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Habitats Regulations Assessment of the River Basin Management Plan for the Dee River Basin District

Final
November 2009

Habitats Regulations assessment of the River Basin Management Plan for the Dee River Basin District

Summary

A Habitats Regulations assessment of the River Basin Management Plan for Dee River Basin District has been carried out by the Environment Agency, in consultation with Natural England and the Countryside Council for Wales.

At this high-level plan stage, the detail of where and how the measures will be implemented has not yet been developed. This assessment has identified potential hazards associated with implementation of the measures in the RBMP. However, we are confident that the measures could go ahead somewhere or in some way that will not have a significant negative effect on a European site because the RBMP does not constrain where or how the measures are implemented.

The assessment demonstrates that controls are in place to identify any risks to European sites when the actions required to implement the measures are developed. The RBMP itself also makes it clear that before any measures in the plan are implemented they must be subject to the requirements of the Habitats Regulations.

It is concluded that the RBMP is not likely to have any significant negative effects on any European sites, alone or in combination with other plans or projects. Given this conclusion, there is no requirement to progress to the next stage of the Habitats Regulations assessment (an 'appropriate assessment' to examine the question of adverse effect on the integrity of European sites).

This conclusion does not remove the need for later Habitats Regulations assessment of any other plans, projects, or permissions associated with, or arising out of, the measures identified in the Plan. Acceptance that this Plan is consistent, so far as can be ascertained, with the Habitats Regulations does not guarantee that any plan or project derived from the Plan will also be found consistent.

Habitats Regulations assessment of the River Basin Management Plan for the Dee River Basin District

1. Introduction

This assessment considers if the River Basin Management Plan (RBMP) for Dee River Basin District (RBD) is likely to have a significant effect on any European sites¹. This is a distinct step separate from an 'appropriate assessment' which is to establish whether a plan will have an adverse effect on the integrity of a European site.

2. Details about the plan²

The RBMP describes the RBD and the pressures that the water environment faces. It shows what this means for the current state of the water environment, and what actions will be taken to address the pressures. It sets out what improvements are possible by 2015 and how the actions will make a difference to the local environment.

The RBMP is available on the Environment Agency website (www.environment-agency.gov.uk).

The Dee RBD is shown in Figure 1.

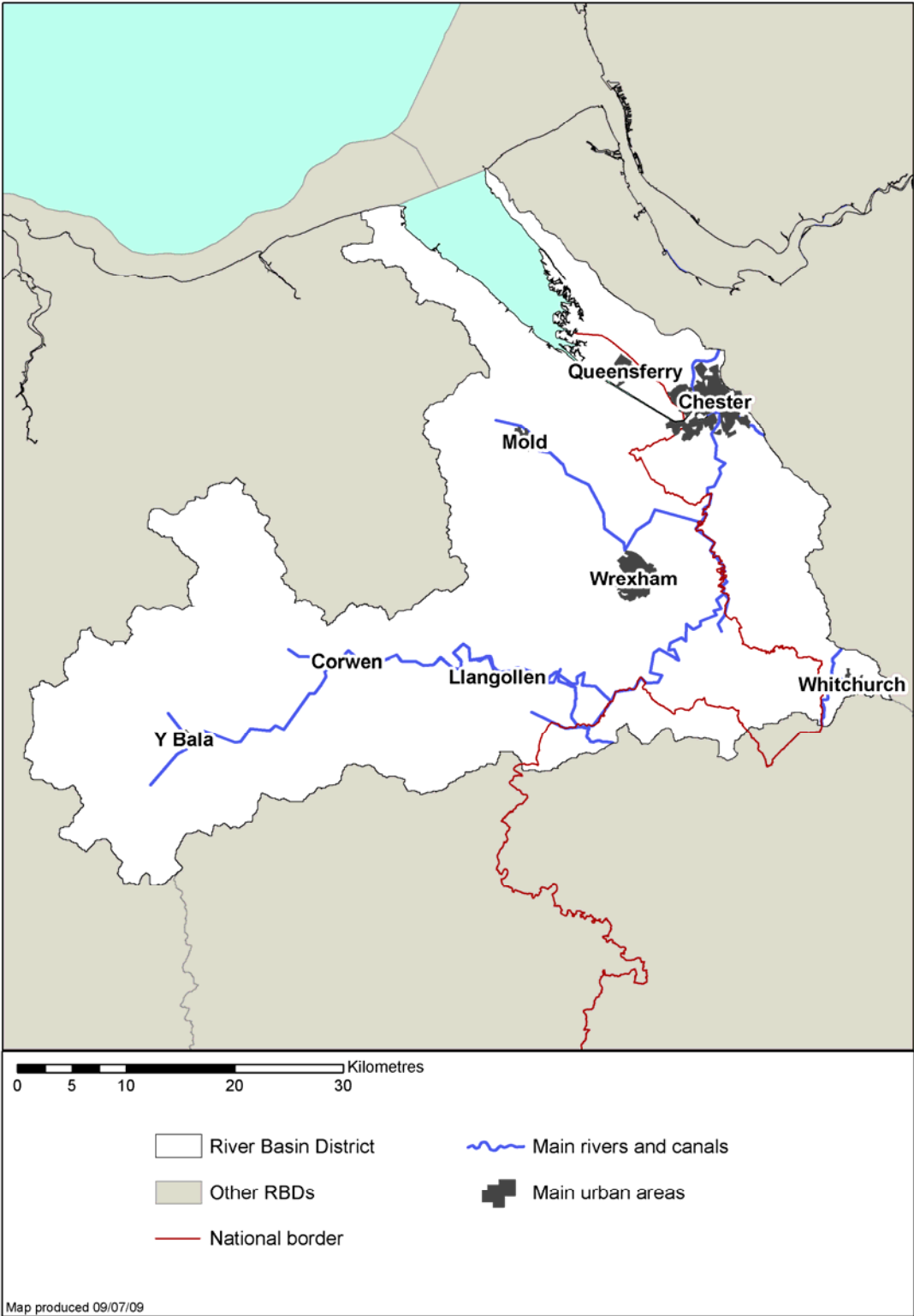
Some of the measures in the plan will contribute to improving the water or water-dependent environment to the extent necessary to maintain at or restore to favourable conservation status the water dependent habitats and species for which Natura 2000 Protected Areas³ are designated. The Water Framework Directive (WFD) introduces the 2015 deadline for achieving this objective, it is therefore one of the priorities for the first cycle of river basin management.

¹ In this assessment the term 'European sites' is used to refer to: Special Areas of Conservation (SAC), including candidate SACs (cSACs); Special Protection Areas (SPA), including potential SPAs (pSPAs); Sites of Community Importance (SCI) and designated Ramsar sites.

² This assessment is based on the River Basin Management Plan submitted to the Secretary of State for Environment, Food and Rural Affairs and Welsh Ministers on 22 September 2009.

³ Natura 2000 Protected Areas is the collective term used in this assessment for water dependent SACs and SPAs; these sites are 'Protected Areas' for the purposes of the Water Framework Directive.

Figure 1. Map of the Dee River Basin District



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2.1 Water body status objectives

Annex B 'Water body status objectives' gives the status objectives for each water body⁴ in the RBD; any water bodies that are coincident with Natura 2000 Protected Areas are identified in the water body tables. Alternative objectives for the water body status may have been applied if conditions in Article 4 of the WFD have been met. The plan makes it clear that the Natura 2000 Protected Area objectives in Annex D 'Protected Area Objectives' must be met, even where alternative objectives have been set for water body status in Annex B. It is therefore considered that the water body status objectives do not require assessment in terms of potential effects on European sites..

2.2 Actions to deliver objectives

The plan is about the measures that will protect and improve the water environment. It is considered that the overall effect of implementing the measures will be positive for European sites; however, it is possible that in their implementation, there could be direct or indirect negative effects, alone or in combination, on European sites.

2.2.1 Annex C 'Actions to deliver objectives'

Annex C 'Actions to deliver objectives' sets out the actions planned (the 'programmes of measures') for each sector to manage the pressures on the water environment and achieve the objectives of the RBMP. The actions are set out in tables for each sector, for example the 'Angling and Conservation' sector. For the purposes of the plan, this is the sector that may be causing the pressure or is being affected by an action. 'Being affected' may mean that the sector is the one taking action or that the sector's activities are affected by an action implemented by others. Some actions will be noted against more than one sector, as one sector may be implementing action that requires another to take action in response.

