Frank H. Dale Ltd

# Application for Part B Environmental Permit Frank H. Dale Limited



FRANK H DALE LIMITED
Mill Street
Leominster
Herefordshire
HR6 8EF

Tel: 01568 612212

Protecting the Employee

Protecting the Company

Developing the Business

**Frank H. Dale Limited**

## Contents

**Frank H. Dale Limited**

## 1. Introduction and Site Plans

Frank H Dale Limited are in the planning stages of returning a portion of its steel fabrication process to its Mill Street factory. The facility occupies 100,000 square feet.

As part of this process, it is the intention of Frank H. Dale Limited to utilise the facility to apply an Intumescent coating to the already primed steelwork it fabricates at its Owen Way facility. In order to safeguard the health of the workforce the paint shop, where this process is carried out, is fitted with an extraction system which captures and releases VOCs emitted from the coating to atmosphere via a stack mounted on the roof of the facility.

Frank H. Dale Limited believes there will be a significant increase in the clients specifying factory applied intumescent coatings and as a result of the drying times involved, there is a potential for the Owen Way facility to become congested. As a result of this, it is the intension to use Mill Street specifically for this purpose and due to predicted volumes, it is believed that the organisation will see VOC emissions in excess of the consumption limit.

The approximate location of the stack is highlighted by the red circle in the map below:

