



## Non-Technical Summary

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Ellough Energy Recovery Facility

**V.C. Cooke Limited**

CRM.0157.001.PE.R.003



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### CRM 0157 001 PE R 003

Project:	Ellough Energy Recovery Facility
For:	V.C Cooke Limited
Status:	<b>DRAFT</b>
Date:	August 2023
Author:	Steph Charnaud, Director of Permitting
Reviewer:	Peter Cumberlidge, Director

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## 1.0 Non-Technical Summary

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### 1.1 Introduction

- 1.1.1 This non-technical summary relates to an application submitted to the Local Authority (East Suffolk Council) for a Small Waste Incineration Plant (SWIP) Permit under Schedule 13 of the Environmental Permitting Regulations 2016 (as amended).
- 1.1.2 The proposed development is for a single waste fired Combined Heat and Power plant, which will process up to 24 369 tonnes of non-hazardous RDF per annum produced at the adjacent permitted waste transfer station. The plant is anticipated to run 24 hours/day for 7 days a week, with a maximum throughput of 2.89 tonnes per hour. The plant has an electrical output of 2.5MWe.
- 1.1.3 The heat and power generated by the plant will be used by the adjacent waste transfer station and industrial estate with any excess electricity exported to the grid.
- 1.1.4 A SWIP application has been prepared to provide information to support the local authority's Part A(2) application form; to assess the risks posed by the activity; and to fully consider them against applicable legislation.
- 1.1.5 The facility will be operated by V.C. Cooke Ltd, who are the registered operators of the adjacent waste transfer station. V.C. Cooke Ltd is a private limited company, whose registered office address is VC Cooke, Ellough Road, Beccles, England, NR34 7TQ. The Company Number as registered on Company's House is: 06693252 and was incorporated on 9<sup>th</sup> September 2008.
- 1.1.6 The location of the site is illustrated on the map referenced CRM 0157 001 PE D 001 titled Site Location Plan. The site is located off Ellough Road, approximately 1.3km to the south of Worlingham, 2km to the southeast of Beccles, with a solar farm located directly to the south and west of the proposed site and industrial units to the east.

### 1.2 Operator Details

- 1.2.1 The Facility's full address will be:

V.C. Cooke Ltd  
Ellough Road,  
Beccles,  
Suffolk  
NR34 7TQ

- 1.2.2 The primary contact for the application is Steph Charnaud, Director of Permitting for Enzygo Limited who are retained to provide technical support to V.C. Cooke Ltd as part of the Permit application process.

### 1.3 Existing Permit or Consents

- 1.3.1 V.C. Cooke Ltd currently hold an environmental permit for the operation of a waste transfer facility at the site. The existing permit allows the storage of up to 20,650 tonnes of waste and the treatment consisting of manual sorting, separation, screening, crushing and compaction of up to 75,000 tonnes per annum non-hazardous and inert waste.
- 1.3.2 Table 1.3.1 below describes the planning history for the site, and the existing planning consent associated with this SWIP permit application.



