

# Permit with Introductory Note

The Pollution Prevention and Control Act 1999  
Environmental Permitting (England and Wales) Regulations 2016  
The Solvent Emissions Directive



**IPSWICH**  
BOROUGH COUNCIL

**Bradleys (Stowmarket) Ltd**  
49 Knightsdale Road  
Ipswich  
Suffolk  
IP1 4JJ

Environmental Permit  
Reference: EP71/01/BA

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Detail	Date	Comments
Draft Permit	3 <sup>rd</sup> October 2017	EP/NEW/DRAFT/BA
Permit	13 <sup>th</sup> October 2017	EP71/01/BA

**Permit issued by:**  
Environmental Protection Services  
Ipswich Borough Council  
Floor 4 East  
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15-17 Russell Road  
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## **INTRODUCTORY NOTE**

*This introductory note does not form part of the permit*

The following Permit is issued under Regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016 (S.I.2010 No. 675), hereinafter referred to as the EP Regulations, to operate a scheduled installation carrying out an activity, or activities covered by the description in section 6.4 and section 7 in Part 2 to Schedule 1 of the EP Regulations, to the extent authorised by the Permit.

Conditions within this Permit detail Best Available Techniques (BAT), for the management and operation of the installation, to prevent, or where that is not practicable, to reduce emissions.

The definition of BAT is ‘the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing in principle the basis for emission limit values designed to prevent and, where that is not practicable, generally to reduce emissions and the impact on the environment as a whole’.

In determining BAT, the Operator should pay particular attention to relevant sections of the Secretary of State’s guidance for metal and other thermal spraying processes - Process Guidance Note 6/35(96), Secretary of State’s guidance for coating of metal and plastic processes - Process Guidance Note 6/23(04) and Secretary of State’s guidance for powder coating including sherardizing and vitreous enamelling dry – Process Guidance Note 6/31(04) and any other relevant guidance. Techniques include both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned.

Note that the Permit requires the submission of certain information to Ipswich Borough Council, hereinafter referred to as the Regulator, and in addition, the Regulator has the power to seek further information at any time under Regulation 60 of the EP Regulations provided that the request is reasonable.

### **Public Registers**

Information relating to Permits, including the application, is available on public registers in accordance with the EP Regulations. Certain information may be withheld from the public registers where it is commercially confidential, or if it is in the interest of national security to do so.

### **Variations to the Permit**

The Regulator may vary the permit in the future, by serving a variation notice on the Operator. Should the Operator want any of the conditions of the Permit to be changed, a formal application must be submitted to the Regulator (the relevant forms are available from the Regulator). The chronicle that forms part of this introductory note will include summary details of this Permit, variations issued up to that point in time and state whether a consolidated version of the Permit has been issued.

### **Transfer of the Permit or Part of the Permit**

Before the Permit can be wholly or partially transferred to another Operator, an application to transfer the Permit has to be made jointly by the existing and proposed Operators. A transfer will not be approved if the Regulator is not satisfied that the

proposed Permit holder will be the person having control over the operation of the installation, or will not comply with the conditions of the transferred Permit. In addition, if the Permit authorises the Operator to carry out a specified waste management activity, the transfer will not be approved if the Regulator does not consider the proposed Permit holder to be a 'fit and proper person' as required by the EP Regulations.

#### **Surrender of the Permit**

Where an Operator intends to cease the operation of an installation (in whole or in part) the Regulator should be informed in writing. Such notification must include the information specified in Regulation 24(3) of the EP Regulations.

#### **Responsibility under Workplace Health and Safety Legislation**

The permit is given in relation to the requirements of the EP Regulations. It must not be taken to replace any responsibilities an Operator may have under the workplace health and safety legislation.

#### **Appeal Against Permit Conditions**

Any person who is aggrieved by the conditions attached to a Permit can appeal to the Secretary of State for Environment, Food & Rural Affairs. Appeals must be received by the Secretary of State no later than 6 months from the date of the decision (the date of the Permit).

Appeals relating to installations in England should be received by the Secretary of State for Environment, Food & Rural Affairs. The address is as follows:

**The Planning Inspectorate  
Environmental Appeals Administration  
Room 4/19 – Eagle Wing  
Temple Quay House  
2 The Square  
Temple Quay  
Bristol  
BS1 PN**

The appeal must be in the form of a written notice or letter stating that the person wishes to appeal and listing the condition(s) which is/are being appealed against. The following five items must be included:

- (a) A statement of the grounds of appeal;
- (b) A copy of any relevant application;
- (c) A copy of any relevant Permit;
- (d) A copy of any relevant correspondence between the person making the appeal and the Council;
- (e) A statement indicating whether the appellant wishes the appeal to be dealt with
  - by a hearing attended by both parties and conducted by an inspector appointed by the Secretary of State; or

- by both parties sending the Secretary of State written statements of their case (and having the opportunity to comment upon one another's statements).

