Scarborough Phase 2 Upgrade

Application Supporting Document

Document No. | 0.1

April 2022

McCain Foods (GB) Limited

EPR/BO7732IZ/V007

Scarborough Phase 2 Upgrade

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Document history and status

Revision	Date	Description	Author	Checked	Reviewed	Approved

Contents

Non-Technical Summary

This application is for a substantial variation to the existing permit for the McCain Scarborough Manufacturing site.

The current site permit has two listed activities.

- The preparation of food from vegetable raw materials, with a capacity exceeding 300 tonnes per day;
- The treatment for disposal of waste waters (effluent) by physical chemical means.

The first of these listed activities is unchanged by this permit application.

The second listed activity is to be updated due to an upgraded effluent plant at the site. This revised plant will be a biological treatment plant, which provides a higher level of effluent treatment and allows for the capture and use of biogas from the treatment process, thus reducing the facilities environmental footprint.

The existing permit includes an effluent treatment plant, located within the central portion of the factory complex, to treat wastewaters generated by the manufacturing processes on site, prior to discharge to foul sewer under a Notice of a Direction, issued by Yorkshire Water.

Although the discharged output from the effluent treatment plant is discharged to sewer, it is not subject to additional offsite treatment before the final outfall into the sea. In order that the site meets Best Available Techniques (BAT), a decision has been made to replace the existing plant with a new effluent treatment plant which will deliver both an enhanced quality final output, and generate biogas for utilisation within the site, delivering additional green energy to the site.

The revised effluent treatment plant is located within the central portion of the site, as at present. It retains elements of the existing, permitted, high rate sedimentation plant (HRSP) and wastewater treatment processes that are located prior to this point in the process, such as starch recovery. However, rather than discharging the output of the HRSP to foul sewer, the output is subject to additional treatment, primarily biological including an anaerobic treatment with an aerobic polishing phase, in order to reduce biological oxygen demand (BOD) and suspended solids loading in the final output.

The final output is still discharged to the same sewer release point as at present.

The new effluent treatment plant will have significantly lower environmental releases to water over the current plant, as part of McCain's commitment to being a good neighbour and reducing the sites overall environmental impact.

The anaerobic treatment stage of the process leads to the generation of biogas, a mixture of carbon dioxide and methane, with a high moisture content. The biogas is captured, excess water removed by gravity and returned to the process for treatment and the biogas itself combusted in a gas engine generator to provide electrical power to the site and reduce grid dependency. There is also a flare, for use when the gas engine is not available or there is too much biogas for it to safely handle.

The existing effluent treatment plant is permitted as a physico-chemical treatment plant, which will change to be a biological treatment plant entry. The overall throughput and daily release volume remain as currently permitted.

There are no proposed changes to the current listed activity of food manufacture.

Although this application adds a new thermal combustion source for the utilisation of biogas, this does not exceed the threshold for a s1.1 listed activity.

The proposed new plant sits entirely within the footprint of the existing environmental permit. There is no requirement to add additional land to the permit. As the plant is designed for the treatment of wastewater from the factory, there is no requirement for a fire management plan at the site.

1. Application Forms

Application for an environmental permit Part A – About you

You will need to fill in this part A if you are applying for a new permit, applying to change an existing permit or surrender your permit, or want to transfer an existing permit to yourself. Please check that this is the latest version of the form available from our website.

You can apply online for Waste standard rules environmental permits, bespoke waste permits and bespoke Medium combustion plant permits

Apply online for an environmental permit.

Please read through this form and the guidance notes that came with it.

The form can be:

1) **saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.**
2) **printed off and filled in by hand. Please write clearly in the answer spaces.**

Note: if you believe including information on a public register would not be in the interests of national security you must enclose a letter telling us that you have told the Secretary of State. We will not include the information in the public register unless directed otherwise.

It will take less than one hour to fill in this part of the application form.

Where you see the term 'document reference' on the form, give the document references and send the documents with the application form when you've completed it.

Contents

1 About you

Are you applying as an individual, an organisation of individuals (for example, a partnership), a company (this includes Limited Liability Partnerships) or a public body?

An individual	☐ Now go to section 2 and if you are applying for a new permit or transferring a permit for an installation or waste activity please also fill in Appendix 1
An organisation of individuals (for example, a partnership)	☐ Now go to section 3 and if you are applying for a new permit or transferring a permit for an installation or waste activity please also fill in Appendix 1
A public body	☐ Now go to section 4
A registered company or other corporate body	☑ Now go to section 5 and if you are applying for a new permit or transferring a permit for an installation or waste activity please also fill in Appendix 1

2 Applications from an individual

2a Please give us the following details

Name

Title (Mr, Mrs, Miss and so on) _____

First name _____

Last name _____

Now go to section 6

3 Applications from an organisation of individuals or charity

3a Type of organisation

For example, a charity, a partnership, a group of individuals or a club

3b Details of the organisation or charity

If you are an organisation of individuals, please give the details of the main representative below. If relevant, provide details of other members (please include their title Mr, Mrs and so on) on a separate sheet and tell us the document reference you have given this sheet

Contact name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Now go to question 3c or section 6

3c Details of charity

Full name of charity

This should be the full name of the legal entity not any trading name.

3d Company registration number

If you are registered with Companies House please tell us your registration number

3e Charity Commission number

If you are registered with the Charity Commission please tell us your registration number

Now go to section 6

4 Applications from public bodies

4a Type of public body

For example, NHS trust, local authority, English county council

4b Name of the public body

4c Please give us the following details of the executive

An officer of the public body authorised to sign on your behalf

Name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Position

Now go to section 6

5 Applications from companies or corporate bodies

5a Name of the company

McCain Foods (GB) Limited

5b Company registration number

00733218

Date of registration (DD/MM/YYYY)

22/08/1962

If you are applying as a corporate organisation that is not a limited company, please provide evidence of your status and tell us below the reference you have given the document containing this evidence.

Document reference

5 Applications from companies or corporate bodies, continued

5c Please give details of the directors

If relevant, provide details of other directors and company secretary, if there is one, on a separate sheet and tell us the reference you have given this sheet.

Document reference: See Application Supporting Document

Details of company secretary (if relevant) and director/s

Title (Mr, Mrs, Miss and so on)

First name

Last name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Now go to section 6

6 Your address

6a Your main (registered office) address

For companies this is the address on record at Companies House.

Contact name

Title (Mr, Mrs, Miss and so on): Mr

First name: Andrew William

Last name: Bates

Address: McCain Scarborough Manufacturing Site
Havers Hill
Eastfield
Scarborough

Postcode: YO11 3BS

Contact numbers, including the area code

Phone

Fax

Mobile

Email

For an organisation of individuals every partner needs to give us their details, including their title Mr, Mrs and so on. So, if necessary, continue on a separate sheet and tell us below the reference you have given the sheet.

Document reference

6b Main UK business address (if different from above)

Contact name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Address

Postcode

6 Your address, continued

Contact numbers, including the area code

Phone

Fax

Mobile

Email

Now go to section 7

7 Contact details

7a Who can we contact about your application?

It will help us if there is someone we can contact if we have any questions about your application. The person you name should have the authority to act on your behalf.

Please add a second contact on a separate sheet if this person is not always available.

Document reference of this separate sheet

This can be someone acting as a consultant or an 'agent' for you.

Contact name

Title (Mr, Mrs, Miss and so on): Mr

First name: Mark

Last name: McAree

Address: Jacobs UK Ltd
2 Colmore Square
Birmingham

Postcode: B4 7LJ

Contact numbers, including the area code

Phone

Fax

Mobile: 07584 215085

Email: mark.mcaree@jacobs.com

7b Who can we contact about your operation (if different from question 7a)?

Contact name

Title (Mr, Mrs, Miss and so on): Mr

First name: Jack

Last name: Gibson

Address: McCain Scarborough Manufacturing Site
Havers Hill
Eastfield
Scarborough

Postcode: YO11 3BS

Contact numbers, including the area code

Phone: 01723 580 447

Fax

Mobile

Email: Jack.Gibson@mccain.co.uk

7 Contact details, continued

7c Who can we contact about your billing or invoice?

Note: Please provide the name and address that all invoices should be sent to for your subsistence fees.

As in question 7a ☐

As in question 7b ☑

Please give details below if different from question 7a or 7b.

Contact name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Address

Postcode

Contact numbers, including the area code

Phone

Fax

Mobile

Email

8 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, please tell us how we can improve it. More information on how to do this is available at: www.gov.uk/government/organisations/environment-agency/about/complaints-procedure.

Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.

9 Where to send your application

For how many copies to send see the guidance note on part A.

For water discharges by email to PSC-WaterQuality@environment-agency.gov.uk

For waste and installations by email to PSC@environment-agency.gov.uk

For flood risk activity permits send 1 copy only to enquiries@environment-agency.gov.uk or to the local Environment Agency office for where the work is proposed to be carried out.

Or

Permitting Support, NPS Sheffield
Quadrant 2
99 Parkway Avenue
Parkway Business Park
Sheffield
S9 4WF

Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form?

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No ☐

Yes ☐ Amount received

£

Appendix 1 – Date of birth information for installation and waste activities (applications for a new permit or transferring a permit) only

Date of birth information in this appendix will not be put onto our Public Register

Are you applying as an individual, an organisation of individuals (for example, a partnership) or a company (this includes Limited Liability Partnerships)?

An individual ☐ Now go to 2

An organisation of individuals (for example, a partnership) ☐ Now go to 3

A registered company or other corporate body ☐ Now go to 4

2 Applications from an individual

Please give us the following details

Name

Date of birth (DD/MM/YY)

3 Applications from an organisation of individuals or charity

Details of the organisation or charity

If you are an organisation of individuals, please give the date of birth details of the main representative below. If relevant, provide details of other members on a separate sheet and tell us the document reference you have given this sheet.

Name

Date of birth (DD/MM/YY)

Document reference

4 Applications from companies or corporate bodies

Name of the company

Please give the date of birth details for all directors and company secretary if there is one. If relevant, provide those details of other directors on a separate sheet and tell us the document reference you have given this sheet.

Details of company secretary (if relevant) and director/s

Name

Date of birth (DD/MM/YY)

Name

Date of birth (DD/MM/YY)

Name

Date of birth (DD/MM/YY)

Document reference

Application for an environmental permit
Part C2 – General – varying a bespoke permit

Environment Agency

Fill in this part of the form, together with part A and the relevant parts of C3 to C7 and part F1 or F2, if you are applying to vary (change) the conditions or any other part of the permit. Please check that this is the latest version of the form available from our website.

You only need to give us details in this application for the parts of the permit that will be affected (for example, if you are adding a new facility or changing existing ones).

Waste operation changing to installation or vice versa?

If your changes mean that a waste operation becomes an installation (or vice versa) you also need to fill in either part C3 (waste to installation) or part C4 (installation to waste).

You do not need to resend any information from your original permit application if it is not affected by your proposed changes.

Please read through this form and the guidance notes that came with it.

The form can be:

1) saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.
2) printed off and filled in by hand. Please write clearly in the answer spaces.

It will take less than two hours to fill in this part of the application form.

Contents

1 About the permit

Note: If you are applying to convert your existing permit to a standard permit or add a standard facility you need to fill out form C1.

1a Discussions before your application

If you have had discussions with us before your application, give us the permit reference or details on a separate sheet. Tell us below the reference you have given this extra sheet.

Permit or document reference: See application support document

1b Permit number

What is the permit number that this application relates to? EPR/BO7732IZ

1c Site details

What is the name, address and postcode of the site?

Site name: McCain Scarborough Manufacturing Site

Address: Havers Hill, Eastfield, Scarborough, North Yorkshire

Postcode: YO11 3BS

2 About your proposed changes

2a Type of variation

What type of variation are you applying for?

Minor technical ☐

Normal variation ☐

Substantial ☑

2 About your proposed changes, continued

2b Changes or additions to existing activities

Please give us brief details in the box below. More detailed information can be given in Table 1 below.

Please see application supporting document

Fill in Table 1 with details of all the proposed changes to current activities. In the final column of the table, give us the document reference for the proposed changes and send them to us with your filled in application form.

Fill in a separate table for each activity you are applying to vary or add. Use a separate sheet if you have a long list and send it to us with your application form. Tell us below the reference you have given this document.

Document reference

You only need to fill in one table for your mining waste operations.

2c Consolidating (combining) or updating existing permits

If your proposed change is to modernise (update) your permit, now answer 2c1; otherwise go to 2d.

If your proposed change is to consolidate (combine) a number of permits, now answer 2c2; otherwise go to 2d.

Note: In both cases we may require additional information from you about, for example, your management system. Therefore we would always advise you to talk to us before you submit any application to modernise or consolidate permits.

2c1 Do you want to have a modern style permit?

No ☐

Yes ☑

2c2 Identify all the permits you want to consolidate (combine) by listing the permit numbers in Table 2 below

Table 2 – Permit numbers

2d Treating batteries

2d Are you proposing to treat batteries?

No ☑

Yes ☐ Tell us how you will do this and send us a copy of your explanation and tell us below the reference you have given this explanation

Document reference for the explanation

2e Ship recycling

2e1 Is your activity covered by the Ship Recycling Regulations 2015? (See the guidance notes on part C2.)

No ☑

Yes ☐ Tell us how you will do this. Please send us a copy of your explanation and your facility recycling plan, and tell us below the reference numbers you have given these documents

Document reference for the explanation

Document reference for the facility recycling plan

2e2 Is this a renewal of an existing authorisation covered by the Ship Recycling Regulations 2015?

No ☑

Yes ☐ Tell us the expiry date of your existing authorisation (DD/MM/YYYY)

2 About your proposed changes, continued

Table 1 – Changes to existing activities

Fill in Table 1 with details of all the proposed changes to current activities. In the final column of the table, give us the document reference for the proposed changes and send them to us with your filled in application form.

Name	Installation schedule 1 references	Description of the installation activity	Description of waste operation	Description of the mining waste operations	Description of water discharge activity	Description of groundwater activity	Proposed changes document reference
i.e. name of installation, waste operation, mining waste operation, water discharge activity or groundwater activity							
Example – effluent unique name					Example – treated sewage effluent		
If you do not have enough room, go to the line below or send a separate document and give us the document reference here							
See application							
support document							

2 About your proposed changes, continued

2f Low impact installations (installations only)

2f1 Will any changes mean that any of the regulated facilities will become low impact installations?

No ☑ Now go to section 3

Yes ☐ If yes, tell us how you meet the conditions for a low impact installation (see the guidance notes on part C2 – Appendix 1)

Document reference

Tick the box to confirm you have filled in the low impact installation checklist in appendix 1 for each regulated facility ☐

3 Your ability as an operator

If you are applying to add waste installations or waste operations to a permit that has not previously had them, you need to fill in all of section 3.

If you are applying to consolidate (combine) two or more permits or have an updated permit you must fill in question 3d.

This section does not apply for applications to surrender a permit.

3a Relevant offences

Installations and waste operations only (see the guidance notes on part C2).

3a1 Have you, or any other relevant person, been convicted of any relevant offence?

No ☑ Now go to question 3b

Yes ☐ Please give details below

Name of the relevant person

Title (Mr, Mrs, Miss and so on)

First name

Last name

Position held at the time of the offence

Name of the court where the case was dealt with

Date of the conviction (DD/MM/YY)

Offence and penalty set

Date any appeal against the conviction will be heard (DD/MM/YYYY)

If necessary, use a separate sheet to give us details of other relevant offences and tell us below the reference number you have given the extra sheet.

Document reference

Now go to question 3b

Please also complete the details in Appendix 2.

3b Technical ability

Specified waste management activities and waste operations only (see the guidance notes on part C1).

Please indicate which of the two schemes you are using to demonstrate you are technically competent to operate your facility and the evidence you have enclosed to demonstrate this.

ESA/EU skills

I have enclosed a copy of the current Competence Management System certificate ☐

CIWM/WAMITAB scheme

Please select **one** of the following:

- I have enclosed a copy of:
  - the relevant qualification certificate/s ☐

  or
  - evidence of deemed competence ☐

  or

3 Your ability as an operator, continued

- Environment Agency assessment ☐

or

- evidence of nominated manager status under the transitional provisions for previously exempt activities ☐

and, if deemed competent or Agency-assessed, or if there is evidence of a nominated manager, or if the original qualification is over two years old:

I have enclosed a copy of the relevant current continuing competence certificate/s ☐

For each technically competent manager please give the following information. If necessary, use a separate sheet to give us these details and tell us below the document reference you have given the extra sheet.

Title (Mr, Mrs, Miss and so on)

First name

Last name

Phone

Mobile

Email

Please provide the environmental permit number/s and site address for **all** other waste activities that the proposed technically competent manager provides technical competence for, including permits held by other operators. Continue on a separate sheet as required.

Permit number	Site address	Postcode

Document reference

Now go to question 3c

Please also complete the details in Appendix 2.

3c Finances

Installations, waste operations and mining waste operations only (see the guidance notes on part C2).

Please note that if you knowingly or carelessly make a statement that is false or misleading to help you get an environmental permit (for yourself or anyone else), you may be committing an offence under the Environmental Permitting (England and Wales) Regulations 2016.

Do you or any relevant person or a company in which you were a relevant person have current or past bankruptcy or insolvency proceedings against you?

No ☑

Yes ☐ Please give details below, including the required set-up costs (including infrastructure), maintenance and clean up costs for the proposed facility against which a credit check may be assessed

We may want to contact a credit reference agency for a report about your business's finances.

3 Your ability as an operator, continued

Landfill, Category A mining waste facilities and mining waste facilities for hazardous waste only

How do you plan to make financial provision (to operate a landfill or a mining waste facility you need to show us that you are financially capable of meeting the obligations of closure and aftercare)?

Renewable bonds ☐

Cash deposits with the Environment Agency ☐

Other – provide comprehensive details ☐

Document reference

Provide a cost profile and expenditure plan of your estimated costs throughout the aftercare period of your site.

Document plan reference

Now go to question 3d

3d Management systems

You must have an effective, written management system in place that identifies and reduces the risk of pollution. You may show this by using a certified scheme or your own system.

Your permit requires you (as the operator) to ensure that you manage and operate your activities in accordance with a written management system.

You need to be able to explain what happens at each site and which parts of the overall management system apply. For example, at some sites you may need to show you are carrying out additional measures to prevent pollution because they are nearer to sensitive locations than others.

You can find guidance on management systems on our website at www.gov.uk/government/organisations/environment-agency.

Tick this box to confirm that you have read the guidance and that your management system will meet our requirements ☐

What management system will you provide for your regulated facility?

ISO 14001 ☑

BS 8555 (Phases 1–5) ☐

Acorn ☐

Green dragon ☐

Own management system ☐

Please make sure you send us a summary of your management system with your application.

Document reference/s

4 Consultation

Fill in 4a to 4c for installations and waste operations and 4d for installations only.

Could the waste operation or installation involve releasing any substance into any of the following?

4a A sewer managed by a sewerage undertaker?

No ☐

Yes ☑ Please name the sewerage undertaker — Yorkshire Water

4b A harbour managed by a harbour authority?

No ☑

Yes ☐ Please name the harbour authority

4c Directly into relevant territorial waters or coastal waters within the sea fisheries district of a local fisheries committee?

No ☐

Yes ☑ Please name the fisheries committee — North Eastern Inshore Fisheries and Conservation Authority

4 Consultation, continued

4d Is the installation on a site for which:

4d1 a nuclear site licence is needed under section 1 of the Nuclear Installations Act 1965?

No ☑

Yes ☐

4d2 a policy document for preventing major accidents is needed under regulation 5 of the Control of Major Accident Hazards Regulations 2015, or a safety report is needed under regulation 7 of those Regulations?

No ☑

Yes ☐

5 Supporting information

5a Provide a plan or plans for the site

See the guidance notes on part C2 for what needs to be marked on the plan.

Clearly mark the site boundary or discharge point, or both. Also include site drainage plans, site layout plans, and plant design drawings/process flow diagrams (as required). (See the guidance notes on part C2.)

Document reference/s of the plans: See application support document

5b Do any of the variations you plan to make need extra land to be included in the permit?

No ☑

Yes ☐ Please provide a site report for the extra land

Document report reference/s:

5c Provide a non-technical summary of your application

Document reference of the summary: See application support document

5d Risk of fire from sites storing combustible waste

Are you applying for an activity that includes the storage of combustible wastes?

(This applies to all activities excluding standalone water and groundwater discharges.)

No ☑ Go to question 5f

Yes ☐ Go to question 5e

5e Will your variation increase the risk of a fire occurring or increase the environmental risk if a fire occurs?

See the guidance notes on part C2.

No ☐

Yes ☐ Provide a fire prevention plan. You need to highlight any changes you have made since your pre-application discussions

Document reference of the plan:

5f Adding an installation

If you are applying to add an installation, tick the box to confirm that you have sent in a baseline report and provide a reference ☐

Document reference of the report:

6 Environmental risk assessment

If you need one, see the guidance notes on part C2.

Provide an assessment of any additional risks the proposed changes or additions to your regulated facilities poses to the environment as part of your application to vary this permit. The risk assessment must follow the methodology set out in 'Risk assessments for your environmental permit' at https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit or an equivalent method.

Document reference for the assessment: See application support document

7 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, please tell us how we can improve it.

Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.

Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

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How long did it take you to fill in this form?

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No ☐

Yes ☐ Amount received

£

Plain English Campaign's Crystal Mark does not apply to appendix 1.

Appendix 1 – Low impact installation checklist

Installation reference				
Condition	Response			Do you meet this?
A – Management techniques	Provide references to show how your application meets A			Yes ☐ No ☐
	References			
B – Aqueous waste	Effluent created		m^3/day	Yes ☐ No ☐
C – Abatement systems	Provide references to show how your application meets C			Yes ☐ No ☐
	References			
D – Groundwater	Do you plan to release any hazardous substances or non-hazardous pollutants into the ground?		Yes ☐ No ☐	Yes ☐ No ☐
E – Producing waste	Hazardous waste		Tonnes per year	Yes ☐ No ☐
	Non-hazardous waste		Tonnes per year	
F – Using energy	Peak energy consumption		MW	Yes ☐ No ☐
G – Preventing accidents	Do you have appropriate measures to prevent spills and major releases of liquids? (See 'How to comply'.)		Yes ☐ No ☐	Yes ☐ No ☐
	Provide references to show how your application meets G			
	References			
H – Noise	Provide references to show how your application meets H			Yes ☐ No ☐
	References			
I – Emissions of polluting substances	Provide references to show how your application meets I			Yes ☐ No ☐
	References			
J – Odours	Provide references to show how your application meets J			Yes ☐ No ☐
	References			
K – History of keeping to the regulations	Say here whether you have been involved in any enforcement action as described in Compliance History Appendix 1 explanatory notes		Yes ☐ No ☐	

Appendix 2 – Date of birth information for Relevant offences and/or Technical ability questions only

Date of birth information in this appendix will not be put onto our Public Register

Have you filled in the Relevant Offences question?

Yes ☐

No ☐

Have you filled in the Technical ability question?

Yes ☐

No ☐

2 Relevant Offences - date of birth information

Please give us the following details

Name

Date of birth (DD/MM/YY)

3 Technical ability - date of birth information

Name

Date of birth (DD/MM/YY)

Application for an environmental permit
Part C3 – Variation to a bespoke installation permit

Environment Agency

Fill in this part of the form, together with part A, part C2 and part F1, if you are applying to vary (change) the conditions or any other part of the permit.

Please check that this is the latest version of the form available from our website.

You only need to give us details in this application for the parts of the permit that will be affected (for example, if you are adding a new facility or making changes to existing ones).

You do not need to resend any information from your original permit application if it is not affected by your proposed changes.

Please read through this form and the guidance notes that go with it.

The form can be:

1) saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.
2) printed off and filled in by hand. Please write clearly in the answer spaces.

It will take less than three hours to fill in this part of the application form.

Contents

1 What activities are you applying to vary?

Fill in Table 1a below with details of all the activities listed in schedule 1 or other references (see note 1) of the Environmental Permitting Regulations (EPR) and all directly associated activities (DAAs) (in separate rows), that you propose to vary.

Note: if you want to add a Medium Combustion Plant or Specified Generator (MCP/SG) to your installation please use part C2.5 instead. If you want to vary an intensive farm permit please use part C3.5 instead.

Fill in a separate table for each installation you are applying to vary. Use a separate sheet if you have a long list and send it to us with your application form. Tell us below the reference you have given the document.

Document reference: See application support document

1 What activities are you applying to vary?, continued

Table 1a – Types of activities

Schedule 1 listed activities						
Installation name	Schedule 1 or other references (See note 1)	Description of the activity (See note 2)	Activity capacity (See note 3)	Annex I (D codes) and Annex II (R codes) and descriptions	Hazardous waste treatment capacity (if this applies) (See note 3)	Non-hazardous waste treatment capacity (if this applies) (See note 3)
If there are not enough rows, send a separate document and give the document reference number here	Put your main activity first			For installations that take waste only	For installations that take waste only	For installations that take waste only
Scarborough Manufacturing						
Plant						

Directly associated activities (See note 4)		
Name of DAA If there are not enough rows, send a separate document and give the document reference number here	Description of the DAA (please identify the schedule 1 activity it serves)	
	See application support document	
For installations that take waste (See note 5 below)	Total storage capacity	
	Annual throughput (tonnes each year)	

1 What activities are you applying to vary?, continued

Notes

1. Quote the section number, part A1 or A2 or B, then paragraph and sub paragraph number as shown in EPR part 2 of schedule 1.
2. Use the description from schedule 1 of EPR. Include any extra detail that you think would help to accurately describe what you want to do.
3. By 'capacity', we mean:

- the total incineration capacity (tonnes every hour) for waste incinerators
- the total landfill capacity (cubic metres) for landfills
- the total capacity (cubic metres) for the recovery of hazardous waste on land
- the total treatment capacity (tonnes each day) for waste treatment operations
- the total storage capacity (tonnes) for waste storage operations
- the processing and production capacity for manufacturing operations, or
- the thermal input capacity for combustion activities

4. Fill this in as a separate line and give an accurate description of any other activities associated with your schedule 1 activities. You cannot have Directly Associated Activities (DAAs) as part of a mobile plant application.
5. By 'total storage capacity', we mean the maximum amount of waste, in tonnes, you store on the site at any one time.

Types of waste accepted

For those installations that take waste, for each line in Table 1a (including DAAs), fill in a separate document to list those wastes you will accept on to the site for that activity. Give the List of Wastes catalogue code and description (see https://www.gov.uk/government/publications/waste-classification-technical-guidance).

If you need to exclude waste from your activity or facility by restricting the description, quantity, physical nature, hazardous properties, composition or characteristic of the waste, include these in the document. Send it to us with your application form.

Please provide the reference for each document.

You can use Table 1b as a template.

If you want to accept any waste with a code ending in *99*, you must provide more information and a full description of the waste in the document, (for example, detailing the source, nature and composition of the waste). Where you only want to receive specific wastes within a waste code you can provide further details of the waste you want to receive. Where a waste is dual coded you should use both codes for the waste.

Document reference of this extra information

1 What activities are you applying to vary?, continued

Table 1b – Template example – types of waste accepted and restrictions

Waste code	Description of the waste
Example	Example
02 01 08*	Agrochemical waste containing hazardous substances
18 01 03*	Infectious clinical waste, not contaminated with chemicals or medicines – human healthcare (may contain sharps) for alternative treatment
17 05 03*/17 06 05*	Non-hazardous soil from construction or demolition contaminated with fragments of asbestos cement sheet

1c Recovery of hazardous waste on land

Are you applying for a waste recovery activity involving the permanent deposit of inorganic hazardous waste on land for construction or land reclamation?

No ☑ Now go to question 2

Yes ☐

Have you written a waste recovery plan (WRP) that shows that you will use waste to perform the same function as non waste materials you would have used?

No You must write a WRP to support your application.

Yes

Have we advised you during pre-application discussions that we believe the activity is waste recovery?

No

Yes

Have there been any changes to your proposal since the discussions?

No

Yes

Please send us a copy of your current waste recovery plan that complies with our guidance at https://www.gov.uk/government/publications/deposit-for-recovery-operators-environmental-permits/waste-recovery-plans-and-deposit-for-recovery-permits. You need to highlight any changes you may have made since your pre-application discussions.

Document reference

Please note that there is an additional charge for the assessment or re assessment of a waste recovery plan that must be submitted as part of this application. For the charge see https://www.gov.uk/government/publications/environmental-permitting-charges-guidance/environmental-permitting-charges-guidance

2 Point source emissions to air, water and land

Fill in Table 2 below with details of the point source emissions that result from the operating techniques at each of your installations.

Fill in one table for each installation, continuing on a separate sheet if necessary.

Table 2 – Emissions (releases)

Installation name	Scarborough Manufacturing Plant			
Point source emissions to air				
Emission point reference and location	Source	Parameter	Quantity	Unit
See application support document				
Point source emissions to water (other than sewers)				
Emission point reference and location	Source	Parameter	Quantity	Unit
N / A				
Point source emissions to sewers, effluent treatment plants or other transfers off site				
Emission point reference and location	Source	Parameter	Quantity	Unit
See application support document				
Point source emissions to land				
Emission point reference and location	Source	Parameter	Quantity	Unit
N / A				

You will also need to complete application form part C6 if your variation includes changing or adding a point source emission(s) to:

- water
- groundwater or
- sewer

Supporting information

3 Operating techniques

3a Technical standards

Fill in Table 3a for each activity at the installation you refer to in Table 1a above and list the 'Best Available Techniques' you are planning to use. If you use the standards set out in the relevant BAT conclusion(s), BAT reference document(s) (BREF) and/or technical guidance(s) (TGN) there is no need to justify using them within your documents in Table 3a.

For Part A(2) activities refer to https://www.gov.uk/government/collections/integrated-pollution-prevention-and-control-sector-guidance-notes and for Part B and Schedule 14 activities see https://www.gov.uk/government/collections/local-air-pollution-prevention-and-control-lappc-process-guidance-notes

You must justify your decisions in a separate document if:

- there is no technical standard
- the technical guidance provides a choice of standards, or
- you plan to use another standard

This justification could include a reference to the Environmental Risk Assessment provided in part C2 (general bespoke permit) of the application form.

For each of the activities listed in Table 1a, the documents in Table 3a should summarise:

- the operations undertaken
- the measures you will use to control the emissions from your process, as identified in your risk assessment or the relevant BAT conclusions, BREF or technical guidance
- how you will meet other standards set out in the relevant BAT conclusions document, BREF or technical guidance

Table 3 – Technical standards

Fill in a separate table for each activity at the installation.

Installation name	Scarborough Manufacturing Plant	
Description of the schedule 1 activity or directly associated activity	Best available technique (BATC, BREF or TGN reference) (see footnote below)	Document reference (if appropriate)
See application support document		

* Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control)

In all cases, describe the type of facility or operation you are applying for and provide site infrastructure plans, location plans and process flow diagrams or block diagrams to help describe the operations and processes undertaken. Give the document references you use for each plan, diagram and description.

Document reference: See application support document

3a1 Does your permit (in Table 1.2 Operating Techniques or similar table in the permit) have references to any of your own documents or parts of documents submitted as part of a previous application for this site?

No ☐ Now go to 3b

Yes ☑ Please tell us in a separate document what document references are no longer valid or have been superseded and why

Please also tell us below the reference number you have given the document and send it in with your application

Document reference: See application support document

3b General requirements

Fill in a separate Table 4 for each installation.

Table 4 – General requirements

Name of the installation	
If the technical guidance or your risk assessment shows that emissions of substances not controlled by emission limits are an important issue, send us your plan for managing them	Document reference or references
Where the technical guidance or your risk assessment shows that odours are an important issue, send us your odour management plan	Document reference or references
If the technical guidance or your risk assessment shows that noise or vibration are important issues, send us your noise or vibration management plan (or both)	Document reference or references

For guidance on risk assessments for your environmental permit see https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit

3c Types and amounts of raw materials

Fill in Table 5 for all schedule 1 activities. Fill in a separate table for each installation.

Table 5 – Types and amounts of raw materials

Name of the installation		Scarborough Manufacturing Plant		
Capacity (See note 1 below)				
Schedule 1 activity	Description of raw material and composition	Maximum amount (tonnes) (See note 2 below)	Annual throughput (tonnes each year)	Description of the use of the raw material including any main hazards (include safety data sheets)
See application support document				

Notes

1 By 'capacity', we mean the total storage capacity (tonnes) or total treatment capacity (tonnes each day).

2 By 'maximum amount', we mean the maximum amount of raw materials on the site at any one time.

Use a separate sheet if you have a long list of raw materials, and send it to us with your application form. Please also provide the reference of this extra sheet.

Document reference

3d Information for specific sectors

For some of the sectors, we need more information to be able to set appropriate conditions in the permit. This is as well as the information you may provide in sections 5, 6 and 7. For those activities listed below, you must answer the questions in the related document.

Table 6 – Questions for specific sectors

Sector	Appendix
Combustion	See the questions in appendix 1
Chemicals	See the questions in appendix 2
Incinerating waste	See the questions in appendix 3
Landfill and recovery of hazardous waste on land	See the questions in appendix 4

General information

Complete section 4 if you are proposing to change or add an emission point(s).

4 Monitoring

4a Describe the measures you use for monitoring emissions by referring to each emission point in Table 2 above

You should also describe any environmental monitoring. Tell us:

- how often you use these measures
- the methods you use
- the procedures you follow to assess the measures

Document reference: See application support document

4b Point source emissions to air only

4b1 Has the sampling location been designed to meet BS EN 15259 clause 6.2 and 6.3?

No ☐
Yes ☑

4b2 Are the sample ports large enough for monitoring equipment and positioned in accordance with section 6 and appendix A of BS EN 15259?

No ☐
Yes ☑

4b3 Is access adjacent to the ports large enough to provide sufficient working area, support and clearance for a sample team to work safely with their equipment throughout the duration of the test?

No ☐
Yes ☑

4b4 Are the sample location(s) at least 5 HD from the stack exit

No ☐
Yes ☑

4b5 Are the sample location(s) at least 2 HD upstream from any bend or obstruction?

No ☐
Yes ☑

4b6 Are the sample location(s) at least 5 HD downstream from any bend or obstruction?

No ☐
Yes ☑

4b7 Does the sample plane have a constant cross sectional area?

No ☐
Yes ☑

4b8 If horizontal, is the duct square or rectangular (unless it is less than or equal to 0.35 m in diameter)

No ☐
Yes ☑

4b9 If you have answered 'No' to any of the questions 4b1 to 4b8 above, provide an assessment to how the standards in BS EN 15259 will be met.

Document reference of the assessment

5 Environmental impact assessment

5a Have your proposals been the subject of an environmental impact assessment under Council Directive 85/337/EEC of 27 June 1985 [Environmental Impact Assessment] (EIA)?

No ☑ Now go to question 6

Yes ☐ Please provide a copy of the environmental statement and, if the procedure has been completed:

- a copy of the planning permission
- the committee report and decision on the EIA

Document reference of the copy

6 Resource efficiency and climate change

If the site is a landfill or a recovery of hazardous waste on land activity, you only need to fill in this section if the application includes gas engines.

6a Describe the basic measures for improving how energy efficient your activities are

Document reference of the description: See application support document

6b Provide a breakdown of any changes to the energy your activities use up and create

Document reference of the description: See application support document

6c Have you entered into, or will you enter into, a climate change levy agreement?

No ☐ Describe the specific measures you use for improving your energy efficiency

Document reference of the description

Yes ☑ Please give the date you entered (or the date you expect to enter) into the agreement (DD/MM/YYYY)

Please also provide documents that prove you are taking part in the agreement.

Document reference of the proof

6d Explain and justify the raw and other materials, other substances and water that you will use

Document reference of the justification: See application support document

6e Describe how you avoid producing waste in line with Council Directive 2008/98/EC on waste

If you produce waste, describe how you recover it. If it is technically and financially impossible to recover the waste, describe how you dispose of it while avoiding or reducing any effect it has on the environment.

Document reference of the description: See application support document

7 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: https://www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, please tell us how we can improve it.

Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.

Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form?

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

Crystal Mark 19107
Clarity approved by Plain English Campaign

For Environment Agency use only

Date received (DD/MM/YYYY)

Payment received?

No ☐

Yes ☐ Amount received

Our reference number

£

Plain English Campaign's Crystal Mark does not apply to appendices 1 to 4.

Appendix 1 – Specific questions for the combustion sector

1 Identify the type of fuel burned in your combustion units (including when your units are started up, shut down and run as normal). If your units are dual fuelled (that is, use two types of fuel), list both the fuels you use

Fill in a separate table for each installation.

Installation reference			
Type of fuel	When run as normal	When started up	When shut down
Coal	☐	☐	☐
Gas oil	☐	☐	☐
Heavy fuel oil	☐	☐	☐
Natural gas	☐	☐	☐
WID waste	☐	☐	☐
Biomass (see notes 1 and 2 below)	☐	☐	☐
Biomass (see notes 1 and 2 below)	☐	☐	☐
Biomass (see notes 1 and 2 below)	☐	☐	☐
Biomass (see notes 1 and 2 below)	☐	☐	☐
Biomass (see notes 1 and 2 below)	☐	☐	☐
Landfill gas	☐	☐	☐
Other	☐	☐	☐

Notes

1. Not covered by Industrial Emissions Directive 2010/75/EU.
2. 'Biomass' is referred to The Renewables Obligation Order 2002 (https://www.legislation.gov.uk/uksi/2002/914/contents/made)

Give extra information if it helps to explain the fuel you use.

Document reference

Appendix 1 – Specific questions for the combustion sector, continued

2 Give the composition range of any fuels you are currently allowed to burn in your combustion plant

Fill in a separate table for each installation, continuing on a separate sheet if necessary

Fuel use and analysis					
Installation reference					
Parameter	Unit	Fuel 1	Fuel 2	Fuel 3	Fuel 4
Maximum percentage of gross thermal input	%				
Moisture	%				
Ash	% wt/wt dry				
Sulphur	% wt/wt dry				
Chlorine	% wt/wt dry				
Arsenic	% wt/wt dry				
Cadmium	% wt/wt dry				
Carbon	% wt/wt dry				
Chromium	% wt/wt dry				
Copper	% wt/wt dry				
Hydrogen	% wt/wt dry				
Lead	% wt/wt dry				
Mercury	% wt/wt dry				
Nickel	% wt/wt dry				
Nitrogen	% wt/wt dry				
Oxygen	% wt/wt dry				
Vanadium	mg/kg dry				
Zinc	mg/kg dry				
Net calorific value	MJ/kg				

Appendix 1 – Specific questions for the combustion sector, continued

3 If NOx factors are necessary for reporting purposes (that is, if you do not need to monitor emissions), please provide the factors associated with burning the relevant fuels

Fill in a separate table for each installation.

Installation reference	
Fuel	NOx factor (kgt^{-1})
Fuel 1	
Fuel 2	
Fuel 3	
Fuel 4	

Note: kgt^{-1} means kilograms of nitrogen oxides released for each tonne of fuel burned.

4 Will your combustion plant be subject to Chapter III of the Industrial Emissions Directive 2010/75/EU?

No ☐ Now fill in application form part F

Yes ☐

5 What is your plant?

an existing one ☐ A plant licensed before 1 July 1987

a new one ☐ A plant licensed on or after 1 July 1987 but before 27 November 2002, or a plant for which an application was made before 27 November 2002 and which was put into operation before 27 November 2003

a new-new one ☐ A plant for which an application was made on or after 27 November 2002 If you run more than one type of plant or a number of the same type of plant on your installation, please list them in the table below

6 If you run more than one type of plant or a number of the same type of plant on your installation, please list them in the table below

Fill in a separate table for each installation.

Installation reference	
Type of plant	Number within installation
Existing	
New	
New-new	
Gas turbine (group A)	
Gas turbine (group B)	

Appendix 1 – Specific questions for the combustion sector, continued

7 If you run an existing plant, have you submitted a declaration for the 'limited life derogation' set out in Article 33 of Chapter III of the Industrial Emissions Directive?

No ☐ Now go to question 9

Yes ☐

8 Have you subsequently withdrawn your declaration?

No ☐

Yes ☐

9 List the existing large combustion plants (LCPs) which have annual mass allowances under the National Emission Reduction Plan (NERP), and those with emission limit values (ELVs) under the LCPD

Installation reference	
LCPs under NERP	LCPs with ELVs

10 Do you meet the monitoring requirements of Chapter III of the Industrial Emissions Directive?

No ☐

Yes ☐ Document reference

11 Are you substantially refurbishing an existing installation according to the meaning given in Article 14 of the Energy Efficiency Directive?

No ☐

Yes ☐ Now go to question 12

12 Have you carried out a cost–benefit assessment (CBA) of opportunities for cogeneration (combined heat and power) or district heating under Article 14 of the Energy Efficiency Directive?

No ☐ Please provide supporting evidence of why a CBA is not required (for example, an agreement from us)

Document reference of this evidence

Yes ☐ Please submit a copy of your CBA

Document reference of the CBA

Appendix 2 – Specific questions for the chemical sector

1 Please provide a technical description of your activities

- The description should be enough to allow us to understand:
- the process
- the main plant and equipment used for each process
- all reactions, including significant side reactions (that is, the chemistry of the process)
- the material mass flows (including by products and side streams) and the temperatures and pressures in major vessels
- the all emission control systems (both hardware and management systems), for situations which could involve releasing a significant amount of emissions – particularly the main reactions and how they are controlled
- a comparison of the indicative BATs and benchmark emission levels standards: technical guidance notes (TGNs) (see https://www.gov.uk/government/collections/technical-guidance-for-regulated-industry-sectors-environmental-permitting); additional guidance 'The production of large volume organic chemicals' (EPR 4.01); 'Speciality organic chemicals sector' (EPR 4.02); 'Inorganic chemicals sector' (EPR 4.03); and best available techniques reference documents (BREFs) for the chemical sector

Document reference

2 If you are applying for a multi-purpose plant, do you have a multi-product protocol in place to control the changes?

No ☐

Yes ☐ Provide a copy of your protocol to accompany this application

Document reference

3 Does Chapter V of the Industrial Emissions Directive (IED) apply to your activities?

No ☐

Yes ☐ Fill in the following

3a List the activities which are controlled under the IED

Installation reference	
Activities	

3b Describe how the list of activities in question 3a above meets the requirements of the IED

Document reference

Appendix 3 – Specific questions for the waste incineration sector

If you are proposing to accept clinical waste, please complete your answer to question 3a 'Technical standards' with reference to relevant parts of our healthcare waste appropriate measures guidance (see https://www.gov.uk/guidance/healthcare-waste-appropriate-measures-for-permitted-facilities)

1a Do you run incineration plants as defined by Chapter IV of the Industrial Emissions Directive (IED)?

No ☐ You do not need to answer any other questions in this appendix

Yes ☐ IED applies

1b Are you subject to IED as

An incinerator? ☐

A co-incinerator? ☐

2 Do any of the installations contain more than one incineration line?

No ☐ Now go to question 4

Yes ☐

3 How many incineration lines are there within each installation?

Fill in a separate table for each installation.

Installation reference		
Number of incineration lines within the installation		
Reference identifiers for each line		

You must provide the information we ask for in questions 4, 5 and 6 below in separate documents. The information must at least include all the details set out in section 2 ('Key Issues') of S5.01 'Incineration of waste: additional guidance' (under the sub heading 'European legislation and your application for an EP Permit'). See https://www.gov.uk/government/collections/technical-guidance-for-regulated-industry-sectors-environmental-permitting.

You must answer questions 7 to 13 on the form below.

4 Describe how the plant is designed, equipped and will be run to make sure it meets the requirements of IED, taking into account the categories of waste which will be incinerated

Document reference

5 Describe how the heat created during the incineration and co-incineration process is recovered as far as possible (for example, through combined heat and power, creating process steam or district heating)

Document reference

Appendix 3 – Specific questions for the waste incineration sector, continued

6 Describe how you will limit the amount and harmful effects of residues and describe how they will be recycled where this is appropriate

Document reference

For each line identified in question 3, answer questions 7 to 13 below

Question 3 identifier, if necessary

7 Do you want to take advantage of the Article 45 (1)(f) allowance (see below) if the particulates, CO or TOC continuous emission monitors (CEM) fail?

No ☐

Yes ☐ This allows 'abnormal operation' of the incineration plant under certain circumstances when the CEM for releases to air have failed. Annex VI, Part 3(2) sets maximum half hourly average release levels for particulates (150 mg/m3), CO (normal ELV) and TOC (normal ELV) during abnormal operation.

Describe the other system you use to show you keep to the requirements of Article 13(4) (for example, using another CEM, providing a portable CEM to insert if the main CEM fails, and so on).

8 Do you want to replace continuous HF emission monitoring with periodic hydrogen fluoride (HF) emission monitoring by relying on continuous hydrogen chloride (HCl) monitoring as allowed by IED Annex VI, Part 6 (2.3)?

Under this you do not have to continuously monitor emissions for hydrogen fluoride if you control hydrogen chloride and keep it to a level below the HCl ELVs.

