MOTT MACDONALD

Peacehaven Sludge Treatment Centre Environmental Permit Application

Environmental Risk Assessment

January 2025

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Issue and Revision Record

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A	April 2022	Natalia Cunningham	Shannon Stone	Anita Manns	First Issue for client comment
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Contents

Tables

1 Introduction

1.1 Background and Scope

This document has been prepared to support the application for the variation of permit EPR/KB3435RB into a bespoke Waste Installation Environmental Permit (hereafter referred to as “the Permit”) for the Peacehaven Wastewater Treatment Works (WTW) and Sludge Treatment Centre (STC) (‘the Site’) on behalf of Southern Water Services Limited (‘Southern Water’ or the Operator’). The Site currently holds registered T21, S2 and U6 exemptions.

As part of the application for an Environmental Permit, operators must assess the risk to the environment and potential harm to human health from the activities they propose to undertake. This document provides the environmental risk assessment (ERA) considered relevant to the Site in accordance with the Environment Agency’s Risk assessments for your environmental permit.

1.2 Assumptions and limitations

The assessment of effects has been based on information sourced from relevant and applicable legislation, guidance, and websites. It is assumed that all guidance documents produced by the Environment Agency are up to date and correct at the time of writing.

2 Site setting

2.1 Location

Activity address: Hoyle Road Peacehaven East Sussex BN10 8LW

National grid reference: TQ 42150 01540

A plan outlining the boundary of the scheme is provided in 790101_MSD_SiteLayoutPlan_PEA January 2025.

2.2 Geology

Superficial and artificial geology are mapped to be absent underlying the Site or within 250m. Bedrock geology for the Site is Newhaven Chalk Formation comprising chalk Santonian in age. The Tarrant Chalk Member is mapped to be present adjacent to the south of the Site with an additional area of Lambeth Group Clay, silt and sand present within 250m of the Site.

2.3 Hydrogeology

The site lies on a Principal bedrock aquifer (high vulnerability). Groundwater vulnerability associated with soluble rocks has a very significant risk and a moderate possibility. There are no licenced groundwater abstractions or source protection zones (SPZ) within 1km of the site.

2.4 Hydrology

The English Channel is located approximately 1km to the south-west of the site. There are no other watercourses or drains within 250m of the site. Surface water collects in a depression in the south of the site during rainfall, however this pond is ephemeral in nature.

The infrastructure present on site is within an Environment agency Zone 1 flood risk area. Areas within zone 1 have 1 in a 1,000 chance of river or sea related flooding. However, the pond's located close to the southern boundary of the site are located within a Zone 2 which is associated with areas of land that have between 0.1% – 1% chance of flooding from rivers/the sea per year.

2.5 Protected areas

The statutory designated European sites within 10k of the Site include:

- Castle Hill, Special Area of Conservation (SAC) 5.5km east of the Site.
- Lewes Downs SAC 7.2km north of the Site.

The statutory designated national sites within 2km of the Site include:

- Brighton to Newhaven Cliffs, Site of Special Scientific Interest (SSSI) 0.69km east of the Site
- Beachy Head West, Marine Conservation Zone (MCZ) 0.72km east of the Site

The non-statutory designated sites within 2km of the Site include:

- Cliff Grassland, Cairo Avenue, Peacehaven, Local Wildlife Site (LWS) 1km from the Site,
- Covered Reservoir, Links Lane, Peacehaven LWS 0.59km from the Site,
- Newhaven Ponds LWS 1.6km from the Site
- Newhaven Refuse Tip LWS 1.3km from the Site
- Halcombe Farm LWS 1.2km from the Site

- Meeching Down LWS 1.3km from the Site
- Peacehaven Golf Course LWS 0.33km from the Site
- Peacehaven Heights LWS 0.7km from the Site
- Peacehaven Grasslands Site 5 LWS 1.2km from the Site

The priority habitats located within 2km of the Site include:

- Good quality semi-improved grassland 0.25km from the Site
- Deciduous woodland 0.42km from the Site
- No main habitat but additional habitats present 0.6km from the Site.
- Maritime cliff and slope 0.69km from the Site
- Coastal and floodplain grazing marsh 1.3km from the Site
- Lowland calcareous grassland 1.3km from the Site
- Coastal saltmarsh 1.9km from the Site
- Mudflats 1.9km from the Site

Further discussion on impacts to natural habitats and ecology is provided in section 3.2.9 and Appendix B.

2.6 Other notable features

As shown in Figure A 4 in Appendix A, there are four sensitive human receptors located within 50m of the south of the Site boundary, these include a garage, football club and two residential areas. There is also a third residential area located within 50m east of the Site.

The Site is located on an environmentally sensitive area, additionally part of the Site is located within a national park. The Site is located within a nitrile vulnerable zone (NVZ). There is a public bridleway which crosses the site and a public footpath to the east, as well as informal established footpaths on the edge of the urban area to the east of Peacehaven.

3 Environmental risks

3.1 Methodology

The ERA has been undertaken by identifying hazards and source-pathway receptors and assigning a probability of exposure and a severity of consequence. These are assigned as described in Table 3.1 and Table 3.2 and are based on the generic risk assessments used for standard rules “SR2012 No11 and No12”, “SR2009 No4” and “SR2008 No19”, applicable o anaerobic digestion operations including use of the resultant biogas.

The probability and severity scores are then combined within a matrix to give an overall magnitude of the risk. This matrix is shown in Table 3.3 and is intended to illustrate the general approach to scoring.

Risks are categorised as either low, medium or high; this ranges from being a nuisance in some instances to potential health risks in others.

Table 3.1: Severity Index

Severity of harm	Severity Index
Impact to people or designated receptor	High
Impact to non-designated receptor	Medium
All other impacts	Low

Table 3.2: Probability Index

Likelihood of harm occurring OBJ	Probability Index
Harm is near certain or very likely to occur	High
Harm is likely to occur	Medium
Harm is unlikely	Low

Table 3.3: Magnitude of risk

Magnitude of risk	Probability index		
Severity index	**Low**	**Medium**	**High**
Low	Low	Low	Medium
Medium	Low	Medium	High
High	Medium	High	High

3.2 Risk assessment

3.2.1 Introduction

This section of the report identifies any potentially sensitive receptors within the vicinity of the Site and assesses the environmental risks with the following categories:

- Point source and fugitive emissions to air;
- Point source and fugitive emissions to water and land;
- Noise and vibration;
- Odour;
- Litter, mud and debris;

- Vermin and insects (pests);
- Human health and environment safety (i.e. visual impacts, site security, flood risk); and
- Natural habitats and ecology.

The methodology used to assess and screen the environmental risk for each category is discussed in turn in the following subsections. The need for further detailed assessments and/or management plans, where applicable, is also elucidated upon.

An assessment of the overall and residual risk is provided in Appendix B. For each hazard there is the identification of the pathway and receptor and the mitigation proposed in order to reduce the residual risk.

3.2.2 Point source and fugitive emissions to air

3.2.2.1 Air quality

As the combustion activities are not being changed on-site as a result of permitting the AD plant and associated processes, it is not anticipated that additional Air Dispersion Modelling (ADM) will be required for this permit application. Air Dispersion Modelling (ADM) was carried out at the Site during the 2019 application for the CHP waste permit EPR/KB3435RB. The CHP and the air vent burner were included in the modelling assessment. However, the air vent burner has been replaced with a biogas chiller and carbon filters. There are no air emissions on this equipment just biogas condensate. The gas is tested every 6 weeks and once the reading indicates the carbon is spent, the changing of filters is arranged.

The modelling results, even with the inclusion of the air vent burner, demonstrated that there will be no significant environmental impacts associated with these emissions. The standby boilers were not modelled; however, these will be used for less than 10% of the available hours. It is, therefore, not considered necessary to further assess as the 2019 conclusion remains unchanged.

However, any upgrading of the CHP and/or flare across the Site in the future will likely trigger the need for ADM. This is because the upgrading of the CHP would change the MCP classification from ‘existing’ to ‘new’ and change the specified generator (SG) classification from ‘Tranche A’ to ‘Trance B’ under the EPR 2018. This change in classification would that the CHP would need to obtain an MCP/G permit before it is commissioned. The combustion plant status in regard to Medium Combustion Plant Directive is provided in Table 3.4.

Table 3.4: Combustion plant details

	CHP	Boiler 1	Boiler 2
Make/Model number	G3516A+ spark ignition engine	Rehema P520 23 units EDG50/5G/3M	Rehema P520 23 units EDG50/5G/3M
Date that MCP became operational/was commissioned	2012	2012	2012
Thermal input (MWth)	3.15	1.418	1.482
Stack height (m)	19.6	N/A	N/A
Fuel used (biogas, diesel etc)	Biogas	Biogas/natural gas	Biogas/natural gas
Estimated total hours of operation per year	8760	Less than 10%	Less than 10%
MCPD and SG Regs status	Tranche A Existing MCP	Existing MCP	Existing MCP

The operation of the flare will be prioritised for during emergencies, such as during CHP maintenance or downtime. In any other scenarios the imports of the biogas to the CHP unit will be controlled to reduce the time of operation of the flare where possible.

The CHP is planned for replacement in AMP8 and will ensure appropriately sized equipment to BAT standards.

The existing flare will be retained at this site. The flare has been tested and the emissions are compliant.

Additional work is required to ensure all BAT requirements are met (e.g. access platforms for testing, the required testing is fully adopted into BAU and related processes, ensure all required signals for data collation and reporting are provided, all specific requirements are met for MCERTs and M1 & M2 guidance).

The detail of this is under review and any identified scope will be completed in AMP8.

The flare use data forms part of wider data collation and reporting (IT) system improvements planned to meet BAT 2c for inventory, BAT 11 energy and has an influence on BATs 15b, 16b and 21c for incident reporting (re. PVRVs and gas system management).

The existing approaches and relevant procedures presented in the Environmental Management System (EMS) and operational procedures are considered to adequately address the emissions that may present a risk, and, therefore, an Emissions Management Plan (EMP) is not considered to be required.

