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Lamby Way Open Windrow Composting (OWC) Facility

Kelda Organic Energy (Cardiff) Limited

Environmental Permit (EP) Part Transfer Application

H1 Environmental Risk Assessment (H1)

SLR Ref: 407.04012.00009/H1



February 2015

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1.0 INTRODUCTION

Kelda Organic Energy (Cardiff) Limited (Kelda) has instructed SLR Consulting Limited (SLR) to prepare an site specific environmental risk assessment to support an application to transfer part of an environmental permit under the Environmental Permitting (England and Wales) Regulations 2010 (as amended) (EPR 2010).

Kelda are applying to transfer the open windrow composting activities only from Cardiff County Council's (CCC) Lamby Way Depot permit (ref: EAWML 30338) into their Kelda's name.

The assessment has been completed in accordance with the Environment Agency Technical Guidance EPR – H1 '*Environmental Risk Assessment for Permits (Annex A)*' dated December 2011, version 2.1. The aim of the assessment is to identify any significant risks and demonstrate that the risk of pollution or harm will be acceptable by taking the appropriate measures to manage these risks.

Environment Agency Technical Guidance EPR – H1 requires all receptors that are near the site and could reasonably be affected by the activities to be identified and considered as part of the assessment.

For the purposes of this H1 Assessment, a 2km radius from the site's environmental permit boundary has been adopted in reviewing potentially sensitive receptors of ecological importance along with features such as sites of cultural and natural heritage. A radius of 500m from the site's environmental permit boundary has been adopted for all other potentially sensitive receptors (for example, residential, commercial, industrial, agricultural and surface water receptors).

This H1 Assessment should be read in conjunction with the Non-Technical Summary (NTS), Site Specific Bioaerosol Risk Assessment (SSBRA) and Odour Management Plan (OMP).

2.0 SITE SETTING AND RECEPTORS

2.1 Site Setting

The site is located on the western edge of the Wentlooge Levels approximately 4km north east of Cardiff City Centre and 1km south of Rhymney. Access to the site is achieved via the B4239 which is located approximately 775m to the north of the site.

The National Grid Reference for the centre of the site is ST 23010 77658 and the site location is illustrated on Drawing 001.

The surrounding land-use and receptors are illustrated on Drawings 003 and 004, and are identified in Table 1 below.

Table 1
Surrounding Land Uses

Boundary	Description
North	Open land and the Lamby Way Eastern Extension Landfill lie immediately to the north of the site. Beyond these lie Rhosog Fach Reen (a surface water drain) and a number of residential and commercial /industrial properties.
East	Open land, the Cardiff Coastal Footpath and the Severn Estuary are situated to the east of the site.
South	To the south of the site lies a public footpath and the Severn Estuary.
West	The Severn Estuary lies almost immediately to the west of the site. Beyond this lies Lamby Way Eastern Extension Landfill and Rhymney River.

The immediate surrounding land use is described in further detail below:

Residential Properties

The closest residential property to the proposed site boundary is Mardy House located approximately 270m north. Other residential properties include Mardy Farm approximately 375m north east and Seabank Farm located 455m north of the proposed site boundary.

Industrial and Commercial Premises

The proposed site lies within an area of land identified on the Environment Agency website¹ as an authorised landfill; the Lamby Way Eastern Extension landfill extends to the north west of the proposed site boundary for approximately 1.17km. GMH Vehicle Recyclers Limited and Mardy Farm Caravan Storage are also located approximately 205m and 430m north of the proposed site boundary respectively.

CCC's waste management operations at the Household Waste Amenity Site (HWRC), Material Recycling Facility (MRF) and Waste Transfer Station (WTS) are also located to the north of the proposed site boundary. These are regulated under an environmental permit issued to Cardiff County Council (CCC) for operations at the Lamby Way Depot (ref: EAWML 30338).

¹ What's In Your Backyard? Website: wiyby.environment-agency.gov.uk, accessed February 2015.

Major Roads and Transport Links

There are no major roads or transport links located within 500m of the site's proposed boundary. The closest major road is B4239 from which access to the site is gained. The B4239 is located approximately 775m to the north of the site.

Severn Estuary

The site is located on the Severn Estuary which attracts European designated protection.

2.1.1 Hydrology and Hydrogeology

Geology

The British Geological Survey website² shows the superficial geology of the site to comprise of Tidal Flat Deposits of clay, silt and sand. The bedrock geology comprises of the Mercia Mudstone Group Formation which comprises of Mudstone.

