

# Dust & Emissions Management Plan (DEMP)



## Construction of Slurry Storage Lagoon

Nansmerrow Farm, Tresillian,  
Truro, Cornwall, TR2 4AP

Environmental Permit Application  
Ref: EPR/KB3506UU/A001

**Issue and Revision Record**

<b>Revision</b>	<b>Date</b>	<b>Originator</b>	<b>Checker</b>	<b>Company Approver</b>	<b>Description of Changes</b>
1	27 <sup>th</sup> August 2023	AL	RF	PG	Original Issue
2	28 <sup>th</sup> August 2023	AL	RF	PG	Minor changes throughout.

**Contents Page**

**1. Introduction**

- 1.1 *Site Location and context*
- 1.2 *Purpose & Objectives of This DEMP*
- 1.3 *Receptors*
- 1.4 *DEMP Management and Accessibility*

**2. Operations at Nansmerrow Farm**

- 2.1 *Waste Deliveries Nansmerrow Farm*
- 2.2 *Overview of Waste Processing, Dust, and other Emission Controls*
- 2.3 *Mobile Plant and Equipment*

**3. Dust and Particulate Management**

- 3.1 *Responsibility for Implementation of this Plan*
- 3.2 *Sources and Control of Fugitive Dust/Particulate Emissions*
- 3.3 *Visual Dust Monitoring & Records*
- 3.4 *Environmental Monitoring*
- 3.5 *Water Usage, Drought, System Failure & Control of Fugitive Dust*
- 3.6 *Training*

**4. Particulate Matter Monitoring**

- 4.1 *Monitoring Location*
- 4.2 *Operation of the Dust Monitoring Equipment*
- 4.3 *QA/QC and Record Keeping*
- 4.4 *Reporting of Data*
- 4.5 *Additional Detailed Reporting*

**5. Procedure When Action Levels Exceeded**

**6. Reporting and Complaints Response**

- 6.1 *Engagement with the Community*
- 6.2 *Reporting of Complaints*
- 6.3 *Management Responsibilities*
- 6.4 *Summary*

**Appendices**

**Appendix A:** *Summary Maintenance Requirements*

**Appendix B:** *Dust & Environmental Monitoring Equipment*

**Appendix C:** *Dust Complaint Form*

**Appendix D:** *Daily Site Report*

## 1. Introduction

### 1.1 Site Location and Context

The Nansmerrow Farm site is located on Tresillian, Truro, Cornwall, TR2 4AP. The Latitude and Longitude for the site is 50°17'18.4"N 5°00'32.5"W. The Google Maps location of the site and that of sensitive receptors around the site is shown in Figure 1.

Nansmerrow is a specialist dairy unit based on 200 acres of owned land (Nansmerrow, and adjoining Polperrow farms) and 350 acres of rented land. All of this land falls within a Nitrate Vulnerable Zone (NVZ). Land use is mainly to grass, which is grazed or conserved as clamp silage.

300 dairy cows (year-round calving, with average milk yield 12,500 litres per cow per year) are milked and year-round cubicle-housed on sea sand at Nansmerrow farmyard.

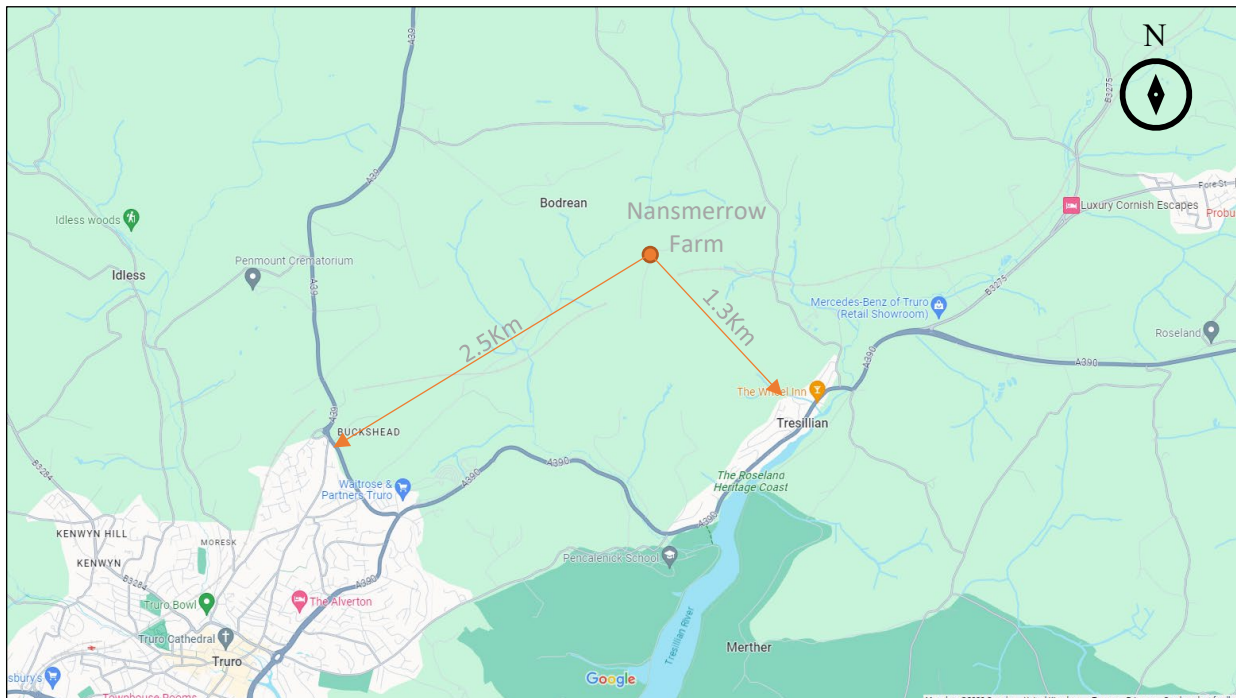
The farm's NVZ records show that the existing earth-lined lagoon (to the south of the farm buildings) is inadequate to provide 5 months storage for excreta from existing livestock, along with fouled yard runoff and dairy and parlour washings. Nansmerrow has been issued with a non compliance against it's Red Tractor certification and is also unable to expand the dairy herd due to this inadequacy of storage.

It is proposed therefore to construct an impermeable earth-lined lagoon for slurry storage of 50m x 35m. The lagoon to be constructed through waste recovery and situated in the location shown below.

**Figure 1.0: The general location of the slurry lagoon in relation to Nansmerrow Farm buildings.**



**Figure 1.1: The general location of Nansmerrow Farm in relation to surrounding landmarks.**



### **1.2 Purpose & Objectives of This DEMP**

This dust and emissions management plan has been created to ensure that dust emissions associated with construction of the above mentioned slurry storage lagoon are fully assessed, appropriately managed and mitigated through effective control measures.

The definition and the main aims of this dust management plan are to provide:

- A live working document that describes and formalises how dust issues will be managed on site.
- Clarity in how dust and odours will be managed and controlled so as to prevent or minimise impacts. As well as covering normal operations, it anticipates and plans for abnormal events and foreseeable incidents;
- Clear mitigation/control measures; and
- Straight forward plans and processes that can be actioned by the TCM and site operatives.

Once released into the atmosphere, dust can be transported through the air to nearby receptors. Sensitive receptors include people living within close proximity of the proposed site, there can also be amenity affects for some local businesses, the majority of which are farming operations.

This document has been compiled to give both regulatory authorities and site staff a clear understanding as to the procedures and practical implementation and maintenance of the dust management systems for the site.

This plan presents the approach for operations on site which may potentially produce dust emissions. This assessment sets out the methodology followed and presents the measures to be implemented to mitigate emissions in certain circumstances.

### 1.3 Receptors

Nansmerrow Farm is situated approximately 2.7km Northeast of city of Truro, with the villages of Tresillian to the southwest, Probus to the East and St Erme to the North being 1.4km, 3.4km and 2.6km away respectively (measured from the proposed lagoon location). The general situation of the farm is shown in Figure 1.1.

The general area is very rural with few properties or businesses in the vicinity other than other farms. There is a caravan property some 200m from the proposed site, with the nearest farm 450m away to East Southeast. Both of these are connected with the Nansmerrow Farm operation.

Nineteen receptors have been identified and listed in Table 1.1, five of which are considered sensitive receptors in the ESSD based on their nature and vicinity to the site (highlighted bold): Trenans Caravan (Receptor 1), Tresournes (Receptor 3), Polperrow Farm (Receptor 4), Trevella Stream (Receptor 11) and the Public Byway (Receptor 16). The remaining receptors are low sensitivity receptors.

The full list of receptors are identified in Tables 1.1 and 1.2. These are marked on Figure 1.2 in their respective colours. Included in Figure 1.2 is an inlay wind rose to give an indication of majority prevailing wind direction. Details of the wind rose source data is provided at 1.3.1, with the wind rose also shown in more detail at Figure 1.3.

The majority prevailing wind to the Nansmerrow Farm site is West Southwest, and consequently those receptors to the Northeast have potential to be most impacted in the event of airborne dust from the site. The nearest sensitive receptors are SSSI and RAMSAR designated areas, the location and extent of which are shown at Figure 1.4, and the Primary Habitat areas in Figure 1.5. The nearest distance to these when measured in a North Easterly direction is 100m and 680m respectively.

