

Appendix A6.1 EIA Scoping Letter Template

Kerdiffstown Landfill Remediation Project
Merrion House,
Merrion Road,
Dublin 4

Stakeholder Address

Stakeholder/Interest Group Name

Kildare County Council are progressing the planning stage of the Kerdiffstown Landfill Remediation Project. On-site works to remediate the site are expected to commence in approximately 12 months' time, subject to the granting of licenses by An Bord Pleanála and the EPA and a procurement process for civil works. It is estimated that it may then take five to seven years to complete the works with public and stakeholder consultation and engagement being a core process during this timeframe.

Kildare County Council are currently developing an Environmental Impact Statement (EIS) for the proposed development and in developing the EIS, consultation is being undertaken to assist in identifying the environmental issues which may be important in the Environmental Impact Assessment process.

Works have begun on the development of the EIS the first part of which is the writing of an EIS scoping report which you are hereby invited to review. The EIS scoping report is provided on the CD enclosed with this letter.

This report sets out the proposed scope of work and methodologies to be applied in the development of the EIS for the Kerdiffstown Landfill Remediation Project and outlines the proposed structure of the EIS document. The report is a key element of the EIA process and the main objectives of this report are to:

- Identify environmental issues which may arise during the construction and operation of the proposed development and which should therefore be addressed in more detail as part of the EIS;
- Examine potential environmental issues and determine whether any may be partially or wholly omitted from the EIS (scoped out). This ensures that resources and time are focused on the key issues;
- Outline proposed assessment methodologies for completing the EIS;
- Outline the likely contents of the EIS; and
- Form a basis of common reference for consultation about the scope and methodology for the EIS.

We would appreciate if you could take the time to consider the proposed development as outlined in the EIS Scoping Report included with this letter.

We invite your organisation to provide us with a response on any potential environmental consequences you perceive may result from the construction and/or operation of the proposed development so that these, where possible, can be considered in the development of the EIS. We would appreciate any response you may have on the proposed development by 18th November 2016. Any queries should be directed to Rachel Kelly, Principal Environmental Consultant with Jacobs Engineering, who can be contacted at Rachel.kelly@jacobs.com.

Appendix A6.2 EIA Scoping Submissions



Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Environmental Health
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Kerdiffstown Landfill Remediation Project
Kildare County Council
Environmental Impact Statement Scoping Report

8/11/16

I refer to the attached EIS scoping report for the Kerdiffstown Landfill Remediation Project and am satisfied that it identifies and outlines the environmental issues to be examined which are of concern to this department.

Eithne Hunt

Environmental Health Officer

Kieran Carberry

Principal Environmental Health Officer

Ms. Rachel Kelly
Principal Environmental Consultant
Kerdiffstown Landfill Remediation Project
Merrion House
Merrion Road
Dublin

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| Jacobs Engineering Ireland Limited. | |
| ACTION | |
| RECEIVED | |
| 14 NOV 2016 | |
| ACTION | DATE |
| COMPLETE | INITIAL |
| PM APPROVAL TO FILE | |
| FILE NO. | |

Dáta | Date

10 November 2016

Ár dTag | Our Ref.

TII16 95946

Bhur dTag | Your Ref.

Re: EIS Scoping; proposed Kerdiffstown Landfill Remediation Project

Dear Ms. Kelly

The Authority wishes to advise that it is not in a position to engage directly with planning applicants in respect to proposed developments. The Authority will endeavour to consider and respond to planning applications referred to it given its status and duties as a statutory consultee under the Planning Acts. The approach to be adopted by the Authority in making such submissions or comments will seek to uphold official policy and guidelines as outlined in the Spatial Planning and National Roads Guidelines for Planning Authorities [Department of Environment, Community & Local Government, 2012 (DoECLG)]. Regard should also be had to other relevant guidance available at www.tii.ie.

While it is noted that both Section 11.1.1 and Section 11.4 of the EIS Scoping Report makes reference to the TII Policy Statement on Development Management and Access to National Roads (2006), the applicant/developer should be aware that the DoECLG Spatial Planning and National Roads Guidelines (2012) have replaced that earlier policy statement. EIS preparation should consider this policy development.

The issuing of this correspondence is provided as best practice guidance only and does not prejudice TII's statutory right to make any observations, requests for further information, objections or appeals following the examination of any valid planning application referred.

With respect to EIS scoping issues, the recommendations indicated below provide only general guidance for the preparation of EIS, which may affect the National Roads Network.

The developer should have regard, *inter alia*, to the following;


- Consultations should be had with the relevant Local Authority/National Roads Design Office with regard to locations of existing and future national road schemes,
- The Authority would be specifically concerned as to potential significant impacts the development would have on any national roads (and junctions with national roads) in the proximity of the proposed development; M/N7,
- The developer should assess visual impacts from existing national roads,
- The developer should have regard to any Environmental Impact Statement and all conditions and/or modifications imposed by An Bord Pleanála regarding road schemes in the area. The developer should in particular have regard to any potential cumulative impacts,
- The developer, in conducting Environmental Impact Assessment, should have regard to TII Publications (formerly NRA Design Manual Roads & Bridged (DMRB) and the NRA Manual of Contract Documents for Road Works),

