Trecatti Landfill Site

Multipurpose Waste Treatment and Remediation Pad

H1 Environmental Risk Assessment

SLR Ref: 407.00034.00461/H1
July 2015

CONTENTS

TABLES

FIGURES

DRAWINGS

1.0 INTRODUCTION

Biffa Waste Services Limited (Biffa) has retained SLR Consulting Limited (SLR) to prepare an application for their Trecatti Landfill site, Merthyr, under the Environmental Permitting (England and Wales) (EP) Regulations 2010 (as amended) for the operation of a Multipurpose Waste Treatment and Remediation Pad.

Full details of the proposed variation can be found in the Non Technical Summary submitted with this application, reference 407.00034.00461/NTS. The assessment has been completed in accordance with the Environment Agency Technical Guidance EPR – H1 *'Environmental Risk Assessment for Permits' December 2011* and *H1 Annex A – Amenity & Accident Risk from Installations and Waste Activities,* December 2011*.* The aim of which is to identify any significant risks from the proposed waste management activities and demonstrate that the risk of pollution or harm would be acceptable by taking the appropriate measures to manage these risks.

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

For the purposes of this H1 assessment, a 2km radius from the proposed 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 proposed permit boundary has been adopted for all other potentially sensitive receptors (for example, residential, commercial, industrial, agricultural and surface water receptors).

The potentially sensitive receptors identified as part of this assessment are illustrated on Drawing Sources, Pathways and Receptors 004 a dated July 2015 and are described in Table 2-2. This document should be read in conjunction with;

- Environment Agency Forms; A, C2, C3 and F1;
- Non Technical Summary, (407.00034.00461/NTS dated July 2015); and
- Best Available Techniques and Operating Techniques (407.00034.00461/BATOT dated July 2015).

2.0 SITE SETTING & RECEPTORS

2.1 Proposed Development

This Permit variation application seeks to add a Multipurpose Waste Treatment and Remediation Pad (MWTRP) to the permitted activities undertaken at the site. The location of the pad in relation to the permitted landfill is shown on Drawing 002, dated July 2015.

The Pad layout is detailed in Drawing 002 and will allow the following distinct waste activities to take place:

1. Waste Treatment Facility (WTF) - treatment and bioremediation of hazardous and non hazardous waste; and
2. Green Waste Composting.

The area for the MWTRP would be located on top of a temporarily capped area subject to permanent deposit of non hazardous wastes. The MWTRP would be utilised until such time as the area is required for the further deposit of waste at which point it will be removed.

The MWTRP will be constructed so as to form two physically separate areas for the operations. Separation will be achieved through the use of low level bund and separate engineered drainage system.

The site infrastructure will comprise;

- General infrastructure;
  - office/welfare accommodation;
  - car parking.
- WTF Operations, including;
  - Treatment pad;
  - process water storage tanks (within a bunded enclosure);
  - biofilter;
  - air/water separators with attendant process equipment (blowers, pumps etc. housed within a metal container); and
  - ISO metal containers for the storage of equipment.
- Composting Operations, including;
  - Compost pad;
  - Contaminated Surface Water Lagoon.

Access to the Pad will be from the south utilising existing landfill haul roads. The landfill weighbridge and reception office on the existing haul road will be used to weigh wastes prior to acceptance at the Pad.

The WTF will accept up to 30,000 tonnes of the European Waste Catalogue (EWC) Codes listed in Appendix C3_1 of this application.

In addition to the contaminated surface water run-off lagoon associated with composting operations, there will be a clean surface water lagoon which will collect clean run-off from buildings and surfaced areas not used for waste operations. This lagoon will drain to the existing clean surface water management system associated with the landfill.

Process water generated by the waste treatment process at the biopile(s) will be removed via the internal air and water extraction pipes and routed to the process water tanks prior to discharge to a suitably licensed facility. Subject to quality testing, the water may be released to the existing Leachate Treatment System, surface water management system or tankered off site.

A bund will surround the biopile(s) pad and within it will be included the WTF infrastructure e.g. roadways, fuel storage, process water tank, site office and parking area, biofilter and equipment unit. Water run-off from within this bund will all be managed as potentially contaminated water and routed to the process water tank. The water will be stored at the process water tank prior to discharge to a suitably licensed facility. Subject to quality testing, the water may be released to the surface water management lagoon;

If required, the biopile(s) will be covered with a biocover, rainfall running off the biocover will be managed as clean surface run-off and directed to the surface water ditch to the east of the biopile(s); the biocover will be secured within the surface water ditch. Clean surface water from the ditch will be routed to the surface water lagoon via a pipe. Water will be discharged from the surface water management lagoon to the existing landfill surface water management system.