Hydrogeology

The Environment Agency's What's In Your Backyard (WIYBY) application³ indicates that the bedrock aquifer designation, within the Mercia Mudstone Group formation, is classified as a 'Secondary B' aquifer which are predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering.

The superficial geology of the Tidal Flat Deposits is shown to support a 'Secondary Undifferentiated' aquifer. This classification is assigned in cases where it is not possible to attribute either a category A or B to a rock type. For reference Category A aquifers are defined as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

Groundwater Vulnerability

The WIYBY application indicates that the site does not lie within a zone of groundwater vulnerability.

Source Protection Zone

The WIYBY application shows that the site is not located within a Source Protection Zone (SPZ).

Hydrology

There is a surface water retention pond located to the east of the site within the site's proposed environmental permit boundary.

In addition, there are a number of surface water features near to the site, including a drain which is situated adjacent to the southern and western boundaries of the site, the Severn Estuary approximately 30m to the south, east and west and Rhosog Fach Reen approximately 40m to the north/northwest.

² British Geological Society Website: bgs.ac.uk, accessed December 2014.

³ What's In Your Backyard? Website: wiyby.environment-agency.gov.uk, accessed December 2014.

Flooding

The Environment Agency website confirms that the site lies within an area which is at risk from flooding. However, it identifies flood defences located to the south and west of the site along the boundary with the Severn Estuary which protect it from flooding. The defences in place protect the site from the flooding of the river up to a 1 in 100 year flood event.

2.1.2 Air Quality Setting

The Department for Environment, Farming and Rural Affairs (Defra) confirm that the site is not located within an area designated as an Air Quality Management Area.

Prevailing wind directions have been considered in assessing the likelihood and management of fugitive emission risks. Wind speed and direction data have been obtained for five years for Cardiff. A wind rose of speed and direction is presented in Figure 1. It shows the prevailing wind to be from the west. As a result, the potential impact of fugitive emissions is likely to be greater to the east of the site.

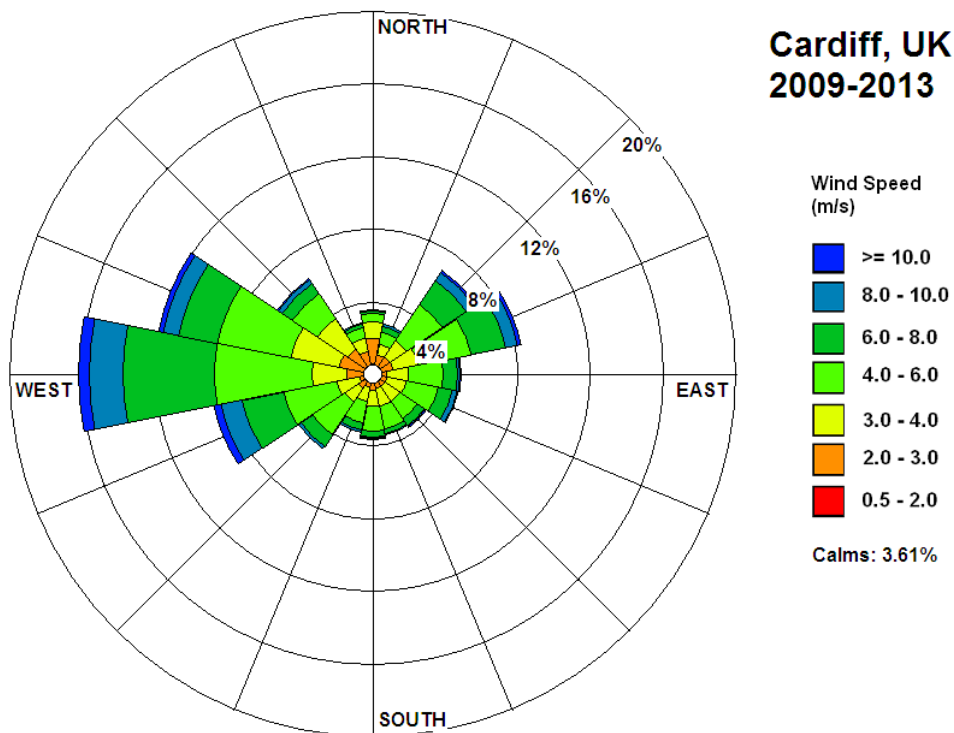


Figure 1 – Wind Rose for Cardiff 2009 – 2013

2.1.3 Ecology

European/International Sites

Searches conducted on the Multi Agency Governmental Information for the Countryside (MAGIC) website⁴ indicate that the following European and Internationally designated sites are located within 2km of the proposed site:

The Severn Estuary is located approximately 30m south, east and west of the area of the site subject to this application. The Severn Estuary is designated as a Specially Protected Area (SPA), Special Area of Conservation (SAC), Site of Special Scientific Interest (SSSI), RAMSAR site, Inshore Special Area of Conservation with Marine Components (ISACMC) and Inshore Special Protection Area with Marine Components (ISPAMC).

