundaries of the peat shown. We would use this mapping system to check if a site is located on peat soils. A map showing the British Geological Society peat layer is at Appendix B.

There are also other sets of data available, such as the Landis data set of Cranfield University. The Authority is in the process (at the time of writing) of commissioning work to produce more detailed peat mapping. This may be considered, when it is completed, in assessing if a site may or may not be on or near to peat. But until that point, the British Geological Layer will be the starting point.

4.2. The need for sampling

If you (the applicant) disagree that your site is on peat soils, we will ask you to undertake soil core sampling. If your site is towards the edge of an area of peat (either inside or outside of the area) as shown on the BGS maps, we may ask you to obtain soil core samples[4].

It is important to note the following:

The BGS layer is based on a scale of 1:50000 (1mm equates to 50m on the ground). The 'edge' of the peat layer should only be used as a guide at a local level. Therefore, if an application on the ground is within 50m of an area of peat based on the 1:50000 BGS superficial geology data the we may require peat sampling.

The 1:50 000 scale digital map data is generalised and the geological interpretation should be used only as a guide to the geology at a local level, not as a site-specific geological plan based on detailed site investigations. The cartographic accuracy of BGS data is 1 mm which equates to 50 m on the ground at 1:50 000 scale. Therefore, if an application on the ground is within 50m of an area of peat based on the 1:50000 BGS superficial geology data the Peat policy may apply.

Reference: User Guide for the BGS Geology: 50k dataset (V8) - Link on this page The BGS Geology 50k user guide

[4] Please note that both Norfolk and Suffolk Historic Environment Record Services have confirmed that they do not consider the taking of cores as a concern due to the relative size of the cores. The knowledge-gain obtained from the cores will in most cases outweigh any adverse impact.

4.3. How to take samples

Where soil core samples are required, these samples would be to the depth of the proposed excavation. You should use a specialised soil corer or spade or excavator depending on the depth and area/volume of the scheme proposals. If the development is going to involve shallow excavation (0-30cm) or the proposals will cover peat, surface examination with a spade is sufficient. Development that will excavate to a greater depth (deeper than 30cm) will need a core sample. There may need to be multiple cores depending on the extent of the proposed scheme and the location. The depth and number of core samples will be agreed with the Authority in advance.

Please note that at the time of writing, there are wider discussions nationally regarding the potential to standardise how peat is assessed. Such standard, as and when it is in place, will be of relevance when considering schemes located on peat.

4.4. Using suitable experienced Consultants or Contractors

You may wish to engage the help of a consultant/contractor who is expert/experienced in soils and soil cores. There are numerous consultants/contractors listed on the internet. We are aware that taking cores of peat will result in a cost to you the applicant. The number of cores required and depth, as discussed previously, will be proportionate and will be agreed with the Broads Authority.

Costs will vary for different consultants.

4.5. Reporting your findings.

A report setting out the method used, including photographs of the soil cores and an assessment of the soil stratigraphy (layers) is required for submission to the Broads Authority to accompany planning applications. A minimum assessment would need to include datum level of the top of the ground surface where the core was collected; general description of the core stratigraphy and depths where distinct layers start and finish; detailed characterisation of each distinct layer, e.g. soil classification type; organic matter and mineral content of the layers may be required to identify degraded or peat mixed with other materials within the profile.

Ultimately it will conclude if the soil to be affected is peat soils. Again, the report would be proportionate to the size and scale of the scheme.

Please note that the document will be public and will be shared with Norfolk and Suffolk Historic Environment Records Services and Norfolk and Suffolk Biodiversity Information Services for their records. It will also be passed on to Cranfield University who hold the national survey data.

5. Developing on or removing peat – Stage 2

5.1. Consider the location of your scheme

The Authority's preference is not to develop on, excavate or remove peat. As such, can your scheme go elsewhere?

a. Why does the development have to go where it is proposed?
b. What **alternative locations** have you considered? Why have you discounted these alternative locations?

If there are no other suitable **locations** for the proposal that are not on peat soils, and you can evidence this and justify your conclusion, the next stage is to **reduce** the amount of peat that is developed.