- The developer, in conducting Environmental Impact Assessment, should have regard to TII's Environmental Assessment and Construction Guidelines, including the *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes* (National Roads Authority, 2006),
- The EIS should consider the Environmental Noise Regulations 2006 (SI 140 of 2006) and, in particular, how the development will affect future action plans by the relevant competent authority. The developer may need to consider the incorporation of noise barriers to reduce noise impacts (see *Guidelines for the Treatment of Noise and Vibration in National Road Schemes* (1st Rev., National Roads Authority, 2004)),
- It would be important that, where appropriate, subject to meeting the appropriate thresholds and criteria and having regard to best practice, a Traffic and Transport Assessment be carried out in accordance with relevant guidelines, noting traffic volumes attending the site and traffic routes to/from the site with reference to impacts on the national road network and junctions of lower category roads with national roads. The Authority's Traffic and Transport Assessment Guidelines (TTA) (2014) should be referred to in this regard. The scheme promoter is also advised to have regard to Section 2.2 of the TII TTA Guidelines which addresses requirements for sub-threshold TTA,
- The designers are asked to consult TII Publications to determine whether a Road Safety Audit is required,
- In the interests of maintaining the safety and standard of the national road network, the EIS should identify the methods/techniques proposed for any works traversing/in proximity to the national road network,
- In relation to haul route identification, the applicant/developer should clearly identify any haul routes proposed (construction and operation) and fully assess the network to be traversed. Separate structure approvals/permits and other licences may be required in connection with the proposed haul route and all structures on the haul route should be checked by the applicant/developer to confirm their capacity to accommodate any abnormal load proposed.

Notwithstanding, any of the above, the developer should be aware that this list is non-exhaustive, thus site and development specific issues should be addressed in accordance with best practise.

I hope that the above comments are of use in your scoping process.

Yours sincerely


 P.F. Michael McCormack
 Senior Land Use Planner

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Kerdiffstown Landfill Remediation Project,

Kerdiffstown,

County Kildare

RE: Environment Impact Statement Scoping Report

18th November 2016

Dear Sir/Madam,

The Agency received the Environmental Impact Statement (EIS) Scoping Report for the Kerdiffstown Landfill Remediation Project on the 1st November 2016 and is pleased to provide some commentary at this stage in the development of the remedial solution for the facility.

After an initial review of the report we have the following comments that come to mind:

1. The scope of any discussion on alternatives needs to include a description of the restoration concepts for the site as a whole. Each available option should be described and discussed including each activity type, the methods/equipment considered, gas and odour management issues and leachate treatment options. It should be clearly demonstrated why the remediation methods chosen were selected and why alternatives were dismissed.
2. The planning history (including EIA history) of the site should be clearly mapped including the current planning status of the facility and any planning restrictions should be presented.
3. With regard to site investigations, a full history of site investigations should be presented including, not least, how the content of the unlined landfill and its extent was determined.
4. It may be useful in the description of the current emissions from the landfill that these also are visually described using a conceptual site model and also a refined model presented to describe the proposed emissions when the mitigation measures have been put in place. The source, pathway and receptors should be clearly indicated in both models so as to illustrate the breakage of any pathways as a result of the proposed mitigation measures.
5. Where testing has taken place to establish the background contamination levels in, for example, groundwater and surface water, describe how and why particular parameters were selected and what they show in terms of emissions from the landfill.
6. It is apparent that odour prevention is likely to present particular challenges during the remedial works and the prevention of odour, to the extent possible, should be a parameter used in the selection of the remediation option. Odour prevention and management should feature prominently in the EIS and the applicant's commitments in this regard should be clearly and unambiguously presented. The risk of odour nuisance, if it is known it will arise, during construction and remedial works should be clearly and unambiguously stated and the risk should



be quantified to the extent possible and management techniques proposed to minimise odorous emissions. It would seem appropriate that a communications programme vis-à-vis the risk of odour nuisance and a method of informing the public and neighbouring businesses in advance of any likely odour events is provided and commitments made in this regard. In addition, any air dispersion modelling should, insofar as useful input values for odour emissions can be determined, take the dispersion of odorous emissions into account in the form of an odour dispersion model.

7. Any forecasting methods used to assess the effects on the environment need to be described.
8. In relation to an assessment of noise and vibration emissions, the EIS should describe the noise sensitive locations selected and provide justification for their selection.
9. Included in the scope of the EIS should be any proposal to construct a pipeline to carry leachate to the main sewer. The environmental aspects of the construction and the operation of the pipeline should be included.
10. The location of invasive alien species or vector materials at the facility should be identified and confirmation of whether they are species or materials listed in Part 1 or Part 3 of the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 respectively. The environmental aspects of any proposals to management or eradicate these materials or species should be discussed in the EIS.
11. Equally, the risk of importing soil which is a vector material or otherwise contains invasive alien species should be considered and the proposed appropriate mitigation measures listed to ensure the absence of invasive alien species in imported materials.
12. An invasive species management plan in the EIS might be an appropriate method of presenting the applicant's commitments regarding invasive alien species management at the facility as well as preventing their import to the facility.
13. The EIS should discuss the cumulative impacts of emissions from the facility and proposed works and the inter-relationship of all of the factors assessed in the report (in addition to the cumulative impact assessment of each individual factor at the end of each chapter).

Regards,



Caroline Murphy

Inspector

18/11/2016

REF: Kerdiffstown Landfill Remediation Project: EIS scoping report.