Further SSSI sites include Gwent Levels - Rumney and Peterstone which is shown to be located on the area of the site and adjacent to north, west and east and Rumney Quarry which is located 1.17km to the northwest.

Other ecological receptors

Ancient Woodland

Searches on the MAGIC website indicate that there are no areas of ancient woodland located within 2km of the permit boundary.

Searches on the MAGIC websites has confirmed there are none of the following ecological receptors within 1km of the permit boundary:

- Areas of Outstanding Natural Beauty;
- National Parks;
- National Nature Reserves; and
- Local Nature Reserves.

2.1.4 Cultural Heritage

Searches on the MAGIC website have confirmed that there are no Listed Buildings or Scheduled Monuments located within 1km of the application site;

2.1.5 Receptors

Table 2 and Drawings 003 and 004 show the locations of receptors that are considered to be potentially sensitive and could potentially be affected by the waste management activities.

⁴ MAGIC Website; magic.gov.uk, accessed December 2014.

Table 2 - Identified Receptors

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from site boundary (at nearest point)
Identified receptors within 500m of the environmental permit boundary as shown on Drawing 003 Sources, Pathways and Receptors			
Surface Water Drain	Surface Water	East, South and West	Adjacent
Lamby Way Eastern Extension Landfill	Industrial/Commercial	All Directions	Adjacent
Open land	Open land	North, East and West	Adjacent
Public Footpath	Recreational	South and South West	15m
Rhosog Fach Reen	Surface Water	East and North East	35m
Cardiff Coastal Footpath	Recreational	East	60m
Mardy Farm Caravan Storage	Commercial	North	430m
GMH Vehicle Recyclers Ltd	Industrial	North	205m
Mardy House	Residential	North	270m
Mardy Farm	Residential	North East	375m
Seabank Farm	Residential	North	455m
Identified receptors within 2km of the environmental permit boundary as shown on Drawing 004 Cultural and Natural Heritage			
Gwent Levels (Rumney and Peterstones)	SSSI	All Directions	Adjacent
Severn Estuary	SSSI, RAMSAR, SPA, SAC, ISACMC and ISPAMC	South and South West	30m
Rumney Quarry	SSSI	North West	1.17km

3.0 H1 OVERVIEW AND APPROACH

This H1 environmental risk assessment complies with regulatory guidance⁵ and uses the following approach for identifying and assessing the risks in four steps

Step 1 Identify risks from your activity.

Step 2 Where risks are identified from Step 1 then assess the risks and check that they are acceptable using the relevant modules provided as annexes to the H1 Guidance.

Step 3 Justify appropriate measures to control your risks, if necessary.

Step 4 Present your assessment.

Step 1 is a screening step to identify the potential risks to the environment from the proposed development. The Environment Agency H1 Guidance identifies modules (annexes) that the Environment Agency considers would likely require assessment for waste management facilities as follows:

- (a) Amenity and Accidents
- (d) Surface Water
- (f) Air
- (g) Site Waste
- (h) Global Warming Potential
- (k) Cost Benefit Analysis (if needed)

There are no point source emissions to surface water or air resulting from the permit application and neither is it considered that there will be significant site waste arisings or significant global warming potential resulting from the proposed development. Therefore only Annex A 'Amenity and Accidents', is considered to be applicable for assessment in this instance, and includes the consideration of odour, noise and vibration, fugitive emissions (including dust, mud, litter and pests) and accidents in relation to the proposed development.

Step 2 identifies people or parts of the environment that could be harmed (at potentially significant risk) by the activity. Where appropriate, the assessment demonstrates how the risk of pollution or harm can be mitigated by measures to manage these risks (Step 3).

The following tables present the assessment (Step 4) in terms of hazards posed, receptors and pathways, along with management and residual risks for the following hazards:

- Odour;
- Noise and Vibrations;
- Fugitive Emissions (including dust, mud, litter and pests); and
- Accidents.

Management of odour has been considered separately in the Odour Management Plan which can be found in Section 7 of this environmental permit part transfer application.