**Figure 1 Site Location**

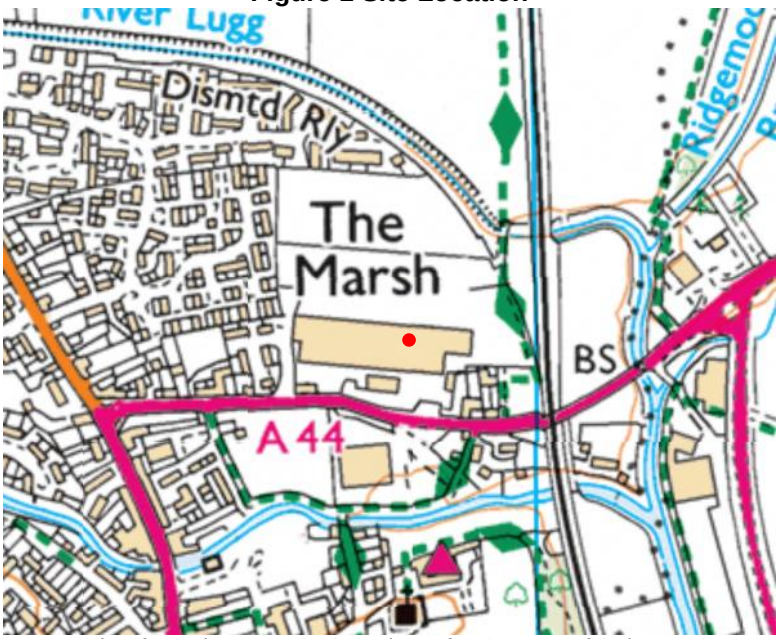


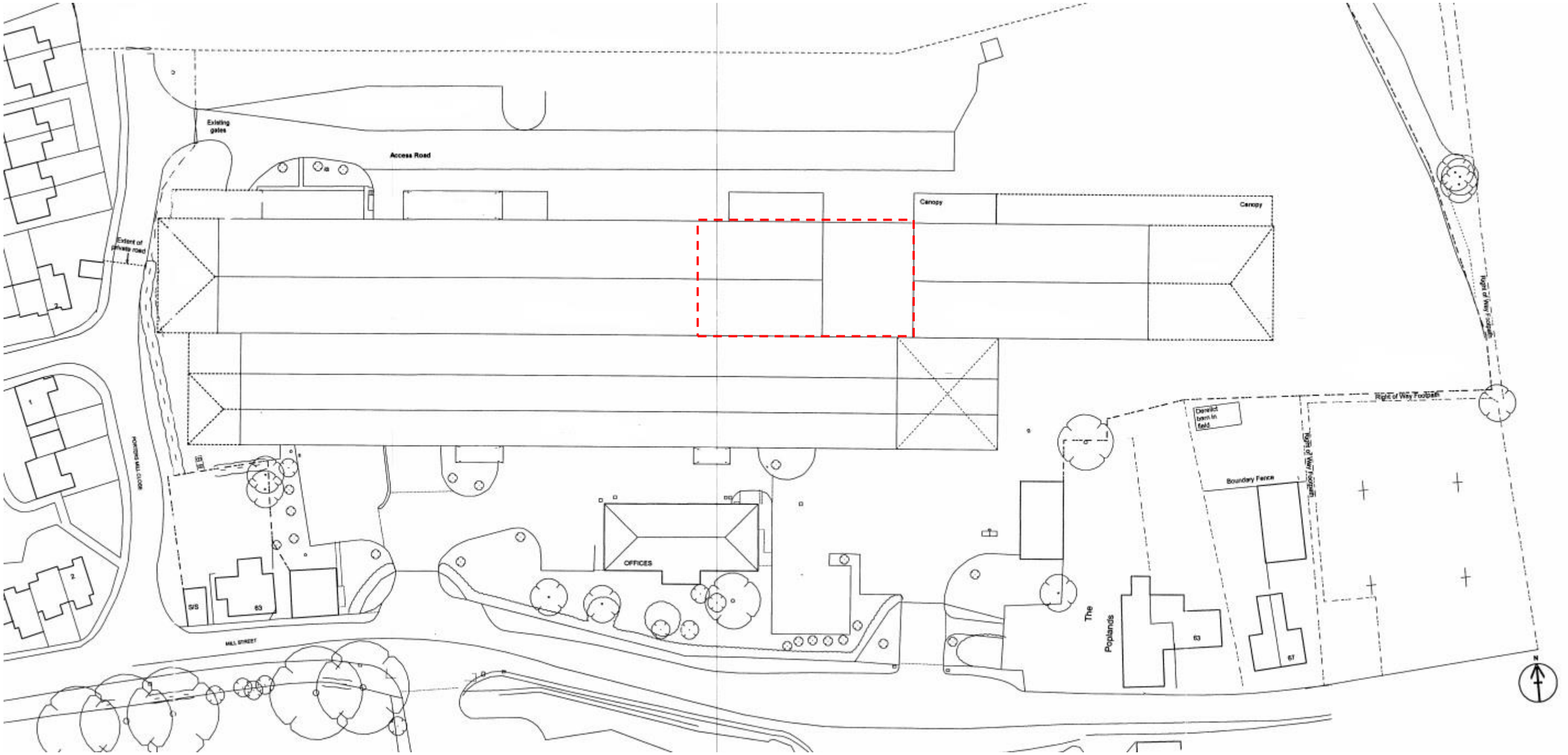

Image taken from Bing Maps © 2019 Microsoft – Courtesy of Ordnance Survey

Aerial Photography *(Figure 2)* shows the location of the stack which is marked “Point B”. The facility is located on the outskirts of the Leominster Town approximately 0.5 km North of the City Centre. It is surrounded by residential housing to the North West and West, further businesses to the South and farmland to the East. The River Lugg which is a SSSI is located approximately 150m North of the facility. The new town Doctors Surgery is located on land to the rear of the building, however this is still currently under construction.

