



SCOTT WILSON

**Habitat Regulations Assessment (HRA) Screening
(Stage 1) of the Greater Manchester Joint Waste
Development Plan Document (JWDPD)**

D r a f t A d d e n d u m R e p o r t

February 2009

Scott Wilson.

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Habitat Regulations Assessment (HRA) Screening (Stage 1) of the Greater Manchester Joint Waste Development Plan Document (JWDPD)

Draft Addendum Report

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Abbreviations

AA	Appropriate Assessment
AGMA	Association of Greater Manchester Authorities
ATT	Advanced Thermal Treatment
CC	County Council
CCW	Countryside Council for Wales
cSAC	Candidate Special Area of Conservation
CTT	Conventional Thermal Treatment
DCLG	Department of Communities and Local Government (now CLG see below)
CLG	Communities and Local Government
DPD	Development Plan Document
EA	Environment Agency
EC	European Commission
EU	European Union
GM	Greater Manchester
GMGU	Greater Manchester Geological Unit
HGV	Heavy Goods Vehicle
HRA	Habitat Regulations Assessment
IROPI	Imperative Reasons of Overriding Public Interest
JNCC	Joint Nature Conservation Committee
JSP	Joint Structure Plan
JWDPD	Joint Waste Development Plan Document
LDD	Local Development Document
LDF	Local Development Framework
LPA	Local Planning Authority
MBT	Mechanical Biological Treatment
MRF	Materials Recovery/Recycling Facility
NE	Natural England
NW RSS	North West Regional Spatial Strategy
ODPM	Office of the Deputy Prime Minister
PPS	Planning Policy Statement
pRamsar	Proposed Ramsar Site
pSPA	Potential Special Protection Area
RSS	Regional Spatial Strategy
RTS	Regional Transport Strategy
SA	Sustainability Appraisal
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SPA	Special Protection Area
SPD	Supplementary Planning Document
SW	Scott Wilson
UDP	Unitary Development Plan
WTS	Waste Transfer Station

Glossary of HRA terms

Habitat Regulation Assessment (HRA)	<p>This is the assessment of a plan or policy against the requirements of The Conservation (Natural Habitats, &c) (Amendment) Regulation 2007.</p> <p>This is considered to have the following discrete Stages (DCLG, 2006)</p> <ul style="list-style-type: none">• Evidence Gathering;• Stage 1 HRA: identifying whether a plan is likely to have significant effects (LSE) on European site;• Stage 2 HRA: ascertaining the effect on site integrity• Stage 3 HRA: identification of mitigation measures/alternative solutions
Stage 1 HRA/Screening Stage	<p>This is the identification of whether a plan is likely to have significant effects (LSE) on a European site. This stage 'screens' whether an AA (HRA Stages 2 or 3) is required</p>
Likely Significant Effects (LSE)	<p>This refers to the process undertaken during a Stage 1 HRA</p>
Appropriate Assessment (AA)	<p>This comprises Stages 2 and 3 of HRA</p>

1 INTRODUCTION AND FUNCTION OF THIS REPORT

1.1 Introduction

- 1.1.1 Scott Wilson Ltd (herein referred to as Scott Wilson) was appointed in 2008, by Greater Manchester Geological Unit (GMGU), on behalf of the Association of Greater Manchester Authorities (AGMA), to assist in undertaking a Stage 1 ('Screening') Habitat Regulations Assessment (HRA) (under Habitat Regulations 2007) of the potential effects of the Joint Waste Development Plan Document (JWDPD) for the ten Greater Manchester authorities on designated European nature conservation sites (Natura 2000 sites). The ten authorities are: Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Trafford, Tameside, and Wigan. Figure 1 illustrates the boundary of each of these ten authorities within Greater Manchester.
- 1.1.2 The Stage 1 assessment undertaken in 2008, dealt with the following waste management facilities only:
- Waste Management & Recycling – Open Facilities;
 - Open Air Windrow Composting;
 - Thermal Treatment Facility; and
 - Waste Management & Recovery – Built (Enclosed) Facilities.
- 1.1.3 In January 2009, Scott Wilson was appointed to screen an additional three sites, specifically chosen for residual waste disposal management (landfill / landraise), within the HRA Stage 1 process. This report is therefore an addendum to the *Habitat Regulations Assessment (HRA) Screening of the Greater Manchester Joint Waste Development Plan Document (GM JWDPD) (August 2008)*, produced by Scott Wilson (current status: draft submitted to client).
- 1.1.4 This addendum report is to be read in conjunction with the *HRA Screening of the GM JWDPD Report (August 2008)* to provide a comprehensive HRA of the proposed waste management sites within Greater Manchester. This is available from <http://www.gmwastedpd.co.uk/docs/sthra.pdf> or contact the Planning Team on 0161 779 6182 for details
- 1.1.5 All details of background information and legislative requirements involved in undertaking a HRA (including an overview of Natura 2000 designations) are addressed in detail in Section 1 and corresponding appendices of the *HRA Screening of the GM JWDPD, August 2008*.

1.2 Purpose and outline of this report

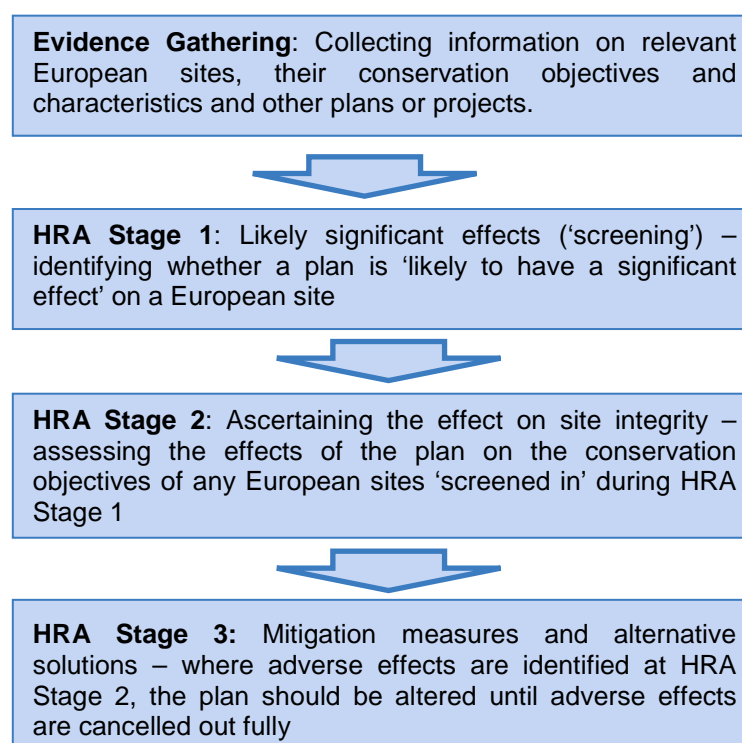
- 1.2.1 The HRA Stage 1 identifies the potential for the JWDPD to adversely affect the integrity of any of the surrounding European sites in terms of their conservation objectives, namely through indirect, secondary or cumulative effects.
- 1.2.2 Where such potential exists, it then assesses the impacts of this JWDPD against the conservation objectives of the relevant European sites to ascertain whether it would, including in combination with other relevant plans and projects, adversely affect the integrity of any of these sites.
- 1.2.3 Ultimately, this report identifies those European sites that can be screened *out* as a result of there being no likely significant effects resulting from proposals in the JWDPD, either alone or in combination, and screens *in* those sites that are considered to be potentially affected by the JWDPD, either alone or in combination. All sites that are screened in will require additional assessment in a Stage 2 HRA.
- 1.2.4 This Report will be formally issued to Natural England (NE) and The Environment Agency (EA) for their comments and consideration given to sites that will be carried forward to Stage 2. Importantly, the HRA process is running in parallel with the development of the JWDPD and should influence its outcome in terms of planning to minimise impacts upon European sites within and adjacent to the Greater Manchester districts.

2 METHODOLOGY

2.1 General approach

- 2.1.1 This Section sets out the basis of the methodology for the HRA. The table in Appendix 2 illustrates the key principles which Scott Wilson has adhered to in this assessment. This report covers the Evidence Gathering and HRA Stage 1 phases of the four-stage Department of Communities and Local Government (DCLG) approach to HRA outlined in Table 1.

Table 1: Four-stage approach to Habitat Regulation Assessment (DCLG 2006)



- 2.1.2 The Habitats Directive and Regulations do not specify how assessment should be undertaken. The following documents were used to inform the preparation of this HRA Stage 1:

- The DCLG draft guidance document *Planning for the Protection of European Sites: Appropriate Assessment Managing Natura 2000 sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC* (DCLG 2006);
- *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (EU 2001a); and,
- *The Appropriate Assessment of Spatial Plans in England: a guide to why, when and how to do it* (RSPB: Dodd et al. 2007).