3.2.2.2 Bioaerosols

According to the Environment Agency guidance 'bioaerosol monitoring at regulated facilities (July 2023)[1]', a site specific bioaerosol risk assessment is required if a facility is within 250m of a sensitive receptor.

The sensitive receptors in relation to the Site are shown in Appendix A. The Site lies within 250m of sensitive human receptors and, therefore, a bioaerosols risk assessment has been undertaken and is provided with the supporting documents of the permit application (Doc reference 790101_ERA_BioRA_PEA March 2024.

For new permits there is a requirement to monitor in accordance with Technical Guidance Note (TGN) M9 'environmental monitoring of bioaerosols at regulated facilities' if the Site is within 250m of a sensitive receptor. The TGN lists sources of bioaerosols and refers to ambient and point sources of emissions.

The bioaerosols risk assessment concluded that the overall magnitude of the risk associated with bioaerosols emissions from the Site is 'very low' to 'low'. Operation of the Site is therefore unlikely to lead to significant impacts at nearby sensitive receptors from bioaerosols emissions. This is primarily due to the 'wet' nature of several processes undertaken at the Site and the control measures in place which are considered to be effective at reducing and containing emissions of bioaerosols, inhibiting the pathway between source and receptor. Therefore, a Bioaerosol Management Plan is not required.

Best practice methods will be followed during operation of the facility, to prevent the release of bioaerosols. These include methods and principles outlined in the Environment Agency's "Guidance on the evaluation of bioaerosol risk assessments for composting facilities"2 and are described in Appendix B.

[1] Bioaerosol monitoring at regulated facilities: RPS 209. Available at: Bioaerosol monitoring at regulated facilities: RPS 209 - GOV.UK (www.gov.uk)

3.2.2.3 Abatement of other fugitive emissions to air

Environment Agency best practice methods will be followed, during operation of the facility, to prevent the release of fugitive emissions. These are described in Appendix B.

3.2.3 Point source and fugitive emissions to water and land

An assessment of the risks from potential point source and fugitive emissions to water, sewers, land or groundwater is provided in Appendix B.

The Substantial Pollution Incident register in Landmark's Envirocheck report (reference no. 285274794_1_1) has been used to provide details of pollution incidents within the past five years. According to the report, there have been no pollution incidents to controlled waters recorded within 1km of the Site in the last five years in relation to the STC.

3.2.3.1 Emissions to water (other than sewers)

The Substantial Pollution Incident register in Landmark's Envirocheck report has been used to provide details of pollution incidents within the past five years. There have been no pollution incidents to controlled waters within 1km of the Site in the past five years in relation to the STC.

There are no groundwater source protection zones (SPZ) and no groundwater abstraction within 250m of the Site.

All drainage water including surface or foul water is captured by the drainage network which returns all water to the head of the works for treatment. There are no direct potentially contaminated discharges to controlled surface waters.

There are no direct discharge of wastewater to controlled waters from the STC. Peacehaven WTW does not have storm separation or storage onsite.

Storm separation is controlled at terminal pumping stations, flow to site from Marine Drive Brighton Pumping Station (WPS) and Portobello WPS is restricted to meet the Peacehaven rated capacity.

The STC return liquors are pumped to the start of the WtW process (inlet) and are subjected to the full WtW process. Therefore, it is not possible for return liquors to directly discharge into the environment from the installation, without it receiving full treatment in the WtW.

There are no direct potentially contaminated discharges to groundwaters. Condensate from the flare, CHP and the biogas is captured in condensate pots and is discharged to drainage and directed to the inlet works. The condensate is clean, uncontaminated and discharges are small in volume.

Accidental releases of materials to the environment are controlled through adequate containment measures and working procedures.

The existing approaches and relevant procedures presented in the EMS and operational procedures are considered to adequately address the emissions that may present a risk, and therefore, an EMP is not considered to be required.

3.2.3.2 Emissions to sewer, effluent treatment plants or other transfers off-site

There will be no point source emissions or direct discharges to controlled waters or public sewers, as part of the permit operation as there is no drainage on site. Any liquid waste will either be reused or discharged to the adjacent Peacehaven WTW and will undergo treatment through the works before being discharged under an existing water discharge permit. On-site WTW effluent will meet the requirements of the existing environmental permit for discharges to

water. The water used at the Site will be contained in a closed circuit; all wastewater streams will either be recycled within the process or captured and rerouted to the adjacent WTW.

Discharges will be minimal, typically arising from periodic maintenance/cleaning operations. As such, there are no direct potentially contaminated discharges to controlled surface waters and no significant impacts. All drainage (surface water or foul water) will be captured by the on-site drainage system and returned to the head of the WTW via a return pumping station. A drainage plan the Site is presented in document reference 790101_MSD_DrainagePlan_PEA November 2021.

The stormwater drainage of potentially contaminated areas from within the Site boundary will be routed into the sewage treatment process with no discharge outside of the Site. There will therefore be no risk of polluted runoff affecting off-site features due to the creation of a new hardstanding area.

Due to the anticipated low levels of contamination of the water and the volumes involved, no monitoring of its composition is proposed prior to discharge to the WTW.

Any areas of the Site, where there is a risk of contamination of surface water, groundwater or discharge of process waters are located on impermeable concrete surface. All surface water from these areas drain to the WTW internal drainage system and are returned to works return for treatment prior to discharge as final effluent.

3.2.3.3 Emissions to land

There will be no point source emissions to land as part of the activities carried out on-site. All condensate and process liquors are routed back to the head of the works.

All raw materials are handled and stored within the confines of the buildings on-site, either in gas, or in intermediate bulk containers (IBCs) in bunded areas, with the exception of biogas which is contained within the gas handling system. Releases of raw materials to land are, therefore, considered to be negligible due to adequate containment of the materials within the suitable storage vessels, the provision of bunding and the present of a contained drainage system.

3.2.3.4 Noise and vibration

The Site has received one noise complaint in the last five years (2019-2023). The complaint was received in January 2020. The complainant was advised to maintain a record of incidents, and to contact Southern Water in the case of further issues. No further contact has been made by the complainant to Southern Water regarding this issue.

Initial screening has been carried out for the Site. Since the Site is not undergoing changes to equipment and vehicle movements prior to application submission, a Noise Impact Assessment (NIA) is not considered to be required in respect of this application. Appropriate mitigation for noise and vibration impacts are provided in Appendix B. The sensitive receptors located within 1km of the Site are shown in Figure A.4 of Appendix A.

Since noise and vibration impacts are considered to be appropriately mitigated in the ERA, a Noise and Vibration Management Plan is not considered to be required.

3.2.4 Odour

A review of the nearest human receptors has been undertaken to establish the level of odour risk to the receptors before and after mitigation. Sensitive receptors to odour are users of the adjacent land, which may vary in their sensitivity to odour. There are five sensitive receptors located within 500m of the Site boundary, shown in Figure A.4 in Appendix A.

Current odour mitigation measures to prevent and reduce odours from receipt of waste, transfer across the Site, treatment and storage of waste have been assessed and are detailed in Appendix B.

The site is located in the north-east of Peacehaven, approximately 1km from the coastline of the English Channel to the south-west. The Site is surrounded by agricultural fields to the north and east and public open space to the south and west, including three recreational playgrounds. Beyond the public open space to the south and west are areas of residential housing.

During the last five years (2019-2023), the site has not received any odour complaints.

There are no proposed works to be undertaken on the Site in respect of this permit application, therefore, the activities on-site are not anticipated to increase the off-site impact or result in adverse impact upon nearby sensitive receptors or the amenity of the area surrounding the Site.

The Site has an Odour Management Plan (OMP), produced in March 2024, which identifies potential odour emissions from the site operations and procedures to manage, control and minimise odour impacts. It sets out the procedures for engaging with neighbours and how the Operators will manage complaints, and the actions to be taken in the case of pollution events. The OMP also describes the monitoring and maintenance procedures to maintain the control measures.

The OMP was written in accordance with Environment Agency's H4 Odour Management guidance (2011). The level of odour risk from the Site is considered to be low, as shown in Appendix B, as the OMP provides sufficient mitigation. The Odour Management Plan can be found in document reference 790101_ERA_OdourMP_PEA January 2025.

3.2.5 Particulate matter, litter, mud and debris

Appendix B describes the aspects of the Site that generate litter, mud and debris within and outside the Site boundary and assesses their risk to the environment. Current waste management and site cleaning procedures (EMS308) have been assessed in the ERA table in Appendix B to justify whether additional measures could be required. Measures to prevent debris and dust leaving the Site have also been addressed, in addition to the sensitivity of nearby receptors and the effectiveness of existing measures to reduce the escape of dust.

The need for a dust management plan is triggered if the keeping and/or treating of biowaste in the open including the finished material is located:

- In, or within 2km of, an air quality management area for PM10;
- Within 500m of a sensitive receptor such as a home, school, hospital or nursing home, food preparation facility or similar; and
- Within 250m of a sensitive receptor when treating biowaste.

All key sludge treatment processes of the Site are enclosed.

Sludge cake is stored in a 500m^3 silo inside a building and then in the six Ro-Ro bins, the bins are enclosed, but are not located within a building, cake is pumped directly into the bins. Cake is moved around the site in sealed ro-ro's.

Although the site has been screened as being within (250m) of sensitive receptors (see Appendix A), a Dust Management Plan is not considered to be required since operations and waste types use on-site cause minimal dust emissions and appropriate mitigation is in place.

3.2.6 Pests

Discussions with the Site operator during a site visit have addressed whether the Site activities are likely to attract pests, what measures are in place to deter pests and how effective these are. These are covered in Appendix B.

Pest control measures are implemented under EMS227. The Site experiences pigeons nesting under the external roof, it is understood that Southern Water are looking to have a net installed to the underside of the external roof to help manage this. A pest contractor is used to manage any issues regarding pests at the Site, and undertake site visits when required the frequency of the visits depend on the severity of the issue, ranging between monthly to 6 monthly. Bait boxes are kept on site in case of infestation of rats or of ground pests although these are not considered to be an issue since the waste types handled on-site do not attract them.