5.2. Consider the layout and scale of your scheme

It may be that another part of your site is not peat soils. The **layout** of your development could be changed to avoid developing on or excavating peat soils. The **scale** of the development or part of the development on peat soils could be reduced.

c. How can you reduce the amount/volume of peat that is to be developed? Please provide details. If you cannot reduce the volume, please say why.
d. How can you change the **layout** of development to reduce the amount of peat soils affected? Please provide details. If you cannot change the layout, please say why.
e. How can you reduce the **scale** of development to reduce the amount of peat soils affected? Please provide details. If you cannot change the scale, please say why.
f. If amending the layout/scale of the site is not feasible, practical or viable and you intend to still develop on peat soils, you need to provide a robust justification for doing so.
g. What volume of peat (m^3) will be excavated? How is this different to your initial plans?

When planning your scheme, you must consider what will be done with the left over peat/material. You need to be aware that if you intend to move the peat off site, you may need an Environmental Permit.

6. Things to do if your development will be affecting peat soils – Stage 3.

If you have gone through the steps set out in the document and you can justify thoroughly why peat soils will be developed then you need to address the following.

6.1. Archaeology

Contact Norfolk Historic Environment Records Service and Suffolk County Council Archaeological Service to find out if there is any potential for archaeology. Both services are happy to discuss the archaeological potential of any proposed developments and provide free advice on the archaeological requirements for projects.

It should be noted that the depths that archaeology may be present varies. SCCAS advised that if works are minimal such as turf removal, the Records Service may not need consultation. However, if there is any uncertainty they suggest contacting them at the earliest opportunity for free pre-application advice.

Both services recommend consultation with them before a planning application is submitted.

The following links may be of use:

- Norfolk Heritage Explorer: This website offers a unique opportunity to access an abridged version of the Norfolk Historic Environment Record database online. http://www.heritage.norfolk.gov.uk/. Suffolk Heritage Explorer: https://heritage.suffolk.gov.uk/simple-search. Please note that these are for personal interest/research.
- Heritage gateway: https://www.heritagegateway.org.uk/gateway/chr/
- Suffolk Archaeological planning and countryside advice https://www.suffolk.gov.uk/culture-heritage-and-leisure/suffolk-archaeological-service/archaeological-planning-and-countryside-advice/
- The Suffolk Historic Environment Record is a collection of information about the nature and location of archaeological sites in Suffolk. The online public version can be found on the Suffolk Heritage Explorer: https://heritage.suffolk.gov.uk/simple-search
- Details of the Suffolk Archaeological Service can be found here: https://www.suffolk.gov.uk/index.php/culture-heritage-and-leisure/suffolk-archaeological-service/about-the-suffolk-archaeological-service/

h.	How have you considered and addressed archaeology on this site?
i.	Is there potential for archaeological finds on this site?

6.2. Research - Climatic records (paleo-environment) and geodiversity

The cores you extract (and associated report), the peat you excavate and/or the 'pit' that is the result of excavation might be of interest to several people/organisations. Such organisations include Universities, British Geological Survey, British Soil Society, Cranfield University, Norfolk and Suffolk Biodiversity Information Services, Norfolk and Suffolk Historic Environment Record Services and Norfolk Geodiversity Partnership.

We will share information (in line with GDPR) of schemes that we permit on peat with these organisations. They may contact you to arrange to visit the site when it is being excavated. We will also share any information provided by you (such as core reports) with organisations. The Authority does not consider this a burden on you. The sharing of information or allowing pits to be visited at a mutually convenient stage of the process are in the interest of helping with research and education. You will be able to arrange visits at a suitable time for you.

6.3. Biodiversity

One of the three main purposes of the Broads Authority is to conserve and enhance the natural beauty, wildlife and cultural heritage of the Broads.

The peat soils of the Broads support some of the most important habitats for wildlife conservation including fen, fen meadow, reedbed, wet woodland and the shallow lakes or 'Broads'. A quarter of the rarest species in the UK are found here.

These peaty habitats are recognised for their exceptional nature conservation importance, and hold conservation designations on national and international levels[1]. Outside of these designated areas peat habitats are still considered to be or have the potential to be restored to high biodiversity value, providing important habitat corridors for wildlife across the National Park and beyond.

The Natural Environment and Rural Communities (NERC) Act 2006 requires government departments to have regard to the purposes of conserving biodiversity. This may include enhancing, restoring or protecting priority species or habitats. In the Broads these are recognised under the NERC act as Section 41 / Biodiversity Action Plan (BAP) habitats and species, and they should be protected and restored, with no loss to development. The NPPF also seeks to protect the most valued sites of biodiversity interest as well as seeking net gain.