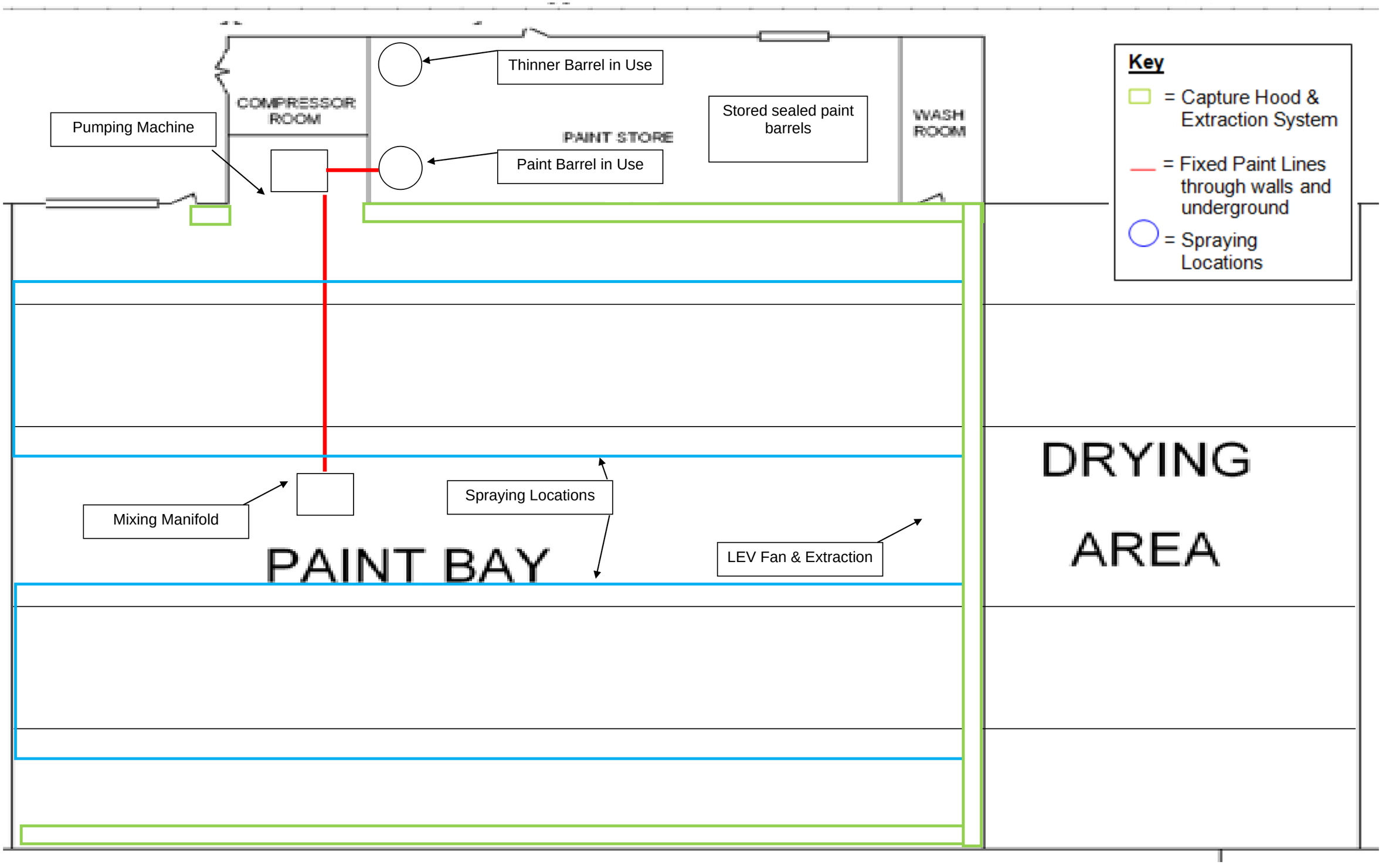
**Figure 2 Aerial Image**

## 2. Site Layout

### 2.1. Layout of Activities



## 2.2. Layout of Paint Room



## 3. Details of the Installation

Frank H. Dale Limited surrendered its previously held permit to apply coatings for its Mill Street facility in November 2022 when it mothballed the site as part of its move to its new facility on Owen Way. Since it took this action, there has been an increase in the number of clients seeking factory applied intumescent coating of structural steelwork which to date FHD has undertaken in limited quantities. Moving forward, the organisation intends to reopen its Mill Street facility to carry out this coating activity on its fabricated and primed steelwork from its Owen Way Site before it is dispatched to its construction sites. As part of this process and forecast of future work, it believes it will likely exceed the consumption limit in the future and will therefore require a permit for the activity.

The painting process is carried out in accordance with EN ISO 12944-7, using a solvent containing paint. The paint is delivered to the facility in sealed 200 litres barrels where they are offloaded and moved into the paint store. The paint store is fitted with a bund which is capable of holding 110% of the largest container which is stored in this area.

The barrels are fitted onto a pumping system which pump and stir the supplied intumescent coating through to a mixing manifold located in the centre of the paint spraying shop.

Painting is carried out by hand spraying application in an established format which minimises overspray. Difficult or hard to reach areas will be coated using a brush or roller.

Once applied the steel is moved into a drying area where the paint is allowed to dry, in line with manufacturers recommendations, before it is transferred to the opposite bogie line and moved back into the paint shop where a top / sealer coat is applied to protect the intumescent paint from damage and the weather. Following this application, the bogie is moved into a final drying area where the sealer / top coat is allowed to dry in line with manufacturers recommendations and once sufficiently cured / dried, will be moved into the loading bay for loading on to trailer for transportation to site.

At the end of the working day, if a fault occurs with the system or if a change of paint colour is required, then the paint lines will be cleaned with paint thinners. Lines are flushed through until the thinners run clear and spray guns and other associated application equipment is washed using an automated bath which captures waste thinners for recycling.

Paint barrels, contaminated kiln dried sand, contaminated paint suits, rags and waste paint and thinners are all disposed of as hazardous waste.

Frank H. Dale Limited is predicted to have a VOC consumption rate over the annual consumption rate of 5 tonnes and therefore will require a permit to carry out this coating process.

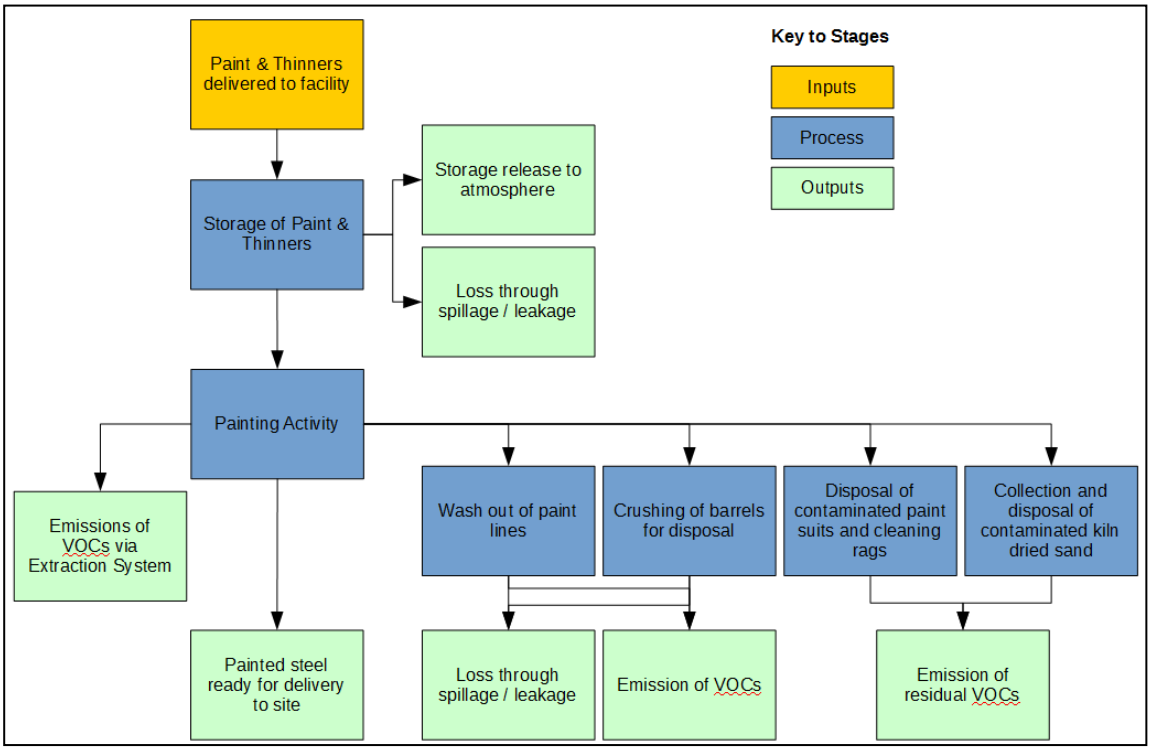
### 3.1. Activities Associated with the Painting Process

The principal activities associated with the painting process are as follows:

