nabru
Self assembly sofas

Environmental Permit Application

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1.0 The installation & activities undertaken

1.1 Introduction

Nabru Limited (the Operator) manufactures and retails self assembly sofas over the internet.

The manufacturing installation is proposed to be located at Unit 46A, Albion Mills, Albion Road, Greengates, Bradford, BD10 9TQ and contains the following regulated activities:

- Manufacturing products wholly or mainly of wood >1000m^3 in any 12-month period.
- Waste wood incineration >50kg/hr

The following guidance has been used in the preparation of this application in order to ensure that the Operator applies Best Available Techniques to the operation of the regulated activities:

- PG1/12(12) - Combustion of waste wood (Revised July 2013).

  Unfortunately this guidance note has not been fully updated since the regulations were amended. Until such time as it is updated 400kW is considered to be the technical threshold for the application of emission limits to waste wood combustion appliances.

- PG6/02(12) - Manufacture of timber and wood-based products

  Timber and wood-based products manufacturing activities are reduced fee activities when operated on a standalone basis. When coupled with a full Part B activity such as waste wood incineration, the reduced fee activity is normally subsumed by the standard activity and the Operating conditions included in a single consolidated permit.

1.2 Description of the installation

1.2.1 Overview

Nabru Limited (the Operator) manufactures and retails self assembly sofas over the internet, the Operator uses Medium Density Fibreboard, Oriented Strand Board and Plywood in the construction of its products.

Wood products are machined to size using three Computer Numerically Controlled Routers (CNC Routers) which are manufactured by AXYZ Automation, the CNC Routers are connected to filtered extraction equipment for the containment and collection of wood dust and chippings. Waste wood produced during the manufacturing process is shredded in an on-site shredder and collected in a storage silo.

The storage silo feeds a 300kW biomass boiler, a Ranheat MSU 300.

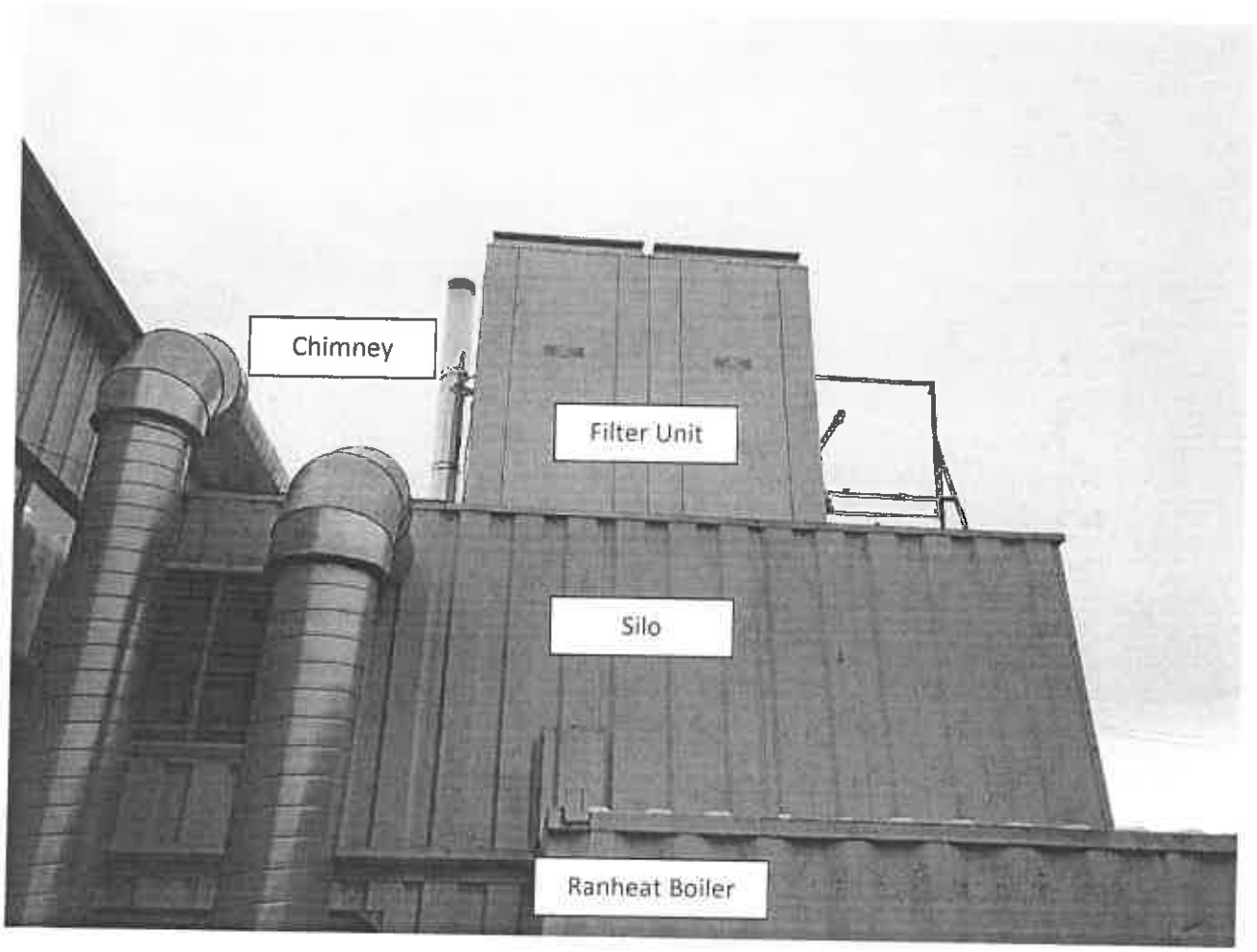
The plant referred to in this application can collectively fall under the Part B swip definition, meaning that the equipment is **not** subject to the full requirements of the Waste Incineration Directive (WID), **nor** should it be considered a Schedule 13 SWIP (WID small waste incineration plant).

1.2.2 Technical description: Wood products manufacturing

Wood and wood products are machined to desired specification in the manufacturing process. The Operator estimates that 1,700m^3 of wood materials will be machined during the 2018 calendar year which exceeds the 1000m^3 permitting threshold.

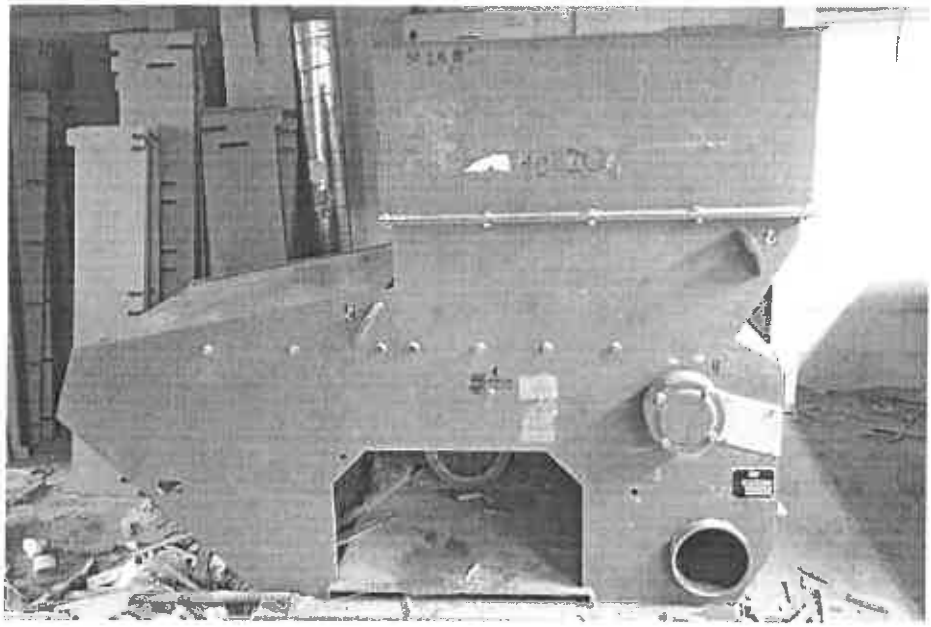
The wood working equipment almost completely comprises Nabru Ltd's three CNC Routers there is also very limited use of a circular hand saw (to cut the sacrificial boards for the router to size).

The CNC Routers are connected to an air filter manufactured by S&D Extraction which measures 240cm by 130cm, the air filter is fitted with 48 polyester needle felt filter sleeves each measuring 235cm long with a diameter of 25cm the air filter is serviced by a fan. Collected wood dust and shredded wood is deposited directly into the silo below the filter.



S&D Extraction Filter Unit and Key Boiler Components

Waste wood produced during the manufacturing process is shredded using a Scanhugger shredder.