At the same time, the notice of appeal and documents (a) and (e) must be sent to the Council, and the person making the appeal should inform the appropriate Secretary of State that this had been done.

- An appeal will not suspend the effect of the conditions appealed against; the conditions must still be complied with.
- In determining an appeal against one or more conditions, the Act allows the Secretary of State in addition to quash any of the other conditions not subject to the appeal and to direct the local authority to either vary any of these conditions or to add new conditions.

**Copyright of any maps if provided with this Permit**

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**Talking to us**

Please quote the Permit Number if you contact the Regulator about this Permit. To give a notification the Operator should telephone 01473 433012 or any other number notified in writing by the Regulator for that purpose.

*~ End of Introductory Note~*

# Permit with Introductory Note

**The Pollution Prevention and Control Act 1999  
Environmental Permitting (England and Wales) Regulations 2016  
The Solvent Emissions Directive**



**Environmental Permit Reference: EP71/01/BA**

**Ipswich Borough Council in exercise of its powers under Regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016, hereby authorises:**

**Bradleys (Stowmarket) Ltd**

whose registered office is:

**Bradleys (Stowmarket) Ltd  
49 Knightsdale Road  
Ipswich  
IP1 4JJ**

to operate an installation at:

**Bradleys (Stowmarket) Ltd  
59 Knightsdale Road  
Ipswich  
IP1 4JJ**

to the extent authorised by and subject to the conditions of this Permit.

Signature:

**Ben Atkinson  
Environmental Protection Officer  
The Authorised Officer for this purpose**

Date: Friday 13<sup>th</sup> October 2017

**Permit issued by:  
Environmental Protection Services  
Ipswich Borough Council  
Floor 4 East  
Grafton House  
15-17 Russell Road  
Ipswich  
IP1 2DE**

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Email: [environmentalhealth@ipswich.gov.uk](mailto:environmentalhealth@ipswich.gov.uk)**

## **OPERATING CONDITIONS**

### **Process Description and General Information**

This process is carried out by Bradleys (Stowmarket) Ltd, 59 Knightsdale Road, Ipswich, Suffolk, IP1 4JJ.

The processes carried out on site generally comprise of the following activities:

Substrates are degreased in an outdoor area using rags imbibed in solvents or sprayed with solvents. Solvent consumption exceeds 2T per year. This activity must be operated as per the requirements of the Solvent Emissions Directive.

Aluminium substrates are pre-treated using a non-chromate pre-treatment process in the pre-treatment plant. The process is carried out by automated equipment and consists of a Degrease Dip, Chemical Etch and Surface Passivation.

The coating process is by means of wet spraying (paint). Two wet spray booths are present on site. More than 5T per year of products containing volatile organic compounds are used for wet spraying and equipment cleaning. Wet spraying and equipment cleaning activities are required to comply with the requirements of the Solvent Emissions Directive.

The process comprises treating, handling, storage of materials used and products and wastes produced by the process.

The attached site plans show the location, layout and orientation of the premises.

### **Conditions**

#### **Emission Limits, Monitoring and other Provisions**

1. The reference conditions for the emission limits are 273.15K and 101.3kPa and without correction for water vapour content unless otherwise stated.
2. There shall be no offensive odour beyond the site boundary.
3. All releases to air, other than condensed water vapour, shall be free from droplets and persistent visible emissions.
4. Monitoring of emissions shall be carried out according to the latest British, European or International Standard (BS, CEN or ISO). The latest standards can be found at the Source Testing Association or the Environment Agency Technical Guidance Notes (Monitoring) M1 and M2.
5. The emission limits, monitoring and other provisions for non-VOC releases in Table 1 shall be complied with.

Table 1

Substance	Source	Emission Limit/Provisions	Monitoring Frequency
Particulate matter	All processes/activities	50mg/Nm <sup>3</sup> as 30 minute mean for contained sources	Manual Extractive testing Annual

6. The waste gas and fugitive emission limits and requirements in Table 2 shall be complied with in accordance with SE Box 5 of PG 6/23 (11).