There are three schools in a North and Northeastern direction from the site, all of which are in excess of 300m away.

As shown in Figure 1.6. The site is not within an Air Quality Management Area or AQMA zone. The nearest being AQMA 6 - Truro (Cornwall County Council) which is 1.4km away at its closest point.

**Table 1.1: Receptors**

	Property	Direction From Proposed Slurry Storage (m)	Approximate distance from Site (m)
1	<b>Trenans Caravan</b>	East	200 (See Note)
2	Venton Berron	East	805
3	<b>Tresournes</b>	East	440
4	<b>Polperrow Farm</b>	South	390
5	Woodlands Farm	West	750
6	Bodrean Manor	North West	825
7	The Coachhouse	North West	990
8	Milltown Cottage	North	910
9	Cottages	North	740
10	Pencoose Pantry	North East	500

No1	Designated Land/Waterway	Direction From Proposed Slurry Storage (m)	Approximate distance from Site (m)
1	<b>Trevella Stream</b>	North West	240
2	Waterbody	South East	830
3	Ancient Woodland	North	920
4	Primary Habitat Deciduous Woodland	All Directions	50
5	PHI – Traditional Orchards	West & North	730 & 770

No1	Public Rights of Way	Direction From Proposed Slurry Storage (m)	Approximate distance from Site (m)
1	<b>Public Byway</b>	Across Site	0
2	Public Footpath	North & East	375 & 990

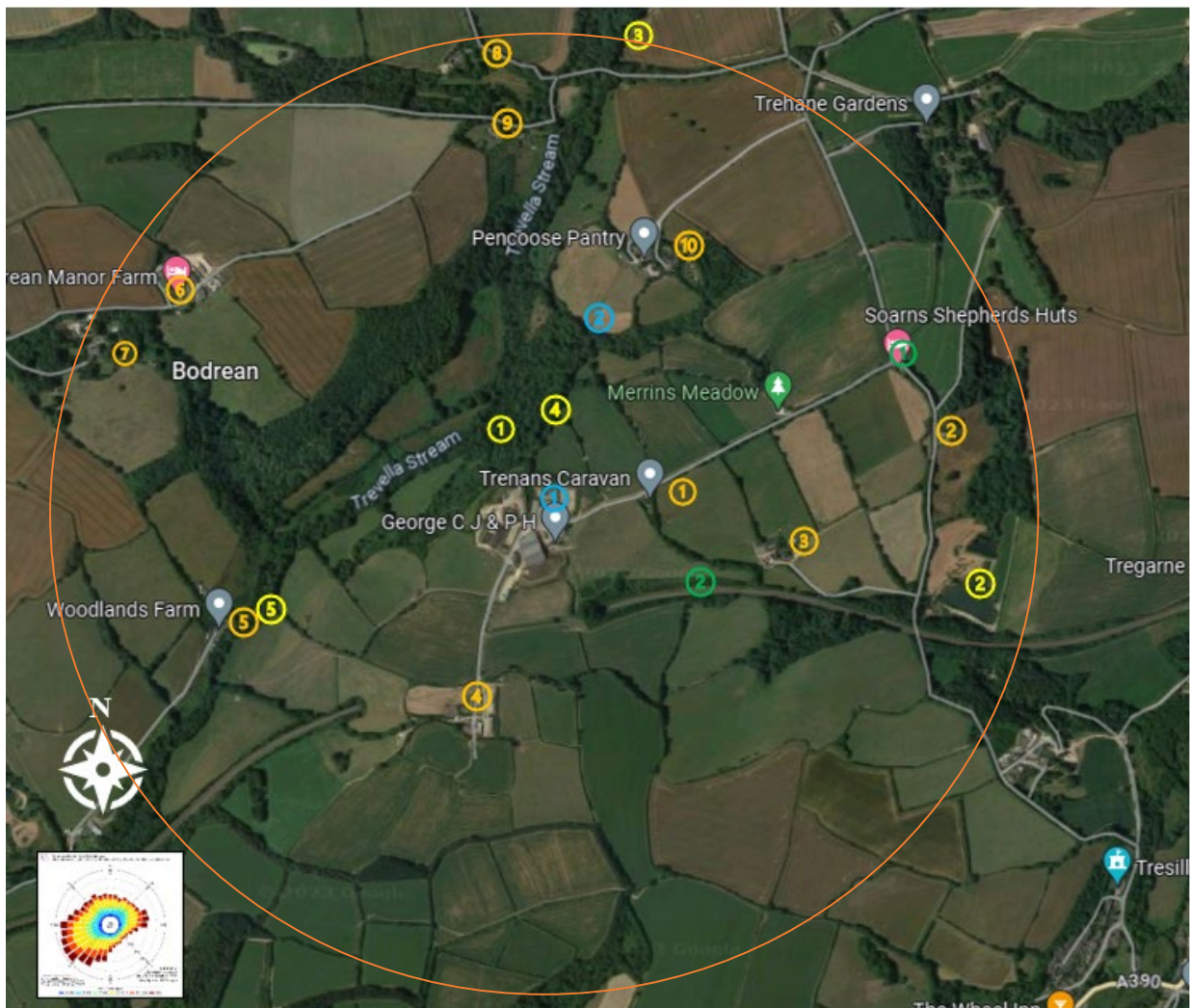
No1	Public Rights of Way	Direction From Proposed Slurry Storage (m)	Approximate distance from Site (m)
1	Unclassified Public Highway	East	760
2	Cornish Mainline (Railway)	South	250

Note: Trenans Caravan is owned by the applicant/operator and used as seasonal accommodation when necessary.

Polperrow Farm is also owned by the applicant/operator of Nansmerrow Farm.

No potential sources of dust are identifiable in the vicinity of Nansmerrow Farm.

**Figure 1.2: Potential Receptors on a 1km Radius Centred on The Nansmerrow Farm Site**



### 1.3.1 Wind Rose Data

To aid the interpretation of receptor and land classification information, a small wind rose is inserted into the maps/plans provided. Wind data used is for Culdrose meteorological weather station.

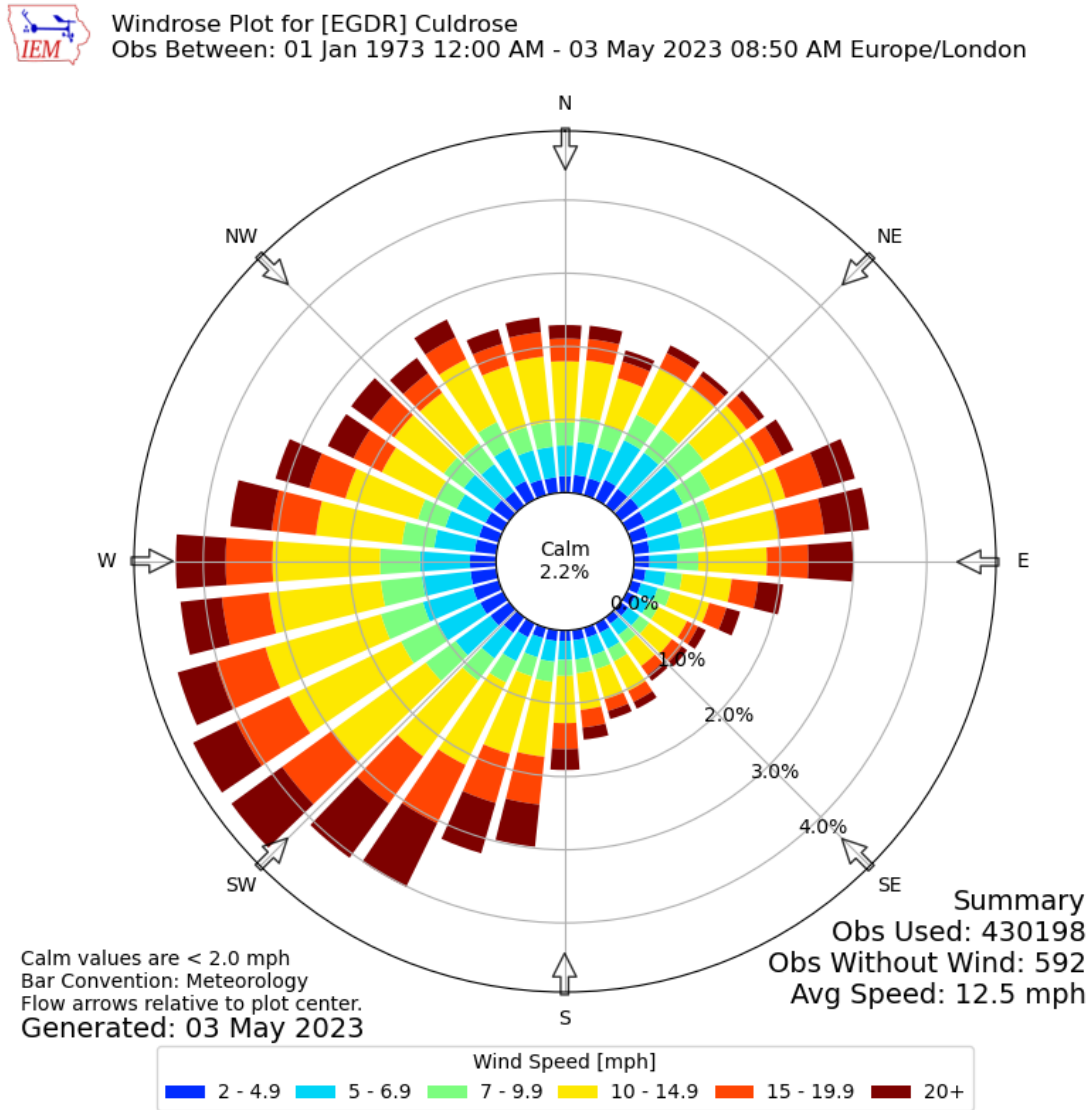
Culdrose meteorological weather station is located 28.7km from Nansmerrow Farm and has a similar topography to that at the site. It is similarly surrounded by agricultural land. Therefore, this wind rose data is comparable to that of the site. This station is closer to the coast than the application site, so it is assumed that the wind levels recorded here are higher than that of the site. Based on this, it can be assumed that this wind data is a worst-case scenario.