- Application of paint by manual spraying process
- Delivery and return of paint and thinners in 200 litre barrels for storage in the paint store
- Cleaning of equipment at the end of the process with the use of thinners flushed through the lines and returned to the supplier for recycling
- Crushing and disposal of used paint barrels
- Disposal of used paint suits and contaminated rags as hazardous waste
- Collection and disposal of kiln dried sand contaminated with paint overspray
- Emission of VOCs through stack via extraction system

The flow diagram below outlines the keys process involved with the application of paint to steel:

**Figure 4 Process Flow**

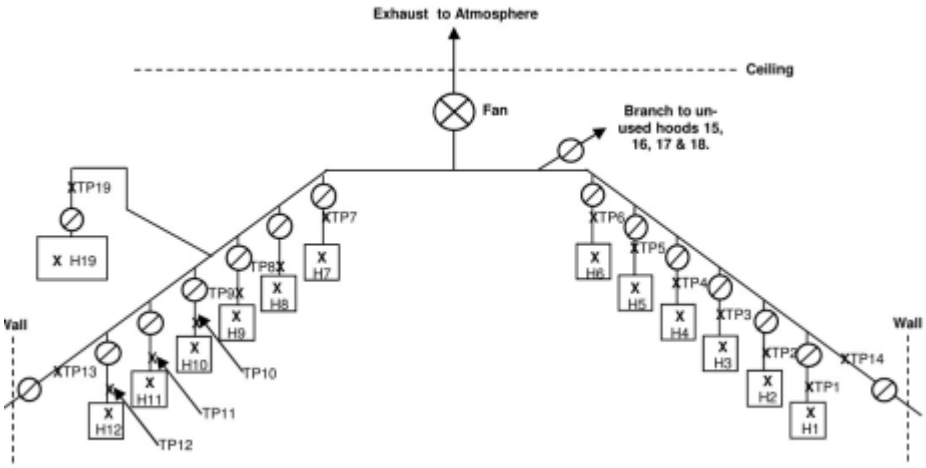



The main source of release to atmosphere is from the extraction system which is installed to protect the health of the employees working within the paint shop. This system has been in place for a number of years with thorough examinations being undertaken every 14 months in line with legislative requirements. This was last inspected on 18th February 2025 where the system was operating in accordance with its design and the recommended capture velocities.

Each capture hood is fitted with a particulate filter which captures any large particulates before they can enter the system. Emissions from the stack are colorless and the outlet is sufficiently sized to allow for dissipation of VOCs therefore reducing any potential for odour.

A diagram of the extraction system can be found below and a copy of the latest Thorough Examination can be found at Appendix 2.

**Figure 5 Paint Shop Extraction Line Drawing**



## 3.2. Delivery, Storage and Handling

Paint and thinners are delivered on a just in time basis as a means of reducing the stock stored at any one time. These products are delivered on the back of a curtain sided lorry in 200 litre barrels on pallets. Pallets are shrunk wrapped before being delivered to Frank H. Dale Limited to ensure stability of the products during transit.

On arrival, a trained Frank H. Dale Limited employee unloads the pallets with the use of a fork lift truck or side loader and transports them into the paint store. The paint store is made up of a concrete floor with a channel cut out around the external edge leading to an external bund. The capacity of this bund exceeds 110% of the largest container stored within this area.

Employees manoeuvre paint barrels around with the use of hydraulic barrel trolleys, manual barrel trolleys and overhead cranes fitted with barrel clamps.

## 3.3. Monitoring

Frank H. Dale Limited will comply with the solvent reduction scheme and demonstrate annually by calculation that the mass emission of VOC to atmosphere is less than or equal to the Target Emission. The target emission being the mass of all solid coating materials multiplied by a factor to give the maximum allowable VOC emissions.

Frank H. Dale Limited has predicted their annual solvent consumption by July 2025 to be around 10.17 tonnes resulting in a target emission of total mass of solids x 0.6.

Along with the above, a daily olfactory assessment will be made for odour emissions from the installation while the process is operating a full capacity or as close to this as can be reasonably achieved. The assessment will be made at the installation boundary and take into account the wind direction that day.

Frank H. Dale Limited conducts air quality monitoring every 14 months to ensure that the employees working in these areas are not being exposed above the workplace exposure limited (WEL) as set out in EH40. This test is due to be undertaken once the facility re-opens to ensure that controls are sufficient in keeping employees exposure below the WEL.

## 4. Environmental Risks and their Controls

Frank H. Dale Limited have established procedures for dealing with unintended release of substances which are supported by suitable assessments for the location where the process is being carried out as well as Safe Systems of Work for dealing with the release. The key significant environmental risks associated with the activity and the implemented controls can be found in Table 1 below:

**Table 1 Significant Environmental Risks and Controls**

| Environmental Risk | Controls |
|---|---|
| Release of VOCs to atmosphere | - Reduction scheme in place<br>- LEV extraction system fitted with particulate filters<br>- Good housekeeping practices<br>- Correct disposal of contaminated equipment<br>- Containers stored with sealed lids<br>- Daily olfactory inspection carried out |
| Accidental spillage of paint or thinners during delivery | - Spill response procedure<br>- Spill kits and safe system of work in place to contain spilled material<br>- Materials delivered on pallets and unloaded by trained operatives<br>- Correct disposal of contaminated equipment |
| Accidental spillage of paint or thinners during storage | - Spill response procedure<br>- Spill kits and safe system of work in place to contain spilled material<br>- Substances stored within a bunded area capable of holding 110% of largest container<br>- Correct handling techniques |
| Rainwater run off – external storage areas | - Substances stored under cover<br>- Containers stored with sealed lids |

| | |
|---|---|
| | - External storage of materials kept to a minimum<br>- Daily olfactory inspection carried out<br>- Regular collection and disposal of empty containers<br>- Monthly factory inspections |
| Failure of pumping equipment leading to loss of product | - Planned maintenance carried out<br>- Maintenance reporting and isolation procedure<br>- Substance stored within a bunded area capable of holding 110% of largest container<br>- Spill kits and safe system of work in place to contain spilled material<br>- Incident reporting and investigation |

The VOCs produced as part of the painting process are released directly to atmosphere after passing through a particulate filter fitted to each of the extraction capture hoods. As discussed in section 3.3, Frank H. Dale Limited complies with the solvent reduction scheme as a means of reducing the VOCs being released as part of this process.