Table 2 – For all activities using the Waste Gas and Fugitive Emission Limits and Requirements

VOC in waste gasses	Emission Limit/Requirement	Fugitive Emission Limits	Monitoring
Coating installations Solvent Consumption 5-15 tonnes	VOC expressed as total mass of organic carbon	25% of organic solvent input	<b>Abated Releases:</b>  Manual extractive testing  <b>Unabated Releases:</b>  Manual extractive testing
Waste gases from oxidation paint used as abatement	50mg C/Nm <sup>3</sup>		
Any other waste gases	100mg C/Nm <sup>3</sup>		

7. The operator shall submit the following to Ipswich Borough Council annually:
- A determination of the organic solvent consumption, the total mass of organic solvent minus any solvents for reuse/recovery off site. This shall be in the form of a mass balance in order to determine the annual actual consumption of organic solvent (C) =  $I_1 - O_8$  (see guidance in Appendix 1).
8. The operator shall submit the following to Ipswich Borough Council annually:
- A solvent management plan (SMP) which determines the fugitive emission values (as required in Table 2), identify future reduction options and give the public access to information about solvent consumption (see guidance in Appendix 1 and 2).
9. The designated materials requirement, emission limits and conditions in Table 3 shall be complied with.

Table 3 [Reference: SED Box 7 of PG6/23 (11)]

<p><b>SE Box 7 - Industrial emissions Directive requirements for designated materials (Articles 58, 59, 80(7))</b></p> <p><b>All activities using designated materials</b></p> <p>Designated materials used in industrial emissions Directive installations must be either replaced, or controlled contained and limited, as set out below.</p>	
<p><b>All Directive installations</b></p>	
<p><b>1. Materials designated because of their VOC content:</b></p> <ul style="list-style-type: none"> <li>• hazard statement H340, H350, H350I, H360D, or H360F</li> <li>• until 1 Jun 2015: risk phrases R45, R46, R49, R60, or R61</li> </ul>	
<p><b>Requirements:</b></p> <p>Replace as far as possible (Taking into account guidance under Article 64 of the industrial emissions Directive. See note 3 and Appendix 1) by less harmful substances or mixtures.</p>	<p><b>Timescale:</b></p> <p>Installations must comply within the shortest possible time</p>
<p>Control under contained conditions as far as technically and economically feasible to safeguard public health and the environment, normally, in accordance with the guidance provided within Section 5 of the note.</p>	<p><b>Timescale:</b></p> <p>Immediately (and see note 1 below)</p>
<p>Limit - where the sum of the mass flows of all the discharges of all the compounds causing the designated labelling is greater or equal to 10g/h, a limit value of 2mg/Nm<sup>3</sup> for the mass sum of the individual compounds must apply.</p>	<p><b>Monitoring:</b></p> <p>Manual extractive testing</p>
<p><b>2. Materials designated because of their halogenated VOC content:</b></p> <ul style="list-style-type: none"> <li>• hazard statements H341 or H351</li> <li>• until 1 Jun 2015 : risk phrases R40, or R68</li> </ul>	
<p><b>Requirements:</b></p> <p>Control under contained conditions as far as technically and economically feasible to safeguard public health and the environment, normally, in accordance with the guidance provided within Section 5 of the note.</p>	<p><b>Timescale:</b></p> <p>Immediately (and see note 1 below)</p>
<p>Limit - where the sum of the mass flows of all the discharges of all the compounds causing the designated labelling is greater or equal to 100g/h, a limit value of 20mg/Nm<sup>3</sup> for the mass sum of the individual compounds must apply.</p>	<p><b>Monitoring:</b></p> <p>Manual extractive testing</p>
<p><b>Note 1 - substances or mixtures which are classified after the date of publication of this note as designated materials because of their VOC content, must apply the replace, control and limit requirements above within the shortest possible time from the date at which substances or mixtures became/become designated materials.</b></p> <p>In determining the 'shortest possible time', the operator will need to justify their timetables taking account of the guidance in the relevant chapter of the appropriate Guidance Manual.</p> <p><b>Note 2 - until 1 June 2015 'hazard statement' materials will, broadly, also be known as 'risk phrase' materials. After 1st June 2015, only the term 'hazard statement' materials will apply; see Section 7 for further details.</b></p> <p><b>Note 3 - European Commission have published information on <a href="#">substituting and containing designated solvents</a></b></p>	



