Iarnród Éireann
Irish Rail

Rosslare ORE Hub

EIAR Technical Appendices

Technical Appendix 18:

Air Quality

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Co-funded by the European Union

CLIENT: Irish Rail

PROJECT: Rosslare Europort Baseline Dust Monitoring Survey

Prepared by: AONA Environmental Consulting Ltd.

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REPORT CONTROL

Client: Irish Rail

Project: Proposed Rosslare Europort Offshore Renewable Energy Hub. Baseline Dust Monitoring Report.

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2			

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Table of Contents

1 Introduction

AONA Environmental has been commissioned by Irish Rail to undertake a continuous baseline dust monitoring survey for the proposed Rosslare Europort Offshore Renewable Energy Hub development. The aim of the dust monitoring survey is to produce a baseline dataset of dust measurements for the proposed Rosslare Europort Offshore Renewable Energy Hub. Baseline dust monitoring surveys have been conducted at four monitoring locations in the area surrounding Rosslare Europort, as shown in Figure 1 and set out in

Table 1. Continuous PM_{10} & $PM_{2.5}$ concentration and dust deposition rate monitoring has been undertaken at three locations and dust deposition rate monitoring only has been undertaken at one location. The monitoring locations have been selected with Wexford County Council's Environment Team (as the relevant planning authority) to be representative of all groups of sensitive receptors.

Figure 1: Dust monitoring survey station locations.

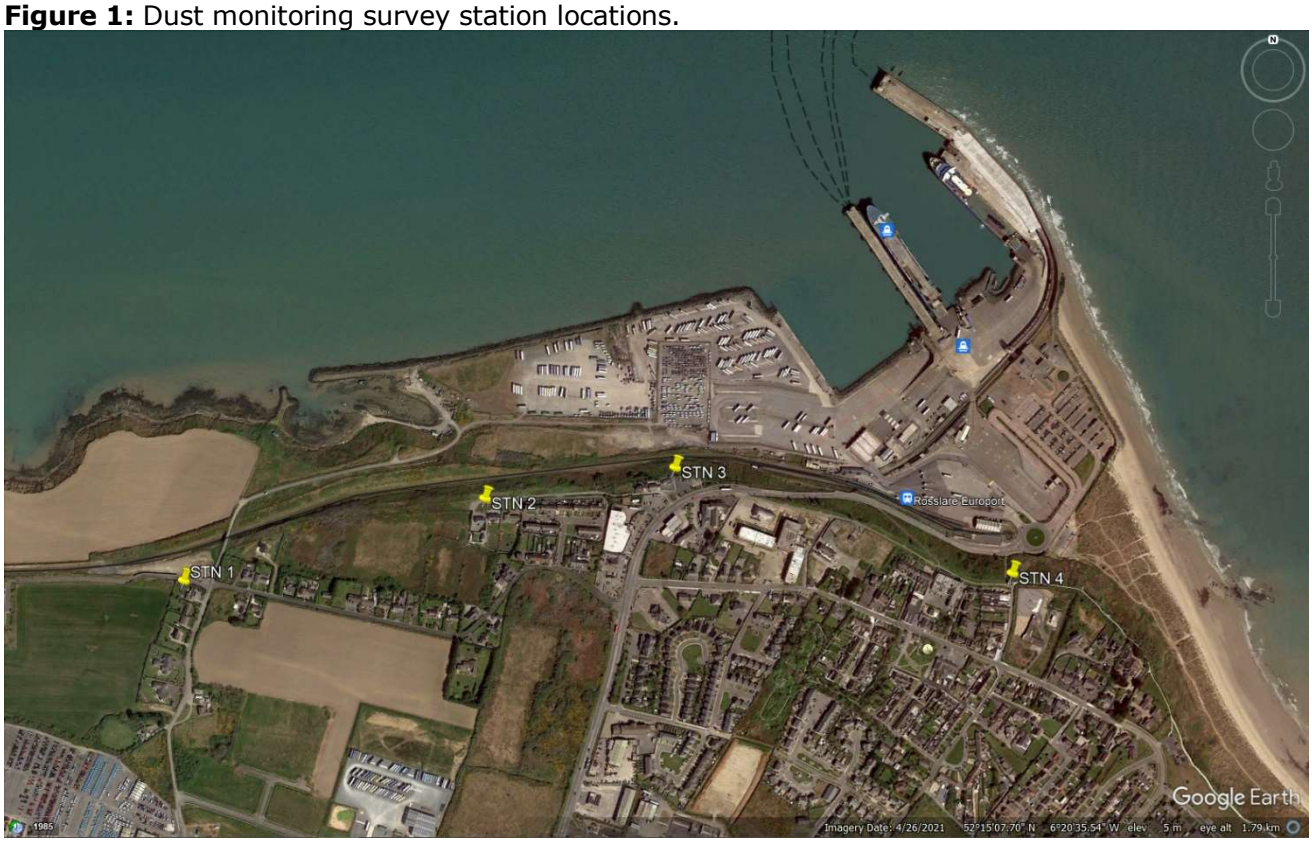


Table 1: Dust monitoring survey location coordinates (WGS 84/UTM zone 29N) and parameters surveyed.