The usual planning process will be followed, in terms of including habitat and species surveys, mitigating habitat and species loss, and seeking biodiversity net gain through appropriate biodiversity enhancements. Applicants may benefit from referring to Suffolk and Norfolk Biodiversity Information Services[5].

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[5] http://www.nbis.org.uk/ and https://www.suffolkbis.org.uk/

j. How have you considered the biodiversity enhancement options on your peat site?

6.4. What to do with the excavated peat

You need to identify and explain as part of your peat report, how the peat excavated from your scheme will be re-used or disposed of. Peat will need to be re-used or disposed of in a way that ensures it keeps its important qualities. There are two ways to do this. The first, and this is the preference, is to re-use the peat so it stays wet. The second, and this is least preferred, is beneficial re use of peat that may result in it drying out, but make use of its qualities. These are discussed in more detail in the next sections.

6.4.1. Re-using peat on your site

The peat needs to go somewhere it will be kept wet. It cannot be left piled up to dry out. If it dries out then it becomes a source of carbon dioxide and this is something we need to avoid.

In terms of keeping the peat wet, it will need to be somewhere so it is saturated for most of the year.

Are there any voids on your site and could the peat go there? Are there any areas of your site that have sunk that could receive your peat (although see the land raising policy DM17)?

i. These voids could be behind quay heading or underneath decking (subject to a suitable retainer) for example.

ii. The receiving void will need to ensure the peat is kept wet for the long-term.

iii. You will need to mark receiving areas on a plan that shows the anticipated volume of peat these receiving areas can take. Peat is very wet and the actual volume of excavated peat could realistically be greater than anticipated.

iv. You will need to talk to your contractor about the relocation of the peat. It is important to note that this is a new approach and contractors are used to drying out the peat so the volume of material is reduced, which must be prevented. They may also have suggestions on how and where to dispose of peat.

v. You will need to prepare the receiving areas before you excavate the peat. This is because you will need to put the peat in these receiving areas before the peat dries out. The time period for this depends on the season. The Authority acknowledges that excess water may need to drain away so the material is manageable; we are advised that 14 days to allow excess water to drain is acceptable. We will need to understand and agree the timeframe for moving peat, once drained.

vi. You may need to place a tarpaulin over the peat to prevent it drying between excavation and backfilling or depositing the peat.

vii. We will require you to tell us when you will be excavating so we can come and check on the progress and the method.

k. Where do you intend to dispose of the excavated peat soils on site? Please show on a plan with anticipated volume of each receiving area.
l. How will these areas ensure the peat is kept wet?
m. When will the receiving areas be ready to receive peat soils? What is the time-period between excavation and backfilling/depositing? Have you arranged for the peat to be covered with tarpaulin for this period?

6.4.2. Disposing of peat - elsewhere

If there is nowhere on your site suitable then you may wish to talk to your neighbours to see if they have anywhere to dispose of your peat so it remains wet – again, under decking or backfilling for example.

In terms of keeping the peat wet, it will need to be somewhere so it is saturated for most of the year.

There may be other areas locally that could receive the peat and keep it wet – for example, schemes planned by the Environment Agency, Norfolk or Suffolk Wildlife Trust and the Broads Authority[6] as well as other local contractors. You will need to discuss this option with the Broads Authority.

It is acknowledged that moving the peat elsewhere will emit greenhouse gasses, but see section 6.8 about transporting peat and associated emissions.

In all instances, you will need to consider the need for Environmental Permits (see 6.5) and also respond to the bullet points above. The receiving site may require planning permission as well.

If there is nowhere in your local area where peat could be disposed of in a way that keeps it wet then it is worth rethinking whether you should proceed with your development. The cost of transporting wet peat soil and obtaining a waste licence can be significant.

n. Have you contacted neighbouring landowners or Operational teams in the Environment Agency, Norfolk and Suffolk Wildlife Trust and Broads Authority to check what local opportunities may exist for receiving peat and keeping it wet?
o. How have you discussed your approach to dealing with the excavated peat with your contractor? Have they confirmed the approach is feasible?
p. Have you looked into the need for an Environmental Permit for moving the excavated peat offsite?

[6] When we receive applications for development on peat that involved excavating material, we will circulate the details of the scheme internally as the Operations team may be aware of schemes that need material.