A cut-off valve will be provided at the surface water management lagoon and should any contamination become evident, the water will be prevented from entering the existing surface water management system and controlled waters.

The Composting Facility will be designed to prevent fugitive emissions to surface water and groundwater. The composting pad will be designed with a fall to a lagoon. All liquor arising from the composting process will run off to the Lagoon 2 prior to being pumped to the existing Trecatti Leachate Treatment Facility.

The composting and WTF operations will be kept physically separate by means of a low level bund and will have distinct engineered drainage systems.

This H1 Environmental Risk Assessment only looks at the risks posed by the activities associated with the WTF operations. It is considered that the proposed composting operations, as applied for under Standard Rules Permit SR2012No8: Composting in Open Systems – Part A Installation – Capacity more than 75 tonnes per day has undergone thorough assessment by Natural Resources Wales / Environment Agency as part of their Standard Rule Permitting Process.

2.2 Site Setting

Trecatti landfill is located to the immediate north-east of Merthyr Tydfil and approximately 3km west of Rhymney at National Grid Reference SO082077. It is located within an area of historic open-cast coal and ironstone working and lies to the north-west of the Gelligaer and Merthyr Common. The site is immediately surrounded by common land that includes vegetated colliery spoil tips and is used for rough grazing. The nearest residential area is Dowlais Top which lies approximately 170 metres to the north-west of the landfill. Access to the site is from the unclassified Fochriw Road to the east. The main watercourses present in the vicinity are the River Taff and Rhymney River, which flow in a general southerly direction 3.5km west and 2.1km east of the site respectively. A number of tributary drains and streams drain the land immediately surrounding Trecatti Landfill site.

Trecatti Landfill has been constructed above the regional groundwater table of the Coal Measures strata and therefore no permanent groundwater management system is required. However, temporary under-liner drainage systems have been installed beneath the Phases developed to date due to the presence of perched groundwater. Leachate accumulating within the site is abstracted and treated at the on-site treatment plant. Landfill gas is collected and pumped to an on-site gas management plant which is capable of producing up to 4MW electricity. Surplus gas is flared off.

The site location is shown on Drawing 001. The locations of the installation, surrounding land-use and receptors are identified on Drawing 004 - Sources Pathways and Receptors, and are identified in Table 2-1 and Table 2-2 below.

Table 2-1
Surrounding Land Uses

Boundary	Description
North	Open land, beyond which lies the A465 and industrial and commercial premises.
East	Open land / agricultural land and the Rhasias Pond.
South	The Ffos-y-fran mine, operated by Miller Argent.
West	Residential properties within Dowlais.

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

Residential properties (including farms)

The closest residential properties are located within Dowlais, off Blaen Dowlais, located approximately 170m to the west of the landfill permit boundary, and some 600m from the proposed MWTRP.

Commercial and Industrial Premises

The Ffos-y-fran Mine site is located 30m to the south of the landfill permit boundary and 150m from the proposed MWTRP internal boundary.

Areas for public use / Open Land

The site is immediately surrounded by open land / agricultural land.

The A4060 and A465 public highways are located 100m to the west of the landfill permit boundary (approximately 450m from the MWTRP internal boundary) and the local Fochriw Road, from which the site is accessed, is located adjacent to the Landfill permit boundary, and approximately 450m from the MWTRP internal boundary to the east.

Recreational fields are location approximately 160m to the north-west from the landfill permit boundary and approximately 540m from the MWTRP internal boundary.

2.3 Geology, Hydrology & Hydrogeology

Geology

The site has been previously worked, suggesting that much of superficial and bedrock material will have been removed. However, searches conducted on the British Geological Society website (www.bgs.ac.uk, accessed July 2015) indicate the site is situated on bedrock geology consisting of the South Wales Middle Coal Measures Formation - Mudstone, Siltstone and Sandstone. Only partial superficial geology results are available however, the site is located within an area of superficial deposits consisting of Till, Devensian - Diamicton.

Hydrology and Hydrogeology

The nearest watercourse is a tributary to the Rhymney River which flows south-easterly, passing approximately 1km to the north-east of the application site at its closest point.

