North West Flood Risk Management Plan

Habitats Regulations Assessment

December 2022

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Published by:

Environment Agency
Horizon House, Deanery Road,
Bristol BS1 5AH

www.gov.uk/environment-agency

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Table of Contents

1. Non-Technical Summary

Introduction

1.1 This is the Habitats Regulations Assessment (HRA) of the North West River Basin District (RBD) Flood Risk Management Plan (FRMP). The HRA has been undertaken in accordance with The Conservation of Habitats and Species Regulations (The Habitat Regulations) 2017 (as amended) and considers the potential implications of the FRMP on designated European conservation sites. These sites contain species and habitats that are important at a European scale.

1.2 The FRMP, covering the years between 2021 and 2027, seeks to manage significant flood-related issues in the North West RBD, including 15 specifically identified Flood Risk Area. It covers an area of 13,200km^2 and includes parts of Staffordshire to the south, parts of North Yorkshire in the east and Merseyside to the west. The North West FRMP seeks to reduce a range of flooding threats, including from rivers, the sea, surface water, groundwater and sewers / canals / reservoirs.

1.3 The need for protecting human receptors should be viewed in the context of the environmental challenges present in the North West RBD. Many geographic areas in the RBD are experiencing growth and need to mitigate climate change. Therefore, many freshwater and coastal habitats in the RBD, important in sustaining wintering wildfowl, fish populations and terrestrial species (e.g. otters), are subject to a wide range of human impacts, such as recreational pressure, reduced water flow / level, declining water quality and coastal squeeze. This HRA assesses the potential for the North West FRMP to result in Likely Significant Effects (LSEs) and, where applicable, adverse effects on the integrity of European sites (i.e. the ability of those sites to achieve their conservation objectives).

Methodology

1.4 The Habitats Regulations 2017 (as amended) set out the specific assessment steps required for the HRA process.

1.5 The first step in the sequence of tests, often referred to as HRA screening, establishes whether a more detailed analysis known as Appropriate Assessment is required. The purpose of HRA screening is to determine, in view of the best available scientific knowledge, whether a plan or project, either alone or in-combination with other plans or projects, could result in LSEs on European sites in view of their Conservation Objectives. If the Competent Authority determines that no LSEs are present (both alone and in-combination), then no further assessment is necessary.

Test of Likely Significant Effects

1.6 All measures included in the North West RBD were assessed for LSEs on the European sites across and within 10km of the RBD. None of the measures were identified to result in LSEs on any European site for a range of reasons, including that they are too non-specific to assess meaningfully, already being implemented (thus having undergone HRA previously), being subjected to a separate consenting process (as applies to Local Flood Risk Management Plans, Shoreline Management Plans (SMPs) and Coastal Strategies), desk-based and involving no physical activity

on the ground, remote from vulnerable sites or worded such they are about 'investigating', 'reviewing' and 'identifying opportunities'.

1.7 One group of measures was found to commit to physical work on the ground by 'delivering' or 'implementing' flood management interventions, such as coastal defence structures or natural flood management approaches. The broad location of some measures, is known, enabling a broad assessment of their proximity to European sites and potential linking impact pathways. However, detailed HRA (including Appropriate Assessment) was deferred to either lower-tier plans or the planning application stage when details on the nature of proposals are available. This approach was adopted to account for the strategic (and thereby necessarily non-specific) nature of the FRMP, while also identifying the measures with the highest impact potential on European sites.

1.8 This document also identified that a range of measures in the North West FRMP have the potential to improve the hydrological condition of European sites across the RBD, particularly the Mersey Estuary SPA through creation of new saltmarsh habitat. Overall, it was shown that the FRMP represents a positive framework that will help achieve the Conservation Objectives of the SPA, such as by fostering collaboration with land owners through the Environment Land Management Scheme.

Other Plans and Projects

1.9 The potential for the FRMP to result in LSEs on European sites in-combination with (i.e. when considered alongside) other plans and projects was also assessed. Many such plans are proposed across the RBD, which are associated with their own impact potential. For example, local authorities are proposing a minimum of 221,000 new dwellings within the timescales of their current Local Plans and Core Strategies. There is also a potential for cumulative impacts with Drought Orders and Permits, the Environment Agency National Drought Plan and SMPs.

1.10 Potential in-combination LSEs with Local Plan development were excluded due to most measures not being negatively linked to European sites, the fact that some measures are only included for completeness being driven by entirely separate plan processes, and the strategic nature of the FRMP, meaning that those measures with potential interactions with European sites depend upon considerable further development before the presence of any impact pathways can be clearly identified.

Conclusion

1.11 LSEs of the FRMP on all European sites, both alone and in-combination, were excluded for all measures and an Appropriate Assessment was not required. This was based on various factors, including some measures being carried over from the cycle 1 FRMP (which would have been subject to the statutory consenting process, including HRA), already implemented, not associated with impact pathways linking to European sites or too non-specific (either in terms of specific location, their nature or both) to allow for a detailed, meaningful assessment.

1.12 Notably, 53 measures were screened out at the strategic FRMP level but recommended for down-the-line HRA since the measures are sufficiently broadly expressed that they could be delivered without adverse effects but this will need to be reassessed as actual schemes are developed. As the details of potential schemes are developed towards the planning application stage, the HRA process will ensure

that adequate mitigation measures, where relevant, are incorporated and the integrity of European sites will be protected.

2. Introduction and Approach to Assessment

Background and Description of the North West River Basin District

2.1 The North West River Basin District (RBD) covers approximately 13,200km^2. It extends from Cumbria in the north and includes parts of Staffordshire to the south, parts of North Yorkshire in the east and Merseyside to the west. In total, nearly 7 million people live and work in the North West and the district includes large urban areas such as Liverpool and Manchester.

2.2 The North West RBD has a rich diversity of wildlife and habitats, supporting many species of global and national importance. These include migratory salmon rivers with native white clawed crayfish and pearl mussel populations and lakes containing the Arctic char and the rare vendace. The management catchments that make up the River Basin District include many interconnected rivers, lakes, groundwater and coastal waters. These catchments include, for example, lakes and rivers in the Lake District and significant sandstone aquifers used for public water abstraction.

2.3 Around 80% of the river basin district is rural, with the majority of land being used for agriculture. Livestock farming is the most common rural land use, which has shaped much of the landscape. The Lake District and Lancashire coast are tourism centres and make a significant contribution to the local economy.

2.4 The Environment Agency leads development of the Flood Risk Management Plans (FRMP) for River Basin Districts in England and delivery of flood warning services. The draft second cycle FRMP is a plan to manage significant flood risks in designated flood risk areas (FRAs). The ambition is that the FRMP is a strategic, place-based plan which shows what is happening in flood risk management across the River Basin District. FRMPs focus on the more significant areas of flooding and describe the risk of flooding now and in the future. These plans will help:

- identify actions that will reduce the likelihood and consequences of flooding update plans to improve resilience whilst informing the delivery of existing flood programmes
- work in partnership to explore wider resilience measures, including nature-based solutions for flood and water; and
- set longer-term, adaptive approaches to help improve the nation's resilience.

2.5 Within the North West RBD there are:

- seven FRAs for significant risk of flooding from main rivers and the sea: Ambleside; Atherton; Ellesmere Port; Higher Folds; Kendal; Preston and Warrington.

- eight FRAs for significant risk of flooding from surface water: Ashton under Lyne; Blackburn; Burnley; Formby; Liverpool; Macclesfield; Rawtenstall and Southport.

2.6 This document forms the Habitats Regulations Assessment (HRA) for the North West FRMP. This document considers the potential effects of the draft FRMP on Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites, either alone or in combination with other plans or projects, and in view of best scientific knowledge.

Legislative context

2.7 The National Site Network of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) is protected via the Conservation of Habitats and Species Regulations 2017 (as amended, most recently in 2019 to reflect Brexit). These regulations also set out the process for assessing potential adverse effects on such sites, known as HRA. Paragraph 181 of the National Planning Policy Framework[1] clarifies that, in England, the HRA process is also applied to another category of internationally important wildlife site called Ramsar sites.

2.8 The legislative basis for HRA is set in the Conservation of Habitats and Species Regulations 2017 (as amended). This states that 'A competent authority, before deciding to … give any consent for a plan or project which is likely to have a significant effect on a European site … shall make an appropriate assessment of the implications for the site in view of that sites conservation objectives… The authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site'.

2.9 The competent authority that carries out the HRA (in this case the Environment Agency) is required to apply the precautionary principle to European sites and can only adopt a plan once it has been ascertained that it will not adversely affect the integrity of the site concerned. However, even if significant adverse effects on the designated site are predicted, and in the absence of a suitable alternative solution, the plan can still be adopted in exceptional circumstances where there are deemed sufficient imperative reasons of over-riding public interest (IROPI). In such cases, however, compensatory measures must be implemented.

Overview of HRA process

2.10 The Habitats Regulations do not prescribe a particular methodology for carrying out an appraisal of plans or projects. However, it does set out the specific assessment steps involved. In February 2021 the government provided broad guidance on the HRA process[2]. The most detailed guidance on the HRA process in the UK has been produced by Scottish Natural Heritage (now NatureScot). They outline a series of thirteen steps. However, with cognisance of recent case law (refer to Table1) clarifying when mitigation can be taken into account in the HRA process, the process has been revised to constitute eleven stages (see Figure 1).

2.11 A four-stage methodology for HRA would therefore include:

- HRA Stage 1 – screening (including a 'likely significant effect' judgement)
- HRA Stage 2 – appropriate assessment
- HRA Stage 3 – assessment of alternative solutions

- HRA Stage 4 – assessment where no alternative solutions exist and where adverse effects remain (i.e. consideration of Imperative Reasons of Overriding Public Interest (IROPI)) and identification of compensatory measures

2.12 The first step in the sequence of tests is to establish whether an appropriate assessment is required. This is often referred to as HRA screening. The purpose of HRA screening is to determine, in view of best available scientific knowledge, whether a plan or project, either alone or in combination with other plans or projects, could have likely significant effects (LSE) on a European site, in view of that site's conservation objectives.

2.13 For this purpose, and as a result of case law 'likely' means 'possible', while a 'significant' effect is one which could undermine the Conservation Objectives of a European site. To this end the HRA process applies the 'Precautionary Principle'[3] to European sites. If the competent authority determines that there are no LSE (including 'in combination' effects from other plans or projects), then no further assessment is necessary and the plan or project can, subject to any other issues, be taken forward. If, however, the competent authority determines that there are LSE, or if there is reasonable scientific doubt, then the next step in the process must be initiated and a detailed appropriate assessment undertaken. While a judgment over likely significant effects must be precautionary, the court in R (Boggis) v Natural England [2009] EWCA Civ 1061 also noted that there must be a 'real', rather than a hypothetical, risk to European sites.

2.14 This is relevant to the assessment of the FRMP measures; while many measures commit to the production, update and/or delivery of other plans (such as Water Level Management Plans, WLMPs), or the assessment of options for, or a general commitment to, flood risk management assets in certain locations, the ability to identify 'real' rather than hypothetical impacts is constrained by the fact that considerable further work is needed at lower tiers to develop the plans or schemes in question before specific impact pathways can be identified with any confidence. For example, whether a given WLMP poses a likely significant effect on a given European site will depend entirely on the proposals it contains, which are not set by FRMP measures that commit to updating WLMPs. Similarly, the potential for likely significant effects to arise from 'implementing flood risk management improvements' will vary significantly depending on what is proposed and how it is to be delivered, which may not be determined at the FRMP level; a set-back flood embankment or a flood relief channel may have no implications for a given European site compared to sheet piling in the river.

2.15 The purpose of the appropriate assessment is to carry out sufficient scientific investigation to ascertain whether the plan or project, alone or in combination with other plans or projects, will not adversely affect the integrity of European sites, in view of their conservation objectives and considering any design modifications or mitigation (but not compensatory measures, which can only be considered in exceptional circumstances when requirements for the above HRA Stages 3 and 4 have been met).

2.16 Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the European site(s) in question. Plans and projects with predicted adverse impacts on European sites may still be permitted if there are no alternatives to them and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation would be necessary to ensure the overall integrity of the site network. To ascertain whether

or not site integrity will be affected, an Appropriate Assessment should be undertaken of the plan or project in question.

2.17 Over time the term HRA has come into wide currency to describe the overall process set out in the Regulations from screening through to IROPI. This has arisen in order to distinguish the process from the individual stage described in the law as an 'Appropriate Assessment'.

2.18 The HRA has been carried out being mindful of the implications of European case law in 2018, notably the Holohan ruling and the People over Wind ruling, both discussed below.

Figure 1. Stages of the HRA process (adapted from SNH (2015))

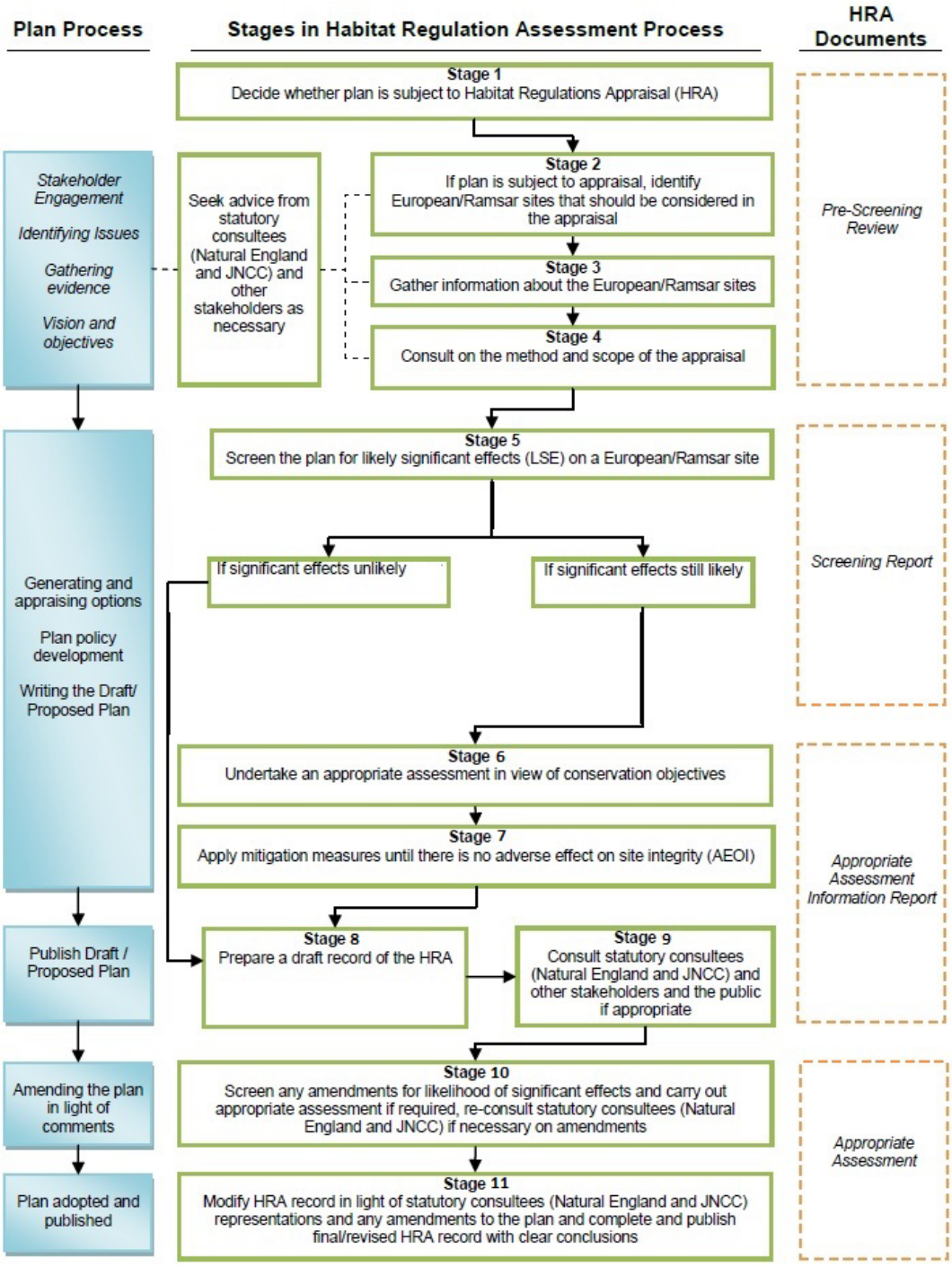


Figure 1 accessible description

Figure 1 shows the plan process, stages in Habitat Regulation Assessment process and HRA documents involved in the HRA process.

The first part of the plan process involves stakeholder engagement, identifying issues, gathering evidence and the vision and objectives. Advice may be needed from statutory consultees, such as Natural England and JNCC, and other stakeholders as necessary. The stages include:

1. Decide whether the plan is subject to Habitat Regulations Appraisal.
2. If the plan is subject to appraisal, identify European and Ramsar sites that should be considered in the appraisal.
3. Gather information about European sites and Ramsar sites.
4. Consult on the method and scope of the appraisal.

A pre-screening review document is needed for stages 1 to 4.

The second part of the plan process involves generating and appraising options, planning policy development and writing the draft/proposed plan. The stages include:

5. Screen the plan for likely significant effects (LSE) on a European or Ramsar site. If the significant effects are unlikely, then move on to stage 8. If significant effects are likely, then continue to stage 6.
6. Undertake an appropriate assessment in view of conservation objectives.
7. Apply mitigation measures until there is no adverse effect on site integrity (AEOI).

A screening report is needed for stage 5 and appropriate assessment information report is needed for stage 6 to 9.

The third part of the plan process involves publishing the draft or proposed plan. The stages include:

8. Prepare a draft record of the HRA.
9. Consult statutory consultees (Natural England and JNCC), other stakeholders and the public if appropriate.

The fourth part of the plan process involves amending the plan in light of comments. This includes stage 10:

10. Screen any amendments for likelihood of significant effects and carry out appropriate assessment if required, re-consult statutory consultees (Natural England and JNCC) if necessary, on amendments.

An appropriate assessment document is needed for stage 10 and 11 of the plan process.

In the fifth and final part of the process the plan is adopted and published. This includes stage 11:

11. Modify HRA record in light of statutory consultees (Natural England and JNCC) representations and any amendments to the plan and complete and publish final/revised HRA record with clear conclusions.

Relevant case law

2.19 As a consequence of the UK's exit from the EU, it was necessary for various amendments to be made to the Habitats Regulations. These changes were required to ensure that England and Wales (and Scotland through separate regulations) continue to maintain the same standard of protection afforded to European sites. The Habitats Regulations remain in force, including the general provisions for the protection of European sites and the procedural requirements to undertake HRA. The changes made were only those necessary to ensure that they remain operable following the UK's exit from the EU.

2.20 Although the UK is no longer part of the EU, a series of prior rulings of the Court of Justice of the European Union (CJEU) are relevant and have been considered when preparing this document. These rulings and their implications for this HRA are summarised in Table 1.

Table 1. Case law relevant to the HRA of the FRMP

Case	Ruling	Relevance to the HRA of the FRMP
People Over Wind and Sweetman v Coillte Teoranta (C-323/17)	The ruling of the CJEU in this case requires that any conclusion of 'no likely significant effect' on a European site must be made prior to any consideration of measures to avoid or reduce harm to the European site. The determination of likely significant effects should not, in the opinion of the CJEU, constitute an attempt at detailed technical analyses. This should be conducted as part of the appropriate assessment.	NatureScot has published guidance on the implications of this ruling for HRA (SNH, 2019). It will be necessary to distinguish between those measures which are intended to avoid or reduce harmful effects on a European site and those elements of the flood management plan that may incidentally provide some degree of mitigation, but which are intrinsic or essential parts of the plan itself. SNH advises that intrinsic parts of a plan can be considered at the screening stage of HRA. If it can be concluded that the Flood management plan area will have no adverse effect on any European site, in the absence of mitigation, it will be possible to conclude 'no likely significant effects', and the need for further detailed appropriate assessment will be 'screened out'.

Case	Ruling	Relevance to the HRA of the FRMP
Waddenzee (C-127/02)	The ruling in this case clarified that appropriate assessment must be conducted using best scientific knowledge, and that there must be no reasonable scientific doubt in the conclusions drawn. The Waddenzee ruling also provided clarity on the definition of 'significant effect', which would be any effect from a plan or project which is likely to undermine the conservation objectives of any European site.	Adopting the precautionary principle, a 'likely' effect in this HRA is interpreted as one which is 'possible' and cannot be objectively ruled out. The test of significance of effects has been conducted with reference to the conservation objectives of relevant European sites.
Holohan and Others v An Bord Pleanála (C-461/17)	The conclusions of the Court in this case were that consideration must be given during appropriate assessment to: • effects on qualifying habitats and/or species of a SAC or SPA, even when occurring outside of the boundary of a European site, if these are relevant to the site meeting its conservation objectives, and • effects on non-qualifying habitats and/or species on which the qualifying habitats and/or species depend and which could result in adverse effects on the integrity of the European site.	This relates to the concept of 'functionally-linked habitat', i.e. areas outside of the boundary of a European site which supports its qualifying feature(s). In addition, consideration must be given to non-qualifying features upon which qualifying habitats and/or species rely.
T.C Briels and Others v Minister van Infrastructuur en Milieu (C-521/12)	The ruling of the CJEU in this case determined that compensatory measures cannot be used to support a conclusion of no adverse effect on site integrity.	Compensation can only be considered at the relevant stage of HRA and not during appropriate assessment. Compensation must be delivered when appropriate assessment concludes that there will be adverse effects on site integrity.

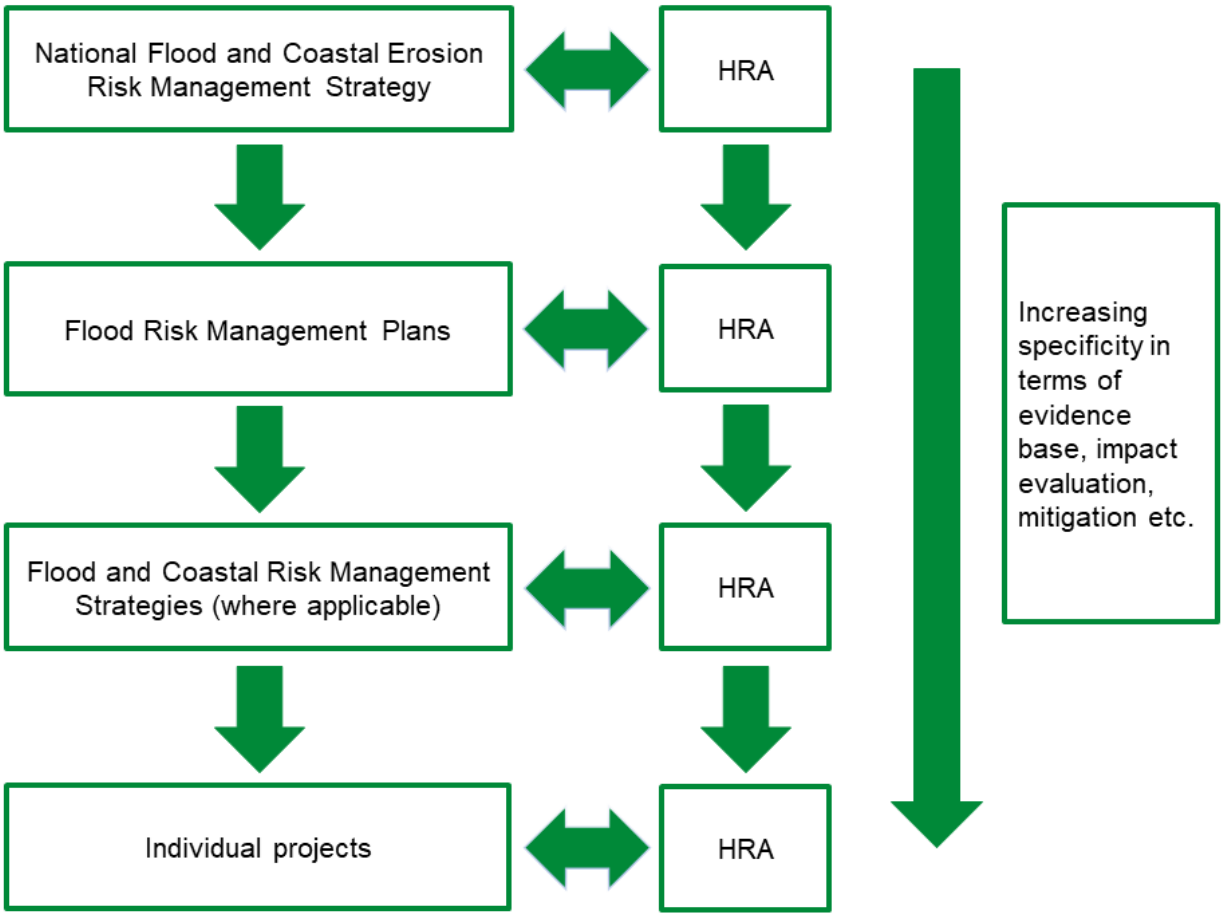
Purpose of this document

2.21 This document forms the HRA of the North West FRMP. It has been prepared with regard to best scientific knowledge and an examination of potential impacts of the Flood Risk Management Plan on European Sites.

2.22 Project-related HRA often requires bespoke survey work and novel data generation in order to accurately determine the significance of effects. In other words, to look beyond the risk of an effect to a justified prediction of the actual likely effect and to the development of avoidance or mitigation measures.

2.23 However, there is a tacit acceptance that HRA can be tiered and that all impacts are not necessarily appropriate for consideration to the same degree of detail at all tiers as illustrated in Figure 2 below. Note that some measures in the FRMPs come from other plans and are reflected in the FRMP for consistency and completeness.

Figure 1. Tiering in HRA of Land Use Plans



2.24 In any strategic plan, there are numerous measures for which there is a limit to the degree of assessment that is possible at this plan level. This is because either:

- the measure in question does not contain any specific details describing what will be delivered or where so literally cannot be assessed in detail at the plan level
- development of a specific type is identified but the nature of the potential impacts are dependent on exactly how the development will be designed and constructed and therefore cannot be assessed in detail at the plan level but rather at the scheme level.

2.25 For example, NatureScot has published guidance[4] that indicates a measure or initiative in a higher tier plan can be screened out without further analysis if:

a. they are intended to protect the natural environment

b. they will not themselves lead to development or other change

c. they make provision for change but could have no conceivable effect on a European site

d. they make provision for change but could have no significant effect on a European site, or

e. effects on any particular European site cannot be identified because the measures are too general or lack any spatial definition.

2.26 Similarly, the Habitats Regulations Assessment Handbook[5] sets out three criteria in section F.10.1.5, that it considers would make it reasonable to defer further assessment to a lower tier plan or project:

a. the higher level plan assessment cannot reasonably predict any effect on a European site in a meaningful way

b. the lower level plan or project, which will identify more precisely the nature, timing, duration, scale or location of the measure, and thus its potential effects, will have the necessary flexibility over the exact nature, timing, duration, scale and location of the measure to enable an adverse effect on site integrity to be avoided

c. the HRA of the lower tier plan or project is required as a matter of law or government policy

2.27 In these cases, the HRA focusses on setting down-the-line requirements for more detailed assessment at the scheme level that can be included in the plan to ensure that whatever proposals come forward will not result in adverse effects on integrity. On these occasions the advice of Advocate-General Kokott[6] should be considered. She commented that: 'It would …hardly be proper to require a greater level of detail in preceding plans [rather than planning applications] or the abolition of multi-stage planning and approval procedures so that the assessment of implications can be concentrated on one point in the procedure. Rather, adverse effects on areas of conservation must be assessed at every relevant stage of the procedure to the extent possible on the basis of the precision of the plan. This assessment is to be updated with increasing specificity in subsequent stages of the procedure**'**.

2.28 Similarly, published EU guidance on HRA states: 'Where one or more specific projects are included in a plan in a general way but not in terms of project details, the assessment made at plan level does not exempt the specific projects from the assessment requirements of Article 6(3) at a later stage, when much more details about them are known.'[7]

2.29 It is also important to consider the approach taken regarding coastal defence schemes and strategies. The stance throughout all FRMP HRAs is that, provided measures are already covered by the SMP/Coastal Strategy process or another HRA process, then these measures are effectively included in the FRMPs for completeness. The FRMPs are not the source plans for these schemes and they are already committed elsewhere. The SMP and Coastal Strategies will be updated as part of their normal cycle and that will include revision to their HRAs which will take account of any changes in evidence. Each scheme will also have its own HRA before it is consented. In these cases, the DTA handbook states that plan elements can be screened out if they have, or will be subject to, HRA under another plan and this plan (the FRMP) would not materially change if they were omitted.

2.30 This is the approach taken in the HRA of the FRMP to avoid confusing the FRMP with other plan processes (such as Shoreline Management Plan (SMP) and Coastal

Strategy processes) that have their own separate HRA, or the individual schemes that are referenced in the FRMP and will be taken forward subject to significant further work including outline design, detailed design, securing of funding, community consultation and securing of necessary consents and permits. The fact that a scheme is referenced in the FRMP does not prejudge the down-the-line permitting processes.

The 'in Combination' Scope

2.31 It is a requirement of the Habitats Regulations that the impacts and effects of any land use plan being assessed are not considered in isolation but in combination with other plans and projects that may also be affecting the European site(s) in question.

2.32 When undertaking this part of the assessment it is essential to bear in mind the principal intention behind the legislation, i.e. to ensure that those projects or plans which in themselves have minor impacts are not simply dismissed on that basis but are evaluated for any cumulative contribution they may make to an overall significant effect. In practice, in combination assessment is therefore of greatest relevance when the plan would otherwise be screened out because its individual contribution is inconsequential. The overall approach is to exclude the risk of there being unassessed likely significant effects in accordance with the precautionary principle. This was first established in the seminal Waddenzee[8] case.

2.33 For the purposes of this HRA, in-combination assessment is focussed on the plans and projects identified in the Strategic Environmental Assessment (SEA) Environmental Report of the FRMP. The plans and projects were identified in the SEA as having a significant interaction with the FRMP for biodiversity, flora and fauna and required consideration. The key relevant plans and projects with a potential for in-combination effects are detailed below with Local Plans shown in Table 2.

Table 2. Local Planning Authorities whose Local Plans are considered in-combination

Allerdale Borough Council	Barrow Borough Council	Carlisle City Council
Copeland Borough Council	Eden District Council	South Lakeland District Council
Lake District National Park Authority	Yorkshire Dales National Park Authority	Central Lancashire Local Plan
West Lancashire Borough Council	Lancaster City Council	Blackburn with Darwen Borough Council
Blackpool Council	Fylde Council	Wyre Council
Sefton Council	Liverpool City Council	Wirral Council
St Helens Council	Wigan Council	Bolton Council
Bury Council	Manchester City Council	Oldham Council
Rochdale Borough Council	Salford City Council	Stockport Council
Tameside Metropolitan Borough Council	Trafford Council	Derbyshire County Council
Cheshire East Council	Staffordshire County Council	Shropshire Council

Allerdale Borough Council	Barrow Borough Council	Carlisle City Council
Cheshire West & Chester Council	Halton Borough Council	Warrington Borough Council

- National Flood and Coastal Erosion Risk Management Strategy for England
- Draft North West River Basin Management Plan (RBMP)
- Cumbria Coastal Strategy
- Great Ormes Head to Scotland Shoreline Management Plan (SMP) 22
- United Utilities Final Water Resources Management Plan 2019
- Northern Powerhouse Strategy
- High Speed 2

2.34 The potential for 'in combination' effects between these plans and projects and the FRMP are discussed later in this document.

3. Pathways of Impact

Direct habitat loss

3.1 Any permanent, irreversible, habitat loss from a designated site that will result in the loss of qualifying habitats and / or species, or habitats that support the designated species, will be adverse, although to affect the integrity of the site (the coherence of its structure and function) the loss must be sufficiently adverse that it materially impairs the achievement of the Conservation Objectives for the site.

3.2 Various developments can result in the loss of habitat in European Sites, either temporary or permanent. Temporary habitat loss (e.g., such as due to the need for a construction period footprint to encroach on a site) is potentially reversible depending on what the site is designated for, and there is also potential for deploying mitigation measures to avoid adverse effects on site integrity. In contrast, the permanent loss of designated habitat will result in a reduction of coverage of a potentially very rare ecosystem, with potential knock-on impacts on dependent qualifying species.

3.3 Plans or projects that result in the loss of land from a SAC can be approved in certain situations (please see Defra (2012)[9], even if the loss is sufficient to adversely affect the integrity of an SAC, if three sequential tests are met:

- no feasible alternative solutions to the plan or project exist that are less damaging
- Imperative reasons of overriding public interest (IROPI)
- compensatory measures secured to ensure that the overall coherence of the European Site network is maintained

Inappropriate Coastal Management Including Coastal squeeze

3.4 Inappropriate coastal management covers any coastal management activities that would interfere with natural coastal processes to such an extent that they would potentially interfere with the ability of European sites to achieve their conservation objectives. Examples of inappropriate coastal management include:

- Reduced sediment supply to adjacent frontages, resulting in loss of habitat area. For example, defending the Holderness Coast in East Yorkshire results in a reduction in the amount of longshore sediment that would otherwise be transported into the Humber Estuary SAC/SPA/Ramsar site and this in turn could affect the persistence of features that require a continued supply of sediment, such as Spurn Point.
- Presence of flood risk management defences causing habitat erosion seawards of those defences due to wave reflection. This is more of an issue with some types of defence (such as sheet metal piling) than with other types of defence.
- Restriction of the area of intertidal habitat in front of the flood risk management defences.
- Coastal squeeze.

3.5 Coastal squeeze is defined by government as 'the loss of natural habitats or deterioration of their quality arising from anthropogenic structures or actions, preventing the landward transgression of those habitats that would otherwise naturally occur in response to sea level rise in conjunction with other coastal processes. Coastal squeeze affects habitat on the seaward side of existing structures.'[10]

3.6 Measures which involve a 'Hold the Line' approach by establishing a hard structure or maintaining the existing standard of protection by improving the defences, have the potential to result in the loss of seaward habitats as a consequence of coastal squeeze. The process of coastal squeeze prevents the landward transgression of habitats in response to climate change and resulting sea level rise. Over time, unmitigated coastal squeeze would inevitably lead to the cumulative loss of designated habitats and supporting functionally-linked habitats. Coastal squeeze impacts due to measures have already been fully explored and mitigation or compensation quantified if necessary through the SMP and Coastal Strategy process and their HRAs, and through the Flood and Coastal Erosion Risk Management (FCERM) National Strategy 2021 and compensation delivered in the form of the Habitat Compensation Programme. Therefore, coastal squeeze is scoped out of this HRA.