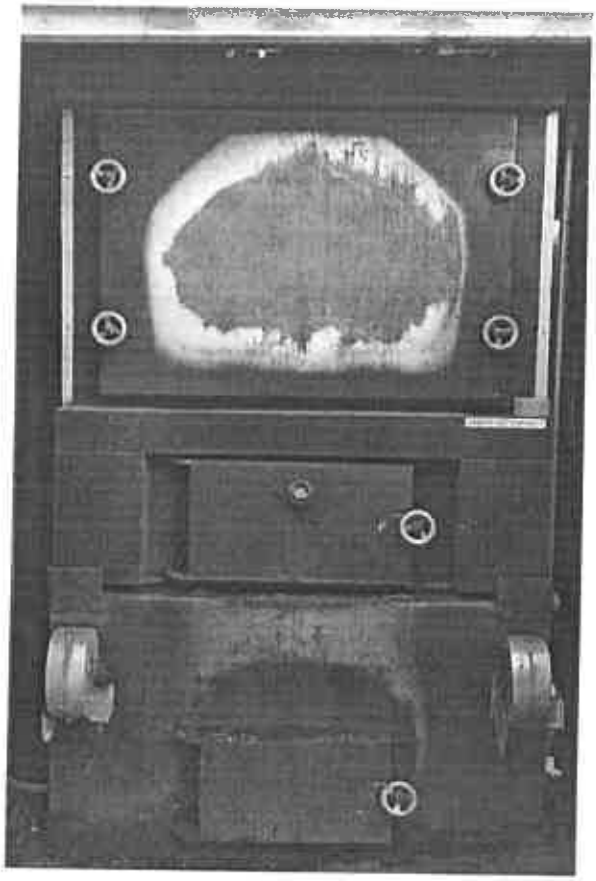
Scanhugger HL 3/8/10 Shredder

The shredder is located inside the business unit and waste material is fed straight from the CNC Routers into the shredder and the shredded material and dust from the CNC Routers is then extracted directly into the silo by means of the fan and filter assembly.

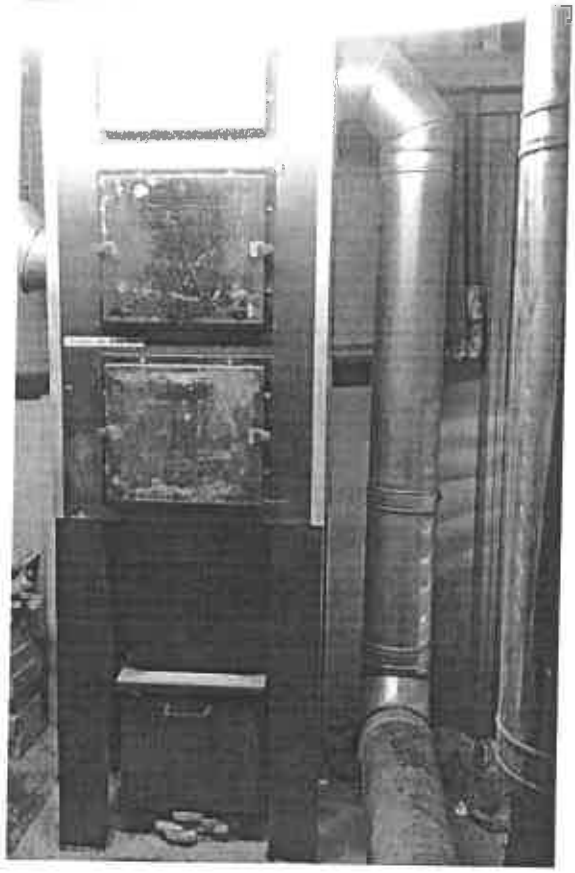
1.2.3 Technical description: Waste Wood Incineration

Wood dust and chippings collected via the extraction system are stored prior to combustion in the storage silo and then subsequently they are burned in the wood waste boiler, a Ranheat MSU 300.

The Ranheat MSU 300, rated at 300kW (approximately 85kg/hr) takes fuel from the silo above it via a rotary valve and dosage bin to the stoker. The stoker is fitted with a variable speed gearbox, which runs continuously when the appliance calls for heat. This ensures a uniform fuel feed rate into the retort (combustion chamber) for efficient combustion.



Ranheat MSU 300

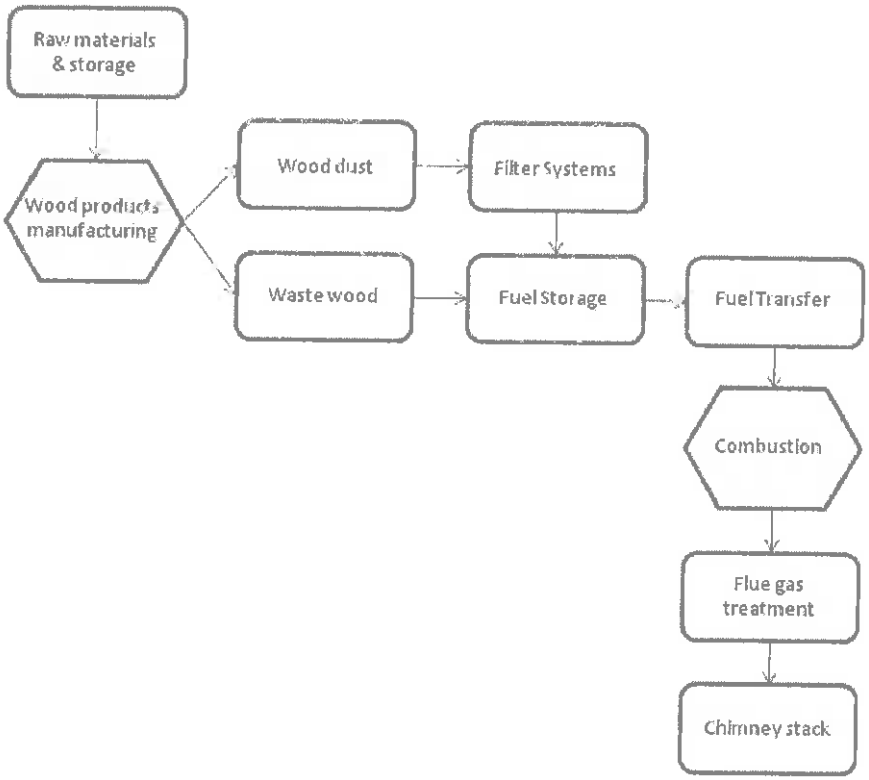


Cyclone arrestor

Combustion is controlled via a programmable logic controller (PLC). Waste gasses from the combustion process pass through a cyclone grit arrestor containing a single cyclone, which causes dust in the flue gas to separate out of the gas stream and into a collection bin. An induced draught (ID) fan mounted after the cyclone provides the air movement for the combustion process and to ensure that flue gasses have sufficient efflux velocity to disperse emissions to air via a 6.0m twin wall insulated stainless steel chimney.

1.3 Process flow

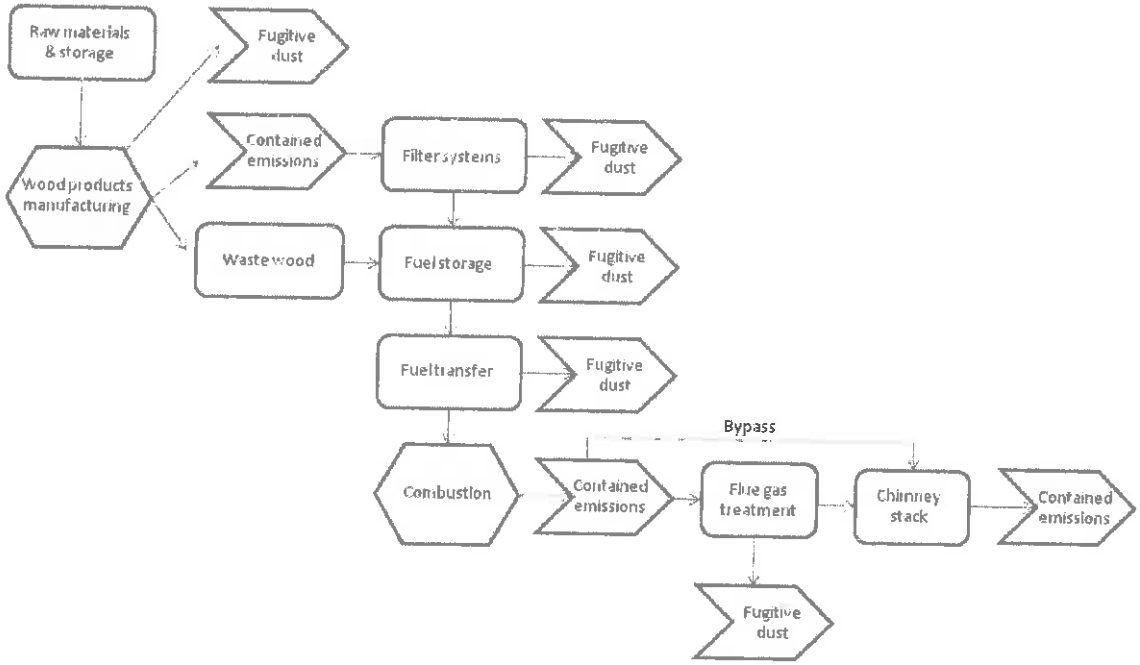
The overall process flow of the activities undertaken at the installation is as follows:



2.0 Emissions

2.1 Foreseeable emissions

Foreseeable emissions to air from the activities undertaken are identified and characterised as contained (point source) or fugitive emissions as follows:



Contained emissions are summarised as follows:

- Dust from wood working activities.
- Waste wood combustion emissions.

