Selby District Council

Civic Centre, Doncaster Road Selby
North Yorkshire YO8 9FT. Tel: 01757 705101
Selby

Part B Application form

Application for a permit

Local Authority Pollution Prevention and Control

Pollution Prevention and Control Act, 1999
Environmental Permitting (England and Wales) Regulations 2016

Introduction

When to use this form

This environmental permitting regime is known as and referred to as Local Authority Pollution Prevention and Control ('LAPPC'). Installations permitted under this regime are known as Part 'B' installations. Use this form if you are sending an application for a 'Part B' permit to a Local Authority under the Environmental Permitting (England and Wales) Regulations 2016 ("the EP Regulations").

Before you start to fill in this form

You are strongly advised to read relevant parts of the Defra general guidance manual issued for LA-IPPC and LAPPC, republished in 2010 and available at.
https://www.gov.uk/government/publications/local-authority-pollution-control-general-guidance-manual

This contains a list of other documents you may need to refer to when you are preparing your application, and explains some of the technical terms used. You will also need to read the relevant sector guidance note, BREF note or Process Guidance note as relevant. The EP Regulations can be obtained from The Office of Public Sector Information, or viewed on their website at http://www.opsi.gov.uk/si/si2010/draft/ukdsi_9780111491423_en_1

Which parts of the form to fill in

You should fill in as much of this form as possible. The appropriate fee must be enclosed with the application to enable it to be processed further. When complete return to:

Environmental Health
Selby District Council
Civic Centre
Doncaster Road
SELBY
North Yorkshire
YO8 9FT
Telephone: 01757 705101

Other documents you may need to submit

There are number of other documents you will need to send us with your application. Each time a request for a document is made in the application form you will need to record a document reference number for the document or documents that you are submitting in the space provided on the form for this purpose. Please also mark the document(s) clearly with this reference number and the application reference number, if you have been given one, which will be at the top of the form overleaf. If you do not have either of these, please use the name of the installation.

Using continuation sheets

In the case of the questions on the application form itself, please use a continuation sheet if you need extra space; but please indicate clearly on the form that you have done so by stating a document reference number for that continuation sheet. Please also mark the continuation sheet itself clearly with the information referred to above.

Copies

The application may be submitted electronically, however, if you are submitting a written application please send the original and 3 copies of the form and all other supporting material, to assist consultation.

If you need help and advice

We have made the application form as straightforward as possible, but please get in touch with us at the local authority address given above if you need any advice on how to set out the information we need.

A1.1 Name of the installation

FOAMED GLASS (UK) LIMITED

A1.2 Please give the address of the site of the installation

LONG LANE, GREAT HECK

NORTH YORKSHIRE

Postcode DN14 0BT Telephone 01977 661631

Ordnance Survey national grid reference *8 characters, for example, SJ 123 456*

SE 592 214

A1.3 Existing permits

Please give details of any existing LAPPC or LA-IPPC authorisation for the installation, or any waste management licences or water discharge consents, including reference number(s) and type(s):

None NONE

Please provide the information requested below about the "Operator", which means the person who it is proposed will have control over the installation in accordance with the permit (if granted)

A2.1 The Operator – Please provide the full name of company or corporate body

THOMAS ARMSTRONG (HOLDINGS) LIMITED

Trading/business name (if different)

—

Registered Office address WORKINGTON ROAD, FLIMBY

MARYPORT

CUMBRIA Postcode: CA15 8RY

Principal Office address (if different)

—

—

Postcode: —

Company registration number 244751

A2.2 Holding Companies

Is the operator a subsidiary of a holding company within the meaning of Section 736 of the Companies Act 1985?

No ☑
Yes ☐ *name of ultimate holding company*

Registered office address

Postcode

Principal Office address (if different)

Postcode

Company registration number:

A3.1 Who can we contact about your application?

It will help to have someone who we can contact directly with any questions about your application. The person you name should have the authority to act on behalf of the operator. This could be an agent or consultant rather than the operator.

Name JOHN MASON

Position TECHNICAL MANAGER

Address LONG LANE, GREAT HECK, NORTH YORKSHIRE

Postcode DN14 0BT

Telephone number

Fax number

E. Mail address uk

B1 About the Installation

Please fill in the table below with details of all the current activities in operation at the whole installation.

In **Column 1, Box A,** please identify all activities listed in Schedule 1 to the EP Regulations that are, or are proposed, to be carried out in the stationary technical unit of the installation.

In **Column 1, Box B** please identify any directly associated activities that are, or are proposed, to be carried out on the same site which:

* have a technical connection with the activities in the stationary technical unit
* could have an effect on pollution

In **Column 2, for Boxes A and B** please quote the Chapter number, Section number, then paragraph and sub-paragraph number as shown in Part 2 of Schedule 1 to the EP Regulations [For example, *Manufacturing glass and glass fibre where the use of lead or any lead compound is involved*, would be listed as Chapter 3, Section 3.3, Part B(b)].

B1.1 Installation table for new permit application

COLUMN 1a	COLUMN 2a
Activities in the Stationary Technical Unit	**Schedule 1 References**
THE CRUSHING, GRINDING OR OTHER SIZE	SECTION 3.5
REDUCTION AND HEATING OF A MINERAL	PART B (g)
PRODUCT	
COLUMN 1b	**COLUMN 2b**
Directly associated activities	**Schedule 1 References**

B1.2 Why is the application being made?

☑ the installation is new

☐ it is an existing Part B process authorised under the Environmental Protection Act for which a substantial change is proposed within 4 months of the transitional date and an LAPPC permit is required.

B.1.3 Site Maps

Please provide:-

- A suitable map showing the location of the installation clearly defining extent of the installations in red

Doc Reference FOAMGLASS 01 - LOCATION MAP

- A suitable plan showing the layout of activities on the site, including bulk storage of materials, waste storage areas and any external emission points to atmosphere

Doc Reference FOAMGLASS 02 - LAYOUT OF SITE ACTIVITIES

B2 The Installation

Please provide written information about the aspects of your installation listed below. We need this information to determine whether you will operate the installation in a way in which all the environmental requirements of the PPC Regulations are met.

B2.1 Describe the proposed installation and activities and identify the foreseeable emissions to air from each stage of the process (this will include any foreseeable emissions during start up, shut down and any breakdown/abnormal operation)

The use of process flow diagrams may aid to simplify the operations

Doc Reference: FOAMGLASS 03a - PROCESS DESCRIPTION + FOAMGLASS 03b - AIR QUALITY REPORT

B2.2 Once all foreseeable emissions have been identified in the proposed installation activities, each emission should be characterised (including odour)and quantified.

- **atmospheric emissions** should be categorised under the following
(i) point source, (e.g. chimney / vent, identified by a number and detailed on a plan)
(ii) fugitive source (e.g. from stockpiles / storage areas).

If any monitoring has been undertaken please provide the details of emission concentrations and quantify in terms of mass emissions. If no monitoring has been undertaken please state this.

(Mass Emission - the quantification of an emission in terms of its physical mass per period of time e.g. Grams per hour, tonnes per year)

B2.3 For each emission identified from the installations' activities describe the current and proposed technology and other techniques for preventing or, where that is not practicable reducing the emissions. If no techniques are currently used and the emission goes directly to the environment, without abatement or treatment this should be stated

Doc Reference: FOAMGLASS 04 - DUST MANAGEMENT PLAN

B2.4 Describe the proposed systems to be used in the event of unintentional releases and their consequences. This must identify, assess and minimise the environmental risks and hazards, provide a risk based assessment of any likely unintentional releases, including the use of historical evidence. If no assessments have been carried out please state.

Doc Reference: FOAMGLASS 04 + FOAMGLASS 05 - DRAINAGE + DUST SUPRESSION

B2.5 Describe the proposed measures for monitoring all identified emissions including any environmental monitoring, and the frequency, measurement methodology and evaluation procedure proposed. (e.g. particulate matter emissions, odour etc). Include the details of any monitoring which has been carried out which has not been requested in any other part of this application. If no monitoring is proposed for an emission please state the reason.

Doc Reference: FOAMGLASS 04

B2.6 Provide detailed procedures and policies of your proposed environmental management techniques, in relation to the installation activities described.

Doc Reference: FOAMGLASS 06 - ENVIRONMENTAL MANAGEMENT PLAN

B3 Impact on the Environment

B3.1 Provide an assessment of the potential significant local environmental effects of the foreseeable emissions (for example, is there a history of complaints, is the installation in an air quality management area ?)

Doc Reference: FOAMGLASS 04

B3.2 Are there any sites of special scientific interest (SSSIs) or European Sites which are within 2 kilometres of the installation?

No ☑
Yes ☐ *Please give names of the sites*

B3.3 Provide an assessment of whether the installation is likely to have a significant effect on such sites and, if it is, provide an assessment of the implications of the installation for that site, for the purposes of the Conservation (Natural Habitats etc) Regulations 1994.

Doc Reference: N/A

B4 Environmental Statements

B4.1 Has an environmental impact assessment been carried out under The Town and Country Planning (Environmental Impact Assessment)(England & Wales) Regulations 1999, or for any other reason with respect to the installation.

No ☑
Yes ☐

Please supply a copy of the environmental impact assessment and details of any decision made

Doc Reference: _____

This section is to be completed only by those installations that fall under the requirements of the Solvent Emissions Directive (SED). A list may be found in Annex IIA of the Directive and is repeated in Schedule 1 (Section 7) of The Pollution Prevention and Control (England and Wales) Regulations 2000.

B5 Use of Solvents and Solvent Emission Compliance

B5.1 Provide a list of solvents used at the installation. Include details describing how the solvents are used (i.e. spraying, dip coating), annual consumption levels (include any solvent removed from site and detail whether the solvent removed from site is recovered for reuse.) Provide details of any abatement that is undertaken. If no abatement techniques are currently used and the emission goes directly to the environment, this should be stated.

Doc Reference:_____

B5.2 Which method of compliance with the SED requirements is intended to be used by the installation?
Compliance with emission limits
Compliance with a reduction scheme
Compliance with a total emission limit
Where the reduction scheme is chosen provide details of the proposed reduction scheme.

Doc Reference:_____

B5.3 Where any Risk Phrase Solvents (R45, 46, 49, 60 or 61) are used and or prepared, provide a timetable for the replacement of the substance within the shortest possible time.

Doc Reference:_____

B6 Additional information

Please supply any additional information which you would like us to take account of in considering this application.

Doc Reference _____

C1 Fees and Charges

The enclosed charging scheme leaflet gives details of how to calculate the application fee. Your application cannot be processed unless the application fee is correct and enclosed.

C1.1 Please state the amount enclosed as an application fee for this installation.

£ . Cheques should be made payable to : Selby District Council

We will confirm receipt of this fee when we write to you acknowledging your application.

C1.2 Please give any company purchase order number or other reference you wish to be used in relation to this fee.

"FOAMGLAS PPC 01"

C2 Annual charges

If we grant you a permit, you will be required to pay an annual subsistence charge, failure to do so will result in revocation of your permit and you will not be able to operate your installation.

C2.1 Please provide details of the address you wish invoices to be sent to and details of someone
we may contact about fees and charges within your finance section.

JOHN MASON (TECHNICAL MANAGER)

Email: uk

LONG LANE, GREAT HECK, NORTH YORKSHIRE

Postcode: DN14 0BT Telephone:

C3 Commercial confidentiality

C3.1 Is there any information in the application that you wish to justify being kept from the public register on the grounds of commercial confidentiality ?

No ☑

Yes ☐

Please provide full justification, considering the definition of commercial confidentiality within the PPC regulations.

Doc Reference ✓

C3.2 Is there any information in the application that you believe should be kept from the public register on the grounds of national security?

No ☑

Yes ☐

Do not write anything about this information on the form. Please provide full details on separate sheets, plus provide a copy of the application form to the Secretary of State for a Direction on the issue of National Security.

C4 Data Protection

The information you give will be used by the Local Authority to process your application. It will be placed on the relevant public register and used to monitor compliance with the permit conditions. We may also use and or disclose any of the information you give us in order to:

- consult with the public, public bodies and other organisations,
- carry out statistical analysis, research and development on environmental issues,
- provide public register information to enquirers,
- investigate possible breaches of environmental law and take any resulting action,
- prevent breaches of environmental law,
- assess customer service satisfaction and improve our service.

We may pass on the information to agents/ representatives who we ask to do any of these things on our behalf.

It is an offence under Regulation 32 of the PPC regulations, for the purpose of obtaining a permit (for yourself or anyone else) to:

- make a false statement which you know to be false or misleading in a material particular,
- recklessly make a statement which is false or misleading in a material particular.

If you make a false statement

- we may prosecute you, and
- if you are convicted, you are liable to a fine or imprisonment (or both).

C5 Declaration

C5.1 Signature of current operator(s)*

I / We certify that the information in this application is correct. I / We apply for a permit in respect of the particulars described in this application (including supporting documentation) I / We have supplied.

Please note that each individual operator must sign the declaration themselves, even if an agent is acting on their behalf.

