

# 360 Aquaculture Neath Shrimp Aquaculture Project Odour Appraisal

Date: 26/9/2023

Version: 2

Project Number: 142

[www.odourconsultant.co.uk](http://www.odourconsultant.co.uk)

[www.airqualityconsultant.co.uk](http://www.airqualityconsultant.co.uk)



**MICHAEL BULL  
& ASSOCIATES**

Consultants in air quality & odour assessment

## Odour Appraisal

### Contents

|       |                                       |    |
|-------|---------------------------------------|----|
| 1     | Introduction .....                    | 1  |
| 2     | Odour – Background and Guidance ..... | 2  |
| 2.1   | Defra Guidance .....                  | 2  |
| 2.2   | IAQM Guidance .....                   | 3  |
| 2.2.1 | Sniff Testing .....                   | 3  |
| 2.2.2 | SPR Assessment Method .....           | 4  |
| 3     | Appraisal .....                       | 6  |
| 3.1   | Site location and surroundings .....  | 6  |
| 3.2   | The Proposed Development .....        | 6  |
| 3.3   | IAQM SPR Assessment .....             | 8  |
| 3.4   | Operational Odour Control .....       | 8  |
| 4     | Conclusions .....                     | 10 |

Approved for Issue



Michael Bull – Director, Michael Bull and Associates

This report has been prepared by Michael Bull and Associates on behalf of the Client, taking into account the scope of works agreed with the client. Unless otherwise agreed, this document and all other Intellectual Property Rights remain the property of Michael Bull and Associates Ltd.

In the preparation of this report, Michael Bull and Associates Ltd has exercised all reasonable skill and care, taking into account the objectives and the agreed scope of works. Michael Bull and Associates Ltd does not accept any liability in negligence for any matters arising outside of the agreed scope of works.

When issued in electronic format, Michael Bull and Associates Ltd does not accept any responsibility for any unauthorised changes made by others. Unless signed for approval, this report has not been finalised and does not represent an authorised copy of the report.

Michael Bull and Associates Ltd Company No: 13132850

## 1 Introduction

Michael Bull and Associates Ltd (MBAL) has been commissioned by 360 Aquaculture to undertake an odour appraisal of their proposal for a shrimp aquaculture unit on part of the Metal Box site at Neath. The proposal is for a land based facility to rear shrimp with a capacity of 250kg a day for the first phase of the project with one production line, rising to 1000kg a day when all four lines are operational. The proposal will rear from larvae to fully grown shrimp in a two stage process in tanks contained within an enclosed building. There are also some water treatment facilities. Apart from packaging, no further processing of the product would take place on site.

Food preparation may give rise to odorous emissions and therefore an odour assessment has been carried out to examine the potential risks and to suggest migration measures to reduce any emissions where required.

This report uses assessment methods detailed in the Institute of Air Quality Management (IAQM) guidance<sup>1</sup> on the assessment of odours for planning. These have been widely applied on many different types of project in the UK and the results accepted by planning authorities.

The author of this report is Dr Michael Bull who was the chair of the group that produced the IAQM guidance and is an odour expert with over 35 years of experience.

---

<sup>1</sup> Bull M, IAQM, Guidance on the assessment of odour for planning, 2018 update

## 2 Odour – Background and Guidance

### 2.1 Defra Guidance

DEFRA produced the document Odour Guidance for Local Authorities in 2010<sup>2</sup>. This document was withdrawn in September 2017 and there is no indication that it will be replaced or updated. Some of the content of this guidance remains useful in providing background information on odours and for providing a framework for the assessment methodology which is discussed below.