Potential fugitive emissions are summarised as follows:

- Dust from wood working activities.
- Dust from filtration systems.
- Dust from waste wood processing & fuel storage.
- Dust from fuel transfer.
- Dust from flue gas treatment.

2.2 Emissions quantification

Emissions quantification is only possible for contained (point source) emissions, where flow rates and emissions concentrations are determined. Wood dust is fully contained within the extraction system for use in the biomass appliances, and is therefore not considered further in this section. The relevant emissions for quantification are those from the combustion activities.

2.2.1 Quantified emissions from combustion activities

The Ranheat MSU 300 at less than 400kW is not subject to emissions monitoring under environmental permitting, compliance being Clean Air Act controls only. The Ranheat MSU 300 is approved by defra as an exempt appliance, meaning that it is a Clean Air Act compliant appliance. The exempt appliance approval is provided in Appendix 3.

3.0 Controlling emissions

The proposed technologies and other techniques to prevent, or where that is not practicable, to reduce emissions to air are as follows:

3.1 Contained emissions of dust from wood working activities

All wood-working machines are connected to a waste wood extraction system. Emissions are fully contained under normal operation. Unintentional releases would be fugitive from the external parts of the waste wood extraction system and are considered in section 3.5.

3.2 Contained emissions from waste wood combustion.

Emissions from the combustion processes are unavoidable, however they will be minimised as far as practicable.

3.2.1 Controlling emissions of smoke, odour CO, NOx and VOC

The combustion of the waste wood fuel will give rise to these conventional regulated substances and they will be minimised as far as practicable by ensuring good and complete combustion in the combustion chamber. The PLC unit on the boiler will control fuel flow rate and oxygen trim (airflow) according to the heat demand of the installation.

- Good combustion conditions will minimise emissions of carbon monoxide, VOC and smoke/odour by ensuring that there is sufficient oxygen for complete combustion.
- Excess air will also be minimised by oxygen trim to reduce oxides of nitrogen.

Emission limits do not apply to the Ranheat MSU 300.

3.2.2 Controlling emissions of aldehydes, chlorides and hydrogen cyanide

Aldehydes, chlorides and hydrogen cyanide are likely to be present in particleboard (MDF) and Oriented Strand Board (OSB). Whilst these fuels do not themselves trigger WID requirements, they are subject to a contained emission limit.

Emission limits do not apply to the Ranheat MSU 300, however good combustion will be maintained in order to minimise all emissions to air.

3.2.3 Controlling emissions of particulate matter

Particulate matter is a normal product of the combustion process as ash. Even under complete combustion conditions, ash will be produced. PG1/12(13) provides a 60mg/m^3 emission limit for all new waste wood combustion appliances rated at more than 400kW.

Although not subject to emission limits, particulate emissions from the Ranheat MSU 300 will be minimised using a cyclone grit separator. In the cyclone, the dust gas stream enters at an angle and is spun rapidly. The centrifugal force created by the circular flow throws the dust particles toward the wall of the cyclone. After striking the wall, these particles fall into a hopper located underneath.

3.3 Fugitive emissions of dust from wood working machines

All wood-working machines are connected to a waste wood extraction system. Emissions are fully contained under normal operation. All wood-working activities are undertaken within the production buildings, meaning that fugitive emission would have no impact on the external environment. Fugitive emissions of dust from wood working machines are not considered any further in this application

3.4 Fugitive emissions of dust from filtration systems

The filter units are fully enclosed. There are no emissions under normal operations. Regular inspection and maintenance of the filter bags and filter housings will ensure that fugitive emissions are minimised as far as practicable. Any release from the filtration system or external ductwork would be an unintentional release.

3.5 Fugitive emissions of dust from waste wood processing

The Scanhugger shredder is a top-loading shredder, meaning that the cutting teeth are located at the bottom of the unit. The shredder is operated with the waste extraction fan running in order to collect the shredded wood particles. The shredded particles are reasonably coarse, meaning that the operation is not generally a dusty one. All shredding activities are undertaken within the production buildings, meaning that fugitive emission would have no impact on the external environment. Fugitive emissions of dust from shredding activities are not considered any further in this application.

3.6 Fugitive emissions of dust from fuel transfer & storage

Fuel transfer and storage systems are fully enclosed during normal operation, and will not give rise to fugitive emissions unless damaged or an inspection panel is left open. Even in such cases, dusty emissions are likely to be negligible due to the only inspection panel being located behind a door within the filtration unit. Pneumatic transfer delivery systems are not used, meaning that there is no risk of over-pressurising the fuel storage silo.

4.0 Unintentional releases

The likely unintentional releases from the proposed activity are as follows:

- Localised release of particulate matter in the event of filter failure.
- Localised release of particulate matter in the event of external ductwork failure.
- Increase in contained particulate emissions in the event of filter break.
- Increase in contained combustion emissions in the event of poor combustion.
- Localised release of particulate matter during fly ash removal.

Unintentional releases from the installation have also been subjectively considered, both in terms of the nature of these accidental releases, the likely environmental hazard and the subsequent environmental risk using the following risk matrix:

		Severity of Impact		
		Low 1	Medium 2	High 3
Likelihood of occurrence	Unlikely 1	Trivial 1	Acceptable 2	Moderate 3
	Possible 2	Acceptable 2	Moderate 4	High Risk 6
	Likely 3	Moderate 3	High Risk 6	Unacceptable 9

Foreseeable accidental release	Likelihood of occurrence	Severity of impact	Risk score
Localised release of particulate matter in the event of filter failure	Possible, filter bags have a finite life	Low, nuisance unlikely	2 Acceptable
Localised release of particulate matter in the event of external ductwork failure	Possible, filter bags have a finite life	Low, nuisance unlikely	2 Acceptable
Increase in contained particulate emissions in the event of filter break	Possible, monitoring in place & regular maintenance	Low, nuisance unlikely, short duration	2 Acceptable
Increase in contained combustion emissions in the event of poor combustion	Possible, oxygen trim system & regular maintenance	Low, nuisance unlikely, short duration	2 Acceptable
Localised release of particulate matter during fly ash removal	Possible, ash contained within boiler structure	Low, unlikely to leave boiler, nuisance unlikely	2 Acceptable

The combination of plant maintenance, good management and handling practices coupled with annual emissions monitoring will ensure that the risk of the environmental hazards from actually occurring through unforeseen or uncontrolled emissions remain as low as possible.

5.0 Monitoring emissions

Emissions monitoring will be a combination of continuous visual and olfactory assessment and monitoring. Daily assessments are proposed as follows:

- Visual assessments for emissions from the combustion activities.
- Visual assessments for emissions from the extraction system ductwork.
- Visual assessments for emissions from the extraction system filter.
- Visual assessments for emissions from the fuel silo.
- Olfactory assessments for odours from the combustion activities.

6.0 Environmental management techniques

The Operator proposes to use a combination of site management and plant maintenance techniques to deliver compliance with Environmental Permitting Requirements

6.1 Management

The following management system items are proposed. All are currently in draft, pending the finalisation of site operations and the issue of the environmental permit.

- Weekly environmental log.
- Procedure guides.

The draft documents are included in Appendix 6.

6.2 Operations & maintenance

Good operation and timely planned preventative maintenance systems will be implemented for the boiler, filters and waste extraction systems, these include:

6.2.1 Boiler operations and maintenance

The operations manual for the boiler contains full details of planned preventative maintenance. The manual will be issued by the boiler supplier and will be kept on site as part of the logbook. In summary, onsite maintenance will include:

- De-ashing.
- Tube cleaning.
- Filter ash de-ashing (weekly check).
- Cleaning.
- Lubrication.

A record of any other reactive maintenance will also be recorded. A full service performed by the manufacturer is also recommended as an annual intervention.

6.2.2 Timber activity systems maintenance

The timber activity requires an annual LEV test and inspection in order to confirm satisfactory operation. A copy of the most recent LEV examination is provided in Appendix 2.

Filter bags should be checked as part of this inspection and a record of filter replacement kept. Where the Operator can demonstrate that filter bags are capable of lasting in excess of 4 years, filter

bags will be changed as required. The filter bags on Nabru's installation were last changed in November 2017

Daily inspection of systems will ensure early detection of leaks or other problems.

7.0 Impact on the environment

The potential significant local environmental effects (including nuisance) of the foreseeable emissions have been assessed, taking account of the Best Available Techniques proposed by this application. This assessment specifically excludes unintentional releases detailed in section 4.0 of this permit application.

7.1 Assessment of impacts on the general local environment

The key emissions to consider include:

- Particulate matter from dust extraction systems
- Combustion emissions (particulate matter and NOx)
- Particulate matter (flue gas treatment system maintenance)
- Smoke & odour (nuisance)

7.1.1 Particulate matter from dust extraction systems

Dusty emissions from the filtration system are minimised by implementing regular maintenance including the regular LEV inspections and the daily site inspections. Any dusty emission arising would be highly localised and would not affect any local residents. The installation does not have a history of complaints from dust.

