Environmental Risk Assessment

Environmental Permit Application

Yew Tree Dairy PartCo Limited

Yew Tree House Farm, Coppull Hall Lane, Chorley, Lancs PR7 4LR

Prepared by:

SLR Consulting Limited

5th Floor, 35 Dale Street, Manchester, M1 2HF

SLR Project No.: 416.065368.00001

22 October 2024

Revision: FINAL

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
FINAL	22 October 2024	Lisa Brookes	Paul Wright	Paul Wright

Basis of Report

This document has been prepared by SLR Consulting Limited(SLR) with reasonable skill, care and diligence, and taking account of the timescales and resources devoted to it by agreement with Yew Tree Dairy PartCo Limited (the Client) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.

SLR shall not be liable for the use of or reliance on any information, advice, recommendations and opinions in this document for any purpose by any person other than the Client. Reliance may be granted to a third party only in the event that SLR and the third party have executed a reliance agreement or collateral warranty.

Information reported herein may be based on the interpretation of public domain data collected by SLR, and/or information supplied by the Client and/or its other advisors and associates. These data have been accepted in good faith as being accurate and valid.

The copyright and intellectual property in all drawings, reports, specifications, bills of quantities, calculations and other information set out in this report remain vested in SLR unless the terms of appointment state otherwise.

This document may contain information of a specialised and/or highly technical nature and the Client is advised to seek clarification on any elements which may be unclear to it.

Information, advice, recommendations and opinions in this document should only be relied upon in the context of the whole document and any documents referenced explicitly herein and should then only be used within the context of the appointment.

Table of Contents

Tables in Text

1.0 Introduction

SLR Consulting Limited (SLR) has been instructed by Yew Tree Dairy PartCo Limited (YTD) to prepare an application for an Environmental Permit (EP) for the YTD milk processing facility located at 1 Pit Hey Place, West Pimbo Industrial Estate, Skelmersdale, WN8 9PS (the site).

YTD took ownership of the site in 2010 when milk was processed at less than 200 tonnes per day. Since then, production has increased in phases, and it is now estimated that the site processes a maximum of approximately 2,000 tonnes of milk per day. YTD do not currently hold an Environmental Permit for the site and are seeking to regularise this by applying for a Part A(1) bespoke Environmental Permit (EP) from the Environment Agency (EA).

1.1 Methodology

This Environmental Risk Assessment (ERA) has been prepared in support of the permit application and has been undertaken in accordance with the EA Guidance Risk Assessments for your Environmental Permit (2016)[1]. The purpose of the assessment is to identify any significant risks that may affect receptors and demonstrate that the risk of pollution or harm will be acceptable by taking the appropriate measures to manage these risks.

This ERA uses the following approach, as set out in the EA's guidance, for identifying and assessing the risks from the milk processing facility:

Step One Identify and consider risks for your site and the sources of the risks.

Step Two Identify the receptors at risk from the site.

Step Three Identify the possible pathways from the sources of the risks to the receptors.

Step Four Assess the risks relevant to your specific activity and check they are acceptable and can be screened out.

The following sources of information have been used in the preparation of this ERA:

- Multi Agency Geographical Information for the Countryside (MAGIC) map[2].
- Landmark Envirocheck Report[3].
- British Geological Survey[4].
- Environment Agency (EA) - Flood Map for Planning[5].
- EA - Long Term Flood Assessment[6].

[1] EA (2016) Risk Assessments for your Environmental Permit dated February 2016. Accessed on 08 April 2024. Accessed at: Risk assessments for your environmental permit - GOV.UK (www.gov.uk).

[2] Multi Agency Geographical Information for the Countryside (MAGIC). Accessed 11th April 2024. Accessed at: Magic Map Application (defra.gov.uk)

[3] Landmark Envirocheck Report. Accessed 11th April 2024. Accessed at: Envirocheck - Environmental reports, mapping products and specialised datasets - Envirocheck Analysis Login. Refer 416.065368.00001_SCR.

[4] British Geological Survey. Accessed 11th April 2024. Accessed at: Welcome to BGS - British Geological Survey

[5] EA. Flood map for planning. Accessed 11th April 2024. Accessed at: Flood map for planning - GOV.UK (flood-map-for-planning.service.gov.uk)

[6] EA. Long Term Flood Assessment. Accessed on 14th May 2024. Accessed at: Check the long term flood risk for an area in England - GOV.UK (www.gov.uk)

- EA - Basic Conservation Screening Report - Nature and Heritage[7] (refer Appendix A).

1.2 Site Operations

The site receives milk in road tankers and processes it via pasteurisation, evaporation and drying.

Milk from the road tankers is pumped into feed tanks, with the transfer taking place within in a dedicated, bunded tanker bay in the main yard designed to capture any accidental spillage. Once emptied, the road tankers are washed out within another area of the yard before leaving the site. Any full tankers temporarily stored prior to unloading are reverse parked over one of the loading bay areas which benefits from bunding such that any leaks will be collected within the site drainage system.

All milk processing is carried out within enclosed buildings. The processing consists of pasteurisation, evaporation to concentrate the milk and drying of the concentrate. Liquid and dry products are packaged before dispatch off site.

The site operates three steam generators which provide heating and steam for the process. These steam generators have a rated thermal input of 4.5MWth each and are run on natural gas. The site operates two dryers that are used to dry milk to create milk powder. These dryers have a rated thermal input of 8MWth each and are run on natural gas. Dust is removed from the two dryer exhaust stacks by bag filtration units.

Heat exchangers are integrated into the site processes to make optimum use of heating/cooling requirements. The site also employs 9 chiller units, 6 refrigeration units and air conditioning to maintain the required milk product temperature.

The processes produce several liquid effluent waste streams. The largest by volume is the condensate from the vacuum evaporation process. Smaller amounts of waste milk and milky water are also produced, which are stored separately and tankered off-site for recovery as pig-feed. In addition, wash water is produced from the clean in place activities within the buildings.

The site benefits from an impermeable surface and sealed drainage. The external yardage slopes such that surface water drainage and any spills will be contained within the site, and drains are located in the vicinity of the tanker unloading, loading and washing areas to collect any accidental spillages and surface water run-off into the site drainage system.

All internal drainage, contaminated yard drainage and wash water is collected in a sump and over-pumped to the waste water tank. This is currently transferred to the foul sewer network under a trade effluent discharge consent with United Utilities. The contaminated water drainage system also incorporates a 300,000-litre underground attenuation tank which provides tertiary containment for accidental spills. Refer to Appendix B for the site drainage plan.

Uncontaminated surface water runoff from roofs and areas of the site which are not part of the process operations is collected in a separate drainage system and released to the local surface water drainage network.

An emergency diesel generator for back-up power and three kerosene tanks (2 x 10,000lt and 1 x 60,000lt) located on site. The kerosene tanks provide back-up fuel for the steam generators in the case of interruption to the gas supply. A 2,500lt diesel tank is also located on site to serve the forklift trucks.

