Odour Management Plan

Taw Valley Creamery

Client: EHS Projects Ltd

Reference: 3558-3r1

Date: 28th November 2025

Report Issue

Report Title: Odour Management Plan - Taw Valley Creamery

Report Reference: 3558-3

Report Version	Issue Date	Issued By	Comments
1	28th November 2025	Ger Parry	-

Serendipity Labs, Building 7, Exchange Quay, Salford, M5 3EP

info@red-env.co.uk | 0161 706 0075 | www.red-env.co.uk

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1.0 INTRODUCTION

1.1.1 Redmore Environmental Ltd was commissioned by EHS Projects Ltd to produce an Odour Management Plan (OMP) in support of an Environmental Permit Variation Application for the Arla Taw Valley Creamery in North Tawton, Devon.

1.1.2 The facility currently operates under an Environmental Permit (EPR/NP3638NN/V005) issued by the Environment Agency (EA). This authorises the following activities as specified under Schdule 1 of the Environmental Permitting (England and Wales) Regulations 2016:

- Section 6.8 Part A1 (e): Treating and processing milk with the quantity of milk received being more than 200 tonnes per day (average value on annual basis); and,
- Section 5.4 Part A1 (a) (i): Biological treatment of non-hazardous wastewater.

1.1.3 An Environmental Permit Variation Application is being made to the EA in order to authorise a number of changes to operations and infrastructure at the site. These include the addition of a new mozzarella manufacturing line and the installation of a replacement Effluent Treatment Plant (WwTP).

1.1.4 The proposed changes have the potential to alter the odour emission profile of the facility and result in impacts at sensitive locations in the vicinity of the site. As such, an OMP has been prepared to formalise the measures that will be used to control odour effects to an acceptable level.

1.1.5 The purpose of this OMP is to:

- Establish the likely sources of odour arising from operations at the facility;
- Set out the procedures followed at the site in order to prevent or minimise odour emissions during normal operating scenarios;
- Set out the corrective actions and remedial measures utilised to prevent or minimise odour emissions during abnormal and emergency events;
- Confirm the procedures for monitoring and maintenance at the facility;
- Formalise the procedures for dealing with any odour complaints;
- Formalise the procedures for neighbour and community engagement;

- Confirm the responsibilities with respect to implementation of the OMP and ensuring ongoing compliance with its requirements;
- Confirm the procedures for staff training in relation to odour control and use of the OMP; and,
- Formalise the OMP review and update procedures.

1.1.6 The OMP has been prepared with reference to the following best practice guidance:

- H4: Odour Management, Environment Agency (EA), 2011[1];
- Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries, European Commission (EC), 2019[2]; and,
- Best Available Techniques (BAT) Reference Document for Waste Treatment, EC, 2018[3].

1.1.7 In accordance with the stated guidance, this OMP has been designed to:

- Employ appropriate methods, including monitoring and contingencies, to control and minimise odour pollution;
- Prevent unacceptable odour pollution at all times; and,
- Reduce the risk of odour releasing incidents or accidents by anticipating them and planning accordingly.

1.1.8 This OMP has considered sources, releases and impacts, and used these to identify opportunities for odour management.

1 H4: Odour Management, EA, 2011.

2 Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries, EC, 2019.

3 Best Available Techniques (BAT) Reference Document for Waste Treatment, EC, 2018.

2.0 PROCESS DESCRIPTION

2.1 Introduction

2.1.1 A summary of operations at the facility incorporating the changes proposed under the Environmental Permit Variation is provided in the following Sections.

2.2 Management

2.2.1 The overall management responsibility for the facility lies with Arla. Day to day management is undertaken by an appointed Site Manager who deals specifically with the operation of the site.

2.2.2 All procedures relating to operations at the site have been developed to ensure the protection of local environmental receptors and permit compliance and are documented in a written Environmental Management System (EMS) for the facility which holds ISO 140001:2015 certification. The OMP is incorporated into the EMS for the facility.

2.3 Milk Intake

2.3.1 The current Environmental Permit allows for a maximum daily intake of 1,950,000 litres of raw milk. Typically, with an opening stock of around 800,000 litres, the site receives approximately 1,150,000 litres per day under normal operations.

2.3.2 With the planned expansion for mozzarella production, the daily milk intake capacity will increase to 2,000,000 litres, supported by new milk silos and upgraded reception infrastructure.

2.4 Finished Product Capacity

2.4.1 The site's current finished product capacity, as previously communicated to the EA, is as follows:

- Whey Protein Concentrate (WPC-62%): 12 tonnes per day;
- Powder: 55 tonnes per day;
- Butter: 15 tonnes per day (no longer made on site); and,

- Cheese: 135 tonnes per day.

2.4.2 The introduction of mozzarella will increase overall production. The new mozzarella plant is projected to produce 88 tonnes per day, with an associated WPC-82% output of approximately 17-tonnes per day. Changes to the product mix, including the increase in WPC concentration, will partially offset the increase in production capacity.

2.5 Milk Reception and Handling

2.5.1 Raw milk is delivered daily in insulated bulk tankers from local farms. Upon arrival, each tanker is weighed using calibrated scales and collection tickets are cross-checked against the supplier records. Quality control is performed on every tanker by taking a representative milk sample which is tested for temperature, bacterial counts, antibiotic residues, fat and protein content, and other regulatory parameters. Only milk meeting quality criteria is accepted for processing.

2.5.2 Milk is directed to one of four intake bays and pumped into one of eleven stainless steel silos. Silo allocation is determined by available capacity, product grade, and first-in-first-out rotation to maintain freshness. Each silo is fitted with high-level and high-high level safety probes, automatic valves, and real-time temperature monitoring. Clean-In-Place (CIP) systems ensure the internal surfaces are hygienically cleaned without manual intervention. Milk is recirculated through internal piping during CIP, guaranteeing all contact surfaces meet strict hygiene standards. Silo sequencing and automation ensure consistent milk flow to downstream processes while reducing the risk of contamination or equipment overloading.

2.5.3 Additionally, the milk handling infrastructure is integrated with Supervisory Control and Data Acquisition (SCADA) systems, allowing remote monitoring of tank levels, flow rates, temperatures and alarms. Milk transfers are synchronised with production schedules to optimise usage for the cheddar, WPC, and mozzarella lines.

2.6 Cheese Production

Raw Materials Intake

2.6.1 In addition to milk, starter cultures, rennet, colourings, salt and packaging materials are inspected for microbiological quality, weight accuracy and compliance with storage requirements. Perishable ingredients are stored in chilled conditions (typically 2°C to 4°C), while long-term items are frozen to prevent degradation. All material handling is documented to meet food safety and traceability standards.

Milk Preparation and Ripening

2.6.2 Milk is transferred to stainless steel processing vats equipped with temperature control jackets and mechanical agitators. Starter cultures are added at specific rates based on pH monitoring and rennet is added to initiate coagulation. The milk is gently stirred to ensure uniform distribution of enzymes and bacterial cultures. During ripening, pH and temperature are continuously monitored to achieve consistent acid development and flavour profiles.

Coagulation and Curd Formation

2.6.3 After ripening, rennet coagulates milk into curds. The curds are cut using automated knives to a uniform size to promote whey drainage while maintaining the desired moisture content. The curds are then gently heated and scalded to firm the structure, with continuous monitoring of temperature and pH. Controlled stirring ensures even curd consistency across the vat.

Whey Separation and Cheddaring

2.6.4 Curds are drained of whey and moved to the cheddaring tower. Automated stackers and turners press the curds to expel additional whey and develop the characteristic cheddar texture. After stacking, curds are cut, milled and salted. Salt addition is controlled to achieve precise moisture content and flavour, while also supporting preservation. Curds are stored in ambient conditions for a defined maturation period to ensure uniform salt distribution and texture.

Pressing and Block Formation

2.6.5 Curds are placed in stainless steel molds and pressed under monitored pressure to form uniform blocks. Pressing times and pressure are adjusted depending on block size and moisture content. After pressing, blocks are cooled, cut to size and prepared for packaging.

Packaging, Boxing and Distribution

2.6.6 Blocks are individually wrapped, sealed and passed through metal detectors and leak testers. Packages are weighed and coded with batch information. Boxes are rapidly chilled to preserve quality, then palletised and stored under controlled conditions. Finished products are dispatched in refrigerated vehicles, ensuring cold chain integrity until delivery.

2.7 Whey and Cream Processing - Arla Foods Ingredients (AFI)

2.7.1 After cheddar production, whey streams (sweet and salt) are collected in dedicated stainless-steel tanks. Sweet whey undergoes clarification to remove residual curd particles and minimise solids content before cream extraction. Salt whey is clarified in a similar way and cream is partially recovered and blended with sweet whey cream. Cream and skim milk are separated using centrifugal separators, with skim milk pasteurised using duplex pasteurisers operating intermittently. Pasteurisation follows strict temperature-time control (74°C for 15 seconds, divert set at 72.5°C) to ensure microbial safety. CIP cleaning occurs after every batch to prevent cross-contamination.

Whey Protein Concentration and Permeate Production

2.7.2 Clarified whey is sent to ultrafiltration (UF) membranes to produce WPC-60/62%. Retentate is concentrated, re-pasteurised and dried to produce high-protein powders. Permeate containing lactose and minerals is concentrated and partially demineralised to produce whey permeate powder. All steps are closely monitored for solids content, temperature, flow rates and microbial safety.

Cream Handling and Storage

2.7.3 Recovered cream is stored in insulated Cream Storage Tanks (CSTs) with automated level and temperature controls. Cream can be redirected for cheddar, mozzarella or offsite use. Batch traceability ensures each stream is documented for quality and regulatory compliance.