⁵ Environment Agency H1 Environmental Risk Assessment for Permits (and appendices) V2.1 December 2011.

Table 3 - Odour Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
The development of anaerobic conditions during the composting process.	<p>Cardiff coastal path.</p> <p>Residential properties including:</p> <ul style="list-style-type: none"> Mardy House Mardy Farm Seabank Farm. <p>Commercial and Industrial properties including:</p> <ul style="list-style-type: none"> Mardy Farm Caravan Storage GMH Vehicle Recyclers Ltd. <p>Public footpath to the south of the site.</p>	Air.	<p><u>Site Setting and Receptor Sensitivity</u></p> <p>The site is located within a relatively isolated setting. The nearest residential receptor is located approximately 270m to the north of the site.</p> <p>Receptors sensitive to odour, for example residential properties, educational facilities and commercial properties are not in the direction of the prevailing wind.</p> <p>Receptors located in the direction of the prevailing wind direction include the Cardiff Coastal Path and the Severn Estuary. The Severn Estuary is not considered to be affected by odour whilst the use of the coastal path by individuals is transient.</p> <p><u>Windrow Turning and Internal Temperature Monitoring</u></p> <p>Windrows are maintained at either;</p> <ul style="list-style-type: none"> an internal temperature of at least 55°C for at least fourteen consecutive days with a minimum of five turnings; or an internal temperature of at least 65°C for 	<p>Low.</p> <p>Monitoring of conditions will enable the control of the composting process.</p> <p>The location and direction of potentially sensitive receptors further reduce the likelihood of exposure.</p>	Odour nuisance and loss of amenity.	Not significant

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			<p>at least seven consecutive days with a minimum of three turnings.</p> <p>In addition;</p> <ul style="list-style-type: none"> windrows are turned at a frequency that maintains aerobic conditions within the windrow. records are made in the site diary of the date and results of internal temperature monitoring and the date on which each windrow is turned. <p><u>Windrow Moisture Content</u></p> <ul style="list-style-type: none"> windrow moisture content is maintained between 40% (w/w) and 60% (w/w) during composting. where the moisture content of a windrow has been measured as being above 60% (w/w), remedial action is taken to decrease the moisture content to between 40% (w/w) and 60% (w/w). where the moisture content of a windrow has been measured as being below 40% (w/w), remedial action is taken increase the moisture content to between 40% (w/w) and 60% (w/w). records are made in the site diary of the date and results of moisture content 			

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			<p>monitoring.</p> <p><u>Monitoring</u></p> <p>The composting process is closely monitored by site personnel to ensure that anaerobic conditions within the windrows do not arise. The following variables are used as indicators to developing anaerobic conditions within the windrows;</p> <ul style="list-style-type: none"> • moisture; • odours; • low rates of temperature rise; • physical appearance; and • oxygen levels. <p>Olfactory monitoring is undertaken downwind of the site on a twice daily basis by a suitably qualified and competent person. Olfactory monitoring is scheduled to take place, or is undertaken in addition to routine monitoring, while activities which have the potential to release odours are undertaken, for example during the turning of windrows.</p> <p>In the event that odours are detected, investigations will be undertaken to determine the cause and appropriate remedial action</p>			

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			taken. <u>Responsibilities</u> The Site Manager is responsible for implementing risk management measures in accordance with the site's operating procedures and this OMP.			
The storage of wastes pre-processing.			<u>Site Setting and Receptor Sensitivity</u> The site is located within a relatively isolated setting. The nearest residential receptor is located approximately 270m to the north of the site. Receptors sensitive to odour, for example residential properties, educational facilities and commercial properties are not in the direction of the prevailing wind. Receptors located in the direction of the prevailing wind direction include the Cardiff Coastal Path and the Severn Estuary. The Severn Estuary is not considered to be affected by odour whilst the use of the coastal path by individuals is transient. <u>Waste Acceptance</u>	Low. Limits on the storage of waste pre-processing will limit the potential for the production of malodours. The location and direction of potentially sensitive receptors further reduce the likelihood of exposure.		Not significant

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			<p>The facility only accepts green wastes. These are considered to have a low potential for the production of negatively perceived odours. No putrescible waste, such as food waste, is accepted at the facility.</p> <p>Wastes which are received from different sources are kept separate to limit the potential for contamination.</p> <p><u>Storage Limits</u></p> <p>Limits are in place to prevent the development of anaerobic conditions and / or the build of a waste stream prior to shredding and the formation of windrows, as follows;</p> <ul style="list-style-type: none"> • 850 tonnes of feedstock; or • 4 weeks since the arrival of waste on site. <p>At the point of one of these limits being reached, whichever comes first, the waste stream is shredded and formed into windrows.</p> <p><u>Monitoring</u></p> <p>Olfactory monitoring is undertaken downwind of the site on a twice daily basis by a suitably qualified and competent person. Olfactory</p>			