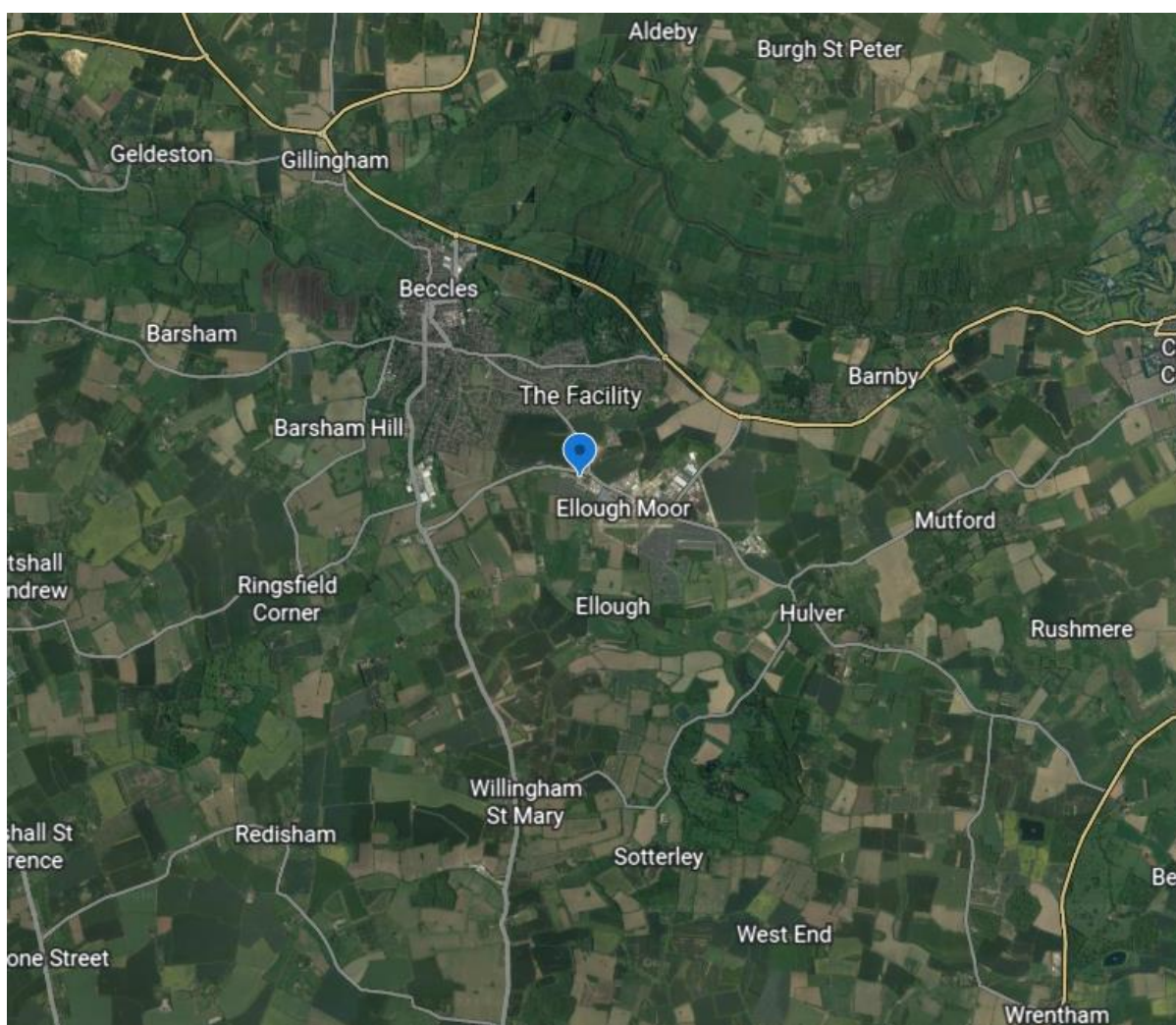
**Table 1.3.1: Planning Consent**

Application	Details	Status	Date
Application Reference: SCC/0063/22W	Construction and operation of an Energy Recovery Facility within existing building along with associated infrastructure and solar photovoltaic's.	Granted	27/04/2023

## 1.4 Environmental Setting

1.4.1 The location of the site is illustrated in the document CRM 0157 001 PE D 001 as well as below in figure 1.4.1. The site is centred at Grid Reference TM 44079 88422.

**Figure 1.4.1: Site Location**



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## 1.5 Sensitive Receptors

1.5.1 The key receptors that have been identified, which have the potential to be impacted by emissions from the site are considered in the Environmental Risk Assessment which accompanies this application (Document Ref: CRM 0157 001 PE R 005) and summarised in Table 1.5.1 below.

**Table 1.5.1: Sensitive Receptors**

Receptor	Type	Distance (m)	Direction
Bedrock geology Principal Aquifer	Hydrological	On site	-
Superficial geology Secondary (Undifferentiated) Aquifer	Hydrological	On site	-
Agricultural land	Agricultural	0	S and W
Ellough waste transfer station	Commercial	0	N, E and W
Moor Business Park	Commercial	0	W
Pond	Hydrological	18	N
Unnamed drainage ditch	Hydrological	36	E
Pond	Hydrological	48	N
Pond	Hydrological	64	NNE
Ellough industrial estate	Commercial	190	W
Excalibur House industrial estate	Commercial	198	N
Boasts industrial estate	Commercial	464	N
Residential property	Residential	483	S
Playters New farm	Residential / agricultural	539	S
Residential properties off Cucumber Lane	Residential	609	WSW
Unnamed tributary of the River Waveney	Hydrological	651	NNE
Beccles town	Residential	661	N
Ellough Park raceway	Commercial	734	SE
Landoc caravan site	Residential	768	W
Residential properties at Dragonfly Hollow	Residential	938	SSW
Chenery's farm	Residential / agricultural	939	WSW
Woodlands caravan site	Residential	1104	S
Turkey rearing farm	Agricultural	1198	SE
Ellough Hall cottages	Residential	1318	SSE
Ellough Airfield CWS	Ecological	1320	ESE
Beccles Airfield	Commercial	1529	ESE
Residential properties off London Road	Residential	1629	SW
Marlborough farm	Residential / agricultural	1641	SW
Hill farm	Residential / agricultural	1654	SE
Ellough churchyard CWS	Ecological	1656	S
Glebe farm	Residential / agricultural	1665	S
Hall farm	Residential / agricultural	1739	NE