Process Controls and Utilities

2.7.4 SCADA systems monitor flow rates, pressures, membrane integrity and CIP cycles. All pumps, valves and separators operate under automated control with alarms for deviations. Utilities such as chilled water, steam and cleaning chemicals are precisely regulated to support continuous operation. Temperature sensors, flow meters and conductivity probes ensure product integrity, compliance and efficiency.

2.8 Mozzarella Production

Overview

2.8.1 The mozzarella facility is a two-phase expansion:

- Phase 1: Reorientation of existing infrastructure to create space for mozzarella production including new milk silos, relocated cheddar dispatch, warehouse reallocation, a packaging store, two new CIP facilities and an enclosed recycling compound; and,
- Phase 2: Construction of a dedicated mozzarella plant south of the site, including frozen warehouse, utility room, dispatch facility and additional silos.

2.8.2 The new mozzarella facility is designed for high throughput with automated material handling, strict quality control and integration with existing site utilities to ensure sustainability and efficiency.

Raw Milk Handling and Pre-Treatment

- Daily milk requirements for Mozzarella production will increase to 1,950,000 litres;

- Seven existing silos will be replaced with six larger-capacity silos for improved storage and rotational efficiency;
- Milk is cooled via glycol from a new ammonia refrigeration plant with heat recovery, supplying ice water and low-temperature hot water (LTHW) to reduce steam demand;
- Milk pre-treatment includes clarification, standardisation and filtration to remove debris and ensure uniform fat/protein content; and,
- SCADA-monitored flow meters and temperature probes ensure consistent milk quality before it enters the production line.

Pasteurisation and Membrane Filtration

- Milk is separated into skim and cream using high-capacity centrifugal separators;
- Skim milk is concentrated through UF and microfiltration (MF) membranes producing retentate for mozzarella cheese;
- Permeate streams are further processed into WPC or whey powder for offsite use, ensuring no waste and maximising resource efficiency; and,
- Pasteurisation occurs at precisely controlled temperature and flow conditions with automated diverting to reject milk outside target parameters.

Mozzarella Cheese Processing

- **Cooking and Stretching**: Retentate is cooked in stainless steel vessels reaching the correct temperature and pH to allow the curd to stretch correctly;
- **Forming**: Stretched curds are portioned automatically using volumetric or weight-based portioning systems to ensure consistent block size;
- **Cooling**: Portions are cooled rapidly to maintain texture and minimize microbial growth; and,
- **Freezing**: Mozzarella portions are individually quick frozen (IQF) in blast freezers. Automated conveyors minimize handling and reduce contamination risk.
- **Packing**: Frozen mozzarella is packed in hygienic, sealed packaging suitable for storage and distribution. Packaging lines include automated weight checks, metal detection and batch coding for traceability; and,
- **Storage**: Finished products are stored in dedicated cold storage with temperature, humidity and airflow control to maintain quality. Inventory is managed via automated warehouse systems for efficient dispatch.

Quality Control and Traceability

- Inline pH, temperature and conductivity sensors monitor critical process parameters;
- Each batch is traceable from milk intake to finished IQF product, meeting strict food safety standards;
- Samples from each production batch are tested for microbiological quality, moisture, fat content and melt characteristics to confirm product compliance; and,
- Deviations trigger automated alerts and batch diversion to ensure only compliant product enters the cold store.

Utility Integration

- **Refrigeration**: Centralised ammonia cooling plant with heat recovery and heat pump, supplying LTHW and ice water to production and cleaning systems;
- **Steam**: A small (<3MW_{th}) steam boiler supports batch cookers and CIP processes;
- **Water**: Borehole supply supplemented with reverse osmosis (RO) water which is polished and reused for cleaning;
- **Solar Panels**: New roofs include solar panels for electricity generation and reduction of grid dependency; and,
- **Compressed Air**: Powers automated valves, packaging systems and instrumentation.

Cleaning and Clean-In-Place Integration

- Two new CIP facilities support the mozzarella plant and reconfigured production lines;
- CIP cycles are automated and monitored via SCADA for detergent dosing, temperature and flow rate; and,
- Cleaning solutions are recycled and neutralised where possible to reduce water and chemical consumption.

Dispatch and Logistics

- Finished IQF mozzarella is palletized and stored in cold storage prior to dispatch;
- Automated warehouse systems optimise stock rotation and order fulfilment; and,
- Products are shipped in temperature-controlled vehicles, maintaining the cold chain from production to customer delivery.

2.9 Wastewater Treatment

2.9.1 The mozzarella effluent will be treated in a dedicated, purpose-built aerobic WwTP which replaces the existing plant. The facility is designed to treat up to 750,000 litres per day, with future expandability to integrate other site streams, if required. The plant is designed with full automation and resilience, ensuring consistent performance while minimising environmental risks.

Fat, Oil and Grease Separator and Transfer Pumps

2.9.2 Incoming effluent first passes through a fat, oil and grease (FOG) separator, which removes floating oils and grease from the wastewater stream. The separated FOG is collected and transferred using duty and standby pumps to a designated collection area for proper disposal or treatment.

Screening and Collection

2.9.3 A screening system removes large solids and debris from the wastewater before it enters the main treatment process. Screenings are directed via chutes into collection bins at ground level and hose points are provided for cleaning any spillages, ensuring a hygienic process.

Incoming Effluent Sampler

2.9.4 After screening, a 24-hour composite sampler automatically collects samples of the incoming wastewater. This enables continuous monitoring of effluent characteristics, including pH, Chemical Oxygen Demand (COD) and other critical parameters. Sampling ensures compliance with regulatory standards and supports process optimisation.

Balance Tank with Aerator Mixers

2.9.5 The balance tank receives screened effluent and provides a consistent flow to downstream treatment. Three aerator mixers are installed at low level to maintain homogeneity, prevent solids settling and promote oxygenation if needed. The tank includes radar-level transmitters to monitor volumes and facilitate automated flow control.

Divert Tank

2.9.6 The plant includes a divert tank of equivalent capacity to the balance tank to isolate effluent that is out of specification, such as wastewater with high or low pH or excessive COD. Out-of-specification effluent can be slowly returned to the balance tank for treatment or, in extreme cases, tankered off-site. The tank is also equipped with aerators, sampling points and level monitoring for safe and controlled operation.

Dissolved Air Flotation

2.9.7 The Dissolved Air Flotation (DAF) unit removes suspended solids and reduces COD levels. Effluent is pre-treated in a hydraulic flocculator where chemicals including hydrochloric acid, sodium hydroxide and coagulants are dosed using duty/ standby variable stroke pumps. The DAF floats sludge for removal with pumps transferring collected material to the storage tank.

Anoxic and Aeration Tanks

2.9.8 The anoxic tank facilitates denitrification by creating low-oxygen conditions, allowing bacteria to convert nitrates to nitrogen gas. Effluent from the DAF and returned sludge are mixed under controlled conditions. Following this, the aeration tanks provide oxygen-rich conditions to support biological treatment via activated sludge. Aeration is provided by fine bubble grids powered by variable-speed blowers controlled through sensors to maintain optimal dissolved oxygen levels.

Membrane Bioreactor

2.9.9 The Membrane Bioreactor (MBR) system combines biological treatment with UF membranes. It produces high-quality treated effluent suitable for reuse or discharge. Sludge from the MBR is collected in dedicated tanks and duty/standby pumps manage sludge transfer and recirculation.

Reverse Osmosis

2.9.10 The RO system separates water from dissolved solids, enabling recovery of up to 1,000m³ per day for reuse in cleaning and process water. Semi-permeable membranes ensure

high-quality output water, reducing borehole water demand and supporting the site's sustainability goals.

Final Effluent Sampling

2.9.11 Before discharge, effluent is continuously monitored for quality parameters such as total phosphorus, total nitrogen, and other relevant indicators. Automated samplers ensure compliance with permit limits and facilitate real-time process control.

Chemical Storage and Dosing

2.9.12 Bunded bulk chemical tanks store hydrogen chloride, ferric chloride, caustic, coagulants and polymers with double containment. Duty/ standby dosing pumps deliver chemicals to the process as required, with automatic control via the SCADA system. This ensures precise dosing, environmental compliance and safety in handling hazardous substances.

Compressed Air and Wash Water

2.9.13 Compressed air, generated via on-site compressors, powers pneumatic control systems and instrumentation around the plant. Wash water points throughout the WwTP bund provide cleaning and spill management, maintaining operational hygiene and safety.

Sludge Dewatering

2.9.14 A screw press dewaters sludge, substantially reducing waste volume before off-site disposal. Dewatering improves sludge handling efficiency and lowers the environmental footprint of waste management.

Commissioning and Maintenance

2.9.15 Following installation, the plant will undergo commissioning to confirm performance against design specifications. Site staff will be trained in operations and maintenance, with Standard Operating Procedures (SOPs) and a maintenance programme ensuring long-term reliability and regulatory compliance.

3.0 ODOUR MANAGEMENT PLAN

3.1 Overview

3.1.1 The OMP for the facility follows and addresses the various activities which have the potential to create odour. The following steps were undertaken in order to produce the OMP:

- Identification of odour sources;
- Formalisation of odour control measures;
- Consideration of the site location and sensitive receptors that could potentially be affected by odour emissions;
- Risk assessment of potential issues and identification of control measures;
- Production of an odour monitoring procedure;
- Formalisation of the facility monitoring and maintenance procedures;
- Production of emergency operating procedures and odour control measures;
- Production of a complaints handling procedure;
- Formalisation of the procedures for neighbour and community engagement;
- Formalisation of the responsibilities with respect to implementation of the OMP and ensuring ongoing compliance with its requirements;
- Formalisation of the procedures for staff training in relation to odour control and use of the OMP; and,
- Formalisation of the OMP review and update procedure.