[7] EA. Basic Conservation Screening Report - Nature and Heritage. Dated 15th April 2024. Reference EPR/UP3821SE.

1.1 Permitted Activities

The Skelmersdale Facility treats and processes milk via pasteurisation, evaporation and drying with a throughput greater than 200 tonnes of milk per day. This means that the activity will be regulated as an industrial installation under the Environmental Permitting Regulations (EPR) (England and Wales) 2016 (as amended) as the following activity listed in Schedule 1 of those regulations:

- Section 6.8 Part A(1)(e) *Treating and processing milk, the quantity of milk received being more than 200 tonnes per day (average value on an annual basis);*
- Section 5.4 Part A(1)(a)(*Disposal, recovery or a mix of disposal and recovery of non-hazardous waste….with a capacity exceeding 50 tonnes per day involving one or more of the following activities….(i) biological treatment; (ii) physico-chemical treatment; and*
- Schedule 25A Medium Combustion Plants: Medium Combustion Plant Directive.

The following directly associated activities take place on site:

- The operation of three onsite steam boilers; two dryers and two heat exchangers for the evaporative process;
- Operation of a diesel fired emergency generator;
- The operation of storage and handling facilities for all raw materials, wastes and products; and
- Operation of site utilities including effluent treatment, site drainage, refrigeration, air compression, cooling, heating and fire protection systems.

2.0 Identifying the Risks

This section considers the potential risks to the environment listed in the Environment Agency's (EA) 2016 Risk Assessment Guidance[8], and identifies those which will apply to the development and require further assessment, and screens out those which are not relevant. The EA Risk Assessment Guidance identifies the potential risks that may require assessment for most sites as follows:

- Any discharge, for example sewage or trade effluent to surface or groundwater;
- Accidents;
- Odour;
- Noise and vibration;
- Uncontrolled or unintended ('fugitive') emissions, for which risks include dust, litter, pests and pollutants that shouldn't be in the discharge;
- Visible emissions, e.g. smoke or visible plumes; and
- Release of bioaerosols, for example from shredding, screening and turning, or from stack or open point source release such as a biofilter.

In addition, the EA Risk Assessment guidance identifies risks from specific activities for which additional risk assessments must be completed depending on the activity being

[8] EA (2016) Risk Assessments for your Environmental Permit dated February 2016. Accessed on 08 April 2024. Accessed at: Risk assessments for your environmental permit - GOV.UK (www.gov.uk).

carried out and where substances are released or discharged into the environment. The EA indicates that the following additional risk assessments may be required for an installation:

- Air emissions;
- Global warming impact;
- Groundwater; and
- Surface water.

Potential risks can be screened out if they are not relevant for the site or by carrying out tests to check whether they are within acceptable limits or environmental standards. If they are, any further assessment of the pollutant is not necessary because the risk to the environment is insignificant.

Table 2-1 provides a summary of the risks, those that can be screened out as not relevant (grey shaded) and the type of risk assessment carried out for those that are relevant.

Table 2-1 Scope of Risk Assessment

Risk Type	Relevant	Justification	Type of Risk Assessment
Air emissions	Yes	Emissions of NOx from gas-fired combustion plant and dust from drying units.	Quantitative: detailed air dispersion modelling.
Global Warming Impact	Yes	Emissions of CO_2 from gas-fired combustion plant and indirect emissions from electricity.	Quantitative using standard factors.
Photochemical ozone creation potential	Yes	Emissions of NOx from gas-fired combustion plant	Quantitative using standard factors.
Groundwater	No	No releases to groundwater	Not relevant
Surface Water	Yes	Process effluent released to sewer	Quantitative 'H1' assessment
Accidents	Yes	Potential for spillages, equipment failure etc to release pollutants.	Qualitative
Odour	Yes	Potential odour from waste milk, but not expected to be significant	Qualitative
Noise & Vibration	Yes	Mobile vehicles, mechanical screening equipment, fans & blowers.	Quantitative: survey and modelling
Fugitive emissions	Yes	Dust and pests only. Litter and mud will not arise due to the nature of the operations.	Qualitative
Visible emissions	No	No significant plumes are produced as moisture is condensed from the dryers	None required
Bioaerosols	No	No biological treatment takes place to produce bioaerosols	None required

3.0 Site Setting & Receptors

This section identifies the sensitive receptors in the vicinity of the site that potentially could be harmed by emissions from the activities taking place within the proposed milk processing facility.

The EA's Risk Assessment Guidance requires all receptors that are near the site and could reasonably be affected by the proposed activities to be identified and considered as part of the ERA. Therefore, for the purpose of this report:

- A 2km radius has been adopted in reviewing potentially sensitive receptors of cultural and ecological importance with the exception of a 2km radius for Sites of Special Scientific Interest (SSSI).
- A radius of 500m from the proposed permit boundary has been adopted for all other potentially sensitive receptors (for example, residential, commercial, industrial, agricultural and surface water receptors).

3.1 Site Setting

The site is centred on National Grid Reference SD 49354 04207 and lies approximately 2km south-east of Skelmersdale town centre within the West Pimbo Industrial Estate. It is accessed via Pimbo Road from the M58 which lies to the north. The site is immediately surrounded by other commercial and industrial premises with the nearest residential properties located approximately 435m to the north, beyond the M58 motorway. The river Tawd is located approximately 275m southwest of the site.

The site's location is illustrated on Drawing 001; the site layout on Drawing 002 and emission points on Drawing 003 and the surrounding land uses, local receptors within 500m are illustrated on Drawing 004 and cultural and natural heritage receptors within 2km are identified on Drawing 005.

A summary of the site's immediate surrounding land uses is identified in Table 3-1 below.

Table 3-1 Surrounding Land Uses

Direction	Land-Use
North	Commercial buildings associated with the Pimbo Industrial Estate are located to the north, including Europarts, located immediately north of the site boundary. An unnamed lake is located approximately 167 metres northeast of the site. The M58 motorway is located approximately 300m north of the site. A residential housing estate is located approximately 435m north.
South	Commercial buildings associated with the Pimbo Industrial Estate are located to the south, including Pit Hey Close roadway, located immediately south of the site boundary. An unnamed lake is located approximately 165 metres northeast of the site. The River Tawd is located approximately 275m southwest of the site. Holland Moss is located approximately 445m south of the site.
East	Commercial buildings associated with the Pimbo Industrial Estate are located to the east, including Walker Engineering, located immediately east of the site boundary.
West	Commercial buildings associated with the Pimbo Industrial Estate are located to the west, including Pimbo Road, located immediately west of the site boundary. The River Tawd is located approximately 430m west of the site, with Holland Moss is located beyond.

The immediate surrounding land use is described in detail below.