### 4.1. Maintenance

Frank H. Dale Limited operates a planned maintenance and cleaning schedule at its facility on Mill Street in order to ensure that the Transfer Pumps and Paint lines remain in an efficient operating condition. The operatives carry out pre start inspections of the equipment and notify the in-house Maintenance Engineer should a fault be identified.

Operatives carry out daily cleaning operations including a daily full wash out of the system. This process may also be carried out throughout the day, should a fault with the system occur or should an alternative paint colour be required.

Planned maintenance takes place in line with the system manufactures recommendations

## 5. Environmental Management

The facility, procedures and processes used for the application of paint at Frank H. Dale Limited's facility are covered by the Environmental Management System Standard ISO 14001:2015 to which Frank H. Dale Limited is certified.

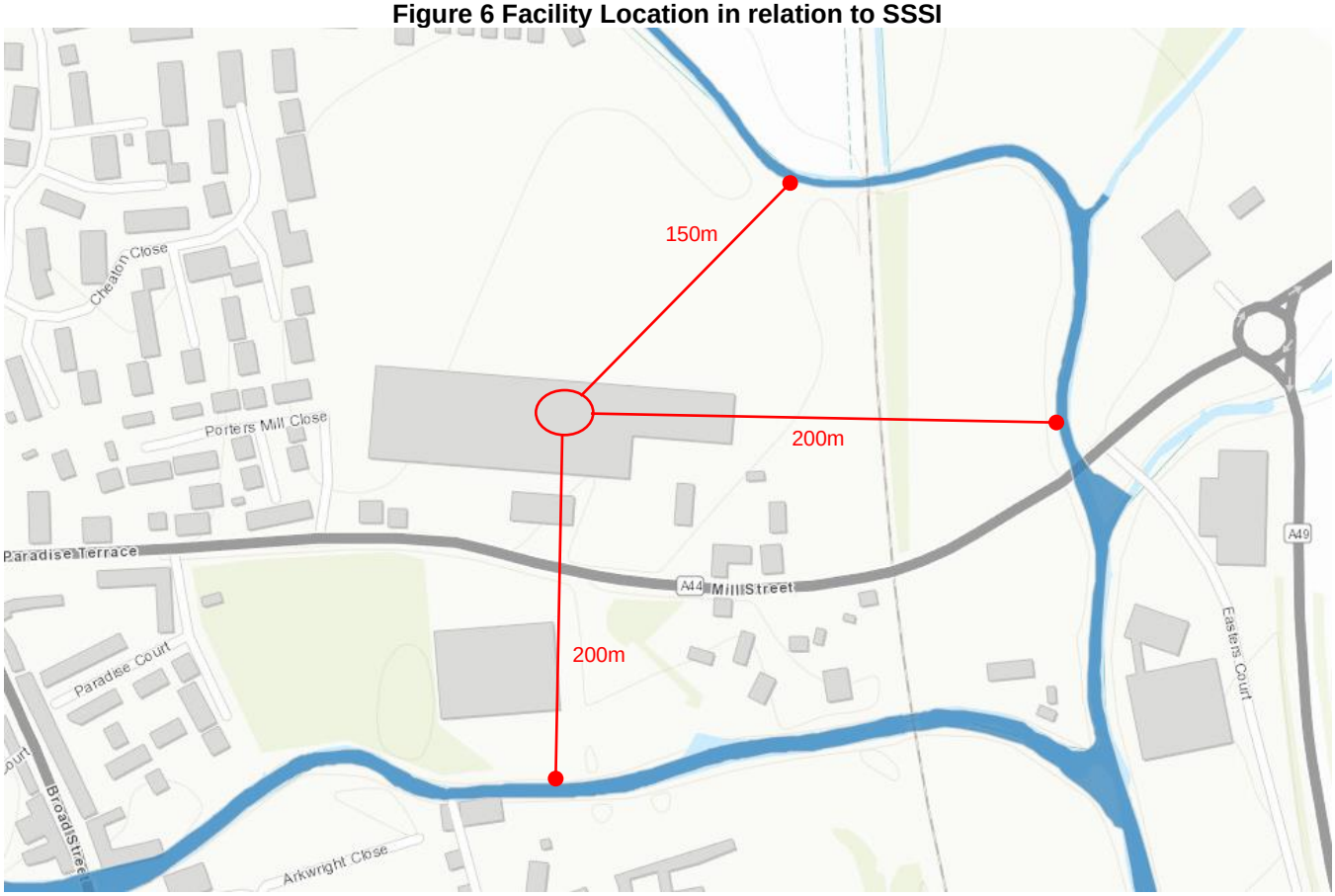
This standard requires that assessments are made taking into account the environmental aspects and impacts of the organisations operations and that procedures are in place to ensure that the environment is protected so far as is reasonably practicable.