3.1.2 These aspects are detailed in the following Sections.

3.2 Odour Sources

3.2.1 Potential odour sources associated with the operation of the facility are summarised in Table 1.

Table 1 Odour Sources

Process Area / Source		Source Description	Emission Type	Description of Odours and Hedonic Tones	Odour Potential
1	Boiler No. 1	Stack serving 10.9MW_{th} natural gas fired boiler	Continuous point source emissions	• Burn, smoky: -1.53 • Household gas: -2.30	**Very Low** - Complete combustion of natural gas does not typically result in significant odour emissions
2	Boiler No. 2	Stack serving 11.3MW_{th} natural gas fired boiler	Continuous point source emissions	• Burn, smoky: -1.53 • Household gas: -2.30	**Very Low** - Complete combustion of natural gas does not typically result in significant odour emissions
3	Baghouse fan outlet	Vent serving the baghouse filter	Continuous point source emissions	• Dry, powdery: -0.07 • Sweet: 2.03	**Very Low** - Whey powder production does not typically result in significant odour emissions due to the nature of the materials handled and the predominantly dry, non-volatile airstreams involved
4	Receiving baghouse vent	Vent serving the baghouse filter	Continuous point source emissions	• Dry, powdery: -0.07 • Sweet: 2.03	**Very Low** - Whey powder production does not typically result in significant odour emissions due to the nature of the materials handled and the predominantly dry, non-volatile airstreams involved
5	Cooling Crystallisation Concentrator (CCC) exhaust	Exhaust vent serving the CCC process	Continuous point source emissions	• Sweet: 2.03	**Low** - The CCC system handles clean whey which when processed under the correct conditions has a low odour emission potential
6	Combined Heat and Power (CHP) unit stack	Stack serving natural gas fired CHP units	Continuous point source emissions	• Burn, smoky: -1.53 • Household gas: -2.30	**Very Low** - Complete combustion of natural gas does not typically result in significant odour emissions

Process Area / Source		Source Description	Emission Type	Description of Odours and Hedonic Tones	Odour Potential
7	Steam safety valves	Emergency Pressure Release Valves (PRVs) serving processes across the site	Point source emissions during emergency events only	• Musky: 0.21	**Very Low** - PRVs only operate during emergency scenarios and discharge clean steam to atmosphere when operational
8	CIP tank vents	Vents serving the CIP tanks installed across the site	Point source emitting once or twice during a 24-hour period	• Cleaning fluid: -1.69 • Disinfectant, carbolic: -1.60	**Low** - Emissions consist primarily of steam and clean displaced air arising from non-organic cleaning solutions
9	Condensate valves	Vents serving condensate lines installed across the site	Point source emissions	• Musky: 0.21	**Low** - Emissions consist primarily of clean steam, water vapour and small amounts of non-condensable gases
10	Raw milk and whey silo vents	Vents serving the raw milk and whey silos which exhaust displaced air during filling	Point source emissions	• Sweet: 2.03 • Sour milk: -2.91	**Low** - The raw milk and whey silos are temperature controlled to present degradation of materials and associated odour emissions. Fresh milk and whey do not typically result in significant odour emissions
11	WwTP	Open and closed effluent treatment processes and infrastructure	Point source and diffuse emissions	• Sewer odour: -3.68 • Faecal (like manure): -3.36 • Disinfectant: - 1.60	**Medium** - Combination of enclosed and open sources. Aerobic wastewater treatment operations have the potential to result in moderately offensive odours
12	Ammonia refrigeration plant	Ammonia-based cooling systems used in product storage and process cooling	Fugitive emissions as a result of any leaks	• Ammonia: -2.47	**Low** - During normal operation due to the enclosed nature of the cooling systems
13	Chemical storage	Cleaning chemical stored for use in the CIP systems	Fugitive emissions	• Cleaning fluid: -1.69 • Disinfectant, carbolic: -1.60	**Very Low** - All chemicals are stored in containers prior to use. The chemicals are delivered to the CIP systems via closed loops

Process Area / Source		Source Description	Emission Type	Description of Odours and Hedonic Tones	Odour Potential
14	Waste storage	Palletised and containerised general and food waste awaiting disposal	Fugitive emissions	• Sour milk: -2.91 • Stale: -2.04 • Oily, fatty: -1.41	**Low** - All waste materials are stored in covered skips and bins. Frequent removal of waste materials is undertaken to minimise storage time and the potential for odour emissions

3.3 Odour Control Measures

3.3.1 Appropriate measures are employed at the facility in order to control and minimise odour pollution. These are summarised in Table 2.

Table 2 Odour Control Measures

Source/ Process Area	Control Measures
Milk/ whey intake and storage within silos	• Quality control is performed on every delivery tanker by taking a representative milk sample, which is tested for temperature, bacterial counts, antibiotic residues, fat and protein content, and other regulatory parameters. Only milk meeting quality criteria is accepted for processing • Inspection and cleaning of the tanker bays and hoses in undertaken after each milk delivery. Hoses are flushed and sanitised using approved chemicals • Back boxes, unloading taps and pipework are inspected and cleaned prior to each use • Silo allocation is determined by available capacity, product grade, and first-in-first-out rotation to maintain freshness • The raw milk and whey silos are temperature controlled to present degradation of materials and associated odour emissions • Each silo is fitted with high-level and high-high level safety probes to prevent overfilling, automatic valves, and real-time temperature monitoring • CIP systems ensure the internal surfaces are hygienically cleaned without manual intervention • The milk handling infrastructure is integrated with the site SCADA systems, allowing remote monitoring of tank levels, flow rates, temperatures and alarms • All spills are cleared in accordance with the Spill Kit Contents and Procedure for the facility • All critical systems, tanks, vessels, ductwork and associated vents are maintained in accordance with the site's approved PPM schedule • Daily cleaning of floors, walls and external surfaces in undertaken with approved detergents • Odour Monitoring is undertaken daily in order to ensure impacts do not occur as a result of emissions from the site. Reference should be made to Section 3.7 for full details of the monitoring procedure

Source/ Process Area	Control Measures
Cheese production	• Perishable ingredients are stored in chilled conditions (typically 2°C to 4°C). Long-term items are frozen to prevent degradation • All material handling is documented to meet food safety and traceability standards • All stainless steel processing vats are equipped with temperature control jackets and mechanical agitators • Cheese blocks are packaged and rapidly cooled to preserve quality and prevent degradation • CIP cycles are automated and monitored via SCADA for detergent dosing, temperature and flow rate • Daily cleaning of floors, walls and external surfaces is undertaken with approved detergents • Drains, conveyors and packaging lines are manually cleaned and sanitised in accordance with defined schedules • All spills are cleared in accordance with the Spill Kit Contents and Procedure for the facility • All critical systems, tanks, vessels, ductwork and associated vents are maintained in accordance with the site's approved PPM schedule • Odour Monitoring is undertaken daily in order to ensure impacts do not occur as a result of emissions from the site. Reference should be made to Section 3.7 for full details of the monitoring procedure
Whey and cream processing	• Pasteurisation follows strict temperature-time control (74°C for 15 seconds, divert set at 72.5°C) to ensure microbial safety. CIP cleaning occurs after every batch, preventing cross-contamination and odour emissions • Recovered cream is stored in insulated CSTs with automated level and temperature controls to prevent overfilling and degradation • Spray dryers, pasteurisers and UF equipment are subject to CIP after each batch • SCADA systems monitor flow rates, pressures, membrane integrity and CIP cycles. All pumps, valves and separators operate under automated control with alarms for deviations • Utilities such as chilled water, steam and cleaning chemicals are precisely regulated to support continuous operation. Temperature sensors, flow meters and conductivity probes ensure product integrity, compliance and efficiency • Daily cleaning of floors, walls and external surfaces is undertaken with approved detergents • All spills are cleared in accordance with the Spill Kit Contents and Procedure for the facility • All critical systems, tanks, vessels, ductwork and associated vents are maintained in accordance with the site's approved PPM schedule • Odour Monitoring is undertaken daily in order to ensure impacts do not occur as a result of emissions from the site. Reference should be made to Section 3.7 for full details of the monitoring procedure

Source/ Process Area	Control Measures
Mozzarella production	• SCADA-monitored flow meters and temperature probes ensure consistent milk quality before it enters the production line • Pasteurisation occurs at precisely controlled temperature and flow conditions with automated diverting to reject milk outside target parameters • Finished products are stored in dedicated cold storage with temperature, humidity and airflow control to maintain quality and prevent odour emissions. Inventory is managed via automated warehouse systems for efficient dispatch • Inline pH, temperature and conductivity sensors monitor critical process parameters • Samples from each production batch are tested for microbiological quality, moisture, fat content and melt characteristics to confirm product compliance • Deviations trigger automated alerts and batch diversion to ensure only compliant product enters the cold store • CIP cycles are automated and monitored via SCADA for detergent dosing, temperature and flow rate • Daily cleaning of floors, walls and external surfaces is undertaken with approved detergents • All spills are cleared in accordance with the Spill Kit Contents and Procedure for the facility • All critical systems, tanks, vessels, ductwork and associated vents are maintained in accordance with the site's approved PPM schedule • Odour Monitoring is undertaken daily in order to ensure impacts do not occur as a result of emissions from the site. Reference should be made to Section 3.7 for full details of the monitoring procedure