Previous NRW / EA mapping classified bedrock at the application site as a 'Secondary A' aquifer which is defined by the EA 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. These are generally aquifers formerly classified as minor aquifers.'*

Previous NRW / EA mapping classified the application site as not within a Groundwater Source Protection Zone (SPZ).

EA mapping[1] also indicates that the site does not lie within a flood zone.

[1] http://maps.environment-agency.gov.uk, accessed July 2015

2.4 Ecology

European/International Sites

Nature conservation designations have been assessed within a 2km radius of the proposed site. Searches on the Multi-Agency Geographic Information for the Countryside (MAGIC)[2] website confirm the following;

European / International Sites

There are no European or International statutory nature conservation designations within a 2km radius of the proposed site.

Sites of Special Scientific Interest (SSSI)

There are no SSSI designations within a 2km radius of the proposed site.

Registered Park and Gardens

There are no registered parks and garden designations within a 2km radius of the proposed site

The woodland areas are illustrated on Drawing 004.

Other ecological receptors

There are none of the following ecological receptors identified within 2km of the permit boundary:

- Areas of Outstanding Natural Beauty;
- Local or National Nature Reserves;
- National Parks;
- National Forest;
- World Heritage Sites; and
- Woodland Trust Sites.

2.5 Cultural Heritage

Searches conducted on the MAGIC website also confirm the site does not lie within 2km of the following;

- Archaeological sites;
- Registered Battlefields; and
- National Trust Properties.

Listed buildings

A Search conducted on the British Listed Buildings website (www.Britishlistedbuildings.co.uk, accessed July 2015) show that there are a number of listed buildings within 2000m of the site, the closest of which are located within Dowlais.

[2] www.magic.defra.gov.uk, accessed July 2015

Scheduled Monuments

There are no Scheduled Monuments within 2km.

2.6 Receptors

Drawing 004 illustrate the locations of receptors that have been identified as potentially sensitive and that could reasonably be affected by the proposed WTF.

Table 2-2 Identified Receptors

Receptor Name	Receptor Type	Direction	Distance from landfill boundary	Distance from Proposed Multipurpose Pad Boundary
Identified receptors within 1km of the proposed Permit Boundary as shown on Drawing 004.				
Residential properties off Blaen Dowlais	Residential	West	170m	600m
Ffos-y-fran mine	Commercial / Industrial	South	30m	150m
Public highways, including Fochriw Road, A465 and A4060.	Public Highways	West	100m	450m
Recreational land, including sports fields	Recreational land	North West	160m	540m
Agricultural Land / open Land	Open Land	All	Adjacent	110m

2.7 Windrose

A wind rose for the average conditions recorded at Rhoose Airport over a five year period from 2003-2007 is presented below in Figure 2-1.

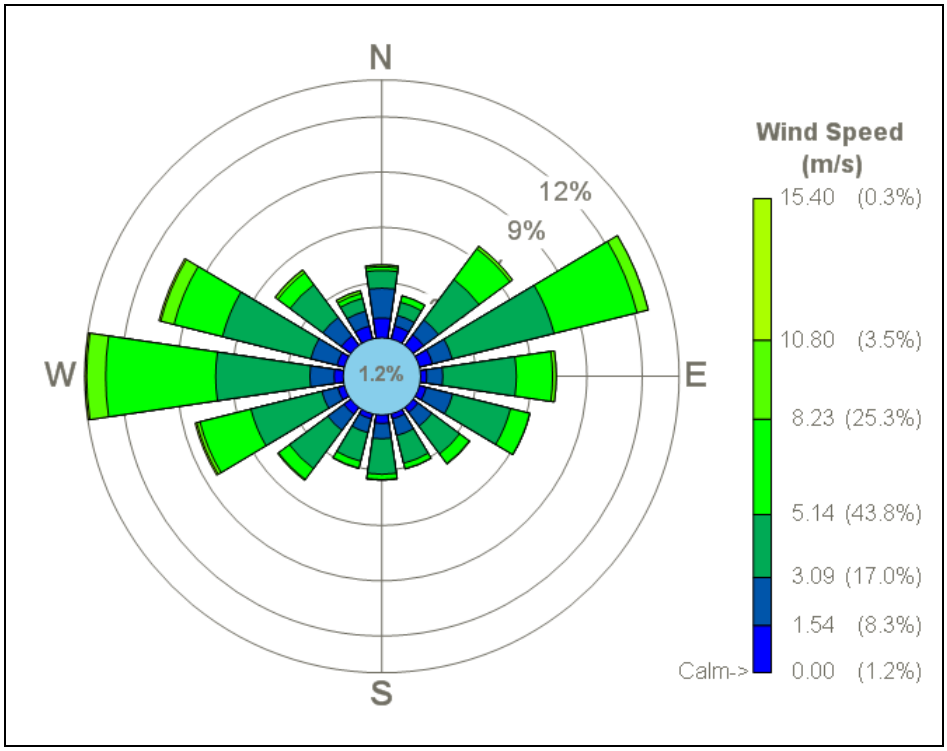

Figure 2-1 Windrose for Rhoose Airport Meteorological Station (2003 – 2007)