10. The operator shall keep a record of all inspections, tests and monitoring and visual assessments. This record shall be kept on site for at least two years and should be made available to the regulator on request.
11. The operator shall notify the regulator at least 7 days before any periodic monitoring exercise to determine compliance with emission limit values. The operator shall state the provisional time and date of monitoring, pollutants to be tested and the methods to be used.
12. The results of non-continuous emission testing should be forwarded to the regulator within 8 weeks of the completion of the sampling.
13. Adverse results from any monitoring (both continuous and non-continuous) shall be investigated by the operator as soon as the monitoring data has been obtained. The operator shall:
  - identify the cause and take corrective action;
  - clearly record as much detail as possible regarding the cause and extent of the problem, and the remedial action taken;
  - re-test to demonstrate compliance as soon as possible; and
  - inform IBC of the steps taken and the re-test results.
14. In the case of abnormal emissions, malfunction or breakdown leading to abnormal emissions the operator shall:
  - investigate and undertake remedial action immediately;
  - adjust the process or activity to minimise those emissions; and
  - promptly record the events and actions taken.
15. IBC shall be informed without delay, whether or not there is related monitoring showing adverse result:
  - if there is an emission that is likely to have an effect on the local community;or
  - in the event of the failure of key arrestment plant, for example, water wash system or particulate filters.
16. The operator shall provide a list of key arrestment plant and shall have a written procedure for dealing with its failure, in order to minimise any adverse effects.
17. In cases of non-compliance causing immediate danger to human health, operation of the activity shall be suspended. All of the following criteria shall be taken into account:

- The toxicity of the substance being released;
- The amount release;
- The location of the installation, and
- The sensitivity of the receptors.

18. The VOC monitoring requirements in Table 4 shall be complied with.

Table 4 [Reference: Table 4 is part of SED Box 9 or PG6/23 (11)]

<p><b>SE Box 9 - VOC monitoring (Article 60 and 61)</b></p> <p>All activities using</p> <ul style="list-style-type: none"> <li>• emission and fugitive limits; or</li> <li>• total emission limit values with abatement</li> </ul> <p>For periodic measurements of VOC at least three readings must be obtained during each measurement exercise.</p> <p>VOC emission limit values shall be considered to be complied with if, in one monitoring exercise:</p> <ol style="list-style-type: none"> <li>a) the average of all the readings does not exceed the emission limit values, and</li> <li>b) none of the hourly averages exceeds the emission limit value by more than a factor of 1.5*.</li> </ol> <p>Where continuous monitoring is carried out to demonstrate compliance with VOC emission limits:</p> <ol style="list-style-type: none"> <li>c) none of the averages over 24 hours of normal operation exceeds the emission limit values, and</li> <li>d) none of the hourly averages exceeds the emission limit values by more than a factor of 1.5*.</li> </ol> <p>*the hourly average of the 30-minute means value may be used to demonstrate compliance.</p> <p>Where monitoring does not meet the requirements of a) or b), then no result should exceed the emission concentration limits specified.</p> <p>Compliance by dilution is not permitted – see paragraph 4.28.</p>
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19. The introduction of diluted air to achieve emission concentration limits shall not be permitted.
20. Dilution air may be added for waste gas cooling or improved dispersion where this is shown to be necessary because of the operation requirement, but this additional air will be discounted when determining the mass concentration of the pollutant in waste gases.
21. Where non-continuous quantitative monitoring is required, the frequency may be varied. Where there is consistent compliance with emission limits, regulators may consider reducing the frequency. However, any significant process changes that might have affected the monitored emission should be taken into account in making the decision. When determining consistent compliance, factors to consider include:
- the variability of monitoring results, for example, results which range from 15 – 14 mg/m<sup>3</sup>, against an emission limit of 50 mg/m<sup>3</sup> might not qualify for a reduction in monitoring.
  - the margin between the results and the emission limit, for example, results which range from 45 – 50 mg/m<sup>3</sup> when the limit is 50 mg/m<sup>3</sup> might not qualify for a reduction in monitoring.

22. Consistent compliance shall be demonstrated using the results from at least:
- three or more monitoring exercises within two years; or
  - two or more monitoring exercises in one year supported by continuous monitoring.
23. Where a new or substantially changed process is being commissioned, or where emission levels are near to or approach the emission concentration limits, IBC shall consider increasing the frequency of testing.
24. The operator shall ensure that relevant stacks and vents are fitted with facilities for sampling which allow compliance with the sampling standards. Sampling points on new plant shall be designed to comply with the British or equivalent standards. Where monitoring is not in accordance with the main procedural requirements of the relevant standard, deviations shall be reported as well as an estimation of the likely error.
25. All appropriate precautions shall be taken to minimise emissions during start-up and shutdown. The number of start-ups and shut-downs shall be kept to the minimum that is reasonable practicable.

### **Control Techniques**

26. All containers containing VOC (including coatings, thinners and waste liquids) shall be stored in closed storage containers.
27. All containers containing VOC (including new coating and waste liquids shall be banded. The banding shall: completely surround the containers; be impervious and resistant to the liquids in storage; and, be capable of holding 110% capacity of the largest container(s).
28. All measures shall be taken to minimise VOC emissions during mixing, i.e the use of covered or closed mixing vessels.
29. Emissions from the emptying of mixing vessels and transfer of materials shall be adequately contained, preferably by the use of closed transfer systems. This may be achieved by the use of closed mobile containers, containers with close-fitting lids, or, preferably, closed containers with pipeline delivery.
30. All potentially odorous waste materials shall be stored in suitable closed containers or bulk storage vessels, where appropriate vented to suitable abatement plant.
31. Cleaning operations involving organic solvents shall be periodically reviewed, normally at least once every two years, to identify opportunities for reducing VOC emissions (e.g. cleaning steps that can be eliminated or alternative cleaning methods). The regulator shall be provided with a report on the conclusions of the review.