2.1.3 Natural England (NE) uses the DCLG Guidance (*Draft Guidance: The Assessment of Regional Spatial Strategies and Sub-Regional Strategies under the provisions of the Habitats Regulations*. Prepared for English Nature by David Tyldesley and Associates, July 2006), although this is currently under review. Until finalised, the documents above are referred to along with Scott Wilson's own guidance, informed by consultation with NE and Royal Society for the Protection of Birds (RSPB) guidance, the principles of which are outlined in Appendix 2. Natural England advises on the preparation of a draft screening report, which is then consulted on before considering a HRA Stage 2 (AA). The main points NE expect to be considered in a HRA Stage 1 are:

- the need to refer to the process as HRA, not AA, which is only one stage in the process;
- a brief description of the Plan, so that the HRA can be considered in isolation from the Plan itself;
- the need to include a separate screening process to determine which European sites should be included, with a map showing the relationship of these sites to the Plan area;
- inclusion of comprehensive and locally relevant data for the sites, including conservation objectives;
- identification of the sensitivities/vulnerability of each site to any potential impacts of the plan using the 'source - pathway - receptor' approach; and,
- recognition that HRA is an ongoing process which runs in parallel with the Plan development.

2.1.4 Therefore, this report:

- identifies the European sites that could be potentially affected by plans and policies within and adjacent to the study area of GM;
- outlines details of the sites' European interest features and the environmental conditions that are required to maintain the favourable conservation status of those features;
- explores the vulnerability of the sites to potential impacts arising from the JWDPD and, if possible, screen out those sites that, on consideration, are unlikely to be affected, based on current knowledge;
- where possible, identifies those plans and policies that may conflict with maintaining the favourable conservation of the sites, based on current knowledge;
- proposes amendments and alterations to plans and policies where necessary to account for the vulnerabilities of the sites and thereby avoid adverse impacts both individually and in combination with other projects or plans;
- identifies those sites that would need to be assessed further as part of the HRA; and,

- provides evidence for a formal assessment of the JWDPD in accordance with the requirements of the Conservation (Natural Habitats &c.) (Amendment) Regulations 2007.

2.2 Evidence Gathering

Overview

2.2.1. The approach to Evidence Gathering was to:

- develop a 'long list' of European sites;
- gain an appropriate understanding of the European sites, including their conservation objectives and the current influences upon their objectives;
- gain an appropriate understanding of the JWDPD in its current context; and,
- from the first part of HRA Stage 1, use any potential pathways for effects to identify other plans and projects that might affect these sites in combination with the JWDPD.

Develop a 'long list' of European sites

2.2.2. Current guidance suggests that the following European sites should be included in the long list:

- sites within the authority's boundary;
- sites shown to be linked to development within the authority's boundary through a known 'pathway' (discussed below); and,
- sites recommended in a formal screening opinion by NE (Scott Wilson *et al.* 2006).

Gain an appropriate understanding of the European sites

2.2.3. As HRA focuses upon the "*implications for the site in view of the site's conservation objectives*" (EC 1992a, Article 6(3)), the reasons for the designation of European sites must be understood. This has been identified by a desk study (notably information from NE and the Joint Nature Conservation Committee), establishing precisely what is being protected via a site's designation as a European site.

2.2.4. The current status of Natura 2000 sites was established in terms of their nature conservation objectives. Such information has included any known current influences on status, and known trends in either improvement or decline.

2.3 HRA Stage 1

Overview

2.3.1. The approach to HRA Stage 1 was to:

- use the information gained during Evidence Gathering to identify any potential pathways by which impacts associated with the JWDPD might affect European sites;
- identify whether these potential impacts and pathways are likely to have an adverse effect on European sites, and hence represent a “significant” risk in accordance with expert knowledge and/or available guidance and legislation;
- identify whether “insignificant” sources of risk from the JWDPD may result in likely adverse effects to European sites in combination with other plans and projects identified (see Evidence Gathering); and
- consult with Statutory Bodies (e.g. Natural England, The Environment Agency) throughout the process.

Identify any potential pathways by which impacts associated with the GM JWDPD might affect European sites

2.3.2. Any relevant pathways by which potential impacts of the JWDPD might affect European sites have been identified. Briefly defined, pathways are routes by which a change in activity within GM could result in an effect upon a European site. For example, a pathway could be air (e.g. transmission of gaseous or particulate pollution), watercourses (e.g. waterborne pollution), or sites within GM that are used by ecological receptors that contribute to the favourable conservation status of a European site (e.g. breeding habitat for wading birds for which a SPA has been designated). Potential pathways relevant to the JWDPD are described in greater detail in Section 3.

2.3.3. In terms of relevance, the approach has been realistic and practical, and therefore ecological expertise has been employed in order to focus only on pathways that are verifiable as important links between land use and development in GM and European sites.

Identify whether potential pathways are likely to have a significant effect on European sites

2.3.4. The potential for identified impacts and pathways to result in a likely significant effect on a European site has been ascertained based upon the status of the sites, expert knowledge from planners and ecologists of how impacts and pathways might affect sites in a ‘worst case scenario.’

Identify 'in combination effects'

2.3.5. Potential impacts and identified pathways have been revisited according to the relevant plans and projects identified at Evidence Gathering in order to identify any likely significant effects that may result in combination with the JWDPD, especially those not previously considered to pose significant risk individually.

Consult on our conclusions

- 2.3.6. Natural England (NE) and the Environment Agency (EA) have been consulted on our approach to the HRA, and have both been provided with a long-list of the sites and an outline of the draft report, including site summary table for initial comment. At the time of issue of this Draft Report, initial comments from NE have been received on the main Draft Report and these comments have been taken into account in the drafting of this Addendum.
- 2.3.7. Formal consultation with Statutory Bodies including NE and The Environment Agency to discuss the screening stage conclusions is yet to be carried out. 'Consultees will be given an opportunity to comment on this Draft report during the consultation period for the Issues and Options Stage 2: Residual Waste Disposal from 30th March 2009 – 8th May 2009.

3 POTENTIAL IMPACTS OF WASTE FACILITIES

3.1 Potential sites/areas for Waste Facilities within Greater Manchester

3.1.1 The Sustainability Appraisal (SA) of the potential sites / areas for waste management facilities (herein referred to as 'waste sites') has been an integral part of the overall waste site appraisal exercise. Initially, a long list of potential waste sites were passed through a preliminary sieve whereby sites that were clearly inappropriate for waste use due to, for example, deliverability issues or close proximity to a highly sensitive receptor were excluded at an early stage. A short list of potential waste sites was produced across the 10 Greater Manchester Authorities.

3.1.2 A pro-forma prepared as part of the SA of the Stage Two Issues and Options Report short listed potential waste sites. Those issues were then taken into consideration in assessing the overall sustainability of the sites for waste.

3.1.3 Following this appraisal the suitability of the site for waste facility categories was given a sustainability rating as follows:

Band A	site is highly suitable waste facility;
Band B	site is suitable for waste facility following appropriate mitigation;
Band C	site is possibly suitable for waste facility although there are significant mitigation issues involved; and
Band D	site is not suitable for a waste facility.

3.1.4 This Addendum report only addresses the specific management techniques of three Residual waste disposal sites only. Figure 1 shows the location of sites identified, while Figure 2 illustrates their suitability as residual waste disposal sites. Appendix 3 describes Residual waste disposal facilities in greater detail.

3.1.5 This HRA Screening Report identifies whether any of the residual waste disposal facilities identified as being suitable or highly suitable for a particular location within the JWDPD causes a European Site to be screened in or out of requiring further assessment as part of the HRA process.

3.2 Potential Impacts of Waste Facilities on Designated Sites

3.1.6 Waste management development can cause unacceptable harm to nature conservation sites and the flora, fauna and physical characteristics contained therein. Such damage can be incurred *directly* through physical

destruction or *indirectly* through pollution, alteration of water tables, dust and other disturbance to sensitive species. This Section identifies the key ways in which the potential waste facilities identified may result in impacts on European Designated Sites.

- 3.1.7 Appendix 3 provides a table summarising the key processes and potential causes of impact likely to take place with a residual waste disposal facility. A 'worse case' approach has been adopted in regards to potentially polluting processes to ensure all potentially significant effects are identified.

3.3 Indirect Impacts: The Source-Pathway-Receptor Link

- 3.1.8 If an impact is indirect, three components need to be present before a waste facility results in an impact on a ecological receptor namely (The Environment Agency; 2004a):

- a source (e.g. green waste at a composting facility);
- a pathway made up of a release mechanism (e.g. shredding of green waste leading to a bioaerosol) and a transport mechanism (e.g. dispersion of the bioaerosol in ambient air); and
- a receptor (e.g. Special Area of Conservation).

- 3.1.9 The 'source' of risk of impact on a sensitive site is generally the deposited waste of that facility. For a residual waste disposal facility, the deposited waste may result in a potential impact on a designated site by emission of liquid, gaseous and solid substances.