Dear Ms. Kelly,

In relation to the above scoping paper, please find IFI's comments outlined below:

- The Painestown and Morrell Rivers provide spawning habitat for a key population of Atlantic salmon in addition to supporting significant populations of Brown trout.. The River Liffey and several of its tributaries (including the Morrell River) are exceptional in the area in supporting Atlantic salmon (*Salmo salar*, listed under Annex II and V of the EU Habitats Directive) and Sea trout in addition to resident Brown trout (both *Salmo trutta*) populations. This highlights the sensitivity of local watercourses and the Liffey catchment in general. The river is regarded as a very important fishery. Fishery habitat is regarded as particularly good for all salmonid life stages throughout much of the Liffey system and must be protected at all times. The importance of the tributaries already mentioned to the overall fisheries productivity in the Liffey Catchment is significant. These tributaries also support populations of the Freshwater Crayfish (*Austropotamobius pallipes*) and Lamprey (*Lampetra* sp.) species listed under Annex II of the EU Habitats Directive. Only clean, uncontaminated water should leave the Kerdiffstown Landfill site and drain to the river network. The Grand Canal feeder also represents an important ecological resource. The canal here supports significant populations of coarse fish not to mention a range of other freshwater aquatic species, plus all associated floral and faunal components in adjacent habitats.
- The potentially highly polluting nature of the wastewaters generated at this facility highlights the need for implementation of comprehensive leachate and surface water management measures in order to safeguard the ecological integrity of local surface and ground waters. IFI have specific concerns regarding zone 1 and the long term potential negative impacts from leachate runoff. We welcome the extra monitoring bore holes that are proposed in this area and hope results will receive comprehensive examination in the EIS.

- IFI welcomes a thorough review of all long term leachate management options in the EIS. Particular consideration should be given to the fact that any final discharge options must be fully compliant with national and international regulations which include the Water Framework Directive (2000), European Communities (Surface Water) Regulations 2009 and the European Communities (Groundwater) Regulations 2010.
- Best available technology (BAT) mitigation measures should be implemented to ensure protection of the surface water and ground water system during remediation works.
- Any discharges to surface streams present on or near the site must not impact negatively on the salmonid status of the system. Comprehensive surface water management measures (GDSDS study recommendations) must be implemented at the construction and operational stage to prevent any pollution of local surface waters.
- IFI has recently published updated guidelines for construction works near waterways. The title is “Guidelines on protection of fisheries during construction works in and adjacent to waters” (2016) <http://www.fisheriesireland.ie/fisheries-management-1/624-guidelines-on-protection-of-fisheries-during-construction-works-in-and-adjacent-to-waters>. This can be referred to when compiling mitigation options in the EIS.

It is essential to consider fisheries impacts of the remediation at all times, particularly impacts on those species of conservation importance. If we can be of any further assistance, please do not hesitate to contact us.

Kind regards,

Roisin

Roisin O' Callaghan

Roisin O' Callaghan

Fisheries Environmental Officer

Inland Fisheries Ireland - Dublin

Iascach Intire Eireann

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INLAND WATERWAYS ASSOCIATION OF IRELAND

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Secretary: Alan Kelly
Address: 51 Heatherview Close
Aylesbury
Tallaght
Dublin 24

Date: 18 November 2016

Dear Ms Kelly,

Please find below the comments and observations of IWAI Kildare with regard to the EIS Scoping Report on the Kerdiffstown Landfill Remediation Project.

On examination of the report we find that its content is substantial and that risk mitigation has been detailed comprehensively. Our comments and observations are as follows;

Leachate management is our number one concern. The report presents in great detail risk mitigation of both groundwater and surface water contamination from leachate with a particularly strong focus on the Morell River. We would suggest strongly that the same level of focus should be considered for the Grand Canal Feeder, however slight the risk. Given the pNHA designation of the Grand Canal, all watercourses discharging into the canal should have very specific contaminant management systems in place, however small the risk might be.

Consideration should be given to weather conditions, particularly wind force and direction when designating the study area for potential Air Quality Impacts. The limit of the study area should be increased from 3km to 5km.

With regard to Air Quality Impacts during construction phase, all works should be carried out in optimum weather conditions to minimise dust particulate contamination of the environment surrounding the site.

Can more detail be provided on contingency planning should Air Quality risk during operational phase turn out to be greater than currently anticipated?

Concerning Noise and Vibration, can you confirm if evening works are planned and if so, should an evening-time survey be conducted?

We would also recommend that should works be planned in the evening, noise and vibration impacts should be minimised at this time.

We hope that you find these comments and observations beneficial in the development of the EIS for this project.

Sincerely

Alan Kelly, Secretary
IWAI Kildare
www.iwai.ie/kildare
086 832 6275

Guidelines on the treatment of tourism in an Environmental Impact Statement

1. Introduction

Tourism is a significant component of the Irish Economy – estimated to employ approximately 205,000 people – and contributing €6.6 billion in spending to the economy in 2014. The environment is one of the main resources upon which this activity depends – so it is important that the EIS evaluates whether and how the interacting impacts of a project are likely to affect tourism resources.

The purpose of this short note is to provide guidance on how these impacts can be assessed through the existing EIA process. Undertaking an EIA is governed by the EIA Advice Notes published by the EPA. These Advice Notes contain detailed guidance on how to describe and evaluate the effects arising from a range of projects, including tourism projects.

These guidelines were written with the assistance of Conor Skehan, Head of Department of Environment and Planning, Dublin Institute of Technology.

2. Tourism and the Environment

There are two interactions between tourism and the environment.

