



Northacre Resource Recovery Centre

Annual Environmental Report - Contract Year 11 (Nov 2023 - Nov 2024)



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1. Introduction

This Annual Environmental Report (AER) is produced by HWS Waste Solutions "HWS," as required by Schedule 9 of the Waste Management Landfill Diversion Contract (the Contract) entered into between Wiltshire Council and HWS on 26 April 2011. The Contract is for a 25 year period and allows for 60,000 tonnes of municipal solid waste "MSW," to be treated at the Northacre Resource Recovery Centre "NRRC," located at Stephenson Road, Northacre Industrial Park, Westbury, Wiltshire.

The AER reports on the performance of the NRRC in Contract Year 11, covering the period 11 November 2023 to 10 November 2024.

The format of this report has been changed, following discussions with Wiltshire Council, to better reflect environmental performance of the Northacre RRC.

More information on Northacre RRC can be found on the website www.northacrerrc.co.uk

1.1 Purpose of the Annual Environmental Report

Wiltshire Council is accountable to its electorate to show value for services received under the Contract. This AER provides information and reports on the environmental performance of the operations within the direct control of HWS. It shows how HWS has assisted Wiltshire Council to meet its strategic commitments and is available free of charge to the public from HWS' websites, www.hills-group.co.uk and www.northacrerrc.co.uk

1.2 Summary of what is monitored

In order to discharge its obligations under the Project Agreement, which forms part of the Contract with Wiltshire Council, HWS carries out a wide range of monitoring to assess the effectiveness of the services provided. These are:

- Waste input levels - to ensure the waste targets are met and to review these with Wiltshire Council.
- Landfill performance and fuel production performance - to maximise the amount of material diverted from landfill by either conversion into fuel, loss through drying or removal of recyclates.

- Fuel quality (RDF) - to ensure that whilst maximising fuel production, quality and contractual targets are met and maintained.
- Moisture loss / drying performance - to ensure that as much material as possible is diverted from landfill through bio drying.
- Recyclate performance - to ensure the maximum amount of recyclable material is extracted and sent to merchants for further processing and recovery.
- Air emissions - to ensure air filtration systems work effectively and efficiently and that emission limits are met as set out in the Environmental Permit.
- Plant availability - To maximise plant availability via comprehensive maintenance processes to ensure both contractual obligations relating to waste deliveries and operating costs are managed within expectation.
- Leachate composition and levels - as part of the internal quality control system along with the duty of care requirements for the transfer of waste.
- Fly management in and around the site - as a requirement of the Quality and Environmental Management Systems together with Environmental Permit obligations.
- Odour levels in and around the site - as a requirement of the Quality and Environmental Management Systems together with Environmental Permit obligations.
- Electricity generation and consumption - to assess and review the energy efficiency of both the plant and installed photovoltaic systems.
- Transport effectiveness and mileage - is measured to ensure maximum efficiency is achieved from transport movements with particular regard to fuel consumption and payloads.
- Appropriate transport routes close to the facility are used - checked by random driver surveys in order to verify that the approved HGV routes to and from the facility are being adhered to.
- Full assessment of the carbon impact of the facility, from the point waste is delivered to the facility to the point in which the output is treated/received at its final destination, including the transportation of the outputs.

1.3 The Purpose of Monitoring

HWS monitor the process to ensure that, as responsible contractors, we are aware of our performance levels in the following key areas:

- Legal compliance
- Environmental impacts
- Contract requirements.

HWS examine the data collected and takes corrective and preventive action as needed. This regular review ensures that we:

- Maintain standards
- Minimise environmental impacts
- Set and achieve company targets
- Demonstrate continual improvement

2. Summary of Waste inputs, and Recovery and Recycling achieved

The following table details the volume of waste received, and the volumes and percentages of materials produced and dispatched for further recovery or disposal, through the years the contract has been in place.