3.7 All the FRMPs contain measures which refer to implementing or updating Shoreline Management Plans or Coastal Strategies or flood and coastal erosion risk management schemes that are contained within those documents. In commenting on the draft version of the HRA, Natural England advised the SMP Health Check documents will include detail on what changes to SMP HRAs will be required to account for (for example) changes in sea level rise predictions. However, these reports have not yet been completed or published, and as such this information is not yet available.

3.8 The approach taken throughout all FRMP HRAs is that, provided such schemes are already covered by the SMP/Coastal Strategy process or another HRA process, these measures are effectively included in the FRMPs for completeness. The FRMPs are not the source plans for these schemes and they are already committed elsewhere. The SMP and Coastal Strategies will be updated as part of their normal cycle and that will include revision to their HRAs which will take account of any changes in evidence. Each scheme will also have its own HRA before it is consented.

Disturbance

3.9 Flood risk management construction works can result in noise or visual disturbance of qualifying species in European sites, both during the construction and operational periods. For example, noise and visual disturbance arising from construction may result in temporary behavioural changes in otters (e.g. disturbance in holts, displacement from specific stretches of the river). Piling noise during construction of defences could displace over wintering or breeding birds for which an SPA is designated. Three of the most important factors determining the magnitude of disturbance from construction schemes appear to be species sensitivity, proximity of the disturbance source and timing / duration of the disturbance.

Birds

3.10 Development schemes (such as those for flood risk management assets) can result in the disturbance of qualifying SPA / Ramsar bird species in European sites or

functionally linked habitats and this can apply whatever activity the bird is undertaking, whether nesting, foraging, loafing or roosting. Noise and visual disturbance arising from construction activities may result in behavioural changes (e.g. flight from the nest, cessation of foraging) in birds. Furthermore, post-construction disturbance from site usage, road traffic and operational lighting might also arise. Three of the most important factors determining the magnitude of disturbance appear to be species sensitivity, proximity of the disturbance source and timing / duration of the disturbance. Generally, the most disturbing visual and auditory stimuli are likely to involve irregular, infrequent, unpredictable loud noise events, movements or vibrations. Birds are least likely to be disturbed by activities that involve regular, predictable and quiet patterns of sound or movement. The further any activity is from the birds, the less likely it is to result in disturbance.

3.11 An increasing amount of research on visual and noise disturbance of waterfowl from construction (and other activities) is now available. Both visual and noise stimuli may elicit disturbance responses, potentially affecting the fitness and survival of waterfowl and waders. Noise is a complex disturbance parameter requiring the consideration of multiple parameters, including the fact that it is not described on a linear scale, its nonadditive effect and the source-receptor distance. A high level of noise disturbance constitutes a sudden noise event of over 60dB or prolonged noise of over 72dB. Bird responses to high noise levels include major flight or the cessation of feeding, both of which might affect the survival of birds if other stressors are present (e.g. cold weather, food scarcity).

3.12 Generally, research has shown that above noise levels of 84 dB waterfowl show a flight response, while at levels below 55dB there is no effect on their behaviour[11]. These two thresholds are therefore considered useful as defining two extremes. The same authors have advised that regular noise levels should be below 70 dB at the bird, as birds will habituate to noise levels below this level[12]. The Waterbird Disturbance Mitigation Toolkit published by the Institute of Estuarine & Coastal Studies in 2013, summarises the key evidence base relating to the noise disturbance impact pathway[13]. Generally, noise is attenuated by 6 dB with every doubling of distance from the source. Impact piling, the noisiest construction process of approx. 110 dB at 0.67m from source, will therefore reduce to 67-68dB by 100m away from the source. The loudest construction noise should therefore have fallen to below disturbing levels by 100m, and certainly by 200m, away from the source even without mitigation. Note that this is a rule of thumb and does not obviate the need for application-level noise modelling. However, comparison with baseline noise levels will also be important in any assessment rather than purely using comparison with the 70 dB metric (see paragraph below).

3.13 An alternative approach to assessment is to consider the relative change in the noise levels experienced by birds, rather than an absolute noise threshold. There are no formal guidelines that define a change threshold that is deemed disturbing to waterfowl and waders, but they are thought to have hearing comparable to humans. For humans a change of 3 dB defines the threshold for a change in noise to be perceptible (in other words, a change of 1 or 2 dB cannot be detected by the human ear). However, there is a significant difference between being able to notice that a noise has gotten louder and finding the increase in noise to be sufficiently intolerable that it causes displacement or otherwise significantly disrupts activity. Therefore, 3 dB may be an excessively precautionary threshold to use for judging disturbance. Due to the logarithmic nature of the decibel scale a change of 5 dB increase at the receptor is approximately a 50% increase in perceived loudness while a 10 dB increase is a

doubling in perceived loudness or sound intensity. It is reasonable to assume that an increase of 10 dB would run a high risk of causing adverse impacts to bird behaviour such as flushing, for the duration of exposure.

3.14 Visual disturbance is generally considered to have a higher impact than noise disturbance as, in most instances, visual stimuli will elicit a disturbance response at much greater distances than noise[14]. For example, a flight response is triggered in most species when they are approached to within 150m across a mudflat. Visual disturbance can be exacerbated by workers operating equipment outside machinery, undertaking sudden movements and using large machinery. Some species are particularly sensitive to visual disturbance[15], including curlew (taking flight at 275m), redshank (at 250m), shelduck (at 199m) and bar-tailed godwit (at 163m). In some areas, greater distances have been agreed between Environment Agency and Natural England, at least for purposes of HRA Screening. For example, in the Humber Estuary area have agreed a precautionary distance of 300m for the purposes of assessment of bird disturbance.

Fish / Marine Mammals

3.15 Fish use sound for vital life functions, requiring it for completion of their life cycle as well as maintaining productivity. A review of 115 primary studies (66 of which were investigating fish species) highlights that noise disturbance leads to a wide range of impacts in fish, including their development, anatomy, physiology, stress levels and behaviour[16]. A study comparing the foraging behaviour of perch and roach, found that both species showed significantly fewer feeding attempts when exposed to motorboat noise[17]. For roach, which are better hearing than perch, no habituation to noise occurred over time. In a study of pink snappers (similar to many other commercial species such as tuna, cod and haddock), it was determined that a single seismic air gun with a source noise level of 222.6dB re 1uPa resulted in extensive damage to the ears, with no apparent recovery after 58 days[18]. The impacts of noise may not be immediately visible, as demonstrated by a noise playback experiment on perch, carp and gudgeon. Exposure of the fish to underwater ship noise, resulted in cortisol increases of between 81% to 120% compared to control values[19]. Notwithstanding this evidence, it is important to note that extrapolations from noise impact studies to different settings or species should be made with caution.

3.16 Construction noise also presents a significant threat (both regarding injury and mortality) to marine mammals, including harbour porpoise and grey seals. For example, the density of harbour porpoise has been shown to be significantly reduced for several kilometres surrounding seismic surveys and impact piling activities[20] [21]. Cetaceans produce and receive sound over a great range of frequencies for use in communication, orientation, predator avoidance and foraging. Interference with these important behaviours has the potential to result in significant negative impacts. Harbour porpoise are high frequency cetaceans that have low sensitivity thresholds to impulsive sound sources. Anthropogenic sound has the potential to result in direct effects on the hearing ability of mammals (among other impacts, such as behavioural responses and masking of other underwater sounds), including Permanent Threshold Shifts (PTS) and Temporary Threshold Shifts (TTS)[22]. Some construction works within the marine environment may require Unexploded Ordnance (UXO) detonation, which involves impulsive sound elements stretching over tens of kilometres. In practice, it is typically not known whether such works will be required. Guidance from the Joint Nature Conservation Committee (as utilised for example in the HRA of the South-West England Marine Plan) confirms that a likely significant effect via

underwater noise could affect European sites up to 50km distant depending on the nature of the works.

Hydrology

3.17 The water level, its flow rates and the mixing conditions are important determinants of the condition of European sites and their qualifying features. Hydrological processes are critical in influencing habitat characteristics in wetlands and coastal waters, including current velocity, water depth, dissolved oxygen levels, salinity and water temperature. In turn these parameters indirectly determine the short- and long-term viability of plant and animal species, as well as overall ecosystem composition.

3.18 Many animal species are directly sensitive to hydrological changes, including the drying and excessive flooding of habitat. For example, many species (partially) restricted to the aquatic environment are sensitive to periodic or permanent drying, because this reduces the extent of supporting habitat available. This includes species such as the great-crested newt, southern damselfly, white-clawed crayfish and a diverse array of fish (e.g. Atlantic salmon, river lamprey, sea lamprey). In contrast, excessive flooding can result in sub-optimal water levels for foraging birds, such as small waders. If water is too deep, some species may not be able to access their primary prey species, with potential implications for foraging efficiency.

3.19 Wetland, riverine, estuarine and coastal habitats rely on hydrological connections with other surface water systems. A supply of water within natural limits is fundamental to maintaining the ecological integrity of sites. However, while the natural fluctuation of water levels within narrow limits is desirable, excess or too little water supply might cause the water level to be outside of the required range of plant and animal species. This might lead to the loss of the structure and function of aquatic habitats.

3.20 FRMPs generally propose measures to reduce the magnitude and impacts of potential flooding events. This may involve a wide range of interventions, such as flood defences and natural flood management techniques. If any such measures are delivered in the proximity to hydrology-dependent European sites, they may have implications for the water level in designated site boundaries. For example, a natural flood management intervention delivered immediately upstream of a designated floodplain or waterbody, while intended to restore the hydrological regime to a natural baseline, could reduce the volume of freshwater input to and flooding regime in that downstream European site.

Pollution

3.21 The quality of the water that feeds European sites is an important determinant of the nature of their habitats and the species they support. Poor water quality can have a range of environmental impacts:

- At high levels, toxic chemicals and metals can result in immediate death of aquatic life, and can have detrimental effects even at lower levels, including increased vulnerability to disease and changes in wildlife behaviour.
- Eutrophication, the enrichment of water with nutrients, increases plant growth and consequently results in oxygen depletion. Algal blooms, which commonly result from eutrophication, increase turbidity and decrease light penetration. The decomposition of organic wastes that often accompanies eutrophication

deoxygenates water further, augmenting the oxygen depleting effects of eutrophication. In freshwater ecosystems, plant growth is primarily determined by phosphorus concentrations, which are determined by a wide range of sources, including treated sewage effluent from Wastewater Treatment Works and urban surfaces such as roads.

- Some pesticides, industrial chemicals, and components of sewage effluent are suspected to interfere with the functioning of the endocrine system, possibly having negative effects on the reproduction and development of aquatic life.

3.22 There is an obligation for flood risk protection, management and resilience schemes to consider water quality impacts. Under the Environmental Damage (Prevention and Remediation) (England) Regulations 2015 and the Environmental Permitting (England and Wales) Regulations 2016, it is illegal to pollute watercourses. Individual planning proposals will undergo Preliminary Ecological Appraisal (PEA) or Environmental Impact Assessment (EIA), if identified as Schedule 1 or Schedule 2 proposals by the Town and Country Planning (Environmental Impact Assessment) Regulations 2017. As such, water quality protection measures must by law be introduced on any scheme that could affect the water quality of the river or coastal environment, irrespective of whether part of that environment is designated as an SAC or SPA.

Functionally-Linked Land

3.23 While most European sites have been geographically defined in order to encompass the key features that are necessary for coherence of their structure and function, this is not the case for all such sites. Due to the highly mobile nature of waterfowl, it is inevitable that areas of habitat of crucial importance to the maintenance of their populations are outside the physical limits of the European site for which they are an interest feature. However, this area will still be essential for maintenance of the structure and function of the interest feature for which the site was designated and land use plans that may affect this land should still therefore be subject to further assessment. This has been underlined by a recent European Court of Justice ruling (C-461/17, known as the Holohan ruling[23]) which in paragraphs 37 to 40 confirms the need for an appropriate to consider the implications of a plan or project on habitats and species outside the European site boundary provided that those implications are liable to affect the conservation objectives of the site.

3.24 Certain management approaches, while positive for coastal processes, could result in the loss of landward habitats, such as coastal grazing marsh, grassland, reedbeds and arable land. Birds are mobile species and are also dependent on sites outside of formal designations and rely on the availability of a network of feeding and roosting resources over the winter period.

Spread of invasive non-native species

3.25 Invasive non-native species can have detrimental impacts on native species and habitats. Their spread can occur during construction and operation of a development, and via multiple pathways (for example via watercourses or on the treads of construction machinery).

3.26 Under the Wildlife and Countryside Act 1981, as amended, and the Invasive Alien Species (Enforcement and Permitting) Order 2019, it is an offence to cause any plant to spread or grow in the wild outside of its native range. Appropriate biosecurity

measures will therefore also be implemented during works carried out during both the construction and operational phases of any scheme to prevent the spread of invasive non-native species, irrespective of whether there are European sites in the vicinity.

4. Test of Likely Significant Effects

4.1 When seeking to identify relevant European sites, consideration has been given primarily to identified impact pathways and the source-pathway-receptor approach, rather than adopting a purely 'zones'-based approach. The source-pathway-receptor approach is a standard tool in environmental assessment. In order for an effect to occur, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism means there is no possibility for an effect to occur. Furthermore, even where an impact is predicted to occur, it may not result in significant effects (i.e. those which undermine the conservation objectives of a European site). Briefly defined, pathways are routes by which a change in activity can lead to a significant effect upon a European site.

4.2 The likely zone of impact (also referred to as the likely 'zone of influence') of a plan or project is the geographic extent over which significant ecological effects are likely to occur. The zone of influence of a plan or project will vary depending on the specifics of a particular proposal and must be determined on a case-by-case basis with reference to a variety of criteria, including:

- the nature, size / scale and location of the plan
- the connectivity between the plan and European sites, for example through hydrological connections or because of the natural movement of qualifying species
- the sensitivity of ecological features under consideration
- the potential for in-combination effects

4.3 There is no geographical limit beyond which plans need not be considered by HRA. However, as a first step in identifying European sites which may be relevant, a search was made for sites within the River Basin District, or within 10km of the River Basin District. Consideration was then given to their hydrological sensitivity and the potential for them to be connected to flood risk management measures. The European sites identified within this search area is given in Table 3. Note that there are numerous European sites within the River Basin District or within 10km of it which are not hydrologically sensitive or likely to be affected by flood defences or are hydrologically sensitive but would not be linked to potential flood risk management activities. These are not listed below as they are scoped out of the HRA process.

4.4 There are clusters of hydrologically sensitive European sites across the North West River Basin District, which can be divided into freshwater and coastal sites.

Freshwater European Sites

4.5 There are two main concentrations of freshwater sites in the North West region:

- Cumbria – Esthwaite Water Ramsar; River Derwent & Bassenthwaite Lake SAC; Roudsea Wood & Mosses SAC; Wast Water SAC; River Kent SAC; Lake District High Fells SAC; Borrowdale Woodland Complex SAC; Duddon Mosses SAC; Witherslack Mosses SAC
- Cheshire – Rixton Clay Pits SAC; West Midland Mosses SAC; Oak Mere SAC, Rostherne Mere Ramsar; Midland Meres & Mosses - Phase 1 & Phase 2 SACs

4.6 In contrast, the Lancashire, Liverpool City Region, Greater Manchester and Staffordshire parts of the River Basin District have relatively few hydrologically sensitive freshwater European sites. Those that do exist are as follows:

- Lancashire – Leighton Moss Ramsar
- Liverpool City Region – Martin Mere SPA/ Ramsar
- Greater Manchester – Rochdale Canal SAC
- Staffordshire - Midland Meres & Mosses - Phase 1 & Phase 2; West Midland Mosses SAC

4.7 None of the measures in these counties have been identified to result in likely significant effects on any hydrologically sensitive freshwater sites. This is generally because the measures are:

- too non-specific to assess meaningfully
- already being implemented
- already subjected to a separate HRA process (e.g., a Coastal Strategy or a SMP will have its own HRA process)
- essentially desk-based
- remote from European sites
- worded such that they are about 'investigating' or 'reviewing' or 'identifying opportunities for' interventions, rather than committing to any specific interventions or actions the ground. Any specific schemes that subsequently emerge from the investigation/ review will be subject to their own down-the-line HRA process

4.8 Some measures are very specific, such as 'The Environment Agency will investigate the feasibility and value of removing the weir in Heasandford to understand the benefits and consequences this would have on the natural environment and the risk of flooding in the Burnley, North West Flood Risk Area', which is accompanied in Flood Plan Explorer by a detailed map showing the specific location for works to occur. However, these have also been screened out due to a lack of specific impact pathways to European sites.

4.9 One group of measures goes beyond 'investigating', 'reviewing' or 'identifying' by committing to 'delivering' or 'implementing' flood management interventions, making it clear that physical work on the ground will occur. In some instances, particularly for Management Catchment measures, the broad (and, occasionally, specific) location for these measures is known, while details of their implementation are not. Given the absence of details at the FRMP level, and in line with the approach to tiering of HRA set out in Section 2, HRA (including Appropriate Assessment as necessary) must be deferred to later scheme development, lower tier plans, the outline business case and/or the planning application stage. Measures where this screening outcome applies have been categorised as 'No Likely Significant Effect, but down-the-line HRA required'. This approach has been adopted to account for the strategic (and thereby necessarily non-specific) nature of the FRMP, while also identifying the measures with the highest impact potential on European sites.

4.10 One broader matter requiring consideration as part of the Likely Significant Effects process is the extent to which any measures, through committing to the *status quo*, may be contributing to the exacerbation or persistence of an existing water-related problem at European sites. However, for the North West region no specific measures

have been identified that contain proposals that would reinforce a negative situation, subject to down-the-line HRA for any schemes that may emerge from the numerous studies committed to in the FRMP.

4.11 Although not technically within the remit of HRA, it is nonetheless noted that there are several measures that present opportunities for improving the hydrological situation at European sites in affected areas, in conjunction with nature recovery plans and catchment sensitive farming, particularly as applied to the key foci for hydrologically sensitive European sites in the North West region. This is discussed in the following sections within the context of the current hydrological vulnerability of relevant freshwater European sites.

4.12 Although non-specific, the following broad measures applicable to the River Basin District could give rise to initiatives and opportunities to improve European site hydrology:

- ‘Collaborate with environmental partners and major landowners to significantly increase upland and lowland peat and wetland restoration in the North West of England to reduce flood risk, restore natural habitats and allow for carbon sequestration to counter the impacts of climate change in the NWRBD.’
- ‘The Environment Agency and Risk Management Authorities, wider communities and stakeholders will exploit opportunities to store water or manage run-off in identified areas in the North West of England to provide overall flood risk reduction and environmental benefits in the NWRBD.’
- ‘The Environment Agency and Risk Management Authorities will work in unison to map opportunity catchments for habitat creation and develop a programme for joint delivery in the North West of England to ensure integrated flood risk is tackled and investment is focussed where there will be greatest socio-environmental benefit in the NWRBD.’

4.13 Depending on how they are delivered, all these measures have the potential to benefit the bog and wetland European sites in the north-west in conjunction with nature recovery plans and catchment sensitive farming. For example, the Site Improvement Plan for Roudsea Wood & Mosses SAC states that ‘Due to past peat cutting and drainage in preparation for cutting, plus subsequent colonisation by trees and rhododendron, the water table on the bog is too low to conserve the peat resource and support bog vegetation in the long term’. The Supplementary Advice on the Conservation Objectives states ‘The farmland to the north, west and south of the SAC and the land to the north and south of Skelwith Pool are all believed to formerly be part of the wetland complex associated with the surviving raised bog. Proposed operations on land surrounding the SAC may impact on the bog, especially drainage or earthworks within the Hydrological Protection Zone’.

4.14 Similarly, for West Midlands Mosses SAC the Site Improvement Plan states ‘All of the component areas of transition mire are impacted by historic drainage. At Clarepool, Chartley and Wybunbury Mosses some of this damage has been partially repaired but further measures to restore a naturalised hydrology are needed in all locations. As well as surface water, ground water is also an important water supply mechanism to the mosses. Hence the SAC is vulnerable to groundwater abstractions and artificial flooding as well as catchment drainage’. The SACO for the same SAC states that ‘Hydrological restoration is required, through blocking / infilling of drainage ditches and reduction of woodland cover’.

4.15 For Martin Mere SPA the Site Improvement Plan states that 'Three hundred years of agricultural activity, land drainage and wind erosion have caused shrinkage of peat surrounding the site resulting in the site being significantly higher than adjacent land. Active management of water levels across the site through pumping and drainage is required. There is considerable pressure on the flood defences, and the embankments require constant maintenance to prevent breaches which would result in water draining from the site onto the lower surrounding land'. For Duddon Mosses SAC the Site Improvement Plan states 'Historic peat cutting (including slumping and cracking of peat behind faces) and drainage are leading to ongoing changes to the peat and vegetation. There is a time-lag between degradation of the peat and vegetation response. In addition to this, the water table is too low in unmanaged areas to support desired bog vegetation and conserve the peat resource. This issue has been partly addressed via hydrological restoration works over the last 15 years'.

4.16 Depending on how they are realised the aforementioned measures could help to achieve these objectives.

Coastal European Sites

4.17 Hydrologically sensitive coastal European sites occupy much of the North West coastline. There are numerous measures in the North West FRMP which refer to implementing or reviewing Coastal Strategies and SMPs. Such plans and strategies present considerable potential for impacts on sensitive coastal sites as set out in Section 3, particularly coastal squeeze, direct habitat loss from coastal defence footprints and (depending on use of land outside SPA boundaries by qualifying wildfowl and waders) loss of functionally-linked land.

4.18 However, the FRMP does not decide the content of either SMP's or Coastal Strategies (including the package of underlying schemes) as these are subject to their own independent development and assessment processes, including HRA. The FRMP's are essentially referencing these strategies and plans to create a complete picture of flood risk management in coastal areas. Therefore, despite the potential SMPs and Coastal Strategies possess for affecting European sites, the FRMP measures relating to those plans will not result in likely significant effects.

4.19 Measures that commit to 'reviewing' SMP's or Coastal Strategies do contain within them the potential to also commit to shaping those plans with a view not simply to managing flood risk to human assets but also positively influencing persistence and/or recovery of coastal habitats. This is not strictly an HRA consideration, since HRA is fundamentally about identifying whether given measures will interfere with the ability of European sites to achieve their conservation objectives, rather than shaping them to positively contribute towards achievement of those objectives. However, those measures could be amended to include reference to shaping the next generation of SMP's and Coastal Strategies to not only take account of the latest sea level rise projections but also opportunities to improve achievement of conservation objectives for the European sites on the relevant frontage.

Table 3. European sites within 10km of the North West River Basin District and that are potentially linked to local flood risk management measures

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Dee Estuary SAC/ SPA/ Ramsar	The site is designated as a SAC for its: Qualifying Annex I habitats: • Mudflats and sandflats not covered by seawater at low tide • Salicornia and other annuals colonizing mud and sand • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) • Estuaries • Annual vegetation of drift lines • Vegetated sea cliffs of the Atlantic and Baltic Coasts • Embryonic shifting dunes • Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes') • Fixed coastal dunes with herbaceous vegetation ('grey dunes') * • Humid dune slacks Annex I priority habitats are denoted by an asterisk (*).	The Dee Estuary / Aber Dyfrdwy SAC/ SPA/ Ramsar lies partially within the North West River Basin District. The site consists of 3 component SSSI's, 1 of which (Gronant Dunes and Talacre Warren SSSI) is in Wales. The Dee Estuary lies on the boundary between England and Wales on the north-west coast of Britain. It is a large, funnel-shaped, sheltered estuary that supports extensive areas of intertidal sand-flats, mud-flats and saltmarsh. The saltmarshes grade into transitional brackish and swamp vegetation on the upper shore By definition, estuaries receive input from both freshwater and sea water sources, the interplay of which will determine the abiotic conditions and, ultimately the integrity of qualifying habitats. All qualifying fish species, particularly anadromous species such as sea lamprey and river lamprey, depend on sufficient hydrological flows to reach their upstream spawning grounds.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
	Qualifying Annex II species: • Sea lamprey *Petromyzon marinus* • River lamprey *Lampetra fluviatilis* • Petalwort *Petalophyllum ralfsii* The site is designated as a SPA for its: Qualifying Annex I species: • Bar-tailed godwit *Limosa lapponica* • Common tern *Sterna hirundo* • Little tern *Sterna albifrons* • Sandwich tern *Sterna sandvicensis*	Being an estuary, the site is inherently linked to the River Basin District. All qualifying species in the SPA/ Ramsar depend on adequate freshwater supply, which determines mixing conditions, salinity gradients, sediment input and the distribution of foraging resources. The qualifying features are also directly and indirectly sensitive to water pollution and coastal squeeze. Natterjack toads spend a portion of their life within aquatic environments and are sensitive to changes in both ground and surface water flow and quality.

	Regular use by the following migratory species (other than those listed in Annex I): • Redshank *Tringa tetanus*, passage • Shelduck *Tadorna tadorna*, wintering • Teal *Anas crecca*, wintering • Pintail *Anas acuta*, wintering • Oystercatcher *Haematopus ostralegus*, wintering • Grey plover *Pluvialis squatarola*, wintering • Knot Calidris canutus islandica, wintering • Dunlin *Calidris alpina*, wintering • Black-tailed godwit *Limosa limosa islandica*, wintering • Curlew *Numenius arquata*, wintering • Redshank *Tringa totanus*, wintering The site is designated as a Ramsar site for the following Criteria: Ramsar Criterion 1: • Estuaries • Mudflats and sandflats not covered by seawater at low tide • Annual vegetation of drift lines • Vegetated sea cliffs of the Atlantic and Baltic coasts • *Salicornia* and other annuals colonising mud and sand • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) • Embryonic shifting dunes	

	• Shifting dunes along the shoreline with *Ammophila arenaria* (‘white dunes’) • Fixed dunes with herbaceous vegetation (‘grey dunes’) • Humid dune slacks Ramsar Criterion 2: • Natterjack toad Epidelea calamita Ramsar Criterion 5: Assemblages of international importance. Species with peak counts in winter: • Non-breeding season regularly supports 120,726 individual waterbirds Ramsar Criterion 6: Species/populations occurring at levels of international importance. Species with peak counts in spring/ autumn: • Redshank Tringa tetanus. Species with peak counts in winter: • Teal *Anas crecca*, NW Europe • Shelduck *Tadorna tadorna,* NW Europe • Oystercatcher *Haematopus ostralegus*, Europe & W Africa • Curlew *Numenius arquata* Europe/NW Africa • Pintail *Anas acuta*, NW Europe • Grey plover *Pluvialis squatarola*, E Atlantic • Knot Calidris canutus islandica, W Europe/ Canada	

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
	• Dunlin *Calidris alpina alpina* Europe (breeding) • Black-tailed godwit *Limosa limosa islandica,* Iceland • Bar-tailed godwit *Limosa lapponica*, W European • Redshank *Tringa totanus,* Eastern Atlantic Dee Estuary SSSI is 1000% favourable condition; Thurstaston Common SSSI is 100% unfavourable – recovering.	
Liverpool Bay SPA	The site is designated as a SPA for its: Qualifying Annex I species: • Red-throated diver *Gavia stellata* (non-breeding) • Little gull (non-breeding) • Little tern (breeding) • Common tern (breeding) Regular use by the following migratory species (other than those listed in Annex I): • Common scoter Waterbird assemblage: Main components include non-breeding red-throated diver, common scoter, red-breasted merganser *Mergus serrator* and great cormorant.	Liverpool Bay / Bae Lerwpl SPA lies partially within the North West River Basin District boundary.

Mersey Narrows & North Wirral Foreshore SPA/ Ramsar	The site is designated as a SPA for its: Qualifying Annex I species: • Bar-tailed godwit – non-breeding • Common tern – breeding and non-breeding In addition, it is one of the most important locations in the UK for non-breeding little gull (*Hydrocoloeus minutus*) and is used regularly by 1% or more of the biogeographical population of the following regularly occurring migratory species (other than those listed in Annex I) in any season: knot. Waterbird assemblage: cormorant, oystercatcher, grey plover, sanderling, knot, dunlin, bar-tailed godwit, redshank. The site is designated as a Ramsar site for the following Criteria: Criterion 4: The site regularly supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions e.g., important numbers of non-breeding little gulls *Hydrocoloeus minutus* and common terns. Criterion 5: Assemblages of international importance. The site regularly supports 20,000 or more waterbirds. Criterion 6: • The site regularly supports 1% of the individuals in the populations of the following species or subspecies of waterbird in any season: *islandica* and *lapponica* sub-species of bar-tailed godwits, non-breeding knot.	Mersey Narrows & North Wirral Foreshore SPA/ Ramsar lies immediately adjacent to the North West River Basin District boundary. The site consists of 2 component SSSI's. Mersey Narrows and North Wirral Foreshore is located on the northwest coast of England at the mouths of the Mersey and Dee estuaries. The site comprises intertidal habitats at Egremont foreshore, man-made lagoons at Seaforth and the extensive intertidal flats at North Wirral Foreshore. All qualifying species in the SPA depend on adequate freshwater supply, which determines mixing conditions, salinity gradients, sediment input and the distribution of foraging resources. The qualifying features are also directly and indirectly sensitive to water pollution and coastal squeeze.

	North Wirral Foreshore SSSI is in unfavourable – declining condition. Mersey Narrows SSSI is 77.73% unfavourable – recovering, 22.27% favourable.	

Mersey Estuary SPA/ Ramsar	The site is designated as a SPA for its: Qualifying Annex 1 species: • Golden plover Pluvialis apricaria Migratory species: • Shelduck Tadorna tadorna • Teal Anas crecca • Pintail Anas acuta • Dunlin Calidris alpina alpina • Black-tailed godwit Limosa limosa islandica • Redshank Tringa totanus Waterbird assemblage: great crested grebe *Podiceps cristatus*, shelduck, wigeon *Anas penelope*, teal, pintail, ringed plover *Charadrius hiaticula,* golden plover, grey plover *Pluvialis squatarola,* lapwing *Vanellus vanellus,* dunlin, black-tailed godwit, curlew *Numenius arquata* and redshank. The site is designated as a Ramsar site for the following Criteria: Criterion 5: Assemblages of international importance. Species with peak counts in winter: 89576 waterfowl (5 year peak mean 1998/99-2002/2003) Criterion 6: Species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation):	The Mersey Estuary SPA/ Ramsar lies within the North West River Basin District with the estuary being fed directly from the River Mersey. Being an estuary, the site is inherently linked to the River Basin District. By definition, estuaries receive input from both freshwater and sea water sources, the interplay of which will determine the abiotic conditions and, ultimately the integrity of qualifying habitats. All qualifying species in the SPA/ Ramsar depend on adequate freshwater supply, which determines mixing conditions, salinity gradients, sediment input and the distribution of foraging resources. The qualifying features are also directly and indirectly sensitive to water pollution and coastal squeeze.

	Species with peak counts in spring/autumn: • Shelduck • Black-tailed godwit • Redshank Species with peak counts in winter: • Teal • Pintail • Dunlin The Mersey Estuary SSSI is 44.3% unfavourable – no change, 29.32% favourable and 26.38% unfavourable – recovering.	

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Sefton Coast SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Atlantic decalcified fixed dunes (*Calluno-Ulicetea*). (Coastal dune heathland)* • Dunes with Salix repens ssp. argentea (*Salicion arenariae*). (Dunes with creeping willow) • Embryonic shifting dunes • Fixed dunes with herbaceous vegetation ('grey dunes'). (Dune grassland)* • Humid dune slacks • Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes'). (Shifting dunes with marram) Annex I priority habitats are denoted by an asterisk (*). Qualifying Annex II species: • Great crested newt *Triturus cristatus* • Petalwort Sefton Coast SSSI is 70.24% favourable, 21.53% unfavourable – recovering, 5.15% unfavourable – no change, 3.07% unfavourable declining.	The Sefton Coast SAC lies within the North West River Basin District. Great crested newts spend a portion of their life within aquatic environments and are sensitive to changes in both ground and surface water flow and quality.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Rochdale Canal SAC	The site is designated as a SAC for its: Qualifying Annex I species: • Floating water-plantain *Luronium natans* The Rochdale Canal SSSI is in unfavourable – recovering condition	The Rochdale Canal SAC lies within the North West River Basin District. The Rochdale Canal SAC contains important habitats for submerged aquatic plants and emergent vegetation, including extensive colonies of the nationally scarce floating water-plantain *Luronium natans.* Being a freshwater ecosystem, the canal is inherently linked to the River Basin District.

South Pennine Moors SAC/ SPA	The site is designated as a SAC for its: Qualifying Annex I habitats: • Blanket bogs* • European dry heaths • Northern Atlantic wet heaths with *Erica tetralix.* (Wet heathland with cross-leaved heath) • Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles. (Western acidic oak woodland) • Transition mires and quaking bogs. (Very wet mires often identified by an unstable 'quaking' surface) Annex I priority habitats are denoted by an asterisk (*). The site is designated as a SPA for its: Qualifying Annex I species: • Merlin Falco columbarius • Golden plover Pluvialis apricaria Regular use by the following breeding migratory species: • Golden plover • Lapwing Vanellus vanellus • Dunlin Calidris alpina • Snipe Gallingo gallingo • Curlew Numenius arquata • Redshank Tringa tetanus • Common sandpiper Actitis hypoleucus • Short-eared owl *Asio flammeus* • Whinchat Saxicola rubetra	The South Pennine Moors SAC lies partially within the North West River Basin District. The site consists of 5 component SSSI's. The Conservation Objectives Supplementary Advice (COSA) document[25] states that defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the Conservation objectives for this site. Changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animals present. The South Pennine Moors SPA lies partially within the North West River Basin District. For many SPA features which are dependent on wetland habitats supported by surface water, maintaining the quality and quantity of water supply is critical, especially at certain times of year during key stages of their life cycle. TheCOSA[26] states 'Where the supporting habitats of the SPA feature are dependent on surface water, maintain water quality and quantity at standards which provides the necessary conditions to support …' the qualifying feature. Actions within the FRMP also have the potential to cause disturbance. The COSA states 'Restrict and reduce the frequency, duration and/or intensity of disturbance….'