32. The application of cleaning solvents shall be from a contained device or automatic system when applied directly on to plant or equipment. When solvent is applied to wipes it shall be dispensed by a piston type dispenser or similar contained device.
33. When organic solvent is used on wipes, pre-impregnated wipes shall be held within an enclosed container prior to use. Where practicable no organic solvent cleaning fluids or significantly less volatile organic solvents cleaning fluids or significantly less volatile organic solvents cleaning fluids shall be used (with or without the addition of mechanical, chemical or thermal enhancements).
34. Where practicable, fixed equipment shall be cleaned in-situ, and such equipment shall, where practicable, be kept enclosed whilst cleaning is carried out.
35. Where equipment is cleaned off-line (such as screens, plates, drums, rollers and coating trays) cleaning shall be carried out using enclosed cleaning systems, wherever possible. Enclosed cleaning systems shall be sealed to prevent emissions whilst in operation, except during purging at the end of the cleaning cycle. If this is not practicable emissions shall be contained within the ventilation system where necessary.
36. Residual coating contained in parts of the application equipment shall be removed prior to cleaning.
37. Programmable scales shall be used during the mixing and preparation of coatings to reduce organic solvent usage.
38. A programme to monitor and record the consumption of organic solvent against product produced shall be used to minimise the amount of excess coating used.
39. All reasonably practicable efforts shall be made to minimise the amount of residual organic solvent bearing materials left in drums and other containers after use. All organic solvent contaminated waste shall be stored in closed containers.
40. Prior to disposal, empty drums and container contaminated with organic solvent shall be closed to minimise emissions from residues during storage prior to disposal and be labelled, so that all personnel who handle them are aware of their contents and hazardous properties.
41. Nominally empty drums or drums containing waste contaminated with VOC awaiting disposal shall be stored in accordance with the requirements for full or new containers.
42. Prior to disposal used wipes and other items contaminated with organic solvent shall be placed in a suitably labelled metal bin fitted with a self-closing lid.
43. Dusty wastes shall be stored in closed containers and handled in a manner that avoids emissions.
44. Dry sweeping of dusty materials shall not normally be permitted unless there are environmental or health and safety risks in using alternative techniques.

45. Suitable organic solvent containment and spillage equipment shall be readily available in all organic solvent handling areas. A high standard of housekeeping shall be maintained.
46. Stack heights shall be calculated using HMIP Technical Guidance Note D1 (D1). The emission limit in Process Guidance Note PG6/23(11) shall be used as the basis for chimney height construction calculation. An operator may choose to meet tighter emission limits in order to reduce the required stack height. The need to render harmless residual odour shall also be considered.
47. The stack target exit velocity should be 15m/sec under normal operating conditions. An exception to the above is where wet arrestment is used as the abatement. To reduce the potential of droplet emissions from wet arrestment stack emissions a mist eliminator shall be used. Where a linear velocity of 9m/sec is exceeded in existing wet arrestment stack emissions, consideration shall be given to reducing this velocity as far as practicable to ensure such droplet entrainment and fall out does not happen.
48. Adequate insulation shall be provided to minimise the cooling of waste gases and prevent liquid condensation by keeping the temperature of the exhaust gases above the dewpoint.
49. Stacks and ductwork shall be cleaned to prevent accumulation of materials, as part of the routine maintenance programme.
50. Stacks or vents shall not be fitted with any restriction at the final opening such as a plate, cap or cowl, with the exception of a cone which may be necessary to increase the exit velocity or the emissions.
51. Management controls shall be in place to ensure effective control of emissions, including; proper management, proper use of equipment, supervision and training for process operations.
52. Spares and consumables – in particular, those subject to continual wear – shall be held on site, or should be available at short notice from guaranteed local suppliers, so that plant breakdowns can be rectified rapidly.
53. Operators shall put in place some form of structural environmental management system (EMS), whether by adopting published standards (ISO 14001 or the EU Eco Management and Audit Scheme [EMAS]) or by setting up an EMS tailored to the nature and size of the particular installation.
54. The operator shall maintain a statement of training requirements for each operational post and keep a record of the training received by each person whose actions may have an impact on the environment. These documents shall be made available to the regulator on request.
55. All staff whose functions could impact on air emissions from the activity shall receive appropriate training on those functions. This shall include:
  - awareness of their responsibilities under the permit;