Source/ Process Area	Control Measures
WwTP	• A 24-hour composite sampler automatically collects samples of the incoming wastewater. This enables continuous monitoring of effluent characteristics, including pH, COD and other critical parameters to ensure optimum treatment performance and minimise the odour emission potential • The balance tank includes three aerator mixers installed at low level to maintain homogeneity, prevent solids settling and promote oxygenation, if needed • The plant includes a divert tank of equivalent capacity to the balance tank to isolate effluent that is out of specification, such as wastewater with high or low pH or excessive COD • Duty/standby dosing pumps deliver chemicals to the process as required, with automatic control via the SCADA system. This ensures precise dosing, environmental compliance and safety in handling hazardous substances • All site staff are trained in operations and maintenance, with Standard Operating Procedures (SOPs) and a maintenance programme ensuring long-term reliability and regulatory compliance • All critical systems, tanks, vessels, ductwork and associated vents are maintained in accordance with the site's approved PPM schedule • Odour Monitoring is undertaken daily in order to ensure impacts do not occur as a result of emissions from the site. Reference should be made to Section 3.7 for full details of the monitoring procedure
Chemical storage	• All chemicals are stored in containers prior to use. The chemicals are delivered to the CIP systems via closed loops • CIP cycles are automated and monitored via SCADA for detergent dosing, temperature and flow rate • All spills are cleared in accordance with the Spill Kit Contents and Procedure for the facility • All critical systems, tanks, vessels, ductwork and associated vents are maintained in accordance with the site's approved PPM schedule • Odour Monitoring is undertaken daily in order to ensure impacts do not occur as a result of emissions from the site. Reference should be made to Section 3.7 for full details of the monitoring procedure

Source/ Process Area	Control Measures
Ammonia refrigeration plant	• The ammonia plant has an alarm system installed to detect any accidental leakages of refrigerant to atmosphere. The system has a number of detection points which activate alarms and can initiate remote electrical isolation of the system, combined with automatic extraction fans to dissipate any leakages to atmosphere • In the event of a major/serious leak or incident, the ammonia system can be safely (without risk to persons) isolated without entry to plant rooms • The refrigeration plant is maintained and inspected by a specialist contractor. In the event of a leak, the Emergency Response Plan (ERP) is followed, and specialist contractors are contacted to attend site
Waste storage	• All waste materials are stored in covered skips and bins • Frequent removal of waste materials is undertaken to minimise storage time and the potential for odour emissions • All spills are cleared in accordance with the Spill Kit Contents and Procedure for the facility • Odour Monitoring is undertaken daily in order to ensure impacts do not occur as a result of emissions from the site. Reference should be made to Section 3.7 for full details of the monitoring procedure

3.4 Location

3.4.1 The facility is located on the outskirts of North Tawton. The surrounding area is predominantly rural countryside, characterised by open fields, agricultural land and scattered residential properties. The site is situated within a landscape typical of the Taw Valley, with undulating terrain and a mix of farmland and hedgerows.

3.4.2 A desk-top study was undertaken in order to identify any sensitive receptor locations in the vicinity of the facility that required specific consideration during the risk assessment. These are summarised in Table 3.

Table 3 Sensitive Receptors

Receptor		NGR (m)		Distance from Site Boundary (m)	Direction from Site
		X	Y		
R1	Residential - Culm Cross	265207.0	101530.3	50	North
R2	Residential - Culm Cross	265413.2	101550.6	35	North

Receptor		NGR (m)		Distance from Site Boundary (m)	Direction from Site
		X	Y		
R3	Residential - Week	265378.4	101702.1	190	North
R4	Residential - Week	265328.9	101795.5	290	North
R5	Residential - Fore Street	265656.5	101681.0	290	North-east
R6	Residential - Mill Lane	265695.2	101657.1	300	North-east

3.4.3 Reference should be made to Figure 3 for a graphical representation of the identified receptors.

3.5 Prevailing Meteorological Conditions

3.5.1 The potential for bioaerosol emissions to impact at sensitive locations depends significantly on the meteorology, particularly wind direction, during release. In order to consider prevailing conditions at the site, review of historical weather data was undertaken. Exeter Meteorological Station is located at NGR: 300821, 93986, which is approximately 36.4km east of the facility. It is anticipated that conditions would be reasonably similar over a distance of this magnitude. The data was therefore considered suitable for an assessment of this nature.

3.5.2 Meteorological data was obtained from Exeter Meteorological Station over the period 1st January 2019 to 31st December 2023 (inclusive). The frequency of wind from the twelve sectors which best describe the directions which may cause impacts in the vicinity of the site is shown in Table 4. Reference should be made to Figure 4 for a wind rose of the meteorological data.

Table 4 Wind Frequency Data

Wind Direction (°)	Frequency of Wind (%)
345 - 15	6.10
15 - 45	7.53
45 - 75	4.94
75 - 105	3.75

Wind Direction (°)	Frequency of Wind (%)
105 - 135	5.57
135 - 165	8.43
165 - 195	12.79
195 - 225	11.76
225 - 255	7.87
255 - 285	9.16
285 - 315	10.34
315 - 345	6.08
Sub-Total	94.33
Calms	4.34
Missing/Incomplete	1.33

3.5.3 All meteorological data used in the assessment was provided by Atmospheric Dispersion Modelling Ltd, which is an established distributor of meteorological data within the UK.

3.5.4 As shown in Table 4, the prevailing wind direction at the facility is from the south with significant frequencies from the south-west and north-west. Winds from the north and east are relatively infrequent, which is indicative of conditions throughout the majority of the UK.

3.6 Risk Assessment

3.6.1 The Risk Assessment has been undertaken in accordance with the general principles of EA document 'Horizontal Guidance Note H1: Environmental Risk Assessment for Permits' and associated annexes. This included consideration of the following:

- Receptor - what is at risk? What do I wish to protect?
- Source - what is the agent or process with potential to cause harm?
- Harm - what are the harmful consequences if things go wrong?
- Pathway - how might the receptor come into contact with the source?
- Probability of exposure - how likely is this contact?
- Consequence - how severe will the consequences be if this occurs?

- Magnitude of risk - what is the overall magnitude of the risk? and,
- Justification for magnitude - on what did I base my judgement?

3.6.2 Based on the Risk Assessment outcomes potential mitigation and control options were identified.

3.6.3 Further explanation for the key assessment areas is provided below.

Receptor

3.6.4 The first step was to consider how the activity could harm the environment. This involved identifying 'receptors' that may be affected and included people, property, and the natural and physical environment.

Probability of Exposure

3.6.5 The probability of exposure was defined based on the likelihood of exposure of the specific receptor to the identified source. This depended on several factors, such as:

- Distance between source and receptor;
- Dispersion potential of emission;
- Duration of emission; and,

3.6.6 Frequency of emission. Probability was categorised in accordance with the following criteria:

- High - exposure is probable, direct exposure likely with no/few barriers between source and receptor;
- Medium - exposure is fairly probable, barriers less controllable;
- Low - exposure unlikely, barriers exist to mitigate; or,
- Very low - exposure very unlikely, effective and multiple barriers.

Harm

3.6.7 The severity of harm from a risk depends on:

- How much a person or part of the environment is exposed; and,
- How sensitive a person or part of the environment is.

3.6.8 Some parts of the environment can be very sensitive. For example, serious health effects can occur if humans are exposed to certain chemicals for only short periods of time.

3.6.9 Harm can be described as follows:

- High - severe consequences, evidence that exposure may result in serious damage;
- Medium - significant consequences, evidence that exposure may result in damage that is not severe and is reversible;
- Low - minor consequences, damage not apparent, reversible adverse changes possible; and,
- Very low - negligible consequences, no evidence for adverse changes.

Magnitude of Risk

3.6.10 The level of risk is a combination of:

- How likely a problem is to occur; and,
- How serious the harm might be.

3.6.11 Risk is highest where both the likelihood of a problem is high and the potential harm is severe. Risk is lowest where a problem is unlikely to occur and the harm that might result is not serious.

Assessment

3.6.12 The risk assessment of potential odour impact is provided in Table 5.

Table 5 Odour Risk Assessment

Data and Information				Control Measures	Judgement			
Receptor	**Source**	**Harm**	**Pathway**		**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**
Sensitive receptors, as identified in Table 3	Boiler No. 1 Boiler No. 2	Loss of amenity	Wind-blown emissions	The boiler stacks terminate to atmosphere at high level to ensure effective dilution and dispersion of emissions Complete combustion of natural gas does not typically result in significant odour emissions	**Very Low** due to the distance between the sources and the majority of receptors, the low odour potential and the dispersion arrangements	**Medium** if odour can be detected for extended periods	**Low**	The distant nature of the majority of receptors, the low odour emission potential and the specified control measures are considered to result in a **low** risk of impact
Sensitive receptors, as identified in Table 3	Baghouse fan outlet	Loss of amenity	Wind-blown emissions	The bag house filter is used to control emissions associated with whey powder production. This stage of the process does not typically result in significant odour emissions due to the nature of the materials handled and the predominantly dry, non-volatile airstreams involved The filter outlet terminates to atmosphere at high level to promote effective dilution and dispersion of emissions	**Very Low** due to the distance between the sources and the majority of receptors, the low odour potential and the dispersion arrangements	**Medium** if odour can be detected for extended periods	**Low**	The distant nature of the majority of receptors and the low odour emission potential are considered to result in a **low** risk of impact