	• Wheatear Oenanthe oenanthe • Ring ouzel Turdus torquatus • Twite Carduelis flavirostris • Breeding bird assemblage: merlin, red grouse *Lagopus lagopus*, golden plover, dunlin, short-eared owl and twite. Dark Peak SSSI is 4.33% favourable, 89.58% unfavourable – recovering, 5.99% unfavourable – no change and 0.10% unfavourable – declining Eastern Peak District Moors SSSI is 30.94% favourable, 68.75% unfavourable – recovering and 0.31% unfavourable – no change Goyt Valley SSSI 0.8% favourable, 90.2% unfavourable – recovering, 1.06% unfavourable – no change and 7.94% unfavourable – declining Leek Moors SSSI is 15.27% favourable, 67.81% unfavourable – recovering, 10.84% unfavourable – no change, 5.81% unfavourable – declining and 0.27% partially destroyed South Pennine Moors SSSI is 0.64% favourable, 89.28% unfavourable – recovering, 9.88% unfavourable – no change and 0.19% unfavourable – declining	

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Peak District Moors (South Pennine Moors Phase 1) SPA	The site is designated as a SPA for its: Qualifying Annex I species: • Merlin • Golden plover • Short-eared owl Dark Peak SSSI us 4.33% favourable, 89.58% unfavourable – recovering, 5.99% unfavourable – no change and 0.1% unfavourable – declining South Pennine Moors SSSI is 0.64% favourable, 89.28% unfavourable – recovering, 9.88% unfavourable – no change and 0.19% unfavourable –declining Goyt Valley SSSI is 0.8% favourable, 90.2% unfavourable – recovering, 1.06% unfavourable – no change and 7.94% unfavourable – declining.	The Peak District Moors (South Pennine Moors Phase 1) lies partially within the North West River Basin District. Changes in source, depth, duration, frequency, magnitude and timing of water supply or flow can have important implications for features of interest. It is a target in the COSA[27] to 'Restore water availability to Golden Plover feeding sites and expand the area of wet active blanket bog or other flooded land overall.' and 'Restore water quality and quantity to a standard which provides the necessary habitat conditions to support the breeding Golden Plover population.' Actions within the FRMP also have the potential to cause disturbance. The COSA states 'Restrict and reduce the frequency, duration and/or intensity of disturbance….'

Ribble & Alt Estuaries SPA/ Ramsar	Qualifying Annex I species: • Ruff Philomachus pugnax • Common tern • Bewick's swan Cygnus columbianus bewickii • Whooper swan *Cygnus Cygnus* • Golden plover • Bar-tailed godwit Regular use by the following migratory species (other than those listed in Annex I): • Lesser black-backed gull *Larus fuscus graellsii* • Ringed plover • Sanderling • Redshank • Pink-footed goose Anser brachyrhynchus • Shelduck • Wigeon • Teal • Pintail • Oystercatcher • Grey Plover • Knot • Sanderling • Dunlin • Black-tailed Godwit	Ribble & Alt Estuaries SPA/ Ramsar lies within the North West River Basin District. Being an estuary, the site is inherently linked to the River Basin District. By definition, estuaries receive input from both freshwater and sea water sources, the interplay of which will determine the abiotic conditions and, ultimately the integrity of qualifying habitats. All qualifying species in the SPA/ Ramsar depend on adequate freshwater supply, which determines mixing conditions, salinity gradients, sediment input and the distribution of foraging resources. The qualifying features are also directly and indirectly sensitive to water pollution and coastal squeeze.

	• Redshank Waterbird assemblage: cormorant, Bewick's swan, whooper swan, pink-footed goose, shelduck, wigeon, teal, pintail, scaup *Aythya marila,* common scoter *Melanitta nigra*, oystercatcher, ringed plover, golden plover, grey plover, lapwing, knot, sanderling, dunlin, black-tailed godwit, bar-tailed godwit, whimbrel *Numenius phaeopus*, curlew and redshank. The site is designated as a Ramsar for the following Criteria: Criterion 2: The site supports up to 40% of the Great Britain population of natterjack toads. Criterion 5: Assemblages of international importance. Species with peak counts in the winter – 222,038 waterfowl (5 year peak mean 1998/99-2002/2003). Criterion 6: Species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species regularly supported during the breeding season: • Lesser black-backed gull Species with peak counts in spring/autumn: • Ringed plover Charadrius hiaticula • Grey plover • Red knot Calidris canutus islandica • Sanderling	

	• Dunlin • Black-tailed godwit • Redshank • Lesser black-backed gull Species with peak counts in winter: • Tundra/ Bewick's swan • Whooper swan • Pink-footed goose • Shelduck • Wigeon • Teal • Pintail • Oystercatcher • Bar-tailed godwit The Ribble Estuary SSSI is 99.11% favourable and 0.89% unfavourable – no change.	

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Shell Flat and Lune Deep SAC	Annex I habitats that are a primary reason for selection of this site: • Sandbanks which are slightly covered by sea water all the time • Reefs	Shell Flat and Lune Deep SAC lies partially within the North West River Basin District Both habitats are vulnerable to both toxic and non-toxic contamination. The pathways by which toxic contaminants can reach these sub-tidal features would include point source discharges of effluents and land run-off from Morecambe Bay and the Fylde. The principle pathways by which non-toxic contaminants can reach these sub-tidal features would include point source discharges of effluents e.g., from local waste water treatment works, land run-off (mainly from Morecambe Bay),

Morecambe Bay SAC/ Ramsar	The site is designated as a SAC for its: Qualifying Annex I habitats: • Atlantic decalcified fixed dunes (*Calluno-Ulicetea*). (Coastal dune heathland)* • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Coastal lagoons* • Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*). (Dunes with creeping willow) • Embryonic shifting dunes • Estuaries • Fixed dunes with herbaceous vegetation ('grey dunes'). (Dune grassland)* • Humid dune slacks • Large shallow inlets and bays • Mudflats and sandflats not covered by seawater at low tide. (Intertidal mudflats and sandflats) • Perennial vegetation of stony banks. (Coastal shingle vegetation outside the reach of waves) • Reefs • *Salicornia* and other annuals colonising mud and sand. (Glasswort and other annuals colonising mud and sand) Sandbanks which are slightly covered by sea water all the time. (Subtidal sandbanks) • Shifting dunes along the shoreline with *Ammophila arenaria.* ('White dunes') Annex I priority habitats are denoted by an asterisk (*). Qualifying Annex II species:	Morecambe Bay SAC/ Ramsar lies within the North West River Basin District. The site consists of 6 SSSI components. Morecambe Bay is a large, very shallow, predominantly sandy bay at the confluence of four principal estuaries, the Leven, Kent, Lune and Wyre. The Duddon Estuary is within the SAC but north of the bay itself, although directly connected to it by Walney Channel.

	• Great crested newt *Triturus cristatus* The site is designated as a Ramsar for thefollowing Criteria: Criterion 4: The site is a staging area for migratory waterfowl including internationally important numbers of passage ringed plover Charadrius hiaticula Criterion 5: Assemblages of international importance. Species with peak counts in the winter – 223709 waterfowl (5 year peak mean 1998/99-2002/2003) Criterion 6: Species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species regularly supported during the breeding season: • Lesser black-backed gull, *Larus fuscus graellsii,* • Herring gull, Larus argentatus argentatus, • Sandwich tern, Sterna (Thalasseus) sandvicensis sandvicensis Species with peak counts in spring/autumn: • Great cormorant, Phalacrocorax carbo carbo, • Common shelduck, *Tadorna tadorna,* • Northern pintail, *Anas acuta,* • Common eider, Somateria mollissima mollissima, • Eurasian oystercatcher, Haematopus ostralegus ostralegus,	

	• Ringed plover, Charadrius hiaticula, • Grey plover, Pluvialis squatarola, • Sanderling, Calidris alba, • Eurasian curlew, Numenius arquata arquata Species with peak counts in winter: • Great crested grebe, Podiceps cristatus cristatus, • Pink-footed goose, Anser brachyrhynchus, • Eurasian wigeon, *Anas penelope,* • Common goldeneye, Bucephala clangula clangula • Red-breasted merganser, *Mergus serrator,* • European golden plover, Pluvialis apricaria apricaria, • Northern lapwing, Vanellus vanellus, • Red knot, Calidris canutus islandica, • Dunlin, Calidris alpina alpina, • Bar-tailed godwit, Limosa lapponica lapponica Duddon Estuary SSSI is 91.52% favourable, 4 unfavourable – recovering, 3.06% unfavourable – no change and 0.69% unfavourable – declining Lune Estuary SSSI is 100% favourable Morecambe Bay SSSI is 92.37% favourable, 2.4% unfavourable – recovering and 5.22% unfavourable – declining Roudsea Wood and Mosses SSSI is 9.8% favourable, 80.7% unfavourable – recovering and 9.51%unfavourable – declining	

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
	South Walney and Piel Channel Flats SSSI is 91.29% favourable, 5.99% unfavourable – recovering and 2.72% unfavourable – no change Wyre Estuary SSSI is100% favourable	

Duddon Estuary Ramsar	The site is designated as a Ramsar for the following Criteria: Criterion 2: The site supports nationally important numbers of the rare natterjack toad *Bufo calamita*, near the north-western edge of its range (an estimated 18-24% of the British population). Supports a rich assemblage of wetland plants and invertebrates - at least one nationally scarce plant and at least two British Red Data Book invertebrates. Criterion 4: The site supports nationally important numbers of waterfowl during spring and autumn passage. Criterion 5: Assemblages of international importance. Species with peak counts in winter - 26326 waterfowl (5 year peak mean 1998/99-2002/2003) Criterion 6: Species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species with peak counts in winter: • Northern pintail, *Anas acuta* • Red knot, Calidris canutus islandica • Common redshank, Tringa totanus totanus Duddon Estuary SSSI is 91.52% favourable, 4% unfavourable – recovering, 3.06% unfavourable – no change and 0.69% unfavourable – declining;	The Duddon Estuary Ramsar lies partially within the North West River Basin District. Being an estuary, the site is inherently linked to the River Basin District. All qualifying species in the Ramsar depend on adequate freshwater supply, which determines mixing conditions, salinity gradients, sediment input and the distribution of foraging resources. The qualifying features are also directly and indirectly sensitive to water pollution and coastal squeeze.

Morecambe Bay and Duddon Estuary SPA	The site is designated as a SPA for its: Qualifying Annex I in any season: • Whooper swan, *Cygnus cygnus (*non-breeding) • Little egret, *Egretta garzetta* (non-breeding) • European golden plover, *Pluvialis apricaria* non-breeding) • Bar-tailed Godwit, *Limosa lapponica* (non-breeding) • Ruff, *Calidris pugnax* (non-breeding) • Mediterranean gull, *Larus melancephalus* (non-breeding) • Little tern, *Sternula albifrons* (breeding) • Sandwich tern, *Sterna sandvicensis* (breeding) • Common tern, *Sterna hirundo* (breeding) Regular use by the following migratory species (other than those listed in Annex I): • Pink-footed goose, Anser brachyrhynchus • Common shelduck, *Tadorna tadorna* • Northern pintail, *Anas acuta* • Eurasian oystercatcher, *Haematopus* • ostralegus • Grey plover, Pluvialis squatarola • Common ringed plover, *Charadrius hiaticula* • Eurasian curlew, *Numenius arquata* • Black-tailed godwit, *Limosa limosa* • Ruddy turnstone, Arenaria interpres	Morecambe Bay and Duddon Estuary SPA lies partially within the North West River Basin District. Being an estuary, the site is inherently linked to the River Basin District. All qualifying species in the SPA/ Ramsar depend on adequate freshwater supply, which determines mixing conditions, salinity gradients, sediment input and the distribution of foraging resources. The qualifying features are also directly and indirectly sensitive to water pollution and coastal squeeze.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
	• Red knot, Calidris canutus • Sanderling, Calidris alba • Dunlin, Calidris alpina alpina • Common redshank, *Tringa totanus* • Lesser black-backed gull, *Larus fuscus* • Lesser black-backed gull, *Larus fuscus graellsii* • European herring gull, *Larus argentatus* • argenteus Waterbird assemblage: great white egret, Eurasian spoonbill, light-bellied brent goose (Nearctic origin), Eurasian wigeon, Eurasian teal, green-winged teal, mallard, ring-necked duck, common eider (non-breeding), common goldeneye, red-breasted merganser, great cormorant, northern lapwing, little stint, spotted redshank, common greenshank, black-headed gull, common (mew) gull and European herring gull (non-breeding). Refer to Morecambe Bay SAC/ Ramsar and Duddon Estuary Ramsar for SSSI details.	

Morecambe Bay Pavements SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae.* • (Calcium-rich fen dominated by great fen sedge (saw sedge))* • European dry heaths • Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. (Calcium-rich nutrient-poor lakes, lochs and pools) • *Juniperus communis* formations on heaths or calcareous grasslands. (Juniper on heaths or calcareous grasslands) • Limestone pavements* • Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles. (Western acidic oak woodland) • Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia). (Dry grasslands and scrublands on chalk or limestone) • *Taxus baccata* woods of the British Isles. (Yew-dominated woodland)* • *Tilio-Acerion* forests of slopes, screes and ravines. (Mixed woodland on base-rich soils associated with rocky slopes)* Annex I priority habitats are denoted by an asterisk (*). Qualifying Annex II species • Narrow-mouthed whorl snail *Vertigo* Angustior	Morecambe Bay Pavements SAC lies within the North West River Basin District. The site consists of 12 SSSI components. Poor water quality and inadequate quantities of water can adversely affect the structure and function of qualifying habitats, especially the calcium-rich nutrient-poor lakes, lochs and pools. The Conservation Objectives supplementary advice[28] states ‘Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for this site and sustaining this feature. Changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animals present.’

	Cringlebarrow and Deepdale SSSI is 100% unfavourable – recovering Farleton Knott SSSI is 46.71% favourable, 36.34% unfavourable – recovering and 16.94% unfavourable – declining Gait Barrows SSSI is 45.36% favourable, 7.5% unfavourable – recovering, 23.52% unfavourable – no change and 23.62% unfavourable – declining Hawes Water SSSI is 43.75% favourable, 55.61% unfavourable – recovering, 0.81% unfavourable – no change and 14.41% unfavourable declining Hutton Roof Crags SSSI is 42.52% favourable, 29.09% unfavourable – recovering, 3.88% unfavourable – no change and 24.52% unfavourable – declining Marble Quarry and Hale Fell SSSI is 4.99% favourable and 95.01% unfavourable – recovering Middlebarrow SSSI is 4.56% favourable, 54.86% unfavourable – recovering and 40.59% unfavourable – declining Scout and Cunswick Scars SSSI is 63.54% favourable, 17.45% unfavourable – recovering and 19.02% unfavourable – declining Thrang End and Yealand Hall Allotment SSSI is 100% unfavourable – recovering Thrang Wood SSSI is 100% favourable Underlaid Wood SSSI is 100% unfavourable – recovering Whitbarrow SSSI is 31.92% favourable, 57.08% unfavourable – recovering and 11% unfavourable – no change.	

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
River Kent SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation. (Rivers with floating vegetation often dominated by water-crowfoot) Qualifying Annex II species: • White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes* • Bullhead Cottus gobio • Freshwater pearl mussel Margaritifera margaritifera River Kent and Tributaries SSSI is 5.85% unfavourable – recovering and 94.15% unfavourable – declining.	River Kent SAC lies within the North West River Basin District. Being a freshwater ecosystem, the river is inherently linked to the River Basin District.
Subberthwaite, Blawith & Torver Low Commons SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Depressions on peat substrates of the *Rhynchosporion.* (Depressions on peat substrates) • Transition mires and quaking bogs. (Very wet mires often identified by an unstable 'quaking' surface) Subberthwaite, Blawith and Torver Low Commons SSSI is 0.56% unfavourable – recovering, 63.02% unfavourable – no change and 36.42% unfavourable – declining.	Subberthwaite, Blawith & Torver Low Commons SAC lies within the North West River Basin District. Transition mires and quaking bogs represent a freshwater ecosystem that is likely to depend on a combination of rainwater and surface water / groundwater. Both Annex I habitat types are hydrologically sensitive.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Drigg Coast SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Atlantic decalcified fixed dunes (*Calluno-Ulicetea*). (Coastal dune heathland)* • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) • Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*). (Dunes with creeping willow) • Embryonic shifting dunes • Estuaries • Fixed dunes with herbaceous vegetation (grey dunes). (Dune grassland)* • Humid dune slacks • Mudflats and sandflats not covered by seawater at low tide. (Intertidal mudflats and sandflats) • *Salicornia* and other annuals colonising mud and sand. (Glasswort and other annuals colonising mud and sand) • Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes). (Shifting dunes with marram) Annex I priority habitats are denoted by an asterisk (*). Drigg Coast SSSI is 64.04% favourable, 15.76% unfavourable – recovering, 17.99% unfavourable – no change and 2.19% unfavourable – declining.	Drigg Coast SAC lies within the North West River Basin District. The site is centered on Ravenglass where there is an example of a small, bar-built estuary fed by three rivers (the Irt, Mite and Esk) which discharge through a mouth that has been narrowed by large sand and shingle spits. Drigg is the most extensive sand dune system in Cumbria. These span a range of hydrological conditions from very wet to relatively dry. The estuary is inherently linked to the River Basin District.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Wast Water SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoeto-Nanojuncetea.* (Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels) Wast Water SSSI is 3.34% unfavourable – no change and 96.66% unfavourable – declining.	Wast Water SAC lies within the North West River Basin District. Wast Water is passing water quality targets, but there are known issues at the head of the lake. This is due to eutrophication, linked to diffuse pollution from agriculture (DWPA) and discharge from septic tanks/ campsite which are adversely affecting the SAC interest features. Nutrient enrichment can accelerate plant growth and alter the flora communities associated with this oligotrophic lake and smother fish spawning gravels.

Lake District High Fells SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Alkaline fens. (Calcium-rich springwater-fed fens) • Alpine and Boreal heaths. (Alpine and subalpine heaths) • Blanket bogs* • Calcareous rocky slopes with chasmophytic vegetation. (Plants in crevices in base-rich rocks) • European dry heaths • Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (tall herb communities) • *Juniperus communis* formations on heaths or calcareous grasslands. (Juniper on heaths or calcareous grasslands) • Northern Atlantic wet heaths with *Erica tetralix*. (Wet heathland with cross-leaved heath) • Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles. (Western acidic oak woodland) • Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea.* (Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels) • Siliceous alpine and boreal grasslands. (Montane acid grasslands) • Siliceous rocky slopes with chasmophytic vegetation. (Plants in crevices on acid rocks)	Lake District High Fells SAC lies within the North West River Basin District. Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for this site and sustaining several of the qualifying features. The site consists of 9 SSSI components. Changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animals present.

	• Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*). (Acidic scree) • Species-rich *Nardus* grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe). (Species-rich grassland with mat-grass in upland areas) Annex I priority habitats are denoted by an asterisk (*). Qualifying Annex II species: • Slender green feather-moss Drepanocladus (Hamatocaulis) vernicosus Armboth Fells SSSI is 24.02% favourable, 74.89% unfavourable – recovering and 1.09% unfavourable – declining. Birk Fell SSSI is 83.33% unfavourable – recovering and 16.67% unfavourable – no change. Buttermere Fells SSSI is 11.66% favourable, 57.99% unfavourable – recovering and 30.35% unfavourable – no change. Helvellyn and Fairfield SSSI is 2.48% favourable, 92.65% unfavourable – recovering, 1.55% unfavourable – no change and 3.32% unfavourable – declining. Honister Crag SSSI is 8.44% favourable, 47.89% unfavourable – recovering and 43.68% unfavourable – declining. Pillar and Ennerdale Fells SSSI is 1.86% favourable and 98.14% unfavourable – recovering. Scafell Pikes SSSI is 71.23% unfavourable – recovering and 28.77% unfavourable – no change.	

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
	Shap Fells SSSI is 19.9% favourable, 67.95% unfavourable – recovering and 12.15% unfavourable – no change. Skiddaw Group SSSI is 4.42% favourable, 46.36% unfavourable – recovering and 49.22% unfavourable – no change. Wasdale Screes SSSI is 100% unfavourable – recovering.	

River Derwent & Bassenthwaite Lake SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoeto-Nanojuncetea.* (Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels) • Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation. (Rivers with floating vegetation often dominated by watercrowfoot) Qualifying Annex II species: • Atlantic salmon *Salmo salar* • Brook lamprey Lampetra planeri • Floating water-plantain *Luronium natans* • Marsh fritillary butterfly Euphydryas (Eurodryas, Hypodryas) aurinia • Otter Lutra lutra • River lamprey Lampetra fluviatilis • Sea lamprey Petromyzon marinus Bassenthwaite Lake SSSI is 10.2% favourable, 10.15% unfavourable – recovering and 79.65% unfavourable – no change. Braithwaite Moss SSSI is 44.07% unfavourable – recovering and 55.93% unfavourable – no change. Buttermere SSSI is 100% favourable.	River Derwent & Bassenthwaite Lake SAC lies within the North West River Basin District. The site consists of 4 SSSI components. Crummock Water is not currently abstracted to its fully licenced limit. However, with restrictions on abstraction from Ennerdale Water there is a risk that this will be exercised in the future. There is also a proposed Drought Order which would allow further lake draw down. Abstraction could therefore cause damaging impacts on the hydro-ecology of the lake and river including lake macrophytes. Braithwaite Moss requires specific hydrological management in order to improve habitat for marsh fritillary butterflies.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
	River Derwent and Tributaries SSSI is 24.33% favourable, 20.93% unfavourable – recovering, 54.44% unfavourable – no change and 0.3% unfavourable – declining.	
Clints Quarry SAC	The site is designated as a SAC for its: Qualifying Annex II species: • Great crested newt *Triturus cristatus* Clints Quarry, Moota SSSI is 100% unfavourable – declining.	Clints Quarry SAC lies within the North West River Basin District. Great crested newts spend a portion of their life within aquatic environments and are sensitive to changes in both ground and surface water flow and quality.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Borrowdale Woodland Complex SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Bog woodland* • Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles. (Western acidic oak woodland) • Siliceous rocky slopes with chasmophytic vegetation. (Plants in crevices on acid rocks) Annex I priority habitats are denoted by an asterisk (*). Great Wood SSSI is 100% unfavourable – recovering. Johnny Wood SSSI is 100% unfavourable – declining. Lodore-Troutdale Woods SSSI is 20.14% favourable, 68.34% unfavourable – recovering and 11.52% unfavourable – no change. Scales Wood SSSI is 100% unfavourable – no change; Seatoller Wood, Sourmilk Gill and Seathwaite Graphite Mine SSSI is 63.55% favourable and 36.45% unfavourable – no change. Stonethwaite Woods SSSI is 100% unfavourable – recovering.	Borrowdale Woodland Complex SAC lies within the North West River Basin District. The site consists of 6 SSSI components. For bog woodlands, hydrological processes (especially permanent wetness) are critical to their ecological functioning and must not be negatively impacted. The COSA[29] states that 'Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for this site.'

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Solway Firth SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) • Estuaries • Fixed dunes with herbaceous vegetation (grey dunes). (Dune grassland)* • Mudflats and sandflats not covered by seawater at low tide. (Intertidal mudflats and sandflats) • Perennial vegetation of stony banks. (Coastal shingle vegetation outside the reach of waves) • Reefs • *Salicornia* and other annuals colonising mud and sand. (Glasswort and other annuals colonising mud and sand) • Sandbanks which are slightly covered by sea water all the time. (Subtidal sandbanks) Annex I priority habitats are denoted by an asterisk (*). Qualifying Annex II species: • River lamprey Lampetra fluviatilis • Sea lamprey Petromyzon marinus Upper Solway Flats and Marshes SSSI is 25.25% favourable, 74.49% unfavourable – recovering and 0.26% unfavourable – no change.	Solway Firth SAC lies partially within the North West River Basin District. By definition, estuaries receive input from both freshwater and sea water sources, the interplay of which will determine the abiotic conditions and, ultimately the integrity of qualifying habitats. All qualifying fish species, particularly anadromous species such as sea lamprey and river lamprey, depend on sufficient hydrological flows to reach their upstream spawning grounds.

Solway Firth pSPA (Including the Upper Solway Flats and Marshes SPA and Marine Extension)	The site is designated as a SPA for its: Qualifying Annex I species (non-breeding): • Red-throated diver *Gavia stellata* • Whooper swan *Cygnus cygnus* • Golden plover Pluvialis apricaria • Bar-tailed godwit *Limosa lapponica* Regularly supporting populations of European importance of the following migratory species: • Pink-footed geese Anser brachyrhynchus • Pintail Anas acuta • Scaup Aythya marila • Oystercatcher Haematopus ostralegus • Knot Calidris canutus • Curlew Numenius arquata • Redshank Tringa tetanus Regularly supporting populations of European importance during the non breeding (passage) period: • Ringed plover Charadrius hiaticula Waterbird assemblage: shelduck *Tadorna* tadorna, teal Anas crecca, shoveler Anas clypeata, goldeneye Bucephala clangula, grey plover *Pluvialis squatarola,* sanderling Calidris alba, dunlin Calidris alpina, turnstone *Arenaria interpres,* common scoter Melanitta nigra, goosander Mergus	Solway Firth pSPA lies partially within the North West River Basin District. Being an estuary, the site is inherently linked to the River Basin District. All qualifying species in the SPA depend on adequate freshwater supply, which determines mixing conditions, salinity gradients, sediment input and the distribution of foraging resources. The qualifying features are also directly and indirectly sensitive to water pollution and coastal squeeze.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
	merganser, lapwing Vanellus vanellus, cormorant Phalacrocorax carbo, blackheaded gull *Chroicocephalus* ridibundus, common gull Larus canus, herring gull Larus argentatus See Solway Firth SAC for SSSI details	

Upper Solway Flats and Marshes Ramsar	The site is designated as a Ramsar for the following Criteria: Criterion 2: • Supports over 10% of the British population of natterjack toad *Bufo calami* Criterion 5: Assemblages of international importance: Species with peak counts in winter: 135720 waterfowl (5 year peak mean 1998/99-2002/2003) Criterion 6: Species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn: • Eurasian oystercatcher, Haematopus ostralegus ostralegus Species with peak counts in winter: • Whooper swan, *Cygnus cygnus* • Pink-footed goose, Anser brachyrhynchus • Barnacle goose, *Branta leucopsis* • Northern pintail, *Anas acuta* • Greater scaup, Aythya marila marila • Red knot, Calidris canutus islandica • Bar-tailed godwit, Limosa lapponica lapponica • Eurasian curlew, Numenius arquata arquata • Common redshank, Tringa totanus tetanus	Upper Solway Flats and Marshes Firth Ramsar lies partially within the North West River Basin District. Being an estuary, the site is inherently linked to the River Basin District. All qualifying species in the SPA depend on adequate freshwater supply, which determines mixing conditions, salinity gradients, sediment input and the distribution of foraging resources. The qualifying features are also directly and indirectly sensitive to water pollution and coastal squeeze. Natterjack toads spend a portion of their life within aquatic environments and are sensitive to changes in both ground and surface water flow and quality.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
	Species/populations identified subsequent to designation for possible future consideration under criterion 6. Species regularly supported during the breeding season: • Lesser black-backed gull, *Larus fuscus graellsii* • Herring gull, Larus argentatus argentatus Species with peak counts in spring/autumn: • Ringed plover, Charadrius hiaticula Species with peak counts in winter: • Dunlin, Calidris alpina alpina Solway Firth SAC for SSSI details	

Asby Complex SAC	The site is designated as a SAC for its: • Qualifying Annex I habitats: • Alkaline fens. (Calcium-rich spring-water-fed fens) • Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae.* • (Calcium-rich fen dominated by great fen sedge (saw sedge))* • European dry heaths • Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. (Calcium-rich nutrient-poor lakes, lochs and pools) • Limestone pavements* • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*). (Purple moor-grass meadows) • Petrifying springs with tufa formation (*Cratoneurion*). (Hard-water springs depositing lime)* • Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*). (Dry grasslands and scrublands on chalk or limestone) Annex I priority habitats are denoted by an asterisk (*). Qualifying Annex II species: • Geyer's whorl snail *Vertigo geyeri* • Slender green feather-moss Drepanocladus (Hamatocaulis) vernicosus Crosby Gill SSSI is 19.78% favourable and 80.22% unfavourable – recovering.	The Asby Complex SAC is partially within the North West River Basin District. The site consists of 6 SSSI components. There are numerous abstractions from both domestic and commercial sources including a large quarry within the Asby Complex. The effect of all these individual changes to the local water table is poorly understood and the in combination effects, less so. Changes in hydrology can have a direct impact on the interest features for which the SAC is notified, specifically the alkaline flushes.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
	Crosby Ravensworth Fell SSSI is 39.73% unfavourable – recovering and 60.27% unfavourable – no change. Ewefell Mire SSSI is 100% favourable; Great Asby Scar SSSI is 14.68% favourable and 85.32% unfavourable – recovering. Sunbiggin Tarn and Moors and Little Asby Scar SSSI is 31.02% favourable, 62.04% unfavourable – recovering and 6.94% unfavourable – declining. The Clouds SSSI is 1.23% favourable and 98.77% unfavourable – no change.	

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
North Pennine Dales Meadows SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) (purple moor-grass meadows) • Mountain hay meadows Borrow Beck Meadows SSSI is 98.77% favourable and 1.23% unfavourable – recovering. Bretherdale Meadows SSSI is 44.37% unfavourable – recovering and 55.63% unfavourable – declining. Cautley Thwaite Meadows and Ecker Secker Beck SSSI is 100% favourable. Deepdale Meadows SSSI (Cumbria) is 44.48% favourable, 42.49% unfavourable – no change and 13.03% unfavourable – declining. Raisbeck Meadows SSSI is 90.86% favourable and 9.14% unfavourable – no change.	North Pennine Dales Meadows SAC lies partially within the North West River Basin District. The site consists of 58 SSSI components across several FRMP areas. Four are within the North WestRBD. For many SAC features which are dependent on wetland habitats supported by surface and/or ground water, maintaining the quality and quantity of water supply will be critical, especially at certain times of year. Poor water quality and inadequate quantities of water can adversely affect the structure and function of *Molinia* meadows.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Calf Hill & Cragg Woods SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Alluvial forests with *Alnus glutinosa* and Fraxinus excelsior (*Alno-Padion, Alnion incanae, Salicion albae*). (Alder woodland on floodplains)* • Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles. (Western acidic oak woodland) Annex I priority habitats are denoted by an asterisk (*). Calf Hill and Cragg Woods SSSI 100% favourable.	Calf Hill & Cragg Woods SAC lies within the North West River Basin District. Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for this site and sustaining the alder woodland. Disruption/ damage to hydrological processes could be caused by activities at some distance from the site boundary. E.g., through extraction of ground or surface waters; diverting or daming river channels; pollution of water source; channel alignment that disrupts natural geomorphological processes; tunnelling etc.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Roudsea Wood & Mosses SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Active raised bogs* • Degraded raised bogs still capable of natural regeneration • *Tilio-Acerion* forests of slopes, screes and ravines. (Mixed woodland on base-rich soils associated with rocky slopes)* • *Taxus baccata* woods of the British Isles. (Yew-dominated woodland)* Annex I priority habitats are denoted by an asterisk (*). Roudsea Wood and Mosses SSSI is 9.8% favourable, 80.7% unfavourable recovering and 9.51% unfavourable – declining.	Roudsea Wood & Mosses SAC lies within the North West River Basin District however, raised bogs are rainwater fed and won't be affected by FRMP measures. This site can therefore be screened out from further assessment.