1. Impacts caused by Tourism Projects
2. Impacts affecting Tourism (e.g. the quality of a destination or a tourism activity)

Impacts caused by Tourism Projects

Tourism projects can give rise to effects on the environment. These are specifically dealt with under a number of Project Types in the Advice Notes, specifically:

12 TOURISM AND LEISURE

- a. Ski-runs, ski-lifts and cable-cars where the length would exceed 500 metres and associated developments. Project Type 20
- b. Sea water marinas where the number of berths would exceed 300 and fresh water marinas where the number of berths would exceed 100. Project Type 10

c. Holiday villages which would consist of more than 100 holiday homes outside built-up areas; hotel complexes outside built-up areas which would have an area of 20 hectares or more or an accommodation capacity exceeding 300 bedrooms. Project Type 28

d. Permanent camp sites and caravan sites where the number of pitches would be greater than 100. Project Type 28

e. Theme parks occupying an area greater than 5 hectares. Project Type 29

Figure 1 The Advice Notes contain detailed descriptions on how to describe and evaluate the effects arising from a range of tourism projects.

Impacts affecting Tourism

Environmental effects of other projects on tourism are not specifically addressed in the Advice Notes. Taking account of the significance of tourism to the Irish economy a specialist topic of 'Tourism' has been prepared to facilitate a systematic evaluation of effects on this sector within the format laid down for other parts of the Environmental Impact Statement.

It is not intended that the assessment of effects on tourism should become a separate section of the Impact Statement, instead it is intended to become a specialist sub-section of the topic 'Human Beings' which is currently described in Section 2 of the Advice Notes

3. Tourism in the Existing Environment

Introduction

Visitor attitude surveys reveal that the following factors – in order of priority – are the reasons that tourists visit and enjoy Ireland:

- Beautiful scenery
- Friendly & hospitable people
- Safe & Secure
- Easy, relaxed pace of life
- Unspoilt environment
- Nature, wildlife, flora
- Interesting history & culture
- Plenty of things to see and do
- Good range of natural attractions

It is noteworthy that over half of the factors listed are environmental and that all others are related to the way of life of the people. The following describes how these factors are considered within an EIS, set out under EIA topic headings, and how they interact with tourism.

Beautiful scenery

This is covered in the '*Landscape*' Section. Particular attention needs to be paid to effects on views from existing purpose-built tourism facilities, especially hotels, as well as views from touring routes and walking trails. It is important to note that there appears to be evidence that the visitor's expectations of 'beautiful' scenery does not exclude an admiration of new modern developments – such as windfarms – which appear to be seen as indicative of an modern, informed and responsible attitude to the environment.

Friendly & hospitable people

This is not an environmental factor though it is indirectly covered under the '*Human Beings*' section of the EIS. The principal factor is the ratio of visitors to residents. This is of less significance in areas with long-established patterns of tourism.

Safe & Secure

This is not an environmental issue – though some of the factors that are sometimes covered under the heading of '*Human Beings*' – such as social inclusion or poverty – can point to likely effects and interactions.

Easy, relaxed pace of life

This is not an environmental issue though it is partially covered under '*Human Beings*' – see comments above.

Unspoilt environment

This is covered under the sections dealing with '*Landscape*', '*Flora*' and '*Fauna*' and to a lesser extent under emissions to '*Water*' and '*Air*'. In some instances traffic congestion, especially in rural areas, can be an issue, this is usually covered within '*Material Assets*'.

Nature, wildlife, flora

This is principally covered under the headings of '*Flora*' and '*Fauna*' and to a lesser extent by '*Landscape*', '*Water*' and '*Air*'. The principal issues being to avoid any effects that might reduce the health or extent of the habitats. This can occur either directly, by impinging on the site, or indirectly, through emission, that can affect the natural resources, like clean water, which the habitat depends on. It also considers effect on physical access to and visibility of these sites. Occasionally there are concerns about the disturbance or wear and tear of visitor numbers to such sites.

Interesting history & culture

This is principally covered under '*Cultural Heritage*' and, to a lesser extent, under '*Human Beings*'. The principal issues being to avoid damage to sites and structures of cultural, historical, archaeological or architectural significance – and to their contexts or settings. It also considers effect on physical access to and visibility of these sites. Occasionally there are concerns about the wear and tear of visitor numbers to such sites.

Plenty of things to see and do.

This is not an environmental issue though it is partially covered by the 'Human Beings' section, where the tourism resources of an area are described and assessed.

Good range of natural attractions

This is covered by the 'Landscape', 'Flora', 'Fauna', and 'Cultural Heritage' sections of the EIS.

4. Project factors affecting Tourism

Introduction

Tourism can be affected both by the structures or emissions of new developments as well as by interactions between new activities and tourism activities – for example the effects of high volumes of heavy goods vehicles passing through hitherto quiet, scenic, rural areas. Tourism can be affected by a number of the characteristics of the new project such as:

- New Developments
 - Social Considerations
 - Land-uses and Activities
- *New Developments* - will the development stimulate or suppress demand for additional tourism development in the area? If so, what type, how much and where? Marinas, golf courses, other major sporting facilities as well as theme parks and larger conference facilities can all stimulate the emergence of new accommodation, catering and leisure facilities often within an extensive area around a new primary visitor facility. Extensive urbanisation and large scale infrastructure as well as certain processing and extractive industries all have the potential to suppress demand for additional tourism – but usually only in the immediate locality of the new development. It should be noted however, that some types of new or improved large scale infrastructure – such as roads – can improve the visitor experience – by increasing safety and comfort or can convey a sense of environmental responsibility – such as wind turbines.
- *Social Consideration* - will the development change patterns and types of activity and land use? Will it affect the demographics, economy or social dynamics of the locality?
- *Land-use* - will there be severance, loss of rights of way or amenities, conflicts, or other changes likely to ultimately alter the character and use of the tourism resources in the surrounding area?