For the application from

Installation name: FOAMED GLASS (UK) LIMITED

Signature

Name ANTHONY ROBERT GLOVER DENHAM

Position DIRECTOR

Date 11th JANUARY 2024

Signature

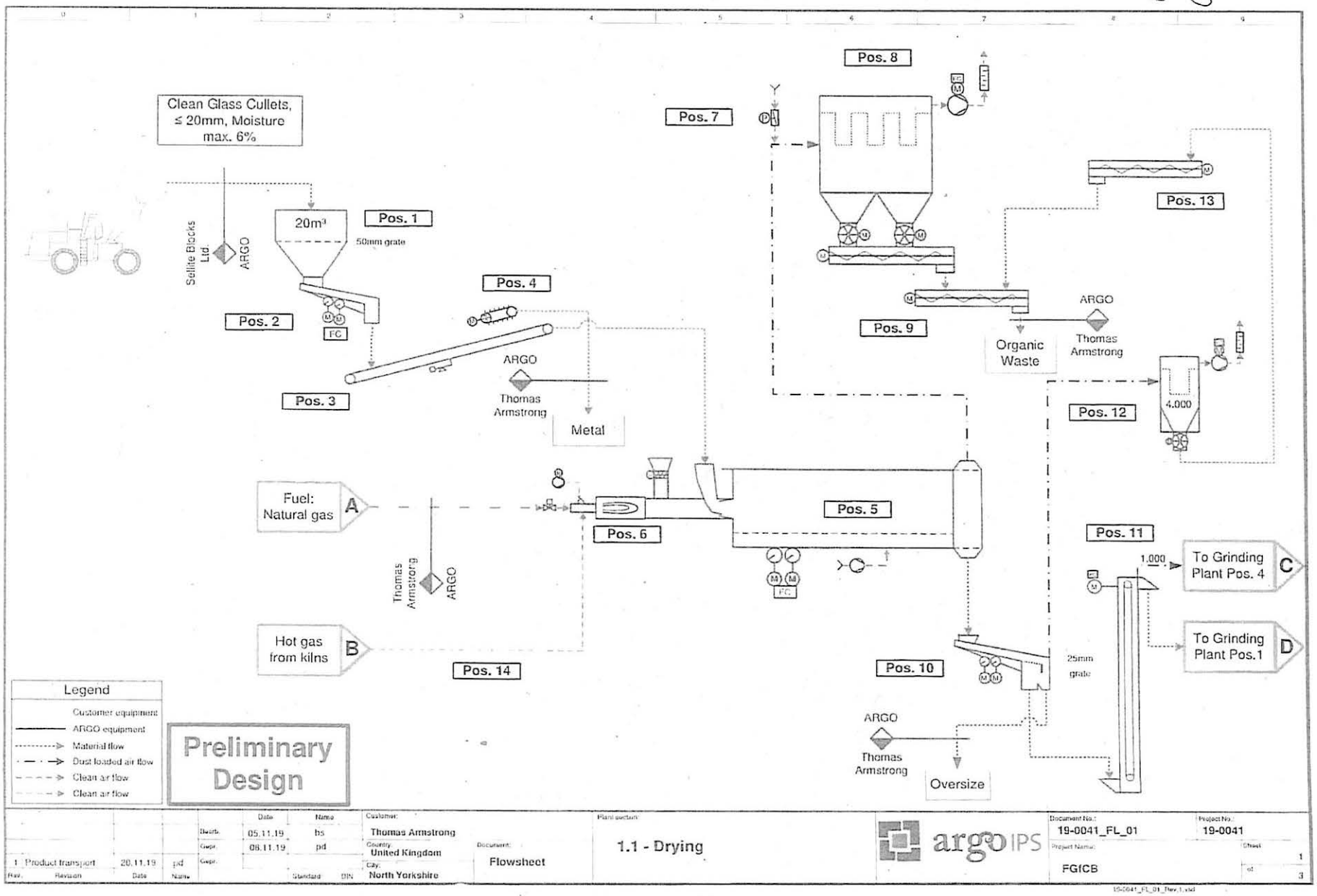
Name JOHN MASON

Position TECHNICAL MANAGER

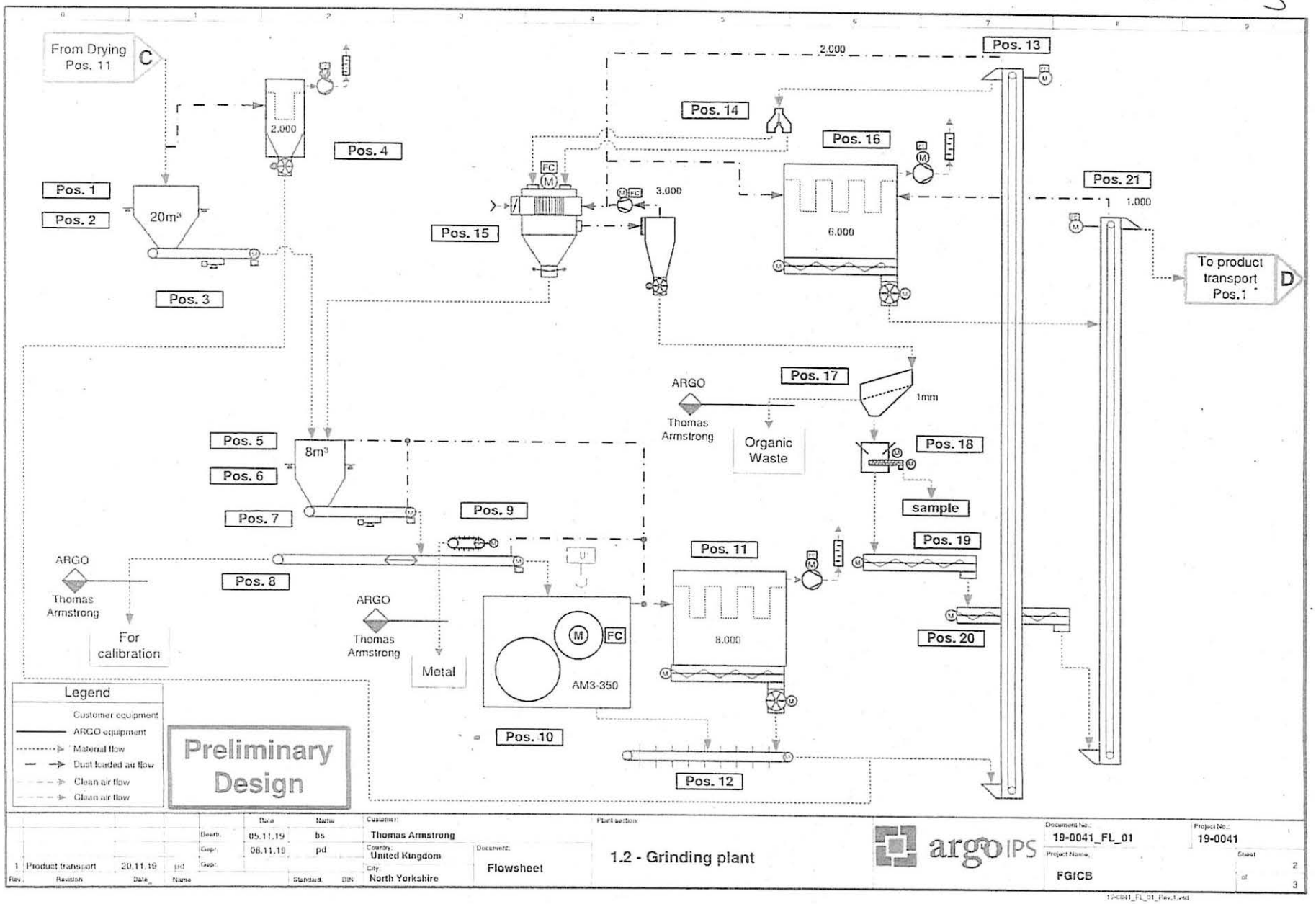
Date 30th JANUARY 2024

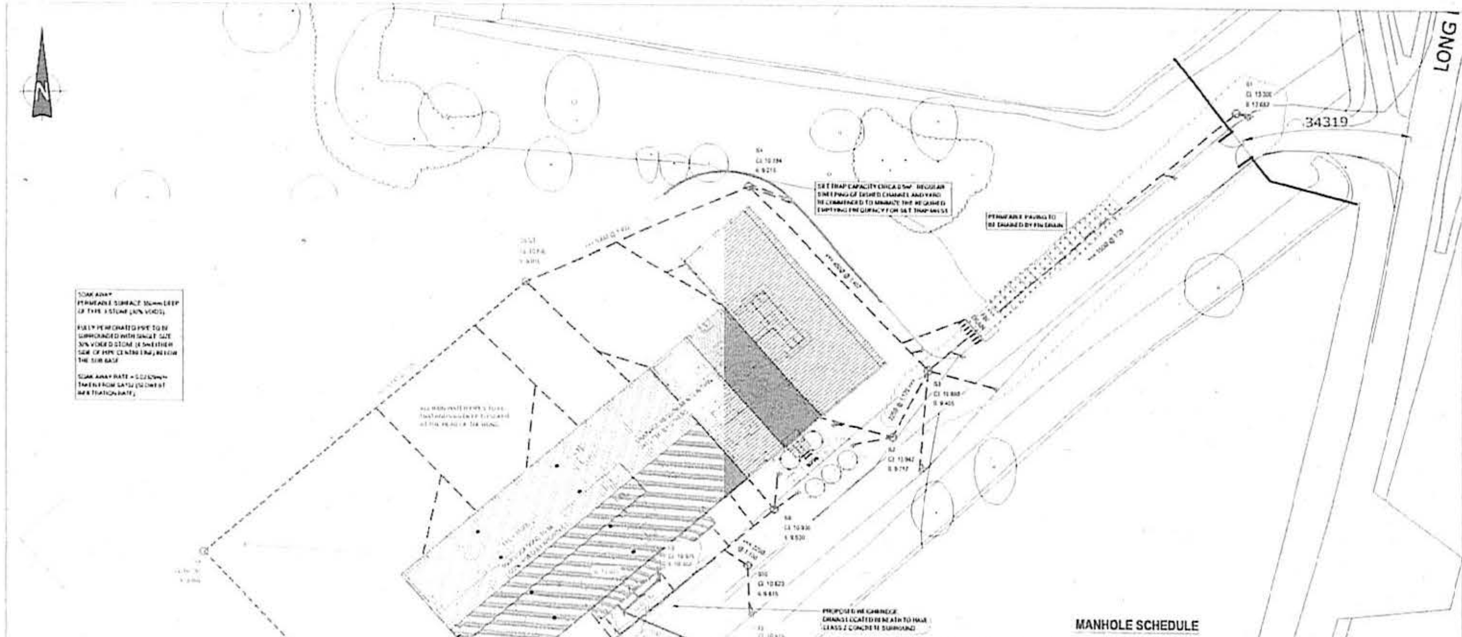
** Where more than one person is defined as the operator, all should sign. Where a company or other body corporate – an authorised person should sign and provide evidence of authority from the board of the company or body corporate.*

Drying


Clean Glass Cullets, ≤ 20mm, Moisture max. 6%
Sellite Blocks Ltd
ARGO
20m³
Pos. 1
50mm grate
Pos. 2
FC
Pos. 3
Pos. 4
ARGO
Thomas Armstrong
Metal
Pos. 7
Pos. 8
Pos. 9
Pos. 13
ARGO
Thomas Armstrong
Organic Waste
Pos. 12
4.000
Fuel: Natural gas
A
Pos. 6
Pos. 5
Thomas Armstrong
ARGO
Hot gas from kilns
B
Pos. 14
Pos. 11
1.000
To Grinding Plant Pos. 4
C
To Grinding Plant Pos.1
D
25mm grate
Pos. 10
ARGO
Thomas Armstrong
Oversize
Legend
Customer equipment
ARGO equipment
Material flow
Dust loaded air flow
Clean air flow
Clean air flow
Preliminary Design
1 Product transport 20.11.19 pd
Rev. Revision Date Name
Date Name
Drawn 05.11.19 bs
Dsgn. 08.11.19 pd
Dsgn.
Standard DIN
Customer: Thomas Armstrong
Country: United Kingdom
City: North Yorkshire
Document: Flowsheet
Plant section: 1.1 - Drying
argo IPS
Document No.: 19-0041_FL_01
Project No.: 19-0041
Project Name: FGICB
Sheet 1 of 3
19-0041_FL_01_Rev.1.vsd

Grinding

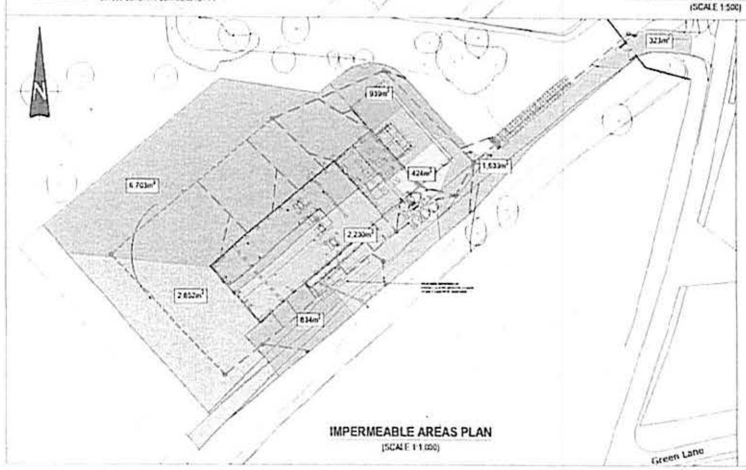

From Drying Pos. 11
C
Pos. 1
Pos. 2
20m³
Pos. 3
2.000
Pos. 4
Pos. 5
8m³
Pos. 6
Pos. 7
Pos. 8
Pos. 9
Pos. 10
Pos. 11
8.000
Pos. 12
Pos. 13
2.000
Pos. 14
Pos. 15
3.000
Pos. 16
6.000
Pos. 17
1mm
Pos. 18
sample
Pos. 19
Pos. 20
Pos. 21
1.000
To product transport Pos.1
D
ARGO
Thomas Armstrong
Organic Waste
ARGO
Thomas Armstrong
For calibration
ARGO
Thomas Armstrong
Metal
FC
AM3-350
Legend
Customer equipment
ARGO equipment
Material flow
Dust loaded air flow
Clean air flow
Clean air flow
Preliminary Design
Thomas Armstrong
United Kingdom
North Yorkshire
Flowsheet
1.2 - Grinding plant
argo IPS
19-0041_FL_01
19-0041
FGICB
1 Product transport 20.11.19
05.11.19 bs
06.11.19 pd



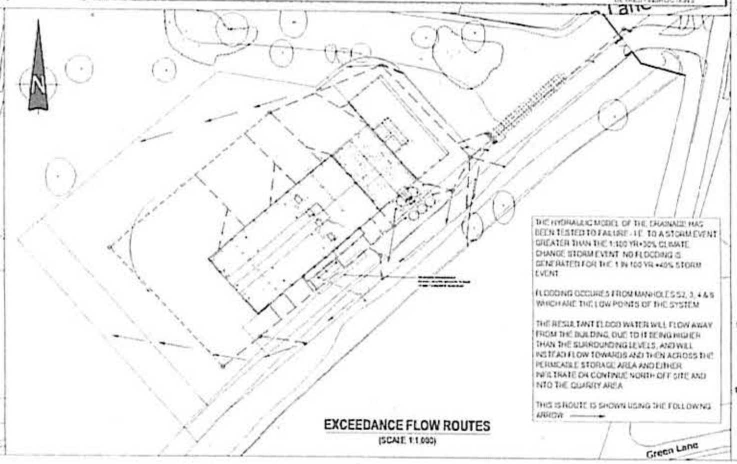
MANHOLE SCHEDULE

MH REF	EASTING (m)	NORTHING (m)	COVER LEVEL (m)	DEPTH (m)	DIAMETER (mm)	COVER GRADE	COVER SIZE (mm)	TYPE	INVERT LEVEL (m)	DIAMETER (mm)	BEDDING CLASS	COMMENTS
S1	459332.900	421509.707	12.330	0.618	1200	B125	600x600x150	PCC MANHOLE	12.182	150	Z	
S2	459251.829	421502.445	10.907	1.225	1200	E600	600x600x150	PCC MANHOLE	9.717	225	Z	
S3	459257.900	421512.270	10.965	1.526	1250	E600	600x600x150	PCC MANHOLE	9.705 9.630 9.4[illegible]	150 225 450	Z Z Z	
S4	459254.930	421553.811	10.764	1.566	1500	E600	600x600x150	PCC MANHOLE	9.305 9.215	450 525	Z Z	
S5	459218.344	421551.375	10.890	1.874	1500	E600	600x600x150	PCC MANHOLE	9.116 9.016	525 600	S PERMEABLE	PERFORATED PIPE OUT - 20mm SINGLE SIZED STONE SURROUND - 0.3m SUMP
S6	459216.159	421467.318	10.921	1.400	1250	E600	600x600x150	PCC MANHOLE	8.530	400	Z	
S7	459206.156	421441.601	10.905	1.643	1350	E600	600x600x150	PCC MANHOLE	9.312 9.262	400 450	S S	
S8	459161.220	421423.648	10.900	1.842	1500	E600	600x600x150	PCC MANHOLE	9.214 9.064	450 600	S PERMEABLE	PERFORATED PIPE OUT - 20mm SINGLE SIZED STONE SURROUND - 0.3m SUMP SOAKAWAY CHAMBER
S9	459145.925	421477.024	10.780	1.811	1500	E600	600x600x150	PCC MANHOLE	8.969	600	S	
S10	459054.769	421475.654	10.823	1.208	1200	E600	600x600x150	PCC MANHOLE	9.615	225	Z	
F1	459229.848	421460.014	10.975	0.750	450	E600	300x300x150	PPIC	10.275 10.225 10.225	100 150 150	Z Z Z	
F2	459222.900	421464.835	10.975	0.605	450	E600	300x300x150	PPIC	10.350 10.290 10.260	100 150 150	Z Z Z	
F3	459206.926	421422.520	10.975	0.625	450	E600	300x300x150	PPIC	10.460 10.350	100 150	Z Z	
F4	459147.422	421462.375	10.715	0.715	[illegible]	E600	600x600x150	CESSPOOL*	10.0[illegible]	150	Z	TO MANUFACTURERS INSTALLATION DETAILS / INSTRUCTIONS