- 3.1.10 Generally 'pathways' exist through either air (e.g. emissions, dust) or water (surface water runoff, surface water recharged by groundwater; site leachates). Table 2 identifies potential release points of pollutants from a landfill site in both airborne and subsurface pathways.

Table 2. Potential release points of liquid, gas and solid pollutants from a landfill site into air and subsurface pathways (Source: Environment Agency (2004b))

Airborne	Subsurface
Leakage from landfill gas extraction system e.g. pipework, well heads, valves	Leachate leakage through the basal and side wall containment engineering
Emissions from gas combustion stacks e.g. gas engines and flare stacks	Side wall liner leakage of gas
Gas emissions from capped areas, intermediate capped areas, waste surfaces, flanks, tipping faces	Gas dissolution from the leachate following leakage
Particulate matter emissions from landfill surfaces, tipping faces, roads	

- 3.1.11 The exposure at a particular point will depend on the complex relationship between the ‘source’, the ‘pathway’ and the ‘receptor’. One important factor is the distance between the source and the receptor, and prevailing wind direction or direction of flow of water courses.
- 3.1.12 For example, airborne particles are subject to aerodynamic and gravitational effects, which determine the distance they will travel. Large particles generally settle out quite close to the site, whereas fine particles can travel great distances. Large particles (>30µm) are responsible for most dust related impacts mostly deposit within 100m of the source (the source is not usually located at the waste facility boundary.) Intermediate-sized particles (10–30µm) are likely to travel up to 200–500m. Smaller particles (<10µm) can travel up to 1 km from the source, although very small particles can travel much further (DETR, 2000a). Government guidance for air quality review and assessment (DETR, 2000c) around stockpiles and landfill sites suggests that such sources are likely to add about 3 µg/m³ to the annual mean background concentration of receptors within 200 – 400m of the sources.
- 3.1.13 Movement through a pathway often changes the concentration of a substance from that emitted. This is true where attenuation and dilution processes occur as leachate moves through the unsaturated and saturated zones and for aerial dispersion of landfill gas. The movement of gas through the ground or following dissolution from leachate can change the composition and concentration of the emitted substances. This process is important in applying a ‘buffer zones’ around the waste facility. Buffer zones are described in more detail in Section 4.

3.4 Air as the Pathway

- 3.1.14 Many European qualifying habitats are known to be under stress partly as a result of poor air quality. This is a difficult issue to address at a regional level. Some pollutants act locally, whilst others are transported far from their source to act at a regional, national or even trans-frontier level. Appendix 4 describes the anthropogenic air pollutants are of greatest importance for their adverse effect upon ecological resources.
- 3.1.15 The following sources of air pollution are generated by residual waste disposal facilities appraised in the JWDPD:
- landfill gas;
 - landfill gas flare;
 - traffic (in particular increased number of Heavy Goods Vehicles (HGV) and general traffic volume within surrounding Waste Transfer Stations (WTS) contained within open and closed waste management and recycling facilities);
 - bio-aerosols (including microbes and fungus); and
 - dust.
- 3.1.16 The potential extent of effects of these sources of air pollution on ecological receptors is summarised in Appendix 4.

Prevailing wind direction

- 3.1.17 Appendix 5 provides a wind rose diagram for greater Manchester, based on one year of hourly sequential data collected at Manchester Airport (2005). The airport is located on the southern tip of the Greater Manchester boundary within Stockport and can be considered to be representative of prevailing wind conditions within Greater Manchester. The wind rose shows that, over the course of the year, the prevailing wind direction around greater Manchester is generally from the south or west, resulting in an average south west wind vector.

3.5 Water flows and quality as a pathway

- 3.5.1 Through its Review of Consents process, the EA has identified diffuse pollution to be a major factor in causing unfavourable conservation status of European sites, including rivers, wetlands and estuaries/maritime sites. The quality of the water that feeds European sites is an important determining factor in the nature of their habitats and the species they support. Poor water quality can have a range of environmental impacts.

These are discussed in Appendix 6.

3.5.2 The following sources of impact relating to water flow/quality may arise from waste facility categories and are assessed in this Report:

- leachate;
- surface water runoff contamination; and,
- alteration of water tables.

3.6 Other Pathways

3.6.1 Other potential sources of impact resulting from waste facilities may result in adverse effects on the integrity of a European Sites and are considered in this Report:

- physical disturbance;
- gulls, corvids (crows) and rats;
- litter; and,
- noise.

3.6.2 Further discussion on each of these sources of impact is given in Appendix 7.

4 STATUTORY GUIDANCE AND BUFFER ZONES

- 4.1.1 The Environment Agency (2004c) provides guidance on applying the Habitat Regulations to Waste Management Facilities (including residual waste disposal sites). Table 3 summarises the guidance in relation to landfill sites.

Table 3: Recommended buffer zones between landfill waste sites and European Sites (Environment Agency 2004c)

Landfill sites should be assessed for potential impact where:

- the location of the facility falls within 2km of a European Site; and / or
- the activity could attract gulls / corvids and it falls within 5km of a SPA/pSPA (or other site vulnerable to disturbance or predation by these pests); and / or
- a European Site could be impacted because of a hydraulic connection to an emission.

- 4.1.2 This HRA Stage-1 Screening has therefore applied the following indicative 'buffer zones' around the following waste facility categories. These recommended buffer zones incorporate guidance on potential impacts resulting from all pathways identified in Section 3 (air, water, direct).
- 4.1.3 Considering the urban environment of Greater Manchester and high likelihood of vermin in the surrounding area, and to adopt a 'worse case scenario', it is considered appropriate to apply a 5km buffer zone around potential residual waste disposal (landfill / landraise) sites where it falls within 5km of a SPA/pSPA (or other site vulnerable to disturbance or predation by these pests).
- 4.1.4 All waste sites are likely to generate Heavy Goods Vehicle (HGV) traffic. The level of traffic generated for each waste site will be dependent on its size. A 2km buffer zone is recommended by the EA between waste sites producing landfill gas flare emissions (2004c). Due to similarities in gas composition, for the purpose of screening, the same buffer zone is adopted for sites likely to generate high levels of traffic emissions. Emissions from HGV traffic transporting material to and from waste sites would be assessed, on a project level, using the guidance from DMRB (2007) (Annex F).
- 4.1.5 Due to similarities in gas composition between waste sites producing landfill gas flare, for the purpose of this screening exercise, the 1km buffer zone recommended by the Environment Agency (2004c) to accommodate air emissions from waste facilities is also applied to open waste management due to the likely significant levels of HGV traffic generation.

5 RELEVANT PLANS AND PROJECTS

5.1 Introduction

- 5.1.1 Habitat Regulations Assessment must consider at the screening stage, cumulative effects with other plans or proposals on sites being assessed.
- 5.1.2 The North West of England Plan – Regional Spatial Strategy to 2021 (adopted 30th September 2008) provides a framework for the physical development of the region over the next fifteen to twenty years. Incorporating the Regional Transport Strategy (RTS), it addresses the scale and distribution of future housing development and sets priorities for dealing with environmental issues, transport, infrastructure, economic development, agriculture, minerals and the treatment and disposal of waste. The North West Plan, currently in draft form, was submitted to the government in January 2006 and has undergone examination in public.
- 5.1.3 Regional Spatial Strategy (RSS) is part of the statutory development plan for every local authority in the North West. Each LPA must prepare a Local Development Framework (LDF), which is required to be in general conformity with the provisions of RSS. Planning applications will be considered against the provisions of RSS and relevant Local Development Document(s). The "plans and strategies" referred to in this document include statutory Local Development Documents and other elements of the Local Development Framework; Local Transport Plans; Community Strategies; local housing and economic strategies; and also various strategies and programmes produced by government departments and agencies, the utility companies, and other private businesses. The "proposals and schemes" mentioned include but are not limited to, development proposals subject to planning applications and other consents, infrastructure projects and environmental management schemes.
- 5.1.4 The new planning system requires that the Council replaces its Unitary Development Plans (UDP) with a LDF. The LDF is a collection of planning policy documents for a Borough. These are individually known as Local Development Documents (LDDs), e.g. Development Plan Documents (DPDs). At present there are no LDFs in Greater Manchester. The Greater Manchester Authorities (GMAs) are working on documents which will form part of LDF and are at varying stages of this process. The UDPs and relevant LDF documents for each Greater Manchester District have been reviewed.
- 5.1.5 Appendix 8 lists the plans and projects that have been identified as relevant to this Stage-1 HRA. These plans and policies have the potential to act 'in combination' with the JWDPD on a European Site considered in this Report. These include those that are considered likely to influence surface water dynamics or quality within Rochdale Canal and the Mersey, catchment; those considered likely to influence traffic along the M62 within the GM boundary, and those considered likely to influence the overall

increase in population and industry in the area. An increase in population may increase recreational pressures on surrounding European sites, increase demand on water resources, increase in traffic on surrounding roads and other sources of air pollution. Mineral abstraction may affect water tables and place greater demand on water resources. With regard to mitigation, only certain main relevant policies are included. In addition to the above plans and projects, the Merseyside Joint Waste Development Plan is currently under development.

