Air Quality Impact Assessment to Support a Bespoke Installation Permit Application: Parkham Farms Cheese Factory

On behalf of:

Parkham Farms Cheese Factory, Higher Alminstone Farm, Woolsery, Bideford, Devon EX39 5PX

ETL928/2026

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Abbreviations

AAD	Ambient Air Quality Directive (2008/50/EC)
AcidDep	Acid deposition
AcidNDep	Acid deposition (due to nitrogen species)
AEL	Associated Emissions Level
AOD	Above Ordnance Datum
APIS	Air Pollution Information System
AQMA	Air Quality Management Area
AQIA	Air Quality Impact Assessment
AQS	Air Quality Standards
AQSR	Air Quality Standards Regulations 2010
AW	Ancient Woodland
BAT	Best Available Techniques
CIP	Clean in Place
CO	Carbon monoxide
CWS	County Wildlife Site
Defra	Department for the Environment, Food and Rural Affairs
DBRC	Devon Biological Records Centre
EA	Environment Agency
EAL	Environmental Assessment Level
EC	European Commission
ELV	Emission Limit Value
EPR	Environmental Permitting Regulations
EU	European Union
GFS	Global Forecast System
IAQM	Institute of Air Quality Management
IED	Industrial Emissions Directive
LAQM	Local Air Quality Management
LWS	Local wildlife site
MCPD	Medium Combustion Plant Directive
MWthi	Megawatts thermal input
NE	Natural England
NGR	National Grid Reference
O_2	Oxygen
OSWI	Other Site of Wildlife Interest
PC	Process Contribution
PEC	Predicted environmental concentration
SO_2	Sulphur dioxide
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

TG	Technical Guidance
UWS	Unconfirmed Wildlife Site

1 Introduction

1.1 Background

Earthcare Technical Ltd (ETL) has been commissioned to undertake an Air Quality Impact Assessment (AQIA) on behalf of Parkham Farms Ltd (PFL) in support of an application for a bespoke installation permit (Permit ref: EPR/HP3728LG) for Parkham Farms Cheese Factory, Higher Alminstone Farm, Woolsery, Bideford, EX39 5PX (the Site) operated by Parkham Farms Limited (PFL), herein termed 'the Operator'.

The Site operates as a specialist dairy processing facility, primarily focused on the production of hard cheeses, specialising in traditional cheddar, using milk sourced from Parkham Farm's own herds and directly contracted local farms. Site activities include milk reception, pasteurisation, curd processing, cheese maturation, and the recovery and reuse of whey and cream by-products. On-site processes include:

- Food and drink production processes utilising milk (the dairy) to produce cheddar cheese;
- Production of by-products including cream, lactose and whey permeate via Ultrafiltration (UF) and Reverse Osmosis (RO); and
- Further treatment of permeate (RO Water) by chlorine dioxide dosing to produce process water for site use.

Raw milk is stored in a series of milk silos. Milk is transferred from storage silos into the Cheese Processing Building, where it undergoes pasteurisation via a continuous pasteuriser. Cleaning-in-Place (CIP) systems are used throughout the process to maintain hygiene and product integrity, supported by hot and cold-water storage and recovery systems. The Pasteuriser and CIP systems use heat from 2No. fixed 1.84 MWthi steam Boilers on site (one duty and one standby).

Emissions to air from the operation are summarised in Table 1, which includes emissions to air from an emergency back-up diesel generator also available for on-site use. The location of the emission points can be seen in **Figure 1 – Site Layout and Emission Points Plan.**

Table 1: Boilers for steam production

Emission point	Size (MWthi)	Commissioning date	Grid reference (X, Y)	Fuel
A1 - Boiler 1	1.84 *	2005	235238, 120766	Kerosene [(a)]
A2 - Boiler 2	1.84 *	2005	235237, 120762	Kerosene [(a)]
A3 – Standby generator	1.95 **	2017	235227, 120770	Diesel
Notes: * Based on 1,567 kW at 85% efficiency. ** Based on 805 kVA at 33% efficiency. (a) Not exceeding 0.1% w/w sulphur content.				

The European Union Medium Combustion Plant (MCP) Directive (MCPD) controls apply to all in-scope MCP with a rated thermal input of each unit between 1 MWthi and 50 MWthi regardless of the type of fuel used. The boilers have a rated thermal input in the 1 MWthi – 5 MWthi range and are in scope as they are 'combustion units, such as an engine, boiler or turbine' and do not fall under any of the exclusions in the guidance.

The boilers were commissioned prior to 2018 and will be required to meet the MCPD Emission Limit Values (ELVs) for existing plant by 1 January 2030. The pollutants to be considered under MCPD include oxides of nitrogen (NOx); the assessment also includes nitrogen dioxide (NO_2).

The emergency backup generator is used in abnormal operating circumstances; for the sole purpose of providing power at a site during an onsite emergency i.e. when mains power is unavailable. It is tested for 30 minutes every month. It is therefore used/ tested for less than 50 hours per year (typically for 6 hours per year) and as such is not included within the assessment of emissions to air.

An H1 risk assessment using the Environment Agency's (EA's) H1 tool,[1] which is a conservative tool, was used to screen out the pollutants from the proposed emission sources that do not require further assessment. The completed H1 tool and a report have been submitted to the EA with this report.[2] The assessment concluded that the following pollutants and environmental assessment levels (EALs) or air quality standards (AQS) require detailed assessment, and they are therefore considered in this report:

- Nitrogen Dioxide (NO_2) (annual and 1-hour mean)
- Nitrogen Dioxide (ecological – annual mean and daily mean)

1.2 Site location

Parkham Cheese Factory is located at Higher Alminstone Farm, North Devon. The factory is situated in a predominantly agricultural setting, with the village of Woolsery approximately 2 km to the north-west and the town of Bideford located about 15 km to the north-east. Access to the Site is via local roads branching from the A39.

The surrounding area consists largely of farmland and open countryside, with a small number of residential properties in the immediate vicinity. There is a PFL-owned residential property adjacent to the Site where the Herd Manager resides.

The Site is in Torridge District Council (TDC) Area, within Devon County Council (DCC). It is not located in an Air Quality Management Area (AQMA) and indeed Torridge District Council does not currently have any declared AQMAs.[3]

[1] Atmospheric Dispersion Modelling Liaison Committee (ADMLC) H1 Risk Assessment Tool, Available at: https://admlc.com/h1-tool/ version 9.2 [Accessed November 2024]
[2] ETL (2026) H1 Assessment to Support a Bespoke Installation Permit Application: Parkham Farms Cheese Factory. Doc ref: ETL928_H1_V1.0_PFL_ Feb 2026.
[3] Torridge District Council (2025) 2025 Air Quality Annual Status Report (ASR), May 2025 (https://www.torridge.gov.uk/article/20227/Air-Quality)

There are two statutory designated sites within 10 km of the Site boundary, namely: Tintagel-Marsland-Clovelly Coast Special Area of Conservation (SAC) and Culm Grasslands SAC (and SSSI). There are eight Sites of Special Scientific Interest (SSSIs) coincident with the SACs but none are located within 2km of the Site. Within 2 km of the Site boundary there are 10 No. Local Wildlife Sites and one area of Ancient Woodland (Bucks Cross Wood).

1.3 Process summary

The Permit boundary and Emission Points plan is provided in **Figure 2,** and the Site layout Plan in **Figure 3.** A detailed process description is provided in the accompanying Environmental Management System.

In summary, Parkham Farms produces Farmhouse Cheddar using milk from its own herds and contracted local farms. The Site has the capacity to process 514 tonnes of milk per day, with raw materials (milk) delivered to specification. Raw milk is received in bulk and stored under controlled conditions in six dedicated silos prior to processing.

The raw milk is processed through pasteurisation and controlled cheese production, converting it into cheddar blocks. The operation is supported by modern equipment including vats, drainer systems, curd formers, and automated packaging, ensuring product consistency, microbiological safety, and efficient throughput.

By-products from the process are recovered: whey protein concentrate and lactose are extracted via membrane technologies, and process water is treated and reused, reducing reliance on mains supply. There are integrated CIP systems across the Site.

With specific regard to emissions to air from the process, Boiler 1 and Boiler 2 operate alternately (one duty, one standby) to produce steam used for heating, cleaning equipment and pasteurisation.. At any one time a boiler will be operational between the hours of 23:15 – 18:15 i.e. a total of 19 hours per day, for 7 days per week. Each boiler is therefore operational for approximately 39.6% of the time during the year (3,468 hours per year).

Appendix C contains specification data for the kerosene fuel used in both boilers. Under the MCPD, 'gas oil' is defined to include petroleum-derived liquid fuel with certain CN (combined nomenclature) codes. The CN for the kerosene supplied is 2710 19 25; and is therefore included within the MCPD definition of 'gas oil'.

Boiler 1 and Boiler 2 (emission points **A1** and **A2** respectively) are 1.84 MWthi each and will be required to meet the MCPD ELVs for existing plant fired by gas oil (Annex II, Part 1, Table 1)[4] by 1 January 2030, as follows:

- NOx: 200 mg/Nm^3 (3% O2), MCP ELV
- SO_2: no limit set but subject to separate fuel-sulphur controls. The specification data (Appendix C) confirm compliance with BS EN 2869:2017 (Class C2) and not exceeding the maximum limit of 0.1% w/w sulphur content.

[4] DIRECTIVE (EU) 2015/2193 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 25 November 2015 on the limitation of emissions of certain pollutants into the air from medium combustion plants

- Dust: no limit set.

Under the MCPD, specific ELVs are not established for sulphur dioxide (SO_2) or carbon monoxide (CO) arising from the use of gas oil. This omission reflects the intrinsically low sulphur content of fuels to be used on land and the fact that CO emissions are principally indicative of combustion efficiency, which is subject to operational monitoring rather than the regulation against an ELV.

In accordance with regulatory/technical benchmarks used in permitting, if the 1.95 Mwthi standby diesel generator is operated for more than 500 hours per year, monitoring will be required under the provisions of the permit and ELVs will apply.

1.4 Scope of report

This AQIA assesses the impact on human and ecological receptors from sources that lie within the permit boundary. Emissions to air have been modelled based on the operation of the equipment in normal and abnormal operating scenarios at the specified ELVs.

The ADMS 6[5] dispersion model has been used to calculate concentrations of the pollutants.

While ELVs and the air quality standards for ecological receptors are specified for NOx, standards for human health are for nitrogen dioxide (NO_2) which is emitted as a by-product of combustion and is formed (and consumed) in chemical reactions including NOx and other species.

Predicted concentrations have been compared with relevant AQS (limits, targets, objectives, and assessment levels) to assess their significance, considering background concentration data where relevant.

The pollutants considered in this AQIA are:

- Oxides of nitrogen (NOx)/ Nitrogen dioxide (NO_2)

This report describes the: relevant legislation and guidance for industrial emissions, ambient air quality and modelling of emissions to air (Section 2); the assessment methodology used to model concentrations of pollutants (Section 3); assessment criteria including air quality limit values, objectives and EALs and significance criteria (Section 4); a baseline assessment of existing air concentrations (Section 5); and results of the dispersion modelling (Sections 6 and 7); before Section 8 provides conclusions.

[5] CERC, Environmental software, Available at: https://www.cerc.co.uk/environmental-software.html [Accessed December 2024]

2 Legislation and guidance

2.1 Overview

This section describes the legislation, policy, and guidance relevant to this assessment which is summarised in Table 2 and described further in Sections 2.2 and 2.3. Throughout the report the guidance is referenced when used.

While the UK has left the European Union (EU), the EU Withdrawal Act 2018[6] brought all EU laws and regulations, made while the UK was a member of the EU, into UK law by creating a new category of UK law: EU retained law. Therefore, the EU Directives described in this section still apply in the UK.

Table 2 Summary of legislation, policy and guidance

Short name	Name	Body	Scope
Legislation			
1995 Act	Environment Act 1995[7]	UK Parliament	Establishes the framework for managing air quality to achieve compliance with air quality objectives.
2021 Act	Environment Act 2021[8]	UK Parliament	New measures to strengthen the provisions of the 1995 Act
4th Daughter Directive	Directive 2004/107/EC[9]	European Commission, now EU	Sets limit values for arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air
AAD	Ambient Air Quality Directive 2008/50/EC[10]	EU	Ambient air quality, sets limit and target values
IED	Industrial Emissions Directive, 2010/75/EU[11]	EU	Industrial emissions
MCPD	Medium Combustion Plant Directive, EU/2015/2193[12]	EU	Emission limit values for pollutants from combustion plant greater than 1MWth and less than 50MWth
NECD	National Emissions Ceiling Directive[13]	EU	2020 and 2030 emission reduction commitments

[6] UK Legislation, European Union (Withdrawal) Act 2018
[7] Environment Act 1995, 1995 Chapter 25, Part IV Air Quality
[8] Environment Act 2021, UK Public General Acts2021 c. 30
[9] DIRECTIVE 2004/107/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL, of 15 December 2004, relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air.
[10] DIRECTIVE 2008/50/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 21 May 2008 on ambient air quality and cleaner air for Europe comment on amendment
[11] DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions (integrated pollution prevention and control)
[12] DIRECTIVE (EU) 2015/2193 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 25 November 2015 on the limitation of emissions of certain pollutants into the air from medium combustion plants.
[13] European Commission, National Emissions Ceiling Directive (2016/2284/EU) (2016), http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016L2284&from=EN

Short name	Name	Body	Scope
AQSR	Air Quality (Standards) Regulations 2010[14] as amended in 2016[15]	UK Parliament	Ambient air quality, standards for pollutant concentrations. Transposed EU limit values defined in AAD into law in England and Wales
EPR	Environmental Permitting Regulations 2018[16]	UK Parliament	Industrial emissions. Transposed IED into law in England and Wales
Guidance			
Defra/EA permit guidance	Air emissions risk assessment for your environmental permit[17]	Department for Environment, Food & Rural Affairs (Defra) and Environment Agency (EA)	How to undertake an air quality assessment for a permit
Defra SWIP	Specified generators: dispersion modelling assessment[18]	EA and Natural Resources Wales	Includes reference for conversion of NOx to NO_2
AQTAG06	AQTAG06 Technical guidance on detailed modelling approach for an appropriate assessment for emissions to air[19]	Air Quality Advisory Group	Guidance on calculating deposition
LAQM.TG16	Local Air Quality Management, Technical Guidance (TG16)[20]	Defra and the Devolved Authorities	Includes general guidance on dispersion modelling
IAQM Designated nature sites	A guide to the assessment of air quality impacts on designated nature conservation sites[21]	IAQM	Discusses assessment of air quality impacts on ecological receptors
NE guidance 2025	Air pollution and development: advice for local authorities	Natural England	Provides a framework for determining whether a new development could harm protected habitats.

2.2 Legislation and policy

2.2.1 Environment Act 1995 and Environment Act 2021

The Environment Act 1995 established the framework for managing air quality to achieve compliance with air quality objectives. The Environment Act 2021 amended and strengthened the provisions of the 1995 Act, introducing new measures to enhance environmental protection, and introducing a lower limit value for Particulate Matter with an aerodynamic diameter less than

[14] Statutory Instrument: 2010 No. 1001, ENVIRONMENTAL PROTECTION, The Air Quality (Standards) Regulations 2010 comment on amendment
[15] The Air Quality Standards (Amendment) Regulations 2016, Statutory Instrument 2016 No, 1184, Made 6th December 2016
[16] The Environmental Permitting (England and Wales) (Amendment) Regulations 2018, Statutory Instrument 2010 No, 675
[17] Department for Environment, Food & Rural Affairs and Environment Agency, Air emissions risk assessment for your environmental permit, Available at: https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit [Accessed December 2024].
[18] Environment Agency and Natural Resources Wales, Specified generators: dispersion modelling assessment, Available at: https://www.gov.uk/guidance/specified-generators-dispersion-modelling-assessment#nosubxsub-to-nosub2sub-conversion-ratios-to-use [Accessed December 2024].
[19] Air Quality Advisory Group, 2014, AQTAG06 Technical guidance on detailed modelling approach for an appropriate assessment for emissions to air
[20] Department for Environment, Food & Rural Affairs and the Devolved Authorities, Local Air Quality Management Technical Guidance (TG16), February 2018
[21] IAQM (2020). A guide to the assessment of air quality impacts on designated nature conservation sites – version 1.1, Institute of Air Quality Management, London.

2.5µm ($PM_{2.5}$). It introduced the Office for Environmental Protection for England and Northern Ireland to monitor compliance, report on the effectiveness of environmental law and enforce compliance when necessary.

2.2.2 Ambient Air Quality Directive and 4th Daughter Directive

The Ambient Air Quality Directive and 4th Daughter Directive contain **Limit Values** and **Target Values** with which the UK must comply. The Ambient Air Quality Directive also addresses common methods and criteria; information on ambient air quality to help combat air pollution and nuisance, to monitor long-term trends; and making information and pollution alerts available to the public.

2.2.3 Air Quality Standards Regulations

The Air Quality (Standards) Regulations 2010 is the instrument by which the Ambient Air Quality Direction and the 4th Daughter Directive were transposed into English law.