No ☐

Yes ☐ Please give your reasons for doing this

Appendix 3 – Specific questions for the waste incineration sector, continued

9 Do you want to replace continuous water vapour monitoring with pre-analysis drying of exhaust gas samples, as allowed by IED Annex VI, Part 6 (2.4)?

Under this you do not have to continuously monitor the amount of water vapour in the air released if the sampled exhaust gas is dried before the emissions are analysed.

No ☐

Yes ☐ Please give your reasons for doing this

10 Do you want to replace continuous hydrogen chloride (HCl) emission monitoring with periodic HCl emission monitoring, as allowed by IED Annex VI, Part 6 (2.5), first paragraph?

Under this you do not have to continuously monitor emissions for hydrogen chloride if you can prove that the emissions from this pollutant will never be higher than the ELVs allowed.

No ☐

Yes ☐ Please give your reasons for doing this

Appendix 3 – Specific questions for the waste incineration sector, continued

11 Do you want to replace continuous HF emission monitoring with periodic HF emission monitoring, as allowed by IED Annex VI, Part 6 (2.5), first paragraph?

Under this you do not have to continuously monitor emissions for hydrogen fluoride if you can prove that the emissions from this pollutant will never be higher than the ELVs allowed.

No ☐

Yes ☐ Please give your reasons for doing this

12 Do you want to replace continuous SO_2 emission monitoring with periodic sulphur dioxide (SO_2) emission monitoring, as allowed by IED Annex VI, Part 6 (2.5), first paragraph?

Under this you do not have to continuously monitor emissions for sulphur dioxide if you can prove that the emissions from this pollutant will never be higher than the ELVs allowed.

No ☐

Yes ☐ Please give your reasons for doing this

Appendix 3 – Specific questions for the waste incineration sector, continued

13 If your plant uses fluidised bed technology, do you want to apply for a derogation of the CO WID ELV to a maximum of 100 mg/m³ as an hourly average, as allowed by IED Annex VI, Part 3?

No ☐

Does not apply ☐

Yes ☐ Please give your reasons for doing this

14 Are you substantially refurbishing an existing installation according to the meaning given in Article 14 of the Energy Efficiency Directive?

No ☐

Yes ☐ Please go to question 15

Document reference of the CHP-ready assessment

15 Have you carried out a cost–benefit assessment (CBA) of opportunities for cogeneration (combined heat and power) or district heating under Article 14 of the Energy Efficiency Directive?

No ☐ Please provide supporting evidence of why a CBA is not required (for example, an agreement from us)

Document reference of this evidence

Yes ☐ Please submit a copy of your CBA

Document reference of the CBA

Appendix 4 – Specific questions for the landfill sector and recovery of hazardous waste on land activities

1. For the landfill sector, provide your Environmental Setting and Installation Design (ESID) report and any other risk assessments to control emissions.

For recovery of hazardous waste on land activities, provide your Environmental Setting and Site Design (ESSD) report and any other risk assessments to control emissions

Document reference

2. For recovery of hazardous waste on land activities, provide your Waste Acceptance Procedures (including Waste Acceptance Criteria)

Document reference

Refer to our guidance at
https://www.gov.uk/government/publications/deposit-for-recovery-operators-environmental-permits/waste-acceptance-procedures-for-deposit-for-recovery

3. Provide your hydrogeological risk assessment (HRA) for the site

Document reference

4. Provide your outline engineering plan for the site

Document reference

5. Provide your stability risk assessment (SRA) for the site

Document reference

6. Provide your landfill gas risk assessment (LFGRA) for the site

Document reference

We have developed guidance on these assessments and their reports which can be found at
https://www.gov.uk/government/collections/environmental-permitting-landfill-sector-technical-guidance

7. For recovery of hazardous waste on land activities, have you completed a monitoring plan for the site?

No ☐ Please refer to the section of your ESSD that explains why this is unnecessary for your site

Document reference of this evidence

Yes ☐ Document reference

8. Have you completed a proposed plan for closing the site and your procedures for looking after the site once it has closed?

No ☐ If you have answered 'no' for recovery of hazardous waste on land activities, refer to the section of your ESSD that explains why this is unnecessary for your site

Document reference of this evidence

Yes ☐ For landfill you must provide a closure and aftercare plan

Document reference

Application for an environmental permit Part C6 – Variation to a bespoke water discharge activity or groundwater activity (point source discharge), or point source emission to water from an installation

Environment Agency

Fill in this part of the form, together with part C2 and part F1, if you are applying to vary (change) the conditions or any other part of the permit for a water discharge or groundwater activity.

Fill in this part of the form, together with parts C2, C3 and F1 if you are applying to vary or add a point source emission to water, groundwater or sewer from an installation.

Please check that this is the latest version of the form available from our website.

You only need to give us details in this application for the parts of the permit that will be affected (for example, if you are adding a new facility or making changes to existing ones).

You do not need to resend any information from your original permit application if it is not affected by your proposed changes.

Please read through this form and the guidance notes that came with it.

The form can be:

1) **saved onto a computer and then filled in.**
2) **printed off and filled in by hand. Please write clearly in the answer spaces.**

It will take less than three hours to fill in this part of the application form.

Contents

About the effluent – details and type

From the list below, choose which type of effluent you are applying for on this form and answer the questions shown in Table 1.

You must fill in a separate copy of this form and the appropriate appendix or appendices for each type of effluent you plan to discharge.

Table 1 – About the effluent

Type of effluent	Charge band	Please tick box	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Sewage effluent (non-water company)	1.3.3 Sewage effluent discharge with a volume up to and including 5 m^3/day to surface water from domestic household or organisation operating for charitable purposes		All	a, b, c, d	b, f	-	a, b	All	-	b*, f*	a, b, c, f*, h, i	All
	1.3.4 Sewage effluent discharge with a volume up to and including 5 m^3/day to groundwater from domestic household or organisation operating for charitable purposes		All	a, b, c, d	b, f	-	a, b	All	-	d, f*	a, b, c, f*, h, i	All
	1.3.5 Sewage effluent discharge with a volume up to and including 5 m^3/day to surface water (not requiring specific substances assessment)		All	a, b, c, d	b, f	-	a, b	All	-	b*, f*	a, b, c, f*, h, i	All
	1.3.6 Sewage effluent discharge with a volume up to and including 5 m^3/day to groundwater (not requiring specific substances assessment)		All	a, b, c, d	b, f	-	a, b	All	-	d, f*	a, b, c, f*, h, i	All
	1.3.7 Sewage effluent discharge with a volume greater than 5 m^3/day up to and including 15 m^3/day to groundwater (not requiring specific substances assessment)		All	a, b, c, d	b, f	-	a, b	All	-	d, f*	a, b, c, f*, h, i	All

Type of effluent	Charge band	Please tick box	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Sewage effluent (non-water company)	1.3.8 Sewage effluent discharge with a volume greater than 15 m^3/day to groundwater (not requiring specific substances assessment)		All	a, b, c, d	b, f	-	a, b	All	-	d, f*	a, b, c, d*, e*, f*, h, i	All
	1.3.9 Sewage effluent discharge to groundwater requiring specific substances assessment (any volume)		All	a, b, c, d	b, f	-	a, b	All	b, c, d, e	d, f*	a, b, c, d*, e*, f*, h, i	All
	1.3.10 Sewage effluent discharge with a volume greater than 5 m^3/day up to and including 50 m^3/day to surface water (not requiring specific substances assessment)		All	a, b, c, d	b, f	-	a, b	All	-	b*, f*	a, b, c, f*, h, i	All
	1.3.11 Sewage effluent discharge with a volume greater than 50 m^3/day to surface water (not requiring specific substances assessment)		All	a, b, c, d	b, f	-	a, b	All	-	b*, f*	a, b, c, d*, e*, f*, h, i	All
	1.3.11 Sewage effluent discharge to surface water requiring specific substances assessment (any volume)		All	a, b, c, d	b, f	-	a, b	All	b, c, d, e	b*, c, f*	a, b, c, d*, e*, f*, h, i	All
Water company WwTW treated sewage effluent	1.3.5 Sewage effluent discharge with a volume up to and including 5 m^3/day to surface water (not requiring specific substances assessment)		All	a, b	a, f (b is optional)	-	-	All	-	a, b*, f*	a, b, c, f*, h, i	All
	1.3.6 Sewage effluent discharge with a volume up to and including 5 m^3/day to groundwater (not requiring specific substances assessment)		All	a, b	a, f (b is optional)	-	-	All	-	a, d, f*	a, b, c, f*, h, i	All

Type of effluent	Charge band	Please tick box	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Water company WwTW treated sewage effluent	1.3.7 Sewage effluent discharge with a volume greater than 5 m^3/day up to and including 15 m^3/day to groundwater (not requiring specific substances assessment)		All	a, b	a, f (b is optional)	-	-	All	-	a, d, f*	a, b, c, f*, h, i	All
	1.3.8 Sewage effluent discharge with a volume greater than 15 m^3/day to groundwater (not requiring specific substances assessment)		All	a, b	a, f (b is optional)	-	-	All	-	a, d, f*	a, b, c, d*, e*, f*, h, i	All
	1.3.9 Sewage effluent discharge to groundwater requiring specific substances assessment (any volume)		All	a, b	a, f (b is optional)	-	-	All	a, b, c, d, e	a, d, f*	a, b, c, d*, e*, f*, h, i	All
	1.3.10 Sewage effluent discharge with a volume greater than 5 m^3/day up to and including 50 m^3/day to surface water (not requiring specific substances assessment)		All	a, b	a, f (b is optional)	-	-	All	-	a, b*, f*	a, b, c, f*, h, i	All
	1.3.11 Sewage effluent discharge with a volume greater than 50 m^3/day to surface water (not requiring specific substances assessment)		All	a, b	a, f (b is optional)	-	-	All	-	a, b*, f*	a, b, c, d*, e*, f*, h, i	All
	1.3.11 Sewage effluent discharge to surface water requiring specific substances assessment (any volume)		All	a, b	a, f (b is optional)	-	-	All	a, b, c, d, e	a, b*, c, f*	a, b, c, d*, e*, f*, h, i	All
Settled storm sewage	1.3.19 Combined sewer overflow		All	a, b	-	a, b, c, d, f, g, h, i, j, k	-	All	-	a, b*, d*, f*	b, g, h, i	All

Type of effluent	Charge band	Please tick box	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Storm sewage	1.3.19 Combined sewer overflow		All	a, b	-	a, b, c, e, f, g, h, i, j, k	-	All	-	a, b*, d*, f*	b, g, h, i	All
Emergency overflow	1.3.20 Emergency overflows		All	a, b	-	a, l, m, n, o	-	All	-	a, b*, d*, f*	b, g, h, i	All
Trade and/or non-sewage – known volume	1.3.12 Trade and/or non-sewage effluent discharge to surface water or groundwater with a volume up to and including 5 m^3/day (not requiring specific substances assessment)		All	a, b, c, d	b, c, f	-	a, b	All	b, c, d, e	b*, d*, f*	b, f*, h, i	All
	1.3.13 Trade and/or non-sewage effluent discharge to surface water or groundwater with a volume greater than 5 m^3/day (not requiring specific substances assessment)		All	a, b, c, d	b, c, f	-	a, b	All	b, c, d, e	b*, d*, f*	b, d*, e*, f*, h, i	All
	1.3.14 Trade and/or non-sewage effluent discharge to surface water or groundwater requiring specific substances assessment (any volume)		All	a, b, c, d	b, c, f	-	a, b	All	b, c, d, e	b*, c, d*, f*	b, d*, e*, f*, h, i	All
Trade and/or non-sewage – rainfall-dependent	1.3.12 Trade and/or non-sewage effluent discharge to surface water or groundwater with a volume up to and including 5 m^3/day (not requiring specific substances assessment)		All	a, b	b, e, f	-	-	All	b, c, d, e	b*, d*, f*	b, f*, h, i	All
	1.3.13 Trade and/or non-sewage effluent discharge to surface water or groundwater with a volume greater than m^3/day (not requiring specific substances assessment)		All	a, b	b, e, f	-	-	All	b, c, d, e	b*, d*, f*	b, d*, e*, f*, h, i	All

Type of effluent	Charge band	Please tick box	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Trade and/or non-sewage – rainfall-dependent	1.3.14 Trade and/or non-sewage effluent discharge to surface water or groundwater requiring specific substances assessment (any volume)		All	a, b	b, e, f	-	-	All	b, d, e	b*, c, d*, f*	b, d*, e*, f*, h, i	All
Mixed effluent (sewage combined with trade and/or non-sewage) – known volume	1.3.5 Sewage effluent discharge with a volume up to and including 5 m^3/day to surface water (not requiring specific substances assessment)		All	a, b, c, d	b, c, f	-	a, b	All	b, c, d, e	b*, f*	a, b, c, f*, h, i	All
	1.3.6 Sewage effluent discharge with a volume up to and including 5 m^3/day to groundwater (not requiring specific substances assessment)		All	a, b, c, d	b, c, f	-	a, b	All	b, c, d, e	d, f*	a, b, c, f*, h, i	All
	1.3.7 Sewage effluent discharge with a volume greater than 5 m^3/day up to and including 15 m^3/day to groundwater (not requiring specific substances assessment)		All	a, b, c, d	b, c, f	-	a, b	All	b, c, d, e	d, f*	a, b, c, f*, h, i	All
	1.3.8 Sewage effluent discharge with a volume greater than 15 m^3/day to groundwater (not requiring specific substances assessment		All	a, b, c, d	b, c, f	-	a, b	All	b, c, d, e	d, f	a, b, c, d*, e*, f*, h, i	All
	1.3.9 Sewage effluent discharge to groundwater requiring specific substances assessment (any volume)		All	a, b, c, d	b, c, f	-	a, b	All	b, c, d, e	d, f*	a, b, c, d*, e*, f*, h, i	All

Type of effluent	Charge band	Please tick box	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Mixed effluent (sewage combined with trade and/or non-sewage) – known volume	1.3.10 Sewage effluent discharge with a volume greater than 5 m^3/day up to and including 50 m^3/day to surface water (not requiring specific substances assessment)		All	a, b, c, d	b, c, f	-	a, b	All	b, c, d, e	b*, f*	a, b, c, f*, h, i	All
	1.3.11 Sewage effluent discharge with a volume greater than 50 m^3/day to surface water (not requiring specific substances assessment)		All	a, b, c, d	b, c, f	-	a, b	All	b, c, d, e	b*, f*	a, b, c, d*, e*, f*, h, i	All
	1.3.11 Sewage effluent discharge to surface water requiring specific substances assessment (any volume)		All	a, b, c, d	b, c, f	-	a, b	All	b, c, d, e	b, c, d	a, b, c, d*, e*, f*, h, i	All
Mixed effluent (sewage combined with trade and/or non-sewage) containing rainfall-dependent effluent	1.3.5 Sewage effluent discharge with a volume up to and including 5 m^3/day to surface water (not requiring specific substances assessment)		All	a, b	b, c, d, e, f	-	a, b	All	b, c, d, e	b*, f*	a, b, c, f*, h, i	All
	1.3.6 Sewage effluent discharge with a volume up to and including 5 m^3/day to groundwater (not requiring specific substances assessment)		All	a, b	b, c, d, e, f	-	a, b	All	b, c, d, e	d, f*	a, b, c, f*, h, i	All
	1.3.7 Sewage effluent discharge with a volume greater than 5 m^3/day up to an including 15 m^3/day to groundwater (not requiring specific substances assessment)		All	a, b	b, c, d, e, f	-	a, b	All	b, c, d, e	d, f*	a, b, c, f*, h, i	All
	1.3.8 Sewage effluent discharge with a volume greater than 15 m^3/day to groundwater (not requiring specific substances assessment)		All	a, b	b, c, d, e, f	-	a, b	All	b, c, d, e	d, f*	a, b, c, d*, e*, f*, h, i	All

Type of effluent	Charge band	Please tick box	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Mixed effluent (sewage combined with trade and/or non-sewage) containing rainfall-dependent effluent	1.3.9 Sewage effluent discharge to groundwater requiring specific substances assessment (any volume)		All	a, b	b, c, d, e, f	-	a, b	All	b, c, d, e	d, f*	a, b, c, d*, e*, f*, h, i	All
	1.3.10 Sewage effluent discharge with a volume greater than 5 m^3/day up to and including 50 m^3/day to surface water (not requiring specific substances assessment)		All	a, b	b, c, d, e, f	-	a, b	All	b, c, d, e	b*, f*	a, b, c, f*, h, i	All
	1.3.11 Sewage effluent discharge with a volume greater than 50 m^3/day to surface water (not requiring specific substances assessment)		All	a, b	b, c, d, e, f	-	a, b	All	b, c, d, e	b*, f*	a, b, c, d*, e*, f*, h, i	All
	1.3.11 Sewage effluent discharge to surface water requiring specific substances assessment (any volume)		All	a, b	b, c, d, e, f	-	a, b	All	b, c, d, e	b*, c, f*	a, b, c, d*, e*, f*, h, i	All
Trade – returned abstracted water (including ground source heating and cooling)	1.3.15 Cooling water or thermal discharge to surface water or groundwater (not requiring specific substances assessment)		All	a, b, c, d	b, c, f	-	-	All	b, c, d, e, f, g	b*, d*, f*	a*, b, d*, e*, f*, h, i	All
	1.3.16 Cooling water or thermal discharge to surface water or groundwater requiring specific substances assessment		All	a, b, c, d	b, c, f	-	-	All	b, c, d, e, f, g	b*, c, d*, f*	a*, b, d*, e*, f*, h, i	All
	1.3.17 Aquaculture (not requiring specific substances assessment)		All	a, b, c, d	b, c, f	-	-	All	b, c, d, e	b*, d*, f*	a*, b, d*, e*, f*, h, i	All
	1.3.18 Aquaculture requiring specific substances assessment		All	a, b, c, d	b, c, f	-	-	All	b, c, d, e	b*, c, d*, f*	a*, b, d*, e*, f*, h, i	All

Type of effluent	Charge band	Please tick box	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Effluent and/or contaminated surface water run-off arising from the operation of an installation	No additional charge, as already included as part of the installation variation application charge	✔	a, b, d	c	b, c, d, f		a, b2	a, b, c	b, c, d, e, f, g	d*, e*, f	a, b, d, e, f, h, i	a, b, c

* Check the relevant question and our guidance notes on part C6 to see if you need to give an answer.

1 About the variation you are applying for

1a Give a brief description of the changes you want to make to your permit

Release of treated effluent from in house effluent treatment plant into sewer controlled by Yorkshire water, prior to final release with no additional treatment into the North Sea.

1b Give this effluent a unique name

Final effluent

You must use this name to identify this effluent throughout this application and all associated documents.

1c Is this a release from a dam, weir or sluice ('reservoir release') under Schedule 21 of the EPR meaning of water discharge activity?

Yes

✔ No

1d Have you obtained all the necessary permissions in addition to this environmental permit to be able to carry out the discharge (see C6 guidance notes for more details)?

✔ Yes

No

N/A

2 About the effluent – how long will you need to discharge the effluent for?

2a What date do you want the permit for this effluent to start?

(DD/MM/YYYY)

Please note that charges will start on this date, even if you have not started to discharge, unless you contact us to change (delay) the start date (see the guidance notes on part C6). The start date cannot be before the permit is issued and cannot be changed (delayed) after it has already passed.

2b Is the discharge time limited?

☐ Yes Please give the date you expect the discharge to end but please note that your permit will not end on that date and you will still need to notify us to surrender the permit

(DD/MM/YYYY)

☐ No

2c Will the discharge take place all year?

✔ Yes

No Please give details of the months when you will make the discharge

2d Will the discharge take place on more than six days in any year?

☐ Yes

☐ No

3 How much do you want to discharge?

3a What is the daily dry weather flow?

| | cubic metres

3b What is the maximum volume of effluent you will discharge in a day?

7000 | cubic metres

Show how you calculated the figure given in the box below and continue on a separate sheet if necessary, giving a reference for the extra sheet

Document reference

|

3c What is the maximum rate of discharge?

107 | litres a second

3d What is the maximum volume of non-rainfall dependent effluent you will discharge in a day?

7000 | cubic metres

3e What is the maximum rate of rainfall dependent discharge?

| litres a second

3f For each answer in question 3, show how you worked out the figure on a separate sheet

Document reference

See application support document

4 Intermittent sewage discharges

4a For each answer to b to o below, show how you worked out the figure on a separate sheet

Document reference

4b What is the total volume of the off-line/storm tank storage?

cubic metres

4c What is the total volume of on-line storage?

cubic metres

4d What is the pass forward flow at the settled storm overflow setting?

litres per second

4e What is the pass forward flow at the storm overflow setting?

litres per second

4f Is the discharge screened?

☐ Yes Answer the relevant questions from 4g to 4j

☐ No Now go to 4k

4g What is the mesh screen spacing?

millimetres

4h What is the minimum screen capacity flow through the mesh screen?

litres per second

4i What is the bar screen spacing?

millimetres

4j What is the minimum screen capacity flow through the bar screen?

litres per second

4k Is the overflow constructed to good engineering design?

☐ Yes

☐ No On a separate sheet explain what standards the overflow has been constructed to

Document reference

4l What is the emergency storage capacity of the sewer and wet well?

cubic metres

4m What is the storage time within the sewer and the wet well above the top water level at dry weather flow?

hours and minutes

4n What is the pass forward flow at the pumping station?

litres per second

4o For intermittent emergency overflows you must provide a document setting out the key protection measures you will provide

Document reference for pumping station key protection measures

5 Should your discharge be made to the foul sewer?

Foul sewer means public or private foul sewer.

Before answering these questions, you must read the guidance notes to part C6.

You will also need to contact your sewerage undertaker (usually your local water company) and you may need to check if it is possible to connect to a private foul sewer.

5a How far away is the nearest foul sewer from the boundary of the premises?

N / A metres

5b To assess whether it is reasonable to discharge your effluent into the foul sewer, please answer 5b1 or 5b2

5b1 Discharges from domestic properties

Multiply the number of properties served by the sewage treatment system by 30 metres.

Number of domestic properties served by the sewage treatment system

x 30 metres =

0 metres

5b2 Discharges from all other premises including trade effluent

Divide the volume of the discharge (in cubic metres) by 0.75 and then multiply this figure by 30 metres

Volume of the discharge (answer to question 3b)

cubic metres / 0.75 =

0 x 30 =

0 metres

Is your answer to question 5b1 or 5b2 above greater than the distance to the nearest foul sewer (answer to 5a)?

☐ No You do not need to explain why you cannot discharge your effluent into the foul sewer at this point. However, we may request this information from you when we determine your application. Now go to question 6.

☐ Yes You must explain on a separate sheet why you cannot discharge your effluent into the foul sewer, giving a reference for the extra sheet. Before you submit the application, you must explore the possibility of connecting to the foul sewer, and send us evidence that you have approached the sewerage undertaker, including their formal response regarding connection, if relevant. You must also show the extra cost of connecting to a sewer compared with the treatment system you propose, and details of any physical obstacles such as roads, railways, rivers or canals.

We will only agree to the use of private treatment systems within sewered areas if you can demonstrate that:

- the additional cost of connecting to the foul sewer would be unreasonable
- connection is not practically feasible, or
- the proposed private treatment system can be shown to significantly benefit the environment

We are unlikely to grant a permit for a discharge of treated domestic sewage in circumstances where a private sewerage system is being proposed due to a lack of capacity in the nearest public sewerage network.

The guidance notes to part C6 will help you understand what information you need to provide in order to answer this question.

Document reference for where you have given this justification

6 How will the effluent be treated?

6a Do you treat your effluent?

✔ Yes Now go to question 6b

No You must explain why the effluent will not be treated

Document reference for where you have given this justification

6b Fill in Table 2 for each stage of the treatments carried out on your effluent in the order in which they are carried out

For installations with point source emission to water or sewer, there is no need to duplicate information already provided in part C3 form. Where this information is already provided, give the document reference and go to question 7.

Document reference

See application support document

Table 2 – Treatments carried out on your effluent

Order of treatment	Code number	Description
First	09	
Second	28	
Third	02	
Fourth		

Continue on a separate sheet if you need more rows. If you prefer, you can also send us an overall design for the whole treatment process.

Document reference

See application support document

7 What will be in the effluent?

For all applications, whether to surface water, or onto or into ground, you should still check to see if your discharge is likely to contain any of the specific substances listed in the guidance documents on 'Risk assessment for treated sewage or trade effluent discharges to surface water or groundwater' (see https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit).

Answer the relevant questions for your discharge below.

7a Are any of the specific substances listed in 'Risk assessment for treated sewage or trade effluent discharges to surface water or groundwater' likely to enter the sewerage system upstream of the discharge through any authorised or known inputs?

☐ Yes

✔ No

7b Are any of the specific substances listed in 'Risk assessment for treated sewage or trade effluent discharges to surface water or groundwater' added to or present in the effluent as a result of the activities on the site?

☐ Yes

✔ No

7c Have any of the specific substances listed in 'Risk assessment for treated sewage or trade effluent discharges to surface water or groundwater' been detected in samples of the effluent or in the sewerage catchment upstream of the discharge?

☐ Yes

✔ No

7d Are there any other harmful or specific substances in your effluent not mentioned in 'Risk assessment for treated sewage or trade effluent discharges to surface water or groundwater'?

☐ Yes

☐ No

7e If you have answered 'No' to any of questions 7a to 7d provide details on a separate sheet of how you have established that the effluent is not likely to contain specific substances.

Document reference

7f What is the maximum temperature of your discharge?

43.3 degrees Celsius

7g What is the maximum expected temperature change compared to the incoming water supply?

N / A increase in degrees Celsius

N / A decrease in degrees Celsius

8 Environmental risk assessments and modelling

You may need to carry out an environmental risk assessment or modelling to support your application. Please answer all the questions that are relevant to your discharge. If an environmental risk assessment or modelling is required, you must send it to us with your application.

8a Sewer modelling report (for discharges of final effluent from a water company WwTW or intermittent sewage discharges)

You must carry out sewer modelling following the guidance 'Surface water pollution risk assessment for your environmental permit' at https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit.

Send us details of how the modelling was carried out and the outcome.

Document reference for the sewer modelling report

8b Discharges to lakes, estuaries, coastal waters or bathing waters

You must carry out modelling following the guidance 'Surface water pollution risk assessment for your environmental permit' at https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit. Send us details of how the modelling was carried out and the outcome.

Document reference for the modelling report

See application support document

8c Discharges to freshwater (non-tidal) rivers

If the discharge contains, or potentially contains, any specific substances, you must carry out screening following the guidance 'Surface water pollution risk assessment for your environmental permit' at https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit. The guidance notes on part C6 outline the information you must provide.

Have you answered yes to any of 7a to 7d?

☐ Yes Send us the completed screening tool, along with the raw data used to create the summary statistics

Document reference for the screening tool and raw data

See application support document

☐ No

8d Discharges to groundwater

You must carry out a groundwater quantitative risk assessment following the guidance in 'Groundwater risk assessment for your environmental permit' at https://www.gov.uk/guidance/groundwater-risk-assessment-for-your-environmental-permit. Send us details of how the modelling was carried out and the outcome.

For groundwater remediation schemes you must send us a site-specific remediation strategy that has been agreed with the local Environment Agency Groundwater and Contaminated Land Team.

Document reference for the groundwater remediation report

8e Discharges to freshwater (non-tidal) rivers from an installation, including discharges via sewer

If the discharge contains, or potentially contains, any specific substances, you must carry out screening following the guidance (see https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit). The guidance notes on part C6 outline the information you must provide.

Have you answered yes to any of 7a to 7d?

☐ Yes Send us the completed screening tool, along with the raw data used to create the summary statistics. Where the discharge is via sewer, include sewage treatment reduction factors in the calculations.

Document reference for the screening tool and raw data

See application support document

There is no need to duplicate information already provided in part C3 form. Where this information is already provided, give the document reference above.

8f Environmental impact assessment

Have you carried out an environmental impact assessment?

Yes Send us details of how the assessment was carried out and the outcome

Document reference for the environmental impact assessment

✔ No

9 Monitoring arrangements

Note: If your effluent has a maximum volume of no more than 50 cubic metres a day you do not need to complete question 9d or 9e.

9a What is the national grid reference of the inlet sampling point? (for example, SJ 12345 67890)

See application support document

9b What is the national grid reference of the effluent sample point?

See application support document

9c Do you have an Urban Waste Water Treatment Directive final effluent sampling point?

☐ Yes Please provide the national grid reference

☐ No

9d What is the national grid reference of the flow monitoring point?

See application support document

9e Does the flow monitor have an MCERTS certificate?

Yes Please give the certificate number

✔ No

9f Do you have a UV disinfection efficacy monitoring point?

Yes Please provide the national grid reference

✔ No

9g Do you have an event duration monitoring point(s)?

☐ Yes Please provide the national grid reference

☐ No

9h You should clearly mark on the plan the locations of any of the above that apply to this effluent

Document reference for the plan

See application support document

9i Do you intend to do your own effluent monitoring?

☐ Yes

☐ No

10 Where will the effluent discharge to?

10a Mark in Table 3 where this effluent discharges to and fill in the relevant appendix or appendices.

You must use the name you gave to this effluent in answer to question 1b of this form when filling in your relevant appendix or appendices.

Table 3 – Where the effluent discharges to

Receiving environment		Relevant appendix
Borehole or well	☐	1
Into land (for example, through a drainage system)	☐	2
Onto land	☐	3
Tidal river, tidal stream, estuary or coastal waters	✔	4
Non-tidal river, stream or canal	☐	5
Lake or pond	☐	6

10b Is this effluent discharged through more than one outlet?

Yes Give details, on a separate sheet, of the circumstances under which each outlet would be used by this effluent

Document reference

✔ No

10c If you answered yes to question 10b above make sure you show clearly on your discharge point appendix or appendices and site plan that this one effluent can discharge to more than one discharge point.

You must give us all the details we need for each of the discharge points used by this effluent.

11 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: https://www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, please tell us how we can improve it.

Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.

Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form?

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

- ☐ Yes please
- ☐ No thank you

For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

- ☐ No
- ☐ Yes

Amount received

£

Plain English Campaign's Crystal Mark does not apply to appendices 1 to 6.

Appendix 1 – Discharges to a borehole or well (or other deep structure)

If you are discharging the effluent to a borehole or well or other deep structure (such as concrete rings, natural swallow hole or deep soakage pit) you must ensure that the discharge is indirect to groundwater. Direct discharges to groundwater cannot be permitted. We will undertake a groundwater quantitative risk assessment on your behalf in line with the guidance 'Groundwater risk assessment for your environmental permit' at https://www.gov.uk/guidance/groundwater-risk-assessment-for-your-environmental-permit.

For us to do this you must answer the following questions relevant to your application and provide us with additional information as summarised in Table 4.

Without this information we will be unable to complete the risk assessment and it is likely your application will be rejected.

Answer all the questions below. Use a separate line for each effluent if more than one effluent discharges using this discharge point. Remember, when linking your effluent to a discharge point you must use the name you gave to your effluent in answer to question 1b in the effluent form.

1.1 Give the discharge point a unique name

For example, 'Outlet 1' (you must use this name to identify the discharge point on the plan)

1.2 Give the national grid reference of the discharge point

1.3 Is the discharge to ground via a

- ☐ Well
- ☐ Borehole
- ☐ Other deep structure Please give details (e.g. concrete ring structure, shaft, natural swallow hole, soakage pit etc.)

1.4 What is the diameter of the borehole, well or other deep structure that the effluent will be discharged into?

metres

1.5 Is the borehole, well or other structure already constructed?

- ☐ Yes Now answer questions 1.6 to 1.9
- ☐ No Now answer questions 1.10 to 1.12

Existing borehole, well or other deep structure

1.6 What is the total depth to the bottom of the existing well, borehole or other structure?

_____ metres below ground level

If you are unaware of the actual depth please estimate the depth based on the following categories:

☐ 0–5 metres

☐ 5–10 metres

☐ Greater than 10 metres

☐ Uncertain

What evidence is the estimated depth above based on?

_____

1.7 Does the well, borehole or other structure extend into groundwater?

☐ Yes – always contains water

☐ Sometimes – water is present occasionally

☐ No – never contains water

If groundwater is always, or sometimes, present, what is the highest level that the standing water reaches?

☐ Measured

_____ metres below ground level

☐ Estimated

_____ metres below ground level

1.8 Please provide any records, diagrams or borehole logs you may have that could help us understand:

- the method of construction (including any solid casings or linings used)
- the likely depth of the deep structure
- the local groundwater conditions

Please provide photocopies where possible. If it is not possible (for example, if the documents are large or bulky) please summarise any additional information you have on a separate sheet.

Document reference for the records, diagrams, or borehole logs

_____

1.9 If any maintenance has been carried out on your well, borehole or other deep structure (for example, to aid effective drainage), please give details below

Please now answer question 1.13

Proposed borehole, well or other deep structure that has not yet been constructed

1.10 Please tell us why you are unable to install a shallow engineered drainage system. This information forms an important part of our permit determination process. Which methods of shallow disposal have you considered, and why did you decide these were not feasible to take forward? Please answer questions 1.10a and 1.10b to provide the results of soakage tests and summarise in the box any relevant information supporting your decisions (for example, permission refusals from landowners or physical constraints, or land availability or proximity to buildings).

1.10a What was your percolation value (Vp) result?

⌊_____⌋ seconds per millimetre

You must show in Table 4 how you worked out the percolation value.

Table 4 – Percolation value

	Trial 1	Trial 2	Trial 3	Average
Hole 1				
Hole 2				
Hole 3				
Hole 4				

1.10b If a shallow engineered drainage system were feasible, what would be the required surface area of your infiltration system?

square metres

Supporting information to explain why you are unable to install a shallow engineered drainage system can be appended to your application.

Document reference for these details

1.11 Please tell us the type of deep structure (for example, borehole, well, deep soakage pit) you propose to install

What will the total depth be?

metres below ground level

1.12 Please tell us the reason this depth has been selected and, if you are aware of any relevant existing information on local water levels, please also tell us the depth to groundwater (in metres below ground level). What measures will you undertake to ensure the discharge is not direct into groundwater? If the discharge will be direct to groundwater explain why you cannot make it indirect. Direct discharges to groundwater cannot be permitted.

Proximity of your discharge to other receptors

1.13 Is the borehole, well or other deep structure where the discharge is being/will be made within 50 metres of any other well, spring or borehole used to supply water for drinking water or food production purposes?

☐ Yes Please show the location of the well, spring or borehole you identified in answer to question 1.13 on the plan you have provided for section 4 of the main application form. Please now answer question 1.14

☐ No Please now answer question 1.15

1.14 Please tell us about the water supply (or supplies) used for drinking water or food production purposes identified in question 1.13 above; for example, the name of the property or properties served by the water supply, what they use the water for (drinking water, food production) and where they are in relation to your discharge

1.15 What is the distance to the nearest watercourse (for example, surface water, river, stream or ditch)?

⌊_____⌋ metres

Please tell us whether you have considered discharging to surface water and why this is not feasible

In Table 5 please provide any further information required for us to complete a groundwater quantitative risk assessment on your behalf in line with the guidance 'Groundwater risk assessment for your environmental permit' at https://www.gov.uk/guidance/groundwater-risk-assessment-for-your-environmental-permit. Without this information we will be unable to carry out a hydrogeological risk assessment on your behalf.

Table 5 summarises the information required to allow us to undertake a hydrogeological risk assessment of your discharge to a deep infiltration system. Without this information your application will be rejected. You will already have provided some of this information earlier in this application form. We also need you to provide additional information indicated by a tick (✓) in Table 5. For further guidance on the additional information required please search for 'Groundwater risk assessment for your environmental permit' at https://www.gov.uk/guidance/groundwater-risk-assessment-for-your-environmental-permit and the guidance notes on part C6. You may require the advice of an environmental consultant to collate this information.

For some of the risk assessment inputs we are better placed to provide the information and will do so for those parameters indicated by an asterisk (*) as far as possible. However, if you wish to provide site-specific information for those parameters with an asterisk you are welcome to do so.

Table 5 – Further information required for the Environment Agency to complete a groundwater quantitative risk assessment on your behalf

Information	Description	Existing structure	Proposed structure	Information supplied?
Information supplied by the applicant This has already been requested earlier in the application form				Information you have already supplied on the application form
National grid reference of the discharge point		Appendix 1 Q2	Appendix 1 Q2	
Volume of effluent (m^3 per day)		Q3b	Q3b	
Type of effluent treatment	Septic tank, package treatment plant, other	Q6	Q6	
Type of deep infiltration system	Borehole, well, concrete ring structure, other	Appendix 1 Q3	Appendix 1 Q3	
Diameter of deep infiltration system (metres)		Appendix 1 Q4	Appendix 1 Q4	
Depth to the base of deep infiltration structure (metres)		Appendix 1 Q6	Appendix 1 Q11	
Depth to water table (metres)	Is discharge above or below water table?	Appendix 1 Q7, Q8	Appendix 1 Q12	
Justification for a deep infiltration system	Why are you unable to install a shallow infiltration system? What other options for disposal have been considered? Provide full details of the infiltration tests undertaken plus results	Appendix 1 Q8 if available	Appendix 1 Q10	
Information supplied by the applicant This is additional information we need from you that is not provided elsewhere on the application form. Site data should be given where it is already available. If not, you can submit the relevant literature values quoting the source of the data and justification of the values you have selected. Please tick the right-hand column to confirm you have provided this essential information.				

Information	Description	Existing structure	Proposed structure	Information supplied?
Concentration of relevant substances entering the infiltration system	For discharges of domestic effluent we will routinely assess the concentration of nitrogen species, particularly the ammonium concentration	✓	✓	☐
Length of screened borehole section below the water table (metres)	Depth in metres of the borehole screened section that is below the water table (This applies only to boreholes that have groundwater in the base)	✓	✓	☐
Calculated area of infiltration system (square metres)	Explain how the area of the infiltration system has been calculated – this is especially relevant if a non-circular system is used	✓	✓	☐
Unsaturated zone parameters	The following represent the strata above the water table: • hydraulic conductivity (metres per day) • water-filled porosity (per cent) • bulk density (grammes per cubic centimetre)	✓	✓	☐
Saturated zone parameters	The following represent the strata above the water table: • hydraulic conductivity (metres per day) • water-filled porosity (per cent) • bulk density (grammes per cubic centimetre) • hydraulic gradient of the water table (fraction)	✓	✓	☐
Information provided by the Environment Agency where possible You are free to provide this information if you wish, or in some specific cases we may need to ask for this at a later stage. Please tick if you have provided this information (optional).				

Information	Description	Existing structure	Proposed structure	Information supplied?
Environmental standard	The relevant environmental standard or compliance value against which we will assess your effluent discharge	*	*	☐
Half-life for degradation of the substance (days)	If you wish to know more about these parameters see 'Groundwater risk assessment for your environmental permit' at https://www.gov.uk/guidance/groundwater-risk-assessment-for-your-environmental-permit	*	*	☐
Soil water partition coefficient (litres per kilogramme)		*	*	☐
Mixing zone thickness (metres)		*	*	☐
Distance to compliance point (metres)		*	*	☐

Appendix 2 – Discharges into land

Answer the questions below. Use a separate line for each effluent if more than one effluent discharges using this discharge point. Remember, when linking your effluent to a discharge point you must use the name you gave to your effluent in answer to question 1b in the effluent form.

2.1 Give the discharge point a unique name

For example, 'Outlet 1' (you must use this name to identify the discharge point on the plan)

2.2 Give the national grid reference of the discharge point

2.3 Is your infiltration system new or existing?

☐ New Now go to question 2.5

☐ Existing Now go to question 2.4

2.4a When was it built?

2.4b Now answer questions 2.5–2.8 if you are able to, if not leave them blank and go to question 2.9

2.5 Is your infiltration system designed and built to British Standard 6297:2007 + A1:2008 or the British Standards in force at the time of installation?

☐ Yes

☐ No Please provide details, on a separate sheet, of the design criteria used for your infiltration system

Document reference

2.6 On what date did you carry out a percolation test and dig a trial hole in line with British Standard 6297:2007 + A1:2008?

(DD/MM/YYYY)

2.7 What is your percolation value (Vp) result?

seconds per millimetre

You must show in Table 6 how you worked out the percolation value. Please also provide your test sheets and any field notes or observations made regarding ground conditions.

Table 6 – Percolation value

	Trial 1	Trial 2	Trial 3	Average
Hole 1				
Hole 2				
Hole 3				
Hole 4				

2.8 Please show us how you have calculated the area (A) of your infiltration system

p ⌊_____⌋ x

Vp ⌊_____⌋ x

0.25 for septic tanks =

A ⌊0_____⌋ square metres

or

p ⌊_____⌋ x

Vp ⌊_____⌋ x

0.20 for package treatment plants =

A ⌊0_____⌋ square metres

p Population based on maximum occupancy

Vp Percolation value in seconds/mm

2.9 If known, mark on the plan you have provided the extent of the infiltration system. Please write on the plan the length and width of the sides in metres.

2.10 Is any part of your infiltration system within 50 metres of a well, spring or borehole?

☐ No

☐ Yes Identify the location of the well, spring or borehole on the plan you have provided and answer question 2.11

2.11 Is the well, spring or borehole you have identified used to supply water?

☐ No

☐ Yes You must describe what the water supplied is used for

2.12 Is any part of your infiltration system within 10 metres of a watercourse?

☐ No

☐ Yes Identify the location of the watercourse on the plan you have provided for section 4 of part C2

Appendix 3 – Discharges onto land

Answer all the questions below. Use a separate line for each effluent if more than one effluent discharges using this discharge point. Remember, when linking your effluent to a discharge point you must use the name you gave to your effluent in answer to question 1b in the effluent form.

3.1 Give the discharge point a unique name

For example, 'Outlet 1' (you must use this name to identify the discharge point on the plan)

3.2 Give the national grid reference of the discharge point

3.3 Select from the table below the type of area where the effluent is disposed of

Area type		
Unlined reed bed	☐	
Unlined grass plot	☐	
Unlined wetland	☐	
Other	☐	Please specify below

3.4 What is the surface area of the land used for your disposal?

square metres

3.5 Is any part of your infiltration system within 50 metres of a well, spring or borehole?

☐ No

☐ Yes Identify the location of the well, spring or borehole on the plan you have provided and answer question 3.6

3.6 Is the well, spring or borehole you have identified used to supply water?

☐ No

☐ Yes You must describe what the water supplied is used for

3.7 Is any part of your infiltration system within 10 metres of a watercourse?

☐ No

☐ Yes Identify the location of the watercourse on the plan you have provided for section 4 of part C2

Appendix 4 – Discharges to tidal river, tidal stream, estuary or coastal waters

Answer all the questions below. Use a separate line for each effluent if more than one effluent discharges using this discharge point. Remember, when linking your effluent to a discharge point you must use the name you gave to your effluent in answer to question 1b in the effluent form.

4.1 Give the discharge point a unique name

For example, 'Outlet 1' (you must use this name to identify the discharge point on the plan)

See application support document

4.2 Give the national grid reference of the discharge point

See application support document

4.3 Give the name of the tidal river, tidal stream, estuary or area of coastal water if you know it

See application support document

4.4 Is the discharge into a

Tidal river

Tidal stream

An estuary

✔ Coastal water

4.5 Does the discharge reach the watercourse by flowing through a surface water sewer?

✔ Yes Give the national grid reference where the discharge enters the surface water sewer

See application support document

No

4.6 Is the discharge point above the mean low water spring tide mark?

Yes Please explain, on a separate sheet, why the discharge cannot be made below this point

Document reference

✔ No

4.7 How is the effluent dispersed?

For example, open pipe or diffuser system

See application support document

If diffuser system go to question 4.8

4.8 Give details, on a separate sheet, of the design of the diffuser system

Document reference

See application support document

4.9 Is the discharge made to a roadside drain or ditch?

✔ No

Yes If yes, it is your responsibility to ascertain whether the relevant highways authority is responsible for the roadside drain or ditch. If it is, you need to secure the appropriate permissions from the relevant highways authority before submitting an application for an environmental permit to the Environment Agency. A copy of the written permission from the relevant highways authority must be submitted with the environmental permit application.

Document reference for the written permission from the relevant highways authority

Appendix 5 – Discharges to non-tidal river, stream or canal

Answer all the questions below. Use a separate line for each effluent if more than one effluent discharges using this discharge point. Remember, when linking your effluent to a discharge point you must use the name you gave to your effluent in answer to question 1b in the effluent form.

5.1 Give the discharge point a unique name

For example, 'Outlet 1' (you must use this name to identify the discharge point on the plan)

5.2 Give the national grid reference of the discharge point

5.3 Give the name of the watercourse, canal or the main watercourse it is a tributary of if you know it

5.4 Is the discharge into a

- ☐ Non-tidal river
- ☐ Stream
- ☐ Canal

5.5 Does the discharge reach the watercourse or canal by flowing through a surface water sewer?

- ☐ Yes Give the national grid reference where the discharge enters the surface water sewer
- ☐ No

5.6 Does the watercourse dry up for part of the year?

- ☐ No
- ☐ Yes How many months per year is the watercourse dry?