PROPOSED DRAINAGE LAYOUT
(SCALE 1:500)



IMPERMEABLE AREAS PLAN
(SCALE 1:1,000)



EXCEEDANCE FLOW ROUTES
(SCALE 1:1,000)

PRIVATE DRAINAGE NOTES:

1. ALL DRAINAGE WORK TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS, BS EN 752 AND TO THE SATISFACTION OF THE BUILDING INSPECTOR.
2. ALL PROPRIETARY ITEMS ARE TO BE INSTALLED STRICTLY IN ACCORDANCE WITH MANUFACTURER'S DETAILS, INSTRUCTIONS & SPECIFICATIONS.
3. ALL EXISTING DRAINS AND SERVICES (LINE AND LEVELS) TO BE CHECKED BY THE CONTRACTOR ON SITE PRIOR TO FINALISING NEW DRAINAGE LINES AND LEVELS.
4. ALL COVER LEVELS ARE APPROXIMATE. EXACT LEVELS TO BE DETERMINED FROM THE EXTERNAL WORKS LAYOUT.
5. INVERT LEVELS QUOTED AT MANHOLES AND INSPECTION CHAMBERS ARE THOSE OF THE LARGEST CONNECTED PIPE DIAMETER. PIPES AT CHAMBERS TO BE LAID WITH SOFFITS LEVEL UNLESS NOTED OTHERWISE.
6. PIPE GRADIENTS WHERE STATED ARE APPROXIMATE.
7. REFER TO ARCHITECT'S DRAWINGS FOR PRECISE LOCATION OF ALL RAINWATER PIPES, INTERNAL CONNECTIONS ETC.
8. ALL INTERNAL CONNECTIONS ARE TO HAVE AN ABOVE-FLOOR ACCESS POINT TO ENABLE FUTURE ACCESS FOR MAINTENANCE.
9. PIPES AND FITTINGS TO BE:
   - CONCRETE PIPES AND ANCILLARY PRODUCTS TO BS 5911-1:2002+A2:2010 AND BS EN 1916:2002
   - VITRIFIED CLAY PIPES AND FITTINGS TO BS EN 295:2013 (ALL PARTS).
   - PLASTIC PIPES FOR LAND DRAINAGE TO BS 4962:1982
   - PLASTIC PIPING SYSTEMS FOR NON PRESSURE UNDERGROUND DRAINAGE AND SEWAGE TO BS EN 1401 & BS 4660 – SOLID WALL ONLY, STRUCTURED WALL PIPES ARE NOT ACCEPTABLE FOR USE IN DRAINAGE SYSTEMS UNLESS AGREED.
   - PRECAST CONCRETE MANHOLE UNITS TO BS EN 1917:2002.
   - PLASTIC INSPECTION CHAMBERS FOR DRAINS AND SEWERS TO BS EN 13598-1:2010.
   - GULLY AND MANHOLE TOPS FOR VEHICULAR AND PEDESTRIAN AREAS TO BS EN 124:1994.
   - DRAINAGE CHANNELS FOR VEHICULAR AND PEDESTRIAN AREAS TO BS EN 1433:2002.
10. ALL MANHOLE COVERS, ROAD GULLY COVERS AND FRAMES TO COMPLY WITH BS EN124 NON ROCKING TYPE.

    UNLESS NOTED OTHERWISE USE:

    CLASS A15 — AREAS INACCESSIBLE TO VEHICLES, ACCESSED ONLY BY PEDESTRIANS AND PEDAL CYCLISTS.

    CLASS B125 — FOOTPATHS, FOOTWAYS, PEDESTRIAN AREAS WITH ONLY OCCASIONAL LIGHT VEHICULAR ACCESS INCLUDING DOMESTIC DRIVEWAYS & SMALL CAR PARKS.

    CLASS C250 — GULLY TOPS IN CARRIAGEWAY WITHIN 500mm OF KERB AND UP TO 200mm INTO THE FOOTWAY.

    CLASS D400 — CARRIAGEWAYS, HARD SHOULDERS, PARKING AREAS AND PEDESTRIAN AREAS ACCESSED BY ALL TYPES OF VEHICLES.

    CLASS E600 — AREAS IMPOSING HIGH WHEEL LOADS SUCH AS INDUSTRIAL ESTATES AND SERVICE YARDS.
11. PIPE BEDDING

    USE CLASS S BEDDING UNLESS NOTED OTHERWISE. NB PROTECT AGAINST CONSTRUCTION TRAFFIC AS NECESSARY.

    USE CLASS Z CONCRETE BED & SURROUND OR CONCRETE SLAB PROTECTION AS FOLLOWS:
    - 100 - 600Ø PIPES (CLASS 120 CLAYWARE OR CLASS M CONCRETE)

      FIELDS AND GARDENS - LESS THAN 600mm COVER TO CROWN

      ROADS - LESS THAN 1200mm COVER TO CROWN
    - 100 - 300Ø PIPES (PLASTIC)

      FIELDS AND GARDENS - LESS THAN 600mm COVER TO CROWN

      ROADS - LESS THAN 900mm COVER TO CROWN
13. PIPES BELOW CONCRETE GROUND FLOOR SLABS

    WHERE THE CROWN OF THE PIPE IS WITHIN 300mm OF THE UNDERSIDE OF SLAB, SPECIAL PROTECTION TO BE PROVIDED IN ACCORDANCE WITH BUILDING REGULATIONS H1 2.44 OR 150mm GEN3 CONCRETE BED AND SURROUND CAST INTEGRALLY WITH SLAB.

    OTHERWISE USE CLASS S BEDDING
14. MAIN BACKFILL TO BE WELL COMPACTED IN 150mm LAYERS OF

    SELECTED BACKFILL MATERIAL IN ALL SOFT LANDSCAPED AREAS

    TYPE 1 GRANULAR MATERIAL IN ALL HARDSTANDING AREAS & PUBLIC HIGHWAYS
15. BACKFILL TO DRAINS NEAR FOUNDATIONS IS TO BE IN ACCORDANCE WITH BUILDING REGULATIONS H1 DIAGRAMS 8 & 12
16. NO ALLOWANCE HAS BEEN MADE FOR DRAINAGE WITHIN THE PITS

GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
4. FOR GENERAL NOTES REFER TO DRAWING

Rev	Description	Date	By	Chkd
C06	RELOCATED PIPE FROM S1 TO S3 AT CONTRACTOR REQUEST. UPDATED FOUL TO REVISED ABOVE GROUND DRAINAGE LAYOUT. RELOCATED WEIGHBRIDGE AND ADDED PIPE PROTECTION. ADDED CESSPOOL TO MH SCHEDULE FOR CLARITY. CHANGED FOUL MHs TO E600 CLASS COVERS.	04/04/2023	AMB	GW
C05	REDUCED YARD EXTENT, ADDED WEIGHBRIDGE AND DIVERTED DRAINAGE. CHANGE TO DISHED CHANNEL TO NORTH END OF YARD.	30/11/2022	AMB	GW
C04	ALTERED S4-S5 & S6-S7 PIPE SIZES, TO SUIT CONTRACTOR CHOSEN SUPPLIER SIZE RANGE.	04/10/2022	AMB	DM
C03	DRAINAGE RUNS UNDER Q STORAGE REMOVED	20/09/2022	DM	JTS
C02	ISSUED FOR CONSTRUCTION	01/09/2022	DM	JTS
C01	ISSUED FOR PLANNING	07/04/2022	DM	CS
P01	FIRST ISSUE	26/05/2021	DM	AR

curtins

Status: **ISSUED FOR CONSTRUCTION** A

Client: THOMAS ARMSTRONG (CONSTRUCTION) LIMITED

Project: **SELLITE BLOCK PLANT, LONG LANE GREAT HECK**

Drg Title: **PROPOSED DRAINAGE STRATEGY**

Project No.	Size	Date	Drawn By	Designed By	Checked By
075526	A1 / Scale 1:500	MAY 21	DM	DM	AR

Project Code	Originator	Zone	Level	Type	Discipline	Category / Number	Rev
075526	CUR	00	XX	DR	C	92001	C06

FOAMGLASS 05 - Environmental Management Plan

Policy

Our current Environmental Policy is shown of the following page. Once the new site is finished and operational, we may update this policy if necessary although any changes will be absolutely minimal.

EMS Procedures

We have a series of Environmental Operational Procedures (EOP's) and Emergency Response Procedures (ERP's) that are running across our existing block manufacturing plants as part of our ISO 14001 systems and permit compliance. Some of these procedures are generic to suit all sites including the silo facility and where necessary are site-specific.

For the new site these procedures will be updated and tailored as necessary and implemented. Any additional EOP's or ERP's deemed necessary following full site environmental risk assessment will be devised.

All personnel are given Environmental awareness training and emergency response training which is recorded and updated at least annually or whenever a new or changed process is introduced. All new employees undergo induction training including environmental procedures.

The current list of EOP's and ERP's are as follows:

Environmental Operational Procedures EOP's	
EOP 01	Waste Management
EOP 02	Energy Saving & Water Usage
EOP 03	Storage & Housekeeping
EOP 04	Drainage
EOP 05	Emissions (Dust & Gases) and Noise
EOP 06	Incidents & Complaints
EOP 08	Site Drainage Plan
EOP 09	Office Environmental Good Practice
EOP 10	Tanker Deliveries
Emergency Response Procedures ERP's	
ERP 01	General Environmental Emergency Response
ERP 02	Fire, Flood and Power Cut
ERP 03	Accidental Release of Dust and Gases
ERP 04	Accidental Release to Drains (Red & Blue)
ERP 05	Spills: oils, powders & liquids

On commissioning the new plant, we will amend existing procedures accordingly and create new ones as necessary as part of our Integrated Management System. Simialarly, we will implement procedures to ensure our PPC permit compliance.

Next Page: *BMS Policy 02 - Environmental Statement – Ver 11 – October 2023*
Also available to download from **www.thomasarmstrong.co.uk**

Thomas Armstrong (Holdings) Limited

Aggregates • Concrete Blocks • Construction • Joinery
Plant Hire • Timber • Transport

ENVIRONMENTAL POLICY STATEMENT

Thomas Armstrong (Holdings) Ltd and its subsidiary companies are committed to preventing pollution and to conducting their operational and business activities in an environmentally responsible manner. We recognise the need to continually improve our operations wherever practical to do so, in order to reduce our impact on the environment. To achieve these objectives, the organisation shall:

- Comply with all applicable environmental legislation and regulatory requirements. This includes any other applicable compliance obligations relevant to its activities, products and services. Compliance will be regularly evaluated by the Company with particular emphasis on our objectives on pollution prevention, health and safety and waste minimisation.
- Identify and use materials and processes that reduce the risk of pollution and promote purchasing policy to ensure that partnerships are developed with suppliers committed to similar objectives.
- Promote conservation of natural resources through the efficient use of energy and the minimisation of waste.
- Ensuring that all facilities are constructed, operated and maintained to the highest standards and to conduct our activities so as to maximise our influence on environmental good practice.
- Maintaining an efficient and modern transport fleet to minimise fuel usage and atmospheric pollution.
- Minimise discharges, emissions and waste and maximise recycling wherever possible.
- Encourage sustainable and responsible sourcing of materials and constituents. Source raw materials and services locally that have the minimum environmental impact and use recycled or reclaimed materials wherever possible.
- Set environmental objectives and targets against which to measure improvements in environmental performance.
- Continuously monitor progress in environmental performance through regular measurement, review and audit and wherever possible utilising a formal management system compliant with BS EN ISO 14001.
- Ensure that all company employees at all levels are made aware of environmental issues through a combination of training, communication and awareness.
- Ensuring that suppliers and subcontractors working with Thomas Armstrong are aware of, and agree to abide by, our policy and encourage them to apply similar environmental standards to their own works.
- Take proactive measures to protect and preserve wildlife, flora and fauna in their natural habitats.

Top management promotes and is committed to continual improvement of the EMS to enhance environmental performance. This is facilitated through the setting of documented environmental objectives based on our significant environmental aspects, compliance obligations and considering our risks and opportunities. Action plans have been set to achieve objectives and are maintained as part of the EMS internal auditing, monitoring and management review processes, the results of which are communicated to interested parties where appropriate. Thomas Armstrong (Holdings) Limited shall participate in open consultation with interested stakeholders, local communities and ensure effective communication of this Environmental Policy to all those working for and on behalf of the Company.

Mr Anthony Barker

Managing Director (Concrete Blocks & Aggregates)

BMS Policy 02 – version 11 – October 2023

Thomas Armstrong (Holdings) Limited
Workington Road, Flimby, Maryport, Cumbria. CA15 8RY
www.thomasarmstrong.co.uk

Serving the Construction Industry Since 1830

Air Quality Assessment:
Sellite Blocks, Selby

July 2020

Experts in air quality
management & assessment

Document Control

Client	Thomas Armstrong (Holdings) Ltd	**Principal Contact**	Jonathan Dunbavin (ID Planning Ltd)

Job Number	J4128

Report Prepared By:	Paul Outen and Laurence Caird

Document Status and Review Schedule

Report No.	Date	Status	Reviewed by
J4128A/1/F1	9 July 2020	Final	Stephen Moorcroft (Director)

Air Quality Consultants Ltd
23 Coldharbour Road, Bristol BS6 7JT Tel: 0117 974 1086
119 Marylebone Road, London NW1 5PU Tel: 020 3873 4780
aqc@aqconsultants.co.uk

Registered Office: 23 Coldharbour Road, Bristol BS6 7JT
Companies House Registration No: 2814570

Executive Summary

The air quality impacts associated with the proposed foam glass manufacturing facility at the Sellite Blocks manufacturing plant in Selby have been assessed.

An assessment of the emissions from the dryer chimney and foam glass kiln combustion exhausts has demonstrated that the off-site impacts of these emissions will be 'not significant'.

A range of best practice mitigation measures will be implemented to reduce dust emissions from the handling and transport of materials during operation, and the overall effect will be 'not significant'.

Overall, the operational air quality effects of the proposed development are judged to be 'not significant'.