- minimising emissions on start up and shut down;
  - action to minimise emissions during abnormal conditions, or accidents or spillages that could, if not controlled, result in emissions.
56. Effective preventative maintenance shall be employed on all aspects of the activity including all plant, buildings and the equipment concerned with the control of emissions to air. In particular; a written maintenance programme for all pollution control equipment, and a record of completed maintenance shall be made available for inspection by the regulator.
57. The best available techniques shall be used to prevent or, where that is not practicable, reduce emissions from the installation in relation to any aspect of the operation of the installation which is not regulated by any other condition of this permit.

~ End of permit ~

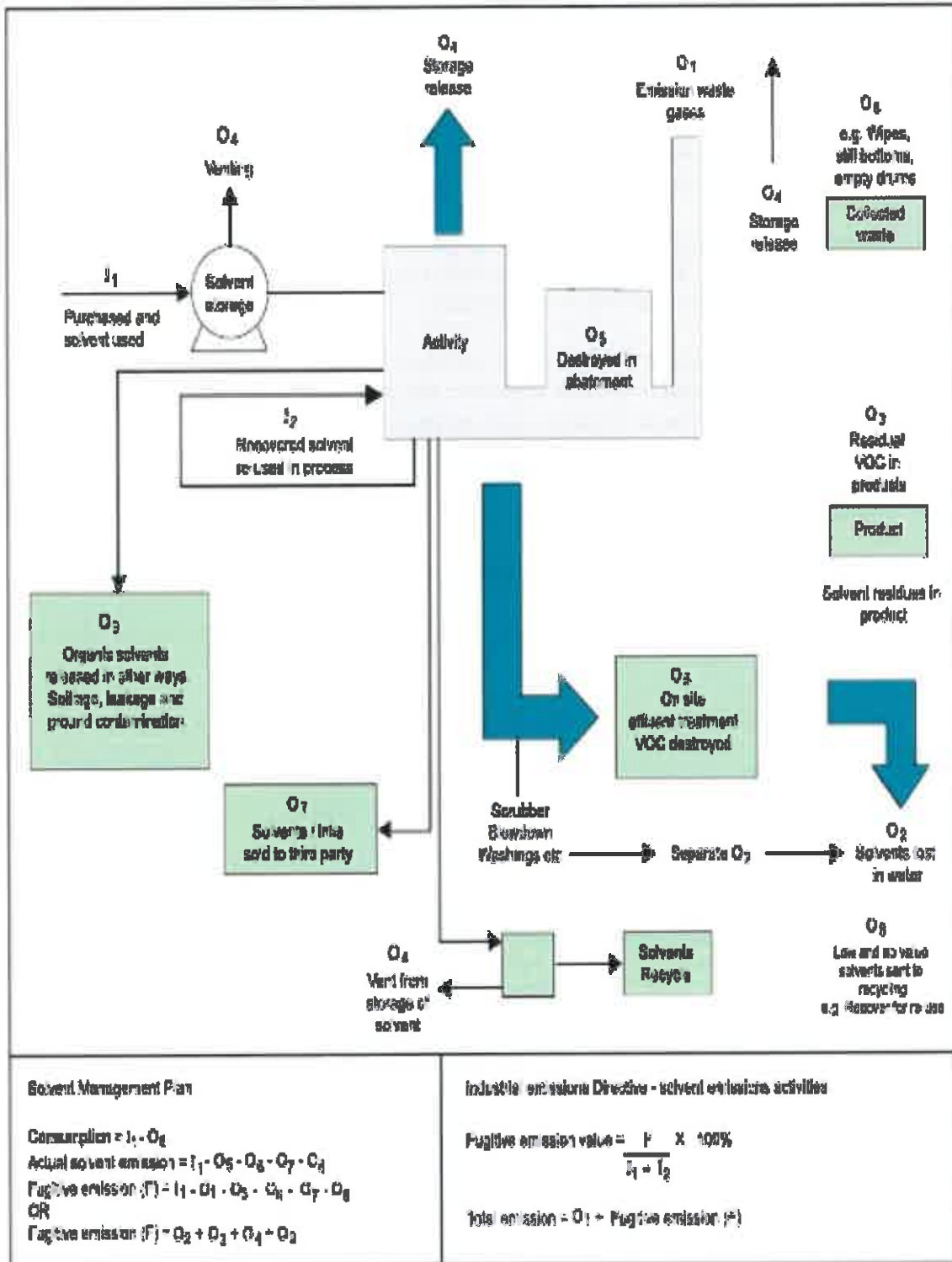
## Appendix 1

### SED MASS BALANCE CALCULATION DEFINITIONS

The following definitions provide a framework for the mass balance calculations used in determining compliance.