Existing Tourism

In the area likely to be affected by the proposed development, the following attributes of tourism, or the resources that sustain tourism, should be described under the following headings.

Note that the detailed description and analysis will usually be covered in the section dealing with the relevant environmental topic – such as '*Landscape*'. Only the relevant finding as to the likely significance to, or effect on, tourism needs to be summarised in this section.

Context

Indicate the location of sensitive neighbouring tourism resources that are likely to be directly affected, and other premises which although located elsewhere, may be the subject of secondary impacts such as alteration of traffic flows or increased urban development. The following should be noted in particular:

- Hotels, conference centres, holiday accommodation – including holiday villages, holiday homes, and caravan parks.
- Visitor centres, Interpretive centres and theme parks
- Golf courses, adventure sport centres and other visitor sporting facilities
- Marinas and boating facilities
- Angling facilities
- Equestrian facilities
- Tourism-related specialist retailers and visitor facilities
- Historic and Cultural Sites
- Pedestrian, cycling, equestrian, vehicular and coach touring routes

Indicate the numbers of premises and visitors likely to be directly affected directly and indirectly.

Identify and quantify, where possible, their potential receptors of impacts, noting in particular transient populations, such as drivers, walkers, seasonal and other non-resident groups.

Describe any significant trends evident in the overall growth or decline of these numbers, or of any changes in the proportion of one type of activity relative to any other.

Indicate any commercial tourism activity which likely to be directly affected, with resultant environmental impacts.

Character

Indicate the occupations, activities or interests of principal types of tourism in the area. – Where relevant, describe the specific environmental resources or attributes in the existing environment which each group uses or values; where relevant, indicate the time, duration or seasonality of any of those activities. For example describe the number of guides, boats and anglers who use a salmon fishery and the duration of the salmon season as well as the quantity and type of local accommodation that is believed to be used by the anglers.

Significance

Indicate the significance of the principal tourism assets or activities likely to be affected. Refer to any existing formal or published designation or recognition of such significance. Where possible provide an estimate of the contribution of such

tourism activities to the local economy. For instance refer to the number of annual visitors to a tourism attraction or to the grading of a hotel.

Sensitivity

Describe any significant concerns, fears or opposition to the development known to exist among tourism interests. Identify, where possible, the particular aspect of the development which is of concern, together with the part of the existing tourism resource which may be threatened. For instance describe the extent of a potential visual intrusion onto a site of historic significance which is the main local tourist attraction.

5. Impacts on Tourism

"Do Nothing" Impact;

Describe how trends evident in the existing environment will continue and how these trends will affect tourism.

Predicted impact;

- Describe the location, type, significance, magnitude/extent of the tourism activities or assets that are likely to be affected.

- Describe how the new development will affect the balance between long-established and new dwellers in an area and its affect on the cultural or linguistic distinctiveness of an area. For example describe the effect of a new multi-national population required for an international call-centre located in a Gaeltacht area.

- Describe how changes in patterns of employment, land use and economic activity arising from the proposed development will affect tourism, for example, illustrating how a new industrial development will diversify local employment opportunities thereby reducing the area's unsustainable over-reliance on seasonal tourism.

- Describe the consequences of change, referring to indirect, secondary and cumulative impacts on tourism; Examples can include describing how the new development may lead to a reduced assimilative capacity for traffic or water during the peak of the tourism season or how new urbanism combined with existing patterns of tourism may lead to unsustainable levels of pedestrian traffic through a sensitive habitat.

- Describe the potential for interaction between changes induced in tourism and other uses that may affect the environment – for instance increasing new tourism-related housing affecting water resources or structures

- Describe the worst case for tourism if all mitigation measures fail.

6. Mitigating adverse impact on Tourism

Describe the mitigation measures proposed to:

- *avoid* sensitive tourism resources – such as views, access, and amenity areas including habitats as well as historical or cultural sites and structures.
- *reduce* the exposure of sensitive resources to excessive environmental burdens arising from the development's emissions or volumes of traffic [pedestrian and vehicular], and/or losses of amenity arising from visually conspicuous elements of the development – for example by prioritizing visual screening of views from a hotel towards a quarry.
- *reduce* the adverse effects to tourism land uses and patterns of activities – especially through interactions arising from significant changes in the intensity of use or contrasts of character or appearance – for example by separating traffic routes for industrial and tourism traffic.
- *remedy* any unavoidable significant residual adverse effects on tourism resources or activities, for example by providing alternative access to tourism amenities – such as waterways or monuments.