Contract Year	Inputs (t)	Landfill (t)	Recyclates (t)	SRF (t)	Landfill Diversion (%)	SRF % of Inputs	Landfill % of Inputs	Recyclates % of Inputs
1	53,762	16,917	521	21,120	68.5	39.3%	31.5%	1.0%
2	60,670	18,971	616	27,496	68.7	45.3%	31.3%	1.0%
3	60,864	17,961	657	28,547	70.5	46.9%	29.5%	1.1%
4	57,076	19,763	630	28,749	65.4	50.4%	34.6%	1.1%
5	54,998	20,625	188	26,927	62.5	49.0%	37.5%	0.3%
6	59,758	19,751	99	27,671	66.9	46.3%	33.1%	0.2%
7	59,502	17,335	51	30,998	70.9	52.1%	29.1%	0.1%
8	53,998	18,726	106	25,238	65.3	46.7%	34.7%	0.2%
9	53,617	14,111	75	24,480	73.7	45.7%	26.3%	0.1%
10	54,869	16,016	73	26,384	70.8	48.1%	29.2%	0.1%
11	54,554	16,351	121	25,640	70.0	47.0%	30.0%	0.2%
Average	56,725	18,077	257	26,627	68	46.9%	31.9%	0.5%

3. Environmental

3.1 The measures taken by the Contractor to minimise (at the risk and cost of the Contractor) any negative environmental impacts from the facility and the carrying out of the Works and Services

NRRC is operated under Environmental Permit Number EPR/LP3491EE, issued and regulated by the Environment Agency (EA). The permit recognises what environmental effects may impact on the local environment and sets conditions to ensure that the impacts are controlled to acceptable levels.

The environmental impacts of the facility are managed through HWS' ISO 14001 certified Environmental Management System (EMS), which includes the Northacre RRC facility. HWS has carried out a thorough environmental risk assessment of the processes taking place at Northacre RRC, to identify any possible impacts and rated the residual risk with current engineering controls and procedures in place. Where the risk is considered too high, and beneficial changes have been identified, HWS has made improvements e.g. door management procedure to ensure that only one operational door is open at a time to maintain good air extraction from the process building.

HWS has a strict contractor approval process in place to ensure that the contractor is competent to carry out works at Northacre RRC. Contractors must provide evidence to prove their competence before they are allowed to start work and agree to follow HWS site procedures.

The contractor approval process is control by the HWS compliance department to remove bias from operational managers. Contractors are periodically reviewed by the Compliance department; operational managers review contractor behavior on site.

As part of HWS' Quality Management System (QMS) and planning requirements, an approved access route to and from Northacre RRC exists, this is provided to all HGV drivers or their employer as part of their site information and is there to minimize the impact on local infrastructure.

3.2 The emission controls in place to demonstrate compliance with the Environmental Permit and all Legislation

Legal requirements are identified and detailed in HWS' legislation register, which forms part of the EMS. This document identifies the requirements of all legislation, what process they apply to and how those requirements will be met. The legal register is maintained by the Compliance Department and reviewed by third party ISO auditors.

The following are included:

3.2.1 Emission levels from the facility

Emissions to air from the Northacre RRC are proportionately controlled according to the risk of causing pollution. The bio-hall is the most odour generating area of the site and air from this area is extracted and passed through a bio-filter to reduce any dust, odour, bio-aerosols, or potentially harmful substances to levels below the limits set in the EA permit.

Inline monitoring equipment has been installed to enable better control of discharges to air. Increasing the stack height to improve air dispersion is progressing, with a planning application to be made in the first quarter of 2025, this will increase the height of the two stacks by 12 metres if approved.

Surface rainwater from the site roads is collected, passed through interceptors, and discharged to a watercourse (no discharge consent is required for this). Emissions to this outlet could occur if a polluting liquid contaminated the site surface water drainage. The major potential liquid pollutants are leachate and fuel from storage tanks and site vehicles. Leachate is stored in a sealed system and drains to storage tanks, which are periodically tested for their integrity. Bulk fuel is stored in bunded tanks and protected from accidental damage by steel barriers. Procedures are in place to control the transfer of these liquids, which include actions to take following a leak or spill. Equipment identified as required under these procedures such as spill kits are available on site to limit potential effects.