Winds with speeds exceeding  $>5\text{m/s}$  from the direction of the dust source that occur more than 20% of the time are considered to increase the likelihood of dust being raised and blown from the site. Therefore, winds are not expected to increase dust raising significantly at the site. The



data for Culdrose weather station does not define the percentage of that period which is dry. This assessment assumes a worst-case scenario of all winds >5m/s occurring on dry days.

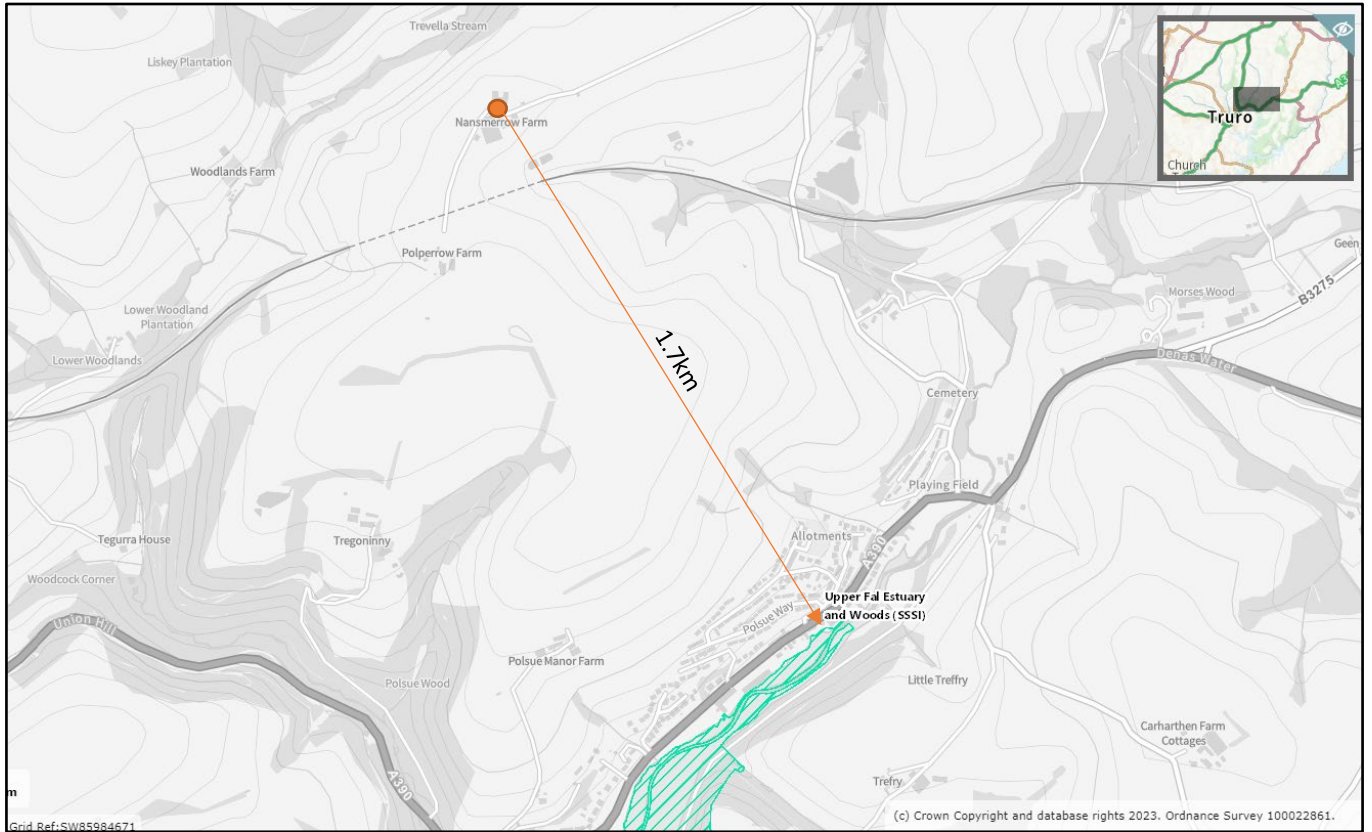
**Figure 1.3: Wind rose showing the wind direction and strength at Culdrose**



### 1.3.2 Sites of Special Scientific Interest (SSSI) and Protected Habitat

SSSI areas are shown hatched in blue in Figure 1.3 below. The nearest being 1.7 Km to the Southeast of the proposed site. There are no RAMSAR sites identified in the area of the proposal.

**Figure 1.4: SSSI Designated Regions**



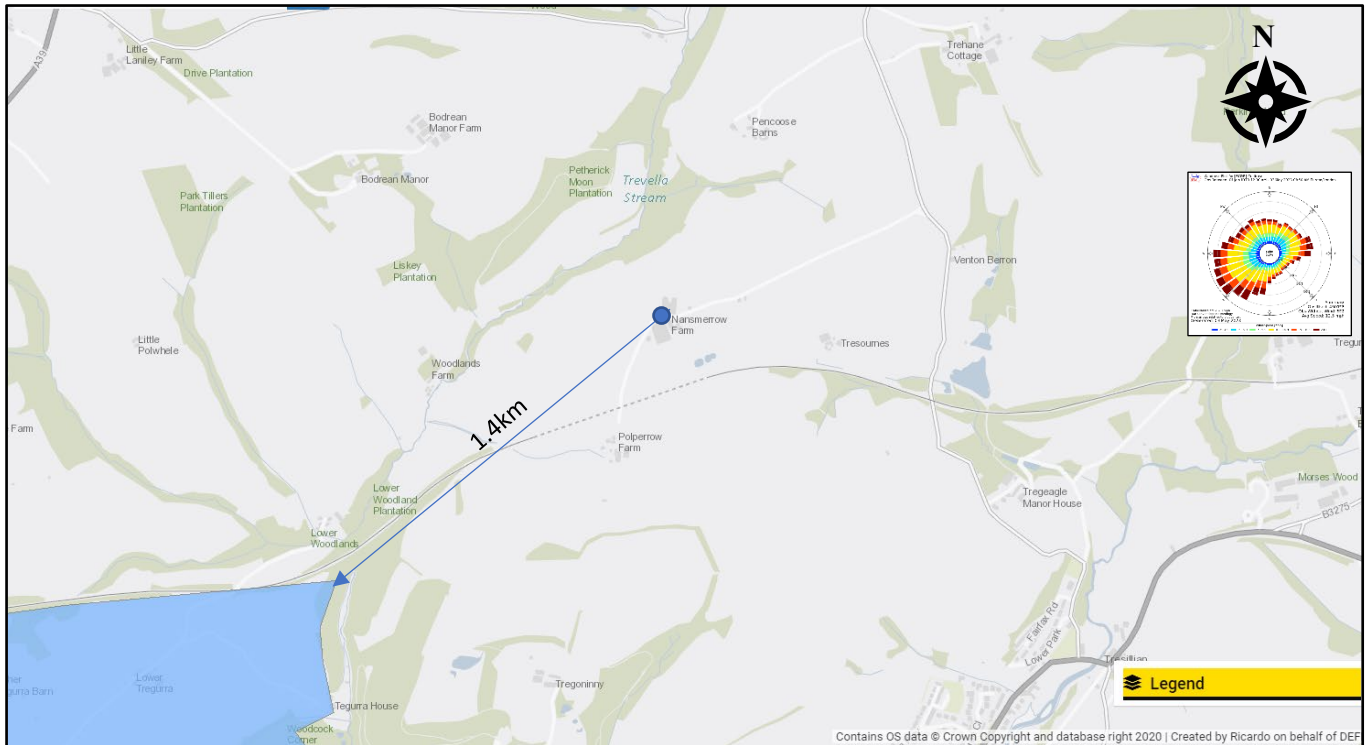
**Figure 1.5: SSSI Deciduous Woodland Primary Habitat**

The map in Fig 1.5 below shows the areas of deciduous woodland primary habitat within 1km of the proposed site. The nearest of these designated areas is approx. 50m to the Northwest of the site.