Jacobs Engineering Group
Merrion House,
Merrion Road,
Dublin 4

[18/11/2016]

Subject: Kerdiffstown Landfill Remediation Project

Dear Rachel Kelly,

Thank you for referring the above development's EIS Scoping Report to An Taisce for comment. Overall, An Taisce considers the EIS Scoping Report to have covered all the main issues and potential environmental consequences of the proposed development. The few concerns that we would have would be;

- Landfill gas – it states in the Report that the gas will be burned off at on-site flares. While noting the benefits of combusting this landfill gas to convert methane to CO₂ and reduce VOCs, is there any other practical use that the waste gas could be put to? For instance, are there any industrial companies that would use the gas as an energy source for heating their buildings etc?
- Hydrology of the site – it states in the Report that a network of ditches, streams or drains will be required to convey the rainwater to a suitable low point on the site for settlement to remove suspended solids. An Taisce is in favour of having these types of habitats created as they are beneficial to wildlife. Also, if there is to be constructed wetlands at the low point on the site, that these will be constructed in a way that maximises the benefit to local wildlife (e.g. Native species of plants used)

- Biodiversity – An Taisce notes that the site may contain important habitats and species like dry grassland, scrub, and mature trees that may be home to breeding birds, roosting bats, and possible badger setts. If this is the case, then an ecological assessment must be carried out to assess what species (protected) occur, and if there is unavoidable damage to the habitats of these species, then strong mitigation measures are implemented

An Taisce is pleased that Option 3 “Passive amenity function i.e. informal recreation” is the preferred end-use option of the site. We would be grateful if you would take account of these concerns.

Is mise le meas,

Nicholas Fettes,

Natural Environment Office,

An Taisce – The National Trust for Ireland

Appendix A7.1 Dispersion Modelling Assessment Methodology



Appendix 7.1

DISPERSION MODELLING ASSESSMENT

7.1.1 Dispersion Modelling methodology

The Environmental Protection Agency Guidance Note on Dispersion Modelling (AG4) gives guidance on the use of Dispersion Models which was followed in the execution of this study. A detailed modelling assessment was undertaken using the US EPA Model AERMOD and the current regulatory version of this Model (Version 16216r). The model computes average ground-level concentrations of pollutants emitted from either elevated or ground-level emission sources. Separate utilities associated with the dispersion modelling software allow computation of ground-level concentrations of pollutants over defined statistical averaging periods, and additional features permit suitable consideration to be given to building downwash effects (downward deflection of an airstream by buildings) and the effects of elevated terrain in the vicinity of the plant.

A summary of the steps involved in the assessment is presented as follows:

- (i) Characterise the receiving environment through detailed analysis of background air quality data that is representative of the area; this has been described in Section 8.3.
- (ii) Determine appropriate criteria for evaluating the significance of air quality impacts through reference to Air Quality Standards and Guidelines; this has been described in Section 8.2.4.
- (iii) Describe the emissions in quantitative terms and describe the Operating Conditions that will affect the emissions; this has been described in Section 8.4.1 for the Remediation Phase and Section 8.4.2 for the Operation Phase.
- (iv) Predict the potential air quality impacts using a dispersion model; this has been executed as described here and the results are presented in Section 8.4.1 and Section 8.4.2.
- (v) Assess the impact by comparing the calculated levels against the adopted assessment criteria.

Information on a number of input variables required for the dispersion model is described here.

(i) Emissions characteristics

Information on the physical characteristics of the emissions sources is required input data for the dispersion Model. Data on stack (or flue) dimensions and height, gas exit velocity, temperature and pollutant emission concentration are all required data for the Model. The principal assumption is that the flares will run continuously and that the emissions will be at the maximum level at all times. In practice this will not occur as the emissions will decrease over time.

A significant issue in respect of Model Input data for emissions from combustion sources is the selection of nitrogen oxides (NO_x) input data. In most combustion processes, NO_x is emitted almost totally in the form of nitric oxide (NO). NO_x are very reactive and also contribute to the phenomenon of photochemical ozone formation, due to the formation of nitrogen dioxide from nitric oxide. These transformations are generally of greatest concern in the areas where the highest ozone concentrations occur – for example, in rural areas in late afternoon in summer time.

In the EPA Modelling Guideline AG4, the recommendation for screening assessments is that a default annual $\text{NO}_2 / \text{NO}_x$ ratio of 1.00 is used and a default hourly ratio of 0.5 is used; this is also the guidance from the UK Environment Agency "H4 Odour Management" (Environment Agency 2011) for dispersion modelling assessments. AG4 notes that the AERMOD Modelling suite treats NO_x emissions in one of two ways:

- All of the NO_x emissions are treated as NO_2 and an assumption is made that a pre-determined ratio of NO_2/NO_x applies to the predictions; this is where the default conversion rates noted above would apply; or
- The Plume Volume Molar Ratio Method (PVMRM) is used whereby an assumption is made that the in-stack NO_2/NO_x ratio is 0.1 and the equilibrium ratio is 0.90.

The EPA AG4 Guidance was published in 2010 and new Guidance has been issued by the US EPA since then and especially in 2010, 2011 and in September 2014. The most recent Guidance from 2014 is a memorandum issued on 30 September 2014 "*Clarification on the Use of AERMOD Dispersion Modeling for Demonstrating Compliance with the NO_2 National Ambient Air Quality Standard.*" This Guidance was introduced because in 2010 the US published a new 1-hour NO_2 National Ambient Air Quality Standard (NAAQS) and the Clarifications were required to explain how modelling would be executed to demonstrate compliance with the Standard. In summary, the Clarification Memos noted that the 1-hour NO_2 Standard requires different modelling considerations from the annual Standard, and that both the In Stack Ratio (ISR) of NO_2/NO_x and the ambient ozone concentration may be much more important for the 1-hour than the annual Standard. Accordingly, and in summary, the following Guidance is abstracted from the Clarification Memos:

- The most conservative approach is to assume that all of the NO_x is converted to NO_2 and this approach is generally used for screening analyses;
- When modelling to demonstrate compliance with the annual Air Quality Standard, use of an In Stack Ratio should be justified case-by-case and where source-specific data is not available, an ISR of 0.1 is recommended; for estimating impacts at distances beyond 2.5km, a conversion ratio of 0.2 is appropriate;
- When modelling to demonstrate compliance with the 1-hour Air Quality Standard, use of an ISR of 0.5 is recommended.

