

Appropriate Assessment Report of the Greater Manchester Joint Waste Development Plan Document

Final December 2010



Prepared for

Revision Schedule

Appropriate Assessment Report December 2010

Rev	Date	Details	Prepared by	Reviewed by	Approved by
01	09 July 2010	Draft for client comment and internal review	Leila Payne Ecologist	Dr James Riley Principal Ecologist	Dr James Riley Principal Ecologist
02	13 July 2010	Draft including clients initial comments	Leila Payne Ecologist	Dr James Riley Principal Ecologist	Dr Jo Hughes Technical Director(Ecology)
03	14 July 2010	Draft including clients initial comments	Leila Payne Ecologist	Dr James Riley Principal Ecologist	Dr Jo Hughes Technical Director (Ecology)
04	05 August 2010	Draft following NE comments for public consultation	Leila Payne Ecologist	Dr James Riley Principal Ecologist	Dr Jo Hughes Technical Director (Ecology)
05	21 December 2010	Final following consultation	Leila Payne Ecologist	Dr James Riley Principal Ecologist	Dr Jo Hughes Technical Director (Ecology)

This document has been prepared in accordance with the scope of Scott Wilson's appointment with its client and is subject to the terms of that appointment. Scott Wilson accepts no liability for any use of this document other than for the purposes for which it was prepared and provided. Any advice, opinions, or recommendations within this document should be read and relied upon only in the context of the document as a whole. The contents of this document do not provide legal or tax advice or opinion.

Scott Wilson
Scott House
Brunel House
54 Princess Street
Manchester
M1 6HS

Tel: 0161 2376077
Fax: 0161 9073501
www.scottwilson.com

Table of Contents

1	Introduction.....	4
	Background to Habitat Regulations Assessment.....	4
	Greater Manchester Joint Waste Development Plan Document.....	5
	Scope and Objectives	6
2	Methodology	8
	Introduction	8
	A Proportionate Assessment.....	8
	The Process of HRA	9
	Stage Two: Likely Significant Effect Test (Screening)	10
	Stages 2 and 3: Appropriate Assessment and Mitigation	11
	Confirming other plans and projects that may act in combination.....	12
	JWDPD Site Allocations Scoped into the Assessment	14
	JWDPD Policies Scoped Into Appropriate Assessment	15
	Consideration of Alternatives	15
3	Appropriate Assessment: Pathways of Impact and Potential Effects on Site Integrity.....	16
	Introduction	16
	Atmospheric pollution.....	16
4	Appropriate Assessment: Mandale Park Area Allocation.....	25
	Background to Mandale Park Waste Area	25
	Identified Pathways to Site: Rochdale Canal SAC	25
	Historic Trends and Pressures.....	26
	Air as a Pathway.....	26
	Likely Significant Effects of Other Projects and Plans	28
	Measures within the JWDPD to minimise air quality impacts	28
5	Appropriate Assessment: Whitehead Landfill Extension Site Allocation.....	30
	Background to Waste Site.....	30
	Whitehead Landfill Emission Data.....	30
	Identified Pathways to European Sites: Manchester Mosses SAC	30
	Reasons for Designation.....	31
	Historic Trends and Current Pressures	31
	Air as a Pathway	31

Likely Significant Effects of Other Projects and Plans	33
Positive measures of the JWDPD	34
6 Summary and Schedule of Changes	36
Positive aspects of the JWDPD.....	36
Mitigating Text: JWDPD Policy Supporting Text Wording.....	37
Spatial Strategy and Site Allocations:.....	38
Conclusion	39
7 References	40
APPENDIX 1 – Electronic Copy of JWDPD HRA Screening Report (Combined Report, July 2010)	42
APPENDIX 2 – HABITAT REGULATIONS ASSESSMENT SCREENING TABLE ORGANISED BY POLICY	43
APPENDIX 3: WIND ROSE DIAGRAM FOR GREATER MANCHESTER	51
FIGURE 1: GREATER MANCHESTER JWDPD WASTE SITES AND NATURA 2000 SITES	53
FIGURE 2 GREATER MANCHESTER JWDPD WHITEHEAD LANDFILL EXTENSION AND NATURA 2000 SITES	55
FIGURE 3 GREATER MANCHESTER JWDPD MANDALE PARK AND NATURA 2000 SITES.....	57

1 Introduction

1.1 Scott Wilson Ltd (herein referred to as Scott Wilson) has been appointed by Greater Manchester Geological Unit (GMGU), on behalf of the Association of Greater Manchester Authorities (AGMA), to assist in undertaking a Habitat Regulations Assessment (HRA) (under the Conservation of Habitats and Species Regulations 2010) 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 and Ramsar 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.

Background to Habitat Regulations Assessment

1.2 The Habitats Directive (transposed into UK legislation by The Conservation of Habitats and Species Regulations 2010) applies the precautionary principle to Natura 2000 sites (Special Areas of Conservation, SACs, and Special Protection Areas, SPAs; as a matter of UK Government policy, Ramsar sites¹ are given equivalent status). The need for Appropriate Assessment (AA) is set out within Article 6 of the EC Habitats Directive 1992, and interpreted into British law by the Conservation of Habitats and Species Regulations 2010 (**Box 1**). The ultimate aim of the Directive is to “*maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest*” (Habitats Directive, Article 2(2)). This aim relates to habitats and species, not the European sites themselves, although the sites have a significant role in delivering favourable conservation status. In recent years the term Habitat Regulations Assessment has come into use to describe the entire process including Appropriate Assessment.

Box 1. The Legislative basis for Appropriate Assessment

Habitats Directive 1992

“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives.”

Article 6 (3)

Conservation of Habitats and Species Regulations 2010

“A competent authority, before deciding to ... give any consent for a plan or project which is likely to have a significant effect on a European site ... shall make an appropriate assessment of the implications for the site in view of that sites conservation objectives ... The authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site”.

¹ Wetlands of International Importance designated under the Ramsar Convention 1979

Greater Manchester Joint Waste Development Plan Document

- 1.3 The Planning and Compulsory Purchase Act 2004 requires local authorities to prepare a Local Development Framework (LDF). The LDF is made up of a portfolio of local Development Plan Documents (DPD), which must include policies to deal with waste.
- 1.4 In July 2005, agreement was reached across the ten Association of Greater Manchester Authorities (AGMA) districts to prepare a joint DPD for waste, to be known as the Greater Manchester Joint Waste Development Plan Document (GM JWDPD).
- 1.5 Work on the JWDPD is being co-ordinated and managed by the Greater Manchester Geological Unit (GMGU) on behalf of each District. In addition, a Joint Committee has been established to act as an Executive, with responsibility for all documents except those prepared for submission and adoption, which must be agreed by each District's Full Council.
- 1.6 The purpose of the JWDPD is to set out a planning strategy to 2027 for sustainable waste management across Greater Manchester, which enables the adequate provision of waste management facilities (including disposal) in appropriate locations for municipal, commercial and industrial, construction and demolition and hazardous wastes. The JWDPD will form part of the ten local authorities' individual LDFs and help deliver the relevant elements of the Community Strategy for each District. The JWDPD will put in place a planning policy framework, which will enable the ten Greater Manchester Authorities to take decisions on the locations of new waste management facilities. Criteria-based policies within the JWDPD will provide a consistent approach for dealing with waste planning applications across the ten authorities.
- 1.7 The overall aim of the Waste Plan is *to provide a sound spatial planning framework to deliver sustainable waste management in Greater Manchester consistent with national and regional planning policies and the Waste Strategy for England 2007. The purpose is to provide sufficient opportunities for new waste management facilities to come forward within Greater Manchester that are of the right type, in the right place and provided at the right time.*
- 1.8 Independent consultants Scott Wilson were commissioned to undertake the integrated Strategic Environmental Assessment / Sustainability Appraisal (SEA/SA) (known herein as 'SA') and HRA of the JWDPD. Scott Wilson prepared the SA of the Stage 1 Issues and Options, the SA of the Stage 2 Issues and Options, the SA for the Preferred Options, and an SA for the Draft Publication DPD). An HRA Screening exercise was undertaken concurrently on the Stage 2 Issues and Options Report.
- 1.9 As part of the SA, potential waste sites were assessed for their suitability for the following waste management technologies:
- A: Landfill / Land raise;
 - B: Open Air Waste Management Recycling Facilities;
 - C: Open Windrow Composting (OWC);
 - D: Conventional Thermal Treatment (CTT);
 - E: Advanced Thermal Treatment (ATT), includes Gasification and Pyrolysis;

- F: Material Recovery Facility (MRF);
- G: Mechanical Heat Treatment (MHT);
- H: Mechanical Biological Treatment (MBT);
- I: Anaerobic Digestion (AD); and
- J: In-Vessel Composting (IVC).

1.10 For the purpose of the HRA, the waste facility categories have been grouped into the following five categories:

- Waste Management & Recycling – Open Facilities;
- Open Air Windrow Composting;
- Landfill / Land Raise (residual waste facility);
- Thermal Treatment Facility (TTF) (includes CTT; ATT and Energy from Waste (EfW)²; and
- Waste Management & Recovery – Built (Enclosed) Facilities (MRF, MHT, MBT, AD, IVC).

1.11 These waste facility categories and process involved are described in greater detail in the HRA Screening Report (Appendix 1).

1.12 It is understood that the draft Publication DPD will be issued for consultation in November 2010. This will include a final list of site allocations for potential future waste management facilities. The draft Publication DPD will be accompanied by the Sustainability Appraisal Report and this Appropriate Assessment Report.

Scope and Objectives

1.13 The purpose of this current document is to present the Stage 2 and Stage 3 HRA (i.e. the Appropriate Assessment) of the draft Publication DPD. Stage 2 (HRA Screening) has been undertaken on the Second Stage JWDPD Issues and Options Report. This was completed by Scott Wilson in June 2008. HRA Screening was also undertaken on addendums to the JWDPD Issues and Options Report in February 2009 and February 2010 by Scott Wilson. All three reports have been compiled into one HRA Screening Report (July 2010) which is included in Appendix 1 of this Report. The findings of the HRA Screening is summarised in Section 2 (Methodology) of this report. .

1.14 Stage 2 HRA involves assessing the effects of the JWDPD on the conservation objectives of any European sites that have been 'screened in'. Stage 3 HRA makes recommendations for the avoidance of adverse effects and identifies mitigation so that the JWDPD can be altered to ensure there are no adverse effects. The HRA process is described in greater detail in Section 2 (Methodology).

1.15 The objectives of this HRA Appropriate Assessment Report is to:

- present the HRA Screening of the draft Publication JWDPD policies;

² Energy from Waste (EfW) (or Waste to Energy) refers to those types of thermal treatment that incorporate energy recovery technology. No large EfW facilities are currently envisaged in the Greater Manchester area.

- Identify the potential waste sites/areas (site allocations) that
 - (a) were 'screened in' due to pathways being identified between these waste sites/areas (source) and European sites (Special Areas of Conservation³, Special Protection Areas⁴ and Ramsar sites⁵) (receptor); and
 - (b) are being taken forward in the draft Publication JWDPD.
- research and set out details of the European site interest features and the environmental conditions that are required to maintain the favourable conservation status of those features;
- Explore the vulnerability of these European sites to potential impacts arising from the JWDPD policies and/or allocated waste sites/areas;
- Ultimately propose amendments and alterations to JWDPD policies where necessary in order to account for the vulnerabilities of these sites and thereby avoid adverse impacts both individually and in combination with other projects or plans; and
- Formally assess the JWDPD in accordance with the requirements of The Conservation of Habitats and Species Regulations 2010

³ Designated under Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora

⁴ Designated under Council Directive 79/409/EEC on the Conservation of Wild Birds

⁵ Wetlands of International Importance as agreed under the Convention on Wetlands, signed in Ramsar, Iran, in 1971. Although they are not part of the *Natura 2000* network, it is government policy to treat Ramsar sites as equivalent to Special Areas of Conservation and Special Protection Areas in matters such as appropriate assessment.

2 Methodology

Introduction

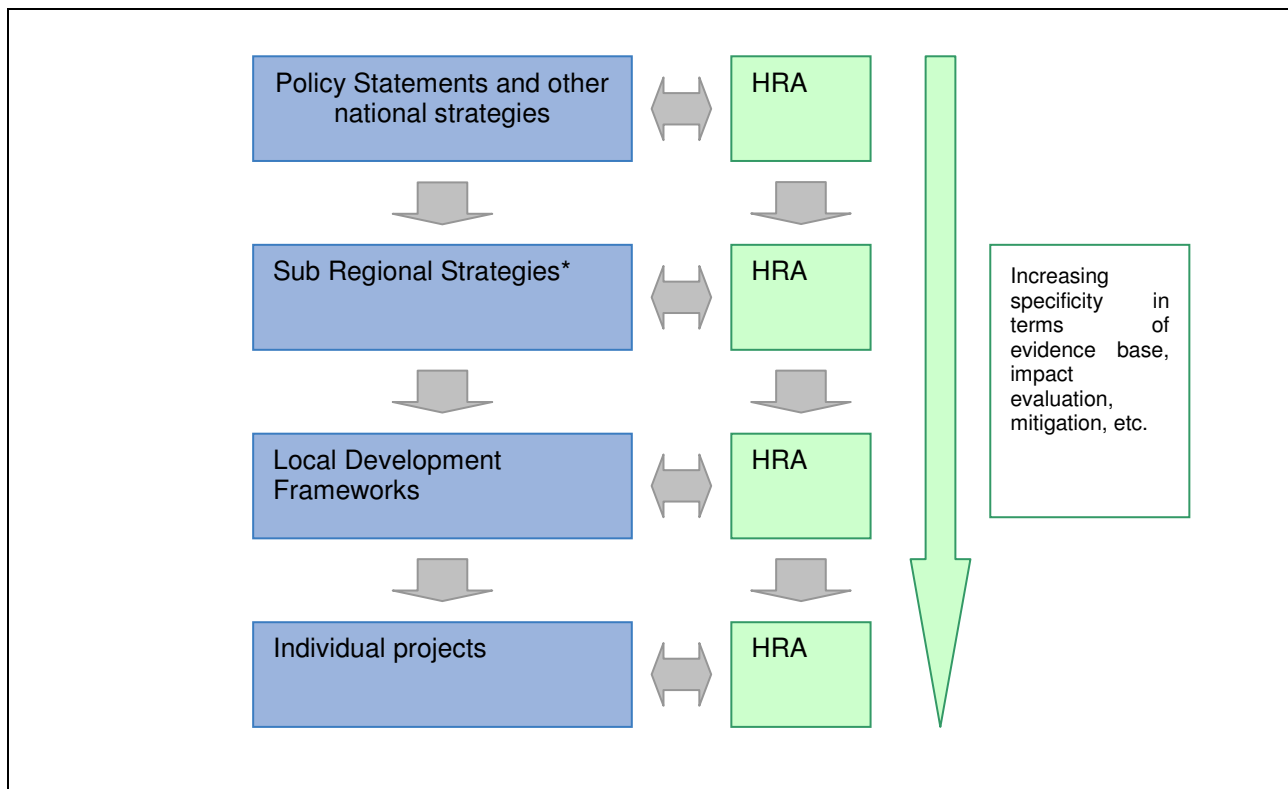
- 2.1 This section sets out our approach and methodology for undertaking the HRA. Habitat Regulations Assessment itself operates independently from the Planning Policy system, being a legal requirement of a discrete Statutory Instrument. Therefore there is no direct relationship to PPS12 and the 'Test of Soundness'. We will use our skills and experience to ensure that the HRA is: a) compliant, b) accepted by key stakeholders including Natural England c) has clear recommendations that can be used by the Greater Manchester Authorities to develop their plan; and d) has a clear record of the process undertaken, providing the necessary evidence base for the plan.