### 1.3.3 AQMA Zones

Figure 1.6: Air Quality Management Areas (AQMA)



Nansmerrow Farm as not within an AQMA zone, with the nearest such designated region being some 1.4km to the Southwest, as shown in Figure 1.6.

## 1.4 DEMP Management and Accessibility

This document is integrated into the EMS and as such is reviewed annually, or should something change which may have an impact on its effectiveness. Annual review considers new developments in emissions control which might be relevant to operations at Nansmerrow Farm. It also considers things such as complaints, effectiveness of mitigation measures etc

The DEMP is briefed to all farm staff (See 3.1) and those directly involved in management of lagoon construction. The working elements of the DEMP will be integrated into site standard operating procedures (SoP's) with delegated responsibilities for implementation and compliance.

## 2. Operations at Nansmerrow Farm

### 2.1 Waste Deliveries

Waste materials are delivered to site loose in tipper vehicles operated by third party transport.

Large HGV Tipper Trucks will have a maximum carrying capacity of circa 19t. All vehicles arrive

Nansmerrow Farm - DEMP  
at the site sheeted.

Other third-party carriers – Typically transit type tipper vehicles with gross carrying capacity of 1.2t. Vehicles may also visit the site on occasions but this will be a small percentage of operators.

The Nansmerrow Farm facility opens at 7:30am for general transport activities. Construction operations will commence at 8:00am after daily checks have been completed, operations will cease at 5:30pm. Weekend operations will be from 8:00am to 12:00pm on Saturdays only. The timetable of operations is below:

Monday to Friday tipping opens at 07-30

Site closed 5:30pm

Saturday 8:00am to 12:00pm (By arrangement)

*Note that the above timings are subject to change to meet conditions of planning or Environmental Permit.*

Site Contact:

Mr Paul George – 07862 222241

All vehicles must arrive with the correct documentation, a waste transfer note and a valid waste carriers' licence.

Unless weather dictates otherwise, i.e., persistent dry weather, loads are assessed on arrival for their potential to generate airborne dust. If assessed as particularly dusty, and where wind/weather conditions require, it will be damped down before and during tipping with the bowser spray. Signs informing drivers of the need to damp down are positioned either side of the entrance.

Section 2.2 below sets out how waste is handled once it arrives on site.

## **2.2 Overview of Waste Processing, Dust, and Other Emission Controls**

### **2.2.1 Waste Processing**

Nansmerrow Farm is a family-owned specialist dairy farm working 200 acres of owned working land and 350 acres of additional rented land. The operation also incorporates Polperrow Farm within the stated acreage. The land is mainly let to grass for grazing or conserved as clamp silage. Two hundred acres of maize are grown for silage. All the land falls within a Nitrate Vulnerable Zone (NVZ).

The farm has 300 head of dairy cows with an average milk yield of 3750000 litres per year. (12500 litres per cow) Calving is continuous throughout the year. Milking takes place in a modern milking shed which occupies the land adjacent to the proposed slurry lagoon. The buildings at Polperrow Farm are used for rearing replacement stock.

The cattle shed has capacity for 74 cattle but has granted planning permission to extend the building to accommodate 136 livestock for milking. Included in the planning permission is the

## Nansmerrow Farm - DEMP

proposed new slurry lagoon which is required for both the additional cattle and the shortfall of storage in the existing operation.

The lagoon and associated haul roads will be constructed with the importation of waste soils, sub soils, construction, demolition and quarry wastes under the following waste codes.

<b>01</b>	
010102	wastes from mineral non-metalliferous excavation
010408	waste gravel and crushed rocks other than those mentioned in 01 04 07
<b>17</b>	
170101	Concrete
170102	Bricks
170103	Tiles and ceramics
170107	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
170302	Bituminous mixtures other than those mentioned in 17 03 01
170504	Soil and stones other than those mentioned in 17 05 03
170506	Dredging spoil other than those mentioned in 17 05 05
170508	Track ballast other than those mentioned in 17 05 07

The naturally occurring clays found at the location have been identified as being suitable for providing a natural impermeable liner to retain the liquid slurry and therefore minimise the requirement for imported material. These will be removed in the quantities required by the engineered design and set aside in separate stockpiles adjacent to the proposed lagoon.

Incoming wastes for the construction of the haul road will be subject to waste acceptance criteria and if suitable will be progressively deposited to the route shown on Figure 2.1 and 2.1.1. Double handling will be minimised.

Waste materials for the lagoon will also be deposited direct to the point required although in the initial period of construction some stockpiling may be required. The materials will be placed by a combination of excavator and dumper, again minimising handling where conditions may give rise to the mobilisation of airborne dust.

Site conditions and any emissions will be monitored and mitigation triggered in accordance with the measures described in this DEMP. This includes the working area, rights of way, the haul road and transport route along the unclassified highway. (See Figure 4.1)

The ESSD which accompanied the planning application for the proposal describes the environmental and amenity risk associated with site activity as follows;

*“It is concluded through the environmental risk assessment that amenity of local residents, habitat sites or sites of cultural heritage won’t be negatively impacted by the site activity”*

Notwithstanding the above, the principle site activities with potential to give rise to airborne dust and other emissions are;

## Nansmerrow Farm - DEMP

- Removal, handling and stockpiling of site surface clay loams.
- Removal, handling and stockpiling of site clay for lining materials.
- Road transport of incoming waste materials.
- Tipping, handling and compaction of wastes to haul road.
- Plant and vehicles using haul road.
- Tipping of waste materials.
- Handling & placement of waste materials on site.
- Plant emissions.

The site will be inspected throughout the day, both through recorded inspection reports and through routine observation. Weather forecasts will be monitored to predict those conditions which are more likely to require intervention, such as high winds and prolonged dry spells. Similarly, daily inspections will include the recording of PM10 particulate and monitoring against levels which can trigger other mitigation measures such as damping down.

To minimise the impacts of dust and particulates on local receptors, the following mitigation is proposed. These are described in more detail in Table 3.1.

- Tracks and haul roads must be dampened down using the water bowser at regular intervals.
- Weather conditions to be recorded on the Daily Site Report.
- Processing to be stopped in extreme windy conditions and recorded.
- Speed limit to be reduced.
- Load heights and speed of loading to be reduced.
- Stockpiles to be dampened down.

Following completion of construction works, the site will not close as it will continue to be managed as a dairy farm, however once the site has been suitably recovered to satisfy the Waste Recovery Plan and planning permission, the Operator will contact the Environment Agency to inform them. The Operator will submit a surrender of the permit application to the Environment Agency for duly making.

Any waste remaining on site will be inspected by the Technically Competent Manager, who will produce plans for its quick and safe removal off site.

All waste, plant and machinery will be removed from site.

A site investigation will be conducted to determine the quality of the ground condition on site following all operations and that recovery has been achieved.

The proposed after-use of the site is a continuation of the current use as a dairy farm with a larger herd that the slurry lagoon will accommodate. The scheme has a specific purpose serving as a crucial part of the dairy expansion.

*Notwithstanding the monitoring regime described in this DEMP, and in particular the above section and the measures described in Section 5. Daily particulate monitoring will cease where measurements records demonstrate that emissions consistently fall below action levels, including during periods of dry weather and in windy conditions. Monitoring performed will have effectively demonstrated the conclusions reached in the ESSP that receptors are not negatively*

Nansmerrow Farm - DEMP

*impacted by the site activity, in terms of any particulate emissions. Targeted monitoring will be performed in the event of specific complaint, or as an assurance that visual particulate emissions were below action levels.*

Figure 2.1: Site Layout Plan

Tables 2.1 and 2.2 show the anticipated waste types accepted under the waste recovery operation and the handling and storage for these approved waste types. An extract of the plan below is shown overleaf expanding the area of the proposed slurry lagoon.