The human nose is very sensitive to odour and can detect the presence of some chemicals at very low concentrations that would be difficult for instruments to measure. The environment is rarely “odour free” even in places that are perceived to be clean such as rural areas or by the sea. Our response to odours depends on four interlinked (sensory) characteristics:

- Hedonic tone: this is a judgement of the relative pleasantness or unpleasantness of an odour made by assessors in an odour panel;
- Quality/Characteristics: this is a qualitative attribute which is expressed in terms of “descriptors”, e.g., “fruity”, “almond”, “fishy”. This can be of use when establishing an odour source from complainants’ descriptions;
- Concentration: the “amount” of odour present in a sample of air. It can be expressed in terms of parts per million, parts per billion or in  $\text{mg}/\text{m}^3$  of air for a single odorous compound. More usually a mixture of compounds is present, and the concentration of the mixture can be expressed in odour units per cubic metre ( $\text{ou}_\text{E}/\text{m}^3$ ) (see definition below); and
- Intensity: is the magnitude (strength) of perception of an odour (from faint to strong). Intensity increases as concentration increases but the relationship is logarithmic. Increases or decreases in concentration of an odour do not always produce a corresponding proportional change in the odour strength as perceived by the human nose.

The most commonly used attribute is the concentration of odours; this is measured in European odour units ( $\text{ou}_\text{E}/\text{m}^3$ ) using a device known as an olfactometer which presents a sample of odour at different dilutions to a trained panel. The panel is asked whether they are able to detect odour at various concentrations. Once only 50% of the panel can detect the odour, it is considered to be at its “Detection Threshold”. The odour concentration at the Detection Threshold is defined to be 1  $\text{ou}_\text{E}/\text{m}^3$ . For instance, if an odour sample has been diluted in an olfactometer by a factor of 10,000 to reach the detection threshold, then the concentration of the original sample is 10,000  $\text{ou}_\text{E}/\text{m}^3$ .

DEFRA notes in their guidance that 5  $\text{ou}_\text{E}/\text{m}^3$  would be considered to be a ‘faint’ odour whilst 10  $\text{ou}_\text{E}/\text{m}^3$  would be considered a ‘distinct’ odour. Generally, an average person would be able to recognise the source of an odour at about 3  $\text{ou}_\text{E}/\text{m}^3$ , although this can depend on the relative offensiveness of the odour. Background odour levels can be some 5-60  $\text{ou}_\text{E}/\text{m}^3$  or more.

---

<sup>2</sup> DEFRA, Odour Guidance for Local Authorities, March 2010 (withdrawn September 2017).

The Local Authority guidance notes that the main issue with odour is its ability to result in an effect that is “objectionable”. The guidance notes that an offensive odour can occur at concentrations of compounds that are far below the level that would result in an effect on the physical health of humans.

### 2.2 IAQM Guidance

The Institute of Air Quality Management (IAQM) produced guidance in 2014 and was updated in 2018<sup>1</sup> with the specific intention to provide advice for “assessing odour impacts for planning purposes”. It provides details of various assessment techniques noting that each has its own strengths and weaknesses.

Where the facility is planned then predictive methods must be used, one example of such a method in the guidance is the use of a Source, Pathway, Receptor (SPR) model which is described in the following section.

#### 2.2.1 Sniff Testing

A suggested approach for sniff testing is detailed in the IAQM Odour Guidance document, specifically the procedures detailed in Appendix 2 of that document.

The IAQM guidance outlines the odour intensity scale used for the sniff tests undertaken as part of this assessment as shown in Table 1. Formal sniff testing has not been undertaken as the proposal does not exist, but the VDI scale in Table 1 has been used to place the existing odour environment observed on site into context.