## 6. Environmental Impact

The site on Mill Street is located on the Northern outskirts of the town of Leominster and has had a presence in this location since 1950. As a result, it is not anticipated that there will be complaints arising as a result of the facility being recommissioned. In relation to the emission of VOCs, the facility was previously the main fabrication facility used by the organisation until October 2022, where it moved the majority of its operations to Owen Way. Prior to this, over 10,000 tonnes of steelwork were fabricated annually at Mill Street, with the majority requiring a primer coat to be applied under a previously held permit. As such, it is not anticipated there will be any complaints from the local population.

The facility is located approximately 150 metres from the River Lugg to the North and 200m to the South and East. This river is designated a Site of Special Scientific Interest (SSSI). This is highlighted in red in Figure 6 below:

**Figure 6 Facility Location in relation to SSSI**




*Source: naturalengland-defra.opendata.arcgis.com - Esri UK, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA*

# Appendices to Application for Part B Environmental Permit Frank H. Dale Limited

# Appendix 1

# ISO14001 Certificate
# Frank H. Dale Limited Mill Street

# *Certificate of Registration*

This certificate has been awarded to

**Frank H. Dale Limited**

Mill Street, Leominster, Herefordshire, HR6 8EF, United Kingdom

in recognition of the organization's Environmental Management System which complies with

**ISO 14001:2015**

The scope of activities covered by this certificate is defined below

**The Design, Fabrication and Erection of Structural Steel Frames for Industrial and Commercial Buildings**

Certificate Number **96150/A/0001/UK/En**

A certificate number of 0001, confirms the Client has a single site Certified & the site is their Head Office or Main site in relation to the Certified scope with URS. A certificate number of 0002, or greater (e.g. xxxx/B/0002/it, K/En) refers to a client that has more than one site certified with URS, as such, the following statement shall apply - "The validity of this certificate depends on the validity of the main certificate".

| Date of Issue of Certification Cycle | Issue Number | Certificate Expiry Date | Certification Cycle |
|---|---|---|---|
| **03 November 2024** | **11** | **02 November 2027** | **7** |
| Revision Date | Revision Number | Original Certificate Issue Date | Scheme Number |
| **01 October 2024** | **0** | **03 November 2006** | **n/a** |

For detailed explanation for the data fields above, refer to http://www.urs-holdings.com/logos-and-regulations

**Issued by**

Mukesh Singhal - On behalf of the Schemes Manager

UKAS MANAGEMENT SYSTEMS 0043

# Appendix 2

# Extraction System Thorough Examination

PASSLEV

# REPORT ON *ROUTINE* THOROUGH EXAMINATION AND TEST OF LOCAL EXHAUST VENTILATION (LEV) PLANT

IN COMPLIANCE WITH REGULATION 9 OF COSHH REGULATIONS 2002

| SYSTEM DETAILS & ID | | | |
|---|---|---|---|
| **Site Name:** | Frank H Dale | **System ID:** | LEV01 |
| **Site Address:** | Mill Street<br>Leominster<br>Herefordshire<br>HR6 8EF | **Location:** | Spray Room |
| **Date of TExT:** | 18 February 2025 | **Process:** | Spray Painting – Paint Fumes |

**SUMMARY OF THE ASSESSMENT OF CONTROL**

## SATISFACTORY

| | EXAMINERS/COUNTERSIGNATORIES | | |
|---|---|---|---|
| **Examiner Name** | **Designation** | **Date** | **Signature** |
| **Brandon Whittaker** | **Engineer** | **18-02-2025** | B.Whittaker. |
| **Examiner Qualification(s)** | **Date(s)** | **Certificate No(s)** | |
| **BOHS P601** | **December 2014** | **20141205-19857-5314** | |
| **Client Representative Accepting Report** | **Title** | **Date** | **Signature** |
| | | | |

## 1. EXECUTIVE SUMMARY

Brandon Whittaker visited site on 18.02.2025 to conduct the **Routine** Thorough Examination and Test (TExT) of this LEV System to comply with Regulation 9 of CoSHH 2002 (As amended).

The system is a fixed fan unit installed in the Painting area. The system consists of filter sections which extracts the paint fume and exhausts above the roof line. The system controls and extracts Paint fume and has not changed since the initial Routine Thorough Examination and Test (TExT) of this LEV System.

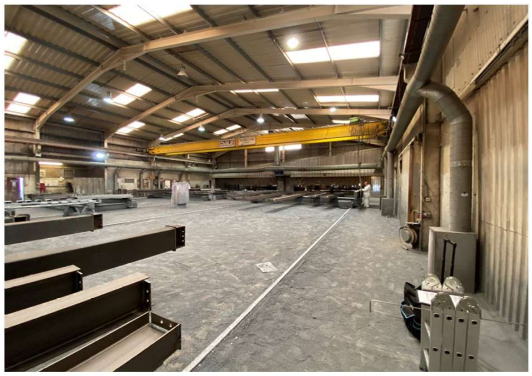
We conducted quantitative assessments and Duct/Face velocity readings The results recorded were in line with the TExT data. Qualitative assessments were undertaken using smoke testing the unit was stood down, simulated use of the process was observed, Based upon the collective findings we find this system to be operating Satisfactory if properly used and maintained.

Our findings are further detailed within this report.