Actions are the on the ground activities that will be implemented to manage the pressures on the water environment and achieve the objectives of the RBMP.

2.2.2 Annex D 'Protected Area objectives'

Annex D 'Protected Area objectives' provides information on the programmes of work for Natura 2000 Protected Areas. Where Natura 2000 Protected Areas are failing their conservation objectives, Natural England (NE) and the Countryside Council for Wales (CCW) have identified the measures that need to be taken to achieve them. Measures necessary to avoid deterioration of the areas supporting designated habitats and species have also been identified. These measures are also summarised in Annex C.

3. About the Habitats Regulations assessment

3.1 Background to Habitats Regulations assessment

EC Directive (92/43/EEC) on the Conservation of natural habitats and of wild flora and fauna ('Habitats Directive') is implemented (with the Birds Directive (79/409/EEC)) in the UK as 'The Conservation (Natural Habitats, &c.) Regulations 1994'. This legislation provides the legal framework for the protection of habitats and species of European importance.

Article 6(3) of the Habitats Directive sets out the decision-making tests for plans and projects likely to affect Special Areas of Conservation (SACs) and Special Protection Areas (SPAs); collectively these sites are referred to as Natura 2000 sites.

⁴ The water environment has been divided into units called 'water bodies'. A water body is a manageable unit of surface water, being the whole (or part) of a stream, river or canal, lake or reservoir, transitional water (estuary) or stretch of coastal water. A 'body of groundwater' is a distinct volume of underground water within an aquifer.

Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the sites conservation objectives.

This applies to all SACs and SPAs, including candidate SACs and Sites of Community Importance (SCI). As a matter of policy, we are also applying this approach to potential SPAs and designated Ramsar sites⁵. Collectively these sites will be referred to as 'European sites' for the purposes of this assessment.

The assessment is underpinned by the precautionary principle, especially in the assessment of potential impacts and their resolution. If it is not possible to rule out the risk of harm on the evidence available then it is assumed that a risk may exist and it needs to be dealt with in the assessment process, preferably through changes to the proposed measure or through options such as avoidance or control measures. If this is not possible the plan will be subject to an 'appropriate assessment'.

3.2 Approach to Habitats Regulations assessment of the RBMP

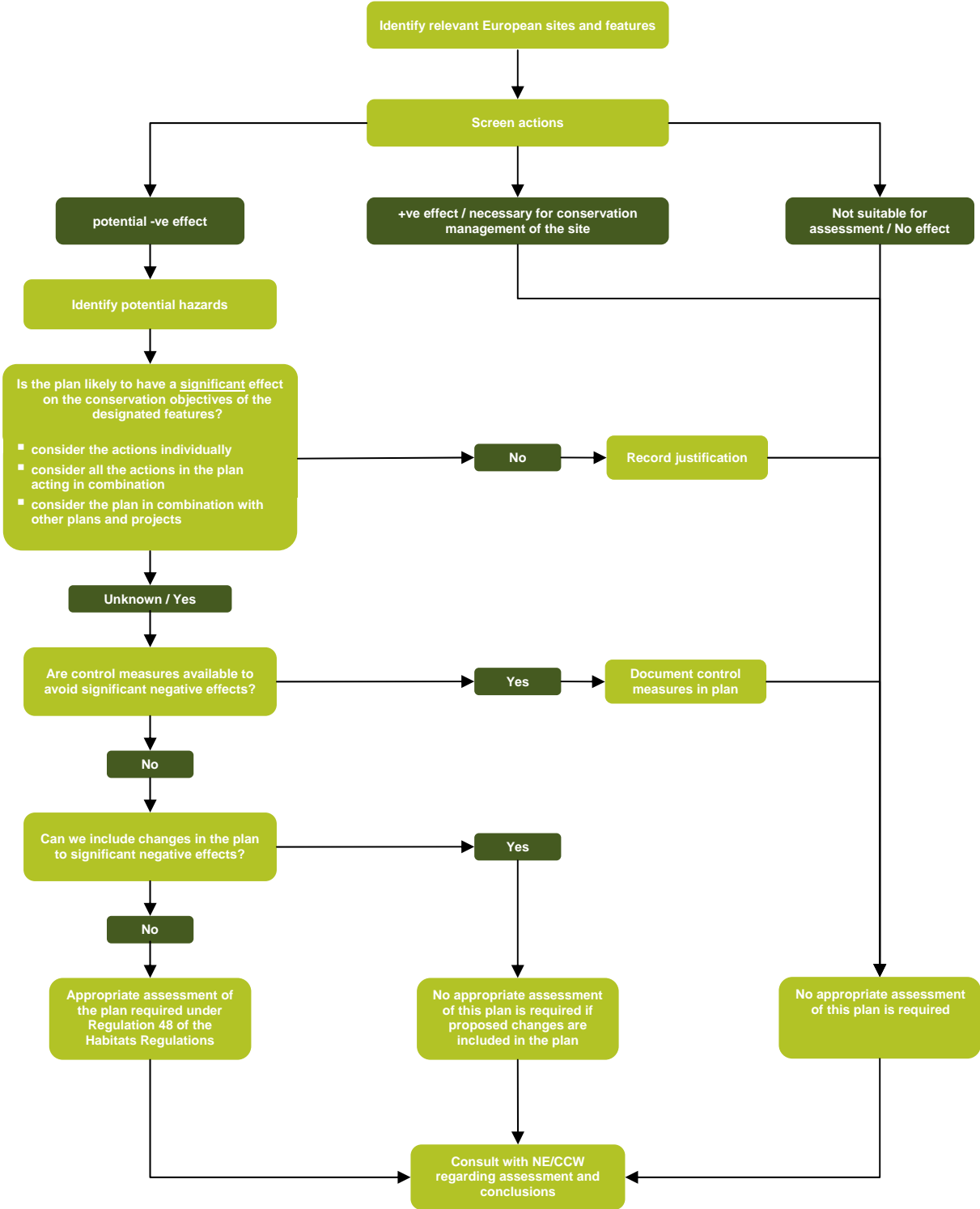
NE and CCW have been consulted for their specialist advice and opinion on the approach to this assessment and we have had regard to their advice; the audit trail is summarised in Appendix 1. A list of documents consulted in the development of this approach is provided in the reference list at the end of this document.

A summary of the procedure used in this assessment for determining whether the RBMP requires 'appropriate assessment' is shown in Figure 2 below.

The judgement of likely significant effect has been made by the Environment Agency as the competent authority using professional judgement and reasonable assumptions about the potential effects of a measure.

⁵ In general, Ramsar sites overlap with SACs and/or SPAs. It is Government Policy to afford them the same protection as European sites. The requirements of Article 6(3) do not apply as a matter of law or government policy to draft SACs or proposed Ramsar sites.

Figure 2. Summary of the procedure for determining whether the RBMP requires appropriate assessment



4. Habitats Regulations assessment

4.1 Identification of relevant sites

Assessment under the Habitats Regulations requires consideration of all European sites that have potential to be impacted by the plan. The detail, including location, of many of the measures in the plan will not be developed until the measures progress towards implementation. It has been assumed that any of the measures could potentially be implemented anywhere with the RBD.

The effects of a plan are not necessarily confined to European sites lying within the plan boundary. However, as the Plan is about actions to improve the water environment and the plan boundaries are based on river catchments, it is considered that identification of all sites within or near the plan boundary will cover those that could be impacted as this will capture any potential downstream effects. All European sites within or near the RBD are listed in Table 1 and their location is shown in Figure 3. European sites that are also Natura 2000 Protected Areas, for purposes of the WFD, are indicated with an asterisk (*).