7.1.2 Smoke & odour (nuisance)

Chimney height has been calculated to ensure that emissions including smoke and odour do not cause a nuisance to local residents. The installation does not have a history of complaints from smoke or odour.

7.2 Assessment of impacts on sensitive local environments

No designated site is within 2km of the activity. A map of local SSSIs or European protected sites is enclosed as Appendix 3 by way of confirmation.

Appendices

Appendix 1: MSU 300 Clean Air Act approval

Appendix 2: LEV examination report

Appendix 3: SSSI map

Environmental Operational Procedures

nabru

Self assembly sofas

Introduction:

These operational policies and procedures describe the actions to be taken and the standards to be achieved in order to comply with the requirements of the City of Bradford Metropolitan District Council.

The environmental log sheet is used to demonstrate that we are managing and minimising emissions to atmosphere from our activities. This helps us to demonstrate ongoing compliance with our environmental permit.

1.0 Waste wood shredding

The procedures detail particular actions to be taken or standards to be achieved.

2.0 Weekly environmental log sheet

The items numbers in this procedure correspond with the items numbers in the weekly environmental log sheet as follows:

Not all checks have to be done on the same day, but all of the checks must be completed by the end of the week.

Item 1:	Daily visual checks	**5**
Item 2:	Daily smoke check	**5**
Item 3:	Check for dust from filter plant and ductwork	**6**
Item 4:	Check for dust from silos and shredder	**8**
Item 5:	Check that all site operations are free from visible dust	**9**
Item 6:	Housekeeping	**10**

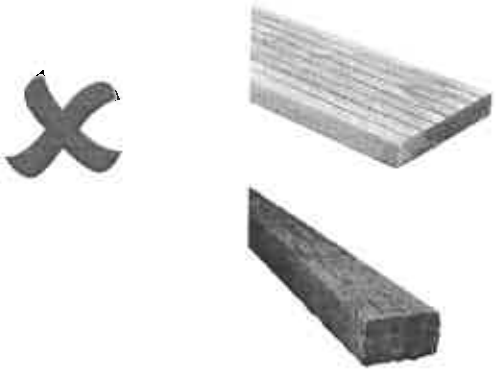
1.0 Waste wood shredding

It is an absolute requirement of our Environmental Permit that we do not burn any waste wood containing halogenated organic compounds or heavy metals as a result of treatment with wood preservatives or coating.

The following illustrations detail the items that should and should not be shredded and burned:

Visibly clean unpainted and untreated wood Untreated Pallets

Clean MDF
Clean chipboard
Clean plywood



Decking
Fence posts
Railway sleepers
Telegraph poles

If in doubt, **do not shred** the waste wood for burning. Separate to skip for off-site disposal. **Do not burn plastics or waste other than wood (no paper or cardboard).**

2.0 Weekly environmental log sheet

Keeping an eye on boiler performance and emissions not only helps us keep on top of maintenance issues before real problems occur, it also helps us to demonstrate ongoing compliance with permit requirements and helps us to defend our position in the event of a complaint being made against us.

A weekly environmental log sheet is in place to help us undertake and record the outcome of various assessments. See the completed example for guidance on how

to fill the record sheet. The checks only take a few minutes, and much of the boiler information required is on the control screen shown below:

The item numbers on the weekly environmental log sheet correspond to the following guidance.

Ranheat Boiler

Item 1: **Daily visual checks**

Ranheat specify the following visual checks to ensure that the boiler is in good operational health:

1. Boiler base
2. Water pressure
3. Flue and water temperature
4. Control panel breakers
5. Control panel alarm messages
6. Unusual smells/noises/pools of water
7. Ash bin

- Record the time the daily checks were undertaken.
- Write your initials to confirm that the checks have been undertaken.
- Note any problems or defects in the 'Abnormal event / breakdown / corrective action' box and notify management of works required.

Item 2: **Observe stack for visible smoke**

Ensure that the boiler is operating and check the chimney for smoke emissions. Outside the premises, stand downwind of the boiler chimney (i.e if you are looking at the chimney, the wind (if any) should be blowing towards your face) and look at the chimney for a few minutes.

- Make a note of the time of the smoke check.
- Record 'None' if the chimney is free from visible smoke.
- Record the colour of the smoke using a Ringelmann chart if you can see smoke from the chimney.

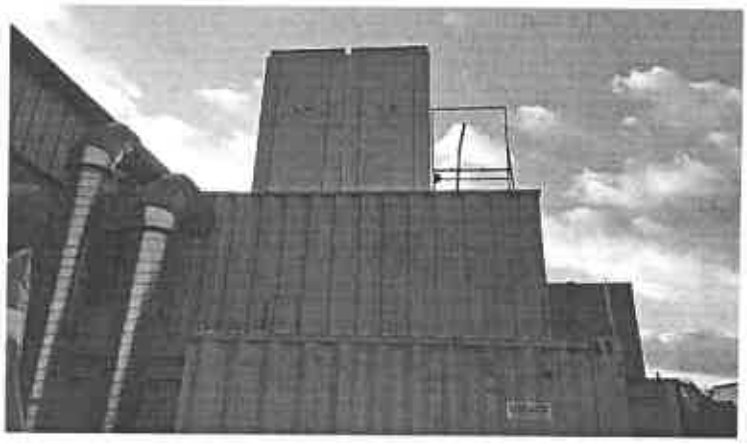
If you can see smoke from the chimney, find out why chimney is smoking and make a note in the 'comments and corrective actions taken' box. The most likely reason for smoke is that the burner is in start-up or shut-down, the fuel feed has been interrupted, and air fan is not working or that something other than wood is being burnt (don't put any plastics into the waste wood system). Also make a note if there is any smoke from a neighbouring site.

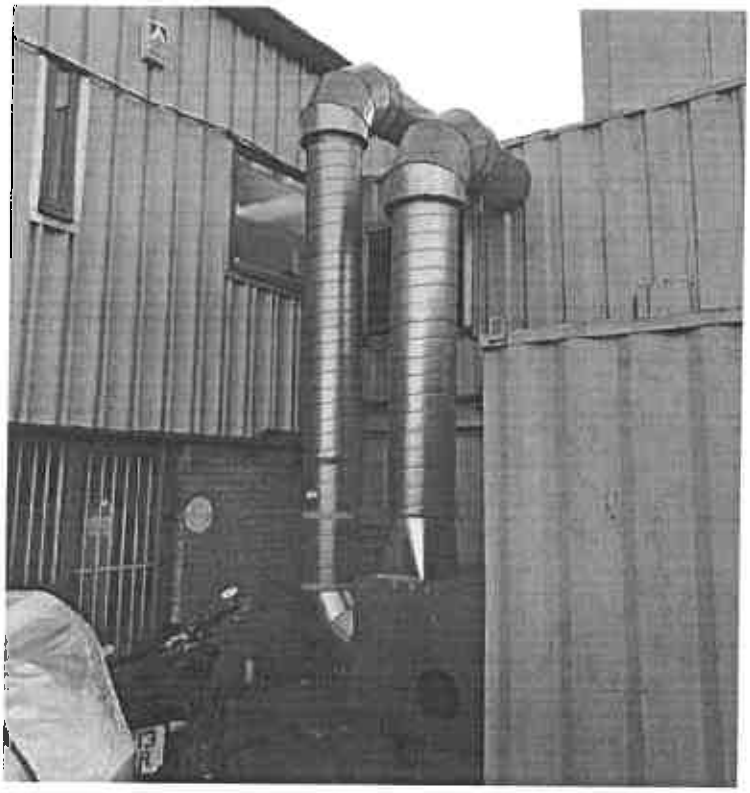
If smoke is seen from the chimney at any other time – make a note of the time the smoke was seen, how dark the smoke is, the cause of the smoke and the action taken to stop the smoke!

Extraction systems and silos

Item 3: **Check for dust from filter plant and ductwork**

Ensure that the extraction system is operating and visually inspect (from ground level) all parts of the ductwork and the filter housing for visible particles of dust in the air or on the ground.