The predominant wind directions are from the westerly and easterly quadrants. Moderate to high speed winds (>3.1m/s), capable of dust generation occur for approximately 75% of the time.

High wind speeds tend to lead to odour emissions being more rapidly dispersed and diluted due to turbulence, while low wind speeds inhibit the dilution of odours. Low wind speed conditions of less than 1.5m/s occur for approximately 10% of the time.

3.0 H1 OVERVIEW AND APPROACH

The H1 Environmental Risk Assessment complies with regulatory guidance[3] 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 application.

There are however no point source emissions to surface water, groundwater or air resulting from the proposed variation. Therefore only annexe 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 operation of the proposed site.

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 & Vibrations;
- Fugitive Emissions (including dust and pests); and
- Accidents.

[3] Environment Agency H1 Environmental Risk Assessment for Permits (and appendices) V4.0 December 2011.

Table A1 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
Odour caused by the acceptance and treatment of hazardous and non hazardous waste (Contaminated soils or sludges may have the potential to contain odorous organic substances including aromatic hydrocarbons such as diesel range organics, PAHs and phenols.)	Potentially sensitive receptors as listed in Table 2-2, including agricultural land and areas of open space, residential properties, surface water bodies and the local road network. As shown in Drawing 004	Air	The WTF will be operated to minimise potential odour emissions and in accordance with the conditions of the permit. Extraction ventilation to a biofilter will treat degradation products and prevent emissions of odour. The biofilter is a proven method of removing VOCs with a low odour threshold before emission to the atmosphere. It is considered that the suction extraction and odour abatement (biofilter) will meet the requirements of BAT. Strict waste acceptance procedures will be in place, no waste will be accepted unless it has been pre-booked with details of the source, physical and chemical compositions and hazard characteristics. Control of odour will be governed under the STF Operations Manual and Biffa Procedure DGNL/02 Environmental management. As part of the Trecatti environmental management programme perimeter modelling will be implemented in accordance with the conditions of the Environmental Permit. The Site Manager will be responsible for implementing risk management measures	Low – Medium The proposed WTF will be located within the existing Trecatti Landfill Site.	Nuisance and loss of amenity	**Low**
Odour caused by the delivery of non	Potentially sensitive receptors as listed in	Air	Strict waste acceptance procedures will mean that exceptionally malodorous waste should not	Low - Medium	Nuisance and loss of amenity	**Not significant**

conforming waste types associated with the WTF.	Table 2-2, including agricultural land and areas of open space, residential properties, surface water bodies and the local road network. As shown in Drawing 004		arrive at the WTF. The list of EWC codes has been selected to reduce the potential for odorous soils. Potentially odorous soils will not be accepted without there being arrangements in place for the soils to be received and managed in a manner which will minimise the potential for odour emissions. Non-conforming materials will be segregated and stored at a designated area prior to removal off site to an appropriately licensed facility as soon as practicable. Rejected wastes will be recorded in the site diary. The Site Manager will be responsible for implementing risk management measures.			

Table A2 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
Vehicles manoeuvring and unloading waste associated with WTF.	Potentially sensitive receptors as listed in Table 2-2, including agricultural land and areas of open space, residential properties, surface water bodies and the local road network. As shown in Drawing 004	Air.	The MWTRP will be located on the existing footprint of Trecatti Landfill Site. Vehicles and plant will be appropriately maintained so as to ensure that the operation of the site does not give rise to unacceptable levels of noise or vibration. Internal haul roads shall, where possible, be routed to allow maximum acoustic screening and separation distances to noise sensitive receptors. Haul roads shall be kept clean and maintained in a good state of repair and subject to a 20mph speed limit so as to avoid unwanted rattle and "body slap" from vehicles. The Site Manager will be responsible for implementing risk management measures.	Low	Nuisance to receptors during delivery periods	**Not significant.**