A Proportionate Assessment

- 2.2 Project-related HRA often requires bespoke survey work and novel data generation in order to accurately determine the significance of adverse effects. In other words, to look beyond the risk of an effect to a justified prediction of the actual likely effect and to the development of avoidance or mitigation measures.
- 2.3 However, the draft CLG guidance⁶ makes it clear that when implementing HRA of land-use plans, the AA should be undertaken at a level of detail that is appropriate and proportional to the level of detail provided within the plan itself:
- 2.4 *"The comprehensiveness of the [Appropriate] assessment work undertaken should be proportionate to the geographical scope of the option and the nature and extent of any effects identified. An AA need not be done in any more detail, or using more resources, than is useful for its purpose. It would be inappropriate and impracticable to assess the effects [of a strategic land use plan] in the degree of detail that would normally be required for the Environmental Impact Assessment (EIA) of a project."*
- 2.5 In other words, there is a tacit acceptance that appropriate assessment can be tiered and that all impacts are not necessarily appropriate for consideration to the same degree of detail at all tiers (**Box 2**).
- 2.6 For an LDF the level of detail concerning the developments that will be delivered is usually insufficient to make a highly detailed assessment of significance of effects. For example, precise and full determination of the impacts and significant effects of a new settlement will require extensive details concerning the design of the town, including layout of greenspace and type of development to be delivered in particular locations, yet these data will not be decided until subsequent stages.
- 2.7 The most robust and defensible approach to the absence of fine grain detail at this level is to make use of the precautionary principle. In other words, the plan is never given the benefit of the doubt; it must be assumed that a policy/measure is likely to have an impact leading to a significant adverse effect upon a European site unless it can be clearly established otherwise.

⁶ CLG (2006) Planning for the Protection of European Sites, Consultation Paper

Box 2: Tiering in HRA of Land Use Plans⁷



⁷Following the election of the Coalition Government in May 2010 and the removal of the Regional Spatial Strategy, a generic term 'Sub Regional Strategies' are added to this model. However this model may be refined as changes to planning policy are implemented.

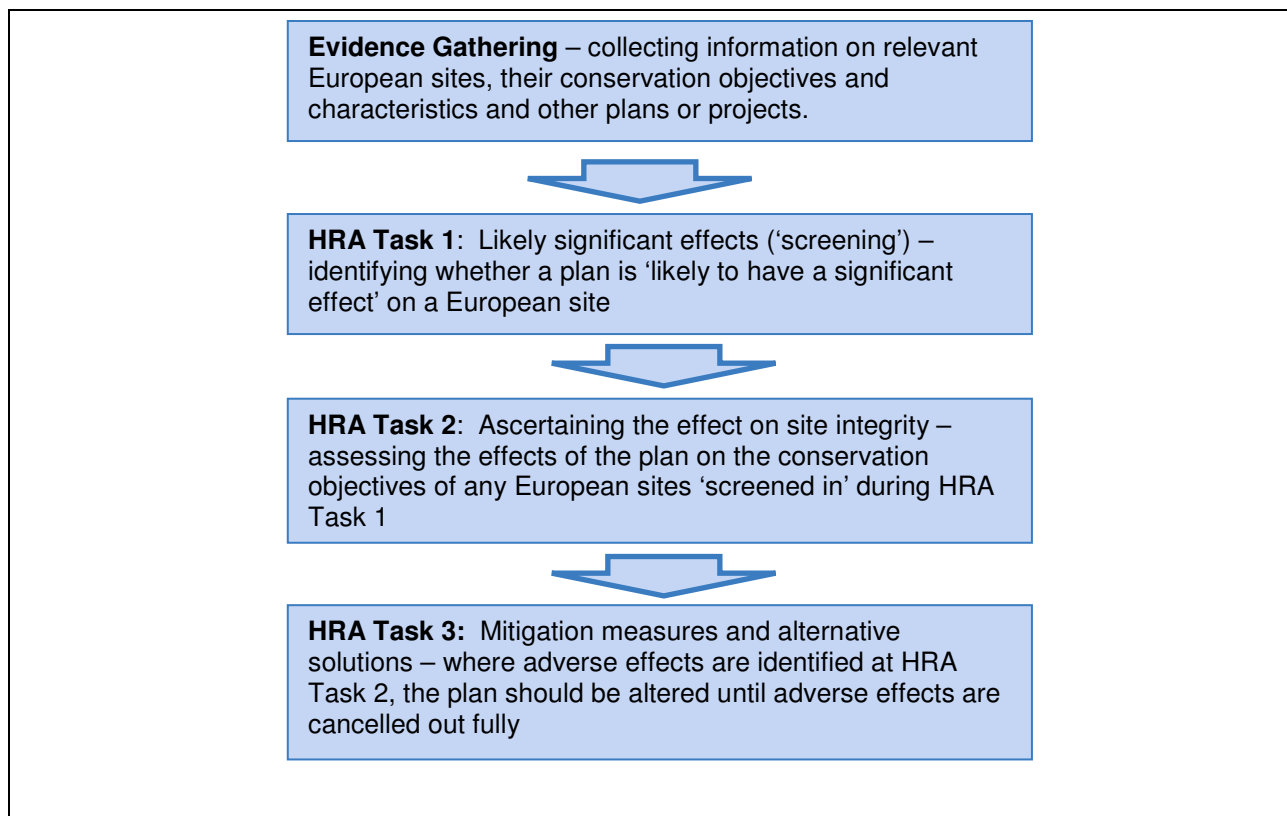
The Process of HRA

- 2.8 The HRA is likely to be carried out in the continuing absence of formal Government guidance. CLG released a consultation paper on AA of Plans in 2006⁸. As yet, no further formal guidance has emerged.
- 2.9 **Box 3** below outlines the stages of HRA according to current draft CLG guidance. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations and any relevant changes to the plan until no significant adverse effects remain.

⁷ RSS was revoked on 7th July 2010. Open Source Planning, the Planning Green Paper published by the Conservative Party in February 2010, outlined transitional arrangements with regard to housing figures in Local Development Frameworks (LDFs) once RSSs have been revoked.

⁸ CLG (2006) Planning for the Protection of European Sites, Consultation Paper

Box 3: Four-Stage Approach to Habitat Regulations Assessment



2.10 In practice, we and other practitioners have discovered that this broad outline requires some amendment in order to feed into a developing land use plans such as a DPD. The following process has been adopted for carrying out the subsequent stages of the HRA.

Stage Two: Likely Significant Effect Test (Screening)

2.11 The first stage of any Habitat Regulations Assessment is a Likely Significant Effect (LSE) test - essentially a high level risk assessment to decide whether the full subsequent stage known as Appropriate Assessment is required. The essential question is:

2.12 *"Is the Plan, either alone or in combination with other relevant projects and plans, likely to result in a significant effect upon European sites?"*

2.13 The objective is to 'screen out' those plans and projects (or site allocations/policies) that can, without any detailed appraisal, be said to be unlikely to result in significant adverse effects upon European sites, usually because there is no mechanism or pathway for an adverse interaction with European sites.

- 2.14 HRA Screening was undertaken by Scott Wilson at the JWDPD Stage 2 Issues and Options Report (Appendix 1). Eight waste sites/areas allocations were 'screened in' due to pathways being identified between the waste facility categories put forward at those sites (source) and European designated sites (receptors). These waste sites/areas that were screened in therefore requiring further consideration as part of the HRA process comprised:
- Todmorden Road Employment Zone;
 - Summercastle;
 - Stakehill Industrial Estate;
 - Madale Park;
 - Highmoor;
 - Vicars Lane;
 - Whitehead Landfill Extension; and
 - Ruby Mill/Ram Mill.
- 2.15 The draft Publication JWDPD has been influenced by the findings of the HRA Screening, as well as a consultation on the subsequent Preferred Option Report. Six of the waste sites/areas that were screened in have subsequently been excluded from the Publication JWDPD. The remaining waste sites/areas that are being taken forward in the draft Publication JWDPD and require further consideration as part of the HRA process are:
- Mandale Park (located within Rochdale, 750m north west of Rochdale Canal SAC, identified as suitable for several different waste management facilities); and
 - Whitehead Landfill Extension (straddling the border between Wigan and Salford Boroughs, approximately 1km north east of Manchester Mosses SAC (Astley and Bedford Moss)).
- 2.16 The location of both sites within the context of Greater Manchester is given in **Figure 1**. The location of Mandale Park within the context of its immediate surroundings is illustrated in more detail in **Figure 2**, and Whitehead Landfill Extension in **Figure 3**.
- 2.17 The draft Publication JWDPD policy wording will be subject to HRA Screening within this report. This is to ensure, for example, that policy wording would not allow more waste management sites to be captured in the future without HRA Screening of those sites.

Stages 2 and 3: Appropriate Assessment and Mitigation

- 2.18 When a plan cannot be 'screened out' on initial consideration as being unlikely to lead to significant effects on European sites, it is necessary to progress to the 'Appropriate Assessment' stage to explore the adverse effects and devise mitigation.
- 2.19 Stages 2 and 3 of the HRA Process (Appropriate Assessment and Avoidance/Mitigation) is therefore required on the draft Publication JWDPD with respect to:
- Mandale Park and Whitehead Landfill Extension site allocations; and

- any additional draft Publication JWDPD policies that have been screened in.

2.20 The steps involved Appropriate Assessment are detailed in **Box 4**.

Box 4. The steps involved in the Appropriate Assessment exercise undertaken for the Greater Manchester Joint Waste DP

- Explore the reasons for the European designation of these sites.
- Explore the environmental conditions required to maintain the integrity of the selected sites and become familiar with the current trends in these environmental processes.
- Gain a full understanding of the plan and its policies and consider each policy within the context of the environmental processes – would the policy lead to an impact on any identified process?
- Decide if the identified impact is likely to lead to an adverse effect on the integrity of any European sites.
- Identify other plans and projects that might affect these sites in combination with the Plan and decide whether there any adverse effects that might not result from the Plan in isolation will do so “in combination”.
- Develop measures to avoid the effect entirely, or if not possible, to mitigate the impact sufficiently that its effect on the integrity of the European site is rendered effectively inconsequential

2.20.1 In evaluating significance, Scott Wilson has relied on our professional judgement as well as consultation with Natural England.

2.20.2 The level of detail concerning developments that will be permitted under land use plans will never be sufficient to make a detailed quantification of adverse effects. Therefore, we have again taken a precautionary approach (in the absence of more precise data) assuming as the default position that if an adverse effect cannot be confidently ruled out, avoidance or mitigation measures must be provided. This is in line with CLG guidance that the level of detail of the assessment, whilst meeting the relevant requirements of the Habitats Regulations, should be ‘appropriate’ to the level of plan or project that it addresses (see Box 2 for a summary of this ‘tiering’ of assessment).

Confirming other plans and projects that may act in combination

2.21 It is neither practical nor necessary to assess the ‘in combination’ effects of the JWDPD within the context of all other plans and projects within Greater Manchester. In practice therefore, in combination assessment is of greatest relevance when the plan would otherwise be screened out because its individual contribution is inconsequential. For the purposes of this assessment, we have determined that, due to the nature of the identified impacts, the key other plans and projects relate to the additional housing and commercial/industrial allocations proposed for the Greater

Manchester authorities, in particular Rochdale, Salford and Wigan, over the lifetime of the JWDPD.

2.22 We have identified a range of plans and projects that may act in combination with the Waste DPD.

2.23 Table 2 below outlines the plans and projects that have been identified as having the potential to result in a pathway to European sites. These plans and projects include those that are considered likely to exacerbate the identified pathways between the waste sites that have been screened in, and European sites, namely plans and projects likely to:

- increase traffic levels along the A58, A664/M62 J20 slip road bridge over Rochdale Canal SAC
- affect air quality in Wigan/Salford, including an increase in traffic on roads surrounding Manchester Mosses SAC (in particular the A580 and M62);
- influence the overall increase in population of Greater Manchester.

Table 1 - Other Plans and Projects and Relevant Potential Impacts

Plan / Policy	Relevance
Rochdale Borough LDF and Core Strategy (Pre Submission Draft planned for 2010)	Sets out the housing strategy for Rochdale.
Wigan LDF and Core Strategy (Publication planned for 2010)	Sets out the housing strategy for Wigan.
Salford LDF and Core Strategy (Draft completed consultation January 2010)	Sets out the housing strategy for Salford.
Greater Manchester Local Transport Plan (LTP2) (2006-2011)	A 5-year strategy for the management, maintenance, development and monitoring of the County's transport system put together by the ten City and Metropolitan Borough Councils and Greater Manchester Passenger Transport Authority (GMPTA). Relevant in its potential cumulative air quality impacts
Merseyside Joint Waste Development Framework (Preferred Options 2009)	Sets out the joint waste development strategy for Merseyside. Would be relevant in terms of any cumulative impact arising from waste development and LDF development arising on the same European sites.