Receptor	Type	Distance (m)	Direction
Residential properties off Lowestoft Road	Residential / agricultural	1769	NE
Ellough Grove North CWS	Ecological	1908	ESE
Musk farm	Residential / agricultural	1932	NE
Marsh farm	Residential / agricultural	1957	SE
Beccles Common CWS	Ecological	1958	N

## 1.6 Proposed Activities

1.6.1 V.C. Cooke Ltd proposes to operate a Part (A)2 Environmental Permit for the operation of a Small Waste Incineration Plant (SWIP) consisting of a combined heat and power plant with a capacity of 2.89 tonnes per hour. The facility will have an intake of no more than 24,369 tonnes of non-hazardous RDF per annum.

1.6.2 Feedstocks to be accepted and processed at the facility will be limited to those listed within Appendix A of the Operational Techniques and Monitoring Plan (CRM 0157 001 PE R 006). The scale of operations proposed is as follows:

Ellough SWIP Facility	
Parameter	Limit
Proposed Operator	V.C. Cooke Ltd
Maximum total tonnes for the year	24 369
Hourly Throughput (tph)	2.89
Net rated thermal input (MWth)	9.894
Feedstock types	Non-Hazardous Refuse Derived Fuel
Feedstock Type Classification	Refuse Derived Fuel (RDF) / EWC: 19 12 10

1.6.3 As the plant will process less than 3 tonnes per hour of, the proposed facility is defined as a small waste incineration plant (SWIP), as the capacity falls below the relevant threshold in Section 5.1 of Part 2 of Schedule 1 to the Environmental Permitting (England & Wales) Regulations 2016 (as amended) (EPR). As such, SWIP Facilities require an environmental permit issued by the local authority under a Part A(2) regulated activity. The permit must be issued in line with schedule 13A of the Environmental Permitting Regulations and must reflect the requirements of article 44 of the Industrial Emissions Directive.

1.6.4 The proposed Schedule 1 listed activities and Directly Associated Activities (DAAs) are summarised in Table 1.6.4 below.

**Table 1.6.4: Regulated Activities**

IED Activities			
Listed Activity	Description of Specified Activity	Limits of Specified Activity	Specified Waste Management Operations
Schedule 13A Small Waste Incineration Plant	<ul style="list-style-type: none"> <li>A waste incineration plant or waste co-incineration plant with</li> </ul>	The receipt of fuels. The thermal treatment (by	<ul style="list-style-type: none"> <li>D10: Incineration on Land (Burning</li> </ul>



	a capacity less than or equal to 10 tonnes per day for hazardous waste or 3 tonnes per hour for non-hazardous wastes	combustion) of RDF feedstocks to produce heat, for use in a boiler to produce steam for a turbine to produce electricity. Air-pollution control (APC) of gases.	Waste in Combustion Unit) <ul style="list-style-type: none"> <li>• D15: Temporary storage of wastes pending D10 activities</li> <li>• D9: Physico-chemical treatment resulting in final compounds or mixtures which are discarded by any of the operations numbered D1 to D12.</li> <li>R13 Storage of waste pending any of the operations numbered R1 to R12.</li> </ul>
DAAs	<ul style="list-style-type: none"> <li>• Fuel reception and storage;</li> <li>• Raw material reception and storage;</li> <li>• Fuel feeding system;</li> <li>• Gas conditioning, including cleaning and cooling;</li> <li>• Residue handling;</li> <li>• Controls and monitoring;</li> <li>• Storage and handling of wastes generated by process</li> </ul>		

## 1.7 Proposed Operational Hours

1.7.1 The proposed operational hours will be as follows:

### Waste Deliveries

0700-1800 hrs Monday to Friday

0800-1600 hrs Saturday

On Sundays and Bank Holidays no deliveries shall take place

### Operating Hours

The plant will operate continuously 24 hours a day 7 days a week.