3.1.1 Residential

The site is located to the south of a large residential area, with the nearest residential properties located approximately 435m to the north of the site.

3.1.2 Commercial & Industrial

The site is located within the Pimbo Industrial Estate. Industrial and commercial properties in the immediate area are presented in Table 3-3 below.

3.1.3 Local Transport Network

Various roads are located beyond the site including Pimbo Road, adjacent to the site (provides access to the site); Pit Hey Place, adjacent to the site; Paddock Road approximately 60m south west; Penketh Place, approximately 190m west; Paxton Place, approximately 230m south west; and M58 approximately 300m north.

3.1.4 Agricultural Land & Open Ground

The closest agricultural/open land is 430m south west of the site.

3.1.5 Woodland

The closest area of woodland is located approximately 320m to the north of the site.

3.1.6 Education & Recreation

The closest educational facility is Pontville School approximately 250m west of the site.

3.1.7 Surface Water Features

An unnamed lake is located approximately 165 metres northeast of the site.

The River Tawd flows in a northerly direction past the southern and western site boundary. The river passes closest to the site approximately 275m to the southwest. The River Tawd also passes approximately 430m to the west of the site.

3.2 Geology, Hydrogeology & Hydrology

3.2.1 Geology

3.2.1.1 Superficial Deposits

British Geological Survey (BGS) data records superficial deposits overlying the bedrock comprising of Till, Devensian – Diamicton.

3.2.1.2 Bedrock Geology

BGS data indicates that the site is underlain by a bedrock of Pennine Middle Coal Measures Formation – Mudstone, siltstone and sandstone.

3.2.1.3 Historical Borehole Review

A review of publicly available historical boreholes[9] located on site have been reviewed. These boreholes were installed prior to the site being developed into buildings associated with the industrial estate. As such, there is potential for an unknown amount of made ground to be located above the typical geology identified in Table 3.2 below, associated with the building of the industrial estate.

Table 3-2 Typical Geology Onsite - Pre-Development (1962 to 1975)

Typical Geology	Typical Depth (m)	Typical Thickness (m)
Topsoil / Sand and Gravel	0 to 0.6 to 2.4 m	2.4 m
Firm sandy Glacial Till	0.6 to 2.4 m to 13 m	10.6 m
Shale / Coal / Fire Clay	13 m to 27 m	Thickness unproven

The topsoil and sand and gravel were documented to be thicker in the southwest corner; reported up to a depth of 2.4m.

3.2.1.4 Depth to Water

During the drilling of historical boreholes; groundwater was typically encountered under two scenarios:

- On top of the Glacial Till (i.e., 1.2 m deep in SD40SE302, SD40SE303 and SD40SE735; and 2.3 m deep in SD40SE573); or
- Within a layer of sandy gravel within the Glacial Till (i.e., between 3.3 m and 3.5 m deep in SD40SE303, SD40SE296 and SD40SE749).

3.2.2 Hydrogeology

3.2.2.1 Aquifer Classifications

The Envirocheck revealed that superficial deposits on site are classified as Secondary A[10] in the north and east of the site and as unproductive[11]in the south and west of the site. The superficial geology of the site is shown as Devensian Till across the whole site.

A search on the Multi-Agency Geographical Information for the Countryside (MAGIC) map revealed that the bedrock deposits beneath the site is classified as a Secondary A Aquifer.

3.2.2.2 Source Protection Zones

A search on the MAGIC map and the Envirocheck report revealed no Source Protection Zones within a 2km radius of the site.

[9] Publicly available boreholes from BGS website dated between 1962 and 1975. References: SD40SE20; SD40SE232; SD40SE288; SD40SE291; SD40SE292; SD40SE296; SD40SE302; SD40SE303; SD40SE340; SD40SE487; SD40SE488; SD40SE526; SD40SE527; SD40SE572; SD40SE573; SD40SE730; SD40SE731; SD40SE735; SD40SE737; SD40SE738; and SD40SE749.

[10] Permeable layers capable of supporting water supplies at a local rather than a strategic scale.

[11] These rocks have negligible significance for water supply or baseflow to rivers, lakes and wetlands. They consist of bedrock or superficial deposits with low permeability that naturally offer protection to any aquifers that may be present beneath.

3.2.2.3 Groundwater

The MAGIC map revealed that the groundwater vulnerability at the site is classified as Medium-High risk.

3.2.2.4 Groundwater Abstractions

The BGS website lists Holland Bore No.18 (24.9 m deep targeting the Pennine Middle Coal Measures Formation, reference SD40/115) as being located on site within the current site boundary, within the car park to the south of the waste effluent tank. The site does not hold any operation records or decommissioning records for this well. Water wells are also listed at the following approximate locations in the surrounding area by BGS:

- 40 m south: Holland Bore No.7, SD40/117, 126 m deep (on land currently associated with West Lancs Paints and Varnish Co Ltd).
- 40 m south: Holland Colliery Bore No.31, SD40/116, 87.5 m deep (on land currently associated with Essity / SCA).
- 112 m south: no bore details known.
- 190 m north: Holland Bore No.9, SD40/113, 101m deep.
- 255 m north: Prescott Pit, SD40/112, 341m deep.
- 45 m west: Holland Colliery Bore No.20, SD40/108, 36.3m deep.
- 110 m west: Holland Colliery Bore No.26, SD40/114, 63.1m deep.
- 85 m southwest: Holland Colliery Bore No.19, SD40/107, 17.5 m deep.

There is potential that the site and surrounding area appear to have been previously used for groundwater abstraction during the operation of Holland Colliery.

An active groundwater abstraction for ‘other industrial / commercial / public services: General Use (medium loss) is located 230m northwest of the site.

There are no other active or revoked groundwater abstractions listed by the Envirocheck within 1500m.

3.2.3 Hydrology

3.2.3.1 Surface Water Features

An unnamed lake is located approximately 165 metres northeast of the site.

The River Tawd flows in a northerly direction past the southern and western site boundary. The river passes closest to the site approximately 275m to the southwest. The River Tawd also passes approximately 430m to the west of the site.

Several tributaries of the River Tawd are located approximately 450m west of the site, and several land drains located beyond within Holland Moss.

3.2.3.2 Surface Water Abstractions

No surface water abstractions identified within 1500m.

3.2.4 Flood Risk

The Flood Map for Planning identifies the site as lying within a Flood Zone 1, defined by the website as ‘having a low probability of flooding from rivers’. The Long-Term Flood Risk Assessment identifies flooding from groundwater and reservoirs as unlikely.

The Long-Term Flooding Risk Assessment indicates that the on-site loading bay area is potentially at high risk (More than 3.3% chance each year) from surface water flooding.

This may be due to the topography of the yard which slopes from east to west, encouraging surface water to collect in the loading bay. Surface water in this area is directed to the 300,000lt attenuation tank which can act as attenuation in periods of heavy rain. The site has not suffered any flooding since taking occupation in 2010.

