Environmental and Climate Change Risk Assessment

Home Farm Grange

November 2025

Project No.: SOL_25_P007_ENG

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Author	Rhys Morgan
Client Name	Engie Renewable Gases UK Ltd

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Environmental and Climate Change Risk Assessment

Home Farm Grange



Rhys Morgan
Environmental Consultant



Emily Hingston
Client & Project Manager

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1. INTRODUCTION

As part of an application for an environmental permit, operators must assess the risk to the environment and human health from the activities they seek to permit. There is also a requirement to consider the affects a changing climate may have on the environment and human health in relation to their activities.

This Environmental and Climate Change Risk Assessment has been undertaken in accordance with the online Environment Agency Guidance for undertaking environmental risk assessments, and sector-specific climate change risk assessments.

Environmental risks relevant to the site activities are:

- Points source emissions to air, water and land/ground;
- Noise;
- Odour;
- Bioaerosols;
- Dust;
- Fugitive VOC Emissions;
- Litter;
- Pests;
- Vandalism;
- Fire;
- Incompatible Feedstock and;
- Spillages and Leakages.

For each of the above environmental criteria the approach to the assessment has followed the following four stage process:

- Identify the risks;
- Assess the risks (assuming those control measures proposed are in place);
- Choose appropriate further measures to control these (if required); and
- Present the assessment.

Climate change hazards relevant to the site activities are:

- Increased Summer Temperatures;
- Decreased Summer Rainfall;
- Increased/Decreased Winter Temperature;
- Increased Winter Rainfall;
- Increased likelihood of storms; and
- Wildfires.

For each of the above environmental criteria the approach to the assessment has followed the following four stage process:

- Identify the hazards.
- Identify the risks.
- Evaluate the vulnerability of the site to the risk.
- Outline appropriate risk management and adaption measures to control these (if required); and
- Present the assessment.

2. SITE DETAILS

2.1 Site Location

The proposed site is located at Land East of A162, Low Farm, South Milford, Sherburn in Elmet, LS25 6FW.

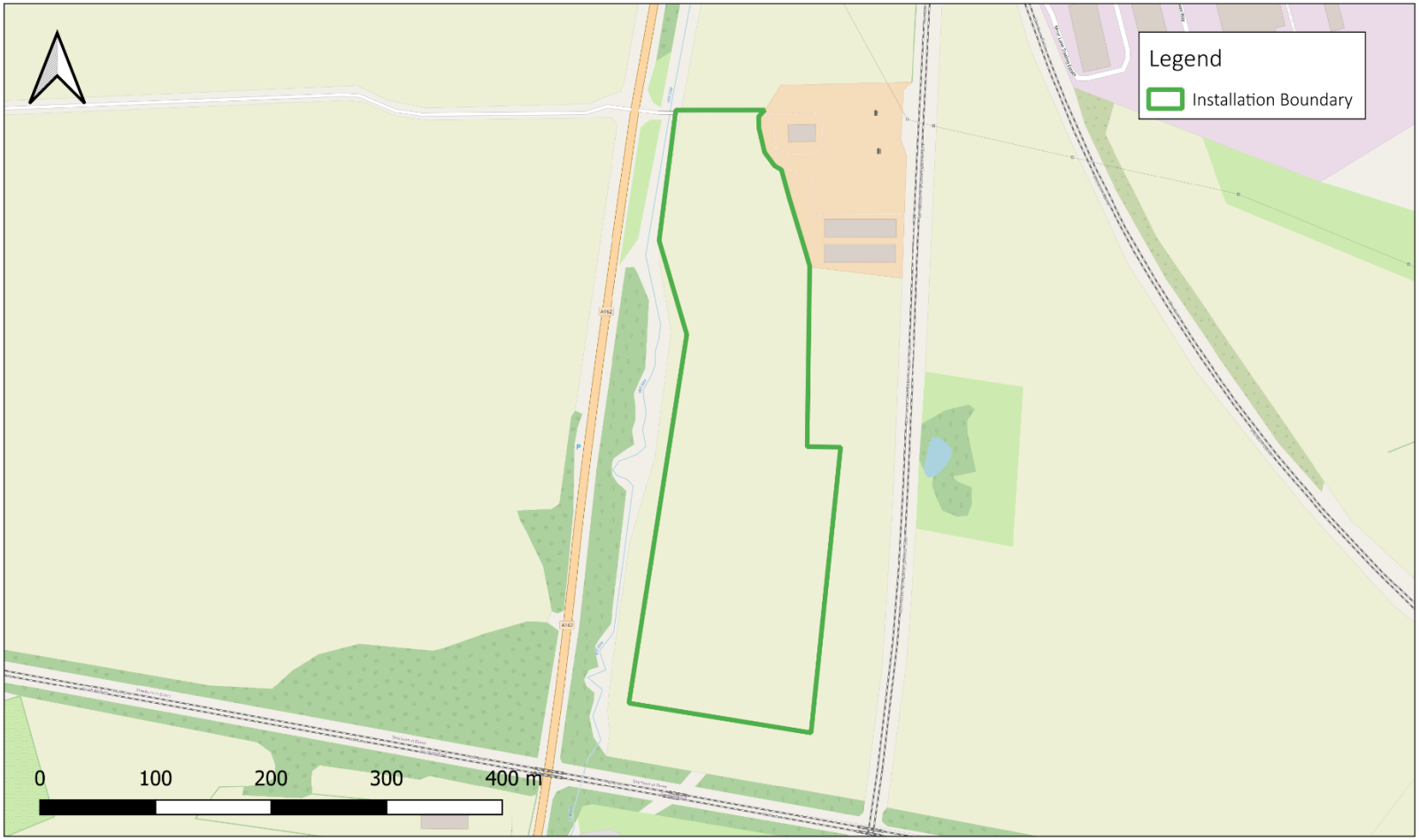
The National Grid Reference for the centre of the proposed site is SE 50420 32210.

2.2 Site Description

Engie's proposed AD plant will accept up to 100,000 tonnes per annum of feedstock including manures and slurries, maize, silage, whole crop rye, vegetable waste and potato rejects from Home Farm and other local farms. Biogas produced by the AD plant will be upgraded and exported to the grid, and the digestate, which will meet PAS 110 accreditation, will be used for agricultural land improvement.

The site will comprise of the following key infrastructure, as well as a collection of ancillary infrastructure:

- Silage Clamps;
- Feedstock Reception Building;
- Feeders;
- Liquid Feed Tanks;
- 1 x Digestion Tank;
- 2 x Post Digesters;
- Biogas Upgrading Plant;
- 2 x Natural Gas Gensets;
- Digestate Lagoon;
- Grid Connection infrastructure;
- CO2 Building;
- Separator Building;
- Bund (4m in height surrounding tank area).