In this assessment, the assumption made is that all of the nitrogen oxides are present as NO_x in line with current Guidance on the use of dispersion modelling for air quality impact assessment. While this may overestimate the 1-hour ground level concentration (GLC), the conservative approach does not affect the outcome of the assessment.

(ii) Site layout and topography

The layout and area of the site and the dimensions of the various plant buildings were obtained from digitized ordnance survey data and from scaled drawings. Topographical information was obtained from an aerial site survey carried out in February 2016 and from maps, orthographic photographs and digital Ordnance Survey data. Building downwash effects are unlikely as a result of the buildings on site but possible downwash effects were modelled using the modelling suite facilities.

The presence of terrain can lead to significantly higher ambient concentrations than would occur in the absence of terrain features, especially if there is a significant relative difference in elevation between the source and off-site receptors. International Guidance, and the Agency Guidance Note AG4, suggests that when modelling in a region of flat terrain, no digital mapping of terrain will be necessary. In relation to AERMOD, the guidance in AG4 is that digital mapping of terrain should be conducted where terrain features are greater than 10% of the effective stack height within 5km of the stack (for effective stack heights of 100m or less). From a review it is concluded that digital terrain data is required. This data was obtained in digital form from the site survey data and the data was processed to allow for use in the dispersion model.

(iii) Averaging intervals

The dispersion model was used to predict the incremental additions to ground level concentrations of all substances emitted from the facility over defined averaging periods. These averaging intervals were chosen to allow direct comparison of predicted ground level concentrations with the relevant assessment criteria as outlined in Section 8.2.5. In particular, 1-hour, 24-hour and annual average ground level concentrations (GLCs) of various substances were calculated at various distances from the proposed Project; percentiles of these average GLCs were also computed for comparison with the relevant Air Quality Standards.

(iv) Receptor locations

Since the impact of the emissions can be observed at considerable distances from the emission sources, a fine grid, 2km x 2km centred on the main emission sources was constructed with receptors located at 50m intervals; a second grid of 6km x 6km with receptors at 100m intervals was also constructed. In line with expectations, the highest predicted ground level concentrations occur at the receptors closer to the source. In addition to the receptor grids, a number of receptors were selected at sensitive locations in the area represented by the closest residential receptors.

(v) Meteorological data

As noted in Section 8.3.1, meteorological conditions at the proposed Project are best described by data from Casement Aerodrome. The best practice Guidance on dispersion modelling in Ireland is the publication by the Environmental Protection Agency “*Air Dispersion Modelling from Industrial Installations Guidance Note (AG4)*” which is widely used in Ireland in Air Quality Impact Assessment studies of the type under consideration here. This Guidance Note (AG4) stipulates at Section 6.1 (Page 23) that:

“It is recommended that a minimum of three years of meteorological data from an appropriate meteorological station should be used in the assessment. Furthermore, the most recent year of the data set used should have been compiled within the last ten years.”

For this assessment three years of meteorological data from 2013 to 2015 for Casement Aerodrome have been used. This is expected to give a reliable assessment of the dispersion of emissions from the proposed Project.

(vi) Baseline air quality

Baseline air quality is described in Section 8.3.3 from the very comprehensive database of information available for the site as well as longer term data acquired for similar locations in Ireland.

Appendix A7.2 Laboratory Analysis Certificates for Dust



CERTIFICATE OF ANALYSIS

Client : Clare McLoughlin
Kildare County Council (Kerdiffstown)
Kerdiffstown Landfill
Sallins
Co Kildare

Report No. : 308352
Date of Receipt : 16/09/2016
Start Date of Analysis : 16/09/2016
Date of Report : 27/09/2016
Order Number : 400391978
Sample taken by : Client

| Lab No | Sample Description | Test | * | Result | Units |
|--------|--------------------|-------------------------------------|---|--------|-------------|
| 706688 | Dust Jars. D1 | Settleable Dust (Bergerhoff Method) | R | 141 | mg/sq.m/day |
| 706689 | Dust Jars. D2 | Settleable Dust (Bergerhoff Method) | R | 89 | mg/sq.m/day |
| 706690 | Dust Jars. D3 | Settleable Dust (Bergerhoff Method) | R | 39 | mg/sq.m/day |
| 706691 | Dust Jars. D4 | Settleable Dust (Bergerhoff Method) | R | 74 | mg/sq.m/day |
| 706692 | Dust Jars. D5 | Settleable Dust (Bergerhoff Method) | R | 53 | mg/sq.m/day |
| 706693 | Dust Jars. D6 | Settleable Dust (Bergerhoff Method) | R | 75 | mg/sq.m/day |
| 706694 | Dust Jars. D7 | Settleable Dust (Bergerhoff Method) | R | 36 | mg/sq.m/day |
| 706695 | Dust Jars. D8 | Settleable Dust (Bergerhoff Method) | R | 86 | mg/sq.m/day |
| 708091 | Dust Jars. D9 | Settleable Dust (Bergerhoff Method) | R | 72 | mg/sq.m/day |