Noise caused by traffic entering and leaving the site.	Potentially sensitive receptors as listed in Table 2-2, including agricultural land and areas of open space, residential properties, surface water bodies and the local road network. As shown in Drawing 004	Air (Noise) Ground (Vibrations)	Site traffic and site plant will be subject to site imposed speed limits to limit the noise and vibration associated with movements on site. Vehicles and plant will be appropriately maintained so as to ensure that the operation of the site does not give rise to unacceptable levels of noise or vibration. A Noise Risk Assessment was carried out in the planning application for the MWTRP. It concluded that the rating level of the MWTRP does not exceed the background sound level by more than 2dB(A). It is therefore considered that sound from the MWTRP would have a low impact at worst upon the residents assessed. Haul roads shall be kept clean and maintained in a good state of repair and subject to a speed limit so as to minimise vehicle noise. Generation and level of noise emissions from reversing beepers may make use of reverse warning systems incorporating broadband noise, if appropriate The Site Manager will be responsible for implementing risk management measures.	Low - The proposed pad is located within the confines of the fully operational Trecatti landfill site, where waste activities already take place. It should be noted that site traffic is already present for the non-hazardous landfilling operations and so the hazard is not a new hazard associated with the WTF.	Noise nuisance and loss of amenity	**Not significant**
Noise from operation of WTF	Potentially sensitive receptors as listed in Table 2-2, including agricultural land and areas of open space, residential properties, surface water bodies and the local road network. As shown in Drawing 004	Air and vibration through the ground	Site plant will be maintained according to the Manufacturer's instructions and fitted with silencing equipment where appropriate. The fixed plant will operate continually but will be housed in a container to minimise noise levels. Noise screening bunds will be considered if appropriate. The Site Manager will be responsible for implementing risk management measures.	Low – intermittent	Nuisance to local residents, loss of amenity.	**Not significant.**
Noise from engineering works e.g. construction of	Potentially sensitive receptors as listed in Table 2-2, including agricultural	Air and vibration through the ground	Site plant will be maintained according to the Manufacturer's instructions and fitted with silencing equipment where appropriate.	Low – construction operations will be	Nuisance to local residents, loss of amenity.	**Not significant.**

base pad for the MWTRP.	land and areas of open space, residential properties, surface water bodies and the local road network. As shown in Drawing 004		The Site Manager will be responsible for implementing risk management measures.	temporary.		

Table A3 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						
Release of pollutants (PM_{10}, NO_x, etc) from traffic.	Potentially sensitive receptors as listed in Table 2-2, including agricultural land and areas of open space, residential properties, surface water bodies and the local road network. As shown in Drawing 004	Air – windblown.	To minimise releases, all vehicles will be subject to a programme of planned preventative maintenance and maintained in accordance with the manufacturers recommendations. Vehicle movements into and out of the site will be restricted to hours specified within the planning permission from the site. The Site Manager will be responsible for implementing risk management measures.	Low	Nuisance and health risk to local residents, and loss of amenity	**Not significant.**
Dust from vehicle movements.	Potentially sensitive receptors as listed in Table 2-2, including agricultural land and areas of open space, residential properties, surface water bodies and the local road network. As shown in Drawing 004	Air – windblown.	Waste will be brought to site in enclosed refuse collection vehicles and bulk loaders. Incoming waste vessels that are not enclosed will be sheeted to minimise escape of dust during transit. To minimise the emissions of dust arising from installation roads, suitable speed limits will be imposed for all vehicles. The main access road will be swept with a mechanical road sweeper as and when conditions dictate. During dry conditions, a water bowser will be available for use to spray the installation roads	Low	Nuisance and health risk to local residents, and loss of amenity.	**Not significant.**

			and the operational area, prior to and during vehicle movements. The Site Manager will be responsible for implementing risk management measures.			
Dust from waste handling operations. Release of dust and bio-aerosols from placement and turning of soil biopiles.	Potentially sensitive receptors as listed in Table 2-2, including agricultural land and areas of open space, residential properties, surface water bodies and the local road network. As shown in Drawing 004	Air	Waste will in general be delivered in enclosed refuse collection vehicles and bulk loaders. Where vehicles are not enclosed, they will be sheeted to prevent any escape of dust during transit. Potential sources of particulates will be maintained in moist conditions or covered to minimise the potential for wind whipping or dust release. Dust generation is controlled via the use of dust suppression measures. Roadways and yards will be periodically cleaned. During potentially dry or unfavourable conditions, mud and dusts collecting on hard surfaces, including access routes and stockyards, will be removed by scraping and sweeping. Surfaces will also be dampened down by water bowser. The operation of the WTF will be conducted in such a way as to control mud and debris from leaving the area. No plant or machinery involved in the WTF and composting processes will leave the site without having used the vehicle washes located at the site entrance / exit. Potential sources of particulates will be maintained in moist condition or covered to minimise potential for wind whipping or dust release. Dust is unlikely to appear during the turning of	Low	Nuisance, and harm to human health	**Not significant**