Pests are not considered to be an issue since the waste types handled on-site do not attract them, contractors regularly check the Site for pests and appropriate mitigation is in place. Since the residual risk is considered to be low, a Pest Management Plan is not considered to be necessary.

3.2.7 Human health and environment safety

3.2.7.1 Visual impacts

The Site was built between 2009 and 2013. The site is located north-east of Peacehaven, approximately 1km from the coastline of the English Channel to the south-west. The Site is surrounded by agricultural fields to the north and east and public open space to the south and west, including three recreational playgrounds. Beyond the public open space to the south and west are areas of residential housing. The nearest sensitive human receptors are four residential areas, a football club and a garage.

Since no changes to the Site will occur prior to submission of this permit application, there will not be any changes in heights and configuration of the placement of equipment which could be noticed by nearby receptors.

To reduce visual impacts to the surrounding area an 18,000m^2 green roof was built and over 26,000m^3 of concrete and spoil from excavations was used to landscape the surrounding area into bunds. Visual impacts from the Site are therefore considered to be low.

3.2.7.2 Site security

Activities are managed and operated in accordance with the management system.

There is an electrical barrier located at the far end of the access road with an intercom system which is connected to the control room. A 2m high manual gate is located at the entrance the bunded area which is where the WTW and STC are located. The Site is fully enclosed by two perimeter fences, an outer 1m high wooden stake wire fence and an inner 2m high metal palisade fence. There are 21 CCTV and one ANPR cameras located around the Site. Entry to the buildings is controlled via phones and cards with magnetic locks on doors and manual locks, the buildings are secured by an intruder alarm.

Regular inspections of the boundary fencing and buildings are undertaken to ensure that these have not been compromised and continue to prevent easy access to the site. Repairs are undertaken in accordance with the EMS requirements.

Other risks relating to human health and the environment are presented in the ERA in Appendix B.

3.2.7.3 Flood risk

Initial screening was undertaken to determine the flood risk for the Site. The data utilised for this study was published online by the Environment Agency and related to the flood risk from surface water, rivers and the sea.

The infrastructure present on site is within an Environment Agency Zone 1 flood risk area. Areas within zone 1 have 1 in a 1,000 chance of river or sea related flooding. However, the pond's located close to the southern boundary of the site are located within a Zone 2 which is associated with areas of land that have between 0.1% – 1% chance of flooding from rivers/the sea per year.

The drainage from the Site is routed to the works return. There are no direct potentially contaminated discharges to controlled surface waters.

Activities are managed and operated in accordance with a management system and management plans, and procedures implemented include (but not limited to) the removal and clean-up of spiled waste material, including sludge, cake etc. and other pollutants (which may also include removal used spill kits and mobile bunds) before these could enter any flood waters if an event was to occur.

There are no known issues with flooding at the Site, and no historical floods have been recorded.

Since no changed to the Site are planned prior to application submission, and no impacts to flood pathways or sensitive receptors are anticipated, a full flood risk assessment (FRA) (defined here as a detailed assessment involving bespoke hydraulic modelling work) is unlikely to be required. When proposed changed do occur these are understood to be either of a relatively minor nature or are unlikely to significantly alter existing development footprints.

3.2.8 Natural habitats and ecology

Ecological features that are situated within set distances of the Site boundary have been identified and screened. For the following ecological features, the Study Area was defined as the following:

- Statutory designated European sites: Special Areas of Conservation (SAC), candidate Special Areas of conservation (cSAC), Special Protection Areas (SPA), potential Special Protection Areas (pSPA), Sites of Community Importance (SCI) and Ramsar sites within 10km of the Site boundary;
- Statutory designated national sites: Sites of Special Scientific Interest (SSSIs), Marine Conservation Zones (MCZs), National Nature Reserves (NNRs), Local Nature Reserve (LNRs), Areas of Outstanding Natural Beauty (AONB) within 2km of the Site boundary;
- Non-statutory designated sites: Local Wildlife Sites (LWS), Ancient Woodlands, Country Parks, Sites of Importance for Nature Conservation (SINC), Sussex Wildlife Trust Reserves within 2km of the Site boundary;
- Priority habitats: within 2km of the Site boundary. Priority habitats are those listed under Section 41 of the Natural Environment and Rural Communities Act (2006) and include deciduous woodland, grassland, heathland, reedbed, vegetated shingle, wood-pasture and parkland, marshes, mudflats and fens; and
- Granted European Protected Species (EPS) within 2km of the Site boundary. Licences available on Multi-Agency Geographic Information for the Countryside (MAGIC), data from Sussex Wildlife Trust. Accurate to within the nearest 100-200m depending on local council survey data accuracy.

No ecological field surveys have been completed to inform this screening. This screening identifies the likelihood of ecological features being present or further investigation being required.

Initial screening has been carried out for the Site, the high-level results of which are shown in Table 3.4. Where habitat sites are situated within the study area surrounding the Site, the relevant cells are highlighted in red and indicate the number of habitats sites located therein. Cells highlighted in green indicate that relevant habitat sites are not located within the specified study area. For cells highlighted in orange, there is potential for these protected species to be present within the study area.

Table 3.5: Results of initial screening of natural habitats and ecology for Peacehaven STC

Natural habitats and ecology	Peacehaven STC
Statutory designated European sites within 10km of the Site boundaries	
Special Areas of Conservations (SAC)	2
Special Protection Areas (SPA)	
Sites of Community Importance (SCI)	
Ramsar sites	
Statutory designated national sites within 2km of the Site boundaries	
Sites of Special Scientific Interest (SSSIs)	1
Marine Conservation Zones (MCZs)	1
National Nature Reserves (NNRs)	
Local Nature Reserves (LNRs)	
Areas of Outstanding Natural Beauty (AONBs)	
Non-statutory designated sites within 2km of the Site boundaries	
Local Wildlife Sites (LWS)	9
Ancient Woodlands	
Country Parks	
Sites of Importance for Nature Conservation (SINC)	
Sussex Wildlife Trust Reserves	
Priority habitats within 2km of the Site boundaries	
Priority habitats	8
Protected species	
Common nesting birds, common reptiles, terrestrial and aquatic invertebrates, common amphibians: within a 10m buffer of the Site boundaries	
Wintering birds: within a buffer of up to 500m of the Site	
Species of nesting birds: within 200m buffer of the Site boundaries	
Bats: within 50m buffer of the Site boundaries	
Badgers: within a 30m buffer of the Site boundaries	
Hazel dormice: within a 20m buffer of the Site boundaries	
Great crested newts – ponds within 500m buffer of the Site boundaries and terrestrial habitat within 10m	

There are two statutory designated European Sites within 10km of the Site. Two Special Areas of Conservation (SACs); Castle Hill located 5.6km from Site, and Lewes Downs 7.2km from Site.

There are two statutory designated sites within 2km of the Site, Brighton to Newhaven Cliffs which is a Site of Special Scientific interest (SSSIs) is located 688m from Site, and Beachy Head West which is a Marine Conservation Zone (MCZ) located 718m from the Site.

However, it is considered unlikely that the Site activities will impact these habitat sites. This is covered in Appendix B along with appropriate mitigation.

Any potential impacts to statutory designated European and national habitat sites have been considered in the ERA following review of the following site-specific information:

- Discharges to water, groundwater and emissions to air and land, and from dust, noise and vibration, from all activities on-site, particularly from the anaerobic digestion processes;
- Pollution prevention and mitigation measures, including for emissions and spills; and
- Site plans detailing storage arrangements and drainage plans.

It is considered unlikely that Site activities would lead to the disturbance or removal of terrestrial habitats, and therefore protected species surveys are not considered to be required for the Site.

The proposal for a varied permit does not involve the removal of vegetation, or structural modification to built structures therefore, a Preliminary Ecological Appraisal is not considered to be required for the Site.

The application is to permit anaerobic digestion activities in order to meet the Industrial Emissions Directive (IED). The site has been operating in its current capacity for a number of years and mitigation measures already in place directly or indirectly prevent or limit harm to existing habitats and species, as shown in Appendix B. No changes to operations are proposed and therefore the current risks posed to these habitats and species are likely to improve upon granting of the permit.