Project Number: SOL_25_P007_ENG Doc Ref: Annex B - Site Plans Map Title: Installation Boundary Date: 26/03/2025 Drawn by: RM Checked by: EH	Site Address: Land East of A162, Halstow Energy AD Facility Low Farm South Milford Sherburn in Elmet LS25 6FW	1. Do not scale off this drawing 2. All dimensions to be confirmed on site 3. This drawing is copyright of Sol Environment Ltd 4. This drawing is to be read in conjunction with relevant consultant drawings and specifications 5. QMS Reference: QMS_7.5.39_TEM - Template - GIS Drawing - Horizontal v1

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a: Unit 5.3 The Paintworks, Bath Road, Bristol, BS4 3EH
w: www.sol-environment.co.uk
e: enquiries@sol-environment.co.uk
t: 01684 572727

Figure 2.1 - Site Location

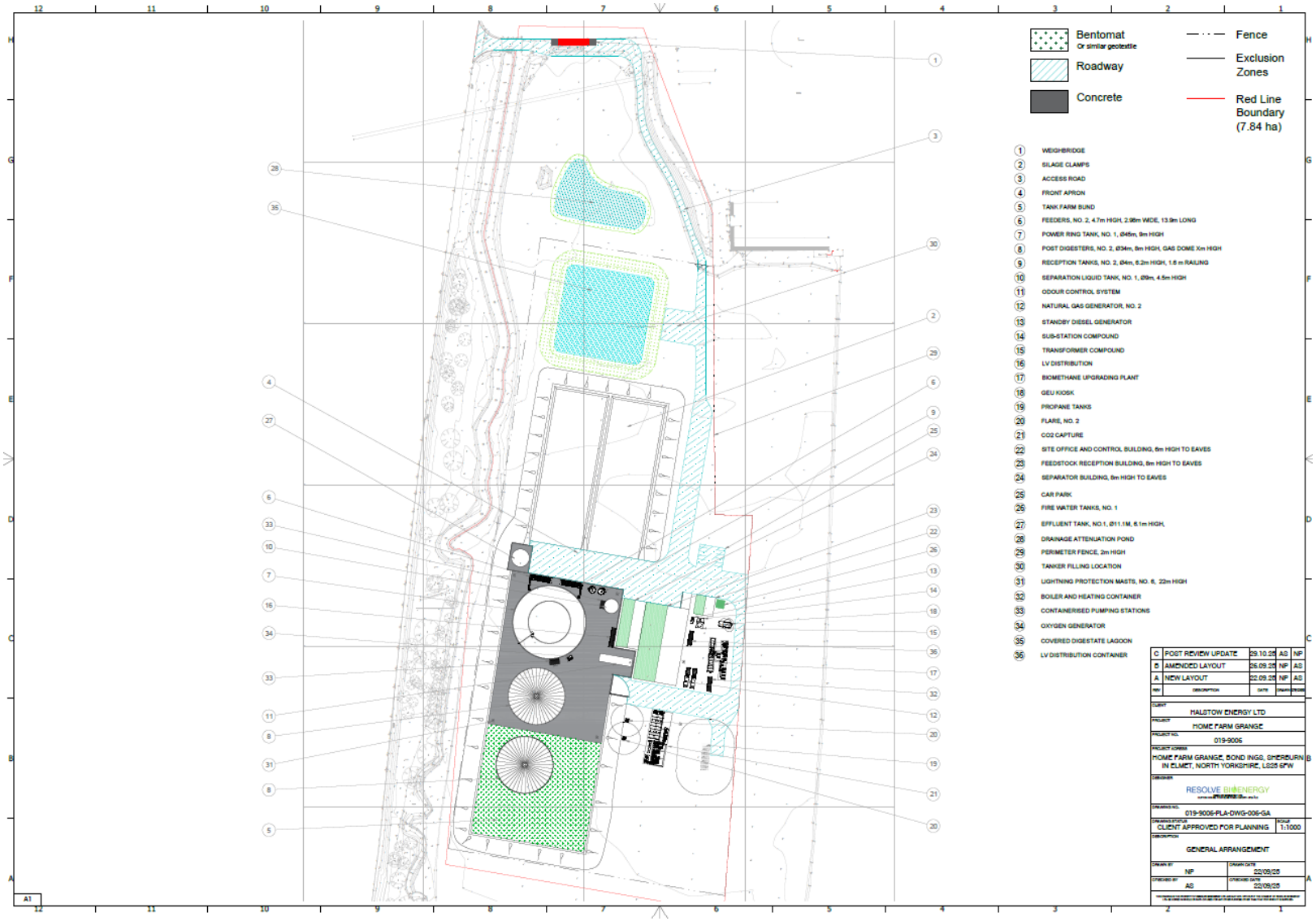


Figure 2.2 Installation Layout Plan

2.3 Site Context

The following sections outline the site context, surrounding site setting and any nearby sensitive receptors.

2.3.1 Site Setting

The site is located in a mixed-use landscape, comprising of a blend of industrial, commercial (including agriculture), residential and recreational assets, as well as prominent ecological features. Table 2-1 outlines the surrounding site setting in greater detail, including features in the immediate vicinity, within 500m and beyond 500m of the proposed site.

Table 2.1 - Site Setting

Direction	Description
North	Immediate Vicinity: Agricultural Land, Low Farm Energy AD Plant Within 500m: Agricultural Land, Bypass Park Estate, Commercial Units including YDL Distribution, David Wattson Transport, and Bishop's Move York Beyond 500m: Agricultural Land, Residential housing and local amenities in Sherburn in Elmet, A162 Road, Surface Water Lagoon, commercial units including The Great Bear, Esterform Packaging, and Sherburn Motor Spares
East	Immediate Vicinity: Agricultural Land, small woodland block Within 500m: Agricultural Land, Railway Line Beyond 500m: Agricultural Land, Sherburn in Elmet Airfield Airport (EGCJ), Breeze Aviation Services Ltd, Gascoigne Wood Power Plant
South	Immediate Vicinity: Agricultural Land, Railway Line Within 500m: Agricultural Land, Maltings Tea Rooms, Floosie Brow Artist, Woodhaven Boarding Kennels and Cattery Beyond 500m: Amur AD Plant, The Maltings Organic Treatment, Residential Housing and local amenities in South Milford, Agricultural Land, Railway Line
West	Immediate Vicinity: Mill Dike Within 500m: A162 road, Agricultural Land, small woodland Beyond 500m: Residential housing on Milford Road, Tadcaster Timber Products, Agricultural Land, South Milford railway station, YWT Sherburn Willows Nature Reserve,

2.3.2 Nearby Sensitive Receptors

The nearest residential areas to the site are on Mill Lane, located approximately 150m south of the site boundary. Table 2.2 details the identified human receptors relevant to the site:

There are two designated ecological receptors within the appropriate screening distance to the site. Sherburn Willows SSSI, located approximately 1.5km west of the site. Ash Tree Dike and Ponds Local Wildlife Site is located approximately 50m west of the site. There are no European-level protected sites within 10km of the site. Mill Dike, a small watercourse, runs adjacent to the site to the west.