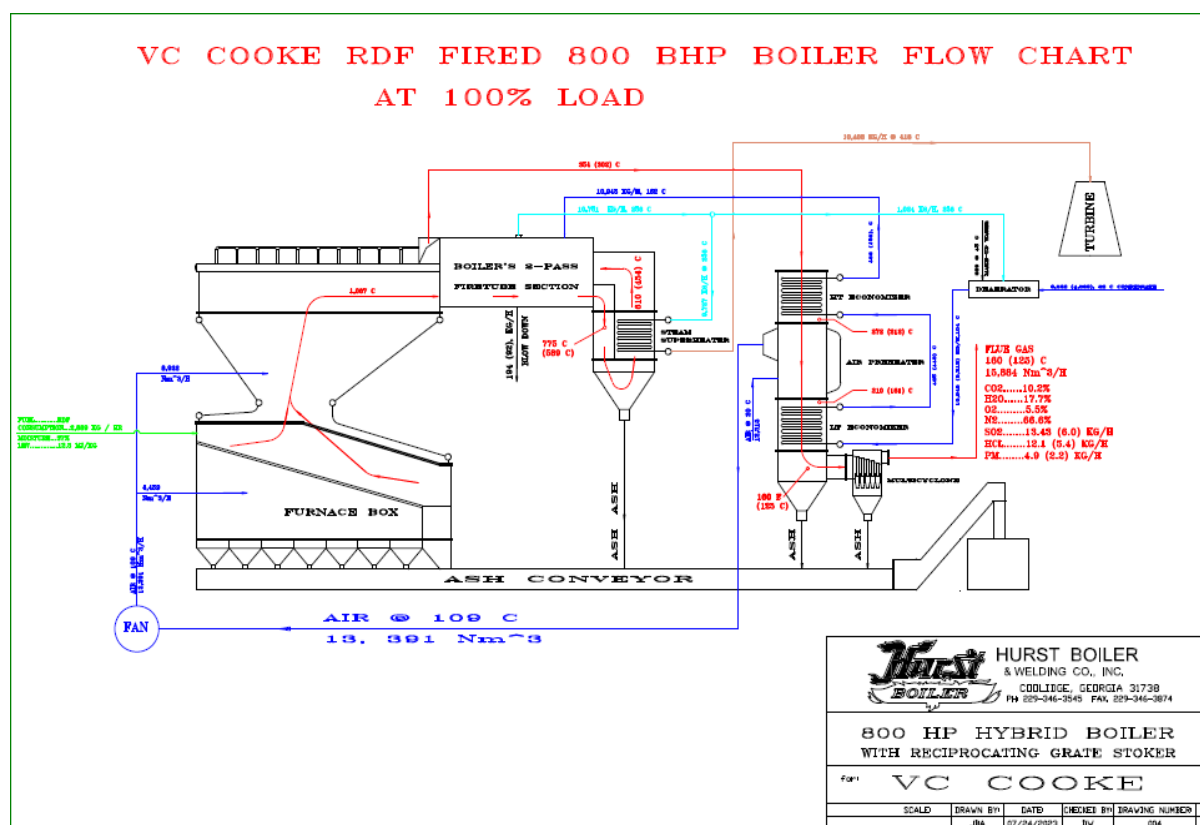
## 1.8 Process Description

1.8.1 RDF feedstock is delivered into the Facility by articulated vehicle from the adjacent waste transfer station and tipped directly onto a walking floor. The walking floor will feed the RDF onto a conveyor which will transfer it to a metering bin.

1.8.2 The furnace is fed by a screw feeder system fitted to the fuel metering bin, which continuously transfers the feedstock onto a sloped reciprocating grate. The feedstock on the reciprocating grate is subsequently dried, gasified and combusted as it gradually passes through the furnace. The temperature in the furnace is controlled at 873°C to ensure that conditions of 850°C for at least two seconds is achieved.

1.8.3 The heat produced by the combustion of feedstock is used to produce steam in a firetube boiler. The steam produced is then used to drive a steam turbine generator to produce electricity. The electricity and heat generated will be used by local facilities as described in section 1.1.3 above.

Figure 1.8.1: Process Diagram



1.8.4 The site will consist of:

- Reception and processing building;
- Walking floor and conveyor system;
- Metering bin;
- Hurst RDF Fired BHP Hybrid Boiler combustion chamber;
- Production of steam through a steam boiler
- Use of steam in a turbine to produce electricity
- Bottom and fly Ash removal conveyor and storage;
- Deaerator;
- Flue gas treatment system;
- Site Drainage.

## 1.9 Management and Control

1.9.1 The approach to permitting and regulation relies heavily upon the use of Environmental Management Systems (EMS) as a driver for environmental compliance and improvement. In England and Wales, under the Environmental Permitting Regime, modern regulation is fundamentally driven by applying a risk-based approach to activities, where operators are encouraged to implement suitable management systems with which to operate, and to

implement self-regulation and reporting. If you hold a permit under the Environmental Permitting (England & Wales) Regulations 2016 (as amended) the enforcing regulating body requires you to have an appropriate Environmental Management System in place.