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			<p>monitoring is scheduled to take place, or is undertaken in addition to routine monitoring, while activities which have the potential to release odours are undertaken, for example shredding.</p> <p>In the event that odours are detected, investigations will be undertaken to determine the cause and appropriate remedial action taken.</p> <p><u>Responsibilities</u></p> <p>The Site Manager is responsible for implementing risk management measures in accordance with the site's operating procedures and this OMP.</p>			
Contaminated waste and the temporary storage of quarantined wastes.			<p><u>Site Setting and Receptor Sensitivity</u></p> <p>The site is located within a relatively isolated setting. The nearest residential receptor is located approximately 270m to the north of the site.</p> <p>Receptors sensitive to odour, for example residential properties, educational facilities and commercial properties are not in the direction of the prevailing wind.</p>	Low.	Wastes contaminated with malodorous materials are not routinely accepted onto site and are turned away where possible.	Not significant

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			<p>Receptors located in the direction of the prevailing wind direction include the Cardiff Coastal Path and the Severn Estuary. The Severn Estuary is not considered to be affected by odour whilst the use of the coastal path by individuals is transient.</p> <p><u>Non-Conforming Waste</u></p> <p>In the event that non-conforming wastes are delivered to site, they are isolated to the quarantine skip and removed from the site at the earliest opportunity. If identified on the vehicle, the waste will remain in the vehicle and be sent off site to a suitably permitted facility.</p> <p>For green waste arriving from a kerbside collection service, a collection log is completed to detail any non-conforming wastes. Kelda use these logs to identify the source of the non-conforming waste, for example a specific household collection service. To prevent reoccurrence these details are fed back to the collection service.</p> <p><u>Monitoring</u></p> <p>Olfactory monitoring is undertaken downwind of the site on a twice daily basis by a suitably qualified and competent person.</p>	The location and direction of potentially sensitive receptors further reduce the likelihood of exposure.		

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			<p>In the event that odours are detected, investigations will be undertaken to determine the cause and appropriate remedial action taken, for example covering the quarantine skip to contain odours.</p> <p><u>Responsibilities</u></p> <p>The Site Manager is responsible for implementing risk management measures in accordance with the site's operating procedures and this OMP.</p>			
Storage of compost product			<p><u>Site Setting and Receptor Sensitivity</u></p> <p>The site is located within a relatively isolated setting. The nearest residential receptor is located approximately 270m to the north of the site.</p> <p>Receptors sensitive to odour, for example residential properties, educational facilities and commercial properties are not in the direction of the prevailing wind.</p> <p>Receptors located in the direction of the prevailing wind direction include the Cardiff Coastal Path and the Severn Estuary. The Severn Estuary is not considered to be affected</p>	<p>Low.</p> <p>The compost is not likely to produce odour at levels likely to cause pollution outside of the site.</p> <p>The location and direction of potentially sensitive receptors further reduce the likelihood of</p>		Not significant

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			<p>by odour whilst the use of the coastal path by individuals is transient.</p> <p><u>Process Control</u></p> <p>The composting process is closely monitored and controlled with the aim of achieving a compost product which meets the PAS 100 Specification. Compost which meets these specifications is unlikely to produce odours at a level likely to cause pollution outside of the site.</p> <p><u>Storage Limits</u></p> <p>Limits are in place to prevent the build of product, as follows;</p> <ul style="list-style-type: none"> • 2,300 tonnes; or • 6 months since the formation of the product batch. <p>Prior to either of these limits being reached, the product will be sampled, tested and distributed off-site for sale.</p> <p><u>Monitoring</u></p> <p>Olfactory monitoring is undertaken downwind of the site on a twice daily basis by a suitably</p>	exposure.		