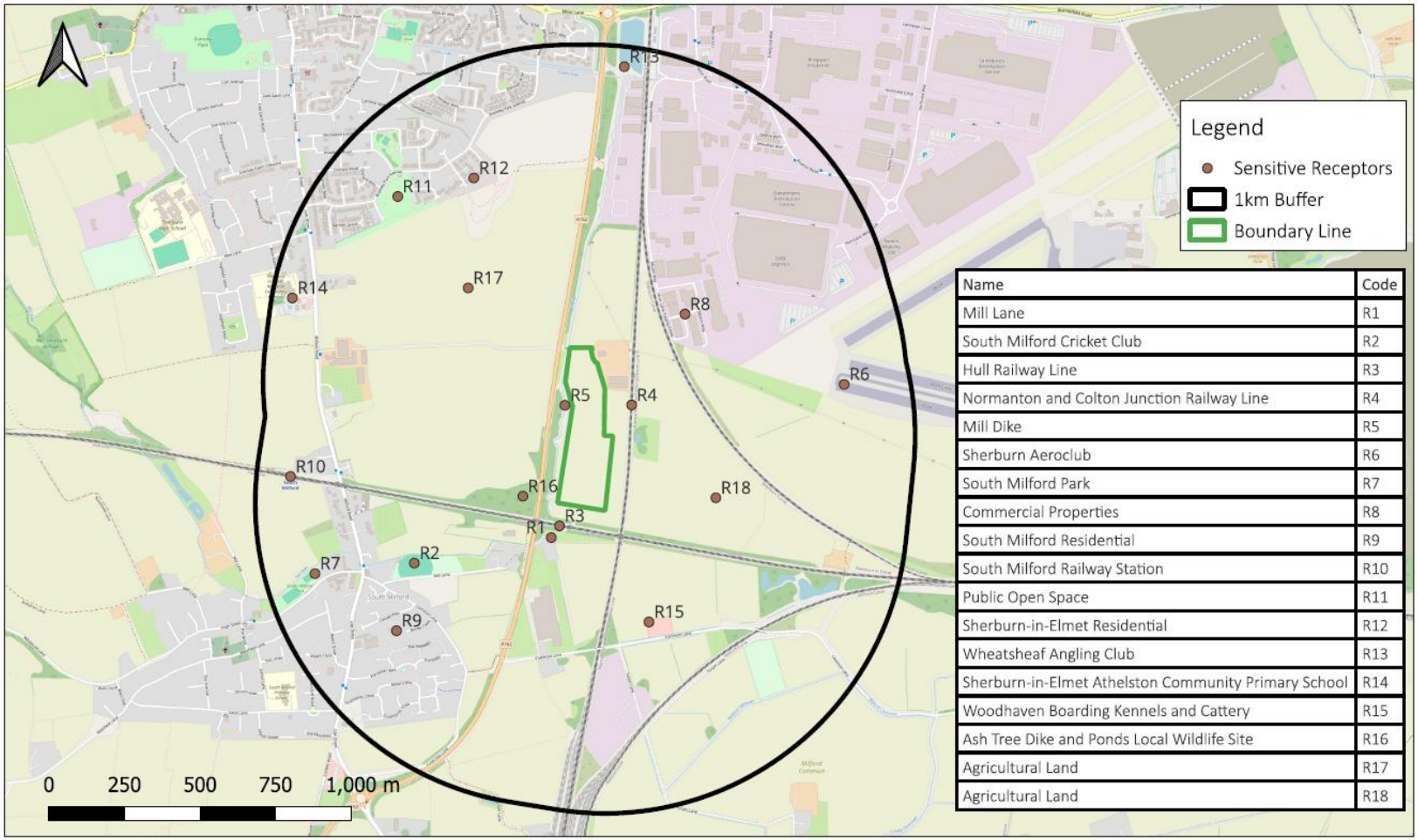
Table 2.2 - Human Receptors

Receptor Name	Distance from Site
Mill Lane	150m S
Maltings Tea Room	330m S
Milford Plants	330m S
Residential properties (Common Lane)	530m S

South Milford (residential housing)	550m SW
South Milford Cricket Club	410m SW
South Milford Football Club	430m SW
South Milford Home Farm	650m W
Residential housing – Milford Road	870m NW
Public open space	770m NW
Bypass Park Estate	430m N
Wheatsheaf Angling Club	940m N
Commercial and Industrial Estate	300m-1.72km NE
Sherburn Aeroclub	890m E
Woodhaven Boarding Kennels and Cattery	500m SE

Figure 2.3 shows the sensitive receptors identified in relation to the site.

Due to the proximity of the site to human and ecological receptors, the site could be considered to be moderately sensitive in relation to potential emissions, such as odour and noise. However, numerous operational measures for the control and mitigation of emissions have been applied to site to ensure that all potential releases are prevented, therefore reducing this risk.



Name	Code
Mill Lane	R1
South Milford Cricket Club	R2
Hull Railway Line	R3
Normanton and Colton Junction Railway Line	R4
Mill Dike	R5
Sherburn Aeroclub	R6
South Milford Park	R7
Commercial Properties	R8
South Milford Residential	R9
South Milford Railway Station	R10
Public Open Space	R11
Sherburn-in-Elmet Residential	R12
Wheatsheaf Angling Club	R13
Sherburn-in-Elmet Athelston Community Primary School	R14
Woodhaven Boarding Kennels and Cattery	R15
Ash Tree Dike and Ponds Local Wildlife Site	R16
Agricultural Land	R17
Agricultural Land	R18

Project Number: SOL_25_P007_ENG Doc Ref: Annex A - Site Plans Map Title: Sensitive Receptors (Home Farm Grange) Date: 03/04/2025 Drawn by: RM Checked by: EH	Site Address: Land East of A162, Halstow Energy AD Facility Low Farm South Milford Sherburn in Elmet LS25 6FW	1. Do not scale off this drawing 2. All dimensions to be confirmed on site 3. This drawing is copyright of Sol Environment Ltd 4. This drawing is to be read in conjunction with relevant consultant drawings and specifications 5. QMS Reference: QMS_7.5.39_TEM - Template - GIS Drawing - Horizontal v1

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Figure 2.3 - Sensitive Receptors

2.3.3 Wind Direction

The estimated wind direction for the proposed site comes from a predominantly westerly direction, based on historic wind direction recordings taken from the former RAF Church Fenton located approximately 5.40 km northeast of the site.