Data and Information				Control Measures	Judgement			
Receptor	**Source**	**Harm**	**Pathway**		**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**
Sensitive receptors, as identified in Table 3	Receiving baghouse vent	Loss of amenity	Wind-blown emissions	The bag house filter is used to control emissions associated with whey powder production. This process does not typically result in significant odour emissions due to the nature of the materials handled and the predominantly dry, non-volatile airstreams involved The filter outlet terminates to atmosphere at high level to promote effective dilution and dispersion of emissions	**Very Low** due to the distance between the sources and the majority of receptors, the low odour potential and the dispersion arrangements	**Medium** if odour can be detected for extended periods	**Low**	The distant nature of the majority of receptors, the low odour emission potential and the specified control measures are considered to result in a **low** risk of impact
Sensitive receptors, as identified in Table 3	CCC exhaust	Loss of amenity	Wind-blown emissions	CCC system handles clean whey which has a low odour emission potential The outlet terminates to atmosphere at high level to promote effective dilution and dispersion of emissions	**Very Low** due to the distance between the sources and the majority of receptors, the low odour potential and the dispersion arrangements	**Medium** if odour can be detected for extended periods	**Low**	The distant nature of the majority of receptors, the low odour emission potential and the specified control measures are considered to result in a **low** risk of impact

Data and Information				Control Measures	Judgement			
Receptor	**Source**	**Harm**	**Pathway**		**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**
Sensitive receptors, as identified in Table 3	CHP unit stack	Loss of amenity	Wind-blown emissions	The CHP unit stack terminates to atmosphere at high level to ensure effective dilution and dispersion of emissions Complete combustion of natural gas does not typically result in significant odour emissions	**Very Low** due to the distance between the sources and the majority of receptors, the low odour potential and the dispersion arrangements	**Medium** if odour can be detected for extended periods	**Low**	The distant nature of the majority receptors, the low odour emission potential and the specified control measures are considered to result in a **low** risk of impact
Sensitive receptors, as identified in Table 3	Steam safety valves	Loss of amenity	Wind-blown emissions	The steam safety valves are only used in emergency scenarios in order to prevent overpressure The valves discharge clean steam to atmosphere when operational	**Very Low** due to the distance between the source and the majority of receptors and the infrequent operation of the valves	**Medium** if odour can be detected for extended periods	**Low**	The distant nature of the majority of receptors, the low odour emission potential and the specified control measures are considered to result in a **low** risk of impact

Data and Information				Control Measures	Judgement			
Receptor	**Source**	**Harm**	**Pathway**		**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**
Sensitive receptors, as identified in Table 3	CIP tank vents	Loss of amenity	Wind-blown emissions	Emissions from the CIP vents are likely to have a low odour potential as they consist primarily of steam and clean displaced air arising from non-organic cleaning solutions. The vents only operate once or twice every 24-hours	**Very Low** due to the distance between the sources and the majority of receptors, and the infrequent operation of the vents	**Medium** if odour can be detected for extended periods	**Low**	The distant nature of the majority of receptors, the low odour emission potential and the specified control measures are considered to result in a **low** risk of impact
Sensitive receptors, as identified in Table 3	Condensate valves	Loss of amenity	Wind-blown emissions	Emissions from the condensate valves are likely to have a low odour potential as they are likely to consist primarily of clean steam, water vapour and small amounts amounts of non-condensable gases	**Very Low** due to the distance between the sources and the majority of receptors, and the low odour potential	**Medium** if odour can be detected for extended periods	**Low**	The distant nature of the majority of receptors, the low odour emission potential and the specified control measures are considered to result in a **low** risk of impact

Data and Information				Control Measures	Judgement			
Receptor	**Source**	**Harm**	**Pathway**		**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**
Sensitive receptors, as identified in Table 3	Raw milk and whey silo vents	Loss of amenity	Wind-blown emissions	The raw milk and whey silos are temperature controlled to present degradation of materials and associated odour emissions Fresh milk and whey do not typically result in significant odour emissions	**Very Low** due to the distance between the sources and the majority of receptors, and the low odour potential	**Medium** if odour can be detected for extended periods	**Low**	The distant nature of the majority of receptors, the low odour emission potential and the specified control measures are considered to result in a **low** risk of impact
Sensitive receptors, as identified in Table 3	Proposed WwTP	Loss of amenity	Wind-blown emissions	The WwTP is fully automated and has been designed to ensure aerobic treatment of effluent Continuous monitoring of effluent characteristics is undertaken to ensure compliance with regulatory standards process optimisation The WwTP includes a number of enclosed and open sources. These may have the potential to result in result in channelled and diffuse odour emissions	**Medium** due to the distance between the sources and the majority of receptors, the level of containment of sources and the odour emission potential	**Medium** if odour can be detected for extended periods	**Low** to **Medium**	The distance between sources at the WwTP and receptors, the source emission potential and the specified control measures are considered to result in a **low** to **medium** risk of impact

Data and Information				Control Measures	Judgement			
Receptor	**Source**	**Harm**	**Pathway**		**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**
Sensitive receptors, as identified in Table 3	Ammonia refrigeration plant	Loss of amenity	Wind-blown emissions	The ammonia cooling systems are enclosed and there are no emissions to atmosphere during normal operation The ammonia plant has alarm systems installed to detect any accidental leakages of refrigerant to atmosphere	**Low** during normal operation due to the distance between the sources and the majority of receptors, and the low odour potential as a result of containment of ammonia within the closed systems	**Medium** if odour can be detected for extended periods	**Low**	The distant nature of the majority of receptors, the low odour emission potential and the specified control measures are considered to result in a **low** risk of impact
Sensitive receptors, as identified in Table 3	Chemical storage	Loss of amenity	Wind-blown emissions	All chemicals are stored in containers prior to use. The chemicals are delivered to the CIP systems via closed loops	**Very Low** due to the distance between the sources and receptors and containment of chemicals within the storage units and CIP systems	**Medium** if odour can be detected for extended periods	**Low**	The distant nature of the majority of receptors, the low odour emission potential and the specified control measures are considered to result in a **low** risk of impact

Data and Information				Control Measures	Judgement			
Receptor	**Source**	**Harm**	**Pathway**		**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**
Sensitive receptors, as identified in Table 3	Waste storage	Loss of amenity	Wind-blown emissions	All waste materials are stored in covered skips and bins. Frequent removal of waste materials is undertaken to minimise storage time and the potential for odour emissions	**Low** due to the distance between the sources and the majority of receptors, and containment of waste materials during storage	**Medium** if odour can be detected for extended periods	**Low**	The distant nature of the majority of receptors, the low odour emission potential and the specified control measures are considered to result in a **low** risk of impact

3.7 Odour Monitoring Procedure

3.7.1 In order to ensure significant odour impacts do not occur as a result of normal operations periodic monitoring is undertaken in accordance with the following methodology.

Procedure

3.7.2 Sniff testing is a common form of odour monitoring that can be undertaken for relatively low cost with little formal training. While a number of factors need to be taken into account in order to minimise inconsistencies, it can provide good evidence of odour conditions in the vicinity of specific activities.

3.7.3 Sniff testing is undertaken by a member of the Quality Environmental Health and Safety (QEHS) Team at a number of locations at the boundary of the facility on a daily basis or following receipt of a complaint. This allows any issues to be quickly identified and also provides an evidence base of odour emissions for verification of any off-site impacts.

3.7.4 A summary of the monitoring locations is provided in Table 6. Reference should be made to Figure 5 for a visual representation of the positions.

Table 6 Odour Monitoring Locations

Monitoring Location		Approximate NGR (m)	
		X	Y
M1	Northern boundary	265215	101488
M2	Northern boundary (site entrance)	265386	101518
M3	Eastern boundary	265478	101383
M4	Eastern boundary	265537	101221
M5	Western boundary	265419	101152
M6	Western boundary	265299	101316

3.7.5 It should be noted that there may be the requirement for surveys to be completed at additional or alternative positions to those specified in Table 6 in order to assist with routine monitoring and investigation of odour emissions associated with processes and any associated off-site impacts. Any differences between the survey locations at which

monitoring is undertaken and those specified in Table 6 are recorded on the form provided in Appendix 1.

3.7.6 The assessor stands at the first monitoring position for three minutes and records any odour experienced. Notes on odour frequency, intensity, duration and offensiveness are recorded, as well as the prevailing meteorological conditions. The test is then repeated at each remaining monitoring point around the site to determine the extent of odour impact. The results are analysed in association with operating conditions during the survey in order to consider the most significant odour sources, how these may affect sensitive receptors around the facility and help inform any necessary additional mitigation.

3.7.7 The following parameters are scored at each monitoring location during each survey:

- Odour detectability / intensity;
- Odour duration and pervasiveness;
- Character of odour;
- Odour offensiveness; and,
- Meteorological conditions.

3.7.8 Categories for the recording of odour intensity and extent are summarised in Table 7.

Table 7 Odour Intensity Scoring System

Category	Intensity Description
0	No odour
1	Very faint odour
2	Faint odour
3	Distinct odour
4	Strong odour
5	Very strong odour
6	Extremely strong odour

3.7.9 The offensiveness of any odour is recorded in accordance with the categories shown in Table 8.

Table 8 Odour Offensiveness Scoring System

Category	Offensiveness Description
1	Less offensive
2	Moderately offensive
3	Most offensive

3.7.10 Meteorological conditions during the survey, including wind speed and direction, cloud cover, temperature and precipitation are noted, as well as assessor name, process conditions and details of any deliveries received.