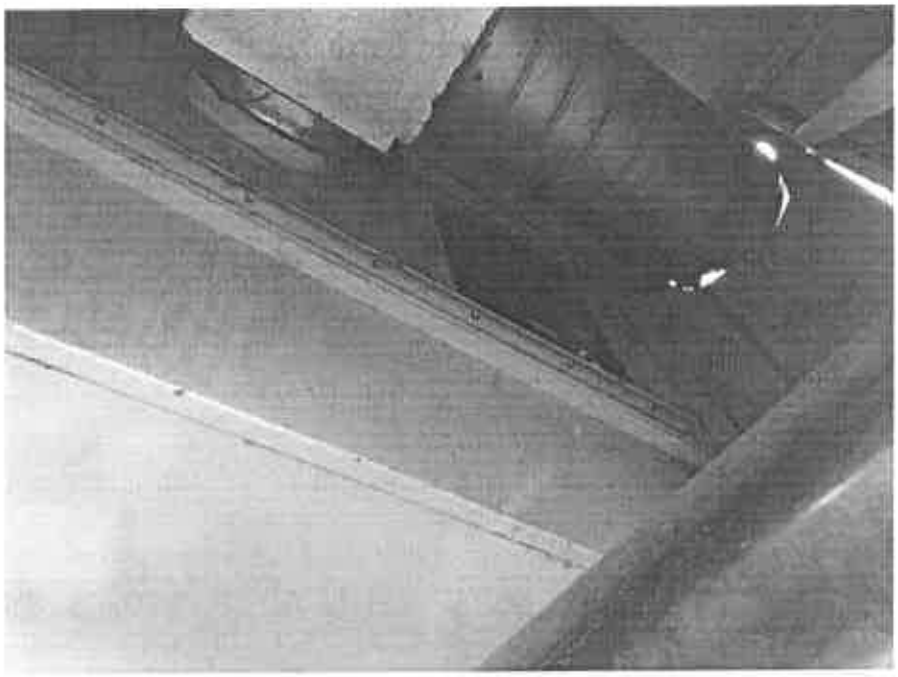
- Record 'None' if all parts of the ductwork and extraction system are free from visible dust.
- Record 'Dust' if any visible dust is noted.
- Note the problems or defects giving rise to the dust release in the 'Abnormal event / breakdown / corrective action' box and notify management of works required.

Ensure that any problems giving rise to dusty releases are reported to management immediately.

- Note the action taken to resolve the dust release in the 'Abnormal event / breakdown / corrective action' box and record the date that action was taken

Item 4: **Check for dust from silos and shredder**

Ensure that the extraction systems and shredder are operating and visually inspect (from ground level) all parts of the ductwork and the silos for visible particles of dust in the air or on the ground.



- Record 'None' if all parts of the ductwork, silos and shredder are free from visible dust.
- Record 'Dust' if any visible dust is noted.
- Note the problems or defects giving rise to the dust release in the 'Abnormal event / breakdown / corrective action' box and notify management of works required.

Ensure that any problems giving rise to dusty releases are reported to management immediately.

- Note the action taken to resolve the dust release in the 'Abnormal event / breakdown / corrective action' box and record the date that action was taken

Item 5: **Check that all site operations are free from visible dust**

This is a 'catch all' check to ensure that all site operations are not causing dusty emissions. The aim is no visible emissions from any part of the buildings, vents and chimneys.

The requirement is to check at the start of the working day, and on two further occasions after that

- Make a note of the time of each check.
- Record '✓' if the whole site is free from visible dust.
- Record '×' if dusty emissions are noted
- Note the problems or defects giving rise to the dust release in the 'Abnormal event / breakdown / corrective action' box and notify management of works required.

Ensure that any problems giving rise to dusty releases are reported to management immediately.

- Note the action taken to resolve the dust release in the 'Abnormal event / breakdown / corrective action' box and record the date that action was taken

Item 6: **Housekeeping**

Great housekeeping not only shows that we take a pride in our workplace, it also helps us to quickly identify any problems that might give rise to an environmental issue, because issues are easy to spot. New dust leaks will be more obvious.

Potential problem areas for housekeeping are as follows:

- Underneath filter units.
- Around extraction system ductwork
- Around the silos.
- Around the shredder

RanHeat

Daily Boiler Inspection

1. **Boiler base**
   A. Check fire in retort
   B. Check arch bricks
   C. Check ash level

2. **Check water pressure**

3. **Check flue and water temperatures**

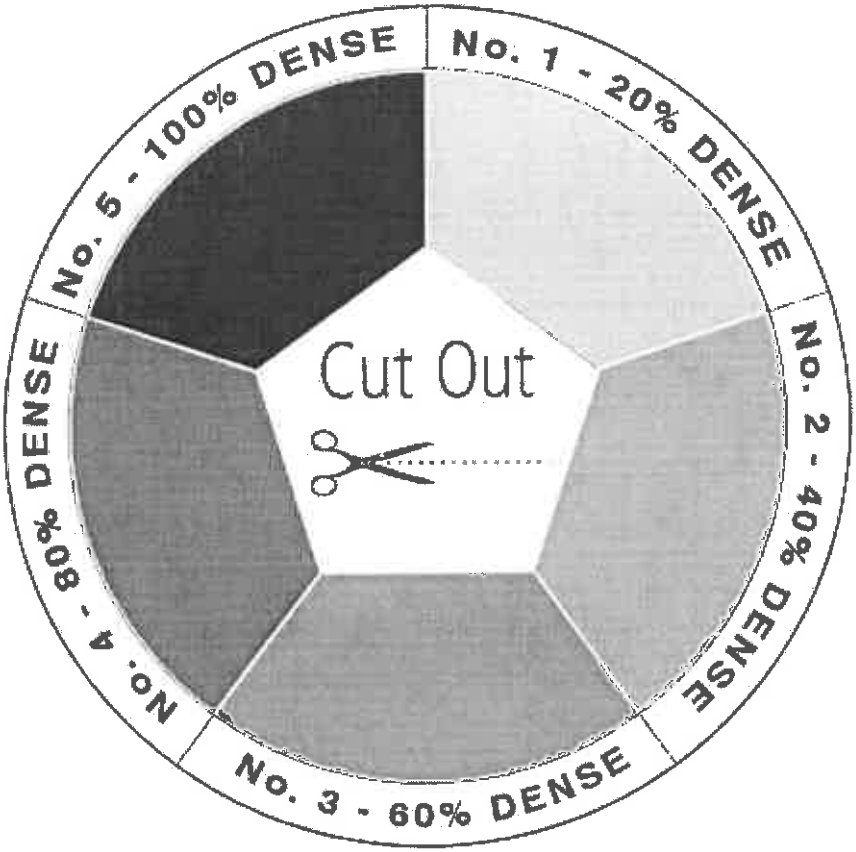
4. **Check all breakers in control panel**

5. **Check alarm messages on the control panel**

6. **Check for unusual smells/noises or pools of water**

All of these checks are visual and should take around 5 minutes to complete

Ringelmann smoke chart



Sheet Number: _____

Week Commencing: _____

Weekly Environmental Log Sheet

nabru

Item	Rapheat boiler	Mon	Tue	Wed	Thur	Fri	Sat	Sun
1	Daily visual checks: ▸ Boiler base ▸ Water pressure ▸ Flue and water temperature ▸ Control panel breakers ▸ Control panel alarm messages ▸ Unusual smells/noises/pools of water ▸ Ash bin	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:
2	Observe stack for visible smoke and record the result (record the time and the outcome): ▸ Start-up smoke check (only if boiler lit today) ▸ Daily check 1 ▸ Daily check 2	Start-up: Check 1: Check 2:	Start-up: Check 1: Check 2:	Start-up: Check 1: Check 2:	Start-up: Check 1: Check 2:	Start-up: Check 1: Check 2:	Start-up: Check 1: Check 2:	Start-up: Check 1: Check 2:
Item	Extraction systems & silos	Mon	Tue	Wed	Thur	Fri	Sat	Sun
3	Check for dust from filter plant and ductwork							
4	Check for dust from silos and shredder							
5	Observe whole site for visible dust (record the time and the outcome): ▸ Start-up dust check ▸ Daily check 1 ▸ Daily check 2	Start-up: Check 1: Check 2:	Start-up: Check 1: Check 2:	Start-up: Check 1: Check 2:	Start-up: Check 1: Check 2:	Start-up: Check 1: Check 2:	Start-up: Check 1: Check 2:	Start-up: Check 1: Check 2:
6	Housekeeping							