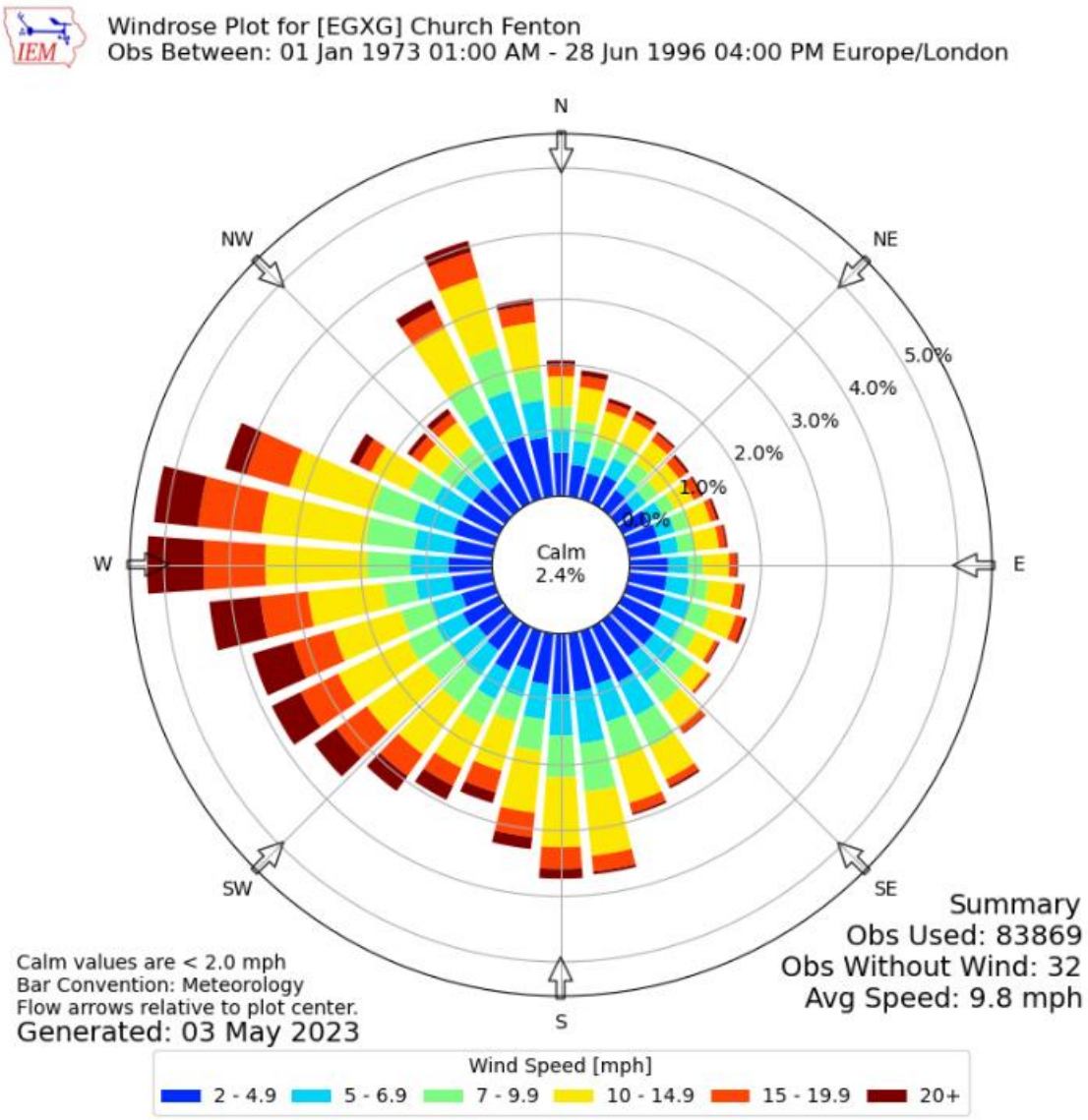


Figure 2.4 - Wind Rose for former RAF Church Fenton

2.3.4 Flood Risk

The site is situated within Flood Zone 1, meaning the site has a low probability of flooding from rivers, as illustrated in **Figure 2.5.** Flood risk increases to medium between the years 2036 and 2069. This has been accounted for in the site's Environmental and Climate Change Risk Assessment.

According to the EA, the site has a very low risk of flooding from surface water, and groundwater and reservoir flooding has been unlikely.



Figure 2.5 - Flood Risk Map (Rivers and the Sea)

ENVIRONMENTAL AND CLIMATE CHANGE RISK ASSESSMENT

3. ENVIRONMENTAL AND CLIMATE CHANGE RISK ASSESSMENT

3.1 Environmental Risk Assessment

Hazard	Receptor	Pathway	Probability of Exposure	Risk Management Techniques	Consequence	Overall Risk (following Mitigation)
Point Source \ Releases to Air	Atmosphere	Airborne	Moderate potential offsite receptor impacts	▪ There are 8-point source emissions to air onsite. These comprise 2 x natural gas gensets, 1 x emergency diesel generator, 1 x odour abatement stack, 1 x BUP unit and 2 x emergency flares. ▪ Full air quality and odour impact assessments have been completed to the relevant standards. In both assessments, the impact on nearby receptors (including human and ecological receptors) has been determined as not significant. ▪ All waste accepted on site is subject to rigorous waste acceptance. Waste acceptance procedures, including pre-acceptance, are designed to minimise impact on the environment, and following any and all BAT and appropriate measures relevant for the site. ▪ The waste reception building is fitted with an odour control unit, that eliminates odour and ammonia before release from the 14m high stack. ▪ The site's onsite biogas boiler will combust clean and conditioned gas only. The raw gas treatment unit will remove carbon dioxide, hydrogen sulphide and particulates using adsorption measures, activated carbon and particulate filters. ▪ The site will be constructed in-line with the BAT requirements and will meet all emission limits stated in the relevant guidance. ▪ Monitoring will be undertaken at the frequency and methodologies stated in the permit. ▪ The site is not located within an AQMA.	Air Pollution	LOW due to the proposed processes and mitigation on site