Do you agree to install perforated pipe work before the discharge point?

The discharge must be made via a perforated pipe. Any section of that pipe which lies within 10 metres of the bank of any watercourse shall be perforated, but this perforated section shall not extend more than 10 metres from the bank of any watercourse.

- ☐ Yes
- ☐ No

5.61 If the watercourse does dry up for part of the year can you indicate a typical period when the surface water runs dry each year – start and finish (in months)

Watercourse typically becomes dry in:

January	☐	May	☐	September	☐
February	☐	June	☐	October	☐
March	☐	July	☐	November	☐
April	☐	August	☐	December	☐

Watercourse typically flows again in:

January	☐	May	☐	September	☐
February	☐	June	☐	October	☐
March	☐	July	☐	November	☐
April	☐	August	☐	December	☐

5.6.2 If the watercourse does dry up for part of the year, how many metres downstream of the discharge is it before the discharged effluent soaks in?

5.7 Is the discharge made to a roadside drain or ditch?

☐ No

☐ Yes If yes, it is your responsibility to ascertain whether the relevant highways authority is responsible for the roadside drain or ditch. If it is, you need to secure the appropriate permissions from the relevant highways authority before submitting an application for an environmental permit to the Environment Agency. A copy of the written permission from the relevant highways authority must be submitted with the environmental permit application.

Document reference for the written permission from the relevant highways authority

Appendix 6 – Discharges to a lake or pond

Answer all the questions below. Use a separate line for each effluent if more than one effluent discharges using this discharge point. Remember, when linking your effluent to a discharge point you must use the name you gave to your effluent in answer to question 1b in the effluent form.

6.1 Give the discharge point a unique name

For example, 'Outlet 1' (you must use this name to identify the discharge point on the plan)

6.2 Give the national grid reference of the discharge point

6.3 Give the name of the lake or pond if you know it

6.4 Select from the following table the type of lake or pond you will be discharging to and answer the relevant questions

Type of lake or pond		Relevant questions
Lake or pond which is not connected to a river or watercourse	☐	Permit not required*
Lake or pond which is not connected to a river or watercourse, where you have had a notice served under paragraph 5 of Schedule 21 of the Environmental Permitting (England and Wales) Regulations 2016	☐	6.5, 6.6, 6.7
Lake or pond that discharges into a river or watercourse	☐	6.5, 6.6, 6.7

* Unless a Notice has been served under paragraph 5 of Schedule 21 of the Environmental Permitting (England and Wales) Regulations 2016

6.5 What is the surface area of the lake or pond?

square metres

6.6 What is the maximum depth of the lake or pond?

metres

6.7 What is the average depth of the lake or pond?

metres

Application for an environmental permit Part B2.5 – New Medium Combustion Plant and/or Specified Generator bespoke permit

Environment Agency

Fill in this part of the form together with Parts A and F1 if you are applying for a new Medium Combustion Plant and/or Specified Generator bespoke permit. If you are varying an existing installation complete this form and form C2.

Please read through this form and the guidance notes that are included within it.

The form can be:

1) **saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.**
2) **printed off and filled in by hand. Please write clearly in the answer spaces.**

It will take less than two hours to fill in this part of the application form.

Contents

1 About the permit

1a Discussions before your application

If you have had discussions with us before your application, give us the permit reference number or details on a separate sheet. Tell us below the reference number you have given to this extra sheet.

Permit or document reference for the extra sheet: No pre-application discussions had

If you have an existing installation or waste operation environmental permit please quote the reference number here: EPR/BO7732IZ/V007

1b What is your permit for?

A stationary Medium Combustion Plant (MCP)	☑ Now fill in sections 2a, 2b and 2c
A stationary Specified Generator (SG)	☐ Now fill in sections 2d, 2e and 2f
An MCP which is also an SG	☐ Now fill in sections 2a to 2f*
A mobile SG	☐ Now go to section 2g

*** Operators should note that if your application is for a new MCP which is also an SG then both sets of information should be provided. You should also note that in determination of the application the tighter of the two standards will apply in the permit.**

2 About your MCP/SG

2a For each stationary MCP what is the address, postcode and national grid reference of where the plant is located?

Site name

Address

Postcode

National grid reference or latitude/longitude for the MCP

For example, ST 12345 67890, or Latitude 50.6154, Longitude -1.1765.

To find out the 12-digit grid reference you can search on the UK Grid Reference Finder website at www.gridreferencefinder.com.

For each subsequent MCP at the same address, please confirm the NGR or latitude/longitude for that particular plant.

For example, ST 12345 67890, or Latitude 50.6154, Longitude -1.1765.

2 About your MCP/SG, continued

National grid reference or latitude/longitude for the MCP

National grid reference or latitude/longitude for the MCP

National grid reference or latitude/longitude for the MCP

For each of your MCP activities complete Appendix 1.

2b Is your permit application for a new activity or substantially refurbished activity for MCPs with a total aggregated thermal input of 20MW thermal or more?

No ☑

Yes ☐ You must either submit a report which shows how your MCP also meets the requirements of Schedule 24 of the Environmental Permitting Regulations which implement the relevant requirements of the Energy Efficiency Directive (2012/27/EU) (see www.gov.uk/guidance/energy-efficiency-standards-for-industrial-plants-to-get-environmental-permits#additional-requirements-for-new-and-substantially-refurbished-combustion-plants) or an explanation of why Schedule 24 does not apply in your case.

2c Is your permit application for an MCP:

A unit greater than or equal to 20MW thermal?

No ☑

Yes ☐

One that burns waste biomass as described in Article 3(18) (b) of MCPD?

No ☑

Yes ☐

If so you should confirm whether it falls under the description of an EPR Part B activity as set out below:

Do any of the MCPs on site meet the criteria of a Chapter 1, Section 1.1 Part B activity?

No ☑

Yes ☐

Do any of the MCPs on site meet the criteria of a Chapter 5, Section 5.1 Part B activity?

No ☑

Yes ☐

If you have answered Yes to either of these questions, then you must complete a Best Available Techniques assessment in line with the relevant Environmental Permitting technical guidance note (see supporting information that accompanies this form on Citizen Space website) and submit it in support of your application.

Please tell us the name of the local authority in which your MCP is located

2d For a stationary SG what is the site name, address, postcode and national grid reference?

The 'site' means all the land the activity occupies. The grid reference should be taken at the centre of the site.

Give the site name and address.

Site name

Address

Postcode

National grid reference or latitude/longitude for the SG

For the SG provide the 12-digit Ordnance Survey national grid reference, or Latitude and Longitude expressed to 4 decimal places, for example Latitude 50.6154, Longitude -1.1765.

For each generator which comprises the Specified Generator complete Appendix 2.

2 About your MCP/SG, continued

2e Is your permit application for a new activity or substantially refurbished activity for an SG with a total aggregated thermal input of 20MW thermal or more?

No ☐

Yes ☐ You must either submit a report which shows how your MCP also meets the requirements of Schedule 24 of the Environmental Permitting Regulations which implement the relevant requirements of the Energy Efficiency Directive (2012/27/EU) (see www.gov.uk/guidance/energy-efficiency-standards-for-industrial-plants-to-get-environmental-permits#additional-requirements-for-new-and-substantially-refurbished-combustion-plants) or an explanation of why Schedule 24 does not apply in your case.

2f Is your permit application for an SG that is a unit greater than or equal to 20MW thermal?

No ☐

Yes ☐ You should confirm whether it falls under the description of an EPR Part B activity as set out below:

Does the SG on site meet the criteria of a Chapter 1, Section 1.1 Part B activity?

No ☐

Yes ☐ You must complete a Best Available Techniques assessment in line with the relevant Environmental Permitting technical guidance note (see supporting information that accompanies this form on Citizen Space website) and submit it in support of your application.

Please tell us the name of the local authority in which your SG is located

2f1 Are you applying for an SG permit that does not require dispersion modelling to assess the risk to the environment from proposed emissions to air?

No ☐

Yes ☐ Please provide a completed copy of the Environment Agency's new 'Specified Generator Tranche B Screening Tool' to support your decision. This is available with this application form.

2f2 Are you applying for an SG permit that requires dispersion modelling to assess the risk to the environment from your proposed emissions to air?

No ☐

Yes ☐ Please refer to 'Guidance on dispersion modelling for oxides of nitrogen assessment from specified generators' available with this application form.

And submit a copy of your completed modelling report and modelling input files to us in support of your application.

If you have used the Environment Agency's new 'Specified Generator Tranche B Screening Tool' to help make your decision please also supply a copy of that completed tool with your application.

Where you wish to use a different methodology to assess the environmental impact, that methodology must address the same issues to an equivalent level of detail. The purpose of the environmental risk assessment is to demonstrate that the impacts of your proposals will be acceptable.

2g For a mobile SG what is the site name, address, postcode and national grid reference?

The 'site' means all the land the activity occupies. The grid reference should be taken at the centre of the site.

Give the site name and address.

Site name

Address

Postcode

National grid reference or latitude/longitude for the mobile SG

For the SG provide the 12-digit Ordnance Survey national grid reference, or Latitude and Longitude expressed to 4 decimal places, for example Latitude 50.6154, Longitude -1.1765.

Do you want the option of deploying your mobile SG to an Air Quality Management Area? (for location of AQMA's see https://uk-air.defra.gov.uk/aqma/maps)?

No ☐

Yes ☐ Tell us the background concentration of nitrogen dioxide (expressed as an annual mean in $\mu g/m^3$) in that area.

If your mobile SG is also an MCP you must complete Appendix 1.

3 Your ability as an operator

3a Relevant offences

Have you, or any other relevant person, been convicted of any relevant offence?

No ☑ Now go to question 3b

Yes ☐ Please give details below

Name of the relevant person

Title (Mr, Mrs, Miss and so on)

First name

Last name

Date of birth (DD/MM/YY)

Position held at the time of the offence

Name of the court where the case was dealt with

Date of the conviction (DD/MM/YYYY)

Offence and penalty set

Date any appeal against the conviction will be heard (DD/MM/YYYY)

If necessary, use a separate sheet to give us details of other relevant offences and tell us below the reference number you have given the extra sheet.

Document reference of the extra sheet

3b Finances

Please note that if you knowingly or carelessly make a statement that is false or misleading to help you get an environmental permit (for yourself or anyone else), you may be committing an offence under the Environmental Permitting (England and Wales) Regulations 2016.

Do you or any relevant person or a company in which you were a relevant person have current or past bankruptcy or insolvency proceedings against you?

No ☑ Now go to question 3c

Yes ☐ Please give details below, including the required set-up costs (including infrastructure) and maintenance costs for the proposed facility against which a credit check may be assessed.

We may want to contact a credit-reference agency for a report about your business's finances.

3c Management systems

You must have an effective, written management system in place that identifies and reduces the risk of pollution. You may show this by using a certified scheme or your own system.

Your permit requires you (as the operator) to ensure that you manage and operate your activities in accordance with a written management system.

You can find guidance on management systems on the GOV.UK website here www.gov.uk/guidance/develop-a-management-system-environmental-permits.

Tick this box to confirm that you have read the guidance and your management system will meet our requirements ☑

4 Consultation

4a Is the MCP or SG located within an Air Quality Management Area (AQMA)?

Check here https://uk-air.defra.gov.uk/aqma/maps.

No ☑ Now go to section 5

Yes ☐ What is the name of the AQMA?

What is the name of the local authority?

5 Supporting information

5a Provide a non-technical summary of your application

Write a non-technical summary that explains your application in non-technical language as much as possible avoiding technical terms, detailed data and scientific discussion. It should include a summary of the regulated facility, a summary of the key technical standards and control measures arising from your risk assessment. If your application is for mobile plant describe the mobility of your plant and how you intend to operate.

Document reference of the summary: See application support document

6 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, please tell us how we can improve it.

Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.

Appendix 1 – Medium Combustion Plant checklist

Information to be provided by the operator to the competent authority for each Medium Combustion Plant as identified in Annex I of Medium Combustion Plant Directive (EU/2015/2193).

MCP specific identifier*	ETP Gas engine
12-digit grid reference or latitude/longitude	E505057N483628
Rated thermal input (MW) of the MCP	1.60
Type of MCP (diesel engine, gas turbine, other engine or other MCP)	Gas engine
Type of fuels used: gas oil (diesel), natural gas, gaseous fuels other than natural gas	biogas
Date when the new MCP was first put into operation (DD/MM/YYYY)	01/12/2022
Sector of activity of the MCP or the facility in which it is applied (NACE code**)	C10.3.1
Expected number of annual operating hours of the MCP and average load in use	8760
Where the option of exemption under Article 6(8) is used the operator (as identified on Form A) should sign a declaration here that the MCP will not be operated more than the number of hours referred to in this paragraph	N / A

* identifier – the MCP must be traceable via a serial number or other unique identifier, name plate, manufacturer and or model.

** NACE code means Nomenclature of Economic Activities and is the European statistical classification of economic activities (http://www.export.gov.il/files/EEN/ListNACEcodes.pdf).

To find out the 12-digit grid reference you can search on the UK Grid Reference Finder website at www.gridreferencefinder.com.

Appendix 2 – Generator checklist

Information to be provided by the operator to the competent authority for each generator which comprises the Specified Generator (Excluded generators are not required to be included in this table). If you have more than one generator please provide the additional information on a supporting sheet.

Specific identifier*				
Rated thermal input of generator in MW thermal				
Total rated thermal input of all generators on site in MW thermal				
Grid reference of the location of the SG (either NGR or Latitude/Longitude)	Easting	Northing	Latitude	Longitude
Commissioning date (MM/YYYY)				
Fuel				
Stack height (m)				
Technology (engine/turbine)				
Annual hours				
Annual load (%)				
Distance to nearest human receptor (m)				
Distance to nearest ecological receptor (m)				
Background NO_2 ($\mu g/m^3$)				
If your generator is in an AQMA please give details				

* identifier – the SG should be traceable via a serial number or other unique identifier, name plate, manufacturer and/or model.

For each generator provide the 12-digit Ordnance Survey national grid reference, or Latitude and Longitude expressed to 4 decimal places, e.g. Latitude 50.6154, Longitude -1.1765.

If additional space is needed to complete the application then please supply additional information on supporting pages or spreadsheet.

Application for an environmental permit Part F1 – Charges and declarations

Environment Agency

Fill in this part for all applications for installations, waste operations, mining waste operations, water discharges, point source groundwater discharges and groundwater discharges onto land. Please check that this is the latest version of the form available from our website.

Please read through this form and the guidance notes that came with it.

The form can be:

1) **saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.**
2) **printed off and filled in by hand. Please write clearly in the answer spaces.**

It will take less than two hours to fill in this part of the application form.

Contents

Each individual who is applying for their name to appear on the permit must complete the declaration in section 5. You will have to print a separate copy of the declaration page for each additional individual to complete.

1 Working out charges

You must fill in this section.

You have to submit an application fee with your application. You can find out the charge by searching for 'Environment Agency charging scheme and guidance: environmental permits' at www.gov.uk/government/organisations/environment-agency.

Please remember that the charges are revised on 1 April each year and that there is an annual subsistence charge to cover the costs we incur in the ongoing regulation of the permit.

Table 1 – Type of application (fill number of activity being applied for in each column)

Installation	Waste	Mining waste	Medium Combustion Plant (MCP)/Specified Generator (SG)	Water discharge/point source discharge to groundwater	Groundwater spreading onto land
1					

Table 2 – Charge type (A)

Charge activity reference	Charge activity description	What are you applying to do? E.g. new, minor variation, normal variation, substantial variation, surrender, low risk surrender, transfer	Amount
e.g. 1.17.3	e.g. Sect 5.2 landfill for hazardous waste	e.g. transfer	e.g. £5,561
1.16.2.1	s5.4 a(i) effluent treatment plant	Substantial variation	£ 12,586.00
Total A			£ 12,586.00

1 Working out charges (you must fill in this section), continued

Table 3 – Additional assessment charges (B)

Part 1.19 Charges for plans and assessments			Tick appropriate
Reference	Plan or assessment	Charge	
1.19.1	Waste recovery plan	£1,231	☐
1.19.2	Habitats assessment (except where the application activity is a flood risk activity)	£779	☑
1.19.3	Fire prevention plan (except where the application activity is a farming installation)	£1,241	☐
1.19.4	Pests management plan (except where the application activity is a farming installation)	£1,241	☐
1.19.5	Emissions management plan (except where the application activity is a farming installation)	£1,241	☐
1.19.6	Odour management plan (except where the application activity is a farming installation)	£1,246	☐
1.19.7	Noise and vibration management plan (except where the application activity is a farming installation)	£1,246	☐
1.19.8	Ammonia emissions risk assessment (intensive farming applications only)	£620	☐
1.19.9	Dust and bio-aerosol management plan (intensive farming applications only)	£620	☐
	Advertising	£500	☐
Total B			£ 779.00

Total charges

Total A plus total B £ 13,365.00

2 Payment

Tick below to show how you have paid.

Cheque ☐

Postal order ☐

Cash ☐ Tick below to confirm you are enclosing cash with the application

Credit or debit card ☐

Electronic transfer (for example, BACS) ☐

Remittance number

Date paid (DD/MM/YYYY)

How to pay

Paying by cheque, postal order or cash

Cheque details

Cheque made payable to

Cheque number

Amount £

You should make cheques or postal orders payable to 'Environment Agency' and make sure they have 'A/c Payee' written across them if it is not already printed on.

Please write the name of your company and application reference number on the back of your cheque or postal order. **We will not** accept cheques with a future date on them.

We do not recommend sending cash through the post. If you cannot avoid this, please use a recorded delivery postal service and enclose your application reference details. Please tick the box below to confirm you are enclosing cash.

I have enclosed cash with my application ☐

2 Payment, continued

Paying by credit or debit card

If you are paying by credit or debit card we can call you. We will destroy your card details once we have processed your payment. We can accept payments by Visa, MasterCard or Maestro card only.

Please call me to arrange payment by debit or debit card ☐

Paying by electronic transfer BACS reference

If you choose to pay by electronic transfer you will need to use the following information to make your payment.

Company name	Environment Agency
Company address	SSCL (Environment Agency), PO Box 797, Newport Gwent, NP10 8FZ
Bank	RBS/NatWest
Address	London Corporate Service Centre, CPB Services, 2nd Floor, 280 Bishopsgate, London EC2M 4RB
Sort code	60-70-80
Account number	10014411
Account name	EA RECEIPTS
Payment reference number	PSCAPPXXXXXYYY

You need to create your own reference number. It should begin with PSCAPP (to reflect that the application is for a permitted activity) and it should include the first five letters of the company name (replacing the X's in the above reference number) and a unique numerical identifier (replacing the Y's in the above reference number). The reference number that you supply will appear on our bank statements.

If you are making your payment from outside the United Kingdom, it must be in sterling. Our IBAN number is GB23NWK60708010014411 and our SWIFTBIC number is NWBKGB2L.

If you do not quote your reference number, there may be a delay in processing your payment and application.

Provide a unique reference number for the application, i.e. do not only use the company name only

State who is paying (full name and whether this is the agent/ applicant/other) McCain UK ltd

Fee paid £

Date payment sent (DD/MM/YYYY)

Now read section 3 below

You should also email your payment details and reference number to ea_fsc_ar@gov.sscl.com.

3 Privacy notice

The Environment Agency runs the environmental permit application service.

We are the data controller for this service. A data controller determines how and why personal information is processed.

Our personal information charter explains:

- your rights
- what we do with your personal information

We're allowed to process your personal information because we have official authority as the environmental regulator. We need this information to carry out a task in the public interest that is set out in law. As the data controller, when you apply for an environmental permit, we have a legal obligation to process your personal data under the Environmental Permitting Regulations. The second lawful basis for processing your personal data is to comply with this legal obligation.

We need your personal information to process your environmental permit application. If you do not give us this information we cannot issue a permit to you. After we've issued a permit to you, we use your personal information:

- to check that you're complying with your permit
- during any potential enforcement action

What personal information we collect

If you're the individual applicant, director or company secretary of a company applying or a technically competent manager we need your:

- name
- date of birth

3 Privacy notice, continued

- address
- email address

If you're the agent, consultant, employee responsible for the activity or the employee responsible for billing and invoicing we need your:

- name
- address
- email address

If you're the applicant we need details of any:

- convictions
- bankruptcy

We also collect any questions or feedback you leave, including your email address if you contact us.

Your responsibility with other people's personal information

If you've included personal information about other people on your application, you must tell them. You must provide them with a copy of this privacy notice so that they know how their personal information will be used.

What we do with your personal information

We use your personal information to help us decide whether to issue you with a permit.

The information (except dates of birth) is available online on our consultation website during the consultation period. This website is available to everyone so your information may be seen outside the European Economic Area.

After consultation we put all the information (except dates of birth) you give us in your application on our public register.

If you can demonstrate that any information you send us is commercially or industrially confidential, we'll consider withholding that information from our public register.

If you think that the information you'll send us may be a threat to national security you must contact the Secretary Of State before you apply. You must still send us that information with your application. We will not include this information on our public register unless the Secretary of State decides it can be included.

See the environmental permitting guidance for guidance on national security.

We may use your email address to contact you for user research to improve our service. You don't have to take part in the research.

Where your personal information is processed and stored

We store and process your personal information on servers in the UK. We will not host your personal information outside the European Economic Area.

We do not use your personal information to make an automated decision or for automated profiling.

How long we keep your personal information

We keep your personal information while your permit is in use and for 7 years after you surrender your permit. If the permit is for a landfill site, we keep the data for 10 years after surrender.

Removing personal information from the public register

We will remove your personal information from the public register if:

- you withdraw your application
- we refuse your application and the time limit for appealing the decision has expired or an appeal is dismissed
- the information is no longer relevant for public participation purposes under the Environmental Permitting Regulations

Contact

Our Data Protection Team gives independent advice. They monitor how the Environment Agency uses your personal information.

If you have questions or concerns about how we process personal information, or to make a complaint or request relating to data protection, please contact:

Address: Data Protection Team
Environment Agency
Horizon House
Deanery Road
Bristol
BS1 5AH

3 Privacy notice, continued

Email: dataprotection@environment-agency.gov.uk

You can also make a complaint to the Information Commissioner's Office (ICO).

The ICO is the supervisory authority for data protection legislation. The ICO website has a full list of your rights under data protection legislation.

Now read section 4 below

4 Confidentiality and national security

Confidentiality

We will normally put all the information in your application on a public register of environmental information. However, we may not include certain information in the public register if this is in the interests of national security, or because the information is confidential.

You can ask for information to be made confidential by enclosing a letter with your application giving your reasons. If we agree with your request, we will tell you and not include the information in the public register. If we do not agree with your request, we will let you know how to appeal against our decision, or you can withdraw your application. You can find guidance on confidentiality in 'Environmental permitting guidance: core guidance', published by Defra and available via our website at www.gov.uk/government/organisations/environment-agency.

Only tick the box below if you wish to claim confidentiality for your application

Please treat the information in my application as confidential ☐

National security

You can tell the Secretary of State that you believe including information on a public register would not be in the interests of national security. You must enclose a letter with your application telling us that you have told the Secretary of State and you must still include the information in your application. We will not include the information in the public register unless the Secretary of State decides that it should be included.

You can find guidance on national security in 'Environmental permitting guidance: core guidance', published by Defra and available via our website at www.gov.uk/government/organisations/environment-agency.

You cannot apply for national security via this application.

Now fill in section 5

5 Declaration

If you knowingly or carelessly make a statement that is false or misleading to help you get an environmental permit (for yourself or anyone else), you may be committing an offence under the Environmental Permitting (England and Wales) Regulations 2016.

A relevant person should make the declaration (see the guidance notes on part F1). An agent acting on behalf of an applicant is NOT a relevant person.

Each individual (or individual trustee) who is applying for their name to appear on the permit must complete this declaration. You will have to print a separate copy of this page for each additional individual to complete.

If you are transferring all or part of your permit, both you and the person receiving the permit must make the declaration. You must fill in the declaration directly below; the person receiving the permit must fill in the declaration under the heading 'For transfers only'.

Note: we will issue a letter to both current and new holders to confirm the transfer. If you are changing address we will need to send this letter to your new address; therefore please tell us your new address in a separate letter.

If you are unable to trace one or more of the current permit holders please see below under the transfers declaration.

I declare that the information in this application is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

If you deliberately make a statement that is false or misleading in order to get approval you may be prosecuted.

I confirm that my standard facility will fully meet the rules that I have applied for (this only applies if the application includes standard facilities) ☐

Tick this box to confirm that you understand and agree with the declaration above, then fill in the details below (you do not have to provide a signature as well) ☑

Tick this box if you do not want us to use information from any ecological survey that you have supplied with your application (for further information please see the guidance notes on part F1) ☐

5 Declaration, continued

Name

Title (Mr, Mrs, Miss and so on)	Mr
First name	
Last name	
on behalf of (if relevant; for example, a company or organisation and so on)	
Position (if relevant; for example, in a company or organisation and so on)	
Today's date (DD/MM/YYYY)	

For transfers only – declaration for person receiving the permit

A relevant person should make the declaration (see the guidance notes on part F1). An agent acting on behalf of an applicant is NOT a relevant person.

I declare that the information in this application to transfer an environmental permit to me is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

Note: If you cannot trace a person or persons holding the permit you may be able to transfer the permit without their declaration as above. Please contact us to discuss this and supply evidence in your application to confirm you are unable to trace one or all of the permit holders.

If you deliberately make a statement that is false or misleading in order to get approval you may be prosecuted.

Tick this box to confirm that you understand and agree with the declaration above, then fill in the details below (you do not have to provide a signature as well)	☑

Name

Title (Mr, Mrs, Miss and so on)	Mr
First name	Andrew William
Last name	Bates
on behalf of (if relevant; for example, a company or organisation and so on)	McCain Foods (UK) Ltd
Position (if relevant; for example, in a company or organisation and so on)	Director
Today's date (DD/MM/YYYY)	19/04/2022

Now go to section 6

6 Application checklist

You must fill in this section.

If your application is not complete we will return it to you. If you aren't sure about what you need to send, speak to us before you submit your application.

You must do the following:

Complete legibly all parts of this form that are relevant to you and your activities	☑
Identify relevant supporting information in the form and send it with the application	☑
List all the documents you are sending in the table below. If necessary, continue on a separate sheet. This separate sheet also needs to have a reference number and you should include it in the table below	☑
For new permits or any changes to the site plan, provide a plan that meets the standards given in the guidance note on part F1	☐
Provide a supporting letter for any claim that information is confidential	☐
Get the declaration completed by a relevant person (not an agent)	☑
Send the correct fee	☑

6 Application checklist, continued

Question reference	Document title	Document reference
C2; C3; C6; B2.5	Application support document	Application support document

7 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, or you would like us to review a decision we have made, please let us know. More information on how to do this is available at: https://www.gov.uk/government/organisations/environment-agency/about/complaints-procedure.

Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.

8 Where to send your application

For how many copies to send see the guidance note on part F1.

Please send your filled in application form to:

For water discharges by email to PSC-WaterQuality@environment-agency.gov.uk

For waste and installations by email to PSC@environment-agency.gov.uk

Or

Permitting Support, NPS Sheffield
Quadrant 2
99 Parkway Avenue
Parkway Business Park
Sheffield
S9 4WF

Do you want all information to be sent to you by email?

Please tick this box if you wish to have all communication about this application sent via email (we will use the details provided in part A) ☐

Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form?

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No ☐

Yes ☐ Amount received

£

2. Technical Description

This application is for a substantial variation to the existing permit for the McCain Scarborough Manufacturing site.

The current site permit has two listed activities.

- The preparation of food from vegetable raw materials, with a capacity exceeding 300 tonnes per day;
- The treatment for disposal of waste waters (effluent) by physical chemical means.

The first of these listed activities is unchanged by this permit application.

The second listed activity is to be updated due to an upgraded effluent plant at the site. This revised plant will be a biological treatment plant, which provides a higher level of effluent treatment and allows for the capture and use of biogas from the treatment process, thus reducing the facilities environmental footprint.

There is the addition of a new combustion source at the site for the utilisation of the generated biogas.

The final discharge point to foul sewer remains as currently permitted, with regards to both its location and volume of discharge.

The new effluent treatment plant will have significantly lower environmental releases to water over the current plant. The current plant meets the limits both within the permit and those set by Yorkshire Water, but as part of as part of McCain's commitment to being a good neighbour and reducing the sites overall environmental impact, this variation will reduce the potential effluent loading within the permitted discharge consent, although the overall permitted discharge volume will remain unchanged.

Currently permitted activities relating to the production of potato based products are unchanged by this permit variation.

Effluent Treatment Plant

Effluent generated within the factory is captured by the site drainage system, which is equipped with a series of oil and fat traps to remove entrained oils. Waste waters generated in the potato preparation section of the factory are subject to a starch removal process, where entrained starch is captured and separated for offsite use in food manufacturing. Effluent is then discharged to an initial tank where the various effluents within the works are captured and mixed. This mixed effluent then requires treatment prior to discharge to foul sewer, under the terms of a Notice of a Direction, to foul sewer issued by the sewerage undertaker (Yorkshire Water), and in accordance with the sites existing environmental permit.

Although the site discharges to a foul sewer, there is no additional treatment applied to this release to point, prior to its release to surface water by the sewerage undertaker, namely a discharge to the North Sea.

As such, in order to meet Best Available Techniques (BAT) for a direct discharge to surface waters, the existing effluent plant requires upgrading to meet the indicative BAT limits set out in the revised Food, Drink and Milk Industry BAT Reference document (BRef), specifically BAT 12

The existing, effluent treatment at the site, as currently permitted, is a physcio-chemical treatment process, namely a high rate separation plant (HRSP) for the removal of suspended solids.

This plant is to be supplemented by a new secondary treatment process plant, using biological treatment. This secondary treatment process is in accordance with BAT12.

The biological treatment plant will consist of a series of stages, using a mixture of anaerobic and aerobic treatment processes, to reduce effluent loading to meet the BAT-Associated Emission Levels (BAT-AEL) as laid out in BAT 12.

The output from the existing HRSP unit is transferred to an initial Screened Factory Waste Water (SFWW) tank, of 550m^3, which is used to smooth the flow of effluent through the plant. The output is transferred to a Dissolved Air Floating (DAF) process, consisting of three tanks:

- DAF Coagulation tank (35m^3)
- DAF Flocculant tank (60m^3)
- DAF reactor tank (60m^3)

The first two of these tanks are used for the dosing of required chemicals into the process, prior to treatment. These are ferric chloride and sodium hydroxide into the coagulant tank and electrolyte polymer into the second, in order to enable the removal of remaining suspended solids following the HRSP process. The sludge is removed from the DAF reactor to an effluent tank following treatment, and transferred to a sludge tank.

Liquids are transferred to the Expanded Granular Sludge Bed (EGSB) reactor (1858m^3) where the effluent is biologically treated in anaerobic conditions to reduce the organic loading within the effluent. Biogas is drawn off from the reactor tank and transferred to a gas bubble for storage and use.

The liquid from the EGSB is transferred to the Bioreactor tank (aerobic) from which the sludge is removed for secondary treatment and the liquid phase is transferred to the membrane bioreactor (MBR). The Bioreactor has a volume of 8500m^3 split across four sections. The initial section is the anaerobic tank, which transfers to the pre-anoxic tank. This transfers to the aerobic tank where air is bubbled through the effluent to remove additional effluent loading with the aerated effluent being transferred into the post anoxic tank. Following the MBR (membranes), the liquid is transferred to the final effluent tank (60m^3) prior to discharge to foul sewer, at the currently permitted discharge point, via a flow meter and sampling point.

Excess sludge from the MBR and other sources within the process, is treated with coagulant and removed from the liquid waste through use of a dewatering centrifuge, following the addition of polyelectrolyte polymer to aid coagulation of solids. The separated solids are transferred into trailers located within an enclosed building, trailers are covered prior to removal from site. Solid separated material is removed from site to a suitably permitted outlet.

There is an Odour Control Unit (OCU) connected to the SFWW tank, the DAF WAS storage tank, boil out tank and sludge dewatering building for control of odorous air from these sources. This is treated via a biofilter followed by an activated carbon polishing stage. As such, the OCU is not a potential source of bioaerosols as defined in the M9 guidance.

Biogas

Biogas is captured from the EGSB tank and transferred by pipeline to a gas bubble system. From there it is utilised in a gas engine within the plant to generate electricity and in the event that there is more biogas than can be treated, there is an emergency flare. Prior to combustion, the biogas is treated in a hydrogen sulphide removal process to reduce the impact on the gas engine reliability and to benefit exhaust emissions. The gas engine is used to generate electricity for use within the factory, with a heat offtake available (if required) to ensure the ETP is maintained at the correct temperature.

As currently permitted, the site operates on a 24 hour basis with hygiene periods of approximately 2 days between operational cycles, with a larger shut down in the summer period. This routine changing between operation and cleaning modes means that the effluent volume and composition changes on a regular basis, which reduces the biogas production during the cleaning cycles.

The proposed new plant sits entirely within the footprint of the existing environmental permit. There is no requirement to add additional land to the permit. As the plant is designed for the treatment of wastewater from the factory, there is no requirement for a fire management plan at the site.

The existing site permit has the current combustion plant:

Unit	Thermal Input (MWth)	Combustion plant?
Thermal oxidiser	13.9	No
Closed loop hot water boiler	9.3	Yes
Beel Boiler	17.8	Yes
2 x Maxicon Boiler	2 x 10.7	Yes
Total	**48.5 MWth**	

The thermal oxidiser is not classified as a combustion plant, as it used to treat potentially odorous air from the air handling system, with combustion heat being used to maintain the temperature of the oil fryers in the production area. Without the heat from the thermal oxidiser, the fryers cannot be maintained at temperature and thus operate as a system interlock. Therefore, the thermal oxidisers primary purpose is odour abatement and not combustion.

The new CHP unit is 1.4MWth in input, thus keeping the overall capacity of the installation below 50MWth.

BAT 12

The new effluent treatment plant, has been designed in conjunction with BAT 12 of the revised Food and Drink Sector BAT Reference document (BRef), issued in November 2019.

BAT 12 requires the operator to reduce emissions to water, through the use of a series of appropriate techniques, dependent upon the production type at the installation. Not all techniques are appropriate for all effluents, with the final choice of techniques being at the operators discretion in order to meet the BAT-AEL (Best available techniques associated emission limits, set out in Table 1 of BAT 12). The effluent at the installation is high in suspended solids and has a high biological oxygen demand (BOD), as well as elevated phosphorous.

These techniques are to be operated in series, consisting of primary treatment; secondary treatment and tertiary treatment.

The ETP uses both preliminary and primary treatment for incoming effluent, depending on the source of the effluent within the wider installation. These fall within Technique 'C', physical separation, in BAT12. The plant pre-treats specific effluents to recover soil and starch from the relevant operational areas and oil and grease traps are used in the effluent system to remove these contaminants, particularly in production areas. The bulk effluent is then passed through the HRSP (high rate separation plant) to remove gross particulates.

Technique 'D', comprising both anaerobic and aerobic treatment; including use of a membrane bioreactor; and dissolved air floatation system, is then used to treat biodegradable organic compounds with the bulk effluent. These processes also will remove excess phosphorous within the process (technique 'I')

Final effluent is subject to polishing to remove excess suspended solids, using techniques 'J', coagulation and flocculation and 'L', filtration prior to release to sewer.

The proposed emission limits are in accordance with Table 1 in BAT 12:

Release Point	Parameter	Current Permit (V006)	Proposed Revised Limits
	Flow Rate	7000m^3 (per day)	7000m^3 (per day)

Release Point	Parameter	Current Permit (V006)	Proposed Revised Limits
S1 Yorkshire Water sewer direct 1.5km coastal outfall to North Sea	Chemical oxygen demand (COD)*	-	120mg/l
	BOD	4,200mg/l	
	Total suspended solids	1,500mg/l	50mg/l
	Total Nitrogen	-	20mg/l
	Total Phosphorous	-	2mg/l
	Mercury and its compounds	0.1µg/l	0.1µg/l
	Cadmium and its compounds	0.01mg/l	0.01mg/l

* Limit set to 120mg/l in accordance with footnote 5 to Table 1 in BAT12, as the installation is a fruit and vegetable installation.

The final effluent leaves the site at the currently permitted release point, via a Yorkshire Water sewer, under a Notice of a Direction, ref Y/764/00D. This sewer transports the final effluent to a sea outfall, approximately 1.5km in a high dispersal area. There is no subsequent treatment between the installation and the outfall point. As such the final effluent is a direct discharge to water; and meets the BAT-AEL specified within Table 1 of BAT 12 in the Food and Drink BRef.

3. Additional Application Form Questions

Form A1

Form C2

1 About the permit

1a Discussions before your application

1b Permit number

EPR/BO7732IZ/V007

1c Site details

McCain Scarborough Manufacturing Site
Havers Hill
Eastfield
Scarborough
North Yorkshire
YO11 3BS

2 About your proposed changes

2a Type of variation

This is a substantial variation application due to the requirement for additional modelling

2b Changes or additions to existing activities

The existing listed activity at the site for the operation of a HRSP effluent treatment plant is to be varied to reflect a change in effluent treatment at the site, to a biological treatment process, with the same effluent release point. There is also an additional combustion plant to be added to the permit and updates to the site plan. The second listed activity at the site, for the manufacture of food from vegetables is unchanged by this variation.

2c Consolidating (combining) or updating existing permits

No, there is no requirement to consolidate or update existing permits.

2d Treating batteries

The site is not treating batteries

2e Ship recycling

2e1 Is your activity covered by the Ship Recycling Regulations 2015? (See the guidance notes on part C2.)

No the site is not covered by the ship recycling regulations

2f Low impact installations (installations only)

The site is not a low impact installation

3 Your ability as an operator

3a Relevant offences

There operator has not committed any relevant offences.

3b Technical ability

The current technical competence management remains in place at the site.

3c Finances

No relevant person or company has a current or past bankruptcy or insolvency proceeding against it.

3d Management systems

Yes. The site operates a management system in accordance with Environment Agency guidance. The EMS in place also meets the requirements of BAT 1 in the Best Available Techniques (BAT) Reference Document in the Food, Drink and Milk Industries. This includes the site specific odour and noise management plans for the site, which are included as appendices.

McCain Foods in Scarborough holds both ISO14001 and ISO50001 Current certificates are presented in Appendix F.

The facilities ISO14001:2015 certification is part of McCain worldwide certification, and applies to the '*on site manufacturing of food products from raw material receiving to finished products, including storage*'. The current certification was last updated in October 2019.

The facility is also certified for energy management to ISO50001:2011 as part of McCain's UK wide accreditation. The certification covers the '*the energy management associated with the manufacture and storage of a range of food products, including the use of natural gas for steam generation and the use of purchased and generated electricity for plant and equipment, refrigeration, cooling towers and compressors and the use of petrol and diesel for business related transportation activities*'.

Each McCain site has its own environment lead, responsible for helping the site operate in accordance with any relevant environmental permits and discharge consents, including sewer discharges, and helping to ensure that corporate and UK environmental and sustainability targets are met by the site. This position reports directly to the factory manager, and upwards to the UK environmental lead.

The environment lead helps to arrange and deliver training to site staff. Staff are trained on environmental and sustainability issues as part of their induction and on an ongoing basis through refresher training and tool box talks.

The table below provides an overview of the structure of the EMS.

1. Clear management structure and allocated responsibilities.	The EMS has a defined organisational structure including a site environmental lead. Environmental responsibilities are defined in current role descriptions.
2. Identification, assessment and management of significant environmental impacts.	A register of environmental aspects has been completed and includes all products, activities and services that have a significant impact on the environment. Documented procedures have been developed, which define the requirements for the review of environmental impacts.
3. Compliance with legal and other requirements.	A procedure exists for identification of legal and regulatory changes assessing key and relevant legal information and ensuring implementation and compliance with relevant legal requirements.
4. Establishing an environmental policy and setting objectives and targets.	McCain have developed a policy for the management of environmental issues based upon their global sustainability policy. Specific objectives and targets are in place for those activities relevant to the sites significant aspects. These are reviewed regularly by senior management and the policy, objectives and targets are communicated to all staff.

5. Environmental improvement programme.	A documented environmental improvement programme has been developed which addresses the significant aspects. Objectives and targets are developed within the EMS and implemented accordingly.
6. Establish operational controls to prevent and minimise significant environmental impacts.	Process controls are carefully monitored and controlled by use of clearly defined operating procedures. Procedures are amended or created in light of aspect evaluations, external communications, audits, environmental incidents or any system non-conformity that may arise.
7. Preventative maintenance programme and calibration.	Preventative maintenance programmes cover all utilities and plant. The activities are planned and recorded on a computerised system. The program of activities is determined based on risk of failure and outcome of failure. The completion rate of these activities is recorded to monitor the systems effectiveness.
8. Emergency planning and accident prevention.	Emergency planning is addressed in various procedures currently documented in the crisis manual, accident management plan and procedures.
9. Monitoring and measuring performance.	Systems are currently in place to monitor: • Water consumption; • Noise and odour; • Fuel and Electricity consumption; • Monitoring of process effluent; • Operational efficiency of the site effluent plant; • Bund and waste inspection; • Atmospheric releases. Systems and procedures measure and monitor the performance of those items of plant and equipment, which could affect the environment. These items are monitored to ensure that faults are detected and any unintended operation or change in performance will be captured and reviewed. Any deviations from expected performance are reviewed by the management team for the site and appropriate remedial actions are identified and implemented to return to the expected standards
10. Monitoring and control systems.	Procedures are well established to ensure that key pieces of operational monitoring equipment are functioning correctly. Those pieces of equipment, which monitor significant aspects, are clearly defined and documented.
11. Training	Skills and competencies for operators and key individuals are defined and training records maintained. Key individuals receive appropriate training depending on previous experience. The training needs for these individuals may change and job skills will be reviewed. Personnel are informed of their responsibilities with regard to environmental issues. This includes training given via team briefing, notice boards, company magazines and e-mails. Procedures will be revised to encompass requirements of environmental permitting
12. Reporting of environmental incidents.	Procedures are in place for reporting incidents to the Environment Agency and other relevant organisations, including Yorkshire Water. These will be updated to include any additional requirements of the environmental permit. Incidents are reviewed by appropriate levels of management and corrective and preventative actions implemented.
13. Management of external complaints / Queries	The EMS contains procedures for the review of external communications / queries and the implementation of remedial action, where necessary. These are recorded in the communications log

14. Auditing.	The EMS includes an audit schedule, which ensures that all aspects of environmental management are reviewed on a routine and regular basis. Trained personnel perform internal audits. External audits are also carried out by the accreditation body to ensure continued compliance with the ISO 14001:2015 standard.
15. Corrective action.	KPIs have been developed and are regularly reviewed. Procedures define how corrective action is managed in the event of system non-conformities. Environmental incidents, external complaints, KPIs and emission monitoring results are reviewed by appropriate levels of management and, where necessary, corrective and preventative actions implemented. Corrective and preventative actions are identified with the aim of correcting symptoms and understanding and addressing root cause. Audit non-conformances are managed as part of the EMS management review.
16. Management of documentation and records.	The EMS defines how documents are controlled. Procedures identify how to maintain and dispose of documents. All documents are reviewed by appropriate personnel prior to issue and regularly reviewed by the system owner to ensure continued relevance. Documentation issued under the EMS is controlled by means of date and revision number.
17. Planning.	Procedures are in place that define the process for managing change that may have an environmental impact. The process ensures that all environmental impacts are properly assessed, to ensure compliance with legal and other requirements.
18. Management of contractors.	Entry to the site is controlled and any visitors or contractors are required to sign in prior to entry. The EMS defines procedures for the control of the activities on site that are performed by contractors and visitors. Information is provided to them, to ensure that any activities do not detrimentally impact the environment.
19. Review and reporting environmental performance.	Management will conduct reviews on environmental performance on an annual basis. Appropriate personnel, including senior management, conduct the review which will include: Changes to environmental policy, new / impending legislation, KPI's, non-conformities, continuous improvement activities and continued suitability of EMS.

4 Consultation

4a A sewer managed by a sewerage undertaker?

Yes. The effluent treatment plant discharges to a foul sewer under the control of Yorkshire Water under the terms of a Notice of a Direction, ref Y/764/00D.

4b A harbour managed by a harbour authority?

No

4c Directly into relevant territorial waters or coastal waters within the sea fisheries district of a local fisheries committee?

No. The site discharges effluent to sewer under the terms of a Notice of Direction issued by Yorkshire Water, which then discharges into the sea in an area controlled by the North Eastern Inshore Fisheries and Conservation Authority (NEIFCA).

4d Is the installation on a site for which:

4d1 a nuclear site licence is needed under section 1 of the Nuclear Installations Act 1965?

No, the site is not a nuclear licensed site.

4d2 a policy document for preventing major accidents is needed under regulation 5 of the Control of Major Accident Hazards Regulations 2015, or a safety report is needed under regulation 7 of those Regulations?

No, the site does not fall within the scope of COMAH.

5 Supporting information

5a Provide a plan or plans for the site

Please see figure 1

5b Do any of the variations you plan to make need extra land to be included in the permit?