2.2.4 Industrial Emissions Directive

The IED is the main EU instrument by which pollutant emissions from industrial installations are regulated. It consolidated seven earlier directives including the Integrated Pollution Prevention and Control Directive and the Waste Incineration Directive. It defines emissions limit values (ELVs) for some process-fuel combinations but there are no ELVs relevant to the Biogas upgrading stack.

2.2.5 Medium Combustion Plant Directive

The MCPD sets ELVs for pollutants from combustion plant of thermal input greater than 1MWth and less than 50MWth. It regulates emissions of SO_2, NOx and dust to air and requires monitoring of carbon monoxide (CO) emissions to reduce emissions and risks to human and ecological receptors. MCPD ELVs apply from 2025 or 2030 for existing plants, depending on their size.

The relevant NOx ELVs for the existing boilers using kerosene, which have been used in this assessment, are those defined in Part 1, Table 1 of Annex II of the MCPD.

2.2.6 National Emissions Ceiling Directive

The NECD sets 2020 and 2030 emission reduction commitments for anthropogenic emissions of five main air pollutants: SO_2, NOx, non-methane volatile organic compounds (NMVOCs), NH_3 and $PM_{2.5}$. The NECD Regulations[22] transposed the NECD into UK law. It is supported by the Clean Air Strategy 2019.[23]

2.2.7 Environmental Permitting Regulations

The Environmental Permitting (England and Wales) (Amendment) Regulations 2023 is the latest consolidated version of instrument by which the IED was transposed into national legislation.

[22] Statutory Instrument, 2018 No. 129, Environmental Protection, The National Emission Ceilings Regulations 2018
[23] Defra (2019) Clean Air Strategy

2.3 Guidance

2.3.1 Air emissions risk assessment for your environmental permit

The webpage provides Department for Environment, Food & Rural Affairs (Defra) and EA guidance on how to carry an air emissions risk assessment.[24] It includes guidance on the ecological receptors to be assessed, tests on significance on results, relevant air quality Limit Values (from the Ambient Air Directory), objectives from the National Air Quality Strategy and it lists short-term (hourly) and long-term (annual mean) EALs for human health.

2.3.2 Specified generators: dispersion modelling assessment

The webpage provides Defra and EA guidance on how to do detailed air quality modelling for specified generators. This includes the use environmental standards for air, the use of NOx to NO_2 conversion ratios, and guidance on impact assessment.

2.3.3 Technical guidance on detailed modelling approach for an appropriate assessment for emissions to air

This document (AQTAG06) provides guidance on how to carry out a quantitative assessment (Stage 3 appropriate assessment) including guidance on calculating deposition for emissions to air in order to fulfil the requirements of the Habitats Regulations.

2.3.4 Local Air Quality Management, Technical Guidance

This technical guidance (LAQM.TG16) is published to support local authorities in carrying out their duties under the Environment Act 1995, which established the LAQM process. It provides guidance on monitoring and assessing air quality, action planning and reporting. While aimed at local authorities the advice in used more widely by those working in the field, and not just for LAQM.

2.3.5 IAQM Designated nature sites

The guidance provides outline principles to also assist in the assessment of air quality impact on European, national, and local designated sites. The guidance recommends that, the 1% and other percentage screening criteria should not be used rigidly and not to a numerical precision greater than that of the criteria themselves. Notably, and as further stated within the guidance, the "*1% screening criterion is not a threshold of harm and exceeding this threshold does not, of itself, imply damage to a habitat*."

2.3.6 Natural England, Air pollution and development: advice for local authorities

In October 2025 Natural England's guidance 'Air pollution and development: advice for local authorities,'[25] was published. It provides a sequential methodology to assess impact including

[24] Environment Agency (EA) and Department for Environment, Food & Rural Affairs (Defra) Air emissions risk assessment for your environmental permit (last updated 21 July 2025) (https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit). Accessed January 2026.
[25] Natural England (2025) Guidance, Air pollution and development: advice for local authorities. How to assess sector-specific planning applications that could affect air quality on a protected site. Available at:

initial screening, detailed air-quality modelling where required, evaluation of cumulative impacts, and consideration of mitigation or avoidance measures. The approach is designed to determine whether a proposed development is likely to have a likely significant effect on European sites (SACs and SPAs) under the Habitats Regulations, and whether it may cause an adverse effect on the features of nationally designated SSSIs.

https://www.gov.uk/guidance/air-pollution-and-development-advice-for-local-authorities [Accessed: 23 February 2026]

3 Assessment Methodology

3.1 Introduction

The methodology comprised three parts which are described in more detail in Sections 3 to 5 and Appendix A:

1. Baseline conditions assessment at the Site and the surrounding area:
   - AQMAs and background concentration (Section 5).

2. Modelling
   - Assessment of the likely changes in concentration due to emissions from the sources listed in Table 1 and as shown in Figure 4 excluding the standby generator. Operation of the plant under abnormal operating conditions (i.e. the continuous operation of one boiler). The assessment was undertaken using the ADMS 6[5] dispersion model (Section 3).
   - The modelling assessment included an assessment of the sensitivity of model results and hence, the impacts, to changes in model input.

3. Assessment of significance. Section 4 describes the assessment and significance criteria.

3.2 Modelling of air quality impacts

3.2.1 Model

The dispersion model used to predict ambient concentrations due to the stack emissions was ADMS 6 (version 6.0.0.1). The model is termed a 'new generation' model and is commonly used in the UK for industrial permit applications to the EA.

It requires as input: data on the source of emissions and the mass emission rates of each pollutant (Table 4 details the model input parameters for the point source emissions), meteorological data and associated parameters, buildings data, terrain data, and receptor locations. Full details of the meteorological, buildings and receptor data are described in Appendix A.

The outputs calculated by the model are the air concentrations of pollutants from the sources modelled for the relevant averaging times and statistics. The contribution from the modelled sources on the Site to air concentration is referred to the Process Contribution (PC), which is then compared with the relevant AQS. When background concentrations are added to the PC, the totals are referred to as Predicted Environmental Concentration (PEC), which have also been compared with the relevant AQS.

3.2.2 Model scenarios

Under normal operation Boiler 1 and Boiler 2 operate alternately to produce steam.

The modelled scenarios are: those which contribute to **long-term impacts** for comparison with long-term AQS (annual mean AQS in Table 5 and Table 7); and those which contribute to **short-term impacts** for comparison with short-term AQS (AQS with averaging times less than or equal to 24 hours in Table 5 and Table 7).

While each boiler may operate for 39.6% of the year (3,468 hours) they will operate for a combined o 79.2% of hours per year (6,936 hours) (Section 1.3), as a conservative assumption long-term impacts have been assessed based on the continuous operation of the boiler with the greatest potential impact at each receptor. This assumes 8,760 hours of operation per year at full load, representing uninterrupted, 'worst-case' long-term use.

Similarly, for short-term impacts, the assessment also pessimistically assumed that one boiler will operate at full load continuously all year, such that its operation would coincide with all the worst-case meteorological conditions during the year.

- **Modelled Long-term Scenario: abnormal operating scenario**
  - One Boiler (Boiler 1 or Boiler 2) operating continuously (8,760 h per year = 100%)
- **Modelled Short-term Scenario: abnormal operating scenario**
  - One Boiler (Boiler 1 or Boiler 2) operating continuously (8,760 h per year = 100%)

3.2.3 Model options and sensitivity

Full results of the sensitivity tests are given in Appendix B.

The model was run for each of the five years of meteorological data (2020-2024) for three combinations of model options:

- Flat terrain: no buildings and no terrain (hills)
- Buildings: with buildings and no terrain (hills)
- Terrain (hills): with buildings

For human receptors, modelling buildings led to higher model predictions in general than for flat terrain or with terrain (hills) and also a greater than the variation due to the meteorological year. For ecological receptors, neither the variation introduced by buildings and terrain nor the variation associated with the meteorological year had a significant effect on the modelled results.

Results at the receptors were calculated as the maximum value at each receptor from these 15 models runs and are therefore worst-case values across all five years and the three model options. Use of five years' meteorological data in the modelling is to account for intra-annual variation.

3.2.4 Sources and emissions

As described in Section 1.2, Boiler 1 and Boiler 2 operate alternately to produce steam used for heating, cleaning equipment and pasteurisation. The actual and assumed (modelled) operating profiles are compared in Table 3.

Table 3 Emission sources and operating profiles

Emission Point/ Boiler	Serial Number	Rating (MWthi)	Actual operating profile		Assumed (abnormal) Operating profile	
			Hrs / day	Annual hours	Annual hours	Assumed Load (%)
A1 Boiler 1	01/9097	1.84	9.5	3,468 (39.6%)	8,760 (100%) *	100
A2 Boiler 2	01/9096	1.84	9.5	3,468 (39.6%)	8,760 (100%) *	100

Notes:
Both boilers are gas oil-fired (kerosene).
***** Long-term impacts have been assessed based on the continuous operation of a single boiler - whichever produces the greatest potential impact at each receptor.

Table 4 details the model input parameters for the point source emissions.

Table 4 Boiler emission parameters

Parameter	Units	Boiler 1	Boiler 2
Location	Easting, Northing	235238, 120766	235237, 120762
Fuel	-	Kerosene	Kerosene
Load	-	Full	Full
Modelled hours of operation	Hours/year	8,760 (100%)	8,760 (100%)
Thermal input	MWthi	1.844	1.844
Stack height	m	11	11
Effective stack height	m	0	0
Internal diameter at exit	m	0.355	0.355
Volume flow rate (dry)	Nm^3/s	0.51	0.51
Volume flow rate (wet)	Am^3/s	1.16	1.16
Velocity	m/s	11.7	11.7
Exhaust O_2 content	%	4.0	4.0
Exhaust H_2O content	%	10.7	10.7
Temperature	°C	244	244
Exit concentration NOx	mg/Nm^3	200 (ELV, 3% O_2)	200 (ELV, 3% O_2)
Emission rate NOx	g/s	0.10	0.10

Notes:
For each source the location, stack height and hours of operation were advised by Parkham Farm Ltd.
For each source, the exhaust diameter, exhaust gas volume flow, temperature (244°C), actual exhaust O_2 % (4.0%) and moisture content (10.7% by volume) at full load firing kerosene is as advised by Cochran Ltd.
Emission rates in this table are shown are for continuous operation; long-term impacts have been assessed based on the continuous operation of a single boiler - whichever produces the greatest potential impact at each receptor.

4 Assessment criteria

4.1 Air Quality Standards

European and national legislation, policy, and guidance, as described in Section 2, set various limit values, target values, objectives and environmental assessment levels (EALs) that may apply to human or ecological receptors. These will be collectively referred to throughout this report as AQS.

The AQS are defined with respect to an averaging time and a statistic. Annual mean AQS are an example of a long-term AQS, which is defined over a long period of time as the effects of the pollutant on human health or the environment are chronic, that is, due to long-term exposure. Pollutants may also have acute impacts, that is, the effects become apparent after short period of exposure to high values. For these pollutants short-term AQS are defined.

4.2 AQS for human health

Table 5 sets out the AQS for human health for the pollutants relevant to this assessment. The standards which apply at human receptor locations apply where people will be exposed to a pollutant for a period relevant to the standard such as at residential locations, hospitals, and schools for annual mean values.

Table 5 Air Quality Standards for human health

Substance	Emission period	Limit (average)	Standard	Exceedances[1]
Nitrogen dioxide	1 hour	200 µg/m^3	AAD Limit Value	Up to 18 1-hour periods
Nitrogen dioxide	Annual	40 µg/m^3	AAD Limit Value	None
Notes: AQS taken from Defra/EA permit guidance[17] [1]number of times a year that you can exceed the limit				

4.2.1 Significance of results

The Defra/EA permit guidance[17] addresses when impacts can be considered insignificant. The guidance considers initial screening and then detailed modelling.

At the initial screening stage, a PC can be screened out from further assessment if:

- the short-term PC is less than 10% of the short-term environmental standard, and
- the long-term PC is less than 1% of the long-term environmental standard.

The second stage of screening considers the background concentration as well as the PC. The Predicted Environmental Concentration (PEC) is the sum of the PC and background concentration. A further assessment is not needed if:

- the short-term PC is less than 20% of the '**headroom**,' where headroom is defined as the short-term environmental standards minus twice the long-term background concentration, and
- the long-term PEC is less than 70% of the long-term environmental standards.

If the PC cannot be screened out on that basis, following detailed modelling, two tests are applied:

- the proposed emissions must comply with Best Available Techniques (BAT) associated emission levels (AELs) or the equivalent requirements where there is no BAT-AEL
- the resulting PECs will not exceed environmental standards.

If those tests are not satisfied it is necessary to consider whether: the PCs could cause the PEC to exceed an AQS; the PEC already exceeds an AQS; or the activity on site is not covered by a BAT reference document. Further action is not required if the following both apply:

- your proposed emissions comply with BAT-AELs or the equivalent requirements where there is no BAT-AEL
- the resulting PECs will not exceed environmental standards.

4.3 AQS for sensitive conservation sites

The Defra/Environment Agency guidance[17] specifies that SACs, SPAs and Ramsar site within 10km should be considered and SSSIs, AWs, LWSs, Local Nature Reserves and National Nature Reserves within 2km should also be considered.

There are two statutory designated sites within 10 km of the Site boundary, namely:

- Tintagel-Marsland-Clovelly Coast Special Area of Conservation (SAC) is approximately 2.4 km north from the Site at the nearest point. The SAC is coincident with the Hobby to Peppercombe Site of Special Scientific Interest (SSSI) and Bucks Cross Wood Ancient Woodland (AW).
- Culm Grasslands SAC (coincident with Kismeldon Meadows SSSI) which is 2.9 km south of the Site.

There are no Special Protection Areas (SPA) or Ramsar sites located within 10km of the Site. There are no Sites of Special Scientific Interest (SSSIs) within 2km, however both the Tintagel-Marsland-Clovelly Coast SAC and Culm Grasslands SAC are coincident with SSSIs.

The EA Nature and Heritage Conservation Screening Reports provided in Appendix D, in addition to data obtained supplied by Devon Biological Records Centre (DBRC) confirmed the presence of 10No. Local Wildlife Sites within 2km of the Site boundary; there is one area of Ancient Woodland, Bucks Cross Wood, located 1.8 km to the north.

Table 6 presents the sensitive conservation sites, receptors, and habitats in each area. AQS for concentrations of pollutants are referred to as critical levels (CLes) and those for deposition flux of nutrient nitrogen (NDep) and acid deposition due to nitrogen (N) and sulphur (S) (AcidDep) are referred to as critical loads (CLos).

In Table 7 the CLes for the pollutants relevant to this assessment for designated ecological site receptors are summarised, in Table 8 the CLos for NDep are given and whether sites were modelled as grass or forest for the calculation of deposition flux. The CLos for AcidDep vary with habitat; the values for each habitat are provided in Table 9.

For many habitats, APIS presents two sets of CLos for AcidNDep, a minimum set and a maximum set. The minimum set (MinCLminN and MinCLmaxN) are used for screening assessments, and the maximum set (MaxCLminN and MaxCLmaxN) are used for detailed assessments and Appropriate Assessments; the minimum set have been used for this assessment (Table 9).

Table 6 Sensitive conservation sites

Site	Designation	Receptors	Broad habitat(s) assessed
Tintagel-Marsland-Clovelly Coast	SAC	E1 – E8	Dry heaths
			Unmanaged Broadleafed/Coniferous Woodland
Culm Grasslands	SAC	E9 – E17	Northern wet heath: Erica tetralix dominated wet heath (lowland)/ Dwarf shrub heath
Hardings House	CWS	E18	Northern wet heath: Erica tetralix dominated wet heath (lowland)/ Dwarf shrub heath
Leworthy Cross	LWS/ CWS	E19, E20	Northern wet heath: Erica tetralix dominated wet heath (lowland)/ Dwarf shrub heath
Parkham Ash	LWS/ CWS	E21 – E23	Northern wet heath: Erica tetralix dominated wet heath (lowland)/ Dwarf shrub heath
South Stroxworthy	LWS/ CWS	E24	Northern wet heath: Erica tetralix dominated wet heath (lowland)/ Dwarf shrub heath
Kerswell Farm	LWS/ CWS	E25	Northern wet heath: Erica tetralix dominated wet heath (lowland)/ Dwarf shrub heath
South Bitworthy	LWS/ CWS	E26	Northern wet heath: Erica tetralix dominated wet heath (lowland)/ Dwarf shrub heath
Sedborough Farm Wood	LWS/ CWS	E27	Broadleaved, mixed and yew woodland
Dipple Bridge	LWS/ CWS	E28	Dwarf shrub heath
Sedborough Farm Wood	LWS/ CWS	E27	Broadleaved, mixed and yew woodland
Sedborough Farm Wood	OSWI	E29	Broadleaved, mixed and yew woodland
The Moor, Kennerland	UWS	E30, E31	Dwarf shrub heath
Buck's Mills / Cross Woods	LWS/ CWS/ AW	E32, E33	Broadleaved, mixed and yew woodland

Note: Information supplied by: EA Nature and Heritage Conservation Screening Reports provided in Appendix D, and Dorset Biological Records Centre (DBRC).
OSWI = Other Site of Wildlife Interest
UWS = Unconfirmed Wildlife Site

Table 7 Environmental standards for protected conservation areas

Substance	Target	Emission period
Nitrogen oxide (expressed as nitrogen dioxide)[2]	30 µg/m^3	Annual
Nitrogen oxide (expressed as nitrogen dioxide)[3]	75 µg/m^3 200 µg/m^3 for detailed assessments where the ozone is below the AOT40 critical level and sulphur dioxide is below the lower critical level of 10 µg/m^3	Daily
Nutrient nitrogen deposition	Depends on location, use www.apis.ac.uk[26]	Annual
Acidity deposition	Depends on location, use www.apis.ac.uk	Annual
Notes: Environmental standards taken from: https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit [1]20 µg/m^3 is an AAD Limit Value if you have nature or conservation sites in the area [2]30 µg/m^3 is an AAD Limit Value [3]The lower (stricter) value of 75 µg/m^3 has been used throughout this assessment.		