| Odour Strength                                                                                                                                       | Intensity Level | Comments                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------|
| No odour/imperceptible                                                                                                                               | 0               | No odour when compared to the clean site                                                      |
| <i>The odour detection threshold (ODT) of 1 ou<sub>E</sub> m<sup>-3</sup> is somewhere between 0 and 1</i>                                           |                 |                                                                                               |
| Slight/very weak                                                                                                                                     | 1               | There is probably some doubt as to whether the odour is present                               |
| Slight/weak                                                                                                                                          | 2               | The odour is present but cannot be described using precise words or terms                     |
| Distinct                                                                                                                                             | 3               | The odour character is barely recognisable                                                    |
| <i>VDI 3940 says that the recognition threshold intensity is generally 3-10 times higher than the ODT (i.e., 3-10 ou<sub>E</sub> m<sup>-3</sup>)</i> |                 |                                                                                               |
| Strong                                                                                                                                               | 4               | The odour character is easily recognisable                                                    |
| Very strong                                                                                                                                          | 5               | The odour is offensive. Exposure to this level would be considered undesirable                |
| Extremely strong                                                                                                                                     | 6               | The odour is offensive. An instinctive reaction would be to mitigate against further exposure |

Table 1 VDI Odour Intensity Scale

#### 2.2.2 SPR Assessment Method

The SPR approach assesses the risk of an adverse odour impact by examining the source characteristics, how effectively the odours can travel from the source to a receptor (i.e., the Pathway) and examining the sensitivity of the receptor. For each of these factors, the guidance provides example risk factors to provide a consistent approach for the assessment. These risk factors are shown in Table 2.

| Source Odour Potential                                                                                                                                                                                                                                                                                                                    | Pathway Effectiveness                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Receptor                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Source odour potential is allocated to one of three levels: small, medium or large.</p> <p>Factors affecting the source odour potential are:</p> <ul style="list-style-type: none"> <li>• The magnitude of the odour release</li> <li>• How inherently odorous the compounds are</li> <li>• The unpleasantness of the odour</li> </ul> | <p>Pathway effectiveness is allocated to one of three levels: highly effective, moderately effective and ineffective,</p> <p>Factors affecting the odour flux to the receptor are:</p> <ul style="list-style-type: none"> <li>• Distance from source to receptor</li> <li>• The frequency of winds from source to receptor</li> <li>• The effectiveness of any mitigation in reducing flux to the receptor</li> <li>• The effectiveness of dispersion/dilution in reducing the odour flux to the receptor</li> <li>• Topography and terrain</li> </ul> | <p>Use professional judgement based on the expectation of the users at the receptor location.</p> <p>However, the assessment usually considered residential receptors that are considered to be highly sensitive.</p> |

Table 2 IAQM Source Pathway Receptor Approach

An example matrix for assessing the outcome is also provided in the guidance and shown in Table 3.

|                       |                      | Source Odour Potential |                 |             |
|-----------------------|----------------------|------------------------|-----------------|-------------|
|                       |                      | Small                  | Medium          | Large       |
| Pathway effectiveness | Highly effective     | Low risk               | Medium risk     | High risk   |
|                       | Moderately effective | Negligible risk        | Low risk        | Medium risk |
|                       | Ineffective          | Negligible risk        | Negligible risk | Low risk    |

Table 3 Risk assessment framework at a specific receptor

## 3 Appraisal

### 3.1 Site location and surroundings

The site is on part of the former Metal Box factory, Figure 1 shows the site. A site visit was made to the area on 7 August 2023 to view the site and its surroundings and the location of sensitive receptors.

The site is a unused part of the former Metal Box factory, other industrial and commercial activities are in place on the site with a furniture supplier directly next door. The area of the site to be used is detailed in the plan in Figure 2. There are residential properties to the south east of the site on the A474, the closest properties are around 170m from the nearest part of the building and separated by the Neath Canal, the railway line and the A474. There are no residential properties within 500m (and generally more than 1km) from SSW clockwise to NNE of the site. Commercial industrial properties are to the NE of the site

There are no other obvious sources of odours relating to industrial operations in the area, there are several fast food premises in the area but there were no odours detected from these apart from directly adjacent to the individual premises. The odours detected in the area near to residential properties on the A474 all related to traffic exhaust related to traffic exhaust at a VDI scale of 3-4.