3.3 Ecological Receptors

A 2km radius was employed in identifying all National/Local sites of ecological importance. A 10km radius was applied to identify all European/International sites of ecological importance.

Local receptors within 500m are illustrated on Drawing 004 and cultural and natural heritage receptors within 2km are identified on Drawing 005.

Appendix A presents the EA's Nature and Heritage Conservation Report.

3.3.1 European/Internationally Designated Receptors

Searches on the MAGIC map confirmed that none of the following are present within a 2km radius of the site:

- RAMSAR sites;
- Special Areas of Conservation;
- Special Protection Areas; and
- National Parks.

3.3.2 Nationally/Locally Designated Sites

3.3.2.1 Sites of Special Scientific Interest

The Ravenhead Brickworks (SSSI) is located approximately 1.5km to the northeast of the site. No additional SSSI have been located within 2km.

3.3.2.2 Local Wildlife Sites

The EA prepared a Basic Conservation Screening Report (EPR/UP3821SE/P001) dated 15 April 2024. Nine local wildlife sites have been identified within 2km. The closest of these sites Holland Moss; is approximately 400m to the southwest of the site.

A review of available sources confirmed that none of the following are present within a 2km radius of the site:

- Areas of Outstanding Natural Beauty;
- Local Nature Reserves;
- National Nature Reserves;
- National Parks;
- Biosphere Reserves;
- RSPB Reserves; and
- Ancient Woodland.

3.3.3 Cultural Heritage

3.3.3.1 Listed Buildings

There are several Listed Buildings located within a 2km radius of the site. With the closest a Grade II Listed Building (Sutches Farmhouse) located approximately 950m to the northeast.

Searches on the MAGIC map confirmed that none of the following are present within a 2km radius of the site:

- Registered Parks and Gardens;
- Registered Battlefields;
- World Heritage Sites; and
- Scheduled Monuments.

3.4 Receptors

Local receptors within 500m of the site are recorded in Table 3-3, along with natural and cultural receptors within 1km.

Table 3-3 Receptors Summary Table

Receptor Name	Type	Direction	Approximate Distance from the Site Boundary (in metres)
Local Receptors within 500m as illustrated on Drawing 004			
Piggys Pantry	Industrial and Commercial	West	Adjacent
Pimbo Road	Local Transport Network	South	Adjacent
Pit Hey Place	Local Transport Network	East	Adjacent
X-Met Metals	Industrial and Commercial	North	30
West Lancs Paints and Varnish Co Ltd	Industrial and Commercial	South	40
S.C.A/Essity UK	Industrial and Commercial	South	40
Paddock Road	Local Transport Network	South west	60
Redwood TTM	Industrial and Commercial	South west	80
Walker Engineering	Industrial and Commercial	East	85
Bella Donner Pizza & Grill	Industrial and Commercial	North east	100
FTW Training Skelmersdale	Industrial and Commercial	West	100
A & I Trailers	Industrial and Commercial	North	105
Unnamed lake	Surface Water Features	North east	165
Penketh Place	Local Transport Network	West	190

Receptor Name	Type	Direction	Approximate Distance from the Site Boundary (in metres)
Messenger Express Warehousing	Industrial and Commercial	East	210
Netafim (UK	Industrial and Commercial	West	220
Paxton Place	Local Transport Network	South west	230
Lancashire Logistics International	Industrial and Commercial	South west	250
Pontville School 16-19 Centre	Education & Recreation	West	250
River Tawd	Surface Water Features	South	275
Phoenix Logistics (UK)	Industrial and Commercial	South west	280
Walkers Snack Foods Ltd (PepsiCo)	Industrial and Commercial	North west	290
Essity UK Ltd – Pulp & Reel	Industrial and Commercial	West	300
M58	Local Transport Network	North	300
Woodland	Woodland	North	320
Skelmersdale Food Truck Stop	Industrial and Commercial	South west	340
Victorian Plumbing	Industrial and Commercial	South east	420
Agricultural/open land	Agricultural/open land	South west	430
Holland Moss / Nipe Lane Local Wildlife Site	Local Wildlife Site	South west	475
Residential properties	Residential	North	435
River Tawd	Surface Water Features	West	430
Several unnamed tributaries of the River Tawd and several land drains.	Surface Water Features	West	450
Ferny Knoll Bog	Local Wildlife Site	North west	900
Dennetts House	Local Wildlife Site	East	500
Beacon Park	Local Wildlife Site	North east	1,660
Delph Clough	Local Wildlife Site	North	1,720
Randle Brook	Local Wildlife Site	South	1,870
Black Brook Woodland	Local Wildlife Site	South	1,920

Receptor Name	Type	Direction	Approximate Distance from the Site Boundary (in metres)
Tawd Valley Park	Local Wildlife Site	North west	1,940
Elmers Green Common and Clough	Local Wildlife Site	North	2,020
National Receptors within 2km as illustrated on Drawing 005			
Grade II Listed Building - Sutches Farmhouse	Listed Buildings	North east	950
Ravenhead Brickworks	SSSI	North east	1,500

3.5 Windrose

Figure 3-1 below shows the wind patterns between 2020-2022 as identified by Liverpool's Meteorological Station in Merseyside. The most prominent wind directions are from the south and the west. Winds from the northeast are relatively infrequent by comparison.