No. The permit variation activity lies completely within the current permit boundary.

5c Provide a non - technical summary of your application

Please see section 1 of this document

5d Risk of fire from sites storing combustible waste

The site deals with wastewater and falls outside of the scope of requiring a fire prevention plan.

5e Will your variation increase the risk of a fire occurring or increase the environmental risk if a fire occurs?

No.

5f Adding an installation

The site is not adding a new installation as the new plant will be located within the existing permit boundary. Although this is a new listed activity, it a change of subsection to the currently permitted unit.

6 Environmental risk assessment

An environmental risk assessment of the site changes has been carried out in line with the requirements of the Horizontal Guidance Note H1 and Guidance given on gov.uk. This guidance specifies the following approach to carrying out an environmental risk assessment for a proposed activity:

- Identify potential risks that your activity may present to the environment;
- Screen out those that are insignificant and don't need detailed assessment;
- Assess potentially significant risks in more detail if needed;
- Choose the right control measures, if needed; and
- Report your assessment.

An environmental screening assessment is provided in Table C2-5. To inform the screening assessment, a review of the sensitivity of the site setting has been undertaken.

Data taken from the MAGIC.gov.uk website, accessed 10th January 2022 is presented below. For habitat sites, the relevant distances for consideration are: international designations (SAC, MPA, SPA and Ramsar - 10km); national designations (SSSI – 2km) and local nature reserves and ancient woodlands (2km).

The installation is located within source protection zone 1 for groundwater, and a drinking water safeguard zone for surface water. The site has its own permitted groundwater abstraction borehole, and as such, the site has an additional incentive to protect local groundwater quality.

The site sits entirely within Flood Zone 1, which is less than 1 in 1,000 annual probability of river or sea flooding.

The site is not within an Air Quality Management Area (AQMA).

There are no ancient woodlands within 2km of the site.

There are no SAC; or RAMSAR sites within 10km of the site

Site	Designation	Distance	Direction
Flamborough and Filey Coast	SPA	2900m	ENE
Forge Valley Woods	NNR	6100m	WNW
The Dell	LNR	570m	NW
Cayton, Cornelian and South Bays (multiple units)	SSSI	1380m	NE
Gristhorpe Bay and Red Cliff	SSSI	2330m	E

Table C2-5 Environmental Screening Assessment

Consideration	Receptors	Discussion	Detailed Environmental Risk Assessment?
Amenity issues: Litter, vermin and pests	Human health receptors: Single houses or groups of houses (estates, villages etc.). Schools and hospitals. Footpaths, amenity and recreation areas such as playing fields and playgrounds. Industrial estates and rail stations. The nearest commercial and industrial premises are within adjacent to the site to the west. The closest residential properties are adjacent to the eastern boundary of the site, 70m west and 150 north of the site. Ecological receptors - international designated habitats sites within 10km, nationally designated sites within 2km, locally designated sites within 2km. There is an LNR to the north west of the site within 600m. All other designated sites are at least 1.6km away. There are no SAC/ RAMSAR sites or ancient woodlands within the designated distances.	The wastes handled at the site are primarily liquids and sludges, although potato related raw materials are handled within the wider site. There is no source of litter within the materials handled at the installation. Operations are primarily indoors and packaging is stored prior to offsite recycling or recovery. In the unlikely event pests or vermin are observed on site a suitable contractor is called in as soon as practicable.	X

Consideration	Receptors	Discussion	Detailed Environmental Risk Assessment?
Dust and bio-aerosols	Human health receptors: Single houses or groups of houses (estates, villages etc.). Schools and hospitals. Footpaths, recreation areas such as playing fields and playgrounds. Industrial estates and rail stations. For human health and ecological receptors, see notes for Litter above. The impact of dust on human health will depend on the distance and wind direction.	The wastes handled at the site are liquids, which are inherently non-dusty. The raw materials handled within the wider facility are non-dusty. Severn Trent has undertaken bioaerosol monitoring at three sites and found that there are no emissions.	X
Assessment of point source emissions to air Emissions deposited from air to land	Human health receptors: Single houses or groups of houses (estates, villages etc.). Schools and hospitals. Footpaths, recreation areas such as playing fields and playgrounds. Industrial estates and rail stations. For human health and ecological receptors, see notes for Amenity issues above. The impact of emissions from air on human health will depend on the distance and wind direction.	The installation has one biogas fuelled CHP engines, as well as a number of other combustion plant and a thermal oxidiser for odour management at the site. ADMS modelling indicates emissions are unlikely to result in unacceptable impacts on air quality. Fugitive emissions to air are assessed separately.	X
Assessment of point source and fugitive emissions to water	There are limited open watercourses or ditches close to the site. There are drainage ditches located to the north of the factory area, and also to the south across the B1261. However, most spillages or releases within the site would be captured within the site drainage system which releases to the ETP on site and then to the North Sea. The site sits inside a designated Zone 1 source protection zone (SPZ) for groundwater, note that the site holds a permit for a groundwater abstraction borehole. The site sits entirely within an area which is classified as flood zone 1 (indicating that it has less than 1:1000 probability of flooding in any year).	Site drainage is primarily directed into the sites drainage system, which is linked to the site effluent treatment plant. Aqueous discharges from the effluent treatment plant are discharged to sewer under a consent to discharge from Yorkshire Water. However, this sewer is linked directly to a North Sea outlet and does not undergo additional treatment once it leaves the site. The ETP has been designed to treat water for release in accordance with the BAT-AEL set in BAT 12.	✓
Assessment of odour	Human health receptors: Single houses or groups of houses (estates, villages etc.). Schools and hospitals. Footpaths, recreation areas such as playing fields and playgrounds. Industrial estates and rail stations.	The site has an approved odour management plan in place. This includes management systems, procedures and monitoring to control fugitive emissions of odour at the plant, which are primarily connected with the food manufacturing processes on site.	X

Consideration	Receptors	Discussion	Detailed Environmental Risk Assessment?
	For human health and ecological receptors, see notes for Amenity issues above. The impact of emissions from odour on human receptors will depend on the distance and wind direction.		
Energy	Global atmosphere (direct and indirect emissions)	Biogas generated by the facility is utilised to generate electrical power for the site; thus minimising use of fossil fuels. Waste heat from the CHP engine is available to control ETP temperature if required.	X
Land and disposal of waste to other processes	Rivers and streams – see Assessment of point source and fugitive emissions to water above. Drainage systems/sewers. The site sits inside a designated Zone 1 source protection zone (SPZ) for groundwater, the overlying geology is a secondary (undifferentiated) aquifer, underlain with bedrock of a principal aquifer, designated as medium vulnerability.	All waste streams disposed of off-site will continue to be to appropriately permitted facilities.	X
Noise and vibration	Human health receptors: Single houses or groups of houses (estates, villages etc.). Schools and hospitals. Footpaths, amenity and recreation areas such as playing fields and playgrounds. Industrial estates and rail stations. The nearest commercial and industrial premises are within 340m of the site to the east. The closest residential properties are approximately 100m to the north, south and west, and over 500m to the east. Ecological receptors - international designated habitats sites within 10km, nationally designated sites within 2km, locally designated sites within 2km. There is a single LNR located 300m south of the site across the rail line. There are no SAC/SPA/RAMSAR sites or SSSI within the designated distances.	Site has an approved noise management plan and noise impact has been assessed and minimised as far as practicable during the design stage of the project. The new ETP is located in the centre of the site, with openings facing away from sensitive receptors. Potential noise sources have been sited as low as possible. There are no sources of vibration within the facility.	X

Calculation of Risk

Severity of Effect						
Category 6 – Catastrophic Major airborne release with serious offsite effects. Site shutdown. Serious contamination of groundwater or watercourse with extensive loss of aquatic life.	6	12	18	24	30	36
Category 5 – Major Evacuation of local populace. Temporary disabling and hospitalisation. Serious toxic effect on beneficial or protected species. Widespread but not persistent damage to land. Significant fish kill over 5 mile range.	5	10	15	20	25	30
Category 4 – Severe Hospital treatment required. Public warning and off-site emergency plan invoked. Hazardous substance releases into water course with ½ mile effect.	4	8	12	16	20	24
Category 3 – Significant Severe and sustained nuisance. Major breach of Permitted emissions limits. Numerous public complaints. Sustained and cumulative impacts including global impacts	3	6	9	12	15	18
Category 2 – Noticeable Noticeable nuisance off-site eg. Discernible odours. Minor breach of Permitted emission limits, but no environmental harm. One or two complaints from the public.	2	4	6	8	10	12
Category 1 – Minor Nuisance on site only (no off-site effects). No outside complaint.	1	2	3	4	5	6
	Extremely Unlikely (1) $<1/10^6$ years	**Very Unlikely (2)** $1/10^6$ years	**Unlikely(3)** $1/10^4$ years	**Somewhat unlikely (4)** $1/10^2$ years	**Fairly probable (5)** 1/10 year	**Probable (6)** >1/year -

Cells in italics are risks from the V006 application, included here for completeness.

Accident Scenario	Pathway / Receptor	Control Measure (Risk Management)	Likelihood	Consequence	Residual Risk	Actions to Take if Incident Does Occur
Site Wide						
Drum / IBC dropped by forklift or other moving equipment	*Release to on-site effluent treatment plant*	*Specific staff training on moving and pollution prevention procedures* *Daily effluent monitoring* *Integrity check for drums and IBCs delivered on site* *Awareness training provided for staff* *Internal communication procedures within Crisis Manual*	***4***	***3***	***12***	*Implement site emergency plan (Crisis Manual)* *Communication procedures to inform relevant authorities e.g. Environment Agency, Yorkshire Water, Local Authority (if required)*
Drum / IBC dropped by forklift or other moving equipment	*Release via drainage system to surface water*	*Specific staff training on moving and pollution prevention procedures* *Integrity check for drums and IBCs delivered on site* *Awareness training provided for staff* *Internal communication procedures within Crisis Manual*	***3***	***4***	***12***	*Implement site emergency plan (Crisis Manual)* *Documented procedures to divert release to Interceptor tank* *Spill kits* *Drain covers* *Pipe blockage plugs*
Fire - major incident	*Significant releases to atmosphere, water and land. Loss of containment of stored materials, Increase in waste, noise and odour*	*Sprinkler systems connected to backup generator for uninterruptable power* *Fire wall and detection systems* *24 hour security for quick response* *Fire protection in high risk areas* *Hot work permits* *Fire Safety Training*	***3***	***4***	***12***	*Implement site emergency plan (Crisis Manual) including procedures for fire-water containment (closing off penstock valves)*
Fire - minor incident (in specific areas)	*Releases to atmosphere, water and land,*	*Sprinkler systems connected to backup generator for uninterruptable power for fry lines* *24 hour security for quick response*	***4***	***2***	***8***	*Implement site emergency plan (Crisis Manual) including procedures for*

Accident Scenario	Pathway / Receptor	Control Measure (Risk Management)	Likelihood	Consequence	Residual Risk	Actions to Take if Incident Does Occur
	though largely contained. Small increase in waste and odour	*Fire protection in some high risk areas* *Hot work permits* *Fire safety training*				*fire-water containment (closing off penstock valves).*
Vandalism	*Damage to plant equipment with potential for release to atmosphere, water and ground*	*24 hour plant operation with challenge culture for visitors without passes* *24 hour security for quick response* *CCTV* *Full perimeter fencing*	***3***	***2***	***6***	*Address any specific equipment damage* *Inform relevant authorities* *Reinstate any security measures damaged*
Unexpected High Noise Event – caused by equipment malfunction or noise-generating accident	*Complaints from local residents and breach of noise limits*	*Site has undergone extensive refit and preventative measures put in place* *Formal complaint log and investigation of all complaints*	***4***	***3***	***12***	*Implement site planned preventative maintenance (PPM) procedures*
Accidental activation of alarms/sirens	*Internal noise issue*	*Contractor Induction and communication* *Weekly tests of fire alarms*	***4***	***3***	***12***	*Switch off system* *Repair any faults to system*
Flooding	*Potential emissions to water courses, stopped production resulting in increased waste*	*The site sits within Flood Zone 1, that is the risk of flooding is greater than 1:1000 years.*	***2***	***3***	***6***	*Flood status of area to be monitored and local surface water drainage system monitored for faults*
Failure of ETP	Potential emissions to water without treatment prior to release	ETP is in several stages with separate tanks, so unlikely whole plant would fail simultaneously. Plant production reduced or stopped to minimise loading on operational parts of the ETP	**3**	**5**	**15**	Plant production to be reduced or stopped to reduce loading on ETP. Depending on aspect of ETP offline, use of temporary plant or

Accident Scenario	Pathway / Receptor	Control Measure (Risk Management)	Likelihood	Consequence	Residual Risk	Actions to Take if Incident Does Occur
		Full preventative maintenance programme in place for ETP, including daily, weekly and monthly routine checks				equipment to allow operation
Raw Material Issues						
Bund / containment failure of Phosphoric acid, caustic based cleaners or sodium hypochlorite tank.	*Release to surface water or on-site effluent treatment plant*	*Monthly integral bund integrity checks* *Regular drainage of rainwater for externally bunded tanks*	***1***	***5***	***5***	*Documented procedures to prevent releases from effluent treatment plant through use of penstock valves* *Inform relevant authorities if required* *Appropriate spill kits and drain covers located nearby and staff trained in their use*
Bund / containment failure of cooking oil and waste cooking oil tanks.	*Release to surface water or on-site effluent treatment plant*	*Monthly bund integrity checks* *Regular drainage of rainwater for externally bunded tanks*	***1***	***5***	***5***	*Documented procedures to prevent releases from effluent treatment plant through use of penstock valves* *Inform relevant authorities if required* *Appropriate spill kits and drain covers located nearby and staff trained in their use*
Spillage of Phosphoric acid, caustic based cleaners or sodium hypochlorite during material delivery	*Release to surface water or on-site effluent treatment plant*	*Driver permit to work* *Supervised delivery* *Procedure for delivery* *Signage*	***2***	***5***	***10***	*Documented procedures to prevent releases from effluent treatment plant through use of penstock valves*

Accident Scenario	Pathway / Receptor	Control Measure (Risk Management)	Likelihood	Consequence	Residual Risk	Actions to Take if Incident Does Occur
						Inform relevant authorities if required *Appropriate spill kits and drain covers located nearby and staff trained in their use*
Spillage of cooking oil or waste cooking oil during tanker operations	*Release to surface water or on-site effluent treatment plant*	*Driver permit to work* *Supervised delivery* *Procedure for delivery* *Signage*	***2***	***5***	***10***	*Documented procedures to prevent releases from effluent treatment plant through use of penstock valves* *Inform relevant authorities if required* *Appropriate spill kits and drain covers located nearby and staff trained in their use*
Spillage of other materials during delivery or in storage (typically IBCs or drums)	*Release to surface water and effluent treatment plant*	*Driver permit to work* *Supervised delivery* *Procedure for delivery* *Signage* *Bund/drip trays around delivery points*	***3***	***4***	***12***	*Documented procedures to prevent releases from effluent treatment plant through use of penstock valves* *Appropriate spill kits located nearby and staff trained in their use Inform relevant authorities if required*
Vehicle (including FLT) collision with tank / pipe work including steam pipes	*Releases to atmosphere, ground and surface water*	*Signage* *Colour coded pipes* *Armco installed near bunds, or physical separation of vehicles from bunds by brick walls and concrete channels*	***2***	***5***	***10***	*Isolate drains to contain spill* *If steam line, boiler shutdown procedure*

Accident Scenario	Pathway / Receptor	Control Measure (Risk Management)	Likelihood	Consequence	Residual Risk	Actions to Take if Incident Does Occur
		Improve awareness and signage				*Follow spill procedures* *Inform relevant authorities if required*
Delivery of incorrect materials (acid mixed with alkali)	*Wastage, adverse chemical reaction, potential emissions.*	*Permit to work* *Tanks labelled* *Review filling design and investigate unique coupling* *Supervised delivery* *Procedure for delivery*	***3***	***5***	***15***	*Notify relevant authorities e.g. local emergency services* *Implement site emergency plan (Crisis Manual) e.g. evacuation procedures*
Processing / Manufacture						
Failure to contain ammonia from air conditioning system or freezer	*Release of gas and liquid ammonia, odour*	*PPM procedures involving annual shutdowns* *Plant conforms to Pressure System Regulations* *Permit to work system across site* *Daily, monthly and regular insurance inspections* *System monitoring*	***2***	***5***	***10***	*Implement site emergency plan (Crisis Manual) e.g. evacuation procedures* *Isolation procedures (Emergency Energy Isolation Manual)* *Breathing apparatus*
Ingredient spillage	*Potential emissions to surface water and on-site effluent treatment plant. Product wastage*	*Ingredients are appropriately stored and segregated* *Condition of containers checked on delivery* *FLT staff training*	***5***	***2***	***10***	*Implement cleaning procedures* *Dispose of waste appropriately*
Organic contamination of cooling water	*Resulting bacterial growth, increased use of treatment chemicals*	*Biocide dosing* *Monitoring with weekly laboratory tests and analysis*	***3***	***3***	***9***	*Shut down system* *Degrease and clean system*

Accident Scenario	Pathway / Receptor	Control Measure (Risk Management)	Likelihood	Consequence	Residual Risk	Actions to Take if Incident Does Occur
Waste placed in wrong receptacles	*Non-compliance with Duty of Care and/or Hazardous Waste Regs*	*Segregation of waste streams into colour coded receptacles* *Appropriate training delivered to all staff* *Internal waste audits undertaken* *Waste management strategy*	***5***	***2***	***10***	*Inform relevant authorities and contractors* *Remove waste from incorrect containers where practicable* *Reclassify the category of waste* *Dispose of waste appropriately*
Loss of process containment	*Product wastage*	*PPM procedures* *Visual inspections*	***5***	***2***	***10***	*Implement cleaning procedures* *Dispose of waste appropriately*
Increased solids loading in drainage system	ETP and onwards release	PPM procedures Use of sufficient water to ensure that solids do not remain within the drainage system	**5**	**2**	**10**	Implement cleaning procedures Reduce production to decrease load on ETP until high solids materials passed
Packaging						
Uncontrolled release of bulk product from vehicle	*Product wastage*	*Appropriate staff training, including for fork lifts and conveyors* *Strapping used for containers*	***4***	***1***	***4***	*Implement cleaning procedures* *Dispose of waste appropriately*
Dispatch						
Spillage from site vehicle battery charging	*Small battery acid spillage*	*FLT staff training* *Daily checklist completed*	***4***	***1***	***4***	*Spill kits* *Disposal of waste appropriately*

Accident Scenario	Pathway / Receptor	Control Measure (Risk Management)	Likelihood	Consequence	Residual Risk	Actions to Take if Incident Does Occur
Hydraulic fluid leaks	*Minor spillage*	*PPM procedures* *Visual inspections*	***5***	***1***	***5***	*Spill kits* *Disposal of waste appropriately.*
Power failure on whole site	*Waste generation, loss of HVAC system and thermal oxidiser, ETP failure*	*Plant fail safe in place* *Backup generator on site for fire suppression system and emergency power* *Interlocks in place in event of thermal oxidiser loss to stop plant production*	***5***	***2***	***10***	*Loss of external power will close abatement plant and sources down, leading to limited offsite impact* *Back-up generator for fire suppression system and emergency power*
Over use of water treatment chemicals	*Breach of consent limits, wastage of chemicals*	*Continuous monitoring of water* *Replacement programme of component parts undertaken* *PPM procedures*	***5***	***3***	***15***	*Implement corrective action*
Failure of starch plant	*Breach in discharge consents. Emissions to surface water*	*PPM procedures*	***4***	***3***	***12***	*Inform Environment agency* *Conduct internal investigations and remedy faults*
ETP						
Loss of ETP containment	Emissions to surface water	ETP has a design life of over 30 years with choice of construction materials determined by the proposed contents Site is built on concrete slab with no unmade ground nearby. Concrete areas are constrained by kerbing and bunds to hold spillages PPM procedures All tanks protected by armco barriers to reduce risk of tanker / vehicle collision with tanks	1	5	5	ETP is located on concrete, with kerbing and bunds to prevent release to ground. Drainage system will retain some tank contents Stop production to reduce loading on drainage system

Accident Scenario	Pathway / Receptor	Control Measure (Risk Management)	Likelihood	Consequence	Residual Risk	Actions to Take if Incident Does Occur
		Where pipework cross access roads, it does so at height with signage on clearance				Bring in tankers to remove spillage
Excess biogas production	Emission to air Local air quality	Engine sized appropriately for biogas production Emergency flare on site Gas Holder for buffering peaks and troughs Pressure relief valves on biogas systems designed to only activate when more biogas present than can be safely combusted or flared	3	4	12	Check settings on PRV's and reseat as needed Log use and consider engine sizing if frequent operation
Failure of gas engine	Emission to air Local air quality Greenhouse gas emissions	PPM procedures in place for engine Emergency flare is present on site and sized appropriately for the biogas production	2	4	8	Replacement of engine with temporary unit pending repair of existing unit
Storm conditions	Emissions to surface water Breach of discharge consent	ETP is designed to treat maximum consented discharge volume Operational volumes are below design maximum, giving capacity to deal with storm events increased surface water loading	2	3	6	Reduce loading on ETP if needed due to extreme rainfall event
Other						
Failure of thermal oxidiser unit	*Unacceptable odour emissions to atmosphere*	*PPM* *Interlocks in place in event of thermal oxidiser loss to stop plant production*	*4*	*1*	*4*	*Repair or replace faulty components*
HVAC failure – cooking odours not taken to odour control unit	*Release to atmosphere, local air quality and residents*	*The air extraction system is new and purpose designed for the new fry lines. The extraction system channels all odours components to the abatement plant.*	*2*	*3*	*6*	*In the event of HVAC failure, the plant will cease operation until it the fault is identified and repaired*
Failure of effluent plant	*Breach in discharge consents Sewer*	*The effluent plant is subject to a thorough preventative maintenance program with key critical spares available on site. Redundancy for some key plant items.*	*4*	*5*	*20*	*Plant operations would be stopped until the effluent plant was operational*

Accident Scenario	Pathway / Receptor	Control Measure (Risk Management)	Likelihood	Consequence	Residual Risk	Actions to Take if Incident Does Occur
	system and outfall to sea. Local sea water quality and beach / shore impacts	*Composite daily sampling and spot checks* *Environment Agency sampling*				*again Inform Environment Agency* *Conduct internal investigations and remedy faults*

Form C3

1 What activities are you applying to vary?

Schedule 1 listed activities					
Schedule 1 references	**Description of the Activity**	**Activity capacity**	**Annex I (D codes) and Annex II (R codes) and descriptions**	**Hazardous waste treatment capacity (if this applies)**	**Non-hazardous waste treatment capacity (if this applies)**
S6.8A(1)(d)(ii)	Production of frozen potato chip (fries); potato flake; and baked potato products with a capacity greater than 300 tonnes per day (average value on a quarterly basis)	1,344 tonnes per day	N / A	N / A	N / A
S5.4A(1)(a)(i)	Operation of an effluent treatment plant, utilising both anaerobic and aerobic processes, to treat effluent generated within the facility	N / A	D15; D8 D7	N / A	7,000m^3 per day 2,562,000m^3 per annum

Name of DAA	**Description of the DAA**
AR3 Waste storage and handling	Process waste handling and storage prior to reuse on-site or off-site recovery of disposal
AR4 Steam generation	From receipt of fuel to dispatch for combustion and release of combustion products
AR5 Packaging	From finished product creation to final dispatch
AR6 Thermal Oxidiser	From receipt of fuel and frying vapours to release of combustion products
AR7 Generation of electricity	Combustion of site generated biogas for the generation of electricity
Total storage capacity	
Annual throughput (tonnes each year)	**491,904 tonnes of production** **2,562,000 tonnes of effluent**

1b Types of waste accepted

The site does not accept any imported or third party waste. It only treats effluents generated within the factory curtilage.

1c Recovery of hazardous waste on land

This installation does not involve the permanent deposit of hazardous waste on land for construction or land reclamation.

2 Point source emissions to air, water and land

New emission points in bold

Emissions to Air				
Emission point reference and location As shown on drawing P0120-17100-1120-G401	**Source**	**Parameter**	**Quantity**	**Unit**
A4 BH1	Beel boiler via flue	No parameter set	No limit set	-
A5 BH2	Maxicon boiler (with heat recovery) via flue	No parameter set	No limit set	-
A6 & A7 BH3 and BH4	Boiler house via roof exhaust	No parameter set	No limit set	-
A8 BH5	Beel boiler & maxicon boiler (without heat recovery) via shared stack	No parameter set	No limit set	-
A9 BH6	Maxicon boiler (without heat recovery) via exhaust louvre	No parameter set	No limit set	-
A10 BH7	Beel boiler (without heat recovery) via exhaust louvre	No parameter set	No limit set	-
A11 BH8	Maxicon boiler (without heat recovery) via exhaust louvre	No parameter set	No limit set	-
BH10	Boiler house roof exhaust	No parameter set	No limit set	-
A43 PA10	Process area via roof exhaust	No parameter set	No limit set	-
A50 &A53 D7 & D10	Dryer building via exhaust louvre	No parameter set	No limit set	-
A60-A63 AD3 – AD6	ADR room via roof exhaust	No parameter set	No limit set	-
A64 & A65 AD7 & AD8	ADR room via exhaust louvre	No parameter set	No limit set	-

Emissions to Air				
Emission point reference and location As shown on drawing P0120-17100-1120-G401	**Source**	**Parameter**	**Quantity**	**Unit**
A66 – A69 PP1 – PP3 & PP6	Steam peeler via stack	No parameter set	No limit set	-
PR1 – PR5	Potato receiving roof exhaust	No parameter set	No limit set	-
A71 – A73 PP4, PP5 & ms1	Potato house via extractor fan in roof	No parameter set	No limit set	-
A77 – A80 CD1 – CD4	Cutter deck via extractor fan in roof	No parameter set	No limit set	-
A81 & A82 CD5 & CD6	Pre-heater room via extractor fan in roof	No parameter set	No limit set	-
A83 HRS1	High rate sedimentation plant via biofilter	No parameter set	No limit set	-
884 HRS2	High rate sedimentation plant via louvre in wall	No parameter set	No limit set	-
A85 P5	Incinerator via stack	No parameter set	No limit set	-
A86-A91 P12 – P17	Combustion gas flue	No parameter set	No limit set	-
A92 – A98 P18 -P24	Bakes process air exhaust fans	No parameter set	No limit set	-
A99 P25	Air handling unit gas flue	No parameter set	No limit set	-
A100 – A102 P26 – p28	Hot water boiler via stack	No parameter set	No limit set	-
A103 P30	Dolav storage area exhaust fan	No parameter set	No limit set	-
A104-A107 DRY1 – DRY 4	Line 1 dryer exhaust stacks	No parameter set	No limit set	-
A108 – A113 DRY 5 – DRY 10	Line 2 dryer exhaust stacks	No parameter set	No limit set	-
A114 – A124 PE1 – PE11	Process area extractor fans	No parameter set	No limit set	-
A125 PE12	Process tunnel extractor fan	No parameter set	No limit set	-

Emissions to Air				
Emission point reference and location As shown on drawing P0120-17100-1120-G401	**Source**	**Parameter**	**Quantity**	**Unit**
A126 PE13	Batter storage extraction	No parameter set	No limit set	-
PE14	Weigher deck exhaust	No parameter set	No limit set	-
A127 PE15	Packing area extraction	No parameter set	No limit set	-
A128 & A129 PE16 & PE17	Process extraction	No parameter set	No limit set	-
A130 & A131 PE18 & PE19	SAPP extraction	No parameter set	No limit set	-
A132 &A133 TO1 & TO2	Vapour condenser exhaust stack	No parameter set	No limit set	-
A134 TO3	Thermal oxidiser exhaust stack	Oxides of nitrogen (NO & NO_2 expressed as NO_2)	200 [note 1]	mg/m^3
		Carbon monoxide	100 [note 1]	mg/m^3
A135 HWB1	Hot water boiler	Oxides of nitrogen (NO & NO_2 expressed as NO_2)	135	mg/m^3
		Carbon monoxide	100	mg/m^3
A136 -A140 AE01 – AE05	Refrigeration plant room exhaust stacks	No parameter set	No limit set	-
A141 & A142 BC01 & BC02	Battery charging extraction	No parameter set	No limit set	-
A143 FA01	Screw blancher exhaust stacks	No parameter set	No limit set	-
A144 – A146 FA02 – FA04	Belt blancher exhaust stacks	No parameter set	No limit set	-
A147 **WWTP4**	**CHP engine**	**NOx**	**190**	**mg/m^3**
A148 **WWTP5**	**Emergency flare [Note 2]**	**NOx**	**150**	**mg/m^3**
A149 **WWTP3**	**Gas bubble pressure relief valve**	**No parameter set**	**No limit set**	**-**
A150	**Odour control unit**	**No parameter set**	**No limit set**	**-**

Note 1: normalised at reference conditions of 273K, 101.3kPA

Note 2: Monitoring to be undertaken in the even the auxiliary flare has been operational for more than 10 per cent of a year (876 hours). Record of operating hours to be submitted annually to the Environment Agency.

Emissions to Sewer and transfer off site				
Emission point reference and location	**Source**	**Parameter**	**Quantity (daily average)**	**Unit**
S1 Yorkshire Water sewer direct 1.5km coastal outfall to North Sea	Final effluent from on-site effluent treatment plant	Flow Rate	7000	m^3 (per day)
		Chemical oxygen demand (COD)	120	mg/l
		Total suspended solids	50	mg/l
		Total Nitrogen	20	mg/l
		Total Phosphorous	2	mg/l
		Mercury and its compounds	0.1	µg/l
		Cadmium and its compounds	0.01	mg/l
S2 Eastfield Drain, Yorkshire Water Sewer	Surface water run-off via 3 oil / water interceptors	No parameter set	-	-

There are no discharges to groundwater or ground from the installation.

3 Operating techniques

3a Technical standards

Guidance: Develop a management system: environmental permits (updated 4th August 2021)

3a1 Does your permit (in Table 1.2 Operating Techniques or similar table in the permit) have references to any of your own documents or parts of documents submitted as part of a previous application for this site?

This variation application only covers the treatment of effluent at the site and therefore all entries in table s1.2 remain applicable, excluding those parts of the original application and variation application V006 which relate to the effluent treatment plant and releases into the Yorkshire Water sewer from the site.

3b General requirements

The current noise and odour management plans for the installation are appended.

3c Types and amounts of raw materials

New items in bold

Raw Material	**Maximum amount at one time**	**Annual Throughput**	**Use on site**
Potatoes	2,000 per day	500,000 tonne	Raw ingredient

Raw Material	Maximum amount at one time	Annual Throughput	Use on site
Cooking Oil	100 tonne	17,500 tonne	Frying of products
Flavourings / Batter	25 tonne	7,500 tonne (dry powder)	Raw ingredient
SAPP (Puron)	10 tonne	650 tonne	Cooling ingredient to control product colour
Sugar (Dextrose)	1 tonne	200 tonne	Raw ingredient
Antifoam	1 tonne	50 tonne	ETP operational use to ensure correct operation
Cleaning products	5 tonne	700 tonne	CIP products mix of acidic and caustic compounds
Magnesium hydroxide	25 tonne	2,000 tonne	pH adjustment of ETP
Boiler chemicals	5 tonne	50 tonne	Boiler preservation
Polyethylene bags	25 tonne	1,500 tonne	Product primary packaging
Cardboard boxes	50,000 units	25,000,000 units	Product secondary packaging
Ferric chloride (40% soln)	**10 tonne**	**838 tonne**	**Control of H_2S in ETP**
Sodium Hydroxide (50% soln)	**1 tonne**	**24 tonne**	**Control of pH in ETP**
Sodium Hypochlorite (12% soln)	**1 tonne**	**10 tonne**	**Cleaning in ETP**
Citric acid (50% soln)	**1 tonne**	**8 tonne**	**Cleaning in ETP**
Hydrochloric acid (33% soln)	**1 tonne**	**10 tonne**	**Control of pH in ETP**
Scrubber fertiliser	**500kg**	**5.26 tonne**	**Upkeep of gas scrubber system**
Corrosion inhibitor	**205litres**	**0.47 tonne**	**Gas Engine treatment**
Dewatering polymer (100% soln)	**1 tonne**	**22 tonne**	**Dewatering of sludge**
DAF polymer (45% soln)	**1 tonne**	**19 tonne**	**Dewatering of sludge**
Cooling tower softener resins	**25m^3**	**399.96 m^3**	**Cooling tower operation**
Cooling tower softener salt	**2 tonne**	**63 tonne**	**Cooling tower operation**
Scrubber media	**Brought to site when replacement needed**	**14.19 m^3**	**Scrubber support**

4 Monitoring

4a Describe the measures you use for monitoring emissions by referring to each emission point in Table 2 above

The air emission points associated with the main releases sources at the facility (points A134– A135; A146) will be subject to periodic monitoring in accordance with the requirements of the Medium Combustion Plant Directive. Point A147 will be monitored in the unlikely event its use exceeds 10% of the year (876 hours)

Point S1 will be subject to daily or monthly monitoring to demonstrate compliance with the permit and the requirements of BAT 4.

4b Point source emissions to air only

4b1 Has the sampling location been designed to meet BS EN 15259 clause 6.2 and 6.3?

No

4b2 Are the sample ports large enough for monitoring equipment and positioned in accordance with section 6 and appendix A of BS EN 15259?

No

4b3 Is access adjacent to the ports large enough to provide sufficient working area, support and clearance for a sample team to work safely with their equipment throughout the duration of the test?

Yes

4b4 Are the sample location(s) at least 5 HD from the stack exit

No

4b5 Are the sample location(s) at least 2 HD upstream from any bend or obstruction?.

No

4b6 Are the sample location(s) at least 5 HD downstream from any bend or obstruction?

No

4b7 Does the sample plane have a constant cross sectional area?

No

4b8 If horizontal, is the duct square or rectangular (unless it is less than or equal to 0.35 m in diameter)

N/A – ducting is 0.3m diameter

4b9 If you have answered 'No' to any of the questions 4b1 to 4b8 above, provide an assessment to how the standards in BS EN 15259 will be met.

As an existing operational site with a combination of existing emission points which require monitoring and new points, these requirements will be met in different ways. The existing points A134 and A135 should be compliant with the requirements of BS EN 15259, although both of these points are not equipped with permanent

sampling platforms, instead temporary suitable scaffolding structures are installed when required. Confirmation is being sought from the monitoring contractor as to overall compliance with the other aspects of BS EN15259.

Of the new emission points, only A147 is required to be compliant as A148 only requires testing in the event that it is operational over 10% of the year. Point A147 will be checked for compliance, however, the sampling location and sampling ports may not meet all of the requirements for BS EN 15259, but this is being confirmed with the supplier. Due to the nature of the ducting access, it is typically not possible to conduct a full velocity profile on the exhaust. However, no particulate sampling is required for biogas fuelled units, and all gaseous species are considered to be mixed sufficiently for the purposes of monitoring. There is no requirement to undertake a homogeneity test as per BS EN 15259 and as such the location cannot be compared against that or the criteria in M1. The sampling location to be used is the same as that used at other, similar, permitted facilities and have been approved for use by the Environment Agency.

5 Environmental impact assessment

5a Have your proposals been the subject of an environmental impact assessment under Council Directive 85/337/EEC of 27 June 1985 [Environmental Impact Assessment] (EIA)?

No. The proposed changes were not subject to an EIA. The site changes were subject to an environmental assessment and planning application from the Local Authority.

6 Resource efficiency and climate change

6a Describe the basic measures for improving how energy efficient your activities are

The facility has a comprehensive energy management system with annual targets for energy consumption. The site is certified to ISO50001:2011.

Energy efficiency at the site focuses on monitoring temperatures to ensure optimal operation of heating plant for efficient product manufacturing. Heat is captured and recovered throughout the facility, including the pre-heating of water and air prior to its use within the facility. Steam and hot water pipes are appropriately insulated to minimise heat losses.

Lighting, including office and external lighting, is low energy and plant and equipment energy efficiency is reviewed prior to purchasing decisions.

The site has been subject to an extensive refurbishment including a replacement of the entire HVAC system and associated plant as permitted in V006.

The new ETP has been designed to be low energy as far as possible and utilised anaerobic digestion to generate biogas, which is combusted on site to produce electricity for use within the site reducing the import of electricity from the grid.

6b Provide a breakdown of any changes to the energy your activities use up and create

The site is certified to ISO50001:2011.

The site primarily uses natural gas for the production of potato products. Natural gas is used for the production of steam and heat used within the facility, and for the destruction of potentially odorous compounds within extracted air at the facility.

The new ETP has been designed to be low energy as far as possible and utilised anaerobic digestion to generate biogas, which is combusted on site to produce electricity for use within the site reducing the import of electricity and gas from the grid.

6c Have you entered into, or will you enter into, a climate change levy agreement?

The site is subject to a climate change levy, FDF1/T00514 v2, agreed 10th May 2018.

6d Explain and justify the raw and other materials, other substances and water that you will use

The facility uses a range of raw materials, which can be broken into 4 main categories:

- Ingredients and associated production materials, including potatoes and cooking oil;
- Packaging materials, including product packaging;
- Cleaning products;
- Water treatment chemicals, including boiler chemicals

Use of all materials is subject to monitoring, auditing and review under the sites ISO14001:2015 accreditation. A site suggestion scheme exists for staff to identify potential savings and volumes of raw material and waste production are monitored on a quarterly basis by the site management team.

Use of boiler and maintenance chemicals is determined by facility operations, and based upon the manufacturers guidelines. Boiler chemicals are required to be used to maintain boiler efficiency and prolong plant lifespan. Maintenance on all plant is carried out in accordance with manufactures guidelines, modified as appropriate by operational experience. Preventative maintenance is undertaken to ensure plant availability and to prolong plant lifespan.

Line and operational area cleaning is carried out to a specified frequency in accordance with company requirements and good practice, with all hoses being fitted with adjustable trigger sprays to minimise water consumption. Cleaning chemicals are chosen based on the requirements of the task and comprise a mixture of acidic and alkaline cleaners. Where alkaline cleaning products are used, these have been specified as low mercury and cadmium. Staff are given appropriate training for the cleaning requirements in their operational area, including on the choice of product.

Ingredient usage is dictated by the products manufactured and business demand. One production line is configured to produce uncoated products and one coated products, although it can also produce untreated products. Batter and other flavourings are applied in defined amounts to meet product specifications.

Product is packaged on site, with packing lines being configured at the start of the shift for the expected line production. Packaging size and volume is defined by customer demand, although packaging is subject to review with suppliers to ensure that it is correctly sized and where possible, minimised.

Water is used through the process for washing, blanching and for the supply of steam. Production water is supplied from a borehole on site, which is metered. Waste water is treated on site prior to discharge. As far as practicable, water is recirculated within the facility, including intermediate cleaning as appropriate. Water consumption is metered within the facility and subject to regular review. Where potential issues are identified from review of the metering data, these are actioned for immediate investigation.

6e Describe how you avoid producing waste in line with Council Directive 2008/98/EC on waste

The site is accredited to ISO14001:2015 and waste management is monitored. IN accordance with the McCain sustainability policy, waste is avoided as far as practicable. Where it is produced, it is addressed as far up the waste hierarchy as possible.

Where possible, materials are delivered to site in bulk, minimising the production of packaging waste. Potatoes are delivered by bulk loader truck, and cooking oil by tanker. Where materials are delivered in lower volumes, such as water treatment chemicals or cleaning chemicals, packaging is returned to the producer for refilling

where possible and recycling where it is not. Where possible pallets are specified as being plastic rather than wooden to maximize reusability.

Potatoes are steam peeled on site to minimise wastage and defects removed with the minimum intervention to prevent loss of potato. Potato peelings, nubbins, slivers and defects are separated and removed from site for animal feed. Waste water from initial washing of potatoes is subject to treatment to capture the soil which is removed from site for land spreading. Starch is captured from the blanching plant and removed from site as a byproduct.

Form B2.5

Medium Combustion Plant Information	
MCP specific identifier*	ETP Gas engine
12-digit grid reference or latitude/longitude	E 505057 N 483628
Rated thermal input (MW) of the MCP	1.6
Type of MCP (diesel engine, gas turbine, other engine or other MCP)	Gas engine
Type of fuels used: gas oil (diesel), natural gas, gaseous fuels other than natural gas	Biogas
Date when the new MCP was first put into operation (DD/MM/YYYY)	01/12/2022
Sector of activity of the MCP or the facility in which it is applied (NACE code**)	C10.3.1
Expected number of annual operating hours of the MCP and average load in use	8760 (modelled operating all year)
Where the option of exemption under Article 6(8) is used the operator (as identified on Form A) should sign a declaration here that the MCP will not be operated more than the number of hours referred to in this paragraph	N / A

Form C6 Questions

The relevant questions within the form are those applicable to effluent and / or surface water run-off arising from the operation of an installation

Q1About the effluent – details and type, continued

1a Give a brief description of the effluent discharge you want a permit for, for example, treated domestic sewage effluent

From Point S1 – release via the site drainage system

This release relates to final effluent, discharged from the on-site effluent treatment plant (ETP), which treats all process and other contaminated effluent from within the curtilage of the factory.

The ETP uses a series of biological process to treat entrained contaminants, in order to comply with the requirements of BAT 12 of the Food and Drink sector EU BRef.

1b Give this effluent a unique name

S1 – Final effluent

1d Have you obtained all the necessary permissions in addition to this environmental permit to be able to carry out the discharge (see B6 guidance notes for more details)?

Yes. The discharge is currently consented under a Notice of a Direction to discharge trade effluent into a public sewer, issued by Yorkshire Water 1st March 2000, under consent number Y/764/00D. This consent is also referenced in the sites existing environmental permit.

Q2 About the effluent – how long will you need to discharge the effluent for?

2c Will the discharge take place all year?

Yes, the discharge will take place all year

Q3 How much do you want to discharge?

3b What is the maximum volume of effluent you will discharge in a day?

7000 Cubic metres

3c What is the maximum rate of discharge?

107 Litres / second

3d What is the maximum volume of non - rainfall dependent effluent you will discharge in a day?

7000 cubic metres

3f For each answer in question 3, show how you worked out the figure on a separate sheet

Values are based on the limits specified in the existing Direction of Notice from Yorkshire Water, and within the existing Environment Permit for the installation.

The maximum volume includes rainfall within its volume, as all drainage within the operational area is captured within the site drainage system and transferred to the on-site ETP for treatment. This ETP has been designed and specified to meet the existing discharge volume which is needed for operational flexibility. Note that the manner in which the factory operates, means that overall loading and volume will differ across time, due to the changing production volumes and cleaning requirements.

Q4 No questions

Q5 Should your discharge be made to the foul sewer?

5a How far away is the nearest foul sewer from the boundary of the premises?

Not applicable, the site is discharging into a foul sewer, in accordance with a consent from Yorkshire Water.

5b2 Discharges from all other premises including trade effluent

Not applicable, the site is discharging into a foul sewer, in accordance with a consent from Yorkshire Water.

Q6 How will the effluent be treated?

6a Do you treat your effluent?

Yes – please see the full application for the specification of the Effluent Treatment Plant.

6b Fill in Table 2 for each stage of the treatments carried out on your effluent in the order in which they are carried out

Order of Treatment	Code Number	Description
First	09	Primary settlement using high rate sedimentation
Second	28	DAF based floatation
Third	02	High rate biological anaerobic treatment
Fourth	03	tertiary biological using aerobic treatment

6c You must provide details on a separate sheet of the final effluent discharge quality that the overall treatment system is designed to achieve

Release Point	Parameter	Current Permit (V006)	Proposed Revised Limits
S1 Yorkshire Water sewer direct 1.5km coastal outfall to North Sea	Flow Rate	7000m^3 (per day)	7000m^3 (per day)
	Chemical oxygen demand (COD)*	-	120mg/l
	BOD	4,200mg/l	
	Total suspended solids	1,500mg/l	50mg/l
	Total Nitrogen	-	20mg/l

Release Point	Parameter	Current Permit (V006)	Proposed Revised Limits
	Total Phosphorous	-	2mg/l
	Mercury and its compounds	0.1µg/l	0.1µg/l
	Cadmium and its compounds	0.01mg/l	0.01mg/l

Q7 What will be in the effluent?

7b Are any of the specific substances listed in 'Risk assessment for treated sewage or trade effluent discharges to surface water or groundwater' added to or present in the effluent as a result of the activities on the site?

None known.

7c Have any of the specific substances listed in 'Risk assessment for treated sewage or trade effluent discharges to surface water or groundwater' been detected in samples of the effluent or in the sewerage catchment upstream of the discharge?

None known.

7d Are there any other harmful or specific substances in your effluent not mentioned in 'Risk assessment for treated sewage or trade effluent discharges to surface water or groundwater'?

None known

7e If you have answered 'No' to any of questions 7a to 7d provide details on a separate sheet of how you have established that the effluent is not likely to contain specific substances

None known from the site discharging into the sewer, which primarily is used for the transport of the factory effluent to the outfall point.