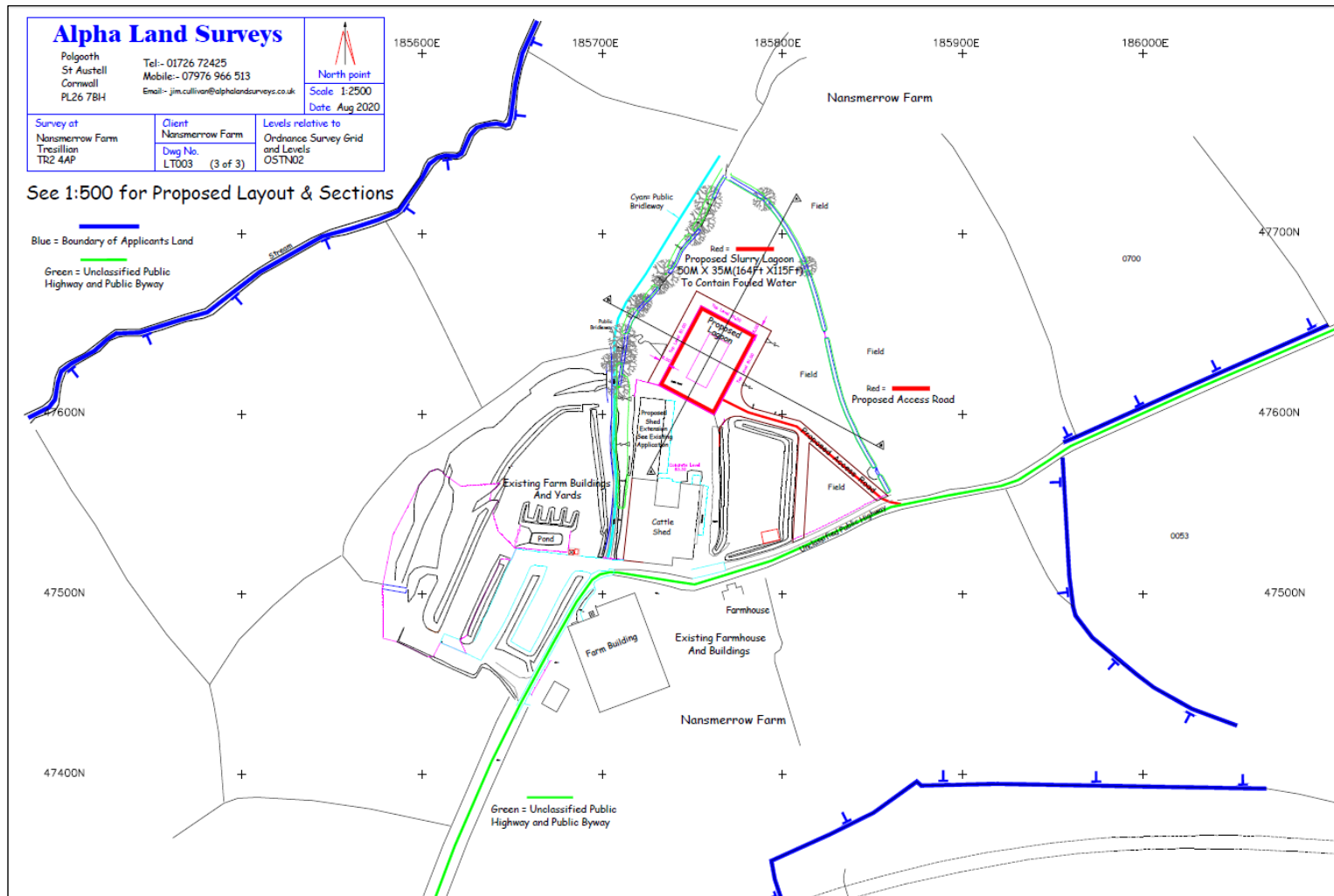
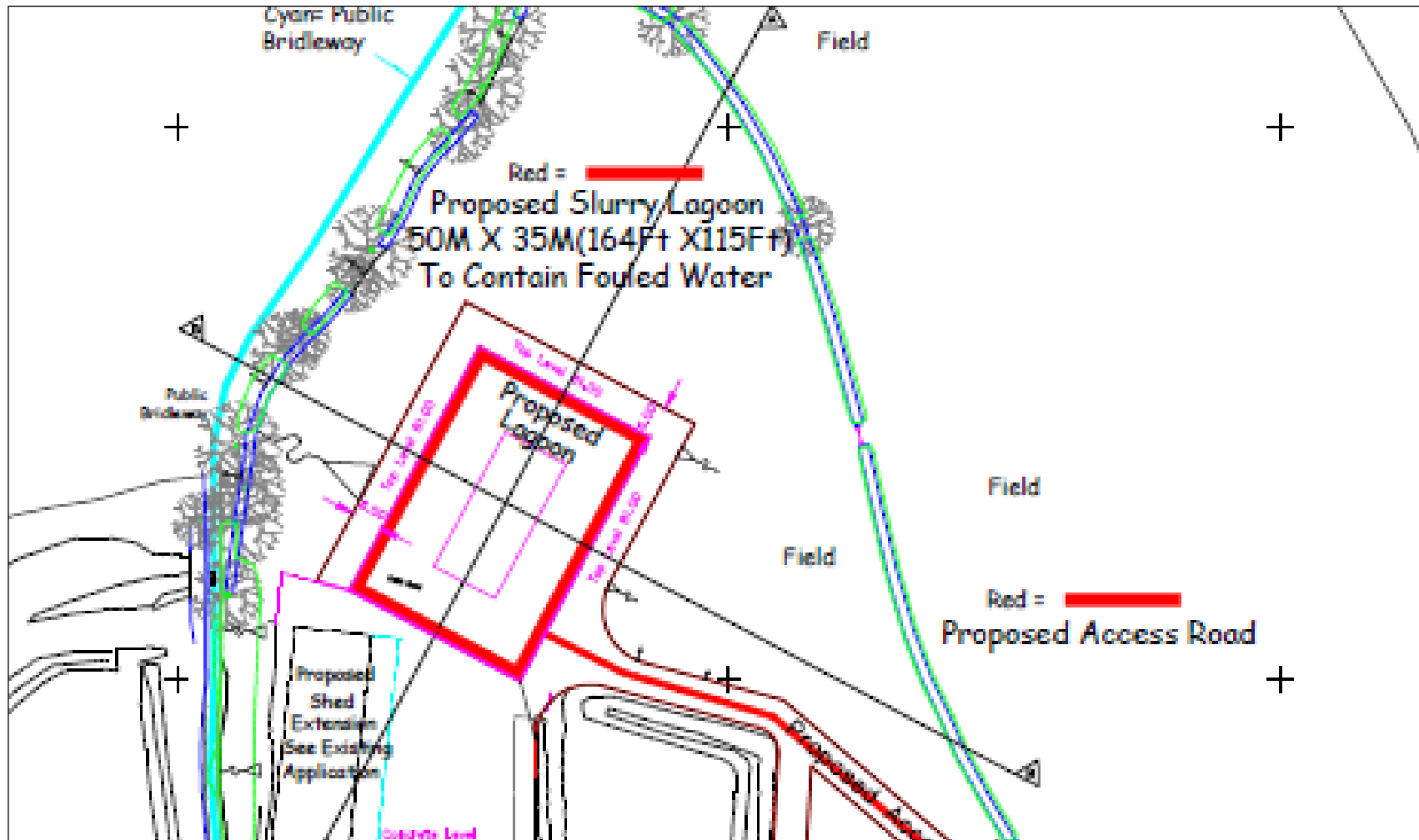




Figure 2.1.1: Site Layout Plan Extract



Extract from Alpha Land Surveys drawing LT003 (Indicative only and not to scale).

**Table 2.1 Applicable Waste Types Proposed for Nansmerrow Farm Recovery**

European Waste Code (EWC)	Product Description	Destination within Facility				Processes
		Proposed Slurry Lagoon	Proposed Haul Road	Stockpile 1	Stockpile 2	
N/A	Site won material retained for the purpose of lining the slurry storage lagoon.			✓		Removal, stockpile & later removal and placement
N/A	Site won topsoil retained for the purpose of dressing the banks of the slurry storage lagoon.				✓	Removal, stockpile & later removal and placement
17 05 04	Soil and stones other than those mentioned in 17 05 03	✓				Deposit & placement
17 01 01	Concrete	✓	✓			Deposit & placement
17 01 02	Bricks	✓	✓			Deposit & placement
17 01 03	Tiles & Ceramics	✓	✓			Deposit & placement
17 01 07	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	✓	✓			Deposit & placement

### 2.2.2 Overview of Dust & Emissions Control Measures

A general description of the various procedural and engineered dust and emissions control measures are laid out in Table 2.3.

**Table 2.3: General Description of Dust & Emission Control Measures**

Monitoring	
1	A twice daily visual site inspection is carried out, this is prior to the commencement of daily activities and at mid-day by the TCM, or in his/her absence the Yard Foreman. The weather conditions will be taken into consideration before processing commences. Details to be recorded in the site diary and daily operations check sheet.
2	PM-2.5/PM-10 dust monitoring equipment will be used during operational periods to monitor and record typical dust levels at a number of points on the site boundary and to activate mitigation measures where required.
3	Weather conditions, wind speed and PM monitor readings will be recorded.
4	If at any time emissions reach the lower dust thresholds (when averaged over 5 minutes) then dust control measures may need to be implemented depending on the source.
5	If at any time emissions reach the higher dust thresholds, then the site operations may have to cease if containment measures cannot be implemented or are ineffective.
6	Wind speeds will be monitored through local weather forecasts and wind conditions observed visually on site to assess the risk of dust mobilisation. Any wind over 15kmh has the potential to mobilise surface dust.
Plant & Vehicles	
7	Ensure all vehicles switch off engines when stationary – no idling vehicles. A sign to this effect will be positioned at the site entrance.
8	It isn't envisaged that site generators will be required unless mains power distribution to lighting for example isn't feasible or is interrupted. It is the aim to avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable. Diesel powered generators are available in the event of a power interruption.
9	All plant to be Tier 4f / Stage IV or V emissions standard.
10	Minimise drop heights from material handling plant equipment and use water spray on such equipment wherever appropriate (PM10 dust measurement levels). Site inspections ensure this policy is routinely applied.
11	Deployment of road sweeping vehicle for use on external routes as triggered by visual observation/inspection. Road sweeper immediately available from plant hire firm and deployable between the times of 7.00am and 5.00pm, as triggered by the inspections described above.
12	All loads transported to and from site sheeted and contained to minimise any dust.
Dust Controls	
13	Haul road constructed from recovered aggregate to be damped down using bowser as appropriate.