A. Environmental Constraints Maps

Figure A.1: Statutory designated habitat sites within 10km of the Site

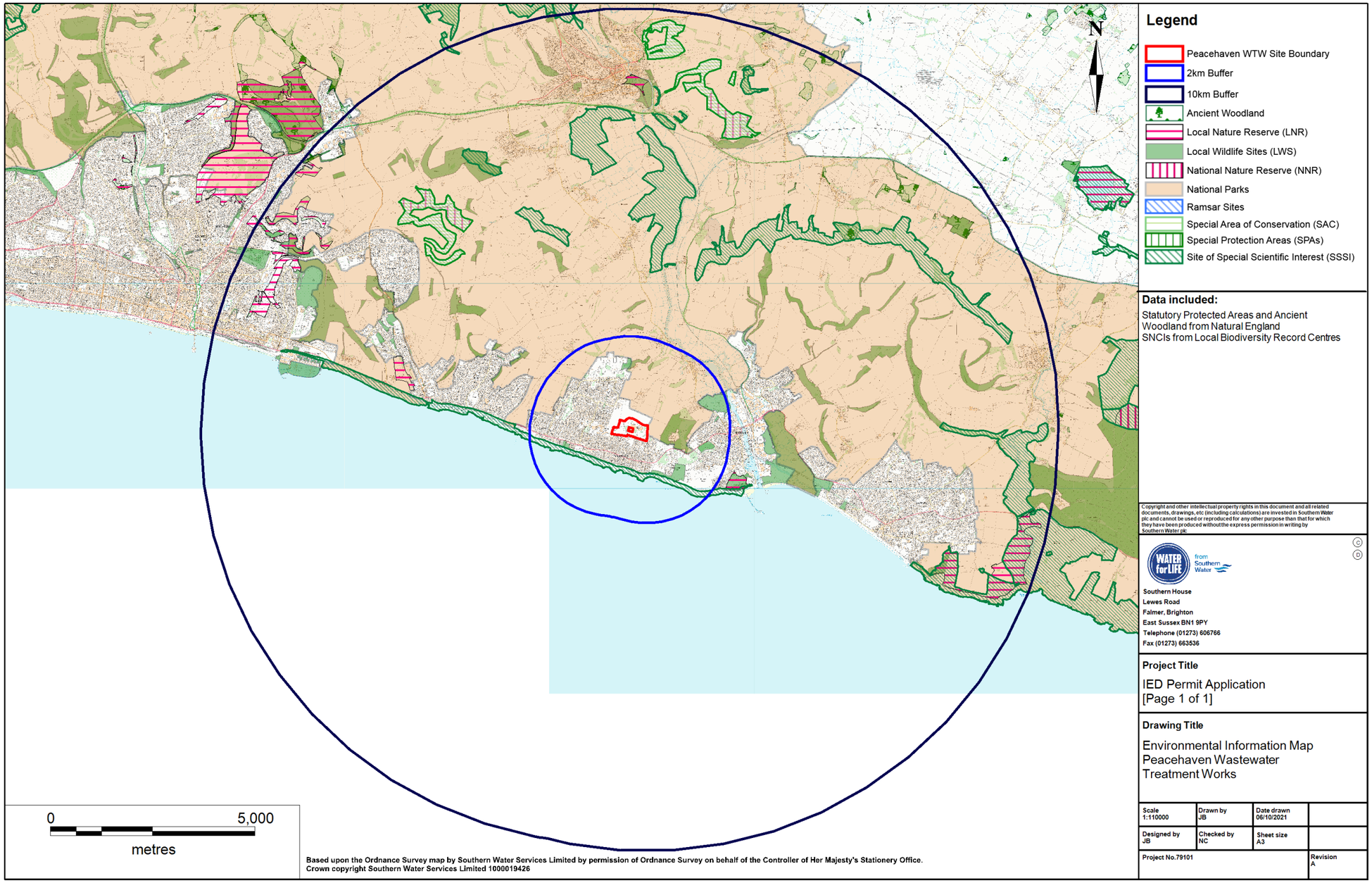


Figure A.2: Non-statutory designated habitat sites within 2km of the Site

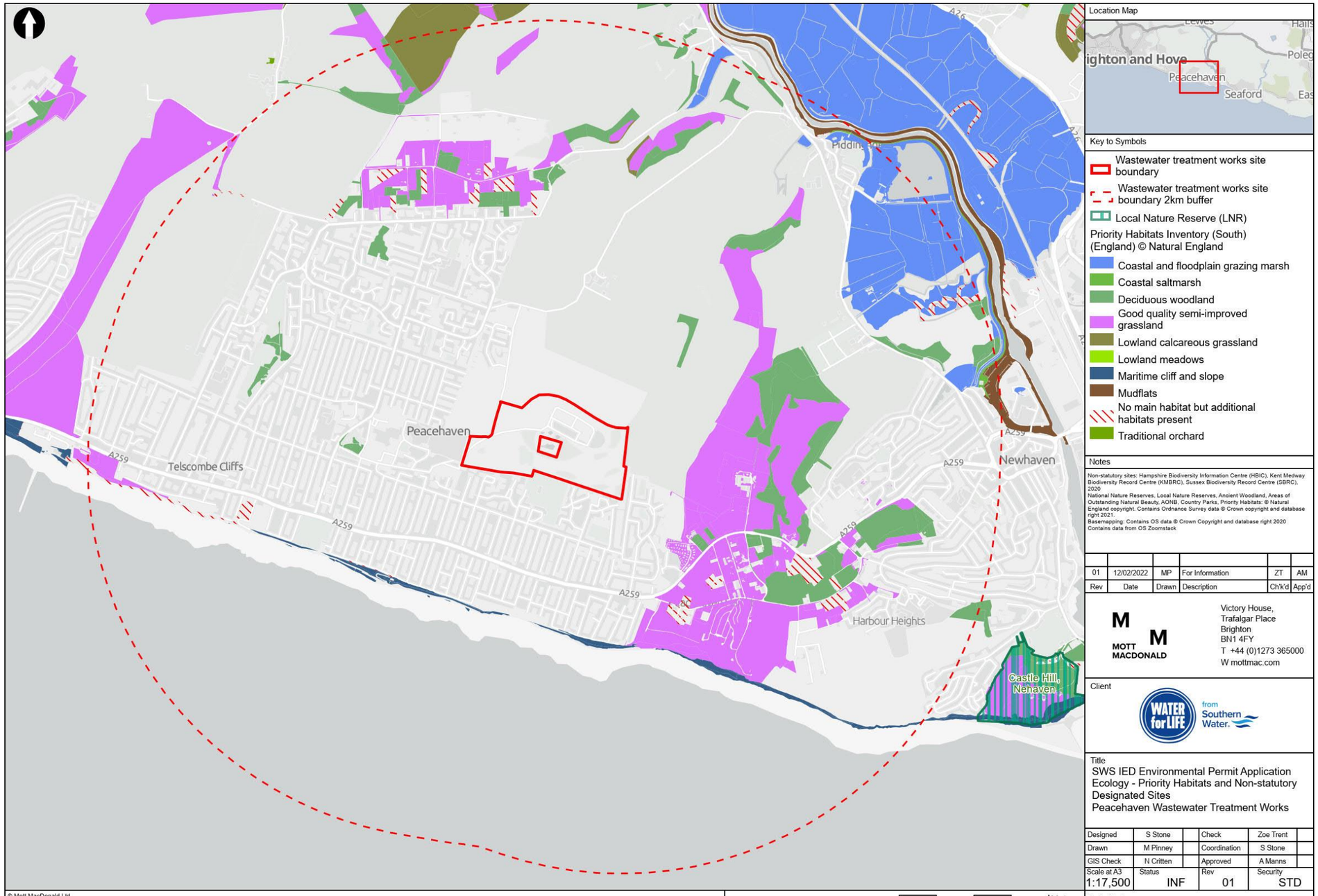


Figure A.3: Designated heritage sites within 1km of the Site

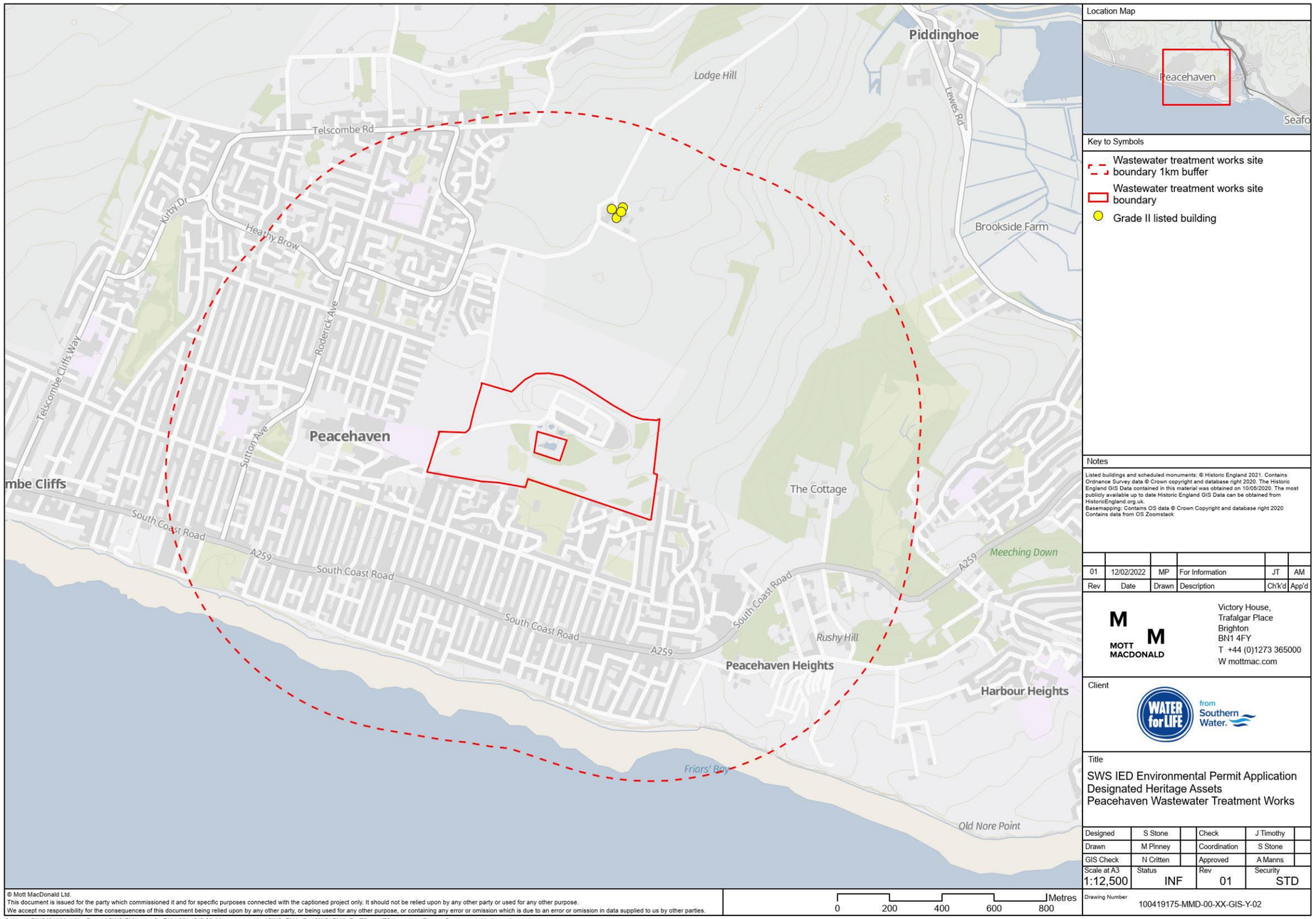
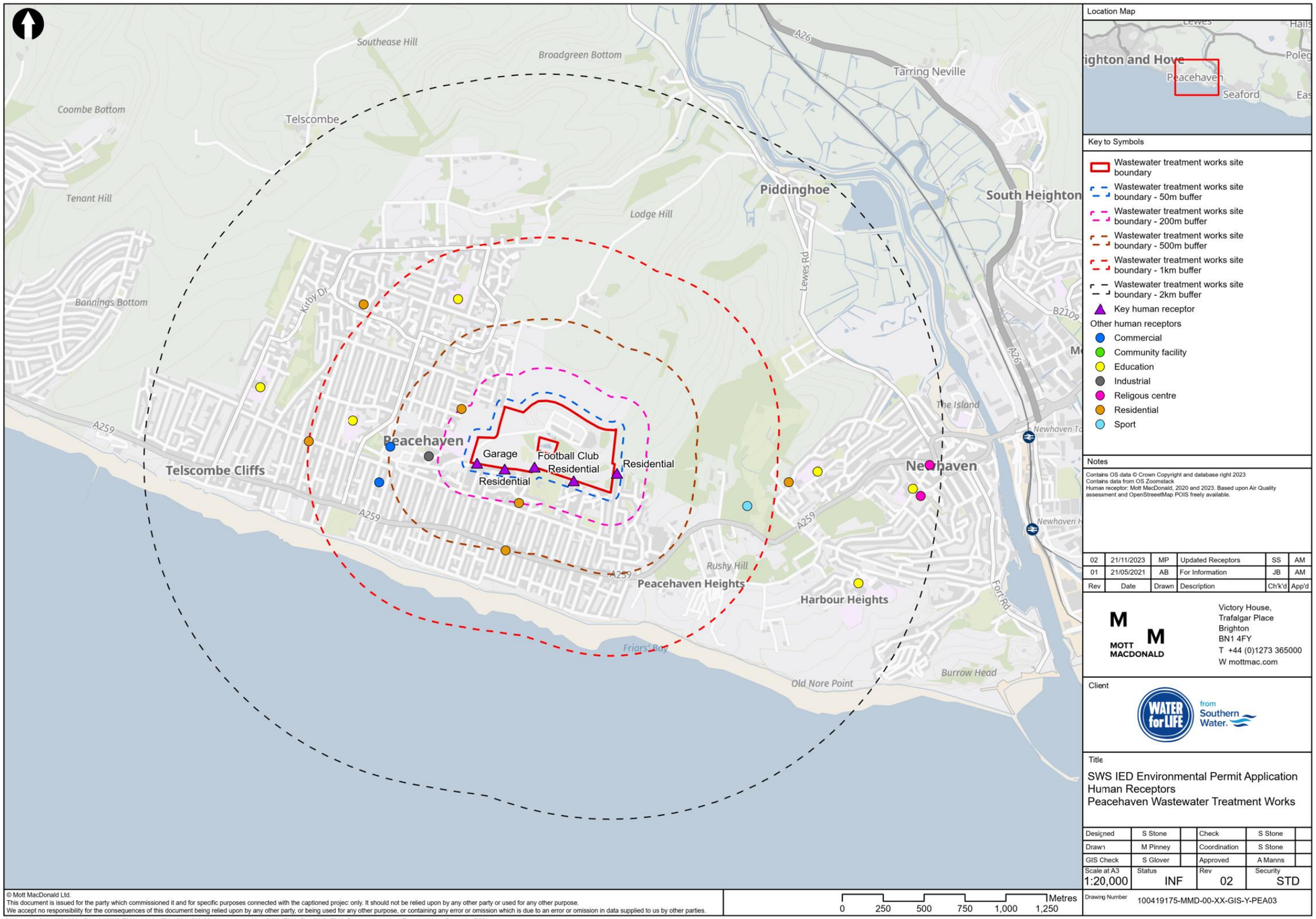


Figure A.4: Sensitive receptors within 2km of the Site



B. Environmental Risk Assessment Tables

Emissions to air									
Data and information				**Judgment**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
Local human population	Releases of NO2, SO2, CO, NH3 and other gases	Harm to human health – respiratory irritation and illness	Air transport then inhalation	Low	Medium	Low	There is potential for exposure to anyone living close to the Site or at locations where members of the public might be regularly exposed.	Activities will be managed and operated in accordance with the EMS. This will include regular inspection and maintenance of associated equipment. Point source emissions to air will be monitored in line with the permit requirements and any relevant TGNs including M2 and will meet Monitoring Certification Scheme (MCERTS) standards, where suitable and available. NOx and GHG emissions are controlled by emission limits. Storage of high ammonia bearing material will be covered at all times. Any emissions of substances harmful to human health not controlled by emission limits (excluding odour and noise) shall not cause pollution	Low
Local human population	Release of unburnt biogas	Harm to human health – respiratory irritation and illness. Release of potent climate change gases	Air transport	Medium	High	High	There is potential for exposure to anyone living close to the Site or at locations where members of the public might be regularly exposed. A new flare stack was installed in 2021 at the Site, operation of the flare is used during emergencies, such as during CHP maintenance and downtime, where it is used less than 10% of the time. In any other scenario the imports of the biogas to the CHP unit will be controlled to reduce the time of operation of the flare where possible.	Activities shall be managed and operated in accordance with the EMS and will include measures covering inspection and maintenance of equipment, including engine management systems. Point source emissions to air will be monitored to ensure emission limits for biogas are not exceeded, in accordance with permit requirements and any relevant TGN's including M2. There are pressure release valves on: 2 x per digester (2 total) 2 x gas holder (2 total) 2 x per PDST (2 total) Operational record including date, time duration of pressure relief events and calculated annual mass release. Linked to SCADA. The available data shows flaring for 834 hours in a year which is ~9.5% of time. The CHP is planned for replacement in AMP8 and will ensure appropriately sized equipment to BAT standards. The existing flare will be retained at this site. The flare has been tested and the emissions are compliant. Work is required to ensure all BAT requirements are met (e.g. access platforms for testing, the required testing is fully adopted into BAU and related processes, ensure all required signals for data collation and	Medium

								reporting are provided, all specific requirements are met for MCERTs and M1 & M2 guidance). The detail of this is under review and any identified scope will be completed in AMP8. The flare use data forms part of wider data collation and reporting (IT) system improvements planned to meet BAT 2c for inventory, BAT 11 energy and has an influence on BATs 15b, 16b and 21c for incident reporting (re. PVRVs and gas system management).	