- 5.1.6 Figure 3 shows the extent of Green Belt designation throughout all ten GMAs. Within UDP and LDF policy there is a general presumption against development on Green Belt land. However, it may be necessary to locate certain types of waste facility within the Green Belt. Green Belt can therefore be considered as an 'ecological buffer' between a waste development site and a European site where other plans or policies are unlikely to act 'in combination' with the JWDPD. The presence of Green Belt around European Sites is highlighted and considered in this Report.
- 5.1.7 At this stage we have identified a range of plans and projects that may act in combination with the JWDPD. This list will undoubtedly be expanded / refined during discussions with the Local Authorities, NE and the EA during the consultation stage of this assessment.

6 EUROPEAN SITES AND PATHWAYS IDENTIFIED

6.1 Introduction

6.1.1 Figure 1 shows the location of the additional three sites addressed in this Addendum report that were identified as being either suitable or highly suitable for particular types of residual waste disposal. GMGU produced a list of Natura 2000 sites that might be affected by the JWDPD, either alone or in combination with other plans and, therefore, believed to require screening as part of the HRA process. The location of European sites considered for HRA Screening (as described in Section 2) are also illustrated in Figure 1, with greater detail illustrated in Figures 2 and 4-6.

6.1.2 Natura 2000 Sites within the plan area relating to the additional waste management sites includes:

- Peak District Moors SPA (South Pennines Moors Phase 1);
- South Pennine Moors Phase 2 SPA;
- Manchester Mosses SAC;
- South Pennine Moors SAC; and
- Rochdale Canal SAC.

6.1.3 Natura 2000 Sites outside the plan area relating to the additional waste management sites:

- Rixton Clay Pits SAC; and
- Rostherne Mere Ramsar site.

6.1.4 To this list, we have added the following, based on aquatic linkage through the Mersey Estuary catchment (See Appendix 9):

- Mersey Estuary SPA / Ramsar site;
- Liverpool Bay pSPA; and
- Mersey Narrows and North Wirral Foreshore pSPA / pRamsar site.

6.1.5 The sites assessed in this HRA Screening Report are described in the subsections below.

6.1.6 The Screening Table in Appendix 10 provides a summary of the reasons for the designation of each European site, its vulnerabilities and environmental pressures or other relevant history, its nature conservation objectives, likely significant effects of the JWDPD to the site. Other plans and policies which may act in combination on each European site are also listed. The following sections below provide a more thorough description of each site.

6.2 Manchester Mosses SAC

6.2.1 Figure 4 shows the location of Manchester Mosses SAC comprising three sites, of which one is located within the GM boundary.

- 6.2.2 Manchester Mosses SAC consists of three SSSIs - Risley Moss, Holcroft Moss, and Astley and Bedford Mosses - totalling 172.21ha in Cheshire and Greater Manchester (SJ 691973; 53°28'16" N, 02°27'56" W). Risley Moss is owned and managed by Warrington Borough Council, while Holcroft Moss is owned and managed by Cheshire Wildlife Trust. Both of these sites are undergoing restoration. Part of Astley and Bedford Mosses is owned and managed by Wildlife Trust for Lancashire, Manchester and North Merseyside and is undergoing restoration, but the remainder (c.50%) is in private ownership. Management agreements or purchase of the land will be necessary for restoration on these areas.
- 6.2.3 While most mossland that formerly covered a large area of low-lying Greater Manchester, Merseyside and southern Lancashire, and provided a severe obstacle to industrial and agricultural expansion, it has been converted to agriculture or lost to development, Manchester Mosses SAC is an example that has survived as 'degraded raised bog on the Mersey floodplain, with their surfaces elevated above surrounding land due to shrinkage of the surrounding tilled land' (JNCC 2006d).
- 6.2.4 Manchester Mosses SAC is designated for its Habitats Directive Annex I habitat (EC 1992b) of 'Degraded raised bogs still capable of natural regeneration' (JNCC 2006d).
- 6.2.5 All three sites comprising Manchester Mosses SAC have suffered from drainage and landfilling in the past and are affected by continued, if reduced, drainage, particularly from boundary ditches. However, recent rehabilitation management over the past 15-20 years has increased peat-producing *Sphagnum* species. Risley Moss, and Astley and Bedford Mosses have been cut for peat at some time in the past.

6.3 Rochdale Canal SAC

- 6.3.1 Figure 5 shows the location of Rochdale Canal SAC within Greater Manchester. Rochdale Canal SAC covers 25.73ha within the local authorities of Rochdale and Tameside, Greater Manchester (SD 893038; N 53°31'50", W 02°09'40"). It comprises a partially restored section of the Rochdale Canal that extends approximately 20km from Littleborough to Failsworth, passing through urban and industrialised sections of Rochdale and Oldham and the intervening areas of agricultural land (mostly pasture) (JNCC 2006e).
- 6.3.2 Water supplied to the Rochdale Canal in part arises from the Pennines. This water is acidic and relatively low in nutrients, while water from other sources is mostly high in nutrients. The aquatic flora of the Canal is thus indicative of a mesotrophic water quality (i.e. is moderately nutrient-rich) although there is evidence of some local enrichment. The Canal contains important habitats for submerged aquatic plants and emergent vegetation, including extensive colonies of floating water-plantain (*Luronium natans*).

- 6.3.3 The primary reason for selection of this site is the Habitats Directive Annex II species (EC 1992c) of floating water-plantain. Rochdale Canal supports a significant population of this species in a botanically diverse waterplant community, which also holds a wide range of pondweeds (*Potamogeton* spp.). This population of floating water-plantain is representative of the formerly more widespread canal populations of northwest England. It is protected under Schedule 8 of the Wildlife and Countryside Act 1981 and is a priority species under the UK Biodiversity Action Plan.
- 6.3.4 The Canal was recently subject to a major restoration scheme to open it up for full navigation from Manchester to Yorkshire, including the SSSI/SAC section. Natural England worked with partners to ensure the restoration was done sensitively in order to preserve the interest of the site. The restoration phase of the Canal is nearly complete and it is now open to full navigation. As the possible impacts of boat movements along the Canal are not fully known at this stage, they are being recorded and a working protocol has been agreed for the site. Floating water-plantain translocation schemes have been undertaken as part of the restoration programme and are monitored closely.
- 6.3.5 It is unlikely that the site could be considered to be in favourable condition. In addition, the site has recently been restored as an active working Canal, and whilst much work has been carried out by British Waterways to maintain the ecology of the site during and after the restoration, NE believe that the Canal is still recovering from the dredging and plant translocation undertaken during restoration. As such further recovery is required before the aquatic plant assemblage, for which the site is notified, can be considered to be in favourable condition. Recent monitoring undertaken by British Waterways has produced data that NE believe would concur with this judgement. Therefore, the site was reassessed to be in unfavourable-recovering condition on 16th June 2003.

6.4 South Pennine Moors SAC

- 6.4.1 Figure 5 shows the location of the South Pennine Moors SAC which includes land within the GM boundary. The South Pennine Moors SAC covers 64,983.13ha within the local authorities of Oldham, Rochdale and Tameside, Greater Manchester, and Barnsley, Bradford, Calderdale, Cheshire, Derbyshire, Kirklees, Lancashire, Leeds, North Yorkshire, Sheffield and Staffordshire (SK144960; N 53°27'37", W 01°46'59") (JNCC 2006f). Around 4,282.39 ha (6.59%) of the SAC lie within Greater Manchester. The site is largely enclosed on two sides by large industrial urban areas, which means that large numbers of people use the area for recreational activities. Around two-thirds of the SAC is within the Peak District National Park. Land management is primarily driven by agriculture, rough grazing for sheep, and grouse-shooting.
- 6.4.2 The primary reasons for selection of this site as an SAC is its Habitats Directive Annex I habitats (EC 1992c) of European dry heaths, Blanket bogs, and Old sessile oak woods with *Ilex* and *Blechnum* in the British

Isles. Other qualifying Annex I habitats present are Northern Atlantic wet heaths with *Erica tetralix*, and Transition mires and quaking bogs.