The frequency of the wind direction is an important consideration in an odour appraisal. To impact on a location, the wind direction must be from the source to a receptor. The frequency of wind directions at a location can be visualised by analysing data and preparing a wind rose. Wind data has been collected<sup>3</sup> from the Mumbles Head site for the years 2018-2022 and a wind rose prepared (shown in Figure 3). The most frequent winds are from the south west quadrant representing just less than 50% of the time.

### 3.2 The Proposed Development

The proposal is to provide approximately just over 8000m<sup>2</sup> of floorspace with associated plant and infrastructure to provide an enclosed aquaculture facility ultimately producing around 1000kg/day of shrimp. The proposal consists of the following elements:

- Refurbishment of building including modified roof to provide clearance for machinery;
- Installation of tanks and water treatment system
- Packing area;

The production system is a two stage process, larvae are introduced into one tank and then subsequently moved to shrimp growth tanks. When fully grown they are moved to an ice packing area and transported off site. Any waste produced will be stored in a covered chilled skip. A process diagram is shown in Figure 4.

To maintain the shrimp health the water is treated to a high standard with UV and ozone treatment. The water is treated to remove fine particles and dissolved organic materials. The water is oxygenated and therefore there are no areas where septic conditions can arise

---

<sup>3</sup> Data collected using the open source Openair and Worldmet software accessing the NOAA database.

that would give rise to odorous compounds. Waste materials from the water treatment and shrimp production will be kept in enclosed skips and removed from the site daily.

The main building is fully enclosed and will be actively ventilated at high level through carbon bag filters, although there are not expected to be strong odours within the building.

With the exception of the chilled waste skips, all the shrimp rearing and water treatment activities are enclosed within the main building. None of the ancillary development is associated with an activity that is potentially odorous. Therefore the only two potential odour sources in the proposed development are the exhaust gases from the main building and the waste skips.

Given the highly aerated environment and that odours are associated with septic conditions that arise in the absence of oxygen the shrimp rearing highly unlikely to be odorous as this would not be compatible with the conditions required for maintaining animal health.

There is a waste water treatment plant located at the on the lower floor of the building, this will be a Klargestor BL biodisc sewage treatment plant. This is an enclosed process within a building, the manufacturers state that the process is odour free<sup>4</sup>. It should be noted that the material treated is the discharged water from the shrimp tanks these held at a high oxygen saturation providing aerobic conditions. It therefore is not treating sewage like wastes that are associated with odorous emissions.

Some solid wastes would be produced from the waste water treatment which will be held in a covered skip and removed from the site regularly.

Both the shrimp rearing tanks and the wastewater treatment plant are located within an enclosed building that would contain any odours produced. All the water used in the processes is oxygenated and therefore septic conditions will not occur. This is therefore expected to be a low risk odour process.

The nearest sensitive receptors are on the A474 to the south east of the proposed development, this is more than 170m from the closest part of the site and most of the site is more than 200m from housing. There is a railway line and a road (the A474) between the proposed facility and the housing.

---

<sup>4</sup> <https://www.tanks-direct.co.uk/klargestor-bl-biodisc-sewage-treatment-plant/p43122>

### 3.3 IAQM SPR Assessment

Two potential odour sources have been included in an odour risk assessment following the SPR approach detailed in the IAQM Odour Guidance, the main building and the waste skips. The outcome of this assessment is shown in Table 4.