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Emissions to Water	Groundwater / Geology / Surface Water	Waterborne	Low: all runoff is controlled on site; therefore, the probability of exposure is low.	▪ There are no process emissions to controlled waters. ▪ Surface water collected from the non-process area of site will have a very low risk of contamination as there are no storage tanks, pipe work or digestors present. ▪ Surface water from the non-process area will be collected within a detention basin and discharged to Mill Dike at a restricted greenfield rate and will be clean and uncontaminated. ▪ Surface water from the process area will be directed to an attenuation tank through a network of perforate pipes beneath the gravelled area. Water will be discharged to Mill Dike following testing. ▪ A penstock valve will seal the system in the event of contamination to prevent pollution being discharged to the watercourse. ▪ Any surface water not suitable for release at W1 is collected and returned to the digestion process. ▪ The digestate lagoon is fully lined, covered, sealed and managed with an appropriate freeboard and leak detection to ensure no release from this digestate storage lagoon. ▪ Domestic wastewater is treated at the onsite package treatment plant and will be discharged to surface water under consent. ▪ A sealed drainage and containment system for all tanks containing potentially polluting liquids has been constructed so that any leaks / spills are contained. ▪ Tanks are inspected visually on a daily basis by site staff to ensure continued integrity of tanks and identify any necessary remedial action. ▪ Spill kits are strategically located around site. ▪ Minor spills are cleaned up immediately, using spill kits. Resultant materials to be placed in container for off-site disposal to appropriate facility, if necessary. ▪ Immediate action to be taken in event of any major spills. Spillage to be cleared immediately and placed in containers for offsite disposal. EA to be informed ▪ Bunding will be located on the western, eastern and southern boundary to prevent potentially contaminated runoff entering Mill Dike.	Contamination	VERY LOW due to the proposed management techniques and drainage arrangements

				▪ Containment is in accordance with CIRIA 736 and proportionate to risk.		
Emissions to Land	Groundwater / Geology	Spills / Leaks	Low: spills / leaks could potentially contaminate the ground / groundwater underneath the site.	▪ There are no emissions to land arising from the facility. ▪ All site infrastructure has been constructed in line with the relevant standards. ▪ All storage of solid feedstock is upon hardstanding in appropriately constructed containment (SSAFFO compliant storage clamps). ▪ Storage of liquid digestate is in an engineered lined, covered and managed lagoon and will not be released or allowed to escape to land. ▪ Surface water will be managed in accordance with the above description (See *Emissions to Water*). ▪ Spill kits will be strategically located around site. ▪ Minor spills to be cleaned up immediately, using spill kits. Resultant materials to be placed in container for off-site disposal to appropriate facility, if necessary. ▪ Immediate action to be taken in event of any major spills. Spillage to be cleared immediately and placed in containers for offsite disposal. EA to be informed ▪ Some areas of site contain landscaped areas. These areas are strategically located to allow a portion of the clean, uncontaminated water generated on site to soak away to ground.	Contamination	LOW due to the proposed risk management techniques
Noise	Local Residents	Airborne	Low: due to the nature of the activities	▪ A full Environmental Noise Assessment has been completed in accordance with BS 4142:2014. The assessment concludes that the site will have no significant impact on surrounding receptors. ▪ Vehicle operations will only take place during daytime, between the hours of 07:00 and 19:00. For up to 30 days per year, vehicle operation hours may be extended to 21:00. ▪ Appropriate preventative maintenance will be provided for the various elements of the installation. This will ensure no deterioration of plant or equipment that would give rise to increases in noise. ▪ The site has been designed in accordance with best practice and to ensure that internal noise does not present an issue to the employees at the site under the	Nuisance	LOW due to the proposed risk management techniques

ENVIRONMENTAL AND CLIMATE CHANGE RISK ASSESSMENT

				Control of Noise at Work Regulations and to ensure that noise breakout does not lead to noise nuisance at the identified sensitive receptors. ▪ The facility will not give rise to reasonable cause for annoyance. In the unlikely event that complaints are received measures described in the integrated management system will be put in place.		
Odour	Local Residents	Airborne	Moderate: the occurrence of odour emissions from the site is possible due to the nature of feedstocks	▪ Full air quality and odour impact assessments have been completed to the relevant standards. In both assessments, the impact on nearby receptors (including human and ecological receptors) has been determined to be not significant. ▪ The site is managed in accordance with an Odour Management Plan, implementing a hierarchy of odour control measures. ▪ Daily odour monitoring is carried out as part of daily checks. ▪ Under normal circumstances the main permitted process (anaerobic digestion) takes place in an oxygen depleted environment and is an enclosed system, thereby minimising potential for odour release. ▪ The feedstock reception building & separator building is fitted with an odour control unit, that eliminates odour and ammonia before release from the 14m high stack. ▪ Liquid slurry is delivered in sealed tankers and pumped straight into the sites sealed system for input to the digester. ▪ Spillages during waste delivery or digestate export are immediately cleared by trained site staff and the area appropriately washed down. ▪ All external storage of feedstock is covered, with delivery and transfer times minimised to prevent exposure of the face for extended periods. ▪ The OMP includes a complaints procedure.	Nuisance	LOW due to the proposed risk management techniques
Bioaerosols	Local Residents	Airborne	Moderate: Due to the nature of feedstocks, bioaerosols	▪ The closest residential receptor is 150m south of the site boundary. As such a bioaerosol risk assessment has been undertaken. ▪ A number of control measures have been implemented onsite to minimise bioaerosol emission.	Air Pollution	LOW due to the proposed processes and mitigation on site

ENVIRONMENTAL AND CLIMATE CHANGE RISK ASSESSMENT

			emissions from site are possible	▪ Solid waste feedstocks are stored within an enclosed Feedstock Reception Building, with roller shutter doors and an extraction and abatement system and as such is kept under slight negative pressure. Liquid waste feedstocks are stored within reception tanks. ▪ All external storage of feedstock is covered, with delivery and transfer times minimised to prevent exposure of the face for extended periods. ▪ Bioaerosol monitoring is carried out bi-annually.		
Fugitive VOC & Emissions	Local Residents	Airborne	Moderate: Pipework leaks and PVRVs are potential fugitive emission sources.	▪ The site will have in place a Leak Detection and Repair Plan (LDAR) which incorporates all requirements of the guidance. ▪ Monitoring will take place at least annually to detect any leakages with immediate repair undertaken upon detection. ▪ The site has in place a Preventative Maintenance Plan to minimise chance of leakages or breakage of PVRVs. ▪ Daily inspection includes PVRVs.	Air Pollution	LOW due to the proposed processes and mitigation on site
Litter	Local Residents	Airborne	Low: the occurrence of litter on site is highly unlikely therefore the probability of exposure is very low.	▪ The site does not accept packaged wastes, as such litter is not considered to be a significant risk. ▪ Good housekeeping measures are employed across the site. ▪ The site is inspected daily by the site manager and any litter or accumulated debris is dealt with immediately.	Nuisance	VERY LOW due to the proposed risk management techniques
Pests	Local Residents	Airborne & migration	Moderate: due to the nature of the feedstocks the occurrence of pests on site is likely.	▪ Feedstock is stored in such a way as to minimise the risk of pests. ▪ If a problem does develop, reasonable measures will be taken to use commercially available products and appropriately qualified services to control pests. ▪ If a particular waste is determined to be the cause of a problem, it shall be removed from site at the earliest available opportunity and consideration given to mitigation measures that may be implemented before any more waste from that source is accepted on site.	Nuisance	LOW due to the proposed risk management techniques
Vandalism	Operator	The site could be subject to	Low: the occurrence of	▪ The site will have a CCTV monitoring system.	Nuisance, Damage or Fire	VERY LOW due to the proposed risk