Table 8 Nutrient nitrogen deposition critical loads

Site	Nitrogen critical load class	Critical load (kg/ha/yr)	Grass/ Forest
Tintagel-Marsland-Clovelly Coast	Dry heaths	5 - 15	Grass
Culm Grasslands	Northern wet heath: Erica tetralix dominated wet heath (lowland)	5 - 15	Grass
Hardings house	Northern wet heath: Erica tetralix dominated wet heath (lowland)	5 - 15	Grass
Leworthy Cross	Northern wet heath: Erica tetralix dominated wet heath (lowland)	5 - 15	Grass
Parkham Ash	Northern wet heath: Erica tetralix dominated wet heath (lowland)	5 - 15	Grass
South Stroxworthy	Northern wet heath: Erica tetralix dominated wet heath (lowland)	5 - 15	Grass
Kerswell Farm	Northern wet heath: Erica tetralix dominated wet heath (lowland)	5 - 15	Grass
South Bitworthy	Northern wet heath: Erica tetralix dominated wet heath (lowland)	5 - 15	Grass
Sedborough Farm Wood	Semi-natural broadleaved woodland	10 – 15	Forest
Dipple Bridge	Northern wet heath: Erica tetralix dominated wet heath (lowland)	5 - 15	Grass
Sedborough Farm Wood	Ancient semi-natural broadleaved woodland and coniferous plantation	10 – 15	Forest
The Moor, Kennerland	Northern wet heath: Erica tetralix dominated wet heath (lowland)	5 - 15	Grass
Buck's Mills / Cross Woods	Ancient semi-natural broadleaved woodland and coniferous plantation	10 – 15	Forest
Note: Values from www.apis.ac.uk			

[26] UK Air Pollution Information System (APIS) (http://www.apis.ac.uk/) Accessed February 2026.

Table 9 Acid deposition critical loads

Receptor	Site	Acidity critical load class	Critical loads (keq/ha/yr)			Forest / Grass
			CLminN	CLmaxN	CLmaxS	
Minimum set of critical loads ()						
E1-E8	Tintagel-Marsland-Clovelly Coast SAC	Unmanaged Broadleafed/Coniferous Woodland	0.142	1.162	1.02	Forest
E9 – E17	Culm Grasslands SAC	Dwarf shrub heath	0.499	0.929	0.43	Grass
E18	Hardings house	Dwarf shrub heath	0.714	2.334	1.62	Grass
E19, E20	Leworthy Cross	Dwarf shrub heath	0.892	1.752	0.86	Grass
E21– E23	Parkham Ash	Dwarf shrub heath	0.714	2.334	1.62	Grass
E24	South Stroxworthy	Dwarf shrub heath	0.892	1.742	0.85	Grass
E25	Kerswell Farm	Dwarf shrub heath	0.714	2.334	1.62	Grass
E26	South Bitworthy	Dwarf shrub heath	0.892	1.752	0.86	Grass
E27	Sedborough Farm Wood	Broadleaved, mixed and yew woodland	0.142	2.128	1.986	Forest
E28	Dipple Bridge	Dwarf shrub heath	0.714	2.324	1.61	Grass
E27, E29	Sedborough Farm Wood	Broadleaved, mixed and yew woodland	0.142	2.128	1.99	Forest
E30, E31	The Moor, Kennerland	Dwarf shrub heath	0.892	1.752	0.86	Grass
E32, E33	Buck's Mills / Cross Woods	Broadleaved, mixed and yew woodland	0.142	2.128	1.99	Forest
Note: Values from www.apis.ac.uk[26]						

4.3.1 Significance of results

For nationally designated sites (Tintagel-Marsland-Clovelly SAC and Culm Grasslands SAC) tests on significance are the same as for human receptors (as given in Section 4) with the exception that PC as a percentage of Headroom is not assessed for short-term impacts (daily NOx).

For locally designated sites such as LWS, CWS and AW, impacts can be screened out as insignificant if the short-term and long-term PCs are less than 100% of the relevant AQS.

5 Background concentrations

5.1 Local authority air quality monitoring

The main source of NO_2 pollution in the district is from road traffic emissions. Non-automatic (passive) monitoring of NO_2 using diffusion tubes was undertaken by Torridge District Council (TDC) at 18 locations in 2024.[27] TDC did not undertake any continuous (automatic) monitoring during 2024.

Over the most recent five-year period, monitoring data across Torridge has shown no exceedances of the Air Quality Strategy (AQS) annual mean objective for NO_2. Consequently, Torridge District Council has not designated any Air Quality Management Areas (AQMAs). In 2024, 15 of the 18 monitoring sites recorded either a decrease or a stabilisation in annual mean NO_2 levels, while only three sites showed a slight increase of between 0.2 µg/m^3 and 0.4 µg/m^3 compared with 2023.

Except for three urban background monitoring locations, all diffusion tubes are located at roadside locations and therefore would not be representative of background concentrations around the Site. Between 2020 and 2024, NO_2 concentrations recorded at the nearest urban-background monitoring location - diffusion tube No. 6, situated approximately 10 km northeast of the Site - ranged from 4.2 µg/m^3 to 5.2 µg/m^3. The data indicate a gradual downward trend, with the lowest annual concentration measured in 2024.

5.2 Defra modelled background concentrations

Defra provides maps of 2026 background concentrations of NOx and NO_2 that have been projected from a base year of 2021. The maps and factors have been used to determine 2026 background concentrations at each of the human receptors which are shown in Table 10.

The 2026 Defra 2026 spatially varying background NO_2 concentrations (2.50 - 2.58 µg/m^3) are slightly lower than the 2024 urban-background concentration of 4.2 µg/m^3, which is consistent with the rural location of the Site and the expected reduction in emissions in mapped future-year datasets. The NO_2 levels measured at urban-background diffusion tube No. 6 align well with the Defra mapped values; therefore, the Defra background concentrations presented in Table 10 are applied for NO_2 for assessment purposes.

[27] Torridge District Council, 2025 LAQM Annual Status Report (ASR), May 2025 (https://www.torridge.gov.uk/article/20227/Air-Quality)

Table 10 2026 Annual mean background concentrations (µg/m^3)

ID	Annual mean concentration (µg/m^3)	
	NOx	NO_2
R1	3.16	2.58
R2	3.09	2.52
R3	3.15	2.57
R4	3.15	2.57
R5	3.10	2.53
R6	3.16	2.58
R7	3.09	2.52
R8	3.09	2.52
R9	3.09	2.52
R10	3.16	2.58
R11	3.15	2.57
R12	3.10	2.53
R13	3.07	2.50
R14	3.15	2.57
R15	3.12	2.55
R16	3.12	2.55
R17	3.10	2.53
R18	3.09	2.52
R19	3.11	2.54
Note: Values from https://uk-air.defra.gov.uk/data/laqm-background-home[28]		

5.3 Background concentration and deposition at sensitive conservation sites

Background concentrations of NOx and deposition of NDep and AcidDep at all the ecological receptors have been obtained from APIS maps which provide the data on a 1 km grid cell basis (Table 11).

The NDep values depend on whether the habitat is forest (woodland) or grass (moorland) as deposition rates vary according to the nature of the vegetation. Table 8 Nutrient nitrogen deposition critical loads shows which receptors have been modelled as forest and which as grass. The background values are the latest available and are an average for the years 2020-2022 and are shown in Table 11.

[28] Department for Environment, Food & Rural Affairs (Defra) Background Mapping data for local authorities. (https://uk-air.defra.gov.uk/data/laqm-background-home, accessed January 2026).

Table 11 Background concentrations and deposition at ecological receptors (APIS, 2020 – 2022)

Receptor ID	NOx (µg/m^3)	NDep (kgN/ha/yr)	AcidSDep (keqS/ha/yr)	AcidNDep (keqN/ha/yr)
E1	3.46	16.26	0.18	2.01
E2	3.53	16.04	0.18	1.96
E3	3.48	16.48	0.18	2.01
E4	3.58	15.83	0.18	1.93
E5	3.51	16.70	0.18	2.05
E6	3.61	15.61	0.18	1.91
E7	3.56	15.22	0.17	1.86
E8	3.17	13.00	0.16	1.61
E9	3.55	18.46	0.12	1.32
E10	3.63	18.56	0.12	1.33
E11	3.61	18.71	0.12	1.34
E12	3.60	18.83	0.12	1.35
E13	3.60	18.96	0.12	1.35
E14	3.60	18.71	0.12	1.34
E15	3.57	15.86	0.12	1.13
E16	3.72	18.72	0.12	1.34
E17	3.54	16.21	0.12	1.16
E18	3.58	17.81	0.13	1.25
E19	3.56	17.95	0.13	1.28
E20	3.56	17.95	0.13	1.28
E21	3.58	17.81	0.13	1.27
E22	3.58	17.81	0.13	1.27
E23	3.58	17.81	0.13	1.27
E24	3.54	17.81	0.13	1.27
E25	3.58	17.81	0.13	1.27
E26	3.60	17.16	0.13	1.23
E27	3.55	29.94	0.18	2.14
E28	3.54	18.25	0.12	1.3
E29	3.55	29.94	0.18	2.14
E30	3.60	16.97	0.13	1.21
E31	3.60	16.97	0.13	1.21
E32	3.71	29.09	0.18	2.08
E33	3.71	29.09	0.18	2.08
Note: Values from www.apis.ac.uk[26]				

6 Impact assessment results, human health

Section 6.1 presents the long-term results of operational impacts of emissions on human health, Section 6.2 presents the short-term impact. Predicted impacts of each pollutant at each human receptor are given in Appendix E. In this section the highest results are presented, that is, the impacts at the worst-case receptor. Impacts have been compared to the screening thresholds given in Section 4.2

Table 12 shows the maximum annual mean (long-term) concentration and Table 13 shows the maximum predicted short-term impacts, for an averaging time of 1-hour. The predicted concentrations have been compared with the AQS. Long-term AQS are not applicable at workplaces where the public are unlikely to spend long periods of time.

6.1 Long-term AQS

Maximum long-term impacts for NO_2 are predicted at the nearest residential receptor, R1, the on-site farmhouse adjacent to the Site boundary. NO_2 PC/AQS exceeds the first screening threshold of 1%; PEC/AQS is much less than the screening threshold of 70% described in Section 4.2. The long-term impacts can therefore be screened out as **not significant** and there is no need for further assessment.

Table 12 Results, long-term AQS

Pollutant	AQS (µg/m^3)	PC (µg/m^3)	PC/AQS (%)	PEC (µg/m^3)	PEC/AQS (%)	Receptor
NO_2	40	0.90	**2.3%**	3.5	8.7%	R1
Notes: bold font indicates an exceedance of the screening threshold. Data on each row is for one receptor, the receptor at which the percentage of PC/AQS is greatest.						

6.2 Short-term AQS

The maximum short-term concentrations for each AQS, are given in Table 13. Maximum short-term impacts for all pollutants are predicted at receptor R1, the on-site farmhouse, the boundary of which is adjacent to the Site boundary. PC/AQS does not exceed the screening threshold of 10%. Short-term impacts can therefore be screened out as **not significant** and there is no need for further assessment.

Table 13 Results, short-term AQS

Pollutant	Statistic	AQS (µg/m^3)	PC (µg/m^3)	PC/AQS (%)	Headroom (µg/m^3)	PC/ Headroom (%)	PEC/ AQS (%)	Receptor
NO_2	99.79th 1h	200	6.0	3.0%	195	3.1%	5.6%	R1
Notes: Bold font indicates an exceedance of the screening threshold. Data on each row is for one receptor, the receptor at which the percentage of PC/AQS is greatest.								

7 Impact assessment of air quality on ecological receptors

Predicted impacts of each pollutant at each ecological receptor are given in Appendix F. In this section the highest results are presented, that is, the impacts at the worst-case receptor across all meteorological years, and the worst with and without buildings and terrain. Impacts have been compared to the screening thresholds given in Section 4.

7.1 European sites

Considering the closest area the Tintagel-Marsland-Clovelly Coast SAC that is coincident with the Hobby to Peppercombe SSSI, Table 14 shows that the maximum predicted long-term and short-term concentration PCs are below the respective 1% and 10% screening thresholds at receptors E1 and E2 respectively. Table 16 and Table 17 show that the predicted contributions to NDep and AcidDep are below 1%.

Impacts at E1 and E2, Tintagel-Marsland-Clovelly Coast SAC / Hobby to Peppercombe SSSI, can therefore be screened out as **not significant**.

7.2 Locally designated sites

Considering the locally designated sites, LWSs, CWS and AW, Table 15 shows that predicted PCs do not exceed any of the screening thresholds (Section 4.3). Maximum long-term concentrations were predicted at E18 representative of Hardings House CWS and maximum short-term concentrations predicted at Leworthy Cross (2) LWS/ CWS.

Table 16 and Table 17 show that the maximum impacts are predicted at receptor E18 representative of Hardings House CWS. Predicted contributions to NDep and AcidNDep are less than 100% of the relevant Clos.

Impacts at LWSs, CWS and AW can therefore be screened out as **not significant**.

Table 14 Results at SAC, long-term and short-term AQS, worst case impact

Pollutant	AQS (µg/m^3)	Averaging time	Statistic	LT or ST AQS*	PC (µg/m^3)	PC/AQS (%)	PEC (µg/m^3)	PEC/AQS (%)	Receptor
NOx	30	Annual	mean	LT	0.01	0.03%	3.47	12%	E1
Pollutant	**AQS (µg/m^3)**	**Averaging time**	**Statistic**	**LT or ST AQS***	**PC (µg/m^3)**	**PC/AQS (%)**	**PEC (µg/m^3)**	**PEC/ AQS (%)**	**Receptor**
NOx	75	24-hour	100th percentile	ST	0.17	0.23%			E4
NOx	200	24-hour	100th percentile	ST	0.17	0.09%			E4
Notes: *LT= long-term, ST = short-term; Bold font indicates an exceedance of the screening threshold (long-term PC/AQS = 1%, short-term PC/AQS = 10%). Data on each row is for one receptor, the receptor at which the percentage of PC/AQS is greatest.									

Table 15 Results at LWS, CWS and AWs - long-term and short-term AQS, worst case impact

Pollutant	AQS (µg/m^3)	Averaging time	Statistic	LT or ST AQS*	PC (µg/m^3)	PC/AQS (%)	Receptor
NOx	30	Annual	mean	LT	0.05	0.17%	E18
Pollutant	**AQS (µg/m^3)**	**Averaging time**	**Statistic**	**LT or ST AQS***	**PC (µg/m^3)**	**PC/AQS (%)**	**Receptor**
NOx	75	24-hour	100th percentile	ST	0.55	0.73%	E20
NOx	200	24-hour	100th percentile	ST	0.55	0.27%	E20
Notes: *LT= long-term, ST = short-term; Bold font indicates an exceedance of the screening threshold (long and short-term PC/AQS = 100%). Data on each row is for one receptor, the receptor at which the percentage of PC/AQS is greatest.							

Table 16 Worst-case nutrient nitrogen deposition

Habitat	PC (kg/ha/y)	CLomin (ka/ha/y)	CLomax (ka/ha/y)	PC/CLomin (%)	PC/CLomax (%)	PEDR/CLomin (%)	PEDR/CLomax (%)	Receptor
SAC	0.001	5	15	0.02%	0.01%	325%	108%	E1
LWS, CWS, AW	0.005	10	15	0.10%	0.03%	356%	119%	E18
Notes: Bold font indicates an exceedance of the screening threshold; data on each row is for one receptor, the receptor at which the percentage of PC/CLo is greatest.								

Table 17 Worst-case acid deposition

Habitat	PC_N (keqN/ha/yr)	PC_S (keqN/ha/yr)	PC/CLo (%) [(a)]	Background/CLo (%)	PEDR/CLo (%)	Receptor
SAC	0.00013	/	0.0%	189%	189%	E1 [(b)]
LWS, CWS, AW	0.00037	/	0.0%	59.1%	59.1%	E18

Notes:

/ = not applicable

Bold font indicates an exceedance of the screening threshold; data on each row is for one receptor, the receptor at which the percentage of PC/CLo is greatest.

[(a)] %PC of minimum critical load determined using the Screening Acidity Critical Loads tool, available at www.apis.co.uk.

[(b)] Result reported for receptor E1, where the maximum nutrient nitrogen deposition PC is predicted

8 Conclusion

This AQIA has been prepared to support an application for a bespoke installation permit at Parkham Farms Cheese Factory, Higher Alminstone Farm operated by Parkham Farms Limited.