Dust monitoring location reference	Latitude	Longitude	Parameter measured
STN 1	52.24997	-6.35355	Continuous PM_{10} & $PM_{2.5}$ concentration and dust deposition rate monitoring
STN 2	52.2512	-6.34706	Dust deposition rate monitoring
STN 3	52.25037	-6.34045	Continuous PM_{10} & $PM_{2.5}$ concentration and dust deposition rate monitoring
STN 4	52.25004	-6.33587	Continuous PM_{10} & $PM_{2.5}$ concentration and dust deposition rate monitoring

Dust particles can be classified into those that are easily deposited and those that remain suspended in the air for long periods. This division is useful as deposited dust is usually the coarse fraction of particulates that causes dust annoyance, whereas suspended particulate matter is implicated more in exposure impacts. Airborne particles have a large range of diameters, from nano-particles and ultrafine particles (diameters less than 0.1µm) to the very large particles with diameters up towards 100µm. There is no clear dividing line between the sizes of suspended particulates and deposited particulates, although particles with diameters >50 µm tend to be deposited quickly and particles of diameter <10µm (PM_{10}) have an extremely low deposition rate in comparison. Therefore, the size of suspended and deposited dust particles affects their distribution and as such requires two very different approaches to sampling these fractions. PM_{10} is the fraction of airborne (suspended) particulates which contains particles of diameter less than 10µm. $PM_{2.5}$ is the fraction of airborne (suspended) particulates which contains particles of diameter less than 2.5µm. PM_{10} and $PM_{2.5}$ particles can penetrate deep into the respiratory system increasing the risk of respiratory and cardiovascular disorders. Total Suspended Particles (TSP) is the term used when referring to larger particles which do not have a specified size limit. It is common for TSP to be measured alongside PM_{10} and $PM_{2.5}$ particularly at industrial sites when dust monitoring is undertaken.

Particulate matter can emanate from natural and anthropogenic sources. Natural sources include sea salt, forest fires, pollen and moulds. Natural sources are unregulated and harder to control. Anthropogenic sources can be regulated and understanding the sources of particulate matter is very important. PM_{10} is most commonly associated with road dust and construction activities. Wear and tear of brakes and tyres on vehicles and crushing activities at construction sites can all contribute to a rise in PM_{10}. $PM_{2.5}$ is associated with fuel burning, industrial combustion processes and vehicle emissions. Larger particles (100µm diameter) are likely to settle within 5-10m of their source under a typical mean wind speed of 4-5 m/s, and particles between 30-100µm diameter are likely to settle within 100m of the source. Smaller particles, particularly those

<10µm in diameter, i.e. PM_{10}, have a greater potential to have their settling rate impeded by atmospheric turbulence and to be transported further from their source. Dust emissions are exacerbated by dry weather and high wind speeds. The impact of dust therefore, also depends on the wind direction and the relative location of the dust source and receptor.

2 Methodology

2.1 RELEVANT GUIDELINES

PM_{10} & $PM_{2.5}$ Concentration

The statutory ambient air quality standards in Ireland are outlined in S.I. No. 180 of 2011 Air Quality Standards Regulations 2011, which incorporate the ambient air quality limits set out in Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe (the CAFE Directive), for a range of air pollutants.

In order to reduce the risk to human health and to the environment from poor air quality, national and European statutory bodies have set limit values in ambient air for a range of air pollutants. The Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011) establish the limit values in Ireland for particulate matter (PM_{10} and $PM_{2.5}$), sulphur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), carbon monoxide (CO) and benzene. These Regulations implement the Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive 2008/50/EC. The Environmental Protection Agency (EPA) is the competent authority for the purpose of Directive 2008/50/EC and these Regulations. These Regulations also provide for the dissemination of public information, including information on any exceedances of the target values, the reasons for the exceedances, the area(s) in which they occurred and appropriate information regarding effects on health and impact on the environment. Table 2 sets out the relevant limit values specified by the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011).

Table 2: Relevant particulate matter (PM_{10} and $PM_{2.5}$) Limit Values - Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011) & CAFE Directive 2008/50/EC

Pollutant	Limit Value Objective	Averaging Period	Limit Value (µg/m^3)	Basis of Application of the Limit Value
PM_{10}	Protection of human health	24 hours	50	Not to be exceeded more than 35 times in a calendar year
	Protection of human health	calendar year	40	Annual mean

Pollutant	Limit Value Objective	Averaging Period	Limit Value (µg/m³)	Basis of Application of the Limit Value
$PM_{2.5}$ - Stage 1	Protection of human health	calendar year	25	Annual mean
$PM_{2.5}$ - Stage 2	Protection of human health	calendar year	20	Annual mean

The World Health Organisation has developed a set of Air Quality Guidelines which are evidence-based recommendations of limit values for specific air pollutants developed to help countries achieve air quality that protects public health. The first release of the guidelines was in 1987. Since then, after several updated versions, the latest version was published in 2021. WHO updates the Air Quality Guidelines on a regular basis so as to assure their continued relevance and to support a broad range of policy options for air-quality management in various parts of the world, especially taking into account the breadth of new health studies that have been published in the meanwhile. The 2021 update of the WHO air quality guidelines is in response to the real and continued threat of air pollution to public health. The WHO Air Quality Guidelines recommend levels and interim targets for common air pollutants such as PM, O_3, NO_2, and SO_2.