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			<p>qualified and competent person.</p> <p>In the event that odours are detected, investigations will be undertaken to determine the cause and appropriate remedial action taken.</p> <p><u>Responsibilities</u></p> <p>The Site Manager is responsible for implementing risk management measures in accordance with the site's operating procedures and this OMP.</p>			

Table 4 - Noise Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
<p>Noise from vehicular movements (site access road and internal site movements).</p> <p>Noise from operation of site plant including loading and unloading of materials, shredding, turning and screening.</p>	<ul style="list-style-type: none"> Mardy House Mardy Farm Seabank Farm Mardy Farm Caravan Storage GMH Vehicle Recyclers Ltd Cardiff Coastal Footpath Public Footpath 	Air.	<p>The site is located away from potentially sensitive receptors. The nearest residential receptor is located approximately 270m to the north of the site.</p> <p>Receptors sensitive to noise, for example residential properties, are not situated in the direction of the prevailing wind.</p> <p>Care will be taken during the unloading and loading of materials which are to be stored externally. For example, drop heights will be kept to a minimum.</p> <p>Site operations will be restricted to hours specified in the planning consent.</p> <p>Speed limits will be implemented for vehicles using the site.</p> <p>Site access and operational areas will be maintained and repaired to minimise emissions of noise due to uneven and poor surfacing.</p>	Low.	Noise nuisance and loss of amenity.	Not significant.

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			<p>Plant will be selected and operated to minimise noise. All site plant and machinery will be operated and maintained in accordance with manufacturer's specifications. Site plant will be subject to a planned preventative maintenance schedule.</p> <p>Staff will be trained in good working practices to minimise emissions of noise.</p> <p>Vehicles and plant will be switched off when not in use.</p> <p>Auditory inspections will be carried out daily and in response to complaints.</p> <p>A record of the inspection findings and any complaints will be made in the site diary.</p> <p>The Site Manager will be responsible for implementing risk management measures..</p>			

Table 5 - Fugitive Emissions Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
To Air:						
Dust from: <ul style="list-style-type: none"> Vehicle movements Waste storage and treatment including shredding, turning and screening. Dusty wastes Unloading and loading of waste 	<ul style="list-style-type: none"> Mardy House Mardy Farm Seabank Farm Mardy Farm Caravan Storage GMH Vehicle Recyclers Ltd Cardiff Coastal Footpath Public Footpath 	Air.	<p>Wastes consisting solely or mainly of dusts, powders or loose fibres will not be accepted at the site.</p> <p>Meteorological forecasts will be monitored and used to plan the undertaking of activities at the site.</p> <p>Where possible, activities likely to lead to the release of dust during unfavourable meteorological conditions, for example wind direction and high wind speeds, will be limited. These include shredding, turning and screening.</p> <p>Compost moisture content will be maintained between 40% (w/w) and 60% (w/w) during composting.</p> <p>Hedgerows border the site along its southern and western edges. The hedgerows will reduce wind speeds and increase wind turbulence. Gabian baskets border the site's northern edge.</p>	Low.	Dust nuisance.	Not significant.

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			<p>Speed limits will be implemented for vehicles using the site.</p> <p>Site access and operational areas will be maintained and repaired to minimise emissions of dust due to uneven and poor surfacing.</p> <p>All roads and operational areas will be swept where necessary to reduce dust emissions.</p> <p>Daily, visual inspection at all areas of the site and site boundary will be carried out by site personnel.</p> <p>In the event that significant visual dust is observed at the boundaries of the operational areas, action will be taken to suppress the dust. This is likely to comprise use of a spray to dampen the surfaces.</p> <p>A record of the inspection findings and remedial action taken will be made in the site diary.</p> <p>The Site Manager will be responsible for</p>			

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			implementing risk management measures.			
To Water						
Run-off from stockpiles and site surfaces Percolation of contaminated water	Surface water: <ul style="list-style-type: none"> On-site surface water pond Adjacent surface water drains Severn Estuary Rhosog Fach Reen Groundwater within superficial and bedrock deposits.	Overland Percolation through the ground	<p>All waste will be stored and treated on impermeable concrete surfacing with sealed construction joints.</p> <p>Surfaced areas of the site will drain to a sealed drainage system. The drainage system will be treated at Cardiff County Council's leachate treatment plant before being discharged into Welsh Water's Sewer System.</p> <p>Kelda's Environmental Management System (EMS) for the site will include a routine monitoring and maintenance schedule to ensure the integrity and performance of the surfacing, drains and interceptor. In addition, the EMS will detail how incidents which could affect the drainage system will be managed.</p> <p>Strict waste acceptance procedures will ensure that only permitted waste types are accepted on site.</p> <p>In the event that non-conforming wastes are delivered to site, they will be isolated and removed from site at the earliest</p>	Low	Contamination of surface water and groundwater.	Not significant.

