

WHINNEY HILL LANDFILL

Environmental Permit Variation Application

Environmental Risk Assessment

Prepared for: SUEZ Recycling and Recovery

Lancashire Ltd

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1.0 Introduction

SLR Consulting Limited (SLR) has been instructed by SUEZ Recycling and Recovery Lancashire Limited (SUEZ) to prepare an Environmental Permit (EP) Variation Application to include a new Leachate Treatment Plant (LTP) and Methane Stripping Plant (MSP) at Whinney Hill Landfill under the Environmental Permitting (EP) (England and Wales) Regulations 2016.

1.1 Methodology

This Environmental Risk Assessment (ERA) is an assessment of the risks to the environment and to human health that may be associated with the proposed operations at the site.

The assessment has been completed in accordance with the Environment Agency (EA) Technical Guidance '*Risk Assessments for your Environment Permit*' (May 2018)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.

This ERA uses the following approach for identifying and assessing the risks from the proposed operation:

- Step 1** Identify risks and sources of risk from your activity.
- Step 2** Where risks are identified from Step 1 then identify the receptors that could be affected
- Step 3** Identify potential pathways between the sources of risk and receptors
- Step 4** Assess the risks and check that they are acceptable. Justify appropriate measures to control your risks, if necessary.
- Step 5** Submit your assessment.

The ERA for an EP variation application 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 ERA and given the nature of the landfill, a 2km radius from the site's EP boundary has been adopted in reviewing potentially sensitive receptors of ecological importance. A radius of 500m from the site's EP boundary has been adopted for all other potentially sensitive receptors (for example, residential, commercial, industrial, agricultural, surface water receptors and sites of cultural and natural heritage).

Section 2.0 of this document is a screening step to identify the risks requiring consideration as part of this assessment. Section 3.0 identifies people or parts of the environment that could be harmed (at potentially significant risk) by the activity. Section 4.0 of this document presents the assessment and demonstrates that any risks of pollution or harm will be mitigated to manage the risk.

This ERA should be read in conjunction with the Non-Technical Summary (Ref: 416.00079.10026/NTS) and the Best Available Techniques and Operating Techniques (Ref: 416.00079.10026/BATOT) submitted with this EP variation application.

¹ <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit>, accessed July 2021

2.0 Identifying the Risks

Step 1 is a screening step to identify the potential risks to the environment from the development. The following are generally considered to require assessment for bespoke operations:

- Amenity and Accidents;
- Site Waste;
- Global Warming Potential;
- Odour;
- Noise,
- Fugitive Emissions to Air, Water and Land; and
- Accidents.

There will be no point source emissions to groundwater, air, or land resulting from the proposed addition of the LTP and MSP and neither will there be any site waste arising or global warming potential.

There will be two point source emissions to surface water of clean surface water runoff. One at Chamber 1 and one at Chamber 3, as illustrated on Drawing 001 and Drawing 005. The discharge at both points is for clean runoff from the screening bund walls and the access road/upper area drainage.

The LTP will discharge treated effluent to sewer, under an existing trade effluent discharge consent, therefore an H1 Risk Assessment has been prepared in support of this EP variation application to assess the variance in effluent quality.

As a result of this EP variation application, the amenity and accidents, odour, noise and fugitive emissions (including dust, mud, litter and pests) have been assessed based on the proposed activities included within Section 4 of this ERA.

3.0 Site Setting and Receptors

3.1 Site Setting

Whinney Hill Landfill is located in Altham West, Lancashire approximately 360m south of Clayton Le Moors and 1.5km north of Accrington. The site is centred at National Grid Reference (NGR) SD 76096 30256 and the location of the site is illustrated on Drawing 003.

The site boundary is irregularly shaped, extending to both the north and south of Whinney Hill Road which provides access to the site. The land surrounding the site is of mixed usage with commercial/industrial premises, residential areas and areas of open ground and woodland within the area.

Immediately to the north east and south of the site lies open/agricultural land and areas of woodland. Two ponds also lie to the east, and one small pond lies to the south of the site. Leeds and Liverpool Canal runs to the north of the site, approximately 420m from the site's western boundary at its closest.