			the WTF soils as dust is an indication that the moisture content of the soil is too low. Should any dust be identified, water will be added to the biopile. If necessary water will be added to the biopile by either automatic or manually deployed irrigation pipes. The Site Manager will be responsible for implementing risk management measures.			
Release of VOCs from contaminated soils associated with WTF processes	Potentially sensitive receptors as listed in Table 2-2, including agricultural land and areas of open space, residential properties, surface water bodies and the local road network. As shown in Drawing 004	Air.	WTF Biopiles will be covered and provided with extraction ventilation when operational or meteorological conditions if required. Soils will typically be well weathered. The Site Manager will be responsible for implementing risk management measures.	Unlikely – the potential for VOC release during biopile remediation will be low.	Nuisance and health risk to site workers, visitors and local population.	**Not significant.**
Smoke or fumes.	Potentially sensitive receptors as listed in Table 2-2, including agricultural land and areas of open space, residential properties, surface water bodies and the local road network. As shown in Drawing 004	Air – windblown.	No waste shall be burned on the site. All site plant and machinery will be operated and maintained in accordance with manufacturer's specifications. Smoking will not be permitted anywhere on site. Fire-fighting equipment is kept on site. In the unlikely event of fire, the Biffa fire action plan will be followed. The Site Manager will be responsible for implementing risk management measures.	Unlikely.	Nuisance and health risk to Site workers, visitors and local population.	**Not significant.**

Continued…						
To Water						
Potentially contaminated run off.	Surface water close to and downstream of site. Land and groundwater	Land and surface water	Waste treatment will take place on areas of engineered surfacing (pad) which will be fit for purpose and suitably maintained.	Low – due to surface and process water	Contamination of surrounding surface water, land and groundwater.	**Not significant.**

	beneath the site. Secondary A aquifer within the bedrock.		The surfacing of the treatment pad will be engineered and impermeable with a sealed drainage system. Process water generated by the waste treatment process at the biopile(s) will be removed via the internal air and water extraction pipes and routed to the process water tanks prior to discharge to a suitably licensed facility. Subject to quality testing, the water may be released to the existing Leachate Treatment Plant, Surface Water Management System or tankered off site for disposal / treatment. The conceptual and typical collection network for the biopile(s) is illustrated on Drawings 003 and 005. A bund will surround the biopile(s) pad and within it will be included the WTF infrastructure e.g. roadways, fuel storage, process water tank, site office and parking area, biofilter and equipment unit. Water run-off from within this bund will all be managed as potentially contaminated water and routed to the process water tank. The water will be stored at the process water tank prior to discharge to a suitably licensed facility or subject to quality testing, the water may be released to the leachate treatment plant or surface water management system. Operationally, at times when the biopile(s) are covered with a biocover, rainfall running off the biocover will be managed as clean surface run-off and directed to the surface water ditch to the east of the biopile(s). Clean surface water from the ditch will be routed to the surface water lagoon via a pipe. Water is discharged from the surface water management lagoon to the existing Landfill surface water management system; A cut-off valve will be provided at the surface water management lagoon and should any	management systems.		

			contamination become evident, the water will be prevented from entering the existing surface water management system and controlled waters. All storage tanks will be bunded to 110% of the tank volume and located on hardstanding. Tanks and containers used for the storage of any liquid fuel oil will be located on hardstanding, labelled as to its contents, and bunded to 110% of the capacity of the fuel stored. Spill kits will be kept on site. Process and surface water management will be carried out in accordance with the Operating Techniques document prepared for the site, SLR reference 407.0034.00461/BATOT. The Site Manager will be responsible for implementing risk management measures.			