## 2. DEFECTS & RECOMMENDATIONS

| LEV Examiner | | | Employer's Use | | |
|---|---|---|---|---|---|
| **Item in LEV System** | **Action Required** | **Priority*** | **Person to Take Action** | **Target Date** | **Date Completed** |
| | | | | | |
| | | | | | |
| Shade Red any Critical Defects Found | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**Priority – e.g. 1 = high, 2 = normal, 3 = routine, 4 = awareness*
*Shade **RED** all Critical Defects*

| 3. SYSTEM GENERAL DESCRIPTION | SYSTEM PHOTOGRAPH(S) |
|---|---|
| All Capture hoods were in good condition, Hoods 13 and 14 no longer in use. The system contained magnehelic gauges. |  <br>  |

| 4. PLANT,PROCESS & LEV ARRANGEMENT AT TExT | |
|---|---|
| **Was the Plant, Process and the LEV/Control System Operating Normally at TExT? If not explain how TExT was undertaken.** | The LEV was observed while simulated process was carried out. |

| 5. TEST FREQUENCIES | |
|---|---|
| **Interval between Routine Examinations:** | 14months |
| **Date of Previous Examination:** | 05/04/2022 |
| **Date next TExT Due:** | 18 April 2026 |

| 6. PRE-TEST | |
|---|---|
| **Is System Installation Exactly as Initial TExT?** | Yes |
| **LEV System Manual Available?** | No |
| **LEV System Log Book Available?** | No |

| 7. OCCUPATIONAL HYGIENE | |
|---|---|
| Has Occupational Hygiene Monitoring been carried out in this Area since previous TExT? | Customer to confirm. |
| If 'Yes', Summarise Findings: | N/A |

| 8. FAN | |
|---|---|
| Is Fan Rotating in Correct Direction? | Yes |
| Fan Inlet Static Pressure (Pa): | N/A |
| General Condition of Fan: | OK |

| 9. FILTER | |
|---|---|
| General Physical Condition of Filter Unit: | Ok |
| Primary Filter Pressure Drop: | N/A |
| Secondary Filter Pressure Drop: | N/A |
| Recirculating Filter Efficiency: | N/A |
| Cleaning Mechanism Operating Correctly? | Yes |
| Condition of Filter Media: | Good |
| Evidence of Contaminant Break-through? | None |
| Condition of Media and Bin Seals? | N/A |
| Condition of Door Seals? | N/A |

| 10. DUCT | |
|---|---|
| Duct Temperature ($^0$C): | 22.3 |
| Barometric Pressure (mB): | 1007mb |
| External Condition of Duct: | Ok |
| Damper Settings: | Dampers preset. |
| Internal Examination (visual/borescope): | Ok |

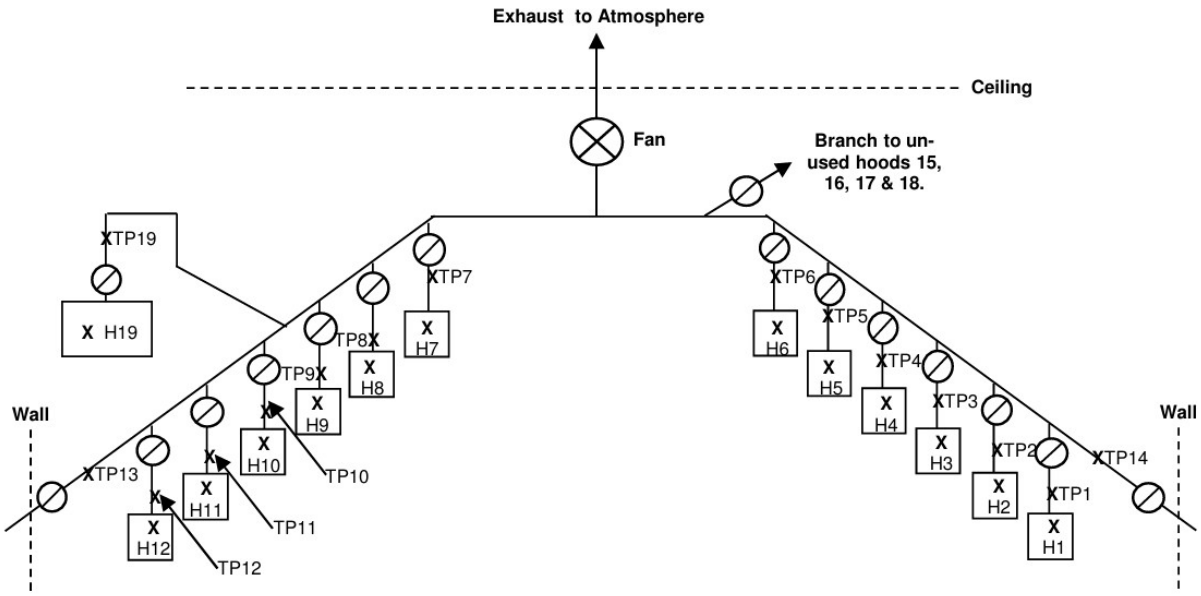
| 11. STACK | |
|---|---|
| Condition of Stack and Termination: | Above roofline |

| 12. MAKE-UP AIR | |
|---|---|
| Adequate Quantity? | N/A |
| Induced Drafts Evident? | N/A |
| Other Comments: | N/A |

| 13. CHECK ALARMS | |
|---|---|
| Hood/Enclosure: | N/A |
| Air Cleaner: | N/A |