Contents

1 Introduction

1.1 This report describes the potential air quality impacts associated with the proposed foam glass manufacturing facility at the Sellite Blocks plant in Selby. The assessment has been carried out by Air Quality Consultants Ltd on behalf of Thomas Armstrong (Holdings) Ltd.

1.2 Activities undertaken at the proposed facility, including the grinding of glass and onsite transport of material, have the potential to generate fugitive dust emissions which could impact upon air quality conditions for existing local receptors.

1.3 In addition, the four proposed kilns will each be heated by a 1.8 MW natural gas fired burner system comprising of 36 individual gas-burners, which will discharge combustion gases to the atmosphere via stacks. A large dryer system will also discharge emissions to air via a dedicated stack. The emissions from the burner systems and dryer could impact upon air quality conditions for existing local receptors; the main air pollutants of concern are nitrogen dioxide, PM_{10}, carbon monoxide and sulphur dioxide.

1.4 This report describes existing local air quality conditions (base year 2020), and the predicted air quality assuming that the proposed development proceeds.

1.5 This report has been prepared taking into account all relevant local and national guidance and regulations, and follows a methodology which has been adopted to address the request for an air quality assessment by Selby District Council.

1.6 This report assesses the air quality impacts of the proposed development using an approach and structure that addresses the requirements of a planning submission. The requirements of an environmental permitting application to be submitted to the Environment Agency are specific and differ from the requirements of a planning submission. This report should not, therefore, be submitted in support of an environmental permitting application.

2 Policy Context and Assessment Criteria

2.1 The United Kingdom formally left the European Union (EU) on 31 January 2020; until the end of 2020 there will be a transition period while the UK and EU negotiate additional arrangements. During this period EU rules and regulations will continue to apply to the UK. All European legislation referred to in this report is written into UK law and will remain in place beyond 2020, unless amended, although there is uncertainty at this point in time as to who will enforce the requirements of some of this legislation.

Air Quality Strategy

2.2 The Air Quality Strategy (Defra, 2007) published by the Department for Environment, Food, and Rural Affairs (Defra) and Devolved Administrations, provides the policy framework for air quality management and assessment in the UK. It provides air quality standards and objectives for key air pollutants, which are designed to protect human health and the environment. It also sets out how the different sectors: industry, transport and local government, can contribute to achieving the air quality objectives. Local authorities are seen to play a particularly important role. The strategy describes the Local Air Quality Management (LAQM) regime that has been established, whereby every authority has to carry out regular reviews and assessments of air quality in its area to identify whether the objectives have been, or will be, achieved at relevant locations, by the applicable date. If this is not the case, the authority must declare an Air Quality Management Area (AQMA), and prepare an action plan which identifies appropriate measures that will be introduced in pursuit of the objectives.

The Environmental Permitting (England and Wales) (Amendment) Regulations 2018

2.3 The Medium Combustion Plant Directive (MCPD) (The European Parliament and the Council of the European Union, 2015) regulates pollutant emissions from combustion plant with a rated input between 1 and 50 megawatts (MW_{th}) and was transposed into UK law in January 2018 through an amendment to the Environmental Permitting Regulations (2018). The legislation sets emission limits to be applied from December 2018 for new plant and from 2025 or 2030 for existing plant (depending on the rated input).

2.4 The burner systems used to fire the foam glass kilns will require a permit under these regulations, as their thermal input rates are above the 1 MW threshold; each of the four kilns has a connected load of 1.8 MW. The kilns will, therefore, need to meet a NOx emission rate of 100 mg/Nm^3 at 3% O_2.

Clean Air Act 1993 & Environmental Protection Act

2.5 Small combustion plant of less than 20 MW net rated thermal input are controlled under the Clean Air Act 1993 (1993). This requires the local authority to approve the chimney height. Plant which are smaller than 366 kW have no such requirement. The local authority's approval will, therefore, be required for the plant to be installed in the proposed development.

2.6 Measures to ensure adequate dispersion of emissions from discharging stacks and vents are included in Technical Guidance Note D1 (Dispersion) (1993), issued in support of the Environmental Protection Act (1990).

Clean Air Strategy 2019

2.7 The Clean Air Strategy (Defra, 2019) sets out a wide range of actions by which the UK Government will seek to reduce pollutant emissions and improve air quality. Actions are targeted at four main sources of emissions: Transport, Domestic, Farming and Industry. At this stage, there is no straightforward way to take account of the expected future benefits to air quality within this assessment.

Planning Policy

National Policies

2.8 The National Planning Policy Framework (NPPF) (2019a) sets out planning policy for England. It states that the purpose of the planning system is to contribute to the achievement of sustainable development, and that the planning system has three overarching objectives, one of which is an environmental objective:

"to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy".

2.9 To prevent unacceptable risks from air pollution, the NPPF states that:

"Planning policies and decisions should contribute to and enhance the natural and local environment by…preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air quality".

and

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development".

2.10 More specifically on air quality, the NPPF makes clear that:

"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan".

2.11 The NPPF is supported by Planning Practice Guidance (PPG) (Ministry of Housing, Communities & Local Government, 2019b), which includes guiding principles on how planning can take account of the impacts of new development on air quality. The PPG states that:

"Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with Limit Values. It is important that the potential impact of new development on air quality is taken into account where the national assessment indicates that relevant limits have been exceeded or are near the limit, or where the need for emissions reductions has been identified".

2.12 Regarding plan-making, the PPG states:

"It is important to take into account air quality management areas, Clean Air Zones and other areas including sensitive habitats or designated sites of importance for biodiversity where there could be specific requirements or limitations on new development because of air quality".

2.13 The role of the local authorities through the LAQM regime is covered, with the PPG stating that a local authority Air Quality Action Plan *"identifies measures that will be intrdduced in pursuit of the objectives and can have implications for planning"*. In addition, the PPG makes clear that *"Odour and dust can also be a planning concern, for example, because of the effect on local amenity".*

2.14 Regarding the need for an air quality assessment, the PPG states that:

"Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the

conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity".

2.15 The PPG sets out the information that may be required in an air quality assessment, making clear that:

"Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific".

2.16 Regarding sites that will operate under an Environmental Permit, PPG states that:

"It is not necessary for air quality assessments that support planning applications to duplicate aspects of air quality assessments that will be done as part of non-planning control regimes, such as under Environmental Permitting Regulations".

2.17 The PPG also provides guidance on options for mitigating air quality impacts, as well as examples of the types of measures to be considered. It makes clear that:

"Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact. It is important that local planning authorities work with applicants to consider appropriate mitigation so as to ensure new development is appropriate for its location and unacceptable risks are prevented".

Local Policies

2.18 The Selby District Core Strategy Local Plan (Selby District Council, 2013) was adopted in October 2013, and within this policy SP18 on protecting and enhancing the environment refers to air quality, stating that:

"The high quality and local distinctiveness of the natural and man-made environment will be sustained by…Ensuring that new development protects soil, air and water quality from all types of pollution".

2.19 Selby District Council is currently in the process of developing a new Local Plan which will set out a vision and framework for future growth of the district up to 2040. It is due to be adopted in March 2023.

Air Quality Action Plans

National Air Quality Plan

2.20 Defra has produced an Air Quality Plan to tackle roadside nitrogen dioxide concentrations in the UK (Defra, 2017); a supplement to the 2017 Plan (Defra, 2018a) was published in October 2018 and sets out the steps Government is taking in relation to a further 33 local authorities where shorter-

term exceedances of the limit value were identified. Alongside a package of national measures, the 2017 Plan and the 2018 Supplement require those identified English Local Authorities (or the GLA in the case of London Authorities) to produce local action plans and/or feasibility studies. These plans and feasibility studies must have regard to measures to achieve the statutory limit values within the shortest possible time, which may include the implementation of a CAZ. There is currently no straightforward way to take account of the effects of the 2017 Plan or 2018 Supplement in the modelling undertaken for this assessment; however, consideration has been given to whether there is currently, or is likely to be in the future, a limit value exceedance in the vicinity of the proposed development. This assessment has principally been carried out in relation to the air quality objectives, rather than the EU limit values that are the focus of the Air Quality Plan.

Local Air Quality Action Plan

2.21 Selby District Council declared an AQMA for nitrogen dioxide in 2016 that covers a number of residential properties along New Street in Selby town centre. The Council has since developed an Air Quality Action Plan (Selby District Council, 2018) which sets out measures to reduce road traffic emissions in the AQMA.

Assessment Criteria

Health Criteria

2.22 The Government has established a set of air quality standards and objectives to protect human health. The 'standards' are set as concentrations below which effects are unlikely even in sensitive population groups, or below which risks to public health would be exceedingly small. They are based purely upon the scientific and medical evidence of the effects of an individual pollutant. The 'objectives' set out the extent to which the Government expects the standards to be achieved by a certain date. They take account of economic efficiency, practicability, technical feasibility and timescale. The objectives for use by local authorities are prescribed within the Air Quality (England) Regulations (2000) and the Air Quality (England) (Amendment) Regulations (2002).

2.23 The objectives for nitrogen dioxide, sulphur dioxide and carbon monoxide were to have been achieved by 2005, and by 2004 for PM_{10}, and continue to apply in all future years thereafter. Measurements across the UK have shown that the 1-hour nitrogen dioxide objective is unlikely to be exceeded at roadside locations where the annual mean concentration is below 60 $\mu g/m^3$ (Defra, 2016b). Measurements have also shown that the 24-hour PM_{10} objective could be exceeded at roadside locations where the annual mean concentration is above 32 $\mu g/m^3$ (Defra, 2016b).

2.24 The objectives apply at locations where members of the public are likely to be regularly present and are likely to be exposed over the averaging period of the objective. Defra explains where these objectives will apply in its Local Air Quality Management Technical Guidance (Defra, 2018b). The annual mean objectives for nitrogen dioxide and PM_{10} are considered to apply at the façades of

residential properties, schools, hospitals etc.; they do not apply at hotels. The 24-hour mean objective for PM_{10} is considered to apply at the same locations as the annual mean objective, as well as in gardens of residential properties and at hotels. The 1-hour mean objective for nitrogen dioxide, and those objectives for shorter time periods than the annual mean, are taken to apply anywhere where people may spend one hour or more (or fifteen minutes in the case of the 15-minute sulphur dioxide objective).

2.25 EU Directive 2008/50/EC (The European Parliament and the Council of the European Union, 2008) sets limit values for nitrogen dioxide, PM_{10}, sulphur dioxide and carbon monoxide and is implemented in UK law through the Air Quality Standards Regulations (2010). The limit values for nitrogen dioxide, sulphur dioxide (1-hour and 24-hour objectives, only) and carbon monoxide are the same numerical concentrations as the UK objectives, but achievement of these values is a national obligation rather than a local one. In the UK, only monitoring and modelling carried out by UK Central Government meets the specification required to assess compliance with the limit values. Central Government does not normally recognise local authority monitoring or local modelling studies when determining the likelihood of the limit values being exceeded, unless such studies have been audited and approved by Defra and DfT's Joint Air Quality Unit (JAQU).

2.26 The relevant air quality criteria for this assessment are provided in Table 1.

Table 1: Air Quality Criteria for Nitrogen Dioxide, PM_{10}, Sulphur Dioxide and Carbon Monoxide

Pollutant	Time Period	Objective
Nitrogen Dioxide	1-hour Mean	200 µg/m³ not to be exceeded more than 18 times a year
	Annual Mean	40 µg/m³
Fine Particles (PM_{10})	24-hour Mean	50 µg/m³ not to be exceeded more than 35 times a year
	Annual Mean	40 µg/m³
Sulphur Dioxide (SO_2)	15-min Mean	266 µg/m³ not to be exceeded more than 35 times a year
	1-hour Mean	350 µg/m³ not to be exceeded more than 24 times a year
	24-hour Mean	125 µg/m³ not to be exceeded more than 3 times a year
Carbon Monoxide (CO)	8-hour Rolling Mean	10,000 µg/m³

Descriptors for Air Quality Impacts and Assessment of Significance

Annual Mean Concentrations

2.27 The approach developed jointly by Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM)[1] (Moorcroft and Barrowcliffe et al., 2017) provides a method for describing the impacts on local air quality arising from development. Impact description involves

[1] The IAQM is the professional body for air quality practitioners in the UK.

expressing the magnitude of incremental change as a proportion of a relevant assessment level and then examining this change in the context of the new total concentration. Table 2 sets out the matrix for determining the impact descriptor for annual mean concentrations at individual receptors, having been adapted from the table presented in the guidance document.

2.28 From this, some initial screening criteria can be derived:

- any change in concentration smaller than 0.5% (0.2 µg/m³) of the long-term (annual mean) environmental standard will be *negligible*, regardless of the existing air quality conditions;
- any change smaller than 1.5% (0.6 µg/m³) of the long-term environmental standard will be *negligible* so long as the total (with-scheme) concentration is less than 94% (37.8 µg/m³) of the standard; and
- any change smaller than 5.5% (2.2 µg/m³) of the long-term environmental standard will be *negligible* so long as the total (with-scheme) concentration is less than 75% (30.2 µg/m³) of the standard.

Table 2: Air Quality Impact Descriptors for Individual Receptors for Annual Mean Nitrogen Dioxide and PM_{10} Concentrations

Annual Mean Concentration At Receptor In Assessment Year (µg/m³)	Change in Concentration (µg/m³)				
	<0.2	0.2 - 0.6	0.6 - 2.2	2.2 - 4.2	>4.2
<30.2	Negligible	Negligible	Negligible	Slight	Moderate
30.2 - 37.8	Negligible	Negligible	Slight	Moderate	Moderate
37.8 - 41.0	Negligible	Slight	Moderate	Moderate	Substantial
41.0 - 43.8	Negligible	Moderate	Moderate	Substantial	Substantial
>43.8	Negligible	Moderate	Substantial	Substantial	Substantial

2.29 Where all impacts are negligible the overall effect will be 'not significant'.

Short-term Concentrations

2.30 Given that the short-term nitrogen dioxide (1-hour mean), PM_{10} (24-hour mean) and sulphur dioxide (15-min, 1-hour and 24-hour mean) objectives allow a certain number of periods with concentrations exceeding the standard, rather than being a single concentration not to be exceeded, it is not possible to usefully assign a magnitude of change. The highest relevant time periods can thus be expressed as percentiles as set out in Table 3, and it is the proposed development's contribution to these percentiles that has been determined in this assessment. For carbon monoxide, the objective relates to the maximum daily running 8-hour mean.

Table 3: Air Quality Criteria for Nitrogen Dioxide, PM_{10}, Sulphur Dioxide and Carbon Monoxide

Pollutant	Time Period	Percentiles
NO_2	1-hour Mean	99.79th percentile (the 19th highest hour)
PM_{10}	24-hour Mean	90.4th percentile (the 36th highest 24-hour period)
CO	8-hour Mean	100th percentile (the highest daily rolling 8-hour period)
SO_2	15-min Mean	99.9th percentile (36th highest 15-min period)
	1-hour Mean	99.73rd percentile (25th highest hour)
	24-hour Mean	99.18th percentile (4th highest 24-hour period)

2.31 EPUK/IAQM guidance (Moorcroft and Barrowcliffe et al., 2017) and Environment Agency guidance (Environment Agency, 2016a) both recommend a screening criterion of 10% of the short-term environmental standard when assessing short-term concentrations. Thus, if the relevant percentile of short-term mean process contributions from the facility is less than 10% of the relevant objective level (e.g. <20 µg/m³ for 1-hour nitrogen dioxide), the contribution can be considered insignificant without the need to consider total concentrations.