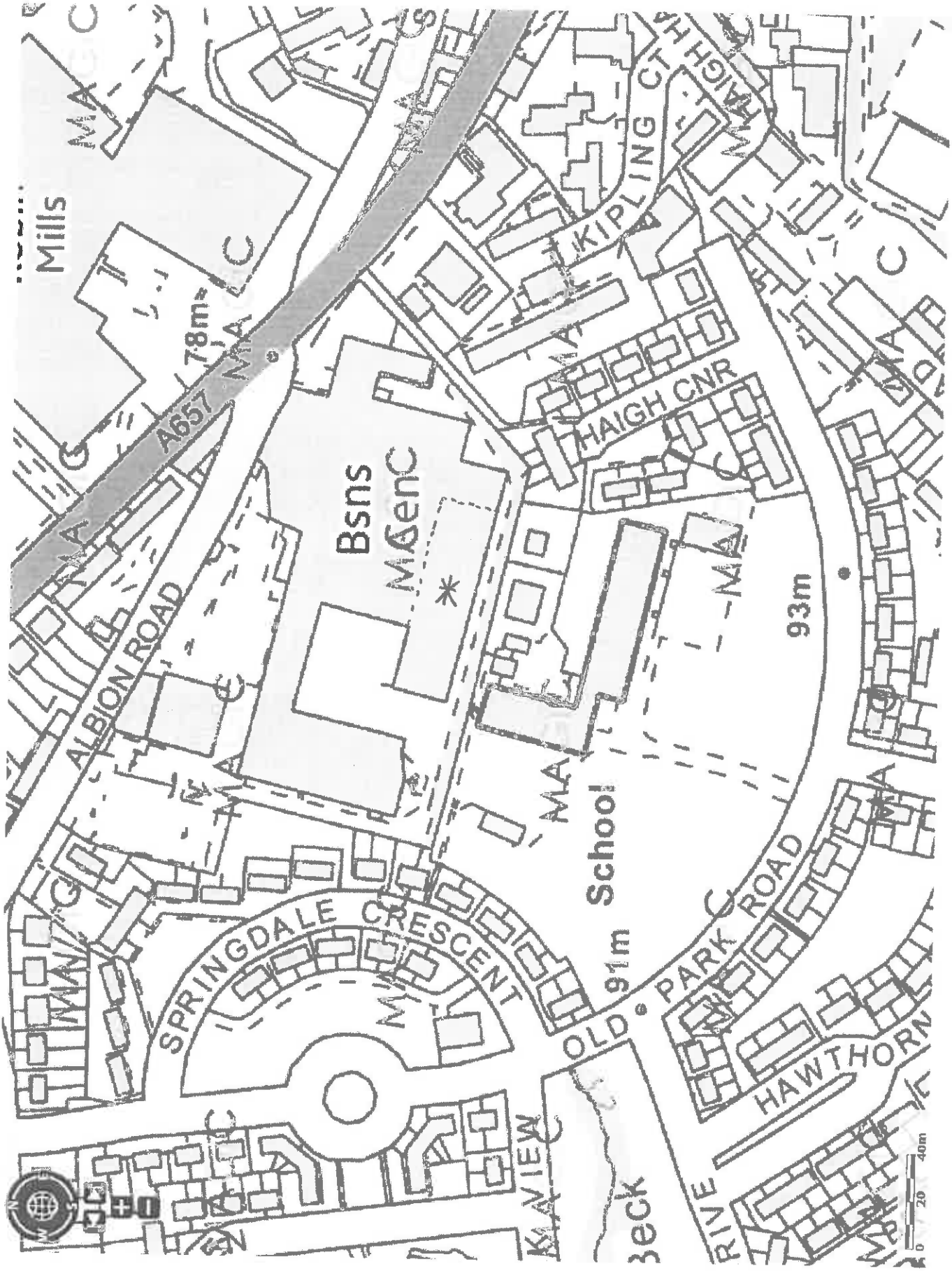
Abnormal event / breakdown / corrective action	Actioned by	Date actioned

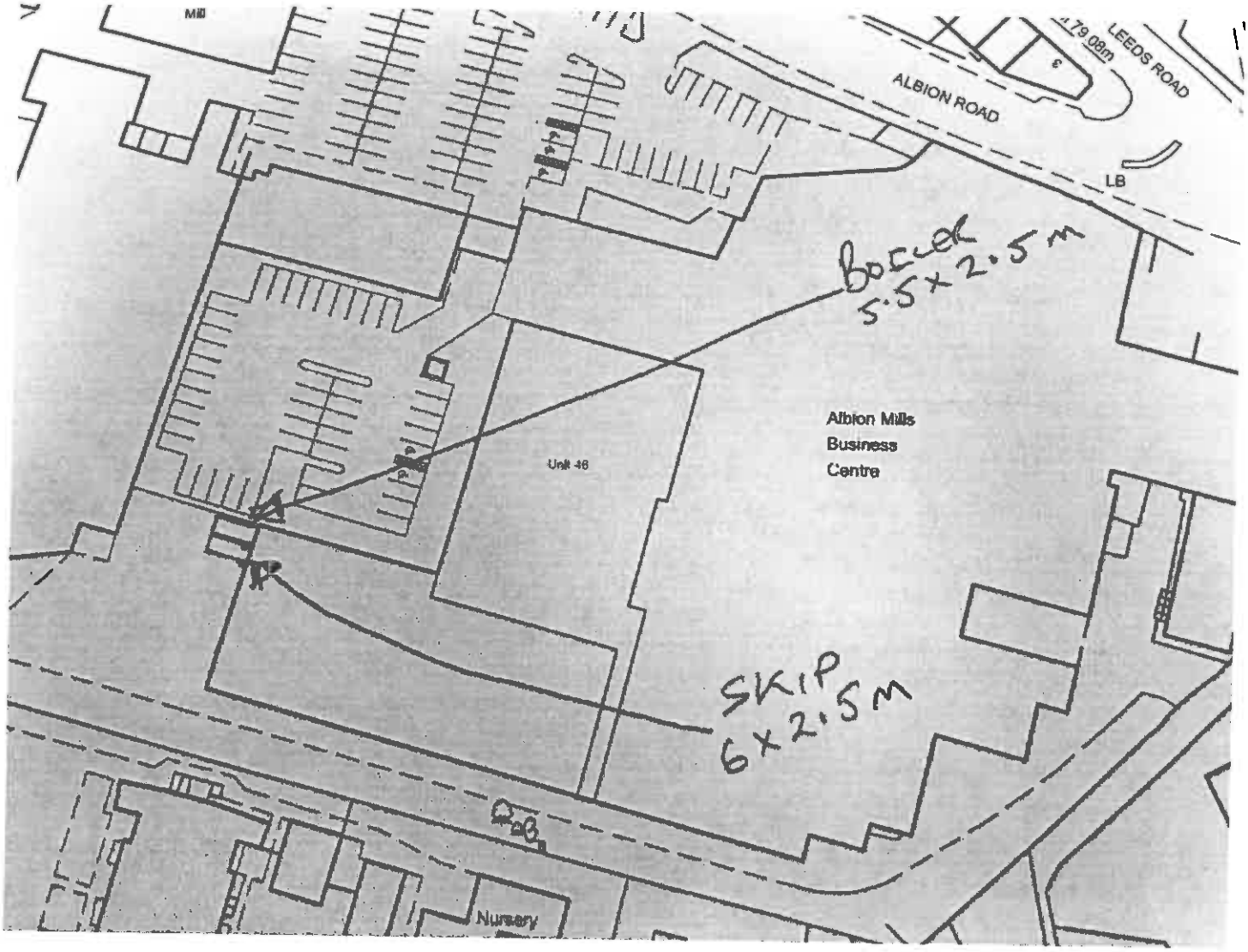
Abnormal event / breakdown / corrective action	Actioned by	Date actioned

Notes:

Management Sign off	
Signed:	Dated:

LOCATION OF UNIT 46A AND BOILER




MB
179.08m
LEEDS ROAD
ALBION ROAD
LB
BOILER 5.5 x 2.5 m
Albion Mills Business Centre
Unit 46
SKIP 6 x 2.5 m
Nursery

APPENDIX 1

Department for Environment, Food & Rural Affairs

Exempt Appliances

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The information provided here in respect of England and Scotland only, however, constitutes the publication of lists of exemptions and approvals required by statute. Nothing in this disclaimer shall operate to exclude or restrict our liability where such exclusion or restriction would not be permitted by law.

The appliances listed below are exempt in the relevant country or countries when using the specified fuel(s), when operated in accordance with the instruction and installation manuals and when any conditions are met.

Footnotes

1. The fuel must not contain halogenated organic compounds or heavy metals as a result of treatment with wood-preservatives or coatings.
2. The conditions of exemption have been amended to remove references to fuels which are either no longer available or which cannot be used without contravening the Environmental Permitting (England and Wales) Regulations 2010 (S.I. 2010/675).
3. The Environmental Permitting Regulations (England and Wales) 2010 (SI 2010/675) may apply to the burning of some of these wastes.
4. Previously exempted by The Smoke Control Areas (Exempted Fireplaces) (England) Order 2015 (SI 2015/307), no longer in force as of 1 October 2015. Now exempted by publication of this list by the Secretary of State in accordance with changes made to sections 20 and 21 of the Clean Air Act 1993 by section 15 of the Deregulation Act 2015.
5. Exempted for use in England by publication of this list by the Secretary of State in accordance with changes made to sections 20 and 21 of the Clean Air Act 1993 by section 15 of the Deregulation Act 2015.
6. Previously exempted by The Smoke Control Areas (Exempted Fireplaces) (Scotland) Regulations 2014 (SI 2014/316), no longer in force as of 30th June 2014. Now exempted by publication of this list by Scottish Ministers under section 50 of the Regulatory Reform (Scotland) Act 2014.
7. Exempted for use in Scotland by publication of this list by Scottish Ministers under section 50 of the Regulatory Reform (Scotland) Act 2014.