6.4.3. Re-use of peat

The Authority accepts that peat can be used in a way that uses its qualities. This will only be considered when disposal/use on site or elsewhere (that keeps the peat wet) is not possible. The rationale for requesting re-use of peat must be accepted by the Authority before it is developed further. Alternatively, if suitable disposal can be found for some of the excavated material but not all, the remaining amount could be used.

It is acknowledged that re-use will probably result in the CO2 being held in the peat being emitted which although is undesirable, the re-use will at least provide other advantages such as improving soil for local food growing and reducing food miles.

The main way to dispose of/re-use the peat is to incorporate it into agricultural land or local allotments. There is also the potential to dispose of some peat into soak dykes. Again, you will need to consider the Environmental Permitting section of this guide – 6.5.

In terms of re-use, you may want to speak to the following organisations to see if they or their associates are willing to receive and make use of the excavated material. They may be able to make a use out of the peat. These are in no particular order. Please also see the Environmental Permitting section of the guide.

- **Local allotment associations.** Contact the local Parish/Town Council for details of local allotment associations. They may be willing to receive some peat for the members to then use on their plots.

- **Norwich Farm Share's** vision is to support food systems that educate, connect and empower local communities to be healthier and more resilient, to be rooted to the land and to each other, and to experience a direct relationship with how our food is produced.

- **National Farmers' Union (East Anglia)**. If you have been unable to contact adjacent farmers for possible re-use application to agricultural land, and the quantities involved are large enough to warrant field scale spreading, get in touch with the NFU to see if they can help locate a suitable recipient farm.

- **Wayland Prison, working with Greener Growth CIC**. They are recovering two unused poly-tunnels to create a commercial herb-growing project. From this they will be able to provide transferable skills to residents within the Prison and create a space that will help with residents' wellbeing.

- **Cringleford community food growing.** Small-scale growing vegetables with a small poly-tunnel and raised beds. Working with lots of volunteers and getting children involved in the project.

It will be for the applicant to contact the organisations above regarding the potential for re-use of peat. The receiver may need assurances of the physical and chemical quality of the material. In terms of transporting the peat, that will need to be something that the applicant discusses with the receiver as well as timing of delivery and volume they will be willing to receive.

q.	Have you contacted any operators to see if they are willing and able to receive and use the excavated peat?
r.	Have you contacted local allotment organisations to see if they can make use of the peat?
s.	Have you looked into the need for an Environmental Permit for moving the excavated peat off site for re-use?
t.	What is the contingency plan for any peat left over after reducing the amount of peat excavated in for the first place, using the peat on site so it keeps wet, using the peat locally so it keeps wet and re-use of the peat?

6.5. Moving peat - Environmental Permitting

Excavated peat that you no longer require for use on the same premises will likely be considered waste. If it is intended to reuse the waste peat at another location please be minded that the reuse may be subject to regulation by the Environment Agency.
You can find more information about environmental permits and waste exemptions granted by the Environment Agency here https://www.gov.uk/topic/environmental-management/environmental-permits.

If, after reading the information about permits and waste exemptions you are still unsure as to whether a permit or other regulatory control is required contact the Environment Agency Customer Enquiries Team on 03708 506506 or send an email to enquiries@environment-agency.gov.uk

The information the Environment Agency requires to assist with identifying the appropriate regulation should include as a minimum, a description of the waste, in this case peat, the volume of material in tonnes, and a description of the intended use e.g. spreading on an agricultural field.

If you pass on your waste to a third party you should make sure that the carrier of the waste is registered as a waste carrier and that the carrier provides you with documentation identifying the movement; most commonly a waste transfer note. If you are in doubt as to the legitimacy of the waste carrier you can check their validity on the Environment Agency's public register here https://environment.data.gov.uk/public-register/view/search-waste-carriers-brokers or alternatively contact the Environment Agency Customer Enquiries team.

u. If you are moving peat soils from site, how have you ensured you are going to be in accordance with Environmental Permitting requirements?

6.6. Moving peat - Biosecurity

Biosecurity refers to a set of precautions that aim to prevent the introduction and spread of harmful organisms. These include non-native tree pests, such as insects, and disease-causing organisms, called pathogens, such as some bacteria and fungi. When moving material, such as peat soils and associated vegetation from site to site, an assessment of the risk to spreading disease and non-native species and their propagules (such as seeds and roots) needs to be considered.