Ingleborough Complex SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Blanket bogs* • Limestone pavements* • Petrifying springs with tufa formation (*Cratoneurion*). (Hard-water springs depositing lime)* • *Tilio-Acerion* forests of slopes, screes and ravines. (Mixed woodland on base-rich soils associated with rocky slopes)* • Alkaline fens. (Calcium-rich springwater-fed fens) • Calcareous rocky slopes with chasmophytic vegetation. (Plants in crevices in base-rich rocks) • *Juniperus communis* formations on heaths or calcareous grasslands. (Juniper on heaths or calcareous grasslands) • *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*). (Purple moor-grass meadows) • Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*). (Dry grasslands and scrublands on chalk or limestone) Annex I priority habitats are denoted by an asterisk (*). Ingleborough SSSI is 18.09% favourable, 78.78% unfavourable – recovering and 3.14% unfavourable – no change. Oxenber and Wharfe Woods SSSI, is 25.8% favourable and 74.2% unfavourable – recovering.	Ingleborough Complex SAC lies within the North West River Basin District. The site consists of 3 SSSI components. Many SAC features which are dependent on wetland habitats supported by surface and/or ground water, maintaining the quality and quantity of water supply will be critical, especially at certain times of year. The movement, quality and distribution of water within a site's wider catchment and outside of the site's boundary will affect its ability to support this wetland habitat features. Catchment size will vary. A site's water table and other hydrological aspects may be affected by changes in the use of the land surface, water abstraction and flood alleviation.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
	Whernside SSSI is 18.38% favourabel, 50.13% unfavourable – recovering, 6.48% unfavourable – no change and 25.01% unfavourable – declining.	
Duddon Mosses SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Active raised bogs* • Degraded raised bogs still capable of natural regeneration Annex I priority habitats are denoted by an asterisk (*). Duddon Mosses SSSI is 1.78% favourable, 41.23% unfavourable – recovering, 1.92% unfavourable – no change and 55.07% unfavourable – declining.	Duddon Mosses SAC lies within the North West River Basin District however, raised bogs are rainwater fed and won't be affected by FRMP measures. This site can therefore be screened out from further assessment.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
West Midlands Mosses SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Natural dystrophic lakes and ponds (acid peat-stained lakes and ponds) • Transition mires and quaking bogs (very wet mires often identified by an unstable 'quaking' surface) Abbotts Moss SSSI is 37.2% unfavourable – recovering and 62.8% unfavourable – declining; Wybunbury Moss SSSI is 36.64% favourable and 63.36% unfavourable – recovering.	West Midlands Mosses SAC lies within the North West River Basin District. The site consists of 4 SSSI components, 2 of which are within the North West RBD. There is a strong link to the River Basin District. Natural dystrophic lakes/ ponds and transition mires and quaking bogs represent freshwater ecosystems that are likely to depend on a combination of rainwater and surface water/ groundwater. Hydrological conditions are critical to lakes because they determine the residence time of water and water level fluctuations. Hence the SAC is vulnerable to groundwater abstractions and artificial flooding as well as catchment drainage.
Oak Mere SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Oligotrophic waters containing very few minerals of sandy plains: *Littorelletali uniflorae.* (Nutrient-poor shallow waters with aquatic vegetation on sandy plains) • Transition mires and quaking bogs. (Very wet mires often identified by an unstable 'quaking' surface) Oak Mere SSSI is 100% unfavourable – no change.	Oak Mere SAC lies within the North West River Basin District. There is a strong link to the River Basin District. Natural dystrophic lakes/ ponds and transition mires and quaking bogs represent freshwater ecosystems that are likely to depend on a combination of rainwater and surface water/ groundwater.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Manchester Mosses SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Degraded raised bogs still capable of natural regeneration Astley and Bedford Mosses SSSI is 1.41% favourable and 98.59% unfavourable – recovering. Holcroft Moss SSSI is 100% unfavourable – recovering. Risley Moss SSSI is 39.28% favourable and 60.72% unfavourable – recovering.	Manchester Mosses SAC lies within the North West River Basin District. The site consists of 3 SSSI components. However, raised bogs are rainwater fed and won't be affected by FRMP measures. This site can therefore be screened out from further assessment.
Rixton Clay Pits SAC	The site is designated as a SAC for its: Qualifying Annex II species: • Great crested newt *Triturus cristatus* Rixton Clay Pits SSSI is 100% favourable.	Rixton Clay Pits SAC lies within the North West River Basin District. Great crested newts spend a portion of their life within aquatic environments and are sensitive to changes in both ground and surface water flow and quality.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Rostherene Mere Ramsar	The site is designated as a Ramsar for the following Criteria: Ramsar criterion 1: • the site comprises a diverse range of habitats from open water to raised bog Ramsar criterion 2: • Supports a number of rare species of plants associated with wetlands including five nationally scarce species together with an assemblage of rare wetland invertebrates (three endangered insects and five other British Red Data Book species of invertebrates). Rostherene Mere SSSI is 48.2% favourable, 15.12% unfavourable – recovering and 36.69% unfavpurable – no change.	Rostherene Mere Ramsar lies within the North West River Basin District. Strong link to the River Basin District. as designated for lowland wetland habitats, including open water. These habitats (and associated wetland invertebrates) are inherently linked to the River Basin District.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Midland Meres & Mosses - Phase 1 Ramsar	The site is designated as a Ramsar for the following Criteria: Ramsar criterion 1: • the site comprises a diverse range of habitats from open water to raised bog Ramsar criterion 2: • supports a number of rare species of plants associated with wetlands including five nationally scarce species together with an assemblage of rare wetland invertebrates (three endangered insects and five other British Red Data Book species of invertebrates) Tatton Meres SSSI is 50.89% favourable and 49.11% unfavourable – no change. The Mere, Mere SSSI is 100% unfavourable – no change. Flaxmere Moss SSSI is 60.49% unfavourable – recovering and 39.51% unfavourable – declining. Hatch Mere SSSI is 63.51% unfavourable – recovering and 36.49% unfavourable – no change.	Midland Meres & Mosses Phase 1 Ramsar comprises 18 units, 8 of which lie within the North West River Basin District. Strong link to the River Basin District. as designated for lowland wetland habitats, including open water. These habitats (and associated wetland invertebrates) are inherently linked to the River Basin District.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Midland Meres & Mosses Phase 2 Ramsar	The site is designated as a Ramsar for the following Criteria: Ramsar criterion 1: • the site comprises a diverse range of habitats from open water to raised bog Ramsar criterion 2: • Supports a number of rare species of plants associated with wetlands, including the nationally scarce cowbane *Cicuta virosa* and, elongated sedge *Carex elongata.* Also present are the nationally scarce bryophytes *Dicranum affine* and *Sphagnum pulchrum.* • Also supports an assemblage of invertebrates including several rare species. There are 16 species of British Red Data Book insect listed for this site including the following endangered species: the moth *Glyphipteryx lathamella,* the caddisfly *Hagenella clathrata* and the sawfly *Trichiosoma vitellinae.* Linmer Moss SSSI is 100% unfavourable – recovering. Oak Mere SSSI is 100% unfavourable – no change. Abbots Moss SSSI is 37.2% unfavourable – recovering and 62.8% unfavourable – declining.	Midland Meres & Mosses Phase 2 Ramsar comprises 18 units, 9 of which lie within the North West River Basin District. There is a hydrological link to the RBD as designated for lowland wetland habitats, including open water. Furthermore, faunal and floral wetland specialists are present, including bryophytes, moths, caddisflies and sawflies. These habitats (and associated wetland invertebrates) are inherently linked to the RBD.

Martin Mere SPA/ Ramsar	The site is designated as a SPA for its: Qualifying Annex I species: • Pink-footed goose Anser brachyrhynchus, • Teal Anas crecca, • Pintail Anas acuta, • Bewick's swan Cygnus columbianus bewickii • Whooper swan *Cygnus cygnus* Qualifying waterfowl assemblage: • Pochard *Aythya ferina*, mallard *Anas platyrhynchos,* teal, wigeon *Anas penelope,* pintail, pink-footed goose whooper swan, Bewick's swan The site is designated as a Ramsar for the following Criteria: Criterion 5: Assemblages of international importance. Species with peak counts in the winter – 25,306 waterfowl (5 year peak mean 1998/99-2002/2003). Criterion 6: Species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species with peak counts in spring/ autumn: • Pink-footed goose Species with peak counts in winter: • Tundra/ Bewick's swan • Whooper swan • Wigeon	Martin Mere SPA/ Ramsar lies within the North West River Basin District. Three broad supporting habitats are important for sustaining the waterfowl assemblage and its component species. The broad habitats are: • Open standing water and other adjacent waterbodies • Lowland damp Neutral grassland • Swamp and tall herb fen • Arable land Outside of SPA used for feed. These wetland habitats are therefore important for the maintenance of favourable conservation status of the waterbird assemblage and rely on maintaining the quality and quantity of water. SPA features are also reliant on offsite supporting habitat.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
	• Pintail Martin Mere, Burscough SSSI is 100% favourable.	
Leighton Moss Ramsar	The site is designated as a Ramsar for the following Criteria: Criterion 1: • An example of large reedbed habitat characteristic of the biogeogaphical region. The reedbeds are of particular importance as a northern outpost for breeding populations of great bittern *Botaurus stellaris,* Eurasian marsh harrier *Circus aeruginosus* and bearded tit *Panurus biarmicus.* Leighton Moss SSSI is 100% unfavourable - recovering	Leighton Moss Ramsar lies within the North West River Basin District. There is a hydrological link to the RBD as designated for lowland wetland habitats. Furthermore, faunal and floral wetland specialists are present.
Bowland Fells SPA and pSPA	The site is designated as a SPA for its: Qualifying Annex I species: • Hen harrier Circus cyaneus • Merlin Falco columbarius Proposed new interest (other than those listed in Annex I): • Lesser black-backed gull *Larus fuscus graellsii* (migratory) Bowland Fells SSSI is 5.29% favourable, 77.39% unfavourable – recovering, 2.72% unfavourable – no change and 14.61% unfavourable – declining.	Bowland Fells SPA and pSPA lies within the North West River Basin District. The nature, scale, timing and duration of some human activities can result in the disturbance of birds at a level that may substantially affect their behaviour, and consequently affect the long-term viability of the population. Hen harrier are particularly sensitive to disturbance, effects on merlin are less well known.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Malham Tarn Ramsar	The site is designated as a Ramsar for the following Criteria: Criterion 1: • Contains the highest marl lake in Britain, along with acidophilous bog, calcareous fen and soligenous mire. Criterion 2: • Supports the nationally rare alpine bartisia *Bartsia alpina* and narrow small reed *Calamagrostis stricta* and seven nationally scarce species. Supports five listed British Red Data Book invertebrates including the caddis fly *Agrypnia crassicornis.* Malham-Arncliffe SSSI is 26.7% favourable, 68.47% unfavourable – recovering, 4,65% unfavourable – no change and 0.18% unfavourable – declining.	Malham Tarn Ramsar lies 1 km east of the North West River Basin District. Although hydrologically sensitive, there is no connection to the RBD

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Esthwaite Water Ramsar	The site is designated as a Ramsar for the following Criteria: Criterion 1: • Esthwaite Water is a particularly good example of a mesotrophic lake, with a well developed hydrosere at the northern end. Criterion 2: • The lake supports a rich assemblage of pondweed species and is the only known locality in England and Wales for slender naiad *Najas flexilis.* The diverse aquatic invertebrate fauna includes a number of species with restricted distributions in Britain. Esthwaite Water SSSI is 13.65% favourable, 78.93% unfavourable – recovering and 7.42% unfavourable – no change.	Esthwaite Water Ramsar lies within the North West River Basin District. There is a hydrological link to the RBD as designated for lowland wetland habitats, including open water. Furthermore, faunal and floral wetland specialists are present.

Site name	Qualifying feature(s) (*and latest assessed condition taken from Natural England SSSI search website*[24])	Summary of connectivity with the River Basin District
Witherslack Mosses SAC	The site is designated as a SAC for its: Qualifying Annex I habitats: • Active raised bogs* • Degraded raised bogs still capable of natural regeneration Annex I priority habitats are denoted by an asterisk (*). Foulshaw Moss SSSI is 91.18% unfavourable – recovering, 6.17% unfavourable – no change and unfavourable – declining Meathop Moss SSSI is 100% unfavourable – recovering. Nichols Moss SSSI is 20.6% favourable, 3.1% unfavourable – recovering, 5.43% unfavourable – no change and 70.87% unfavourable – declining.	Witherslack Mosses SAC lies within the North West River Basin District. The site consists of 3 SSSI components. However, raised bogs are rainwater fed and won't be affected by FRMP measures. This site can therefore be screened out from further assessment.

4.20 Having identified the European sites within 10km that are likely to be hydrologically linked to flood risk management activities, consideration was next given to the potential impact sources from the FRMP at all stages and pathways to European sites (including those located at distances of more than 10km if there is connectivity) by which effects could arise on qualifying features.

4.21 Based on all possible impacts, pathways, and receptors, the Test of Likely Significant Effects for each measure in the FRMP is undertaken in the tables below.

Table 4. Screening table showing the Test of Likely Significant Effects results for Lead Local Flood Authority (LLFA) national measures contained within all Flood Risk Management Plans

Measure ID	Measure	Likely Significant Effects on European sites
0299999007	Act as a consultee for major planning applications in their area	No likely significant effect – This measure describes the role of LLFAs
0299999011	Designate third party flood risk assets and maintain a register of designated flood risk assets in their area	No likely significant effect – Designating assets and maintaining a register will not affect European sites
0299999003	Implement relevant government guidance on taking climate change into account where necessary for flood risk decision making in their area	No likely significant effect – Taking climate change into account will not affect European sites.
0299999018	Investigate local flood events where appropriate and necessary in their area	No likely significant effect – Investigating local flood events will not affect European sites
0299999002	Maintain, keep under review, apply and monitor a local flood risk management strategy in their area	No likely significant effect – The production of a local flood risk management strategy will not itself affect European sites
0299999015	Plan flood risk management projects to achieve wider environmental benefits where appropriate in their area	No likely significant effect – Ensuring that flood risk projects achieve wider environmental benefits will not negatively affect European sites
0299999006	Provide information to inform spatial and infrastructure planning, development and regeneration in their area	No likely significant effect – The provision of information will not affect European sites

Measure ID	Measure	Likely Significant Effects on European sites
0299999013	Regulate the condition of, and third party activity on, ordinary watercourses and review new works on ordinary watercourses in their area	No likely significant effect – Regulating activities and works will not affect European sites
0299999004	Start implementing steps to work towards net zero carbon in their area	No likely significant effect – Implementing net zero carbon will not affect European sites
0299999016	Support communities to increase their resilience to flooding in their area	No likely significant effect – Supporting communities to increase resilience to flooding will not affect European sites
0299999017	Support emergency response partners and communities to plan, prepare and exercise for future flood scenarios in their area	No likely significant effect – Supporting planning for emergency response to flooding will not affect European sites
0299999012	Take a risk based approach to develop and maintain a register of flood risk assets/features in their area	No likely significant effect – Maintaining a register of assets will not affect European sites
0299999005	Work in partnership with other risk management authorities to reduce the risk of flooding from all sources in their area	No likely significant effect – This is a wide-ranging measure and the details include that by 2027, risk management authorities will have developed and/or delivered a programme of flood risk management capital schemes and/or maintenance to reduce risk of flooding and coastal change and its adverse consequences for human health and wellbeing. Individual capital schemes may have an effect on European sites depending on what and where they are and how they are to be delivered. However, developing a programme of capital schemes will not itself lead to likely significant effects on European sites. Any individual capital schemes will need to be subject to HRA before being consented, in order to comply with legislation.

Measure ID	Measure	Likely Significant Effects on European sites
0299999009	Work with other flood asset owners and riparian landowners to raise awareness of, and where necessary enforce, maintenance responsibilities in their area	No likely significant effect – specific maintenance measures could have an adverse effect on European sites (although they are unlikely to be approved measures if so) but a requirement to raise awareness of, and enforce where required, necessary flood asset maintenance will not adversely affect European sites.
0299999010	Work with other risk management authorities to identify a programme of nature based approaches in their area	No likely significant effect – working with other authorities to identify a programme of nature-based approaches will not adversely affect European sites.
0299999008	Work with other risk management authorities to provide information where necessary to update flood maps in their area	No likely significant effect – providing information will not adversely affect European sites.
0299999014	Work with other risk management authorities to support the delivery of flood projects in their area	No likely significant effect – providing support to other authorities will not adversely affect European sites.
0299999019	Work with others to support communities through the recovery phase of a significant flood event in their area	No likely significant effect – supporting communities will not adversely affect European sites.

Table 5. Screening table showing the Test of Likely Significant Effects results for Environment Agency national measures contained within all Flood Risk Management Plans

Measure ID	Measure	Likely Significant Effects on European sites
0299999041	Continue to review flood events to improve and develop flood services in England	No likely significant effect – reviewing flood events will not adversely affect European sites.
0299999025	Designate flood risk assets where necessary in England	No likely significant effect – designating flood risk assets will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0299999046	Drive down carbon emissions and deliver the required flood risk management outcomes when planning and carrying out flood risk management works in England	No likely significant effect – driving down carbon emissions will not adversely affect European sites.
0299999030	In its strategic overview role, work with risk management authorities, including facilitating effective partnerships in local places in England	No likely significant effect – working with risk management authorities will not adversely affect European sites.
0299999044	Invest in flood risk management projects to contribute to improving the natural, built and historic environments	No likely significant effect – investing in projects will not adversely affect European sites.
0299999035	Issue and maintain guidance on taking climate change into account for flood risk decision making in England	No likely significant effect – issuing guidance will not adversely affect European sites.
0299999026	Maintain and update a database of its flood risk assets in England	No likely significant effect – maintaining a database will not adversely affect European sites.
0299999020	Monitor weather, tidal, rainfall and river conditions to provide flood forecasts in England	No likely significant effect – monitoring will not adversely affect European sites.
0299999042	Plan all flood risk management projects in England to achieve biodiversity net gain and wider environmental benefits	No likely significant effect – planning for biodiversity net gain will not adversely affect European sites.
0299999043	Plan all flood risk management projects in England to help achieve river basin management plan objectives	No likely significant effect – this measure is about achieving the environmental objectives of river basin management plans. This will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0299999033	Provide quality and timely planning advice to help avoid inappropriate development in areas at risk of flooding in England	No likely significant effect – provision of planning advice will not adversely affect European sites.
0299999031	Regulate large, raised reservoirs in England	No likely significant effect – regulating reservoirs to reduce the risk of flooding from dam and reservoir failures will not adversely affect European sites.
0299999028	Regulate new works to main rivers and sea defences in England	No likely significant effect – regulating new works to reduce the likelihood of flooding will not adversely affect European sites.
0299999039	Respond to flood events and support other emergency responders in England	No likely significant effect – responding to flood events to reduce the consequences of flooding will not adversely affect European sites.
0299999040	Support communities to increase their resilience to flooding in England	No likely significant effect – supporting communities to help them increase their resilience will not adversely affect European sites.
0299999023	Take a risk based approach to inspect, maintain and operate assets in England	No likely significant effect – adopting a risk based approach will not adversely affect European sites.
0299999027	Take targeted enforcement action where there are blockages or unpermitted structures in England	No likely significant effect – taking enforcement action regarding blockages or unpermitted structures will not adversely affect European sites.
0299999024	Understand the long term needs of its assets and plan for their whole life management in England	No likely significant effect – developing an understanding of long-term asset needs will not adversely affect European sites.
0299999045	Work with catchment partnerships, communities and other risk management authorities to maximise the use of nature based solutions in England	No likely significant effect – working to maximise the use of nature-based solutions rather than other methods of flood risk management will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0299999021	Work with emergency response partners to issue appropriate flood warnings in England	No likely significant effect – issuing flood warnings will not adversely affect European sites.
0299999022	Work with emergency response partners to plan, prepare and exercise for future flood scenarios in England	No likely significant effect – preparing for flood scenarios will not adversely affect European sites.
0299999032	Work with local planning authorities, developers and other place makers in England	No likely significant effect – working with other authorities to ensure all new development is resilient to flooding will not adversely affect European sites.
0299999029	Work with research partners and the wider scientific community in England	No likely significant effect – working with research partners into new approaches to reduce risk of flooding will not adversely affect European sites.
0299999036	Work with risk management authorities and other partners to implement the National Flood and Coastal Erosion Risk Management Strategy in England	No likely significant effect – individual proposals within the National Flood and Erosion Risk Management Strategy may pose likely significant effects to European sites but the Strategy has been subject to its own HRA. The measure concerns working with other authorities to implement the Strategy, which will not itself adversely affect European sites.
0299999038	Work with risk management authorities to identify a programme of future flood risk management projects in England	No likely significant effect – a commitment to identify a programme of future projects will not adversely affect European sites. Individual schemes and projects may have an effect on European sites depending on what and where they are and how they are to be delivered. However, all schemes will need to be subject to HRA before being consented, in order to comply with legislation.
0299999034	Work with risk management authorities to maintain and update where necessary flood maps in England	No likely significant effect – maintaining and updating flood maps will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0299999037	Work with risk management authorities to support the delivery of flood risk management projects in England	No likely significant effect – supporting risk management authorities in delivering flood risk management projects will not itself adversely affect European sites. Individual schemes and projects may have an effect on European sites depending on what and where they are and how they are to be delivered. However, all schemes will need to be subject to HRA before being consented, in order to comply with legislation.

Table 6. Screening table showing the Test of Likely Significant Effects results for measures contained within the North West Flood Risk Management Plan for the RBD

Measure ID	Measure	Likely Significant Effects on European sites
0201212023	Aim to establish a North-West Coastal Centre of Excellence, sharing expertise, resources and innovative approaches for coastal schemes in the North West of England to reduce the risk of flooding to coastal communities in the North West River Basin District (NWRBD).	No likely significant effect – This is a preventative measure. Establishing a North-West Coastal Centre of Excellence will not adversely affect European sites.
0201212003	Align principles for modelling climate change and projected growth scenarios in the North West of England to identify priority locations for detailed studies that will improve the estimation of future flood risk in the NWRBD.	No likely significant effect – This is a preventative measure and unlikely to involve physical activity on the ground. Modelling climate change to identify priority sites is not associated with impact pathways linking to European sites. This is a positive measure, that could ultimately benefit the wider environment by helping to mitigate climate change impacts.
0201212026	Assess the way flood risk is managed in the identified areas in northern England to preserve the current approach using the best and most efficient means for the longer term in the NWRBD.	No likely significant effect – This is a preventative measure and unlikely to involve physical activity on the ground. Assessing the way in which flood risk is managed in order to identify and preserve the best and most efficient approach will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201212025	Assess the way flood risk is managed within identified areas in northern England to keep actions proportionate to that area's current level of flood risk in the NWRBD.	No likely significant effect – This is a preventative measure and unlikely to involve physical activity on the ground. Assessing flood risk management in order to maintain a proportionate approach. This measure will not adversely affect European sites.
0201212021	Begin to implement long-term whole-life asset management plans in northern England to deliver improved work planning, stakeholder engagement, carbon reduction and future funding to enhance the strategic investment programme for reducing flood risk in the NWRBD.	No likely significant effect, but down-the-line HRA required – There is insufficient information on the management plans at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. However, a simple commitment to implement asset management plans will not itself lead to likely significant effects. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on the integrity of European sites.
0201212035	Carry out a strategic review of Environment Agency debris screens in the North West of England to identify opportunities to reduce the risk of flooding to properties in the NWRBD.	No likely significant effect, but down-the-line HRA required - This is a preventative measure and unlikely to involve physical activity on the ground. A strategic review of debris screens is not associated with impact pathways linking to European sites. Depending on where the debris screens are located they could lead to visual and noise disturbance and water quality changes in the installation period, as well as impeding the passage of anadromous fish post-installation. However, that cannot be assessed until the study covered by this measure is completed. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on the integrity of European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0201212016	Collaborate with environmental partners and major landowners to significantly increase upland and lowland peat and wetland restoration in the North West of England to reduce flood risk, restore natural habitats and allow for carbon sequestration to counter the impacts of climate change in the NWRBD.	No likely significant effect – This is a protective measure that has been carried over from Flood Risk Management Plan 1, therefore this measure has already undergone prior HRA appraisal. This measure will not adversely affect European sites provided it remains unchanged. Indeed, this measure could benefit European sites.
0201212040	Collate information, including condition and maintenance activities, on sea defence and coastal protection assets in the North West of England to ensure that asset owners can be readily identified and work together to manage coastal flooding and erosion risk in the NWRBD.	No likely significant effect, but down-the-line HRA required - This is a preventative measure and unlikely to involve physical activity on the ground. Collating information on sea defence and coastal protection assets is not associated with impact pathways linking to European sites. Notwithstanding this, such measures can lead to visual and noise disturbance and water quality changes as a result of maintenance activities. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on the integrity of European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201212004	Consider the potential implications of climate change to flood risk, water resource requirements and the sustainable management of water in the North West of England to aid optioneering and help prioritise future investment needs in the NWRBD.	No likely significant effect - This is a preventative measure and unlikely to involve physical activity on the ground. Considering the potential implications of climate change in order to aid optioneering and priority investment will not adversely affect European sites. This is a positive measure, which could ultimately benefit the wider environment by helping to mitigate climate change impacts.

Measure ID	Measure	Likely Significant Effects on European sites
0201212018	Continue to monitor, advise on and work with natural flood processes as far as possible, within identified areas in the North West of England to ensure the actions are still proportionate to that area's level of flood risk in the NWRBD.	No likely significant effect, but down-the-line HRA required - This is a protective measure and unlikely to involve physical activity on the ground. However, the River Ribble flows through identified areas associated with this measure ultimately draining to Ribble & Alt Estuaries. Delivering nature-based flood risk management is likely to be beneficial for both human and environmental receptors. Notwithstanding this, such measures can impact on the water quality and level in European sites, particularly in the construction period. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201212024	Deliver existing and updated coastal strategies in northern England to reduce the risk of flooding to coastal communities in the NWRBD.	No likely significant effect, but down-the-line HRA required – Existing Coastal Strategies will have been subject to their own independent HRA processes. There is insufficient information on any updates at this stage to undertake a detailed assessment for this measure, but updates to coastal strategies will require their own HRAs to adequately appraise LSEs and, where relevant, adverse effects on the integrity of European sites.
0201312044	Determine the feasibility of Flood and Coastal Erosion Risk Management Schemes on a priority basis for identified places in northern England to enable the region's community flood and coastal risk profile to be reduced in the NWRBD.	No likely significant effect - This is a protective measure and unlikely to involve physical activity on the ground. This is a feasibility study and is not associated with impact pathways linking to European sites. Moreover, the process of determining the feasibility of FCERM Schemes will include the extent of any effect on European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201212042	The Environment Agency and Risk Management Authorities will develop an engagement plan with shared priority communities to improve how we work together in the North West of England to help them improve their response to and recovery from flooding in the NWRBD.	No likely significant effect – This is aimed at recovery and reviewing working practices. It is unlikely to involve physical activity on the ground and the development of an engagement plan is not associated with impact pathways linking to European sites European sites.
0201212002	The Environment Agency and Risk Management Authorities will establish an outline investment programme, identifying priorities over 10 years, based on shared flood risk drivers, ambition and strategic objectives in the North West of England to deliver investment efficiency, reduce flood risk and improve community engagement in the NWRBD.	No likely significant effect – This is a protective measure and unlikely to involve physical activity on the ground. Development of an outline investment programme is not associated with impact pathways linking to European sites European sites.
0201212028	The Environment Agency and Risk Management Authorities, wider communities and stakeholders will exploit opportunities to store water or manage run-off in identified areas in the North West of England to provide overall flood risk reduction and environmental benefits in the NWRBD.	No likely significant effect, but down-the-line HRA required – There is insufficient information on the opportunities available at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on the integrity of European sites. However, storing runoff could be beneficial to European sites where they are suffering from poor hydrology or excessive drainage. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0201212036	United Utilities and Risk Management Authorities will identify and assess opportunities to trial sites for surface water separation in the North West of England to assess the impacts and create a portfolio of examples that demonstrate the multiple benefits for flood risk reduction and environmental improvement. in the North West River Basin District.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground. Identifying and assessing opportunities to trial sites for surface water separation in the North West of England is not, in itself, associated with impact pathways linking to European sites European sites. However, there is insufficient information on the locations of these sites and opportunities available at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on the integrity of European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0201212013	The Environment Agency and Risk Management Authorities will identify potential sites and map opportunities to deliver nature-based solutions on Risk Management Authority owned land in the North West of England to provide a shared resource that can be used to deliver schemes that reduce flood risk and benefit the natural environment in the NWRBD.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground. Identifying sites and opportunities for nature-based solutions will not, in itself, impact on the nearby European sites. Delivering nature-based flood risk management is likely to be beneficial for both human and environmental receptors. Notwithstanding this, such measures can impact on the water quality and level in European sites, particularly in the construction period. There is insufficient information on the sites and opportunities available at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on the integrity of European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0201212006	The relevant Lead Local Flood Authorities and Risk Management Authorities in the North-West Coastal Group will implement the shoreline management plan action plan and co-ordinate wider activities along the coastline in line with the Shoreline Management Plan in the North West of England to reduce the risk of flooding and manage coastal change in the NWRBD.	No likely significant effect – The SMP will have been subject to its own HRA process. It is for the Lead Local Flood Authorities and Risk Management Authorities in the North-West Coastal Group to ensure that the wider activities are in line with the SMP. The main European sites overlapping with the area covered by this measure include Sefton Coast SAC, Morecambe Bay SAC, Drigg Coast SAC, Solway Firth SAC, Ribble & Alt Estuaries SPA, Morecambe Bay SPA and Upper Solway Flats and Marshes SPA. This measure in the FRMP is simply a commitment to continue with implementation of the adopted SMP via implementation of the Action Plan. This will include developing the specific coastal strategies and schemes needed to implement the SMP, which will be subject to their own HRAs once devised and before they are consented.
0201212008	The relevant Lead Local Flood Authorities and Risk Management Authorities in the North-West Coastal Group will improve engagement with Local Authorities with responsibility for estuaries in the North West of England to ensure flood risk is understood and mitigated in estuary environments, reducing flood risk to coastal communities, businesses and critical infrastructure in the RBD.	No likely significant effect – This is a preventative measure and unlikely to involve physical activity on the ground. This measure is about improving communication which is not associated with impact pathways linking to European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201212037	The Environment Agency and Risk Management Authorities will improve ways to share data to identify and understand combined flood risk sites, that reflects future levels of risk associated with climate change, in the North West of England to enable the development and assessment of integrated solutions that reduce the risk of flooding in the NWRBD.	No likely significant effect – This is a preventative measure about data sharing and unlikely to involve physical activity on the ground. This measure will not impact on the nearby European sites. This is a positive measure, ultimately benefitting the wider environment by helping to mitigate climate change impacts.
0201212007	In-light of climate change predictions, investigate innovative approaches to coastal monitoring and access to data in the North West of England to facilitate pooling of resources and to develop new approaches to the long-term sustainable management of the north-west coastline in the NWRBD.	No likely significant effect – This is a preventative measure and unlikely to involve physical activity on the ground and is about access to data and monitoring. This measure will not impact on the nearby European sites. This is a positive measure, ultimately benefitting the wider environment by helping to mitigate climate change impacts.
0201212015	The relevant Lead Local Flood Authorities, and Risk Management Authorities in the North-West Coastal Group will influence planning and policy in relation to coastal erosion and flood risk at landfill and contaminated sites in the North West of England to affect long term investment to reduce coastal pollution from waste sites in the NWRBD.	No likely significant effect – This is a preventative measure and unlikely to involve physical activity on the ground. Influencing planning and policy in relation to coastal erosion and flood risk at landfill and contaminated sites to reduce coastal pollution from waste sites in the NWRBD is a positive measure which is not associated with impact pathways linking to European sites.
0201212030	The Environment Agency will inform Local Planning Authorities of any significant consequences of proposed flood risk management asset decommissioning in the North West of England to ensure that Local Development Plans reflects the related future flood risk in the North West River Basin District.	No likely significant effect – This measure is aimed at raising awareness within LPA's. This measure will not impact on the nearby European sites

Measure ID	Measure	Likely Significant Effects on European sites
0201612047	The Environment Agency and Risk Management Authorities will investigate and quantify flood risk issues associated with unmanaged and unadopted third party assets in the North West of England to explore potential remedial actions that will reduce the risk of flooding in the NWRBD.	No likely significant effect – This is a preventative measure and unlikely to involve physical activity on the ground. Investigating and quantifying flood risk issues associated with unmanaged and unadopted third party assets in the North West of England to explore potential remedial actions is a positive measure which is not associated with impact pathways linking to European sites.
0201212034	The Environment Agency and Risk Management Authorities with Catchment Based Approach partnerships will jointly engage with businesses and community groups in the North West of England to promote clear, consistent and endorsed guidance regarding; (1) the use of public open spaces to manage flooding, (2) responsibilities of riparian ownership and (3) the maintenance of third-party assets in a sustainable manner; to prevent the increase in flood risk in the NWRBD.	No likely significant effect – This is a preventative measure and unlikely to involve physical activity on the ground. This measure involves engagement with businesses and community groups which is not associated with impact pathways linking to European sites.
0201212043	The relevant Lead Local Flood Authorities, and relevant Risk Management Authorities in the North-West Coastal Group will manage flood risk and coastal erosion schemes in the North West of England to maximise their benefit to sustainable coastal regeneration and for physical and mental health and wellbeing of communities in the NWRBD.	No likely significant effect – This measure is unlikely to involve physical activity on the ground. Managing investment to maximise sustainability and physical and mental wellbeing will not adversely affect European sites.
0201212032	The relevant Lead Local Flood Authorities, and relevant Risk Management Authorities in the North-West Coastal Group will promote the Shoreline Management Plan with Local Planning Authorities in the North West of England to ensure it is fully considered in the next revision of land use plans and associated planning decisions so they account for flood and coastal erosion risks in the NWRBD.	No likely significant effect – This is a preventative measure and is unlikely to involve physical activity on the ground. Ensuring the adopted SMPs (which are subject to a process separate from the FRMP and have had their own HRAs prior to adoption) are fully considered in emerging local policy will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201312049	The Environment Agency and Risk Management Authorities will provide information and opportunities to the education sector, raising awareness of drainage, flood and coastal issues in The North West of England to influence the attitudes and behaviour of future generations towards flood risk and climate change in the NWRBD.	No likely significant effect – This measure is one of preparedness and is unlikely to involve physical activity on the ground. Raising awareness will not impact on the nearby European sites and can only have a positive outcome in the long-term.
0201212005	The relevant Lead Local Flood Authorities and Risk Management Authorities in the North-West Coastal Group will review Shoreline Management Plan 2 Policies and capital investment programme taking account of current guidance and climate change predictions in the North West of England to update actions to reduce flood risk and manage coastal change in the NWRBD.	No likely significant effect – This is a preventative measure and is unlikely to involve physical activity on the ground. As a desk-based review exercise, this measure will not impact on the nearby European sites. The main European sites overlapping with the area covered by this measure include Sefton Coast SAC, Morecambe Bay SAC, Drigg Coast SAC, Solway Firth SAC, Ribble & Alt Estuaries SPA, Morecambe Bay SPA and Upper Solway Flats and Marshes SPA. SMPs are a separate process from FRMPs and reviewing an adopted SMP in light of current climate change projections is standard good practice. The revised SMP (depending on what if any changes are made) may have effects on European sites but these are subject to their own HRA process that will ensure any mitigation needed to avoid adverse effects on the integrity of European sites is delivered, or any need for increased compensation through the Habitat Compensation Programme is identified.