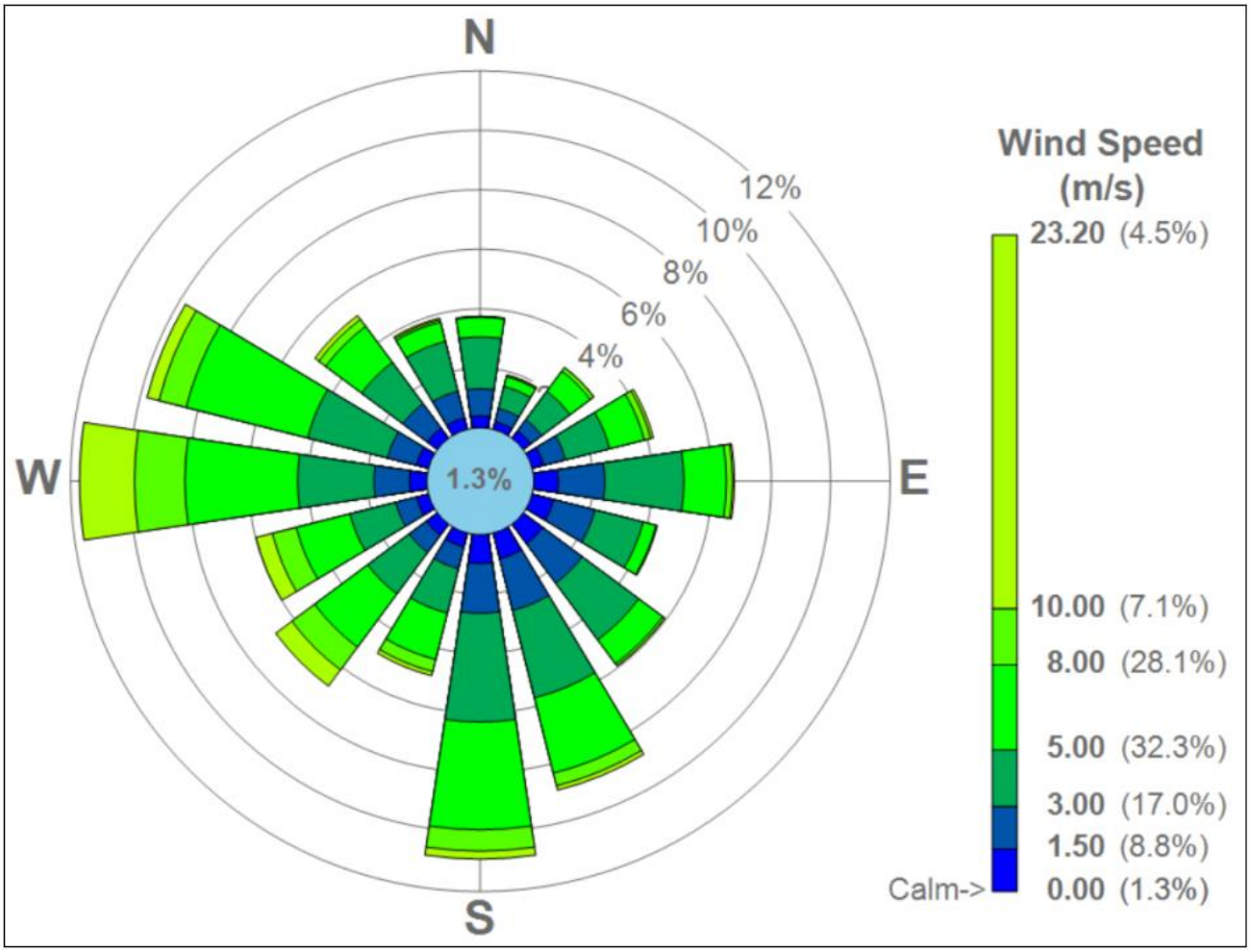


Figure 3-1: Liverpool Meteorological Station Windrose, 2020-2022

4.0 Environmental Risk Assessment

4.1 Qualitative risk assessments

Qualitative risk assessments are presented in this section for the following impacts:

- Odour;
- Fugitive emissions (dust, pests); and
- Accident risks.

They consider the potential pathways between source and receptor and where appropriate, the assessment demonstrates how the risk of pollution or harm can be mitigated by measures to manage these risks and/or block the pathways. An assessment in terms of hazards posed, receptors and pathways, along with management and residual risks for the following hazards is presented below. The qualitative assessments assess the probability of exposure in terms of the likelihood of the receptors being exposed to the hazard. This is defined as low, medium or high as set out below:

- Low: exposure is unlikely, barriers in place to mitigate against exposure.
- Medium: exposure is fairly probable, barriers to exposure less controllable.
- High: exposure is probable, direct exposure likely with few barriers.

The methodology outlined in Section 1.1 of this report is the basis for determining whether the proposed operations will lead to significant impacts on the surrounding environment. Where a conclusion of ‘not significant’ has been reached, it is proposed that the mitigation and management measures that will be in place at the site will be sufficient to ensure that there will be no impact to the surrounding environment.

4.1.1 Odour

Potential sources of odour from the facility include:

- Processing of the milk - this occurs indoors only;
- Storage of waste product - this is stored within an enclosed tank; and
- Waste effluent - this is stored within enclosed tanks prior to discharge.

The potential for fugitive emissions to be generated at the site is considered to be minimal.

However, a qualitative assessment of odour risk is provided in Table 4-1 which assesses the probability of exposure in terms of the likelihood of the receptors being exposed to the hazard.

Table 4-1: Odour Risk Assessment

Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	Overall Risk
Odour from the manufacturing of products and storing of raw material.	Commercial and industrial, local transport network and residential receptors as identified in Table 3-3. Drawing 004 & 005.	Air	The following mitigation measures are used to manage potential odour generation on site: • All processing occurs indoors. • Waste used for pig feed is enclosed in a tank and removed from site once a day. • Sediment waste from the evaporative process is stored in an enclosed tank and removed from site 3-4 times a week. • Site operatives conduct daily checks and record any instances of unacceptable odour. • If any odour is identified the cause is investigated and odorous material is isolated in a sealed container before removal offsite to a suitably licenced treatment facility. The site has not received any odour complaints since YTD took over the site in 2010. No odour outside of the enclosed processing buildings was noted by SLR during a site visit in March 2024. The Site Manager is responsible for implementing Risk Management measures in accordance with operational and management procedures.	Low – with the measures implemented on site. The probability is very low for both source – pathway – receptor linkages due to the integrity of the primary containment systems, and the control measures in place.	Odour Nuisance and loss of amenity.	Not significant.

4.1.2 Fugitive Emissions

Uncontrolled or unintended emissions may arise from the processing, storage and handling of materials at the site. The EA's guidance states that these may include dust, litter, pests and pollutants that should not be discharged.

There are two dust emission points located onsite from the drying room. These are continuously monitored in real time via the SCADA system and are fitted with bag filters.

Powdered milk is stored within sealed bags within the warehouse.

A qualitative assessment of fugitive risk is provided in Table 4-2 which assesses the probability of exposure in terms of the likelihood of the receptors being exposed to the hazard.