3.7.11 Where practicable, the daily surveys are undertaken by the same member of the QEHS Team, except on occasions of unavailability of staff. In these circumstances, an alternative assessor is nominated. Consideration is provided to the sensitivity of the individual nominated to undertake the monitoring, with anyone with a poor sense of smell excluded and an alternative member of staff identified.

Reporting

3.7.12 The survey results are logged using the form provided in Appendix 1.

Remedial Actions

3.7.13 In the event that the monitoring indicates that there is the potential for detection of moderately or most offensive odours and/or pervasive odours which have an intensity score of 3 or above, potential sources are investigated and suitable measures implemented to ensure emissions do not cause adverse effects at any sensitive location in the vicinity of the site. These may include removal or covering of material, changes to operational procedures, implementation of additional control measures or other appropriate actions deemed necessary by the Environmental Health and Safety (EHS) Specialist/ QEHS Team. A summary of corrective actions and contingency measures that are applicable to the identified sources at the facility is provided in Section 3.9.

3.7.14 Any remedial measures are recorded using the form provided in Appendix 1.

3.8 Preventive Monitoring and Maintenance

3.8.1 All critical systems, tanks, vessels, ductwork and associated vents are maintained in accordance with the site's approved PPM schedule. This is designed to ensure that processes and infrastructure with the potential to contribute to odour emissions are routinely inspected, serviced, and repaired as required to maintain effective performance.

3.8.2 Maintenance activities include scheduled checks, condition monitoring and corrective actions where defects or deteriorating performance are identified. The frequency and scope of maintenance tasks are defined by manufacturer recommendations, industry best practice, and site-specific operational needs.

3.8.3 Records of all maintenance activities are retained in accordance with the site's EMS and any issues identified during PPM inspections that could impact odour control are escalated to the relevant manager for timely resolution. Where necessary, maintenance findings are used to review and update odour management controls to ensure ongoing compliance and effective odour mitigation.

3.9 Corrective Actions and Contingency Measures

3.9.1 Should the results of the odour monitoring indicate that there is the potential for significant odour impacts in the vicinity of the site there may be the requirement for implementation of corrective actions and contingency measures at the facility. In addition, further corrective actions and backstop measures may need to be taken if the scheduled monitoring and work demonstrates system failure or a compromised level of odour control.

3.9.2 A summary of the measures that are applicable to the operations at the facility is provided in Table 9.

Table 9 Contingency Measures

Scenario	Process Area / Source	Corrective Action and Contingency Measures	Backstop Measures
Detection of moderately or most offensive odours and/or pervasive odours which have an intensity of 3 or above	Applicable to all process areas / sources	Within 1-hour of detection of moderately or most offensive odours, or pervasive odours which have an intensity of 3 or above, a full investigation will be undertaken to identify potential sources. This will initially focus on process areas and sources within the immediate vicinity of the relevant monitoring location(s) and if required, progressively extend to the rest of the facility Following identification of potential sources, contingency measures will be considered and if required implemented at the site. These may include: • Containment of materials • Removal of materials from process areas or the site, if appropriate • Repair work to restore process area/ source containment • Changes to automated and manual processes • Cleaning of process areas Further monitoring and inspection will be undertaken within 1-hour of implementation of the relevant measure(s) in order to ascertain whether control has been restored. Should this process indicate that there is still the potential for significant odour impacts which cannot be resolved within 8-hours through additional remedial works/ corrective actions, backstop measures will be considered and utilised, if required	The following backstop measures will be considered and if required utilised should the stated corrective actions fail to restore control: • Diversion of waiting deliveries to an alternative facility • Diversion of pending deliveries to an alternative facility • Suspension of operations • Instruction of emergency waste material, product or effluent collections Further monitoring and inspection will be undertaken within 1-hour of implementation of the relevant measure(s) in order to determine whether normal operations can be re-established

Scenario	Process Area / Source	Corrective Action and Contingency Measures	Backstop Measures
Failure of the refrigeration systems	Refrigerated process areas and tanks	Within 1-hour of detection of refrigeration failure, corrective actions and contingency measures will be considered and if required implemented at the site. These may include: • System reset • Repair work by an engineer to restore refrigeration to process areas/ tanks Should the system reset or repair work fail to restore refrigeration within 1-hour, appropriate backstop measures will be considered and implemented, if required	The following backstop measures will be considered and utilised if required should the stated corrective actions fail to restore control: • Diversion of waiting deliveries to an alternative facility • Diversion of pending deliveries to an alternative facility • Suspension of operations • Instruction of emergency waste material, product or effluent collections Further inspection will be undertaken within 1-hour of implementation of the relevant measure(s) in order to determine whether normal operations can be re-established

Scenario	Process Area / Source	Corrective Action and Contingency Measures	Backstop Measures
Failure of the WwTP and/ or associated pumping systems	WwTP and associated infrastructure	In the event of detection of failure of the WwTP and/ or associated pumping systems, corrective actions contingency measures will be considered and if required implemented at the site. These may include: • System reset • Repair or replacement of plant or components by a site engineer • Temporary containment of materials, where required • Cleaning to remove any exposed materials Further monitoring and inspection will be undertaken within 1-hour of implementation of the relevant measure(s) in order to ascertain whether control has been restored. Should this process indicate that there is still the potential for significant odour impacts which cannot be resolved within 8-hours through additional remedial works/ corrective actions, backstop measures will be considered and utilised, if required	The following backstop measures will be considered and utilised if required should the stated corrective actions fail to restore control: • Diversion of waiting deliveries to an alternative facility • Diversion of pending deliveries to an alternative facility • Suspension of operations • Instruction of emergency effluent or sludge collection Further inspection will be undertaken within 1-hour of implementation of the relevant measure(s) in order to determine whether normal operations can be re-established

Scenario	Process Area / Source	Corrective Action and Contingency Measures	Backstop Measures
Failure of the ammonia plant	Ammonia plant	The ammonia plant has an alarm system to detect any accidental leakages of refrigerant to atmosphere. The system has a number of detection points which activate alarms and can initiate remote electrical isolation of the system, combined with automatic extraction fans to dissipate any leakages to atmosphere In the event of a major/serious leak or incident the ammonia system can be safely (without risk to persons) isolated without entry to plant rooms In the event of any leak, the ERP is followed, and specialist contractors are contacted who can attend site within the hour, if required	The following backstop measures will be considered and utilised if required should the stated corrective actions fail to restore correct performance and an acceptable level of extract and emission control: • Evacuation of the site • Diversion of waiting and pending deliveries to an alternative facility • Suspension of production operations • Cessation of wider operations and activities at the site

3.10 Abnormal / Emergency Scenarios

3.10.1 There is the potential for increased odour emissions during certain abnormal and emergency scenarios. The relevant actions to limit impacts during these situations are outlined in Table 10.

3.10.2 It should also be noted that the site has an established ERP which outlines the site-specific procedures and responsibilities for responding to environmental, chemical, operational or safety-related incidents at the facility. This should be read in conjunction with the OMP.

Table 10 Abnormal and Emergency Response Scenario

Scenario	Operator Response
Failure of site infrastructure	In the very unlikely event that damage is caused to the structure of the buildings or tanks, there may be an increased potential for fugitive odour emissions. As such, appropriate repair work will be undertaken by site engineers or a specialist contractor as a matter of urgency In the event of prolonged failure of site infrastructure, a review of operations will be undertaken and if appropriate specific activities will be suspended until the relevant remedial work has been undertaken
Power failure	The risk of prolonged power failure is considered negligible. However, relevant emergency procedures and back-up facilities are in place should this event occur to ensure the process is not affected as far as practicable. This is likely to avoid any unexpected odour emissions with the exception of those already addressed in this table
Fire and/or explosions	A fire on site may lead to exposure of odourous materials to atmosphere, as well as emissions of odorous combustion products Any fire would be extinguished as a matter of urgency by the emergency services. This would reduce the duration of any odour effect as far as practicable Any odorous materials released by fire would be cleaned by a site operative or specialist contractor. If any infrastructure is damaged this would be repaired or replaced as a matter of urgency
Staff unavailability due to industrial action, sickness etc	Staff unavailability may affect facility operations. If this was the case emergency cover would be arranged to ensure the process was not disturbed
Extreme weather events such as prolonged rainfall, lightning strikes, flood etc	The risk of additional odour emissions due to extreme weather events is not considered significant

3.11 Odour Complaint Procedure

3.11.1 Any received odour complaints are dealt with by the EHS Specialist, or an alternative member of the QEHS Team in the first instance.

3.11.2 The first stage of the procedure involves collection of basic details in regards the event, either directly from the complainant or from the EA officer reporting the incident. This takes place within 24-hours of a complaint being received and includes acquisition of the following information which is recorded on the form included at Appendix 1 of the OMP:

- The name and address of the complainant;
- The date and time of odour detection;
- A description of the odour detected including details of the character and intensity; and,
- The duration and pervasiveness of the odour.

3.11.3 The following additional information is also recorded on the form by the member of the team assigned to the complaint:

- The activities taking place at the time of the complaint;
- The operating conditions at the time of the complaint; and,
- The prevailing meteorological conditions.

3.11.4 After details of the complaint have been compiled, the cause(s) are investigated. The specific procedures depend on the nature of the incident and details provided by the EA and/or complainant. However, in most cases the process involves identification of contributory odour sources and consideration of the following elements:

- The effectiveness of process controls;
- The effectiveness of containment measures;
- The performance of treatment systems; and,
- The effectiveness of dispersion methods.

3.11.5 Where an investigation identifies an odour issue, remedial action is promptly implemented. The exact measures depend on the odour source and the likelihood of incident reoccurrence.