Table 4 Source Pathway Receptor Odour Assessment

| Source                     | Source Odour Potential                                                                                                                                                                                                                                         | Pathway Effectiveness                                                                                                                                                                                                                                                                        | Receptor                                               | Odour Risk and Justification                                                                                                     |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Main building</b>       | <p>Not expected to be handling odorous material. Most of the processes are maintained in a highly aerobic condition resulting in little chance of septicity.</p> <p>Carbon filters are fitted to treat discharge air.</p> <p>Negligible-Small odour source</p> | <p>Main site is located more than 170m from the from sensitive residential receptors.</p> <p>Prevailing winds are from the south west quadrant.</p> <p>Ventilation extracts discharge at high level.</p> <p>Ineffective pathway effectiveness owing to distance and height of discharge.</p> | Residential properties are considered to be sensitive. | <p>The odour risk is considered to be Negligible.</p> <p>Negligible/Small scale odour source. pathway.</p>                       |
| <b>Chilled waste skips</b> | <p>Covered and chilled waste skips containing production and water treatment waste.</p> <p>Containers emptied at least daily.</p> <p>Containers are covered and are physically small.</p> <p>Small odour source.</p>                                           | <p>Skips are located more than 200m from sensitive receptors.</p> <p>Skips are covered.</p> <p>Ineffective pathway effectiveness as source is enclosed and more than 200m from receptors.</p>                                                                                                | Residential properties are considered to be sensitive. | <p>The odour risk is considered to be Negligible.</p> <p>Small scale odour source.</p> <p>Ineffective pathway effectiveness.</p> |

As can be seen, the outcome of the odour risk assessment is that there is a negligible/low risk of adverse odour impacts from the current arrangements at the site.

### 3.4 Operational Odour Control

An odour management plan (OMP) will be prepared prior to the facility opening. This plan will be based on the requirements detailed in the IAQM guidance and the overall structure is shown in Figure 4. This will detail the routine controls to be implemented for odour control including the maintenance of the ventilation system and carbon filters. It will also

## Odour Appraisal

include additional controls for when there are abnormal conditions and the triggers for these controls. The document will also include an odour monitoring programme which will be put in place once the plant is commissioned, this will be reviewed regularly to ensure that the frequency of monitoring is compatible with the observed risk.

## 4 Conclusions

An assessment has been carried out to examine the risks of adverse odour impacts on future occupiers of a proposed aquaculture facility for shrimp production located on part of the Metal Box site at Neath. The rearing process consists of two stage process of aerated tanks, with shrimp moving to the larger tanks as they grow. A high quality of water is required to maintain the shrimp in good health and the overall potential for odour generation within the process is low. Although it is not expected to have high odour levels, it is proposed to fit carbon filters to treat the extracted air which will discharge at high level and over 200m from residential properties.

There is a water treatment system within the building that treats the water from the rearing tanks. The treatment is largely for dissolved organic and carbon dioxide removal and does not treatment highly organic material such as sewage. Sludge is removed from the water treatment process, kept in covers storage which is emptied daily.

An assessment of the likely odour impacts has been made using the Source Pathway Receptor approach detailed in the IAQM guidance on the assessment of odours for planning. Given that the emissions are expected to have a low odour level and are treated by carbon filter, and the pathway to the nearest sensitive receptor is ineffective, there is a negligible/low risk of unacceptable odours.

An odour management plan will be prepared prior to the site beginning operation that will detail the odour control measures, the planned responses to any observed odour incidents and a regular odour monitoring plan for the site. This will provide a framework to ensure that odours are managed by the facility to avoid adverse impacts offsite.