Various commercial/industrial premises are located in all directions from the site. Lancashire County Council's Altham Household Waste Recycling Centre (HWRC) shares an access road with the site and is situated to the north, of the site and south of Whinney Hill Road.

The closest residential properties to the site lie within Altham West and are located 15m from the site's south western boundary at their closest.

Enfield Cricket Ground is situated to the south west of the site and Accrington Cricket Club lies to the south east. To the south lies Accrington Stanley Football Club.

In terms of ecological designations, the site lies within close proximity of very few sensitive ecological receptors. Multiple areas of ancient woodland including Altham Clough Wood are situated within a 2km radius of the site boundary.

The surrounding land uses and local receptors within 500m are identified on Drawing 003, and the cultural and natural heritage within 2km is identified on Drawing 004. The layout and EP boundary is illustrated on Drawing 005. The layout of the LTP is illustrated on Drawing 001.

A summary of the site's immediate surrounding land uses is identified in Table 3-1 below.

Table 3-1
Surrounding Land Uses

Boundary	Description
North	Immediately to the north runs the M65 and a drain, followed by an area of open ground including a recreational ground and football ground. Following this lies Moorfield Industrial estate and the residential area of Clayton Le Moors. Leeds and Liverpool Canal is also located in this direction.
East	LCC's Altham Household Waste Recycling Centre lies to the east and shares an access road with the site. Beyond this is Huncoat business park and Altham Caravan Park.
South	Whinney Hill Road is immediately to the south followed by an area of woodland. The residential area of Altham West is located beyond this along with Accrington Stanley Football Club, and Accrington Cricket Club.
West	Various commercial industrial premises followed by residential properties and Enfield Cricket Club. Leeds and Liverpool Canal lies beyond this.

The immediate surrounding land uses are described in further detail below.

3.1.1 Residential Properties

Multiple residential properties are located within the vicinity of the site. The closest residential properties are located in Altham West, along Sherwood Way approximately 15m south of the site. The residential area of Clayton Le Moors lies approximately 130m to the north of the site and residential properties are also situated to the west along William Street, approximately 90m west of the site's boundary. Altham Caravan Park is located approximately 100m to the east.

3.1.2 Industrial and Commercial Premises

There are a number of industrial and commercial premises within 500m of the site's boundary. Lancashire County Council's Altham Household Waste Recycling Centre shares an access road with the site and is situated immediately to the north of the area of the site which is located to the south of Whinney Hill Road. To the west lies Greengates Builders Merchants and Surface Print adjacent to the site's western boundary at their closest. Moorfield Industrial Estate lies approximately 110m from the site's northern boundary and includes Silverwoods Waste Management, 1st Choice Car Spares and Altham Car Recyclers. Huncoat Business Park lies approximately 40m to the east of the southern area of site and includes CSM Steel Stock, Bensons for Beds Distribution Centre and Ewood Foods.

3.1.3 Local Transport Network

The M65 lies approximately 30m from the site's northern boundary. The site's southern boundary is adjacent to Whinney Hill Road. The A680 Whaley Road runs to the south west of the site approximately 110m from the western site boundary and joins the A678 Blackburn Road at a junction approximately 220m to the north west.

Local roads provide access to the various industrial/commercial premises and residential properties within the area as shown on Drawing 001.

3.1.4 Surface Water Features

On site ponds/lagoons associated with the landfill are located within the EP boundary.

The closest surface water feature to the site is a small pond situated approximately 20m from the site's eastern boundary. A second pond is located in this direction, approximately 100m from the site boundary. A small pond also lies approximately 30m from the site's southern boundary. Leeds and Liverpool Canal runs to the north and west of the site and is approximately 420m to the west of the site at its closest.

3.1.5 Areas of Woodland/Open Ground/Agricultural Land

Areas of Woodland/Open Ground/Agricultural Land are situated to the north, east and south of the site. An area of woodland lies immediately to the south of the site and open ground lies adjacent to the site's eastern boundary. Approximately 110m to the north of the site lies an area of open ground including a football ground and a recreation ground.

3.1.6 Recreational Areas

Accrington Cricket Club lies approximately 300m to the south east and Enfield Cricket Ground is situated approximately 330m south west of the site. Accrington Stanley Football Club is located approximately 320m to the south, along with a sports facility including a football pitch.