An H1 risk assessment[2] concluded that the following pollutants and averaging time required detailed modelling for comparison with the following EALs or AQS:

- Nitrogen Dioxide (annual and 1-hour mean)
- Nitrogen Dioxide (ecological – annual mean and daily mean)

Baseline background concentrations have been established.

Detailed modelling of emissions from the 2No. gas oil boilers (Boiler 1, Boiler 2) has been carried out using the ADMS 6 dispersion model and numerical modelled meteorological data for the Site location. Conservative assumptions have been made throughout the assessment, for instance using the worst-case results from 15 model runs (meteorological data years, modelling with and without buildings and with and without terrain).

Two modelling scenarios were considered for the assessment of long and short-term impacts respectively. Long and short-term impacts were calculated based on an abnormal operating scenario; Boiler 1 or Boiler 2 operating continuously at full load, all year.

This is a conservative approach as it assumes that the boiler may be operating at full load during all the worst-case meteorological conditions (i.e. 100% of the year), whereas both boilers combined, (as they operate alternately) are expected to operate for no more than 79.2% of the year, and therefore their hours of operation are less likely to coincide with all the worst-case conditions.

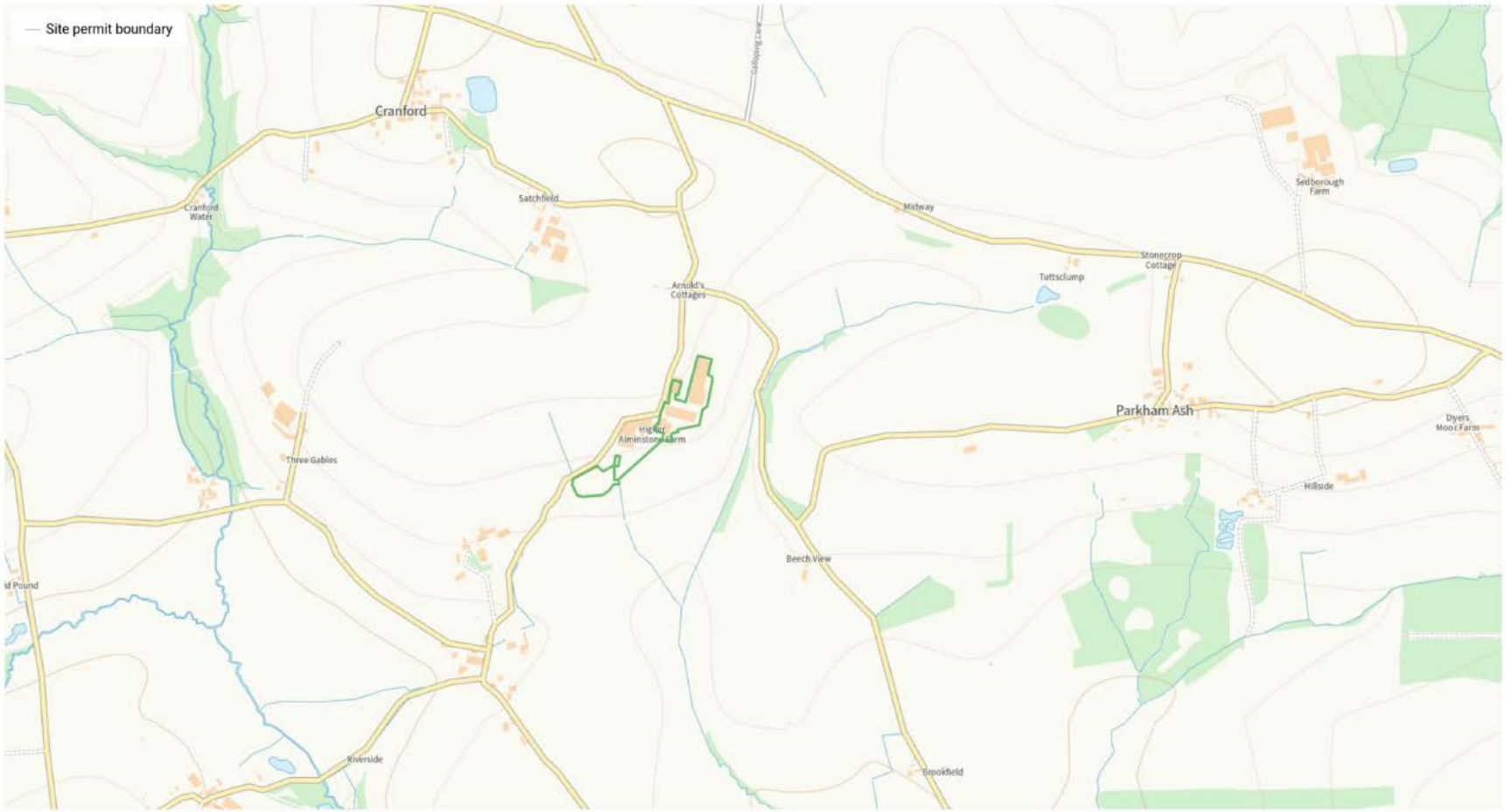
The long-term and short-term impacts at all receptors can be screened out as **not significant** and there is no need for further assessment.

Figures

Figure 1 Site location Plan

Earthcare TECHNICAL

ETL928_2026_EPR01 Site Location Plan



Produced on Land App, Feb 26, 2026.
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500 m
Scale 1:13000 (at A4)

N

Figure 2 Permit boundary and emission points plan

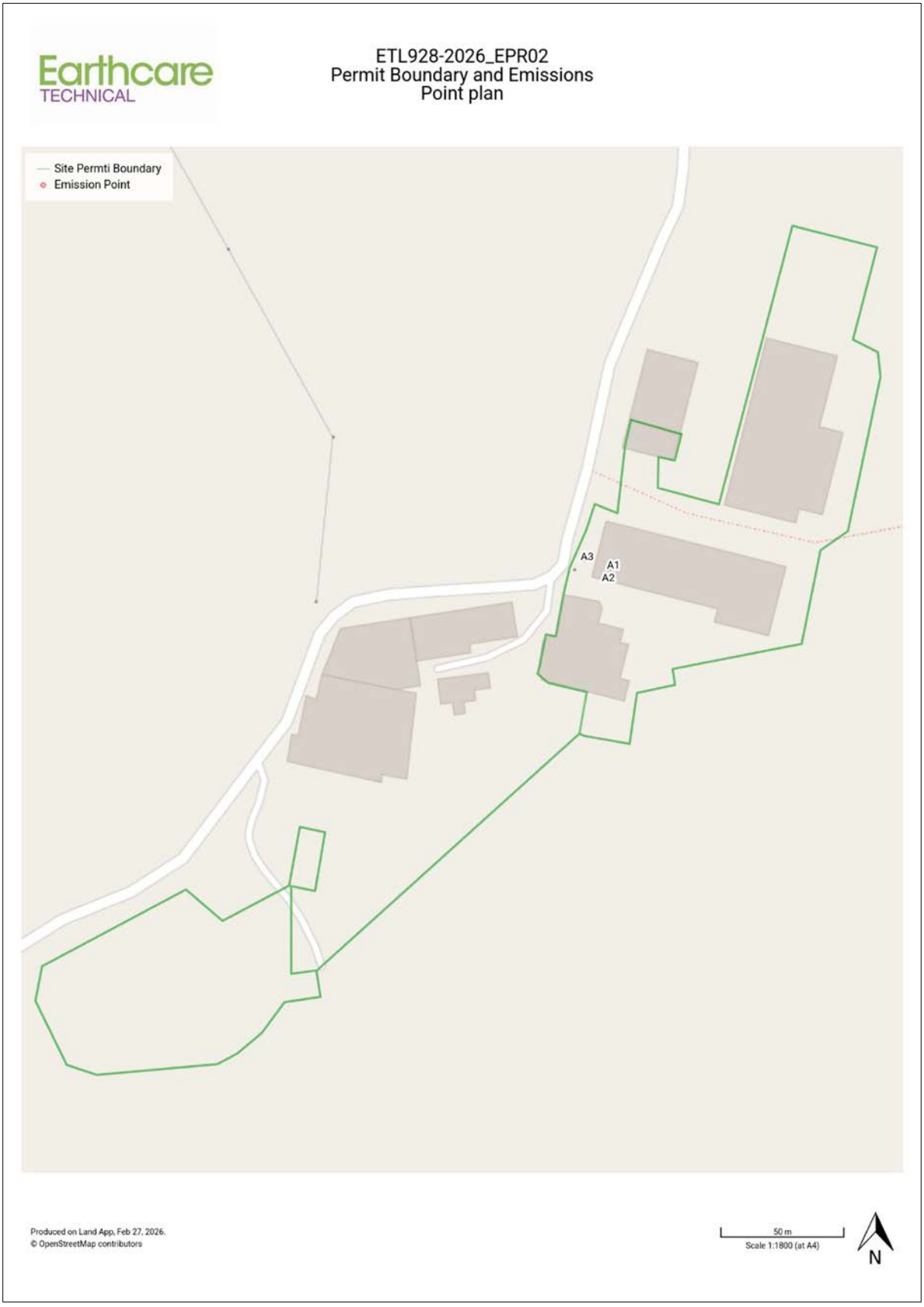
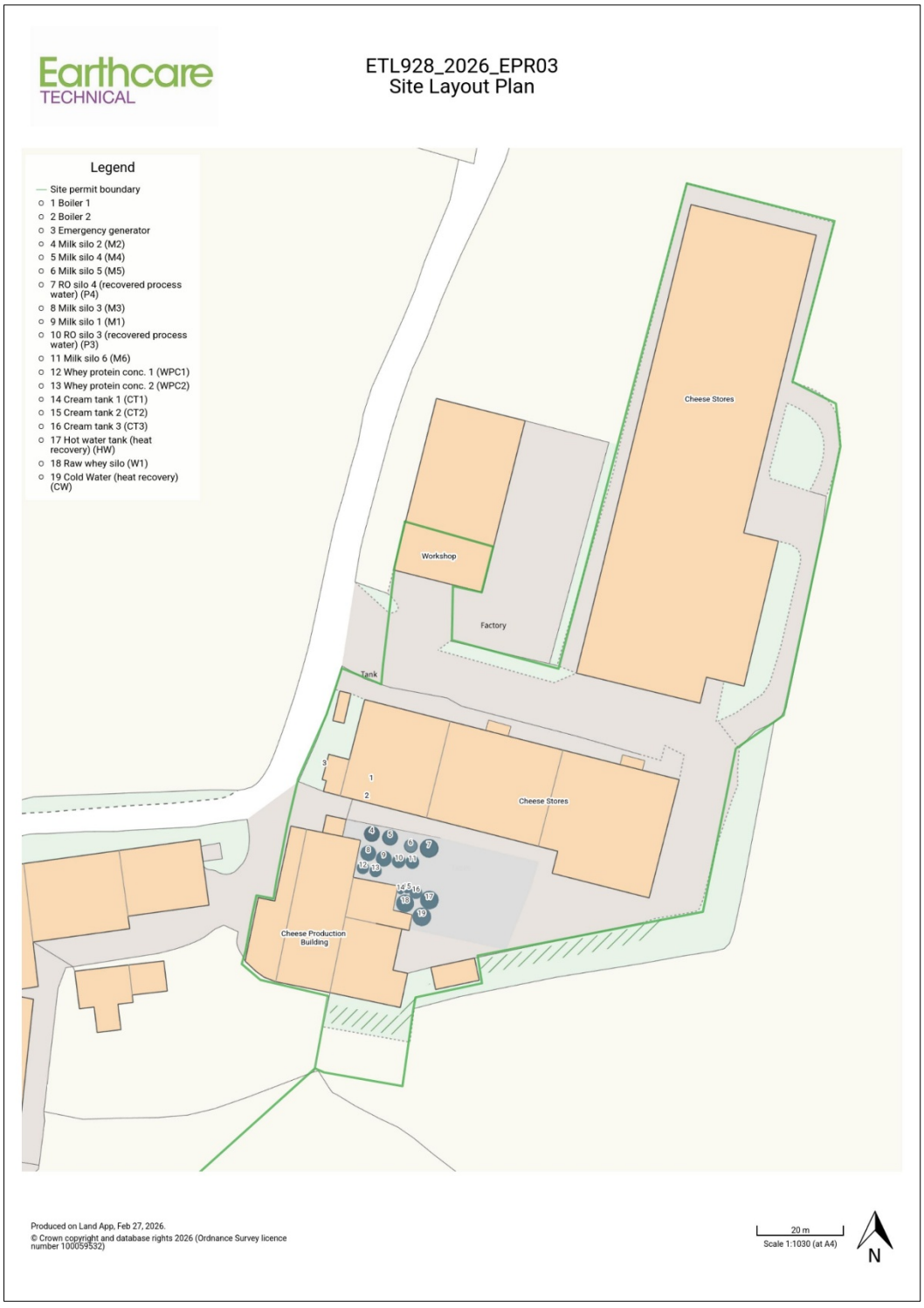
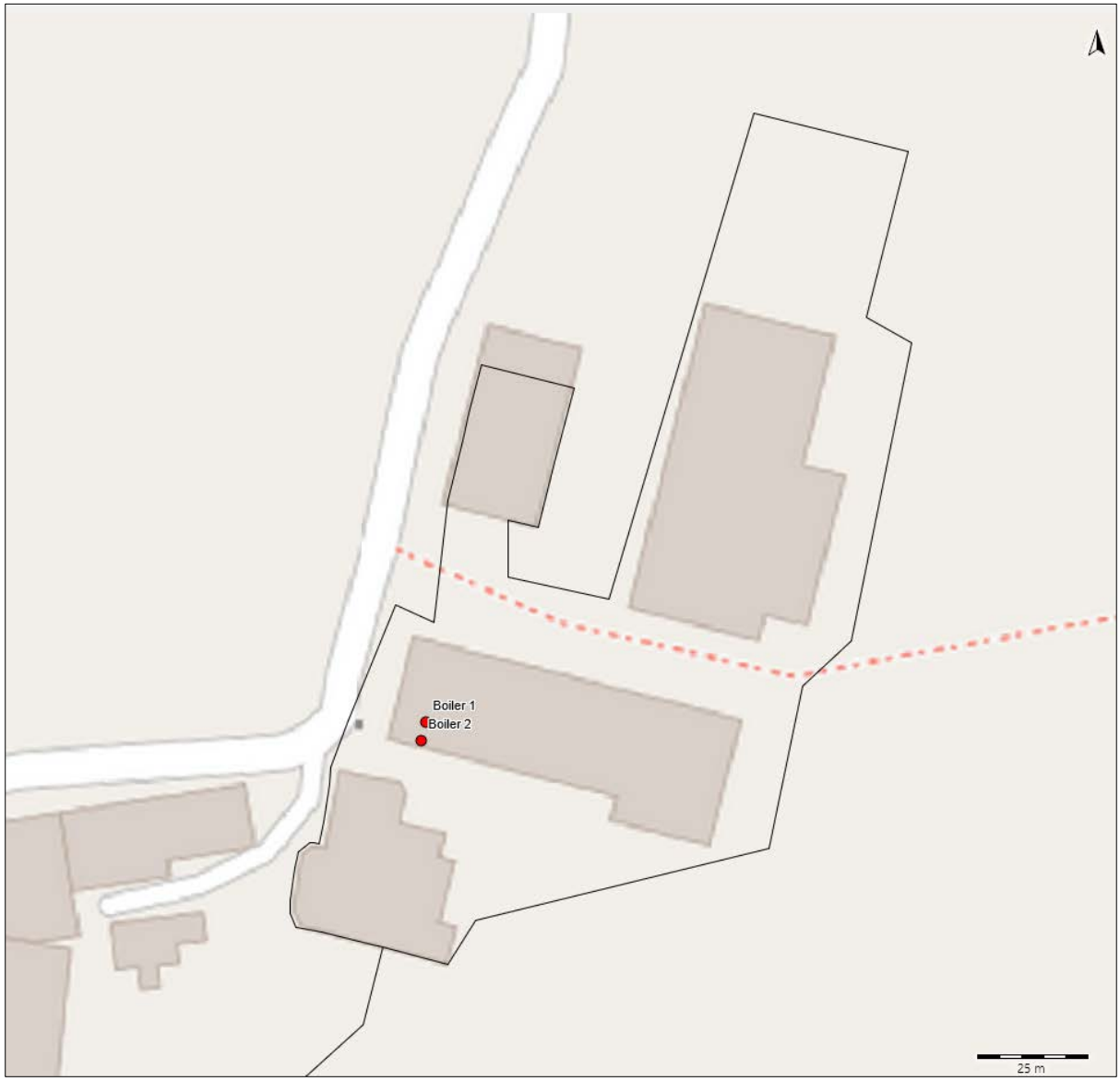