Table 4-2: Fugitive Emissions Risk Assessment

Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	Overall Risk
To Air:						
Dust Dust from vehicle movement.	Commercial and industrial, local transport network, residential, and ecological receptors as identified in Table 3-3. Drawing 004 & 005.	Air	Due to the mitigation measures in place the potential for dust to be present on road surfaces is low. However, the following measures are used to prevent mobilisation of dust generally at the site: • Good housekeeping of roads and surfaces. • All vehicle movements are on hard standing. • Visual inspections are carried out daily. • Milk powder is stored indoors in a warehouse and warehouse doors are shut when not in use. • Packaged powdered milk exported from the site is transported in enclosed vehicles. The Site Manager is responsible for implementing risk management measures in accordance with operational and management procedures.	Low – with the operational procedures and mitigation measures implemented on site.	Nuisance and health risk to human receptors.	Not significant.
Dust Dust from machinery and equipment (e.g., powdered milk product) / product supply / equipment failure.	Commercial and industrial, local transport network, residential, and ecological receptors as identified in Table 3-3. Drawing 004 & 005.	Air	Potential for dust generation at the site comes from the drying of raw milk to produce milk powder. This activity is undertaken indoors in the evaporator room. Dust is removed from the two dryer stacks by bag filtration units, this process is monitored continuously to ensure that the filter performance is maintained via the SCADA system. Dust emissions are below the BAT AEL for particulate matter presented in the food and drink BRef. Powdered milk is stored in 25kg and 1 tonne sealed bags that are sealed twice and then transferred to the warehouse for storage. Warehouse doors are shut when not in use. Visual inspections are carried out daily and good house-keeping measures are undertaken. The site implements production supply procedures to operate the equipment in accordance with best practice and the manufacturers recommendations. All personnel working within the drying area and warehouse are provided with adequate training. A planned preventative maintenance programme is implemented on site. The Site Manager is responsible for implementing risk management measures in accordance with operational and management procedures.	Low – with the operational procedures and mitigation measures implemented on site.	Nuisance and health risk to human receptors.	Not significant.
Fugitive Volatile Organic Compound (VOC) Emissions	Commercial and industrial, residential, and ecological receptors as identified in Table 3-3. Drawing 004 & 005.	Air, land and water	No VOC emissions generated onsite. Cleaning chemicals are food grade standard.	Low	Minor fugitive emissions to air, odour nuisance, water contamination.	Not significant.
Pests:						
Birds, vermin, and pests	Commercial and industrial, residential, controlled water and ecological receptors as identified in Table 3-3.	Land and air.	The site has a contract with Pestakill pest control and maintains pest control in line with the standards required for a drink manufacturing facility. Waste sediment is transferred to the 40,000lt waste sediment tank, which is emptied 3-4 times a week. Waste milk product is transferred to the 45,000lt waste product tank. All waste product is transferred daily offsite, reducing the amount of	Low	Nuisance, potential risk to human health.	Not significant.

Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	Overall Risk
	Drawing 004 & 005.		time the waste is stored onsite. Both of these tanks are enclosed. All processing occurs indoors. The Site Manager is responsible for implementing risk management measures in accordance with operational and management procedures.			
Litter:						
Litter from waste	Commercial and industrial, local transport network and controlled water receptors as identified in Table 3-3. Drawing 004 & 005.	Air	The Site Manager and operatives inspect the site and surrounding area on a regular basis to collect any litter and return it to the main storage areas. Packaging of products is undertaken indoors. Waste packaging is segregated and stored in enclosed containers. Waste streams are clearly labelled. Waste is removed from site regularly by licensed and approved contractors. Outgoing product is transported in enclosed vehicles to ensure no escape of materials (e.g. packaging) during transit. The material is stored within the warehouse prior despatch. The Site Manager is responsible for implementing risk management measures in accordance with operational and management procedures.	Low – due to the nature of the waste accepted on Site.	Nuisance from litter. Loss of amenity. Dangerous conditions on roads.	Not significant.

4.1.3 Accidents

The potential consequences from accidents and mitigation of risks are provided in Table 4-3. It is considered that the mitigation measures in place will mean that the risk of consequences of accidents on receptors will be low.

Table 4-3: Accidents Risk Assessment

Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
Spillage and leakage of liquid raw materials Spills and leaks of fuels and oils from vehicles.	Commercial and industrial, local land quality, groundwater and surface water as identified in Table 3-3. Drawing 004 & 005.	Runoff and percolation through ground.	Refer to the Site Condition report document (reference 416.065368.00001_SCR) for a full appraisal of fuel and chemical containment measures present on site. When milk is delivered on site, the transfer from the road tanker to the feed tanks takes place within a dedicated tanker bay in the main yard comprising concrete hardstanding. Any spills are captured by the yard drainage which flows to the 300,000lt underground tank prior to being over pumped to the waste effluent tank. This tank then discharges to United Utilities (UU) foul sewer on Pit Hey Place. Testing of this effluent is undertaken prior to discharge to sewer; UU also regularly test the effluent. Any full road tankers temporarily stored on site prior to unloading are reverse parked over one of the loading bay areas as described above, meaning any leaks, will be collected with the site drainage system. Containment for onsite raw materials, fuel, glycol, biocides, food grade cleaning chemicals can be found in Section 4 of the BATOT report (reference 416.065368.00001_BATOT). Food grade chemicals and biocides within the process building are stored on bunded stillages. Spill kits are kept on site and any minor spillages associated with vehicles or plant machinery will be cleaned up immediately using appropriate materials such as sand or absorbent material and afterwards placed in suitable sealed containers for disposal/treatment off-site. Regular visual inspections are carried out to identify any evidence of spillages or leakages. The results of any inspections or investigations are recorded and actioned. The Site Manager is responsible for implanting risk management measures in accordance with the appropriate procedures as outlined in the environmental management system (EMS).	The probability is very low for both source – pathway – receptor linkages due to the integrity of the primary containment systems, and the control measures in place.	Contamination of local land, groundwater and surface waters.	Not significant.
Fire	Commercial and industrial, local transport network, residential, controlled water and ecological receptors as identified in Table 3-3. Drawing 004 & 005.	Air (smoke). Ground (spillages and firewater).	The site have a procedure that outlines how the site will respond to a fire. The on-site surface water drainage system and 300,000lt attenuation tank will be used to collect fire water in case of a fire. Contaminated water will then be over pumped to a tanker for offsite treatment or disposal at a suitably licenced facility. The Site Manager is responsible for implementing risk management measures detailed within the Emergency Plan.	Low – with control measures in place.	Harm to human health and the environment and nuisance.	Not significant.
Vandalism/Security	Commercial and industrial, residential, controlled water and ecological receptors as identified in Table 3-2. Drawing 004 & 005.	Land, surface water, groundwater, air.	The site benefits from the existing security measures in place and is secured using gates and fencing to prevent and deter any unauthorised entrance. The site benefits from operational procedures, including regular inspections, to ensure continual monitoring of security provision. Security infrastructure is inspected daily to identify any deteriorations and need for repairs. If deterioration or damage is found, then actions are taken to prevent unauthorised access and temporary repairs made within 24 hours. Permanent repairs will then be made as soon as practically possible after this.	Low	Theft. Harm to human health.	Not significant.

Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
			All visitors to site will be required to sign in and out of the visitors book. This minimises the risk of unauthorised visitors gaining access to the site. The Site Manager will be responsible for implementing risk management measures in accordance with appropriate procedures outlined in the EMS.			
Flooding Contamination Loss of equipment and operational control Lack of access to site	Commercial and industrial, local transport network, residential, controlled water and ecological receptors as identified in Table 3-3. Drawing 004 & 005.	Flood waters over land.	The onsite loading bay area is potentially at high risk of surface water flooding. Surface water in this area is directed to the 300,000lt attenuation tank which can act as attenuation in periods of heavy rain. The site have not suffered any flooding since YTD took ownership in 2010. The Site Manager will be responsible for implementing risk management measures in accordance with appropriate procedures outlined in the EMS.	Low to possible.	Contaminated flood waters impacting land in residential, ecological and commercial local areas.	**Low**
Failure of site surfacing and site containment, including firewater	Commercial and industrial, local transport network, residential, controlled water and ecological receptors as identified in Table 3-3. Drawing 004 & 005.	Land, surface water, groundwater, air.	All internal drainage, contaminated yard drainage and wash water is collected in a sump and over-pumped to the wastewater tank. This is transferred together with the condensate to the foul sewer network under a trade effluent consent with United Utilities. The contaminated water drainage system also contains a 300,000lt underground attenuation tank which provides tertiary containment buffer for accidental spills. Uncontaminated surface water runoff from roofs and areas of the site which are not part of the process operations is collected in a separate drainage system and released to the local surface water drainage network. All equipment is subject to pre-planned preventative maintenance checks and maintained in accordance with manufacturer's recommendations. A Planned Preventative Maintenance (PPM) system is in place to reduce the likelihood of a mechanical failure, the abatement plant is part of this PPM schedule. Operating procedures and training in place for failure modes. The site benefits from impermeable concrete surfacing and a sealed drainage system to collect surface water and spills and minimise risk of run-off. Raw and waste materials associated with the site are stored in suitable containers and where required provided with adequate secondary or tertiary containment within onsite storage areas. Refer to the BATOT document (reference 416.065368.00001_BATOT) Section 4.0 for the full detail of storage arrangements on site. Waste product is collected from site daily. Waste sediment is also collected and transferred offsite 3-4 times a week. The on-site surface water drainage system and 300,000ltattenuation tank will be used to collect fire water in case of a fire. Contaminated water will then be over pumped to a tanker for offsite treatment or disposal at a suitably licenced facility.	Low to possible with the operational procedures and mitigation measures implemented on site.	Contaminated firewater runoff or spillages impacting land in residential, ecological and commercial local areas.	**Low**
Asphyxiation and toxicity	Commercial and industrial, local transport network, residential, controlled water and ecological receptors as identified in Table 3-3.	Land, surface water, groundwater, air.	The site operates under DSEAR requirements to manage the dust generation in the drying room. A procedure is in place to manage the potential health effects of working with dried milk and food grade cleaning chemicals. The DSEAR requirements are reviewed periodically by site and mitigation procedures updated as required.	Low – with the preventative measures implemented.	Contaminated land, air pollution and harm to human health.	**Not significant**

Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
	Drawing 004 & 005.					
Explosion	Commercial and industrial, local transport network, residential, controlled water and ecological receptors as identified in Table 3-3. Drawing 004 & 005.	Land, surface water, groundwater, air.	The drying room is ATEX rated and managed in accordance with ATEX and DSEAR requirements. The site operates a permit to work system and any 'hot works' will only be permitted if the atmosphere is free from potentially explosive dust.. All electrical equipment is subject to inspections and marked appropriately to conform with applicable regulations and legislation. Incompatible materials are stored separately. Training is provided to all operatives on site to understand the risks.	Low – with the preventative measures implemented.	Contaminated land, air pollution and harm to human health.	**Not significant**
Failure of equipment or abatement technology	Commercial and industrial, local transport network, residential, controlled water and ecological receptors as identified in Table 3-3. Drawing 004 & 005.	Air, surface water, ground water	All equipment is subject to planned preventative maintenance (PPM) checks and maintained in accordance with manufacturer's recommendations. Should any problems, malfunctions or breakdowns occur, which affects the ability to safely function, the manufacturing will stop until the problems are rectified. Monitoring systems are in place to ensure that all relevant parameters are recorded and that any operating faults can be detected. When detected, action is taken, and this may involve the use of standby equipment.	Low – with the preventative systems in place on site.	Nuisance, harm to human health and environmental harm.	**Not significant**
Failure of site services: heating, power, water supply	Commercial and industrial, local transport network, residential, controlled water and ecological receptors as identified in Table 3-3. Drawing 004 & 005.	Air, surface water, ground water	The site has stores of kerosene to be used as back-up fuel for the steam generators and dryers in case natural gas supplies fail. The site has an emergency backup generator to supply electricity in the event of disruption to the power supply. All equipment is subject to pre-planned preventative maintenance checks and maintained in accordance with manufacturer's recommendations. Should any problems, malfunctions or breakdowns occur, which affects the ability to safely function, the manufacturing will stop until the problems are rectified.	Low – with the preventative systems in place on site.	Nuisance, harm to human health and environmental harm.	**Not significant**

4.2 Quantitative Risk Assessments

Quantitative risk assessments using standard factors have been carried out for the following impacts:

- Global Warming Potential.
- Photochemical Ozone Creation Potential.

In addition to the above, detailed quantitative risk assessments have been carried out for the following impacts:

- An Air Emissions Risk Assessment (AERA) including detailed dispersion model of the combined releases from the activities.
- An 'H1' assessment of discharges of process effluent to sewer.
- A Noise Impact Assessment.

4.2.1 Global Warming Potential

The global warming potential is summarised in Table 4.4. The process generates indirect emissions from the use of electricity to heat and power the site.

Table 4-4: Global Warming Potential

Source	Annual Energy Consumption (FY2023)	Conversion Factor	CO_2 Tonnes
Electricity	14000MWh	0.166	2,324 tonnes
Gas	85000MWh	0.19	16,150 tonnes
Diesel	24,000lt	2.66	63.84 tonnes
Total			18,537.84 tonnes
Conversion values obtained from Greenhouse gas reporting: conversion factors 2024 - GOV.UK (www.gov.uk) accessed on 03 October 2024.			

The impacts arising from energy use are minimised through computer control systems to minimise energy use and systems for heat recovery, and through plant maintenance and staff training.

The best available technique (BAT) assessment presented in BATOT document (reference 416.065368.00001_BATOT) presents a detailed overview of energy management measures implemented at the site.

4.2.2 Photochemical Ozone Potential

Emissions of nitrogen oxides from combustion units at the site have a photochemical ozone creation potential. This is summarised in Table 4-1.

Table 4-5 POCP for emissions from the 3CR Process

Substance	Annual mass (tonnes)	POCP per tonne[12]	POCP
NOx	142.11	2.8	398

The annual mass of emissions from the site that contribute to photochemical ozone creation potential are relatively small and are therefore not considered significant.

4.2.3 Air Emissions Risk Assessment

Emission points to air includes three 4500kVA steam generators, the 900kVA emergency diesel fired generator, the two heat exchangers used in evaporative process and stacks from the drying process (producing dust). The AERA has considered the risks posed by the site to short-term and long-term impacts on both human and ecological receptors. Impacts are assessed against relevant Environmental Assessment Levels (EALs) for the protection of human health and against Critical Loads (CLo) and Critical Levels (CLe) for the protection of vegetation and ecosystems, in accordance with EA guidance 'Air emissions risk assessment for your environmental permit' (the AERA guidance).