3.1.7 Allotment Gardens

Allotment gardens are situated approximately 140m south and 350m west of the site.

3.1.8 Educational Premises

Mount Pleasant Primary School is located approximately 260m from the site's north western boundary and an area of St Christopher's C Of E High School Academy lies approximately 410m to the south west of the site.

3.2 Geology

The British Geological Survey (BGS) map² reveals that the site is underlain with an area of bedrock comprised of Pennine Lower Coal Measures Formation and South Wales Lower Coal Measures Formation – Mudstone, Siltstone and Sandstone. This is indicative of a local environment previously dominated by swamps, estuaries and deltas.

There are no superficial deposits recorded for the area.

3.3 Hydrogeology

The bedrock underlying the site is classified as a 'Secondary A Aquifer' which is described 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".

The superficial deposits are classed as Unproductive on the Multi-Agency Information for the Countryside (MAGIC)³ website.

3.3.1 Source Protection Zones

The site does not lie within a Groundwater Source Protection Zone (SPZ).

3.4 Hydrology

The surface water features within 500m of the site's boundary are detailed in Section 3.1.5 above.

The Groundwater Vulnerability Layer on the MAGIC map reveals that the site lies within a low groundwater vulnerability area.

The majority of the site lies within a flood zone 1 which is described on the EA's flood map for planning⁴ as an area with a low probability of flooding.

3.5 Ecology

Searches on the MAGIC Website determined the ecological setting as shown in the following sections.

3.5.1 European/International Sites

Searches on the MAGIC website have not identified any of the following ecological receptors within 2km of the permit boundary:

- Area of Outstanding Natural beauty (AONB);
- Local Nature Reserve (LNR);
- Sites of Special Scientific Interest (SSSI);
- Special Area of Conservation (SAC);

² British Geological Survey, Available at www.bgs.co.uk, accessed July 2021.

³ Multi-Agency Information for the Countryside, Available at <http://www.magic.gov.uk>, accessed July 2021

⁴ Flood Map for Planning, <https://flood-map-for-planning.service.gov.uk/>, accessed July 2021

- Special Protection Area (SPA); and
- Ramsar Sites.

The following ecological receptors have been identified within 2km of the site's permit boundary.

3.5.2 Ancient Woodland

There are several areas of ancient woodland located within 2km of the site's boundary as shown below and on Drawing 002:

- Altham Clough Wood is an area of ancient and semi-natural woodland situated approximately 980m north east;
- An area of ancient and semi-natural woodland in Brownsills wood located approximately 1500m north;
- An area of ancient and semi-natural woodland in Wind Engine Clough which lies approximately 1680m north; and
- Two areas of ancient and semi-natural wood within Mill Wood which lie approximately 1700m west and 1600m west.

3.5.3 Local Wildlife Sites (LWS)

Multiple LWS are situated within 2km of the site as described below:

- Hyndburn Brook;
- Martholme Railway;
- Brownsills Wood;
- Wind Engine Clough;
- Altham Clough Wood;
- Norden Valley;
- Shaw Brook and Mill Wood;
- Leeds/Liverpool Canal Section, New Barn;
- Ringstonhalgh Farm Grassland;
- Foxhill Bank BHS within Foxhill Bank LNR;
- Blackburn to Colne Railway and West Accrington Recreation Corridor, Lonsdale Street to Crossland Street;
- Priestly Clough and East Lancashire Railway;
- Plantation Road;
- Peel Park Heathland;
- Hameldon Scout; and
- Castle Clough South and Childers Green.

3.5.4 Other Ecological Receptors

Searches on the MAGIC website have not identified any of the following ecological receptors within 2km of the permit boundary:

- National Nature Reserves;
- Ramsar Sites;
- Special Areas of Conservation (SAC);
- Special Protection Areas;
- National Forest; and
- National Parks.

3.6 Cultural and Heritage

3.6.1 Listed buildings

The review of MAGIC revealed that there are numerous listed buildings within 2km of the site's boundary as illustrated on Drawing 002. The closest of these is the Grade II listed Stable Block on East Side of Leeds-Liverpool Canal Opposite Canal Company Warehouse located approximately 390m west of the site. The closest grade II* Listed Building is Sparth Manor which is situated approximately 1070m north west.