ENVIRONMENTAL AND CLIMATE CHANGE RISK ASSESSMENT

		intentional vandalism and damage by intruders / trespassers who could cause damage or harm to the site or cause fires.	vandalism taking place on site is highly unlikely.	▪ The site will be secured by a 2.4m high steel paladin-type perimeter fence. ▪ Motion detecting security lighting will be in operation across the site ▪ Fencing will be maintained and repaired to ensure its continued integrity. If damage is sustained, repair will be made within the same working day. If this is not possible, suitable measures will be taken to prevent unauthorised access to the site and permanent repairs will be affected as soon as is practicable. ▪ All visitors to the site are required to register in the visitor's book and sign out again on exit, thereby minimising the risk of unauthorised visitors on the site.		management techniques
Fire / explosion on site.	Operator / Residential Properties	Windborne	Medium: the occurrence of a fire taking place on site	▪ Arson by intruders is controlled via CCTV monitoring. ▪ The site is secured by a perimeter fence. ▪ The site has a regular inspection and maintenance programme which identifies any electrical or mechanical machinery faults which could result in a machinery fire. ▪ The anaerobic digestion process is inherently a 'wet' process and undertaken within enclosed systems minimising risk. ▪ Machinery is regularly cleaned to remove any dust, etc; ▪ All relevant equipment on site is equipped with dedicated fire suppression. ▪ A number of fire extinguishers are placed at strategic locations around the plant. ▪ The potential for sparks is regularly monitored by site staff. ▪ The risk of damaged or exposed electrical cables is controlled via the regular inspection and maintenance programme. ▪ Staff and visitors are only permitted to smoke within the designated smoking area. ▪ There is no smoking permitted within the operational area of the site.	Fire / explosion	LOW due to the proposed risk management techniques
Incompatible Feedstock	Operator / Residential Properties	If incorrect waste is accepted on site it could result in	Low: offsite receptor impacts	▪ All waste accepted onto site have been subject to 'pre-acceptance' in accordance with established procedures; ▪ All incoming wastes are accepted in accordance with established procedures;	Nuisance / Adverse Emissions	VERY LOW due to the proposed risk management techniques

		adverse emissions		▪ Any non-conforming wastes will be removed prior to acceptance in accordance with established procedures. ▪ Records of incidents involving incompatible wastes are kept on site together with a summary of the remedial action taken.		
Spillages and Leakages	Land, surface water, groundwater	Runoff and percolation	Low: the occurrence of spillages and leakages is unlikely	▪ There will be limited quantities of fuels and oils stored on site, and those stored are for the purpose of fuelling and maintaining service vehicles. ▪ All infrastructure will be constructed in line with the relevant standards. ▪ All storage areas are located upon impermeable hardstanding with sealed drainage systems. ▪ Appropriate guidance for storage, such as CIRIA 736, is followed on site. ▪ Tanks will be inspected visually on a daily basis by the site staff to ensure the continued integrity of the tanks and identify the requirement for any remedial action. The site manager will be ultimately responsible for ensuring monitoring, inspections and where applicable, maintenance, is carried out. ▪ The site EMS includes a Spill Response Procedure and spill kits are maintained around site.	Contamination of surface water and/or groundwater	LOW - due to the proposed measures

ENVIRONMENTAL AND CLIMATE CHANGE RISK ASSESSMENT

3.2 Climate Change Risk Assessment

Climate Change Adaption Risk Assessment						
Hazard	Risk	Vulnerability	Consequence(s)	Risk Management and Adaption Techniques	Likelihood of Occurrence after Adaption	Overall Risk (following Mitigation)
Summer Daily Maximum Temperature: EA state that this may be around 7°C higher compared to average summer temperatures now, with the potential to reach extreme temperatures as high as over 40°C with increasing frequency based on today's values.						
Impact 1: *Potential for increased waste reactions or fires involving heat sensitive or combustible waste.*	Low The risk is low due to waste being largely high-moisture, organic wastes. Limited potential for interactions	Low All waste is stored internally in a fully enclosed building. Combustion of dry organic material is considered unlikely.	Increased risk of fire, resulting in air pollution to the surrounding environment Potential damage to nearby infrastructure and neighbouring sites	▪ All waste is stored internally in a fully enclosed building. Combustion of dry organic material is considered unlikely. ▪ Waste is used the AD process soon after arriving on site. There is limited time for combustion of dry organic material to occur from being stored for excessive periods of time. ▪ Continuous visual monitoring is undertaken by site staff to ensure non-compatible wastes are not present in the accepted wastes ▪ This presence of non-compatible wastes will trigger quarantining of said waste in a safe location until it can be removed offsite.	Low	Low
Impact 2: *Potential for fire if the temperature exceeds the heat rating of components in electrical equipment or components are subjected to intense and direct sunlight.*	Medium The site utilises several pieces of critical plant, including electrical components that may be at risk from heat expansion	Low All plant is brand new and is designed to withstand temperature fluctuations and is built with a high-integrity against environmental conditions	Failure of plant and equipment Emission release to the environment	▪ Installation of high-integrity plant and equipment at the point of operation ensures minimal risk of failure from thermal stress of expansion ▪ The control room is kept within a building and away from direct heat and that cause damage ▪ Regular maintenance and inspections are carried out daily on all plant and equipment to ensure it maintains in good working order ▪ Signs of degradation and/or leakages will prompt quick replacement.	Low	Low

ENVIRONMENTAL AND CLIMATE CHANGE RISK ASSESSMENT

Climate Change Adaption Risk Assessment						
Hazard	Risk	Vulnerability	Consequence(s)	Risk Management and Adaption Techniques	Likelihood of Occurrence after Adaption	Overall Risk (following Mitigation)
Impact 3 - *Potential increase in high temperature expansion and stress of plant, pipework and fittings. UV degradation of plastic pipes and hoses causing them to fail.*	Medium The site utilises several pieces of critical plant, including associated pipework and fittings that may be at risk from heat expansion	Low All plant is brand new and is designed to withstand temperature fluctuations and is built with a high-integrity against environmental conditions	Failure of plant and equipment Emission release to the environment	▪ Installation of high-integrity plant and equipment at the point of operation ensures minimal risk of failure from thermal stress of expansion ▪ Regular maintenance and inspections are carried out daily on all plant and equipment. ▪ Signs of degradation and/or leakages will prompt quick replacement.	Low	Low
Impact 4 *Potential increased dust emissions from processing areas, stockpiled material and site roads. Reduced availability of water for dust suppression.*	Very Low The site does not accept waste that would be considered to have a high dust potential. The AD process is inherently "wet" and further minimises the risk of dust emissions	Very Low The site does not propose to use water for dust suppression	Negligible risk of increase dust emissions so no realistic consequences identified	▪ The site continually monitors for signs of dust and litter, and appropriate actions be taken if necessary	Very Low	Very Low
Impact 5 *Long periods of hot and dry*	Medium The AD process relies on water to	Medium: Water is required for the AD	Potential increase in process water	▪ The site will use as much captured rain/surface water as possible for use in the process, should additional water be required. This will decrease reliance and use of mains water.	Low	Low