Figure 3 Site layout plan, sheet 1 of 2



Site layout plan, sheet 2 of 2

Figure 4 Modelled point sources



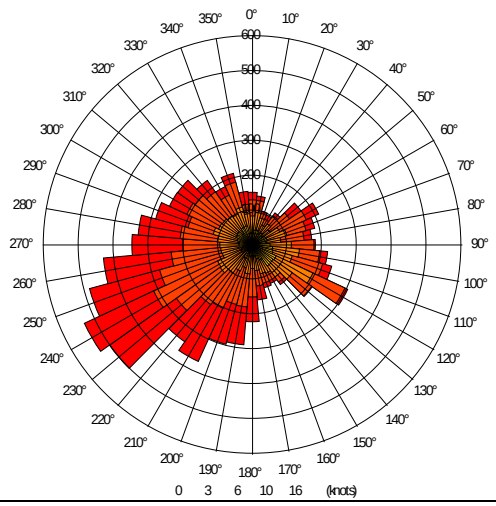
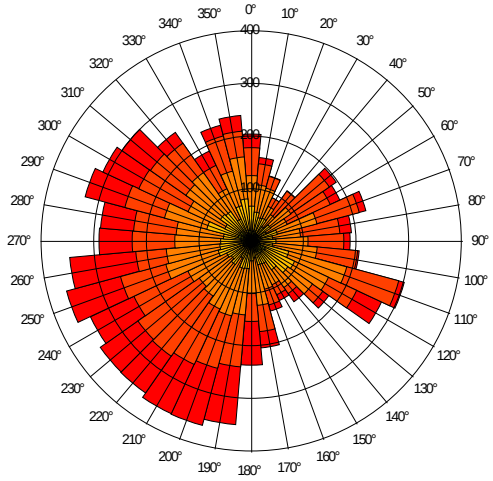
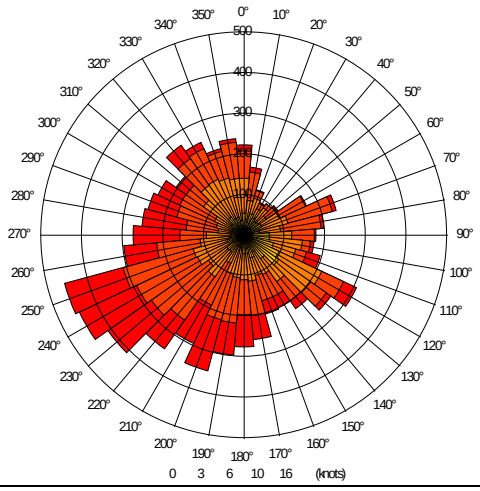
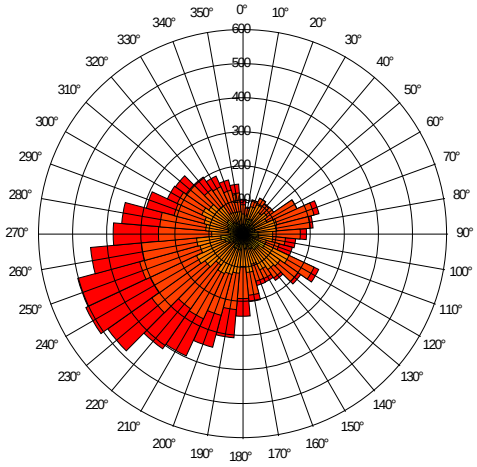
Background image ©OpenStreetMap contributors www.openstreetmap.org/copyright

Legend

Permit boundary

Point sources (2)

Figure 5 GFS meteorological data (50.962°, -4.347°) windroses 2020-2024

2020	2021
	
2022	**2023**
	
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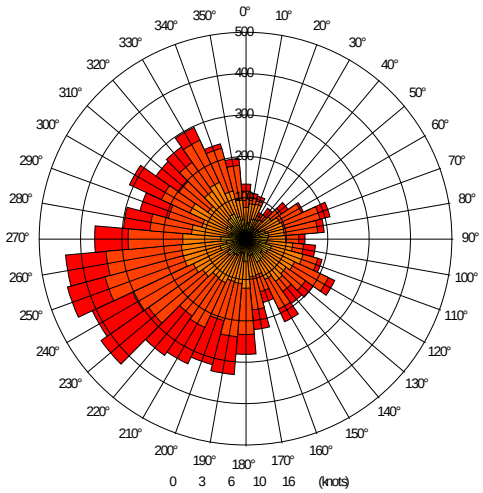
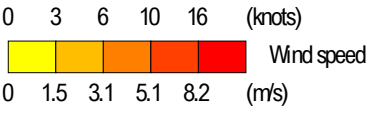
	

Data source: AS Modelling & Data

Figure 6 Modelled buildings

Background image ©OpenStreetMap contributors www.openstreetmap.org/copyright

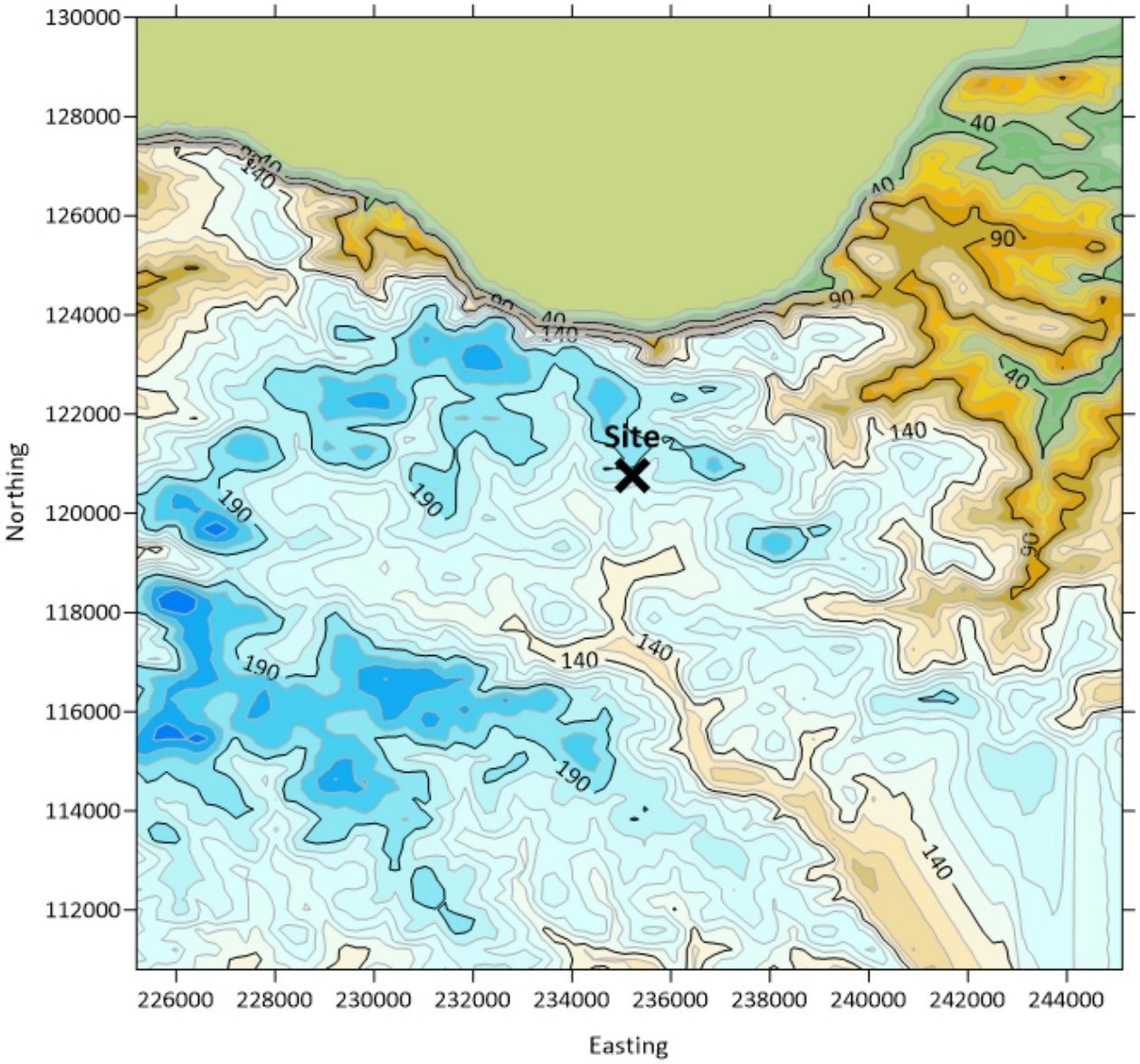
Legend

Permit boundary

Point sources (2)

Buildings (25)

Figure 7 Terrain data



Legend

Elevation (m)

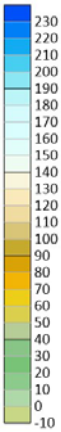
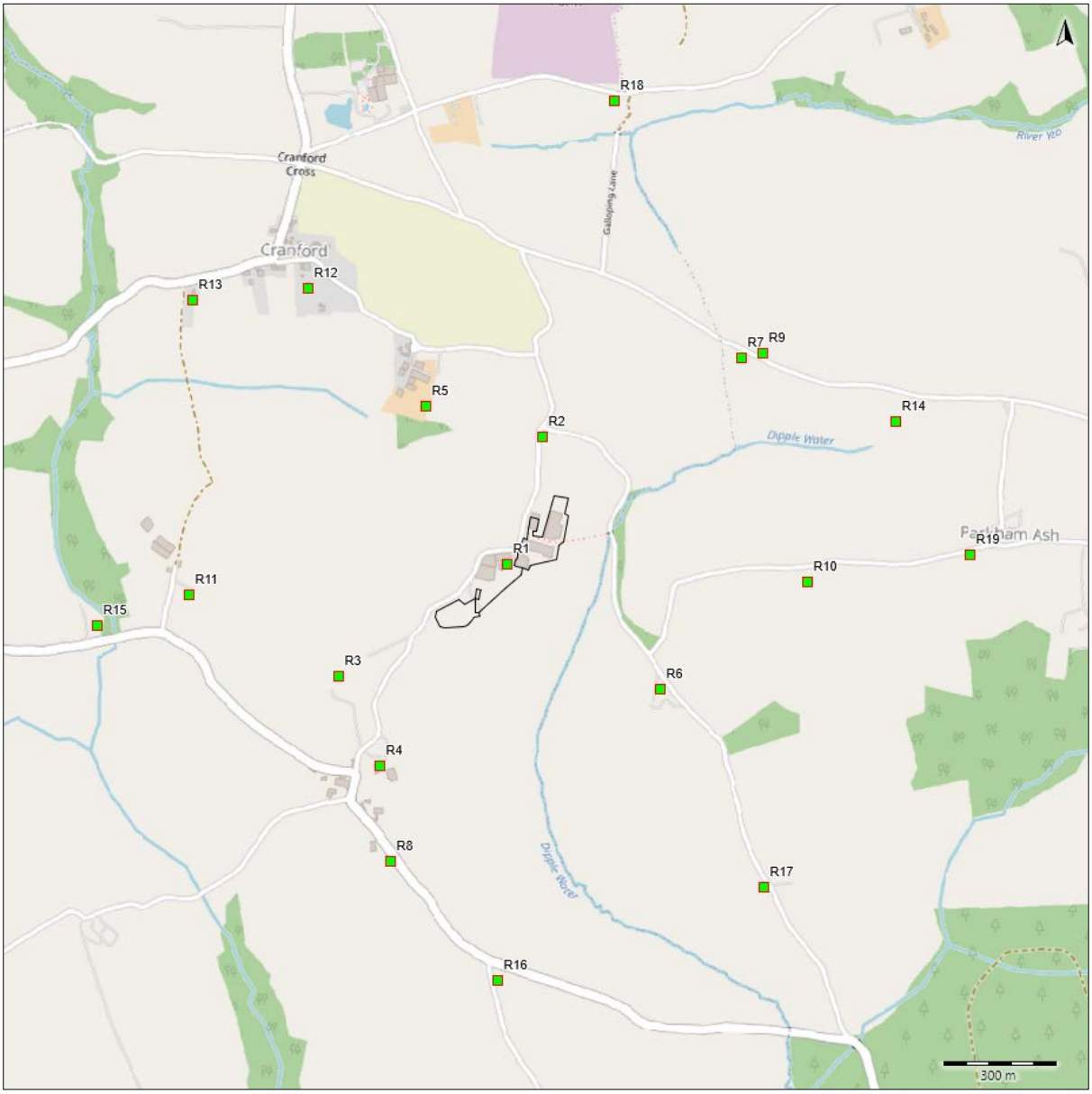


Figure 8 Modelled human receptors

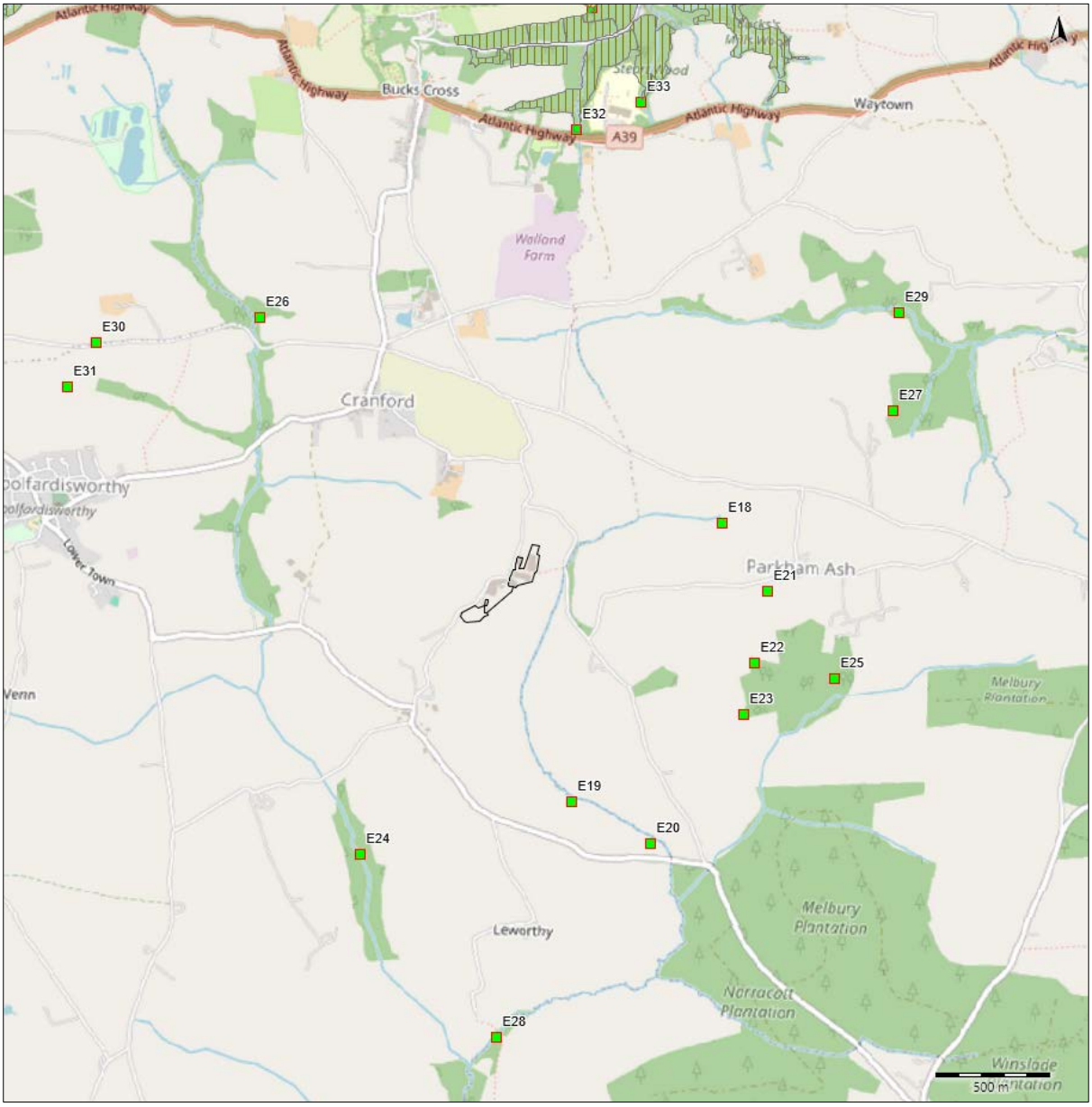


Legend

Permit boundary

Receptors (19)

Figure 9 Modelled ecological receptors (within 2 km)