Domestic properties, local human population, local amenity, site staff, visitors and offices. Haul roads, public highways.	Releases of particulate matter (dust) from cake and storage bays and Transport off-site	Nuisance, loss of amenity.	Air transport then deposition	Medium	Low	Low	Local residents and the surrounding environment are often sensitive to dust. Dust may be produced from dirt deposits from vehicles or other users of the haul road and treatment and storage of cake. There are six ro-ro skips on Site and one silo used for the storage of digested cake. Waste types on site are unlikely to cause significant dust emissions, therefore, the magnitude of risk is considered to be low.	No wastes consisting solely of dusts are accepted. General operations at the Site do not create dust materials. Cake is stored in one cake storage silo and in six covered ro-ro bins. Cake is pumped into the ro-ro bins and once full the ro-ro bins are removed from Site for off-site recycling, empty ro-ro bins are returned to the Site. Vehicles, equipment and impermeable surfaces are swept and washed down when necessary. Internal roads are swept, as required, to reduce the likelihood of any dust becoming airborne. Vehicles removing cake from site are kept covered, whilst in transport to prevent the escape of waste. All key sludge and wastewater treatment processes of the Site are enclosed or covered. Appropriate wash up facilities are also provided for drivers to clean the vehicles after loading or unloading in sludge storage bays and loading points, hose wash facilities are used at waste receptions.	Low
Local human population.	Release of microorganisms (bioaerosols)	Harm to human-health – respiratory irritation and illness.	Air transport then inhalation	Low	Medium	Low	The permitted waste is non-hazardous sludge in liquid and cake form. The nature of waste and the ‘wet’ processes undertaken on-site are not likely to cause a release of bio-aerosols. The nearest sensitive human receptors include three residential areas, a garage and a football club located south of the Site. The man-made bund surrounding the Site presents a natural barrier to the transportation of bioaerosols by the wind. All processes at Site are covered or undertaken in sealed tanks. Emergency situations such as failure of the flare of CHP/boilers could result in uncontrolled emissions of bioaerosols.	Multiple control measures are in place at the Site which reduce and contain emissions of bioaerosols from the processes on-site by inhibiting the pathway between source and receptor. All sludge and wastewater treatment processes of the Site are enclosed. The anaerobic digestion vessels are sealed and biogas is extracted from the vessels. This minimises the risk of bioaerosols affecting operational staff. Cake is pumped into the sealed ro-ro bins; the filled bins are then removed from the Site and empty ones are returned. 9-10 ro-ro bins of cake is imported on a weekly basis. Five ro-ro bins of cake are removed from the Site daily (Mon-Fri) and two are removed from Site on Saturdays. Cake is stored on Site for a maximum of three day over the weekend. Any emergency event would be temporary and infrequent due to the extensive monitoring and maintenance programmes undertaken at the Site as well as the emergency procedures and warning systems in place.	Low