Continued…						
Pests						
Birds, vermin and insects attracted to site.	Potentially sensitive receptors as listed in Table 2-2, including agricultural land and areas of open space, residential properties, surface water bodies and the local road network. As shown in Drawing 004	Land and Air.	Waste soils are not considered to be an attractor for birds and vermin. There will be no putrescible waste accepted at the WTF. The proposed WTF will be located within the larger Trecatti site and as such will have the benefit of existing pest and vermin control measures. Constant vigilance will be exercised in order to determine any pest activity. Remedial measures will be taken if necessary, for example employing a specialist contractor. A record of any occurrence of vermin will be maintained with any information of subsequent action taken. The Site Manager will be responsible for	Low - there is not anticipated to be any impact on the attraction of birds, vermin and insects to the site from the proposed variation.	Nuisance and health risk to local residents and loss of amenity.	**Not significant.**

			implementing risk management measures.			
Mud/Litter						
Vehicle movements. Litter may escape from site and/or delivery vehicles.	Local roads including Pontefract Road. Surrounding land Local residents. See Table 2-2 and Drawing 004.	Tracked by vehicles arriving at and leaving the site. Windblown litter.	Incoming vehicles containing waste will be enclosed or sheeted. Vehicles will be visually inspected to ensure they are clear of loose waste and that any material being exported from site is secure. Roadways and yards will be periodically cleaned. During potentially dry and unfavourable conditions, mud and dusts collecting on hard surfaces, including access routes and stockyards, will be removed by scraping and sweeping. Surfaces will also be dampened down by water bowser. The proposed waste types to be accepted at the WTF for treatment are not considered to pose a high risk of litter. Regular site inspections will identify any problems associated with mud or litter. Should wind-blown litter be identified as having escaped the permitted area, it will be collected as soon as possible. The Site Manager will be responsible for implementing risk management measures.	Low.	Nuisance and health risk to local residents and other road users.	**Not significant.**

Table A4 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
Leak or spillage of waste soils, other potentially polluting matter at the WTF.	Local land quality, surface water and groundwater. Surface water close to and downstream of site. Land and groundwater beneath the site. Secondary A aquifer within the bedrock. Local residents and surrounding land use.	Direct run-off from site across ground surface, via surface water drains.	Wastes will be brought to site in enclosed vehicles and bulk loaders. Incoming waste vessels that are not enclosed will be sheeted (or netted) to ensure no escape during transit. Tanks and containers used for the storage of potentially polluting liquids, including oils and fuel, will be labelled as to its contents, and bunded to 110% of the capacity of the fuel stored. Spill kits will be kept on site. Process water tanks will be enclosed and bunded and the tanks will be fitted with float controls to prevent them from overflowing and to switch off the pump when the tank is full. 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 125% of the total tank volume within the bund, whichever is greater. The Site Manager will be responsible for implementing risk management measures.	Low.	Contamination of local surface water with consequences such as algal bloom and fish kill. Contamination of land. Nuisance and health risks.	**Not significant.**

Containment failure (i.e. bunds, drainage interceptors).	Local land quality, surface water and groundwater.	Direct run-off from site across ground surface.	Inspection and preventative maintenance programme will be in place for site surfacing and containers. Spill kits will be kept on site. The Site Manager will be responsible for implementing risk management measures.	Low.	Contamination of local surface water with consequences such as alagal bloom and fish kill. Contamination of land. Nuisance and health risks.	**Not Significant.**
Flooding	Land and surface water.	Flood waters over land.	Containment measures will be put in place along with appropriate drainage measures. The site will have appropriate surface and process water management systems in place. The Site Manager will be responsible for risk management.	Low. The site is not located within a flood zone.	Contaminated flood waters may contaminate property and land.	Not significant
Accidental fires resulting in the release of polluting materials to air, land or water.	Local population, staff, fire fighters could be caused respiratory irritation, illness and nuisance. Pollution of water or land with firewater.	Air transport of smoke, spillages and contaminated firewater by direct run off from site and via surface water drains and ditches.	There will be no burning of waste on site. Fire extinguishers will be kept on site. The Site Manager will be responsible for implementing risk management measures.	Low.	Harm and nuisance to local population and site staff.	**Not significant.**
Incompatible substances coming into contact/unwanted reactions.	Local population, site staff.	Land, air.	Any potentially polluting substances will be appropriately stored. The Site Manager will be responsible for implementing risk management measures.	Low.	Deterioration of air quality or production of harmful substances which could cause fire or damage health of those exposed.	**Not significant.**
Vandalism / unauthorised access - causing loss of containment or fire.	Local population, staff, fire fighters could be caused respiratory irritation, illness and nuisance. Pollution of water or land with firewater. Local land quality, surface water and groundwater.	Land, air.	The site gates will remain closed and locked when the site is unmanned. The site perimeter is secure. No machinery will be left unsecured. The Site Manager will be responsible for implementing risk management measures.	Low.	Harm and nuisance to local population and site staff. Contamination of land and surface water.	**Not significant.**

4.0 CONCLUSION

Environmental Risk Assessment has been undertaken as described by regulatory guidance EPR H1. Assessment is provided as part of the application for an Environmental Permit Variation for the Trecatti Waste Treatment Facility.