- 6.4.3 Atmospheric pollution over the last few hundred years has depleted the lichen and bryophyte flora and may be affecting dwarf-shrubs (JNCC 2006f). The impact has arguably been greatest on blanket bog, wet heath and transition mire where the bog-building *Sphagnum* mosses have been largely lost. Combined with historical overgrazing, burning (accidental and deliberate), drainage and locally trampling, large areas of blanket bog have become de-vegetated and eroded. The combination of these effects means that most if not all of the blanket bog will not be classed as favourable according to English Nature's condition assessment criteria.
- 6.4.4 Impacts associated with access, e.g. trampling, has been a key issue, and with proposals under the Countryside and Rights of Way Act 2000 (CRoW Act 2000), will continue as such. Management of the site, especially north of the National Park, is further complicated by the large number of common areas.
- 6.4.5 Woodland cover has declined over many centuries to the point that it is fragmented, relatively small-scale and largely restricted to steeper valley sides. Restoration of existing stands and re-creation of woodland is being undertaken to expand and link habitat fragments.
- 6.4.6 Maintenance of the habitats relies primarily on appropriate grazing levels and burning regimes. Although all efforts are made to control current pressures, including an integrated management strategy and conservation action programme as part of an EU-funded LIFE project for the area to the north of the National Park, it is unclear whether this can fully mitigate the long-term influence of historical factors such as atmospheric pollution, past burning and overgrazing.

6.5 Peak District Moors SPA (South Pennines Moors Phase 1)

- 6.5.1 Figure 5 shows the location of the Peak District Moors SPA. The Peak District Moors SPA covers 45,301.54ha across Greater Manchester, Cheshire, Derbyshire, South and West Yorkshire, Staffordshire, and (53°28'03" N, 01°45'51"W) (JNCC 2006g). Around 2,364.74ha (5.22%) of the SPA lie within Greater Manchester. The site covers extensive tracts of semi-natural moorland habitats including upland heath and blanket mire. The site is of European importance for several upland breeding species, including birds of prey and waders.
- 6.5.2 The site is designated for its Habitats Directive Annex II species (EC 1992c) of breeding short-eared owl (*Asio flammeus*), merlin (*Falco columbarius*) and golden plover (*Pluvialis apricaria*) (JNCC 2006g).
- 6.5.3 Major urban and industrial centres near to the Peak District Moors provide significant visitor pressure, and approximately two-thirds of the moorlands are open to public access. Habitat damage through physical erosion or fire,

combined with disturbance of breeding birds, can be significant. Initiatives for sustainable recreation are being developed. Many habitats are sub-optimal (in vegetation terms) as a consequence of historic air pollution, high grazing pressure and wildfire burns. Grazing pressure is generally being lowered and appropriate burning encouraged under Environment Sensitive Area (ESA) schemes. Notwithstanding these schemes, evidence suggests that breeding birds in the southwest of the SPA may be declining on both open moorland and enclosed rough grazing land, possibly due to general agricultural improvement of the surrounding areas which are used by some species for some of their habitat requirements, e.g. merlin and golden plover spend some of their time feeding outside the SPA on adjacent areas of in-by land.

6.6 South Pennines Moors Phase 2 SPA

- 6.6.1 Figure 5 shows the location of the South Pennine Moors Phase 2 SPA. The South Pennines Moors Phase 2 SPA covers 20,944.49ha in Greater Manchester, Lancashire, and North and West Yorkshire (53°48'38" N, 02°04'16" W) (JNCC 2006h). Approximately 2,094.45ha (10.0%) of the site lies within Greater Manchester. The site comprises typical habitats of upland hills and valleys: bogs, marshes, fens, heath, scrub, and grassland.
- 6.6.2 South Pennines Moors Phase 2 SPA is designated for its Habitats Directive Annex II species (EC 1992c) of breeding short-eared owl, merlin and golden plover (Article 4.1 qualification), and its internationally important assemblage of birds, including breeding common sandpiper (*Actitis hypoleucos*), dunlin (*Calidris alpina*), twite (*Carduelis flavirostris*), snipe (*Gallinago gallinago*), curlew (*Numenius arquata*), wheatear (*Oenanthe oenanthe*), whinchat (*Saxicola rubetra*), redshank (*Tringa totanus*), ring ouzel (*Turdus torquatus*), and lapwing (*Vanellus vanellus*) (Article 4.2 qualification) (JNCC 2006h).
- 6.6.3 The South Pennine Moors SPA (Phase 2) is flanked on two sides by large industrial urban areas, meaning that large numbers of people use the area for recreational activities. Maintenance of the ecosystems on which the birds depend relies on appropriate grazing levels and burning regimes, and overgrazing by sheep is a key pressure on the site. Management of grazing is further complicated by the presence of a large number of commons within the SPA. Pressures outside the site, in particular the loss of bird feeding areas through agricultural intensification, increase the vulnerability of the bird populations. All these issues are being tackled through the production of an integrated management strategy and conservation action programme as part of EU-funded LIFE project, which has brought together statutory and voluntary bodies and the private sector in a wide-ranging partnership.

6.7 Rixton Clay Pits SAC

- 6.7.1 Figure 4 shows the location of Rixton Clay Pits SAC which is located

outside of the GM boundary. The Rixton Clay Pits SAC is 13.64ha site situated to the east of Warrington comprising parts of extensive disused brickworks excavated in glacial boulder clay (JNCC 2006i). The extraction of clay has left a series of clay banks and hollows that have filled with water since workings ceased in the 1960s, leading to the formation of a diversity of ponds of varying maturity and size. New ponds have also been created more recently for wildlife and amenity purposes. Great crested newts are known to occur in at least 20 ponds across the site. The site also supports species-rich calcareous grassland, scrub and mature secondary woodland.

- 6.7.2 Rixton Clay Pits SAC is designated for its Habitats Directive Annex II species (EC 1992c) of great crested newt (*Triturus cristatus*) (JNCC 2006i).
- 6.7.3 Great crested newt numbers have been dwindling nationally at a rate reported at 2% of colonies (or 360 populations) per year (The Wildlife Trusts 2000). Major causes have been the loss of breeding ponds and surrounding terrestrial habitat by built development and waterborne pollution from industry and roads. Overall, pond habitat is suffering a decline nationally, as they are less favoured to other modes of landscaping (e.g. amenity mowing regimes) and intensive landscape management.
- 6.7.4 Warrington Borough Council owns and manages the site. A possible conflict between grassland management and great crested newts has been identified and is being addressed through research on the site. However, the great crested newt population is increasing at the site.

6.8 Rostherne Mere Ramsar site

- 6.8.1 Figure 4 shows the location Rostherne Mere Ramsar located outside of the GM boundary. Rostherne Mere Ramsar site covers 79.76ha and is situated 16km southwest of the centre of Manchester, close to the southern outskirts of Greater Manchester (N 53°21'14", W 02° 23'05") (JNCC 2006j). It is the deepest, one of the largest, and the most northerly of the meres of the Shropshire-Cheshire Plain. Owing to its depth it rarely freezes over, which ensures that it offers excellent habitat to large numbers of wintering wildfowl. The mere has little submerged vegetation but its shoreline is fringed with common reed (*Phragmites australis*). Associated fringing habitats such as reed swamp, fen, carr and damp pasture add to the value of the mere.
- 6.8.2 It is surrounded by large blocks of woodland and moderately intensively farmed grassland. Remains of a former peat bog in the north and willow beds in the south are other notable habitats. It lies at the end of a single-stream system, receiving water from the much shallower Little Mere (an artificial amenity lake formed in the 19th century) and Mere Mere. The three meres drain a small catchment of agriculture, urban areas and parkland.
- 6.8.3 Rostherne Mere Ramsar site is designated under Ramsar criterion 1

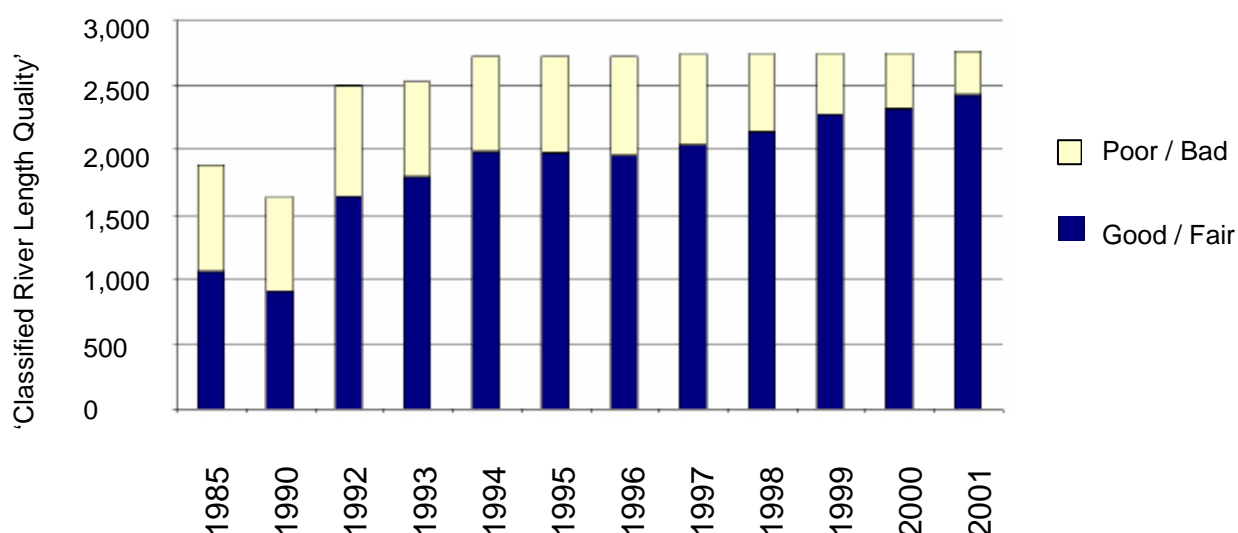
because it is recognised as an important wetland within the biogeographic region: it is one of the deepest and largest of the meres of the Shropshire-Cheshire Plain, and its shoreline is fringed with common reed. It also supports nationally important populations of cormorant (*Phalacrocorax carbo*), bittern (*Botaurus stellaris*), and water rail (*Rallus aquaticus*).