3.11.6 Details of any actions undertaken in response to complaints are recorded on the form included at Appendix 1. In addition, the OMP is reviewed following receipt of any complaint in order to ensure that the control measures employed at the site are appropriate. Any changes made to the OMP are recorded on the relevant form included at Appendix 1.

3.12 Neighbour and Community Engagement

3.12.1 In order to promote neighbour and community engagement, details of how to contact a member of the Site Management Team are displayed at the entrance to the facility. This helps to facilitate direct communication of any concerns or complaints in relation to odour so that prompt and appropriate remedial action can be undertaken.

3.12.2 Any communication received is dealt with on a case-by-case basis and in accordance with the complaint procedure detailed in the previous Section. However, review of all communications is undertaken every 6-months in order to identify any long-term trends and establish whether any additional engagement measures such as organisation of community liaison group meetings or development of website facilities are required.

3.13 Responsibilities

3.13.1 A summary of the roles and responsibilities with respect to odour management at the site is provided in Table 11.

Table 11 Roles and Responsibilities

Role	Responsibility
Site Director	Overall accountability for odour control and permit compliance
QEHS/ EHS Specialist	Maintenance of the OMP, audits, complaint response, liaison with Regulators
WwTP Operators/ Services Team	Day-to-day management of effluent, sludge and odour-critical equipment
Engineering and Maintenance Teams	Upkeep of ammonia system, silos, vents, drains and odour containment
All Operational Staff	Follow site protocols, report issues, and support odour prevention efforts

3.14 OMP Storage Location

3.14.1 An electronic copy of the OMP is stored on the Arla server so it can be accessed by all staff. In addition, hard copies are kept on site in the Site Director's office and the EHS Specialist's office and are available to all staff on request.

3.15 Staff Training and Competence

3.15.1 Appropriate training is provided to all members of staff in order to ensure that the OMP is implemented successfully at all times. Full details of the training, including the scope, responsibilities and frequency, are included in the EMS for the facility. Regular staff competency checks are undertaken to ensure ongoing competence after initial training.

3.16 Record Keeping

3.16.1 Records of all routine monitoring and maintenance work, inspections and any corrective actions and contingency/ backstop measures implemented at the facility are retained and formally documented in accordance with the EMS. The records include:

- A description of the works completed, or corrective action implemented;
- The date completed;
- The person that completed the work, inspection or corrective action; and,
- Confirmation of task or action completion;
- Any observations which are relevant to housekeeping, operations and odour management; and,
- Any further actions or controls required in relation to housekeeping, operations and odour management.

3.16.2 The records are used to:

- Demonstrate compliance with the OMP, Environmental Permit and site procedures;
- Provide evidence that routine cleaning, inspection and maintenance activities have been completed as scheduled;
- Identify trends in odour related issues (e.g. recurring cleaning hotspots, equipment deterioration or operational factors);
- Trigger corrective actions where odour risks or housekeeping issues are identified;

- Support proactive maintenance, including early identification of equipment failures and areas requiring increased inspection or cleaning frequency;
- Inform management review and continuous improvement, ensuring odour controls remain effective and proportionate to site operations;
- Provide traceability for internal and external audit; and
- Support incident investigation, including any off-site odour complaints or abnormal operating events.

3.16.3 Where persistent or systemic issues are identified through review of records, appropriate improvements are implemented, such as procedural/ operational changes, additional training and/or enhanced preventative maintenance measures.

3.17 Odour Plan Review Procedure

3.17.1 The OMP is reviewed by the QEHS Team at least once every 12-months and additionally when triggered by:

- Any significant changes to manufacturing processes;
- The introduction of new odour sources;
- Changes to the site layout affecting odour critical areas; and,
- Receipt of complaints from members of the public or the EA.

3.17.2 The review process includes:

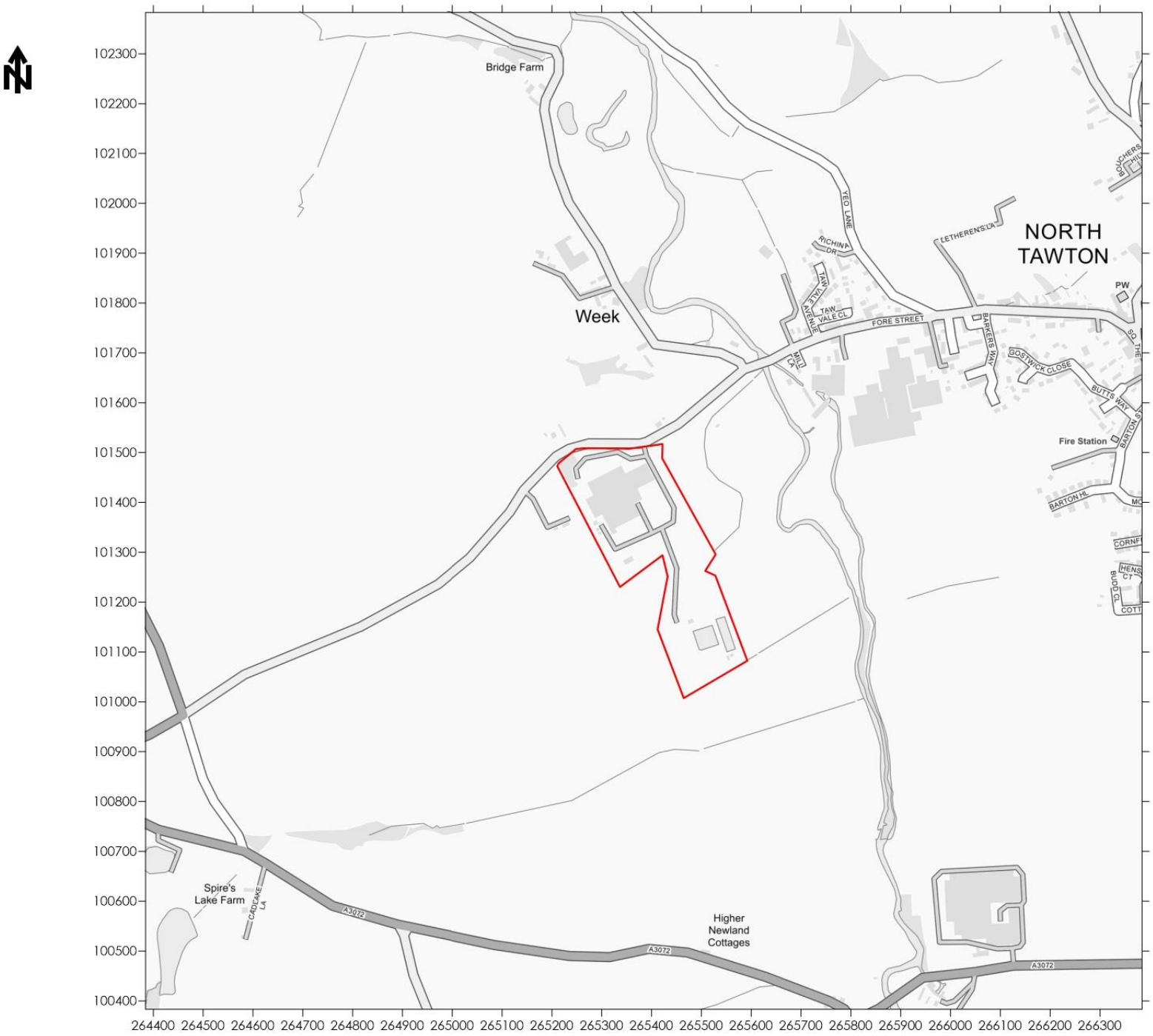
- Update to operational procedures and controls, if required;
- Review of any documented incidents, complaints and odour monitoring records; and,
- Review of compliance with industry best practice guidance and relevant BAT.

3.17.3 This is not an exhaustive list, and any relevant additional elements are considered as part of the review process. Any changes to the OMP as a result or review are recorded in the format shown in Appendix 1.

4.0 ABBREVIATIONS

AFI	Arla Food Ingredients
BAT	Best Available Techniques
CCC	Cooling Crystallisation Concentrator
CHP	Combined Heat and Power
CIP	Clean In Place
COD	Chemical Oxygen Demand
CST	Cream Storage Tank
DAF	Dissolved Air Flotation
EA	Environment Agency
EHS	Environmental Health and Safety
EMS	Environmental Management System
EC	European Commission
ERP	Emergency Response Procedure
FOG	Fat, Oil and Grease
IQF	Individually Quick Frozen
LTHW	Low Temperature Hot Water
MBR	Membrane Bioreactor
MF	Microfiltration
NGR	National Grid Reference
OMP	Odour Management Plan
PPM	Planned Preventative Maintenance
QEHS	Quality Environmental Health and Safety
RO	Reverse Osmosis
SCADA	Supervisory Control and Data Acquisition
SOP	Standard Operating Procedure
UF	Ultrafiltration
WPC	Whey Protein Concentrate
WwTP	Wastewater Treatment Plant

Figure



Legend

Site Boundary

Title
Figure 1 - Site Location Plan

Project
Odour Management Plan
Taw Valley Creamery

Project Reference
3558-3

Client
EHS Projects Ltd

Redmore environmental
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Legend