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			<p>opportunity. If identified on the vehicle the waste will remain in the vehicle and be sent off site to a suitably permitted facility.</p> <p>The Site Manager will be responsible for implementing risk management measures.</p>			
Pests						
Birds, vermin and insects.	<ul style="list-style-type: none"> Mardy House Mardy Farm Seabank Farm Mardy Farm Caravan Storage GMH Vehicle Recyclers Ltd Cardiff Coastal Footpath Public Footpath 	Via air (flies) or over ground (vermin).	<p>The site does not accept food waste. Green waste has a lesser potential to attract birds, vermins and insects.</p> <p>Waste acceptance procedures will ensure that only authorised wastes are accepted.</p> <p>Site operatives will be vigilant and undertake a daily inspection for sightings of birds, vermin and insects. The findings of the visual inspection will be recorded in the site diary.</p> <p>In the event that birds, vermin and insects are identified at the site, a specialist pest control contractor will be employed to undertake remedial measures.</p> <p>The Site Manager will be responsible for implementing risk management measures.</p>	Low.	Nuisance, loss of amenity and harm to human health.	Not significant.
Mud/Litter						

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Litter from waste.	<ul style="list-style-type: none"> Mardy House Mardy Farm Seabank Farm Mardy Farm Caravan Storage GMH Vehicle Recyclers Ltd Cardiff Coastal Footpath Public Footpath 	Airborne litter.	<p>Waste acceptance procedures will ensure that only authorised wastes are accepted.</p> <p>A daily inspection and litter pick of the site and perimeter will take place. The findings of the visual inspection will be recorded in the site diary.</p> <p>Any excessive litter material at the facility or on the highways will be cleared as required.</p> <p>The Site Manager will be responsible for implementing risk management measures.</p>	Low.	Nuisance and loss of amenity.	Not significant.
Mud on roads.	Local road network including the B4239	Transferral of mud on vehicle wheels	<p>The site surface will be maintained free of potholes and significant quantities of mud and debris.</p> <p>Vehicles will stay on surfaced areas of the site.</p> <p>Roads will be swept and cleaned whenever necessary.</p> <p>In the event that mud, debris or waste arising from the site is deposited outside the site, the affected area will be cleaned and traffic will be isolated from sources of mud and debris within the site.</p>	Low – due to lack of mud sources.	Mud on road, road traffic accidents.	Not significant.

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			The Site Manager will be responsible for implementing risk management measures.			

Table 6 - Accidents Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Unauthorised waste.	<ul style="list-style-type: none"> Mardy House Mardy Farm Seabank Farm Mardy Farm Caravan Storage GMH Vehicle Recyclers Ltd Cardiff Coastal Footpath Public Footpath On-site surface water pond Adjacent surface water drains Severn Estuary Rhosog Fach Reen Groundwater within superficial and bedrock deposits. 	<p>Via air (odours).</p> <p>Overland (to sewers, surface and groundwater).</p>	<p>Upon delivery, waste will be subject to strict waste acceptance procedures to identify, reject and/or segregate potentially non-conforming waste.</p> <p>Only waste authorised by the permit will be accepted at the site.</p> <p>All wastes will be subject to inspection and checking against the declaration on the waste transfer note.</p> <p>In the event that unauthorised waste is delivered to the site, the waste will be segregated and stored in a designated quarantine container prior to export from site to a suitably licensed facility.</p> <p>The Site Manager will be responsible for implementing risk management measures.</p>	Low.	<p>Odour nuisance.</p> <p>Water contamination.</p>	Not significant.
Fire.	<ul style="list-style-type: none"> Mardy House Mardy Farm Seabank Farm Mardy Farm Caravan Storage 	Air, water runoff.	<p>No burning loads will be accepted on site. No burning of waste will be permitted on site.</p> <p>Monitoring of the internal temperature of the composting piles will ensure its control.</p>	Low.	Nuisance (smoke and fumes) and harm to human health.	Not significant.

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
	<ul style="list-style-type: none"> GMH Vehicle Recyclers Ltd Cardiff Coastal Footpath Public Footpath On-site surface water pond Adjacent surface water drains Severn Estuary Rhosog Fach Reen Groundwater within superficial and bedrock deposits. 		<p>The plant inspection schedule will include checks of electrical equipment within the site to ensure that any faults are identified and repaired.</p> <p>Smoking will not be permitted in the operational areas of the site.</p> <p>The operators working practices will ensure assessment of fire hazards and training of employees in fire prevention, e.g. in the use of fire extinguishers and emergency procedures.</p> <p>Any fire at the site will be treated as an emergency.</p> <p>The following actions will be taken in the event of a fire:</p> <ul style="list-style-type: none"> Notify the fire brigade immediately and the NRW as soon as practicable; Isolate the burning area and attempt to extinguish the fire utilising the on-site fire extinguishers, if safe to do so; Prevent, if possible, contaminated site drainage from entering any unsurfaced ground; and Evacuate the site if the fire is not 		Water contamination (runoff).	