Table 1. **Relevant European sites**

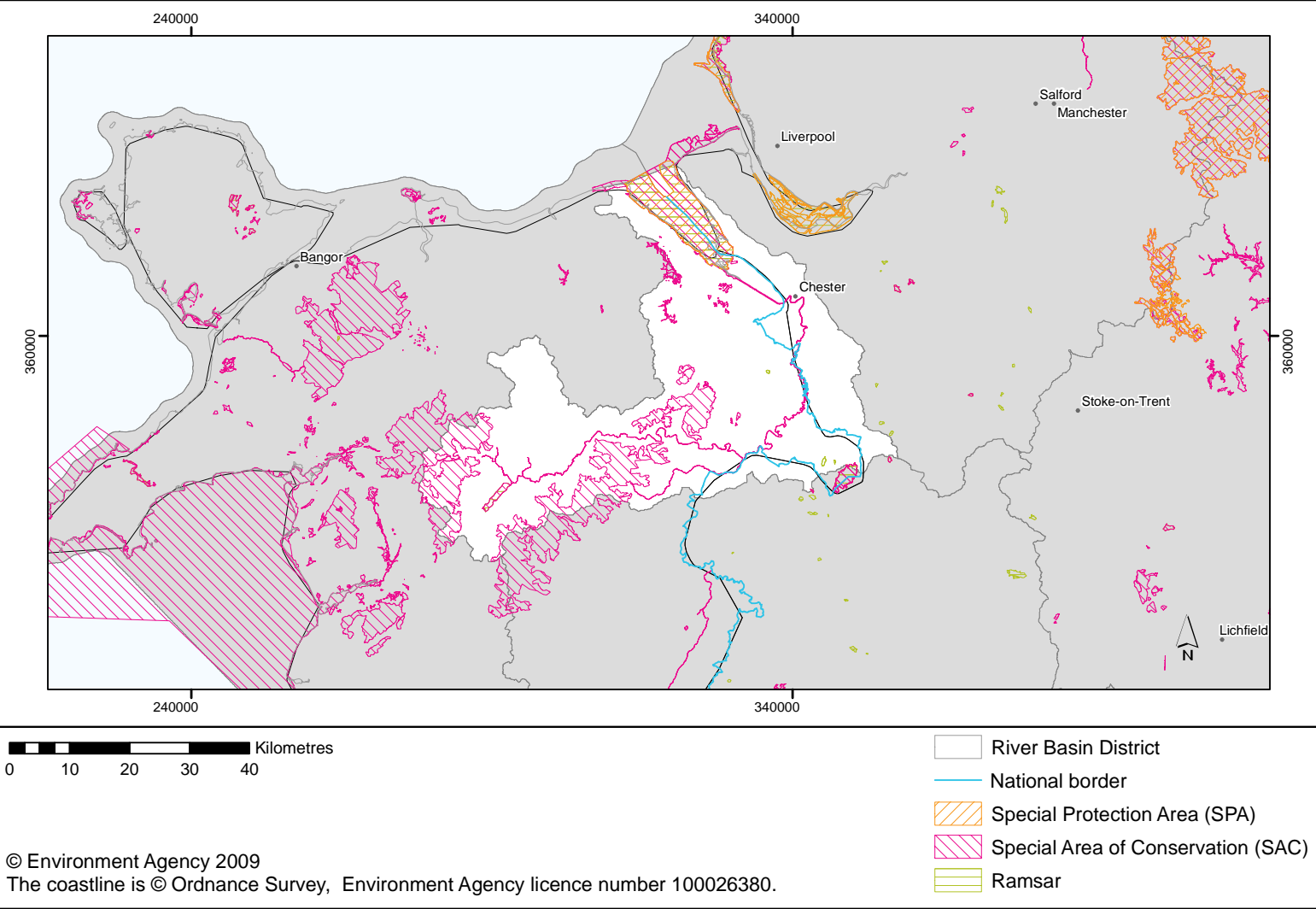
European site	Designation
Alyn Valley Woods / Coedwigoedd Dyffryn Alun*	SAC
Berwyn*	SPA
Berwyn a Mynyddoedd De Clwyd / Berwyn and South Clwyd Mountains*	SAC
Brown Moss*	SAC
Dee Estuary / Aber Dyfrdwy*	SAC
Deeside and Buckley Newt sites*	SAC
Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses*	SAC
Halkyn Mountain / Mynydd Helygain*	SAC
Johnstown Newt Sites*	SAC
Liverpool Bay / Bae Lerpwl*	pSPA
Migneint-Arenig-Dduallt*	SAC
Migneint-Arenig-Dduallt*	SPA
River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid*	SAC
The Dee Estuary*	SPA
West Midlands Mosses*	SAC
Llyn Tegid	Ramsar
The Dee Estuary	Ramsar
Midland Meres & Mosses - Phase 1	Ramsar
Midland Meres & Mosses Phase 2	Ramsar

Further detail about these sites is provided in Appendix 2, including the features associated with each of the Natura 2000 sites and the unique water body identification code where Natura 2000 sites include a water body⁶. Further details about the Ramsar sites are available on the Ramsar website (<http://www.ramsar.org>).

⁶ Further details about Liverpool Bay pSPA are not included in Appendix 2, these are available from NE: www.naturalengland.org.uk and CCW www.ccw.gov.uk.

Given the high-level nature of this assessment, it is not practical to provide detailed information about each of these sites. Further information about the Natura 2000 site features is available on the Joint Nature Conservation Committee website (www.jncc.gov.uk). Information on status, condition and conservation objectives for Natura 2000 sites is available from NE (www.naturalengland.org.uk) and CCW (www.ccw.gov.uk)

Figure 3. Map of all European sites within the Dee RBD



4.2 Screening of measures

A coarse initial screening exercise was applied to the measures identified in the RBMP, the aim was to:

- identify measures that, because of their nature, could not conceivably have a negative effect or are not suitable for assessment;
- identify measures that are necessary for the conservation management of Natura 2000 sites.

These measures were screened out, leaving a reduced list of measures that require further assessment.

4.2.1 Measures that could not have a negative effect or are not suitable for assessment

The types of measure that could not conceivably have an effect or are not suitable for assessment are summarised in Table 2.

Table 2. Summary of types of measure that have been screened out and do not require further assessment

Type of measure	Reason for screening out of further assessment	Example measures
Education, awareness, influence, encourage, promote, advise, provide guidance	These types of measure are expected to contribute to achieving WFD objectives through raising awareness. Due to their intangible nature, assessment of these with regard to European sites has not been included.	Advisory leaflets to eNGO members and articles in local press highlighting the damage of pesticides and other chemical at home and in the garden. Provide best practice advice. Proactive targeted farmer education on control of agri-chemicals and nitrate.
Research, monitor, investigate, collect data/information, review	These types of measure improve our understanding of the environment. These actions are concerned with information gathering rather than taking any concrete actions and as such have not been assessed. They will however contribute to making sure that water management actions are fully informed and based on good evidence.	Investigate sheep dip pesticide impact on rivers in upper and middle Dee areas using invertebrate and moss sampling in high risk catchments as identified by Water Framework Directive
Introduction of plan, programme, strategy, scheme, code of practice, code of conduct	There are a number of plans, programmes, schemes etc identified as part of the RBMP in order to address specific issues or pressures. Where the measures provide no indication of what will be involved these measures are not suitable for assessment at this stage.	Draw up Individual Species Action Plans for species identified as presenting particular risk levels, to minimise the risks associated with them.
Regulation, legal requirement	Measures that identify existing legislation or proposed new regulation have not been assessed.	Local Authority Contaminated Land Regulations Notice powers - Use of site specific notices to remove pollution risk

Type of measure	Reason for screening out of further assessment	Example measures
		to groundwater
Partnerships, working together, sharing information, co-ordinated approach	These describe ways of working rather than physical actions and are not suitable for assessment.	Promote all Wales records centre agreement to enable effective collation and sharing of data on Invasive Alien Species.
Funding	These measures are concerned with funding and support rather than taking any physical action so are not assessed.	Agri-environment schemes/ Environmental Stewardship - payments for best practice to limit nitrate input and control agri-chemicals (England only)

4.2.2 Measures necessary for the conservation management of Natura 2000 sites

The measures in Annex D have been identified by NE and CCW to improve the water or water-dependent environment to the extent necessary to maintain at or restore to favourable conservation status the water-dependent habitats and species for which a Natura 2000 Protected Area is designated⁷.

Measures that are for the nature conservation management of a site could have negative effects on the site features if carried out in the wrong place within a site, or at the wrong time of year. It is also possible that measures for the management of one habitat or species, or for one particular Natura 2000 site, may have negative effects on another. The spatial scale, location, timing and nature of these actions are critical. The organisations responsible for these measures have agreed to these measures through consultation with NE and CCW. There is also a requirement to get NE or CCW consent before any operations are undertaken, or permitted, that are likely to damage these sites⁸. For sites in Wales reference should also be made to the [Natura 2000 Site Management Plans](#)⁹. The risk of negative effects from the measures in Annex D is very low, it was therefore agreed with NE and CCW that these measures could be screened out of the assessment.