| | |
|---|---|
| **Returned Air:** | N/A |
| **Other:** | N/A |

## 14. SCHEMATIC



## 15. DUCT QUANTITATIVE RESULTS

| Test Point ID | Diameter/ Dimension or Length and Width | Duct Area | Static Pressure | Average Velocity Pressure | Duct Velocity | | Duct Volume flow [x] |
|---|---|---|---|---|---|---|---|
| | | | | | Measured | Min Transport Velocity | |
| | (mm) | ($m^2$) | (Pa) | (Pa) | (m/s) | (m/s) | ($m^3$/hr) |
| TP1 | 0.25 | 0.049 | 273 | - | 11.59 | 10.0 | 2,048.38 |
| TP2 | 0.25 | 0.049 | 239 | - | 10.06 | 10.0 | 1,777.98 |
| TP3 | 0.25 | 0.049 | 246 | - | 10.31 | 10.0 | 1,822.16 |
| TP4 | 0.25 | 0.049 | 290 | - | 12.39 | 10.0 | 2,189.78 |
| TP5 | 0.25 | 0.049 | 366 | - | 13.90 | 10.0 | 2,456.65 |
| TP6 | 0.25 | 0.049 | 178 | - | 10.05 | 10.0 | 1,776.21 |
| TP7 | 0.25 | 0.049 | 206 | - | 10.30 | 10.0 | 1,820.40 |
| TP8 | 0.25 | 0.049 | 318 | - | 10.06 | 10.0 | 1,777.97 |
| TP9 | 0.25 | 0.049 | 240 | - | 11.21 | 10.0 | 1,981.23 |
| TP10 | 0.25 | 0.049 | 239 | - | 10.90 | 10.0 | 1,926.44 |
| TP11 | 0.25 | 0.049 | 177 | - | 10.52 | 10.0 | 1,859.28 |
| TP12 | 0.25 | 0.049 | 234 | - | 10.82 | 10.0 | 1,912.30 |
| | | | | | | | |

## 16. HOODS

| | | | |
|---|---|---|---|
| Process Conditions at Time of Test: | Simulated | Hood Pass /Fail Labels Fitted? | N/A |
| Operators Working at Process During Routine TExT? | No | | |
| If 'Yes' – Describe how operator using/interfacing with system: | N/A | | |

## 17. HOOD QUANTITATIVE RESULTS

| Hood ID | Hood Type/Description | Hood Open Area ($m^2$) | Sash or Opening Height (m) | Face Velocity | | Hood Static Pressure (Pa) | Capture Distance | | Volume Flow Rate ($m^3/hr$) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Actual (m/s) | Min Required (m/s) | | Fletchers Calculated Distance (mm) | Confirmed with Smoke | |
| H1 | Capture Hood | 0.343 | --- | 1.59 | 0.50 – 1.0 | N/A | --- | Yes | 1,963.33 |
| H2 | Capture Hood | 0.343 | --- | 1.77 | 0.50 – 1.0 | N/A | --- | Yes | 2,185.59 |
| H3 | Capture Hood | 0.343 | --- | 1.60 | 0.50 – 1.0 | N/A | --- | Yes | 1,975.68 |
| H4 | Capture Hood | 0.343 | --- | 1.53 | 0.50 – 1.0 | N/A | --- | Yes | 1,889.24 |
| H5 | Capture Hood | 0.343 | --- | 1.69 | 0.50 – 1.0 | N/A | --- | Yes | 2,086.81 |
| H6 | Capture Hood | 0.343 | --- | 1.29 | 0.50 – 1.0 | N/A | --- | Yes | 1,592.89 |
| H7 | Capture Hood | 0.343 | --- | 1.30 | 0.50 – 1.0 | N/A | --- | Yes | 1,605.24 |
| H8 | Capture Hood | 0.343 | --- | 1.66 | 0.50 – 1.0 | N/A | --- | Yes | 2,049.77 |
| H9 | Capture Hood | 0.343 | --- | 1.44 | 0.50 – 1.0 | N/A | --- | Yes | 1,778.11 |
| H10 | Capture Hood | 0.343 | --- | 1.43 | 0.50 – 1.0 | N/A | --- | Yes | 1,765.76 |
| H11 | Capture Hood | 0.343 | --- | 1.20 | 0.50 – 1.0 | N/A | --- | Yes | 1,481.76 |
| H12 | Capture Hood | 0.343 | --- | 1.18 | 0.50 – 1.0 | N/A | --- | Yes | 1,457.06 |

## 18. QUALITATIVE TESTS & VISUAL INSPECTION REPORT

Smoke Test – capture was observed.

## 19. 20. INSTRUMENTS USED

| Instrument description | Serial Number | Calibrated |
|---|---|---|
| Fluke 922 Micromanometer | 26360595 | 10 Jul 2025 |
| Si-VH3 Thermal hotwire anemometer | 46508793 | 10 Jul 2025 |
| Airflow Rotating vane anemometer 922 | 0259965 | 10 Jul 2025 |
| Fluke 9062 Rotation indicator | 91600450 | N/A |
| HT-9600 indicative particle counter | 201909023384 | N/A |

## 21. REFERENCES


HSG258; Controlling airborne contaminates at work. A guide to local exhaust ventilation (LEV); HSE Books

L5; The Control of Substances Hazardous to Health Regulations (CoSHH) 2002. Approved Code of Practice and guidance (Sixth Edition) HSE Books

Management of Health and Safety at Work Regulations; The stationary office 1999 SI 1999/3242.

The Dust Lamp: a simple tool for observing the presence of airborne particles. MDHS82/2; HSE Books 2015

EH40/2005 Workplace Exposure Limits: Containing the list of workplace exposure limits for use with the Control of Substances Hazardous to Health Regulations 2002 (as amended); January 2020; ISBN: 9780717667031

Industrial Ventilation: A Manual of Recommended Practice for Design, 30th Edition; ISBN: 978-1-607261-08-7 2019