13	Manual water spray from bowser at tipping/material handling areas overseen by Site Foreman.
14	A 10mph speed limit is implemented to limit lifting of dust with tyres.
15	Double handling of materials avoided as far as is practicable.
16	Adequate water supply is assured on site for effective dust suppression. Non-potable water is not currently an option due to the risk of legionella bacteria.
17	Dampening loads at source (producer site) during dry conditions. A sign informing drivers to be positioned at the site entrance.
18	Supplement of Water Storage by means of portable water bowser sufficient to sustain water supply in the event of supply failure for full shift, enable tanked water mobilisation.
19	Vegetation growth on long term stockpiles to be allowed/encouraged in order to stabilise the surface.
<b>Communications</b>	
20	Display the name and contact details of the person(s) accountable for air quality and dust issues on the site boundary.
21	It is not envisaged that notification of works is required to nearby residents other than those residents on local transport routes. It is at the discretion of the landowner to inform neighbours given the very minimal potential the proposals have for impacting neighbours when considering distances involved.
22	Staff involved in the site works will be trained in the required procedures for implementing the DEMP. This will be provided by means of a toolbox talk covering the relevant aspects of the DEMP. A training record will be kept as part of the appendix to the sites copy of the DEMP.
23	Good relations can be developed by keeping people informed of progress and by treating complaints fairly and expeditiously. Any complaints will be recorded, identifying cause(s) and appropriate measures to reduce emissions in a timely manner, and record measures taken.
24	In the very unlikely event of exceptional incidents that cause high dust emissions, either on – or off site, records will be kept in the logbook along with the action taken to resolve the situation.
25	Notices to be posted on rights of way entrances/exits from Nansmerrow with contact details and information on the project (where notices are permitted by the local authority)

### 2.3 Mobile Plant and Equipment.

Table 2.4 lists the typical, mobile and emission ratings for the mobile plant and equipment proposed for use on site:

The equipment will be owned and operated by a suitable contractor appointed by Nansmerrow Farm. The equipment will either be under Repair & Maintenance contracts for service and repairs during the construction process or maintained by the plant operators and careful consideration will be given to emissions and noise. Plant and equipment will be inspected daily before use (appropriately recorded) and manufacturers recommended service schedules will be adhered to in order to ensure emissions are minimised.

In the event of breakdown, the appointed contractor will arrange for repair through appropriate repair contract. Where repair is likely to be protected or not feasible within a reasonable time frame, the

appointed contractor will implement alternative contingency measures. Contingency measures would be;

- Manage short term operations/workload without the item of plant.
- Provide an alternative item of plant from current plant assets.
- Arrange for suitable hired in replacements.

All plant used on the site and covered by the maintenance contract is replaceable on a hire basis, normally within a 24 hour period from the following approved suppliers (or suitable approved alternative).

Acland Plant Hire - Truro

Highway Plant – Redruth

As the plant is relatively new, they are fitted with the latest engine management systems to reduce emissions and noise. Operators are trained not to leave plant idling for long periods. (As per manufactures recommendations)

**Table 2.4: Site Plant & Equipment**

Typical plant to be employed. Actual plant will conform to emissions ratings stated.

Description	Make	Example	Emission Rating
1 x Site Dumper	Volvo	Moxy	
1 x 360 Excavators	Volvo	EC140EL	Tier 4f / Stage IV

**3. Dust and Particulate (PM<sub>10</sub>) Management**

**3.1 Responsibility for Implementation of the DEMP**

The person with overall responsibility for the DEMP and its implementation is Mr Paul George, Nansmerrow Farm. The persons with responsibility for implementation of the DEMP are the duty Technically Competent Manager (TCM) and Site Foreman.

The DEMP is to be reviewed for effectiveness regularly during the works or in the event of an incident, change to work processes or where revised legislation requires earlier review.

The TCM is experienced in the workings of the DEMP and how to review and implement DEMP requirements.

The site staff will be provided with in house training on the DEMP by means of toolbox talks which are recorded on the training matrix.

Staff are encouraged to offer feedback and suggestions as to practical improvements to the sites dust suppression systems. The in-house training is provided by the duty site TCM, refresher training will be given regularly or if new operating systems are implemented, complaints received that are caused by incorrect implementation of the DEMP or an amended DEMP submitted to the regulatory authority.

**3.2 Sources and Control of Fugitive Dust/Particulate Emissions**

The waste operation at Nansmerrow Farm has multiple potential sources for emitting dust and particulates into the air, the most significant of which are;

- Wind mobilising surface particles from soil stockpiles.
- Wind mobilising surface particles from deposited materials.
- Vehicles entering and/or leaving the site with mud on wheels, and tracking dust onto or off the site.
- Airborne particulate from vehicles which travel to site uncovered.
- Vehicles and plant moving around the site mobilising dust.
- Road vehicles tipping waste
- Excavators/360s sorting/handling waste
- Loading rejected/quarantined materials back onto vehicles.
- Particulate emissions from the exhaust of vehicles/plant/machinery on site.

Detailed below are the source – pathway – receptor routes applicable to the above.

**Table 3.1: Source-Pathway-Receptor Routes**

Source	Pathway	Receptor	Type of impact	Where relationship can be interrupted
Mud/Vehicle movements	Tracking dust/mud/material on wheels and vehicles, then mud/soil dropping off wheels/vehicles migrating onto adjacent roads for pick up by other road users.	Neighbours, public roads.	Visual soiling and transfer to other road users vehicles, also consequential resuspension as airborne particulates when dry.	Establishment of hard haul road to eliminate vehicles over soft ground.  Remove material that could be transported elsewhere before vehicles leave site. Road sweeper to be on standby every day. Site surfaces to be kept clean/swept.  As well as through the multiple daily inspections, this is also triggered by the machine operator and tipper drivers through routine observation and statutory driver requirements.
Vehicle movements	Particles from loads.	Public roads.	Visual soiling, also consequent resuspension as airborne particulates when dry.	Vehicles are sheeted before leaving producer. Farm sweeper available on demand.
Stockpiles	Dust mobilised from stockpiles, lifted by plant and vehicle operations whilst being established.	Public right of way, primary habitat.	Visual dust deposits flora and fauna.	Allow growth of vegetation to stabilise. Keep stockpiles as low as possible and grade to minimise wind effect. Shielding of stockpiles from wind whipping. Damp down if necessary.
Tipping, of wastes.	Atmospheric dispersion	Nearest neighbours	Visual soiling and airborne particulates	Minimise source strength by means of low drop heights. Damp down tipping area.

Source	Pathway	Receptor	Type of impact	Where relationship can be interrupted
		(unlikely), public right of way, primary habitat.		
Tipping, handling and tracking of wastes to haul road.	Atmospheric dispersion	Nearest neighbours (unlikely), public right of way, primary habitat.	Visual soiling and airborne particulates	Minimise handling once tipped. Damp down tipping area with bowser pumped water spray.
Movement/handling/sorting of tipped wastes.	Atmospheric dispersion	Nearest neighbours (unlikely), public right of way, primary habitat.	Visual soiling and airborne particulates	Minimise source strength by means of low drop heights. Damp down tipping area. Deploy bowser pumped water spray if required. Wind direction predominantly from SW reducing potential impact on public right of way, primary habitat.
Vehicle exhaust emissions	Atmospheric dispersion	Nearest neighbours (unlikely), public right of way, primary habitat.	Airborne particulates	Regulatory controls and best-practice measures to minimise source strength. Eco friendly engines to reduce emissions. Prevailing winds from SW minimise impact to closest receptors.
Plant and machinery exhaust emissions	Atmospheric dispersion	Nearest neighbours (unlikely), public right of way, primary habitat.	Airborne particulates	Regulatory controls and best-practice measures to minimise source strength. Eco friendly engines to reduce emissions. Prevailing winds from SW minimise impact to closest receptors.



**Table 3.2: Measures that will be used on site to control dust/particulates (PM<sub>10</sub>) and other emissions.**

Abatement Measure	Description / Effect	Overall consideration and implementation	Trigger for implementation
Site / process layout in relation to receptors	Having regard for prevailing wind, natural barriers, buildings and such like in process and workflow design can greatly reduce the effects of wind on already mobile particulate.	Consideration to location of work is a continual process.	Site work location is considered as part of investigation procedures where levels of PM-2.5 and PM-10 are exceeding upper action levels and in the unlikely event of any complaints.
Site speed limit, 'no idling' policy and minimisation of vehicle movements on site	Site has speed limit which will remain under constant review, is compact in size with direct routes to reduce vehicle movements and no idling policy in place.	In place as part of management system	Permanent speed limit in place.
Minimising drop heights for waste.	Plant used for the movement of materials can significantly reduce the generation of dust by reducing drop heights and by cleaning deposited materials from the plant.	In place as part of management system. Constantly under review.	This is a permanent arrangement. Site is inspected several times per day and excessive fall, or handling of materials will be highlighted and corrected.
Good housekeeping	Having a consistent, regular housekeeping regime that is supported by all involved will ensure site is regularly checked and issues remedied to prevent	In place as part of management system	Daily site inspections take place with respect to housekeeping and trigger processes to address the specific issues identified, such as litter picking, road sweeper etc.