2.24 It should be noted that, while the broad potential impacts of these other projects and plans will be considered, we do not propose carrying out full HRA on each of these plans – we will however draw upon existing HRA that have been carried out for surrounding regions and plans.

2.25 This section summarises the results of the HRA Screening, thus presenting the physical scope of the Appropriate Assessment. The HRA Screening can be divided into the following two elements:

- Screening of JWDPD Site Allocations (presented in the HRA Screening Report Appendix 1)
- Screening of JWDPD draft Publication policy wording (presented in Appendix 2)

JWDPD Site Allocations Scoped into the Assessment

2.26 The physical scope of the Appropriate Assessment is as shown in **Table 2**. This is based on the conclusion of the HRA Screening Report (Appendix 1).

Table 2: Physical scope of the Appropriate Assessment

European site	Reason for inclusion
Rochdale Canal SAC	Potential pathways have been identified resulting from transport exhaust emissions generated at Mandale Park (identified for built enclosed waste management facilities) and nitrogen deposition on Rochdale Canal SAC, 750m from the site (based on guidance presented in Environment Agency 2004).
Manchester Mosses SAC	Potential pathways have been identified from changes to air quality arising from Whitehead landfill extension and Manchester Mosses SAC (Astley and Bedford Moss) (based on guidance presented in Environment Agency, 2004).

2.27 No other pathways to European sites have been identified.

2.28 The following additional European sites were considered in the HRA Screening as part of the 'long list', in consultation with Natural England, but no pathways have been identified between these European sites and potential site allocations being taken forward in the draft Publication JWDPD. The location of these European Sites is given in **Figure 1**.

2.29 European Sites within the plan area:

- Peak District Moors SPA (South Pennines Moors Phase 1);
- South Pennine Moors Phase 2 SPA;
- South Pennine Moors SAC; and

2.30 European Sites outside the plan area:

- Rixton Clay Pits SAC; and
- Rostherne Mere Ramsar site.
- Mersey Estuary SPA / Ramsar site;
- Liverpool Bay pSPA; and
- Mersey Narrows and North Wirral Foreshore pSPA / pRamsar site.

2.31 These European Sites are not discussed further within this Appropriate Assessment Report. For a discussion as to why these European sites are not being considered further with respect to site allocations in the draft JWDPD, refer to the HRA Screening Report (Appendix 1).

JWDPD Policies Scoped Into Appropriate Assessment

- 2.32 The draft Publication JWDPD policy wording was screened for potential conflicts with European sites. This is given in full in Appendix 2. Policies were screened in that:
- related to Mandale Park and Whitehead Landfill Extension site allocations;
 - were considered to have the potential to allow more waste management sites to be captured in the future without HRA Screening; and
 - were considered to have the potential to allow new pathways of effects to be created in the future without HRA Screening.
- 2.33 The following policies have been screened in, therefore being taken forward to Appropriate Assessment in this report:
- Policy 5: Area Allocations for Built Waste Management Facilities (with respect to Mandale Park);
 - Policy 7: Non hazardous residual waste disposal (with respect to Whitehead Landfill extension);
 - Policy 10: Unallocated Sites; and
 - Monitoring and Implementation.

Consideration of Alternatives

- 2.34 Section 1 describes SEA/SA and HRA processes that have been undertaken on previous JWDPD drafts since 2005. This has included the Stage 1 Issues and Options, Stage 2 Issues and Options, Preferred Options, the current Draft Publication DPD. Inherent in these assessments has been the consideration of alternatives. This has included a thorough consideration of alternative waste site/area locations, alternative facilities to be proposed at potential waste site/areas, and alternative policy wording in the DPD.
- 2.35 The initial search for potential waste site/areas looked at a number of categories of land to identify potentially suitable sites/areas, as well as requesting nominations from industry. This resulted in 119 sites/areas being consulted on as part of JWDPD preparation, over a number of consultation Reports. Of these 13 sites/areas were removed following the results of the HRA/SA. An additional 69 site/areas were removed for other reason (e.g not fitting with the spatial strategy, landowner withdrawing site/area). There are currently 37 potential waste site/areas being put forward by the JWDPD. This includes 8 potential waste sites, 26 area allocations (both of which have been identified as suitable for differing waste management facilities), and 3 residual waste sites.

3 Appropriate Assessment: Pathways of Impact and Potential Effects on Site Integrity

Introduction

- 3.1 In carrying out an HRA it is important to avoid confining oneself to effectively arbitrary boundaries (such as Local Authority boundaries) but to use an understanding of the various ways in which land use plans can impact on European sites to follow the pathways along which development can be connected with European sites, in some cases many kilometres distant. Briefly defined, pathways are routes by which a change in activity associated with a development can lead to an effect upon a European site. It is also important to bear in mind CLG guidance which states that the AA should be *'proportionate to the geographical scope of the [plan policy]'* and that *'an AA need not be done in any more detail, or using more resources, than is useful for its purpose'* (CLG, 2006, p.6).
- 3.2 The following pathways of impact were considered relevant to the HRA Screening of the Greater Manchester JWDPD (Appendix 1):
- atmospheric pollution;
 - water quality; and
 - disturbance and predation.
- 3.3 Of the site allocations that were screened in *and* which being taken forward as part of the draft Publication JWDPD, only atmospheric pollution is considered to create a potential pathway. Atmospheric Pollution as a pathway is therefore described in greater detail below.
- 3.4 Pathways relating to water quality and disturbance and predation are discussed in greater detail in the HRA Screening Report (included as Appendix 1).

Atmospheric pollution

HRA Screening and Buffer Zones

- 3.5 In undertaking the HRA Screening, guidance provided by the Environment Agency (2004) was used in order to apply the Habitat Regulations to waste management facilities. This guidance provided recommended buffer zones to account for potential atmospheric pollution, water quality and disturbance/predation pathways between waste sites and European Sites. These buffer zones depended on the type of waste management facility and qualifying features of European Sites. The following buffer zones ensured that all potential atmospheric pollution pathways were considered:
- 2km for landfill/land raise/residual sites; and
 - 1km for all other waste management facilities.

- 3.6 These buffer zones resulted in waste facility categories proposed at Mandale Park and Whithead Landfill to be screened in with respect to atmospheric pathways at Rochdale Canal SAC and Manchester Mosses SAC respectively.
- 3.7 These identified pathways are therefore explored in greater detail in this section to allow for ascertaining the likely effect on the site integrity of Rochdale Canal SAC and Manchester Mosses SAC.

Air Quality Effects on Semi-Natural Habitats

- 3.8 Current levels of understanding of air quality effects on semi-natural habitats are not adequate to allow a rigorous assessment of the likelihood of significant effects on the integrity of key European sites.
- 3.9 The National Expert Group on Trans-Boundary Air Pollution (2001) concluded that:
- in 1997, critical loads for acidification were exceeded in 71% of UK ecosystems. This was expected to decline to 47% by 2010;
 - reductions in SO₂ concentrations over the last three decades have virtually eliminated the direct impact of sulphur on vegetation;
 - by 2010, deposited nitrogen was expected to be the major contributor to acidification, replacing the reductions in SO₂;
 - current nitrogen deposition is probably already changing species composition in many nutrient-poor habitats, and these changes may not readily be reversed;
 - the effects of nitrogen deposition are likely to remain significant beyond 2010;
 - current ozone concentrations threaten crops and forest production nationally. The effects of ozone deposition are likely to remain significant beyond 2010; and
 - reduced inputs of acidity and nitrogen from the atmosphere may provide the conditions in which chemical and biological recovery from previous air pollution impacts can begin, but the timescales of these processes are very long relative to the timescales of reductions in emissions.
- 3.10 Grice et al (2006; 2007) do however suggest that air quality in the UK will improve significantly over the next 15 years due primarily to reduced emissions from road transport and power stations.

Waste Sites and Atmospheric Pollution

- 3.11 Waste sites (particularly incinerators and landfill sites) can contribute substantially to the atmospheric pollution load. The following sources of atmospheric pollution are generated by the waste facility categories appraised in the JWDPD:
- landfill gas;
 - landfill gas flare;
 - thermal treatment emissions;

- 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); (from landfill; open air windrow composting and Mechanical Biological Treatment (MBT) plants within enclosed (built) waste management and recycling facilities); and
- dust (from thermal treatment emissions, open air windrow composting, open waste management and recycling facilities).

3.12 The following atmospheric pollutants may be released by waste sites:

- Methane (CH₄) - Methane is produced when organic matter is broken down in the absence of oxygen and large quantities are produced by livestock, the spreading of animal manure and landfill sites. Waste treatment, including landfill, released nearly 22% of the UK's methane emissions in 2003, about 2% of all greenhouse gas emissions (in terms of carbon equivalents)⁹.
- Carbon Dioxide (CO₂) - Carbon dioxide is one of the major combustion products from burning fossil fuels. It is also produced in certain non-combustion chemical reactions, for instance in the manufacture of cement. Carbon dioxide is a long-lived pollutant and will remain in the atmosphere for between 50 and 200 years. Carbon dioxide contributes to the greenhouse effect¹⁰.
- Oxides of Nitrogen (NO_x) - Oxides of nitrogen are formed during high temperature combustion processes from the oxidation of nitrogen in the air. The principal source of oxides of nitrogen is road traffic, which is responsible for approximately half the emissions in Europe (Dore *et al*, 2005). NO_x concentrations are therefore greatest in urban areas where traffic is heaviest. An increase in the deposition of nitrogen from the atmosphere to soils is generally regarded to lead to an increase in soil fertility, which can have a serious deleterious effect on the quality of semi-natural, nitrogen-limited terrestrial habitats. High NO_x levels can also have directly toxic effects on plants.
- Ammonia (NH₃) – This is probably the major source of nitrogen deposition to many wildlife sites, and is primarily agricultural in origin¹¹, although it is also produced through some industrial process and by the composting of organic matter on waste sites.
- Dust – Dust can be associated with activities where waste materials such as soil or demolition wastes are screened or graded, or where combustion takes place. Effects of dust will depend on the prevailing wind direction and the transport distance is related to particle size; large particles (>30 µm) will mostly deposit within 100 m of the source, intermediate particles (10-30 µm) are likely to travel up to 200 – 500 m. Smaller particles (<10 µm) can travel up to 1km from the source (SEPA, 2003). If present in sufficient quantities dust can smother vegetation, preventing light penetration to the chloroplasts and blocking stomata thus interrupting photosynthesis and transpiration. In prolonged cases, death can result.

⁹ Environment Agency website

¹⁰ UK Air Pollution Information System www.apis.ac.uk

¹¹ Institute of Grassland and Environmental Research http://www.iger.bbsrc.ac.uk/Ammonia_Inventory/sources.htm

- Sulphur dioxide (SO₂) – this is an acidic gas that combines with water vapour in the atmosphere to produce acid rain. Both wet and dry depositions have been implicated in the damage and destruction of vegetation and in the degradation of soils and watercourses. Major SO₂ problems now only tend to occur in cities in which coal is still widely used for domestic heating, in heavy industry and in power stations (Dore et al, 2005);
 - Low-level ozone (O₃) – this is unlike the other pollutants mentioned, in that it is not emitted directly into the atmosphere, but is a secondary pollutant produced by a complex reaction between nitrogen dioxide (NO₂), hydrocarbons and sunlight¹². Unlike the other pollutants, it cannot therefore be directly related to increases in housing, traffic etc. Although peak levels of ozone are generally reducing, annual average levels are generally increasing.
 - Hydrogen chloride and hydrogen fluoride (HCl and HF) – Both of these chemicals are produced in small amounts as a result of certain Energy from Waste (EfW) facilities, principally incineration. HF is the most phytotoxic of all air pollutants. It accumulates in very high concentrations in the margins of leaves. In sensitive species this may lead to distortion of the leaf shape, chlorosis (yellowing), red colouration and, in extreme cases, death of tissues. HCl can also have local, direct, effects on plants, but there is little information available about dose-response relations (ERM, 2007);
 - Dioxins - These are long-lived organic compounds, which form when chlorinated substances in the waste, such as PVC plastic, are burnt and accumulate in the human food chain. Dioxin emissions to air from incinerators are thought to have decreased significantly in recent years. Four sources account for 74% of the total air emissions. These are legal municipal waste incineration (26%), sinter plants (18%), residential wood combustion (boilers, stoves, fireplaces, 16%) and incineration of hospital waste (14%). The incineration of hazardous industrial waste contributes less than 1%¹³.
 - Heavy metals – specifically Cadmium (Cd), which is a normal constituent of soil and water at low concentrations. The main sources of cadmium emissions are from waste incineration, and iron and steel manufacture¹⁴. Cadmium and other heavy metals are mainly present in the ash produced by incinerators, but some is released directly to atmosphere via the exhaust stack. Emissions of cadmium have declined substantially over recent years; this is mainly attributable to the decline in coal combustion to generate power. Environmentally, cadmium is dangerous because many plants and some animals absorb it easily and it becomes concentrated in tissues.
- 3.13 Migration of landfill gas outside the perimeter of landfill sites taking biodegradable waste can occur, but only where sites have been inadequately engineered. In such circumstances the gas will exclude oxygen from the soil and lead to the exposure and possible death of plants and soil fauna. Such effects are unlikely beyond a 0.5 km radius (SEPA, 2003) in any case, but since they are a result of poor engineering design, and any current landfill sites will be required to conform to all modern authorisations, they are not considered further in this assessment.
- 3.14 For the following reasons, only NO_x and ammonia are considered further as specific pollutants in this assessment:

¹² UK Air Pollution Information System www.apis.co.uk

¹³ Chlorine Online Information Resource website <http://www.eurochlor.org/upload/documents/document57.pdf>

¹⁴ National Atmospheric Emissions Inventory www.aeat.co.uk/netcen/airqual/naei/annreport/annrep96/sect6_3.htm

- Despite the general association with nitrogen dioxide, ozone levels are not as high in urban areas (where high levels of nitrogen dioxide are emitted) as in rural areas. This is largely due to the long-range nature of this pollutant, which is sufficiently great that the source of emission and location of deposition often cross national boundaries. As such, low-level ozone can only be practically addressed at the national and international level.
- Although methane and carbon dioxide are important greenhouse gases, it is not possible to relate quantities of these gases to particular effects on specific European sites. It is therefore not possible to consider these within the scope of this Appropriate Assessment other than by noting that increased emission of these chemicals will contribute at a global scale to accelerating rates of climate change.
- Sulphur dioxide concentrations are overwhelmingly influenced (82% of emissions (Dore *et al*, 2005) by the output of power stations and industrial processes that require the combustion of coal and oil. None of these activities will be associated with developments under the JWDPD and indeed the use of Energy from Waste technology will reduce reliance on conventional power stations and therefore contribute to a reduction in SO₂ emissions.
- Hydrogen chloride, hydrogen fluoride and dioxins are only of relevance to Energy from Waste facilities. In the case of the Greater Manchester Joint Waste DPD, there will be no large-scale Energy from Waste (EfW) facilities and as such these emissions are not considered.