To prevent the spread of invasive, non-native plants, you must not cause certain invasive and non-native plants to grow in the wild. This can include moving contaminated soil or plant cuttings. You can be fined or sent to prison for up to 2 years. Further details: https://www.gov.uk/guidance/prevent-the-spread-of-harmful-invasive-and-non-native-plants
https://www.gov.uk/government/publications/treatment-and-disposal-of-invasive-non-native-plants-rps-178.

The Broads Authority has also produced a guide/template that may be of assistance when considering biosecurity: https://www.broads-authority.gov.uk/__data/assets/pdf_file/0030/459570/Biosecurity-Guidance.pdf

v. If you are moving peat soils from site, how have you addressed biosecurity? Have you filled out the biosecurity risk assessment template/guide?

6.7. Proposals that deposit material on peat/develop over peat

This guide has tended to address scenarios where peat is removed. It could be that, for example, a car park is developed on peat so the peat is covered by tarmac or concrete. There are also instances in the Broads where excavated material has been disposed of on peat causing significant soil compaction and habitat damage.

In terms of developing over peat, there may be a need for some element of digging or piling and the peat policy and this guide will still apply. In general, however, other than the impact of removing the existing surface of the peat (which could be a habitat and therefore other policies/Acts come into force as set out in this guide) the other qualities of the peat are not adversely affected.

In terms of disposing of excavated material from elsewhere on peat, Policy DM18 of the adopted Local Plan relating to Excavated Material is of relevance.

So, schemes that do not necessarily excavate peat, but develop over peat may have a negative impact on peat. As applications are determined, this impact will be a key consideration.

6.8. Transporting peat - emissions

Please note that the amount of carbon dioxide that peat can emit if dried out is very much more than the motor vehicle emissions associated with loading and moving peat elsewhere, locally, even considering the return journey of the particular vehicle.

Peat, if dried out, will emit 174kg of CO_2 per cubic metre of peat. This is a UK wide average figure and a standard estimate developed by Richard Lindsay of University East London for the RSPB. The actual amount of CO_2 of peat at a given site will vary, as peat is a spectrum and the wetter and more mineral the peat, the less CO_2 in a cubic metre.

A mid-sized HGV (rigid, up to 17 tonnes) has emissions of 0.88kgCO_2/mile empty, 1.01kgCO_2/mile 50% loaded, and 1.13kgCO_2/mile 100% loaded.

Using excavated peat of 20 cubic metres as an example: The peat will emit 3.5 tonnes of CO_2 if left to dry out. Presuming the vehicle used to transport the peat off site is fully loaded and comes back empty (so double miles) (and excluding the fuel used to load and unload the vehicle), it is estimated that the peat can be moved up to 1,500 miles to result in less CO_2 emitted than if the peat is left to dry out.

We therefore consider moving peat to another area locally where it will be kept wet, subject to environmental permitting, is an option for disposing of excavated peat.

6.9. Flood risk

When considering how to dispose of peat, in line with this guide, the impact on flood risk will need to be considered. For example, when backfilling or placing the peat in sunken areas, how will that affect flood storage? The EA have advised that for a smaller scheme, such as a mooring cut, the impact on flood storage will be negligible. But for larger schemes, the flood risk impact of where you dispose of the peat will need to be calculated and mitigated.

w. How do your plans for disposing of peat affect flood risk? What calculations and mitigation, if needed, have you produced?

6.10. Excavating peat – County Matters

If schemes that result in the excavation of peat cover 1 hectare in area or 20,000 cubic metres in volume or more, the Broads Authority will consult with the Minerals and Waste teams at Norfolk County Council or Suffolk County Council (dependent on where the schemes is). Following consulting with the Minerals and Waste teams, it may be that the scheme becomes a County Matter which means that the County Council and the Broads Authority would jointly assess and determine separate applications for the extraction and subsequent use. It is acknowledged that schemes of this scale are rare in the Broads.

7. Key messages

- Peat has many important qualities and is a valuable resource.
- The Broads Authority aims to leave peat in situ.
- Schemes need to thoroughly justify why peat may be excavated.
- If a scheme needs to remove peat, it needs to be the minimal amount.
- The layout and scale of development and peat affected needs to be considered.
- If peat is excavated its properties need to be considered and protected.
- We will put organisations interested in peat (in terms of the properties, research and paleoenvironment) in touch with you.
- Any excavated peat needs to be placed in areas where it will remain wet.
- If this can't be achieved, you need to consider re-use of peat.
- You need to think about environmental permitting and biosecurity when moving soil off site.
- We urge all applicants to take advantage of our free pre-application advice.