Abatement Measure	Description / Effect	Overall consideration and implementation	Trigger for implementation
	and remove dust and particulate build up.		
Sheeting of vehicles	Prevents the escape of debris, dust and particulates from vehicles as they travel.	In place as part of management system. Engage with waste producers/carrier to ensure this is rigorously applied.	In place as part of management system
Ceasing operations during high winds and/or prevailing wind direction	Mobilisation of dust and particulates is likely to be greater during periods of strong winds and hence ceasing operation at these times may reduce peak events.	Operations will not cease purely on the basis of high winds alone as other factors such as heavy rain and nature of operations are factors to be considered.  Appropriate times to cease operations are in place as part of management system	Strong winds would automatically prompt further particulate testing around the site.  Where other control measures are ineffective in maintaining dust levels below the upper action level, operations will cease where impact on receptors is demonstrable.
Haul road construction	Concrete/crush surface on-site haul roads. This reduces the amount of dust and particulate generated at ground level by vehicles and site activities.	In place as part of management system	Permanent solution.
Minimisation of waste storage heights and volumes on site	Excavated materials for re-use are stored in graded stockpiles as low as possible to reduce wind whipping. Vegetation to be encouraged to stabilise surface.	In place as part of management system	Not applicable.
Reduction in operations	Reducing the amount of activity on site, including tipping,	The site has procedures to reduce activity/certain activities on site if	Where other control measures are ineffective in maintaining dust levels below the upper

Abatement Measure	Description / Effect	Overall consideration and implementation	Trigger for implementation
(waste throughput, vehicle size, operational hours)	movement and placement of higher risk loads during windy weather as well as associated traffic movements should result in reduced emissions and re-suspension of dust and particulates from a site.	required through adverse weather conditions.	action level, operations will relocate, cease or be cut back accordingly. Regular air monitoring will govern requirements.
On-site sweeping of farm property hard surfaces where dust may settle.	Sweeping could be effective in managing larger debris, dust and particulates but may also cause the mobilisation of smaller particles. Any deposits likely to be cleaned as part of normal farm housekeeping measures.	Farm sweeper available on demand is permanently available on site.  Procedures in place for daily and weekly inspections and maintenance. Consideration to proximity of livestock needs to be considered.	Regular site inspections take place with respect to airborne dust mobilised from hard surfaces. Visible mobilisation of dust, dust build up on surfaces and/or dust measurements above the lower action level. Action is unlikely to be required given location of source in relation to main farm buildings and surfaces.
Water suppression bowser with water sprays.	Damping down of site areas can reduce dust and particulate re-suspension.	Bowser and manual hose outlets can be deployed as required.  System under constant review in association with Groundscape Environmental Ltd.	Regular site inspections take place with respect to airborne dust mobilised from hard surfaces as well as depositing points. Visible mobilisation of dust or dust measurements above the lower action level will trigger the need for damping down with water jets.
Mobile dust and particulate monitor.	Deployment of a particulate monitor can alert site staff when short-term particulate concentrations are elevated in	Real-time tracker of dust and particulate concentrations PM-2.5 and PM-10 can be captured in conjunction with prevailing wind conditions. Used	Manual dust measurements made twice daily (minimum) or in the event of observed dust or receipt of complaint/feedback.

Abatement Measure	Description / Effect	Overall consideration and implementation	Trigger for implementation
	order that site practices can be reviewed, or application of mitigation measures increased.	to monitor environmental performance and also to track the effectiveness of improvements made at the site and any trends.	

### **3.3 Visual Dust Monitoring and Records**

Daily observations within the site and at the site boundary record site dust conditions in the environmental site diary and on the daily operations report. Routine visual dust monitoring takes place throughout the day with metered readings taken a minimum of twice a day at specific locations.

These records include information on the activities on site, time, weather conditions, wind direction and estimated speed if potential for dust generation is anticipated. The site has a complaints procedure in place which can cross reference any reported incidents with the diary to identify improvements to site operating procedures and this dust management plan.

Monitoring of the general environment of the site can be carried out remotely by CCTV. Suspected migration or conditions that might favour fugitive dust emissions to reach the site boundary or beyond, will be evaluated at the boundary of the site.

If complaints are received, further visual monitoring will be carried out along with dust measurement at the nearest point on site upwind of the complainant. In the highly unlikely event of repeat complaints, dust measurements can be taken at the complainants' property.

The process described in Section 5 will be instigated where measurements demonstrate airborne dust above trigger levels.

### **3.4 Environmental Monitoring**

#### **Weather Monitoring**

Weather conditions will be monitored each day as part of site inspections and reporting. Weather forecasts from the MET Office will also be monitored for the week ahead.

### **3.5 Water Usage & Control of Fugitive Dust**

#### **3.5.1 Water usage/availability**

Water source for any dust suppression requirements will be provided from either of two ponds situated on the farm which retain water all year round.

Through the use of a mobile bowser of approximately 8000 Ltrs, the process of damping down or periodic spraying can be performed. The primary source of water for damping down and spraying, should it be required, will be via the aforementioned pumped bowser positioned adjacent to the working location.

This bowser will also be used for damping down roads and the haul road where action points have been reached.

In the interests of water conservancy, local mains supplies will only be used where the above ceases to be available, such as in the event of breakdown.

### **3.5.2 Electrical Supply Failure**

In the event of electrical supply faults or failures, there are generators on site reserved for this purpose. This has no bearing on continuity of water supplies.

### **3.6 Training**

Training in this DEMP and the various control measures and responsibilities outline within will be provided to all staff by the TCM. This will be in the form of a Toolbox Talk.

Training in specific responsibilities placed on the Site Foreman will be provided by the TCM as a structured session in the office as requirements are more comprehensive.

A summary reference handbook with key points and day to day actions will be available for site personnel with specific responsibilities and as part of their training. Drivers will also receive induction on their first visit to the site.