The search on MAGIC confirmed that the following features do not lie within 2km of the site:

- Scheduled Monuments;
- World Heritage sites;
- Registered battlefields; and
- Registered Park and Gardens.

3.7 Identified Receptors

Table 3-1 and Drawings 002 and 003 identify the receptors which are considered to be potentially sensitive and could reasonably be affected by activities at the site.

Table 3-2
Identified Receptors

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary (in metres)
Environmental Site Setting within 500m of the EP boundary as shown on Drawing 003			
LCC's Altham Household Waste Recycling Centre	Industrial/Commercial	North of southern area of site	Adjacent
Whinney Hill Road	Local Transport Network	South	Adjacent
Woodland	Woodland/Open Ground/Agricultural Land	South	Adjacent
Open Ground	Woodland/Open Ground/Agricultural Land	East	Adjacent
Greengates Builders Merchants	Industrial/Commercial	West	Adjacent

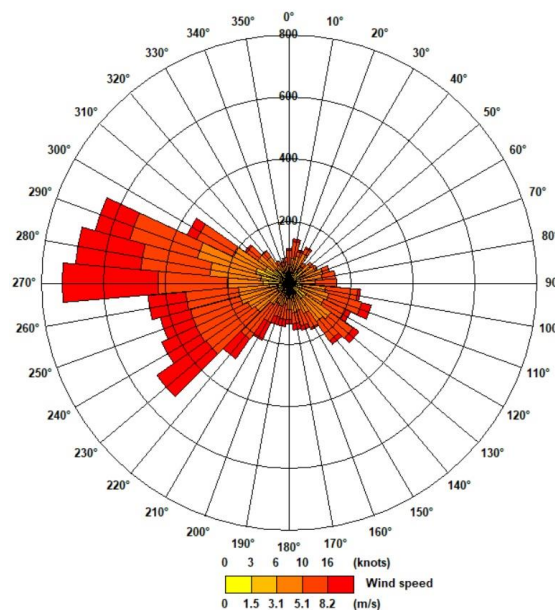
Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary (in metres)
Sherwood Way	Residential Properties	South	15m
Pond	Surface Water Feature	East	20m
M65	Local Transport Network	North	30m
Pond	Surface Water Feature	South	30m
Huncoat Business Park	Industrial/Commercial	East	40m
William Street	Residential Properties	West	90m
Pond	Surface Water Feature	East	100m
Altham Caravan Park	Caravan Park	East	100m
Moorfield Industrial Estate	Industrial/Commercial	North	110m
Open Ground	Woodland/Open Ground/Agricultural Land	North	110m
A680 Whaley Road	Local Transport Network	South west	110m
Clayton Le Moors	Residential	North	130m
Allotment Garden	Allotment Gardens	South	140m
A678 Blackburn Road	Local Transport Network	North west	220m
Mount Pleasant Primary School	Educational Premises	North west	260m
Accrington Cricket Club	Recreational Area	South east	300m
Accrington Stanley Football Club	Recreational Area	South	320m
Enfield Cricket Ground	Recreational Area	South west	330m
Allotment Garden	Allotment Garden	West	350m
St Christopher's C Of E High School Academy	Educational Premises	South west	410m
Leeds and Liverpool Canal	Surface Water Feature	North, West	420m
Ecological, Cultural and Natural Heritage receptors located within 2km of the EP boundary as shown on Drawing 004			
Stable Block on East Side of Leeds-Liverpool Canal Opposite Canal Company Warehouse	Grade II Listed Building	West	390m

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary (in metres)
Altham Clough Wood Ancient and Semi-Natural Woodland	Ancient Woodland	North east	980m
Sparth Manor	Grade II* Listed Building	North west	1070m
Ancient and Semi-Natural Woodland in Brownsills Wood	Ancient Woodland	North	1500m
Ancient and Semi-Natural Woodland in Mill Wood	Ancient Woodland	West	1600m
Ancient and Semi-Natural Woodland in Wind Engine Clough	Ancient Woodland	North	1680m
Ancient and Semi-Natural Woodland in Mill Wood	Ancient Woodland	West	1700m

3.8 Windrose

Figure 3-1 shows the wind patterns in 2019 as identified by the Elmley Moor meteorological station. The most prominent wind directions are from the west to the east. Winds from all other directions are relatively infrequent.