8. Helpful links and where to go to get advice

NCA Profile: 80 The Broads (NE449), Natural England: publications.naturalengland.org.uk/publication/11549064

Positive Carbon Management of Peat Soils, Broads Authority: www.broads-authority.gov.uk/__data/assets/pdf_file/0010/416494/BA_PeatCarbonManagement.pdf

Peatlands and Climate Change, Worrall et al, Scientific Review, December 2010: www.iucn-uk-peatlandprogramme.org/sites/www.iucn-uk-peatlandprogramme.org/files/Review%20Peatlands%20and%20Climate%20Change,%20June%202011%20Final.pdf

Fen Plant Communities of Broadland. Results of a Comprehensive Survey 2005-2009 (Broads Authority and Natural England): www.broads-authority.gov.uk/__data/assets/pdf_file/0006/416391/Fen-plant-report-summary.pdf

Wetland and Waterlogged Heritage Survey NHPP Activity 3A5, Historic England, 2011 to 2015: historicengland.org.uk/research/research-results/activities/3a5

Broads Authority Biosecurity Guidance: https://www.broads-authority.gov.uk/__data/assets/pdf_file/0020/196211/Biosecurity-Guidance-Draft.pdf

Appendix A – Adopted Policy DM10 Peat Soils

See map: Appendix B: Location of peat soils

Sites of peat soils will be protected, enhanced and preserved. Where development is proposed on sites within the areas on the map, it may be necessary for an evaluation to be submitted to assess the impact of the proposal in relation to palaeoenvironments, archaeology, biodiversity provision and carbon content.

There will be a presumption in favour of preservation in-situ for peat, and development proposals that will result in unavoidable harm to, or loss of, peat will only be permitted if it is demonstrated that:

i. There is not a less harmful viable option;

ii. The amount of harm has been reduced to the minimum possible;

iii. Satisfactory provision is made for the evaluation, recording and interpretation of the peat before commencement of development; and

iv. The peat is disposed of in a way that will limit carbon loss to the atmosphere

Development that seeks to enhance biodiversity but may result in some peat removal will still need to demonstrate the criteria i to iv and that the biodiversity benefit will outweigh carbon loss.

Proposals to enhance peat and protect its qualities will be supported.

Reasoned justification

Peat is an abundant soil typology in the Broads and an important asset, providing many ecosystem services:

- **Climate change:** The soils formed by the Broads wetland vegetation store 38.8 million tonnes of carbon[7]. Peat soils release previously stored carbon when they are dry. UK peats therefore represent both a threat and an opportunity with respect to greenhouse gas emissions. Correct management and restoration could lead to enhanced storage of carbon and other greenhouse gases in these soils, while mismanagement or neglect could lead to these carbon sinks becoming net sources of greenhouse gases.

- **Biodiversity:** Peat soils support internationally important fen, fen meadow, wet woodland and lake habitats. 75% of the remaining species-rich peat fen in lowland Britain is found in the Broads. Milk parsley, the food plant of the Swallowtail

[7] NCA Profile 80, Natural England and the Broads Authority's Carbon Reduction Strategy: www.broads-authority.gov.uk/__data/assets/pdf_file/0011/400052/Carbon-reduction-strategy.pdf

caterpillar, grows only on peat soils. Fen orchids have their UK stronghold in the Broads so the peat soils are critical for the survival of this species. Other rare and important plant and invertebrate communities (collection of species) are supported by the peaty soils.

- **Archaeology:** Historic England has identified the Broads as an area of **exceptional waterlogged heritage.** Because of the soil conditions in the Broads, there is great potential for archaeology to be well preserved, giving an insight into the past. Archaeology is discussed in more detail in the Heritage section of this Plan.

- **Palaeoenvironments:** The peat has accumulated over time and thus incorporates a record of past climatic and environmental changes that can be reconstructed through, for example, the study of its stratigraphy and pollen content, leading to increased knowledge of the evolution of the landscape.

- **Water:** Peaty soils help prevent flooding by absorbing and holding water like a sponge as well as filtering and purifying water. Peat can absorb large quantities of nutrient and other pollutants, although peat soils can under certain conditions release these chemicals back into the surrounding water.

While there is a certain irony in protecting the peat soils in an area where the lakes originated from peat extraction, peat is a finite resource. Land management that could impact on the quality of the peat soil includes land drainage, introduction of polluted water, burying the peat under hard surfaces or gardens, compacting peat and peat removal to change the land use.