7f What is the maximum temperature of your discharge?

43.3°C when it leaves the ETP

7g What is the maximum expected temperature change compared to the incoming water supply?

This is not a cooling water discharge.

Q8 Environmental risk assessments and modelling

8b Discharges to lakes, estuaries, coastal waters or bathing waters

This is an existing consented discharge from the site into the sewer system. Understood to be consented as either NE/QR.27/27/0029/003 or NE/QR.27/27/0035/003. It is probable that it is the latter option which is the outfall further out to sea.

8d Discharges to groundwater

The installation does not discharge to groundwater

8e Discharges to freshwater (non - tidal) rivers from an installation, including discharges via sewer

The installation does not discharge to freshwater (non-tidal) rivers.

8f Environmental impact assessment

No environmental impact assessment has been carried out on the installation, as it is an existing facility.

Q9 Monitoring arrangements

9a What is the national grid reference of the inlet sampling point? (for example, SJ 12345 67890)

No inlet sampling required

9b What is the national grid reference of the effluent sample point?

No sampling point installed at present as plant under construction – to be confirmed when construction progressed.

9d What is the national grid reference of the flow monitoring point?

No flow meter currently installed – the plant is under construction and details will be provided when constructed.

9e Does the flow monitor have an MCERTS certificate?

Yes and will be maintained in the new plant under construction

9f Do you have a UV disinfection efficacy monitoring point?

No. Not installed as part of this installation.

9h You should clearly mark on the plan the locations of any of the above that apply to this effluent

Please see site emission point plan.

Q10 Where will the effluent discharge to?

10a Where the effluent discharges to

Tidal river, tidal stream, estuary or coastal waters

Appendix 4 – Discharges to tidal river, tidal stream, estuary or coastal waters

QA4.1 Give the discharge point a unique name

QA4.2 Give the national grid reference of the discharge point

QA4.3 Give the name of the tidal river, tidal stream, estuary or area of coastal water if you know it

The final effluent is discharged into the North Sea, specifically off Cornelian Bay.

QA4.4 Is the discharge into a

Coastal Water

QA4.5 Does the discharge reach the watercourse by flowing through a surface water sewer?

No

QA4.6 Is the discharge point above the mean low water spring tide mark?

No

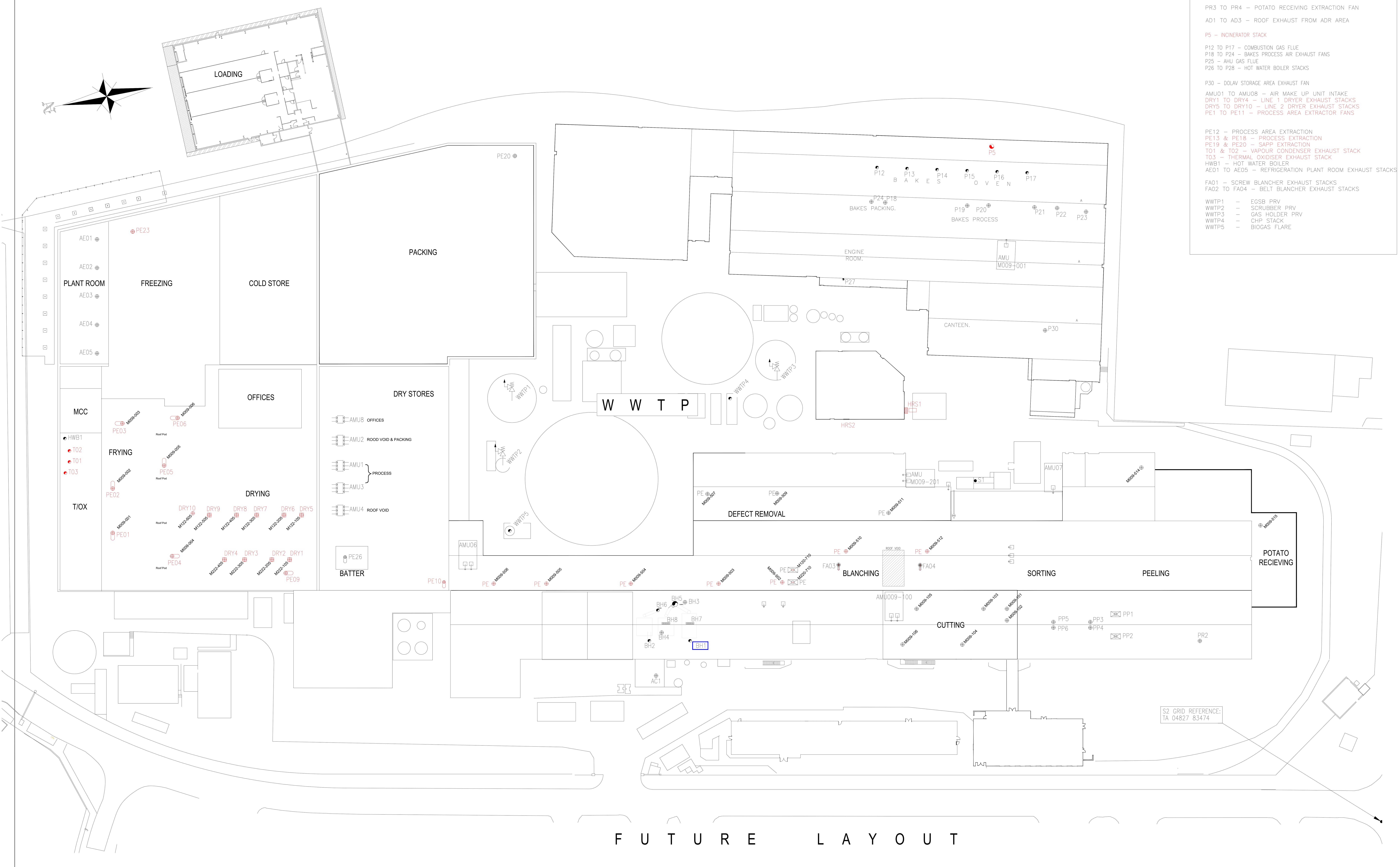
QA4.7 How is the effluent dispersed?

Unknown, this asset is owned and operated by Yorkshire Water as sewerage provider

QA4.8 Give details, on a separate sheet, of the design of the diffuser system

Unknown, this asset is owned and operated by Yorkshire Water as sewerage provider

Appendix A. Site Plans



F U T U R E   L A Y O U T

KEY

SAMPLING POINTS XXX

BH1 – BOILER FLUE DISCHARGE (ERS) No 1
BH2 – BOILER FLUE DISCHARGE (ERS) No 3
BH3 & 4 – BOILER HOUSE ROOF EXHAUST
BH5 – BOILERS Nos 1&2 STACK
BH6 – BOILER No 3 STACK
BH7 & 8 – BOILER EXHAUST LOUVRE
BH10 – BIOGAS BOILER

AC1 – AIR COMPRESSOR ROOM EXTRACTION

PA01 & PA02 – PACKING AREA ROOF EXHAUST
PA10 – PROCESS AREA ROOF EXHAUST

CD1 TO CD4 – ROOF EXHAUST FROM CUTTER DECK
CD5 & 6 – PRE–HEATER ROOM EXHAUST

HRS1 – BIOFILTER
HRS2 – LOUVRES

S1 – WASTE WATER SUMP
S2 – SURFACE WATER RUN OFF

PR3 TO PR4 – POTATO RECEIVING EXTRACTION FAN

AD1 TO AD3 – ROOF EXHAUST FROM ADR AREA

P5 – INCINERATOR STACK

P12 TO P17 – COMBUSTION GAS FLUE
P18 TO P24 – BAKES PROCESS AIR EXHAUST FANS
P25 – AHU GAS FLUE
P26 TO P28 – HOT WATER BOILER STACKS

P30 – DOLAV STORAGE AREA EXHAUST FAN

AMU01 TO AMU08 – AIR MAKE UP UNIT INTAKE
DRY1 TO DRY4 – LINE 1 DRYER EXHAUST STACKS
DRY5 TO DRY10 – LINE 2 DRYER EXHAUST STACKS
PE1 TO PE11 – PROCESS AREA EXTRACTOR FANS

PE12 – PROCESS AREA EXTRACTION
PE13 & PE18 – PROCESS EXTRACTION
PE19 & PE20 – SAPP EXTRACTION
TO1 & TO2 – VAPOUR CONDENSER EXHAUST STACK
TO3 – THERMAL OXIDISER EXHAUST STACK
HWB1 – HOT WATER BOILER
AE01 TO AE05 – REFRIGERATION PLANT ROOM EXHAUST STACKS

FA01 – SCREW BLANCHER EXHAUST STACKS
FA02 TO FA04 – BELT BLANCHER EXHAUST STACKS

WWTP1 – EGSB PRV
WWTP2 – SCRUBBER PRV
WWTP3 – GAS HOLDER PRV
WWTP4 – CHP STACK
WWTP5 – BIOGAS FLARE

PRESSURE RELEASE VALVE (PRV)
TEMPERED AIR INLET
EXTRACTOR FAN IN ROOF
FLUE
LOUVRE IN ROOF
LOUVRE IN WALL
HOOD WITH EXTRACTOR FAN
EXTRACTION FAN WITH ROOF DUCT
EXTRACTOR FAN IN WALL OR DUCTWORK
HOOD WITHOUT EXTRACTOR FAN
CENTRIFUGAL FAN
RAISED LOUVRES

RED TEXT = POTENTIAL SOURCE OF ODOUR EMISSIONS
GREEN TEXT – LOCAL AREA EXTRACTION

REFERENCE DWGS.

Dwg No	DWG. TITLE	BY
	0120–15048–6000–G414 BLANCHER EMISSIONS	C.
DEKLEIJN	710A–03–02J ROOF PENETRATION	J.

REVISIONS

NO.	DATE	REVISION	BY
G	18.02.22	WWTP EMISSIONS ADDED	CLC
F	03.09.21	UPDATED WITH INFO FROM PB	CLC
E	20.10.20	FUTURE LAYOUT ADDED	CLC
D	31.1.20	ODOUR POINTS INDICATED IN RED EXISTING LAYOUT DRAWING ADDED	CLC
C	21.3.19	FLAKE PROCESS ADDED	CLC
B	20.3.19	UPDATED FOLLOWING PERMIT OFFICER COMMENTS	CLC
A	18.5.18	TO STACKS REVISED	CLC

McCain Foods (GB) Ltd
Central Engineering Department
Havers Hill Scarborough
North Yorkshire YO11 3BS
United Kingdom
Tel +44 (0) 1723 584141

Cost Safety Quality Time

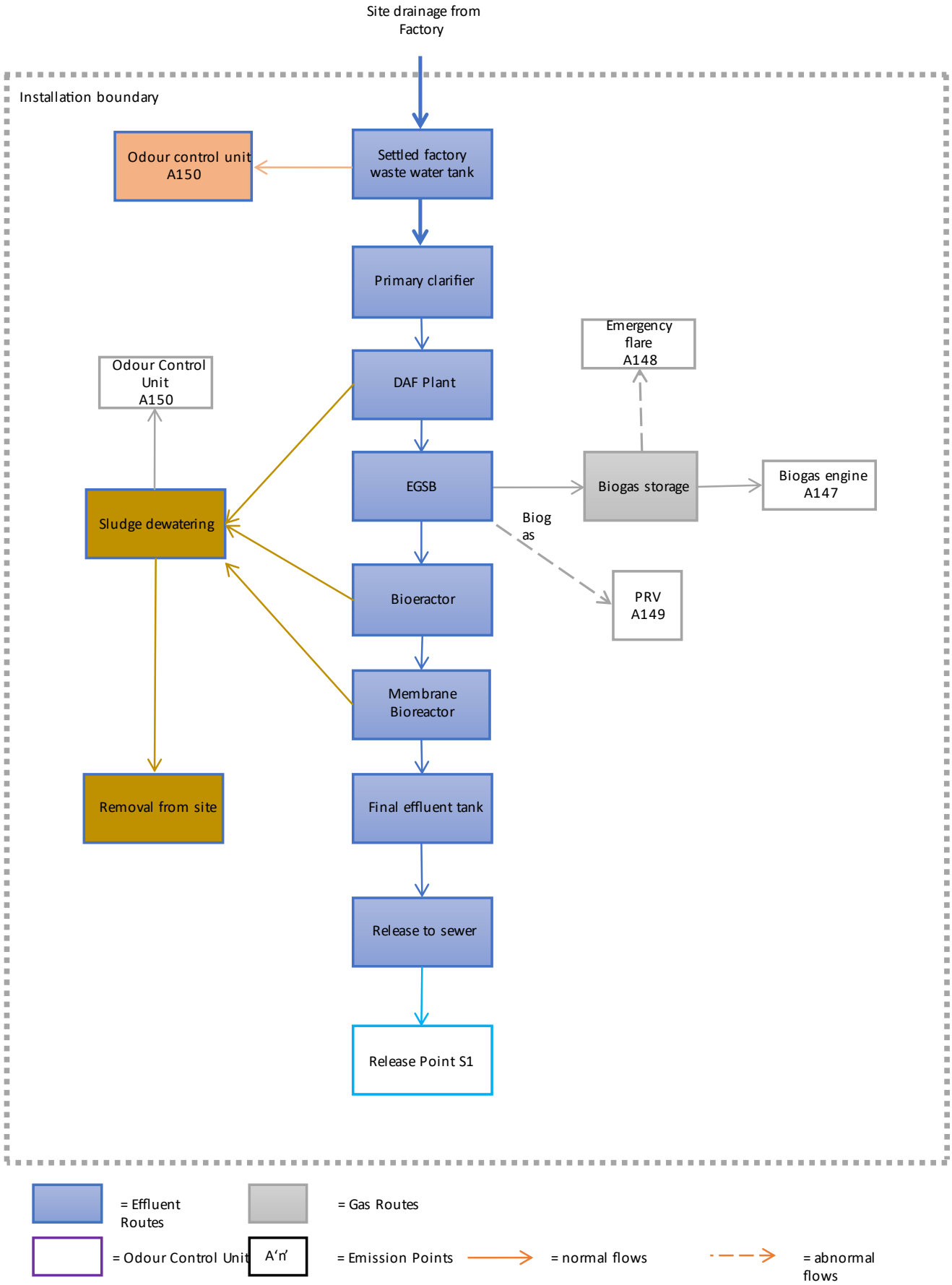
- [X] PRELIMINARY – NOT FOR CONSTRUCTION
- [ ] APPROVED FOR CONSTRUCTION
- [ ] SUPERSEDES ALL PREVIOUS ISSUES

ENVIRONMENTAL PERIMIT APPLICATION
Scarborough

DRAWING TITLE: FUTURE LAYOUT PROCESS AREA EMISSIONS

DRAWN	CLC	CHECKED	
DATE	17/04/18	DATE	
SHT SIZE A0	SCALE 1:350	SHT No 2 of 2	REV No G

DWG No P0120–17100–1120–G401


Site drainage from Factory
Installation boundary
Odour control unit A150
Settled factory waste water tank
Primary clarifier
Emergency flare A148
Odour Control Unit A150
DAF Plant
EGSB
Biogas storage
Biogas engine A147
Sludge dewatering
Biog as
PRV A149
Bioeractor
Membrane Bioreactor
Removal from site
Final effluent tank
Release to sewer
Release Point S1
= Effluent Routes
= Gas Routes
= Odour Control Unit
A'n'
= Emission Points
= normal flows
= abnormal flows

Appendix B. Certificates

Appendix C. BAT Assessment

BAT Conclusion	BAT Scope	Applicable Y / N?	Implemented at Site?
Overall Environmental performance			
1	**EMS** **This requirement is broadly the same as the EA EMS requirement – while the BAT requirement features a few differences, the overall content of BAT1 is the same across all industrial sectors and processes and the current EA guidance is being used instead. Parts of the requirements are also covered by other BAT items**	**Y**	**Yes, within the sites ISO14001:2012 accreditation**
2	**Establishment, maintenance and review of inventories for water, energy and raw materials, as well as waste water and waste gas inventories.**	**Y**	**Yes – generally within the sites existing management system, including ISO14001:2015 and ISO50001:2011**
Monitoring			
3	**Waste water process monitoring**	**Y**	**Yes, although many waste water streams are only measured at the effluent plant and not within the wider site.**
4	**Waste water sampling requirements**	**Y**	**Yes – monitoring is carried out for the relevant parameters specified in the site permit and consents.**
5	**Channelled air emission monitoring frequency**	**N – no applicable emissions covered for facility**	

Energy Efficiency			
6	**Energy efficiency including energy efficiency plan and use of common techniques**	**Y**	**Yes – the site is accredited to ISO50001:2011**
Water consumption and waste water discharge			
7	**Water consumption and discharge reduction**	**Y**	**Yes – relevant parts are applied at the site**
Harmful substances			
8	**Cleaning and disinfection chemical reduction or elimination** **Four outlined techniques for minimising the use of harmful substances:** **Proper selection of cleaning chemicals and disinfectants** **Use of cleaning in place (CIP) to reuse cleaning chemicals** **Dry cleaning** **Optimised design and construction of equipment and process areas**	**Y**	**All 4 techniques are utilised as appropriate within the facility**
9	**Avoidance of ozone depleting substances in cooling and freezing systems**	**Y**	**The cooling systems do not use ozone depleting substances**
Resource efficiency			
10	**Increase in resource efficiency** **List of techniques for improving resource efficiency, primarily through utilisation of byproducts and residues**	**Y**	**The site recovers starch as a saleable byproduct from the production process** **Most residues are captured and transferred to the anaerobic digestion plant on site, producing biogas**

			which is used to produce heat (as steam) at the site. The digestate is then landspread maximising its recovery.
Emissions to water			
11	**Waste water buffer storage** **Buffer storage capacity should be provided prior to discharge to enable appropriate treatment measures to be utilised**	**Y**	**The site retains waste water within the system, including within the anaerobic reactors, allowing treatment prior to discharge**
12	**Waste water treatment** **A list of techniques to minimise emissions to water, primarily aimed at on site treatment of effluent**	**Y**	**The site uses the appropriate techniques for the effluent at the site, based on anaerobic secondary treatment. Nitrogen and phosphorous removal are not undertaken due to the low loading in the effluent stream** **The site discharges into a sewer under a consent issued by Yorkshire Water**
Noise			
13	**Noise management plan, requiring the set up, implementation and review of an appropriate management plan.**	**Y**	**The site operates under a noise management plan approved under V006 of the permit.**
14	**Noise reduction** **This is based on a list of appropriate techniques, some of which are applicable to the site, however, some are not viable due to the site location and configuration being fixed, including the distance to sensitive receptors**	**Y**	**This is based on a list of appropriate techniques, some of which are applicable to the site, however, some are not viable due to the site location and configuration being fixed, including the distance to sensitive receptors** **Operational controls have been put in place, as well as specification of appropriate noise abatement and control equipment**
Odour			

15	**Odour management plan, requiring the set up, implementation and review of an appropriate management plan.**	**Y**	**The site operates under an odour management plant approved under V006 of the permit. This has been updated to reflect site changes as part of this application**
Specific BAT Conclusions for Market Sectors			
16	Applicable to animal feed plants only	N	
17			
18	Applicable to brewing only	N	
19			
21			
21	Applicable to dairies only	N	
22			
23			
24	Applicable to ethanol production only	N	
25	Applicable to fish and shellfish processing only	N	
26			

27	**Cooling fruit and vegetables prior to deep freezing**	**Y**	**The plant uses indirect air cooling of products prior to freezing to increase energy efficiency**
28	Applicable to grain milling only	N	
29	Applicable to meat processing only	N	
30	Applicable to oilseed processing and vegetable oil refining only	N	
31			
32			
33	Applicable to soft drinks and nectar/juice made from processed fruit and vegetables only	N	
34	**Applicable to starch production only** **Requires control of channelled dust emissions from starch drying, using one or more of bag filters, cyclones and wet scrubbers**	**Y**	**The plant has suitable dust control measures in place, using cyclones and wet scrubbers for dust abatement**
35	Applicable to sugar manufacturing only	N	
36			
37			

Appendix D. Air Quality Assessment

Environmental Permit Variation Application - Scarborough Plant Facility Renewal Project

Air Quality Impact Assessment

1 | 0

04 March 2022

McCain Foods (GB) Ltd

Environmental Permit Variation Application - Scarborough Plant Facility Renewal Project

Project No:	B1958992
Document Title:	Air Quality Impact Assessment
Document No.:	1
Revision:	0
Document Status:	
Date:	04 March 2022
Client Name:	McCain Foods (GB) Ltd
Client No:	
Project Manager:	
Author:	David Howells
File Name:	McCains Air Quality Impact Assessment v1

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Document history and status

Revision	Date	Description	Author	Checked	Reviewed	Approved
0	04/03/22	For client review	D Howells	R Tait	G Wilson	M McAree

Contents

Executive Summary

McCain Foods (GB) Ltd (hereafter referred to as 'McCain Foods') operates a food production facility at the Havers Hill Industrial Estate, situated between the town of Eastfield and village of Cayton, Scarborough.

McCain Foods is proposing to install a Wastewater Treatment Plant (WwTP) including a new biogas fuelled combined heat and power (CHP) engine (with a thermal input capacity of 1.8 MW_{th}) at its food manufacturing plant at Scarborough (hereafter the 'site'). Therefore, McCain Foods is required to submit an application to vary the sites' exiting Environmental Permit (EP) (Permit Reference EPR/B07732IZ), which includes several combustion units including a thermal oxidiser (to remove odour from the food manufacturing process) and three boilers. The Air Quality Impact Assessment presented within this report is required to support the EP variation application and assesses the potential for significant air quality effects from the operation of the existing site configuration and proposed site configuration at the Scarborough food production facility.

The potential impacts were determined for the following aspects.

- The potential impact on human health due to emissions of pollutants. The pollutants considered include nitrogen dioxide (NO_2); carbon monoxide (CO); sulphur dioxide (SO_2), total volatile organic compounds (TVOC's) and particulate matter (PM_{10}, particles with an aerodynamic diameter of 10 microns or less and $PM_{2.5}$, particles with an aerodynamic diameter of 2.5 microns or less).
- The potential impact on vegetation and ecosystems due to emissions of oxides of nitrogen (NOx) and SO_2.

This assessment assumes the assessed existing and proposed combustion plant operate simultaneously and continuously all year. In practice, the thermal oxidiser is regularly shut-down for cleaning purposes and the remaining assessed combustion plant, including the proposed CHP engine will have periods of shut-down and maintenance and may not always operate at maximum load. Furthermore, the site closes for two weeks over the summer months.

Human receptors

The assessment indicates that the predicted modelled off-site concentrations and predicted concentrations at sensitive human receptors do not exceed any relevant long-term or short-term air quality objective or guideline, irrespective of the modelled scenario.

For the Proposed Scenario, at sensitive human receptor locations, the predicted long-term (i.e. annual mean) NO_2 and particulate contributions are considered 'not significant'. For short-term NO_2, CO, PM_{10} and SO_2 concentrations at modelled off-site locations and sensitive human receptor locations, the contributions are also considered 'not significant'.

For annual mean and 1-hour mean (99.79th percentile) NO_2 concentrations at a sensitive human receptor location, the difference in PC's between the Existing and Proposed Scenario is 1.0 µg/m^3 and 16.4 µg/m^3, respectively.

In the absence of an EQS for TVOC's, comparison of the annual mean and 24-hour mean predicted concentrations have been made against the annual mean and 24-hour mean environmental quality standard for benzene (C_6H_6). This represents a worst-case scenario for VOCs because it assumes all VOC contributions comprise benzene. For annual mean and maximum 24-hour mean TVOC concentrations at a sensitive human receptor location, the respective PECs exceed the relevant standard for benzene.

However, TVOC emissions from the assessed combustion plant will largely comprise unburnt methane gas from the biogas fuel (up to 75% composition (Naskeo Environment, 2009)), which is not directly harmful to human health. If the contribution of methane (CH_4) is removed from the process contribution, there would be no exceedance of the relevant standard. Therefore, when considering the conservative approach to the assessment and based on professional judgement, the contribution of TVOC's is considered 'not significant'.

Protected conservation areas

For critical levels, the annual mean NOx PCs for the Existing and Proposed Scenario at Flamborough and Filey Coast SPA and Cayton, Cornelian and South Bays SSSI are above 1% of the long-term environmental standard. However, the respective PEC's at both habitats are less than 70% of the critical level and based on professional judgement, the emissions are not likely to have a significant effect. The increase in annual mean NOx PC's at the assessed SPA and SSSI between the Existing and Proposed Scenario is less than 0.3 µg/m^3.

For annual mean SO_2 concentrations (Proposed Scenario), the respective PCs for the assessed SPA and SSSI are less than 1% of the long-term environmental standard and the impact can be described as 'insignificant' as per Environment Agency guidance (Environment Agency, 2021a).

For maximum 24-hour mean NOx concentrations, for the assessed SPA and SSSI, the respective PCs are less than 10% of the short-term environmental standard and can be described as 'insignificant'. The increase in short-term NOx PC's between the Existing and Proposed Scenario at the assessed SPA and SSSI is less than 1.2 µg/m^3.

For all assessed local nature sites, the respective annual mean NOx and SO_2 and short-term NOx PCs are less than 100% of the short-term environmental standard.

For critical loads, the results for the Proposed Scenario indicate that for the assessed Cayton, Cornelian and South Bays SSSI (short vegetation) and Flamborough and Filey Coast SPA, the PCs for acid and nutrient nitrogen deposition, where relevant, are less than 1% of the relevant long-term environmental standard and the impact can be described as 'insignificant' as per Environment Agency guidance (Environment Agency, 2021a).

For Cayton, Cornelian and South Bays SSSI (tall vegetation), the PC for acid deposition and nutrient nitrogen deposition are just above 1% (i.e. 1.3%) of the relevant long-term environmental standard and the respective PEC exceeds the environmental standard.

It should be noted the difference in PC's for acid deposition and nutrient nitrogen deposition between the Existing and Proposed Scenario at the assessed SPA and SSSI is less than is less than 0.02 kEqH+/ha/year and 0.04 kgN/ha-year, respectively.

For the assessed local nature sites, the respective PCs for acid and nutrient nitrogen deposition are less than 100% of the relevant long-term environmental standard for protected conservation areas and the impact can be described as 'insignificant' as Environment Agency guidance (Environment Agency, 2021a).

The conservative approach adopted throughout this assessment such as the modelled continuous operation of the combustion units and assumption that the vegetation type selected is actually present at the modelled protected conservation area receptor location, means the results presented are likely to be higher than would reasonably be expected. Based on professional judgement, it is not considered likely that there would be unacceptable impacts..

Summary

Therefore, it is concluded that the proposed site configuration is acceptable from an air quality perspective.

1. Introduction

1.1 Background

McCain Foods (GB) Ltd (hereafter referred to as 'McCain Foods') operates a food production facility at the Havers Hill Industrial Estate, situated between the town of Eastfield and village of Cayton, Scarborough.

McCain Foods is proposing to install a Wastewater Treatment Plant (WwTP) including a new biogas fuelled JGC 316 GS-B.L (D225) combined heat and power (CHP) engine (with a thermal input capacity of 1.8 MW_{th}) at its food production facility at Scarborough (hereafter the 'site'). Therefore, McCain Foods is required to submit an application to vary the sites' exiting Environmental Permit (EP) (Permit Reference EPR/B07732IZ).

Jacobs UK Limited (hereafter 'Jacobs') has carried out an Air Quality Impact Assessment (AQIA) on behalf of McCain Foods to assess the change in potential impacts associated with the proposed CHP engine and existing on-site combustion units to support the EP variation application.

1.2 Study Outline

Under the existing EP (Permit Reference EPR/BO7732IZ), the site operates several combustion units including a thermal oxidiser (to remove odour from the food manufacturing process) and three boilers.

This AQIA is required to support the EP variation application and assesses the likely significant air quality effects of emissions to air from the proposed biogas fuelled CHP engine as well as the existing natural gas fuelled thermal oxidiser (thermal input capacity of 13.9 MW_{th}), Beel boiler (thermal input capacity of 17.8 MW_{th}) and two Maxicon boilers (each with a thermal input capacity of 10.7 MW_{th}).

The air quality assessment has been carried out following the relevant Environment Agency guidance (Environment Agency, 2021a; 2021b).

- The potential impact on human health due to emissions of pollutants. The pollutants considered include nitrogen dioxide (NO_2), carbon monoxide (CO), sulphur dioxide (SO_2), total volatile organic compounds (TVOC's) and particulate matter (PM_{10}, particles with an aerodynamic diameter of 10 microns or less and $PM_{2.5}$, particles with an aerodynamic diameter of 2.5 microns or less).
- The potential impact on vegetation and ecosystems due to emissions of oxides of nitrogen (NOx) and SO_2.

In order to support a previous permit variation application (application reference EPR/BO7732IZ/V006), the site was modelled in 2018 (Jacobs, 2018). The previous assessment considered the thermal oxidiser, Beel and Maxicon boilers and a closed loop hot water boiler, which has since been removed from consideration as it does not operate simultaneously with the thermal oxidiser.

This assessment now includes the proposed CHP engine and considers two modelling scenarios; the existing plant configuration and proposed plant configuration required to house the new WwTP. Further description of this is provided in Section 2.1.

The site boundary (represented by the approximate planning application boundary) and permit boundary is presented in Figure 1.

This report draws upon information provided from the following parties:

- McCain Foods;
- ADM Ltd;
- Centre for Ecology and Hydrology (CEH);
- GE Jenbacher GmbH & Co OG (Jenbacher)

- Scarborough Borough Council (SBC); and
- Department for Environment, Food and Rural Affairs (Defra).

This report includes a description of the emission sources and modelling scenarios, description of methodology and significance criteria, a review of the baseline conditions including an exploration of the existing environment of the site and surrounding area, an evaluation of results and the potential impact of emissions on human health and protected conservation areas during operation and, finally, conclusions of the assessment.

2. Emission Sources

2.1 Emission Sources to Air

The location of the assessed thermal oxidiser (emission point reference T03), Beel and Maxicon boilers (emission point BH5[1] and BH6) and proposed CHP engine (emission point A147) are presented in Figure 1 and Figure 2.

The proposed CHP engine would be fuelled by biogas generated from the sites' anaerobic digestion process and emissions were modelled on this basis. All remaining assessed combustion units are fuelled by natural gas and were modelled accordingly.

The modelling only considers emissions from the combustion units described above and no other emission points to air at the site have been included in the assessment.

Two scenarios have been modelled to represent the existing and proposed configuration of the site. The scenarios are as follows:

- Existing Scenario – existing site layout, and the existing thermal oxidiser, Beel and Maxicon boilers utilising natural gas.
- Proposed Scenario - proposed site layout, the proposed CHP engine would utilise biogas and the thermal oxidiser, Beel and Maxicon boilers would utilise natural gas.

Table 1 presents the emission sources to be considered in this assessment.

Table 1: Combustion plant to be assessed

Parameters	Thermal oxidiser (13.9 MW_{th})	Combined existing Beel boiler (17.8 MW_{th}) and Maxicon boiler (10.7 MW_{th})	Existing Maxicon boiler 10.7 MW_{th}	JGC 316 GS-B.L (D225) CHP engine (1.8 MW_{th})
Status	Existing	Existing	Existing	Proposed
Modelled fuel	Natural gas	Natural gas	Natural gas	Biogas
Emission point	T03	BH5	BH6	A147

This assessment has been carried out on the assumption that all assessed combustion units would operate continuously at maximum load throughout the year (i.e. 8,760 hours). This is a conservative assumption as in practice, the thermal oxidiser is regularly shut-down (usually for two days once a fortnight for cleaning purposes) and the remaining assessed combustion units will have periods of shut-down and maintenance and may not always operate at maximum load. Furthermore, the site typically closes for two weeks over the summer months. This approach ensures that the worst-case or maximum long-term (i.e. annual mean) and short-term modelled concentrations are quantified (further consideration of this is provided in Appendix A).

2.2 Emissions Data

It should be noted from the 1st January 2030, certain pollutant emission concentrations from the existing boilers must adhere to emission concentration limits as set out in the Medium Combustion Plant Directive (MCPD) EU/2015/2193[2] (European Union, 2015) and as transposed into Schedule 25A of The Environmental Permitting (England and Wales) (Amendment) Regulations 2018 (UK Government, 2018).

For the assessed CHP engine, the NOx and SO_2 emission concentrations were derived from the MCPD[2] for new engines. For CO and TVOC, in the absence of a specific emission limit value, the emission concentrations were

1 The exhaust gases from the Beel boiler and one of the Maxicon boilers exit via a shared stack and are modelled accordingly (i.e. emission point BH5).
2 European Parliament and the Council of the European Union, Medium Combustion Plant Directive EU/2015/2193 of 25 November 2015 on the limitation of emissions of certain pollutants into the air from medium combustion plants.

derived from the Environment Agency's '*Guidance for monitoring landfill gas engine emissions'* (Environment Agency, 2010). For particulates, in the absence of a specific emission limit value, the emission concentration was derived from a previous study of landfill gas engines (Land Quality Management Ltd, 2002).

For the existing assessed combustion units, the emission concentrations and emission parameters were taken from the AQIA to support the previous EP variation application (Jacobs, 2018).

For the proposed CHP engine, the exhaust gas volumetric flow was determined using stoichiometric calculations based on the combustion of biogas at the maximum thermal input rating of the CHP engine. In the absence of information regarding exhaust gas temperature, oxygen and moisture content of the CHP engine, the data used in the model is based on professional judgement acquired from previous work involving biogas fuelled CHP engines of a similar thermal input capacity (Jenbacher, 2016)

The emissions inventory of releases to air from the CHP engine, thermal oxidiser and boilers is provided in Appendix A.

3. Assessment Methodology

This section presents a summary of the methodology used for the assessment of the potential impacts of the site. A full description of the study inputs and assumptions are provided in Appendix A.

3.1 Assessment Location

For this assessment, 26 of the closest sensitive human receptors (such as residential properties, schools, residential care homes and Public Rights of Way (PRoW)) near the site were identified for modelling purposes. The location of these receptors are presented in Figure 3.

In line with the Environment Agency guidance '*Air emissions risk assessment for your environmental permit*' (Environment Agency, 2021a), it is necessary to identify protected conservation areas within the following distances from the site:

- European sites (i.e. Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar sites) within 10 km; and
- Site of Special Scientific Interest (SSSI) and local nature sites (i.e. ancient woodlands, local wildlife sites (LWS) and national and local nature reserves (NNR and LNR)) within 2 km.

Based on these criteria; Flamborough and Filey Coast SPA; Cayton, Vornelian and South Bays SSSI; The Dell LNR; Cayton Meadow LWS; Burton Riggs Gravel Pits LWS; and High Deepdale LWS have been included in the assessment.

The location of the assessed protected conservation areas are presented in Figure 4 and further details are set out in Appendix A.

3.2 Overall Methodology

The assessment was carried out using an atmospheric dispersion modelling technique. Atmospheric Dispersion Modelling System (ADMS) version 5.2.4 was used to model releases of the identified substances. The ADMS model predicts the dispersion of operational emissions from a specific source (e.g. a stack), and the subsequent concentrations over an identified area (e.g. at ground level across a grid of receptor points) or at specified points (e.g. a residential property). ADMS was selected because this model is fit for the purpose of modelling the emissions from the type of sources on-site (i.e. point source emissions from a combustion source) and is accepted as a suitable assessment tool by local authorities and the Environment Agency.

The modelling assessment was undertaken in accordance with the Environment Agency guidance '*Air emissions risk assessment for your environmental permit*' (Environment Agency, 2021a).

A summary of the dispersion modelling procedure is set out below.

1) Information on the existing and proposed plant location, stack parameters and proposed new buildings to support the WwTP were supplied by McCain Foods (McCain Foods, 2018; 2021). Information on the assessed combustion plant were obtained from various sources as described in Section 2.2.
2) Five years of hourly sequential data recorded at the Bridlington meteorological station (2016 – 2020 inclusive) were used for the assessment (ADM Ltd, 2022).
3) Information on the existing main buildings located on-site, which could influence dispersion of emissions from assessed combustion plant were estimated from Defra's environmental open-data applications and datasets (Defra, 2022) and Google Earth (Google Earth, 2022). The use of this software has allowed a more accurate representation of actual site conditions than was previously modelled (Jacobs, 2018). Furthermore, due to the complexity of the site layout in terms of varied building height, where appropriate, an average height has been applied to individual buildings included in the model.

4) The maximum predicted concentrations (at a modelled height of 1.5 m or 'breathing zone') at the assessed sensitive human receptor locations R1 – R22 (representing long-term exposure at residential properties, a static caravan and George Pindar School) were considered for the assessment of annual mean, 24-hour mean, 8-hour mean, 1-hour mean and 15-minute mean pollutant concentrations within the study area. For receptors R23 - R26 (representing George Pindar School sports facilities and nearby football pitch), only the 1-hour mean and 15-minute mean concentrations were considered. The maximum predicted concentrations at an off-site location in the vicinity of the site were considered for the assessment of short-term (1-hour and 15-minute mean) concentrations. In this assessment, an off-site location is considered a location outside the planning application boundary (see Figure 1).
5) The above information was entered into the dispersion models.
6) The dispersion model were run to provide the Process Contributions (PC). The PC is the estimated maximum environmental concentration of substances due to releases from the process alone. The results were then combined with baseline concentrations (see Section 4) to provide the total Predicted Environmental Concentration (PEC) of the substances of interest.
7) The PECs were then assessed against the appropriate environmental standards for air emissions for each substance set out in the Environment Agency's guidance (Environment Agency, 2021a) document to determine the nature and extent of any potential adverse effects.
8) Modelled concentrations were processed using geographic information system (GIS) software (ArcMap 10.8.1) to produce contour plots of the model results. These are provided for illustrative purposes only; assessment of the model results was based on the numerical values outputted by the dispersion model on the model grid (see Figure 3) and at the specific receptor locations and were processed using Microsoft Excel.
9) The predicted concentrations of NOx and SO_2 were also used to assess the potential impact on critical levels and critical loads (i.e. acid and nutrient nitrogen deposition) (see Section 3.3.2) at the assessed protected conservation area. Details of the deposition assessment methodology are provided in Appendix B.

In addition to the above, a review of existing ambient air quality in the area was undertaken to understand the baseline conditions at the site and at receptors within the study area. These existing conditions were determined by reviewing the monitoring data already available for the area and other relevant sources of information. The review of baseline air quality is set out in Section 4.

Where appropriate, a conservative approach has been adopted throughout the assessment to increase the robustness of the model predictions. In addition, an analysis of various sensitivity scenarios has also been carried out (see Section 5.3) to determine how changes to model parameters (e.g. differing surface roughness values or modelling without considering buildings) may impact on predicted concentrations at sensitive human receptors and off-site locations.

3.3 Assessment Criteria

3.3.1 Environmental Quality Standards: Human Receptors

In the UK, the focus on local air quality is reflected in the air quality objectives (AQOs) set out in the *Air Quality Strategy for England, Scotland, Wales and Northern Ireland* (AQS) (Defra and the Devolved Administrations, 2007). The AQS stipulates a number of air quality objectives for nine main air pollutants with respect to ambient levels of air quality (Defra, 2007). The AQOs are similar to the limit values that were transposed from the relevant EU directives into UK legislation by *The Air Quality Standards Regulations 2010* (UK Government, 2010). The objectives are based on the current understanding of health effects of exposure to air pollutants and have been specified to control health and environmental risks to an acceptable level. They apply to places where people are regularly present over the relevant averaging period. The objectives set for the protection of human health and vegetation of relevance to the project are summarised in Table 2. Relevant Environmental Assessment Levels (EALs) set out in the Environment Agency guidance (Environment Agency, 2021a) are also included in Table 2 where these supplement the AQOs.

For the purposes of reporting, the AQOs and EALs have been collectively termed as Environmental Quality Standards (EQSs).

Table 2: Air quality objectives and environmental assessment levels

Pollutant	EQS (µg/m^3)	Concentration measured as
NO_2	40	Annual mean
	200	1-hour mean, not to be exceeded more than 18 times a year (99.79th percentile)
CO	10,000	Maximum daily 8 hour running mean (100th percentile)
	30,000	Maximum 1-hour mean (100th percentile)
SO_2	125	24-hour mean not to be exceeded more than 3 times a year (99.18th percentile)
	350	1-hour mean not to be exceeded more than 24 times a year (99.73rd percentile)
	266	15-minute mean not to be exceeded more than 35 times a year (99.9th percentile)
PM_{10}	40	Annual mean
	50	24-hour mean, not to be exceeded more than 35 times a year (90.41st percentile)
$PM_{2.5}$	20[3]	Annual mean
TVOC[1]	5[2]	Annual mean
	30	Maximum 24-hour mean (100th percentile)

Note 1: VOCs may contain a wide range of organic compounds and it is often difficult to determine or identify each and every compound present. The TVOC emissions from the assessed combustion plant will largely comprise methane which is not directly harmful to human health.

Note 2: For the purposes of this assessment, the annual mean and 24-hour mean AQO for benzene (C_6H_6) has been applied as it is a standard substitute that adequately represents a worst-case scenario for VOCs.

Note 3: Amendment to the Air Quality Standards Regulations 2010 as per the Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 (UK Government, 2020).

For the assessment of long-term average concentrations (i.e. the annual mean concentrations) at human receptors, impacts were described using the following criteria:

- if the PC is less than 1% of the long-term EQS, the contribution can be considered as 'insignificant' and not representative of a significant effect (i.e. 'not significant') (Environment Agency, 2021b);
- if the PC is greater than 1% of the EQS but the PEC is less than 70% of the long-term air quality objective, based on professional judgement, this would be classed as 'not significant'; and
- where the PC is greater than 1% of the EQS and the PEC is greater than 70% of the EQS, professional judgement is used to determine the overall significance of the effect (i.e. whether the effect would be 'not significant' or 'significant'), taking account of the following:
    - the scale of the changes in concentrations;
    - whether or not an exceedance of an EQS is predicted to arise in the study area where none existed before, or an exceedance area is substantially increased as a result of the development; and
    - uncertainty, including the influence and validity of any assumptions adopted in undertaking the assessment.

For the assessment of short-term average concentrations (e.g. the 1-hour mean NO_2 concentrations, and the 15-minute, 1-hour and 24-hour mean SO_2 concentrations etc.), impacts were described using the following criteria:

- if the PC is less than 10% of the short-term EQS, this would be classed as 'insignificant' and not representative of a significant effect (i.e. not significant) (Environment Agency, 2021b);
- if the PC is greater than 10% of the EQS but less than 20% of the headroom between the short-term background concentration and the EQS, based on professional judgement, this can also be described as not significant; and

- where the PC is greater than 10% of the EQS and 20% of the headroom, professional judgement is used to determine the overall significance of the effect (i.e. whether the effect would be not significant or significant) in line with the approach specified above for long-term average concentrations.

Environment Agency guidance recommends that further action will not be required if proposed emissions comply with Best Available Techniques Associated Emission Levels (BAT AELs) and resulting PECs do not exceed the relevant EQS (Environment Agency, 2021a).

3.3.2 Environmental Quality Standards: Protected Conservation Areas

Critical levels

The environmental standards set for protected conservation areas of relevance to the project are summarised in Table 3 (Environment Agency, 2021a).

Table 3: Air Quality Objectives and Environmental Assessment Levels for protected conservation areas

Pollutant	EQS (µg/m^3)	Concentration measured as
NOx	30	Annual mean limit value for the protection of vegetation (referred to as the "critical level")
	75	Maximum 24-hour mean for the protection of vegetation (referred to as the "critical level")
SO_2	10	Annual mean limit value for the protection of vegetation (referred to as the "critical level") where lichens or bryophytes are present
	20	Annual mean limit value for the protection of vegetation (referred to as the "critical level") where lichens or bryophytes are not present

Critical loads

Critical loads for pollutant deposition to statutorily designated habitat sites in the UK and for various habitat types have been published by the CEH and are available from the APIS website. Critical Loads are defined on the APIS website (Centre for Ecology and Hydrology, 2022) as:

"a quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge".

Compliance with these benchmarks is likely to result in no significant adverse effects on the natural environment at these locations. The critical loads for the designated habitat sites considered in this assessment are set out in Table 4. For the assessed Cayton, Vornelian and South Bays SSSI, the Site Relevant Critical Load tool function on the APIS website was used to determine the relevant critical loads for the assessed protected conservation area based on the most sensitive vegetation type likely to inhabit the protected conservation area. For the assessed Flamborough and Filey Coast SPA[3] and local nature sites, the Search by Location function on the APIS website was used. Where both short and tall vegetation type is assumed to inhabit the assessed local nature sites, the acid grassland and coniferous woodland habitat feature was selected on the APIS website which are generally the most sensitive short and tall vegetation type to nutrient nitrogen and acid deposition.

3 For the Flamborough and Filey Coast SPA, the Search by Location was used as there was no critical load data available when using the Site Relevant Critical Loads function on the APIS website.