6.9 Mersey Estuary SPA / Ramsar site

- 6.9.1 Figure 6 shows the location of The Mersey Estuary within the context of its hydraulic connection to Greater Manchester. The Mersey Estuary (53°18'51" N, 02°49'25" W) is a large sheltered estuary that receives drainage from a catchment area of c.5,000km² (Langston *et al.* 2006) encompassing the conurbations of Liverpool and Manchester, and including the River Mersey and the River Bollin and their tributaries in Cheshire and Merseyside. The estuary covers 5023.35ha of saltmarsh and inter-tidal sand and mudflats, with limited areas of brackish marsh, rocky shoreline and boulder clay cliffs, within a rural and industrial environment. The intertidal flats and saltmarshes provide feeding and roosting sites for large and internationally important populations of water birds, and during the winter, the site is of major importance for duck and waders. The site is also important during the spring and autumn migration periods, particularly for wader populations moving along the west coast of Britain (JNCC 2006k).
- 6.9.2 The Mersey Estuary qualifies as an SPA as it regularly supports an internationally important population (≥1% of the GB population) of golden plover (Article 4.1), and important populations of migratory redshank, dunlin, pintail (*Anas acuta*), shelduck (*Tadorna tadorna*), Eurasian teal (*Anas crecca*), wigeon (*Anas penelope*), black-tailed godwit (*Limosa limosa*), curlew, grey plover (*Pluvialis squatarola*), great crested grebe (*Podiceps cristatus*), lapwing, and ringed plover (*Charadrius hiaticula*) (JNCC 2006k).
- 6.9.3 The Mersey Estuary is additionally designated as a Ramsar site as it supports up 89,576 waterfowl (5-year peak mean 1998/99-2002/03) (Criterion 5) (UN 2005) and internationally important populations of common shelduck, black-tailed godwit, redshank, Eurasian teal, pintail and dunlin (Criterion 6) (JNCC 2006l).
- 6.9.4 Water pollution has been an issue in the Mersey estuary since at least the 18th century, when the Mersey catchment became a prime location for industrial expansion, especially the textile industry. With this there was an associated growth in bleaching, dying, and finishing trades, and paper, heavy chemical and glass industries, which are still in production to this day. All of these industries used the waterways as a means for the disposal of industrial waste, resulting in a legacy of pollutants within the River Mersey, and including mercury, pesticides (e.g. DDT), and persistent organic contaminants (e.g. polychlorinated biphenyls (PCBs), pentachlorophenol (PCP)) (Mersey Basin Campaign 2004). In addition, there was surface runoff, and the discharge of domestic waste-water and

sewage directly into the waterways from a large and growing human population, resulting in gross pollution (Langston *et al.* 2006). The high levels of sewage discharged in to the waterways resulted in low oxygen levels and a major difficulty in improving water quality.

Table 4: Water quality improvements across the Mersey catchment from 1985 to 2001 (Mersey Basin Campaign 2004)



6.9.5 The problem of water pollution in the Mersey Estuary ‘was probably at its worst in the 1960’s’ and making it the most polluted estuary in the UK (Mersey Basin Campaign 2004). Major improvements to water quality have been realised since the formation of the Mersey Basin Campaign in 1985, which aims to ‘revitalise the River Mersey and its waterfront’ (Langston *et al.* 2006). Table 4 illustrates the water quality improvements in the River Mersey reported by the Mersey Basin Campaign (Mersey Basin Campaign 2004), which are assumed to refer to chemical water quality, and the vertical column to river length.

6.9.6 The major projects that brought about the improvements to water quality tackled the direct discharges of sewage into the region’s waterways. New projects included: primary sewage works at Sandon Dock replaced 28 crude sewage discharges directly into the Mersey Estuary through the MEPAS scheme (Mersey Estuary Pollution Alleviation Scheme); fine sewage screening plants on the Wirral peninsula; secondary sewage treatment and petrochemical effluent treatment plants at Ellesmere Port; secondary sewage treatment plants at Widnes and Warrington; modification of the Davyhulme sewage treatment plan in Greater Manchester to treat ammonia (which may kill salmonid species); and later secondary sewage treatment plants at Birkenhead/Bromborough. Other improvements have been made, including reducing inputs of mercury, lead, cadmium, PCP and chlorinated hydrocarbons into the estuary.

6.9.7 However, certain inputs remain, including:

- pesticides and herbicides from agriculture (largely dairy farming) into the upper river system;
- phthalate esters (used as plasticisers - increase flexibility in plastics) thought to come from wastewater discharges in the upper Mersey;
- hydrocarbon contamination from oil spillage/spills from Tranmere Oil Dock/Terminal, Stanlow (Shell) Oil Refinery and oil tanks along the southern bank of the estuary, from pipelines that run between these sites along the southern bank of the estuary, and from oil shipping spills in the Irish Sea;
- PCBs from the River Mersey (possibly also dredge spoils); and
- PCBs from contaminated land in the catchment area (Marine Biological Association, 2006).

6.9.8 The General Quality Assessment (GQA) scheme, introduced by the National Rivers Authority (NRA), and replaced by the Environment Agency (EA) in 1996, monitors the water quality of rivers and canals throughout England and Wales. It assesses the chemical and biological status, nutrient levels, and aesthetic water quality from permanent sampling stations. The Mersey Basin Campaign (2005) reports on sites in the Mersey catchment that detail low (Grades D, E and F, or 'fair' to 'bad') biological and chemical river water quality (Only those within the Mersey catchment – see Appendix 9 – are described). Such sampling sites are particularly concentrated in the area between Knowsley and Manchester, including St. Helens and Wigan, although biological quality is generally poor from Liverpool to Manchester.

6.9.9 The main current environmental pressures upon the Mersey Estuary SPA and Ramsar site are considered to be:

- disturbance of sediment releasing legacy heavy metal pollution (mercury, lead, cadmium and other poisons) that is bound into the sediment, or other introduction of these metals;
- pollution via rivers and drains by both treated sewerage and untreated runoff containing inorganic chemicals and organic compounds from everyday domestic products, which 'may combine together in ways that make it difficult to predict their ultimate effect of the marine environment... Some may remain indefinitely in the seawater, the seabed, or the flesh, fat and oil of sea creatures' (Langston *et al.* 2006);
- pollution via commercial shipping by chemical pollution and the dumping of litter at sea;
- 'coastal squeeze' and physical loss from land reclamation and coastal flood defences and drainage used in order to develop coastal land, and from sea level rise;
- loss or physical damage of marine benthic habitat directly and indirectly (through changed sedimentation/deposition patterns) as a result of navigational or aggregate dredging;
- disturbance to birds from increased recreational pressure (e.g. boat or other recreational activity) and wildfowling;

- introduction of non-native species and translocation; and
- selective removal of species (e.g. bait digging, wildfowl, fishing) (Wildlife Trust 2006; Langston *et al.* 2006).

6.9.10 Although the Mersey estuary does have a high load of nutrients mainly from diffuse sources, with levels for phosphate and nitrogen decreasing from point sources, recent modelling has shown that due to the natural turbidity of the water, there is only a low risk of excessive algal growth. Therefore NE does not consider nutrients to be a pressure on Mersey Narrows and Wirral Foreshore (Mandy North, Natural England, *pers. comm.*).

6.10 Mersey Narrows and North Wirral Foreshore pSPA / pRamsar site

6.10.1 The Mersey Narrows and North Wirral Foreshore pSPA and pRamsar site covers 2089.41ha on the northwest coast of England at the mouths of the Mersey and Dee estuaries (53°29'53" N, 07°03'43" W). The site comprises a number of intertidal habitats important to non-breeding waders and breeding terns.

6.10.2 Egremont foreshore on the west bank of the Mersey estuary is important as a low tide feeding habitat for waders. Seaforth Nature Reserve on the north bank lies on land reclaimed in the 1960s and consists of a complex of open water, saltmarsh and grasslands. Specifically it comprises two lagoons, a shallow water lagoon which functions as a settlement lagoon for water pumped from the River Mersey into the Seaforth Docks and a freshwater lagoon separated from the saltwater lagoon by a wide bund. The site is particularly important as a high tide roost, especially during high spring tides, and nesting site for terns.