4.3 Identify hazards to European sites

The aim of this part of the assessment is to consider the remaining measures in further detail and to identify the hazards that implementation of the measures could pose to European sites. The hazards that have been considered are based on those used in Environment Agency's EU Habitats Directive Handbook¹⁰. The hazards are described in Appendix 3, which also includes a table showing the groups of interest features that occur on European sites within the Dee RBD and the broad sensitivity of these groups to hazards. Hazards are not limited to water dependent habitats or species. Actions do not have to be implemented within a European site to pose a hazard, for example works to a river downstream of a site designated for fish spawning may affect the ability of fish to travel upstream to that site.

⁷ The measures for Natura 2000 Protected Areas in Wales are a subset of the "Actions" identified in response to the Environment Strategy for Wales target that 95% of all internationally protected sites should be in Favourable Condition by 2010. Annex D contains only those measures required to address water related impacts on water dependent Natura 2000 sites. For full details refer to CCW Site Management Plans.

⁸ Wildlife and Countryside Act 1981 Section 28 (4)(b) substituted by Schedule 9 to the Countryside and Rights of Way Act 2000.
⁹ <http://www.ccw.gov.uk/landscape--wildlife/protecting-our-landscape/special-sites-project-landing.aspx>

¹⁰ The principal hazards associated with the main types of activity authorised by the Environment Agency and the broad sensitivities of groups of interest features are identified in the sensitivity matrices in the Functional Appendices 1-10 of the EU Habitats Directive Handbook. These sensitivities are based on the judgement of staff in the Environment Agency, NE and CCW.

All measures that can reasonably be predicted to pose hazards to European sites have been identified; the results of the screening and hazard identification for all measures in Annex C are recorded in Appendix 4. The measures that could pose hazards can be grouped into a number of measure types.

- Managed retreat, managed realignment
- Invasive species control
- Habitat creation
- Habitat restoration through blocking of ditches or moorland grips.
- Species re-introduction
- Tree removal

The hazards associated with these types of measures are summarised in Table 3.

Table 3. Potential hazards associated with types of measures in Dee RBD

Measure Type	Hazard																					
	Acidification	Change in water levels or table	Changed water chemistry	Changes in flow or velocity regime	Changes in physical regime	Competition from non-native species	Disturbance (noise or visual)	Entrapment	Habitat loss	Killing/injury or removal of fish or other animals	Nutrient enrichment	PH	Physical damage	Predation	Reduced dilution capacity	Salinity	Siltation	Smothering	Surface water flooding changes	Thermal regime changes	Toxic contamination	Turbidity
Managed retreat, managed realignment																						
Habitat creation																						
Species reintroduction																						
Invasive species control																						
Habitat restoration through blocking of ditches or moorland grips																						
Tree removal																						

4.4 Assessment of likely significant effect

A plan is likely to have a significant effect if it may reasonably be predicted to affect the conservation objectives of the features for which a European site was designated. This excludes trivial or inconsequential effects.

Determining whether there will be a 'likely significant effect' does not imply that there will be such an effect or even that an effect is more likely than not.

4.4.1 Considering likely significant effect of an individual measure

The RBMP is a high-level plan, it identifies measures, but the detail of exactly where and how the measures will be implemented will be developed at a later stage when the measure progresses towards implementation. The RBMP does not constrain where or how the individual measures are implemented; the measures could go ahead somewhere or in some way that will not have a significant negative effect on any European site.

4.4.2 Interaction of the individual measures in the plan

It is possible that the measures in the Plan could act in combination to have a significant effect on the interest features of European sites. The RBMP does not constrain where or how the measures will be implemented; the measures could go ahead somewhere or in some way that will not have a significant negative effect in combination with each other on any European sites.

4.4.3 In combination assessment with other plans or projects

It is possible that the measures in the plan could act in combination with other plans and projects to have a significant effect¹¹. Given the extensive range of plans and projects that may affect European sites within the plan area and the lack of location specific information about the measures in the Plan, a pragmatic approach to the in combination assessment is required. Other competent authorities have not been consulted for information on other plans and projects as part of this Habitats Regulations assessment because the Strategic Environmental Assessment (SEA)¹² of the draft RBMP for Dee RBD identifies other plans that may be relevant. To ensure the in combination assessment remains focussed it has been limited to those plans and projects identified in the SEA as having a significant interaction with the RBMP for biodiversity, flora and fauna, and Shoreline Management Plans which we agreed with Natural England require consideration.

The SEA identifies where the RBMP could influence existing plans and policies and vice versa; it also includes identification of potentially conflicting plans and policies.

The plans reviewed for the SEA include:

- Wales Transport Strategy, Regional Transport Strategies
- National Housing Strategy, Better Homes for People in Wales, North West (NW) & West Midlands (WM) (England) Regional Housing Strategies
- Wales Spatial Plan 2008 update; NW & WM Regional Spatial Strategy
- Regional Planning Guidance, Planning Policy Wales; Wales a Vibrant Economy

¹¹ Consideration of in combination effects is not confined to those plans/projects that have already been completed/implemented but should also include those plans and projects which can reasonably be foreseen and/or are the subject of an application/processes that have not yet been determined and/or implemented, including all projects started but not yet completed, with consent but not yet started and projects under ongoing review.

¹² Environmental report: Strategic Environmental Assessment of the draft River Basin Management Plan for the Dee river basin district, Environment Agency, 22nd December 2008.

- NW & WM Rural Delivery Framework, Wales Rural Development Plan
- NW & WM Regional Economic Strategy
- Strategic Flood Risk Management Plans,
- Wise About Waste: The National Waste Strategy for Wales; Minerals Planning Policy Wales; Marine Aggregates Dredging Policy; Regional Waste Management Strategies, Regional Mineral Strategies, Minerals TAN
- Clwydian Range AONB management plan,
- Wales Environment Strategy; Dee Salmon Action Plans; Regional Biodiversity Strategies (NW & WM); Regional Environment Strategies
- The Welsh Historic Environment Report; Register of Welsh historic landscapes.
- Agri-environment schemes; Rural Development Plan for Wales; Welsh Agri Food Strategy; Woodlands for Wales; Catchment Sensitive Farming Plans (England); Regional Forestry Frameworks (NW & WM); food and farming strategies (England); Forestry and Woodlands Framework (England).
- Starting To Live Differently - The Sustainable Development Scheme of the National Assembly for Wales; Sustainable Development Frameworks (NW & WM).

The plans identified in the SEA as having significant positive or negative interactions for biodiversity, flora and fauna are listed below; the interactions are described in Table 4 and Table 5 below.

- Wales Rural Development Plan
- Rural Development Programme for England
- The Wales Spatial Strategy (2004 and 2008)
- The North West Regional Spatial Strategy
- North West Regional Economic Strategy
- Dee Catchment Flood Management Plan

Table 4. Plans identified in the SEA as having significant positive interactions for biodiversity, flora and fauna

Title of relevant document(s)	Description of significant positive interactions
Wales Spatial Plan (2004 and 2008)	<p>The Wales Spatial Plan (2004 and 2008) outlines synergies with the River Basin Management Plan under the Valuing our Environment section. It recognises that wildlife and biodiversity should be promoted for intrinsic reasons as well as people's enjoyment throughout all the Spatial Plan areas, particularly in urban areas.</p> <p>It outlines plans to tackle existing infrastructure constraints by supporting investment in water and sewerage. The strategy identifies that new housing should take account of environmental constraints. Therefore this should help reduce the environmental effects of the 6,500 promised however it may not completely mitigate it.</p>