Table 4: Critical loads for modelled protected conservation areas

Receptor ref	Protected conservation area	Habitat feature applied	Vegetation type (for deposition velocity)	Critical load			
				Acid deposition (kEqH+/ha/year)			Nitrogen deposition (kg N/ha/year)
				CLMaxS	CLMinN	CLMaxN	Minimum
H1	Flamborough and Filey Coast SPA	Maritime Cliff and Slopes (Alpine and subalpine grasslands)	Short	No critical load data available			5
H2	Cayton, Cornelian and South Bays SSSI	Acid grassland (Festuca ovina - Agrostis capillaris - Galium saxatile grassland)	Short	0.830	0.223	1.268	10
		Broad-leaved, mixed and yew woodland	Tall	1.406	0.142	1.763	15
H3	The Dell LNR	Acid grassland	Short	4.100	0.223	4.323	5
		Coniferous woodland	Tall	10.778	0.142	10.920	5
H4	Cayton Meadow LWS	Acid grassland	Short	4.100	0.223	4.323	5
		Coniferous woodland	Tall	10.774	0.142	10.916	5
H5	Burton Riggs Gravel Pits LWS	Acid grassland	Short	0.850	0.223	1.073	5
		Coniferous woodland	Tall	1.562	0.142	1.704	5
H6	High Deepdale LWS	Acid grassland	Short	0.430	0.223	0.653	5
		Coniferous woodland	Tall	1.002	0.142	1.144	5

Critical load functions for acid deposition are specified on the basis of both nitrogen and sulphur derived acid. The critical load function contains a value for sulphur derived acid and two values for nitrogen derived acid deposition (a minimum and maximum value). The APIS website provides advice on how to calculate the process contribution (PC – emissions from the modelled process alone) and the predicted environmental concentrations (PEC – the PC added to the existing deposition) as a percentage of the acid critical load function and how to determine exceedances of the critical load function. This guidance was adopted for this assessment. The minimum of the range of nitrogen critical loads was used for the assessment in line with the advice on the APIS website (Centre for Ecology and Hydrology, 2022).

Significance Criteria – SPA and SSSI

With regard to concentrations at the assessed designated habitat sites, the Environment Agency guidance (Environment Agency, 2021a) states emissions can be described as insignificant and no further assessment is required (including the need to calculate PECs) if:

- the short-term PC is less than 10% of the short-term environmental standard for protected conservation areas; or
- the long-term PC is less than 1% of the long-term environmental standard for protected conservation areas.

Where appropriate, the significance of the predicted long-term (annual mean) concentrations or deposition at protected conservation areas were determined in line with Environment Agency guidance (Environment Agency, 2021a) summarised as follows:

- where the PC is less than 1% of the relevant critical level or critical load, the emission is not likely to have a significant effect alone or in combination irrespective of the existing concentrations or deposition rates;
- where the PC is above 1%, further consideration of existing background concentrations or deposition rates is required, and where the total concentration or deposition is less than 70% of the critical level or critical load, calculated in combination with other committed projects or developments as appropriate, the emission is not likely to have a significant effect; and
- where the contribution is above 1%, and the total concentration or deposition rate is greater than 70% of the critical level or critical load, either alone or in combination with other committed projects or developments, then this may indicate a significant effect and further consideration is likely to be required.

The above approach is used to give a clear definition of what effects can be disregarded as insignificant, and which need to be considered in more detail in relation to the predicted annual mean concentrations or deposition.

For short-term mean concentrations (i.e. the 24-hour mean critical level for NOx) where the PC is less than 10% of the critical level then it would be regarded as 'insignificant'. A potentially significant effect would be identified where the short-term PC from the modelled sources would lead to the total concentration exceeding the critical level. Further consideration is likely to be required in this situation.

Significance Criteria –LNR and LWS

The relevant significance criteria for these protected conservation areas are set out below.

With regard to concentrations or deposition rates at local nature sites, the Environment Agency guidance (Environment Agency, 2021a) states emissions can be described as 'insignificant' and no further assessment is required (including the need to calculate PECs) if:

- the short-term PC is less than 100% of the short-term environmental standard for protected conservation areas; or
- the long-term PC is less than 100% of the long-term environmental standard for protected conservation areas.

The above approach is used to give a clear definition of what effects can be disregarded as 'insignificant', and which need to be considered in more detail in relation to the predicted annual mean concentrations or deposition.

4. Existing Environment

4.1 Site Location

The site is situated between the town of Eastfield and village of Cayton, approximately 5 km south-southeast of Scarborough, North Yorkshire. The area surrounding the site generally comprises residential properties and industrial premises. George Pindar School is located approximately 100 m from the western boundary of the site.

There are several sensitive human receptors in the vicinity of the site in respect of potential air emissions from the process. The most relevant sensitive receptors have been identified from local mapping and are summarised in Appendix A and presented in Figure 3. The nearest modelled residential property is approximately 120 m west-northwest of the thermal oxidiser (based on the thermal oxidiser stack location National Grid Reference (NGR) E 505075 N 483797)).

4.2 Local Air Quality Management

A review of baseline air quality was carried out prior to undertaking the air quality assessment. This was carried out to determine the availability of baseline air quality data recorded in the vicinity of the site and also if data from other regional or national sources such as the UK Air Information Resource (UK-AIR) (Defra, 2022b) website could be used to represent background concentrations of the relevant pollutants in the vicinity of the site.

As part of the Local Air Quality Management (LAQM) process, SBC has declared a single Air Quality Management Area (AQMA) termed 'Scarborough AQMA'. This AQMA was declared in 2004 (amended in 2018) for elevated concentrations of 15-minute and 24-hour mean SO_2 and annual mean and 24-hour mean PM_{10}. This AQMA is approximately 43 km northwest of the site and is not considered further in the assessment.

SBC also carries out regular assessments and monitoring of air quality within its administrative boundary as part of the LAQM process. The most recent Air Quality Annual Status Report available (Scarborough Borough Council, 2021) was reviewed to determine concentrations of NO_2 in the vicinity of the site. It should be noted that none of the other assessed pollutants are monitored by SBC. Table 5 presents information on the nearest monitoring location to the site.

Table 5: Nearest monitoring location to the site

Site ID	Description	Site type	Location	Distance and direction from CHP engine	Pollutants monitored	2019 Annual mean concentration ($\mu g/m^3$)
Non-automatic monitoring (diffusion tubes)						
Cayton	Cayton	Roadside	E 505466 N 483378	0.3 km, ESE	NO_2	NO_2 – 15.0 $\mu g/m^3$

This monitoring location is not considered representative of the site and surrounding area due to the roadside monitoring location being adjacent to the B1261 (Main Road).

For the assessed pollutants, information on background air quality in the vicinity of the site was obtained from Defra background map datasets (Defra, 2022b). The 2018-based background maps by Defra are estimates based upon the principal local and regional sources of emissions and ambient monitoring data. For SO_2 and CO concentrations, the 2001-based background maps were used. For TVOC concentrations, the 2010-based background maps for benzene were used. These background concentrations are presented in Table 6.

As it is necessary to determine the potential impact of emissions from the site on the assessed protected conservation areas, the background concentrations of NOx and SO_2 were also identified for the assessed protected conservation areas. These background concentrations were also obtained from Defra background map datasets (Defra, 2022b) and are displayed in Table 6.

Table 6: Background concentrations: adopted for use in assessment for assessed human receptors and protected conservation areas

Pollutant	Annual mean concentration (µg/m^3)	Description
Human receptors		
NO_2	6.9 – 12.3	Defra 1 km x 1 km background map value for the assessed sensitive human receptor locations, 2022 map concentration
CO	96 - 99	Defra 1 km x 1 km background map value for the assessed sensitive human receptor locations, scaled from 2001-based map to 2022 concentration
PM_{10}	12.3 – 13.2	Defra 1 km x 1 km background map value for the assessed sensitive human receptor locations, 2022 map concentration
$PM_{2.5}$	7.1 – 7.7	Defra 1 km x 1 km background map value for the assessed sensitive human receptor locations, 2022 map concentration
SO_2	3.6 – 4.4	Defra 1 km x 1 km background map value for the assessed sensitive human receptor locations, 2001 map concentration
C_6H_6	0.16 – 0.17	Defra 1 km x 1 km background map value for the assessed sensitive human receptor locations, 2010 map concentration for benzene
Protected conservation areas		
NOx	6.7 – 16.7	Defra 1 km x 1 km background map value for the assessed sensitive human receptor locations, 2022 map concentration
SO_2	3.1 – 4.5	Defra 1 km x 1 km background map value for the assessed sensitive human receptor locations, 2001 map concentration

The long-term background concentrations were doubled to estimate the short-term background concentrations in line with the Environment Agency guidance (Environment Agency, 2021a).

4.3 Existing Deposition Rates

Existing acid and nutrient nitrogen deposition levels were obtained from APIS (Centre for Ecology and Hydrology, 2022). As a conservative approach to the assessment, it is assumed the vegetation type selected is present at the specific modelled location within the assessed protected conservation area.

The existing deposition values at the assessed ecological designations are set out in Table 7.

Table 7: Existing deposition at modelled habitat sites

Receptor ref	Protected conservation area	Vegetation type (for deposition velocity)	Existing deposition rates		
			Acid deposition (kEqH+/ha/year)		Nutrient N deposition (kg N/ha/year)
			Nitrogen	Sulphur	Nitrogen
H1	Flamborough and Filey Coast SPA	Short	1.46	0.21	20.44
H2	Cayton, Cornelian and South Bays SSSI	Short	1.29	0.19	18.03
		Tall	2.12	0.24	29.66
H3	The Dell LNR	Short	1.65	0.20	23.10
		Tall	2.75	0.24	38.50
H4	Cayton Meadow LWS	Short	1.65	0.20	23.10
		Tall	2.75	0.24	38.50
H5	Burton Riggs Gravel Pits LWS	Short	1.65	0.20	23.10
		Tall	2.75	0.24	38.50
H6	High Deepdale LWS	Short	1.29	0.19	18.06
		Tall	2.12	0.24	29.68

5. Results

5.1 Human Receptors

The results presented below are the maximum modelled concentrations predicted at any of the 26 assessed sensitive human receptor locations and the maximum modelled concentration at any off-site location for the five years of meteorological data used in the study.

The results of the dispersion modelling are set out in Table 8 and present the following information:

- EQS (i.e. the relevant air quality standard);
- estimated annual mean background concentration (see Section 4) that is representative of the baseline;
- PC, the maximum modelled concentrations due to the emissions from the assessed combustion plant;
- PEC, the maximum modelled concentration due to process emissions combined with estimated baseline concentrations;
- PC and PEC as a percentage of the EQS; and
- PC as a percentage of headroom (i.e. the PC as a percentage of the difference between the short-term background concentration and the EQS, for short-term predictions only).

The full results at assessed human receptor locations for both considered scenarios are presented in Appendix C.

Table 8: Results of detailed assessment

Pollutant	Averaging period	Assessment location	Maximum receptor	EQS (µg/m^3)	Baseline air quality level (µg/m^3)	PC (µg/m^3)	PEC (µg/m^3)	PC / EQS (%)	PEC / EQS (%)	PC as a percentage of headroom (%)
Existing Scenario										
CO	Maximum 8-hour running mean	Sensitive locations	R1	10,000	192	32.8	224.6	0.3%	2.2%	0.3%
	Maximum 1-hour mean	Maximum off-site	-	30,000	197	139.9	337.0	0.5%	1.1%	0.5%
		Sensitive locations	R14	30,000	192	57.7	249.4	0.2%	0.8%	0.2%
Proposed Scenario										
CO	Maximum 8-hour running mean	Sensitive locations	R14	10,000	192	167.8	359.6	1.7%	3.6%	1.7%
	Maximum 1-hour mean	Maximum off-site	-	30,000	192	1,443.2	1,634.9	4.8%	5.4%	4.8%
		Sensitive locations	R14	30,000	192	345.1	536.9	1.2%	1.8%	1.2%
Existing Scenario										
NO_2	Annual mean	Sensitive locations	R2	40	6.9	3.9	10.8	9.9%	27.1%	-
	1-hour mean (99.79th percentile)	Maximum off-site	-	200	14.1	31.6	45.7	15.8%	22.9%	17.0%
		Sensitive locations	R14	200	13.8	23.0	36.8	11.5%	18.4%	12.4%
Proposed Scenario										
NO_2	Annual mean	Sensitive locations	R7	40	6.9	5.0	11.9	12.4%	29.7%	-
	1-hour mean (99.79th percentile)	Maximum off-site	-	200	13.8	44.1	57.9	22.1%	29.0%	23.7%
		Sensitive locations	R14	200	13.8	39.4	53.2	19.7%	26.6%	21.2%
SO_2	24-hour mean (99.18th percentile)	Sensitive locations	R14	125	7.2	7.1	14.3	5.6%	11.4%	6.0%
	1-hour mean (99.73rd percentile)	Maximum off-site	-	350	7.2	25.4	32.6	7.2%	9.3%	7.4%
		Sensitive locations	R14	350	7.2	15.4	22.6	4.4%	6.5%	4.5%
	15-minute mean (99.9th percentile)	Maximum off-site	-	266	7.2	84.3	91.6	31.7%	34.4%	32.6%
		Sensitive locations	R14	266	7.2	22.5	29.7	8.5%	11.2%	8.7%
PM_{10}	Annual mean	Sensitive locations	R7	40	12.3	0.06	12.3	0.2%	30.8%	-
	24-hour mean (90.41st percentile)	Sensitive locations	R7	50	24.5	0.20	24.7	0.4%	49.5%	0.8%

Pollutant	Averaging period	Assessment location	Maximum receptor	EQS (µg/m^3)	Baseline air quality level (µg/m^3)	PC (µg/m^3)	PEC (µg/m^3)	PC / EQS (%)	PEC / EQS (%)	PC as a percentage of headroom (%)
$PM_{2.5}$	Annual mean	Sensitive locations	R7	20	7.1	0.06	7.1	0.3%	35.7%	-
TVOC	Annual mean	Sensitive locations	R7	5 (Benzene)	0.2	9.2	9.3	183.2%	186.4%	-
	Maximum 24-hour mean	Sensitive locations	R14	30 (Benzene)	0.3	79.3	79.7	264.5%	265.6%	267.3%

Note 1: For the Existing Scenario, the assessed existing combustion units utilise natural gas and therefore, emissions of SO_2, particulates and TVOCs are not considered.

Note 2: For annual mean NO_2, PM_{10} and $PM_{2.5}$ and TVOC concentrations, 24-hour mean PM_{10} and SO_2 concentrations and 8-hour mean CO concentrations, R23 to R26 have been omitted from analysis as these receptor locations represent George Pindar School sports facilities and nearby football pitch (i.e. short-term exposure only). The full results are presented in Appendix C.

Results discussion

The results in Table 8 indicate that the predicted off-site concentrations and predicted concentrations at sensitive human receptors do not exceed any relevant long-term or short-term air quality objective or guideline.

The results in Table 8 indicate that the maximum annual mean NO_2 PC for the Proposed Scenario represents an increase at a sensitive human receptor location by 1.0 µg/m^3, from 3.9 µg/m^3 to 5.0 µg/m^3. The maximum annual mean PC equates to 12.4% of the relevant EQS and is predicted at R7, which represents a residential property approximately 0.22 km southeast of the thermal oxidiser stack. The PC is above 1% of the relevant EQS, however, as the PEC is less than 70% of the EQS (i.e. 29.7%), based on professional judgement, the impact is considered 'not significant'.

As discussed previously, the conservative approach adopted throughout this assessment means the predicted concentrations presented in Table 8 are likely to be higher than would reasonably be expected.

For the assessment of 1-hour mean (99.79th percentile) NO_2 concentrations at a sensitive human receptor location, the maximum PC for the Proposed Scenario represents an increase by 16.4 µg/m^3, from 23.0 µg/m^3 to 39.4 µg/m^3. The maximum PC equates to 19.7% of the relevant EQS and is predicted at R14, which represents a residential property approximately 0.33 km south of the thermal oxidiser stack. The PC is greater than 10% of the short-term EQS and greater than 20% of the headroom between the short-term background concentration and the EQS. However, as the PEC is within 70% of the EQS (i.e. 26.6%), based on professional judgement, the impact is considered 'not significant'.

For the assessment of 1-hour mean (99.79th percentile) NO_2 concentrations at a modelled off-site location, the maximum PC for the Proposed Scenario represents an increase by 12.5 µg/m^3, from 31.6 µg/m^3 to 44.1 µg/m^3. The maximum PC (which equates to 22.1% of the relevant EQS) is greater than 10% of the short-term EQS and greater than 20% of the headroom. However, as the PEC is well within the EQS (i.e. 29.0%), based on professional judgement, the impact is considered 'not significant'. This maximum concentration is predicted at NGR E 504935 N 483587, which is located adjacent to the western boundary of the site near industrial premises.

For short-term CO concentrations at both sensitive human receptor locations and modelled off-site locations, the respective PCs are less than 10% of the relevant short-term EQS and their impact is considered 'insignificant' as per Environment Agency guidance (Environment Agency, 2021a) and therefore 'not significant'.

For long-term PM_{10} and $PM_{2.5}$ concentrations, the respective PCs are less than 1% of the relevant long-term EQS and are considered 'insignificant' as per Environment Agency guidance (Environment Agency, 2021a) and therefore 'not significant'.

For 24-hour mean (90.41st percentile) PM_{10} concentrations, 24-hour mean (99.18th percentile) and 1-hour mean (99.73rd percentile) SO_2 concentrations at a sensitive human receptor location and modelled off-site location, the respective PCs are less than 10% of the relevant short-term EQS and the impact can be described as 'insignificant' and therefore 'not significant'. The maximum 1-hour mean (99.73rd percentile) SO_2 concentration at an off-site location is predicted at NGR E 505135 N 483577, which is located adjacent to the eastern boundary of the site in hedgerow and is not likely to be frequented by members of the public.

For 15-minute mean (99.9th percentile) SO_2 concentrations at a sensitive human receptor location, the maximum PC of 22.5 µg/m^3 (predicted at R14) is less than 10% of the short-term EQS and its impact is considered 'insignificant' as per Environment Agency guidance (Environment Agency, 2021a) and therefore 'not significant'. For 15-minute mean (99.9th percentile) SO_2 concentrations at a modelled off-site location, the maximum PC of 84.3 µg/m^3 is greater than 10% of the short-term EQS and greater than 20% of the headroom between the short-term background concentration and the EQS. However, as the PEC is well within the EQS (i.e. 34.4%), based on professional judgement, the impact is considered 'not significant'. The maximum 15-minute mean (99.9th percentile) SO_2 concentration at an off-site location is predicted at NGR E 504985 N 483757, which is adjacent to the western boundary of the site on Havers Hill Road.

For annual mean TVOC concentrations at a sensitive human receptor location, the maximum PC is 9.2 µg/m^3 and is predicted at R7. When comparing the PEC against the annual mean EQS for benzene, there is an exceedance of the standard.

For maximum 24-hour mean TVOC concentrations at a sensitive human receptor location, the maximum PC is 79.3 µg/m^3, which is predicted at R14. The PEC of 79.7 µg/m^3 exceeds the benzene 24-hour mean standard.

In the absence of an EQS for TVOC's, comparison of the annual mean and 24-hour mean predicted concentrations have been made against the annual mean and 24-hour mean environmental quality standard for benzene (C_6H_6). This represents a worst-case scenario for VOCs because it assumes all VOC contributions comprise benzene. TVOC emissions from the assessed combustion plant will largely comprise unburnt methane gas from the biogas fuel (up to 75% composition (Naskeo Environment, 2009)), which is not directly harmful to human health. If the contribution of methane (CH_4) is removed from the process contribution, there would be no exceedance of the short-term relevant standard. Therefore, when considering the conservative approach to the assessment and based on professional judgement, the contribution of TVOC's is considered 'not significant'.

Summary

The results in Table 8 indicate that the predicted modelled off-site concentrations and predicted concentrations at sensitive human receptors do not exceed any relevant long-term or short-term air quality objective or guideline. For annual mean and 1-hour mean (99.79th percentile) NO_2 concentrations at a sensitive human receptor location, the increase in PC's between the Existing and Proposed Scenario is 1.0 µg/m^3 and 16.4 µg/m^3, respectively.

The conservative approach adopted throughout the assessment means the predicted concentrations presented are likely to be higher than would reasonably be expected. It is concluded that at sensitive human receptor locations in the vicinity of the site, the proposed site configuration is acceptable from an air quality perspective.

Isopleths (see Figures 5 - 9) have been produced for annual mean and 1-hour mean (99.79th percentile) NO_2 concentrations (both scenarios) and 15-minute mean (99.9th percentile) SO_2 concentrations (Proposed Scenario only). The figures are based on the year of meteorological data which resulted in the highest PC at a sensitive human receptor location for the Proposed Scenario.

5.2 Protected Conservation Areas

5.2.1 Assessment against Critical Levels

The environmental effects of releases from the site at the assessed protected conservation areas have been determined by comparing predicted concentrations of released substances with the EQSs for the protection of vegetation (critical levels) (see Table 3). The results of the detailed modelling at the assessed protected conservation areas are shown in Table 9. The results presented are the maximum predicted concentration at each assessed protected conservation area for the five years of meteorological data used in the study.

For SO_2, the relevant EQS was based on the assumption that lichens and bryophytes were present at each site, therefore adopting a further conservative approach.

Table 9: Results of detailed assessment at assessed protected conservation sites for annual mean NOx and maximum 24-hour mean NOx concentrations (Existing Scenario)

Ref	Protected Conservation Area	EQS (µg/m³)	Background concentration (µg/m³)	PC (µg/m³)	PEC (µg/m³)	PC/EQS (%)	PEC/EQS (%)
Annual mean NOx concentrations							
H1	Flamborough and Filey Coast SPA	30	6.7	0.3	7.0	1.1%	23.4%
H2	Cayton, Cornelian and South Bays SSSI		7.9	0.8	8.7	2.6%	28.9%
H3	The Dell LNR		16.7	1.1	17.8	3.6%	59.2%
H4	Cayton Meadow LWS		7.6	0.2	7.9	0.8%	26.2%
H5	Burton Riggs Gravel Pits LWS		13.9	0.1	14.1	0.5%	46.8%
H6	High Deepdale LWS		7.8	0.2	8.0	0.8%	26.8%
Maximum 24-hour mean NOx concentrations							
H1	Flamborough and Filey Coast SPA	75	13.4	2.0	15.4	2.6%	20.5%
H2	Cayton, Cornelian and South Bays SSSI		15.8	5.2	21.0	6.9%	27.9%
H3	The Dell LNR		33.3	15.6	48.9	20.8%	65.2%
H4	Cayton Meadow LWS		15.3	4.8	20.1	6.4%	26.8%
H5	Burton Riggs Gravel Pits LWS		27.8	2.5	30.4	3.4%	40.5%
H6	High Deepdale LWS		15.6	2.5	18.1	3.4%	24.2%

Table 10: Results of detailed assessment at assessed protected conservation sites for annual mean NOx and SO_2 concentrations and for maximum 24-hour mean NOx concentrations (Proposed Scenario)

Ref	Protected Conservation Area	EQS (µg/m³)	Background concentration (µg/m³)	PC (µg/m³)	PC difference between Sc1 (µg/m³)	PEC (µg/m³)	PC/EQS (%)	PEC/EQS (%)
Annual mean NOx concentrations								
H1	Flamborough and Filey Coast SPA	30	6.7	0.4	0.1	7.1	1.4%	23.7%
H2	Cayton, Cornelian and South Bays SSSI		7.9	1.0	0.2	8.8	3.2%	29.5%
H3	The Dell LNR		16.7	1.3	0.2	18.0	4.4%	60.0%
H4	Cayton Meadow LWS		7.6	0.3	0.1	7.9	1.0%	26.4%
H5	Burton Riggs Gravel Pits LWS		13.9	0.2	0.03	14.1	0.6%	47.0%
H6	High Deepdale LWS		7.8	0.3	0.05	8.1	0.9%	26.9%
Annual mean SO_2 concentrations								
H1	Flamborough and Filey Coast SPA	10	3.1	0.02	n/a	3.1	0.2%	31.3%
H2	Cayton, Cornelian and South Bays SSSI		3.4	0.04		3.4	0.4%	34.4%
H3	The Dell LNR		4.4	0.05		4.5	0.5%	44.7%
H4	Cayton Meadow LWS		3.3	0.01		3.3	0.1%	32.7%
H5	Burton Riggs Gravel Pits LWS		4.5	0.01		4.5	0.1%	45.2%
H6	High Deepdale LWS		3.4	0.01		3.4	0.1%	34.2%
Maximum 24-hour mean NOx concentrations								

Ref	Protected Conservation Area	EQS (µg/m^3)	Background concentration (µg/m^3)	PC (µg/m^3)	PC difference between Sc1 (µg/m^3)	PEC (µg/m^3)	PC/EQS (%)	PEC/EQS (%)
H1	Flamborough and Filey Coast SPA	75	13.4	2.8	0.8	16.2	3.7%	21.6%
H2	Cayton, Cornelian and South Bays SSSI		15.8	6.3	1.1	22.1	8.4%	29.4%
H3	The Dell LNR		33.3	19.4	3.8	52.8	25.9%	70.3%
H4	Cayton Meadow LWS		15.3	5.9	1.1	21.2	7.9%	28.3%
H5	Burton Riggs Gravel Pits LWS		27.8	3.1	0.5	30.9	4.1%	41.2%
H6	High Deepdale LWS		15.6	3.2	0.6	18.8	4.2%	25.0%

Results discussion

For the Existing and Proposed Scenario, the annual mean NOx PCs at Flamborough and Filey Coast SPA and Cayton, Cornelian and South Bays SSSI are above 1% of the long-term environmental standard. However, the respective PEC's at both protected conservation areas are less than 70% of the critical level and based on professional judgement, the emissions are not likely to have a significant effect. The increase in annual mean NOx PCs at the assessed SPA and SSSI between the Existing and Proposed Scenario is less than 0.3 µg/m^3.

For annual mean SO_2 concentrations (Proposed Scenario), the respective PCs for the assessed SPA and SSSI are less than 1% of the long-term environmental standard and the impact can be described as 'insignificant' as per Environment Agency guidance (Environment Agency, 2021a).

For maximum 24-hour mean NOx concentrations, for the assessed SPA and SSSI, the respective PCs are less than 10% of the short-term environmental standard and can be described as 'insignificant'. The increase in short-term NOx PC's between the Existing and Proposed Scenario at the assessed SPA and SSSI is less than 1.2 µg/m^3.

For all assessed local nature sites, the respective annual mean NOx and SO_2 and short-term NOx PCs are less than 100% of the short-term environmental standard and can be described as 'insignificant' as per Environment Agency guidance (Environment Agency, 2021a).

The conservative approach adopted throughout this assessment means that, based on professional judgement, it is not considered likely that there would be unacceptable impacts to air quality at the assessed protected conservation areas, as a consequence of the proposed site configuration with regard to ambient concentrations of NOx and SO_2.

5.2.2 Assessment against Critical Loads

The rate of deposition of acidic compounds and nitrogen containing species have been estimated at the assessed protected conservation areas. This allows the potential for adverse effects to be evaluated by comparison with critical loads for acid and nutrient nitrogen deposition. The assessment took account of emissions of NOx and SO_2 only.

Critical load functions for acid deposition are specified on the basis of both nitrogen-derived acid and sulphur-derived acid. This information, including existing deposition levels at habitat sites, is available from APIS (Centre for Ecology and Hydrology, 2022). Further information on the assessment of deposition is provided in Appendix B. The full detailed modelled results are displayed in Table 11 to Table 14.

Table 11: Modelled acid deposition at assessed protected conservation areas (Existing Scenario)

Ref	Habitat	Vegetation type (for deposition velocity)	Critical load (CL) (kEqH+/ha/year)			Existing acid deposition (kEqH+/ha/year)		PC	PEC	PC/CL (%)	PEC/CL(%)
			CLMaxS	CLMinN	CLMaxN	Existing deposition (N)	Existing deposition (S)				
H1	Flamborough and Filey Coast SPA	Short	No critical load data available			1.46	0.21	0.002	1.67	-	-
H2	Cayton, Cornelian and South Bays SSSI	Short	0.830	0.223	1.268	1.29	0.19	0.006	1.49	0.4%	117%
		Tall	1.406	0.142	1.763	2.12	0.24	0.011	2.37	0.6%	134%
H3	The Dell LNR	Short	4.100	0.223	4.323	1.65	0.20	0.008	1.86	0.2%	43%
		Tall	10.778	0.142	10.920	2.75	0.24	0.016	3.01	0.1%	28%
H4	Cayton Meadow LWS	Short	4.100	0.223	4.323	1.65	0.20	0.002	1.85	0.0%	43%
		Tall	10.774	0.142	10.916	2.75	0.24	0.003	2.99	0.0%	27%
H5	Burton Riggs Gravel Pits LWS	Short	0.850	0.223	1.073	1.65	0.20	0.001	1.85	0.1%	173%
		Tall	1.562	0.142	1.704	2.75	0.24	0.002	2.99	0.1%	176%
H6	High Deepdale LWS	Short	0.430	0.223	0.653	1.29	0.19	0.002	1.48	0.2%	227%
		Tall	1.002	0.142	1.144	2.12	0.24	0.003	2.36	0.3%	207%

Table 12: Modelled nitrogen deposition at assessed protected conservation areas (Existing Scenario)

Ref	Habitat	Vegetation type (for deposition velocity)	Existing nutrient deposition (kgN/ha-year)		PC	PEC	PC/CL (%)	PEC/CL(%)
			Minimal Critical Load (CL)	Existing deposition				
H1	Flamborough and Filey Coast SPA	Short	5	20.44	0.033	20.47	0.7%	409%
H2	Cayton, Cornelian and South Bays SSSI	Short	10	18.03	0.079	18.11	0.8%	181%
		Tall	15	29.66	0.157	29.81	1.0%	199%
H3	The Dell LNR	Short	5	23.10	0.110	23.21	2.2%	464%

Ref	Habitat	Vegetation type (for deposition velocity)	Existing nutrient deposition (kgN/ha-year)		PC	PEC	PC/CL (%)	PEC/CL(%)
			Minimal Critical Load (CL)	Existing deposition				
		Tall	5	38.50	0.220	38.72	4.4%	774%
H4	Cayton Meadow LWS	Short	5	23.10	0.023	23.12	0.5%	462%
		Tall	5	38.50	0.046	38.55	0.9%	771%
H5	Burton Riggs Gravel Pits LWS	Short	5	23.10	0.014	23.11	0.3%	462%
		Tall	5	38.50	0.029	38.53	0.6%	771%
H6	High Deepdale LWS	Short	5	18.06	0.023	18.08	0.5%	362%
		Tall	5	29.68	0.045	29.73	0.9%	595%

Table 13: Modelled acid deposition at assessed protected conservation areas (Proposed Scenario)

Ref	Habitat	Vegetation type (for deposition velocity)	Critical load (CL) (kEqH+/ha/year)			Existing acid deposition (kEqH+/ha/year)		PC	PC difference between Sc1 (µg/m^3)	PEC	PC/CL (%)	PEC/CL(%)
			CLMaxS	CLMinN	CLMaxN	Existing deposition (N)	Existing deposition (S)					
H1	Flamborough and Filey Coast SPA	Short	No critical load data available			1.46	0.21	0.005	0.003	1.68	-	-
H2	Cayton, Cornelian and South Bays SSSI	Short	0.830	0.223	1.268	1.29	0.19	0.012	0.006	1.49	0.9%	118%
		Tall	1.406	0.142	1.763	2.12	0.24	0.023	0.012	2.38	1.3%	135%
H3	The Dell LNR	Short	4.100	0.223	4.323	1.65	0.20	0.015	0.008	1.87	0.4%	43%
		Tall	10.778	0.142	10.920	2.75	0.24	0.031	0.015	3.02	0.3%	28%
H4	Cayton Meadow LWS	Short	4.100	0.223	4.323	1.65	0.20	0.004	0.002	1.85	0.1%	43%
		Tall	10.774	0.142	10.916	2.75	0.24	0.007	0.004	3.00	0.1%	27%
H5	Burton Riggs Gravel Pits LWS	Short	0.850	0.223	1.073	1.65	0.20	0.002	0.001	1.85	0.2%	173%
		Tall	1.562	0.142	1.704	2.75	0.24	0.004	0.002	2.99	0.2%	176%
H6	High Deepdale LWS	Short	0.430	0.223	0.653	1.29	0.19	0.003	0.002	1.48	0.5%	227%

Ref	Habitat	Vegetation type (for deposition velocity)	Critical load (CL) (kEqH+/ha/year)			Existing acid deposition (kEqH+/ha/year)		PC	PC difference between Sc1 (µg/m³)	PEC	PC/CL (%)	PEC/CL(%)
			CLMaxS	CLMinN	CLMaxN	Existing deposition (N)	Existing deposition (S)					
		Tall	1.002	0.142	1.144	2.12	0.24	0.006	0.003	2.37	0.6%	207%

Table 14: Modelled nitrogen deposition at assessed protected conservation areas (Proposed Scenario)

Ref	Habitat	Vegetation type (for deposition velocity)	Existing nutrient deposition (kgN/ha-year)		PC	PC difference between Sc1 (µg/m³)	PEC	PC/CL (%)	PEC/CL(%)
			Minimal Critical Load (CL)	Existing deposition					
H1	Flamborough and Filey Coast SPA	Short	5	20.44	0.042	0.010	20.48	0.8%	410%
H2	Cayton, Cornelian and South Bays SSSI	Short	10	18.03	0.097	0.019	18.13	0.97%	181%
		Tall	15	29.66	0.194	0.037	29.85	1.3%	199%
H3	The Dell LNR	Short	5	23.10	0.134	0.024	23.23	2.7%	465%
		Tall	5	38.50	0.267	0.047	38.77	5.3%	775%
H4	Cayton Meadow LWS	Short	5	23.10	0.029	0.006	23.13	0.6%	463%
		Tall	5	38.50	0.059	0.012	38.56	1.2%	771%
H5	Burton Riggs Gravel Pits LWS	Short	5	23.10	0.018	0.003	23.12	0.4%	462%
		Tall	5	38.50	0.035	0.006	38.54	0.7%	771%
H6	High Deepdale LWS	Short	5	18.06	0.027	0.005	18.09	0.5%	362%
		Tall	5	29.68	0.055	0.010	29.73	1.1%	595%

Results discussion

For the Proposed Scenario, the results in Table 13 and Table 14 indicate that for the assessed Cayton, Cornelian and South Bays SSSI (short vegetation) and Flamborough and Filey Coast SPA, the PCs for acid and nutrient nitrogen deposition, where relevant, are less than 1% of the relevant long-term environmental standard and the impact can be described as 'insignificant' as per Environment Agency guidance (Environment Agency, 2021a).

For Cayton, Cornelian and South Bays SSSI (tall vegetation), the PC for acid deposition and nutrient nitrogen deposition are just above 1% (i.e. 1.3%) of the relevant long-term environmental standard and the respective PEC exceeds the environmental standard.

It should be noted the difference in PC's for acid deposition and nutrient nitrogen deposition between the Existing and Proposed Scenario at the assessed SPA and SSSI is less than 0.02 kEqH+/ha/year and 0.04 kgN/ha-year, respectively.

For the assessed local nature sites, the respective PCs for acid and nutrient nitrogen deposition are less than 100% of the relevant long-term environmental standard for protected conservation areas and the impact can be described as 'insignificant' as Environment Agency guidance (Environment Agency, 2021a).

The conservative approach adopted throughout this assessment such as the modelled continuous operation of the combustion units and assumption that the vegetation type selected is actually present at the modelled protected conservation area receptor location, means the results presented are likely to be higher than would reasonably be expected. Based on professional judgement, it is not considered likely that there would be unacceptable impacts at the assessed protected conservation areas as a consequence of the proposed site configuration.

5.3 Sensitivity Analysis (Proposed Scenario)

A sensitivity study was undertaken to see how changes to the surface roughness and omission of the buildings in the 2017 model (which predicted the highest annual mean and 1-hour mean (99.79th percentile) NO_2 concentrations at a sensitive human receptor location) and 2018 model (which predicted the highest 1-hour mean (99.79th percentile) NO_2 concentrations at a modelled off-site location) may impact on predicted concentrations at sensitive human receptors and off-site locations. The results of the sensitivity analysis are presented in Table 15 to Table 17.

Table 15: Sensitivity analysis - fixed surface roughness of 0.1 m

Pollutant	Averaging period	Assessment location	Original PC (surface roughness 0.5 m) (µg/m^3)	Surface roughness length 0.1 m				
				PC (µg/m^3)	PEC (µg/m^3)	PC/EQS	PEC/EQS	% difference in PC/EQS compared to original
NO_2	Annual mean	Sensitive locations	5.0	3.9	10.8	9.8%	27.0%	-2.7%
	1 hour mean (99.79th percentile)	Maximum off-site	44.1	175.6	189.7	87.8%	94.8%	65.7%
		Sensitive locations	39.4	32.9	46.7	16.5%	23.3%	-3.3%

The results in Table 15 indicate that the change to maximum predicted annual mean concentrations for NO_2 is lower when using a surface roughness value of 0.1 m compared to the original value of 0.5 m. For 1-hour mean (99.79th percentile) NO_2 concentrations at a modelled off-site location, the PC is considerably higher when using a reduced surface roughness value of 0.1 m. At a sensitive human receptor location, the PC is lower. However, a

surface roughness of 0.1 m (representing root crops) is not considered representative of the site and surrounding area.

Table 16: Sensitivity analysis - fixed surface roughness of 1 m

Pollutant	Averaging period	Assessment location	Original PC (surface roughness 0.5 m) (µg/m³)	Surface roughness length 1 m				
				PC (µg/m³)	PEC (µg/m³)	PC/EQS	PEC/EQS	% difference in PC/EQS compared to original
NO_2	Annual mean	Sensitive locations	5.0	5.6	12.5	14.1%	31.3%	1.6%
	1 hour mean (99.79th percentile)	Maximum off-site	44.1	53.5	67.2	26.7%	33.6%	4.7%
		Sensitive locations	39.4	39.8	53.5	19.9%	26.8%	0.2%

The results in Table 16 indicate that the maximum predicted annual mean concentrations for NO_2 is higher when using a surface roughness value of 1 m compared to the original value of 0.5 m. For 1-hour mean (99.79th percentile) NO_2 concentrations at an off-site location and sensitive human receptor location, the PCs are also higher when modelling with an increased surface roughness value of 1 m. However, a surface roughness of 1 m (representing a large city centre location with built up areas and tall buildings) is not considered representative of the site and surrounding area.

Table 17: Sensitivity analysis - no buildings

Pollutant	Averaging period	Assessment location	Original PC (with buildings) (µg/m³)	No buildings				
				PC (µg/m³)	PEC (µg/m³)	PC/EQS	PEC/EQS	% difference in PC/EQS compared to original
NO_2	Annual mean	Sensitive locations	5.0	4.8	11.7	11.9%	29.1%	-0.5%
	1 hour mean (99.79th percentile)	Maximum off-site	44.1	28.7	42.4	14.3%	21.2%	-7.7%
		Sensitive locations	39.4	21.0	34.8	10.5%	17.4%	-9.2%

The results in Table 17 indicate that the differences between the maximum predicted concentrations with and without the buildings is such that including buildings within the model is the preferred option for this study, to maintain a more realistic, and conservative, approach.

6. Conclusions

This report has assessed the potential air quality impacts associated with the operation of the existing and proposed site configuration at McCain Foods food production facility at Scarborough. The predicted impacts were assessed against the relevant air quality standards and guidelines for the protection of human health (referred to in the report as EQSs) and protected conservation areas (referred to as critical levels and critical loads).

Human receptors

The assessment indicates that the predicted modelled off-site concentrations and predicted concentrations at sensitive human receptors do not exceed any relevant long-term or short-term air quality objective or guideline, irrespective of the modelled scenario.

For annual mean and 1-hour mean (99.79th percentile) NO_2 concentrations at a sensitive human receptor location, the difference in PC's between the Existing and Proposed Scenario is 1.0 µg/m^3 and 16.4 µg/m^3, respectively.

For the Proposed Scenario, at sensitive human receptor locations, the predicted long-term (i.e. annual mean) NO_2 and particulate contributions are considered 'not significant'. For short-term NO_2, CO, PM_{10} and SO_2 concentrations at modelled off-site locations and sensitive human receptor locations, the contributions are also considered 'not significant'.

In the absence of an EQS for TVOC's, comparison of the annual mean and 24-hour mean predicted concentrations have been made against the annual mean and 24-hour mean environmental quality standard for benzene (C_6H_6). This represents a worst-case scenario for VOCs because it assumes all VOC contributions comprise benzene. For annual mean and maximum 24-hour mean TVOC concentrations at a sensitive human receptor location, the respective PECs exceed the relevant standard for benzene.

However, TVOC emissions from the assessed combustion plant will largely comprise unburnt methane gas from the biogas fuel (up to 75% composition (Naskeo Environment, 2009)), which is not directly harmful to human health. If the contribution of methane (CH_4) is removed from the process contribution, there would be no exceedance of the relevant standard. Therefore, when considering the conservative approach to the assessment and based on professional judgement, the contribution of TVOC's is considered 'not significant'.

Protected conservation areas

For critical levels, the annual mean NOx PCs for the Existing and Proposed Scenario at Flamborough and Filey Coast SPA and Cayton, Cornelian and South Bays SSSI are above 1% of the long-term environmental standard. However, the respective PEC's at both habitats are less than 70% of the critical level and based on professional judgement, the emissions are not likely to have a significant effect. The increase in annual mean NOx PC's at the assessed SPA and SSSI between the Existing and Proposed Scenario is less than 0.3 µg/m^3.

For annual mean SO_2 concentrations (Proposed Scenario), the respective PCs for the assessed SPA and SSSI are less than 1% of the long-term environmental standard and the impact can be described as 'insignificant' as per Environment Agency guidance (Environment Agency, 2021a).

For maximum 24-hour mean NOx concentrations, for the assessed SPA and SSSI, the respective PCs are less than 10% of the short-term environmental standard and can be described as 'insignificant'. The increase in short-term NOx PC's between the Existing and Proposed Scenario at the assessed SPA and SSSI is less than 1.2 µg/m^3.

For all assessed local nature sites, the respective annual mean NOx and SO_2 and short-term NOx PCs are less than 100% of the short-term environmental standard.

For critical loads, the results for the Proposed Scenario indicate that for the assessed Cayton, Cornelian and South Bays SSSI (short vegetation) and Flamborough and Filey Coast SPA, the PCs for acid and nutrient nitrogen deposition, where relevant, are less than 1% of the relevant long-term environmental standard and the impact can be described as 'insignificant' as per Environment Agency guidance (Environment Agency, 2021a).

For Cayton, Cornelian and South Bays SSSI (tall vegetation), the PC for acid deposition and nutrient nitrogen deposition are just above 1% (i.e. 1.3%) of the relevant long-term environmental standard and the respective PEC exceeds the environmental standard.

It should be noted the difference in PC's for acid deposition and nutrient nitrogen deposition between the Existing and Proposed Scenario at the assessed SPA and SSSI is less than 0.02 kEqH+/ha/year and 0.04 kgN/ha-year, respectively.

For the assessed local nature sites, the respective PCs for acid and nutrient nitrogen deposition are less than 100% of the relevant long-term environmental standard for protected conservation areas and the impact can be described as 'insignificant' as Environment Agency guidance (Environment Agency, 2021a).

The conservative approach adopted throughout this assessment such as the modelled continuous operation of the combustion units and assumption that the vegetation type selected is actually present at the modelled protected conservation area receptor location, means the results presented are likely to be higher than would reasonably be expected. Based on professional judgement, it is not considered likely that there would be unacceptable impacts..

Summary

This assessment assumes the combustion units operate simultaneously and continuously all year. In practice, the thermal oxidiser is regularly shut-down for cleaning purposes and the remaining assessed combustion units will have periods of shut-down and maintenance and may not always operate at maximum load. Furthermore, the site closes for two weeks over the summer months. Therefore, the predicted concentrations presented in this report are likely to be higher than would reasonably be expected.

It is concluded that the proposed site configuration is acceptable from an air quality perspective.