3 Assessment Approach

Existing Conditions

3.1 Existing sources of emissions within the study area have been defined using a number of approaches. Industrial and waste management sources that may affect the area have been identified using Defra's Pollutant Release and Transfer Register (Defra, 2020a). Local sources have also been identified through examination of the Council's Air Quality Review and Assessment reports.

3.2 Information on existing air quality has been obtained from background concentrations which have been defined using the 2017-based national pollution maps published by Defra (2020b). These cover the whole of the UK on a 1x1 km grid.

3.3 Whether or not there are any exceedances of the annual mean EU limit value for nitrogen dioxide in the study area has been identified using the maps of roadside concentrations published by Defra (2020c) (2020d). These maps are used by the UK Government, together with the results from national Automatic Urban and Rural Network (AURN) monitoring sites that operate to EU data quality standards, to report exceedances of the limit value to the EU. The national maps of roadside PM_{10} and $PM_{2.5}$ concentrations (Defra, 2020d), which are available for the years 2009 to 2018, show no exceedances of the limit values anywhere in the UK in 2018.

Modelling Methodology

3.4 The impacts of emissions from the proposed facility have been modelled using the ADMS-5.2 dispersion model. ADMS-5.2 is a new generation model that incorporates a state-of-the-art understanding of the dispersion processes within the atmospheric boundary layer. The model input parameters are set out in Appendix A2.

Emissions Data

3.5 The emissions data for the dryer chimney and foam glass combustion kilns have been provided by Thomas Armstrong Ltd based on measurements for similar systems at other sites, and data provided by equipment manufacturers. The emissions data used in the modelling, as well as information on the assumptions applied to ensure that the assessment approach is conservative, are set out in Appendix A2.

Operating Hours

3.6 The annual operational scenario considered within this assessment is 7,800 hours. Since the precise hours when the plant will operate are not known, it has been assumed in the model that the facility will run continuously throughout the year. The output annual mean concentrations, assuming

continuous operation, have been adjusted to account for the 7,800 hours of operation by applying a factor of 0.89 (which is 7,800/8,760).

3.7 For the assessment of short-term impacts, it has been assumed that the facility will operate continuously throughout the year to ensure that potential impacts under all meteorological conditions are considered. As a result, the assessment is conservative and is likely to have over-predicted the actual impacts of the scheme in terms of concentrations in relation to the short-term objectives.

Human Health Receptor Grid

3.8 Human health impacts have been predicted over a 10 km x 10 km model domain, with the proposed development at the centre. Concentrations have been predicted across this area using nested Cartesian grids (see Figure 1). These grids have a spacing of 5 m x 5 m within 200 m of the facility, 25 m x 25 m within 400 m, 50 m x 50 m within 1,000 m, 250 m x 250 m within 2,000 m, and 500 m x 500 m within 5,000 m of the facility. The receptor grid has been modelled at a height of 1.5 m above ground level. The extent of this modelled receptor grid defines the 'Study Area'.

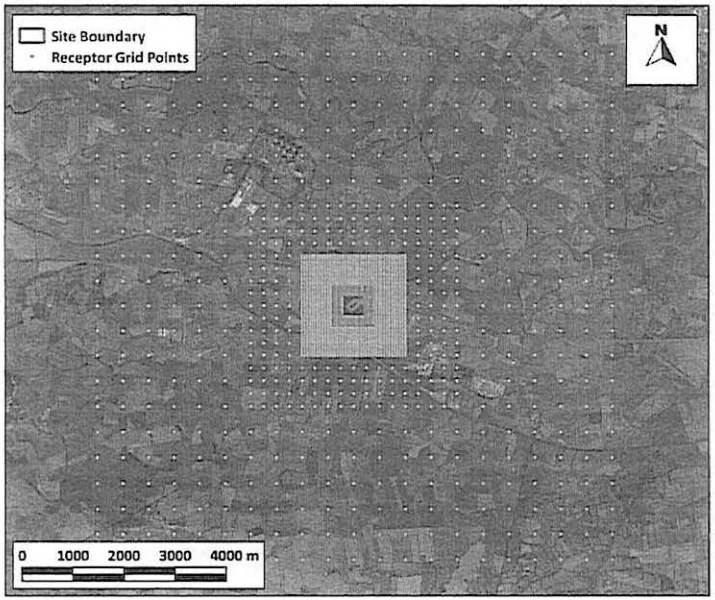


Figure 1: Nested Cartesian Grids of Receptors

Imagery ©2020 Google.

Meteorological Data

3.9 In order to allow for uncertainties in local and future-year meteorological conditions, the dispersion model has been run five times, with each run using a different full year of hour-by-hour meteorological data from an appropriate meteorological station. For each individual receptor point on the nested Cartesian grids, the maximum predicted concentration across any of the five meteorological datasets has then been determined. It is these maxima which are presented in this report. This approach provides a degree of conservatism and will tend to over-predict the impacts of the facility. Further details of this approach, as well as the meteorological datasets used, are provided in Appendix A2.

Buildings

3.10 Where buildings are a significant height relative to the stack height, building downwash effects may occur. The downwash effects should be accounted for within modelling where the stack is less than 2.5 times the height of the buildings within a distance which is five times the minimum of the stack height and the maximum projected width of the building.

3.11 The model has been run once with buildings included, and once without, for each meteorological year. The maximum predicted concentration of either buildings scenario has then been determined and used in the report. Further details of the modelled buildings are provided in Appendix A2.

Post-Processing

3.12 Details on how the model outputs have been processed, including the NOx to NO_2 relationship and how the short-term operating hours have been accounted for, are set out in Appendix A2. Where appropriate, the assessment has followed a worst-case approach, so as not to underestimate the impacts of the proposed facility.

Uncertainty

3.13 The point source dispersion model used in the assessment is dependent upon emission rates, flow rates, exhaust temperatures and other parameters for each source, all of which in reality are variable. There are then additional uncertainties, as models are required to simplify real-world conditions into a series of algorithms. These uncertainties cannot be easily quantified and it is not possible to verify the point-source model outputs. Where these parameters have been estimated the approach has been to use reasonable worst-case assumptions.

4 Site Description and Baseline Conditions

4.1 The proposed development is located immediately north of the existing Sellite Blocks facility in Great Heck, in the district of Selby. The nearest residential properties are located approximately 150 m to the southeast on Long Lane. The M62 motorway runs east to west approximately 220 m north of the proposed development.

4.2 The surrounding area is predominantly rural and industrial, with multiple, large manufacturing facilities.

Industrial sources

4.3 A search of the UK Pollutant Release and Transfer Register (Defra, 2020a) has not identified any significant industrial or waste management sources that are likely to affect existing properties in the study area, in terms of air quality. A review of local aerial photography, however, has identified the following installations within the study area:

- Plasmor (concrete block manufacturing facility);
- Slobart Biomass (biomass facility);
- Kelkay Ltd (sand and gravel facility); and
- H&H Celcon (construction block manufacturing facility).

4.4 Whilst these facilities are not recorded as having any significant emissions to air (Defra, 2020a), they all have the potential to generate emissions which may lead to cumulative impacts with fugitive dust from the proposed development upon nearby sensitive land uses. The potential for cumulative dust impacts has been assessed in Section 5.

Air Quality Management Areas

4.5 Selby District Council has investigated air quality within its area as part of its responsibilities under the LAQM regime. In 2016 an AQMA was declared at New Road for exceedances of the annual mean nitrogen dioxide objective; this AQMA is located over 11 km north of the proposed development and is unlikely to be affected.

4.6 In terms of PM_{10}, the Council concluded that there are no exceedances of the objectives. It is, therefore, reasonable to assume that existing PM_{10} levels will not exceed the objectives at any relevant receptors within the study area.

Local Air Quality Monitoring

4.7 Selby District Council does not operate any automatic monitoring stations within its area. The Council does operate 28 nitrogen dioxide monitoring sites using diffusion tubes prepared and

analysed by Gradko International (using the 20% TEA in water method); however, the closest of these to the proposed development is over 9.5 km to the north. Exceedances of the annual mean nitrogen dioxide objective were measured at three locations in 2019 (Selby District Council, 2020); however, all of these monitors are located within the AQMA over 11 km to the north and are thus not representative of conditions in the study area.

4.8 Selby District Council does not undertake any monitoring for other pollutants.

Exceedances of EU Limit Value

4.9 There are no AURN monitoring sites within the study area with which to identify exceedances of the annual mean nitrogen dioxide limit value. Defra's roadside annual mean nitrogen dioxide concentrations (Defra, 2020d), which are used to report exceedances of the limit value to the EU, do not identify any exceedances within the study area in 2017. As such, there is considered to be no risk of a limit value exceedance in the vicinity of the proposed development by the time that it is operational.

Background Concentrations

4.10 Estimated background concentrations in the study area have been determined for 2020 using Defra's 2017-based background maps (Defra, 2020b). The background concentrations are set out in Table 4 and have been derived as described in Appendix A2. The background concentrations are all well below the objectives.

Table 4: Estimated Annual Mean Background Pollutant Concentrations in 2020 (µg/m³)

Year	NO_2	PM_{10}	$PM_{2.5}$
2020	8.2 – 15.6	11.3 – 16.5	6.7 – 10.0
Objectives	40	40	25 [a]

The range of values is for the different 1x1 km grid squares covering the study area.

[a] The $PM_{2.5}$ objective, which is to be met by 2020, is not in Regulations and there is no requirement for local authorities to meet it.

5 Impact Assessment

Initial Screening Assessment of Emissions

5.1 The maximum predicted nitrogen dioxide, PM_{10}, carbon monoxide and sulphur dioxide process contributions associated with emissions from the proposed facility are shown in Table 5. The maximum predicted concentrations within the modelled grid area are provided, from any of the five meteorological years considered, from either the with- or without-buildings scenarios.

Table 5: Predicted Maximum Pollutant Concentrations associated with Foam Glass Combustion and Dryer Chimney Emissions (µg/m³)

Pollutant/Averaging Period	Maximum Grid Area Process Contribution		Screening Criteria (% of Objective)	Objective
	µg/m³	% of Objective		
Annual Mean NO_2	16.16	40.39	0.5	40
99.79th %ile of 1-hour NO_2	82.06	41.03	10	200
Annual Mean PM_{10}	2.28	5.69	0.5	40
90.4th %ile of 24-hour PM_{10}	4.44	8.89	10	50
99.9th %ile of 15-minute SO_2	22.08	8.30	10	266
99.73rd %ile of 1-hour SO_2	14.21	4.06	10	350
99.18th %ile of 24-hour SO_2	4.91	3.93	10	125
100th %ile 8-hour Rolling CO	811.67	8.12	10	10,000

5.2 These predicted maximum concentrations can be compared with the EPUK/IAQM screening criteria, as previously described in Section 2, and the following conclusions can be drawn:

- the predicted maximum annual mean nitrogen dioxide concentration at any location within the grid of receptors (40.4% of the objective) is above the screening criterion (0.5%);
- the predicted maximum annual mean PM_{10} concentration at any location within the grid of receptors (5.7% of the objective) is above the screening criterion (0.5%);
- the predicted maximum 99.79th percentile of 1-hour mean nitrogen dioxide concentrations at any location within the grid of receptors (41.0% of the objective) is above the screening criterion (10%); and
- the predicted maximum concentrations of 90.4th percentile of 24-hour mean PM_{10} and all averaging periods for sulphur dioxide and carbon monoxide at any location within the grid of receptors are below the screening criterion (10%).

5.3 The predicted impacts exceed the screening criterion for annual mean nitrogen dioxide and PM_{10} concentrations and the 99.79th percentile of 1-hour mean nitrogen dioxide concentrations, and thus require further detailed assessment. No further assessment is required for 24-hour PM_{10}, 8-hour carbon monoxide and 15-min, 1-hour and 24-hour sulphur dioxide concentrations.

Detailed Assessment of Emissions

Annual Mean Concentrations

5.4 Figure 2 and Figure 3 show annual mean nitrogen dioxide and annual mean PM_{10} concentration contours defining the areas within which the proposed development emissions are predicted to add more than 0.2, 0.6, 2.2 and 4.2 µg/m³ to annual mean concentrations (aligning with the EPUK/IAQM impact descriptor matrix set out in Table 2), assuming 7,800 hours operation per year. Table 6 sets out the exposure that occurs within each of the four concentration range bands.

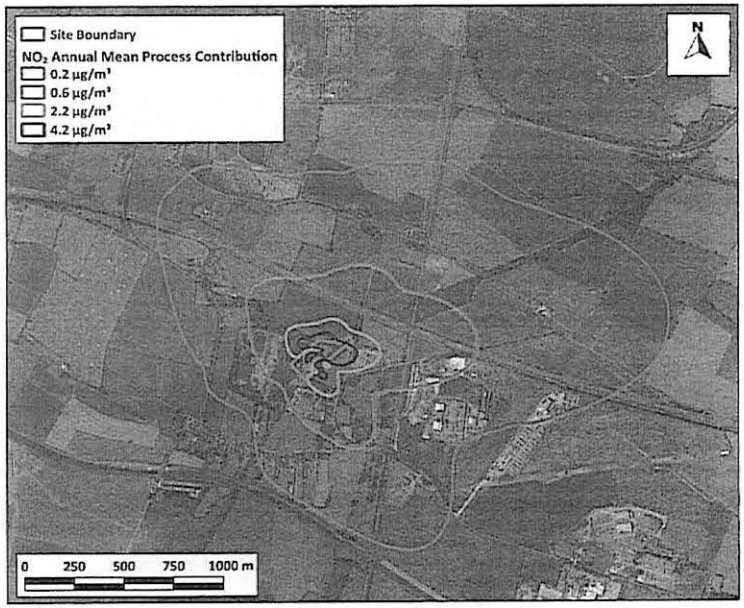


Figure 2: Annual Mean Nitrogen Dioxide Concentration Contours (µg/m³)

Imagery ©2020 Google.

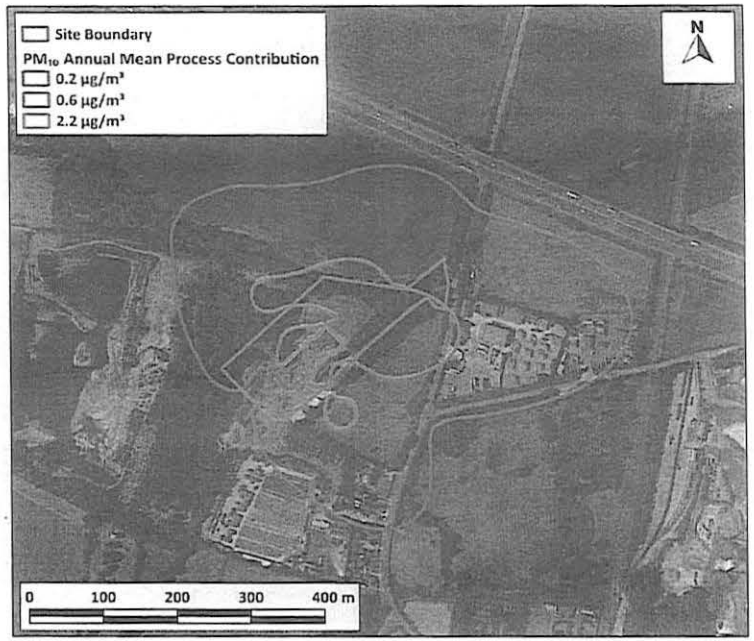


Figure 3: Annual Mean PM_{10} Concentration Contours (µg/m³)

Imagery ©2020 Google.