3.15 Since ammonia is of relevance to European sites primarily through its effect upon nitrogen deposition, it is not considered independently of nitrogen deposition in this assessment. Since NO_x can be directly toxic to plants, it is considered separately from its influence on nitrogen deposition in this assessment.

3.16 Dust impacts will be considered further in this assessment, but cannot be quantified beyond the broad potential distances identified above for different particle sizes.

Oxides of nitrogen and nitrogen deposition

3.17 The most acute impacts of NO_x take place close to where they are emitted, but individual sources of pollution will also contribute to an increase in the general background levels of pollutants at a wider scale, as small amounts of NO_x and other pollutants from the pollution source are dispersed more widely by the prevailing winds.

3.18 The main sources of NO_x in the UK are (Dore *et al*, 2005):

- road and other transport (approximately 47%; greater in urban areas);
- public power generation using fossil fuels (22%);
- combustion in industrial processes¹⁵ (14%); and
- domestic and commercial sources (4%), e.g. commercial boilers in schools, hospitals etc.

3.19 In Greater Manchester, NO_x emissions arising from industrial activities account for less than 10% of emissions, while NO_x emissions arising from transport accounts for over 65%, most of which arises from traffic on major and minor roads (GMTU, 2005).

¹⁵ Combustion of coal and oil, some refinery processes and the production of sulphuric acid and other chemicals

3.20 Therefore, when considering the ecologically relevant impacts of the JWDPD, by far the largest contribution to NO_x will generally be made by the associated road traffic.

3.21 The following air pollution limit value applies for the protection of vegetation and ecosystems from NO_x:

- World Health Organisation 30 µgm⁻³ annual average; EU Air Quality Framework Directive 30 µgm⁻³ annual average away from areas close to main roads, built up areas or major industrial sites; Natural England policy in agreement with the Environment Agency in their Review of Consents process is that the 30 µgm⁻³ threshold should apply to all designated sites, due to the sensitivity of the habitats within the sites.

Transport exhaust emissions

3.22 In an Appropriate Assessment of potential impacts of proposed waste facility sites in Surrey, a dispersion model was used to quantify the effects of emissions from operational vehicles travelling to and from a theoretical incinerator. It was shown that at distances greater than 55 metres from the kerbside, ground level concentrations of NO_x represent less than 1% of the critical level¹⁶. Inevitably however, the distance to which the pollutants will disperse depends upon the parameters of the model and prevailing meteorological conditions. Moreover, it is clear from other research that there is no such thing as a 'typical' waste site.

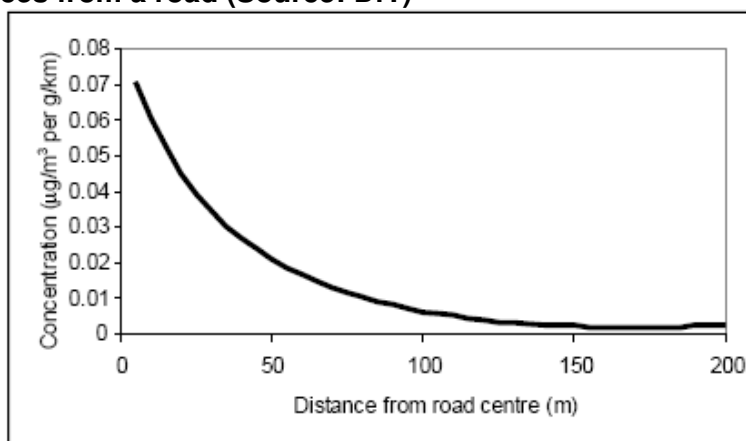
3.23 The actual scale of heavy vehicle movement associated with waste facilities is entirely dependent upon both the type and scale of the facility, neither of which can be prescribed by the JWDPD except at the broadest scale. It is therefore impossible to give meaningful "typical" values for waste sites. A review of a number of waste schemes (ERM, 2007) identified that:

- A Household Waste Recycling Centre may have very small numbers of heavy vehicle movements (4 per day) but can have a very large number of car movements associated with the general public bringing waste to the site – 150 cars per hour at the site considered in the cited example;
- Thermal Treatment and EfW facilities will generally have a much greater number of heavy vehicle movements (perhaps 100 to 200 per day) due to their generally large size, but will also have a much smaller number of cars travelling to the site, as they do not accept waste from the general public and are heavily automated;
- Most other forms of waste treatment (including landfill) fall between these two extremes depending as much upon their size as their type;
- The situation can become considerably more complex if various forms of waste treatment facility are co-located on the same site. The ERM (2007) study gathered data from one site that combined a Waste Transfer Station with a Household Waste Recycling Centre, which as a result showed both higher numbers of HGV traffic (66 per day) and public car traffic (up to 1,000 per day at peak times of the year) than either form of waste facility might be expected to attract individually.

¹⁶ 1% being the level defined in the EU Habitats Directive Handbook at which emissions are not likely to have a significant effect alone or in combination, irrespective of background levels

- 3.24 It is clear from the above that the situation regarding vehicular exhaust emissions associated with waste treatment sites is considerably more complex than it might appear at face value. The only general conclusion that can be safely drawn is that all new waste sites are likely to result in a local increase in vehicle movements and that this increase may be greater where multiple types of waste treatment facility are provided in the same location (e.g. Mandale Park). It is also true that the distance vehicles travel may be as important as the numbers or type of vehicle in contributing to deteriorating atmospheric deposition of European sites, if the route leads the traffic within close proximity of multiple European sites.
- 3.25 According to the Department of Transport's Transport Analysis Guidance, '*Beyond 200 m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant*'¹⁷.

Box 5 – Traffic contribution to concentrations of pollutants at different distances from a road (Source: DfT)



- 3.26 Given the difficulties in accurately determining and modelling likely scales of vehicle usage on sites for which all parameters must necessarily at this stage be wholly theoretical, it seems more in line with the precautionary principle to utilise the more cautious 200 m figure, rather than smaller figures that may have been derived from site-specific theoretical models.
- 3.27 This is therefore the distance that has been used within this AA in order to determine whether European sites are likely to be significantly affected by development under the JWDPD.

Thermal Treatment and Energy from Waste

- 3.28 While traffic makes the largest overall contribution to NOx, some individual point sources can also result in substantial increases in the local NOx concentration. Of those point sources associated with waste treatment, TTF/EfW facilities have the potential to emit the greatest amounts, as any form of thermal treatment involves the emission of exhaust gases.
- 3.29 Neither of the site allocations which have been screened in as requiring AA (Mandale Park or Whitehead Landfill) are proposed for TTF/EfW. However the JWDPD Policy 10 makes provision for new site allocations to be taken forward for this type of facility. Atmospheric pathways arising from TTF and EfW are therefore described in this section.

¹⁷ www.webtag.org.uk/archive/feb04/pdf/feb04-333.pdf

3.30 For the purposes of this assessment we have not tried to model the emissions of a particular form of thermal treatment in order to estimate possible NO_x emissions, for the following reasons:

- Incineration (mass burn) is currently the only thermal treatment technology that can be accurately modelled. Use of this technology can emit large quantities of NO_x, but the NO_x emissions of any form of incinerator, and their distances to deposition, are entirely dependent upon specific parameters of the facility (e.g. stack height);
- More importantly, while incineration is currently the most common form of Energy from Waste technology, the international drive to reduce pollutant emissions has resulted in the development of numerous alternative technologies (such as pyrolysis or gasification), which produce relatively little NO_x. At this stage the details of the technology that will be utilised at any given new site are not known. However, given that the JWDPD covers the period until 2027, it is possible that the form of technology adopted for any chosen site will involve gasification, pyrolysis or similar technology, rather than mass burn. Any modelling based upon conventional incineration technology would therefore be potentially unrepresentative.

3.31 Therefore, we would advise that detailed modelling should await greater certainty about the nature of any proposed facilities and is therefore more logically undertaken as part of the project-level Appropriate Assessment for any TTF/EfW Facility.

Landfill

3.32 A landfill gas flare (or utilisation engine) will produce an emission of exhaust gases such as sulphur dioxide, NO_x, unburnt hydrocarbons, carbon monoxide and hydrogen chloride. However, the volume of exhaust gases is likely to be small in comparison to other combustion facilities and at a distance of >1 km from the European site may well be inconsequential (SEPA, 2003).

Other types of facility

3.33 Atmospheric emissions of NO_x from other types of facility are negligible. For example, anaerobic digestion¹⁸ does result in the generation of biogas but not NO_x. The emissions to the air are well controlled; some emissions may arise from biogas under positive pressure in the tank, but under normal operating conditions biogas is not released direct to air (DEFRA, 2004). Equally, waste transfer stations¹⁹ and mechanical biological treatment²⁰ plant can incorporate a number of different processes in a variety of combinations and can be built for various purposes, but air emissions and health impacts are most likely to be linked to traffic movements.

Diffuse air pollution

3.34 In addition to the contribution to local air quality issues, development can also contribute cumulatively to an overall change in background air quality across an entire region (although individual developments and plans are – with the exception of large point sources such as power stations – likely to make very small individual contributions). In July 2006, when this issue was

¹⁸ The biological treatment of biodegradable organic waste in the absence of oxygen, utilising microbial activity to break down the waste in a controlled environment

¹⁹ In which waste is transported from waste producers (industry, commerce and the general public) to be treated, recycled and/or disposed

²⁰ A generic term for an integration of several processes commonly found in other waste management technologies, such as Materials Recovery Facilities, sorting and composting plant

raised by Runnymede District Council in the South East, Natural England advised that their Local Development Framework '*can only be concerned with locally emitted and short range locally acting pollutants*' (Natural England, 2006) as this is the only scale which falls within a local authority remit. It is understood that this guidance was not intended to set a precedent, but it inevitably does so since (as far as we are aware) it is the only formal guidance that has been issued to a Local Authority from any Natural England office on this issue.

- 3.35 In the light of this and our own knowledge and experience, it is considered reasonable to conclude that it must be the responsibility of higher-tier plans to set a policy framework for addressing the cumulative diffuse pan-authority air quality impacts, partly because such impacts stem from the overall quantum of development within a region (over which individual districts have little control), and since this issue can only practically be addressed at the highest pan-authority level. Diffuse air quality issues will not therefore be considered further within this HRA.

Background Trends

- 3.36 Air pollution at many European sites is already believed to be having an adverse effect. Eutrophication of sensitive habitats through atmospheric deposition is a widely acknowledged phenomenon, although it is extremely difficult to measure as its effects are often hidden by changes in local nutrients (i.e. via direct fertilisation) or changes in grazing pressure.
- 3.37 In well-managed sites, the effects of eutrophication may be to some extent counteracted through an increase in grazing pressure. Bobbink et al. (2002) suggest that sites with low intensity management may have lower critical thresholds than those in higher levels of management. Reintroducing grazing into ungrazed or under-grazed sites can help to counteract changes in vegetation due to nitrogen deposition; however increasing grazing on sites that are already well-grazed may have a direct adverse impact on the plants for which the site was designated.
- 3.38 Furthermore, air pollution can act synergistically with insufficient grazing to exacerbate management problems and lead to a coarser species-poor sward. A changing climate (i.e. rising temperatures and reduced summer rainfall) is further exacerbating the situation by putting sensitive habitats and species under increasing stress, in turn reducing their competitive ability and increasing susceptibility to pathogens.

Prevailing wind direction

- 3.38.1 Appendix 3 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.

4 Appropriate Assessment: Mandale Park Area Allocation

Background to Mandale Park Waste Area

- 4.1 Mandale Park is located in Rochdale (SD 888, 126) adjacent to the A58. The site is 24.5 hectares in size and currently occupies large extensive parkland, open space with trees. The development of the site would require new access from A58. The location of Mandale Park Area is given in **Figure 2**.
- 4.2 The area is being put forward under the JWDPD for Built (Enclosed) Waste Management Facilities which groups together the following facilities: Material Recovery, Mechanical Heat Treatment, Mechanical Biological Treatments, Anaerobic Digestion and In-Vessel Composting.
- 4.3 Mandale Park was screened in due potential pathways resulting from transport exhaust emissions generated at Mandale Park and the potential for this to result in nitrogen deposition on Rochdale Canal SAC, 750m from the site (based on guidance presented in Environment Agency 2004).
- 4.4 It should be noted that whilst Mandale Park is located 750m from Rochdale Canal, it is located immediately adjacent to the A58 and a bridge over the Rochdale Canal which connects to the A664 and the M62 slip road (Junction 20). It is likely that traffic generated by Mandale Park would predominantly utilise the M62 (Junction 20) to access the site, therefore generating an increase in vehicles crossing Rochdale Canal.