Figure 3-1
Elmley Moor Meteorological Station – 2019



4.0 Environmental Risk Assessment

The following tables in this section assess the site in terms of potential hazards posed, receptors and pathways, along with management and assessment of the identified risks.

As detailed in Section 2, only the risks associated with the leachate treatment plant will be assessed as part of this application.

The probability of exposure is the likelihood of the receptors being exposed to the hazard, and is defined as low, medium or high. These terms are qualified as follows;

- Low: exposure is unlikely, barriers in place to mitigate against exposure.
- Medium: exposure is fairly probable, barriers to exposure less controllable.
- High: exposure is probable, direct exposure likely with few barriers.

The methodology outlined in Section 1.1 of this report is the basis on which it is determined whether the proposed operations will lead to significant impacts on the surrounding environment. Where a conclusion of 'not significant' has been reached, it is proposed that the mitigation and management measures that will be in place at the site will be sufficient to ensure that there will be no impact at the surrounding environment.

Table 4-1 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
Operation of the: LTP and MSP	Receptors as identified in Table 3-1 including the M65, areas of woodland and open ground, residential properties along Sherwood Way and various commercial and industrial premises. See Drawing 001 and 002.	Air.	<p>The majority of the land surrounding the site is occupied by open/agricultural land and commercial/industrial premises. The closest residential receptors are situated approximately 15m to the south and are buffered by the B6231 and a small area of open/agricultural land.</p> <p>Whinney Hill is currently operated to a Odour Management and Monitoring Plan (EMS REF: WNHP2/11). The mitigation and management methods included within this plan will complement the operation of the LTP, in conjunction with the methods described below to minimise the potential impact of odour from the LTP.</p> <p>Both the LTP and the MSP have the potential to generate odorous emissions but are unlikely to do so.</p> <p>Overall, the nature of the process is considered to be of a low odour. In the context of the wider site, the removal at the source of methane from collected leachate has the potential to reduce odours from Whinney Hill Landfill.</p>	Low/Medium	Odour nuisance, loss of amenity.	Not significant – due to the abatement measures

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>Whilst odour production is considered unlikely, the site supervisor will remain alert to this potential nuisance and the following odour management techniques will be used on site to further minimise odour production:</p> <ul style="list-style-type: none"> • The leachate treatment is a closed and contained process reducing the risk of detectable odour off-site; • Leachate will be transferred to the leachate treatment plant through sealed pipework; • All tanks, including the raw leachate storage tank, will be lidded to prevent odours; • The leachate treatment plant will benefit from an outlet to an off-gas odour treatment system (carbon filter) for the most likely odorous activity (storage of untreated leachate in the raw leachate tank); • Leachate storage times will be kept to a minimum; 			

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"> Regular monitoring, cleaning and general good housekeeping will be undertaken on site; Operational areas, site haul roads and drainage channels will be cleaned regularly to minimise odour generation; To ensure a ‘good neighbour’ approach to local residents a telephone number will be provided and visible on the site board at the entrance to allow residents to contact SUEZ; The public will be informed should odour problems be anticipated, and they will be informed of progress remedial measures and timescales; Following the receipt of a complaint SUEZ would contact the complainant to provide feedback on actions taken to both assess the event and convey remedial actions. Following an odour complaint a trained member of staff will undertake odour monitoring, and, if an odour is encountered, the source of the odour will be investigated by site management. Investigations will include the likely source and cause of the 			

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>odour and a review of meteorological data; and</p> <ul style="list-style-type: none"> The site will be monitored for odours daily by site personnel throughout each shift. If odours are detected, investigations will be undertaken to determine the cause and appropriate remedial and corrective action taken as so as practicable. The presence or otherwise of any offensive odours will be recorded in the site diary and corrective action taken to overcome its source. <p>The Site Manager will be responsible for implementing risk management measures in conjunction with SUEZ’s Integrated Management System (IMS).</p>			