Table 6: Relevant Exposure within Concentrations Bands [a]

	Black Contour (>4.2 µg/m³)	Orange to Black Contour (2.2 - 4.2 µg/m³)	Blue to Orange Contour (0.6 - 2.2 µg/m³)	Green to Blue Contour (0.2 - 0.6 µg/m³)
Relevant Exposure – NO_2	No relevant exposure	3 properties	6 properties	>10 properties
Relevant Exposure – PM_{10}	No contour	No relevant exposure	No relevant exposure	5 properties

[a] This is based on examination of OS open data maps and satellite imagery and may exclude some isolated properties. The exposure is based on the number of properties in the areas between the contours.

5.5 Using the EPUK/IAQM matrix set out in Table 2, impact descriptors for receptors within each of the concentration band areas can be defined based on the relevant baseline concentration, as set out in Table 7. The concentrations presented in Table 7 have the maximum process contribution within each band subtracted from the total concentration for the relevant impact descriptor category so that they represent appropriate baseline concentrations, which is why they differ from the specific concentrations in Table 2.

Table 7: Impact Descriptors Associated with Different Baseline Concentrations (µg/m³) within each Process Contribution Band

Process Contribution Band	Negligible	Slight Adverse	Moderate Adverse	Substantial Adverse
Green to Blue	<37.2	37.2 - 40.4	>40.4	-
Blue to Orange	<28.0	28.0 - 35.6	35.6 - 41.6	>41.6
Orange to Black	-	<26.2	26.2 - 37.0	>37.0

5.6 In order to apply the above criteria, it is necessary to define the baseline concentrations at the receptors within the relevant contours.

Nitrogen Dioxide

5.7 There are three receptors within the orange to black process contribution band; the maximum modelled annual mean process contribution at any of these three properties is 2.69 µg/m³. This property is located over 30 m from the nearest road, which is not heavily-trafficked, thus concentrations are likely to be close to background levels, and no higher than 15.6 µg/m³ (see Table 4). Following the EPUK/IAQM matrix, impacts within this contribution band are predicted to be *slight adverse*.

5.8 There are six receptors within the blue to orange process contribution band. These receptors are again set back from the roadside; however, the closest property is located around 15 m from the roadside. Nevertheless, and based upon local background concentrations (see Table 4) and the relatively low volume of traffic on this road, the baseline concentrations at these properties are judged to be below the 28.0 µg/m³ criterion set out in Table 7. As such, impacts at these receptors will be *negligible*.

5.9 There are more than ten properties located within the green to blue process contribution band, some of which are located adjacent to Main Street. However, this is not a busy road and is in a rural setting with a maximum background concentration of 15.6 µg/m³; the baseline concentrations at these roadside properties are expected to be well below the 37.2 µg/m³ criterion set out in Table 7. As such, impacts at these receptors will be *negligible*.

5.10 In summary, it is anticipated that for annual mean nitrogen dioxide process contributions, most sensitive receptors will experience *negligible* impacts, and impacts at the three properties along Long Lane close to the proposed development will be *slight adverse*.

PM_{10}

5.11 There are five properties located within the green to blue process contribution band; the maximum modelled annual mean process contribution at any of these properties is 0.37 µg/m³. All of these properties are set back from the road by at least 26 m, and the influence of local industry on baseline levels of PM_{10} is likely to be included within the background concentrations set out in Table 4 which are well below the objective. Therefore, the baseline concentrations at these roadside properties can be expected to be below the 37.2 µg/m³ criterion set out in Table 7. As such, impacts at these receptors will be *negligible*.

5.12 In summary, it is anticipated that all local sensitive receptors will experience *negligible* impacts for PM_{10}.

Short-term Impact Assessment

5.13 Figure 4 shows the contour representing the 99.79th percentile of 1-hour mean nitrogen dioxide process contributions from the dryer and combustion exhaust chimneys.

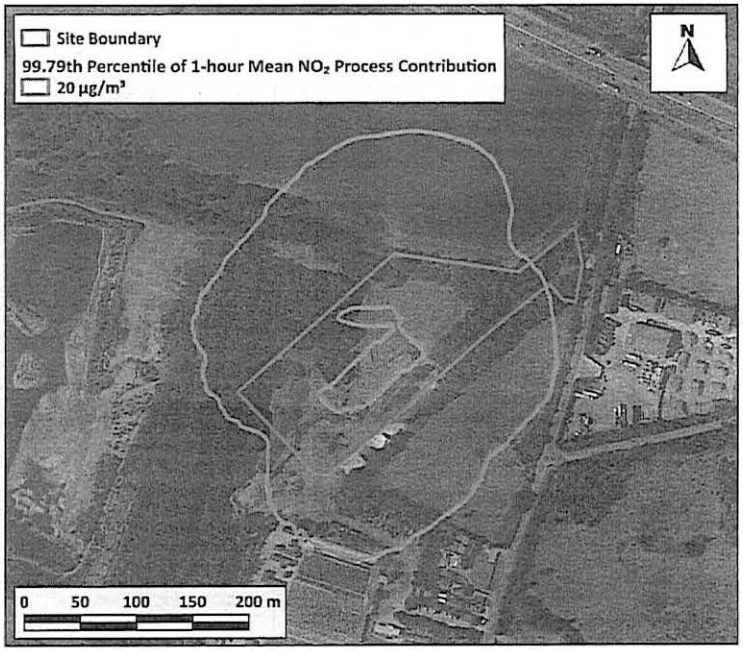


Figure 4: 99.79th Percentile of 1-hour Mean Nitrogen Dioxide Process Contributions (µg/m³)

5.14 There are no locations of relevant exposure in the areas where the process contribution is greater than 10% of the objective (i.e. 20 µg/m³), thus the impacts in terms of hourly mean nitrogen dioxide concentrations can be considered insignificant following the approach set out in Paragraph 2.31.

Summary of Modelled Impacts

5.15 A summary of the predicted modelled impacts for each pollutant and averaging period are set out in Table 8 below.

Table 8: Summary of Modelled Impacts

Pollutant	Averaging Period	Impact Descriptor
Nitrogen Dioxide	Annual Mean	Negligible to Slight Adverse [a]
	1-hour Mean	Negligible
PM_{10}	Annual Mean	Negligible
	24-hour Mean	Negligible
Sulphur Dioxide	15-minute Mean	Negligible
	1-hour Mean	Negligible
	24-hour Mean	Negligible
Carbon Monoxide	8-hour Rolling Mean	Negligible

[a] The slight adverse impact is predicted at three properties.

Assessment of Fugitive Dust Emissions

5.16 Several activities at the proposed development, including the grinding of glass and onsite transport of material, have the potential to generate fugitive dust emissions which may impact upon offsite locations.

Grinding of Glass

5.17 Dry glass will be fed into a holding hopper (see Pos 1 in Figure 5), with dust emissions passing through a filter (see Pos 4 in Figure 5). The glass is then conveyed into a fully enclosed grinding mill (see Pos 10 in Figure 5), operated under negative pressure with all extracted emissions being passed through a filter (see Pos 11 in Figure 5) to remove particles from the airstream.

5.18 The milled glass is then transported via an enclosed bucket elevator (see Pos 13 in Figure 5), before passing through a classifier maintained under negative pressure with all emissions passing through a dust filter (see Pos 16 in Figure 5).

5.19 The finished product is transferred, via an enclosed bucket elevator, to the silo storage area (see Pos 21 in Figure 5).

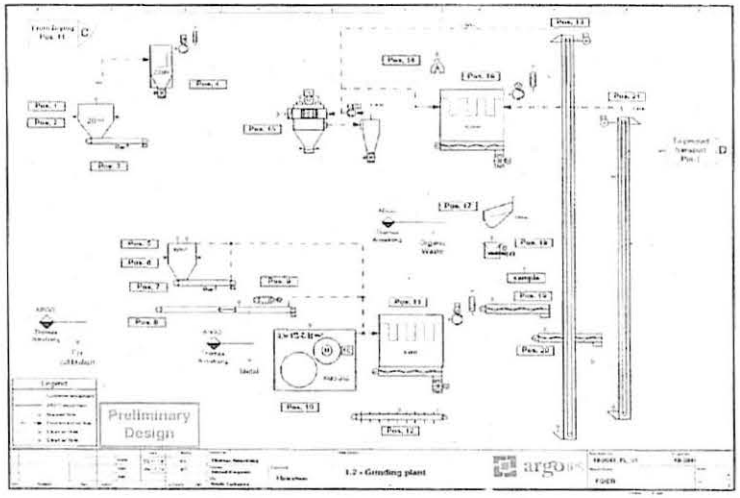


Figure 5: Receptor Locations

Contains ArgosIPS drawing number 19-0041_FL_01

5.20 The grinding of glass is judged to operate in accordance with BAT[2] for the minimisation of dust emissions from the process. All processes which have the potential to generate potentially significant levels of dust will be locally extracted with all emissions passing through filters prior to discharge to the atmosphere. The residual emissions from the dust filters will be maintained below 10 mg/m³ at all times. Furthermore, the grinding of glass will be undertaken within the facility building and thus any fugitive emissions from the process will also be contained within the building itself.

Onsite Transportation and Handling of Materials

5.21 The proposed development will employ the following methods of dust suppression to minimise the fugitive emissions of dust and thus the potential for offsite impacts:

- the initial feedstock of glass will be damp, and thus less prone to dust emissions. Nevertheless, the hopper used to receive the feedstock will be enclosed to minimise the dust emissions from the tipping of the glass;

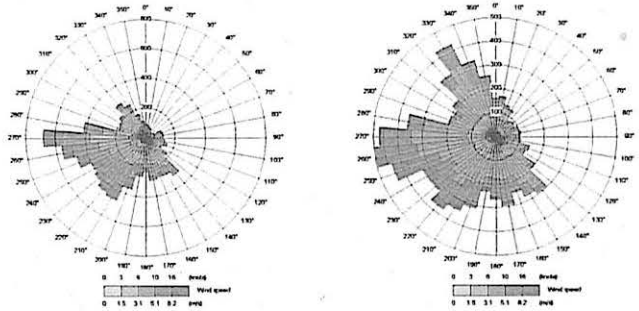
[2] BAT: Best Available Techniques

- the conveyors used to transport the lump foam glass will be covered, and where conveyors intersect dust suppression water sprays will be used to minimise fugitive emissions;
- a tractor towing a water bowser and spray system will be used to douse the roadways in order to supress dust in dry conditions;
- both crushing and screening plant will be supplied with a pressurised water bore hole system to supress dust emissions; and
- water sprays will be used to supress dust emissions from the finished product stockpiles when they are loaded into wagons for export.

5.22 The above measures are judged to be compliant with BAT[2] for the minimisation of dust emissions from the transport and handling of material onsite; the processes which are likely to generate the highest level of fugitive dust emissions are sufficiently controlled to ensure that the potential for offsite dust impacts is minimised as far as practicable.

Meteorological Conditions

5.23 The wind roses for the meteorological station used in the modelling are presented in Figure 6 below, and demonstrate that the prevailing wind direction is from the west and southwest. The nearest sensitive properties to the proposed development are located to the south and southeast, and thus will not be directly downwind of the facility during typical meteorological conditions. In general, any fugitive dust emissions generated by the proposed processes will be transported by the wind and will not deposited at locations upwind of the facility. The exception to this is during very light wind conditions when airborne dust may disperse against the wind direction, although typically only for relatively short distances.



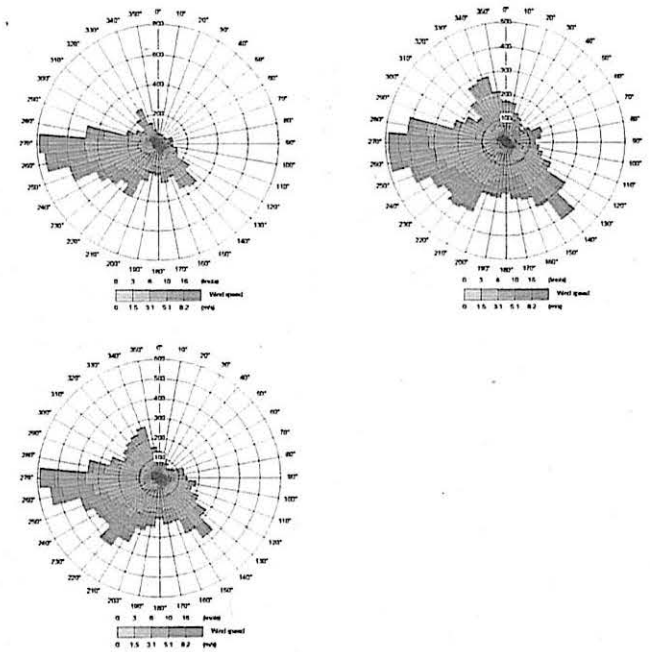


Figure 6: Wind Roses for Branham Meteorological Station (2015 to 2019: left to right, top to bottom)

Cumulative Impact

5.24 As set out in Paragraph 4.3, there are a number of industrial facilities in the study area which have the potential to generate dust emissions. These facilities, in combination with the proposed development, may cumulatively impact upon nearby sensitive properties. However, as set out in Paragraphs 5.17 to 5.22, the proposed development is judged to operate in accordance with BAT, and fugitive dust emissions from the development itself will be very low. Furthermore, as demonstrated in Paragraph 5.23, the nearest sensitive receptor locations are not located downwind of the proposed development, nor are they downwind of any existing local industry in the study area. Based upon the information set out in this report, and using elements of professional judgement, the potential for cumulative impacts can be discounted.

Summary

5.25 It is judged that the overall effects of dust emissions from the onsite handling and transport of material and from the grinding of glass, on nearby properties, is judged to be 'not significant'. The potential for cumulative dust impacts has also been screened out and is 'not significant'.

Significance of Operational Air Quality Effects

5.26 The operational air quality effects without mitigation are judged to be 'not significant'. This professional judgement is made in accordance with the EPUK/IAQM methodology (Moorcroft and Barrowcliffe et al., 2017), and takes account of the assessment that:

- annual mean concentrations of nitrogen dioxide at existing receptors are predicted to remain below the objective and the proposed development will have *negligible* impacts at the majority of receptor locations and *slight adverse* impacts at three properties;
- concentrations of all other pollutants for all averaging period are predicted to remain below the objective and the proposed development will have *negligible* impacts at all receptor locations; and
- the proposed development is judged to operate in accordance with BAT for the control of fugitive dust emissions from the grinding of glass and the onsite transport and handling of material.