Title of relevant document(s)	Description of significant positive interactions
North West Spatial Strategy	<p>The spatial strategy for the North West outlines a general policy EM1 to enhance, protect and manage international, regional and locally important natural environments.</p> <p>Policy EM5 on Integrated water management relates well to the RBMP, promoting as it does that developers need to protect the quantity and quality of surface, ground, coastal and flood waters. New developments where they occur will be required to incorporate Sustainable Drainage Systems and water efficient actions which should help reduce the impact of new housing needs on biodiversity and natural resources.</p>
North West Regional Economic Strategy	<p>The North West Regional Economic Strategy identifies policies which could act in synergy with the RBMP. A number of policies relate to the creation of greenspace which could contribute to wildlife corridors.</p> <p>In addition to this, linking in with policies which cover climate change and increased flood risk there are a number of policies which could allow for the creation of coastal habitat creation and wash lands, if softer engineering options are chosen over hard flood defences in protecting land from flooding.</p> <p>A number of actions promote sustainable use of water resources in synergy with the RBMP. Combined, these should have a positive effect, increasing sustainable use of water resources in general which should reduce the pressure on natural environments.</p> <p>Policies to redevelop brown field sites will, in synergy with the RBMP, allow for local water quality improvements, either directly by removing contamination or by allowing space to accommodate SUDS.</p> <p>It advocates the promotion of good agricultural practices which will also improve water quality.</p>
Dee CFMP	<p>Where policies are identified to reduce existing flood risk management actions there is an opportunity to the local habitats, particularly if structures are removed or re-engineered.</p>
Wales Rural Development Plan	<p>Axis 2 sets out a number of policies which will increase environmental sustainability throughout Wales. In particular, it refers to promoting the protection of cultural landscapes, maintaining and enhancing woodlands and halting loss of biodiversity.</p>
Rural development for England	<p>Strong positive impacts from agri-environment and woodland schemes such as those set out in Axis 2 are likely although benefit depends on the type of woodland planted.</p>
The Wales Spatial (2004 and 2008)	<p>The Spatial Strategy outlines synergies with the plan by identifying priorities to promote environmental education and skills to maximise the emerging environmental opportunities and technologies.</p>

Title of relevant document(s)	Description of significant positive interactions
The North West Regional Spatial Strategy	Policies EM 3 on Green Infrastructure and EM5 relating to Sustainable Drainage Systems are both likely to have positive effects in relation to land management water quality/ biodiversity. These gains will need to be balanced against the requirements of policy L4 which sets out a major uplift in housing provision.
Wales Rural Development Plan	Axis 1 sets out to promote protection of the water environment and working towards achieving good ecological status in particular through reduction in point and diffuse pollution; this should have a positive effect on biodiversity locally.

Table 5. Plans identified in the SEA as having significant negative interactions for biodiversity, flora and fauna

Title of relevant document(s)	Description of significant negative interactions
Wales Spatial Plan	The Wales Spatial Plan sets out to deliver 6,500 new homes in the region may have negative impacts on the biodiversity of the region.
North West Spatial Strategy	Increased housing development pressures may limit biodiversity opportunities.
CFMP	Policy options to take further action to sustain the current level of flood risk could have positive or negative impacts depending on the approach taken. Where new flood defences are to be constructed it is possible that biodiversity will suffer.
Wales Rural Development Plan	Increases in housing provision from 12 000 to 23 000 are likely to add significantly to pressure on water resources. Axis 1 and Axis 3 promote development of infrastructure and greater economic activity in agriculture and forestry. There is therefore potential for negative effects on biodiversity and water resources at a local level from these if more land is required for economic activity, however it should be possible to avoid or mitigate for losses.

At this high-level plan stage it is not appropriate to consider the prevailing environmental conditions at each European site – this would not add anything useful to the assessment as the plan does not include detail or constrain where the measures will be implemented; however the following prevailing conditions and environmental changes at the RBD-level have been taken into account in the assessment.

The Dee RBD is home to over 500,000 people. The population in the Dee has been increasing moderately, and continued steady growth is expected in the future. Ongoing human pressures are likely to continue to cause a general decline in habitat size and quality and species numbers within the Dee RBD.

Projections of future climate identify that we can expect climate changes to intensify, including warmer and wetter winters, summers that are hotter and drier, and more frequent and more intense extreme events such as droughts, heat waves, heavy rainfall and coastal storm surges.

Relative sea level (including the effect of land movements) will continue to rise around most of the UK shoreline. In the future the hard frontages found along much of the estuary

coastline will compromise its ability to evolve in response to rising sea levels and climate change.

The RBMP does not constrain where or how the measures will be implemented; the measures could go ahead somewhere or in some way that will not have a significant negative effect on a European site in combination with other plans or projects. The risk of negative effects in combination is very low as the measures in the plan are intended to secure no deterioration in status across the water environment in the context of the other plans and projects and prevailing conditions.

The information considered in this assessment may help inform Habitats Regulations assessments of individual measures undertaken at later plan, project or permission stages; however later assessments will require their own in combination assessments.

4.5 Control measures to avoid likely significant effects

The assessment has shown that implementation of some measures could pose hazards to European sites. At this high-level plan stage, it is not possible to determine which sites may be affected, or whether the effects of the measures will be significant due to uncertainty about where and how the measures will be implemented. However, as the RBMP does not constrain where or how the measures will be implemented; the measures could go ahead somewhere or in some way that will not have a significant effect on any European site.

This section considers whether appropriate control measures are in place to ensure that potential negative effects on European sites can be identified and avoided when the measures are progressed towards implementation.

Most types of measures that have been identified as having potential to cause hazards would require a Habitats Regulations assessment as a matter of law or Government policy before they can be implemented. A Habitats Regulations assessment at this later stage will be able to identify more precisely the nature, scale or location of action associated with the measure, and thus its potential effects¹⁴. The RBMP makes it clear that before any measures in the plan are implemented they must be subject to the requirements of the Habitats Regulations and that any plans, projects or permissions required to implement the measures must undergo an 'appropriate assessment' if they are likely to have a significant effect.

Responsibility for Habitats Regulations assessment of plans, projects or permissions required to implement the measures in this RBMP remains with the competent authority. For example, any measures involving work in a river channel or river bank would not be able to legally go ahead without consent from the Environment Agency under the Water Resources Act 1991 or Land Drainage Act 1991. The Environment Agency would be the competent authority in this case and could not agree to any actions that would have an adverse effect on any European sites. Further examples are provided in Table 6.

Some types of measure, for example 'habitat creation' may not require any plans or projects that would be subject a Habitats Regulations Assessment. However, these measures are only likely to pose hazards if carried out on the European sites. SPAs and SACs on land or freshwater areas are underpinned by notification as Sites of Special Scientific Interest (SSSIs)¹⁵ and the protection of the SACs and SPAs can be secured through the legal provisions for SSSIs¹⁶. The notification includes a list of operations which need consent from

¹⁴ Deferring Habitats Regulations assessment is not always appropriate; in some circumstances it can prevent consideration of strategic alternatives.

¹⁵ The Ramsar sites within the Dee River Basin District are underpinned by SSSIs.

¹⁶ Wildlife and Countryside Act 1981 Section 28 (4)(b) substituted by Schedule 9 to the Countryside and Rights of Way Act 2000.

NE/CCW before they can be carried out on a SSSI or in a location outside the SSSI which may affect the features of interest¹⁷. A land-owner or occupier must give NE/CCW written notice before beginning any of the operations listed in the notification, or before allowing someone else to carry out these activities. None of the activities can legally go ahead without NE/CCW consent.

Table 6 provides information on the types of measures, potential hazards and control measures. It also identifies some potential control measures that could be considered at implementation stage.

¹⁷ SSSI features are not always exactly the same as the SAC, SPA and Ramsar features, however, given the very low risk it is considered that this provides adequate protection for these activities.

Table 6. Control measures for implementing measures that may affect European sites

Measure type	Potential hazards	Control measure	Potential control measures to consider at implementation stage
<p>Managed retreat, managed realignment</p>	<p>Potential loss of existing habitat behind flood defence structures e.g. there is a risk that some inter-tidal habitats for example coastal lagoons and shingle banks will be lost. In addition, retreating defences is likely to result in loss of freshwater terrestrial habitat.</p> <p>Changes in water levels, changes in the flow or velocity regime and changes to the physical regime.</p> <p>Increasing connectivity with the flood plain could lead to increases in movement of invasive non-native species within a river catchment.</p> <p>Works themselves may cause physical damage and disturbance and may cause turbidity and lead to smothering as the sediment settles.</p>	<p>The RBMP makes it clear that before any measures in the plan are implemented they must be subject to the requirements of the Habitats Regulations. Any plans, projects or permissions required to implement the measures must undergo an appropriate assessment if they are likely to have a significant effect.</p> <p>Operations affecting SSSI's require consent from NE/CCW.</p>	<p>Existing habitat use must be considered and there is a need to ensure that implementation has regard for impacts on European sites through appropriate levels of survey, investigation and impact assessment.</p> <p>Appropriate timing of work.</p> <p>Follow established good practice.</p> <p>Seek advice and approval from NE/CCW.</p>
<p>Habitat creation</p>	<p>Loss of existing habitat.</p> <p>Works themselves may cause physical damage and disturbance.</p>	<p>The RBMP makes it clear that before any measures in the plan are implemented they must be subject to the requirements of the Habitats Regulations. Any plans, projects or permissions required to implement the measures must undergo an appropriate assessment if they are likely to have a significant effect.</p> <p>Operations affecting SSSI's require consent from NE/CCW.</p>	<p>Existing habitat use must be considered and there is a need to ensure that implementation has regard for impacts on European sites through appropriate levels of survey, investigation and impact assessment.</p> <p>Appropriate timing of work.</p> <p>Follow established good practice.</p> <p>Seek advice and approval from NE/CCW.</p>