HWS complies with the Ozone Depleting Substances (ODS) (Qualification) Regulations 2006 and ensures that only qualified persons, through the contractor approval process, work on the recovery, recycling, reclamation or destruction of controlled substances. HWS has identified all equipment containing ODS and minimises the potential for leaks through regular maintenance and monitoring.

HWS undertakes environmental monitoring to make sure that processes, plant and people are performing to the required standards and to detect any changes. For example, there is a risk of pollution from a diesel spill on site. HWS has developed procedures and checklists which require staff to check on a regular basis that plant and equipment is not leaking, and spill control equipment is available. If defects are identified, then these are communicated to plant supervisors and/or the maintenance manager for action. This whole process is subject to audit as part of the EMS.

Despite precautions, systems can fail, and accidents can occur. HWS has comprehensive emergency procedures, which include the action to take in defined circumstances, the location of hazards on-site, drains and watercourses, contact numbers and a command / control hierarchy. Staff regularly practice dealing with emergencies such as spills and lessons learnt are fed back into procedures.

Emergency procedures are reviewed annually and regularly tested by holding drills. All accidents are investigated, and procedures are updated if necessary.

The limits for emissions from the bio-filter to air are detailed in schedule 3, table S3.1 of the EA Permit.

3.2.2 Report on any accidental releases of Hazardous Materials

No Hazardous materials have been released during the operational history of the facility.

3.2.3 Report on the number of breaches of controls in the last Year, including: -

(a) The number of convictions for freshwater pollution.

There were no convictions for freshwater pollution.

(b) The number of convictions for other emissions

HWS has not been convicted of any breaches of controls.

(c) The number and geographical origin of complaints received regarding the facility

A total of 81 complaints, almost all relating to odour, are recorded on the Complaints register, double the previous reporting year, with almost all of these complaints being made to the Environment Agency and forwarded to HWS. Investigation demonstrated that in most cases complaints were not substantiated.

Complaints are received predominantly from people living reasonably close to the facility and are generally in the areas of The Ham, Storridge Road and the newly built Spinnaker Estate.

HWS investigates all complaints, visiting locations when the complaint is reported quickly. It is accepted that on occasions there has been odour noted close to the site boundary.

3.2.4 Measures taken to deal with complaints

Northacre RRC is operated in accordance with its Environmental Permit and ISO Management Systems which are audited by third party.

Complaints can be received from a variety of sources including:

- In person
- By telephone or text
- By letter or e-mail
- From web page referral.

The details of the complainant are recorded in a complaint register and passed on to the responsible manager for action. This includes investigating the issue, correcting the problem, preventing recurrence and providing feedback to the complainant. The status and number of complaints is discussed at monthly management meetings. HWS holds 6-monthly liaison meetings with elected local representatives, Wiltshire Council, the EA and neighboring business, which give the opportunity face to face discussion.

Waste can be an emotive issue and unfortunately, there may be some occasions when a large number of complaints may be generated concerning HWS' activities, whether justified or not. HWS has a dedicated communications team, who can help in these circumstances and HWS is proud of our record in working with Wiltshire Council, the Environment Agency and other agencies to resolve issues.

4. How the Contractor has contributed to and/or performed

4.1 Promoting sustainable Landfill practices

HWS operates 3 landfills and is obliged to keep landfill inputs to a minimum. It does this by strict application of the waste hierarchy and by operating recycling, recovery and composting facilities designed to divert waste from landfill.