Approved by: *Barbara Lee*
Barbara Lee
Environmental Scientist

See below for test specifications and accreditation status.
This report only relates to items tested and shall not be reproduced but in full with the permission of Complete Laboratory Solutions.
* Location of analysis: R=Ros Muc, M=MedPharma, S=Subcontracted.

| Test | Specification | CLS 17025 status | GMP/FDA ¹ | ISO ² | Sub ³ | Sub 17025 Status |
|--|---------------|------------------|----------------------|------------------|------------------|------------------|
| Settleable Dust (Bergerhoff Method) | CLS 31 | No | No | Yes | No | No |

¹Analysis carried out in a GMP approved, FDA inspected facility (MedPharma site only).

²Laboratory Analysis, Sampling, Technical Backup, Training, Food Safety Program Auditing and Monitoring are all ISO 9001:2008 certified (Ros Muc site only).

³Subcontracted.

| Lab No | Sample ID | Sample Condition on Receipt | Sampling Date |
|--------|---------------|-----------------------------|------------------------|
| 706688 | Dust Jars. D1 | Good condition | Not Supplied by Client |
| 706689 | Dust Jars. D2 | Good condition | Not Supplied by Client |
| 706690 | Dust Jars. D3 | Good condition | Not Supplied by Client |
| 706691 | Dust Jars. D4 | Good condition | Not Supplied by Client |
| 706692 | Dust Jars. D5 | Good condition | Not Supplied by Client |
| 706693 | Dust Jars. D6 | Good condition | Not Supplied by Client |
| 706694 | Dust Jars. D7 | Good condition | Not Supplied by Client |
| 706695 | Dust Jars. D8 | Good condition | Not Supplied by Client |
| 708091 | Dust Jars. D9 | Good condition | Not Supplied by Client |



CERTIFICATE OF ANALYSIS

Client : Clare McLoughlin
Kildare County Council (Kerdiffstown)
Kerdiffstown Landfill
Sallins
Co Kildare

Report No. : 311428
Date of Receipt : 14/10/2016
Start Date of Analysis : 14/10/2016
Date of Report : 20/10/2016
Order Number :
Sample taken by : Client

| Lab No | Sample Description | Test | * | Result | Units |
|--------|--------------------|-------------------------------------|---|--------|-------------|
| 714524 | Dust Jars. D1 | Settleable Dust (Bergerhoff Method) | R | 140 | mg/sq.m/day |
| 714525 | Dust Jars. D2 | Settleable Dust (Bergerhoff Method) | R | 46 | mg/sq.m/day |
| 714526 | Dust Jars. D3 | Settleable Dust (Bergerhoff Method) | R | 59 | mg/sq.m/day |
| 714527 | Dust Jars. D4 | Settleable Dust (Bergerhoff Method) | R | 12 | mg/sq.m/day |
| 714528 | Dust Jars. D5 | Settleable Dust (Bergerhoff Method) | R | 33 | mg/sq.m/day |
| 714529 | Dust Jars. D6 | Settleable Dust (Bergerhoff Method) | R | 46 | mg/sq.m/day |
| 714530 | Dust Jars. D7 | Settleable Dust (Bergerhoff Method) | R | 85 | mg/sq.m/day |
| 714531 | Dust Jars. D8 | Settleable Dust (Bergerhoff Method) | R | 36 | mg/sq.m/day |
| 714532 | Dust Jars. D9 | Settleable Dust (Bergerhoff Method) | R | 35 | mg/sq.m/day |

Approved by: *Barbara Lee*
Barbara Lee
Environmental Scientist

See below for test specifications and accreditation status.
This report only relates to items tested and shall not be reproduced but in full with the permission of Complete Laboratory Solutions.
* Location of analysis: R=Ros Muc, M=MedPharma, S=Subcontracted.



| Test | Specification | CLS 17025 status | GMP/FDA ¹ | ISO ² | Sub ³ | Sub 17025 Status |
|--|---------------|------------------|----------------------|------------------|------------------|------------------|
| Settleable Dust (Bergerhoff Method) | CLS 31 | No | No | Yes | No | No |

¹Analysis carried out in a GMP approved, FDA inspected facility (MedPharma site only).

²Laboratory Analysis, Sampling, Technical Backup, Training, Food Safety Program Auditing and Monitoring are all ISO 9001:2008 certified (Ros Muc site only).

³Subcontracted.

| Lab No | Sample ID | Sample Condition on Receipt | Sampling Date |
|--------|---------------|-----------------------------|---------------|
| 714524 | Dust Jars. D1 | Good condition | 14/10/2016 |
| 714525 | Dust Jars. D2 | Good condition | 14/10/2016 |
| 714526 | Dust Jars. D3 | Good condition | 14/10/2016 |
| 714527 | Dust Jars. D4 | Good condition | 14/10/2016 |
| 714528 | Dust Jars. D5 | Good condition | 14/10/2016 |
| 714529 | Dust Jars. D6 | Good condition | 14/10/2016 |
| 714530 | Dust Jars. D7 | Good condition | 14/10/2016 |
| 714531 | Dust Jars. D8 | Good condition | 14/10/2016 |
| 714532 | Dust Jars. D9 | Good condition | 14/10/2016 |