								Odour control unit is airtight and treats air released to remove bioaerosols. The process is monitored and regularly maintained. Gas holder is air-tight to prevent uncontrolled release of bioaerosols. SCADA system in place to detect leaks. Combustion of biogas occurs at very high temperatures in the CHP, boilers and flare, which would destroy bioaerosols. Stringent loading and unloading procedures are in place for receipt of sludge and liquor. Lorry and tanker drivers are required to hose down any spillage after each loading or unloading and clean contaminated wheels before leaving site. A Bio-aerosol Risk Assessment has been undertaken to assess the risks of bio-aerosols from the site. This identifies that bio-aerosol risks are 'very low' to 'low'	
Emissions to water and land									
Data and information				**Judgement**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
All surface waters close to and downstream of the Site.	Tank failure, spillages of digestate and/or liquids including oil. Damage to drainage system. Spillage of raw materials of sludge/liquor during delivery/storage. Contaminated run off from cake storage e.g. containing suspended solids.	Aquatic or chronic effects to aquatic life, contamination, and water deterioration of water quality.	Direct run-off from the Site across ground surface, via surface water drains, ditches etc. Indirect run-off via the soil layer. Transport through soil/groundwater then extraction/ abstraction at borehole or intake.	Medium	High	High	Potential for leaks from digestions tanks, storage vessels/bays and drainage system which may cause contamination or deterioration of surface water quality. The general Site infrastructure is in good condition. The Site is underlain by concrete and all drains lead to the works return. Condition of the pumps and seals of the cake silo are not in good condition, these are due to be replaced once the silo has been emptied. There is no bunding on tanks other than on the ferric tank. Quantities of liquids stored are generally low. The English Channel is located approximately 1km to the south-west of the site. There are no other watercourses or drains within 250m of the site. Surface water collects in a depression in the south of the site during rainfall, however this pond is ephemeral in nature. No substantiated pollution incident to water, air, or land has been recorded within 250m of the Site.	The Site drainage plan is documented and all staff are trained in the event of emergency or accident. Impermeable surface and secondary containment, in the form of constructed bunds or portable bunds, is in place around storage areas of all wastes and raw materials surrounding the STC and WTW. Bunding will also be implemented for all raw material storage. All skips are and bins are stored on a hardstanding area. As part of the BAT requirements and in accordance with the recommendations of the Construction Industry Research and Information Association (CIRIA) standard 736 risk assessment, damaged bunding and hardstanding are to be repaired throughout the Site. All transfer of digestate and material takes place under supervision and with flow rate control. All tanks undergo a delegated inspection regime and the process parameters are monitored and understood by site operatives.	Medium
Abstraction from watercourse downstream of facility (for agricultural or potable use).	Spillage of liquids, contaminated rainwater run-off from waste e.g. containing suspended solids.	Acute effects, closure of abstraction intakes.	Direct run-off from site across ground surface, via surface water drains etc. then abstraction.	Low	Medium	Low	Watercourse must have medium / high flow for abstraction to be permitted, which will dilute contaminated run-off. No groundwater abstractions are present on-site.	Digestion tanks are built to appropriate standard and require appropriate bunding. There is one cake silo and six ro-ro bins on site. The silo is located within the main building and the ro-ro bins are covered. cake bays on site, which are located within the main building, Cake	Low

							No substantiated pollution incident to water, air or land has been recorded within 250m of the Site.	is imported and exported from Site in sealed the ro-ro bins. IBC's are stored under cover and in a bunded area, bags are stored under cover and on pallets.	
Groundwater, land and surface water	Spillages of liquids, contaminated rainwater run-off from wate e.g. containing suspended solids. Sludge/liquid spillages as a result of loss of tank/pipe integrity carelessness during transfer or overfilling	Chronic effects: contamination of groundwater, requiring treatment of water or closure of borehole or closure of abstraction intakes. Acute or chronic effects to aquatic life, contamination and deterioration of land and water quality. Pollution of water or land.	Transport through soil/groundwater then extraction at borehole or intake.	Low	Medium	Low	Potential for leaks from digestion tanks and storage vessels. Site infrastructure and hardstanding is generally in good condition. There is no bunding on tanks other than on the ferric tank. Quantities of liquids stored are generally low.	The diesel and lime tanks are stored outside, but in bunded areas. Activities are managed and operated in accordance with the EMS. Spill procedures are in place under EMS363 and 364 as well as a pollution prevention procedure EMS360 All spillages are recorded in the site diary including actions taken. Site Manager ensures the programme of Planned Preventative Maintenance (PPM) is implemented effectively to minimise the probability of equipment malfunction. Control of substances hazardous to health (COSHH) assessment undertaken for all raw materials. Both clean and contaminated surface water is directed to a pumping station which recirculates it back into the system. The surface drainage of potentially contaminated areas from within the Site boundary is routed to the works return with no discharge outside of the Site boundary. Regular inspections of the Site drainage systems and other equipment are undertaken, with any repairs and maintenance carried out if necessary. All complaints and other incidents are recorded in the site diary including actions taken. Sampling and testing of condensate is planned to be undertaken to understand the parameters it contains to ensure appropriate treatment is achieved.	Low
Groundwater, land and surface water	Spillages of sludge/liquids during transfer of imported and indigenous/unknown sludge and liquids from tankers.	Acute or chronic effects: contamination of groundwater, requiring treatment of water or closure of borehole or closure of abstraction intakes. Acute or chronic effects to aquatic life, contamination and deterioration of land and water quality. Pollution of water or land.	Transport through soil/groundwater then extraction/ abstraction at borehole or intake.	Low	Medium	Low	Potential for spillage during transfer of liquid/sludge from tankers. Sludge cake is currently imported into site from Newhaven only. Sludge cake is delivered in sealed ro-ro containers and is unloaded inside main building. Cake is removed from Site in sealed ro-ro containers.	Impermeable surface required for storage of all waste. Activities to be managed and operated in accordance with the EMS and management plans and procedures implemented to reduce spills when transferring liquids/sludges from tankers. Established procedures in place for waste duty of care (EMS380), operational waste procedures (EMS381) and waste rejection (EMS488). Compliance with the waste duty of care requirements to ensure waste accepted meets the permit conditions and relevant legislation. All liquid run off will be captured in the drainage network and returned to works return.	Low

Sludge cake Groundwater, land and surface water	Damage to drainage system	Acute or chronic effects: to aquatic life, contamination and deterioration of land and water quality. Pollution of water or land.	Transport through soil/groundwater then extraction/abstraction at borehole or intake.	Low	Medium	Low	Condition of underground pipework is unknown. A Leak Detection and Repair Plan will be developed for underground pipework on the Site.	Site Manager ensures the programme of PPM is implemented effectively and inspections are carried out frequently to minimise the probability of damage to the drainage system.	Low
Groundwater, land and surface water	Flooding of site	If waste is washed off site it may contaminate natural habitats downstream.	Flood waters	Low	Medium	Low	Permitted waste types are sludges/bio-solids, which may contain pathogens, so any waste washed off site will add to the volume of the local post-flood clean up and may be hazardous to human health. Area is not known to flood, and there have been no previous floods recorded on the Site.	The drainage network sends water to the head of the works for treatment. There are no direct potentially contaminated discharges to controlled surface waters. Activities to be managed and operated in accordance with a management system and management plans and procedures implemented, including the removal of spilled waste and other pollutants (such as use of spill kits and mobile bunds) before these could enter any flood waters if an event was to occur.	Low
Noise and vibration									
Data and information				**Judgement**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
Local human population	Noise and vibration from the following activities: Vehicles delivering/ removing wastes and materials. Vehicles arriving/leaving the Site.	Nuisance, loss of amenity, loss of sleep	Noise through the air and vibration through the ground.	Low	Low	Low	Local residents and site staff are often sensitive to noise and vibration. The site has received one noise complaint in the last five years (2019-2023). The one complaint was received in January 2020. The nearest sensitive human receptors are three residential areas, a garage and a football club located south of the Site. The Site is located in a bund with a roof over most equipment.	Site will only accept imports within existing operating hours established in current Environmental Permit (fully complying with site's planning conditions). Vehicles do not exceed the site speed limit of 10mph and will not generate a great amount of noise. The main truck movements are away from residential housing and other sensitive receptors. Noise and vibration shall be minimised and not cause nuisance. Noise kept to a minimum during operating hours. Exceptional noisy operations e.g. construction – inform residents. Noise complaints to be investigated and actioned and remedial measures will be undertaken. All complaints are recorded in the site diary including actions taken.	Low
Local human population	Noise and vibration from the following activities: Waste treatment processing. Plant boilers and engines.	Nuisance, loss of amenity, loss of sleep	Noise through the air and vibration through the ground.	Low	Low	Low	Local residents and site staff often sensitive to noise and vibration. Majority of site operations are fully enclosed. The site has received one noise complaint in the last five years (2019-2023). The one complaint was received in January 2020. The nearest sensitive human receptors are three residential areas, a garage and a football club located south of the Site. The Site is located in a bund with a roof over most equipment.	Limitation of operating hours established in current Environmental Permit (fully complying with site's planning conditions). Fans and condensate traps will be checked for water and fans and extraction systems checked. Flare usage is kept to a minimum to reduce noise impact. The design has been developed to minimise noise off-site. All equipment is maintained either in house or by a sub-contractor such that noise and vibration are maintained within the required limits and to manufacturers recommendations.	Low

								Where equipment is to be replaced, preference will be given to procuring quiet plant and silencing equipment. Proper maintenance of plant and equipment. There is no equipment on-site that can cause vibration nuisance at the local receptors. Nonetheless, equipment is turned off when not in use, where appropriate. Any complaints received are investigated and actioned in line with the complaint's procedure. All complaints are recorded in the site diary including actions taken.	
Odour									
Data and information				**Judgement**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
Local human population.	Odour from site activities	Nuisance, loss of amenity, (e.g. disruption during outdoor activities)	Air transport then inhalation	Low	Medium	Low	Local residents often sensitive to odour. Wide range of waste may cause odour issues at reception from wastes, release of biogas and from digestate hence control measures adopted. During the last five years (2019-2023), the site has not received any odour complaints. The nearest sensitive human receptors are three residential areas, a garage and a football club located south of the Site. The Site is located in a bund with a roof over most equipment.	Odours are likely to be generated and released due to the nature of the wastes. All equipment is covered or enclosed. All tanks are enclosed or covered by the odour control unit (OCU),all equipment is connected to the OCU apart from the digesters and post digestion storage tanks. The Site is equipped with a comprehensive ventilation and odour control system. Treatment buildings and processes are provided with fresh air supply and foul air extraction systems to prevent escape of odours. The odour control unit undergoes monthly scheduled maintenance by specialised contractors. Extracted odorous air is treated by a three-stage chemical scrubber system which utilises 3 No. acid scrubbers followed by 3 No. alkaline hypochlorite scrubbers. An 3 No carbon filters (the carbon filters are currently non-operational). Exhaust emissions are extracted in lorry/ tanker bays. Doors and roller doors closed before work carried out part of interlock systems. The cake storage silo and ro-ro containers are all enclosed. The silo is located within the main building. Odour suppression sprays are used around on the railings around the roof. Other odour mitigation measures implemented on-site include placing covers on containers and limiting the height of rising sludge. The removal of biosolids off-site will be undertaken as soon as practically possible. Odour is monitored to ensure emissions are free of odorous compounds.	Low