Background image ©OpenStreetMap contributors www.openstreetmap.org/copyright

Legend

Special_Areas_of_Conservation_England

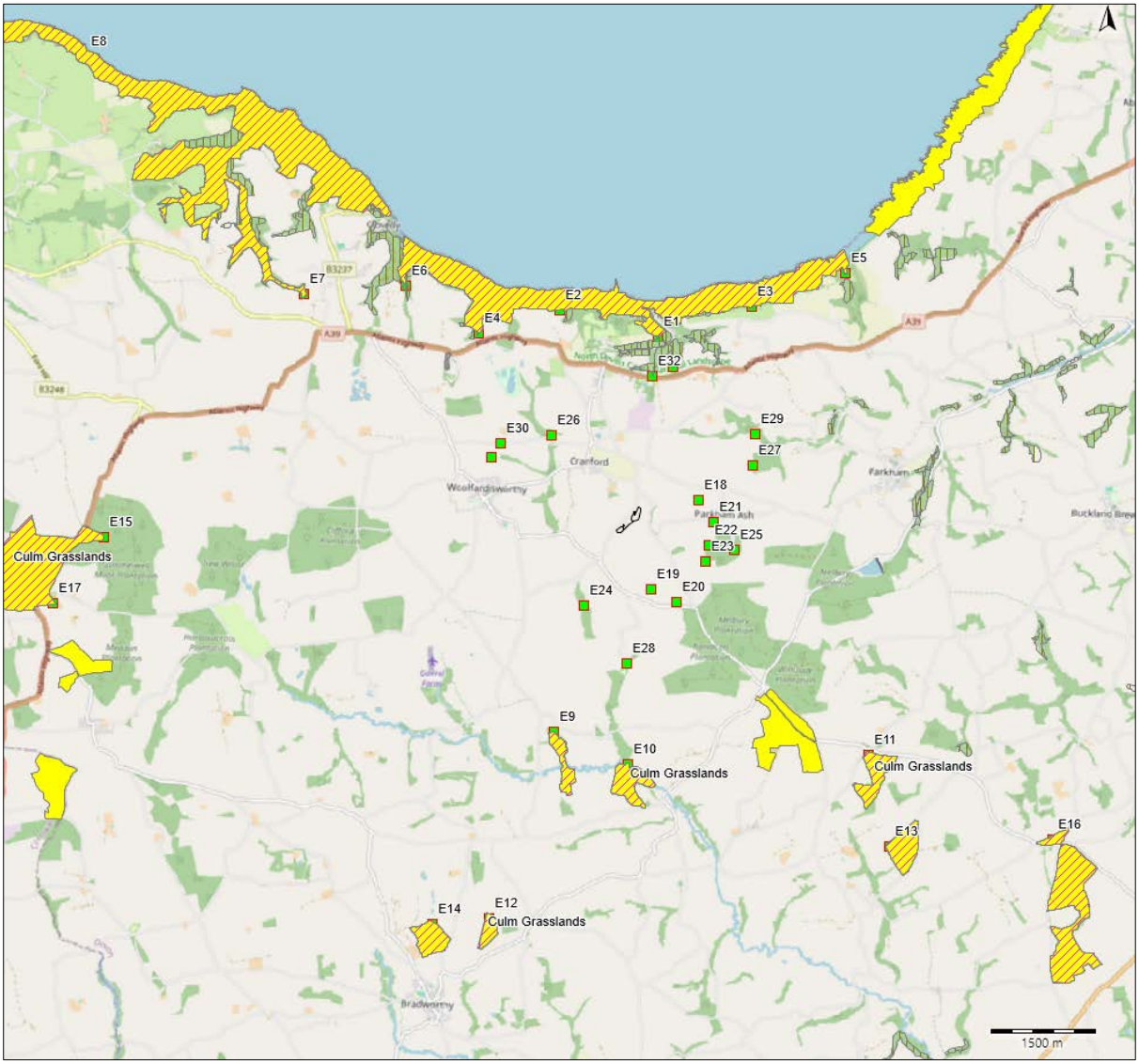
Sites_of_Special_Scientific_Interest_England

Ancient_Woodland_Inventory_Revised_England

Receptors (33)

Permit boundary

Figure 10 Modelled ecological receptors (within 10 km)



Background image ©OpenStreetMap contributors www.openstreetmap.org/copyright

Legend

Special_Areas_of_Conservation_England

Sites_of_Special_Scientific_Interest_England

Ancient_Woodland_Inventory_Revised_England

Receptors (33)

Permit boundary

Appendix A Model and model set-up

A.1 Meteorology and associated parameters

A.1.1 Hourly meteorological data

The model uses hourly data of surface meteorology parameters that are typically measured at a synoptic station or are generated by a numerical model. In this assessment, five years' meteorological data were obtained for the period 2020-2024 for the area surrounding the Site location (Latitude 50.962°, Longitude -4.347°), from a Numerical Weather Prediction system known as the Global Forecast System (GFS).

The GFS is a spectral model, and data are archived at a horizontal resolution of 0.5 degrees longitude, or approximately 50 km over the UK (latterly 0.25 degrees, or approximately 25km). The GFS resolution captures major topographical features and the broad-scale characteristics of the weather over the UK. The use of NWP data has advantages over traditional meteorological records as:

- Calm periods in traditional records may be over-represented.
- Traditional records may include local deviations from the broad-scale wind flow that would not necessarily be representative of the site being modelled
- Information on the state of the atmosphere above ground level which would otherwise be estimated by the meteorological pre-processor may be included explicitly.

Figure 5 shows windroses for each year of data. The prevailing wind direction is southwesterly. The data were used with the dispersion model's calms option with default values. Table 18 shows the number of lines of usable data each year with and without calms option. With the calms options 100% of data each year was usable.

Defra's LAQM TG16[20] contains cautionary guidance on use of data with less than 85% usable data in calculating for comparison with short-term AQS. The minimum values of usable data were far above this threshold.

Table 18 Meteorological station data for calm conditions

Year of data	Number of hours with calm conditions (modelled as calm)	Number of hours with inadequate data (excluding calms)	Hours used (%)
2020	5	99.94%	100%
2021	12	99.86%	100%
2022	9	99.90%	100%
2023	9	99.90%	100%
2024	3	99.97%	100%
Notes: Meteorological parameters supplied are: wind speed, wind direction, near-ground air temperature, cloud cover.			

A.1.2 Meteorological parameters

The dispersion model uses various meteorological parameters to represent the area at the meteorological station and the site of the Site. The key parameters that have been defined are the surface roughness and minimum Monin-Obuhkov length which are defined at the site of the meteorological data measurement and the Site.

- Surface roughness: this is related to land-use and the height of obstacles on the ground which give rise to mechanically generated turbulence; and
- Minimum Monin-Obuhkov length: this is used to model the extent to which the urban heat island effect limits the most stable atmospheric conditions. Heat released from the urban area prevents the atmospheric boundary layer becoming very stable.

Table 19 shows the values of the parameters that can be selected in the model from a drop-down menu. Other, intermediate, values can be entered directly. The values selected for the meteorological data site and the Site are given in Table 20. A value of 2m for minimum Monin-Obuhkov length reflects the rural nature of the surrounding area; the value of 0.2m for surface roughness at the meteorological data site reflects the low vegetation; 0.3m for surface roughness at the Site reflects the buildings and structures around the Site.

The dispersion model sets a higher value of minimum turbulence when modelling terrain, therefore, a value of 0.01m/s was set in the additional input file (*.aai*) so that the value used when modelling terrain would be the same as that calculated by the model for flat terrain as a function of Monin-Obuhkov length (ADMS 6 User Guide, section 4.15.3[5]).

Table 19 Dispersion model meteorological parameter values

Surface roughness	
Descriptor	**Value (m)**
Large urban areas	1.5
Cities, woodland	1.0
Parkland, open suburbia	0.5
Agricultural areas (max)	0.3
Agricultural areas (min)	0.2
Root crops	0.1
Open grassland	0.02
Short grass	0.005
Sea	0.0001

Minimum Monin-Obuhkov length	
Descriptor	**Value (m)**
Large conurbations >1million	100m
Cities and large towns	30m
Mixed urban/industrial	30m
Rural areas (max) [1]	20m
Small towns < 50,000	10m
Rural areas (min)[1]	2m

Table 20 Meteorological site and Site met parameters

Parameter	**Meteorological data site**	**Site**
Surface roughness	0.2m	0.3m
Minimum Monin-Obhukov length	2m	2m

A.2 Buildings

The presence of buildings close to an emission point can affect the dispersion from a source, bringing the plume centreline down towards the ground in the lee of a building and entraining pollutant into the cavity (or, recirculation) region in the lee of a building. In the cavity, concentrations are assumed to be uniform, and it may be a region of high concentrations depending on the amount of pollutant entrained. The presence of buildings may increase or decrease concentrations at a location compared with the no buildings scenario.

The dispersion model allows up to 25 buildings to be included as input and the model combines the relevant input buildings into one effective building; the effective building is calculated for each line of meteorological data. Buildings can only be circular or rectangular in cross-section, so the buildings entered are simplified geometries. Buildings less than one third of the height of the stack will be ignored by the dispersion model. Smaller Site structures such as containers and tanks with smaller diameters than larger tanks have been neglected as their effect will be limited compared with the larger structures: tanks, buildings.

The building height entered into the model is the height to the eaves plus a proportion (50%) of roof height. The roof height is the height to the apex minus the height to the eaves.

Table 21 shows the (simplified) parameters of the buildings on site used as input to the model; they are shown in Figure 6. In the dispersion model, for each stack a ‘main’ building must be specified; the option to allow the dispersion model to automatically select the main building for each source was selected.

Table 21 Modelled buildings

Building name	Building centre X	Building centre Y	Height to eaves (m)	Height to apex (m)	Height modelled (m)	Length/ Diameter (m)	Width (m)	Orientat -ion (°)
Workshop	235259	120833	6.0	8.0	7.0*	21	42	103
Cheese Store 3	235315	120843	6.0	8.0	7.0	29	112	103
Cheese storage	235326	120806	4.0	6.0	5.0	8	35	104
Cheese Store 1 & 2	235270	120764	6.0	8.0	7.0	76	23	104
Cheese Prod Room	235223	120736	6.0	7.0	6.5	17	36	102
Cheese Prod Room2	235237	120738	3.0	4.0	3.5	10	9	103
Whey Dept	235237	120723	3.0	4.0	3.5	16	18	102
Farmhouse	235179	120717	6.0	10	8.0	21	9	83
Livestock Housing 1	235177	120741	4.0	8.0	6.0	41	15	82
Livestock Housing 2	235143	120733	7.0	10	8.5	29	21	82
Livestock Housing 3	235130	120701	3.0	4.5	3.75	34	37	102
Livestock Housing 4	235150	120697	3.0	5.0	4.0	8	36	102
M3	235237	120749	15	15	15	3	3	0
M2	235238	120753	15	15	15	3	3	0
M4	235242	120752	15	15	15	3	3	0
M5	235247	120751	15	15	11	3	3	0
P4	235251	120750	11	11	11	4	4	0
M6	235247	120747	11	11	15	3	3	0
P3	235244	120747	15	15	15	3	3	0
M1	235241	120748	15	15	15	3	3	0
HW	235251	120738	11	11	8.0	4	4	0
CW	235249	120734	11	11	7.0	4	4	0
W1	235246	120737	7.0	7.0	11	4	4	0
WPC1	235236	120745	8.0	8.0	11	3	3	0
WPC2	235239	120745	7.0	7.0	7.0	3	3	0

Notes: * The modelled building height was adjusted to 12m to account for local changes in base level height in the Flat terrain and Buildings model scenarios (Section 3.2.3).

Buildings with circular cross-section, such as silos, do not have an orientation specified.

A.3 Terrain

The effect of terrain is not usually modelled when terrain gradients in the modelled domain are below the 1:10 threshold usually applied. However, when using numerical weather data, it is recommended to consider the dispersion model predictions with and without terrain. Within the 10km x 10km terrain domain, the terrain varied by 236m from -3m to 233m, and as reported in the model sensitivity analysis, the effect of terrain on the results was not significant. Figure 7 shows the terrain data modelled.

A.4 Receptors

A.4.1 Human receptors

The impact of stack emissions at relevant human receptors has been modelled. A relevant receptor is defined in Defra's LAQM TG16[20] as:

> *A location representative of human (or ecological) exposure to a pollutant, over a time period relevant to the objective that is being assessed against, where the Air Quality Strategy objectives are considered to apply*.

For long-term AQS the relevant receptors are residences (including care homes), schools and hospitals. For short-term AQS additional receptors may also need to be considered: outdoor spaces such as balconies, gardens, leisure sites and public space where human populations may spend the relevant time period. As most short-term AQS allow for a number of exceedances per annum, the human exposure may need to be repeated in order to be relevant. Workplaces are usually excluded from consideration as air quality in workplaces is covered by Health and Safety legislation.[29]

Table 22 shows the locations and type of the receptors selected to be representative of the relevant human receptors. All the receptors have been modelled at a height of 1.5m, representative of inhalation height (nose level) at ground level. Their locations are shown in **Figure 8**.

Table 22 Human receptors

ID	Location	Type	NGR X	NGR Y	Distance and direction from green line boundary	
					Distance (m)*	Direction
R1	Onsite Farmhouse	Residential	235189	120724	15	SW
R2	Arnolds Cottage	Residential	235279	121056	155	N
R3	Lower Alminstone Farmhouse	Residential	234748	120434	295	SW
R4	Woolfardisworthy, Cranford	Residential	234858	120199	395	SSW
R5	Satchfield	Agricultural	234977	121138	400	NNW
R6	Beech View	Residential	235587	120400	435	SE
R7	Parkham Ash	Agricultural	235798	121262	580	NNE
R8	Alminstone Cross	Residential	234883	119952	620	SSW
R9	Midway, Parkham Ash	Residential	235855	121274	635	NNE
R10	Agricultural building	Agricultural	235970	120678	645	E
R11	Three Gables	Residential	234359	120646	645	WSW
R12	Woolfardisworthy, Cranford (2)	Residential	234670	121445	835	NW
R13	Woolfardisworthy, Cranford (1)	Residential	234369	121414	1,030	NW

[29] Health and Safety Executive EH40/2005 Workplace Exposure Limits (Fourth Edition 2020)

ID	Location	Type	NGR X	NGR Y	Distance and direction from green line boundary	
					Distance (m)*	Direction
R14	Tuttsclump, Parkham Ash	Residential	236202	121096	875	NE
R15	Venn, Woolfardisworthy	Residential	234119	120565	880	WSW
R16	Leworthy Cross	Residential	235165	119642	925	S
R17	Brookfield/ Kingsland Stables	Residential	235857	119882	1,010	SE
R18	Little Walland	Residential	235467	121932	1,040	N
R19	Linhay Meadow	Residential	236394	120748	1,050	E
Notes: * Rounded to the nearest interval of 5.						

A.4.2 Ecological receptors

The Defra/Environment Agency guidance specifies that SACs, SPAs and Ramsar site within 10km should be considered and SSSIs, AWs, LWSs, Local Nature Reserves and National Nature Reserves within 2km should also be considered.

Ecological receptors were placed in the designated areas at the nearest locations to the Site and additional locations. Table 6 in Section 4.3 lists the sensitive conservation sites identified within the specified distance, their designation and main habitat. Table 23 lists the ecological receptors modelled, their locations are shown in **Figures 9** to **11**. All the ecological receptors have been modelled at a height of 1.5m. Their locations are shown in **Figure 9**.

Table 23 Ecological receptors

ID	Location	Type	NGR X	NGR Y	Distance and direction from permit boundary	
					Distance (m)	Direction
E1	Tintagel-Marsland-Clovelly Coast SAC/ Hobby to Peppercombe SSSI/ Bucks Cross Wood	SAC/ SSSI/ AW	235580	123269	2380	North
E2	Tintagel-Marsland-Clovelly Coast (SAC)/ Hobby to Peppercombe SSSI/ Bucks Cross Wood	SAC/ SSSI	234223	123651	2955	North
E3	Tintagel-Marsland-Clovelly Coast (SAC)/ Hobby to Peppercombe SSSI/ Worthygate/Sloo Woods	SAC/ SSSI/ AW	236884	123694	3190	Northeast
E4	Tintagel-Marsland-Clovelly Coast (SAC)/ Hobby to Peppercombe SSSI/ Bucks Cross Wood	SAC/ SSSI	233095	123331	3285	Northwest
E5	Tintagel-Marsland-Clovelly Coast (SAC)/ Hobby to Peppercombe SSSI	SAC/ SSSI	238198	124165	4335	Northeast
E6	Tintagel-Marsland-Clovelly Coast (SAC)/ Hobby to Peppercombe SSSI/ Bucks Cross Wood	SAC/ SSSI	232077	123983	4460	Northwest
E7	Tintagel-Marsland-Clovelly Coast (SAC)/ Marsland to Clovelly Coast SSSI/ Brownsham/ Reeve Woods	SAC/ SSSI/ AW	230661	123866	5430	Northwest