Measure ID	Measure	Likely Significant Effects on European sites
0201212027	The Environment Agency and Risk Management Authorities will take further action where the case is most compelling in identified areas in the North West of England to reduce the likelihood and adverse consequences of flooding in the NWRBD.	No likely significant effect, but down-the-line HRA required – Several areas across the whole of the North West are covered by this measure. This is a new measure but is unlikely to involve physical activity on the ground in the short term, and there is no information available at this stage as to what actions are involved (as these have not yet been determined). This means the measure if sufficiently broadly expressed that adverse effects on European sites should be avoidable. However, consideration of potential impacts on European sites will need to be factored into the prioritisation process for actions and down-the-line HRA will be required before any actions are committed or consented. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201412045	The Environment Agency and Risk Management Authorities will undertake Flood and Coastal Erosion Risk Management Schemes, on a priority basis for identified places in the North West of England to reduce the risk of flooding to communities in the NWRBD.	No likely significant effect, but down-the-line HRA assessment required – This is a protective measure, however there is insufficient information on the actions to be taken at this stage and consequently the assessment for this measure has been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on the integrity of European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0201212022	The Environment Agency and Risk Management Authorities will undertake joint training to improve capabilities, streamline approaches, make efficiencies and increase understanding of funding mechanisms in the North West of England to improve our ability to attract investment for reducing flood risk in the NWRBD.	No likely significant effect – This is a preventative measure and is unlikely to involve physical activity on the ground. This measure will not impact on the nearby European sites.
0201212014	The relevant Lead Local Flood Authorities, and Risk Management Authorities in the North-West Coastal Group, will undertake prioritised estuary wide studies in the North West of England to establish intertidal linkages between flooding, erosion and habitat for identifying natural flood risk management and habitat gain opportunities in the NWRBD.	No likely significant effect – This is a preventative measure and is unlikely to involve physical activity on the ground. Undertaking estuary-wide studies in order to establish intertidal linkages between flooding, erosion and habitat for identifying natural flood risk management and habitat gain opportunities is not associated with impact pathways linking to European sites.
0201212038	The Environment Agency and Risk Management Authorities will use new technology to improve their monitoring networks to have more accurate, timely and detailed flood information in the North West of England to improve their current and future incident responses, reducing the likelihood and impact of flooding in the NWRBD.	No likely significant effect – This is a preventative measure and is unlikely to involve physical activity on the ground. Utilising new technology and improving monitoring networks is not associated with impact pathways linking to European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201212020	The Environment Agency and United Utilities will work collaboratively to plan, prioritise and commence delivery of co-ordinated maintenance of new and existing assets in the North West of England to improve the agility and efficiency of flood response in the NWRBD.	No likely significant effect, but down-the-line HRA required – A commitment to work collaboratively to take a coordinated approach to planning and delivery of maintenance of flood defence assets will not adversely affect European sites. Depending on what would be involved, steps required to protect assets could have effects on European sites but this is considered unlikely since the protection measures will normally be installed at the assets themselves (e.g., by raising or otherwise protecting key machinery at Water Recycling Centres) rather than at European sites. Since United Utilities is a competent authority, they will need to undertake an HRA for any proposals that could affect European sites before they are implemented. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201212017	The Environment Agency and Risk Management Authorities will work in unison to map opportunity catchments for habitat creation and develop a programme for joint delivery in the North West of England to ensure integrated flood risk is tackled and investment is focussed where there will be greatest socio-environmental benefit in the NWRBD.	No likely significant effect, but down-the-line HRA required – There is insufficient information on the locations of habitat creation areas at this stage and consequently the assessment for this measure has been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on the integrity of European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0201212010	The Environment Agency and Risk Management Authorities will work together at places and communities that will be exposed to significantly increased flood risk as a result of climate change in the North West of England to adapt the flood risk management approach reducing the increase of what would otherwise be increasing flood risk in the North West River Basin District.	No likely significant effect – This is a preventative measure and unlikely to involve physical activity on the ground. Reviewing and adapting approaches is not associated with impact pathways linking to European sites. Once any adaptations in the flood risk management approach are identified these may require HRA before being implemented but it is impossible to know what changes might be made at this point.
0201212019	The Environment Agency and Risk Management Authorities will work together to align objectives for Flood Risk, River Basin and Drainage and Wastewater Management Plans up to 2030 in the North West of England to establish agreed strategic measures (activities) in a collaborative programme of flood risk management works in the NWRBD.	No likely significant effect, but down-the-line HRA required – This is a preventative measure and is unlikely to involve physical activity on the ground, however there is insufficient information on the measures or management works at this stage and consequently the assessment for this measure has been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on the integrity of European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0201212012	The Environment Agency and Risk Management Authorities, wider communities and stakeholders will work together to help deliver conventional, innovative and nature-based improvements to flood risk, water and habitat quality in the North West of England to reduce community flood risk and improve future collaborative working in the NWRBD.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground. Identifying sites and opportunities for nature-based solutions will not, in itself, impact on the nearby European sites. Delivering nature-based flood risk management is likely to be beneficial for both human and environmental receptors. Notwithstanding this, such measures can impact on the water quality and level in European sites, particularly in the construction period. There is insufficient information on the sites and opportunities available at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on the integrity of European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201212033	The Environment Agency and Risk Management Authorities will work together with Planning authorities, Local Enterprise Partnerships and communities in the North West of England to ensure that investment to reduce flood risk contributes to sustainable growth in communities in the NWRBD.	No likely significant effect – This measure has been carried over from Flood Risk Management Plan 1, therefore this measure has already undergone prior HRA appraisal. Working collaboratively to ensure investment will not negatively impact on the nearby European sites. By definition any actions that led to adverse effects on European sites would not constitute sustainable growth.

Measure ID	Measure	Likely Significant Effects on European sites
0201212048	The Environment Agency and Risk Management Authorities will work together with communities and stakeholders in the North West of England to improve collective learning that reduces flood risk in the NWRBD.	No likely significant effect – This is a preventative measure and is unlikely to involve physical activity on the ground. Improving collective learning will not affect European sites.
0201512046	The Environment Agency and Risk Management Authorities will work together with communities so that they understand likely changes in future flood and coastal risk in the North West of England to take on adaptive approaches to its management over the long-term in the NWRBD.	No likely significant effect – This is a preventative measure and is unlikely to involve physical activity on the ground. Increasing understanding will not affect European sites.
0201212041	The Environment Agency will work with asset owners, local authorities and stakeholders to contribute to increasing the amenity value of flood risk assets in the North West of England to improve the physical and mental health and wellbeing of communities in the NWRBD.	No likely significant effect, but down-the-line HRA required – A general commitment to improve the amenity value of flood risk assets will not adversely affect European sites. Increasing amenity use of some coastal flood risk assets could pose likely significant effects if for example it increased the disturbance risk of birds associated with the SPA's within the NWRBD but no specific commitments are made as part of the measure. There is insufficient information on the proposals at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed as part of the Outline Business Case of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on the integrity of European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0201212009	The Environment Agency and Risk Management Authorities will work with communities for whom long term maintenance of current levels of flood protection is uneconomical, including those in pumped catchments, in the North West of England to proactively support them and improve their resilience to flooding by considering adaptation options including nature-based solutions, and improving incident warnings and management in the NWRBD.	No likely significant effect, but down-the-line HRA assessment required – A general commitment to help communities with resilience to flooding where it is no longer economic to maintain the standard of protection of existing defences will not adversely affect European sites. There is insufficient information on the options at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Delivering nature-based solutions is likely to be beneficial for both human and environmental receptors. Notwithstanding this, such measures can impact on the water quality and level in European sites, particularly in the construction period. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on the integrity of European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201212029	The Environment Agency and Risk Management Authorities will work with local planning authorities, developers and other place-makers to promote the wider use and adoption of Sustainable Drainage practices in the North West of England to reduce flood risk and benefit the environment in the NWRBD.	No likely significant effect – This is a protective measure and is unlikely to involve physical activity on the ground. This measure will not impact on the nearby European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201212039	The Environment Agency and Risk Management Authorities will work with owners and operators of critical infrastructure to understand the full consequences that their failure due to flooding could bring in the North West of England to better develop investment business cases and access funding sources in order to reduce flood risk in the NWRBD.	No likely significant effect – This is a protective measure and is unlikely to involve physical activity on the ground. Working with owners and operators of critical infrastructure increase understanding is not associated with impact pathways linking to European sites European sites.
0201212031	The Environment Agency and Risk Management Authorities will work with the Regional Flood and Coastal Committee, Local Planning Authorities, developers and place-makers to promote adoption of best practices in the North West of England to maximise the benefit new development can bring to reducing flood risk and improving the environment in the NWRBD.	No likely significant effect – This is a preventative measure and is unlikely to involve physical activity on the ground. Promoting the adoption of best practice measures is not associated with impact pathways linking to European sites European sites.
0201212011	The Environment Agency and Risk Management Authorities will work together to agree practices and principles for partnered schemes in the North West of England to contribute to achieving carbon reduction targets in the NWRBD.	No likely significant effect – This is a preventative measure and is unlikely to involve physical activity on the ground. This measure will not impact on the nearby European sites.

Table 7. Screening table showing the Test of Likely Significant Effects results for measures contained within the North West Flood Risk Management Plan for the Ambleside Management Catchment

Measure ID	Measure	Likely Significant Effects on European sites
0200212055	Risk Management Authorities and Flood Risk Management partners will engage with the local business community to deliver an enhanced flood event institutional emergency response plan in the Ambleside Flood Risk Area to improve preparedness for flood events and reduce adverse consequences in the Ambleside, North West Flood Risk Area.	No likely significant effect - This measure is one of preparedness and is unlikely to involve physical activity on the ground. The delivery of an enhanced emergency response plan for local businesses will not adversely affect European sites.
0200212053	Risk Management Authorities and Flood Risk Management partners will engage with the local community to deliver an enhanced flood event institutional emergency response plan in the Ambleside Flood Risk Area, to improve preparedness for flood events and reduce adverse consequences in the Ambleside, North West Flood Risk Area.	No likely significant effect - This measure is one of preparedness and is unlikely to involve physical activity on the ground. The delivery of an enhanced emergency response plan for the local community will not adversely affect European sites.
0200212054	Risk Management Authorities and Flood Risk Management partners will enhance the flood event institutional emergency response plan in the Ambleside Flood Risk Area, to improve preparedness for flood events and reduce adverse consequences, especially for road network resilience, Electricity infrastructure, Wastewater Treatment works, and protection of emergency services and critical infrastructure, in the Ambleside, North West Flood Risk Area.	No likely significant effect - This measure is one of preparedness and is unlikely to involve physical activity on the ground. The ultimate objective is to have worked together to develop adaptive approaches that plan for a range of future flood and coastal change scenarios. This will not adversely affect European sites.
0200212052	The Environment Agency will launch and engage with the local community to deliver an enhanced flood forecasting or warning system wider than the existing service in eastern watercourses affecting the Ambleside Flood Risk Area, to enhance the public awareness or preparedness for flood events in order to reduce adverse consequences in the Ambleside, North West Flood Risk Area.	No likely significant effect – This measure is one of preparedness and is unlikely to involve physical activity on the ground. Engaging with the local communities to deliver an enhanced flood forecasting and raise public awareness will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200212050	Risk Management Authorities and Flood Risk Management partners will progress investigations into feasible and practicable small scale options in the Leven catchment, including Ambleside, to produce a Shortlist of potential flood risk management measures for third parties to deliver in a Partnership approach in the Ambleside, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure unlikely to involve physical activity on the ground. Although not within the area covered by this measure, Esthwaite Water Ramsar is adjacent (c.300m east at its closest point). There is insufficient information on the options at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on the integrity of Esthwaite Water Ramsar. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0200212051	Risk Management Authorities and Flood Risk Management partners will seek funding, including from third parties, to look at promoting, where practicable and feasible, natural flood management techniques in the Leven catchment, including areas beneficial to Ambleside, to reduce surface water discharge in to the sewerage system, reducing the likelihood of flooding in the Ambleside, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required - This is a protective measure unlikely to involve physical activity on the ground. Understanding wider maintenance activities needed to manage the risk of flooding and who will contribute to make that happen will not, in itself, adversely affect European sites. However, There is insufficient information on the options at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on Esthwaite Water Ramsar. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0200212056	United Utilities and all other Risk Management Authorities will work together to undertake a hydraulic assessment of the surface water and sewerage system contributing to the Ambleside Wastewater drainage areain the Ambleside Flood Risk Area to identify options that are feasible and practicable for improving the performance of the sewerage network and related infrastructure to reduce spillage from the sewerage system, together with how this is managed when it occurs, and so reduce the likelihood of flooding and adverse consequences in the Ambleside, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground at this time. According to Flood Plan Explorer, the Flood Risk Area covered by this measure is not hydrologically connected to any European site within 10km, the closest being Morecambe Bay Ramsar some 15+km away. Long-term this measure is beneficial as it will reduce spillage from sewerage systems into freshwater ecosystems that may otherwise lead to adverse effects on European sites.

Table 8. Screening table showing the Test of Likely Significant Effects results for measures contained within the North West Flood Risk Management Plan for the Ashton under Lyne Management Catchment

Measure ID	Measure	Likely Significant Effects on European sites
0201312057	Tameside Metropolitan Borough Council with support from the Environment Agency and United Utilities will, conditional on securing a capital funding allocation, undertake surface water modelling and verification against flood records in Ashton under Lyne to improve the estimation and mapping of surface water flood risk in the Ashton under Lyne, North West Flood Risk Area.	No likely significant effect – This is a preventive measure unlikely to involve physical activity on the ground. This measure is not associated with impact pathways linking to European sites European sites.
0201312058	Tameside Metropolitan Borough Council in partnership with the Environment Agency and United Utilities will consider the results of the improved surface water modelling together with information about sewer and river flood risk in Ashton under Lyne to identify any flooding 'hot spots' in the Ashton under Lyne, North West Flood Risk Area.	No likely significant effect – This is a preventive measure unlikely to involve physical activity on the ground. Identifying flooding 'hot spots' in the Ashton under Lyne Flood Risk Area is not associated with impact pathways linking to European sites European sites.
0201312059	Tameside Metropolitan Borough Council with support from the Environment Agency and United Utilities will where appropriate, develop and implement a programme of investigations and assessments for the identified flooding 'hot spots' (Measure 0201312080) in Ashton under Lyne to determine, agree and promote measures that improve the resilience of people, businesses and the environment in the Ashton under Lyne, North West Flood Risk Area.	No likely significant effect – This is a preventive measure unlikely to involve physical activity on the ground. This measure is not associated with impact pathways linking to European sites European sites.

Table 9. Screening table showing the Test of Likely Significant Effects results for measures contained within the North West Flood Risk Management Plan for the Atherton Management Catchment

Measure ID	Measure	Likely Significant Effects on European sites
0201312134	The Environment Agency in partnership with Wigan Borough Council and United Utilities will have investigated ageing flood risk management assets and engaged the local communities in South Leigh (Pennington, Lately Common) area to determine and promote the future flood risk management approach in the Atherton, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground at this time. Investigating ageing flood risk management assets and devising the future flood risk management approach will not in itself lead to adverse effects on European sites. However, there is insufficient information on any maintenance activities at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0201312133	The Environment Agency in partnership with Wigan Borough Council will have investigated alternative approaches, engaged local communities and promoted the preferred approach in Plank Lane / Common Lane area to improve their flood resilience and the natural environment in the Atherton, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This measure is one of preparedness unlikely to involve physical activity on the ground at this time. Investigating and promoting approaches will not in itself lead to adverse effects on European sites. However, there is insufficient information on the preferred approach at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201312135	Wigan Borough Council and the Environment Agency will have investigated and engaged the local community in Hag Fold area (from Car Bank Street to Collier Brook) to determine and promote future flood risk management approaches that improve their flood resilience in the Atherton, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This measure is one of preparedness unlikely to involve physical activity on the ground at this time. Investigating and promoting approaches will not in itself lead to adverse effects on European sites. However, there is insufficient information on the preferred approach at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0201312137	The Environment Agency in partnership with Wigan Borough Council and United Utilities will investigate flood risk management assets, review the local hydrology and engage the local communities in Lilford, Bedford and Leigh to determine and promote measures to improve flood resilience and the natural environment in the Atherton, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective unlikely to involve physical activity on the ground at this time however there is insufficient information on the at this stage on the measures to improve flood resilience to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201312132	Wigan Borough Council in partnership with the Environment Agency will review collaborative flood incident response and recovery processes in the Atherton Flood Risk Area to reduce the impact of flooding on communities and businesses in the Atherton, North West Flood Risk Area.	No likely significant effect – This measure is one of recovery and review and is unlikely to involve physical activity on the ground. Working with communities and businesses to raise awareness, understand the role of emergency responders and recovery after flooding will not lead to adverse effects on European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201312136	Wigan Borough Council and the Environment Agency will seek opportunities to implement Natural Flood Management in areas near Shackerley, Pickley Green and to the west of Leigh to improve local flood resilience and the natural environment in the Atherton, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground at this time. However, there is insufficient information on the Natural Flood Management measures at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Natural flood management intervention delivered immediately upstream of a designated floodplain or waterbody, while intended to restore the hydrological regime to a natural baseline, could reduce the volume of freshwater input to and flooding regime in that downstream European site. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201312131	United Utilities will work with the Coal Authority to understand locations and nature of mine water entering the land drainage / public sewer system in the Atherton Flood Risk Area to reduce contamination and improve the natural environment in the Atherton, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground at this time. However, there is insufficient information on the proposals at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. Long-term, this measure could benefit European sites by improving water quality.

Measure ID	Measure	Likely Significant Effects on European sites
0201312130	The Environment Agency and Risk Management Authorities will work with the Local Planning Authority to influence developers in the Atherton Flood Risk Area to help improve the flood resilience of nearby communities and the natural environment in the Atherton, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Working with Local Planning Authorities to influence developers will not lead to adverse effects on European sites.

Table 10. Screening table showing the Test of Likely Significant Effects results for measures contained within the North West Flood Risk Management Plan for the Blackburn Management Catchment

Measure ID	Measure	Likely Significant Effects on European sites
0200112070	Blackburn with Darwen Lead Local Flood Authority and the Environment Agency and United Utilities will appraise flooding issues related to interconnected networks in the Waterfall Flood Risk Area to identify options that will reduce the risk of flooding and adverse consequences in the Blackburn, North West Flood Risk Area.	No likely significant effect – This is a protective measure and unlikely to involve physical activity on the ground, also there are no hydrologically connected European sites within 15km of this area.
0200112069	Blackburn with Darwen Lead Local Flood Authority and the Environment Agency and United Utilities will complete a feasibility study in the Blackburn with Darwen Catchment Areas to identify options for utilising Reservoirs to store surface water during storm events in the Blackburn, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground, also there are no hydrologically connected European sites within 15km of this area.
0200112073	The Environment Agency and Blackburn with Darwen Lead Local Flood Authority will complete an investigation into the Main River and surface water flood risk in the Blackburn with Darwen Flood Risk Areas to identify options to reduce combined flood risk in the Blackburn, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground, also there are no hydrologically connected European sites within 15km of this area.

Measure ID	Measure	Likely Significant Effects on European sites
0200112064	Blackburn with Darwen Lead Local Flood Authority will create a data driven approach to flood risk asset management in the Blackburn with Darwen Flood Risk Areas to reduce the likelihood of flooding and adverse consequences to people, property and the natural environment, in the Blackburn, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground, also there are no hydrologically connected European sites within 15km of this area.
0200112072	Blackburn with Darwen Lead Local Flood Authority in partnership with other Risk Management Authorities will engage with the local community to establish Community Flood Groups in Blackburn with Darwen to reduce the consequences of flooding through improved co-ordinated flood resilience resources in the Blackburn, North West Flood Risk Area.	No likely significant effect – This measure is one of preparedness and unlikely to involve physical activity on the ground, also there are no hydrologically connected European sites within 15km of this area.
0200112062	Blackburn with Darwen Lead Local Flood Authority and the Environment Agency will identify prioritised natural flood management opportunities in the Blackburn with Darwen Catchment Areas to reduce the likelihood of flooding and improve water quality and enhance the natural environment in the Blackburn, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground, also there are no hydrologically connected European sites within 15km of this area.
0200112068	Blackburn with Darwen Lead Local Flood Authority and the Environment Agency and United Utilities will investigate and consider the implications of erosion and debris build-up in Knuzden Brook to assess their impact on flood risk and assess options to reduce the risk of flooding in the Blackburn, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground, also there are no hydrologically connected European sites within 15km of this area.

Measure ID	Measure	Likely Significant Effects on European sites
0200112067	Blackburn with Darwen Lead Local Flood Authority and United Utilities will investigate and share data to identify joint working opportunities in Blackburn with Darwen to reduce the risk of combined sewer flooding, taking in to consideration revised data associated with climate change in the Blackburn, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground, also there are no hydrologically connected European sites within 15km of this area.
0200112061	Blackburn with Darwen Lead Local Flood Authority will on a prioritised basis progress options identified within the Surface Water Management Plan in the Blackburn with Darwen Flood Risk Areas to reduce the risk of flooding in the Blackburn, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground, also there are no hydrologically connected European sites within 15km of this area.
0200112063	Blackburn with Darwen Lead Local Flood Authority will progress natural flood management measures, with wider benefits in the Blackburn with Darwen Catchment Areas to reduce the likelihood of flooding and adverse consequences to people, property and the natural environment, in the Blackburn, North West Flood Risk Area.	No likely significant effect – This is a protective measure and unlikely to involve physical activity on the ground, also there are no hydrologically connected European sites within 15km of this area.
0200112071	The Environment Agency, working with Blackburn with Darwen Lead Local Flood Authority, will review the Flood Alleviation Scheme proposals in Darwen to ensure that surface water and other residual flood risk is taken in to consideration in scheme design in the Blackburn, North West Flood Risk Area.	No likely significant effect – This is a protective measure and unlikely to involve physical activity on the ground, also there are no hydrologically connected European sites within 15km of this area.

Measure ID	Measure	Likely Significant Effects on European sites
0200112066	Blackburn with Darwen Lead Local Flood Authority and the Environment Agency and United Utilities will start investigations associated with Little Harwood Brook and Brownhill tunnel in the Little Harwood Catchment Area to understand and identify options to reduce the likelihood of flooding, and impact of wider combined sewer issues in the Blackburn, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground, also there are no hydrologically connected European sites within 15km of this area.
0200112065	The Environment Agency and Blackburn with Darwen Lead Local Flood Authority will undertake revised modelling and implement increase monitoring systems, in key flood risk areas in Blackburn with Darwen to improve flood warnings and increase the community preparedness in the Blackburn, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground, also there are no hydrologically connected European sites within 15km of this area.
0200112060	Blackburn with Darwen Lead Local Flood Authority will update the Surface Water Management Plan as a part of the 10 yearly cyclical update process in the Blackburn with Darwen Flood Risk Areas to identify options to reduce the risk of flooding, as a product of climate change, in the Blackburn, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground, also there are no hydrologically connected European sites within 15km of this area.
0200112074	Blackburn with Darwen Lead Local Flood Authority and the Environment Agency and United Utilities will work in partnership in Blackburn with Darwen to ensure that any investment to reduce the risk of flooding will also be in support of boosting socio economic factors in the Blackburn, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground, also there are no hydrologically connected European sites within 15km of this area.

Table 11. Screening table showing the Test of Likely Significant Effects results for measures contained within the North West Flood Risk Management Plan for the Burnley Management Catchment

Measure ID	Measure	Likely Significant Effects on European sites
0200112102	The Lancashire County Council Lead Local Flood Authority and United Utilities, will commence a joint investigation into the flooding mechanisms and future flood risk in Fulledge, Culshaw Street and Elliot Street, Burnley, to better understand the future flood risk impacts of climate change predictions and to investigate if using the park as part of a Natural Flood Management scheme there is a flood risk benefit in the Burnley, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Investigating flooding mechanisms and future flood risk is desk-based and will not lead to adverse effects on European sites.
0200112099	The Environment Agency and Lancashire County Council Lead Local Flood Authority, United Utilities and Local Planning Authority will commence using the North West Sustainable Drainage Systems proforma in pre-application discussions and potentially within the planning validation process in the wider Burnley area to address previous inconsistencies, encourage sustainable development and support the uptake and adoption of Sustainable Drainage Systems in the Burnley, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Encouraging sustainable development will not lead to adverse effects on European sites.
0200112100	The Environment Agency will deliver a hydraulic model, taking into account climate change predictions, in the wider Burnley area to produce updates to the flood warning service and flood risk maps, having benefits in the Burnley, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Developing a hydraulic model is desk-based and will not lead to adverse effects on European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200112113	The Environment Agency and Lancashire County Council Lead Local Flood Authority will work in partnership with Burnley Borough Council and other partners will engage local community groups in order to improve community awareness in relation to flooding and resilience in the Burnley area, to increase flood warning uptake and to improve incident preparedness by building a robust community led emergency plan in the Burnley, North West Flood Risk Area.	No likely significant effect – This measure is one of preparedness and is unlikely to involve physical activity on the ground. Working with communities to raise awareness and understand the role of emergency responders will not lead to adverse effects on European sites.
0200112107	The Lancashire County Council Lead Local Flood Authority will engage with the landowner (United Utilities) to investigate the feasibility of Natural Flood Management in Nutshaw Hill (Dunnockshaw) to build resilience to flooding and climate change and improve the environment, for highway infrastructure and properties on Manchester Road, Dunnockshaw, in the Burnley, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Carrying out a feasibility study is desk-based and will not lead to adverse effects on European sites.
0200112108	The Environment Agency and Lancashire County Council Lead Local Flood Authority will have established a relationship with the Local Enterprise Partnership and its Burnley-based partners in economic development in the Burnley area to build into future economic investment strategies an improved understanding of the impact of flooding and the benefits from flood risk management on local economic wellbeing in the Burnley, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Influencing future economic strategies will not lead to adverse effects on European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200112109	The Environment Agency and Lancashire County Council Lead Local Flood Authority will have established a relationship with the local Public Health authorities and their Burnley-based partners in delivering public health services in the Burnley area to improve understanding of the impact of flood risk and flooding events on people's mental and physical health (particularly from repeated flooding events) and ensure appropriate responses to these impacts are built into public health strategies in the Burnley, North West Flood Risk Area.	No likely significant effect - This measure is one of recovery and review and unlikely to involve physical activity on the ground. Working with public health services to improve physical and mental wellbeing will not adversely affect European sites.
0200112110	The Environment Agency will investigate the feasibility and value of removing the weir in Heasandford to understand the benefits and consequences this would have on the natural environment and the risk of flooding in the Burnley, North West Flood Risk Area.	No likely significant effect – This is a protective measure and unlikely to involve physical activity on the ground. Carrying out a feasibility study is a desk-based activity and will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200112111	The Environment Agency and Burnley Borough Council will investigate the impact of river management in Thompson Park to investigate the impact on the sustainability of the Park, identify adjustments to minimise future maintenance costs and determine what benefits and consequences Natural Flood Management would have on the natural environment and the risk of flooding in the Burnley, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground at this time. However, there is insufficient information on the management adjustments or Natural Flood Management measures at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Natural flood management intervention delivered immediately upstream of a designated floodplain or waterbody, while intended to restore the hydrological regime to a natural baseline, could reduce the volume of freshwater input to and flooding regime in that downstream European site. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0200112104	The Lancashire County Council Lead Local Flood Authority and the Lancashire County Council Local Highway Authority will commence a joint investigation into surface water flooding to properties in Burnley Road, Cliviger to identify options to reduce the likelihood of flooding, progressing to an initial assessment stage, if required and feasible to do so, in the Burnley, North West Flood Risk Area	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Carrying out an investigation into surface water flooding of properties will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200112105	The Lancashire County Council Lead Local Flood Authority and the Lancashire County Council Local Highway Authority with United Utilities will commence a joint investigation into surface water flooding to properties in Manchester Road, Dunnockshaw to identify options to reduce the likelihood of flooding, progressing to an initial assessment stage, if required and feasible to do so, in the Burnley, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Carrying out an investigation into surface water flooding of properties will not adversely affect European sites.
0200112103	The Lancashire County Council Lead Local Flood Authority and the Lancashire County Council Local Highway Authority will commence a joint investigation into surface water flooding to properties in Red Lees Road, Cliviger to identify options to reduce the likelihood of flooding, progressing to an initial assessment stage, if required and feasible to do so, in the Burnley, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Carrying out an investigation into surface water flooding of properties will not adversely affect European sites.
0200112112	The Environment Agency will lead on an initial assessment of flood risk and infrastructure in Burnley Town Centre to appraise asset life and standard of flood protection, taking into account climate change predictions, and identify priority locations for maintaining the current level of flood risk in the Burnley, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Carrying out an appraisal and identifying priority locations for maintaining the current level of flood risk will not adversely affect European sites.
0200112106	The Environment Agency and all other Risk Management Authorities working in collaboration and with stakeholders will commence opportunity mapping for Natural Flood Management and other environmental benefits in the Burnley area to identify possibilities to reduce the likelihood of flooding and improve water quality and enhance the natural environment in the Burnley, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Undertaking opportunity mapping is desk-based and will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200112101	The Environment Agency and all other Risk Management Authorities working in collaboration and with the Catchment Based Approach Partnership (CaBA), will commence a catchment study for the River Brun to deliver a detailed understanding of interactions of watercourses and drainage systems in the Burnley area, to lead to measures that have duality of purpose in improving flood risk and the Water Framework Directive status in the Burnley, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Undertaking a catchment study is desk-based and will not adversely affect European sites.

Ellesmere Port Management Catchment

Measure ID	Measure	Likely Significant Effects on European sites
0201212081	Cheshire West & Chester Borough Councils and the Environment Agency will assess the role of North Ditch pumping station (off Bridges Road) in managing current and future flood risk in the Stanlow / Wolverham areas to promote future investment needs to achieving the resilience standard for the communities affected in the Ellesmere Port, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Assessing the role of North Ditch pumping station in managing current and future flood risk in the Stanlow / Wolverham areas to promote future investment is desk-based and will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201212076	Cheshire West & Chester Borough Council and the Environment Agency will engage the farming community and other landowners to adopt flood sensitive land management practices and natural flood management techniques in areas upstream of the Gowy Meadows and to the south and west of Great Sutton but throughout the Ellesmere Port Flood Risk Area to reduce surface water run-off and the risk of flooding whilst improving the environment in the Ellesmere Port, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground at this time. However, there is insufficient information on the land management practices or natural flood management measures at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Natural flood management intervention delivered immediately upstream of a designated floodplain or waterbody, while intended to restore the hydrological regime to a natural baseline, could reduce the volume of freshwater input to and flooding regime in that downstream European site. Bespoke HRAs will be needed. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201212075	The Environment Agency and Cheshire West & Chester Borough Councils and United Utilities will have worked with the Local Planning Authority to influence developers in the Ellesmere Port Flood Risk Area to help reduce flood risk to existing properties and improve the natural environment in the Ellesmere Port, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Working with the Local Planning Authority to influence developers in the Ellesmere Port Flood Risk Area to help reduce flood risk to existing properties will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201212080	The Environment Agency and Cheshire West & Chester Borough Council will in partnership with the refinery operator and other stakeholders, assess the current and future flood risk, including asset condition and performance, in the Stanlow Refinery Area to agree their respective roles in achieving the required resilience standard in the Ellesmere Port, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Assessing the current and future flood risk in the Stanlow Refinery Area will not adversely affect European sites.
0201212077	The Environment Agency and Cheshire West & Chester Borough Council will review blockage risks at highway crossings and identify potential Natural Flood Management and environment improvement sites in Riveracre Brook (Great Sutton to Overpool) and Gale Brook (Thornton-le-Moors) to promote sustainable maintenance practices and environmental improvement in the Ellesmere Port, North West Flood Risk Area.	No likely significant effect – This is a protective measure and unlikely to involve physical activity on the ground. Reviewing blockage risks at highway crossings and identifying potential Natural Flood Management and environment improvement sites will not adversely affect European sites.
0201212079	The Environment Agency in partnership and Cheshire West & Chester Borough Council, working with Peel Ports, will review the function that the Manchester Ship Canal, and associated assets, performs in managing flood risk from the Mersey estuary in Ellesmere Port to inform and better align asset management practices in the Ellesmere Port, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Reviewing the function that the Manchester Ship Canal performs in managing flood risk from the Mersey estuary is desk-based and will not adversely affect European sites.
0201212078	Cheshire West & Chester Borough Councils in partnership with the Environment Agency and United Utilities will undertake an integrated assessment of current and future flood risk in Overpool / Little Sutton area to identify a collaborative approach to improve community flood resilience in the Ellesmere Port, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Undertaking an assessment of current and future flood risk in Overpool / Little Sutton is desk-based and will not adversely affect European sites.

Table 12. Screening table showing the Test of Likely Significant Effects results for measures contained within the North West Flood Risk Management Plan for the Formby Management Catchment

Measure ID	Measure	Likely Significant Effects on European sites
0201212084	The Environment Agency and Sefton Council will review maintenance standards of main rivers and ordinary watercourses in the Formby Flood Risk Area to better understand, prioritise and plan future maintenance needs to reduce the likelihood of flooding in the Formby, North West Flood Risk Area.	No likely significant effect – This is a protective measure and unlikely to involve physical activity on the ground. Reviewing maintenance standards to better understand, prioritise and plan future maintenance needs will not adversely affect European sites.
0201212083	Sefton Council will support the Highways Authority and Network Rail to better understand flood risk to their networks in the Formby Area to help develop partnership working opportunities to aid in the management of flood risk to key transport routes in the Formby, North West Flood Risk Area.	No likely significant effect - This measure is one of preparedness and unlikely to involve physical activity on the ground. Understanding flood risks and developing working partnerships will not adversely affect European sites.
0201212085	The Environment Agency will undertake wider partnership engagement on the Environment Agency Groundwater Management Study in the Formby Flood Risk Area to ensure all partners understand wider flood risk interactions to ensure that any onwards investment in the area tackles combined flood risk issues in the Formby, North West Flood Risk Area.	No likely significant effect - This measure is one of preparedness and unlikely to involve physical activity on the ground. Raising awareness and encouraging wider, combined investment will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201212082	Sefton Council and United Utilities will work in partnership to progress recommendations from the Surface Water Management Plan level 2 study, in the Formby Area to establish a priority based programme for reducing the risk of surface water flooding to communities in the Formby, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required - This is a preventive measure and unlikely to involve physical activity on the ground at this time. Surface Water Management Plans are not subsidiary documents of the FRMPs but are a separate process. This measure therefore commits to implementing an existing adopted plan. However, there is insufficient information on the proposals at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201212087	The Environment Agency and Sefton Council, Lancashire County Council and United Utilities will work together to consider implications of revised climate change predictions and guidance and changes to other technical understandings in the Lower Alt Catchment to update the understanding of both fluvial and surface water systems with the intention to reduce the consequences of flood events and the risk of surface water flooding in the Formby, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Working together to improve understanding of both fluvial and surface water systems in the Lower Alt Catchment will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201212086	The Environment Agency and Sefton Council and United Utilities will work with the Formby Flood Action Group to improve the uptake of flood warning services and improve community resilience mechanisms in the Formby Flood Risk Area to reduce the consequences of flood events to the local community in the Formby, North West Flood Risk Area.	No likely significant effect – This measure is one of recovery and review and unlikely to involve physical activity on the ground. Working together to reduce the consequences of flood events to the local community will not adversely affect European sites.

Table 13. Screening table showing the Test of Likely Significant Effects results for measures contained within the North West Flood Risk Management Plan for the Higher Folds Management Catchment

Measure ID	Measure	Likely Significant Effects on European sites
0201312142	The Environment Agency in partnership with Wigan Borough Council and United Utilities will investigate flood risk management assets, review the local hydrology and engage the local communities in Higher Folds to determine and promote measures to improve flood resilience and the natural environment in the Higher Folds, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required - This is a protective measure and unlikely to involve physical activity on the ground at this time. However, there is insufficient information on the measures at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201312141	Wigan Borough Council in partnership with the Environment Agency will review collaborative flood incident response and recovery processes in the Higher Folds Flood Risk Area to reduce the impact of flooding on communities and businesses in the Higher Folds, North West Flood Risk Area.	No likely significant effect – This measure is one of preparedness and is unlikely to involve physical activity on the ground. Working with communities to raise awareness and understand the role of emergency responders will not lead to adverse effects on European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201312140	United Utilities will work with the Coal Authority to understand locations and nature of mine water entering the land drainage / public sewer system in the Higher Folds Flood Risk Area to reduce contamination and improve the natural environment in the Higher Folds, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required - This is a preventive measure and unlikely to involve physical activity on the ground at this time. However, there is insufficient information on the proposals at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. Long-term, this measure could benefit European sites by improving water quality. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201312139	The Environment Agency and Risk Management Authorities will work with the Local Planning Authority to influence developers in the Higher Folds Flood Risk Area to help improve the flood resilience of nearby communities and the natural environment in the Higher Folds, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Influencing developers to help improve the flood resilience will not lead to adverse effects on European sites.