Measure type	Potential hazards	Control measure	Potential control measures to consider at implementation stage
Invasive species control	<p>Chemical control of invasive plant species may have negative effects on other plant species.</p> <p>Carrying out any physical removal at wrong time of year could disturb fish or birds.</p> <p>Leaving plant debris in the water could affect oxygen levels.</p> <p>Disposal of vegetation on the bank-side could damage other habitat and allow the spread of invasive species.</p>	<p>The RBMP makes it clear that before any measures in the plan are implemented they must be subject to the requirements of the Habitats Regulations. Any plans, projects or permissions required to implement the measures must undergo an appropriate assessment if they are likely to have a significant effect.</p> <p>The Food and Environment Protection Act 1985 (Control of Pesticides Regulations 1986, as amended), sets out the rules on the use of pesticides to control weeds growing in water or on land.</p> <p>Anyone who wants to use herbicides to control aquatic or bank-side weeds must have written agreement to their proposals from the Environment Agency. The Environment Agency will assess these applications to ensure no activities go ahead that would have negative effects on European sites.</p> <p>Operations affecting SSSI's require consent from NE/CCW</p>	<p>Negative effects can be avoided by following best practice e.g. seeking advice on correct management for the specific invasive species and the specific location; removing all plant debris from the water after cutting operations; seeking advice on disposal of plant material.</p> <p>For further information see: Environment Agency '<i>Guidance for the control of non-native invasive weeds in or near fresh water</i>'</p> <p>Seek advice and approval from NE/CCW.</p>
Species reintroduction	<p>Beavers are extinct native species and re-introduction could contribute to river and wetland management, however the designated features have developed in the absence of beavers. Potential for physical loss, physical damage, changes in water levels, changes in flow of velocity</p>	<p>The RBMP makes it clear that before any measures in the plan are implemented they must be subject to the requirements of the Habitats Regulations. Any plans, projects or permissions required to implement the measures must undergo an appropriate</p>	<p>Careful consideration of which site or sites are most suitable for beaver reintroductions (e.g. Natural England Commissioned Report NECR002, <i>The feasibility and acceptability of reintroducing the European beaver to England</i>, 2009)</p>

Measure type	Potential hazards	Control measure	Potential control measures to consider at implementation stage
	regime, effects on fish movement.	assessment if they are likely to have a significant effect. Beavers are not ordinarily resident in Great Britain so for any legal release a licence from NE/CCW would be required; this would require assessment under the Habitats Regulations.	Follow established best practice (IUCN. 1998. <i>Guidelines for re-introductions</i> . Gland, Switzerland and Cambridge UK: Prepared by IUCN/SSC Reintroduction Specialist Group IUCN.)
Tree removal	Disturbance to otters or bats.	Operations affecting SSSI's require consent from NE/CCW.	Seek advice from NE/CCW.
Habitat restoration through blocking of ditches or moorland grips.	Work may result in disturbance, particularly to birds. Carrying out any physical work could disturb or damage habitats.	The RBMP makes it clear that before any measures in the plan are implemented they must be subject to the requirements of the Habitats Regulations. Any plans, projects or permissions required to implement the measures must undergo an appropriate assessment if they are likely to have a significant effect. Operations affecting SSSI's require consent from NE/CCW.	Existing habitat use must be considered and there is a need to ensure that implementation has regard for impacts on European sites through appropriate levels of survey, investigation and impact assessment. Appropriate timing of work. Follow established good practice. Seek advice and approval from NE/CCW.

4.6 Conclusion of Habitats Regulations assessment

At this high-level plan stage, the detail of where and how the measures will be implemented has not yet been developed. This assessment has identified potential hazards associated with implementation of the measures in the RBMP but we are confident that the measures could go ahead somewhere or in some way that will not have a significant negative effect on a European site.

It has been demonstrated that controls are in place to identify any risks to European sites as the detail of the measures is developed. The RBMP also makes it clear that before any measures in the plan are implemented they must be subject to the requirements of the Habitats Regulations and that any plans, projects or permissions required to implement the measures must undergo an 'appropriate assessment' if they are likely to have a significant effect.

The RBMP does not constrain the nature and/or scale and/or location of the measures so they can be developed in a way that will avoid the likelihood of any significant negative effects on European sites.

5. Conclusion

We have concluded that the RBMP is not likely to have any significant negative effects on any European sites, alone or in combination with other plans or projects. Given this conclusion, there is no requirement to progress to the next stage of the Habitats Regulations assessment.

This conclusion does not remove the need for later Habitats Regulations assessment of any other plans, projects, or permissions associated with, or arising out of, the measures identified in the Plan. Acceptance that this plan is consistent, so far as can be ascertained, with the Habitats Regulations does not guarantee that any plan or project derived from the Plan will also be found consistent.

6. References

Department for Communities and Local Government (DCLG, August 2006) (formerly ODPM). *Draft guidance 'Planning for the Protection of European Sites: Appropriate Assessment'*.

Environment Agency. *EU Habitats Directive Handbook*

European Commission (2000). *Managing Natura 2000 sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC*.

Joint Nature Conservation Committee. www.jncc.gov.uk

Scott Wilson, Levett-Therivel Sustainability Consultants, Treweek Environmental Consultants and Land Use Consultants (August, 2006). *Appropriate Assessment of Plans*.

Appendix 1

Record of consultation

Date	From	To	Details
07/01/09			<p>The Environment Agency has been collaborating with Natural England and the Countryside Council for Wales since 2002 through a Tripartite Working Group to address issues relevant to the Water Framework Directive (WFD) and, in particular, the requirements of Natura Protected Areas.</p> <p>A working protocol to cover the joint position and respective responsibilities in relation to River Basin Planning and Management was approved for Natural England by Andrew Wood, Executive Director. December 2008 and for the Environment Agency by David King, Director of Water Management and Tricia Henton, Director of Environment Protection. December 2008 and January 2009.</p>
26/01/09	Richard Handley, Policy Advisor, Environment Agency	David Withrington, Water Framework Directive Project Manager, Natural England	<p>Email setting out proposed approach to Habitats Directive Assessment of dRBMPs.</p> <p>Attachment</p> <ul style="list-style-type: none"> • HD AA of RBMPs flowchart v1
27/01/09	Richard Handley	David Withrington	<p>Email including a document explaining proposed approach and pilot assessment.</p> <p>Attachment</p> <ul style="list-style-type: none"> • Proposed approach to Habitats Regulations Assessment of draft River Basin Plans, Version 1 (For discussion with NE) • Northumbria dRBMP assessment v0.1
06/02/09	David Withrington	Meeting attendees	<p>Email to meeting attendees (Richard Handley, Bethany Marshall, Steve Peters, Michael Coyle, David Withrington) including a record of meeting to discuss WFD Natura 2000 issues.</p> <p>Meeting included discussion about the draft assessment for Northumbria RBMP, including the assumption that measures for water dependent SACs and SPAs in Annex D were essential to conservation management of the site. There was agreement to this from David Withrington, however an action was taken to seek agreement of operational staff to the proposed approach.</p> <p>Attachment</p> <ul style="list-style-type: none"> • EA-NE-WFDprotectedareasnoteofmtg-6Feb09
25/02/2009	Richard Handley	Alison Brown, Planning Policy, CCW	<p>Email outlining the proposed approach to assessments and requesting comments.</p> <p>Attachments</p>