								The Site's Odour Management Plan, which was produced in March 2024, identifies potential odour emissions from site operations and procedures to manage, control and minimise odour impacts. Using appropriate measures, non-point source emissions of biogas shall be minimised. All available measures and Best Available Techniques will be implemented. All abatement systems are designed, monitored and maintained to treat specified emissions and off gases. Any emissions of substances not controlled by emission limits (excluding odour and noise) shall not cause pollution. Cake is stored in one silo and then in six sealed ro-ro containers. Cake is not handled on the Site and is imported and removed from the Site in sealed ro-ro containers. All waste is imported and exported in covered lorries or contained in tankers. Any complaints received are investigated and actioned in line with the complaints procedure.	
Local human population, domestic properties, site offices.	Spillages of odorous materials including oils, fuels, chemicals. Failure to clean up spillages. Contaminated spill equipment not disposed of appropriately.	Nuisance, loss of amenity.	Air transport, then inhalation.	Low	Medium	Low	Local residents and staff often sensitive to odour. During the last five years (2019-2023), the site has not received any odour complaints. The nearest sensitive human receptors are three residential areas, a garage and a football club located south of the Site. The Site is located in a bund with a roof over most equipment.	Procedures for dealing with spillages are covered in the EMS under EMS363 and 364 for the Site. There is also a Field Event Co-ordinators (FEC) Manual which provides spillage procedures for EP sites (FEC322). The Site Manager shall ensure all relevant staff are appropriately trained to use the spill kits and that all spillages are cleaned up immediately. All areas of the Site are to be cleaned regularly; Site Manager to oversee regular cleaning schedule, all staff trained on importance of good housekeeping and site cleanliness. All spills are recorded in the site diary including actions taken.	Low
Local human population, domestic properties, site offices.	Fugitive release of H2S.	Nuisance, loss of amenity.	Air transport, then inhalation.	Low	Medium	Low	Local residents and staff often sensitive to odour. During the last five years (2019-2023), the site has not received any odour complaints. The nearest sensitive human receptors are three residential areas, a garage and a football club located south of the Site. The Site is located in a bund with a roof over most equipment. Fugitive releases not expected to occur under normal operating conditions.	Activities are managed and operated in accordance with the EMS (and include inspection and maintenance of equipment, including engine management systems). H_2S point source emissions to air are controlled in accordance with emission limits. A specialist unit equipped with two-stage chemical scrubber system is used for air treatment and abatement to reduce odours and the generation of other gaseous compounds.	Low
Litter, mud and debris									
Data and information				**Judgement**				**Action (by permitting)**	

Receptor	Source	Hazard	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
Local human population, livestock and wildlife, domestic properties and local amenity.	Waste and litter on local and internal roads. Vehicles entering and leaving site.	Nuisance, loss of amenity and road traffic accidents.	Air transport then deposition.	Low	Low	Low	Local residents, surrounding environmental and animals sensitive to litter. There is some potential for litter to be generated from general site activities, but limited potential for it to leave the Site boundary. Cake that is delivered to the Site is transported in tankers.	All vehicles leaving the site which are transporting waste are to be covered to prevent waste/materials escaping from them. All waste produced from general site activities is kept in enclosed containers, or inside a building, prior to removing from site. All waste is removed by an external contractor when required. Regular inspections for litter and debris are undertaken. Nuisance management measures are included in the EMS and the site specific management plant. Details of the procedures Southern Water follows with regards to the controls of mud and debris and potentially polluting leaks and spillages can be found in EMS 360 and EMS 381. A Residue Management Plan has been produced for the Site which identifies the waste types generated and appropriate storage arrangements on Site.	Low
Local human population	Vehicles depositing mud and debris arriving/ leaving the Site.	Nuisance, loss of amenity and road traffic accidents.	Vehicles entering/ leaving the Site.	Low	Low	Low	Road safety issues – local residents often sensitive to mud on the road. Limited potential for mud and debris.	Activities shall be managed and operated in accordance with a site-specific management plan with overarching procedures set out in the EMS. Details of the procedures Southern Water follows with regards to the control of mud and debris and potentially polluting leaks and spillages can be found in EMS 360 and EMS 381. Any mud or sludge arising from activities on-site is cleared up promptly. A sweeper is ordered and used as required. Any mess and cake spilled is cleaned up. Cake is pumped directly into sealed ro-ro's, and there is no dop. Any emissions of substances not controlled by emission limits (excluding odour and noise) shall not cause pollution. Vehicle routes are to be inspected regularly and swept where necessary. All vehicles leaving the Site, transporting waste/ cake are to be covered to prevent waste/materials being blown from them.	Low

Pests									
Data and information				**Judgement**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**

Local human population	Vermin, birds and insects	Harm to human health from wastes carried off-site and faeces. Nuisance and loss of amenity.	Air transport and over land	Low	Low	Low	Permitted wastes are unlikely to attract scavenging animals and birds but certain areas may become nesting / breeding sites. The waste types handled on-site do not attract pests and contractors regularly check the Site for pests. Therefore, the magnitude of risk is considered to be low. The Site experiences pigeons nesting under the external roof, it is understood that Southern Water are looking to have a net installed to the underside of the external roof to help manage this.	Activities to be managed and operated in accordance with the EMS and management plans and procedures implemented. Pest control measures are implemented under EMS227. The waste site adjacent to the Site uses birds of prey to deter birds, the presence of pigeons and gulls is reduced. Rentokil undertake site visits when required and bait boxes are kept on site in case of infestation. All reports of pests are sent to the contractor who will investigate and report findings and outcomes and detail any actions required. Ensure waste cannot be accessed by scavengers. All waste produced from general site activities are kept in enclosed containers, or inside a building, prior to removing from site. Doors of buildings are to remain closed at all times when not in use. Regular inspection and maintenance of boundary fencing and buildings is carried out to prevent access to the Site. Well established and proven operational controls and procedures are in place, including regular inspection and monitoring of the Site for pests by contractors.	Low
Human health and environmental safety									
Data and information				**Judgement**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
Local human population and local environment.	Flooding of the site.	If waste is washed off-site, it may contaminate buildings / gardens / natural habitats downstream.	Flood waters	Low	Medium	Low	Permitted waste types are sludges/bio-solids, which may contain pathogens, so any waste washed off-site will add to the volume of the local post-flood clean up and may be hazardous to human health. The infrastructure present on site is within an Environment Agency Zone 1 flood risk area. Areas within zone 1 have 1 in a 1,000 chance of river or sea related flooding. However, the pond's located close to the southern boundary of the site are located within a Zone 2 which is associated with areas of land that have between 0.1% – 1% chance of flooding from rivers/the sea per year.	The drainage network sends water to the works return. There are no direct potentially contaminated discharges to controlled surface waters. Activities to be managed and operated in accordance with a management system and management plans and procedures implemented, including the removal of spilled waste and other pollutants (such as use of spill kits and mobile bunds) before these could enter any flood waters if an event was to occur.	Low
Local human population and / or livestock after gaining unauthorised access to the installation.	All on-site hazards: machinery, wastes and vehicles.	Bodily injury, death.	Direct physical contact.	Low	Medium	Low	Potential injury to on-site personnel as a result of vehicle movements or equipment malfunction or misuse. Direct physical contact is minimised by activity being carried out within enclosed digesters so a low magnitude risk is estimated.	Overall management of the site is overseen by an experienced member of staff holding an appropriate Certificate of Technical Competence (CoTC) awarded by the Waste Management Industry Training and Advisory Board. This competent person delegates responsibilities to appropriately experienced and trained site operatives throughout the operating hours.	Low

					Contact with waste is minimal with exception of leaks or spills from unloading of tanker and transfer of filter cake.	Southern Water is working towards an accredited Competency Management System to ensure Sites continue to operate appropriately. All operational staff are fully trained in the site operating procedures and Southern Water' safety and environmental management procedures and are kept up to date on changes. Training includes awareness raising of the potential on-site hazards and health and safety measures to adhere to. Preventative measures will be under continuous review as part of the EMS procedures. Activities are managed and operated in accordance with the EMS – this includes site security measures to prevent unauthorised access. No maintenance work or contractor is permitted on-site without a suitable permission to work and qualification. There is an electrical barrier located at the far end of the access road with an intercom system which is connected to the control room. A 2m high manual gate is located at the entrance the bunded area which is where the WTW and STC are located. The Site is fully enclosed by two perimeter fences, an outer 1m high wooden stake wire fence and an inner 2m high metal palisade fence. There are 21 CCTV and one ANPR cameras located around the Site. Entry to the buildings is controlled via phones and cards with magnetic locks on doors and manual locks, the buildings are secured by an intruder alarm. The Site is staffed during shift times (Monday-Friday: 7am-7pm. Sat-Sun the Site is unmanned. Standby operatives attend site to do samples and site checks. Regular inspections of the boundary fencing and buildings are undertaken to ensure that these have not been compromised and continue to prevent easy access to site. Repairs are undertaken in accordance with the EMS requirements. Key sludge treatment and wastewater treatment activities undertaken within enclosed systems. Under current conditions 9-10 ro-ro's of cake are imported to Site weekly, and approximately 25 ro-ro's of cake are removed weekly. Vehicle movements around the Site vary depending on what activities are being undertaken. Cake is moved to cake bays once a trailer is full. Waste is removed as required. Therefore, frequent vehicle movements are typically undertaken only by site staff and maintenance contractors. Operator has produced a hazard review and risk assessment documents relating to this and other types of potential incidents, within the EMS, H&S and O&M manuals.	