Site Boundary

Sensitive Receptor

Title
Figure 2 - Sensitive Receptor Locations

Project
Odour Management Plan
Taw Valley Creamery

Project Reference
3558-3

Client
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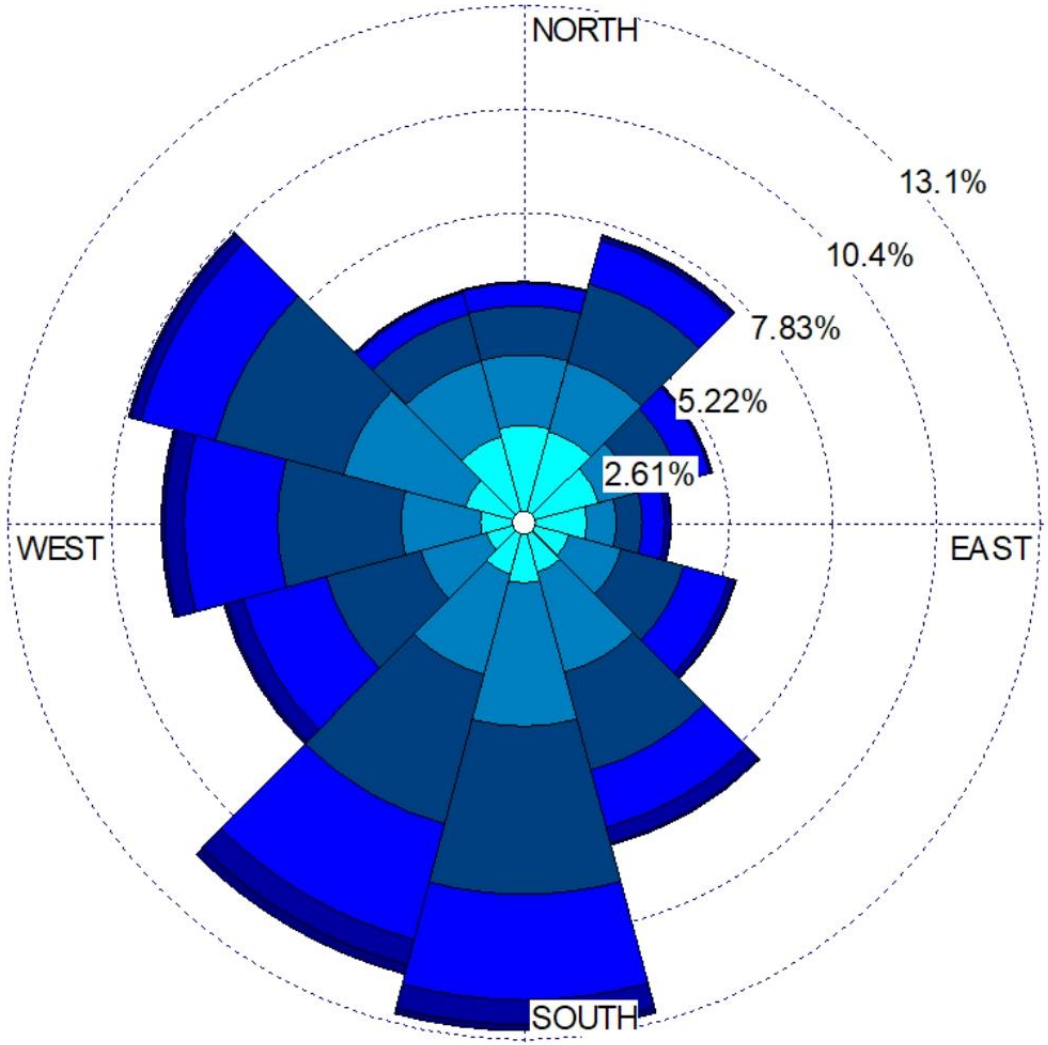

Legend

WIND SPEED (m/s)

- >= 11.10
- 8.80 - 11.10
- 5.70 - 8.80
- 3.60 - 5.70
- 2.10 - 3.60
- 0.50 - 2.10

Calms: 4.34%

Title
Figure 3 - Wind Rose of 2019 to 2023
Exeter Meteorological Station Data

Project
Odour Management Plan
Taw Valley Creamery

Project Reference
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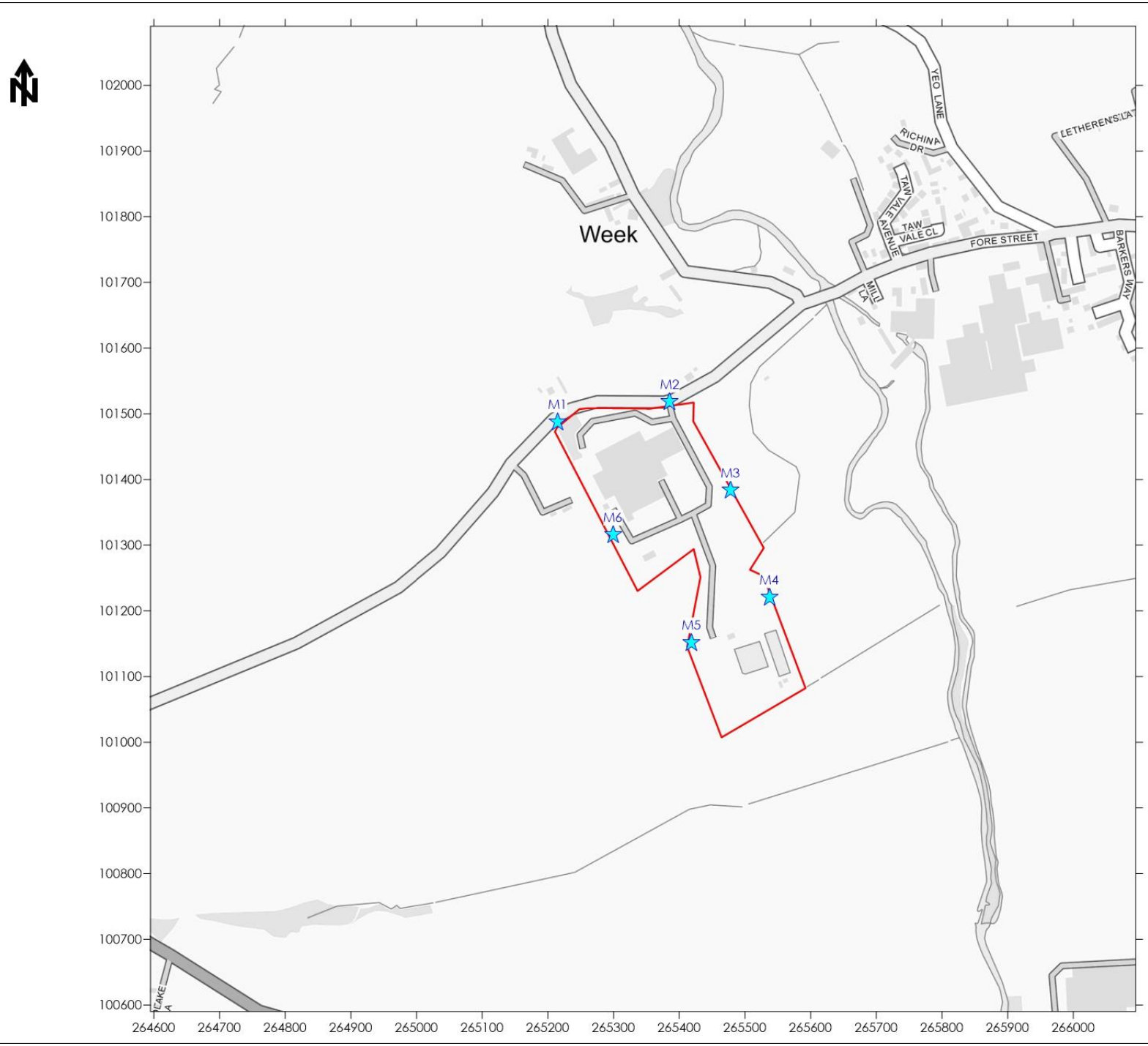

Legend

Site Boundary

Monitoring Location

Title
Figure 4 - Odour Monitoring Locations

Project
Odour Management Plan
Taw Valley Creamery

Project Reference
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Appendix 1 - Reporting Forms

REPORTING FORM: ODOUR 1 - AMBIENT SNIFF TESTING

NOTE: This form should be used for recording results from ambient sniff testing surveys. All fields should be completed in full.

Reporting of odour level on (date):.....

Table 1 Ambient Sniff Testing Monitoring Results

Parameter	Sniff Testing Monitoring Results			
	Location 1	Location 2	Location 3	Location 4
Time of test				
Description of location				
Weather conditions (e.g dry, rain etc)				
Temperature (°C)				
Wind strength (e.g light, strong, gusting etc)				
Wind direction (e.g from NE)				
Odour Intensity (1 to 6)				
Duration of test				
Pervasiveness during test				
Potential odour sources				

Monitoring undertaken by:

Additional observations from monitoring personnel during testing:

Details of any required amendments to Odour Management Plan or site operation:

Signed:

Date:

REPORTING FORM: ODOUR 2 - COMPLAINT REPORTING FORM

NOTE: This form should be used for recording details of any odour complaints.

Reporting of odour complaint on (date):

Name, telephone number and address of complainant:

Details of complaint:

Date, time and duration of odour:

Description of odour including character, intensity, duration and pervasiveness:

Meteorological conditions during incident:

Potential sources or activities that could give rise to odour during incident:

Operating conditions at time of incident:

Date and time of complaint follow up call:

Action taken:

Details of any required amendments to Odour Management Plan or site operation:

Signed:

REPORTING FORM: ODOUR 3 - ODOUR MANAGEMENT PLAN AMENDMENT FORM

NOTE: This form should be used for recording details of any amendments to the Odour Management Plan. All fields should be completed in full.

Date of Review	Detail of Amendment	Signature