Qualitative risk assessment has considered odour, noise, fugitive emissions, dust, releases to water, litter, and potential for accidents and incidents. Assessment concludes that with the implementation of the risk management measures described above, potential hazards from the Trecatti Multipurpose Waste Treatment and Remediation Pad are not likely to be significant.

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.

This report is for the exclusive use of Biffa Waste Services Limited; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

ABERDEEN
214 Union Street,
Aberdeen AB10 1TL
T: +44 (0)1224 517405

AYLESBURY
7 Wornal Park, Menmarsh Road,
Worminghall, Aylesbury,
Buckinghamshire HP18 9PH
T: +44 (0)1844 337380

BELFAST
Suite 1 Potters Quay, 5 Ravenhill Road,
Belfast BT6 8DN
T: +44 (0)28 9073 2493

BRADFORD-ON-AVON
Treenwood House, Rowden Lane,
Bradford-on-Avon, Wiltshire BA15 2AU
T: +44 (0)1225 309400

BRISTOL
Langford Lodge, 109 Pembroke Road,
Clifton, Bristol BS8 3EU
T: +44 (0)117 9064280

CAMBRIDGE
8 Stow Court, Stow-cum-Quy,
Cambridge CB25 9AS
T: + 44 (0)1223 813805

CARDIFF
Fulmar House, Beignon Close, Ocean
Way, Cardiff CF24 5PB
T: +44 (0)29 20491010

CHELMSFORD
Unit 77, Waterhouse Business Centre,
2 Cromar Way, Chelmsford, Essex
CM1 2QE
T: +44 (0)1245 392170

DUBLIN
7 Dundrum Business Park, Windy
Arbour, Dundrum, Dublin 14 Ireland
T: + 353 (0)1 2964667

EDINBURGH
4/5 Lochside View, Edinburgh Park,
Edinburgh EH12 9DH
T: +44 (0)131 3356830

EXETER
69 Polsloe Road, Exeter EX1 2NF
T: + 44 (0)1392 490152

GLASGOW
4 Woodside Place, Charing Cross,
Glasgow G3 7QF
T: +44 (0)141 3535037

GUILDFORD
65 Woodbridge Road, Guildford
Surrey GU1 4RD
T: +44 (0)1483 889 800

LEEDS
Suite 1, Jason House, Kerry Hill,
Horsforth, Leeds LS18 4JR
T: +44 (0)113 2580650

LONDON
83 Victoria Street,
London, SW1H 0HW
T: +44 (0)203 691 5810

MAIDSTONE
19 Hollingworth Court, Turkey Mill,
Maidstone, Kent ME14 5PP
T: +44 (0)1622 609242

MANCHESTER
Digital World Centre, 1 Lowry Plaza,
The Quays, Salford, Manchester
M50 3UB
T: +44 (0)161 216 4064

NEWCASTLE UPON TYNE
Sailors Bethel, Horatio Street,
Newcastle-upon-Tyne NE1 2PE
T: +44 (0)191 2611966

NOTTINGHAM
Aspect House, Aspect Business Park,
Bennerley Road, Nottingham NG6 8WR
T: +44 (0)115 9647280

SHEFFIELD
Unit 2 Newton Business Centre,
Thorncliffe Park Estate, Newton
Chambers Road, Chapeltown,
Sheffield S35 2PW
T: +44 (0)114 2455153

SHREWSBURY
2nd Floor, Hermes House, Oxon
Business Park, Shrewsbury SY3 5HJ
T: +44 (0)1743 239250

STAFFORD
8 Parker Court, Staffordshire Technology
Park, Beaconside, Stafford ST18 0WP
T: +44 (0)1785 241755

STIRLING
No. 68 Stirling Business Centre,
Wellgreen, Stirling FK8 2DZ
T: +44 (0)1786 239900

WORCESTER
Suite 5, Brindley Court, Gresley Road,
Shire Business Park, Worcester WR4
9FD
T: +44 (0)1905 751310

www.slrconsulting.com