Identified Pathways to Site: Rochdale Canal SAC

- 4.5 Rochdale Canal SAC is located within Greater Manchester. Rochdale Canal SAC covers 25.73ha within the local authorities of Rochdale and Tameside, Greater Manchester. 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).
- 4.6 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*).
- 4.7 The primary reason for selection of this site is the Habitats Directive Annex II species (EC 1992) 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.

Historic Trends and Pressures

- 4.8 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.
- 4.9 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.

Air as a Pathway

- 4.10 Guidance exists to address the potential effects of local pollution, for which the most significant contributors are power generators and other industrial processes, and traffic. Laxen and Wilson (2002) suggests that NO₂ emissions from motorways essentially reach background levels within 200m of the roadside.
- 4.11 Whilst Mandale Park itself is not within 200m of Rochdale Canal SAC, the M62 J20 slip road is likely to serve as the main access route to the site, and this crosses the Rochdale Canal via a bridge. Therefore it could be argued that Mandale Park would generate an increase in vehicle traffic accessing the site within 200m of Rochdale Canal SAC.
- 4.12 Air pollution at many European sites is already believed to be having an adverse effect. Tables 3 show the degree to which the Rochdale SAC site is affected by atmospheric nitrogen deposition (data downloaded from APIS on 07/07/10).
- 4.13 It is clear from **Table 3** that nitrogen deposition is already a problem within Rochdale Canal SAC. The effects this is having on the integrity of the SAC is through
- Eutrophication: Isoetid²¹ species negatively affected; and
 - Acidification: results in an increase of aluminium compounds (Al³⁺) associated with freshwater acidification, impact on invertebrate populations, toxicity to fish

²¹ Freshwater amphibious plants

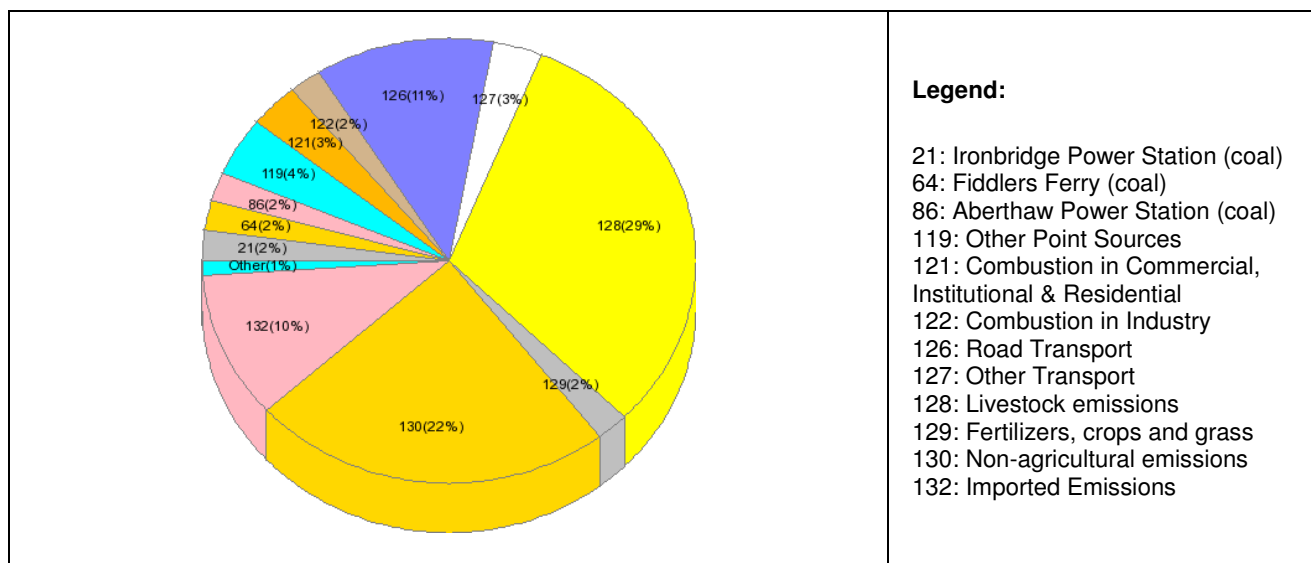
Table 3: Atmospheric nitrogen deposition compared with critical load at Rochdale Canal SAC

Site	Grid reference	Habitat	Minimum critical Load / Kg N/ha/year	Nitrogen Deposition/ Kg N/ha/year	Exceedance	Is atmospheric nitrogen deposition currently a problem?
Rochdale Canal SAC	SD893038	Permanent oligotrophic waters	5	20.6	Current deposition is over four times the minimum critical load.	Yes

Source: Based on information provided by the UK Air Pollution Information System (www.apis.ac.uk). Data downloaded from APIS on 07/0710

4.14 **Box 6** illustrates the source attribution to the nitrogen deposition at Rochdale Canal SAC. This illustrates that 16% of this is from road transport emissions.

Box 6: Nitrogen Deposition at Rochdale Canal SAC with Source identification



Based on information provided by the UK Air Pollution Information System (www.apis.ac.uk). Data downloaded from APIS on 07/0710

4.15 As Mandale Park area is being put forward for several types of waste management facilities, there are likely to be high volumes of traffic generated. However it would be inappropriate, at this early stage, to try to quantify the number of vehicle trips likely to be generated at Mandale Park (as discussed in Section 4), and therefore the number of these that would cross Rochdale Canal resulting in an increase in background atmospheric nitrogen emissions Mandale.

4.16 It is considered unlikely that Mandale Park will result in a significant increase in nitrogen disposition on its own account. However, it is not possible to conclude at this stage that the operation of Mandale Park, and the subsequent generation of traffic crossing Rochdale Canal

SAC would not contribute to the overall effect 'in combination' with other relevant plans and projects (described below).

Likely Significant Effects of Other Projects and Plans

- 4.17 The key significant plan affecting the GM Waste Plan was the Regional Spatial Strategy (RSS) for the North West. This was revoked on 6 July 2010. Open Source Planning, the Planning Green Paper published by the Conservative Party in February 2010, outlined transitional arrangements with regard to housing figures in Local Development Frameworks (LDFs) once RSSs have been revoked. The Paper expected 'Option 1 numbers', the numbers originally projected by local planning authorities, to be the provisional housing numbers used in LDFs by local authorities. Since there is only a small difference between RSS figures and Option 1 figures for Greater Manchester (about 2.5%), the effects are likely to be similar if the houses are built. In addition, given the key role of the M62 as one of the major entry/exit routes to Manchester from Leeds, Merseyside and the North, it is reasonable to assume that a significant cumulative 'in combination' air quality effect as a result of the cumulative increase in vehicle emissions and continued house building is likely.

Measures within the JWDPD to minimise air quality impacts

- 4.18 The development of the JWDPD has taken several steps towards minimising adverse effects on Natura 2000 sites.
- 4.19 Firstly, inherent in the development of the JWDPD has been the consideration of alternatives (alternative site locations, waste facilities at particular sites and alternative policy wording). This is describe in greater detail in Section 3. With respect to Mandale Park in Rochdale, it should be noted that a total of 13 sites/areas have been consulted on as part of the Waste Plan preparation were in Rochdale. The 13 sites/areas were considered for a range of built waste management facilities. Of these, 10 site/areas were removed from further consideration (Nine sites were removed because, following consultation on the Issues and Options, a review of the site/area revealed that overall it did not perform well in relation to all three spatial options and the SA, and the tenth site was removed from the Waste Plan because it was already being developed as part of the GM Waste PFI). This has resulted in only 3 site/areas being considered within the Borough of Rochdale as part of the JWDPD, one of which is Mandale Park. Whilst the two remaining sites in (Heap Bridge Industrial Estate and Rhodes Business Park) are being considered for the same waste management facilities as Mandale Park, are much smaller in size (approximately 7ha) compared to 25.5ha for Mandale. This process illustrates the extent at which alternatives have been considered to avoid impacts on Rochdale Canal SAC.
- 4.20 Secondly, it should be noted that the overarching objectives of the Waste DPD seeks to controlling and minimising contributions to NO_x and nitrogen deposition, including:
- Objective 2: To promote the movement of waste up the waste hierarchy, assuming minimisation at source, increasing reuse, recycling and recovery, whilst recognising there may still be a need for additional landfill capacity for residual wastes.

- Objective 3: To assist in reducing greenhouse gas emissions and assist in adaption/mitigation of climate change, including resource efficiency and minimising the need for energy in accordance with targets at national, regional and local level.
- Objective 4: To ensure waste growth within the sub-region does not increase to the same degree as growth in economic activity i.e. to decouple waste growth from economic growth.
- Objective 6: To ensure appropriate protection of the quality of life of communities
- Objective 7: To protect the sub-region's natural environment, biodiversity, geodiversity, cultural and historic heritage.
- Objective 8: To reduce waste movements and, where waste needs to be moved, to promote the sustainable movement of waste across the sub-region.

4.21 At a policy level these objectives represent a series of initiatives that could offset the contribution of Mandale Park to any cumulative deterioration in air quality off Junction 21 of the M62.

4.22 However, as a final measure, to ensure any contribution of Mandale Park to a cumulative deterioration of air quality does not exceed accepted 'in combination' levels, it is recommended that, as part of any application for Mandale Park the applicant would be required to demonstrate through a site-specific HRA that the process contribution (PC) to nitrogen deposition in the SAC will not amount to more than 1% of the critical load (0.05 kg/N/ha/year).

4.23 This is the criterion that the Environment Agency and Natural England use to identify whether a source of emissions will have an adverse effect when considered either alone or 'in combination' with other projects and plans. If the application can pass this test, then no mitigation will be needed. If the application cannot pass this test, it would be necessary to proceed to a more detailed assessment and to develop a travel plan to reduce the emissions below the necessary threshold. This may include consideration of alternative transport methods, or where traffic would be re-routed to avoided impacts on Rochdale Canal.

4.23.1 The Waste Plan Site Profile for Mandale Park will highlight these requirements, referring back to this report for further details as necessary.

4.24 In the light of the measures identified above, it is considered that the Waste DPD will have taken all measures that can reasonably be expected in order to reduce traffic in proximity to the M62.

5 Appropriate Assessment: Whitehead Landfill Extension Site Allocation

Background to Waste Site

- 5.1 Whitehead Landfill straddles the Wigan and Salford Borough Boundaries on the former Astley Green Colliery site (SJ 711995). The location of Whitehead Landfill is given in **Figure 3**.
- 5.2 The landfill is divided in Area A (33 hectares) and Area B (32 hectares). Area A (the north east area) is the current area of Whitehead Landfill site for non-hazardous waste. This area is proposed, under the GM JWDPD for a vertical extension of the existing landfill to create an additional 1million m³ waste void. Area B to the south west is the proposed area of landfill extension and would create an additional 2million m³ waste void. Area B is currently partly vegetated with some small trees and grassland, sloping down to the west. The Whitehead landfill extension is proposed for inert, non-hazardous waste.
- 5.3 The proposed landfill extension would increase the lifespan of the site to last the duration of the waste plan. The annual throughput of waste is likely to remain at current levels (this is controlled by the Environment Agency). The current emission data is therefore likely to remain constant.
- 5.4 Whitehead Landfill was screened in requiring AA due to potential atmospheric pathways to Manchester Mosses SAC (Appendix 1).

Whitehead Landfill Emission Data

- 5.5 Current emission data (**Table 4**) has been received through consultation with the Environment Agency (6th July 2010). This comprises the annual local emissions inventory. Whilst this data is based on assessed predictions rather than source monitoring, it serves to indicate the main atmospheric pollutants currently being emitted from Whitehead Landfill, and which are likely to continue to be emitted as the lifespan Whitehead Landfill is extended.

Table 4 Annual Emissions from Environment Agency Pollution Inventory

Emission Rate (tonnes per annum)													
pollutant	Black Smoke	CO ₂ as C	CH ₄	CO	NO	NO ₂	SO ₂	NM VOC	Hg	Pb	Benzene	PM10	B[a]P
emissions	0	9466	170	109	0	65.2	30.7	1.08	0	0	0.008	0.997	0

Identified Pathways to European Sites: Manchester Mosses SAC

- 5.6 Manchester Mosses SAC comprises Astley and Bedford Mosses, Holcroft Moss and Risley Moss, totalling approximately 173ha. The site is significant for mossland that *‘formerly covered a very large part of low-lying Greater Manchester, Merseyside and southern Lancashire, and provided a severe obstacle to industrial and agricultural expansion’*. These sites are examples that have survived as degraded raised bog on the Mersey floodplain, with their surfaces elevated above

surrounding land due to shrinkage of the surrounding tilled land, and *'all except Holcroft Moss have been cut for peat at some time in the past'*.

Reasons for Designation

- 5.7 Manchester Mosses SAC is designated for its Habitats Directive Annex I habitat of *'degraded raised bogs still capable of natural regeneration'* (EC, 1992).

Historic Trends and Current Pressures

- 5.8 Manchester Mosses SAC is a direct result of historical loss of mossland (i.e. bog) habitat due to drainage for agriculture and built development. Mossland is reported to have been a significant obstacle to industrialisation of the area around Manchester, and its drainage and landfilling was intensified during the 19th and 20th centuries. However, recent rehabilitation management over the past 15-20 years has increased peat-producing *Sphagnum* species.

- 5.9 The existing environmental pressures upon the mossland habitat for which this site is designated are mainly:

- atmospheric nitrogen deposition from road traffic;
- increased agricultural drainage in the surrounding land, which causes the habitat to dry out and begin succession towards scrubland and woodland (including drainage of peat that gradually increases a downward gradient away from the mosslands);
- changes to the maintenance regime of nearby agricultural drainage, which can cause either drying out through unsympathetic dredging, or waterlogging through complete lack of dredging;
- increased water abstraction for irrigation, which can contribute towards the drying out of mossland habitat through reduced flows and/or a lowered water table;
- afforestation as a result of natural succession;
- fly-tipping;
- loss of neighbouring mossland habitat as a result of agricultural drainage or drainage and landfill for development;
- loss of neighbouring peat and mossland habitat as a result of peat harvesting, both legally and illegally;
- damage to mossland habitat due to increased recreational pressure (e.g. paintball); and
- loss of *Sphagnum* species as a result of drying out and increased air pollution.