6.10.3 The extensive intertidal flats at North Wirral Foreshore support large numbers of feeding waders at low tide, particularly knot (*Calidris canutus*) at East Hoyle Bank and Mockbeggar Wharf, and also include important high-tide roost sites. The most notable feature of the site is the exceptionally high density of wintering turnstone (*Arenaria interpres*). The Mersey Narrows and North Wirral Foreshore has clear links in terms of bird movements with the nearby Dee Estuary SPA and Ramsar site, Ribble and Alt Estuaries SPA and Ramsar site, and (to a lesser extent) the Mersey Estuary SPA and Ramsar site (Wirral MBC 2001).

6.10.4 The Mersey Narrows and North Wirral Foreshore area is proposed as a SPA and Ramsar site on the grounds of its importance as feeding and roosting habitat for non-breeding wading birds, and as a breeding site for terns (Wirral MBC 2001).

6.10.5 Although not yet a designated SPA or Ramsar site, NE has drafted nature conservation objectives for the site (Natural England 2007a).

- 6.10.6 Due to its location at the mouth of the Mersey Estuary and in the Liverpool Bay, this site has been subject to the same changes as described for the Liverpool Bay pSPA and pRamsar site, and the Mersey Estuary SPA and Ramsar site, in particular water quality improvements since the 1960s (especially since 1985), and increases in agricultural effluent pollution during this same period.
- 6.10.7 Although the Mersey estuary does have a high load of nutrients mainly from diffuse sources, with levels for phosphate and nitrogen decreasing from point sources, recent modelling has shown that due to the natural turbidity of the water, there is only a low risk of excessive algal growth. Therefore NE does not consider nutrients to be a pressure on Mersey Narrows and Wirral Foreshore (Mandy North, Natural England, *pers. comm.*).

6.11 Liverpool Bay pSPA

- 6.11.1 The Liverpool Bay pSPA is a 197,504.24ha maritime site located in the south-eastern region of the northern part of the Irish Sea bordering northern England and north Wales, and running as a broad arc from Rossall Point near Fleetwood, Lancashire in the north, to Moelfre on the north-east coast of Anglesey at the most westerly extent. Large areas of muddy sand stretch from Rossall Point to the Ribble Estuary, and sand predominates in the remaining areas, with a concentrated area of gravelly sand off the Mersey Estuary and a number of prominent sandbanks off the English and Welsh coasts.
- 6.11.2 As the site extends up to approximately 20km from the shoreline most of the area of the pSPA site is relatively shallow water up to 20m deep. The tidal currents throughout the pSPA are generally weak, which combined with a relatively large tidal range facilitates the deposition of sediments. It is contiguous with a number of other European sites, including the Ribble and Alt Estuaries SPA and Ramsar site, Mersey Narrows and North Wirral Foreshore pSPA and pRamsar site, and Mersey Estuary SPA and Ramsar site.
- 6.11.3 In 2004, the Joint Nature Conservation Committee (JNCC) reported on aerial survey data aimed at identifying likely numbers and distributions of waterbirds using Liverpool Bay in the non-breeding season (Webb *et al.* 2004a). This was followed by recommendations for and selection of boundaries for an SPA in Liverpool Bay (Webb *et al.* 2004b).
- 6.11.4 Liverpool Bay qualifies for SPA status because it regularly supports (Webb *et al.* 2004a) important populations of red-throated diver (*Gavia stellata*) (Annex I species; EC 1992b) and common scoter (*Melanitta nigra*), and >20,000 waterfowl during the non-breeding season, which is a potential qualification as a Ramsar Site (Criterion 5 regarding Article 2 of the Ramsar Convention). Other species that might be included, as they may occur in numbers of national importance are: great crested grebe; common

eider (*Somateria mollissima*); red-breasted merganser (*Mergus serrator*); cormorant; and little gull (*Larus minutes*) (from Webb *et al.* 2004b).

- 6.11.5 Important areas for red-throated diver within Liverpool Bay include off the Ribble Estuary, North Wales and the North Wirral Foreshore, while common scoter tend to be clustered in Red Wharf Bay (Anglesey) and Conwy Bay, Great Orme's Head to the North Wirral Foreshore, and Formby Point to Shell Flat (off Blackpool) (Webb *et al.* 2004a).
- 6.11.6 Since the site is not yet an SPA, there are no current nature conservation objectives provided, but they would likely be similar to those of other maritime and estuarine SPAs, particularly nearby sites such as the Mersey Estuary SPA.
- 6.11.7 With the proposed site encompassing approximately 198,000ha and a range of estuarine and maritime habitat, the Liverpool Bay pSPA is subject to a wide range of pressures of varying spatial scope and human activity. Perhaps the most direct way to establish the proposed site's recent changes in health / ecological status is through the changing environmental pressures upon the Irish Sea.
- 6.11.8 The industrial revolution of the 19th century led to the Irish Sea being used to dispose liquid waste, including sewage and unwanted by-products of industrial processes (including mining, manufacturing, nuclear waste reprocessing and energy generation). Liverpool Bay itself was actively used for the disposal of domestic sewage sludge and industrial waste. At the peak of activity 50,000 tonnes (dry weight) was disposed of in the Bay each year. Such activities ceased when all dumping of waste at sea was prohibited under the 1993 International Maritime Convention, and sewage and other waste are no longer dumped offshore in an uncontrolled manner. While Liverpool Bay is hyper nutrified, there is no evidence of harmful algal blooms or de-oxygenation of seawater (Environment Agency, *pers. comm.* 2007).
- 6.11.9 A number of areas on the coasts of North Wales, Merseyside and Lancashire are traditional seaside holiday centres where marine tourism and leisure activities make a major contribution to the local economy. There are existing, partially completed and proposed marina developments at Conwy, Beaumaris, and the Mersey and Ribble Estuaries.
- 6.11.10 The eastern Irish Sea is a focal point for commercial shipping. With eight commercial ports either located within or adjacent to Liverpool Bay a very high proportion of the shipping traffic traverses the Bay. A number of ports undertake navigational dredging and disposal of material in or adjacent to the pSPA.
- 6.11.11 The main environmental pressures on the Irish Sea relevant to the nature conservation objectives of the Liverpool Bay pSPA are listed in Appendix 10.

7 SCREENING ASSESSMENT

7.1 Overview

- 7.1.1 The Sustainability Appraisal of the JWDPD Stage Two Issues and Options Report: Residual Waste Disposal appraised a short list of potential sites for residual waste disposal, for their suitability for waste management technologies (as described in section 3.1.2), within all ten districts of Greater Manchester. The results of this appraisal are summarised in Figures 1-2. From those sites appraised as suitable or highly suitable for one or more waste facility categories, there is the potential for impacts to occur on habitats and species within European Sites. The JWDPD may therefore result in significant effects on the integrity of European sites. In such situations there is also the potential for these impacts to increase in magnitude/severity in combination with other plans and policies.
- 7.1.2 Potential impacts associated with each type of waste facility category have been summarised in Section 3 and discussed in greater detail in Appendices 4-9. These potential impacts are either direct (e.g. where a potential waste site is located adjacent to a SAC and may directly impinge upon it) or indirect (through an air or water pathway). Generally, potential impacts on European designated sites can arise from waste facilities in the following ways:
- landfill/composting gas;
 - landfill gas flare emissions;
 - leachate;
 - surface water runoff;
 - dust generation;
 - litter;
 - physical disturbance;
 - noise and vibration;
 - gulls, corvids and rats;
 - bioaerosols (including airborne microbes and fungus); and
 - traffic emissions.
- 7.1.3 Consideration of potential impacts related to the three categories of residual waste disposal facilities, along with the potential location for these waste facilities put forward by the JWDPD has allowed potential pathways to be identified between potential waste sites and European sites. This provides a framework upon which to assess the effects of the proposed JWDPD on European sites. The potential impacts associated with these potential waste sites on European sites are listed in the Screening Summary Table, Appendix 10.