Table 4-2 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
Operation of the: LTP and MSP	Receptors as identified in Table 3-1 including the M65, areas of woodland and open ground, residential properties along Sherwood Way and various commercial and industrial premises. See Drawing 001 and 002.	Air.	<p>The LTP to be housed within a secondary containment bund constructed within an earth screening bund enclosed area to the south of the landfill site in a field in SUEZ's ownership on the opposite side to the landfill entrance on the Whinney Hill Road.</p> <p>Whinney Hill is currently operated to a Noise and Vibration Management Plan (EMS REF: WNHP2/15). The mitigation and management methods included within this plan will complement the operation of the LTP, in conjunction with the methods described below to minimise noise and vibration from the LTP.</p> <p>The site is located within an area dominated by open/agricultural land. The nearest residential receptor is located approximately 15m south of the site and is buffered by the B6231 road and a small area of open/agricultural land.</p> <p>The LTP and MSP are not anticipated to generate significant noise, however, the following operational measures will continue to be implemented on site to prevent, minimise and manage noise and vibration emissions from the plant:</p>	Low	Nuisance to local residential, commercial and industrial properties during delivery periods i.e. during the day.	Not significant – due the nature and location of the facility, and the Noise and Vibration Management Plan already operated to within the wider Whinney Hill landfill site.

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"> Proactive liaison with local receptors as well as recording of complaints in compliance with the IMS, with reactive action taken; Training of all appropriate installation personnel; Noise sensitive engineering works; All vehicles, plant and machinery will be fitted with effective exhaust silencers. White noise from the plant will be minimised where possible and all parts of vehicles, plant and machinery are maintained in good repair; Noise suppression equipment (if required); Selection of noise sensitive plant and equipment; Siting of plant and equipment in relation to sensitive receptors; Maintenance of plant and equipment; The LTP is located within an area that benefits from an earth screening bund to the south, which will limit noise emissions, however if noise become an issue, further bund construction will be reviewed; 			

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"> Designated vehicle routes away from sensitive receptors where possible; and Regular road maintenance. <p>The Site Manager will be responsible for implementing risk management measures in conjunction with SUEZ's IMS.</p>			