ID	Location	Type	NGR X	NGR Y	Distance and direction from permit boundary	
					Distance (m)	Direction
E8	Tintagel-Marsland-Clovelly Coast (SAC)/ Marsland to Clovelly Coast SSSI	SAC/ SSSI	227616	127167	9880	Northwest
E9	Culm Grasslands/ Kismeldon Meadows SSSI	SAC/ SSSI	234128	117786	2915	South
E10	Culm Grasslands/ Kismeldon Meadows SSSI	SAC/ SSSI	235160	117335	3225	South
E11	Culm Grasslands (SAC)/ Mambury and Stowford Moors SSSI	SAC/ SSSI	238515	117467	4575	Southeast
E12	Culm Grasslands (SAC)/ Bradworthy Common SSSI	SAC/ SSSI	233239	115189	5660	Southeast
E13	Culm Grasslands (SAC)/ Mambury and Stowford Moors SSSI	SAC/ SSSI	238809	116197	5730	South
E14	Culm Grasslands (SAC)/ Bradworthy Common SSSI	SAC/ SSSI	232450	115116	6020	Southeast
E15	Culm Grasslands (SAC)/ Bursdon Moor SSSI	SAC/ SSSI	227870	120482	7130	Southwest
E16	Culm Grasslands (SAC)/ Thorne and Doves Moors SSSI	SAC/ SSSI	241076	116286	7280	West
E17	Culm Grasslands (SAC)/ Bursdon Moor SSSI	SAC/ SSSI	227170	119569	7895	Southeast
E18	Hardings house	CWS	236151	120998	810	West
E19	Leworthy Cross (1)	LWS/ CWS	235490	119767	895	East
E20	Leworthy Cross (2)	LWS/ CWS	235835	119582	1235	Southeast
E21	Parkham Ash (1)	LWS/ CWS	236353	120694	1015	Southeast
E22	Parkham Ash (2)	LWS/ CWS	236295	120379	1040	East
E23	Parkham Ash (3)	LWS/ CWS	236248	120154	1100	Southeast
E24	South Stroxworthy 1	LWS/ CWS	234554	119537	1125	Southeast
E25	Kerswell Farm	LWS/ CWS	236651	120312	1400	Southwest
E26	South Bitworthy	LWS/ CWS	234111	121907	1555	East
E27	Sedborough Farm Wood (SS372216)	LWS/ CWS	236908	121493	1670	Northwest
E28	Dipple Bridge	LWS/ CWS	235157	118730	1830	East
E29	Sedborough Farm Wood (SS366219)	OSWI	236937	121928	1895	South
E30	The Moor, Kennerland (1)	UWS	233391	121793	2005	Northwest
E31	The Moor, Kennerland (2)	UWS	233263	121600	2005	Northwest
E32	Buck's Mills / Cross Woods (1)	LWS/ CWS/ AW	235508	122731	1835	Northwest
E33	Buck's Mills / Cross Woods (2)	LWS/ CWS/ AW	235796	122855	2010	North

Table 24 DBRC LWS/ CWS Description

ID	Type	Site name	Description
E24	CWS	South Stroxworthy	Culm grassland (M23, M27 & M25/M27) with some localised scrub
E28	CWS	Dipple Bridge	Mosaic of Culm grassland: rush-pasture, Molinia mire & tall herb fen, swamp and wet woodland
E19, E20	CWS	Leworthy Cross	Culm grassland (Molinia mire). Marsh fritillary butterfly site.
E30, E31	CWS	The Moor, Kennerland	Culm grassland. Butterfly interest.
E26	CWS	South Bitworthy	Culm grassland
E18	CWS	Harding's House	Culm grassland
E21 - E23	CWS	Parkham Ash	Culm grassland and wet woodland
E32, E33	CWS	Buck's Mills Woods	Ancient semi-natural broadleaved woodland and coniferous plantation
E27	CWS	Sedborough Farm Wood	Semi-natural broadleaved woodland
E25	CWS	Kerswell Farm	Culm grassland
E29	OSWI	Sedborough Farm Wood	Semi-natural broadleaved woodland and small area of mire
E30, E31	UWS	Kennerland	Wood, scrub poss. culm. Linked to CWS
Notes: Site name and accompanying habitat description supplied by Dorset Biological Records Centre (Reference: Search 510-4926 for SS 35189 20723 (Higher Alminstone Farm) – DBRC, 11/27/25). UWS = Unconfirmed Wildlife Site OSWI = Other Site of Wildlife Interest			

A.5 Post-processing

A.5.1 Use of background data

Considering long-term AQS, it is a straightforward matter to add the annual mean contribution from the source, (annual mean PC) to the annual mean background concentration to predict the total concentration (annual mean PEC).

For comparison with short-term AQS the addition of background is not so straightforward. The dispersion model allows for the calculation of percentiles from hourly background and process concentrations, but hourly background concentrations are not commonly available, and not for all pollutants. The approach used was that described in the Defra/EA guidance:

> *When you calculate background concentration, you can assume that the short-term background concentration of a substance is twice its long-term concentration*.

This has been used for all for short-term AQS for averaging times for 15 minutes to 24 hours.

A.5.2 Conversion of NOx to NO_2

The dispersion model includes a NOx chemistry model, but the conversion of primary NOx emissions to NO_2 is usually undertaken as a post-processing step for both planning and industrial permitting applications. For primary NO_2 to NO_x ratios of 10% or less, which is likely to be the case for the stack emissions, the EA and Natural Resources Wales recommend use of the following conversion ratios:

- 35% for short term assessment
- 70% for long term assessment.

These ratios have been used in main part of this assessment.

Appendix B Sensitivity assessment

The impact of buildings, terrain and meteorological data year have been assessed. The seven cases modelled, A-G, are shown in Table 24. Long-term and short-term scenarios have been modelled as described in Section 3.1.

Results of the sensitivity tests were the maximum concentration predicted at any human receptor. For each AQS, the predicted maximum was divided by (normalised) the AQS value, or if the AQS is expressed as a number of exceedances of threshold value, by the threshold value. These normalised values have been expressed as a percentage and are shown in Table 25. The comparison is expressed this way to show the relative importance of the change in terms of exceedance of the AQS. If all the results are a very small percentage of the AQS, the variation in results is unlikely to affect the conclusions of the study.

For human receptors, comparing the results for tests A, B and C, it can be seen that modelling buildings led to higher model predictions than for flat terrain. Modelling terrain as well as buildings had a negligible impact. Comparing the results for tests A, D, E, F and G shows that the variation due to meteorological data year is generally less significant than the impact of modelling buildings for human receptors.

For ecological receptors, neither the variation introduced by buildings and terrain nor the variation associated with the meteorological year had a significant effect on the modelled results.

Table 25 Sensitivity tests

Sensitivity test	Flat/Buildings/Terrain model options	Meteorological data year
A	Flat	2020
B	Buildings	2020
C	Terrain & buildings	2020
A	Flat	2020
D	Flat	2021
E	Flat	2022
F	Flat	2023
G	Flat	2024

Table 26 Sensitivity tests: results as a percentage of the AQS or threshold (%)

Pollutant	Scenario	Long-term (LT) or Short-term (ST)	Value, EAL or threshold, (µg/m^3)	A	B	C	A	D	E	F	G
Human receptors											
NO_2	Abnormal – Boiler 1	LT	40	0.61%	2.25%	1.56%	0.61%	0.64%	0.46%	0.54%	0.45%
NO_2	Abnormal – Boiler 2	LT	40	0.61%	2.24%	1.56%	0.61%	0.63%	0.47%	0.54%	0.45%
NO_2	Abnormal – Boiler 1	ST	200	1.61%	2.84%	2.62%	1.61%	1.64%	1.85%	1.66%	1.61%
NO_2	Abnormal – Boiler 2	ST	200	1.53%	2.84%	2.66%	1.53%	1.57%	1.83%	1.59%	1.54%
Ecological receptors											
NOx	Abnormal – Boiler 1	LT	30	0.16%	0.16%	0.13%	0.16%	0.14%	0.14%	0.17%	0.18%
NOx	Abnormal – Boiler 2	LT	30	0.16%	0.16%	0.13%	0.16%	0.14%	0.14%	0.17%	0.18%
NOx	Abnormal – Boiler 1	ST	75	0.53%	0.63%	0.52%	0.53%	0.59%	0.55%	0.62%	0.54%
NOx	Abnormal – Boiler 2	ST	75	0.54%	0.73%	0.63%	0.54%	0.59%	0.55%	0.62%	0.53%

Appendix C Fuel specification data

Kerosene

Description:
Domestic burning fuel.

Specification:
BS EN 2869:2017 (Class C2)

Date of issue:
15th July 2024

Property	Test Method	Units	Limits	
			Min	Max
Appearance (@ Ambient Temp)	Visual		Clear and bright. Free from Visible Sediment & Water.	
Char Value	BS 2000-10	mg/kg		20
Copper Corrosion	EN ISO 2160	2hr @ 100ºC		Class 1
Density @ 15ºC	EN ISO 12185	kg/l @ 15 ºC	0.7750	0.8400
Density % Vol Rec @ 200ºC % Vol Rec @ 210ºC % Vol Rec @ 240ºC Final Boiling Point	EN ISO 3405	 Vol % Vol % Vol % ºC	 15.0 50.0	 90.0 300.0
Doctor Test IP 30 or Mercaptan Sulphur	IP 30 ASTM D3227/IP 342	 % Wt		-ve 0.0025
Flash Point	BS EN ISO 13736	ºC	38.0	
Gross Specific Energy	ASTM D3338	Mj/Kg		42.8
Odour			Merchantable	
Smoke Point	IP 598	mm	1.8	
Sulphur	BS EN 8754	% (m/m)		0.1
Visco @ 40ºC	BS EN ISO 3104	mm^2/s	1.00	2.00

Notes:
1. Here are the notes. Here are the notes. Here are the notes. Here are the notes There are no seasonal requirements for Kerosene
2. Class C2 is a Kerosine designed for vaporising or atomizing burners in appliances connected to flues
3. Latest test methods or technical equivalents used
4. This product shall always meet BS EN 2869:2017 Class C2 (Kerosene)

Watson Fuels Callow Park, Callow Hill, Brinkworth, Chippenham, Wiltshire, SN15 5FD
www.watsonfuels.co.uk

Appendix D Environment Agency Nature and Heritage Conservation Screening Report

Nature and Heritage Conservation

Screening Report: Bespoke installation

Reference	**EPR/HP3728LG/P001**
NGR	**SS 35238 20764**
Buffer (m)	**295**
Date report produced	**07/05/2025**
Number of maps enclosed	**1**

This nature and heritage conservation report

The nature and heritage conservation sites, protected species and habitats, and other features identified in the table below **must be considered in your application**.

In the further information column, there are links which give more information about the site or feature type and indicate where you are able to self-serve to get the most accurate site boundaries or feature locations.

Most designated site boundaries are available on Magic map. Using Magic map allows you to zoom in and see the site boundary or feature location in detail, Magic map also allows you to measure the distance from these sites and features to your proposed boundary. Help videos are available on Magic map to guide you through.

Where information is not publicly available, or is only available to those with GIS access, we have provided a map at the end of this report.

Sites and Features within screening distance	Screening distance (km)	Further Information
Special Areas of Conservation (cSAC or SAC)	10	Joint Nature Conservation Committee and Magic map
Tintagel-Marsland-Clovelly Coast (SAC)		
Culm Grasslands (SAC)		
Local Wildlife Sites (LWS) (see map below)	2	Appropriate Local Record Centre (LRC)

Leworthy Cross		Appropriate Wildlife Trust
Parkham Ash		
South Stroxworthy		
Kerswell Farm		
South Bitworthy		
Sedborough Farm Wood		
Buck's Mills Woods		
Dipple Bridge		
The Moor, Kennerland		
Bucks Cross		
Ancient Woodland	2	Woodland Trust Forestry Commission Natural England and Magic map
Bucks Cross Wood		

Where protected species are present, a licence may be required from Natural England to handle the species or undertake the proposed works.

The relevant Local Records Centre must be contacted for information on the features within local wildlife sites. A small administration charge may also be incurred for this service.

The following nature and heritage conservation sites, protected species and habitats, and other features have been checked for, where they are relevant for the permit type requested, but have not been found within screening distance of your site unless included in the list above.

Special Areas of Conservation (cSAC or SAC), Special Protection Area (pSPA or SPA), Marine Conservation Zone (MCZ), Ramsar, Sites of Special Scientific Interest (SSSI), National Nature Reserve (NNR), Local Nature Reserve (LNR), Local Wildlife Sites (LWS), Ancient Woodland, relevant species and habitats.

Please note we have screened this application for features for which we have information. It is however your responsibility to comply with all environmental and planning legislation, this information does not imply that no other checks or permissions will be required.

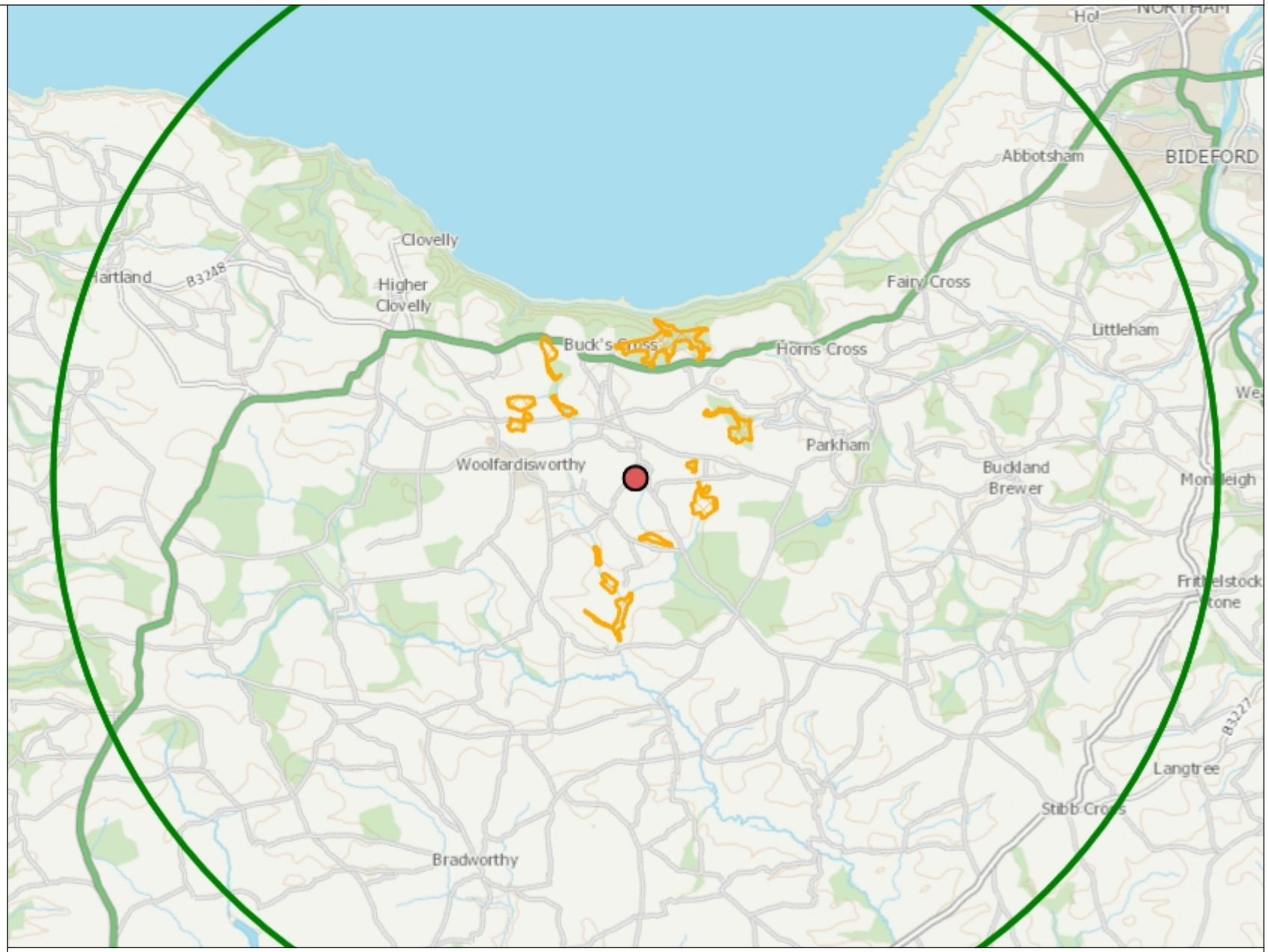
The nature and heritage screening we have conducted as part of this report is subject to change as it is based on data we hold at the time it is generated. We cannot guarantee there will be no changes to our screening data between the date of this report and the submission of the permit application, which could result in the return of an application or requesting further information

Local Wildlife Sites

Environment Agency

Legend

Local Wildlife Sites



1: 100,000

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Metres

N W E S

Appendix E Human receptor results

Table 27 Long-term and short-term results NO_2

ID	Receptors	Comparison with annual mean AQS: 40µg/m³				Comparison with 99.79th percentile 1-hour threshold 200µg/m³			
		PC (µg/m³)	PC/AQS (%)	PEC (µg/m³)	PEC/AQS (%)	PC (µg/m³)	PC/AQS (%)	Headroom (µg/m³)	PC/Headroom (%)
R1	Onsite Farmhouse	0.90	2.3%	3.5	8.7%	6.04	3.0%	195	5.6%
R2	Arnolds Cottage	0.17	0.4%	2.7	6.7%	1.41	0.7%	195	3.2%
R3	Lower Alminstone Farmhouse	0.04	0.1%	2.6	6.5%	0.63	0.3%	195	2.9%
R4	Woolfardisworthy, Cranford	0.02	0.0%	2.6	6.5%	0.56	0.3%	195	2.8%
R5	Satchfield	0.06	0.2%	2.6	6.5%	1.07	0.5%	195	3.1%
R6	Beech View	0.07	0.2%	2.6	6.6%	0.91	0.5%	195	3.0%
R7	Parkham Ash	0.06	0.1%	2.6	6.4%	0.54	0.3%	195	2.8%
R8	Alminstone Cross	0.01	0.0%	2.5	6.3%	0.39	0.2%	195	2.7%
R9	Midway, Parkham Ash	0.05	0.1%	2.6	6.4%	0.51	0.3%	195	2.8%
R10	Agricultural building	0.04	0.1%	2.6	6.5%	0.51	0.3%	195	2.8%
R11	Three Gables	0.02	0.1%	2.6	6.5%	0.49	0.2%	195	2.8%
R12	Woolfardisworthy, Cranford (2)	0.02	0.1%	2.6	6.4%	0.52	0.3%	195	2.8%
R13	Woolfardisworthy, Cranford (1)	0.02	0.1%	2.5	6.3%	0.43	0.2%	195	2.7%
R14	Tuttsclump, Parkham Ash	0.03	0.1%	2.6	6.5%	0.38	0.2%	195	2.8%
R15	Venn, Woolfardisworthy	0.02	0.0%	2.6	6.4%	0.42	0.2%	195	2.8%
R16	Leworthy Cross	0.02	0.0%	2.6	6.4%	0.36	0.2%	195	2.7%
R17	Brookfield/ Kingsland Stables	0.02	0.1%	2.6	6.4%	0.41	0.2%	195	2.7%
R18	Little Walland	0.02	0.0%	2.5	6.3%	0.30	0.2%	195	2.7%
R19	Linhay Meadow	0.02	0.1%	2.6	6.4%	0.33	0.2%	195	2.7%
Notes: n/a = long-term AQS are not applicable at workplaces									