Air as a Pathway

- 5.10 **Tables 5** and **6** show the degree to which the Manchester Mosses SAC (Astley and Bedford Moss) site is affected by atmospheric nitrogen and sulphur deposition (data downloaded from APIS on 07/07/10).

Table 5: Atmospheric nitrogen deposition compared with critical load at Astley and Bedford Moss*

Site	Grid reference	Habitat	Minimum critical Load / Kg N/ha/year	Nitrogen Deposition/ Kg N/ha/ year	Exceedance	Is atmospheric nitrogen deposition currently a problem?
Manchester Mosses SAC (Astley and Bedford Moss)	SJ691973	Raised and blanket bogs	5	13.2	Current deposition is almost three times the minimum critical load.	Yes, there is a N saturation of Sphagnum

Source: Based on information provided by the UK Air Pollution Information System (www.apis.ac.uk). Data downloaded from APIS on 07/0710

* the part of Manchester Mosses SAC located within 2km of Whitehead landfill extension

Table 6: Atmospheric sulphur dioxide concentrations compared with critical load at Holcroft Moss

Site	Grid reference	Habitat	Critical Level / µg/m3	SO2 Concentration / µg/m3	Exceedance	Is sulphur dioxide currently a problem?
Manchester Mosses SAC (Astley and Bedford Moss)	SJ691973	Raised and blanket bogs	20	1.3	Current concentration is 6.5% of the critical level.	No

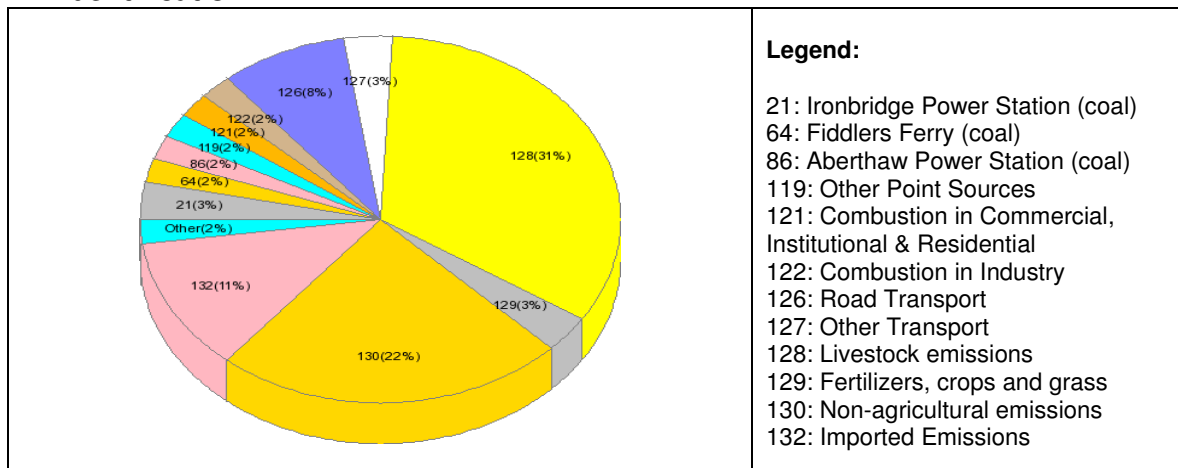
Source: Based on information provided by the UK Air Pollution Information System (www.apis.ac.uk). Data downloaded from APIS on 28/04/10

5.11 It is clear from **Table 5** that nitrogen deposition is already a problem within Manchester Mosses SAC. The effects this is having on the integrity of the SAC is through:

- eutrophication: change in species composition, nitrogen saturation of *Sphagnum*; and
- acidification: leaching will cause a decrease in soil base saturation, increasing the availability of Al³⁺ ions, mobilisation of Al³⁺ may cause toxicity to plants and mycorrhiza, may have direct effect on lower plants (bryophytes and lichens).

5.12 **Box 7** illustrates the source attribution to the nitrogen deposition at Manchester Mosses SAC. Two thirds of the nitrogen disposition is from a combination of livestock, non agricultural and imported emissions.

Box 7: Nitrogen Deposition at Astley and Bedford Moss with Source identification



Based on information provided by the UK Air Pollution Information System (www.apis.ac.uk). Data downloaded from APIS on 07/0710

- 5.13 A review of all 132 identified sources of atmospheric emissions present at Manchester Mosses SAC²² did not reveal Whitehead Landfill as a discrete source of atmospheric nitrogen. Interestingly, however, the large incineration plant Ineos Chlor located in Runcorn (Cheshire) is listed as a discrete source of atmospheric emissions. Emissions arising from Whitehead landfill are likely to comprise less than 1% of the atmospheric nitrogen at the site. The Whitehead landfill emissions are displayed in Box 7 as one of the following categories 'combustion in industry, other point sources, or non agricultural emissions along with many other sources of atmospheric nitrogen'.
- 5.14 It is clear from Table 6 that atmospheric sulphur deposition is currently not resulting in a problem at Manchester Mosses SAC.
- 5.15 Given that the landfill extension will not increase the annual throughput of the site, the emissions levels are likely to remain constant. Furthermore as the throughput will remain constant there will be no increase in vehicle movements to the site. It is therefore unlikely that the continued operation of Whitehead Landfill will result in a significant increase in nitrogen disposition (i.e. an increase of more than 1% of the critical load) by itself.
- 5.16 Furthermore, as the current atmospheric emissions baseline will therefore not change as a result of the JWDPD, it can be concluded that the extension of Whitehead Landfill as part of the JWDPD is unlikely to affect the integrity of Manchester Mosses SAC.

Likely Significant Effects of Other Projects and Plans

- 5.17 It has been concluded that the extension of Whitehead Landfill as part of the JWDPD will not result in a significant increasing atmospheric nitrogen deposition and is therefore unlikely to affect the integrity of Manchester Mosses SAC. However, as part of the assessment, other plans and

²² (www.apis.ac.uk)

projects have been screened in which have the potential to act in combination to exacerbate the existing nitrogen deposition issue. These are described below.

- 5.18 The key significant plan affecting the GM Waste Plan was the Regional Spatial Strategy (RSS) for the North West. This was revoked on 6 July 2010. Open Source Planning, the Planning Green Paper published by the Conservative Party in February 2010, outlined transitional arrangements with regard to housing figures in Local Development Frameworks (LDFs) once RSSs have been revoked. The Paper expected 'Option 1 numbers', the numbers originally projected by local planning authorities, to be the provisional housing numbers used in LDFs by local authorities. Since there is only a small difference between RSS figures and Option 1 figures for Greater Manchester (about 2.5%), the effects are likely to be similar if the houses are built. In addition, given the key role of the M62 as one of the major entry/exit routes to Manchester from Leeds, Merseyside and the North, it is reasonable to assume that a significant cumulative 'in combination' air quality effect as a result of the cumulative increase in vehicle emissions and continued house building is likely.
- 5.19 Consented but not yet operational facilities such as a 850,000 te Energy from Waste (gasification) facility at Runcorn to be built and operated by Ineos Chlor. The scale of this facility's fuel-stock requirement is such that it would be likely to take refuse-derived fuel from a regional catchment including Merseyside and some of the vehicles that transport the waste are likely to use the M62. A regional scale waste facility in Elton (site N2306) with a treatment capacity of 600,000 tonnes pa could have similar implications. This was approved in August 2009 following a Public Inquiry
- 5.20 Due to the immediate proximity of the railway, potential plans and policies that encourage railway travel have been considered. The Department of Transport have made the following comment on air quality issues as they relate to the transfer of freight movements from road to rail, which, although not made within the context of Appropriate Assessment, outline the principle of the approach we have taken:
- "It should be noted that in terms of total transport emissions, rail transport accounts for less than 1% of the total. Therefore, even with the most rail orientated transport options, perhaps doubling the rail kilometres, the potential for any significant impact on emissions will lie mainly with the saving in emissions from road transport brought about by modal transfer, rather than those generated by rail. Hence, it is suggested that emissions from rail sources can be scoped out in most cases".²³*
- 5.21 Through this Appropriate Assessment, we have therefore worked on the assumption that an increase in rail freight or barge transport means the potential for a decrease in HGV's and is therefore a positive step for air quality. This is particularly relevant to the Manchester Mosses sites are located immediately adjacent to two railway lines.

Positive measures of the JWDPD

- 5.22 The overarching objectives of the Waste DPD seeks to controlling and minimising contributions to NOx and nitrogen deposition, including:

²³ Department of Transport (2004). Transport Analysis Guidance: Regional Air Pollution. http://www.webtag.org.uk/webdocuments/3_Expert/3_Environment_Objective/3.3.4.htm

- Objective 2: To promote the movement of waste up the waste hierarchy, assuming minimisation at source, increasing reuse, recycling and recovery, whilst recognising there may still be a need for additional landfill capacity for residual wastes.
- Objective 3: To assist in reducing greenhouse gas emissions and assist in adaption/mitigation of climate change, including resource efficiency and minimising the need for energy in accordance with targets at national, regional and local level.
- Objective 4: To ensure waste growth within the sub-region does not increase to the same degree as growth in economic activity i.e. to decouple waste growth from economic growth.
- Objective 6: To ensure appropriate protection of the quality of life of communities
- Objective 7: To protect the sub-region's natural environment, biodiversity, geodiversity, cultural and historic heritage.
- Objective 8: To reduce waste movements and, where waste needs to be moved, to promote the sustainable movement of waste across the sub-region.

5.23 In the light of these measures, it is considered that the Waste DPD has taken all measures that can reasonably be expected in order to reduce traffic in proximity to the M62 and no further measures are therefore recommended.

6 Summary and Schedule of Changes

Positive aspects of the JWDPD

- 6.1 The JWDPD as a whole will have an environmentally positive effect on Greater Manchester.:
- 6.2 Greater Manchester has the largest population of any sub-region within the North West and is the largest producer of waste for all streams, including, municipal waste, commercial and industrial, construction and demolition and hazardous waste. Traditionally Greater Manchester has relied upon landfill to dispose of wastes which have largely been exported out of the conurbation. The draft publication JWDPD, in accordance with European legislation and Government targets, develop a range of new waste management facilities for recycling, composting, treatment and recovery, significantly reducing the landfill dependency.
- 6.3 The following elements are included in the overarching strategic objectives of the JWDPD include:
- to promote the movement of waste up the waste hierarchy, assuming minimisation at source, increasing reuse, recycling and recovery, whilst recognising there may still be a need for additional landfill capacity for residual wastes (Objective 2).
 - to assist in reducing greenhouse gas emissions and assist in adaption/mitigation of climate change, including resource efficiency and minimising the need for energy in accordance with targets at national, regional and local level (Objective 3), therefore seeking to reduce atmospheric emissions:
 - to ensure waste growth within the sub-region does not increase to the same degree as growth in economic activity i.e. to decouple waste growth from economic growth (Objective 4).
 - to provide a flexible approach for the delivery of the required waste management facilities, allowing emerging technologies to come forward (Objective 5). This would allow new energy efficient recovery technologies to be implemented in the future, however new technologies would require HRA Screening for new pathways.
 - to protect the sub-region's natural environment, biodiversity, geodiversity, cultural and historic heritage (Objective 7).
 - to reduce waste movements and, where waste needs to be moved, to promote the sustainable movement of waste across the sub-region (Objective 8). This will promoting the sustainable movement of waste across the sub-region, creating waste processing sites within the county in order to reduce both the quantities of material that are sent to landfill and the unsustainably high level of heavy vehicle movements that are required in transporting waste to another county for processing (although this latter may still occur to an extent). Fewer and shorter vehicle journeys inevitably mean a substantial reduction in the amounts of NO_x generated per tonne of waste. In addition, the location new waste management facilities within Greater Manchester will increase the likelihood of waste recycling taking place.

- 6.4 In addition Policy 8 (Requirement of Combined Heat and Power) requires that where incineration/biogas technology would be implemented, energy recovery should be included where possible, again promoting energy efficiency and a reduction in atmospheric emissions including greenhouse gas emissions.
- 6.5 It should also be noted that the consideration of alternatives has been inherent in the development of the JWDPD. This has considered alternative site/area locations, alternative waste management facilities and several drafts of policy wording. A key consideration in the alternatives is avoid impacts on Natura 2000 sites.

Mitigating Text: JWDPD Policy Supporting Text Wording

- 6.6 The following amendments to the JWDPD policy supporting text are required to ensure pathways of effects to European Sites are not created (see Appendix 2 for more details):
- *Policy 10: Unallocated Sites: Applications for waste management facilities on unallocated sites will be permitted where the applicant can demonstrate that (1) The proposal fits within the spatial strategy set out in the Waste Plan and contributes to the Waste Plan aim and objectives; and (2) The proposal meets the same assessment criteria as allocated sites.*
 - Any applications for waste management facilities on unallocated sites will be subject to the same HRA Screening as those site allocations taken forward in GM JWDPD Spatial Strategy. This is based on indicative buffer zones for different waste management facilities and qualifying features of European Designated Sites.

Table 7: HRA Screening Buffer Zone Table

Waste Management Facility Category	Indicative Buffer Zone to account for pathways of effects for European Designated Site
Landfill / Land Raise (residual waste facility)	2km or 5km if 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), with additional consideration to water pathways and hydraulic connections
Open air waste management and recycling facilities	1km with additional consideration to water pathways and hydraulic connections
Thermal treatment facilities	1km with additional consideration to water pathways and hydraulic connections ²⁴

²⁴ Environment Agency guidance (2003 *Integrated Pollution Prevention and Control - Environmental Assessment and Appraisal of BAT. Horizontal Guidance Note IPPC H1 on screening point-source pollution emitters for more detailed assessment*) for larger Energy from Waste incineration sites (e.g. to the scale of Ineos Chlor CHP in Merseyside) lists the presence of a SSSI or Natura 2000 site within 10

Open air windrow composting	1km or 5km if 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), with additional consideration to water pathways and hydraulic connections
Enclosed (built) waste management and recycling facilities	1km with additional consideration to water pathways and hydraulic connections

- Should any unallocated waste site not be screened out, it is recommended that the applicant would be required to demonstrate through a site-specific HRA that the process contribution (PC) to nitrogen deposition in Rochdale Canal SAC or other pollution-sensitive SACs would not amount to more than 1% of the critical load (0.05 kg/N/ha/year).
- Monitoring and Implementation *In order to implement the Waste Plan, this section of the DPD seeks to ensure that: (1) the performance of the plan is monitored; (2) the evidence base is monitored and that systems are in place to update it (3) Uptake of land allocations is monitored to assist in the phased release and/or safeguarding of land.*
- Proposed HRA Mitigation should be monitored to ensure pathways of effects to European Sites have been avoided. This should include monitoring of the planning process to ensuring HRA Screening has been applied to any new site allocation/waste management technology and site based mitigation has been implemented e.g. relating to air emissions.