Table 4-3 Fugitive 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:						
Operation of the: LTP and MSP	Receptors as identified in Table 3-1 including the M65, areas of woodland and open ground, residential properties along Sherwood Way and various commercial and industrial premises. See Drawing 001 and 002.	Air.	Both the LTP and MSP are wet processes which will result in no dust emissions. There will be no dust emissions from the operation of the LTP and MSP. A speed limit will continue to be implemented on site to minimise the mobilisation of dust particles. All vehicles will continue to be subject to a programme of planned preventative maintenance and will be maintained in accordance with the manufacturer’s recommendations. The Site Manager will continue to be responsible for implementing risk management measures in conjunction with SUEZ’s IMS.	Very low	Nuisance and health risk to site visitors, residential, industrial/ commercial receptors.	Not significant – due to the type of process proposed (wet).
To 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
Run-off from the LTP and MSP	Surface water and groundwater.	Land and surface water	<p>The existing Trade Effluent Discharge Consent will be used to discharge treated leachate to sewer. SUEZ anticipates that the leachate treated at the LTP will meet the limits already defined in this discharge consent, and so therefore it will not require amendment due to the changes proposed in this EP variation application.</p> <p>The LTP is provided with suitably robust primary and secondary containment in compliance with current best practice guidance and as such should not emit contaminants to groundwater. To ensure the integrity of these systems the LTP will undergo weekly visual inspection to identify cracks or damage to both primary and secondary containment systems. Damage affecting the containment integrity of the pad will be repaired (including a temporary repair awaiting permanent fix) immediately.</p> <p>Any storage tanks on the site will be bunded and the bunding will be sufficient to accommodate 110% of the volume of the largest storage tank that it contains (or 25% of the total tanked storage, whichever volume is greater). Bunded areas will be kept free of</p>	Low - Medium	Contamination of surrounding surface water, land 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>accumulation of liquid and storage of materials and equipment not accounted for in the bund volume calculation will be prohibited. These banded areas will be checked regularly by competent persons for integrity.</p> <p>A dedicated daily inspection will take place, in addition to continuous monitoring from site personnel working at the leachate treatment plant. Any spillages that may occur during the working day will be identified quickly and cleaned up immediately using a spill kit.</p> <p>Pipework Integrity – pipework will be inspected daily for integrity. The pipework that crosses under Whinney Hill Road is provided with sleeves that are sealed to the pipeline. The pipework within the sleeves will be continuous lengths without any joints to minimise the risk of any leakage. It will also be installed with inspection points so that the presence of any leaked leachate can be observed. Any defects identified as part of the inspection will be repaired immediately with a temporary solution and afforded a permanent solution within a maximum of 5 working days. In the event that a satisfactory repair cannot</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>be made and there is an opportunity for unabated emissions off site, activities will be stopped until a repair can be made.</p> <p>Plant and Equipment Failure – the plant and equipment on site will be operated safely and in accordance with the manufacturer’s manual. Furthermore, they will benefit from a scheme of preventative maintenance. In the event of plant and equipment failure, all leachate treatment plant activities will cease. Repairs will be made immediately with a temporary solution and afforded a permanent solution within a maximum of 5 working days. In the event that a satisfactory repair cannot be made and there is an opportunity for unabated emissions off site, activities will be stopped until a repair can be made, or new piece of equipment can be sourced.</p> <p>Further information relating to the containment of the LTP is included in the Best Available Techniques and Operating Techniques report included within this EP variation application (Ref: 416.00079.10026/BATOT) and should be read in conjunction with this ERA.</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
			The Site Manager will be responsible for implementing risk management measures in conjunction with SUEZ's IMS.			
Pests, Vermin and Insects						
Operation of the LTP and MSP	Receptors as identified in Table 3-1 including the M65, areas of woodland and open ground, residential properties along Sherwood Way and various commercial and industrial premises. See Drawing 001 and 002.	Land and Air.	The addition of the LTP and MSP will not encourage the infestation of pests, vermin and insects due to the type of operation undertaken. No biodegradable waste is stored or treated at the facility. The Site Manager will be responsible for implementing risk management measures in conjunction with SUEZ's IMS.	Low	Nuisance and loss of amenity and harm to human health.	Not significant.
Mud/Litter						
Vehicle movements Engineering works (relating to the operation of the LTP and MSP)	Receptors as identified in Table 3-1 including the M65, areas of woodland and open ground, residential properties along Sherwood Way and various commercial and industrial premises.	Tracked by vehicles arriving and leaving the site.	It is very unlikely that the operation of the LTP and MSP will create mud and encourage the escape of litter. However, the following operational measures will continue to be employed on site to manage the release of dirt, mud and litter: <ul style="list-style-type: none">All access roads will be hard surfaced;	Low	Road safety and litter 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
	See Drawings 001 and 002.		<ul style="list-style-type: none"> All vehicle will be driven through the wheel wash facility before exiting the facility; and Routine road sweeping will be undertaken. <p>It will be the responsibility of the Site Manager to ensure that nuisances and hazards arising from the operations undertaken at the site due to the release of dirt and mud are minimised. The Site Manager will ensure that daily inspections are made of any access roads and the highway outside the entrance to the facility.</p> <p>The Site Manager will be responsible for implementing risk management measures in conjunction with SUEZ's IMS.</p>			

Table 4-4 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
Spillage and Leakage – associated with the LTP and MSP	Local land quality, surface water and groundwater.	Runoff and percolation through ground	Tanks used for the storage of fuel and maintenance oil, will be constructed so that any leaks/spillages will be contained.	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
			The LTP will be provided with containment in the form of a tanker loading bay area with its own kerbed edge set into the upper area to be constructed in dense asphaltic concrete (DAC) designed to collect any spills from tanker loading or unloading and drain these immediately to the lower bunded area. The lower area will be constructed as a full containment bund constructed from DAC, suitably sized to provide a minimum of 110% of the largest storage tank held within it (this being greater than 25% of the total volume stored in the lower area). The leachate treatment plant bund will include four bund sumps to pump all bund content (rainfall or spills) to the leachate treatment plant for treatment as leachate. Run-in to the bund from rainfall is prevented by external drainage that falls to a chamber complete with penstock valve located on the southeast perimeter of the bunded area where back-wall drainage can be sampled and released to surface water discharge systems.			