Lowland fen is a priority habitat under the UK Biodiversity Action Plan and the EU Habitats Directive because of the quality and diversity of species it supports. Peat is not a habitat that can be recreated elsewhere as the deep soils take many thousands of years to form.

On occasion, for nature conservation benefits, peat can be removed to create shallow turf ponds or scrapes (areas of temporary open water) on areas of fen or scrub habitat to maximise the biodiversity value and hold back succession to woodland habitat. The removal of peat can also be necessary for conservation management – for example, the most biodiverse areas of UK fen occur on areas where the turf has been stripped and vegetation subsequently grown back. This policy allows for such operations, provided they can justify the proposal against the criteria set out in the policy.

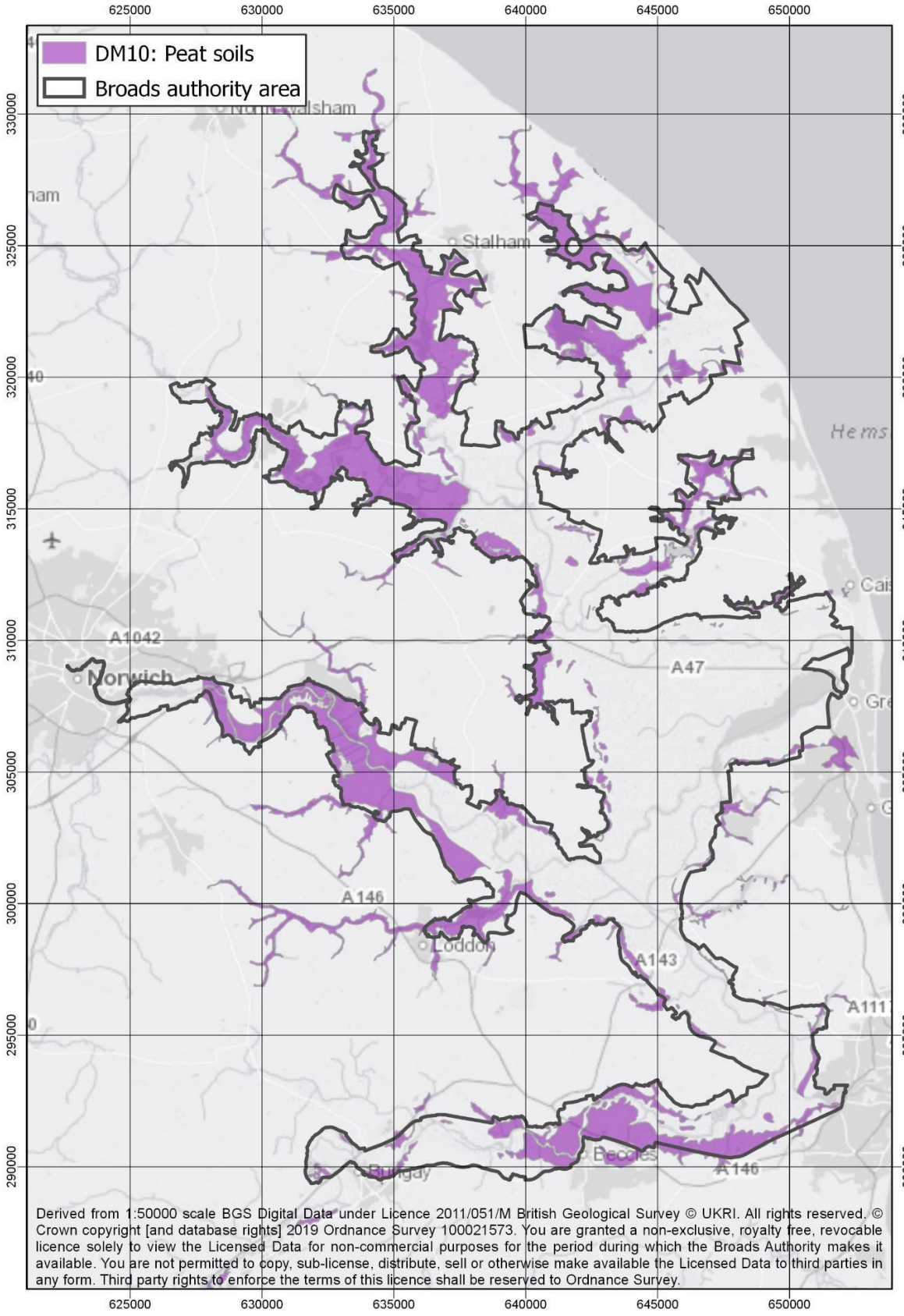
The NPPF and NPPG only mention peat soils in relation to its excavation as a mineral resource, rather than the issue in the Broads relating to impact due to groundworks from development and inappropriate land management.