However, landfill is still required to support the MBT operation under the following circumstances:

- To receive byproduct output from refining RDF (fines and non-ferrous heavy materials) that are unsuitable to be included in RDF and where there is no alternative outlet.
- As a contingency if the MBT is unavailable to receive MSW and there is no alternative outlet to landfill.
- As a contingency if RDF storage capacity at the MBT is reached, there is no outlet available or transport to an approved outlet, and additional off-site storage is unavailable.

4.2 Developing & deployment of waste management technologies which reduce environmental impact of waste

The Councils Household Waste Management Strategy 2017-2027 states that The council will continue to review the feasibility of constructing small scale energy from waste plants within Wiltshire.

Northacre Renewable Energy Limited (NRE) is a company established for the purpose of constructing an Energy from Waste Facility (EfW) to generate power and potentially heat on land adjacent to the Northacre RRC.

It is envisaged that the EfW will convert Recovered Fuel (RDF) from the Northacre RRC, and commercial and industrial waste otherwise destined for landfill, in a thermal process with heat recovery, to produce steam, which will generate electricity through a steam turbine. A substation will be constructed on site to enable the electricity produced to be exported to the National Grid.

It is hoped that NRE will also be able to provide electricity and possibly heat to other businesses on the Northacre Industrial Park, including Northacre RRC. The proposed development will be a major commitment to sustainable waste management.

The Facility has been granted an Environmental permit to operate and has planning permission, with the project team currently progressing towards financial closure.



4.3 Reducing Environmental Impacts

4.3.1 Since the last AER, HWS has invested in a significant upgrade to the Biofilter. An alternative filter material with an expanded clay structure rather than wood, as previously used, was identified. HWS invested a significant time into determining whether this material was appropriate for Northacre RRC, including visiting a facility using it. Towards the end of this AER period, the decision was made to proceed with this material and the exchange of filter material commenced in January 2025 and completed in 1 week.

Not only is this an improved filter material but the structure of the filter has been upgraded with a more substantial floor, separation of each of 3 cells to simplify future filter media exchanges and an upgraded watering system.

This overall upgrade is now operating efficiently (July 2025) and providing attenuation in excess of 95%

4.3.2 HWS continually reviews options for recycling our waste including the recycling of fines that currently go to landfill. Fines from the facility currently attract the standard rate of landfill tax due to their organic content and heat content. No other alternative has been found to date.

4.4 Securing sustainable transportation of waste: - rail, water, "sustainable" fuels;

Northacre has been contracted to supply SRF to European EfW's for many years. In selecting the haulage and shipping to transport to Europe, large multinational companies making investment in fleets using more sustainable fuels e.g. multifueled ships and power connections to shore when in port have been chosen.

All haulage companies employed by HWS have net zero policies and targets.

4.5 Reducing lorry numbers and lorry miles

Process residues sent to landfill and SRF to EfW's travel all or part of the journey via roads. Key Performance Indicators and targets are used to monitor the tonnage of material being carried to ensure that the maximum vehicle payload is achieved. Ultimately this minimises the number of vehicle movements and therefore the miles covered.

The advent of NRE Limited (see 4.2) will significantly reduce lorry miles, with SRF and possibly process residues currently landfilled, being transferred only the short distance to the adjoining EfW.

5. Carbon Assessment of the Northacre RRC Contract

5.1 Scope of Carbon Assessment

A full assessment of the carbon impact of the facility, from the point waste is delivered to the MBT (Excluding transport of waste to the facility) to the point in which all outputs are transported and delivered to their final destinations, has been carried out, and is presented below.

Conversion factors used for the generation of Carbon Dioxide Equivalent (CO₂e) for each process have been taken from published sources; Greenhouse Gas Reporting: Conversion Factors, published by the Department of

Energy Security and Net Zero 8th July 2024 updated 30th October 2024, and shipping, conversion factors from published information provided by the shipping companies used in the transfer of RDF from UK Port to EU Port.