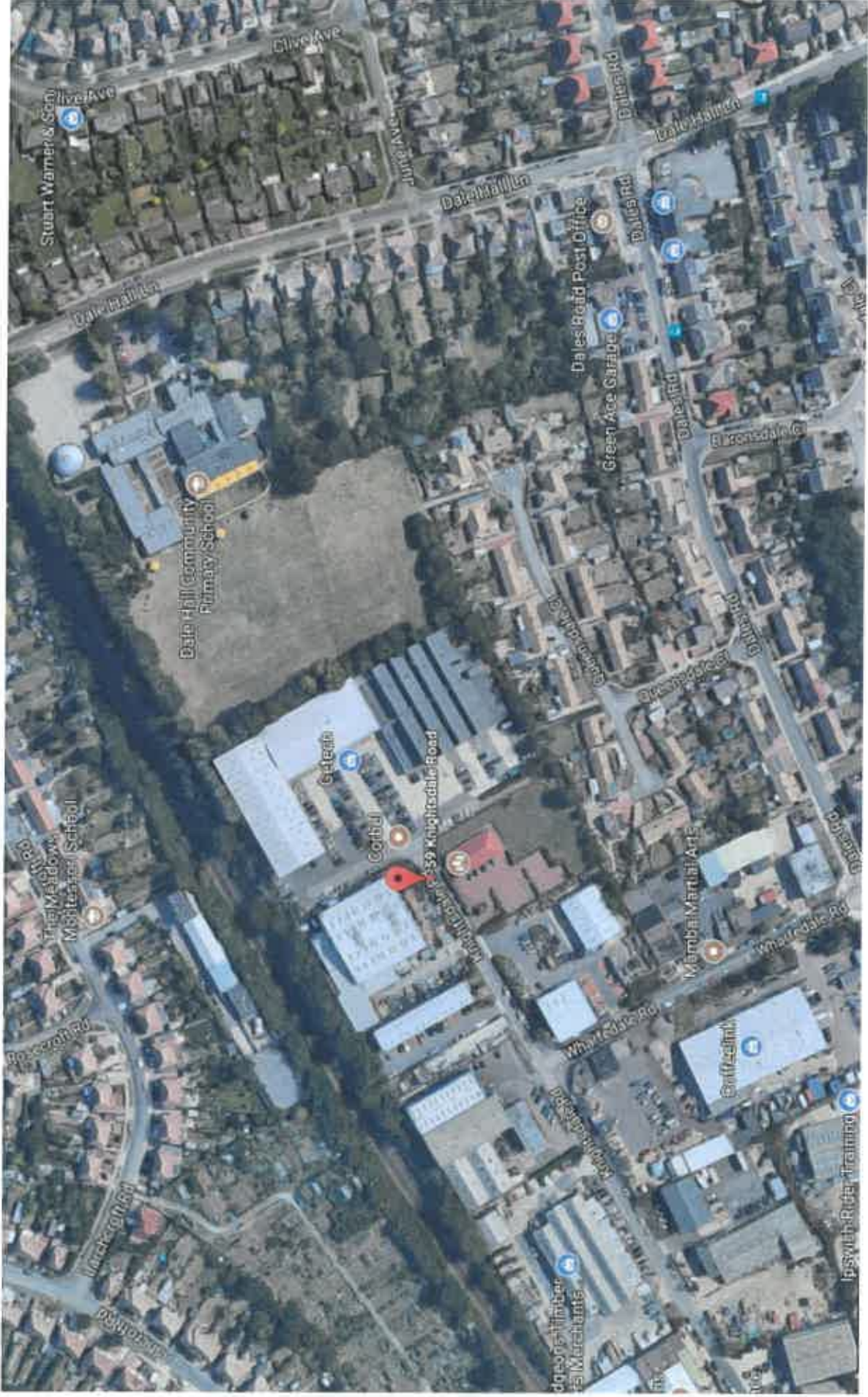
- I represents for the inputs of organic solvents in the time frame over which the mass balance is being calculated.
- I<sub>1</sub> represents the quantity of organic solvents or their quantity in preparations purchased which are used as input into the process/activity (including organic solvents used in the cleaning of equipment).
- I<sub>2</sub> represents the quantity of organic solvents or their quantity in preparations recovered and reused as solvent input into the process/activity (the recycled solvent is counted every time it is used to carry out the activity).
- O represents the outputs of organic solvents in the time frame over which the mass balance is being calculated.
- O<sub>1</sub> represents the emissions in waste gases
- O<sub>5</sub> represents the quantity of organic solvents lost due to chemical or physical reactions
- O<sub>6</sub> represents the quantity of organic solvents contained in collected waste.
- O<sub>7</sub> represents the quantity of organic solvents, or organic solvents contained in preparations, which are sold or are intended to be sold as a commercially valuable product.
- O<sub>8</sub> represents the quantity of organic solvents contained in preparations recovered for reuse but not as input into the process/activity, as long as not counted under O<sub>7</sub>.