RanHeat appliances, models MSU150, MSU300, MSU500, WA150, WA300 and WA500,

Output: n/a
Fuel Type: Wood based
Appliance Type: Air Heater
Manufacturer: RanHeat Engineering Limited

The fireplace must be installed, maintained and operated in accordance with the following specifications:
Instruction manual title: See conditions if applicable
Instruction manual date: See conditions if applicable
Instruction manual reference: See conditions if applicable
Installation manual title: See conditions if applicable
Installation manual date: See conditions if applicable
Installation manual reference: See conditions if applicable
Additional conditions: Models MSU150, MSU300 and MSU500 instructions dated July 1994, reference: MSU150/500 1994. Models WA150, WA300 and WA500 instructions dated July 1994, reference: WA150/500 1994.
Permitted fuels: Chipboard, fibreboard, wood offcuts, softwood shavings or hardwood shavings[1] [2]
Date first authorised: Previously exempted by The Smoke Control Areas (Exempted Fireplaces) (England) Order 2015 (SI 2015/307), no longer in force as of 1 October 2015. Now exempted by publication of this list by the Secretary of State in accordance with changes made to sections 20 and 21 of the Clean Air Act 1993 by section 15 of the Deregulation Act 2015.
England Status: Exempt (Footnote 4)
Wales Status: Exempt (SI 1996 No.1108)
Scotland Status: Exempt (Footnote 6)
N. Ireland Status: Exempt (SR 2013 No. 292)

APPENDIX 2

ducting express ltd

Local Exhaust Ventilation
Thorough Examination & Test Report

Nabru Ltd

Uxbridge

Unit 7
Salisbury Road
UB8 2RZ

March 2018

LEV System Reference: 11517-001

Report Number:12920(re-test)

Test Engineer: Andrew Marsh

Signed: Andy Marsh

British Occupational Hygiene Society Certified P601
Andy Marsh Certificate No 20120920-10101-536

Ducting Express Services Ltd, Trade House, Claymill Road, Thurmaston, LE4 9JJ.
Tel +44(0)1455 616444, Fax +44(0)1455 616442, info@ducting-express.co.uk, www.ducting-express.co.uk

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Introduction:

Ducting Express Services Ltd were commissioned by Andrew Illingworth of Nabru Ltd to conduct the thorough examination and testing of the Local Exhaust Ventilation system(s) as laid out in the report shown on the following page. The work was carried out as a direct result of, and in accordance with the Control of Substances Hazardous to Health (COSHH) Regulations 2002 (as amended) and as per guidelines detailed in HSG258 Controlling airborne contaminants at work; A guide to local exhaust ventilation (LEV). All testing is carried out in line with the latest HSE guidance, COSHH/HSG258 and by P601 accredited testers or equivalent competent person.

COSHH regulations 9 (2) requires that all control measures are given a thorough examination and test at suitable intervals. For most types of LEV systems the tests should be carried out at a maximum interval period of 14 months, however, in practice this is usually taken to mean annually. You should also be aware that many other factors could determine that the testing should be carried out on a more frequent basis. These factors include, but are not limited to, process, wear and tear, degradation and cleaned air being fed back in to the working area (return air system).

This report must be retained and saved in accordance with the COSHH Regulations for a minimum of 5 years by the site employer. Your attention is drawn to the requirements of HSG 258 - section 9. It is recommended that a user manual logbook is maintained. We trust that you will find this report comprehensive, but should you have any queries, please do not hesitate to contact us on 01455 616444.

Tables below provide indicative values of performance levels related to LEV systems as per recommended guidance HSG 258.

Capture velocity is the velocity required at a contaminant source to overcome the movement of the contaminant cloud and draw it into the hood. Please see our recommended minimum capture velocities quoted below.

Contaminant cloud release	Example of process	Capture velocity range, m/s
Into still air with little or no energy	Evaporation, mist from electroplating tanks.	0.25 to 0.5
Into fairly still air with low energy	Welding, soldering, liquid transfer.	0.5 to 1.0
Into moving air with moderate energy	Crushing, spraying.	1.0 to 2.5
Into turbulent air with high energy*	Cutting, abrasive blasting, grinding.	2.5 to > 10

* These types of cloud are difficult to control using capturing hoods.

The air velocity through the duct must be high enough to keep particles suspended in the air stream. The required transport velocity depends on the type of contaminant being conveyed. Please see our recommended minimum duct velocities below.

Type of contaminant	Indicative duct velocity, m/s
Gases and non-condensing vapours	5
Condensing vapours, fume and smoke	10
Low or medium density, low moisture content dusts (plastic dust, sawdust), fine dusts & mists	15
Process dust (cement dust, brick dust, wood shavings, grinding dust)	≈20
Large particles, aggregating and damp dusts (metal turnings, moist cement dust, compost)	≈25

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Summary Overview:

On this occasion a previous report was not made available to us and the details contained within the report have been used as a benchmark by us. Original design or commissioning data was not made available to us. In all other cases, comparisons were made with theoretical design figures and good working practices.

The level of control achieved by any system depends on a number of factors, such as the hazardous nature of the substance used, the risks presented by their use, the duration of exposure, work practice and the availability of personal protective equipment. Consequently, the comments made in this report should be interpreted in conjunction with any assessment of risk performed in accordance with COSHH Regulation 6 and other related assessments.

Considering the above, the detail of all the measurements taken can be found in the report along with the technical information collected on each system. An outline of the more significant points are on the General Summary page.

LEV System Evaluation:

LEV Ref	Description/System Name	Location	Action Required/ Advised
11517-001	Wood dust extraction	Factory floor	Satisfactory

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Test Report

LEV Reference	11517-001
System description	Wood dust extraction
Date of previous TEST	23.11.2017
Date of latest TEST	23.03.2018
Due date for next TEST	March 2019
Location	Factory floor
Process/substance source	Wood cutting
Control effectiveness	SATISFACTORY
Hazard to be controlled	Wood dust
Operators usage	Acceptable
Operating conditions	Operational
Instruments used	Manometer & pitot tube AM Ref 1
	Smoke tester AM
Calibration Notes	All calibration records are kept at our head office in both hard and soft copies and are available on request
Customer LEV logbook completed?	Yes
Modifications made to system?	N/a First visit
Recommendations	None

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Equipment Details

Filter/Air Cleaner	Filter 1	Filter 2
Make	S & D Extractor	n/a
Model	Unknown	n/a
Type	Shaker	n/a
Serial Number	Unknown	n/a
Filter media type	PNF socks	n/a
Filter cleaning mechanism	Shaker	n/a
Explosion relief vent	n/a	n/a
Pressure drop (Pa)	n/a	n/a
Inlet static pressure (Pa)	n/a	n/a
Outlet static pressure (Pa)	n/a	n/a
Satisfactory	Yes	n/a
Comments	None	n/a

Ducting			
Type/Description		Galvanised spiral/flex	
Recommended Capture Velocity (m/s)	1.00	Recommended Duct Velocity (m/s)	15.00
Are the ductwork/hoods etc in a satisfactory condition?		See report	
Damper settings		open or closed	
Stack height & termination		At filter	
Return air fitted? Position?*		n/a	
Satisfactory		Yes	
Comments		None	

* If a return air facility is in use then we advise that the frequency of testing should be at least once every 6 months

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Equipment Details

Fan(S)

Detail	Fan 1	Fan 2
Type	Centrifugal	n/a
Supplier	S & D Extractor	n/a
Serial number	Unknown	n/a
Fan speed (rpm)	Unknown	n/a
Drive type	Unknown	n/a
Fan Status	Operational	n/a
Rotation (from drive side)	Unknown	n/a
Motor speed (rpm)	Unknown	n/a
Motor power (kW)	Unknown	n/a
Motor voltage (V)	415	n/a
Motor full load current (A)	Unknown	n/a
Satisfactory	Yes	n/a
Comments	See report	n/a

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General Summary of LEV System

Hazard to be controlled	Wood dust
Sources	Wood cutting
WEL (if known) mg/m³ 8hr TWA	5
Is the system used correctly? (Advise where necessary)	Yes
Is the system in good condition?	Yes
Is the system clean?	Yes
Air quality testing carried out?	No - advised next visit
Repairs undertaken during inspection?	No
Is the control adequate under regulation 7 of the C.O.S.H.H. 2002 regulations	Yes

Further comments

From the test results, the dust collector and fan are confirmed as suitable for intended application.
Ducting Express Services opinion is that the levels of wood dust emanating from area will not exceed TLV's regulated by the HSE, especially considering PPE regulations in place on site. Extraction from the externally located fan/filter is efficient and as such operators are at no risk in terms of dust inhalation. Therefore no Environmental Air Monitoring is required in our opinion for confirmation of compliance with regulatory workplace exposure limits.. No details of the fan could be taken due to it being within a sealed booth.Before this test was carried out the filters were changed.Vac points do not form part of the LEV.

Log book required to conform to H&S Guidance note 258, section 9.

The LEV system has therefore provided PASS in terms of relevant COSHH regulation and is Satisfactory in its present condition at the time of testing.

Action Required:	**No**
Quotation to be provided by Ducting Express Services Ltd:	**No**

To be completed by the LEV owner after rectification work is completed and entered in the logbook to system (if appropriate).

ACTION TAKEN:.....

.....

WORK CARRIED OUT BY:.....

.....