Wiltshire Council Municipal Solid Waste (MSW) is defined as any municipal waste delivered directly or transferred to Northacre RRC, and waste provided by HWS Commercial & Industrial Division to supplement the available volume of MSW. Any third-party waste is reportedly separately on a pro-rata basis, however, none has been received in this contract year.

Conversion Factors Used

Item	CO ₂ e (kg)	Source
Mains electricity (KWh)	0.20705	GHG Reporting conversion Factors
Solar	0	GHG Reporting conversion Factors
Diesel/l	2.66155	GHG Reporting conversion Factors
All HGV average/mile/ 100% laden	1.58748	GHG Reporting conversion Factors
CLDN to Germany nautical mile/tonne of cargo	0.072	CLDN published information
DFDS to Netherlands nautical mile/tonne of cargo	0.012	DFDS published information

5.2 Processes assessed

5.2.1 Electricity Use and CO₂e

Electricity use has been separated into the following areas of the process: -

- Waste Reception, including pre-treatment separation into underscreen and overscreen fractions, plus the operation of cranes
- Bio-drying hall and Biofilter
- Refinement and baling of RDF
- Electricity use for elements not clearly defined within the above three areas has been apportioned between them

Electricity used and the CO₂e generated CO₂e generated in each of the three process areas is shown in the following Table.

Electricity Use 2023/24		
Process Area	kWh	CO ₂ e Generated (kg)
Reception/Pre/Cranes	224,930	46,572
Biohall/Filter	1,107,641	229,337
Refinement/Baling	793,247	164,242
Total Power Use	2,125,818	440,151

5.2.2 Leachate Management and CO₂e

Leachate is transported by road to water treatment facilities for processing, leachate management therefore considers the treatment facilities utilised, number of journeys to each of these and the overall mileage travelled. The CO₂e generated is shown in the following Table.

Leachate Output Output							
Off-take	Destination	Transport Method	Mileage per Delivery	Volume, Te	Number of Deliveries	Total Miles	CO ₂ e Generated (kg)
Severn Trent Water Ltd	Netheridge	Road	47.8	3,936	165	7,887	12,520
Severn Trent Water Ltd	Minworth	Road	125	49	2	250	397
Welsh Water	Hereford	Road	80.3	72	4	321	510
Welsh Water	Newport	Road	53.5	24	1	54	85
Wessex Water	Avonmouth	Road	41.7	403	16	667	1,059
Total							14,571

5.2.3 Refinement Output and CO₂e

Output from the refinement process include:-

- Non-ferrous heavies sent to landfill
- Fines sent to landfill
- Recovered ferrous metal sent for reprocessing
- SRF/RDF sent as fuel for energy recovery

5.2.3.1 Landfill

Information, including tonnes landfilled, transport and miles travelled and CO₂e generated is shown in the following table

Landfill Output							
Off-take	Destination	Transport Method	Mileage per Delivery	Volume, Te	Number of Deliveries	Total Miles	CO ₂ e Generated (kg)
Hills	Lower Compton Landfill	Road	19.3	16,367	1,865	35,995	57,141

LFG energy generated from the process residue sent to Landfill is shown in the following Table

0.00012KWh/t (based on 2022 gas plant output vs tonnage into landfill, provided by Infinis)

Energy Generated from Landfill Gas	
Tonnes Landfilled	Energy Generated kWh
16,367	1.964

5.2.3.2 Metals sent for reprocessing

Information, including tonnes reprocessed, transport and miles travelled, heat generated, and CO₂e generated is shown in the following table

Non SRF / Non Landfill Output								
Off-take	Destination	Transport Method	Mileage per Delivery	Volume, Te	Number of Deliveries	Total Miles	Heat Generated	CO ₂ e Generated (kg)
Shanleys	Trowbridge	Road	4.8	121	13	62	0	99

5.2.3.3 SRF outputs

Information, including tonnes produced, transport and miles travelled, and CO₂e generated is shown in the following table