The conclusions of the AERA are as follows:

- The process contributions do not lead to any exceedances of the AQALs (long-term or short-term) for the protection of human health at any relevant exposure location outside of the site; and
- The emissions from the plant are considered to cause 'no adverse effect' to the designated ecological sites.

4.2.4 Surface Water Risk Assessment

A surface water pollution risk assessment (H1 assessment) was carried out on effluent discharge from the YTD site in Skelmersdale to the River Douglas via Newborough sewage treatment works.

Biological Oxygen Demand and Suspended Solids were modelled using the Environment Agency's River Quality Planning software and found not to pose a significant risk of EQS exceedance in the downstream watercourse quality. Furthermore, they were found not to pose a significant risk of reducing the quality of the watercourse by a significant amount (more than 10% of the EQS compared to upstream quality).

The pH of the effluent was found to be within the acceptable limits of the MAC-EQS.The discharge was therefore deemed to have passed the H1 assessment.

4.2.5 Noise Impact Assessment

A quantitative assessment of the potential for noise impacts from the site has been undertaken as part of this application (416.065368.00001_NIA). This assessment concluded

[12] H1 Annex F – Air Emissions: Appendix A - Photochemical Ozone Creation Potential

that the noise levels within the assessed area have a minimal impact on residential receptors and that a site-specific Noise Management Plan is not required.

5.0 Conclusion

This ERA has been undertaken in accordance with EA guidance. The assessment is provided as part of the application for an EP for the YTD, Skelmersdale site.

This qualitative risk assessment has considered odour, noise, fugitive emissions, dust, releases to water, flooding, litter and potential for accidents and incidents.

The AERA quantified and assessed the potential air quality impacts associated with potential emissions from the process operations at the dairy.

The AERA concluded that process contributions do not lead to any exceedances of the AQALs (long-term or short-term) for the protection of human health at any relevant exposure location outside of the site; and the emissions from the plant are considered to cause ‘no adverse effect’ to the designated ecological sites.

YTD undertook a quantitative H1 assessment on potential chemicals that may have potential to be discharged to sewer to confirm that the assumption that intermittent effluent discharge to sewer is unlikely to have an adverse impact to applicable receptors.

The assessment concluded that with the implementation of the risk management measures described above, potential hazards from the facility are not likely to be significant and no further assessment is required.

Appendix A BASIC Screening Assessment

Environmental Risk Assessment

Environmental Permit Application

Yew Tree Dairy PartCo Limited

SLR Project No.: 416.065368.00001

22 October 2024

Appendix B Drainage Plan

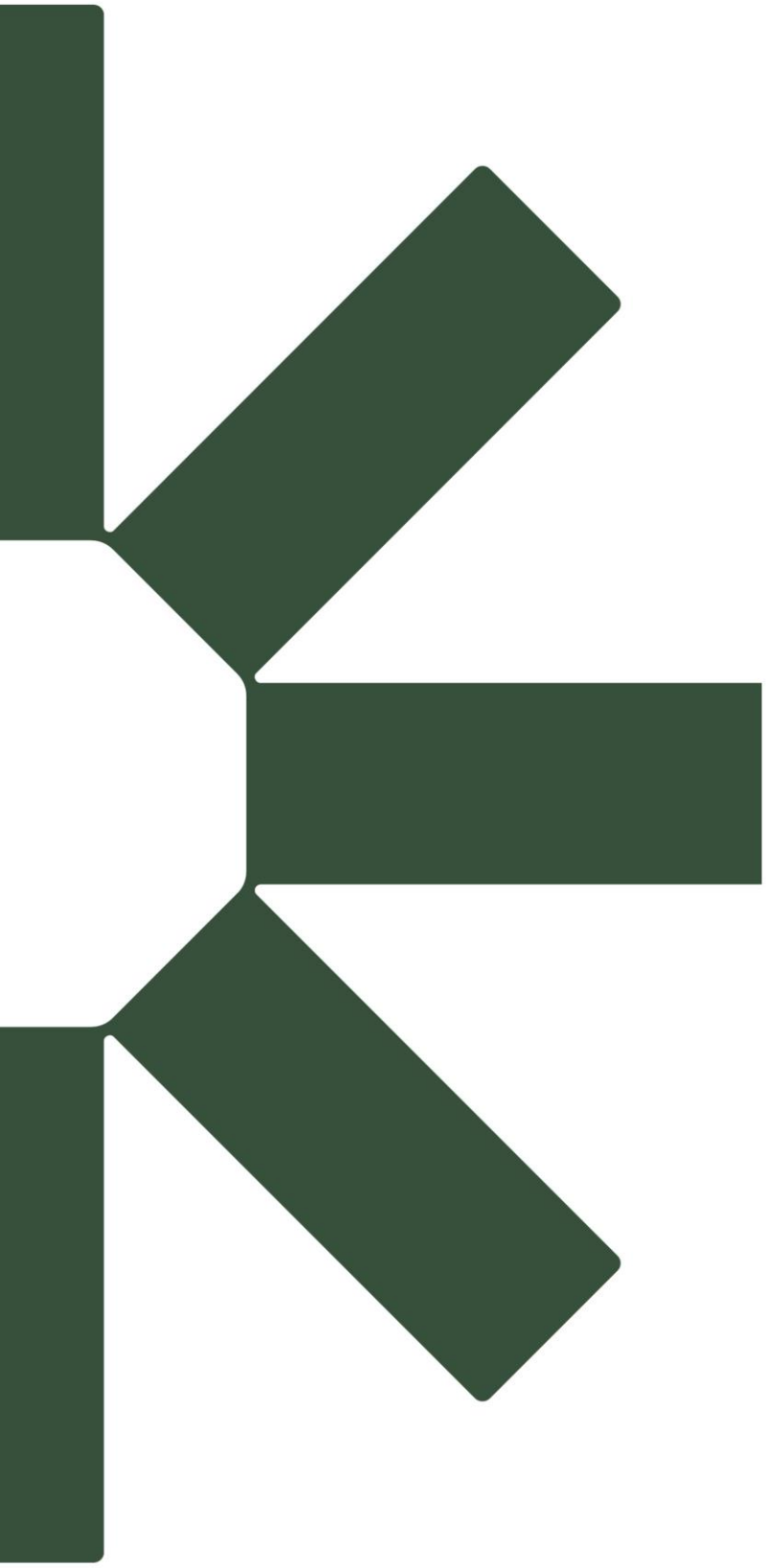
Environmental Risk Assessment

Environmental Permit Application

Yew Tree Dairy PartCo Limited

SLR Project No.: 416.065368.00001

22 October 2024



Making Sustainability Happen