Appendix F Ecological receptor results

Table 28 Results: Ecological receptors, long-term AQS for NOx

ID	Receptors	Comparison with annual mean AQS: 30µg/m³			
		PC (µg/m³)	PC/AQS (%)	PEC (µg/m³)	PEC/AQS (%)
E1	Tintagel-Marsland-Clovelly Coast SAC/ Hobby to Peppercombe SSSI/ Bucks Cross Wood	0.009	0.03%	3.47	12%
E2	Tintagel-Marsland-Clovelly Coast (SAC)/ Hobby to Peppercombe SSSI/ Bucks Cross Wood	0.005	0.02%	3.54	12%
E3	Tintagel-Marsland-Clovelly Coast (SAC)/ Hobby to Peppercombe SSSI/ Worthygate/Sloo Woods	0.006	0.02%	3.49	12%
E4	Tintagel-Marsland-Clovelly Coast (SAC)/ Hobby to Peppercombe SSSI/ Bucks Cross Wood	0.006	0.02%	3.59	12%
E5	Tintagel-Marsland-Clovelly Coast (SAC)/ Hobby to Peppercombe SSSI	0.004	0.01%	3.51	12%
E6	Tintagel-Marsland-Clovelly Coast (SAC)/ Hobby to Peppercombe SSSI/ Bucks Cross Wood	0.005	0.02%	3.61	12%
E7	Tintagel-Marsland-Clovelly Coast (SAC)/ Marsland to Clovelly Coast SSSI/ Brownsham/ Reeve Woods	0.004	0.01%	3.56	12%
E8	Tintagel-Marsland-Clovelly Coast (SAC)/ Marsland to Clovelly Coast SSSI	0.002	0.01%	3.17	11%
E9	Culm Grasslands/ Kismeldon Meadows SSSI	0.003	0.01%	3.55	12%
E10	Culm Grasslands/ Kismeldon Meadows SSSI	0.005	0.02%	3.63	12%
E11	Culm Grasslands (SAC)/ Mambury and Stowford Moors SSSI	0.004	0.01%	3.61	12%
E12	Culm Grasslands (SAC)/ Bradworthy Common SSSI	0.002	0.01%	3.60	12%
E13	Culm Grasslands (SAC)/ Mambury and Stowford Moors SSSI	0.003	0.01%	3.60	12%
E14	Culm Grasslands (SAC)/ Bradworthy Common SSSI	0.002	0.01%	3.60	12%
E15	Culm Grasslands (SAC)/ Bursdon Moor SSSI	0.002	0.01%	3.57	12%
E16	Culm Grasslands (SAC)/ Thorne and Doves Moors SSSI	0.002	0.01%	3.72	12%
E17	Culm Grasslands (SAC)/ Bursdon Moor SSSI	0.002	0.01%	3.54	12%
E18	Hardings house	0.051	0.17%	3.63	12%
E19	Leworthy Cross (1)	0.030	0.10%	3.59	12%
E20	Leworthy Cross (2)	0.020	0.07%	3.58	12%
E21	Parkham Ash (1)	0.032	0.11%	3.61	12%
E22	Parkham Ash (2)	0.028	0.09%	3.61	12%
E23	Parkham Ash (3)	0.024	0.08%	3.60	12%

ID	Receptors	Comparison with annual mean AQS: 30µg/m³			
		PC (µg/m³)	PC/AQS (%)	PEC (µg/m³)	PEC/AQS (%)
E24	South Stroxworthy 1	0.009	0.03%	3.55	12%
E25	Kerswell Farm	0.018	0.06%	3.60	12%
E26	South Bitworthy	0.017	0.06%	3.62	12%
E27	Sedborough Farm Wood SS32/033	0.018	0.06%	3.57	12%
E28	Dipple Bridge	0.009	0.03%	3.55	12%
E29	Sedborough Farm Wood	0.015	0.05%	3.56	12%
E30	The Moor, Kennerland (1)	0.014	0.05%	3.61	12%
E31	The Moor, Kennerland (2)	0.012	0.04%	3.61	12%
E32	Buck's Mills / Cross Woods (1)	0.012	0.04%	3.72	12%
E33	Buck's Mills / Cross Woods (2)	0.012	0.04%	3.72	12%
Notes: No further analysis required for LWS/ CWS/ AW if PC/AQS < 100%					

Table 29 Results: Ecological receptors, short-term AQS for NOx

ID	Receptors	Comparison with maximum daily AQS: 75µg/m³		Comparison with maximum daily AQS: 200µg/m³	
		PC (µg/m³)	PC/AQS (%)	PC (µg/m³)	PC/AQS (%)
E1	Tintagel-Marsland-Clovelly Coast SAC/ Hobby to Peppercombe SSSI/ Bucks Cross Wood	0.14	0.19%	0.14	0.07%
E2	Tintagel-Marsland-Clovelly Coast (SAC)/ Hobby to Peppercombe SSSI/ Bucks Cross Wood	0.16	0.21%	0.16	0.08%
E3	Tintagel-Marsland-Clovelly Coast (SAC)/ Hobby to Peppercombe SSSI/ Worthygate/Sloo Woods	0.10	0.13%	0.10	0.05%
E4	Tintagel-Marsland-Clovelly Coast (SAC)/ Hobby to Peppercombe SSSI/ Bucks Cross Wood	0.17	0.23%	0.17	0.09%
E5	Tintagel-Marsland-Clovelly Coast (SAC)/ Hobby to Peppercombe SSSI	0.06	0.08%	0.06	0.03%
E6	Tintagel-Marsland-Clovelly Coast (SAC)/ Hobby to Peppercombe SSSI/ Bucks Cross Wood	0.11	0.14%	0.11	0.05%
E7	Tintagel-Marsland-Clovelly Coast (SAC)/ Marsland to Clovelly Coast SSSI/ Brownsham/ Reeve Woods	0.10	0.14%	0.10	0.05%
E8	Tintagel-Marsland-Clovelly Coast (SAC)/ Marsland to Clovelly Coast SSSI	0.05	0.07%	0.05	0.03%
E9	Culm Grasslands/ Kismeldon Meadows SSSI	0.08	0.11%	0.08	0.04%
E10	Culm Grasslands/ Kismeldon Meadows SSSI	0.10	0.13%	0.10	0.05%
E11	Culm Grasslands (SAC)/ Mambury and Stowford Moors SSSI	0.07	0.09%	0.07	0.03%
E12	Culm Grasslands (SAC)/ Bradworthy Common SSSI	0.06	0.07%	0.06	0.03%
E13	Culm Grasslands (SAC)/ Mambury and Stowford Moors SSSI	0.06	0.08%	0.06	0.03%
E14	Culm Grasslands (SAC)/ Bradworthy Common SSSI	0.06	0.08%	0.06	0.03%
E15	Culm Grasslands (SAC)/ Bursdon Moor SSSI	0.05	0.07%	0.05	0.02%
E16	Culm Grasslands (SAC)/ Thorne and Doves Moors SSSI	0.05	0.06%	0.05	0.02%
E17	Culm Grasslands (SAC)/ Bursdon Moor SSSI	0.05	0.07%	0.05	0.03%
E18	Hardings house	0.46	0.61%	0.46	0.23%
E19	Leworthy Cross (1)	0.49	0.66%	0.49	0.25%
E20	Leworthy Cross (2)	0.55	0.73%	0.55	0.27%
E21	Parkham Ash (1)	0.29	0.39%	0.29	0.14%
E22	Parkham Ash (2)	0.33	0.44%	0.33	0.16%
E23	Parkham Ash (3)	0.39	0.53%	0.39	0.20%
E24	South Stroxworthy 1	0.30	0.40%	0.30	0.15%

ID	Receptors	Comparison with maximum daily AQS: 75µg/m³		Comparison with maximum daily AQS: 200µg/m³	
		PC (µg/m³)	PC/AQS (%)	PC (µg/m³)	PC/AQS (%)
E25	Kerswell Farm	0.24	0.32%	0.24	0.12%
E26	South Bitworthy	0.30	0.39%	0.30	0.15%
E27	Sedborough Farm Wood SS32/033	0.23	0.31%	0.23	0.11%
E28	Dipple Bridge	0.15	0.20%	0.15	0.08%
E29	Sedborough Farm Wood	0.20	0.27%	0.20	0.10%
E30	The Moor, Kennerland (1)	0.32	0.43%	0.32	0.16%
E31	The Moor, Kennerland (2)	0.32	0.43%	0.32	0.16%
E32	Buck's Mills / Cross Woods (1)	0.18	0.24%	0.18	0.09%
E33	Buck's Mills / Cross Woods (2)	0.20	0.26%	0.20	0.10%
Notes: No further analysis required for LWS/ CWS/ AW if PC/AQS < 100%					

Table 30 Results: Ecological receptors, nutrient nitrogen deposition, nationally designated sites

Receptors	Comparison with nutrient nitrogen critical loads								
	Deposition velocity type	PC (kgN/ha/yr)	CLmin (kgN/ha/yr)	CLmax (kgN/ha/yr)	PC/CLmin (%)	PC/CLmax (%)	Background (kgN/ha/yr)	PEDR/CLmin (%)	PEDR/CLmax (%)
E1	Grass	0.0009	5	15	0.018%	0.006%	16.26	325%	108%
E2	Grass	0.0005	5	15	0.010%	0.003%	16.04	321%	107%
E3	Grass	0.0006	5	15	0.012%	0.004%	16.48	330%	110%
E4	Grass	0.0006	5	15	0.011%	0.004%	15.83	317%	106%
E5	Grass	0.0004	5	15	0.008%	0.003%	16.70	334%	111%
E6	Grass	0.0005	5	15	0.009%	0.003%	15.61	312%	104%
E7	Grass	0.0004	5	15	0.009%	0.003%	15.22	304%	101%
E8	Grass	0.0002	5	15	0.005%	0.002%	13.00	260%	87%
E9	Grass	0.0003	5	15	0.006%	0.002%	18.46	369%	123%
E10	Grass	0.0005	5	15	0.009%	0.003%	18.56	371%	124%
E11	Grass	0.0004	5	15	0.007%	0.002%	18.71	374%	125%
E12	Grass	0.0002	5	15	0.004%	0.001%	18.83	377%	126%
E13	Grass	0.0003	5	15	0.005%	0.002%	18.96	379%	126%
E14	Grass	0.0002	5	15	0.003%	0.001%	18.71	374%	125%
E15	Grass	0.0002	5	15	0.004%	0.001%	15.86	317%	106%
E16	Grass	0.0002	5	15	0.004%	0.001%	18.72	374%	125%
E17	Grass	0.0002	5	15	0.003%	0.001%	16.21	324%	108%
E18	Grass	0.0052	5	15	0.103%	0.034%	17.81	356%	119%
E19	Grass	0.0030	5	15	0.060%	0.020%	17.95	359%	120%
E20	Grass	0.0021	5	15	0.041%	0.014%	17.95	359%	120%
E21	Grass	0.0032	5	15	0.064%	0.021%	17.81	356%	119%
E22	Grass	0.0028	5	15	0.056%	0.019%	17.81	356%	119%
E23	Grass	0.0024	5	15	0.048%	0.016%	17.81	356%	119%
E24	Grass	0.0009	5	15	0.018%	0.006%	17.81	356%	119%

Receptors	Comparison with nutrient nitrogen critical loads								
	Deposition velocity type	PC (kgN/ha/yr)	CLmin (kgN/ha/yr)	CLmax (kgN/ha/yr)	PC/CLmin (%)	PC/CLmax (%)	Background (kgN/ha/yr)	PEDR/CLmin (%)	PEDR/CLmax (%)
E25	Grass	0.0018	5	15	0.036%	0.012%	17.81	356%	119%
E26	Grass	0.0017	5	15	0.033%	0.011%	17.16	343%	114%
E27	Forest	0.0035	10	15	0.035%	0.024%	29.94	299%	200%
E28	Grass	0.0009	5	15	0.018%	0.006%	18.25	365%	122%
E29	Forest	0.0030	10	15	0.030%	0.020%	29.94	299%	200%
E30	Grass	0.0014	5	15	0.028%	0.009%	16.97	339%	113%
E31	Grass	0.0012	5	15	0.024%	0.008%	16.97	339%	113%
E32	Forest	0.0025	10	15	0.025%	0.017%	29.09	291%	194%
E33	Forest	0.0023	10	15	0.023%	0.015%	29.09	291%	194%

Notes: No further analysis required for LWS/ CWS/ AW if PC/AQS < 100%

n/a = Critical Load Range not available

Table 31 Results: Ecological receptors, acid deposition

Receptors	Designation	Deposition velocity type	PC (keqS/ha/yr)	PC (keqN/ha/yr)	Background (keqS/ha/yr)	Background (keqN/ha/yr)	Minimum critical loads [1]		
							PC (%)	Background (%)	PEC (%)
E1	SAC/ SSSI/ AW	Forest	/	0.00013	0.18	2.01	0.0	189	189
E2	SAC/ SSSI	Forest	/	0.00007	0.18	1.96	0.0	184	184
E3	SAC/ SSSI/ AW	Forest	/	0.00009	0.18	2.01	0.0	189	189
E4	SAC/ SSSI	Forest	/	0.00008	0.18	1.93	0.0	182	182
E5	SAC/ SSSI	Forest	/	0.00006	0.18	2.05	0.0	192	192
E6	SAC/ SSSI	Forest	/	0.00007	0.18	1.91	0.0	180	180
E7	SAC/ SSSI/ AW	Forest	/	0.00006	0.17	1.86	0.0	175	175
E8	SAC/ SSSI	Forest	/	0.00003	0.16	1.61	0.0	152	152
E9	SAC/ SSSI	Grass	/	0.00002	0.12	1.32	0.0	155	155
E10	SAC/ SSSI	Grass	/	0.00003	0.12	1.33	0.0	156	156
E11	SAC/ SSSI	Grass	/	0.00003	0.12	1.34	0.0	157	157
E12	SAC/ SSSI	Grass	/	0.00001	0.12	1.35	0.0	158	158
E13	SAC/ SSSI	Grass	/	0.00002	0.12	1.35	0.0	158	158
E14	SAC/ SSSI	Grass	/	0.00001	0.12	1.34	0.0	157	157
E15	SAC/ SSSI	Grass	/	0.00001	0.12	1.13	0.0	135	135
E16	SAC/ SSSI	Grass	/	0.00001	0.12	1.34	0.0	157	157
E17	SAC/ SSSI	Grass	/	0.00001	0.12	1.16	0.0	138	138
E18	CWS	Grass	/	0.00037	0.13	1.25	0.0	59.1	59.1
E19	LWS/ CWS	Grass	/	0.00022	0.13	1.28	0.0	80.5	80.5
E20	LWS/ CWS	Grass	/	0.00015	0.13	1.28	0.0	80.5	80.5
E21	LWS/ CWS	Grass	/	0.00023	0.13	1.27	0.0	60.0	60.0
E22	LWS/ CWS	Grass	/	0.00020	0.13	1.27	0.0	60.0	60.0
E23	LWS/ CWS	Grass	/	0.00017	0.13	1.27	0.0	60.0	60.0
E24	LWS/ CWS	Grass	/	0.00006	0.13	1.27	0.0	80.4	80.4
E25	LWS/ CWS	Grass	/	0.00013	0.13	1.27	0.0	60.0	60.0

E26	LWS/ CWS	Grass	/	0.00012	0.13	1.23	0.0	77.6	77.6
E27	LWS/ CWS	Forest	/	0.00025	0.18	2.14	0.0	109	109
E28	LWS/ CWS	Grass	/	0.00006	0.12	1.30	0.0	61.1	61.1
E29	OSWI	Forest	/	0.00021	0.18	2.14	0.0	109	109
E30	UWS	Grass	/	0.00010	0.13	1.21	0.0	76.5	76.5
E31	UWS	Grass	/	0.00008	0.13	1.21	0.0	76.5	76.5
E32	LWS/ CWS/ AW	Forest	/	0.00018	0.18	2.08	0.0	106	106
E33	LWS/ CWS/ AW	Forest	/	0.00017	0.18	2.08	0.0	106	106

Note:
/ = not applicable
[1] %PC of minimum critical load determined using the Critical Load Function tool, available at www.apis.co.uk.
n/a = not available: this habitat is not sensitive to acidity