6 Mitigation

Fugitive Dust

6.1 The measures which will be implemented at the facility once operational are judged to be compliant with BAT for the minimisation of dust emissions from the grinding of glass and the onsite transport and handling of material. As such, there is no requirement for mitigation beyond the measures already implemented as part of the development design.

Combustion Exhaust and Dryer Impacts

6.2 The assessment has demonstrated that the emissions from the combustion exhausts and dryer chimney will have an insignificant impact on air quality at existing nearby properties and will not lead to any objective exceedances.

7 Conclusions

7.1 The impacts associated with the proposed foam glass manufacturing facility at the Sellite Blocks manufacturing plant in Selby have been assessed in relation to the air quality objectives set to protect human health.

7.2 The proposed development will not lead to any exceedances of the air quality objectives. The impacts in terms of annual mean nitrogen dioxide concentrations at most local, sensitive receptors have shown to be *negligible*. Whilst impacts are predicted to be *slight adverse* at three properties near to the proposed development, total concentrations will remain below the objective. The impacts in terms of all averaging periods for PM_{10}, carbon monoxide and sulphur dioxide will all be *negligible*.

7.3 In terms of fugitive dust emissions, the proposed development is judged to operate in accordance with BAT for the minimisation of fugitive dust from the grinding of glass and the onsite handling and transport of material.

7.4 Overall, it is considered that the air quality effects associated with the proposed foam glass manufacturing facility will be 'not significant'.

8 References

AQC. (2019). *Calibrating Defra's 2017-based Background NOx and NO2 Maps against 2018 Measurements.* Retrieved from https://www.aqconsultants.co.uk/CMSPages/GetFile.aspx?guid=b1adf824-983a-43fe-acf0-85f885a3d37e

Clean Air Act 1993. (1993). HMSO. Retrieved from http://www.legislation.gov.uk/ukpga/1993/11/contents

Defra. (2007). *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland.* Defra.

Defra. (2016b). *Review & Assessment: Technical Guidance LAQM.TG16.* Defra.

Defra. (2017). *Air quality plan for nitrogen dioxide (NO2) in the UK.* Retrieved from https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017

Defra. (2018a). *Supplement to the UK plan for tackling roadside nitrogen dioxide concentrations.* Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/746100/air-quality-no2-plan-supplement.pdf

Defra. (2018b). *Review & Assessment: Technical Guidance LAQM.TG16 February 2018 Version.* Defra. Retrieved from https://laqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf

Defra. (2019). *Clean Air Strategy 2019.* Retrieved from https://www.gov.uk/government/publications/clean-air-strategy-2019

Defra. (2020a). *UK Pollutant Release and Transfer Register.* Retrieved from http://prtr.defra.gov.uk/map-search

Defra. (2020b). *Local Air Quality Management (LAQM) Support Website.* Retrieved from http://laqm.defra.gov.uk/

Defra. (2020c). *2020 NO2 projections data (2018 reference year).* Retrieved from https://uk-air.defra.gov.uk/library/no2ten/2020-no2-pm-projections-from-2018-data

Defra. (2020d). *UK Ambient Air Quality Interactive Map.* Retrieved from https://uk-air.defra.gov.uk/data/gis-mapping

Environment Agency. (2005). *Conversion ratios for NOx and NO2.* Retrieved from http://webarchive.nationalarchives.gov.uk/20140328084622/http:/www.environment-agency.gov.uk/static/documents/Conversion_ratios_for__NOx_and_NO2_.pdf

Environment Agency. (2016a). *Air emissions risk assessment for your environmental permit.* Retrieved from https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit

Environmental Protection Act 1990. (1990). Retrieved from http://www.legislation.gov.uk/ukpga/1990/43/contents

Ministry of Housing, Communities & Local Government. (2019a). *National Planning Policy Framework*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

Ministry of Housing, Communities & Local Government. (2019b). *Planning Practice Guidance*. Retrieved from https://www.gov.uk/government/collections/planning-practice-guidance

Moorcroft and Barrowcliffe et al. (2017, Novemeber). *Land-Use Planning & Development Control: Planning For Air Quality v1.2*. IAQM, London.

Selby District Council. (2013). *Selby District Core Strategy Local Plan*.

Selby District Council. (2018). *Air Quality Action Plan*.

Selby District Council. (2020). *2020 Air Quality Annual Status Report (ASR)*.

Technical Guidance Note D1 (Dispersion). (1993). HMSO.

The Air Quality (England) (Amendment) Regulations 2002, Statutory Instrument 3043. (2002). HMSO. Retrieved from https://www.legislation.gov.uk/uksi/2002/3043/contents/made

The Air Quality (England) Regulations 2000 Statutory Instrument 928. (2000). HMSO. Retrieved from http://www.legislation.gov.uk/uksi/2000/928/contents/made

The Air Quality Standards Regulations 2010 Statutory Instrument 1001. (2010). HMSO. Retrieved from http://www.legislation.gov.uk/uksi/2010/1001/pdfs/uksi_20101001_en.pdf

The Environmental Permitting (England and Wales) (Amendment) Regulations 2018 Statutory Instrument 110. (2018). HMSO. Retrieved from http://www.legislation.gov.uk/uksi/2018/110/pdfs/uksi_20180110_en.pdf

The European Parliament and the Council of the European Union. (2008). *Directive 2008/50/EC of the European Parliament and of the Council*. Retrieved from http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32008L0050

The European Parliament and the Council of the European Union. (2015). *Directive 2015/2193/EU of the European Parliament and of the Council*. Retrieved from http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32015L2193

9 Glossary

ADMS-5	Atmospheric Dispersion Modelling System model for point sources
AQC	Air Quality Consultants
AQAL	Air Quality Assessment Level
AQMA	Air Quality Management Area
AURN	Automatic Urban and Rural Network
CAZ	Clean Air Zone
Defra	Department for Environment, Food and Rural Affairs
EPUK	Environmental Protection UK
Exceedance	A period of time when the concentration of a pollutant is greater than the appropriate air quality objective. This applies to specified locations with relevant exposure
IAQM	Institute of Air Quality Management
JAQU	Joint Air Quality Unit
kW	Kilowatt
LAQM	Local Air Quality Management
µg/m³	Microgrammes per cubic metre
MCPD	Medium Combustion Plant Directive
MW_{th}	Megawatts Thermal
NO_2	Nitrogen dioxide
NOx	Nitrogen oxides (taken to be NO_2 + NO)
NPPF	National Planning Policy Framework
Objectives	A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides
PM_{10}	Small airborne particles, more specifically particulate matter less than 10 micrometres in aerodynamic diameter
PPG	Planning Practice Guidance
Standards	A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal

10 Appendices

A1 Professional Experience

Stephen Moorcroft, BSc (Hons) MSc DIC CEnv MIEnvSc MIAQM

Mr Moorcroft is a Director of Air Quality Consultants, and has worked for the company since 2004. He has more than 35 years' postgraduate experience in environmental sciences. Prior to joining Air Quality Consultants, he was the Managing Director of Casella Stanger, with responsibility for a business employing over 100 staff and a turnover of £12 million. He also acted as the Business Director for Air Quality services, with direct responsibility for a number of major Government projects. He has considerable project management experience associated with Environmental Assessments in relation to a variety of development projects, including power stations, incinerators, road developments and airports, with particular experience related to air quality assessment, monitoring and analysis. He has contributed to the development of air quality management in the UK, and has been closely involved with the LAQM process since its inception. He has given expert evidence to numerous public inquiries, and is frequently invited to present to conferences and seminars. He is a Member of the Institute of Air Quality Management.

Laurence Caird, MEarthSci CSci MIEnvSc MIAQM

Mr Caird is an Associate Director with AQC, with 14 years' experience in the field of air quality management and assessment. He has extensive experience in the completion of air quality, odour and greenhouse gas assessments for a range of developments including residential and commercial developments, EIA, road schemes, airports, industrial and waste management processes. He has provided expert witness services to a number of public inquiries on air quality and odours, and is a committee member of the Institute of Air Quality Management.

Paul Outen, BSc (Hons) MIEnvSc MIAQM

Mr Outen is a Senior Consultant with AQC, having joined in 2014. He undertakes air quality and odour assessments for AQC, covering residential and commercial developments, industrial installations, road schemes, energy centres and mineral and waste facilities. These involve qualitative assessments, and quantitative modelling assessments using the ADMS dispersion models, for both planning and permitting purposes. He has also presented evidence at public hearings. Mr Outen has a particular interest in odour assessment, and has extensive experience in the assessment of odours across a wide range of industries throughout the UK, Europe and Asia. He also has experience in pollutant monitoring techniques, and played a key role in the development and standardisation of isokinetic bioaerosol sampling in the UK. He regularly undertakes site audits for various installations to advise on pollution control and mitigation strategies. He is a Member of both the Institute of Environmental Sciences and Institute of Air Quality Management.

A2 Modelling Methodology

Model Inputs

A2.1 The impacts of emissions from the proposed foam glass combustion exhausts and the dryer chimney have been predicted using the ADMS-5 dispersion model. ADMS-5 is a new generation model that incorporates a state-of-the-art understanding of the dispersion processes within the atmospheric boundary layer. The model has been run to predict the contribution of the proposed emissions to:

- annual mean concentrations of nitrogen oxides;
- annual mean concentrations of dust (assumed to be both PM_{10});
- 99.79th percentile of 1-hour mean nitrogen oxides concentrations;
- 90.4th percentile of 24-hour mean PM_{10} concentrations;
- 100th percentile of 8-hour rolling mean CO concentrations;
- 99.9th percentile of 15-minute mean SO_2 concentrations;
- 99.73rd percentile of 1-hour mean SO_2 concentrations; and
- 99.18th percentile of 24-hour mean SO_2 concentrations.

A2.2 The emission parameters employed in the modelling are set out in Table A2.1. All specified emissions data have been provided by Thomas Armstrong Ltd based on measurement data for similar systems at other sites, and data provided by equipment manufacturers.

Table A2.1: Plant Specifications and Modelled Emissions and Release Conditions

Parameter	Value
Foam Glass Combustion Exhaust (Chimney 1; data are for a single chimney)	
Specified Flue Internal Diameter (m)	0.5
Specified Actual Exhaust Volume Flow (m^3/hr) [a]	7,000
Calculated Actual Exhaust Volume Flow (m^3/s) [b]	1.498
Calculated Exit Velocity (m/s)	7.631
Uplifted NOx Emission Rate (mg/m^3) [c]	10.0
Specified CO Emission Rate (mg/m^3)	274.0
Specified SOx Emission Rate (mg/m^3)	0.4
Specified PM_{10} Emission Rate (mg/m^3)	4.0
Calculated NOx Emission Rate (g/s)	0.014984
Calculated CO Emission Rate (g/s)	0.410569
Calculated SOx Emission Rate (g/s)	0.000599
Calculated PM_{10} Emission Rate (g/s)	0.005994
Specified Exhaust Temperature (°C)	130.0
Dryer Chimney	
Specified Flue Internal Diameter (m)	0.8
Specified Normalised Exhaust Volume Flow (Nm^3/hr) [d]	15,939
Calculated Actual Exhaust Volume Flow (m^3/s) [e]	5.723
Calculated Exit Velocity (m/s)	11.386
Specified NOx Emission Rate (mg/m^3)	150.0
Specified CO Emission Rate (mg/m^3)	50.0
Specified SOx Emission Rate (mg/m^3)	10.0
Specified PM_{10} Emission Rate (mg/m^3)	10.0
Calculated NOx Emission Rate (g/s)	0.858472
Calculated CO Emission Rate (g/s)	0.286157
Calculated SOx Emission Rate (g/s)	0.057231
Calculated PM_{10} Emission Rate (g/s)	0.057231
Specified Exhaust Temperature (°C)	80.0

[a] At 250°C.

[b] At stack exit temperature of 130°C.

[c] The specified NOx concentration in the outlet gas is 0.03 mg/m^3. However, a concentration of 10 mg/m^3 has been used to represent a conservative assessment.

[d] At 0 °C.

[e] At stack exit temperature of 80°C.

A2.3 Entrainment of the plume into the wake of the buildings (the so-called building downwash effect) has been taken into account in the model. The building dimensions and flue location have been obtained from drawings provided by Ellis Healey Architecture. The location of the flues are shown in Figure

A2.1 along with the modelled buildings. The flues have been modelled at a height of 14.376 m and the heights of the buildings have been modelled at 11.376 m and 21.512 m for the production building and dryer building, respectively.

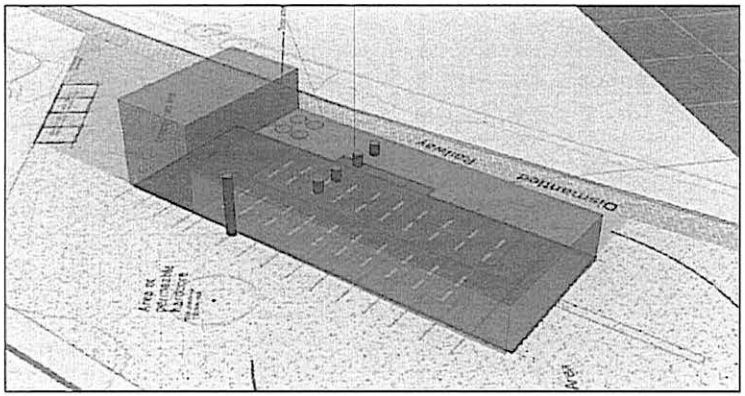


Figure A2.1: Flue Locations (red circles) & Modelled Buildings

Contains data from Ellis Healey Architects drawing no. 1917PL101A.

A2.4 Hourly sequential meteorological data from Bramham for 2015 to 2019, inclusive, have been used in the model. The Bramham meteorological monitoring station is located approximately 25 km to the northwest of the proposed development site. It is deemed to be the nearest monitoring station representative of meteorological conditions in the vicinity of the proposed development site; both the development site and the Bramham meteorological monitoring station are located in the northeast of England where they will be influenced by the effects of inland meteorology in flat-lying, mostly rural topography.