ENVIRONMENTAL AND CLIMATE CHANGE RISK ASSESSMENT

Climate Change Adaption Risk Assessment						
Hazard	Risk	Vulnerability	Consequence(s)	Risk Management and Adaption Techniques	Likelihood of Occurrence after Adaption	Overall Risk (following Mitigation)
weather could lead to a drought and may have an impact on water supplies	be carried out, and a shortage of water may prove problematic for the site	process, but there is no other reliance on site, other than for general cleaning purposes	Decreased capacity for cleaning of plant and equipment	▪ The site will consider water harvesting techniques to store collected surface water for use in the process during drier/hotter months ▪ The site will review its water use regularly and make necessary adjustments to its usage accordingly. ▪ The site will regularly review its water usage to ensure water is only used as required. This will minimise wastage.		
Impact 6 *- Potential increased risk of pests and scavengers from stockpiled waste such as food and drink containers, food contaminated wastes and 'black bag' type wastes.*	High The site accepts several odorous, organic wastes that may attract large quantities of pests	Medium The site stores all waste internally, minimising access from pests	Potential human-animal contact as pests and scavengers increases. Potential for disease introduction to the site	▪ Daily checks are conducted to look for signs for pests or scavengers. ▪ Pest control to be called at first sign of pests or scavengers. ▪ Waste is stored internally with odours extracted through an odour control unit, minimising appeal to pests and scavengers ▪ Maintaining good housekeeping practices to reduce the likelihood of attracting pests. ▪ The site will be regularly cleaned of any spilled organic residues as to deter pests, and maintain hygiene wherever possible	Low	Low
Impact 7 *- Potential increased risk of wildfires impacting the site.*	Low Wildfires are deemed low risk as the surrounding area is managed farmland with staff present 24/7	Medium The site is located in a semi-rural area where there is significantly higher biomass compared to an urban area	Damage to site buildings and/or infrastructure Explosion of biomethane from fire	▪ The site is equipped with the necessary shutdown features to ensure safety during emergencies, including risk of fire ▪ The site is manned 24/7, allowing for early detection of wildfire in the surrounding area ▪ The controls to the plant can be remote accessed should access to the site be limited or restricted through fire outbreak ▪ The site itself is constructed of non-flammable materials, minimising the risk of fire spreading around site	Low	Low

ENVIRONMENTAL AND CLIMATE CHANGE RISK ASSESSMENT

Climate Change Adaption Risk Assessment						
Hazard	Risk	Vulnerability	Consequence(s)	Risk Management and Adaption Techniques	Likelihood of Occurrence after Adaption	Overall Risk (following Mitigation)
Winter Daily Maximum Temperature: EA state that this could be 4°C high than the current average with the potential for more extreme temperatures, both warmer and cooler than present						
Impact 1: *Slightly higher winter maximums could generate regular odour complaints and pest infestations.*	Low Waste is stored within an enclosed feedstock reception building fitted with an odour control unit. Warmer temperatures are unlikely to impact wastes	Low No waste is stored externally. All waste is stored in the feedstock reception building, which is fitted with an odour control unit to minimise at least 90% of the odour released	Damaged relationships with neighbouring residential dwellings.	▪ Regular reviews of odour management plans ▪ Maintaining the waste reception building in good order, keeping all doors closed and the building under negative pressure ▪ Ensuring the odour control unit maintains is designed rate of efficiency ▪ Maintaining regular public and neighbour engagement regarding the potential impact of the site ▪ Regular engagement with neighbours to ensure positive relationships	Low	Low
Impact 2 - *Lower winter temperatures could result in an increased risk of pipes (or similar) freezing.*	Medium This risk is medium, as the site relies on pipe work to transport gases to the appropriate plant on site	Medium Some of the site's pipework is exposed, increasing vulnerability to colder temperatures. The drainage system is also a network of pipes that may be susceptible to cold temperatures	Damage to drainage system Damage to gas transport pipes	▪ All pipework on site will be new from the point of operation, ensuring its high-integrity and quality ▪ Pipework from buildings/plant will be inspected as part of the site's regular inspections. ▪ Signs of damage or decay will be recorded and repairs made at the earliest opportunity. Immediate repairs will be made to critical pipework	Low	Low
Daily Extreme Rainfall: EA state that rainfall intensity could increase by up to 20% on today's values						

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Climate Change Adaption Risk Assessment						
Hazard	Risk	Vulnerability	Consequence(s)	Risk Management and Adaption Techniques	Likelihood of Occurrence after Adaption	Overall Risk (following Mitigation)
Impact 1: *Potential for increased site surface water and flooding.*	Low The risk is low as the site is located in Flood Zone 1, considered the lowest possibility of flooding from rivers.	Medium The site will be surfaced largely with impermeable concrete and is in close proximity to a small watercourse named Mill Dike.	Damage to the site and its infrastructure. Floodwater breaching buildings, causing pollution events	▪ Site design has been considered to minimise the risk of flooding. These designs have been detailed in the recent planning application. ▪ Dedicated landscaped areas in the non-process area of site have been created that will allow a portion of surface water to soak away to ground. ▪ Bunding is located on the western, southern and eastern boundary of site, preventing potentially contaminated floodwaters leaving site, and provides an additional barrier against the nearby watercourse flooding ▪ The water discharge point is fitted with a non-return valve, preventing water from backing up through the system and causing flood events on site. ▪ A penstock valve is fitted to the drainage system to prevent uncontrolled releases offsite ▪ Extensive reviews of the drainage system, as well as flood defences have been carried during site design. ▪ Regular checks and inspections of the onsite drainage system to ensure no blockages or damage prevent flow. If blockages do occur, or the volume of water overwhelms the drainage system, excess water will be pumped and removed from site to ensure the drainage system remains operational ▪ If surface water flooding increases in frequency, as recorded in the site inspections, a flood plan will be prepared to effectively manage these situations.	Low	Low
Impact 2: *There is potential for drainage systems and interceptors*	Low The site is considered at a low risk of having its drainage system overwhelmed	Medium The drainage system is well maintained, however capacity may be overwhelmed	▪ Surface water flooding from an overwhelmed drainage system ▪ Pollution caused by contaminants in the	See above	Low	Low