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			containable. The Site Manager will be responsible for implementing risk management measures.			
Spillage and Leakage. Fuelling of plant from a bowser Maintenance of plant	Local land quality, surface water including: <ul style="list-style-type: none"> On-site surface water pond Adjacent surface water drains Severn Estuary Rhosog Fach Reen and groundwater. 	Runoff and percolation through ground	<p>Fuels will be taken by bowser from the council's fuel store at the Lamby Way depot. Large quantities of fuels will not be stored at the facility. However, where tanks are required they will meet the following standards:</p> <p>Tanks will be surrounded by a leakage containment bund capable of containing at least 110% of the volume of the largest tank within the bund or 25% of the total tank volume within the bund, whichever is the greater.</p> <p>Storage tanks will be constructed to the appropriate British Standard.</p> <p>Tanks will be inspected visually on a daily basis by the site staff to ensure the continued integrity of the tanks and identify the requirement for any remedial action.</p> <p>Maintenance of plant will take place upon an impermeable surface.</p> <p>Minor spillages will be cleaned up</p>	Low.	Contamination of groundwater and surface water.	Not significant.

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			<p>immediately, using sand or proprietary absorbent to clean up liquids and placed in alternative containers.</p> <p>Materials suitable for absorbing and containing minor spillages will be maintained on site. After use the materials will be bagged up and stored within the building prior to removal off site to a suitably licensed facility.</p> <p>The site staff will undertake daily monitoring for evidence of spillage and leakage.</p> <p>Alongside regular visual inspections, tanks will be fitted with level indicators to prevent overfilling.</p> <p>In the event of a major spillage, immediate action will be taken to contain the spillage and prevent liquid from entering surface water drains and any permeable ground. The spillage will be cleared immediately and placed in containers for off-site disposal and the NRW will be notified.</p> <p>The Site Manager will be responsible for implementing risk management measures.</p>			
Security and Vandalism	Personnel on site, emergency service workers		There will be lockable gates at the site's access point.	Low.	Nuisance and harm to human health.	Not significant.

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			<p>The gates will be locked outside of operational hours. All doors to site offices will be locked outside of operational hours to prevent unauthorised access.</p> <p>The site's fencing will be inspected daily by the operations staff to identify deterioration and damage and the need for any repairs. If damage is identified, the Site Manager will be informed.</p> <p>The fencing will be maintained and repaired to ensure its continued integrity. In the event that damage is sustained, repairs will be made by the end of the working day. If this is not possible, suitable measures will be taken to prevent any unauthorised access to the site and permanent repairs will be affected as soon as practicable.</p> <p>All visitors to the site will be required to register in the visitor's book and sign out again on exit. This minimises the risk of unauthorised visitors being present at the site.</p> <p>The Site Manager will be responsible for implementing risk management measures.</p>		Contamination of land and surface water.	

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Flooding.	Site Personnel	Overland	<p>The Environment Agency website confirms that the site lies within an area which is at risk from flooding. However, it identifies flood defences located to the south and west of the site along the boundary with the Severn Estuary which protect it from flooding. The defences in place protect the site from the flooding of the river up to a 1 in 100 year flood event.</p> <p>A surface water drainage scheme has been produced. The scheme has been designed to achieve attenuation for up to a 1 in 50 year rainfall event whilst also limiting the discharge of water to the sewer system to below the 10 litres a second limit agreed between Kelda and Welsh Water for the site's sewer discharge consent.</p> <p>A copy of the surface water drainage scheme is included as Appendix H1_1 for further information.</p>	Medium.	Inundation of site with flood water.	Not significant.

4.0 CONCLUSION

This environmental risk assessment has been undertaken as described by regulatory guidance EPR H1. The assessment is provided as part of the application to transfer part of an environmental permit for the Lamby Way Open Windrow Composting Facility.

This qualitative risk assessment has considered noise, fugitive emissions, dust, releases to water, litter, and potential for accidents and incidents. The assessment concludes that with the implementation of the risk management measures described above, potential hazards from the proposed development are not likely to be significant and no further assessment is required.

5.0 CLOSURE

This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

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