Date	From	To	Details
			<ul style="list-style-type: none"> For discussion with CCW <p>Proposed approach to Habitats Regulations Assessment of draft River Basin Plans (Version 1)</p> <p>This includes general principles, advice/information requirements (including request for advice on plans or projects that are relevant to the in combination assessment) and details how the Environment intend to consult CCW on the HRAs.</p> <p>A number of 'issues to consider/agree' are raised, including:</p> <ul style="list-style-type: none"> proposed assessment procedure whether actions for Natura 2000 sites in Annex D require assessment the scope of the in combination assessment (including whether it is acceptable to limit plans and projects identified in the SEA as having a significant interaction with the dRBMP for biodiversity, flora and fauna) the principle that assessment under the Habitats Regulations at a later plan or project stage may be more appropriate. <ul style="list-style-type: none"> Northumbria dRBMP assessment v0 1 <p>A draft of the HRA for Northumbria River Basin District was included to provide an example.</p>
01/04/2009	Bethany Marshall, Policy Advisor, Environment Agency	Alison Brown Phil Eckersley, Senior Specialist - Habitats Regulations, Natural England	<p>Email confirming that the Environment Agency determined that the draft River Basin Management Plans are 'plans' for the purposes of Article 6(3) of the Habitats Directive and will carry out an assessment to consider if any of the dRBMPs will have a 'likely significant effect'.</p> <p>The email sets out exactly which assessments NE and CCW will be consulted on and expectations about response times.</p> <p>EA offered to meet NE and CCW to discuss approach.</p>
03/04/09	Bethany Marshall	Alison Brown Phil Eckersley	<p>Email advising CCW and NE that Environment Agency are consulting them on Habitat Regulations Assessments. The assessment documents, Excel spreadsheet containing assessment of all the measures and response forms followed in two further emails, in line with established consultation procedures a response was request in 20 working days – 6 May 2009.</p> <p>Attachments</p> <ul style="list-style-type: none"> HRA dRBMP Letter to CCW HRA dRBMP Letter to NE <p>Letters summarising the process and conclusions and requesting response within 20 working days (in line with established procedures)</p> <ul style="list-style-type: none"> HRA for each RBD (dRBMP v1) and form for 'comments and sign' for each RBD.

Date	From	To	Details
			<ul style="list-style-type: none"> HRA dRBMP Appendix 4
12/05/09	Bethany Marshall	Chris Uttley, Water Policy Officer, Countryside Council for Wales David Withrington Cc Alison Brown Cc Phil Eckersley	<p>Email explaining the changes EA proposes to make to the plans to better meet Nature 2000 requirements. It was felt these may influence comments on the HRA.</p> <p>Further request for comments on the HRAs.</p> <p>Attachment</p> <ul style="list-style-type: none"> Changes we are making to RBMP for n2k sites
03/07/09	David Parker, Director Science, Countryside Council for Wales	Bethany Lovell	<p>CCW's response to HRAs for the Severn, Dee and Western Wales River Basin Management Plans.</p> <p>Request to set up a meeting to agree a way forward.</p> <p>Attachments</p> <ul style="list-style-type: none"> Letter HRA for the Severn River Basin River Basin Management PI Letter Marshall re HRA for the Dee River Basin District River B Letter Marshall- HRA for the Western Wales River Basin District
09/07/09	Richard Handley	David Parker	<p>Email explaining that the 20 working day response deadline was 6 May and that Environment Agency's limited national resources are now entirely dedicated to improving the plans themselves; therefore EA will not be able to address these comments until August.</p>
04/08/09	Bethany Lovell	David Parker	<p>Email including response to CCW comments.</p> <p>Attachments</p> <ul style="list-style-type: none"> EA response to CCW 04_08_09 Regard to CCW comments Dee040809 Regard to CCW comments Severn040809 Regard to CCW comments Western Wales040809 Regard to CCW Appendix A 04_08_09
10/08/09	David Withrington	Bethany Lovell	<p>Comments on the HRA of the dRBMP. Comments are for Anglian HRA but can be applied to all the drafts. The main point is that mitigatory or control measures that are relied upon need to appear in the Plan itself.</p> <p>Attachment</p> <ul style="list-style-type: none"> NaturalEnglandAnglianRBMPcomments-10Aug09

Date	From	To	Details
18/08/09			Meeting between CCW (David Parker, Alison Brown) and Environment Agency (Bethany Lovell, Richard Handley) to discuss the HRA of dRBMP
24/08/09	Bethany Lovell	Meeting attendees	Email including record of discussion at the meeting on 18/08/09. Attachment <ul style="list-style-type: none"> • CCW HRA Meeting 180809
27/08/09	Bethany Lovell	David Withrington	Environment Agency response to Natural England comments on dRBMP HRA v1 consultation Attachment <ul style="list-style-type: none"> • Regard to NE comments
30/09/09	Bethany Lovell	David Withrington	Email from the Environment Agency consulting Natural England on the consultation version of HRA of the RBMPs for Anglian, Dee, Humber, Northumbria, North West, Severn, South East, South West and Thames RBDs. Response requested by 28 October 2009. Attachments <ul style="list-style-type: none"> • HRA fRBMP Letter to NE Consult 300909 • HRA Anglian RBMP • HRA Dee RBMP • HRA Humber RBMP • HRA Northumbria RBMP • HRA North West RBMP • HRA Severn RBMP • HRA South East RBMP • HRA South West RBMP • Consultation with Natural England
30/09/09	Bethany Lovell	Alison Brown	Email from Environment Agency consulting the Countryside Council for Wales on the consultation version of HRA of the RBMPs for Dee, Severn and Western Wales. The email summarised the changes that had been made following previous consultation and meeting on 18/08/08. Response requested by 28 October 2009.

Date	From	To	Details
			<p>Attachments</p> <ul style="list-style-type: none"> • HRA fRBMP Letter to CCW_Constult 300909 • HRA Dee RBMP • HRA Severn RBMP • HRA Western Wales RBMP • Consultation with CCW
5/10/09	Bethany Lovell	David Withrington	<p>Environment Agency consulted Natural England on the consultation version of HRA of the RBMPs for Solway Tweed (England only) RBMP</p> <p>Response requested by 3 November 2009.</p> <p>Attachments</p> <ul style="list-style-type: none"> • HRA (consult) Solway Tweed • Consultation with Natural England
23/10/09	David Parker	Bethany Lovell	<p>CCW response to consultation version of HRA.</p> <p>Attachments</p> <ul style="list-style-type: none"> • CCW response revised HRA Dee River basin Management Plan Oct 09 • CCW response revised HRA Severn RBMP Oct 09 • CCW response revised HRA Severn RBMP Oct 09
29/10/09	David Withrington	Bethany Lovell	<p>NE Response to consultation version of HRA of the RBMPs Comments from David Withrington (NE) on the consultation version of the HRA of the RBMPs</p> <p>Attachment</p> <p>ResponsetoHRAofRBMPs-NE-Oct09</p>
04/12/09	Bethany Lovell	David Withrington David Parker	<p>Email from Environment Agency to Natural England and the Countryside Council for Wales including final versions of the HRAs for each RBD. The final versions have been developed with regard to the advice from Natural England and Countryside Council for Wales.</p> <p>Attachments</p> <ul style="list-style-type: none"> • Regard to NE comments fRBMP • Regard to CCW commentsDee • Regard to CCW commentsSevern

Date	From	To	Details
			<ul style="list-style-type: none"> • Regard to CCW commentsWW • HRA (final) Anglian RBMP, HRA (final) Anglian RBMP (changes) • HRA (final) Dee RBMP, HRA (final) Dee RBMP (changes) • HRA (final) Northumbria RBMP, HRA (final) Northumbria RBMP (changes) • HRA (final) NW RBMP, HRA (final) NW RBMP (changes) • HRA (final) Severn RBMP, HRA (final) Severn RBMP (changes) • HRA (final) SE RBMP, HRA (final) SE RBMP (changes) • HRA (final) SW RBMP, HRA (final) SW RBMP (changes) • HRA (final) Thames RBMP, HRA (final) Thames RBMP (changes) • HRA (final) WW RBMP, HRA (final) WW RBMP (changes)

Appendix 2

Natura 2000 sites and designated features

Waterbodies in Natura 2000 Sites in Dee River Basin District

Alyn Valley Woods/Coedwigoedd Dyffryn Alun SAC

GB111067051810

Berwyn SPA

GB109054049690; GB109054049740; GB109054049750; GB109054049810; GB109054049880; GB109054049890; GB109054049990; GB109054050020; GB109054050040; GB109054055040; GB109054055050; GB110064048600; GB111067046420; GB111067051610; GB111067051620; GB111067051860; GB111067051880; GB111067051890; GB111067051940; GB111067052060