## Appendix 2 – Solvent Management Plan Inputs and Outputs

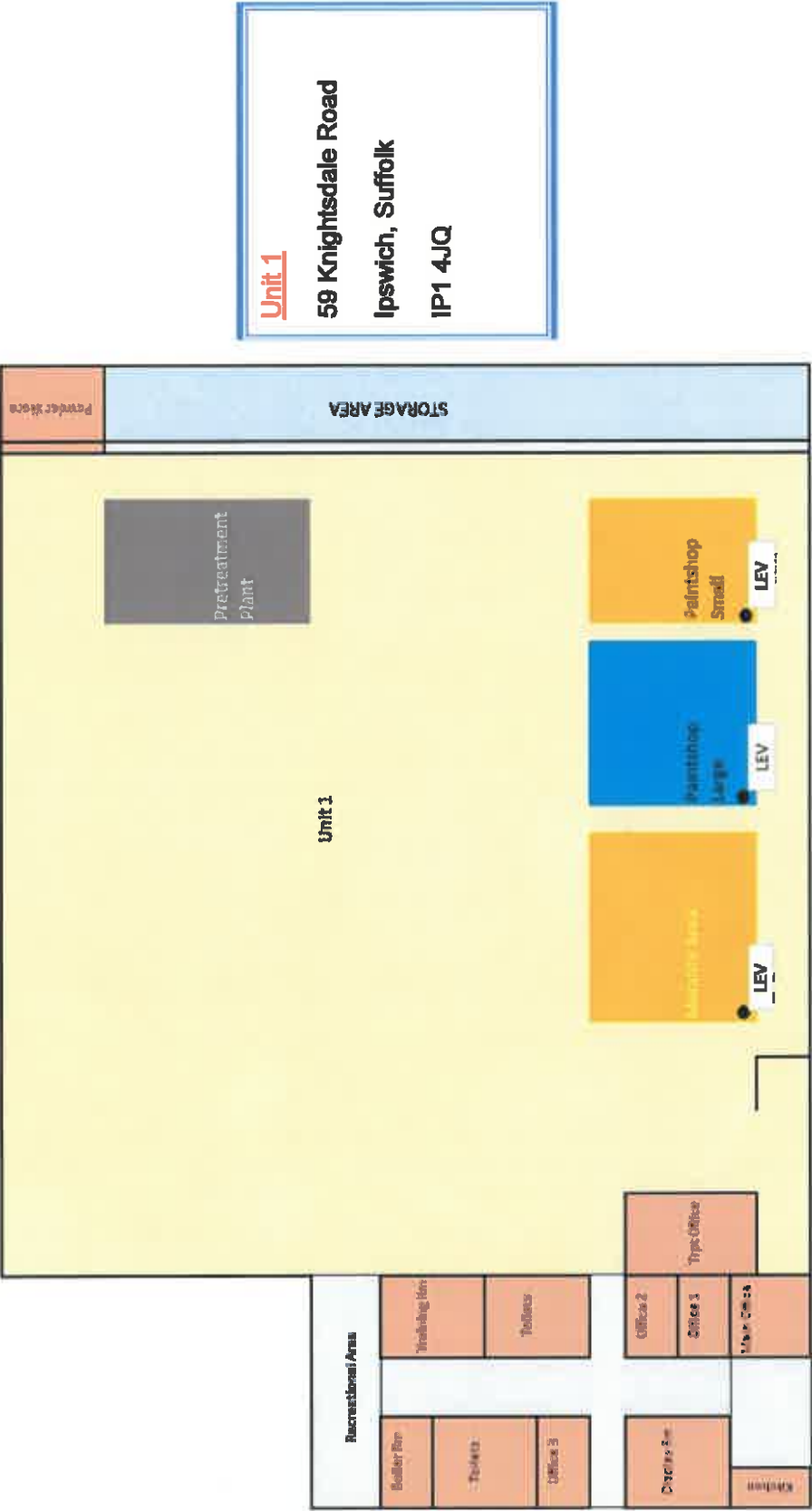




**Appendix 3 – Site Plan 1**



**Appendix 4 – Site Plan 2**



**Appendix 5 – Orientation**