Spatial Strategy and Site Allocations:

- 6.7 In light of the positive contributions made towards the environment by the JWDPD, no further mitigation is required with respect to potential in combination effects of Whitehead Landfill Extension Site Allocations on European Sites through deteriorations in air quality.
- 6.8 With regards to Mandale Park, it is considered that the overarching objectives within the JWDPD represent suitable policy initiatives that could offset the contribution of Mandale Park to any cumulative deterioration in air quality off Junction 21 of the M62. However, as a final measure to ensure any contribution of Mandale Park to a cumulative deterioration of air quality does not exceed accepted 'in combination' levels, it is recommended that, prior to the development of Mandale Park the applicant operator would be required to demonstrate through a site-specific HRA that the process contribution (PC) to nitrogen deposition in the SAC will not amount to more than 1% of the critical load (0.05 kg/N/ha/year).
- 6.9 This is the criterion that the Environment Agency and Natural England use to identify whether a source of emissions will have an adverse effect when considered alone or 'in combination' with

km as one of the indicators that detailed assessment (i.e. dispersion-modelling) may be required. As no TTFs to that scale have been proposed as part of the GMJWDPD (Paragraph 2.34 of the DPD), this criterion has not been used in this HRA Screening. Any new TTF sites that may be taken forward under Policies 8 and 10 will be subject to separate screening, and may require project based AA. Should these be to the scale of Ineos Chlor, the 10km buffer zone may be applicable

other projects and plans. If the application can pass this test, then no mitigation will be needed. If the application cannot pass this test, then more detailed assessment will be required, potentially including a travel plan to reduce the emissions below the necessary threshold. This may include consideration of alternative transport methods, or where traffic would be re-routed to avoided impacts on Rochdale Canal.

- 6.10 The Waste Plan Site Profile for Mandale Park will highlight these requirements, referring back to this report for further details as necessary.

Conclusion

- 6.11 With these mitigating measures in place, it can be concluded that the JWDPD has established a sufficient policy framework to mitigate its contribution to adverse effects on the integrity of European sites.

7 References

- Bobbink, Ashmore, Braun, Fluckiger and Vanden Wyngaert. 2002. Work on critical loads for natural and semi-natural systems (“*Empirical nitrogen critical loads for natural and semi-natural ecosystems 2002 update*”)
- Department for Communities and Local Government. 2006. *Planning for the Protection of European Sites: Appropriate Assessment*. <http://www.communities.gov.uk/index.asp?id=1502244>
- Department of Transport (2004). *Transport Analysis Guidance: Regional Air Pollution*. http://www.webtag.org.uk/webdocuments/3_Expert/3_Environment_Objective/3.3.4.htm
- Defra. 2004. Review of Environmental and Health Effects of Waste Management: Municipal Solid Waste and Similar Wastes. Defra Publication, London, UK
- Dore CJ et al. 2005. UK Emissions of Air Pollutants 1970 – 2003. UK National Atmospheric Emissions Inventory. <http://www.airquality.co.uk/archive/index.php>
- EC, 1979 – European Council (1979). *Council Directive of 2 April 1979 on the conservation of wild birds (79/409/EEC)*. http://europa.eu.int/eur-lex/en/consleg/pdf/1979/en_1979L0409_do_001.pdf
- Environment Agency (2004) *Habitats Directive Work Instruction (Appendix 6): Further Guidance applying the Habitat Regulations to Waste Management Facilities*
- Environment Agency (2006) *Waste Plan- Whitehead Landfill* Email dated 6th July 2010 from Paul Cartmell (Environment Agency to Phillipa Lane (Urban Vision),
- ERM. 2007. Appropriate Assessment of the Surrey Waste Development Framework. Surrey County Council 1 Chlorine Online Information Resource website
- European Commission (2001). *Assessment of plans and projects significantly affecting Natura 2000 sites*. http://europa.eu.int/comm/environment/nature/nature_conservation/eu_nature_legislation/specific_articles/art6/pdf/natura_2000_assess_en.pdf
- Greater Manchester Transportation Unit (GMTU) (2005) *The Greater Manchester Emissions Inventory 2005 Update* available from <http://www.gmtu.gov.uk/reports/emigma/GMTUReport1331.pdf> (July 2010)
- Grice, S., T. Bush, J. Stedman, K. Vincent, A. Kent, J. Targa and M. Hobson (2006) *Baseline Projections of Air Quality in the UK for the 2006 Review of the Air Quality Strategy*, report to the Department for Environment, Food and Rural Affairs, Welsh Assembly Government, the Scottish Executive and the Department of the Environment for Northern Ireland.
- Grice, S., J. Stedman, T. Murrells and M. Hobson (2007) *Updated Projections of Air Quality in the UK for Base Case and Additional Measures for the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007*, report to the Department for Environment, Food and Rural Affairs, Welsh Assembly Government, the Scottish Executive and the Department of the Environment for Northern Ireland.

JNCC, 2006d – Joint Nature Conservation Committee (2006d). <i>Manchester Mosses</i> . http://www.jncc.gov.uk/protectedsites/SACselection/SAC.asp?EUCode=UK0030200
The Marine Biological Association (2006). <i>Site Characterisation of European Marine Sites: The Mersey Estuary SPA</i> . www.mba.ac.uk/nmbi/publications/occpub/pdf/occ_pub_18.pdf
Laxen and Wilson (2002) <i>A New Approach to Deriving NO2 from NOx for Air Quality Assessments of Roads</i>
National Expert Group on <i>Transboundary Air Pollution (2001) Transboundary Air Pollution: Acidification, Eutrophication and Ground-Level Ozone in the UK</i>
English Nature (16 May 2006) letter to Runnymede Borough Council, 'Conservation (Natural Habitats &c.) Regulations 1994, Runnymede Borough Council Local Development Framework'.
North Merseyside Biodiversity Action Plan (undated). http://www.merseysidebiodiversity.org.uk/
Scott Wilson (2010) ' <i>Habitat Regulations Assessment (HRA Screening) (Stage 1) of the Greater Manchester Joint Waste Development Plan Document (JWDPD) Combined Report</i> ' (July 2010') (included in Appendix 1 of this report)
Scottish Environment Protection Agency. 2003. Technical Guidance Note - Habitats Regulations & The Landfill Regulations Guidance http://www.sepa.org.uk/pdf/guidance/landfill_directive/habitats_landfill_regulations_guidance.pdf
Webb <i>et al.</i> , 2004a – Webb A., McSorley C..A., Dean B. J., Reid J. B., Cranswick P. A., Smith L. and Hall C. (2004a). <i>An assessment of the numbers and distributions of inshore aggregations of waterbirds using Liverpool Bay during the non-breeding season in support of possible SPA identification: JNCC Report No. 373</i> . http://www.jncc.gov.uk/page-3810
Webb <i>et al.</i> , 2004b – Webb A., McSorley C..A., Dean B. J. and Reid J. B. (2004b). <i>Recommendations for the selection of, and boundary options for, an SPA in Liverpool Bay</i> http://www.jncc.gov.uk/default.aspx?page=3815

APPENDIX 1 – Electronic Copy of JWDPD HRA Screening Report (Combined Report, July 2010)

APPENDIX 2 – HABITAT REGULATIONS ASSESSMENT SCREENING TABLE ORGANISED BY POLICY

Policy	Details	Can adverse effects on European sites be screened out without appropriate assessment?	Suggested Avoidance and Mitigation Text to be included in DPD policy supporting text wording
Overall Aim	<p>Objective 1: To ensure that Greater Manchester's waste is dealt with in line with Scenario 2 of the needs assessment.</p> <p>Objective 2: To promote the movement of waste up the waste hierarchy, assuming minimisation at source, increasing reuse, recycling and recovery, whilst recognising there may still be a need for additional landfill capacity for residual wastes.</p> <p>Objective 3: To assist in reducing greenhouse gas emissions and assist in adaption/mitigation of climate change, including resource efficiency and minimising the need for energy in accordance with targets at national, regional and local level.</p> <p>Objective 4: To ensure waste growth within the sub-region does not increase to the same degree as growth in economic activity i.e. to decouple waste growth from economic growth.</p> <p>Objective 5: To provide a flexible approach for the delivery of the required waste management facilities, allowing emerging technologies to come forward.</p> <p>Objective 6: To ensure appropriate protection of the quality of life of communities</p> <p>Objective 7: To protect the sub-region's natural environment, biodiversity, geodiversity, cultural and historic heritage.</p> <p>Objective 8: To reduce waste movements and, where waste needs to be moved, to promote the sustainable movement of waste across the sub-region.</p>	<p>Yes – Objective 5 provides flexibility for new technologies to come forward which may create new pathways of effects not considered as part of the HRA process to date, however Objective 5 is delivered through Policies 4, 5, 8, 10, 11 and 12. Mitigation measures have been included in these policies..</p>	<p>NA</p>
Policy 1	<p><u>Commercial and Industrial Waste: Energy Recovery</u> Planning permission will be granted for energy recovery in accordance with the identified capacity</p>	<p>Yes – the site allocations of</p>	<p>NA</p>

Policy	Details	Can adverse effects on European sites be screened out without appropriate assessment?	Suggested Avoidance and Mitigation Text to be included in DPD policy supporting text wording																																				
	<p>requirements 2010-2027:</p> <table border="1" data-bbox="277 496 1422 730"> <thead> <tr> <th></th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> <th>2017-2027</th> </tr> </thead> <tbody> <tr> <td>Capacity required (tonnes per annum)</td> <td>53,000</td> <td>112,000</td> <td>170,000</td> <td>230,000</td> <td>291,000</td> <td>351,000</td> <td>353,000</td> <td>354,000</td> </tr> <tr> <td>Indicative cumulative total number of energy recovery facilities required across Greater Manchester</td> <td>1</td> <td>2</td> <td>3</td> <td>3</td> <td>4</td> <td>5</td> <td>5</td> <td>5</td> </tr> </tbody> </table>		2010	2011	2012	2013	2014	2015	2016	2017-2027	Capacity required (tonnes per annum)	53,000	112,000	170,000	230,000	291,000	351,000	353,000	354,000	Indicative cumulative total number of energy recovery facilities required across Greater Manchester	1	2	3	3	4	5	5	5	<p>energy recovery allocations have been screened. Unallocated sites are covered under Policy 10.</p>										
	2010	2011	2012	2013	2014	2015	2016	2017-2027																															
Capacity required (tonnes per annum)	53,000	112,000	170,000	230,000	291,000	351,000	353,000	354,000																															
Indicative cumulative total number of energy recovery facilities required across Greater Manchester	1	2	3	3	4	5	5	5																															
<p>Policy 2</p>	<p><u>Commercial and Industrial Waste: Disposal</u> Planning permission will be granted for waste disposal capacity in accordance with the identified capacity requirement:</p> <table border="1" data-bbox="277 895 1337 1353"> <thead> <tr> <th></th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> <th>2017</th> <th>2018</th> <th>2019</th> </tr> </thead> <tbody> <tr> <td>Indicative cumulative disposal capacity required (tonnes per annum)</td> <td>563,000</td> <td>879,000</td> <td>1,088,000</td> <td>1,537,000</td> <td>1,965,000</td> <td>2,372,000</td> <td>2,756,000</td> <td>3,117,000</td> </tr> <tr> <td>Disposal site where capacity will be provided ⁽⁹⁾</td> <td>Pilsworth South and Whitehead Landfill</td> <td>Pilsworth South and Whitehead Landfill</td> <td>Pilsworth South and Whitehead Landfill Extension</td> <td>Pilsworth South and Whitehead Landfill Extension</td> <td>Pilsworth South and Whitehead Landfill Extension</td> <td>Pilsworth South and Whitehead Landfill Extension</td> <td>Pilsworth South and Whitehead Landfill Extension</td> <td>Pilsworth South and Whitehead Landfill Extension</td> </tr> <tr> <td>Indicative lead in times for planning purposes</td> <td>Engineering works at Whitehead</td> <td>Engineering works at Whitehead</td> <td>Infilling Commences at Whitehead Landfill Extension</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		2012	2013	2014	2015	2016	2017	2018	2019	Indicative cumulative disposal capacity required (tonnes per annum)	563,000	879,000	1,088,000	1,537,000	1,965,000	2,372,000	2,756,000	3,117,000	Disposal site where capacity will be provided ⁽⁹⁾	Pilsworth South and Whitehead Landfill	Pilsworth South and Whitehead Landfill	Pilsworth South and Whitehead Landfill Extension	Pilsworth South and Whitehead Landfill Extension	Pilsworth South and Whitehead Landfill Extension	Pilsworth South and Whitehead Landfill Extension	Pilsworth South and Whitehead Landfill Extension	Pilsworth South and Whitehead Landfill Extension	Indicative lead in times for planning purposes	Engineering works at Whitehead	Engineering works at Whitehead	Infilling Commences at Whitehead Landfill Extension						<p>No- as Whitehead Landfill Extension site allocation has been screened in and is subject to AA in this report.</p>	<p>Not Required, see Section 6 of this report.</p>
	2012	2013	2014	2015	2016	2017	2018	2019																															
Indicative cumulative disposal capacity required (tonnes per annum)	563,000	879,000	1,088,000	1,537,000	1,965,000	2,372,000	2,756,000	3,117,000																															
Disposal site where capacity will be provided ⁽⁹⁾	Pilsworth South and Whitehead Landfill	Pilsworth South and Whitehead Landfill	Pilsworth South and Whitehead Landfill Extension	Pilsworth South and Whitehead Landfill Extension	Pilsworth South and Whitehead Landfill Extension	Pilsworth South and Whitehead Landfill Extension	Pilsworth South and Whitehead Landfill Extension	Pilsworth South and Whitehead Landfill Extension																															
Indicative lead in times for planning purposes	Engineering works at Whitehead	Engineering works at Whitehead	Infilling Commences at Whitehead Landfill Extension																																				