Berwyn a Mynyddoedd De Clwyd / Berwyn and South Clwyd Mountains SAC

GB109054049690; GB109054049740; GB109054049750; GB109054049810; GB109054049890; GB109054049990; GB109054050020; GB109054050040; GB109054055040; GB109054055050; GB110064048600; GB111067046420; GB111067051610; GB111067051620; GB111067051720; GB111067051860; GB111067051880; GB111067051890; GB111067051940; GB111067052060; GB111067052080; GB31134038

Dee Estuary SAC

GB111067056880; GB111067056890; GB111067056900; GB111067056910; GB111067056920; GB111067056990; GB111067057060; GB641011650000; GB641211630001

Deeside & Buckley Newt Sites SAC

GB111067056880

Johnstown Newt Sites SAC

River Dee and Bala Lake SAC

GB111067051610; GB111067051620; GB111067051820; GB111067051830; GB111067051840; GB111067051870; GB111067051880; GB111067051890; GB111067051900; GB111067051910; GB111067051920; GB111067051930; GB111067051940; GB111067051960; GB111067051970; GB111067051980; GB111067051990; GB111067052000; GB111067052010; GB111067052020; GB111067052040; GB111067052050; GB111067052060; GB111067052070; GB111067052090; GB111067052100; GB111067052130; GB111067052140; GB111067052150; GB111067052160; GB111067052170; GB111067052240; GB111067056930; GB111067056960; GB111067057080; GB31134987; GB531106708200

The Dee Estuary SPA

GB111067056890; GB111067056900; GB111067056910; GB111067056920; GB111067056990; GB111067057060; GB531106708200; GB641011650000; GB641211630001

Appendix 3

Hazards

The hazards that have been considered are based on those used in Environment Agency's EU Habitats Directive Handbook¹.

Acidification	Could the action lead to activities that result in releases of sulphur dioxide, oxides of nitrogen and ammonia that cause acidification?
Change in water levels or table	Could the action lead to changes in the water levels or water table?
Changed water chemistry	Could the action lead to significant changes in water chemistry (BOD, COD, organic and inorganic pollutants) in the short and long term?
Changes in flow or velocity regime	Could the action lead to changes in the flow or velocity regime of a water body? Could the action lead to greater river or tidal flows under normal or extreme events?
Changes in physical regime	Could the action alter physical process that will alter the present characteristics of a site – e.g. coastal processes, fluvial and geomorphologic processes, erosion processes? This includes the pattern of sediment movement, erosion and deposition, bathymetry and hydrodynamic processes, which can result in direct loss of habitat and indirect effects on dependent species and habitats. Such changes can be caused by dredging activities or from construction activities.
Competition from non-native species	Could the action result in increased competition from non-native species? The introduction of non-native animals and plants may have a range of effects, from undetectable to changes in a community composition to the complete loss of native communities. The effects are highly unpredictable, but can be very serious.

¹ The principal hazards associated with the main types of activity authorised by the Environment Agency and the broad sensitivities of groups of interest features are identified in the sensitivity matrices in the Functional Appendices 1-10 of the EU Habitats Directive Handbook. These sensitivities are based on the judgement of staff in the Environment Agency, Natural England and CCW.

Disturbance (noise or visual)	<p>Could the action lead to increased noise or visual disturbance at the European site from direct or indirect, continuous or intermittent effects?</p> <p>Disturbance from construction, operational activities, recreation, land management activities etc may cause sensitive birds and mammals to deviate from their normal, preferred behaviour. It is difficult to make generalisations about the likely effects of disturbance because a wide range of factors are involved and different species react differently. It is likely that the effects will depend on the type and timing of disturbance and the proximity of the sources to the sensitive populations.</p>
Entrapment	<p>Could the action lead to impingement or entrapment of fish or other species.</p>
Habitat loss	<p>Could the action lead to new structures whose footprint will impinge on the European site?</p> <p>Could the action lead to land use change that will impinge on the European site?</p> <p>Could the action lead to ongoing processes which will exacerbate habitat loss (e.g. coastal squeeze)?</p>
Killing/injury or removal of fish or other animals	<p>Could the action cause the killing/injury or removal of fish or other animals?</p>
Nutrient enrichment	<p>Could the action lead to nutrient enrichment?</p> <p>An addition of nutrients can lead to changes in vegetation, directly affecting protected habitats and species of flora, or protected species dependant upon the vegetation.</p>
pH	<p>Could the action lead to changes in pH of a water body?</p>
Physical damage	<p>Could the action lead to temporary works of such a nature that will cause long-term damage to the existing habitat?</p> <p>Could the action lead to recurring operations and maintenance that will lead to disturbance?</p>
Predation	<p>Could the action encourage predators?</p>
Reduced dilution capacity	<p>Could the action lead to reduced dilution capacity of a water body?</p>

Salinity	<p>Could the action lead to a change in the salinity of a water body or other habitat?</p> <p>Changes in salinity of the water may affect the toxicity of other substances. It may also have a direct effect on the distribution of species across the site and the composition of biological communities.</p> <p>Change is of concern in coastal or estuarine waters where the zone of transition from freshwater to brackish or saltwater may be critical to the interest feature</p>
Siltation	<p>Could the action lead to increased physical damage caused by the deposit of suspended solids from water?</p> <p>Siltation can cover food for birds and kill macro-invertebrates or render them inaccessible. It may also affect the feeding behaviour of birds and other animals that detect prey by sight.</p> <p>An increase in suspended sediment can affect filter-feeding organisms, through clogging and damage to feeding and breathing equipment. Young fish can also be damaged if sediment becomes trapped in the gills. Fine sediments can smother the gravel beds used by salmon for spawning.</p>
Smothering	<p>Could the action lead to physical damage caused by the deposit of solid material from the air?</p>
Surface water flooding changes	<p>Could the plan lead to a significant reduction or increase in the frequency of surface water flooding (fluvial, pluvial and tidal)?</p> <p>Consideration should be given to the potential to flood throughout the year, to greater depths, reduced frequency may lead to drying out or changes to sediment supply etc; and supply of water to seasonally ephemeral water bodies.</p>
Thermal regime changes	<p>Could the plan lead to a mean temperature change of more than 0.2°C in a water body?</p>
Toxic contamination	<p>Could the action lead to releases of substances that could be harmful to flora and fauna?</p>

Turbidity

Could the plan lead to an increase in suspended sediments?

Increased turbidity associated with suspended solids results in reduced light penetration, which may affect photosynthesis. This may affect invertebrates directly and species higher up the food chain indirectly e.g. birds.

Turbidity can be a direct effect of activities such as agitation dredging or over-pumping, or an indirect effect e.g. through the removal of vegetation protecting a bed or bank.

The table below shows the features that occur on Natura 2000 sites within the RBD and the types of hazards to which they are sensitive.

	Acidification	Change in water levels or table	Changed water chemistry	Changes in flow or velocity regime	Changes in physical regime	Competition from non-native species	Disturbance (noise or visual)	Entrapment	Habitat loss	Killing/injury or removal of fish or other animal	Nutrient enrichment	PH	Physical damage	Predation	Reduced dilution capacity	Salinity	Siltation	Smothering	Surface water flooding changes	Thermal regime changes	Toxic contamination	Turbidity
1.1 Fens and wet habitats not acidification sensitive*																						
1.2 Bogs and wet habitats, acidification sensitive*																						
1.3 Riverine habitats																						
1.4 Standing Waters acidification sensitive*																						
1.6 Dry woodlands*																						
1.7 Dry Grassland*																						
1.8 Dry heathland habitats*																						
1.9 Upland*																						
1.10 Coastal habitats*																						
1.11 Coastal habitats sensitive to abstraction*																						
1.12 Estuarine and intertidal habitats																						
2.1 Vascular plants of aquatic habitats																						
2.5 Anadromous fish																						
2.6 Non-migratory fish and invertebrates of rivers																						
2.9 Mammals of riverine habitats																						
2.10 Amphibia																						
3.1 Birds of uplands																						
3.2 Birds of woodland & scrub																						
3.3 Birds of lowland heaths & brecks																						
3.4 Birds of lowland wet grassland																						
3.6 Birds of lowland freshwaters & their margins																						
3.7 Farmland Birds																						
3.8 Birds of coastal habitats																						
3.9 Birds of estuarine habitats																						
3.10 Birds of open sea and offshore rocks																						

* indicates a priority habitat or species as defined in the Directive.

Appendix 4

Screening and hazard identification

A spreadsheet including full results of the screening is available from:

Bethany Lovell

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The table below shows the potential hazards associated with actions that have been screened as having a potential negative effect.