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8. Figures

N

T03

BH6

BH5

Pindar Rd

Meadow La

Meadow Close

Meadow La

Pindar Rd

Pindar Leisure Centre

Shire Close

Howes Hill

Jackson Close

Shelley Close

Estill Close

Fenwick Close

Harford Rd

North La

Ivy House Close

Cayton

Mount View Rd

West End View

B1261

Main St

0 0.05 0.1 0.2 Kilometers

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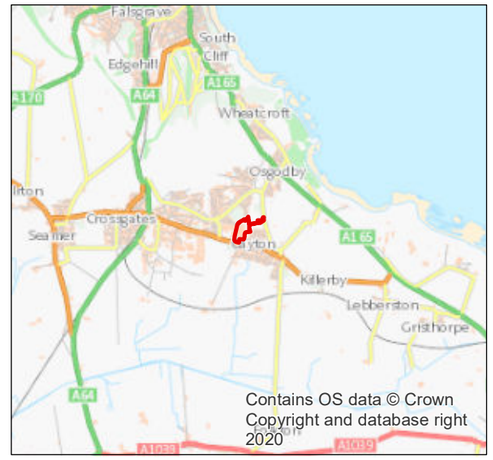
Legend

- Approximate planning application boundary
- Site permit boundary
- Modelled stack locations (Existing Scenario)
- Modelled buildings (Existing Scenario)



Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
0	04/03/2022	Initial Issue	DH	GW	GW	MM

Jacobs

Client: McCain

Project: ENVIRONMENTAL PERMIT VARIATION APPLICATION - SCARBOROUGH PLANT FACILITY RENEWAL PROJECT AIR QUALITY IMPACT ASSESSMENT

Drawing Title: EXISTING SCENARIO - APPROXIMATE PLANNING APPLICATION BOUNDARY, PERMIT BOUNDARY, MODELLED STACK LOCATIONS AND MODELLED EXISTING BUILDING LAYOUT

Drawing Status: FINAL

Scale @ A3	1:2,500	DO NOT SCALE
Jacobs No.	B1958992	Rev 0
Client No.		

Drawing Number: FIGURE 1

I:\Project Kaye (McCains)\Phase 2\AQIA\GIS\60SG2801_AQIA_Fig1_existing buildings v1.mxd

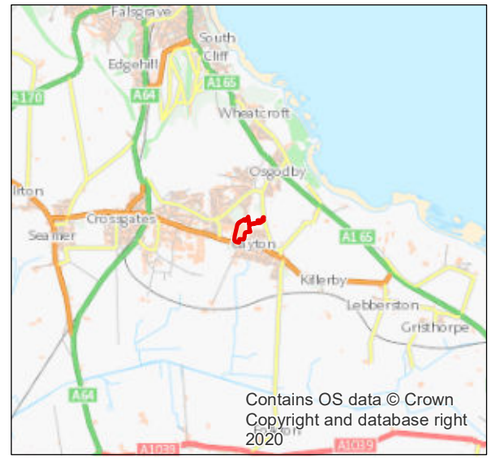
N

Shire Close
Pindar Rd
Meadow La
Meadow Close
Meadow La
Pindar Rd
Pindar Leisure Centre
Hayes Hill
T03
BH6
BH5
A147
Jackson Close
Shelley Close
Fenwick Close
Estill Close
Harford Rd
North La
Ivy House Close
Cayton
Mount View Rd
West End View
B1261
Main St

0 0.05 0.1 0.2 Kilometers

Legend

- Approximate planning application boundary
- Site permit boundary
- Modelled stack locations (Proposed Scenario)
- Modelled buildings (Proposed Scenario)



Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
0	04/03/2022	Initial Issue	DH	GW	GW	MM

Jacobs

Client: McCain

Project: ENVIRONMENTAL PERMIT VARIATION APPLICATION - SCARBOROUGH PLANT FACILITY RENEWAL PROJECT AIR QUALITY IMPACT ASSESSMENT

Drawing Title: PROPOSED SCENARIO - APPROXIMATE PLANNING APPLICATION BOUNDARY, PERMIT BOUNDARY, MODELLED STACK LOCATIONS AND MODELLED PROPOSED BUILDING LAYOUT

Drawing Status: FINAL

Scale @ A3	1:2,500	DO NOT SCALE
Jacobs No.	B1958992	Rev 0
Client No.		

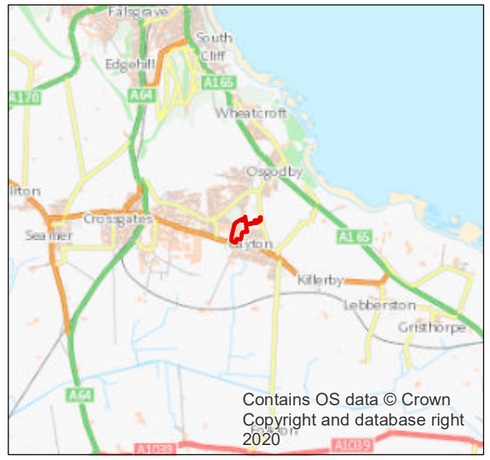
Drawing Number: FIGURE 2

I:\Project Kaye (McCains)\Phase 2\AQIA\GIS\60SG2801_AQIA_Fig2_proposed buildings v1.mxd

N

Legend

- Approximate planning application boundary
- Modelled stack locations
- Extent of modelled grid
- R1 Assessed sensitive human receptor locations



Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
0	04/03/2022	Initial Issue	DH	GW	GW	MM

Jacobs

Client: McCain

Project: ENVIRONMENTAL PERMIT VARIATION APPLICATION - SCARBOROUGH PLANT FACILITY RENEWAL PROJECT AIR QUALITY IMPACT ASSESSMENT

Drawing Title: EXTENT OF MODELLED GRID AND ASSESSED SENSITIVE HUMAN RECEPTOR LOCATIONS

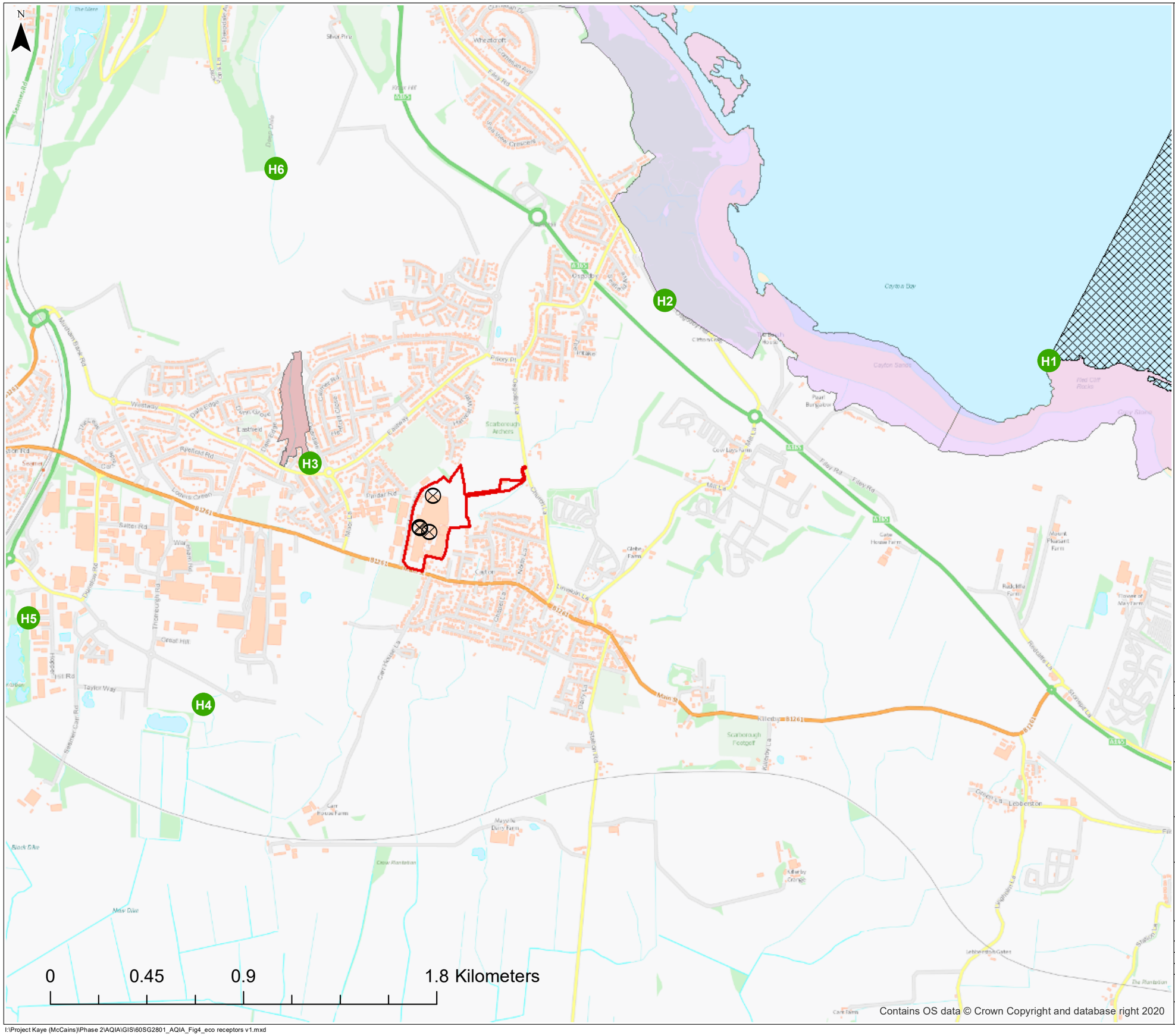
Drawing Status: FINAL

Scale @ A3	1:6,000	DO NOT SCALE
Jacobs No.	B1958992	Rev 0
Client No.		

Drawing Number: FIGURE 3

0 0.15 0.3 0.6 Kilometers

I:\Project Kaye (McCains)\Phase 2\AQIA\GIS\60SG2801_AQIA_Fig3_human receptors v1.mxd



Legend

- Approximate planning application boundary
- Modelled stack locations
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserves (LNR)
- H1 Protected conservation area

Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
0	16/02/2022	Initial Issue	DH	GW	GW	MM

Jacobs

Client: McCain

Project: ENVIRONMENTAL PERMIT VARIATION APPLICATION - SCARBOROUGH PLANT FACILITY RENEWAL PROJECT AIR QUALITY IMPACT ASSESSMENT

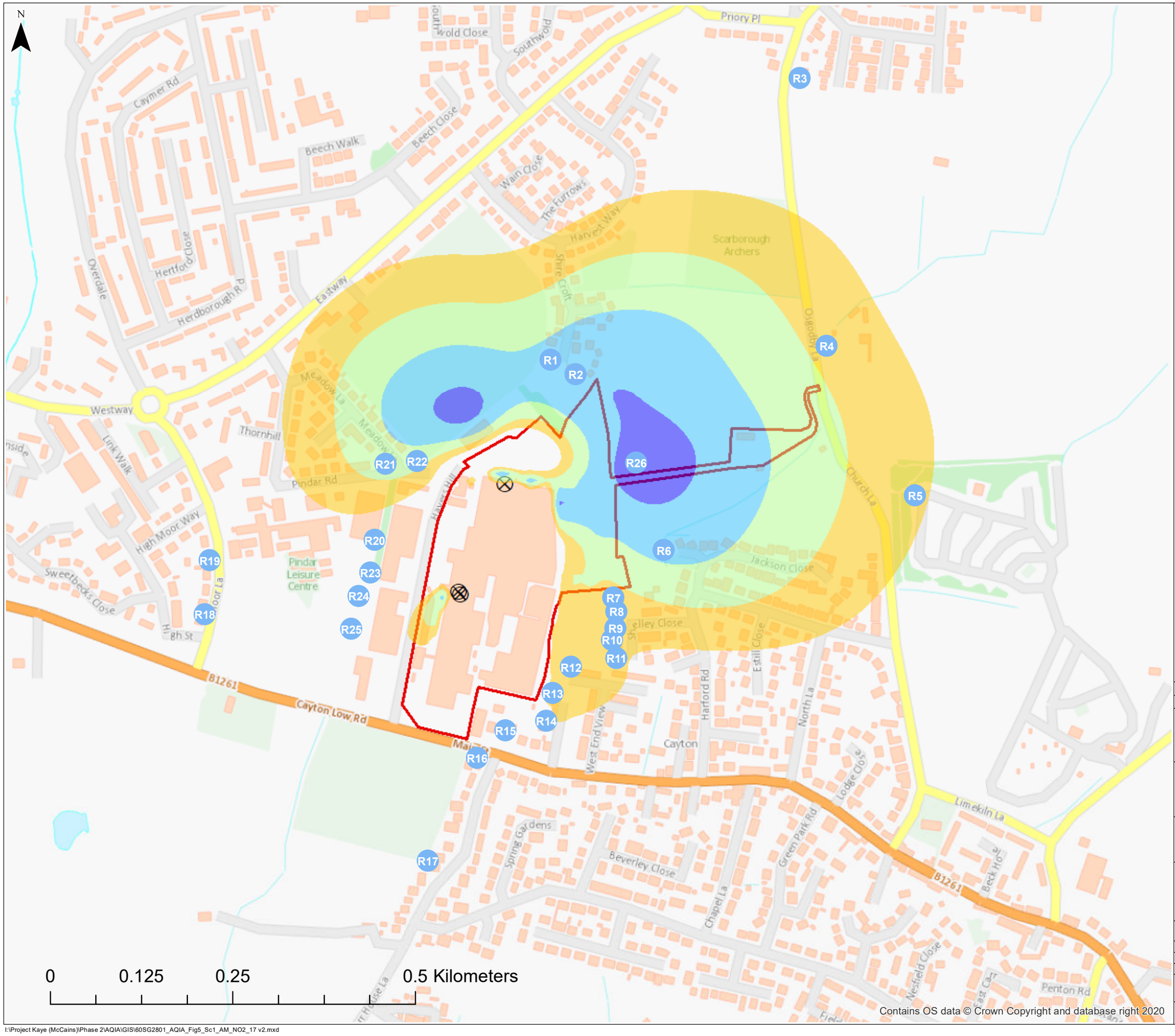
Drawing Title: ASSESSED PROTECTED CONSERVATION AREAS

Drawing Status: FINAL

Scale @ A3	1:17,000	DO NOT SCALE
Jacobs No.	B1958992	Rev 0
Client No.		

Drawing Number: FIGURE 4

I:\Project Kaye (McCains)\Phase 2\AQIA\GIS\60SG2801_AQIA_Fig4_eco receptors v1.mxd

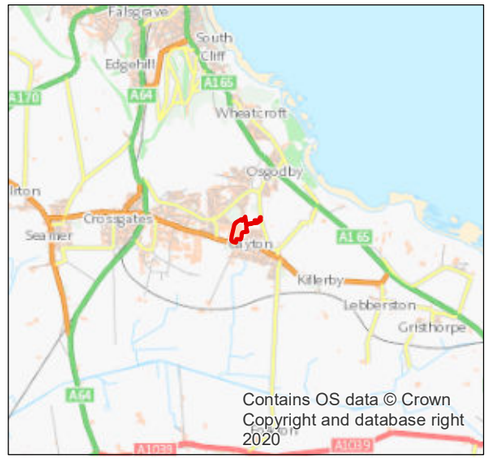


Legend

- Approximate planning application boundary
- Modelled stack locations (Existing Scenario)
- R1 Assessed sensitive human receptor locations

Annual mean nitrogen dioxide process contributions (µg/m³)

- 0 - 1.4
- 1.4 - 1.8
- 1.8 - 2.3
- 2.3 - 2.9
- 2.9 - 5.1



Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
0	04/03/2022	Initial Issue	DH	GW	GW	MM

Jacobs

Client: McCain

Project: ENVIRONMENTAL PERMIT VARIATION APPLICATION - SCARBOROUGH PLANT FACILITY RENEWAL PROJECT AIR QUALITY IMPACT ASSESSMENT

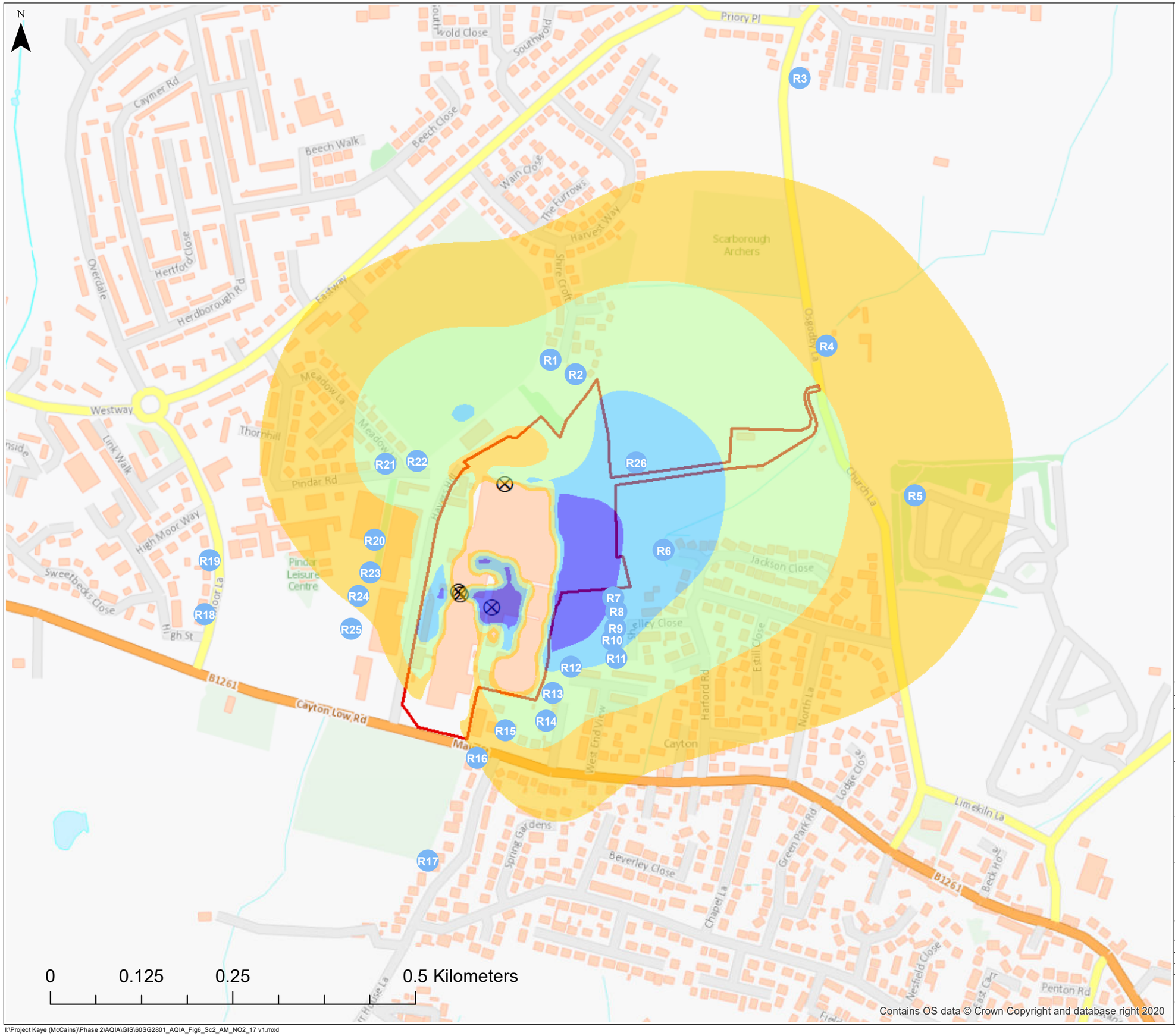
Drawing Title: EXISTING SCENARIO - ANNUAL MEAN NITROGEN DIOXIDE PROCESS CONTRIBUTIONS, 2017 METEOROLOGICAL DATA

Drawing Status: FINAL

Scale @ A3	1:5,000	DO NOT SCALE
Jacobs No.	B1958992	Rev 0
Client No.		

Drawing Number: FIGURE 5

I:\Project Kaye (McCains)\Phase 2\AQIA\GIS\60SG2801_AQIA_Fig5_Sc1_AM_NO2_17 v2.mxd



Legend

- Approximate planning application boundary
- Modelled stack locations (Proposed Scenario)
- R1 Assessed sensitive human receptor locations

Annual mean nitrogen dioxide process contributions (µg/m^3)

- 0 - 1.6
- 1.6 - 2.5
- 2.5 - 3.8
- 3.8 - 5.0
- 5.0 - 31.4

Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
0	04/03/2022	Initial Issue	DH	GW	GW	MM

Jacobs

Client: McCain

Project: ENVIRONMENTAL PERMIT VARIATION APPLICATION - SCARBOROUGH PLANT FACILITY RENEWAL PROJECT AIR QUALITY IMPACT ASSESSMENT

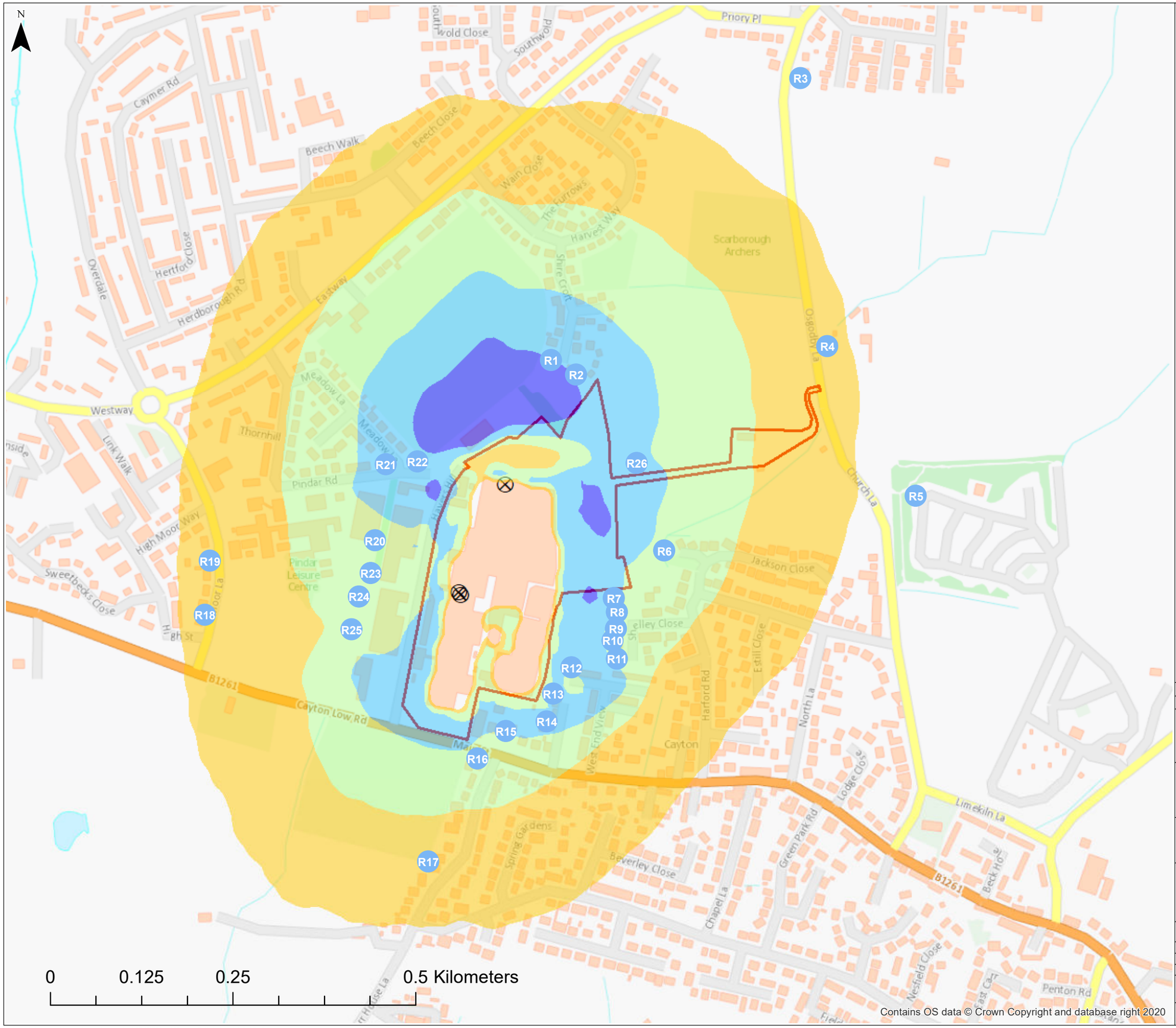
Drawing Title: PROPOSED SCENARIO - ANNUAL MEAN NITROGEN DIOXIDE PROCESS CONTRIBUTIONS, 2017 METEOROLOGICAL DATA

Drawing Status: FINAL

Scale @ A3	1:5,000	DO NOT SCALE
Jacobs No.	B1958992	Rev 0
Client No.		

Drawing Number: FIGURE 6

I:\Project Kaye (McCains)\Phase 2\AQIA\GIS\60SG2801_AQIA_Fig6_Sc2_AM_NO2_17 v1.mxd



Legend

- Approximate planning application boundary
- Modelled stack locations (Existing Scenario)
- R1 Assessed sensitive human receptor locations

1-hour mean (99.79thpercentile) nitrogen dioxide process contributions (µg/m^3)

- 0 - 7.6
- 7.6 - 11
- 11 - 15.4
- 15.4 - 21
- 21 - 29.6

Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
0	04/03/2022	Initial Issue	DH	GW	GW	MM

Jacobs

Client: McCain

Project: ENVIRONMENTAL PERMIT VARIATION APPLICATION - SCARBOROUGH PLANT FACILITY RENEWAL PROJECT AIR QUALITY IMPACT ASSESSMENT

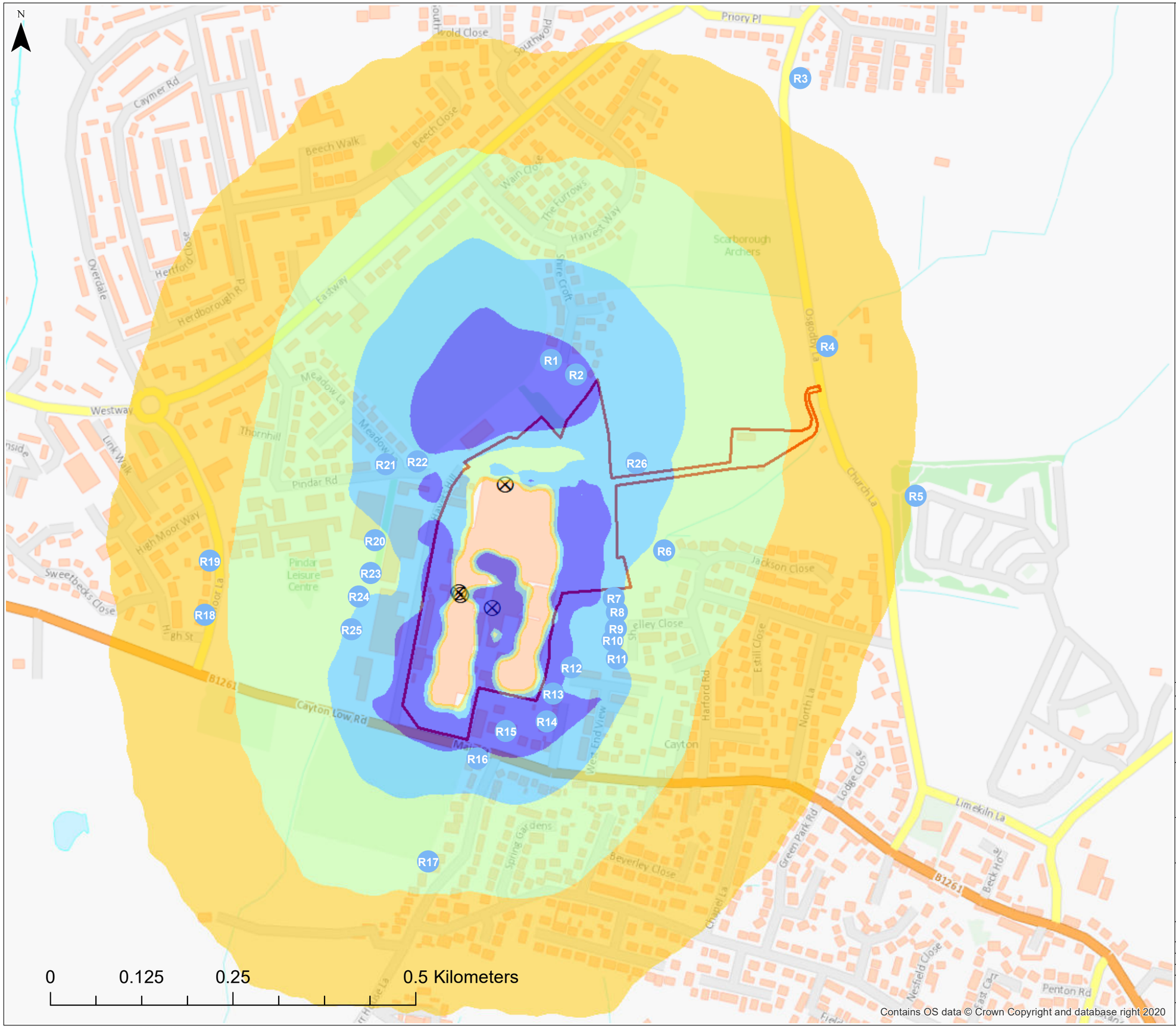
Drawing Title: EXISTING SCENARIO - 1 HOUR MEAN (99.79th PERCENTILE) NITROGEN DIOXIDE PROCESS CONTRIBUTIONS, 2017 METEOROLOGICAL DATA

Drawing Status: FINAL

Scale @ A3	1:5,000	DO NOT SCALE
Jacobs No.	B1958992	Rev 0
Client No.		

Drawing Number: FIGURE 7

I:\Project Kaye (McCains)\Phase 2\AQIA\GIS\60SG2801_AQIA_Fig7_Sc1_1hr_NO2_17 v2.mxd



Legend

- Approximate planning application boundary
- Modelled stack locations (Proposed Scenario)
- R1 Assessed sensitive human receptor locations

1-hour mean (99.79thpercentile) nitrogen dioxide process contributions (µg/m^3)

- 0 - 8
- 8 - 11
- 11 - 15.4
- 15.4 - 21
- 21 - 96.3

Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
0	04/03/2022	Initial Issue	DH	GW	GW	MM

Jacobs

Client: McCain

Project: ENVIRONMENTAL PERMIT VARIATION APPLICATION - SCARBOROUGH PLANT FACILITY RENEWAL PROJECT AIR QUALITY IMPACT ASSESSMENT

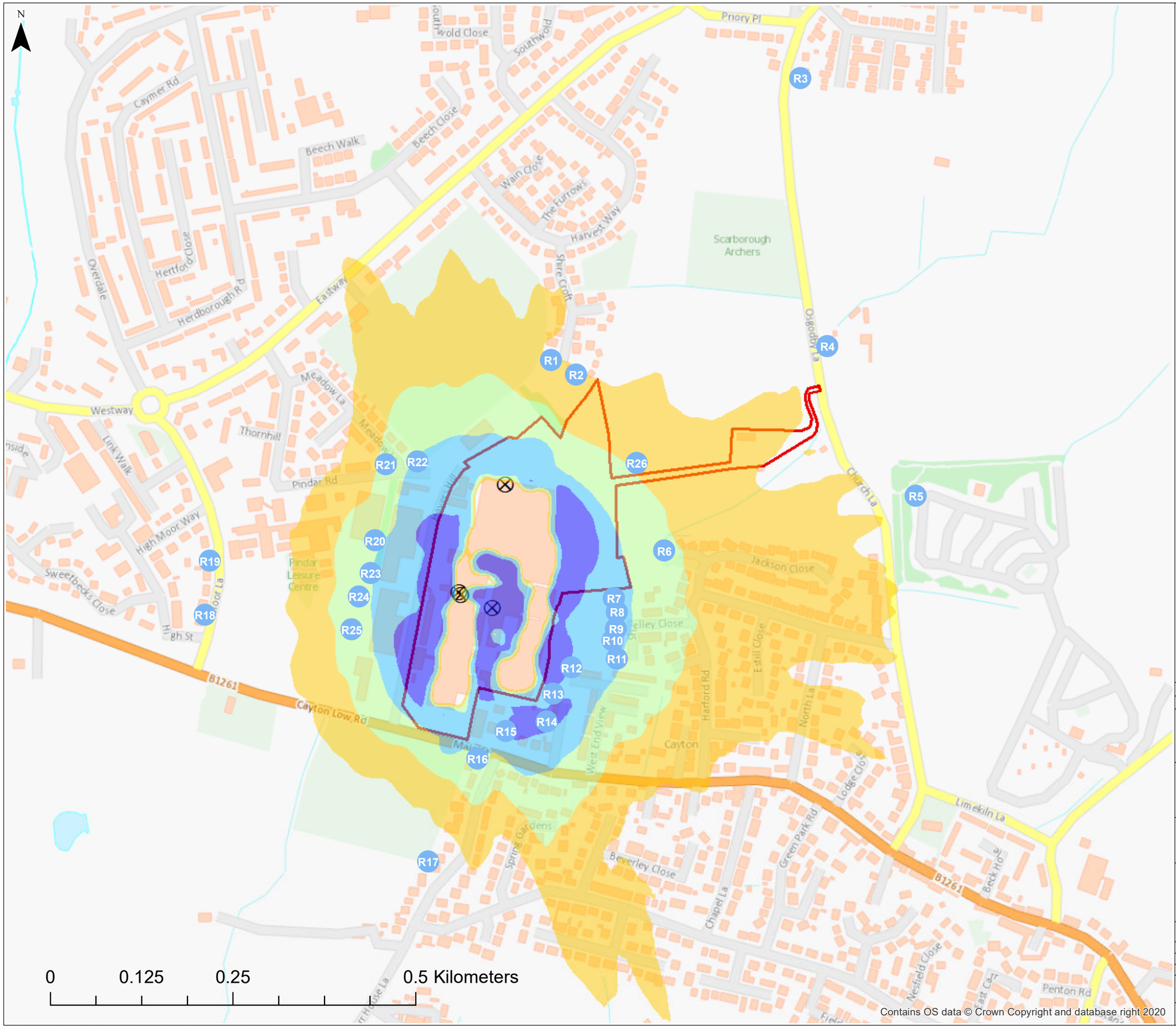
Drawing Title: PROPOSED SCENARIO - 1 HOUR MEAN (99.79th PERCENTILE) NITROGEN DIOXIDE PROCESS CONTRIBUTIONS, 2017 METEOROLOGICAL DATA

Drawing Status: FINAL

Scale @ A3	1:5,000	DO NOT SCALE
Jacobs No.	B1958992	Rev 0
Client No.		

Drawing Number: FIGURE 8

I:\Project Kaye (McCains)\Phase 2\AQIA\GIS\60SG2801_AQIA_Fig8_Sc2_1hr_NO2_17 v1.mxd



Legend

- Approximate planning application boundary
- Modelled stack locations (Proposed Scenario)
- R1 Assessed sensitive human receptor locations

15-minute mean (99.9th percentile) sulphur dioxide process contributions (µg/m³)

- 0 - 4.2
- 4.2 - 5.5
- 5.5 - 7.5
- 7.5 - 12.5
- 12.5 - 71.7

Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
0	04/03/2022	Initial Issue	DH	GW	GW	MM

Jacobs

Client: McCain

Project: ENVIRONMENTAL PERMIT VARIATION APPLICATION - SCARBOROUGH PLANT FACILITY RENEWAL PROJECT AIR QUALITY IMPACT ASSESSMENT

Drawing Title: PROPOSED SCENARIO - 15 MINUTE MEAN (99.9th PERCENTILE) SULPHUR DIOXIDE PROCESS CONTRIBUTIONS, 2017 METEOROLOGICAL DATA

Drawing Status: FINAL

Scale @ A3	1:5,000	DO NOT SCALE
Jacobs No.	B1958992	Rev 0
Client No.		

Drawing Number: FIGURE 9

I:\Project Kaye (McCains)\Phase 2\AQIA\GIS\60SG2801_AQIA_Fig9_Sc2_15m_SO2_17 v2.mxd

Appendix A. Dispersion Model Input Parameters

A.1 Emission Parameters

The emissions data used to represent the site for the scenario described in Section 2 is set out in Table A.1. Emission limits as set out in the MCPD for existing combustion plant are also presented in Table A.1 where relevant.

Table A.1 Dispersion modelling parameters

Parameters	Unit	JMC 316 (D25) GS-B.L CHP engine (1.8 MW_{th})	Thermal Oxidizer (13.9 MW_{th})	Maxicon boiler (10.7 MW_{th})	Beel & Maxicon boiler (17.8 MW_{th} & 10.7 MW_{th})
Status	-	Proposed	Existing	Existing	Existing
Modelled fuel	-	Biogas	Natural gas	Natural gas	Natural gas
Emission point	-	A147	T03	BH6	BH5
Assessed operation hours	Hours	8,760	8,760	8,760	8,760
Stack location	m	E 505057 N 483628	E 505075 N 483797	E 505011 N 483650[3]	E 505014 N 483646[3]
Stack position	-	Vertical	Vertical	Vertical	Vertical
Stack height	m	7.00	18.00	25.00	25.00
Stack diameter	m	0.35	1.10	0.80	1.50
Flue gas temperature	°C	180	153	224	229
Efflux velocity	m/s	25.0	21.3	12.8	10.4
Moisture content of exhaust gas	%	11.4	42.6	16.5	16.5
Oxygen content of exhaust gas (dry)	%	8.4	12.0	2.6	-
Volumetric flow rate (actual)	m^3/s	2.404	20.276	6.420	18.444
Volumetric flow rate (normal)	Nm^3/s	2.719[1]	12.994[2]	2.994[1]	7.974[1]
NOx emission concentration	mg/Nm^3	190 [1]	200[2]	84[1]	179[1]
NOx emission rate	g/s	0.517	2.599	0.251	1.426
CO emission concentration[1]	mg/Nm^3	519	100	100	100
CO emission rate	g/s	1.413	1.299	0.299	0.797
PM_{10} / $PM_{2.5}$ emission concentration[1]	mg/Nm^3	2.7	-		
PM_{10} / $PM_{2.5}$ emission rate	g/s	0.007			
SO_2 emission concentration[1]	mg/Nm^3	40			
SO_2 emission rate	g/s	0.109			
TVOC emission concentration[1]	mg/Nm^3	371			
TVOC emission rate	g/s	1.009			

Note 1: Normalised flows and concentrations presented at 273 K, 101.3 kPa, dry gas and oxygen content of 15% (CHP engine) or 3% (boilers).
Note 2: Normalised flows and concentrations presented at 273 K, 101.3 kPa.
Note 3: As emission source BH5 & BH6 are in close proximity, an aai file was used in the model to represent the effects of a single plume.

A.2 Dispersion Model Inputs

A.2.1 Structural influences on dispersion

The main structures within the site which have been included in the model to reflect the existing and proposed site layout are identified within Table A.2. A sensitivity study has been carried out to assess the sensitivity of the model to using the buildings module for the Proposed Scenario.

Table A.2: Modelled building parameters

Building	Scenario to be included	Modelled building shapes	Length / diameter (m)	Width (m)	Height (m)	Angle of length to north	Centre point co-ordinates	
							Easting	Northing
Building005	Both	Rectangular	153.70	26.00	7.90	11	505021	483563
Building001	Both	Rectangular	106.00	106.00	8.70	11	505081	483747
Building002	Both	Rectangular	107.00	29.00	11.10	178	505130	483735
Building007[1,2]	Both	Rectangular	103.50	35.00	11.10	11	505114	483742
Building004[1]	Both	Rectangular	215.00	27.00	10.10	11	505002	483599
Building006	Both	Rectangular	49.00	22.60	8.90	13	505071	483541
Building008	Both	Rectangular	154.20	36.00	7.60	13	505111	483586
Building009	Both	Rectangular	23.60	58.00	11.10	11	505116	483676
Building010	Both	Rectangular	22.10	16.50	12.70	11	505060	483589
EGSB Tank - WWTP	Proposed	Circular	13.00	13.00	16.80	0	505075	483680
Bioreactor Tank – WW[2]	Proposed	Circular	35.10	35.10	11.20	0	505050	483664
Biogas holder	Proposed	Circular	10.80	10.80	10.00	0	505071	483609
SFWW Tank - WWTP	Proposed	Circular	7.80	7.80	12.00	0	505058	483608
DAF/WAS Tank - WWTP	Proposed	Circular	6.50	6.50	12.00	0	505060	483617
CHP engine housing 1	Proposed	Rectangular	12.20	2.94	2.59	101	505061	483627
MBR Tank	Proposed	Rectangular	10.20	12.60	8.40	101	505075	483656
Waste Management building	Proposed	Rectangular	12.10	22.90	7.20	101	505098	483656
Building 011	Existing	Rectangular	54.80	23.40	10.00	101	505060	483685
Building 012	Existing	Rectangular	80.10	39.60	7.80	101	505067	483653

Note 1: For the Existing Scenario, Building 007 was modelled as the main building for emission point T03. For emission points BH5 and BH6, Building 004 was modelled as the main building.

Note 2: For the Proposed Scenario, Building 007 was modelled as the main building for emission point T03. For emission points BH5, BH6 and A147, the Bioreactor Tank – WW was modelled as the main building.

A.2.2 Other Model Inputs

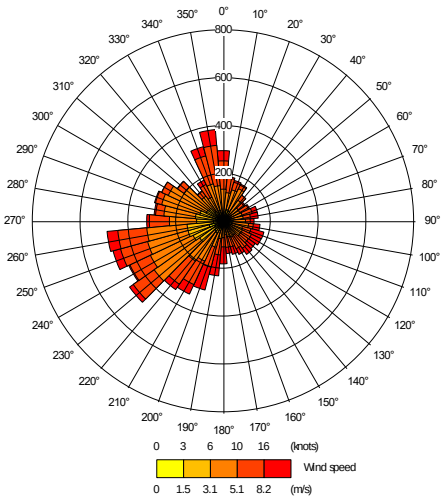
Table A.3: Other model inputs applied

Parameter	Value used	Comments
Surface roughness length for dispersion site	0.5 m	This is appropriate for the dispersion site where the local land-use range is typically suburban. A sensitivity study has been carried out with fixed surface roughness values of 0.1 m and 1.0 m.
Surface roughness length at meteorological station site	0.1 m	This is appropriate for an area where the local land is relatively built-up but adjacent to the coastline.
Minimum Monin-Obukhov Length	1 m	Typical values for the dispersion site
Surface Albedo	0.23 m	Typical values for the dispersion site
Priestley-Taylor Parameter	1 m	Typical values for the dispersion site
Terrain	Not included	Guidance for the use of the ADMS model suggests that terrain is normally incorporated within a modelling study when the gradient exceeds 1:10. As the gradient in the vicinity of the site does not exceed 1:10, a terrain file was not included in the modelling.
Meteorological data	Bridlington meteorological station, 2016 - 2020	Bridlington meteorological station is located approximately 21.2 km southwest of the site and is considered the closest most representative meteorological monitoring station to the site.
Combined flue option	Yes	As emission source BH5 & BH6 are in close proximity, an aai file was used in the model to represent the effects of a single plume.

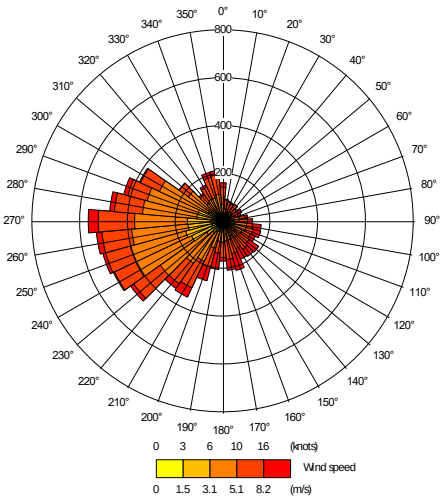
A.2.3 Meteorological Data – Wind Roses

The wind roses for each year of meteorological data utilised in the assessment are shown below.

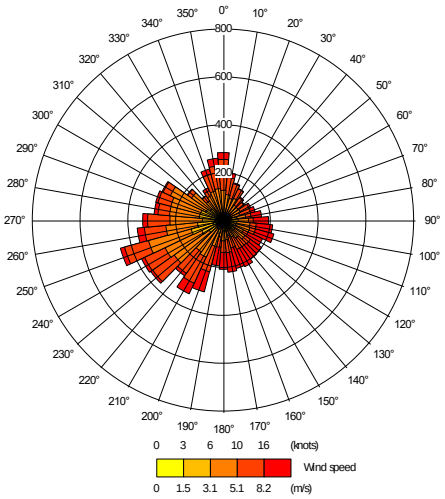
Bridlington meteorological station, 2016



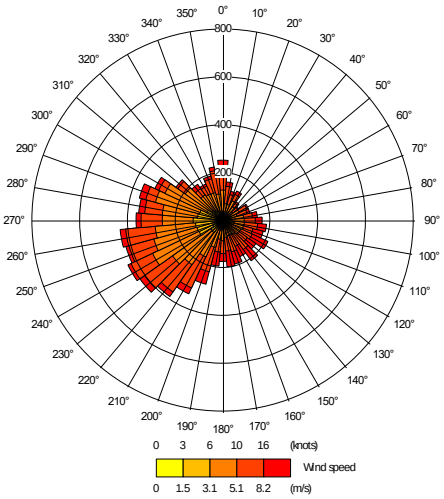
Bridlington meteorological station, 2017



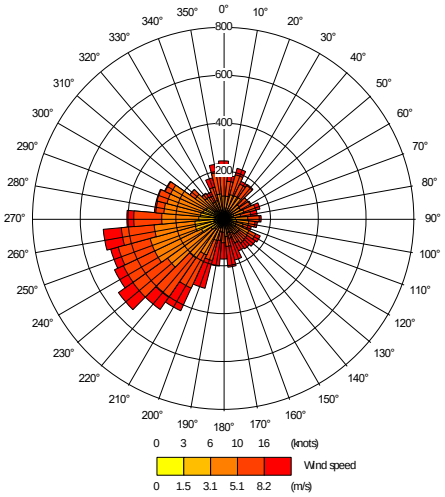
Bridlington meteorological station, 2018



Bridlington meteorological station, 2019



Bridlington meteorological station, 2020



A.2.4 Model Domain/Study Area

The ADMS model calculates the predicted concentrations based on a user defined grid system. Generally, the larger the study area, the greater the distance between the grid calculation points and the lower the resolution of the dispersion model predictions. This is to be offset against the need to encompass an appropriately wide area within the dispersion modelling study to capture the dispersion of the stack emissions.