7.2 Recommended Buffer Zones

- 7.2.1 This Stage-1 HRA is a draft working document that has been prepared in parallel with the JWDPD. As such it will require review and refinement as new data and new policies and plans are developed. This Draft HRA has influenced the contents of the JWDPD in order that adverse impacts on European sites can be avoided at this very early stage in the planning process. To account for potential pathways, buffer zones around each European site based on existing best practice guidance and recommendations by the Environment Agency (2004c), and in the DMRB (DMRB, 2007); (DMRB, 2008) have been set. Potential sites for residual waste disposal should be assessed for potential impact where:
- the location of the facility falls within 2km of a European site; and/or
 - the activity could attract gulls/corvids and it falls within 5km of a SPA, pSPA or Ramsar site (or other site vulnerable to disturbance or predation by these pests); and / or
 - a European site could be impacted because of a hydrological connection to an emission.
- 7.2.2 The buffer zones take into account potential direct impacts and indirect impacts arising from air as a pathway. The consideration of additional hydraulic connections ensures potential indirect impacts arising from water as a pathway are considered.
- 7.2.3 Residual waste disposal facilities were not considered in the Stage Two Issues and Options Report: Residual Waste Disposal. Residual waste disposal is now being considered during Stage Two Issues and Options: Residual waste disposal and will be subject to a separate SA and HRA. The potential pathways and impacts associated with residual waste disposal sites are different to other waste management facilities therefore different buffer zones would apply.
- 7.2.4 Most natural heritage designations identify only the actual area of special interest, and do not normally include buffer areas to provide protection from potential distant impacts. Associated regulations or policies usually cover this by referring to the need to avoid an adverse impact on the protected interest, even where the development is outwith the designated area. For example, SPAs designated to protect birds usually only cover core breeding and feeding territory, but the birds may range more widely and therefore be affected by gulls and corvids associated with residual waste disposal (landfill) facilities at some distance from the site. The underlying requirements of a SPA include that there should be no adverse effect on the bird populations of that site. For a protected landscape, a residual waste disposal site close to the boundary may have an impact on the landscape experience within the protected area.
- 7.2.5 Similarly potential impacts on habitats associated with a SAC arising from landfill gas, landfill gas flare/ENF emissions, noise, litter, physical

disturbance, bioaerosols and dust may be realised up to 1km from the site, and hydraulic connections may result in impacts within whole catchment areas.

- 7.2.6 Therefore, it is considered that implementation of the suggested buffer zones ensures that the precautionary approach is adopted where the potential adverse impacts of the JWDPD on certain European sites cannot, as yet, be excluded. However, buffer zones are set for biodiversity issues alone, and other factors (e.g. visual constraints, traffic congestion, odour, public perception) would need to be assessed separately and do not fall within the remit of this HRA.
- 7.2.7 Finally, the DMRB (2008) state that consideration should be given to any cSACs or SACs within 30km of a route corridor or project boundary where bats are noted as one of the qualifying interests. Bats are not a qualifying feature in any SACs within 30km of Greater Manchester.
- 7.2.8 These 'buffer zones' have been set in order to be consistent with internal Environment Agency Guidelines (Environment Agency, 2004c). It is important to note that this HRA has been developed without reference to the Natural England HRA Guidance, as this has not been signed off by the CLG and is not therefore in circulation. This Draft HRA will be formally issued to NE for comments and any refinements to the conclusions for screening will need to be implemented before adoption.
- 7.2.9 This broad guidance provides a strategic assessment only. Further site location information and information on the type and size of a project will be required to assess whether a specific waste facility proposal would pose a potentially significant risk to the integrity of the European sites or their nature conservation objectives. Such projects will be assessed through a project-based HRA.

7.3 Outcomes and Conclusions

- 7.3.1 By considering the three potential residual waste disposal sites, and their suitability for such waste facilities, and taking into consideration the assumptions outlined above, Scott Wilson is able to conclude that the JWDPD alone, or in combination with other plans and policies is **likely to have significant effects** on internationally important interest features of the following European sites:
- Manchester Mosses SAC; and
 - Peak District Moors (South Pennine Moors Phase 1) SPA.
- 7.3.2 This is associated with the potential pathways between potential waste sites including:
- SA 20 (Highmoor); and
 - RW 79 (Vicars Hall Lane).

- 7.3.3 These potential waste sites have therefore been **screened in** therefore requiring further assessment as part of the HRA process. Table 5 summarises the pathways which have been identified between these potential waste sites, and European sites.
- 7.3.4 The JWDPD is **Not Likely to result in Significant Effects** on the remainder of the European sites considered within this Addendum Report, alone or in combination with other plans and policies, with regards to specific waste facility categories and locations identified in the JWDPD:
- South Pennine Moors SAC;
 - Peak District Moors (South Pennine Moors Phase 2) SPA;
 - Rostherne Mere Ramsar site (located outside of Greater Manchester);
 - Rixton Clay Pits SAC (located outside of Greater Manchester);
 - Mersey Estuary SPA / Ramsar site (located outside of Greater Manchester);
 - Mersey Narrows and North Wirral Foreshore pSPA / pRamsar (located outside of Greater Manchester); and
 - Liverpool Bay pSPA (located outside of Greater Manchester).
- 7.3.5 There are no pathways between the potential waste sites identified and the following European sites: South Pennine Moors SAC; Peak District Moors (South Pennine Moors Phase 2) SPA; Rostherne Mere Ramsar site; and Rixton Clay Pits SAC. While there are pathways between the potential waste sites (Rw70 and SA 20), the distance between the sites is considered too great for like significant effects on the integrity of the European sites to materialise. These European sites may therefore be excluded from future 'long lists' of European sites which may be impacted upon by the JWDPD and therefore excluded from consideration in subsequent stages of the HRA process.
- 7.3.6 Should a potential waste site be considered for a different waste facility category, this HRA Screening may not be valid and will require revision to take account of the proposed change. This is because the potential pathways between a waste facility and European site may change if the waste facility category, or location changes. This is particularly pertinent with any open air windrow composting sites which require a larger buffer zone around European sites due to potential impacts of corvids. Additionally the assumptions relating to each waste facility category are based on descriptions in Appendix 4. Should these descriptions change (e.g. it is assumed that open air waste management and facilities deal with inert waste only; built (enclosed) waste management and recycling facilities would not attract gulls and corvids as waste is stored/processed indoors), this may affect the potential pathways between the waste site and a European Site. If any such changes were to occur, this HRA Screening report would require updating as additional waste sites may need to be 'screened in' therefore requiring assessment in subsequent stages of the

HRA process. Similarly, the 'long list' of European sites which may be impacted upon by the JWDPD will require reassessment.

- 7.3.7 This HRA Screening Report has identified potential pathways between the waste facility categories identified (source of impact) and European sites (receptor). This has enabled consideration of the potential effects on European sites arising from potential residual waste disposal sites.
- 7.3.8 A 'preventative assumption' exists for the development of the residual waste disposal sites: SA 20 (Highmoor); and RW 79 (Vicars Hall Lane). This is due to potential significant effects on internationally important features of European designated sites. As such these sites have been 'screened in' therefore requiring further assessment in subsequent HRA stages.
- 7.3.9 It should be noted that whilst a preventative assumption exists for these potential residual waste disposal sites, there is not necessarily a 'presumption in favour' for the remaining potential residual waste sites appraised within the SA Stage 2 Issues and Options Report which have been Screened Out from requiring further assessment in subsequent stages of the HRA process. These sites may still be subject to the Habitat Regulations (2007) and may be refused permission if a proposed waste installation does not meet its tests at the project level.
- 7.3.10 Any proposal which flows from the JWDPD which may have an adverse effect on the integrity of the European site(s) will not have support of the JWDPD.

Table 5: HRA Stage-1 Screening Assessment Summary

Potential Waste Site	Waste Facility Categories (identified as suitable for the potential site by the SA)	Location	Potential Pathways to European Sites	Potential Waste Sites screened in from requiring further HRA Assessment
SA 20 Highmoor Quarry	Residual Waste Disposal suitable for: <ul style="list-style-type: none"> Inert Waste Non-Hazardous Waste 	Refer to Figure 5 Located at an existing quarry and landfill. Located within Oldham, approximately 4km west of South Pennine Moors SAC and Peak District Moors (South Pennine Moors Phase 1) SPA Surrounding land use is open land and farm land.	Peak District Moors (South Pennine Moors Phase 1) SPA: development of a residual waste disposal site at site SA20 (Highmoor) which is located approx. 4km west. This falls within the Environment Agency SPA 5km buffer for landfill sites attracting gulls and corvids.	Screened in with regards to potential significant effects on: <ul style="list-style-type: none"> Peak District Moors (South Pennine Moors Phase 1) SPA
RW 79 Vicars Hall Lane, adjacent to Whitehead Landfill	Residual Waste Disposal suitable for: <ul style="list-style-type: none"> Inert Waste 	Refer to Figure 5 Located in Salford, approximately 1.4km from Manchester Mosses SAC	Manchester Mosses SAC: (1.3km from the RW79) is located within the 2km buffer zone recommended by EA (2004) for landfill sites. There are potential groundwater connections between the sites. Sufficient uncertainty remains as to whether	Screened in with regards to potential significant effects on: <ul style="list-style-type: none"> Manchester Mosses

Potential Waste Site	Waste Facility Categories (identified as suitable for the potential site by the SA)	Location	Potential Pathways to European Sites	Potential Waste Sites screened in from requiring further HRA Assessment
		<p>The western boundary of the site adjoins the existing Whitehead Landfill site. The site is bounded by agricultural land to all other aspects. There is also a large woodland to the south east.</p>	<p>air emissions from heavy traffic generated by facilities, enhanced by prevailing south westerly winds would affect habitat required by qualifying bird species (Precautionary approach adopted).</p>	<p>SAC</p>