## Figures

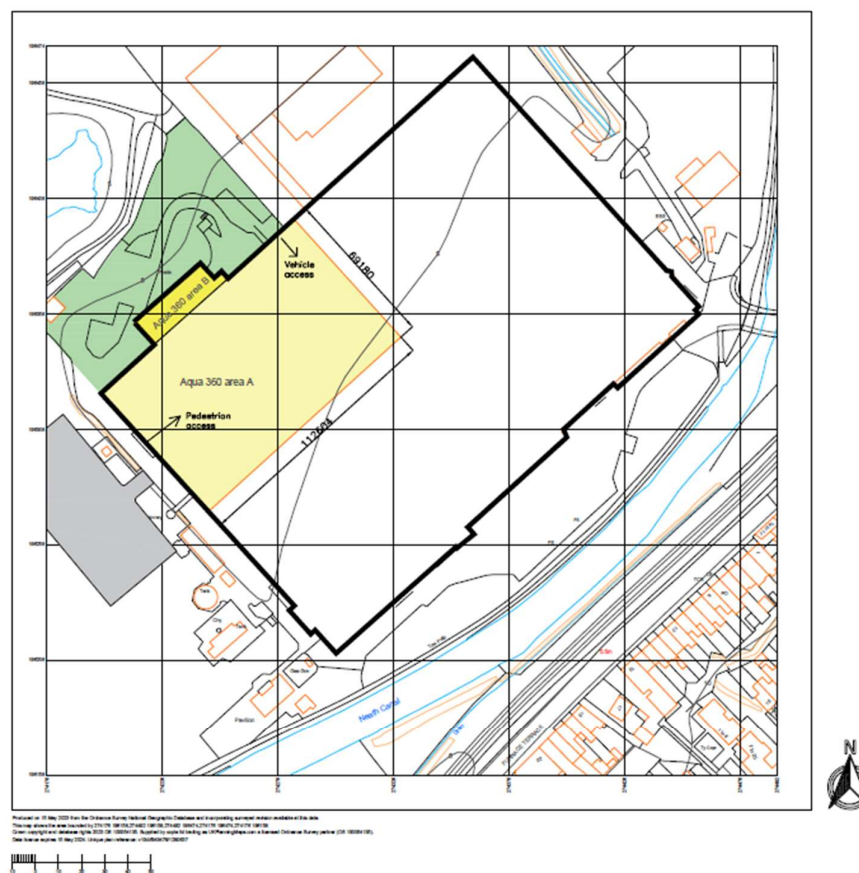
Odour Appraisal

Figure 1 Site Location Plan (Google Earth)