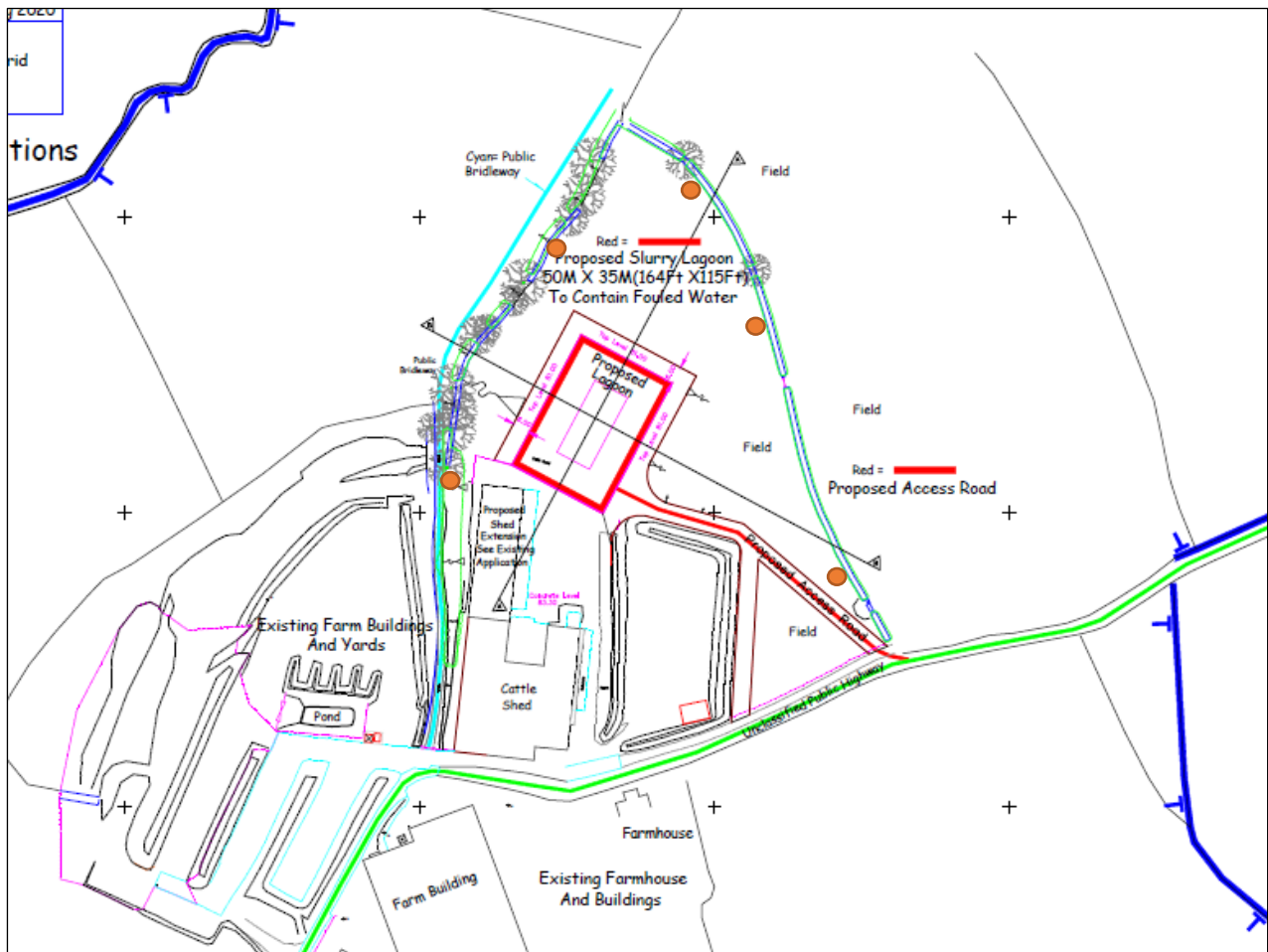
## **4. Particulate Matter Monitoring**

### **4.1 Monitoring Locations**

It is the responsibility of the TCM to take manual air monitoring measurements at key points around the site perimeter during operational periods. In the absence of the TCM, this would be performed by the Site Foreman. The principal direction of wind affecting the site is between Westerly and South Westerly. Observation and measurement of dust levels are therefore undertaken at locations which recognise this, and may be added to or adjusted/altered to meet with the prevailing conditions..

It is the data from manual monitoring which is used to trigger further action when levels of PM-2.5 and PM-10 are exceeded, as described in Section 5.

**Figure 4.1: Principal Dust Monitoring Locations**



- Monitoring Points

#### 4.2 Operation of the PM Monitoring Equipment

As well as undertaking routine manual measurements during the day, it is the TCM’s responsibility to instigate mitigating measures in the event that action levels have been exceeded for periods exceeding 5 minutes. Similarly, the investigation of any trends that appear in the data.

The following actions are required by the TCM, or in their absence, the Site Foreman;

- Take manual dust measurements daily and record the results.
- Respond to any periods where PM-2.5 and PM-10 levels have exceeded upper action levels when averaged over a 5 minute period.
- Record the above events in the site diary.

In addition to the above, it is paramount that any trends or causal factors are identified where elevated dust events are recorded. Any factors identified are investigated in association with the Site Manager and dust management measures reviewed accordingly.

The outcome of the monthly review will be documented and held on file by the TCM. Any revision to dust management measures as a result of the above review will be written into this DEMP and staff informed/trained accordingly.

#### 4.3 Quality Assurance/Quality Control and Record Keeping

The following instruments/sensors are used on site for dust monitoring and are controlled, stored and maintained as detailed below.

##### HoldPeak Portable Air Monitor (or equivalent)

Model: HP-5800D Detect

This is the primary monitor for daily manual dust monitoring and is managed by the TCM and stored in the TCM office along with operating manual.

The unit is subject to annual calibration and inspection arranged by the TCM.

Measurement data is recorded manually and daily records filed in the TCM office.

#### 4.4 Reporting of Data

Dust monitoring data will be reported to the EA on request or in accordance with any Environmental Permit conditions.

#### 4.5 Additional Detailed Monthly Reporting

As detailed in 4.2, data from fixed and portable dust measuring equipment is reviewed monthly by the TCM and Site Manager. The data is considered alongside records of activities (diary and daily operational reports) and weather data.

### 5. Procedure When Action Levels Exceeded

**Table 5.1**

Particulate	Lower Action Level ( $\mu\text{g}/\text{m}^3$ )	Upper Action Level ( $\mu\text{g}/\text{m}^3$ )
PM-2.5	>35	>50
PM-10	>53	>75

Daily manual dust monitoring will occur at three of five locations on site as shown in Figure 4.1, depending on the prevailing wind conditions. Each location will be subject to both PM-2.5 and PM-10 monitoring for a period of 1 minute each.

Should the sample exceed the lower action level (See Table 5.1), the TCM of Site Foreman will be informed immediately and the primary source of dust investigated and identified.



Any operations not being conducted using best-practice controls, as set out in Table 2.3, will be suspended and controls put in place accordingly. Should dust levels remain above the lower action level, and where the activity giving rise to the dust is likely to be prolonged, then further mitigation measures will be put in place as described in Table 3.2.

The alarm is not the sole indicator of a dust event at the site; the continuous visual monitoring of potential dust sources and the analysis of trends in data are essential elements in reviewing processes and management measures for effectiveness.

## **6. Reporting and Complaints Response**

### **6.1 Engagement with the Community**

Nansmerrow Farm will make telephone contact with neighbours on a regular basis after initial communication takes place, and immediately in the event that complaints are made.

### **6.2 Reporting of Complaints**

If a dust incident occurs or dust nuisance is reported directly to the site or through regular contact, and complaint form will be completed. A copy of the Complaint Form is attached at Appendix C. This triggers investigation, immediate corrective and mitigating actions. This should be signed off by the TCM. The complaints procedure aims to provide a response to the complainant within three working days. The results of which are fed into operating practice and reviews of this Dust Management Plan.

Where any dust can be attributed to the Nansmerrow Farm project, immediate corrective measures include amending site activities, switching off offending plant and machinery until mitigation measures are completed, temporarily ceasing site activities during unfavourable weather conditions, enhancing mitigation measures such as increase water spray directly to the material or atmosphere in vicinity of the source. A more strenuous monitoring regime will be adopted with frequent observations within the site, at the boundary and beyond in the vicinity of the area of complaint until such time it can be concluded that the matter has been successfully addressed and resolved.

### **6.3 Management Responsibilities**

In the event that businesses or individuals wish to complain regarding an aspect of Nansmerrow Farm operations, the following contact information is freely available.

Telephone contact – Any complaint will be passed to the TCM or the Site Foreman where the TCM is unavailable.

E-mail – Messages would be received by TCM (copied to the Farm Owner)

Where the complaint is from a local resident or business, Nansmerrow Farm welcome personal visits during operational hours to discuss any concerns. Either the TCM or Farm Owner would deal with such issues.

All complaints, whether received by the Farm Owner or not, will be managed and investigated by the TCM. In the TCM's absence, the Farm Owner (or deputy) will investigate the complaint.

Any subsequent permit conditions requiring complaints to be reported to the Environment Agency will be adhered to.

#### **6.4 Summary**

This Dust Management Plan is provided to demonstrate the controls, processes and infrastructure in place to control potential dust emissions from the works at Nansmerrow Farm. It forms part of the Environmental Management System for the site, a copy of which is held in the site office. It is communicated to all staff who receive refresher training on its purpose, content and individual responsibilities under this plan regularly from the TCM.

The Plan identifies dust sources on site and puts them in the context of local land uses and sensitive receptors. Site activities are summarised, with dust controls and management provisions explained. Liaison with local residents provide for communication with and feedback from local residents where deemed necessary. The site has a complaints and follow-up procedure, the responsibility for which sits with the TCM, overseen by the Farm Owner. The Plan is regularly reviewed and revision updates are signed off.

**Appendix A**  
***Summary Maintenance Requirements***

## Maintenance Requirements

### HoldPeak Portable Air Monitoring

Model: HP-5800D Detect

Periodicity	Process	Responsibility/Source
Daily	Daily use of equipment. Clean and charge. Inspect for damage.	TCM or Site Foreman in TCM absence.
Annually	Calibration	TCM.  Southern Calibration Unit 7 Solent Industrial Estate Hedge End Southampton SO30 2FX

### Water Bowser/Spray

Periodicity	Process	Responsibility/Source
Daily	Inspect for signs of leaks.  Visual check of operation.	TCM or Site Foreman in TCM absence.

### Plant

Periodicity	Process	Responsibility/Source
Daily	Pre-start visual check of key aspects of plant such as fluid levels, fuels, visibility, leaks etc.  Checks to be documented.	Plant Operator or Site Foreman in TCM absence.
Six Monthly or Annually	LOLER and PUWER annual inspections	Suitably qualified person.
As Required by Manufacturer	Recommended maintenance routines	Approved facility.

**Appendix B**  
***Dust Emissions Monitoring Equipment***  
**(Typical Example)**

**Appendix C**  
***Dust Complaints form***

Complainant Details	
Complainant Name -	
Address -	
Postcode -	
Contact Details -	
Tel -	
Email -	
Date -	
Complaint Ref Number -	
Complaint Details -	
Investigation Details	
Investigation carried out by -	
Position -	
Date & time investigation carried out -	
Weather conditions -	
Wind direction and speed -	
PM10/PM2.5 Measured Levels	
Investigation findings -	
Date feedback given -	
Feedback given to public -	
Date feedback given -	
Review and Improve	
Improvements needed to prevent a reoccurrence -	
Proposed date for completion of the improvements -	
Actual date for completion -	
If different insert reason for delay -	
Does the dust management plan need to be updated -	
Date that the dust management plan was updated -	
Closure	
Site manager review date	
Site manager signature to confirm no further action required	

Always include a copy of site inspection reports for the day the complaint relates

**Appendix D**  
***Daily Site Report***