Background Concentrations

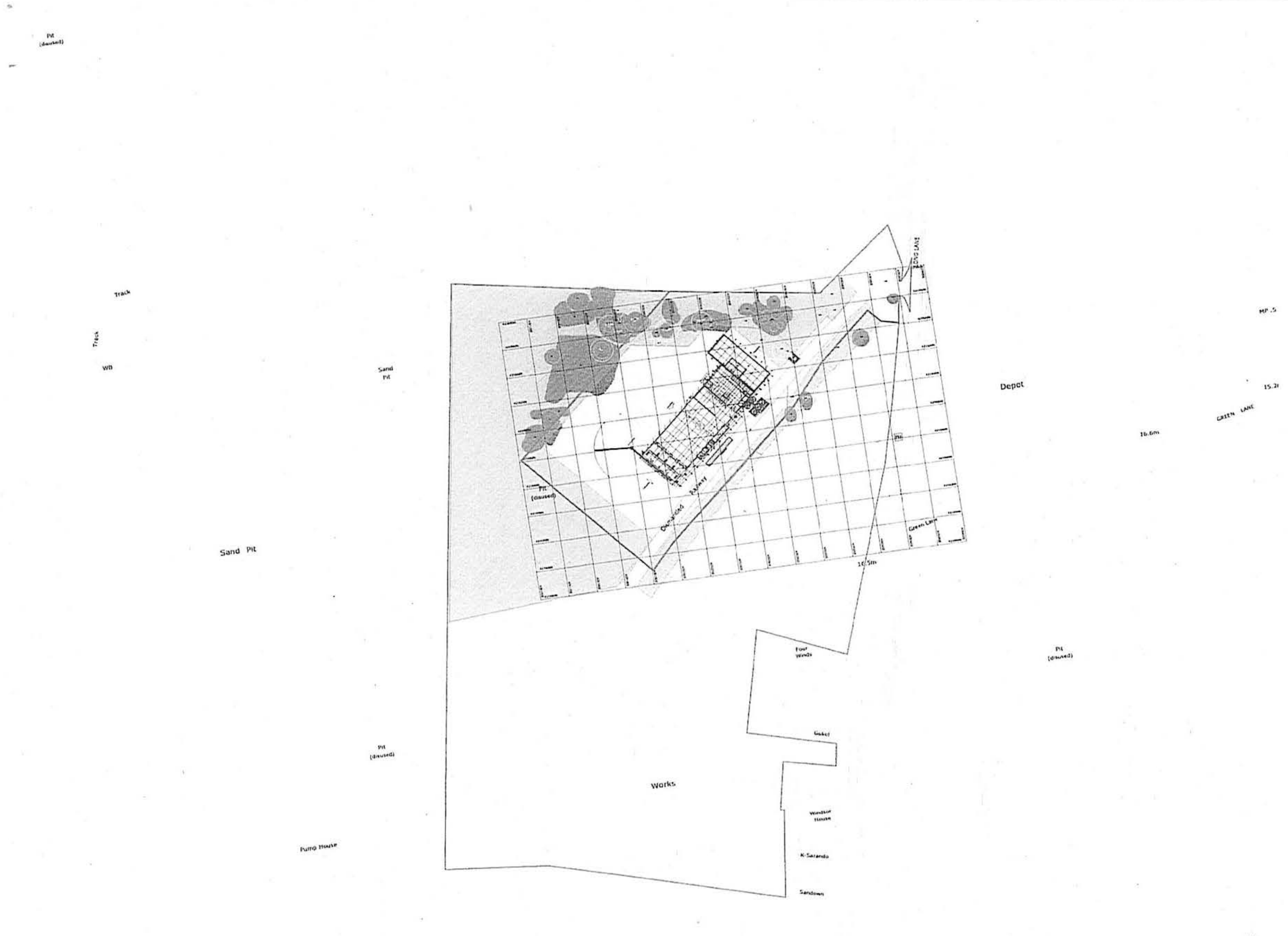
A2.5 The background pollutant concentrations across the study area have been defined using the 2017-based national pollution maps published by Defra (2020b). These cover the whole of the UK on a 1x1 km grid and are published for each year from 2017 until 2030. The background annual mean nitrogen oxides and nitrogen dioxide maps for 2020 have been calibrated against concurrent measurements from national monitoring sites (AQC, 2019). The calibration factor calculated has also been applied to future year backgrounds. This has resulted in slightly higher predicted nitrogen oxides and nitrogen dioxide concentrations for the future assessment year than those derived from the Defra maps.

Model Post-processing

A2.6 For the initial screening of the nitrogen oxides process contributions, the approach recommended by the Environment Agency (2005) has been used to predict nitrogen dioxide concentrations, assuming that:

- annual mean NO_2 concentration = annual mean NOx concentration multiplied by 0.7; and
- 99.79th percentile of 1-hour mean NO_2 concentrations = 99.79th percentile of 1-hour mean NOx concentrations multiplied by 0.35.

A2.7 These NOx to NO2 ratios are likely to be overly pessimistic within close proximity of the facility. The NOx emissions require time and O_3 available to react and convert to NO_2, thus 35% NOX to NO_2 ratio for short-term impacts is considered worst-case for receptors within 500 m of the site.



Location Plan
Scale 1:1250

All site dimensions shall be verified by the contractor on site prior to work commencing.

Do not scale from this drawing.
Only work to written dimensions.

NOTES

ellis healey architecture

PLANNING

PROJECT	STELITE BLOCK PLANT LONG LANE GREAT HECK
TITLE	LOCATION PLAN
DRAWING NO.	1617 PL 500
DRAWN	CP — DATE: APRIL 2022
SCALE	1:1250 OR 1:2500 @ A3

FOAMGLASS 03a – Process Description

Glass Grinding

1. Pre-screened glass sand (8mm Down) will be delivered by HGV sheeted/covered tipper trucks, the pre-screened glass sand will be tipped into the covered storage bays with some additional being stored in another area. All of these areas will be covered by a water suspension system, please note that the glass sand will always be damp prior to the drying and grinding procedure.
2. The Glass sand will then be fed into two partially covered feed hoppers external of the building by a Wheeled Loading Shovel at about 20 tonne per hour, this area will be covered by the water suppression system and this area will be swept by road sweeper as and when required.
3. The material will then be automatically fed through the drying process. The glass sand is dried via an energy-efficient, natural gas vibrating bed drying unit which is designed to reuse waste heat from the glass foaming process.
4. The dry glass then feeds into a high-speed roller mill, designed to significantly reduce the energy required to convert the glass into a fine powder after passing through a particle size classifier.
5. All equipment operates under negative pressure using extraction fans and filters to ensure that no dust escapes from the process.
6. There will be a small % of metal and organic material separated during this process which is collected in waste containers and sent for recycling with no waste to landfill.
7. The milled glass powder is then be delivered into the five storage silos (totally enclosed).
8. A percentage of the finished ground glass will then be loaded from three of the silos into HGV Powder tankers and transported off site to one of our other sites.

Silos

1. There are 5 x powder silos on site. Each silo is fitted with:
   - Infa Variojet reverse-jet self-cleaning filtration units
   - Kurz Silobaromet pressure relief valves
   - Vega level sensor systems
2. There are 2 x 230 tonne (191m^3 each) silos for feeding into the foamed glass process.
3. There are 3 x 120 tonne silos (98.9m^3 each) for loading into road tankers.

Foamed Glass

1. The finished ground glass from the grinding process will then be vacuum-transported via enclosed pipes from two of the silos to the Foam Glass mixing units and mixed with a dry foaming agent and then discharged into one of the 4 Foaming Kiln conveyors.
2. The kiln roof and walls are heavily insulated to conserve energy as the powder becomes hot and soft. Gas burners are assembled below and above the steel conveyor belt.
3. The powder is deposited onto a 'fleece' bed which has been pre-sprayed with a China-clay solution which will protect the steel conveyor and which is consumed into the foamed glass itself as the material travels along the kiln.
4. The material slowly moves through the kiln which consists of 5 x temperature controlled zones; Preheating, Sintering, Foaming, Pre-Cooling and Cooling.

5. The powder mixture will expand up to 5 x times the original volume and become a stable foamed glass.
6. The finished Foamed glass will exit the kiln onto a cooling conveyor which is inside the building and fracture into approximately 70mm pieces. It will then leave the building by covered radial-arm moving conveyor to the external finished product storage area.
7. This this external storage area will have a water suspension system to keep the product damp at all times.

NOTE: At this stage, there is no plan for further crushing or screening operations but we will have to assess the market and potential need for further processing.

EMISSIONS FROM THE PROCESS

A detailed Air Quality Assessment report (July 2020) has been undertaken by Air Quality Consultants and submitted as part of the Planning Process.

Chimney Emissions (summary taken from assessment by SGCC report 13/02/2020)

1. This project incorporates four (4) tunnel kilns to produce foam glass gravel from recycling glass. All four kilns are identical and are to be operated in the same way. In the following, only one kiln is considered. One kiln has two chimneys. One close to the kiln entrance (chimney 1) and one at the kiln exit (chimney 2).
2. The combustion gases are evacuated trough chimney 1. Chimney 2 serves to evacuate the cooling air that is blown on the hot foam glass ribbon for cooling.
3. One kiln has a connected load of 1.8 MW (natural gas) and operates at maximum 950°C. There are 36 natural gas burners installed with a power of 50 kW each. The actual consumption of natural gas is approx. 90 Nm3/h, depending on the calorific value of the natural gas.

The expected emissions are:

Chimney 1:

Total waste gas volume flow: 6,000 and 6,500 m^3/h (at approx. 130°C at the chimney tip) The exit temperature at chimney 1 should be well above 100°C to avoid condensation of the system, as the waste gas is humid from the gas combustion

- CO < 500mg/Nm^3
- NOx < 500mg/Nm^3
- SOx < 500mg/Nm^3
- Dust < 20mg/Nm^3

With respect to organics that may be in the glass powder, we do not expect to exceed:

- Organic as total C: < 50mg/Nm^3

Based on that we do not exceed the following numbers, which are based on a total waste gas volume flow between 4.120 and 4.230 Nm^3/h (at 20°C and 1,013 mbar pressure dry gas). Assuming 4.200 Nm^3/h the maximum mass flow would be:

Table 1: Expected maximum concentrations and maximum mass flow:

	mg/Nm³	kg/h
CO	500	2.1
NOx	500	2.1
SOx	500	2.1
Organic C	50	0.21
Dust	20	0.084

The NOx is minimized by using oxidized flames with an excess of air compared to gas (Lambda between 1.05 and 1.2, depending on burner position).

The dust inside is minimized by applying in intermediate roof inside the kiln (until the glass has softened on the surface) to avoid that the waste gas stream (convection) from the burner flame touches the dry glass powder and produced dust (carry over).

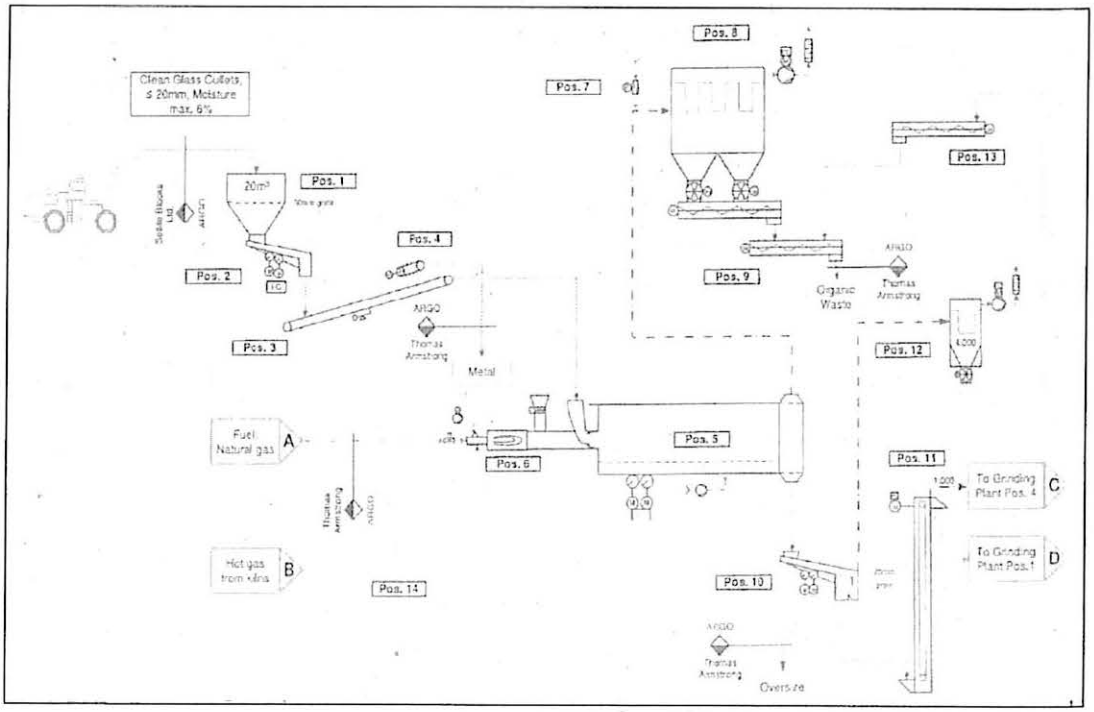
Chimney 2

Hot air volume 2.400Nm³/h

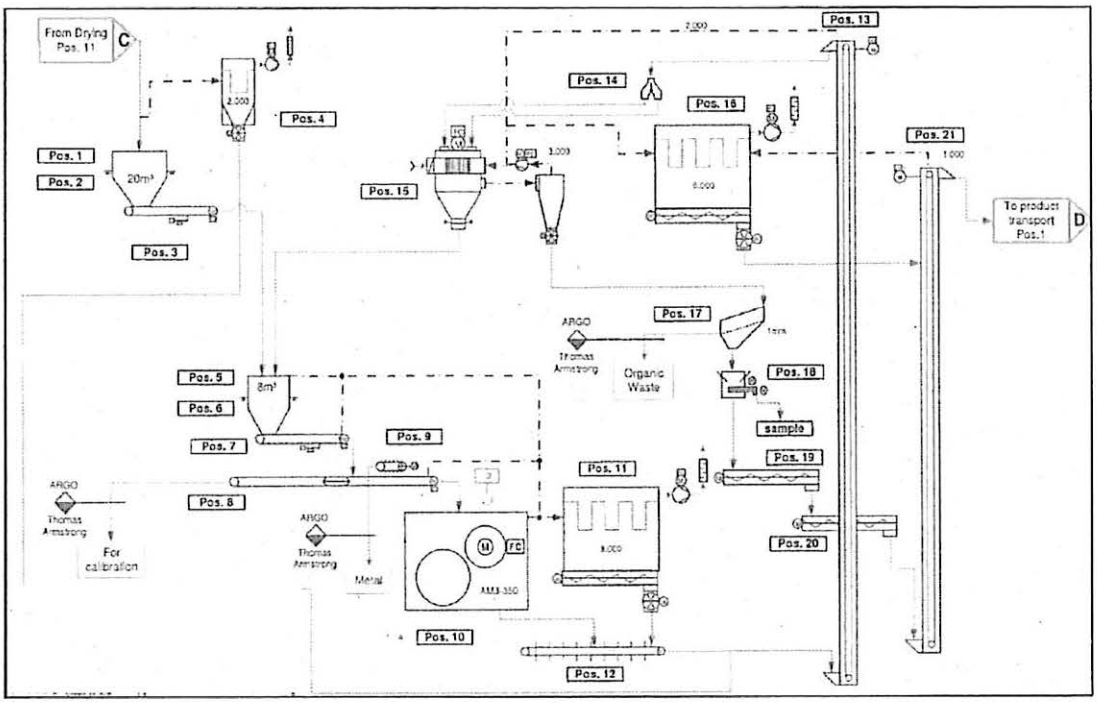
Temperature at chimney tip: 120-150°C

All values given are for the intended use namely producing foam glass gravel and the use of adequate raw materials.

DRYING PROCESS FLOW DIAGRAM



MILLING PROCESS FLOW DIAGRAM



TRANSPORT OF MILLED GLASS TO SILOS FLOW DIAGRAM