SRF / RDF Output										
Off-take	Destination	Mileage Per Delivery		Volume, Te	Number of Deliveries	Total Road Miles	Total Nautical Miles	Road CO ₂ e Generated (kg)	Shipping CO ₂ e Generated (kg)	TOTAL CO ₂ e Generated (kg)
		Road	Sea							
ARN	Weurt, The Netherlands	283	251 (218 nautical)	7,850	287	81,221	62,566	128,937	5,893,717	6,022,654
GMVA	Oberhausen, Germany	318	254 (221 nautical)	10,829	458	145,644	101,218	231,207	78,918,460	79,149,667
SubCoal	Stockton-on-Tees, UK	296	0	6,961	254	75,184	0	119,353	0	119,353
TOTAL										85,291,674

The routes used in the transfer of SRF to the end destination are shown in Appendix 1

5.2.3.4 Other

Fuel consumption for on-site plant machinery and CO₂e generated is shown in the following table

Site Plant Machinery Fuel Use		
Fuel	Volume, Litres	CO ₂ e (kg) Generated
Diesel	16,466	43,825

5.2.3.5 Solar Power

Photovoltaic cells are installed on the roof of the Northacre facility but are currently not functioning. As the owner of this PV array, Wiltshire Council are considering the benefit of repair and reinstatement

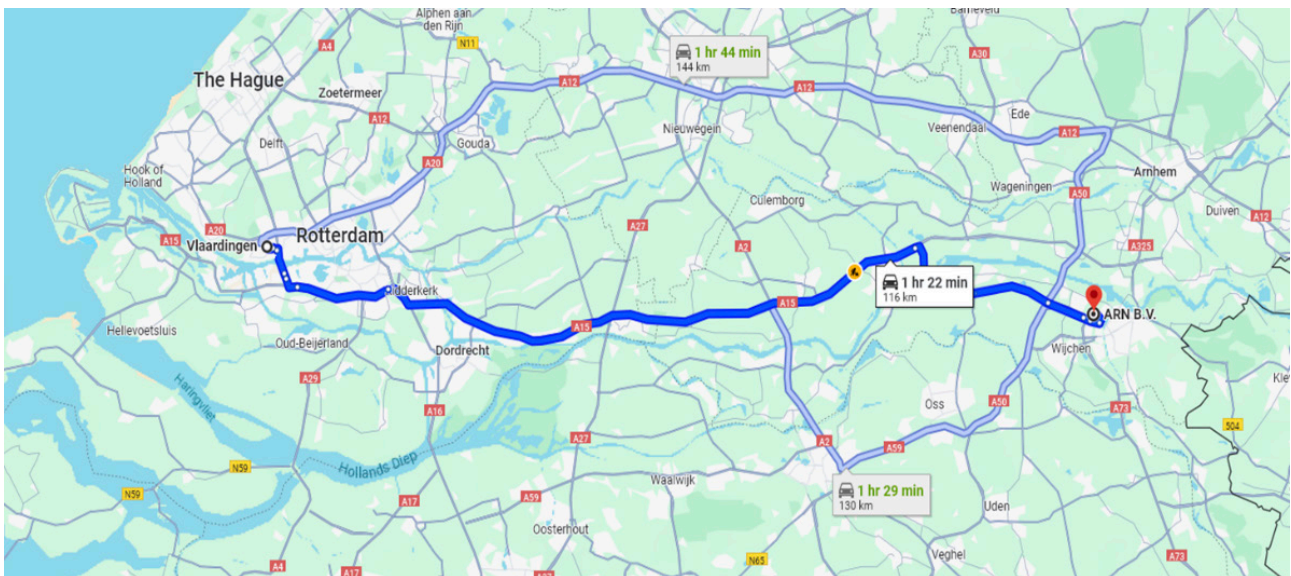
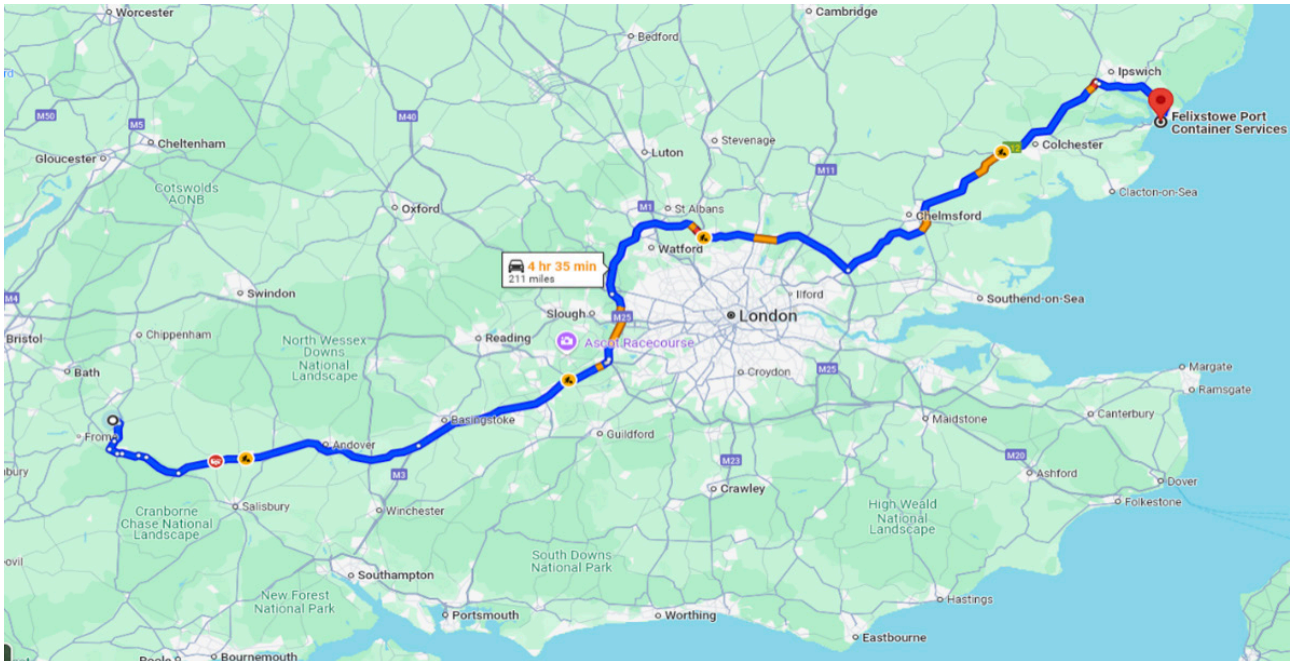
5.3 Summary CO₂e generated