The policy seeks protection of peat soils through changes in the location of development in the first instance and then designing proposals to minimise disturbance to the qualities of

the peat and the amount of peat removed. Development proposed on areas of peat would require justification for the need to site the development on peat, and subsequently a peat assessment that shows how efforts have been made to reduce adverse impacts on peat. Proposals that would result in removal of peat are required to assess the archaeological and paleoenvironmental potential of peat and make adequate recordings prior to removal.

To prevent the loss of carbon to the atmosphere that is sequestered in peat soils, disposal is of great importance. The Authority expects peat to be disposed of in a way that maintains the carbon capture properties. Peat needs to go somewhere where it can remain wet (and hence retain its function to lock up carbon and prevent it being released into the atmosphere) or potentially provide a seedbank (the potential for ancient peat to provide a viable seedbank may need to be evidenced) or be reused for local benefit (for example by boosting organic matter in degraded arable soils). When dry, peat changes its properties and oxidizes, so transfer to the receiving site would need to be immediate.

Appendix B – Map of peat



Appendix C – Peat report template

About the planning application/scheme

Planning Application Number:	
Address:	
Summary of application:	

About this report

Report produced by:	
Date of report:	

If you have completed on site peat assessments

Have you completed coring samples of the site?	
Provide details of how the coring was carried out and what the findings are. This could be a cross reference to the report.	

About your development proposal

a. Why does the development have to go where it is proposed?	
b. What **alternative locations** have you considered? Why have you discounted these alternative locations?	
c. How can you reduce the amount/volume of peat that is to be developed? Please provide details. If you cannot reduce the volume, please say why.	
d. How can you change the **layout** of development to reduce the amount of peat soils affected? Please provide details. If you cannot change the layout, please say why.	

e. How can you reduce the **scale** of development to reduce the amount of peat soils affected? Please provide details. If you cannot change the scale, please say why.	
f. If amending the layout/scale of the site is not feasible, practical or viable and you intend to still develop on peat soils, you need to provide a robust justification for doing so.	

About the peat that is to be excavated

g. What volume of peat (m^3) will be excavated? How is this different to your initial plans?	

Addressing the special qualities of peat

h. How have you considered and addressed archaeology on this site?	
i. Is there potential for archaeological finds on this site?	
j. How have you considered the biodiversity enhancement options on your peat site?	

Disposal of the excavated peat

k. Where do you intend to dispose of the excavated peat soils on site? Please show on a plan with anticipated volume of each receiving area.	
l. How will these areas ensure the peat is kept wet?	
m. When will the receiving areas be ready to receive peat soils? What is the time-period between excavation and backfilling/depositing? Have you	

arranged for the peat to be covered with tarpaulin for this period?	
n. Have you contacted any operators to see if they are willing and able to receive and use the excavated peat?	
o. Have you contacted local allotment organisations to see if they can make use of the peat?	
p. Have you looked into the need for an Environmental Permit for moving the excavated peat off site for re-use?	
q. What is the contingency plan for any peat left over after reducing the amount of peat excavated in for the first place, using the peat on site so it keeps wet, using the peat locally so it keeps wet and re-use of the peat?	
r. Have you contacted neighbouring landowners or Operational teams in the Environment Agency, Norfolk and Suffolk Wildlife Trust and Broads Authority to check what local opportunities may exist for receiving peat and keeping it wet?	
s. How have you discussed your approach to dealing with the excavated peat with your contractor? Have they confirmed the approach is feasible?	
t. Have you looked into the need for an Environmental Permit for moving the excavated peat offsite?	
u. If you are moving peat soils from site, how have you ensured you are going to be in accordance with	

Environmental Permitting requirements?	
v. If you are moving peat soils from site, how have you addressed biosecurity? Have you filled out the biosecurity risk assessment template/guide?	
w. How do your plans for disposing of peat affect flood risk? What calculations and mitigation, if needed, have you produced?	