### Odour Appraisal

Figure 2 Location of proposed facility within Metal Box building



Odour Appraisal

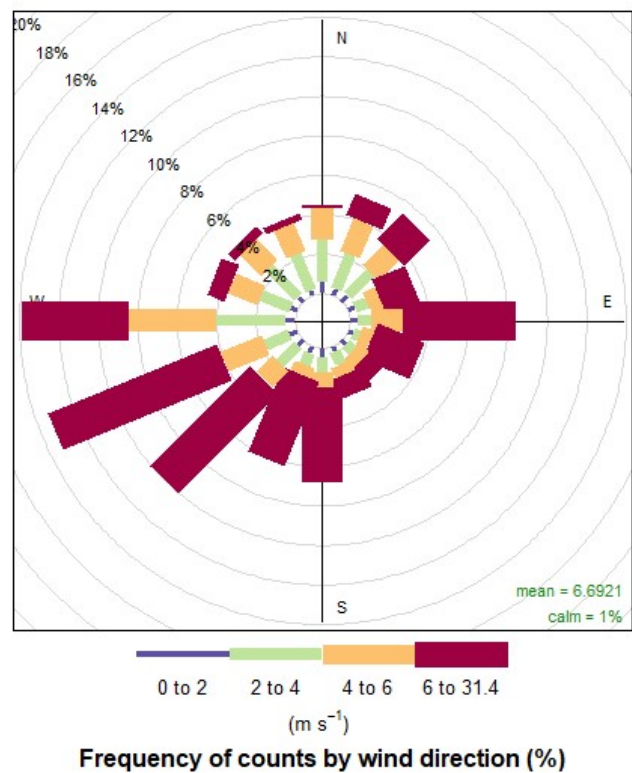


Figure 3 Windrose for Mumbles Head 2018 – 2022

## Odour Appraisal

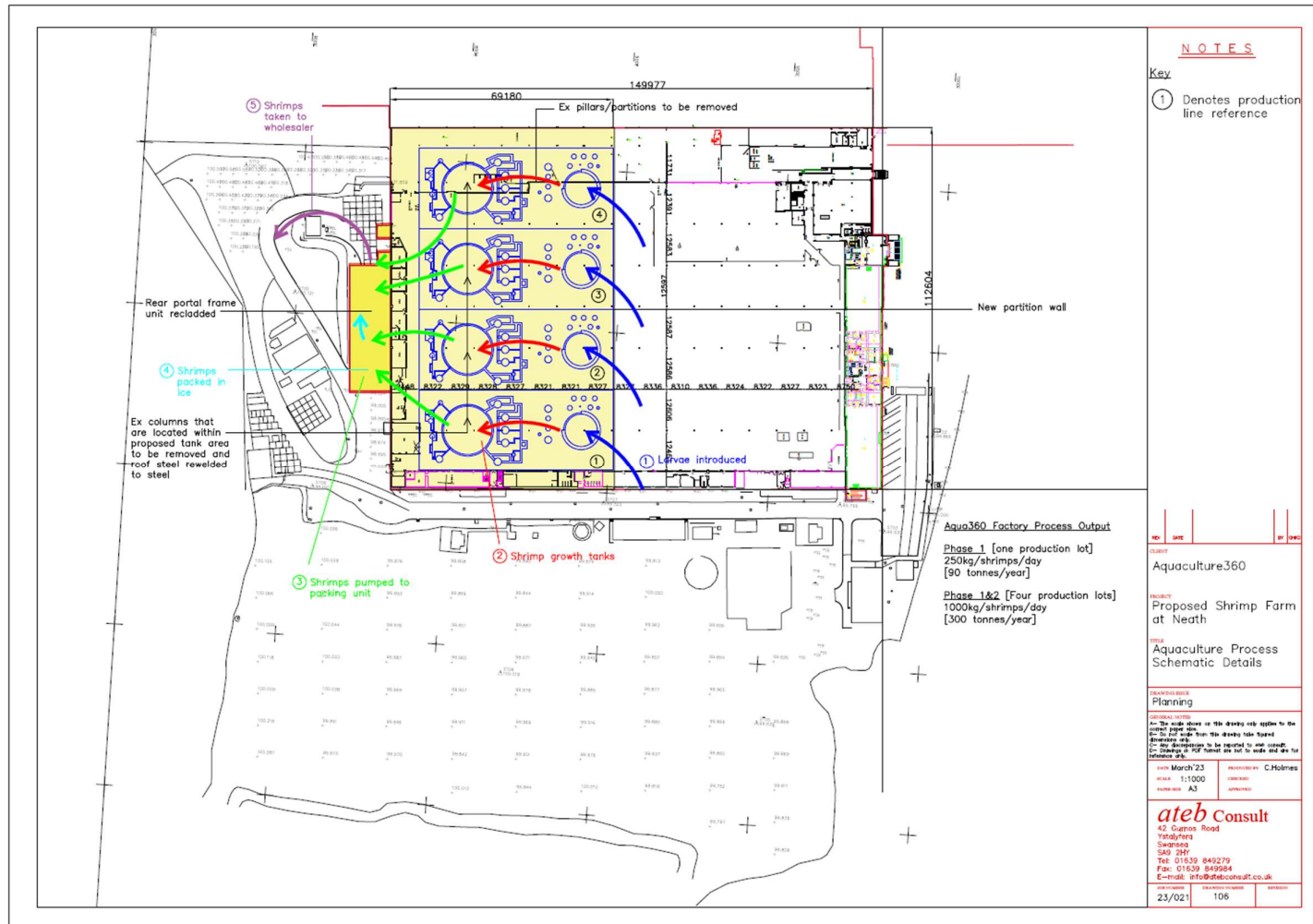


Figure 4 Process layout plan (ateb Consult)