Fuel consumption for on-site plant machinery and CO₂e generated is shown in the following table

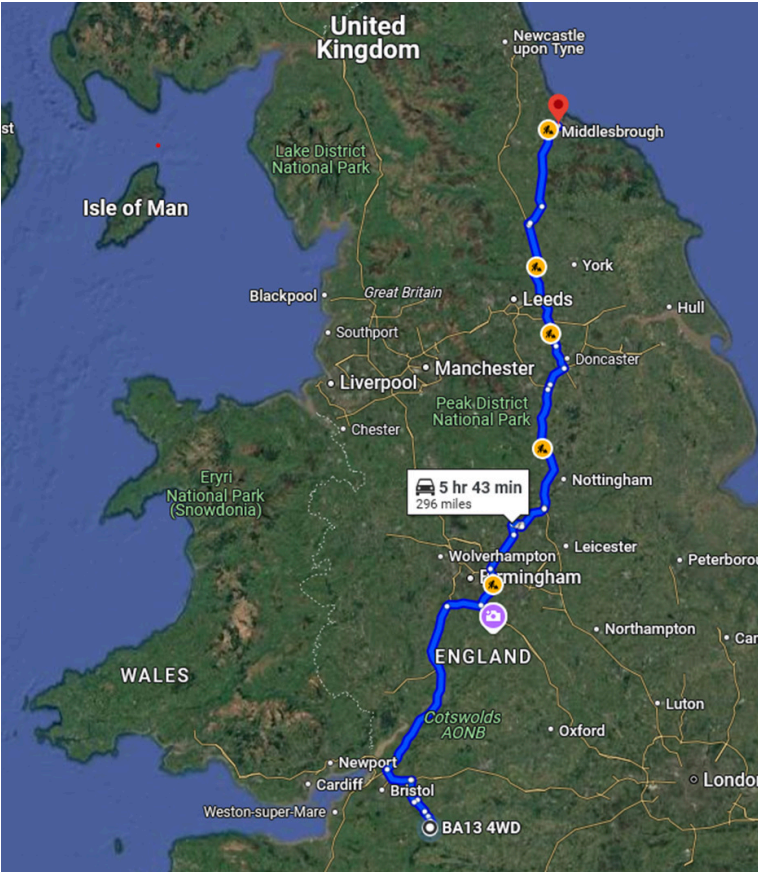
Process	CO ₂ e (kg) Generated
Electricity Use	440,151
Leachate	14,571
Landfill	57,141
Non-SRF/Non-Landfill	99
SRF Output	85,291,674
TOTAL	85,803,635

6. Appendix 1

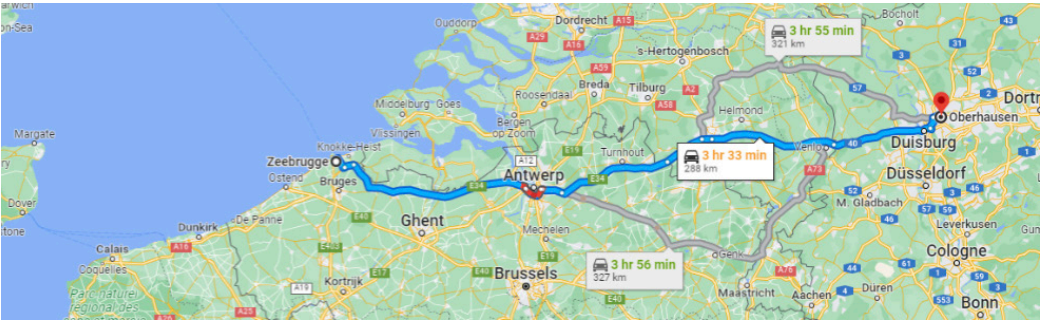
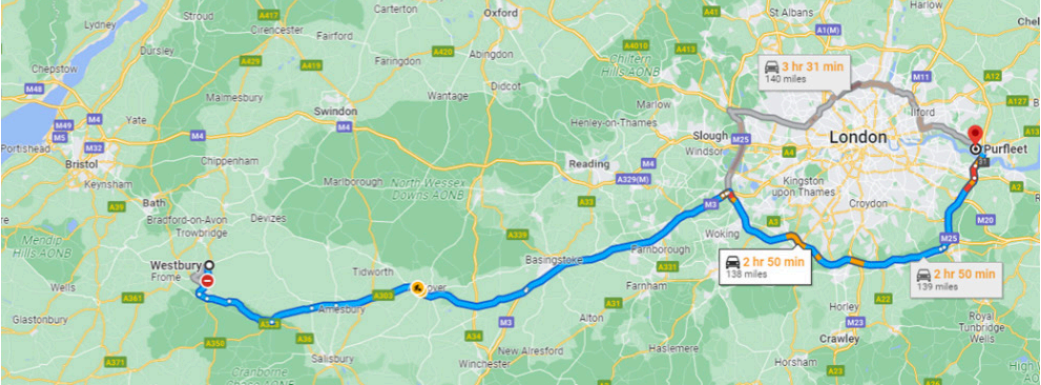
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SubCoal



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