1.9.2 Prior to operations commencing, V.C. Cooke Ltd will develop and implement its own management system taking into account the relevant legal requirements, quality and safety standards, and environmental elements that the facility needs to identify and comply with, in order to carry out safe and environmentally sound operations.

### 1.10 Point Source Emissions from the Facility

1.10.1 There will be no point source emissions to land, groundwater or surface water. There will be one main emissions points to air from the proposed facility during normal operations comprising the fuel combustor stack post air emission abatement. All proposed emissions are listed in table 1.10.2 below.

**Table 1.10.2: Point Source Emissions**

Air Emission Point Reference	Source of Emission	Basis for release	Emissions
A1	Exhaust from combustor	Normal operation	Carbon monoxide, carbon dioxide, particulates, NO <sub>x</sub> , SO <sub>x</sub> , TOC, HCL, HF

1.10.2 An air quality assessment has been carried out to determine the risk posed by the release of gaseous emissions from the proposed combustion plant on site that will combust RDF.

1.10.3 The Air Quality Assessment (AQA) was undertaken in August 2023 using ADMS 5 (v5.2.4.0). Impacts at sensitive receptors were quantified and the results compared with the relevant Environmental Quality Standards (EQS) and significance criteria provided by the Environment Agency (EA) and the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT).

1.10.4 The AQA impacts were based on the maximum predicted concentrations over 5 assessment years to provide a robust assessment. In addition, a roadside background NO<sub>2</sub> concentration was applied at receptors close to major roads to take account of elevated concentrations at these locations.

1.10.5 The AQA states that the relevant EQSs are not exceeded at any location within the assessment extents. The AQA concludes by stating that *'based on the predictions and the use of robust assumptions, it is considered that the overall air quality impacts of the proposed operation would be not significant'*.

### 1.11 Fugitive Emissions to Land and Water

1.11.1 The Facility will use existing infrastructure which has been engineered to provide sealed impermeable surfacing to ensure that there will be no fugitive emissions released to surface water, ground or groundwater.

1.11.2 A sealed drainage systems is installed on site to handle the clean surface water run-off from the roof and yard areas. The drainage system flows to a below ground tank via a three-stage interceptor.

1.11.3 A second separate sealed drainage system is also installed to handle the drainage from and process waters originating from inside the process building. These waters are collected within

a 46,000l below ground tank prior to collection by an authorised waste contractor for off-site treatment.

### **1.12 Noise Assessment**

1.12.1A detailed noise assessment has been completed to assess the potential impact from noise on sensitive receptors. The assessment was carried out in accordance with guidance contained within British Standard 4142:2014 Method for rating and assessing industrial and commercial sound.

1.12.2The BS4142:2014 assessment concluded that *'the proposed facility would have a low impact during the daytime period, with predicted levels falling well below the background sound level at the existing receptors and well below the guideline values of BS8233 at the allocated development site'*.

1.12.3The assessment further adds *'During the night-time period, background sound levels and rating noise levels are very low. Notwithstanding this, the resultant noise impact in accordance with BS4142 is generally low'*.

### **1.13 Environmental Risk Assessments**

1.13.1An Environmental Risk Assessment has been completed as part of the preparatory work undertaken to support this Permit Application.

1.13.2The risk assessments have concluded that with the proposed abatement systems to be installed at the Facility for the proposed activities will not result in an unacceptable impact on nearby sensitive receptors. All risk assessments including modelling work are provided in the Environmental Risk Assessment (ERA) document CRM 0157 001 PE R 005 within this Permit Application.

### **1.14 Operational Techniques and Monitoring Plan**

1.14.1Details contained within the Operations Techniques and Monitoring Plan CRM 0157 001 PE R 006 describe the proposed operations and associated pollution prevention techniques.

### **1.15 Monitoring**

1.15.1The Permit will stipulate the required monitoring schedule for the proposed facility, however anticipated monitoring requirements for all point source emissions and process monitoring are provided within the Operations Techniques and Monitoring Plan CRM 0157 001 PE R 006

### **1.16 Closure & Decommissioning**

1.16.1The plant will operate until a time where it is decided by V.C. Cooke Ltd, to no longer continue operating the facility. Following cessation of operations and removal of the plant, the site will be returned to the same condition prior to operations commencing.

1.16.2A permit surrender application will then be submitted to the regulating authority to demonstrate that the site has been returned to a satisfactory state. The surrender application will include details of how the facility will be dismantled, and how wastes produced from dismantling will be either recycled/reused or where appropriate disposed.



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