Table 14. Screening table showing the Test of Likely Significant Effects results for measures contained within the North West Flood Risk Management Plan for the Kendal Management Catchment

Measure ID	Measure	Likely Significant Effects on European sites
0200212089	The Environment Agency and all other Risk Management Authorities and partners will align their respective investment plans using the Cumbria Strategic Partnership, and a strategic coordinated approach in the Kent catchment to achieve optimised use of resources and a strategic fit between the Environment Agency's catchment based approach to managing flood risk, United Utilities asset & network improvements and Cumbria County Council's highways plans, which include the Kendal Northern Access Route, and the delivery of most outcomes for communities at flood risk, reducing the likelihood of flooding and adverse consequences in the Kendal, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Aligning investment plans to achieve optimised use of resources in order to reduce the likelihood of flooding will not adversely affect European sites.
0200212090	The Environment Agency and Cumbria County Council Lead Local Flood Authority, United Utilities and other Risk Management Authorities will identify and then develop a prioritised list of areas to update flood risk mapping in the Kendal area to better understand, investigate and reduce the risk of flooding from all sources in the Kendal, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Identifying priority areas and updating flood risk mapping will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200212098	Cumbria County Council Lead Local Flood Authority and South Lakeland District Council, stakeholders and partners will improve the cycle and walking network where economically viable, practicable and feasible in the Kendal area to enhance the general aesthetics, as part of a wider national social theme to reduce traffic congestion and promote a healthier life style, so as to reduce the adverse consequences and negative health impacts of flooding and aid flood recovery in the Kendal, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This measure is one of recovery and review and unlikely to involve physical activity on the ground. However, there is insufficient information on the proposals the at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0200212095	The Environment Agency, and flood risk management partners working together with local communities, will investigate and consider how best to enhance the flood warning service and raise public awareness and preparedness in and around the Kendal Flood Risk Area, to reduce adverse consequences of flooding to people's homes and businesses in the Kendal, North West Flood Risk Area.	No likely significant effect – This measure is one of preparedness and unlikely to involve physical activity on the ground. Working together improve the flood warning service and raise awareness to reduce the consequences of flood events to the local community will not adversely affect European sites.
0200212093	Cumbria County Council Lead Local Flood Authority and all other Risk Management Authorities and partners will investigate and consider how to enhance sediment dynamics management within the highway drainage infrastructure in and around the Kendal area to reduce the likelihood of flooding in the Kendal, North West Flood Risk Area.	No likely significant effect – This is a protective measure and unlikely to involve physical activity on the ground. Investigating how to enhance sediment dynamics management within the highway drainage infrastructure will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200212088	The Environment Agency and United Utilities and Cumbria County Council Lead Local Flood Authority will look at combined flood risk to align each organisation's flood risk management investment schemes in Kendal to reduce the likelihood of flooding, to prepare for flood events and so reduce the adverse consequences in the Kendal, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Aligning flood risk management investment schemes will not adversely affect European sites.
0200212096	Cumbria County Council Lead Local Flood Authority and the Cumbria Local Resilience Forum will review and update the Multi Agency Flood Plan to include emergency response plans for critical infrastructure in the Kendal area to include bridges, road network resilience, Electricity infrastructure, Wastewater Treatment works, and protection of emergency services and routes and so improve preparedness and reduce the adverse consequences of flooding to people's homes and businesses in the Kendal, North West Flood Risk Area.	No likely significant effect – This measure is one of preparedness and unlikely to involve physical activity on the ground. Updating the Multi Agency Flood Plan to improve preparedness and reduce the adverse consequences of flooding to people's homes and businesses will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200212092	The Environment Agency and Cumbria County Council Lead Local Flood Authority will review gravel management activities, produce gravel management plans and identify priority areas to work with natural processes in the upstream catchment, in and around the Kendal area, to better protect river infrastructure, the environmental need for gravel is not jeopardised and to reduce the damaging effect of accelerated supply of sediment into the river system so reducing the likelihood of flooding in the Kendal, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required - This is a protective measure and unlikely to involve physical activity on the ground at this time. However, there is insufficient information on the management plans at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. Long-term this measure could be beneficial to European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0200212097	The Environment Agency, and flood risk management partners working with local communities will seek funding, in order to promote and deliver economically viable, practicable and feasible, conventional and natural flood management schemes in and around the Kendal area, to reduce surface water flows in to the foul and combined sewerage systems, reducing the likelihood of flooding and the adverse consequences of flooding to people's homes and businesses. in the Kendal, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required - This is a protective measure and unlikely to involve physical activity on the ground at this time. However, there is insufficient information on the natural flood management measures schemes at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Natural flood management intervention delivered immediately upstream of a designated floodplain or waterbody, while intended to restore the hydrological regime to a natural baseline, could reduce the volume of freshwater input to and flooding regime in that downstream European site. Bespoke HRAs will be needed. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0200212094	Cumbria County Council Lead Local Flood Authority and the Environment Agency working with other Risk Management Authorities, stakeholders and partners will seek funding, in order to promote and deliver economically viable, practicable and feasible, conventional and natural flood management schemes in the Kent catchment to reduce, through for example Sustainable Drainage or blue / green infrastructure, the risk of flooding from overland flows and the adverse consequences to people, property and the natural environment, in the Kendal, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required - This is a protective measure and unlikely to involve physical activity on the ground at this time. However, there is insufficient information on the natural flood management schemes at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Natural flood management intervention delivered immediately upstream of a designated floodplain or waterbody, while intended to restore the hydrological regime to a natural baseline, could reduce the volume of freshwater input to and flooding regime in that downstream European site. Bespoke HRAs will be needed. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0200212091	United Utilities and Cumbria County Council Lead Local Flood Authority will work with partners and stakeholders to seek partnership funding to promote economically viable schemes, where feasible and practicable in and around the Kendal area to reduce the likelihood of flooding from surface water and sewer drainage systems in the Kendal, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Seeking partnership funding will not adversely affect European sites.

Table 15. Screening table showing the Test of Likely Significant Effects results for measures contained within the North West Flood Risk Management Plan for the Liverpool Management Catchment

Measure ID	Measure	Likely Significant Effects on European sites
0201212145	Liverpool City Council will develop a Lead Local Flood Authority and Highway Drainage section on Liverpool City Council's website in the Liverpool area to inform the general public about flood risk and raise awareness and provide advice to developers submitting planning applications in the Liverpool, North West Flood Risk Area.	No likely significant effect – This measure is one of preparedness and unlikely to involve physical activity on the ground. Raising public awareness and providing advice to developers about flood risk will not adversely affect European sites.
0201212157	The Environment Agency will investigate the viability of a flood alleviation scheme in Whinney Brook, Maghull to reduce the risk of flooding from both fluvial and surface water causes in the Liverpool, North West Flood Risk Area.	No likely significant effect - This is a protective measure and unlikely to involve physical activity on the ground at this time. Investigating the viability of a flood alleviation scheme is desk-based and will not adversely affect European sites.
0201212146	Liverpool City Council will monitor the performance of newly installed assets at a number of debris screens on watercourses in the Liverpool area to ensure they are fit for purpose and enable safe access to allow operational activities to be undertaken to manage flood risk to properties in the Liverpool, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Monitoring the performance of newly installed assets will not adversely affect European sites.
0201212148	Liverpool City Council and the Environment Agency will progress funding bids for priority locations in the Liverpool area to improve the condition of drainage infrastructure and reduce flood risk to communities in the Liverpool, North West Flood Risk Area.	No likely significant effect - This is a protective measure and unlikely to involve physical activity on the ground. Progressing funding bids is desk-based and will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201212155	The Environment Agency and Liverpool City Council and Sefton Council will review maintenance standards of main rivers and ordinary watercourses in the Liverpool area to better understand future maintenance needs taking into consideration the impact of climate change to reduce the likelihood of flooding to communities in the Liverpool, North West Flood Risk Area.	No likely significant effect - This is a protective measure and unlikely to involve physical activity on the ground. Reviewing maintenance standards to better understand future maintenance needs will not adversely affect European sites.
0201212156	Sefton Council will seek partnership contributions for the Crosby Coastal Erosion and Flood Risk Management Scheme in the Crosby area to promote works that reduce coastal erosion and flood risk along that frontage of the coastline in the Liverpool, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required - This is a protective measure and unlikely to involve physical activity on the ground at this time. Flood Plan Explorer shows that the location for this measure, which is in close proximity to Sefton Coast SAC, Liverpool Bay SPA, Mersey Narrows & North Wirral Foreshore SPA/ Ramsar and Ribble & Alt Estuaries SPA/ Ramsar. There is insufficient information on the works at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0201212154	Sefton Council and Liverpool City Council will support the Liverpool Combined Authority to identify flood risk to the designated Key Route Network in the Liverpool area to support critical transport network suppliers such as the Highways Authority, Highways England and Network Rail to risk assess and manage flood risk to key transport routes in the Liverpool, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a preventive measure and unlikely to involve physical activity on the ground. However, there is insufficient information on the management activities at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0201212152	Sefton Council and Risk Management Authorities will take forward any recommendations from the Surface Water Management Plan level 2 study, on a priority basis, in the Liverpool area to aid in the long term management of surface water flooding in the Liverpool, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a preventive measure and unlikely to involve physical activity on the ground. Surface Water Management Plans are not subsidiary documents of the FRMPs but are a separate process. This measure therefore commits to implementing an existing adopted plan. However, there is insufficient information on the proposals at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201212147	Liverpool City Council and the Environment Agency will undertake a review of critical assets on a priority basis, for example debris screens, valves and pumps, in the Liverpool area to ensure assets are operating effectively to manage flood risk and are able to be maintained in a safe manner in the Liverpool, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Reviewing critical assets to ensure that they are operating effectively will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201212144	Liverpool City Council and the Environment Agency will undertake a study to review a prioritised list of culverts that could pose flood risk to properties or critical infrastructure in locations in the Liverpool area to establish a prioritised programme of work throughout 2022-2027 to reduce the risk of flooding and adverse consequences to people's homes and businesses in the Liverpool, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Undertaking a study to review a prioritised list of culverts and devise a prioritised programme will not adversely affect European sites.
0201212151	The Environment Agency and Liverpool City Council and Sefton Council will undertake updates to the national flood risk maps in the Liverpool area to ensure that DEFRA is sharing the most up to date and validated information with regards to flood risk in the Liverpool, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Updating the national flood risk maps in the Liverpool area will not adversely affect European sites.
0201212150	Liverpool City Council and partners will work together in response to their declared 'Climate Emergency' statements to generate enforceable local policies and guidance for developments in the Liverpool area to ensure future developments attain sustainable standards and do not act to increase flood risk to communities in the Liverpool, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Liverpool City Region Combined Authority (LCRCA) is currently in the process of producing a new Spatial Development Strategy (SDS) for spatial development on a city region wide scale through a range of planning policies concerning development and land use. The SDS will be subject to its own HRA. This measure is a commitment by the Local Authority to ensure future developments attain sustainable standards and do not act to increase flood risk to communities in the Liverpool will not adversely affect European sites

Measure ID	Measure	Likely Significant Effects on European sites
0201212153	The Environment Agency and Risk Management Authorities will work together to consider implications of revised climate change predictions and guidance and changes to other technical understandings in the Lower Alt Catchment to update the understanding of both fluvial and surface water systems with the intention to reduce the consequences of flood events and the risk of surface water flooding in the Liverpool, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Working together to improve understanding of both fluvial and surface water systems in the Lower Alt Catchment will not adversely affect European sites.
0201212149	Liverpool City Council and the Environment Agency will work with critical infrastructure providers such as Network Rail and United Utilities in the Liverpool area to identify and prioritise locations where critical infrastructure poses the most significant flood risk to properties and to develop associated partnered schemes in the Liverpool, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground. However, there is insufficient information on the schemes at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Table 16. Screening table showing the Test of Likely Significant Effects results for measures contained within the North West Flood Risk Management Plan for the Macclesfield Management Catchment

Measure ID	Measure	Likely Significant Effects on European sites
0201212160	Cheshire East Council and United Utilities will investigate the scale of flood risk posed by the condition and capacity of culverted ordinary watercourses and identify those places at greatest risk in Macclesfield to develop a Surface Water Management Plan (SWMP) in the Macclesfield, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. The development of a Surface Water Management Plan (SWMP) will not adversely affect European sites.
0201212161	The Environment Agency and Cheshire East Council will produce maps that show where opportunities for natural flood management and Water Framework Directive improvements are in the Macclesfield area to reduce flood risk and improve the environment in the Macclesfield, North West Flood Risk Area.	No likely significant effect - This is a protective measure and unlikely to involve physical activity on the ground at this time. Undertaking opportunity mapping is desk-based and will not adversely affect European sites.
0201212159	Cheshire East Council and United Utilities will provide maps that show sites where culverts could be opened and Green Sustainable Drainage Systems implemented in Macclesfield to inform and promote sustainable development and improve the environment in the Macclesfield, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Mapping areas to show where Sustainable Drainage Systems could potentially be implemented is desk-based and will not adversely affect European sites.
0201212158	Cheshire East Council and the Environment Agency, will work with the community, businesses and landowners to increase awareness of flooding, the flood warning service and any individual responsibilities in Macclesfield to be more prepared for and respond better during flooding and increase the uptake of the Flood Warning Service by 20%, in the Macclesfield, North West Flood Risk Area.	No likely significant effect – This measure is one of preparedness and unlikely to involve physical activity on the ground. Raising awareness will not adversely affect European sites.

Table 17. Screening table showing the Test of Likely Significant Effects results for measures contained within the North West Flood Risk Management Plan for the Preston Management Catchment

Measure ID	Measure	Likely Significant Effects on European sites
0200112175	The Environment Agency and Lancashire County Council (Lead Local Flood Authority) will have established a relationship with the Local Enterprise Partnership and its Preston based partners in economic development in the Preston area to build into future economic investment strategies an improved understanding of the impact of flooding and the benefits from flood risk management on local economic well-being in the Preston, North West Flood Risk Area.	No likely significant effect – This measure relates to recovery and review and is unlikely to involve physical activity on the ground. Increasing understanding of benefits from flood risk management on economic wellbeing will not adversely affect European sites.
0200112176	The Environment Agency and Lancashire County Council (Lead Local Flood Authority) will have established a relationship with the local Public Health authorities and their Preston based partners in delivering public health services in the Preston area to improve the understanding of the impact of flood risk and flooding events on people's mental and physical health (particularly from repeated flooding events) and that appropriate responses to these impacts are built into public health strategies in order to reduce adverse consequences from flooding and the risk of flooding in the Preston, North West Flood Risk Area.	No likely significant effect - This measure is one of recovery and review and unlikely to involve physical activity on the ground. Working with public health services to improve physical and mental wellbeing will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200112163	Lancashire County Council (Lead Local Flood Authority) and all other Risk Management Authorities and partners will improve understanding of existing and future surface water flood risk for updating the current Preston Surface Water Management Plan in the Preston area to identify options to reduce the risk of flooding from surface water in the Preston, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a preventive measure and unlikely to involve physical activity on the ground. Surface Water Management Plans are not subsidiary documents of the FRMPs but are a separate process. This measure therefore commits to updating and implementing an existing adopted plan. However, there is insufficient information on the options at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0200112164	United Utilities and Lancashire County Council (Lead Local Flood Authority) and Preston City Council will improve understanding of the impacts of future development on the sewerage system in, for example, the North of Preston and also at the Capitol Centre to the south of the River Ribble, and other locations in the Preston area to mitigate its impact on flooding in the Preston, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Improving understanding of impacts on the sewerage system as demand increases will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200112173	United Utilities and all other Risk Management Authorities and Local authorities will investigate locations where conveyance of river flows is impeded by infrastructure in the Preston Flood Risk Area to determine options and identify and deliver where practicable and economically viable, actions or activities to relieve the restrictions and so reduce the likelihood of flooding in order to reduce adverse consequences in the Preston, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a preventive measure and unlikely to involve physical activity on the ground. However, there is insufficient information on the options at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0200112172	The Environment Agency will launch and engage with the local community to deliver an enhanced flood warning service in the locality of the Preston and South Ribble Flood Risk Management Scheme to enhance the public awareness or preparedness for flood events in order to reduce adverse consequences in the Preston, North West Flood Risk Area.	No likely significant effect – This measure is one of preparedness and is unlikely to involve physical activity on the ground. Working with communities to raise awareness and understand the role of emergency responders will not lead to adverse effects on European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200112165	Lancashire County Council Highway Authority and Lancashire County Council (Lead Local Flood Authority) will progress existing and any developing additional actions from a previous study in to surface water and drainage issues in the Cottam and Lea areas, and in the coordination of future development south of the M55, in the Preston area to identify options, such as considering surface water attenuation features as part of the road network, and other developing flood management techniques, or further investigations, in order to relieve the complex surface water and drainage issues and reduce the risk of flooding and its consequences in the Preston, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground. However, there is insufficient information on the options at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Savick Brook runs adjacent to the area covered by this measure which runs in to the River Ribble, which feeds the Ribble & Alt Estuaries SPA/ Ramsar sites. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0200112162	The Environment Agency and all other Risk Management Authorities and partners will seek funding and progress the Preston and South Ribble Flood Risk Management Scheme for the River Ribble and tributaries in between Samlesbury on the Ribble and Higher Walton on the Darwen to Preston Docks, to secure the prospect of delivering the scheme to reduce the risk of flooding in the Preston, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground. However, there is insufficient information on the scheme at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. The area covered by this measure is hydrologically connected to the Ribble & Alt Estuaries SPA/ Ramsar sites. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0200112174	Lancashire County Council (Lead Local Flood Authority) and all other Risk Management Authorities and Local Authorities will use the North West Sustainable Drainage Systems pro-forma in pre-application discussions and potentially within the planning validation process in the Preston Flood Risk Area to address previous inconsistencies, encourage sustainable development and support Sustainable Drainage Systems uptake and adoption to reduce the likelihood of flooding and reduce adverse consequences in the Preston, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Encouraging sustainable development will not lead to adverse effects on European sites.
0200112169	The Environment Agency and other catchment partners will work to identify, develop and progress with landowners, feasible and effective, opportunities for in the River Ribble to improve habitat connectivity and quality, and reduce the risk of flooding in the Preston, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground. The aim is to identify and carry out schemes which work with natural processes to reduce the risk of flooding and coastal change. However, there is insufficient information on the schemes at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites although ultimately this may benefit the Ribble & Alt Estuaries SPA/ Ramsar sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0200112166	United Utilities and Lancashire County Council (Lead Local Flood Authority) and Local Authorities will work together to better understand and manage the sewerage and drainage system in the Fulwood and Woodplumpton areas to identify options to relieve impacts on the quality and quantity of flows in Savick Brook, Sharoe Brook and Woodplumpton Brook and so to reduce the risk of flooding in the Preston, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground. However, there is insufficient information on the options at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. The area covered by this measure is hydrologically connected to the Ribble & Alt Estuaries SPA/ Ramsar sites. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0200112167	The Environment Agency and all other Risk Management Authorities and other organisations will work together to develop, where feasible and effective, the use of natural methods of flood risk management in Lower Penwortham, Savick Brook downstream of Sharoe Green and upstream of Highgate Park flood basin., Many Brook tributary, Hennel Brook Watercourse, at Fishwick Bottoms and throughout, and in, areas affecting the Preston area to create such features that will reduce the risk of flooding and, where required, mitigate from any flood alleviation scheme activities in the Preston, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground. However, there is insufficient information on the options at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. The area covered by this measure is hydrologically connected to the Ribble & Alt Estuaries SPA/ Ramsar sites. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0200112171	The Environment Agency and Lancashire County Council (Lead Local Flood Authority) and Local Authorities with Lancashire County Council as local Highway Authority will work together to improve access to the river for canoeists, scouts and cadets, and where practicable improve the cycle network in the locality of the Preston and South Ribble Flood Risk Management Scheme to enhance preparedness for flood events, to reduce individual and societal recovery, and support health and mental health recovery including managing stress, in order to reduce adverse consequences from the risk of flooding in the Preston, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground. However, there is insufficient information on the proposals at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Increasing recreational use could result in disturbance to Ribble & Alt Estuaries SPA/ Ramsar qualifying features. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0200112170	The Environment Agency and the Canals and Rivers Trust will work together to review the maintenance regime of the Millennium Ribble Link canal and in Savick Brook to improve surface water discharges in, in to and out of the canal and contributing watercourses and identify options to reduce and minimise the canals impact on flows along Savick Brook and discharges in to the River Ribble to reduce the risk of flooding and minimise environmental impacts in the Preston, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground. However, there is insufficient information on the options at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. The area covered by this measure is hydrologically connected to the Ribble & Alt Estuaries SPA/ Ramsar sites. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0200112168	The Environment Agency and all other Risk Management Authorities will work with landowners to identify, develop and progress opportunities for saltmarsh creation for tidal inundation in and on both sides of, the River Ribble estuary to identify feasible and effective options to reduce the risk of flooding and create intertidal habitat close to and in the Preston, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground. The aim is to identify and carry out schemes which work with natural processes to reduce the risk of flooding and coastal change. However, there is insufficient information on the schemes at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites although ultimately this may benefit the Ribble & Alt Estuaries SPA/ Ramsar sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Table 18. Screening table showing the Test of Likely Significant Effects results for measures contained within the North West Flood Risk Management Plan for the Rawtenstall Management Catchment

Measure ID	Measure	Likely Significant Effects on European sites
0200112125	The Lancashire County Council Lead Local Flood Authority and partner Risk Management Authorities, will commence a study in to the flood risk in Constable Lee to identify areas where properties, businesses and infrastructure are at risk and if there are any viable flood alleviation scheme options, including options for urban Sustainable Drainage Systems schemes and functional green infrastructure, which can be progressed in order to reduce the likelihood of flooding in the Rawtenstall, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. There is no pathway between Rawtenstall and any European site. This measure will not lead to adverse effects on European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200112124	The Lancashire County Council Lead Local Flood Authority and partner Risk Management Authorities, will commence an investigation in to the flood risk in Rawtenstall Town Centre to identify areas where properties, businesses and infrastructure are at risk and if there are any viable flood alleviation scheme options, including options for urban Sustainable Drainage Systems schemes and functional green infrastructure, which can be progressed in order to reduce the likelihood of flooding in the Rawtenstall, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. There is no pathway between Rawtenstall and any European site. This measure will not lead to adverse effects on European sites.
0200112122	The Environment Agency and the Lancashire County Council Lead Local Flood Authority with United Utilities will commence an investigation to understand the combined flood risk to existing businesses, properties and infrastructure at risk in Waterfoot to identify if there are any viable flood alleviation scheme options which can be progressed in order to reduce the likelihood of flooding in the Rawtenstall, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. There is no pathway between Rawtenstall and any European site. This measure will not lead to adverse effects on European sites.
0200112114	The Environment Agency and Lancashire County Council Lead Local Flood Authority, United Utilities and Local Planning Authority will commence using the North West Sustainable Drainage Systems proforma in pre-application discussions and potentially within the planning validation process in the wider Rossendale area to address previous inconsistencies, encourage sustainable development and support the uptake and adoption of multifunctional Sustainable Drainage Systems in the Rawtenstall, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. There is no pathway between Rawtenstall and any European site. This measure will not lead to adverse effects on European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200112123	The Environment Agency and the Lancashire County Council Lead Local Flood Authority will have established a relationship with the Local Enterprise Partnership and its Rossendale based partners in economic development in the Rawtenstall area to build into future economic investment strategies an improved understanding of the impact of flooding and the benefits from flood risk management on local economic wellbeing in the Rawtenstall, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. There is no pathway between Rawtenstall and any European site. This measure will not lead to adverse effects on European sites.
0200112129	The Environment Agency and the Lancashire County Council Lead Local Flood Authority will have established a relationship with the local Public Health authorities and their Rossendale-based partners in delivering public health services in the Rawtenstall area to improve understanding of the impact of flood risk and flooding events on people's mental and physical health (particularly from repeated flooding events) and ensure appropriate responses to these impacts are built into public health strategies in the Rawtenstall, North West Flood Risk Area.	No likely significant effect – This measure is one of recovery and review and unlikely to involve physical activity on the ground. There is no pathway between Rawtenstall and any European site. This measure will not lead to adverse effects on European sites.
0200112121	Lancashire County Council as Local Transport Authority and Rossendale Borough Council will seek an understanding of the existing joint working and partnership regarding the aspiration to restore the commuter rail link in between Rawtenstall and Manchester to ensure flood risk and climate change impacts are considered early by the partners in any redevelopment agenda in order to reduce the likelihood of flooding and enhance the environment in the Rawtenstall, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. There is no pathway between Rawtenstall and any European site. This measure will not lead to adverse effects on European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200112117	The Environment Agency will review gravel management activities, to assess the suitability of appropriate gravel management procedures in and around the Rawtenstall area to consider environmental sustainability of any management plan and align the principles with the North West River Basin Management Plan, and, to reduce any damaging effect of accelerated supply of sediment into the river system so reducing the likelihood of flooding in the Rawtenstall, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. There is no pathway between Rawtenstall and any European site. This measure will not lead to adverse effects on European sites.
0200112116	The Lead Local Flood Authority and Rossendale Borough Council will seek to identify and progress with the National Trust opportunities for natural Flood Management in ordinary watercourses in the Rawtenstall area to establish a programme of schemes to deliver a reduction in the likelihood of flooding and that will enhance environmental benefits in the Rawtenstall, North West Flood Risk Area. in the Rawtenstall, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. There is no pathway between Rawtenstall and any European site. This measure will not lead to adverse effects on European sites.
0200112126	The Environment Agency and the Irwell Catchment Partnership working in collaboration, will take a Catchment Based Approach (CaBA) to undertaking opportunity mapping for Natural Flood Management and other environmental benefits in and around Rossendale to identify possibilities to reduce the likelihood of flooding and improve water quality and enhance the natural environment in the Rawtenstall, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. There is no pathway between Rawtenstall and any European site. This measure will not lead to adverse effects on European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200112115	The Environment Agency will take actions to identify, communicate the need for, and obtain local contributions from wider partners and Stakeholders in Strongstry and at Irwell Vale along the River Irwell to stimulate local investment in proposed flood alleviation capital projects to improve the financial viability of these schemes in the Rawtenstall, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. There is no pathway between Rawtenstall and any European site. This measure will not lead to adverse effects on European sites.
0200112119	The Lancashire County Council Lead Local Flood Authority and the Local Highway Authority with United Utilities and Rossendale Borough Council will commence a joint investigation into the surface water flooding to properties in Ewood Bridge to identify options to reduce the likelihood of flooding, progressing to an initial assessment stage, if required and feasible to do so, in the Rawtenstall, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. There is no pathway between Rawtenstall and any European site. This measure will not lead to adverse effects on European sites.
0200112120	The Lancashire County Council Lead Local Flood Authority and Rossendale Borough Council and other Risk Management Authorities will commence a joint investigation to understand the flooding mechanisms in Whitewell Bottoms to identify options to reduce the likelihood of flooding, progressing to an initial assessment stage, if required and feasible to do so, in the Rawtenstall, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. There is no pathway between Rawtenstall and any European site. This measure will not lead to adverse effects on European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0200112128	The Environment Agency and Risk Management Authorities will work together to consider Sustainable Drainage Systems solutions as an appropriate mitigative measure in areas compromised by both flood risk and pre-existing contaminated ground in and around Rawtenstall to ensure that mobilisation of contamination is limited during flood events, minimising water quality impacts within the area and to reduce these adverse consequences of flooding to people's homes and businesses in the Rawtenstall, North West Flood Risk Area.	No likely significant effect – This is a protective measure and unlikely to involve physical activity on the ground. There is no pathway between Rawtenstall and any European site. This measure will not lead to adverse effects on European sites.
0200112127	The Lancashire County Council Lead Local Flood Authority and Environment Agency, where undertaking any flood risk works, and where land contamination is identified which may implicate the protection and enhancement of controlled waters, will work together to employ appropriate mitigation measures in the Rawtenstall Flood Risk Area to reduce water quality risks in the Rawtenstall, North West Flood Risk Area.	No likely significant effect – This is a protective measure and unlikely to involve physical activity on the ground. There is no pathway between Rawtenstall and any European site. This measure will not lead to adverse effects on European sites.
0200112118	All Lancashire Risk Management Authorities and relevant Catchment Partnerships will work together to establish opportunities to deliver multi-benefit programmes of work in main river, ordinary watercourses and the wider catchment of the Rawtenstall area to reduce the likelihood of flooding and deliver Water Framework Directive ecological potential in the Rawtenstall, North West Flood Risk Area.	No likely significant effect – This is a protective measure and unlikely to involve physical activity on the ground. There is no pathway between Rawtenstall and any European site. This measure will not lead to adverse effects on European sites.

Table 19. Screening table showing the Test of Likely Significant Effects results for measures contained within the North West Flood Risk Management Plan for the Southport Management Catchment

Measure ID	Measure	Likely Significant Effects on European sites
0201212180	Sefton Council and Natural England will determine relevant works required to maintain the free drainage of surface water coastal outfalls in an environmentally sensitive manner in the Southport flood risk areas, along Sefton's coastline from Ainsdale to Southport, to have positive benefits for inland flooding as a result of subsequent works to limit the accretion of sediments within outfall watercourses to reduce the likelihood of flooding in the Southport, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground. However, there is insufficient information on the schemes at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201212177	The Environment Agency will engage with Sefton Council and United Utilities on the Crossens Embankment Strategic Flood Assessment in the Southport flood risk areas to ensure that the interaction of the embankment with wider flood risk is fully understood and that all risks and opportunities are taken in to consideration when deciphering the assets future in the Southport, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. This is to determine the level of maintenance of the asset and take a risk based approach on deciding how or if it is to maintained in the future. This measure will not lead to adverse effects on European sites.
0201212179	The Environment Agency and Sefton Council will review maintenance standards of main rivers and ordinary watercourses in the Southport flood risk areas to better understand and programme future flood risk management maintenance needs in the Southport, North West Flood Risk Area.	No likely significant effect – This is a protective measure and unlikely to involve physical activity on the ground. Reviewing maintenance standards will not lead to adverse effects on European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201212182	Sefton Council will subject to cost viability, work with partners to progress a flood alleviation scheme in and around Pool watercourse at Churchtown to reduce flood risk to communities living in the area in the Southport, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure, however, there is insufficient information on the proposals at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201212183	Sefton Council will support the Highways Authority and Network Rail to better understand flood risk to their networks in the Southport flood risk areas to help develop partnership working opportunities to aid in the management of flood risk to key transport routes in the Southport, North West Flood Risk Area.	No likely significant effect - This measure is one of preparedness and unlikely to involve physical activity on the ground. Understanding flood risks and developing working partnerships will not adversely affect European sites.
0201212178	The Environment Agency will undertake wider partnership engagement on the Environment Agency Groundwater Management Study in the Southport flood risk areas to ensure all partners understand wider flood risk interactions to ensure that any onwards investment in the area tackles combined flood risk issues in the Southport, North West Flood Risk Area.	No likely significant effect – This measure is one of preparedness and unlikely to involve physical activity on the ground. Increasing understanding and targeting investment will not adversely affect European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201212184	Sefton Council and United Utilities will work in partnership to deliver updates to the Surface Water Management Plan and associated surface water flood risk modelling in the Southport flood risk areas to identify locations for future opportunities for managing surface water flood risk in the Southport, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a preventive measure and unlikely to involve physical activity on the ground. Surface Water Management Plans are not subsidiary documents of the FRMPs but are a separate process. This measure therefore commits to implementing an existing adopted plan. However, there is insufficient information on the proposals at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201212186	The Environment Agency and Sefton Council and United Utilities will work in partnership to improve the uptake of flood warning services and improve community resilience mechanisms in the Southport Flood Risk Area to reduce the consequences of flood events to the local communities in the Southport, North West Flood Risk Area.	No likely significant effect – This measure is one of preparedness and is unlikely to involve physical activity on the ground. Working with communities to raise awareness and understand the role of emergency responders will not lead to adverse effects on European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201212185	Sefton Council and partners will work to ensure that and Flood and Coastal Erosion Risk Management works undertaken will not be detrimental to the wider policy unit area in the Southport flood risk areas to ensure that natural working processes are not hindered, which act to protect the coastline and provide a vital habitat in the Southport, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure, however, there is insufficient information on the proposals at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201212181	Sefton Council will work with partners to review the feasibility of any options previously discounted for Birkdale and Hillside in the Southport flood risk areas to re-assess their viability as a product of the new funding rules to reduce the likelihood of flooding in the Southport, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Reviewing options in light of new funding rules will not lead to adverse effects on European sites.

Table 20. Screening table showing the Test of Likely Significant Effects results for measures contained within the North West Flood Risk Management Plan for the Warrington Management Catchment

Measure ID	Measure	Likely Significant Effects on European sites
0201212194	Warrington Borough Council will consider the impact of climate change on the highway network to identify adaptive approaches that address surface water flood risk in the Warrington Flood Risk Area, to improve the resilience of residential and business communities affected in the Warrington, North West Flood Risk Area.	No likely significant effect – This is a protective measure and unlikely to involve physical activity on the ground. Identifying adaptive approaches in response to climate change is desk-based and will not lead to adverse effects on European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201212191	Warrington Borough Council and in partnership with the Environment Agency, where appropriate, will engage the farming community and other landowners to adopt flood sensitive land management practices and promote natural flood management techniques in the Warrington Flood Risk Area to reduce surface water run-off in the Warrington, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground. The aim is to identify and carry out schemes which work with natural processes to reduce the risk of flooding and coastal change. However, there is insufficient information on the schemes at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites although ultimately this may benefit the Mersey Estuary SPA. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201212187	The Environment Agency and, in partnership with Warrington Borough Council, will have engaged local community, business and environmental groups to deliver a Flood Risk Management Scheme in Penketh to improve their flood resilience and the natural environment in the Warrington, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground. However, there is insufficient information on the scheme at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. The area covered by this measure is hydrologically connected to the Mersey Estuary SPA. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.