Policy	Details									Can adverse effects on European sites be screened out without appropriate assessment?	Suggested Avoidance and Mitigation Text to be included in DPD policy supporting text wording	
		2020	2021	2022	2023	2024	2025	2026	2027			
	Indicative cumulative disposal capacity required (tonnes per annum)	3,474,000	3,830,000	4,186,000	4,542,000	5,380,000	6,217,000	7,054,000	7,890,000			
	Disposal site where capacity will be provided (10)	Pilsworth South and Whitehead Landfill Extension	Pilsworth South and Whitehead Landfill Extension	Pilsworth South and Whitehead Landfill Extension	Pilsworth South and Whitehead Landfill Extension And Pilsworth North Extension	Whitehead Landfill Extension And Pilsworth North Extension	Whitehead Landfill Extension And Pilsworth North Extension	Whitehead Landfill Extension And Pilsworth North Extension	Whitehead Landfill Extension And Pilsworth North Extension			
	Indicative lead in times for planning purposes	Planning permission sought for Pilsworth North Extension	Engineering work commences at Pilsworth North Extension	Engineering work continues at Pilsworth North Extension	Infilling commences at Pilsworth North Extension							
Policy 3	<p>Hazardous Waste: Disposal Capacity Disposal capacity for hazardous waste arising or treated in Greater Manchester will continue to be provided at regional facilities as recognised by Minerals and Waste Development Frameworks across the North West Region. Planning permission will be granted for the disposal of stable and non reactive hazardous waste disposal capacity in line with the identified deficit</p>									<p>Yes, Hazardous waste will be dealt with (1) within existing site (2) at the potential extension to Pilsworth South (HRA Screening already done for this site) and (3) existing sites elsewhere in the NW region. New sites in GM will not</p>	<p>NA. .</p>	
		2012-2023	2024	2025	2026	2027						
	Cumulative disposal capacity required (tonnes per annum)	No capacity requirement	68,000	136,000	204,000	272,000						

Policy	Details	Can adverse effects on European sites be screened out without appropriate assessment?	Suggested Avoidance and Mitigation Text to be included in DPD policy supporting text wording
		<p>come forward as part of this policy; they would come forward under Policy 10: Unallocated Sites.</p> <p>Waste transport reduction is an overarching plan objective (Objective 8) so transporting waste outside of GM boundary will already be minimised where possible as part of the JWDPD</p>	
Policy 4	<p><u>Site Allocations for Built Waste Management Facilities</u> Applications for waste management development on sites identified in this policy will be permitted where the applicant can demonstrate that:</p> <ul style="list-style-type: none"> • The proposal meets the requirements of the Waste Plan, relevant Core Strategy and other relevant national, regional and local planning policy; and • It is demonstrated (by the applicant) that the development will result in the highest practicable level of recycling and recovery of materials, in line with the principle of the waste hierarchy and Scenario 2 of the Needs Assessment. 	Yes – The site allocations listed in this policy have been screened. No sites require AA	NA

Policy	Details	Can adverse effects on European sites be screened out without appropriate assessment?	Suggested Avoidance and Mitigation Text to be included in DPD policy supporting text wording
Policy 5	<p><u>Area Allocations for Built Waste Management Facilities</u> Applications for waste management development on sites identified in this policy will be permitted where the applicant can demonstrate that:</p> <ul style="list-style-type: none"> • The proposal meets the requirements of the Waste Plan, relevant Core Strategy and other relevant national, regional and local planning policy; and • It is demonstrated by the applicant that the development will result in the highest practicable level of recycling and recovery of materials, in line with the principle of the waste hierarchy 	No – This area allocations includes Mandale Park which has been screened in requiring AA.	Not Required, see Section 5 of this report
Policy 6	<p><u>Inert Residual Waste Disposal</u> Applications for inert residual waste disposal will be permitted where the applicant can demonstrate that:</p> <ul style="list-style-type: none"> • The proposal meets the requirements of the Waste Plan, relevant Core Strategy and other relevant national, regional and local planning policy, including the requirement to move waste up the hierarchy; and • The proposal contributes to the Waste Plan aim and objectives 	Yes – The Plan assumes the capacity gap will be met through other ways. Any new sites will be put forward by Policy 10.	NA.
Policy 7	<p><u>Non-hazardous residual waste disposal</u> Applications for non-hazardous residual waste disposal on sites allocated in the Waste Plan and consistent with the plan provision totals set out in Future Waste Management Requirements will only be permitted where the applicant can demonstrate that:</p> <ul style="list-style-type: none"> • The proposal meets the requirements of the Waste Plan, relevant Core Strategy and other relevant national, regional and local planning policy; and • The proposal meets the relevant requirements of Development Management Policy 8,9 and10 in the Waste Plan; and • The proposal complies with Waste Plan Objective 2, that is, allowing for the highest level recycling and recovery of materials practicable in line with the adopted Scenario 2 of the Needs Assessment. <p>Priority will be given to extending existing non-hazardous residual waste disposal facilities over new landfill/ landraise, unless it is demonstrated by the applicant that the new landfill/ landraise would have fewer social and environmental impacts.</p>	No – this policy includes the extension of Whitehead Landfill which has been screened in requiring AA	Not Required, see Section 6 of this report

Policy	Details	Can adverse effects on European sites be screened out without appropriate assessment?	Suggested Avoidance and Mitigation Text to be included in DPD policy supporting text wording
Policy 8	<p><u>Requirement for Combined Heat and Power</u> Applications for waste management facilities that have the potential to utilise biogas or energy from waste fired technologies will be required to provide combined heat and power unless it can be demonstrated that this would prevent the development of waste management facilities that have the potential to deliver important waste infrastructure.</p> <p>In cases where an applicant considers that it would not be feasible to provide combined heat and power it will be the responsibility of the applicant to clearly demonstrate the reasons for this position.</p>	Yes – where facilities are going to be implementing incineration/biogas technology, they should seek to recover the energy involved, which is unlikely to lead to significant effects	NA
Policy 9	<p><u>Restore and Aftercare</u> Applications for landfill/ landraise will be permitted where the applicant can demonstrate that the site will be adequately restored, within an agreed time frame, to a satisfactory and beneficial after-use that is linked to opportunities and objectives within the Local Development Framework</p>	Yes - This Policy is designed to ensure that all applications for landfill/landraise demonstrate the site would be adequately restored. As part of the JWDPD, any application for landfill/landraise would be subject to other policies in the Waste Plan (e.g. 6, 7 or 10) and other relevant plans.	NA
Policy 10	<p><u>Unallocated Sites</u> Applications for waste management facilities on unallocated sites will be permitted where the applicant can demonstrate that:</p> <ul style="list-style-type: none"> • The proposal fits within the spatial strategy set out in the Waste Plan and contributes to the Waste Plan aim and objectives; and • The proposal meets the same assessment criteria as allocated sites. 	No - Since this policy enables delivery of sites other than those allocated in the Waste DPD to be	Any new site allocations will be subject to the same HRA Screening as those site allocations currently

Policy	Details	Can adverse effects on European sites be screened out without appropriate assessment?	Suggested Avoidance and Mitigation Text to be included in DPD policy supporting text wording
		brought forward	being taken forward in GM JWDPD. This is based on Environment Agency guidance and indicative buffer zones for different waste management facilities and qualifying features of European Designated Sites. These buffer zones are as indicated in the HRA Screening Buffer Zone Table (Table 7 in this report).
Policy 11	<p><u>Safeguarding of sites allocated for waste management in the Waste Plan and safeguarding of sites required for the delivery of the Municipal Waste Management Strategies.</u></p> <p>When determining applications for non-waste development on a site, regard will be had to any potential adverse impact the proposed development might have on the future viability of the site as a location for waste management.</p> <p>When determining applications for non-waste development within a distance that could affect the potential for waste use on a site, regard will be had to any potential adverse impact the proposed development might have on the future viability of the site as a location for waste management.</p> <p>If a development is likely to have an unacceptable impact on the future viability of the site it will be refused,</p>	Yes – This policy seeks to safeguard sites allocations which have been subject to HRA Screening.	NA

Policy	Details	Can adverse effects on European sites be screened out without appropriate assessment?	Suggested Avoidance and Mitigation Text to be included in DPD policy supporting text wording
	unless it is demonstrated (by the applicant) that there is no longer a need for the allocated site as a location for waste management or there is an overriding need for the non-waste development in that location.		
Policy 12	<p><u>Safeguarding Existing Waste Management Capacity</u> Applications for non-waste uses on sites with a permitted waste use will be permitted where it is demonstrated (by the applicant) that there is no longer a need for the facility, that the capacity will be met elsewhere in Greater Manchester, or that there is an overriding need for the non-waste development in that location.</p>	Yes – this policy does not seek to allocate new waste sites. Any change in land use will be subject to a separate policy/HRA	NA
Monitoring and Implementation	<p>In order to implement the Waste Plan, this section of the DPD seeks to ensure that:</p> <ul style="list-style-type: none"> • The performance of the plan is monitored; • The evidence base is monitored and that systems are in place to update it; and • Uptake of land allocations is monitored to assist in the phased release and/or safeguarding of land. 	No – the monitoring of HRA mitigation is not explicitly stated.	Proposed HRA Mitigation should be monitored to ensure pathways of effects to European Sites have been avoided. This should include monitoring of the planning process to ensuring HRA Screening has been applied to any new site allocation/waste management technology and site based mitigation has been implemented e.g. relating to air emissions.

APPENDIX 3: WIND ROSE DIAGRAM FOR GREATER MANCHESTER

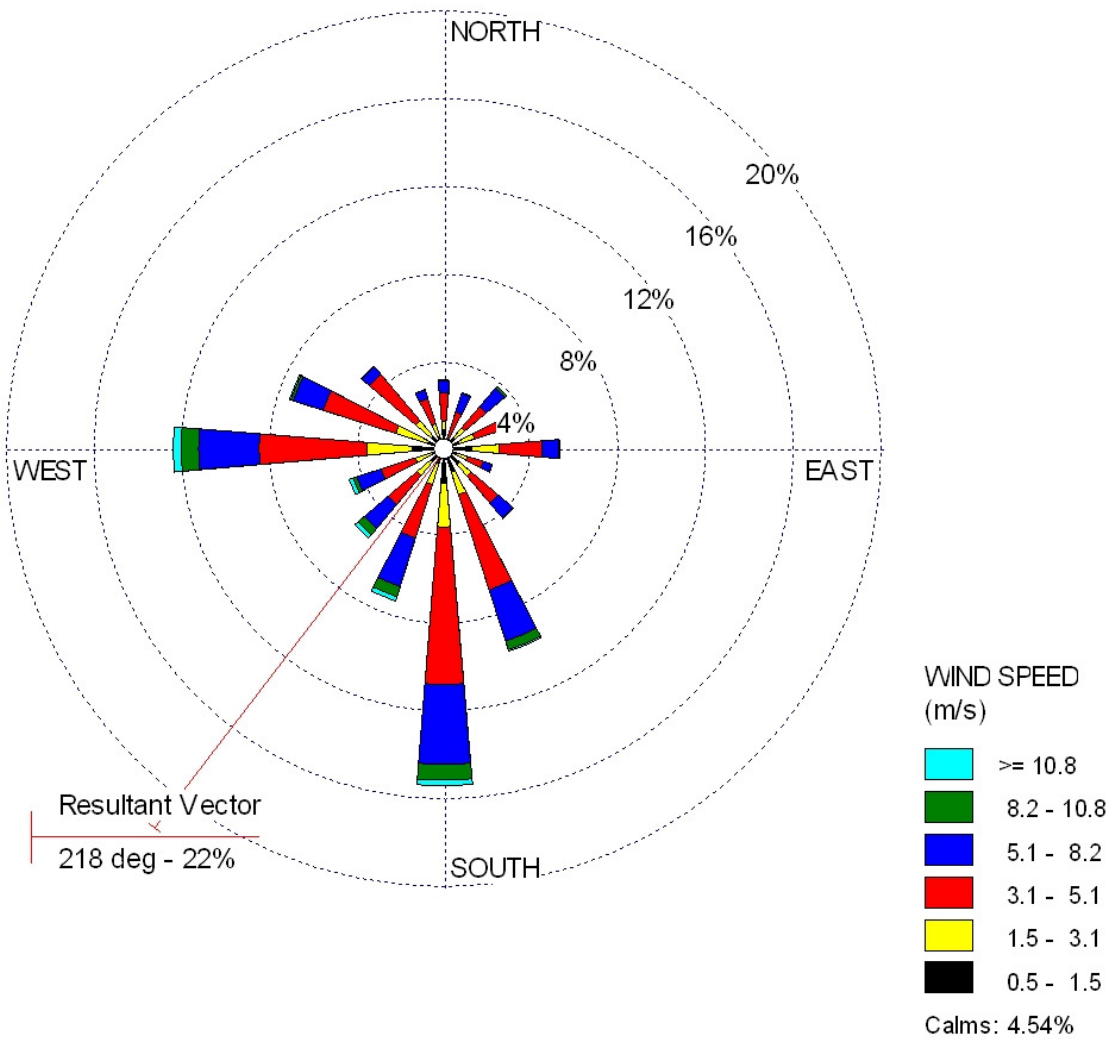


FIGURE 1: GREATER MANCHESTER JWDPD WASTE SITES AND NATURA 2000 SITES

FIGURE 2 GREATER MANCHESTER JWDPD WHITEHEAD LANDFILL EXTENSION AND NATURA 2000 SITES

FIGURE 3 GREATER MANCHESTER JWDPD MANDALE PARK AND NATURA 2000 SITES