ENVIRONMENTAL AND CLIMATE CHANGE RISK ASSESSMENT

Climate Change Adaption Risk Assessment						
Hazard	Risk	Vulnerability	Consequence(s)	Risk Management and Adaption Techniques	Likelihood of Occurrence after Adaption	Overall Risk (following Mitigation)
to be overwhelmed.	given its new design, and a non-return valve fitted to the discharge point,	under intense rainfall through climate change	interceptors being washed out in flood waters ▪ Ceasing or slowing of site operations, resulting in longer processing times and a build-up of waste			
Average winter rainfall: EA State that the Average winter rainfall may increase by over 40% on today's averages.						
Impact 1: Potential for increased site surface water and flooding.	Low The risk is low as the site is located in Flood Zone 1, considered the lowest possibility of flooding from rivers	Medium The site will be surfaced largely with impermeable concrete and is in close proximity to a small watercourse named Mill Dike.	▪ Damage to the site and its infrastructure. ▪ Floodwater breaching buildings, causing pollution events	▪ Site design has been considered to minimise the risk of flooding. ▪ Dedicated landscaped areas in the non-process area of site have been created that will allow a portion of surface water to soak away to ground. ▪ Bunding is located on the western, southern and eastern boundary of site, preventing potentially contaminated floodwaters leaving site, and provides an additional barrier against the nearby watercourse flooding ▪ The water discharge point is fitted with a non-return valve, preventing water from backing up through the system and causing flood events on site. ▪ A penstock valve is fitted to the drainage system to prevent uncontrolled releases offsite ▪ Extensive reviews of the drainage system, as well as flood defences have been carried out as part of The site design process. ▪ Regular checks and inspections of the onsite drainage system to ensure no blockages or damage prevent flow. If blockages do occur, or the volume of water overwhelms the	Low	Low

Climate Change Adaption Risk Assessment						
Hazard	Risk	Vulnerability	Consequence(s)	Risk Management and Adaption Techniques	Likelihood of Occurrence after Adaption	Overall Risk (following Mitigation)
				drainage system, excess water will be pumped and removed from site to ensure the drainage system remains operational ▪ If surface water flooding increases in frequency, as recorded in the site inspections, a flood plan will be prepared to effectively manage these situations.		
Impact 2: *There is potential for drainage systems and interceptors to be overwhelmed.*	Low The site is considered at a low risk of having its drainage system overwhelmed given its new design, and a non-return valve fitted to the discharge point,	Medium The drainage system is well maintained, however capacity may be overwhelmed under intense rainfall.	▪ Surface water flooding from an overwhelmed drainage system ▪ Pollution caused by contaminants in the interceptors being washed out in flood waters ▪ Ceasing or slowing of site operations, resulting in longer processing times and a build-up of waste	See above	Low	Low
Sea level rise: The EA state that sea level rise which could be as much as 0.6m higher compared to today's level.						
Impact 1: *If located near the coast, a site could experience increased:*	Not Applicable The site is not located near a sea					

Climate Change Adaption Risk Assessment						
Hazard	Risk	Vulnerability	Consequence(s)	Risk Management and Adaption Techniques	Likelihood of Occurrence after Adaption	Overall Risk (following Mitigation)
risk of flooding and associated impacts corrosion due to increase in saltwater spray						
Drier Summers: The EA state that summers could see potentially up to 40% less rain than now.						
Impact 5 *Long periods of hot and dry weather could lead to a drought and may have an impact on water supplies*	Medium The AD process relies on water to be carried out, and a shortage of water may prove problematic for the site	Medium: Water is required for the AD process, but there is no other reliance on site, other than for general cleaning purposes	Potential increase in process water Decreased capacity for cleaning of plant and equipment	▪ The site will use as much captured rain/surface water as possible for use in the process, should additional water be required. This will decrease reliance and use of mains water. ▪ The site will consider water harvesting techniques to store collected surface water for use in the process during drier/hotter months ▪ The site will review its water use regularly and make necessary adjustments to its usage accordingly. ▪ The site will regularly review its water usage to ensure water is only used as required. This will minimise wastage.	Low	Low
Impact 2 *There is potential increased impact of discharge to watercourse from on-site drainage systems where connected to*	Medium The site proposes to discharge clean, uncontaminated surface water into Mill Dike, which may be problematic during high-volume periods	Low The site discharges only clean, uncontaminated surface water into Mill Dike	Increased volume of watercourse	▪ The site will only discharge clean, uncontaminated water into Mill Dike, meaning dilution volumes are not a consideration ▪ Discharge of water into the watercourse during drier months may prove beneficial for local wildlife and receptors. There are limited downsides to carrying out this activity.	Low	Low

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Climate Change Adaption Risk Assessment						
Hazard	Risk	Vulnerability	Consequence(s)	Risk Management and Adaption Techniques	Likelihood of Occurrence after Adaption	Overall Risk (following Mitigation)
water courses.						
River Flow: The EA state the flow in the watercourses could be 50% more than now at its peak, and 80% less than now at its lowest.						
Impact 1: *Increased impact of discharge from on-site drainage systems where they are connected to watercourses.*	Medium The site proposes to discharge clean, uncontaminated surface water into Mill Dike, which may be problematic during high-volume periods	Low The site discharges only clean, uncontaminated surface water into Mill Dike	Increased volume of watercourse	▪ The site will only discharge clean, uncontaminated water into Mill Dike, meaning dilution volumes are not a consideration ▪ If the volume of Mill Dike is persistently high, and discharging will pose risk to site or downstream receptors, surface water may be tankered off site	Low	Low
Storms: Storms could see a change in frequency and intensity. The unique combination of increased wind speeds, increased rainfall, and lightning during these events provides the potential for more extreme storm impacts.						
Impact 1 *Potential for high winds to damage buildings and infrastructure and blow waste from the site*	Low The site will be of a very modern construction once completed. This improves confidence in the rigidity and strength of existing structures to resist damage in high winds	Low The site will be considered well designed with well-constructed buildings and infrastructure and includes lightning protection features	N/A	▪ Buildings will be inspected for signs of damage following storms and/or high winds ▪ Repairs will be undertaken as soon as possible to repair any damage identified following an inspection. ▪ Lightning protection onsite will be routinely inspected and maintained	Low	Low

ENVIRONMENTAL AND CLIMATE CHANGE RISK ASSESSMENT

Climate Change Adaption Risk Assessment						
Hazard	Risk	Vulnerability	Consequence(s)	Risk Management and Adaption Techniques	Likelihood of Occurrence after Adaption	Overall Risk (following Mitigation)
Impact 2 - *Potential for high winds to cause problems with stability of above ground storage tanks on jacks. This poses a risk to staff, plant infrastructure and the potential to release the contents of the storage tank.*	Not Applicable There is no storage tanks on jacks located on site					