Measure ID	Measure	Likely Significant Effects on European sites
0201212190	The Environment Agency will have engaged the local community in investigating alternative flood risk management approaches and habitat creation opportunities in Moss Side to improve their sustainability and the natural environment in the Warrington, North West Flood Risk Area.	No likely significant effect – This is a protective measure and unlikely to involve physical activity on the ground investigating alternative flood risk management approaches and habitat creation opportunities will not lead to adverse effects on European sites.
0201212188	The Environment Agency and Warrington Borough Council and United Utilities will have worked with communities to investigate Flood Risk Management Scheme options, explored funding sources and promoted agreed proposals in Sankey Bridges, Dallam, Longford and Gemini to improve their flood resilience and the natural environment in the Warrington, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This measure is one of preparedness and unlikely to involve physical activity on the ground. However, there is insufficient information on the scheme at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. The area covered by this measure is hydrologically connected to the Mersey Estuary SPA. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201212193	The Environment Agency and Warrington Borough Council and United Utilities will have, where possible, worked with the Local Planning Authority to influence developers in the Warrington Flood Risk Area to help improve the flood resilience to existing properties and the natural environment in the Warrington, North West Flood Risk Area.	No likely significant effect – This is a preventive measure and unlikely to involve physical activity on the ground. Influencing developers in the Warrington Flood Risk Area to help improve the flood resilience will not lead to adverse effects on European sites.

Measure ID	Measure	Likely Significant Effects on European sites
0201212195	The Environment Agency and in partnership with Warrington Borough Council and other partners, where appropriate, will in priority locations, engage Local Business and Community Groups to adopt property resilience, SUDS, Natural Flood Management or other measures in the Warrington Flood Risk Area to build their resilience to flooding, improve the environment and reduce their climate impact in the Warrington, North West Flood Risk Area.	No likely significant effect – This is a protective measure and unlikely to involve physical activity on the ground. Promoting property resilience will not lead to adverse effects on European sites.
0201212189	Warrington Borough Council and Halton Borough Council, the Environment Agency and other stakeholders will investigate future water level management arrangements in the Sankey Canal to identify opportunities to improve the natural environment and build flood resilience in the Warrington, North West Flood Risk Area.	No likely significant effect, but down-the-line HRA required – This is a protective measure and unlikely to involve physical activity on the ground. However, there is insufficient information on the scheme at this stage to undertake a detailed assessment of this measure, it has therefore been deferred to a lower tier plan or project. The area covered by this measure is hydrologically connected to the Mersey Estuary SPA. Bespoke HRAs will be needed of more detailed proposals to adequately appraise LSEs and, where relevant, adverse effects on European sites. In line with the guidance quoted in paragraph 2.25, down-the-line assessment will be required as further details emerge regarding what will be done to deliver this measure.
0201212192	The Environment Agency and in partnership with United Utilities and Warrington Borough Council will undertake an assessment of future flood risk and associated infrastructure in the Warrington Flood Risk Area to identify priority locations and adaptive approaches that inform future plans to improve or maintain flood resilience and the natural environment in the Warrington, North West Flood Risk Area.	No likely significant effect - This is a protective measure and unlikely to involve physical activity on the ground at this time. This is a desk-based study and will not lead to adverse effects on European sites.

5. Other Plans and Projects

5.1 This section covers potential for effects in combination with other plans and projects. While the potential for the FRMP to occur 'in combination' with other FRMPs was considered for inclusion, each FRMP is specific to a relatively hydrologically self-contained River Basin District, meaning that potential for effects in combination with each other generally only exists where a European site straddles multiple RBDs. In this case the Solway Firth SAC/SPA, Lake District High Fells SAC, Moor House-Upper Teesdale SAC, North Pennine Moors SPA/SAC, Dee Estuary SAC and South Pennine Moors SAC/SPA straddle the boundary between the North West FRMP and the Solway Tweed, Dee and Humber FRMPs respectively. However, no mechanism has been identified for the actual measures in this FRMP (rather than any schemes that may emerge down-the-line) to operate in combination with those in the other FRMPs.

5.2 Natural England suggested inclusion of Diffuse Water Pollution Plans in the 'in combination' assessment of FRMP HRAs. Diffuse Water Pollution Plans are environmentally positive and intended to reduce diffuse pollution through fairly broad measures such as 'influencing management of farm infrastructure such as farm tracks, yards, buildings etc' through agri-environment schemes and similar. As such, no adverse likely significant effects or conflicts are expected to arise with the FRMP HRAs.

5.3 Potential in combination effects with Minerals and Waste Local Plans were also considered. However, Waste Local Plans are rarely technology-specific and potential impacts depend very much on the type of facility the market decides to bring forward on a given allocated site, or within a broad area of search where these exist. Minerals excavation can affect hydrologically sensitive European sites through dewatering for example. However, many minerals allocations are extensions to existing consented facilities to enable the site to be worked for longer (rather than to enable a net increase in consented extraction) and whose acceptability of effects on European sites are kept under review through the minerals planning authorities' Review of Consents process as required by the Conservation of Habitats and Species Regulations 2017 (as amended). In addition, many Minerals Plans include 'areas of search' for minerals rather than making specific allocations, leaving the market to bring forward proposals at the planning application level. As such, no specific likely significant effects in combination with the FRMP measures have been identified.

Local Plans

5.4 The delivery of c. 221,000 dwellings to 2030 across the North West area will result in the potential for a range of likely significant effects on the European sites surrounding the sub-region. The Northern Powerhouse is a government-backed initiative to help improve the economic prospects of Northern cities. The project combines the Northern Powerhouse Investment Fund, the Northern Powerhouse Partnership, the European Regional Development Fund and Local Enterprise Partnerships (LEPS).

5.5 Impact pathways with potential interactions are varied and include recreational pressure, loss of functionally linked habitat for SPAs/ Ramsars, water level, water quality, coastal squeeze, and visual and noise disturbance. The potential for interactions largely depends on the specific location and nature of the proposed

development, both in relation to European sites and FRMP measures. Taking impacts on the water level in European sites as an example, Local Plans have the potential to result in reduced water supplies to qualifying ecosystems due to increased water abstraction to meet the household and industrial demand. However, a potential for interaction with a FRMP measure would only exist if both were to affect the hydrological catchment feeding the same European site.

5.6 This section focusses only on hydrologically sensitive European sites and on the main European sites where adverse effects from residential and employment development have been identified in Local Plan HRAs. In the North West RBD the principal hydrologically sensitive sites at risk from Local Plan growth are the coastal European sites designated primarily for their breeding and non-breeding gulls, terns, wildfowl and waders: Mersey Narrows & North Wirral Foreshore SPA/Ramsar, Mersey Estuary SPA/Ramsar, Ribble & Alt Estuaries SPA/Ramsar, Sefton Coast SAC and (in the Dee RBD) Dee Estuary SAC/SPA/Ramsar. Growth in the Liverpool City Region in particular has been identified in several Local Plans to pose adverse effects on the integrity of the site without mitigation. This is primarily due to recreational pressure impacts.

5.7 To this end, a strategic Recreation Mitigation Strategy covering the English parts of the Dee Estuary and other recreation-sensitive coastal European sites in the Liverpool City Region is being developed by the Liverpool City Region authorities with input from some adjacent authorities and Natural England. The Liverpool City Region European sites are also vulnerable to loss of functionally-linked habitat for SPA birds inland which is also being addressed by each local authority at a strategic scale and through planning application level assessments and mitigation solutions. Some of the inland wetland (bog and mire) European sites in the north-west such as Manchester Mosses SAC are also vulnerable to atmospheric nitrogen deposition from traffic growth where they lie close to major roads. Further north, Morecambe Bay SAC/Morecambe Bay & Duddon Estuary SAC are also identified as being susceptible to recreational pressure impacts in Local Plan HRAs although no SPA-wide strategic mitigation strategy has yet been devised.

5.8 Another key anthropological pressure relating to European sites in the RBD is excessive nitrogen and/or phosphorus inputs, particularly from agriculture and also from treated sewage effluent. In advice to local planning authorities in March 2022 Natural England flagged that the following European sites of relevant to the RBD were suffering from excessive nutrients leading to eutrophication: Esthwaite Water Ramsar site, River Derwent & Bassenthwaite Lake SAC, River Eden SAC, River Kent SAC, Oak Mere SAC, Rostherene Mere Ramsar and West Midlands Mosses SAC (only catchments of Abbotts Moss SSSI and Wynbunbry Moss SSSI are included, which are both in the North West RBD).

5.9 However, it is considered that the nature of the FRMP is such that no in combination effects will arise between adoption of the FRMP and delivery of housing and associated development across the sub-region. This is due either to the fact that the measures in the FRMP do not pose mechanisms to connect negatively to European sites, or because the measures of the FRMP are sufficiently high level (generally consisting of identifying a scheme and committing to its further development, design and implementation without committing to details) that they allow flexibility for measures necessary to be designed into schemes to protect European sites to be incorporated at further planning tiers as each scheme is devised.

River Basin Management Plans

5.10 River Basin Management Plans (RBMPs) describe the challenges that threaten the water environment and how these challenges can be managed and funded. The North West FRMP covers the same area as the North West River Basin Management Plan.

5.11 The 2022 RBMP sets out a series of measures to bring about improvements in the waterbodies covered by the RBMP. By definition, the measures in the RBMP are positive and includes the following initiatives: partnership working with farmers and land managers, sustainable management of water resources, restoring rivers and removing man-made barriers to fish migration and controlling invasive non-native species.

5.12 The RBMPs generally include projects that improve the water environment, for example by:

- enhancing and restoring rivers and floodplains
- creating sustainable drainage
- cleaning up metal pollution
- improving habitats and water quality by addressing diffuse pollution issues
- adapting weirs to provide fish passage
- involving the community
- using existing regulations to tackle agricultural and rural land pollution, such as lagoon construction

5.13 Since the measures within RBMPs are positive and are often necessary to restore freshwater aquatic European sites to favourable condition, there is no mechanism for them to have a negative effect on European sites in combination with the measures in the FRMP.

Shoreline Management Plans and Local Flood Risk Management Plans

5.14 SMPs provide a policy context for shoreline/coastal zone management and development. As acknowledged throughout this document, SMPs and the Coastal Strategies that result from them often result in adverse effects on the integrity of European sites through a combination of coastal squeeze, loss of functionally-linked land for SPA/Ramsar birds, direct habitat loss due to defence footprint and changes to long-shore sediment transport and other aspects of natural sediment dynamics. They also present opportunities for positive effects on European sites if opportunities for managed realignment are included that will enable a more natural coastline to be established.

5.15 The following SMP applies to the North WestRBD were considered for in-combination impacts:

- SMP 22 Great Ormes Head to Scotland

5.16 The assessments for any potential in-combination impacts between these plans and the measures contained within the North West FRMP were considered with regards to spatial proximity and/or hydrological and/or hydrographical connectivity. No in-combination likely significant effects were identified in respect of the policies set out

in the plans because the FRMP essentially draws upon measures in the SMP and subsequent Coastal Strategies for its measures in the coastal environment.

5.17 Similarly, Local Flood Risk Management Plan measures for relevant areas within the River Basin District have been included within the FRMP so there is no potential for in combination effects as the same measures are contained in both sets of plans.

Water Resource Management Plans

5.18 United Utilities have produced a Water Resources Management Plans. These set out the water supply strategy for their areas and could therefore have negative effects on European sites in their own right. For example, the Lake District is a major supply source for United Utilities and includes Haweswater as a principal reservoir. Haweswater is within the catchment of the River Eden SAC.

5.19 However, Water Resource Management Plans are required to have their own HRAs undertaken. The HRAs for each of the latest adopted WRMPs considered whether their future supply strategy to meet water needs would affect European sites and it was concluded that the supply needs of their areas could be met without an adverse effect on the integrity of European sites, primarily through a combination of improved water efficiency measures and bringing new water supply areas into consideration that do not result in increased abstraction from European sites. As such, there would be no in combination effect with the FRMPs.

5.20 In addition to the WRMP, United Utilities are also producing Drainage and Wastewater Management Plans (DWMP). However, those plans have not yet been published and therefore cannot be included in this assessment.

Drought Plan Permits and Orders

5.21 As discussed in the previous chapter, the North West RBD encompasses European sites that are sensitive to a wide range of anthropogenic pressures, including hydrology, water quality, recreational pressure, coastal squeeze and others. Multiple simultaneously acting impacting pathways can compound negative impacts on qualifying habitats and species.

5.22 For example, water companies, under their duty of delivering potable water to households and businesses, can apply for drought permits, enabling them to abstract water beyond existing abstraction consents for an agreed period of time. Granting of drought periods has the potential for negative environmental impacts, particularly in European sites that are already subject to existing unfavourable flow conditions or water levels, including the River Eden SAC. While most measures included in the FRMP are likely to be positive for European sites by re-naturalising hydrological function, inadequately planned or sited natural flood management and hard defence structures have the potential to negatively interact with Environment Agency Drought Orders and water company Drought Permits.

5.23 Drought conditions will also impose further pressures on designated sites such as by reducing water quality (reduced flows would typically result in higher nutrient concentrations, exacerbating the impact of treated sewage effluent) and water flow. In addition, climate change has the potential to increase the frequency and severity of drought conditions. Drought Plan Orders and Permits would compound drought issues and operate in-combination with impact pathways associated with the FRMP. However, drought plans will generally only operate at times of low water levels and

low rainfall, which is the opposite scenario to when the majority of FRMP measures will be active.

5.24 Notwithstanding this, Drought Plans of water companies are subject to their own assessment process including HRA. This ensures that potential adverse effects on the integrity of European sites are adequately mitigated or, where this cannot be achieved, suitable compensation is provided. Overall, given that the Drought Plans of water companies undergo robust HRA appraisal, no in-combination effects with the North West FRMP will occur.

Environment Agency National Drought Plan

5.25 The potential for in-combination effects of the North West FRMP with the Environment Agency's National Drought Action Plan has been assessed and no in-combination impacts are anticipated. However, this should be considered further at the time of any potential implementation of drought management measures in liaison with the Environment Agency, particularly regarding local actions in the supply and water source catchment areas utilised by Wessex Water and other water companies in north-west England.

High Speed 2

5.26 High Speed 2 Phase 2a, now consented, will run very close to Manchester Mosses SAC (specifically the Holcroft Moss component). The SAC is air quality sensitive and hydrologically sensitive. HS2 will be an electrified scheme such that no operational air quality impacts would arise. In order to gain assent it has also been necessary to demonstrate that no hydrological adverse effects on integrity will arise. Moreover, there are not measures identified in the FRMP which would affect Holcroft Moss/Manchester Mosses SAC and no in combination effect will therefore arise.

Conclusion

5.27 In summary, it is considered that the nature of the FRMP is such that no in combination effects will arise between adoption of the FRMP and delivery of housing and associated development across the sub-region. This is due either to the fact that the measures in the FRMP do not pose mechanisms to connect negatively to European sites, or because the measures of the FRMP are sufficiently high level (generally consisting of identifying a scheme and committing to its further development, design and implementation without committing to details) that they allow flexibility for measures necessary to be designed into schemes to protect European sites to be incorporated at further planning tiers as each scheme is devised. It should be noted that notwithstanding references in the FRMP, scheme level HRAs will be undertaken as part of the business case for all schemes, and many schemes will also need planning consent, which will also be accompanied by an HRA, thus ensuring legal requirements are met.

6. Conclusions and Recommendations

6.1 This HRA assessed the potential implications of measures contained in the North West FRMP for European sites, particularly regarding the impact pathways direct habitat loss, coastal squeeze, visual and noise disturbance, water quality, hydrology, loss of functionally linked habitat and spread of invasive non-native species. A total of 52 European sites with sensitivity to hydrological changes or other linking impact pathways (e.g., disturbance) were identified across the RBD. The FRMP proposes measures, encompassing a wide range of flood prevention and management activities.

6.2 LSEs of the FRMP on all European sites, both alone and in-combination, could be excluded for all measures and an Appropriate Assessment was not required. This is for a variety of reasons, including that some measures are carried over from the cycle 1 FRMP (which would have been subject to the statutory consenting process, including HRA), already being implemented, not associated with linking impact pathways to European sites or too non-specific (either in terms of specific location, their nature or both) to allow for a detailed, meaningful assessment.

6.3 Fifty-three measures were screened out at the strategic FRMP but recommended for down-the-line HRA. As the details of potential schemes are developed towards the planning application stage, the HRA process will ensure that adequate mitigation measures, where relevant, are incorporated and the integrity of European sites will be protected. It is to be noted that many of the flagged measures involve natural flood management approaches, which are likely to result in long-term benefits to hydrologically sensitive European sites. Notwithstanding this, potential negative impacts regarding hydrology, water quality, loss of functionally linked habitat and visual / noise disturbance must be considered.

Appendix A Information on European Sites

A.1 Dee Estuary / Aber Dyfrdwy SAC

Qualifying Features

This SAC is designated for its Annex I habitats and Annex II species.

Annex I habitats that are a primary reason for selection of this site:

- mudflats and sandflats not covered by seawater at low tide
- *Salicornia* and other annuals colonizing mud and sand
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- estuaries
- annual vegetation of drift lines
- vegetated sea cliffs of the Atlantic and Baltic Coasts
- embryonic shifting dunes
- shifting dunes along the shoreline with *Ammophila arenaria* (‘white dunes’)
- fixed coastal dunes with herbaceous vegetation (‘grey dunes’) * Priority feature
- humid dune slacks

Annex II species present as a qualifying feature, but not a primary reason for selection of this site:

- Sea lamprey Petromyzon marinus
- River lamprey Lampetra fluviatilis
- Petalwort Petalophyllum ralfsii

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the ‘Qualifying Features’ listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of the habitats of qualifying species
- the structure and function of the habitats of qualifying species
- the supporting processes on which the habitats of qualifying species rely
- the populations of qualifying species
- the distribution of qualifying species within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[30] and Dee Estuary European Marine Site advice document[31] identifies the following pressures and threats to the SAC:

- public access/ disturbance
- changes in species distributions i.e., petalwort
- invasive species
- climate change
- coastal squeeze
- inappropriate scrub control
- water pollution
- fisheries: Commercial marine and estuarine
- inappropriate coastal management
- overgrazing
- direct impact from third party
- marine litter
- planning permission: general
- marine consents and permits
- wildfire/ arson
- air pollution: impact of atmospheric nitrogen deposition
- transportation and service corridors
- physical modification i.e., impacts of reduced freshwater inputs flushing through the estuary
- physical loss e.g., removal through land claim and dredging; smothering e.g., depositing dredge spoil and beach feeding

A.2 Dee Estuary/ Aber Dyfrdwy SPA

Qualifying Features

This site qualifies under Article 4.1 of the Directive (79/409/EEC) as it is used regularly by 1% or more of the Great Britain populations of the following species listed in Annex I in any season:

- Bar-tailed godwit *Limosa lapponica*
- Common tern Sterna hirundo
- Little tern Sterna albifron
- Sandwich tern Sterna sandvicensis

The site qualifies under Article 4.2 of the Directive (79/409/EEC) as it is used regularly by 1% or more of the biogeographical populations of the following regularly occurring migratory species:

- Redshank *Tringa tetanus*, passage
- Shelduck *Tadorna tadorna*, wintering
- Teal Anas crecca, wintering
- Pintail Anas acuta, wintering
- Oystercatcher *Haematopus ostralegus*, wintering
- Grey plover *Pluvialis squatarola*, wintering
- Knot Calidris canutus islandica, wintering
- Dunlin *Calidris alpina*, wintering
- Black-tailed godwit *Limosa limosa islandica*, wintering
- Curlew *Numenius arquata*, wintering
- Redshank *Tringa totanus*, wintering

Conservation Objectives

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed above, and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- the extent and distribution of the habitats of the qualifying features
- the structure and function of the habitats of the qualifying features
- the supporting processes on which the habitats of the qualifying features rely
- the population of each of the qualifying features
- the distribution of the qualifying features within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[32] and Dee Estuary European Marine Site advice document[33] identifies the following pressures and threats to the SPA:

- public access/ disturbance
- invasive species
- climate change
- coastal squeeze
- water pollution
- fisheries: Commercial marine and estuarine
- overgrazing
- predation of tern colonies
- planning permission: general
- marine consents and permits
- transportation and service corridors
- physical modification i.e., impacts of reduced freshwater inputs flushing through the estuary

A.3 Dee Estuary/ Aber Dyfrdwy Ramsar

The site has been designated under Ramsar criteria 1, 2, 5 and 6.

Ramsar Criterion 1:

- estuaries
- mudflats and sandflats not covered by seawater at low tide
- annual vegetation of drift lines
- vegetated sea cliffs of the Atlantic and Baltic coasts
- *Salicornia* and other annuals colonising mud and sand
- Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
- embryonic shifting dunes
- shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes')
- fixed dunes with herbaceous vegetation ('grey dunes')
- humid dune slacks

Ramsar Criterion 2:

- Natterjack toad Epidelea calamita

Ramsar Criterion 5:

Assemblages of international importance.

Species with peak counts in winter:

- non-breeding season regularly supports 120,726 individual waterbirds

Ramsar Criterion 6:

Species/populations occurring at levels of international importance.

Species with peak counts in spring/ autumn:

- Redshank Tringa tetanus

Species with peak counts in winter:

- Teal *Anas crecca*, NW Europe
- Shelduck *Tadorna tadorna*, NW Europe
- Oystercatcher *Haematopus ostralegus*, Europe & W Africa
- Curlew *Numenius arquata* Europe/NW Africa
- Pintail *Anas acuta*, NW Europe
- Grey plover *Pluvialis squatarola*, E Atlantic
- Knot Calidris canutus islandica, W Europe/ Canada
- Dunlin *Calidris alpina alpina* Europe (breeding)
- Black-tailed godwit *Limosa limosa islandica*, Iceland
- Bar-tailed godwit *Limosa lapponica*, W European
- Redshank *Tringa totanus*, Eastern Atlantic

Threats/ Pressures to Site Integrity

The Information Sheet on Ramsar Sites[34] identifies the following pressures and threats to the Ramsar site:

- introduction/ invasion of exotic animal species i.e., the Chinese mitten crab (*Eriocheir sinensis*)
- introduction/invasion of non-native plant species
- overfishing
- pollution – industrial waste
- general disturbance from human activities
- transport infrastructure development
- sand dune erosion and accretion along North Wales open coast
- physical loss e.g., removal through land claim and dredging; smothering e.g., depositing dredge spoil and beach feeding

A.4 Liverpool Bay/ Bae Lerwpl SPA

Qualifying Features

The site is designated as a SPA for its:

Qualifying Annex I species:

- Red-throated diver *Gavia stellata* (non-breeding)

- Little gull (non-breeding)
- Little tern (breeding)
- Common tern (breeding)

Regular use by the following migratory species (other than those listed in Annex I):

- Common scoter

Waterbird assemblage: Main components include non-breeding red-throated diver, common scoter, red-breasted merganser *Mergus serrator* and great cormorant.

Conservation Objectives

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- the extent and distribution of the habitats of the qualifying features
- the structure and function of the habitats of the qualifying features
- the supporting processes on which the habitats of the qualifying features rely
- the population of each of the qualifying features
- the distribution of the qualifying features within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[35] identifies the following pressures and threats to the SPA:

- fisheries: commercial marine and estuarine
- transportation and service corridors
- fisheries: Recreational marine and estuarine
- extraction: non-living resources e.g., aggregate dredging
- siltation
- water pollution

A.5 Mersey Narrows & North Wirral Foreshore SPA

Qualifying Features

The site is designated as a SPA for its:

Qualifying Annex I species:

- Bar-tailed godwit – non-breeding
- Common tern – breeding and non-breeding

In addition, it is one of the most important locations in the UK for non-breeding little gull (*Hydrocoloeus minutus*) and is used regularly by 1% or more of the biogeographical population of the following regularly occurring migratory species (other than those listed in Annex I) in any season: knot.

Waterbird assemblage: cormorant, oystercatcher, grey plover, sanderling, knot, dunlin, bar-tailed godwit, redshank.

Conservation Objectives

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- the extent and distribution of the habitats of the qualifying features
- the structure and function of the habitats of the qualifying features
- the supporting processes on which the habitats of the qualifying features rely
- the population of each of the qualifying features
- the distribution of the qualifying features within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[36] (which also covers The Dee Estuary SPA/ Ramsar/ SAC) and Supplementary Advice on Conservation Objectives (SACOs)[37] identifies the following pressures and threats to the SPA:

- public access/ disturbance
- changes in species distributions i.e., petalwort
- invasive species
- climate change
- coastal squeeze
- water pollution
- fisheries: Commercial marine and estuarine
- overgrazing
- predation of tern colonies
- planning permission: general
- marine consents and permits
- transportation and service corridors
- physical modification i.e., impacts of reduced freshwater inputs flushing through the Estuary

A.6 Mersey Narrows & North Wirral Foreshore SPA

Qualifying Features

The site is designated as a Ramsar site for the following Criteria:

Criterion 4:

The site regularly supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions e.g., important numbers of non-breeding little gulls *Hydrocoloeus minutus* and common terns.

Criterion 5:

Assemblages of international importance. The site regularly supports 20,000 or more waterbirds.

Criterion 6:

The site regularly supports 1% of the individuals in the populations of the following species or subspecies of waterbird in any season: *islandica* and *lapponica* sub-species of bar-tailed godwits, non-breeding knot.

Threats/ Pressures to Site Integrity

The Information Sheet on Ramsar Sites[38] identifies the following pressures and threats to the Ramsar site:

- unspecific development urban use
- recreation/ tourism disturbance
- vegetation succession

A.7 Mersey Estuary SPA

Qualifying Features

The site is designated as a SPA for its:

Qualifying Annex 1 species:

- Golden plover Pluvialis apricaria

Migratory species:

- Shelduck Tadorna tadorna
- Teal Anas crecca
- Pintail Anas acuta
- Dunlin Calidris alpina alpina
- Black-tailed godwit Limosa limosa islandica
- Redshank Tringa totanus

Waterbird assemblage: great crested grebe *Podiceps cristatus*, shelduck, wigeon *Anas penelope*, teal, pintail, ringed plover *Charadrius hiaticula,* golden plover, grey plover *Pluvialis squatarola,* lapwing *Vanellus vanellus,* dunlin, black-tailed godwit, curlew *Numenius arquata* and redshank.

Conservation Objectives

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- the extent and distribution of the habitats of the qualifying features
- the structure and function of the habitats of the qualifying features
- the supporting processes on which the habitats of the qualifying features rely
- the population of each of the qualifying features
- the distribution of the qualifying features within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[39] identifies the following pressures and threats to the SPA:

- changes in species distributions i.e., bird declines
- invasive species i.e., Canada goose *Branta canadensis* and Chinese mitten crab *Eriocheir sinensis*
- public access/ disturbance

A.8 Mersey Estuary Ramsar

Qualifying Features

The site is designated as a Ramsar site for the following Criteria:

Criterion 5:

Assemblages of international importance.

Species with peak counts in winter: 89576 waterfowl (5 year peak mean 1998/99-2002/2003)

Criterion 6:

Species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:

- Shelduck
- Black-tailed godwit
- Redshank

Species with peak counts in winter:

- Teal
- Pintail
- Dunlin

Threats/ Pressures to Site Integrity

The Information Sheet on Ramsar Sites[40] does not identify any pressures and threats to the Ramsar site.

A.9 Sefton Coast SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- Atlantic decalcified fixed dunes (*Calluno-Ulicetea*). (Coastal dune heathland)*
- Dunes with Salix repens ssp. argentea (*Salicion arenariae*). (Dunes with creeping willow)
- embryonic shifting dunes
- fixed dunes with herbaceous vegetation (‘grey dunes’). (Dune grassland)*

- humid dune slacks
- shifting dunes along the shoreline with *Ammophila arenaria* (‘white dunes’). (Shifting dunes with marram)

Annex I priority habitats are denoted by an asterisk (*).

Qualifying Annex II species:

- Great crested newt *Triturus cristatus*
- Petalwort

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the ‘Qualifying Features’ listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats and habitats of qualifying species
- the structure and function (including typical species) of qualifying natural habitats
- the structure and function of the habitats of qualifying species
- the supporting processes on which qualifying natural habitats and habitats of qualifying species rely
- the populations of qualifying species
- the distribution of qualifying species within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[41] identifies the following pressures and threats to the SAC:

- coastal squeeze
- air pollution: risk of atmospheric nitrogen deposition
- inappropriate scrub control
- invasive species
- hydrological changes
- public access/ disturbance
- inappropriate coastal management
- change to site conditions

A.10 Rochdale Canal SAC

Qualifying Features

Qualifying Annex I species:

- Floating water-plantain *Luronium natans*

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the ‘Qualifying Features’ listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of the habitats of qualifying species
- the structure and function of the habitats of qualifying species
- the supporting processes on which the habitats of qualifying species rely
- the populations of the qualifying species
- the distribution of the qualifying species within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[42] identifies the following pressures and threats to the SAC:

- physical modification
- air pollution: impact of atmospheric nitrogen deposition

A.11 South Pennine Moors SAC

Qualifying Features

Qualifying Annex I habitats:

- blanket bogs*
- European dry heaths
- Northern Atlantic wet heaths with *Erica tetralix*. (Wet heathland with cross-leaved heath)
- Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles. (Western acidic oak woodland)
- transition mires and quaking bogs (very wet mires often identified by an unstable 'quaking' surface)

Annex I priority habitats are denoted by an asterisk (*).

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of the qualifying natural habitats
- the structure and function (including typical species) of the qualifying natural habitats
- the supporting processes on which the qualifying natural habitats rely

Threats/ Pressures to Site Integrity

The Site improvement Plan[43] identifies the following pressures and threats to the SAC:

- hydrological changes
- managed rotational burning
- inappropriate management practices
- public access/ disturbance

- air pollution: impact of atmospheric nitrogen deposition
- wildfire/ arson
- vehicles
- overgrazing
- forestry and woodland management
- disease
- undergrazing
- invasive species

A.12 South Pennine Moors SPA

Qualifying Features

The site is designated as a SPA for its:

Qualifying Annex I species:

- Merlin Falco columbarius
- Golden plover Pluvialis apricaria

Regular use by the following breeding migratory species:

- Golden plover
- Lapwing Vanellus vanellus
- Dunlin Calidris alpina
- Snipe Gallingo gallingo
- Curlew Numenius arquata
- Redshank Tringa tetanus
- Common sandpiper Actitis hypoleucus
- Short-eared owl Asio flammeus
- Whinchat Saxicola rubetra
- Wheatear Oenanthe oenanthe
- Ring ouzel Turdus torquatus
- Twite Carduelis flavirostris

Breeding bird assemblage: merlin, red grouse *Lagopus lagopus*, golden plover, dunlin, short-eared owl and twite.

Conservation Objectives

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the ‘Qualifying Features’ listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- the extent and distribution of the habitats of the qualifying features
- the structure and function of the habitats of the qualifying features
- the supporting processes on which the habitats of the qualifying features rely
- the population of each of the qualifying features
- the distribution of the qualifying features within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[44] identifies the following pressures and threats to the SPA:

- hydrological changes
- managed rotational burning
- low breeding success/ poor recruitment
- inappropriate management practices
- public access/ disturbance
- air pollution: impact of atmospheric nitrogen deposition
- wildfire/ arson
- vehicles
- overgrazing
- changes in species distributions
- planning permission: general

A.13 Peak District Moors (South Pennine Moors Phase 1) SPA

Qualifying Features

The site is designated as a SPA for its:

Qualifying Annex I species:

- Merlin
- Golden plover
- Short-eared owl

Conservation Objectives

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- the extent and distribution of the habitats of the qualifying features
- the structure and function of the habitats of the qualifying features
- the supporting processes on which the habitats of the qualifying features rely
- the population of each of the qualifying features
- the distribution of the qualifying features within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[45] identifies the following pressures and threats to the SPA:

- hydrological changes
- managed rotational burning
- low breeding success/ poor recruitment
- inappropriate management practices
- public access/disturbance

- air pollution: impact of atmospheric nitrogen deposition
- wildfire/ arson
- vehicles
- overgrazing
- planning permission: general

A.14 Ribble & Alt Estuaries SPA

Qualifying Features

Qualifying Annex I species:

- Ruff Philomachus pugnax
- Common tern
- Bewick's swan Cygnus columbianus bewickii
- Whooper swan Cygnus Cygnus
- Golden plover
- Bar-tailed godwit

Regular use by the following migratory species (other than those listed in Annex I):

- Lesser black-backed gull Larus fuscus graellsii
- Ringed plover
- Sanderling
- Redshank
- Pink-footed goose Anser brachyrhynchus
- Shelduck
- Wigeon
- Teal
- Pintail
- Oystercatcher
- Grey Plover
- Knot
- Sanderling
- Dunlin
- Black-tailed Godwit
- Redshank

Waterbird assemblage: cormorant, Bewick's swan, whooper swan, pink-footed goose, shelduck, wigeon, teal, pintail, scaup *Aythya marila,* common scoter *Melanitta nigra*, oystercatcher, ringed plover, golden plover, grey plover, lapwing, knot, sanderling, dunlin, black-tailed godwit, bar-tailed godwit, whimbrel *Numenius phaeopus*, curlew and redshank.

Conservation Objectives

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- the extent and distribution of the habitats of the qualifying features
- the structure and function of the habitats of the qualifying features
- the supporting processes on which the habitats of the qualifying features rely
- the population of each of the qualifying features
- the distribution of the qualifying features within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[46] identifies the following pressures and threats to the SPA:

- coastal squeeze
- air pollution: risk of atmospheric nitrogen deposition
- inappropriate scrub control
- invasive species
- hydrological changes
- public access/ disturbance
- fisheries: Commercial marine and estuarine
- shooting/ scaring
- feature location/ extent/ pressure condition unknown i.e., seabird assemblage and waterbird assemblage

A.15 Ribble & Alt Estuaries Ramsar

The site is designated as a Ramsar for the following Criteria:

Criterion 2:

The site supports up to 40% of the Great Britain population of natterjack toads.

Criterion 5:

Assemblages of international importance. Species with peak counts in the winter – 222,038 waterfowl (5 year peak mean 1998/99-2002/2003).