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>All 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>Bunds will benefit from a high-water alarm which will alert an operator to an issue so that physical checks can be made.</p> <p>The chemical loading and dosing facility will be located on a contained surface that the tanker sits on during delivery and drains to the fully contained lower area. Should a spill occur, or the safety shower need to be deployed, any potentially contaminated liquid will run to the fully bunded lower area.</p> <p>IBCs will be fitted with a heated insulation jacket and will be separately bunded.</p> <p>Storage tanks will be constructed to the appropriate British Standard.</p> <p>Tanks will be fitted with overflow pipes and high-level detection alarms.</p> <p>All infrastructure used in the leachate treatment plant including vessels, pipes, tanks and connections will be resistant to the materials used and stored on the site.</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>The LTP and all of its components will benefit from ongoing daily and dedicated weekly inspections to ensure that all equipment is in good working order. Any detects will be repaired immediately with a temporary solution, and a permanent solution will be implemented within 7 days.</p> <p>Tanks will be inspected visually on a daily basis by the site staff to ensure the continued integrity of the tanks and to identify the requirement for any remedial action.</p> <p>Minor spillages will be cleaned up 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.</p> <p>The site staff will undertake daily monitoring for evidence of spillage and leakage. Alongside regular visual inspections, the leachate treatment plant will be installed with multiple level control systems to prevent overtopping.</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
			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 the unsurfaced ground. The spillage will be cleared immediately and placed in containers for off-site disposal and the EA will be notified. The Site Manager will be responsible for implementing risk management measures in conjunction with SUEZ's IMS.			
Fire associate with the addition of a LTP and MSP	Receptors as identified in Table 3-1 including the M65, areas of woodland and open ground, residential properties along Sherwood Way and various commercial and industrial premises. See Drawing 001 and 002.	Air transport of smoke, spillages and contaminated firewater by direct run off from site and via surface water drains.	Leachate does not pose a fire risk and does not burn. However, the site will continue to implement fire prevention measures. All employees will undergo training relevant to their role in fire prevention, use of fire extinguishers, and emergency procedures. Smoking will only be permitted at designated areas and specifically not at the operational areas on the installation. Where appropriate, plant will be fitted with automated fire protection equipment.	Low.	Harm and nuisance to local population, emergency services and site staff.	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>Fire detection, alarms and firefighting equipment (manual fire extinguishers) will be supplied for the control room/laboratory.</p> <p>All operatives will remain vigilant regarding the breakout of fire at the site, and the emergency procedure and action plan outlined below are followed if fire is observed.</p> <p>The Site Manager will be responsible for implementing risk management measures in conjunction with SUEZ's IMS.</p>			
Vandalism/unauthorised access causing loss of containment or fire.	Harm to Human Receptors, Ecological Receptors, Commercial/industrial receptors, Land and Water.	Land, air.	<p>Security on site includes:</p> <ul style="list-style-type: none"> • 2.2m security fencing along the site boundary with a gated entrance which will be locked if appropriate • External compound lighting; • CCTV security cameras; • Inspection and maintenance procedures; and • A visitor sign in system. <p>Security infrastructure will be inspected daily at the start of each shift by the operations staff</p>	Low.	Theft, Plant failure, 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>to identify deterioration and damage and the need for any repairs.</p> <p>If 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 in conjunction with SUEZ’s IMS.</p>			
Flooding	Surface water, soils and groundwater.	Flood waters over land.	<p>The majority of the site lies within a flood zone 1 which is described on the EA’s flood map for planning⁵ as an area with a low probability of flooding.</p> <p>The Site Manager will be responsible for implementing risk management measures in conjunction with SUEZ’s IMS.</p>	Low.	Contaminated flood waters may contaminate buildings and land.	Not significant.

⁵ <https://flood-map-for-planning.service.gov.uk/> (accessed July 2021)

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
	Receptors as identified in Table 3-1 including the M65, areas of woodland and open ground, residential properties along Sherwood Way and various commercial and industrial premises.. See Drawing 001 and 002.					

5.0 Conclusion

This ERA has been undertaken as described by regulatory guidance issued by the EA¹. The assessment is provided as part of the application for an EP variation application for Whinney Hill Landfill.

This qualitative risk assessment has considered odour, 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.

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