The modelled grid was specified as a 1.5 km x 1.5 km grid with calculation points every 10 m (i.e. 151 points along each grid axis) with a grid height of 1.5 m. This size of grid was selected to provide a good grid resolution and also encompass a sufficient area so that the maximum predicted concentrations would be determined. The area within the site boundary was excluded from the modelled grid as it is not accessible to the general public. The modelled grid parameters are presented in Table A.4

Table A.4: Modelled grid parameters

	Start	Finish	Number of grid points	Grid spacing (m)
Easting	504325	505825	151	10
Northing	483047	484547	151	10
Grid height	1.5	1.5	1	-

As well as the modelled grid, the potential impact at 26 sensitive human receptors (e.g. exposure locations such as residential properties, George Pindar School and a football pitch) and 6 protected conservation areas within the required study area were assessed. The receptor locations are shown in Figure 3 and Figure 4 and further details of the receptor locations are provided in Table A.5 and Table A.6.

Table A.5: Assessed sensitive human receptor locations

Receptor	Description	Grid reference		Distance from Thermal Oxidiser stack (km)	Direction from Thermal Oxidiser stack
		Easting	Northing		
R1	Residential property on Shire Croft	505138	483967	0.18	NNE
R2	Residential property on Shire Fold	505172	483947	0.18	NNE
R3	Residential property on Osgodby Lane	505479	484353	0.69	NE
R4	Residential property on Osgodby Lane	505516	483986	0.48	ENE
R5	Static caravan	505637	483781	0.56	E
R6	Residential property on Jackson Close	505293	483706	0.24	ESE
R7	Residential property on Shelley Close	505224	483641	0.22	SE
R8	Residential property on Shelley Close	505228	483622	0.23	SE
R9	Residential property on Shelley Close	505227	483599	0.25	SE
R10	Residential property on Shelley Close	505222	483583	0.26	SE
R11	Residential property on Shelley Close	505228	483558	0.28	SSE
R12	Residential property on West End View	505166	483546	0.27	SSE
R13	Residential property on Mount View Road	505141	483510	0.29	SSE
R14	Residential property on Mount View Road	505132	483472	0.33	S
R15	Residential property on Main Street	505076	483459	0.34	S
R16	Residential property on Main Street	505037	483421	0.38	S
R17	Residential property on Carr House Lane	504970	483280	0.53	SSW
R18	Residential property on Moor Lane	504664	483618	0.448	WSW
R19	Residential property on Moor Lane	504671	483692	0.417	WSW
R20	George Pindar School	504897	483720	0.19	WSW
R21	Residential property on Pindar Road	504912	483824	0.17	W
R22	Residential property on Pindar Road	504955	483828	0.12	WNW
R23	George Pindar School tennis courts	504891	483675	0.22	WSW
R24	George Pindar School football pitch	504875	483643	0.25	SW
R25	George Pindar School football pitch	504865	483598	0.29	SW
R26	Football pitch	505255	483826	0.18	E

Table A.6: Assessed protected conservation area locations

Receptor	Description	Grid reference		Distance from Thermal Oxidiser stack (km)	Direction from Thermal Oxidiser stack
		Easting	Northing		
H1	Flamborough and Filey Coast SPA	507945	484424	2.94	ENE
H2	Cayton, Cornelian and South Bays SSSI	506156	484706	1.41	NE
H3	The Dell LNR	504503	483946	0.59	WNW
H4	Cayton Meadow LWS	504006	482823	1.45	SW
H5	Burton Riggs Gravel Pits LWS	503192	483226	1.97	WSW
H6	High Deepdale LWS	504345	485320	1.69	NNW

A.2.5 Treatment of oxides of nitrogen

It was assumed that 70% of NOx emitted from the assessed combustion plant will be converted to NO_2 at ground level in the vicinity of the site, for determination of the annual mean NO_2 concentrations, and 35% of emitted NOx will be converted to NO_2 for determination of the hourly mean NO_2 concentrations, in line with guidance provided by the Environment Agency (Environment Agency, 2021b). This approach is likely to overestimate the annual mean NO_2 concentrations considerably at the most relevant assessment locations close to the site.

A.2.6 Calculation of PECs

In the case of long-term mean concentrations, it is relatively straightforward to combine modelled process contributions with baseline air quality levels, as long-term mean concentrations due to plant emissions could be added directly to long-term mean baseline concentrations.

It is not possible to add short-period peak baseline and process concentrations directly. This is because the conditions which give rise to peak ground-level concentrations of substances emitted from an elevated source at a particular location and time are likely to be different to the conditions which give rise to peak concentrations due to emissions from other sources.

As described in the Environment Agency guidance (Environment Agency, 2021a), for most substances the short-term peak PC values are added to twice the long-term mean baseline concentration to provide a reasonable estimate of peak concentrations due to emissions from all sources.

A.2.7 Modelling Uncertainty

There are always uncertainties in dispersion models, in common with any environmental modelling study, because a dispersion model is an approximation of the complex processes which take place in the atmosphere. Some of the key factors which lead to uncertainty in atmospheric dispersion modelling are as follows:

- The quality of the model output depends on the accuracy of the input data enter the model. Where model input data are a less reliable representation of the true situation, the results are likely to be less accurate;
- The meteorological data sets used in the model are not likely to be completely representative of the meteorological conditions at the site. However, the most suitable available meteorological data was chosen for the assessment;
- Models are generally designed on the basis of data obtained for large scale point sources and may be less well validated for modelling emissions from smaller scale sources;
- The dispersion of pollutants around buildings is a complex scenario to replicate. Dispersion models can take account of the effects of buildings on dispersion; however, there will be greater uncertainty in the model results when buildings are included in the model;

- Modelling does not specifically take into account individual small-scale features such as vegetation, local terrain variations and off-site buildings. The roughness length (z_o) selected is suitable to take general account of the typical size of these local features within the model domain; and
- To take account of these uncertainties and to ensure the predictions are more likely to be over-estimates than under-estimates, the conservative assumptions described below have been used for this assessment.

A.2.8 Conservative Assumptions

The conservative assumptions adopted in this study are summarised below.

- The existing thermal oxidiser, boilers and proposed CHP engine were assumed to operate at maximum load for 8,760 hours each calendar year but in practice, the thermal oxidiser is regularly shut-down (usually for two days once a fortnight for cleaning) and the remaining assessed combustion plant will have periods of shut-down and maintenance and may not always operate at maximum load. Furthermore, the site closes for two weeks over the summer months.
- The study is based on emissions being continuously at the emission limits and calculated emissions specified.
- The maximum predicted concentrations at any residential areas as well as off-site locations were considered for the assessment of short-term concentrations and the maximum predicted concentrations at any residential areas were considered for assessment of annual mean concentrations within the air quality study area. Concentrations at other locations will be less than the maximum values presented.
- The highest predicted concentrations obtained using any of the five different years of meteorological data have been used in this assessment. During a typical year the ground level concentrations are likely to be lower.
- It was assumed that 100% of the particulate matter emitted from the plant is in the PM_{10} size fraction. The actual proportion will be less than 100%.
- It was assumed that 100% of the particulate matter emitted from the plant is in the $PM_{2.5}$ size fraction. The actual proportion will be less than 100%.
- It was assumed the vegetation type selected for each assessed protected conservation area is present at the specific modelled location.

Appendix B. Calculating Acid and Nitrogen Deposition

B.1 Methodology

Nitrogen and acid deposition have been predicted using the methodologies presented in the Air Quality Technical Advisory Group (AQTAG) guidance note: AQTAG 06 "*Technical Guidance on Detailed Modelling Approach for an Appropriate Assessment for Emissions to Air* (AQTAG, 2014).

When assessing the deposition of nitrogen, it is important to consider the different deposition properties of nitric oxide (NO) and NO_2. It is generally accepted that there is no wet or dry deposition arising from NO in the atmosphere. Thus, it is normally necessary to distinguish between NO and NO_2 in a deposition assessment. In this case, the conservative assumption that 70% of the NOx are in the form of NO_2 was adopted.

Information on the existing nitrogen and acid deposition was obtained from the APIS database (Centre for Ecology and Hydrology, 2022). Information on the deposition critical loads for each habitat site was also obtained from the APIS database using the Site Relevant Critical Load function.

The annual dry deposition flux can be obtained from the modelled annual average ground level concentration via use of the formula:

Dry deposition flux ($\mu g/m^2/s$) = ground level concentration ($\mu g/m^3$) x deposition velocity (m/s)

(where µg refers to µg of the chemical species under consideration).

The deposition velocities for various chemical species recommended for use in the AQTAG guidance note (AQTAG, 2014) are shown below in Table B.1.

Table B.1: Recommended dry deposition velocities

Chemical species	Recommended deposition velocity (m/s)	
NO_2	Grassland (short)	0.0015
	Forest (tall)	0.003
SO_2	Grassland (short)	0.012
	Forest (tall)	0.024

To convert the dry deposition flux from units of $\mu g/m^2/s$ (where µg refers to µg of the chemical species) to units of kg N/ha/yr (where kg refers to kg of nitrogen), multiply the dry deposition flux by the conversion factors shown in Table B.2. To convert dry deposition flux to acid deposition (keq/ha/yr), multiply the concentrations by the factors shown in Table B.3.

Table B.2: Dry deposition flux conversion factors for nutrient nitrogen deposition

$\mu g/m^2/s$ of species	Conversion factor to kg N/ha/yr
NO_2	95.9

Table B.3: Dry deposition flux conversion factors for acidification

$\mu g/m^2/s$ of species	Conversion factor to keq/ha/yr
NO_2	6.84
SO_2	9.84

Appendix C. Results at Sensitive Human Locations

Table C.1: Results of detailed assessment at sensitive human receptor locations for maximum 8-hour mean and 1-hour mean CO predicted concentrations

Receptor ID	Baseline air quality level (µg/m³)	Maximum 8-hour running mean			Maximum 1-hour mean		
		EQS (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)	EQS (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)
R1	192	10,000	32.8	52.9	30,000	38.6	75.5
R2	192		32.5	49.4		33.6	64.8
R3	197		9.8	21.2		11.0	27.6
R4	192		12.2	25.0		14.0	38.3
R5	192		9.6	24.7		11.3	38.8
R6	192		19.6	56.0		21.9	80.5
R7	192		22.7	93.8		26.3	118.5
R8	192		20.7	89.1		23.7	105.5
R9	192		19.1	87.2		22.5	121.1
R10	192		19.3	87.1		25.4	106.5
R11	192		19.4	83.9		26.2	102.7
R12	192		19.0	128.8		23.6	147.3
R13	192		20.5	133.1		28.6	157.3
R14	192		21.5	167.8		57.7	345.1
R15	192		23.7	139.5		35.5	220.0
R16	192		19.6	69.8		25.7	129.9
R17	194		14.9	40.6		17.3	93.7
R18	194		13.5	31.5		14.9	46.3
R19	194		14.2	34.2		15.0	48.3
R20	194		20.8	79.1		24.2	90.7
R21	194		24.5	53.1		28.2	85.4
R22	194		29.3	66.5		31.8	113.8
R23	194		18.4	96.4		24.7	97.2
R24	194		17.3	77.4		25.6	100.2
R25	194		17.2	71.3		27.6	88.2
R26	192		22.5	52.8		25.7	75.1

Table C.2: Results of detailed assessment at sensitive human receptor locations for annual mean and 1-hour mean (99.79th percentile) NO_2 predicted concentrations

Receptor ID	Annual mean				99.79th percentile of 1-hour mean			
	Baseline air quality level (µg/m³)	EQS (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)	EQS (µg/m³)	Baseline air quality level (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)
R1	6.9	40	3.4	4.1	200	13.8	21.6	24.0
R2	6.9		3.9	4.8		13.8	21.3	23.3
R3	7.1		1.2	1.5		14.1	6.4	7.6
R4	6.9		1.8	2.4		13.8	8.6	9.7
R5	6.9		1.5	2.1		13.8	6.9	7.9
R6	6.9		2.5	4.5		13.8	14.5	14.6
R7	6.9		1.7	5.0		13.8	16.2	16.4

Receptor ID	Annual mean				99.79th percentile of 1-hour mean			
	Baseline air quality level (µg/m³)	EQS (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)	EQS (µg/m³)	Baseline air quality level (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)
R8	6.9		1.6	4.7		13.8	15.2	15.4
R9	6.9		1.5	4.4		13.8	14.5	14.9
R10	6.9		1.5	4.2		13.8	14.6	15.3
R11	6.9		1.5	3.7		13.8	15.3	16.2
R12	6.9		2.1	4.0		13.8	15.6	20.0
R13	6.9		2.2	4.5		13.8	15.7	21.9
R14	6.9		2.3	4.9		13.8	23.0	39.4
R15	6.9		2.1	4.6		13.8	19.2	34.1
R16	6.9		1.7	3.0		13.8	14.9	19.8
R17	12.3		1.1	1.5		24.6	9.8	12.6
R18	12.3		1.0	1.3		24.6	8.8	10.5
R19	12.3		1.1	1.5		24.6	9.0	10.6
R20	12.3		1.7	2.9		24.6	14.6	15.0
R21	12.3		2.7	3.6		24.6	18.0	18.1
R22	12.3		2.8	3.9		24.6	20.6	20.7
R23	12.3		1.4	2.8		24.6	13.4	14.5
R24	12.3		1.3	2.5		24.6	12.4	15.8
R25	12.3		1.1	2.1		24.6	12.2	16.7
R26	6.9		3.1	4.7		13.8	16.5	16.7

Table C.3: Results of detailed assessment at sensitive human receptor locations for 24-mean (99.18th percentile) and 1-hour mean (99.73rd percentile) SO_2 predicted concentrations

Receptor ID	99.18th percentile of 24-hour mean				99.73rd percentile of 1-hour mean			
	Baseline air quality level (µg/m³)	EQS (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)	EQS (µg/m³)	Baseline air quality level (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)
R1	7.2	125	-	1.5	350	7.2	-	3.6
R2	7.2			1.6		7.2		3.5
R3	7.2			0.5		7.2		1.5
R4	7.2			1.0		7.2		2.4
R5	7.2			0.8		7.2		2.5
R6	7.2			2.7		7.2		5.0
R7	7.2			4.5		7.2		7.6
R8	7.2			4.1		7.2		7.3
R9	7.2			4.4		7.2		7.2
R10	7.2			4.5		7.2		7.2
R11	7.2			4.3		7.2		6.6
R12	7.2			5.4		7.2		9.7
R13	7.2			5.7		7.2		11.2
R14	7.2			7.1		7.2		15.4
R15	7.2			6.0		7.2		11.8
R16	7.2			3.1		7.2		6.3

Receptor ID	99.18th percentile of 24-hour mean				99.73rd percentile of 1-hour mean			
	Baseline air quality level (µg/m³)	EQS (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)	EQS (µg/m³)	Baseline air quality level (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)
R17	8.8			1.2		8.8		3.5
R18	8.8			1.1		8.8		2.4
R19	8.8			1.0		8.8		2.4
R20	8.8			3.8		8.8		6.3
R21	8.8			2.3		8.8		4.6
R22	8.8			2.7		8.8		6.3
R23	8.8			3.7		8.8		6.5
R24	8.8			3.5		8.8		6.3
R25	8.8			3.2		8.8		5.7
R26	7.2			2.6		7.2		4.3

Table C.4: Results of detailed assessment at sensitive human receptor locations for 15-minute mean (99.9th percentile) SO_2 predicted concentrations

Receptor ID	99.9th percentile of 15-minute mean			
	Baseline air quality level (µg/m³)	EQS (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)
R1	7.2	266	-	6.1
R2	7.2			4.3
R3	7.2			2.6
R4	7.2			3.9
R5	7.2			4.1
R6	7.2			6.1
R7	7.2			8.5
R8	7.2			8.3
R9	7.2			8.3
R10	7.2			8.2
R11	7.2			7.6
R12	7.2			11.0
R13	7.2			12.9
R14	7.2			22.5
R15	7.2			13.8
R16	7.2			10.0
R17	8.8			5.9
R18	8.8			3.5
R19	8.8			3.5
R20	8.8			7.2
R21	8.8			6.2
R22	8.8			7.8
R23	8.8			7.7
R24	8.8			7.3
R25	8.8			6.6
R26	7.2			5.4

Table C.5: Results of detailed assessment at sensitive human receptor locations for annual mean and 24-hour mean (90.41st) percentile) PM_{10} predicted concentrations

Receptor ID	Annual mean				90.41st percentile of 24-hour mean			
	Baseline air quality level (µg/m³)	EQS (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)	EQS (µg/m³)	Baseline air quality level (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)
R1	12.3	40	-	0.01	50	24.5	-	0.04
R2	12.3			0.02		24.5		0.05
R3	13.1			0.00		26.3		0.01
R4	12.3			0.01		24.5		0.03
R5	12.3			0.01		24.5		0.03
R6	12.3			0.04		24.5		0.11
R7	12.3			0.06		24.5		0.20
R8	12.3			0.06		24.5		0.17
R9	12.3			0.06		24.5		0.17
R10	12.3			0.05		24.5		0.16
R11	12.3			0.04		24.5		0.13
R12	12.3			0.05		24.5		0.16
R13	12.3			0.04		24.5		0.15
R14	12.3			0.05		24.5		0.19
R15	12.3			0.05		24.5		0.20
R16	12.3			0.03		24.5		0.10
R17	13.2			0.01		26.3		0.04
R18	13.2			0.01		26.3		0.02
R19	13.2			0.01		26.3		0.03
R20	13.2			0.03		26.3		0.10
R21	13.2			0.02		26.3		0.07
R22	13.2			0.02		26.3		0.07
R23	13.2			0.03		26.3		0.11
R24	13.2			0.02		26.3		0.09
R25	13.2			0.02		26.3		0.07
R26	12.3			0.03		24.5		0.10

Table C.6: Results of detailed assessment at sensitive human receptor locations for annual mean $PM_{2.5}$ predicted concentrations

Receptor ID	Annual mean			
	Baseline air quality level (µg/m³)	EQS (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)
R1	7.1	20	-	0.01
R2	7.1			0.02
R3	7.4			0.00
R4	7.1			0.01
R5	7.1			0.01
R6	7.1			0.04
R7	7.1			0.06
R8	7.1			0.06

Receptor ID	Annual mean			
	Baseline air quality level (µg/m³)	EQS (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)
R9	7.1			0.06
R10	7.1			0.05
R11	7.1			0.04
R12	7.1			0.05
R13	7.1			0.04
R14	7.1			0.05
R15	7.1			0.05
R16	7.1			0.03
R17	7.7			0.01
R18	7.7			0.01
R19	7.7			0.01
R20	7.7			0.03
R21	7.7			0.02
R22	7.7			0.02
R23	7.7			0.03
R24	7.7			0.02
R25	7.7			0.02
R26	7.1			0.03

Table C.7: Results of detailed assessment at sensitive human receptor locations for annual mean and maximum 24-hour mean TVOC predicted concentrations

Receptor ID	Annual mean				100th percentile of 24-hour mean			
	Baseline air quality level	EQS (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)	EQS (µg/m³)	Baseline air quality level	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)
R1	0.2	5 (Benzene)	-	1.9	30 (Benzene)	0.3	-	16.1
R2	0.2			2.3		0.3		19.9
R3	0.2			0.7		0.3		5.9
R4	0.2			1.6		0.3		9.7
R5	0.2			1.7		0.3		9.7
R6	0.2			5.6		0.3		29.5
R7	0.2			9.2		0.3		53.3
R8	0.2			8.6		0.3		45.8
R9	0.2			8.0		0.3		49.4
R10	0.2			7.6		0.3		45.1
R11	0.2			6.3		0.3		43.8
R12	0.2			6.5		0.3		58.4
R13	0.2			6.2		0.3		64.4
R14	0.2			7.2		0.3		79.3
R15	0.2			7.0		0.3		63.7
R16	0.2			3.6		0.3		35.7
R17	0.2			1.3		0.3		18.6
R18	0.2			0.9		0.3		11.7

Receptor ID	Annual mean				100th percentile of 24-hour mean			
	Baseline air quality level	EQS (µg/m³)	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)	EQS (µg/m³)	Baseline air quality level	Existing Scenario PC (µg/m³)	Proposed Scenario PC (µg/m³)
R19	0.2			1.0		0.3		13.0
R20	0.2			3.7		0.3		48.9
R21	0.2			2.4		0.3		23.4
R22	0.2			2.9		0.3		26.4
R23	0.2			3.8		0.3		47.2
R24	0.2			3.3		0.3		38.3
R25	0.2			2.7		0.3		35.3
R26	0.2			4.8		0.3		26.9

Appendix E. Odour Management Plan

Appendix F. Noise Management Plan

Noise Management Plan

Version :-	4
Date :-	13/12/2021
Document Owner : -	Helen Capps

KEY :-

Mobile noise sources
Specific noise sources
Current actions
Areas out of use
To be removed as part of the Renewal Project
Equipment to be removed Phase 2 & 3 of SFRP

Table 2: **Noise Sources, Demonstration of BAT, Supplementary Information Required For Complex And/or High-Risk Installations**

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Noise Management Plan - Specific Noise Sources

Site Location	INR Source Reference	McCain Source Reference	Identify Sources Of Noise And/or Vibration	Specific Noise Level From Source			Future Readings Specific Noise Level From Source	Distance From Source To Sound Measuring Device In Meters	Contribution Of Overall Emission (H, M, L)	What Abatement And Actions Are Taken To Prevent Or Minimise Emissions?	BAT (Best Avail. Tech.)	Further Actions To Be Taken	Due Date/ Who	Actions Discounted
				LAeq	Sound level Leq, dBA	Frequency Levels	LAeq @ 1m Or Corrected To 1m 9dB)				Y/N			
Mobile Noise Sources														
Yard Areas		Contracted Supplier HGV's	Transport - HGV Tankers - Delivery/Collection						L	Only run engines when absolutely necessary. Sounder only used when moving on site in reverse. Pump only operating when required.	Yes			
Receiving Yard		Skid Steer Thomas Loader.	Transport - Skid Steer Thomas Loader - McCain Foods Vehicle						L	Night time curfew in place (Reversing alarm (white noise sounding alarm)Routine Service Plan on Vehicles in alignment with OEM recommendations. Vehicles switched off when not in use.	Yes			
Receiving Yard		ConBUL	Potato Bulkers - Contract vehicles						L	Monitor for maintenance or squeaking belts	Yes			
Gate House Main Gate		Bus (Double or Single Deck)	Transport - Bus - Single/Double Deck						L	Engine switched off once parked on site for staff loading/unloading of vehicle.	Yes			
Yard Areas		McCain Vehicles - Car/Van/Pool Car	Car/Van/Site Pool Car						L	Routine Service Plan on Vehicles in alignment with OEM recommendations. Vehicles switched off when not in use.	Yes			
Yard Areas		Contractor Vehicles - Car/Van.	Car/Van.						L	Vehicles switched off when not in use.	Yes			
Yard Areas		Site FLTs	Transport - Fork Lift Trucks (Diesel & Electric)						L	Reversing alarm (white noise sounding alarm) on all trucks. Insurance inspected and full service as advised by OEM.	Yes			
Yard Areas		CONHGV	Transport - Contractor HGV - Solid Back/Curtain Side						L	Vehicles switched off when not in use. Belts use/Loading & Unloading kept to a minimum. Loading time minimised.	Yes			
Yard Areas		SKHGV	Transport - Contractor HGV - Skip Delivery/Exchange.						L	Quick turn-around to deliver/exchange once on site. Movement kept to a minimum. Tie in all skips change out to same day where possible to reduce impact/frequency.	Yes			
Despatch Yard and Road		ConChil	Transport - Contractor HGV - Chillier Trailer Units						L	Quick turn-around to load/depart once on site. Movement kept to a minimum. Reversing beacons turned off overnight by HGV drivers.	Yes			
Renewal Project		Construction activities and deliveries	Demolition and Construction Transport - Contractor HGV - Skips and piling operations						M	Good working awareness and practice . Town planning conditions working hours	Yes	Ongoing monitoring during piling and construction works with noise surveys conducted by project Env Manager	Harry Bond	on going
Specific Noise Sources														
Potato House Roof			Potato House - Line 1 Steam Peeler Exhaust Stack								Yes	New Equipment to be measured and reported on		
Potato House Roof			Potato House - Line 2 Steam Peeler Exhaust Stack								Yes	New Equipment to be measured and reported on		
Condensor Deck			Tower 1								Yes	New Equipment to be measured and reported on		
Condensor Deck			Tower 2								Yes	New Equipment to be measured and reported on		
Condensor Deck			Tower 3								Yes	New Equipment to be measured and reported on		
Condensor Deck			Tower 4								Yes	New Equipment to be measured and reported on		
Condensor Deck			Tower 5								Yes	New Equipment to be measured and reported on		
Condensor Deck			Tower 6								Yes	New Equipment to be measured and reported on		
New Process Roof			Line 1 Fryer Extractor Fans								Yes	New Equipment to be measured and reported on		
New Process Roof			Line 2 Fryer Extraction Fans								Yes	New Equipment to be measured and reported on		

Noise Management Plan - Specific Noise Sources

Site Location	INR Source Reference	McCain Source Reference	Identify Sources Of Noise And/or Vibration	Specific Noise Level From Source			Future Readings Specific Noise Level From Source	Distance From Source To Sound Measuring Device In Meters	Contribution Of Overall Emission (H, M, L)	What Abatement And Actions Are Taken To Prevent Or Minimise Emissions?	BAT (Best Avail. Tech.)	Further Actions To Be Taken	Due Date/ Who	Actions Discounted
				LAeq	Sound level Leq, dBA	Frequency Levels	LAeq @ 1m Or Corrected To 1m 9dB)				Y/N			
New Process Roof			Line 1 Drier Extraction Fans								Yes	New Equipment to be measured and reported on		
New Process Roof			Line 2 Drier Extraction Fans								Yes	New Equipment to be measured and reported on		
New Process Roof			Fryer / Drier Area Extraction Fans								Yes	New Equipment to be measured and reported on		
Thermal Oxidiser Room			Thermal Oxidiser Extraction								Yes	New Equipment to be measured and reported on		
Thermal Oxidiser Room			Waste Heat Boiler Extraction								Yes	New Equipment to be measured and reported on		
TO Roof			Steam Exhaust Silencer								Yes	New Equipment to be measured and reported on		
Packing Roof			Freezer Area extraction Fan								Yes	New Equipment to be measured and reported on		
Packing Roof			Packing Area Extraction Fan								Yes	New Equipment to be measured and reported on		
Pump house Internal court yard	151	HRSEP1	HRS - North Sea Pump No.1	70	63 Hz	73.0		3	L	Internal Pumps - Ventilation grille in doors. PTI check on pumps.	No			Unable to hear at receptors
					125 Hz	71.5								
					250 Hz	68.2								
					500 Hz	65.2								
					1 kHz	64.3								
					2 kHz	63.2								
					4 kHz	59.2								
					8 kHz	51.0								
Pump house Internal court yard	151	HRSEP2	HRS - North Sea Pump No.2	70	63 Hz	73.0		3	L	Internal Pumps - Ventilation grille in doors.PTI check on pump 10/7/14	No			Unable to hear at receptors
					125 Hz	71.5								
					250 Hz	68.2								
					500 Hz	65.2								
					1 kHz	64.3								
					2 kHz	63.2								
					4 kHz	59.2								
					8 kHz	51.0								
HRS Plant wall, High level south facing	90	HRS1	HRS - Bio Filter Fan Exhaust Duct - High Level	73	63 Hz	83.6		6	L	Operator Checks/Inspections. Waste water treatment running inspection CI07D-COM.	No			Fan located at ground level in high surveillance area . Unable to hear at receptors
					125 Hz	78.3								
					250 Hz	81.5								
					500 Hz	77.4								
					1 kHz	76.5								
					2 kHz	77.6								
					4 kHz	74.5								
					8 kHz	66.6								
Boiler house roof	34	BOILER1	Services - Boiler House No.1	80	63 Hz	77.6		1	M	Internal Boiler - Ventilation grille in doors. Capex project on going . New louvers fitted	No	Review service plan	31/8/13 J Green	Unable to hear at receptors
					125 Hz	74.7								
					250 Hz	72.0								
					500 Hz	64.8								
					1 kHz	71.1								
					2 kHz	73.0								
					4 kHz	74.8								
					8 kHz	67.5								
Cutter deck , high level mezz	41	CD2	Cutter Deck - Powered Roof Exhaust Fan No. 2	74	63 Hz	74.6		1	M	Jet Cowl/ Silencer in place and cleaned monthly as part of the cleaning schedule.	Yes			
					125 Hz	74.7								
					250 Hz	73.9								
					500 Hz	71.9								
					1 kHz	69.6								
					2 kHz	65.2								
					4 kHz	57.1								
					8 kHz	45.9								
Engine Room 1	Install Spec	R8 = F1	Roof Extraction Fan No.1	42	63 Hz			3	L	1520mm attenuator fitted Replaced as part of plant room capex. 2014	Yes			
					125 Hz									
					250 Hz									
					500 Hz									
					1 kHz									
					2 kHz									
					4 kHz									
					8 kHz									
Mezz low level roof, east facing	21		Mezz air handling unit	91	63 Hz	87.7		1	L	No current abatement in place.	Yes	20/07/2013 Unit to retest. Complete cabinet and ducting replacement plus resited in roof valley and intakes inverted.		Unable to hear at nearest receptors
					125 Hz	88.8								
					250 Hz	89.9								
					500 Hz	89.8								
					1 kHz	87.4								
					2 kHz	80.4								
					4 kHz	72.8								
					8 kHz	65.4								
ADR wall medium level east facing	158	ADR AHU1	ADR - Air Handling Unit No. 1	88	63 Hz	77.6		1	H	Ventilation grille. PM check in place 26 weekly. Service contract in place with AHU specialist	No	Review suitability with RPS accoustics		
					125 Hz	78.8								
					250 Hz	83.5								
					500 Hz	85.6								
					1 kHz	84.9								
					2 kHz	79.4								

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				LAeq	Sound level Leq, dBA	Frequency Levels	LAeq @ 1m Or Corrected To 1m 9dB)				Y/N			
					4 kHz	72.0								
					8 kHz	62.1								
ADR wall medium level east facing	159	ADR AHU2	ADR - Air Handling Unit No. 2	82	63 Hz	76.8		1	H	Ventilation grille. PM check in place 26 weekly. Service contract in place with AHU specialist	No	Review suitability with RPS accoustics		
					125 Hz	77.4								
					250 Hz	80.5								
					500 Hz	79.9								
					1 kHz	77.0								
					2 kHz	74.7								
					4 kHz	68.4								
					8 kHz	59.1								
Internal low level	90	HRSBFF1	HRS - Bio Filter Fan No. 1	63	63 Hz	83.6		3	M	Operator Checks/Inspections.	No	To be potentially removed as part of renewal project	September 2023	
					125 Hz	78.3								
					250 Hz	81.5								
					500 Hz	77.4								
					1 kHz	76.5								
					2 kHz	77.6								
					4 kHz	74.5								
					8 kHz	66.6								
Potato House Roof	15	PP4	Potato House - Roof Exhaust Fan No. 1 (Powered)	76	63 Hz	75.8		1	M	No current abatement in place.	No	Review suitability with RPS accoustics		Unable to hear at nearest receptors
					125 Hz	77.7								
					250 Hz	78.6								
					500 Hz	73.6								
					1 kHz	71.4								
					2 kHz	66.1								
					4 kHz	59.1								
					8 kHz	48.8								
Potato House Roof	15	PP5	Potato House - Roof Exhaust Fan No. 2 (Powered)	76	63 Hz	75.8		1	M	No current abatement in place.	No	Review suitability with RPS accoustics		
					125 Hz	77.7								
					250 Hz	78.6								
					500 Hz	73.6								
					1 kHz	71.4								
					2 kHz	66.1								
					4 kHz	59.1								
					8 kHz	48.8								
Cutter deck , high level mezz	40	CD1	Cutter Deck - Powered Roof Exhaust Fan No. 1	75	63 Hz	75.6		1	M	Cowl/Silencer in place and cleaned monthly as part of the cleaning schedule.	No	Review suitability with RPS accoustics		
					125 Hz	75.5								
					250 Hz	75.5								
					500 Hz	72.4								
					1 kHz	70.0								
					2 kHz	67.6								
					4 kHz	61.4								
					8 kHz	51.1								
Cutter deck , high level mezz	42	CD3	Cutter Deck - Powered Roof Exhaust Fan No. 3	72	63 Hz	74.0		1	M	Cowl/Silencer in place and cleaned monthly as part of the cleaning schedule.	No	Review suitability with RPS accoustics		
					125 Hz	72.8								
					250 Hz	73.5								
					500 Hz	70.0								
					1 kHz	67.7								
					2 kHz	62.0								
					4 kHz	53.7								
					8 kHz	42.3								
Cutter deck , high level mezz	43	CD4	Cutter Deck - Powered Roof Exhaust Fan No. 4	75	63 Hz	76.5		1	M	Cowl/Silencer in place and cleaned monthly as part of the cleaning schedule.	No	Review suitability with RPS accoustics		
					125 Hz	74.5								
					250 Hz	75.7								
					500 Hz	76.5								
					1 kHz	69.6								
					2 kHz	61.8								
					4 kHz	53.8								
					8 kHz	43.3								
Cutter deck , high level mezz	44	CD5	Cutter Deck - Powered Roof Exhaust Fan No. 5	82	63 Hz	76.6		1	H	Cowl/Silencer in place and cleaned monthly as part of the cleaning schedule.	No	Review suitability with RPS accoustics		
					125 Hz	78.4								
					250 Hz	85.9								
					500 Hz	82.5								
					1 kHz	76.1								
					2 kHz	68.8								
					4 kHz	59.0								
					8 kHz	48.0								
Cutter deck , high level mezz	45	CD6	Cutter Deck - Powered Roof Exhaust Fan No. 6	83	63 Hz	78.7		1	H	Cowl/Silencer in place and cleaned monthly as part of the cleaning schedule.	No	Review suitability with RPS accoustics		
					125 Hz	81.8								
					250 Hz	85.9								
					500 Hz	82.3								
					1 kHz	76.3								
					2 kHz	68.3								
					4 kHz	59.2								
					8 kHz	48.4								
ADR roof	16	AD3	ADR - Roof Exhaust Fan No. 1 (Powered)	73	63 Hz	74.9		2	M	Incorporated in the cleaning schedule.	No	Review suitability with RPS accoustics		
					125 Hz	75.5								
					250 Hz	74.5								
					500 Hz	68.8								
					1 kHz	68.1								
					2 kHz	64.3								
					4 kHz	59.3								
					8 kHz	50.9								
ADR roof	17	AD4	ADR - Roof Exhaust Fan No. 2 (Powered)	76	63 Hz	75.5		1	M	Incorporated in the cleaning schedule.	No	Review suitability with RPS accoustics		
					125 Hz	74.3								
					250 Hz	72.5								
					500 Hz	71.1								
					1 kHz	71.6								
					2 kHz	68.8								

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				LAeq	Sound level Leq, dBA	Frequency Levels	LAeq @ 1m Or Corrected To 1m 9dB)				Y/N			
					4 kHz	63.4								
					8 kHz	57.9								
ADR roof	12	AD5	ADR - Roof Exhaust Fan No. 3 (Powered)	74	63 Hz	75.6		1	M	Incorporated in the cleaning schedule.	No	Review suitability with RPS accoustics		
					125 Hz	77.8								
					250 Hz	78.5								
					500 Hz	74.4								
					1 kHz	63.8								
					2 kHz	59.5								
					4 kHz	53.8								
					8 kHz	45.9								
ADR roof	12	AD6	ADR - Roof Exhaust Fan No. 4 (Powered)	Locked off	63 Hz	75.6		1		Incorporated in the cleaning schedule.	No	Review suitability with RPS accoustics		
					125 Hz	77.8								
					250 Hz	78.5								
					500 Hz	74.4								
					1 kHz	63.8								
					2 kHz	59.5								
					4 kHz	53.8								
					8 kHz	45.9								
Engine Room 1	Install Spec	R3 = E1	Roof mounted- Emergency extract fan	42			3		L	1520mm attenuator fitted	Yes			Unable to hear at nearest receptors
Engine Room 1	Install Spec	R4 = E2	Roof mounted- Emergency extract fan	42			3		L	1520mm attenuator fitted	Yes			Unable to hear at nearest receptors
Engine Room 1	Install Spec	Intake 2	Wall mounted intake fan (Internal)	73			3		M	Internal Fan located within ducting	No			Unable to hear at nearest receptors
Engine Room 1	Install Spec	Intake 1	Roof mounted intake fan	62			3		L	1520mm attenuator fitted	Yes			Unable to hear at nearest receptors
Engine Room 1	Install Spec	R8 = F1	Roof Extraction Fan No.1	42			3		L	1520mm attenuator fitted	Yes			Unable to hear at nearest receptors
Engine Room 1a	Install Spec	R1 = Intake 3	Roof mounted intake fan	42			3		L	1520mm attenuator fitted	Yes			Unable to hear at nearest receptors
Engine Room 1a	Install Spec	R2 = E 3	Roof mounted- Emergency extract fan	43			3		L	1520mm attenuator fitted	Yes			Unable to hear at nearest receptors
Engine Room 1a	Install Spec	R6 = E4	Roof mounted- Emergency extract fan	42			3		L	1520mm attenuator fitted	Yes			Unable to hear at nearest receptors
Engine Room 1a	Install Spec	R5 = Intake 4	Wall mounted intake fan	73			3		M	Internal Fan located within ducting	Yes			Unable to hear at nearest receptors
Engine Room 1a	Install Spec	R5 = F2	Roof Extraction Fan No.2	42			3		L	1520mm attenuator fitted	Yes			Unable to hear at nearest receptors
Eriks Stores	30	BRF1	Services -Roof Extractor Fan No.1	76			2	1	M	Mushroom Capped.	No			Unable to hear at nearest receptors
Eriks Stores	30	BRF2	Services -Roof Extractor Fan No.2	76			2	1	M	Mushroom Capped.	No			Unable to hear at nearest receptors
Eriks Stores	157	BRF3	Services - Roof Extractor Fan No.3	79			2	1	M	Mushroom Capped.	No			Unable to hear at nearest receptors
Eriks Stores	157	BRF4	Services - Roof Extractor Fan No.4	79			2	1	M	Mushroom Capped.	No			Unable to hear at nearest receptors
Boiler House		BH3	Services - Boiler House - Roof Exhaust 3	Locked off					L	Mushroom Capped.	No			
Boiler House		BH4	Services - Boiler House - Roof Exhaust 4	Locked off					L	Mushroom Capped.	No			
Bakes		P6	Bakes - Air Inlet Unit No. 1	75				Whir/Hiss/Rumble - Area Dependant. Expectation when in use to be running 24 hrs, 7 days a week.	Ventilation grille. No further abatement in place	Annual burner and fan inspection by specialist JBT	No	Review suitability with RPS accoustics		
Bakes		P7	Bakes - Air Inlet Unit No. 2	75				Whir/Hiss/Rumble - Area Dependant. Expectation when in use to be running 24 hrs, 7 days a week.	Ventilation grille. No further abatement in place	Annual burner and fan inspection by specialist JBT	No	Review suitability with RPS accoustics		
Bakes		P8	Bakes - Air Inlet Unit No. 3	75				Whir/Hiss/Rumble - Area Dependant. Expectation when in use to be running 24 hrs, 7 days a week.	Ventilation grille. No further abatement in place	Annual burner and fan inspection by specialist JBT	No	Review suitability with RPS accoustics		
Bakes		P9	Bakes - Air Inlet Unit No. 4	74				Whir/Hiss/Rumble - Area Dependant. Expectation when in use to be running 24 hrs, 7 days a week.	Ventilation grille. No further abatement in place	Annual burner and fan inspection by specialist JBT	No	Review suitability with RPS accoustics		
Bakes		P10	Bakes - Air Inlet Unit No. 5	74				Whir/Hiss/Rumble - Area Dependant. Expectation when in use to be running 24 hrs, 7 days a week.	Ventilation grille. No further abatement in place	Annual burner and fan inspection by specialist JBT	No	Review suitability with RPS accoustics		
Bakes		P11	Bakes - Air Inlet Unit No. 6	68				Whir/Hiss/Rumble - Area Dependant. Expectation when in use to be running 24 hrs, 7 days a week.	Ventilation grille. No further abatement in place	Annual burner and fan inspection by specialist JBT	No	Review suitability with RPS accoustics		
Bakes		P12	Bakes - Combustion Gas Flue No. 1	75				Operational low hum - Expectation to be running 24 hrs, 7 days a week.	No current abatement in place	Annual burner and fan inspection by specialist JBT	No	Review suitability with RPS accoustics		

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				LAeq	Sound level Leq, dBA	Frequency Levels	LAeq @ 1m Or Corrected To 1m 9dB)				Y/N			
Bakes		P13	Bakes - Combustion Gas Flue No. 2	75				Operational low hum - Expectation to be running 24 hrs, 7 days a week.	No current abatement in place	Annual burner and fan inspection by specialist JBT	No	Review suitability with RPS accoustics		
Bakes		P14	Bakes - Combustion Gas Flue No. 3	75				Operational low hum - Expectation to be running 24 hrs, 7 days a week.	No current abatement in place	Annual burner and fan inspection by specialist JBT	No	Review suitability with RPS accoustics		
Bakes		P15	Bakes - Combustion Gas Flue No. 4	74				Operational low hum - Expectation to be running 24 hrs, 7 days a week.	No current abatement in place	Annual burner and fan inspection by specialist JBT	No	Review suitability with RPS accoustics		
Bakes		P16	Bakes - Combustion Gas Flue No. 5	77				Operational low hum - Expectation to be running 24 hrs, 7 days a week.	No current abatement in place	Annual burner and fan inspection by specialist JBT	No	Review suitability with RPS accoustics		
Bakes		P17	Bakes - Combustion Gas Flue No. 6	68				Operational low hum - Expectation to be running 24 hrs, 7 days a week.	No current abatement in place	Annual burner and fan inspection by specialist JBT	No	Review suitability with RPS accoustics		
Bakes		P18	Bakes - Roof Extraction Fan (Powered) No. 1	79				Whir - Expectation to be running 24 hrs, 7 days a week.	Cowling in place - prevention or rain water entry.		No	Review suitability with RPS accoustics		
Bakes		P19	Bakes - Roof Extraction Fan (Powered) No. 2	77				Whir - Expectation to be running 24 hrs, 7 days a week.	Cowling in place - prevention or rain water entry.		No	Review suitability with RPS accoustics		
Bakes		P20	Bakes - Roof Extraction Fan (Powered) No. 3	77				Whir - Expectation to be running 24 hrs, 7 days a week.	Cowling in place - prevention or rain water entry.		No	Review suitability with RPS accoustics		
Bakes		P21	Bakes - Roof Extraction Fan (Powered) No. 4	74				Whir - Expectation to be running 24 hrs, 7 days a week.	Cowling in place - prevention or rain water entry.		No	Review suitability with RPS accoustics		
Bakes		P22	Bakes - Roof Extraction Fan (Powered) No. 5	74				Whir - Expectation to be running 24 hrs, 7 days a week.	Cowling in place - prevention or rain water entry.		No	Review suitability with RPS accoustics		
Bakes		P23	Bakes - Roof Extraction Fan (Powered) No. 6	66				Whir - Expectation to be running 24 hrs, 7 days a week.	Cowling in place - prevention or rain water entry.		No	Review suitability with RPS accoustics		
Bakes		P24	Bakes - Roof Extraction Fan (Powered) No. 7	68				Whir - Expectation to be running 24 hrs, 7 days a week.	Cowling in place - prevention or rain water entry.		No	Review suitability with RPS accoustics		
Bakes		P30	Bakes - Roof Extraction Fan (Powered) No. 8	65				Whir - Expectation to be running 24 hrs, 7 days a week.	Cowling in place - prevention or rain water entry.		No	Review suitability with RPS accoustics		
Bakes		P5	Bakes - Odour Destructor	70				Whir/Rumble- Expectation to be running 24 hrs, 7 days a week.	Cowling in place - prevention or rain water entry.	Annual burner and fan inspection by specialist JBT	No	Review suitability with RPS accoustics		