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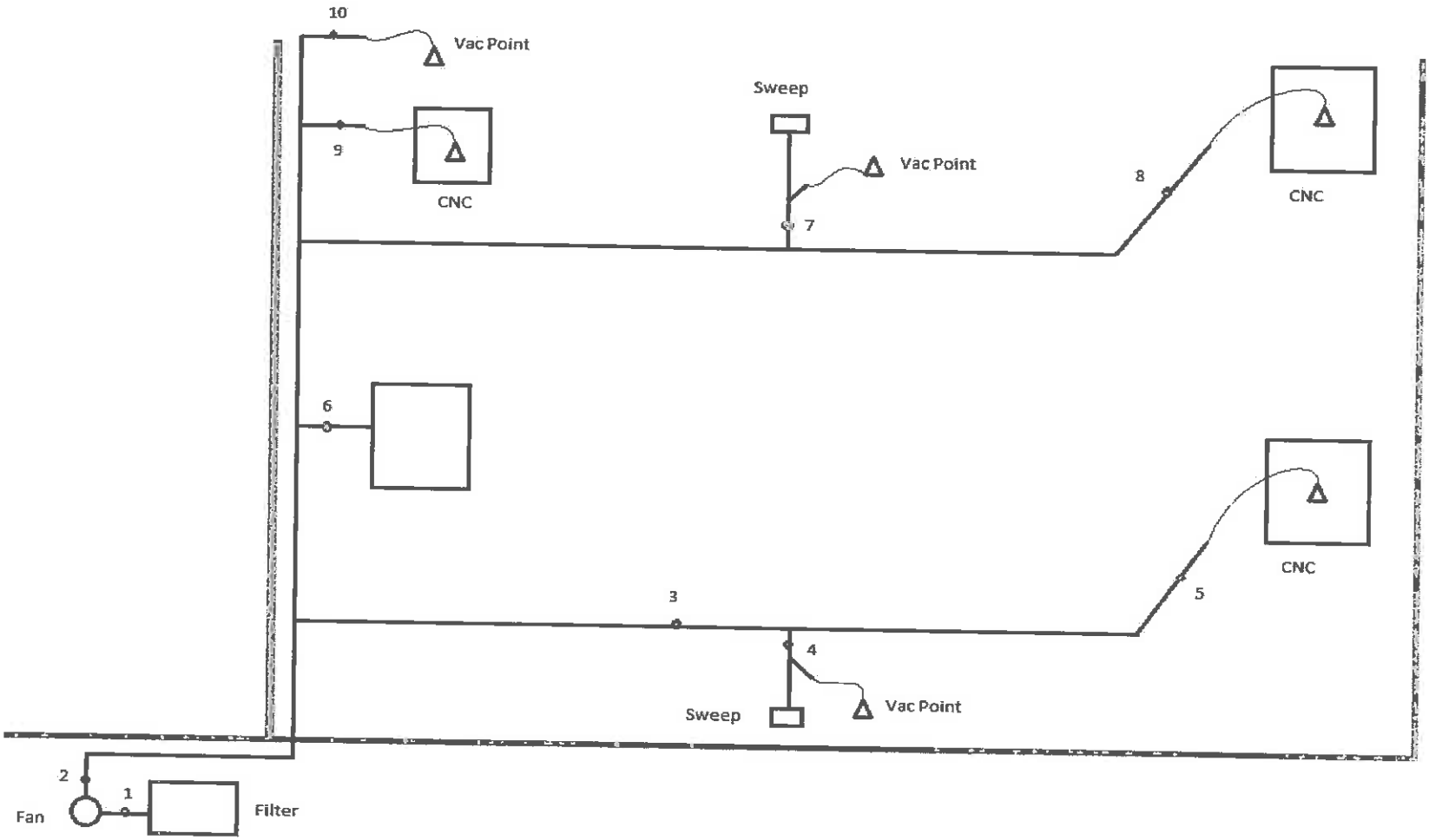
Reference Sheet

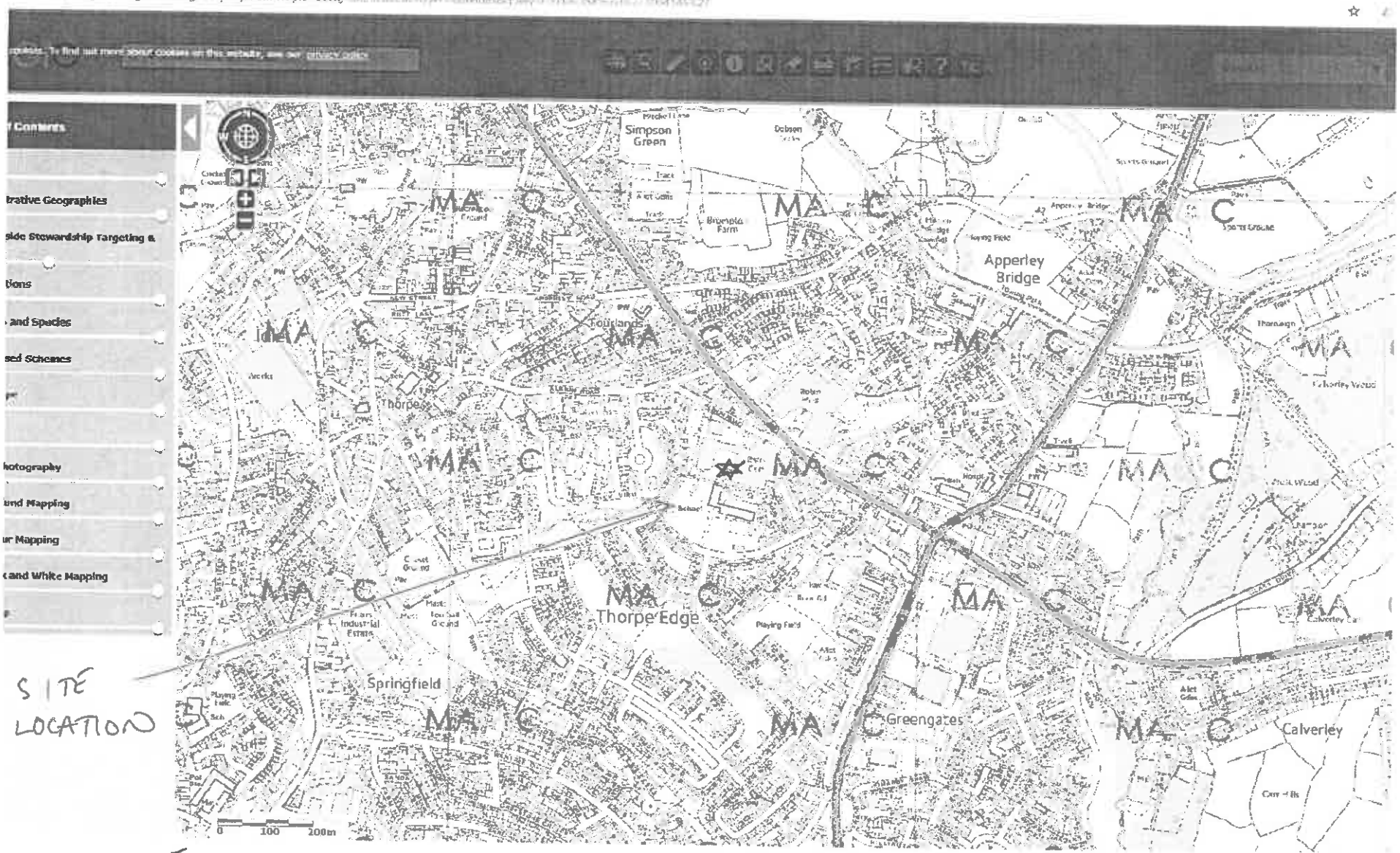
System Reference Number		11517-001						
		Circular Ducting						
Test Point no.	Reference	Duct dia (mm)	Area (m^2)	SP (Pa)	VP (Pa)	Conv. Vel (m/s)	Vol (m^3/hr)	Satisfactory
1	Test point 1	455	0.163	480.00	194	17.97	10517.34	Yes
2	Test point 2	455	0.163	1,320.00	189	17.73	10380.92	Yes
3	Test point 3	150	0.018	912.00	168	16.72	1063.70	Yes
4	Test point 4	150	0.018	856.00	220	19.13	1217.24	Yes
5	Test point 5	150	0.018	843.00	200	18.24	1160.59	Yes
6	Test point 6	200	0.031	769.00	255	20.60	2329.77	Yes
7	Test point 7	150	0.018	915.00	390	25.48	1620.68	Yes
8	Test point 8	150	0.018	938.00	148	15.69	998.38	Yes
9	Test point 9	150	0.018	1,058.00	214	18.87	1200.53	Yes
10	Test point 10	150	0.018	1,010.00	150	15.80	1005.10	Yes

Summary:- . Airflows recorded now within guidelines.



Ducting Express Services Ltd 7 Claymill Road Thurmaston Leicester LE4 9JJ	**Nabru Ltd** Unit 7 Sarum Complex Salisbury Road Uxbridge, UB8 2RZ	**LEV 11517-001**

NO SITES OF SSSI WITHIN 2KM.



APPENDIX 3