Criterion 6:

Species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species regularly supported during the breeding season:

- Lesser black-backed gull

Species with peak counts in spring/autumn:

- Ringed plover Charadrius hiaticula
- Grey plover
- Red knot Calidris canutus islandica
- Sanderling
- Dunlin
- Black-tailed godwit
- Redshank

- Lesser black-backed gull

Species with peak counts in winter:

- Tundra/ Bewick's swan
- Whooper swan
- Pink-footed goose
- Shelduck
- Wigeon
- Teal
- Pintail
- Oystercatcher
- Bar-tailed godwit

A.16 Shell Flat and Lune Deep SAC

Qualifying Features

Annex I habitats that are a primary reason for selection of this site:

- Sandbanks which are slightly covered by sea water all the time
- Reefs

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats
- the structure and function (including typical species) of qualifying natural habitats
- the supporting processes on which the qualifying natural habitats rely

Threats/ Pressures to Site Integrity

The Shell Flat and Lune Deep cSAC Regulation 35 Conservation Advice Package[47] states that both habitats are vulnerable to both toxic and non-toxic contamination. The pathways by which toxic contaminants can reach these sub-tidal features would include point source discharges of effluents and land run-off from Morecambe Bay and the Fylde. The principle pathways by which non-toxic contaminants can reach these sub-tidal features would include point source discharges of effluents e.g., from local waste water treatment works, land run-off (mainly from Morecambe Bay),

A.17 Morcambe Bay SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- Atlantic decalcified fixed dunes (Calluno-Ulicetea). (Coastal dune heathland)*
- Atlantic salt meadows (Glauco-Puccinellietalia maritimae) Coastal lagoons*
- Dunes with Salix repens ssp. argentea (Salicion arenariae). (Dunes with creeping willow)
- embryonic shifting dunes
- estuaries
- fixed dunes with herbaceous vegetation ('grey dunes'). (Dune grassland)*
- humid dune slacks
- large shallow inlets and bays
- mudflats and sandflats not covered by seawater at low tide. (Intertidal mudflats and sandflats)
- perennial vegetation of stony banks. (Coastal shingle vegetation outside the reach of waves)
- Reefs
- Salicornia and other annuals colonising mud and sand. (Glasswort and other annuals colonising mud and sand) Sandbanks which are slightly covered by sea water all the time. (Subtidal sandbanks)
- shifting dunes along the shoreline with Ammophila arenaria. ('White dunes')

Annex I priority habitats are denoted by an asterisk (*).

Qualifying Annex II species:

- Great crested newt *Triturus cristatus*

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats and habitats of qualifying species
- the structure and function (including typical species) of qualifying natural habitats
- the structure and function of the habitats of qualifying species
- the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- the populations of qualifying species
- the distribution of qualifying species within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[48] identifies the following pressures and threats to the SPA:

- public access/ disturbance
- air pollution: risk of atmospheric nitrogen deposition
- water pollution
- inappropriate pest control
- invasive species
- fisheries: commercial marine and estuarine
- fisheries: aquaculture

- biological resource use
- change in land management
- hydrological changes
- physical modification
- energy production
- changes in species distributions
- direct impact from 3rd party

A.18 Morcambe Bay Ramsar

Qualifying Features

The site is designated as a Ramsar for the following Criteria:

Criterion 4:

The site is a staging area for migratory waterfowl including internationally important numbers of passage ringed plover *Charadrius hiaticula*

Criterion 5:

Assemblages of international importance.

Species with peak counts in the winter –

223709 waterfowl (5 year peak mean 1998/99-2002/2003)

Criterion 6:

Species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species regularly supported during the breeding season:

- Lesser black-backed gull, Larus fuscus graellsii
- Herring gull, Larus argentatus argentatus
- Sandwich tern, Sterna (Thalasseus) sandvicensis sandvicensis

Species with peak counts in spring/autumn:

- Great cormorant, Phalacrocorax carbo carbo
- Common shelduck, Tadorna tadorna
- Northern pintail, Anas acuta
- Common eider, Somateria mollissima mollissima
- Eurasian oystercatcher, Haematopus ostralegus ostralegus
- Ringed plover, Charadrius hiaticula
- Grey plover, Pluvialis squatarola
- Sanderling, Calidris alba
- Eurasian curlew, Numenius arquata arquata

Species with peak counts in winter:

- Great crested grebe, Podiceps cristatus cristatus
- Pink-footed goose, Anser brachyrhynchus
- Eurasian wigeon, Anas penelope
- Common goldeneye, Bucephala clangula clangula

- Red-breasted merganser, Mergus serrator
- European golden plover, Pluvialis apricaria apricaria
- Northern lapwing, Vanellus vanellus
- Red knot, Calidris canutus islandica
- Dunlin, Calidris alpina alpina
- Bar-tailed godwit, Limosa lapponica lapponica

A.19 Duddon Estuary Ramsar

Qualifying Features

The site is designated as a Ramsar for the following Criteria:

Criterion 2:

The site supports nationally important numbers of the rare natterjack toad *Bufo calamita,* near the north-western edge of its range (an estimated 18-24% of the British population). Supports a rich assemblage of wetland plants and invertebrates - at least one nationally scarce plant and at least two British Red Data Book invertebrates.

Criterion 4:

The site supports nationally important numbers of waterfowl during spring and autumn passage.

Criterion 5:

Assemblages of international importance.

Species with peak counts in winter - 26326 waterfowl (5 year peak mean 1998/99 2002/2003)

Criterion 6:

Species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in winter:

- Northern pintail, Anas acuta
- Red knot, Calidris canutus islandica
- Common redshank, Tringa totanus tetanus

A.20 Morecambe Bay and Duddon Estuary SPA

Qualifying Features

The site is designated as a SPA for its:

Qualifying Annex I in any season:

- Whooper swan, Cygnus cygnus (non-breeding)
- Little egret, Egretta garzetta (non-breeding)
- European golden plover, Pluvialis apricaria (non-breeding)
- Bar-tailed Godwit, Limosa lapponica (non-breeding)

- Ruff, Calidris pugnax (non-breeding)
- Mediterranean gull, Larus melancephalus (non-breeding)
- Little tern, Sternula albifrons (breeding)
- Sandwich tern, Sterna sandvicensis (breeding)
- Common tern, Sterna hirundo (breeding)

Regular use by the following migratory species (other than those listed in Annex I):

- Pink-footed goose, Anser brachyrhynchus
- Common shelduck, Tadorna tadorna
- Northern pintail, Anas acuta
- Eurasian oystercatcher, Haematopus ostralegus
- Grey plover, Pluvialis squatarola
- Common ringed plover, Charadrius hiaticula
- Eurasian curlew, Numenius arquata
- Black-tailed godwit, Limosa limosa
- Ruddy turnstone, Arenaria interpres
- Red knot, Calidris canutus
- Sanderling, Calidris alba
- Dunlin, Calidris alpina alpina
- Common redshank, Tringa totanus
- Lesser black-backed gull, Larus fuscus
- Lesser black-backed gull, Larus fuscus graellsii
- European herring gull, Larus argentatus argentatus

Waterbird assemblage: great white egret, Eurasian spoonbill, light-bellied brent goose (Nearctic origin), Eurasian wigeon, Eurasian teal, green-winged teal, mallard, ringnecked duck, common eider (non-breeding), common goldeneye, red-breasted merganser, great cormorant, northern lapwing, little stint, spotted redshank, common greenshank, black-headed gull, common (mew) gull and European herring gull (non breeding).

Conservation Objectives

With regard to this SPA and the individual species and/or assemblage of species for which the site has been classified (the ‘Qualifying Features’), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- the extent and distribution of the habitats of the qualifying features
- the structure and function of the habitats of the qualifying features
- the supporting processes on which the habitats of the qualifying features rely
- the population of each of the qualifying features
- the distribution of the qualifying features within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[49] identifies the following pressures and threats to the SPA:

- public access/ disturbance
- air pollution: risk of atmospheric nitrogen deposition
- water pollution

- inappropriate pest control
- invasive species
- fisheries: commercial marine and estuarine
- fisheries: aquaculture
- invasive species
- energy production
- changes in species distributions
- direct impact from 3rd party

A.21 Morecambe Bay Pavements SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- Calcareous fens with Cladium mariscus and species of the Caricion davallianae.
- (Calcium-rich fen dominated by great fen sedge (saw sedge))*
- European dry heaths
- Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. (Calcium-rich nutrient-poor lakes, lochs and pools)
- Juniperus communis formations on heaths or calcareous grasslands. (Juniper on heaths or calcareous grasslands)
- Limestone pavements*
- Old sessile oak woods with Ilex and Blechnum in the British Isles. (Western acidic oak woodland)
- Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia). (Dry grasslands and scrublands on chalk or limestone)
- Taxus baccata woods of the British Isles. (Yew-dominated woodland)*
- Tilio-Acerion forests of slopes, screes and ravines. (Mixed woodland on base-rich soils associated with rocky slopes)*

Annex I priority habitats are denoted by an asterisk (*).

Qualifying Annex II species:

Narrow-mouthed whorl snail *Vertigo angustior*

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats and habitats of qualifying species
- the structure and function (including typical species) of qualifying natural habitats
- the structure and function of the habitats of qualifying species
- the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely

- the populations of qualifying species
- the distribution of qualifying species within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[50] identifies the following pressures and threats to the SAC:

- undergrazing
- commons management
- inappropriate scrub control
- forestry and woodland management
- deer
- public access/ disturbance
- disease
- game management: pheasant rearing
- water pollution
- air pollution: impact of atmospheric nitrogen deposition
- invasive species
- fertiliser use
- change in land management

A.22 River Kent SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation. (Rivers with floating vegetation often dominated by water-crowfoot)

Qualifying Annex II species:

- White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes
- Bullhead Cottus gobio
- Freshwater pearl mussel Margaritifera margaritifera

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change,

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats and habitats of qualifying species
- the structure and function (including typical species) of qualifying natural habitats
- the structure and function of the habitats of qualifying species
- the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- the populations of qualifying species

- the distribution of qualifying species within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[51] identifies the following pressures and threats to the SAC:

- water pollution
- siltation
- agricultural management practices
- physical modification
- invasive species
- disease
- changes in species distributions

A.23 Subberthwaite, Blawith & Torver Low Commons SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- depressions on peat substrates of the Rhynchosporion. (Depressions on peat substrates)
- transition mires and quaking bogs. (Very wet mires often identified by an unstable 'quaking' surface)

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of the qualifying natural habitats
- the structure and function (including typical species) of the qualifying natural habitats
- the supporting processes on which the qualifying natural habitats rely

Threats/ Pressures to Site Integrity

The Site improvement Plan[52] identifies the following pressures and threats to the SAC:

- hydrological changes
- change in land management
- air pollution: risk of atmospheric nitrogen deposition
- public access/ disturbance
- vehicles: illicit
- deer
- water pollution
- climate change

A.24 Drigg Coast SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- Atlantic decalcified fixed dunes (Calluno-Ulicetea). (Coastal dune heathland)*
- Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
- Dunes with Salix repens ssp. argentea (Salicion arenariae). (Dunes with creeping willow)
- embryonic shifting dunes
- estuaries
- fixed dunes with herbaceous vegetation (grey dunes). (Dune grassland)*
- humid dune slacks
- mudflats and sandflats not covered by seawater at low tide. (Intertidal mudflats and sandflats)
- Salicornia and other annuals colonising mud and sand. (Glasswort and other annuals colonising mud and sand)
- shifting dunes along the shoreline with Ammophila arenaria (white dunes). (Shifting dunes with marram)

Annex I priority habitats are denoted by an asterisk (*).

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats and habitats of qualifying species
- the structure and function (including typical species) of qualifying natural habitats
- the structure and function of the habitats of qualifying species
- the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- the populations of qualifying species
- the distribution of qualifying species within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[53] identifies the following pressures and threats to the SAC:

- under-grazing
- inappropriate scrub control
- air pollution: impact of atmospheric nitrogen deposition
- fisheries: commercial marine and estuarine

A.25 Wast Water SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoeto-Nanojuncetea.* (Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels)

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats
- the structure and function (including typical species) of qualifying natural habitats
- the supporting processes on which qualifying natural habitats rely

Threats/ Pressures to Site Integrity

The Site improvement Plan[54] identifies the following pressures and threats to the SAC:

- water pollution
- change in land management
- invasive species
- air pollution: impact of atmospheric nitrogen deposition
- changes in species distributions

A.26 Lake District High Fells SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- Alkaline fens. (Calcium-rich springwater-fed fens)
- Alpine and Boreal heaths. (Alpine and subalpine heaths)
- Blanket bogs*
- Calcareous rocky slopes with chasmophytic vegetation. (Plants in crevices in base-rich rocks)
- European dry heaths
- Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (tall herb communities)
- Juniperus communis formations on heaths or calcareous grasslands. (Juniper on heaths or calcareous grasslands)
- Northern Atlantic wet heaths with Erica tetralix. (Wet heathland with cross-leaved heath)

- Old sessile oak woods with Ilex and Blechnum in the British Isles. (Western acidic oak woodland)
- Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea. (Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels)
- Siliceous alpine and boreal grasslands. (Montane acid grasslands)
- Siliceous rocky slopes with chasmophytic vegetation. (Plants in crevices on acid rocks)
- Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani). (Acidic scree)
- Species-rich Nardus grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe). (Species-rich grassland with mat-grass in upland areas)

Annex I priority habitats are denoted by an asterisk (*).

Qualifying Annex II species:

- Slender green feather-moss Drepanocladus (Hamatocaulis) vernicosus

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of itsQualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats and habitats of qualifying species
- the structure and function (including typical species) of qualifying natural habitats
- the structure and function of the habitats of qualifying species
- the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- the populations of qualifying species
- the distribution of qualifying species within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[55] identifies the following pressures and threats to the SAC:

- inappropriate grazing
- deer
- air pollution: impact of atmospheric nitrogen deposition
- unsustainable on-site population or habitat
- public access/disturbance
- managed rotational burning
- hydrological changes
- invasive species
- disease

A.27 River Derwent & Bassenthwaite Lake SAC

Qualifying Features

The site is designated as a SAC for its:
Qualifying Annex I habitats:

- Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoeto-Nanojuncetea. (Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels)
- Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation. (Rivers with floating vegetation often dominated by water-crowfoot)

Qualifying Annex II species:

- Atlantic salmon Salmo salar
- Brook lamprey Lampetra planeri
- Floating water-plantain Luronium natans
- Marsh fritillary butterfly Euphydryas (Eurodryas, Hypodryas) aurinia
- Otter Lutra lutra
- River lamprey Lampetra fluviatilis
- Sea lamprey Petromyzon marinus

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats and habitats of qualifying species
- the structure and function (including typical species) of qualifying natural habitats
- the structure and function of the habitats of qualifying species
- the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- the populations of qualifying species
- the distribution of qualifying species within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[56] identifies the following pressures and threats to the SAC:

- water pollution
- siltation
- invasive species
- physical modification
- water abstraction
- changes in species distributions
- change in land management
- forestry and woodland management
- fisheries: fish stocking

- hydrological changes
- air pollution: impact of atmospheric nitrogen deposition

A.28 Clints Quarry SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex II species:

- Great crested newt Triturus cristatus

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of the habitats of qualifying species
- the structure and function of the habitats of qualifying species
- the supporting processes on which the habitats of qualifying species rely
- the populations of qualifying species
- the distribution of qualifying species within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[57] identifies the following pressures and threats to the SAC:

- fisheries: freshwater
- hydrological changes

A.29 Borrowdale Woodland Complex SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- Bog woodland*
- Old sessile oak woods with Ilex and Blechnum in the British Isles. (Western acidic oak woodland)
- Siliceous rocky slopes with chasmophytic vegetation. (Plants in crevices on acid rocks)
- Annex I priority habitats are denoted by an asterisk (*)

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats
- the structure and function (including typical species) of qualifying natural habitats
- the supporting processes on which qualifying natural habitats rely

Threats/ Pressures to Site Integrity

The Site improvement Plan[58] identifies the following pressures and threats to the SAC:

- deer
- forestry and woodland management
- inappropriate grazing
- disease
- air pollution: impact of atmospheric nitrogen deposition
- public access/ disturbance

A.30 Solway Firth SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
- estuaries
- fixed dunes with herbaceous vegetation (grey dunes). (Dune grassland)*
- mudflats and sandflats not covered by seawater at low tide. (Intertidal mudflats and sandflats)
- perennial vegetation of stony banks. (Coastal shingle vegetation outside the reach of waves)
- Reefs
- Salicornia and other annuals colonising mud and sand. (Glasswort and other annuals colonising mud and sand)
- Sandbanks which are slightly covered by sea water all the time. (Subtidal sandbanks)

Annex I priority habitats are denoted by an asterisk (*).

Qualifying Annex II species:

- River lamprey Lampetra fluviatilis
- Sea lamprey Petromyzon marinus

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the ‘Qualifying Features’ listed below), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats and habitats of qualifying species
- the structure and function (including typical species) of qualifying natural habitats
- the structure and function of the habitats of qualifying species
- the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- the populations of qualifying species
- the distribution of qualifying species within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[59] identifies the following pressures and threats to the SAC:

- changes in species distributions
- energy production
- coastal squeeze
- water pollution
- air pollution: impact of atmospheric nitrogen deposition
- public access/ disturbance
- fisheries: commercial marine and estuarine
- invasive species
- fisheries: aquaculture
- change in land management

A.31 Solway Firth pSPA (Including the Upper Solway Flats and Marshes SPA and Marine Extension)

Qualifying features

The site is designated as a SPA for its:

Qualifying Annex I (non-breeding):

- Red-throated diver Gavia stellata
- Whooper swan Cygnus cygnus
- Golden plover Pluvialis apricaria
- Bar-tailed godwit Limosa lapponica

Regularly supporting populations of European importance of the following migratory species:

- Pink-footed geese Anser brachyrhynchus
- Pintail Anas acuta
- Scaup Aythya marila
- Oystercatcher Haematopus ostralegus
- Knot Calidris canutus
- Curlew Numenius arquata
- Redshank Tringa tetanus

Regularly supporting populations of European importance during the non-breeding (passage) period:

- Ringed plover Charadrius hiaticula

Waterbird assemblage: shelduck *Tadorna tadorna*, teal *Anas crecca*, shoveler *Anas clypeata*, goldeneye *Bucephala clangula*, grey plover *Pluvialis squatarola,* sanderling *Calidris alba,* dunlin *Calidris alpina,* turnstone *Arenaria interpres*, common scoter *Melanitta nigra*, goosander *Mergus merganser*, lapwing *Vanellus vanellus*, cormorant *Phalacrocorax carbo,* blackheaded gull *Chroicocephalus ridibundus*, common gull *Larus canus,* herring gull *Larus argentatus*

Conservation Objectives

With regard to the SPA and pSPA and the individual species and/or assemblage of species for which the site has been or may be classified (the 'Qualifying Features' and 'additional Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- the extent and distribution of the habitats of the qualifying features
- the structure and function of the habitats of the qualifying features
- the supporting processes on which the habitats of the qualifying features rely
- the population of each of the qualifying features
- the distribution of the qualifying features within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[60] identifies the following pressures and threats to the SPA:

- changes in species distributions
- energy production
- coastal squeeze
- water pollution
- air pollution: impact of atmospheric nitrogen deposition
- public access/ disturbance
- fisheries: Commercial marine and estuarine
- invasive species
- fisheries: aquaculture
- change in land management

A.32 Upper Solway Flats and Marshes Ramsar

Qualifying Features

The site is designated as a Ramsar for the following Criteria:

Criterion 2:

- supports over 10% of the British population of natterjack toad *Bufo calami*

Criterion 5:

Assemblages of international importance:

Species with peak counts in winter:

135720 waterfowl (5 year peak mean 1998/99-2002/2003)

Criterion 6:

Species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:

- Eurasian oystercatcher, Haematopus ostralegus ostralegus

Species with peak counts in winter:

- Whooper swan, Cygnus cygnus
- Pink-footed goose, Anser brachyrhynchus
- Barnacle goose, Branta leucopsis
- Northern pintail, Anas acuta
- Greater scaup, Aythya marila marila
- Red knot, Calidris canutus islandica
- Bar-tailed godwit, Limosa lapponica lapponica
- Eurasian curlew, Numenius arquata arquata
- Common redshank, Tringa totanus tetanus

Species/populations identified subsequent to designation for possible future consideration under criterion 6.

Species regularly supported during the breeding season:

- Lesser black-backed gull, Larus fuscus graellsii
- Herring gull, Larus argentatus argentatus

Species with peak counts in spring/autumn:

- Ringed plover, Charadrius hiaticula

Species with peak counts in winter:

- Dunlin, Calidris alpina alpina

A.33 Asby Complex SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- Alkaline fens. (Calcium-rich spring-water-fed fens)
- Calcareous fens with Cladium mariscus and species of the Caricion davallianae. (Calcium-rich fen dominated by great fen sedge (saw sedge))*
- European dry heaths
- Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. (Calcium-rich nutrient-poor lakes, lochs and pools)
- Limestone pavements*
- Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae). (Purple moor-grass meadows)
- Petrifying springs with tufa formation (Cratoneurion). (Hard-water springs depositing lime)*

- Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia). (Dry grasslands and scrublands on chalk or limestone)

Annex I priority habitats are denoted by an asterisk (*).

Qualifying Annex II species:

- Geyer's whorl snail Vertigo geyeri
- Slender green feather-moss Drepanocladus (Hamatocaulis) vernicosus

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats and habitats of qualifying species
- the structure and function (including typical species) of qualifying natural habitats
- the structure and function of the habitats of qualifying species
- the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- the populations of qualifying species
- the distribution of qualifying species within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[61] identifies the following pressures and threats to the SAC:

- change in land management
- hydrological changes
- inappropriate stock feeding
- water pollution
- invasive species
- fish stocking
- air pollution: impact of atmospheric nitrogen deposition
- public access/ disturbance

A.34 North Pennine Dales Meadows SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) (purple moor-grass meadows)
- Mountain hay meadows

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats
- the structure and function (including typical species) of qualifying natural habitats
- the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely

Threats/ Pressures to Site Integrity

The Site improvement Plan[62] identifies the following pressures and threats to the SAC:

- fertiliser use
- change in land management
- air pollution: impact of atmospheric nitrogen deposition
- inappropriate cutting/mowing
- changes in species distributions
- inappropriate CSS/ESA prescription
- drainage
- overgrazing
- hydrological changes
- inappropriate weed control
- invasive species
- direct impact from third party

A.35 Calf Hill & Cragg Woods SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae). (Alder woodland on floodplains)*
- Old sessile oak woods with Ilex and Blechnum in the British Isles. (Western acidic oak woodland)

Annex I priority habitats are denoted by an asterisk (*).

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats

- the structure and function (including typical species) of qualifying natural habitats
- the supporting processes on which qualifying natural habitats rely

Threats/ Pressures to Site Integrity

The Site improvement Plan[63] identifies the following pressures and threats to the SAC:

- air pollution: impact of atmospheric nitrogen deposition

A.36 Roudsea Wood & Mosses SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- Active raised bogs*
- Degraded raised bogs still capable of natural regeneration
- Tilio-Acerion forests of slopes, screes and ravines. (Mixed woodland on base-rich soils associated with rocky slopes)*
- Taxus baccata woods of the British Isles. (Yew-dominated woodland)*
- Annex I priority habitats are denoted by an asterisk (*)

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats
- the structure and function (including typical species) of qualifying natural habitats
- the supporting processes on which qualifying natural habitats rely

Threats/ Pressures to Site Integrity

The Site improvement Plan[64] identifies the following pressures and threats to the SAC:

- hydrological changes
- invasive species
- inappropriate scrub control
- deer
- forestry and woodland management
- air pollution: impact of atmospheric nitrogen deposition
- disease

A.37 Ingleborough Complex SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- Blanket bogs*
- Limestone pavements*
- Petrifying springs with tufa formation (Cratoneurion). (Hard-water springs depositing lime)*
- Tilio-Acerion forests of slopes, screes and ravines. (Mixed woodland on base-rich soils associated with rocky slopes)*
- Alkaline fens. (Calcium-rich springwater-fed fens)
- Calcareous rocky slopes with chasmophytic vegetation. (Plants in crevices in base-rich rocks)
- Juniperus communis formations on heaths or calcareous grasslands. (Juniper on heaths or calcareous grasslands)
- Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae). (Purple moor-grass meadows)
- Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia). (Dry grasslands and scrublands on chalk or limestone)

Annex I priority habitats are denoted by an asterisk (*).

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats
- the structure and function (including typical species) of qualifying natural habitats
- the supporting processes on which qualifying natural habitats rely

Threats/ Pressures to Site Integrity

The Site improvement Plan[65] identifies the following pressures and threats to the SAC:

- hydrological changes
- air pollution: impact of atmospheric nitrogen deposition
- overgrazing
- disease
- change in land management
- invasive species
- undergrazing
- drainage
- deer
- climate change
- forestry and woodland management

A.38 Duddon Mosses SAC

Qualifying Features

The site is designated as a SAC for its:

Annex I habitats:

- Active raised bogs*
- Degraded raised bogs still capable of natural regeneration

Annex I priority habitats are denoted by an asterisk (*).

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats
- the structure and function (including typical species) of qualifying natural habitats
- the supporting processes on which qualifying natural habitats rely

Threats/ Pressures to Site Integrity

The Site improvement Plan[66] identifies the following pressures and threats to the SAC:

- hydrological changes
- inappropriate scrub control
- invasive species
- climate change
- air pollution: impact of atmospheric nitrogen deposition

A.39 West Midlands Mosses SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- natural dystrophic lakes and ponds (acid peat-stained lakes and ponds)
- transition mires and quaking bogs (very wet mires often identified by an unstable 'quaking' surface)

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats
- the structure and function (including typical species) of qualifying natural habitats
- the supporting processes on which qualifying natural habitats rely

Threats/ Pressures to Site Integrity

The Site improvement Plan[67] identifies the following pressures and threats to the SAC:

- water pollution
- hydrological changes
- air pollution: impact of atmospheric nitrogen deposition
- inappropriate scrub control
- game management: pheasant rearing
- forestry and woodland management
- habitat fragmentation

A.40 Oak Mere SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- Oligotrophic waters containing very few minerals of sandy plains: Littorelletali uniflorae. (Nutrient-poor shallow waters with aquatic vegetation on sandy plains)
- Transition mires and quaking bogs. (Very wet mires often identified by an unstable 'quaking' surface)

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats
- the structure and function (including typical species) of qualifying natural habitats
- the supporting processes on which qualifying natural habitats rely

Threats/ Pressures to Site Integrity

The Site improvement Plan[68] identifies the following pressures and threats to the SAC:

- water pollution
- invasive species
- hydrological changes
- air pollution: impact of atmospheric nitrogen deposition

A.41 Manchester Mosses SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- degraded raised bogs still capable of natural regeneration

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats
- the structure and function (including typical species) of qualifying natural habitats
- the supporting processes on which qualifying natural habitats rely

Threats/ Pressures to Site Integrity

The Site improvement Plan[69] identifies the following pressures and threats to the SAC:

- hydrological changes
- air pollution: impact of atmospheric nitrogen deposition

A.42 Rixton Clay Pits SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex II species:

- Great crested newt Triturus cristatus

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of the habitats of qualifying species
- the structure and function of the habitats of qualifying species
- the supporting processes on which the habitats of qualifying species rely
- the populations of qualifying species
- the distribution of qualifying species within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[70] identifies the following pressures and threats to the SAC:

- direct impact from 3rd party

A.43 Rostherene Mere Ramsar

Qualifying Features

The site is designated as a Ramsar for the following Criteria:

Ramsar criterion 1:

- the site comprises a diverse range of habitats from open water to raised bog

Ramsar criterion 2:

- supports a number of rare species of plants associated with wetlands including five nationally scarce species together with an assemblage of rare wetland invertebrates (three endangered insects and five other British Red Data Book species of invertebrates)

Threats/ Pressures to Site Integrity

The site Information Sheet on Ramsar Wetlands[71] identifies the following pressures and threats to the Ramsar:

- eutrophication
- introduction/ invasion of non-native plant species

A.44 Midland Meres & Mosses Phase 1 Ramsar

Qualifying Features

The site is designated as a Ramsar for the following Criteria:

Ramsar criterion 1:

- the site comprises a diverse range of habitats from open water to raised bog

Ramsar criterion 2:

- supports a number of rare species of plants associated with wetlands including five nationally scarce species together with an assemblage of rare wetland invertebrates (three endangered insects and five other British Red Data Book species of invertebrates)

Threats/ Pressures to Site Integrity

The site Information Sheet on Ramsar Wetlands[72] identifies the following pressures and threats to the Ramsar:

- eutrophication
- introduction/ invasion of non-native plant species

A.45 Midland Meres & Mosses Phase 2 Ramsar

Qualifying Features

The site is designated as a Ramsar for the following Criteria:

Ramsar criterion 1:

- the site comprises a diverse range of habitats from open water to raised bog

Ramsar criterion 2:

- Supports a number of rare species of plants associated with wetlands, including the nationally scarce cowbane Cicuta virosa and, elongated sedge Carex elongata. Also present are the nationally scarce bryophytes Dicranum affine and Sphagnum pulchrum.

- Also supports an assemblage of invertebrates including several rare species. There are 16 species of British Red Data Book insect listed for this site including the following endangered species: the moth Glyphipteryx lathamella, the caddisfly Hagenella clathrata and the sawfly Trichiosoma vitellinae.

Threats/ Pressures to Site Integrity

The site Information Sheet on Ramsar Wetlands[73] identifies the following pressures and threats to the Ramsar:

- eutrophication
- introduction/ invasion of non-native plant species
- pollution – pesticides/agricultural runoff

A.46 Martin Mere SPA

Qualifying Species

The site is designated as a SPA for its:

Qualifying Annex I species:

- Pink-footed goose Anser brachyrhynchus,
- Teal Anas crecca,
- Pintail Anas acuta,
- Bewick's swan Cygnus columbianus bewickii
- Whooper swan Cygnus cygnus

Qualifying waterfowl assemblage: Pochard *Aythya ferina*, mallard *Anas platyrhynchos*, teal, wigeon *Anas penelope*, pintail, pink-footed goose, whooper swan, Bewick's swan.

Conservation Objectives

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- the extent and distribution of the habitats of the qualifying features
- the structure and function of the habitats of the qualifying features
- the supporting processes on which the habitats of the qualifying features rely
- the population of each of the qualifying features
- the distribution of the qualifying features within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[74] identifies the following pressures and threats to the SPA:

- hydrological changes
- invasive species
- water pollution

A.47 Martin Mere Ramsar

The site is designated as a Ramsar for the following Criteria:

Criterion 5:

Assemblages of international importance. Species with peak counts in the winter – 25,306 waterfowl (5 year peak mean 1998/99-2002/2003).

Criterion 6:

Species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/ autumn:

- Pink-footed goose

Species with peak counts in winter:

- Tundra/ Bewick's swan
- Whooper swan
- Wigeon
- Pintail

A.48 Leighton Moss Ramsar

Qualifying Features

The site is designated as a Ramsar for the following Criteria:

Criterion 1:

- An example of large reedbed habitat characteristic of the biogeogaphical region. The reedbeds are of particular importance as a northern outpost for breeding populations of great bittern Botaurus *stellaris*, Eurasian marsh harrier *Circus aeruginosus* and bearded tit *Panurus biarmicus.*

Threats/ Pressures to Site Integrity

The site Information Sheet on Ramsar Wetlands[75] identifies the following pressures and threats to the Ramsar:

- sedimentation/siltation
- pollution – pesticides/ agricultural runoff

A.49 Bowland Fells SPA and pSPA

Qualifying Features

The site is designated as a SPA for its:

Qualifying Annex I species:

- Hen harrier Circus cyaneus
- Merlin Falco columbarius

Proposed new interest (other than those listed in Annex I):

- Lesser black-backed gull *Larus fuscus graellsii* (migratory)

Conservation Objectives

With regard to the SPA and potential SPA, and the individual species and/or assemblage of species for which the site has been or may be classified (the 'Qualifying Features' including the 'Additional Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- the extent and distribution of the habitats of the qualifying features
- the structure and function of the habitats of the qualifying features
- the supporting processes on which the habitats of the qualifying features rely
- the population of each of the qualifying features
- the distribution of the qualifying features within the site

Threats/ Pressures to Site Integrity

The Site improvement Plan[76] identifies the following pressures and threats to the SPA:

- low breeding success/ poor recruitment/ juvenile and adult survival
- game management: grouse moors
- managed rotational burning
- changes in species distributions
- change in land management
- hydrological changes
- public access/ disturbance
- air pollution: risk of atmospheric nitrogen deposition
- invasive species

A.50 Malham Tarn Ramsar

Qualifying Features

The site is designated as a Ramsar for the following Criteria:

Criterion 1:

- contains the highest marl lake in Britain, along with acidophilous bog, calcareous fen and soligenous mire

Criterion 2:

- Supports the nationally rare alpine bartisia *Bartsia alpina* and narrow small reed Calamagrostis *stricta* and seven nationally scarce species. Supports five listed British Red Data Book invertebrates including the caddis fly *Agrypnia crassicornis.*

A.51 Esthwaite Water Ramsar

Qualifying Features

The site is designated as a Ramsar for the following Criteria:

Criterion 1:

- Esthwaite Water is a particularly good example of a mesotrophic lake, with a well developed hydrosere at the northern end.

Criterion 2:

- The lake supports a rich assemblage of pondweed species and is the only known locality in England and Wales for slender naiad *Najas flexilis*. The diverse aquatic invertebrate fauna includes a number of species with restricted distributions in Britain.

Threats/ Pressures to Site Integrity

The site Information Sheet on Ramsar Wetlands[77] identifies the following pressures and threats to the Ramsar:

- eutrophication
- pollution – domestic sewage
- pollution – unspecified
- pollution – associated with aquaculture

A.52 Witherslack Mosses SAC

Qualifying Features

The site is designated as a SAC for its:

Qualifying Annex I habitats:

- Active raised bogs*
- Degraded raised bogs still capable of natural regeneration

Annex I priority habitats are denoted by an asterisk (*).

Conservation Objectives

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change.

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- the extent and distribution of the qualifying natural habitats
- the structure and function (including typical species) of the qualifying natural habitats
- the supporting processes on which the qualifying natural habitats rely

Threats/ Pressures to Site Integrity

The Site improvement Plan[78] identifies the following pressures and threats to the SAC:

- inappropriate water levels
- hydrological changes
- inappropriate scrub control
- invasive species
- air pollution: risk of atmospheric nitrogen deposition

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