**Table 8: Recommended content of an OMP for planning purposes**

| ESSENTIAL SITE DETAILS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A process description, particularly describing odorous, or potentially odorous, activities or materials used (inventory)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Identification of all the release points for each of the activities (plan/map)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Identification of the sensitive receptors within the area of influence that could be impacted (plan/map)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| A description of the meteorological conditions prevailing at the site, especially wind direction. A wind rose (from a nearby representative meteorological station or from site sensors if installed) is an ideal format.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| ROUTINE CONTROLS UNDER NORMAL CONDITIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| A description of the <i>routine</i> mitigation/control measures that would be used day-to-day under normal operating conditions in the absence of any unusual risk factors. Examples of routine control measures include receipt, inspection, acceptance/rejection of materials, storage, containment, handling, treatment and timing of activities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| A list of the actions in detail and who is responsible for carrying them out.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| REASONABLY FORESEEABLE ABNORMAL CONDITIONS AND ADDITIONAL CONTROLS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Identification of possible risk factors (e.g. adverse weather conditions) and anticipation of reasonably foreseeable odour-related incidents and accidents (e.g. abnormal situations, spillages, power failure, breakdown of doors, equipment or abatement) and a listing of the consequences for odours of these risk factors.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| A description of the <i>additional</i> measures (e.g. additional control measures and modifications to site operations, such as diverting odorous waste loads to facilities with less sensitive surroundings during adverse weather conditions) that will be applied during these periods to deal with these risks and any reasonably foreseeable incidents and accidents. It should be stated that if all the measures are shown not to be sufficient, then they will need to be tightened further or else, possibly ceasing/reducing odorous operations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| A list of the actions in detail and who is responsible for carrying them out                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| TRIGGERS FOR ADDITIONAL CONTROLS AND CHECKS ON EFFECTIVENESS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| A description of what would trigger this further action/additional measures, such as: <ul style="list-style-type: none"> <li>– the results of planned routine checks/inspections/surveys on site;</li> <li>– the results of on-site measurements of process parameters and surrogate measurements for odour (e.g. pH, temperature, oxygen, etc) exceeding defined trigger levels;</li> <li>– other metrics, such as particular meteorological conditions (e.g. temperature above a certain value, wind blowing in a particular direction, or calms); and</li> <li>– odour monitoring on- and/or off-site, including: <ul style="list-style-type: none"> <li>• odour complaints monitoring (which should be carried out for all sites);</li> <li>• monitoring carried out on-site, showing non-compliance with any emission limit values (ELVs) set for controlled point source releases; and</li> <li>• monitoring carried out off-site (e.g. by sniff testing, odour diary surveys, etc), showing non-compliance with any action levels for ambient odour levels.</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                   |
| MANAGEMENT GOOD PRACTICE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| A description of: <ul style="list-style-type: none"> <li>– the roles and responsibilities of personnel on site (e.g. organisational chart); and</li> <li>– the training and competence of staff in odour-critical roles</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Details of how the following will be carried out, and who has been assigned managerial and operational responsibilities for them: <ul style="list-style-type: none"> <li>– implementing and maintaining the OMP;</li> <li>– responding to odour-related incidents and any elevated odour levels from the aforementioned checks/inspections/surveys, monitoring, or on receipt of complaints of odour nuisance; including carrying out investigations and taking appropriate remedial action to prevent recurrence;</li> <li>– planned maintenance and repair and the keeping of essential odour-critical spares;</li> <li>– regular review (at least once per year) of the effectiveness of odour controls - including the OMP itself - taking account of complaints, monitoring results, inspections, surveys and other information and feedback received. This interval may be shorter if there have been complaints or relevant changes to your operations or infrastructure;</li> <li>– engaging with your neighbours and communicating with relevant interested parties (e.g. local community and local authority) to provide necessary information and minimise their concerns and complaints, including methods used, content and frequency of communication; and</li> <li>– keeping records of all activities and actions relating to odour and the OMP.</li> </ul> |

**Figure 5 Recommended content of OMP from IAQM Guidance**