Local human population and local environment.	Explosion of biogas causing release of polluting materials to air (smoke or fumes), water or land	Respiratory irritation, illness and nuisance to local population. Injury to staff, fire fighters or arsonists/vandals. Potential for uncontrolled release of fugitive emissions of gaseous, liquid or solid materials to air, water or land. Acute or chronic effects to aquatic life, contamination and deterioration of land and water quality.	Air transport. Direct run-off from site across ground surface, via surface water drains, ditches etc. Indirect run-off via the soil layer Transport through soil/ groundwater then abstraction.	Low	High	Medium	Emissions to air, land or water may cause harm to and deterioration of air, land or water. Smoke and fumes may cause irritation, illness or nuisance to local residents and site staff. An explosion could cause injury to local residents and site staff from flying debris. Although biogas is flammable, risk of direct physical contact is minimised by activity being carried out within the sludge treatment works and in containerised units or locked buildings. Permitted waste types limited to sludges and liquids.	The key sludge treatment and WTW processes are undertaken within enclosed systems such as the AD and biogas systems. Sludge storage tanks sealed, and most are enclosed within the building. Activities are managed and operated in accordance with the EMS, H&S and O&M manuals – this includes site security measures to prevent unauthorised access. No maintenance work or contractor is permitted on-site without a suitable permission to work and qualification. Fire detection equipment is installed in the CHP containers and the boiler building which activate an alarm on detection of a fire. Slam shut valves on biogas lines will automatically close on detection of a fire to prevent any fuel being supplied to the CHP engines or boilers. Training and regular toolbox talks are given to operatives on-site and all operators and staff understand their role in an emergency. The EMS includes procedures relating to maintenance and inspection of bunding of tanks spills and environmental incidents. Site Manager shall ensure the programme PPM is implemented effectively to minimise the probability of fire through faulty plant and equipment. All equipment is checked and calibrated as per the manufacturer's instructions. Emergency operating procedures are in place. Adequate firefighting measures are implemented on-site. There is an electrical barrier located at the far end of the access road with an intercom system which is connected to the control room. A 2m high manual gate is located at the entrance the bunded area which is where the WTW and STC are located. The Site is fully enclosed by two perimeter fences, an outer 1m high wooden stake wire fence and an inner 2m high metal palisade fence. Regular inspections of the boundary fencing and buildings are undertaken to ensure that these have not been compromised and continue to prevent easy access to the site. Repairs are undertaken in accordance with the EMS requirements. There are 21 CCTC and one ANPR cameras located around the Site, five of which are currently not working however these are to be fixed. Entry to the buildings is controlled via phones and cards with magnetic locks on doors and manual locks, the buildings are secured by an intruder alarm. The Site is staffed during shift times (Monday-Friday: 7am-7pm. Sat-Sun the Site is unmanned. Standby operatives attend site to do samples and site checks. A Fire Prevention Plan is not required to be submitted for the permit application as the biowaste process on site is wet anaerobic digestion. However, fire prevention and environmental fire risk assessment	Low
Local human population and local environment.	Explosion of pressurised tanks due to equipment and/ or process failure.			Low	Medium	Low	Emissions to air, land or water may cause harm to and deterioration of air, land or water Smoke, fumes and material released from tanks may cause irritation, illness or nuisance to local residents and site staff. Impact from the tank explosion may cause external damages to other equipment, buildings located close to the epicentre of the explosion.		Low
Local human population and local environment	Accidental fire causing the release of polluting materials to air (smoke or fumes), water or land. Equipment failure.			Low	Medium	Low	Emissions to air, land or water may cause harm to and deterioration of air, land or water. Smoke and fumes may cause irritation, illness or nuisance to local residents and site staff. Although biogas is flammable, risk of direct physical contact is minimised by activity being carried out within the sludge treatment works and in containerised units or locked buildings. Risk of accidental combustion of waste is minimal. Permitted waste types limited to sludges and liquids.		Low
Local human population and local environment.	Arson and/or vandalism causing the release of pollution materials to air (smoke and fumes), water or land.			Low	Medium	Low	Emissions to air, land or water may cause harm to and deterioration of air, land or water. Smoke and fumes may cause irritation, illness or nuisance to local residents and site staff. Although biogas is flammable, risk of direct physical contact is minimised by activity being carried out within the sludge treatment works and in containerised units or locked buildings.		Low

							Risk of accidental combustion of waste is minimal. Permitted waste types limited to sludges and liquids	procedures are provided in the EMS, H&S manual and Safety Instruction Book (SIB) (EMS362, H&S204, H&S440, and SIB603). There is also Safety zoning of areas under DSEAR/PEXA on site and Smoking is only permitted in designated areas. Firewater within a newly bunded area will be contained by the bund and allow for appropriate disposal. There will be no gravity hydraulic connection from the bund to the drainage system/return to head of works. Manual intervention by an operator will be required to start the pumps and remains subject to the pre-acceptance (sample/test) procedure to ensure the water is appropriate for discharge to head of works. In the event of an incident, depending on the nature of the contamination (firewater in this context) the product will be held within the bund and be subject to alternative disposal methods. Depending on the scale and nature of the incident this may include temporary holding in road tankers to facilitate safe recovery activities. The detail regarding this procedure remains subject to further evaluation as solutions are designed and implemented. Firewater use on other process/equipment areas (which either have existing, or will be provided with new, impermeable surfaces) will drain to site drainage systems. A robust means of isolating the site drainage from returning to the head of works is required. Where sites have pumped return to head of works stopping the pump and ensuring no hydraulic link (syphoning) is required. Where return to head of works is (or could be) gravity returned, a new isolation valve is required which is to be shut in the event of an incident. Implementation of these measures will ensure no firewater returns to the WtW without appropriate controls including sampling/testing. Further design development is underway to determine the most appropriate solution to address this requirement and ensure compliance.	
Local human population and local environment.	Operator Error.	Pollution to air, land, surface water and groundwater and human health	Air transport, direct run-off from site across ground surface, via surface water drains, ditches etc. Indirect run-off via the soil layer. Transport through soil/ groundwater then abstraction.	Low	Medium	Low	Possible contamination to air, land, groundwater and surface water. Given the level of operator controls which are in place and management plans, it is considered the probability and magnitude will be low.	Activities to be managed and operated in accordance with the EMS and management plans and procedures implemented. All equipment is checked under preventative maintenance plans and is checked and calibrated as per the manufacturer's instructions. Overall management of the Site is overseen by an experienced member of staff holding an appropriate Certificate of Technical Competence (CoTC) awarded by the Waste Management Industry Training and Advisory Board. This competent person delegates responsibilities to appropriately experienced and trained site operatives throughout the operating hours. All operational staff are fully trained in the Site operating procedures and Southern Water' safety and environmental management procedures and are kept up to date on changes.	Low

								Training includes awareness raising of the potential implications of failure to control operations and the potential impact on the environment. Preventative measures will be under continuous review as part of the EMS procedures. Emergency operating procedures are in place and detailed in the Site's Operational Contingency Plan. Senior site-based management have direct responsibility for implementing risk management measures.	
Natural habitats and ecology									
Data and information				**Judgement**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
Protected nature conservation sites – European and national designated sites.	Any, but principally NOx.	Harm to protected site through toxic contamination, nutrient enrichment, disturbance etc.	Air transport. Direct run-off from site across ground surface water drains, ditches etc. Indirect run-off via the soil layer. Transport through soil/ groundwater then abstraction.	Low	Medium	Low	Physical disturbance and emission to air, water or land may cause harm to and deterioration of nature conservation sites. There are two statutory designated European Sites within 10km of the Site. Two Special Areas of Conservation (SACs); Castle Hill located 5.6km from Site, and Lewes Downs 7.2km from Site. There are two statutory designated Sites within 2km of the Site, Brighton to Newhaven Cliffs which is a site of special Scientific interest (SSSIs) is located 688m from Site, and Beachy Head West which is a Marine Conservation Zone (MCZ) located 718m from the Site.	Activities to be managed and operated in accordance with the EMS and management plans and procedures implemented. Emissions of substances not controlled by emission limits (excluding odour and noise) shall not cause pollution. Storage of high ammonia bearing material will be covered at all times. Emission limits for stack gases are specified. BAT and appropriate additional mitigation measures set out in the EMS (EMS323, EMS223, EMS228 and EMS220), have been taken to prevent or where that is not practicable, to minimise, those emissions. As required by the Southern Water EMS various housekeeping and waste management practices are in place to monitor waste emissions. These include segregation of wastes according to their classification and nature, labelling waste and using designated storage containers.	Low
Protected species, including nesting birds, wintering birds, common reptiles, terrestrial and aquatic invertebrates, common amphibians, bats, badgers, hazel dormice and great crested newts.	Any, but principally NOx.	Harm to protected species through disturbance or removal of habitats.		Low	Medium	Low	Physical disturbance and emissions to air may cause harm to protected species. The proposal for the Permit does not involve the removal of vegetation, or structural modification to built structures. It is considered unlikely, therefore, that Site activities would lead to the disturbance or removal of terrestrial habitats. There are two statutory designated European Sites within 10km of the Site. Two Special Areas of Conservation (SACs); Castle Hill located 5.6km from Site, and Lewes Downs 7.2km from Site. There are two statutory designated Sites within 2km of the Site, Brighton to Newhaven Cliffs which is a site of special Scientific interest (SSSIs) is located 688m from Site, and Beachy Head West which is a Marine Conservation Zone (MCZ) located 718m from the Site.		Low

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