Table 3: Relevant particulate matter (PM_{10} and $PM_{2.5}$) recommended 2021 WHO Air Quality Guidelines levels compared to 2005 WHO Air Quality Guidelines levels

Pollutant	Averaging Period	2005 AQGs (µg/m³)	2021 AQGs (µg/m³)
$PM_{2.5}$	Annual	10	5
	24 hours	25	15
PM_{10}	Annual	20	15
	24 hours	50	45

Therefore, in accordance with the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011) & CAFE Directive 2008/50/EC, the following limits have been used in the assessment of the measured PM_{10} and $PM_{2.5}$ concentrations;

- PM_{10} 24 Hour Mean concentration limit = 50 µg/m³ not to be exceeded more than 35 times a calendar year
- PM_{10} Annual Mean concentration limit = 40 µg/m³
- $PM_{2.5}$ Annual Mean concentration limit = 20 µg/m³

The EPA has published the Air Quality Index for Health (AQIH), which includes particulate matter (PM_{10} and $PM_{2.5}$), as follows:

Table 4: The EPA Air Quality Index for Health (AQIH).

Band	Index	Ozone (µg/m³) 8 HOUR MEAN	Nitrogen Dioxide (µg/m³) 1 HOUR MEAN	Sulphur Dioxide (µg/m³) 1 HOUR MEAN	PM2.5 (µg/m³) 24 HOUR MEAN	PM10 (µg/m³) 24 HOUR MEAN
Good	1	0 - 33	0 - 67	0 - 29	0 - 11	0 - 16
	2	34 - 66	68 - 134	30 - 59	12 - 23	17 - 33
	3	67 - 100	135 - 200	60 - 89	24 - 35	34 - 50
Fair	4	101 - 120	201 - 267	90 - 119	36 - 41	51 - 58
	5	121 - 140	268 - 334	120 - 149	42 - 47	59 - 66
	6	141 - 160	335 - 400	150 - 179	48 - 53	67 - 75
Poor	7	161 - 187	401 - 467	180 - 236	54 - 58	76 - 83
	8	188 - 213	468 - 534	237 - 295	59 - 64	84 - 91
	9	214 - 240	535 - 600	296 - 354	65 - 70	92 - 100
Very Poor	10	241 or more	601 or more	355 or more	71 or more	101 or more

Dust Deposition Rate

Currently, no statutory standards or limits exist for the assessment of dust deposition and its tendency for causing nuisance. Similarly, no official air quality criterion has been set at a European or World Health Organisation (WHO) level, although a range of national 'yardstick' criteria from other countries is found in the literature. In England and Wales, a *'custom and practice'* limit of 200 mg/m^2/day is sometimes referenced using Frisbee-type Deposition Gauges. This value was derived by multiplying a historical, typical UK median background by 3.5 (which was the ratio of the 95th percentile to the median). It should be noted that because background dust levels can vary significantly from place to place and with season, the authors were clear that the preferred approach is to calculate a bespoke site-specific "complaints likely" dust guideline, where sufficient local baseline monitoring data are available (at least 12-months) based on 3.5 times the median background level. However, such bespoke local baseline data are often not available and in such cases the authors recommended using as a fall-back the 95th percentile of typical UK background data. It is important that the limitations of the 200 mg/m^2/day benchmark are appreciated: firstly, it is simply a custom and practice yardstick and it was never based on actual dose-response data; secondly, in deriving this default "complaints likely" guideline, the authors Vallack & Shillito used a dataset that was quite old and not necessarily indicative of today's background levels.

In Ireland, it is often The German TA Luft Regulations that are referenced when reporting dust deposition rates. The German TA Luft Regulations, "Technical Instructions on Air Quality Control" state that total dust deposition (soluble and insoluble, measured using Bergerhoff type dust deposit gauges as per German Standard Method for determination of dust deposition rate, VDI

2119) should not exceed a dust deposition rate of 350 mg/m^2/day (when averaged over a 30+/-2 day period). The use of this limit value is appropriate to minimise the impact of airborne dust levels on the receiving environment beyond the site boundary. The German TA Luft criteria for '*possible nuisance'* and '*very likely nuisance'* are 350mg/m^2/day and 650mg/m^2/day, respectively.

Criteria from other countries that can be referred to include;

- In the USA, Washington has set a state standard of 187mg/m^2/day for residential areas.
- Western Australia also sets a two-stage standard, with '*loss of amenity first perceived'* at 133 mg/m^2/day and '*unacceptable reduction in air quality*' at 333mg/m^2/day.
- The Swedish limits promoted by the Stockholm Environment Institute, and used regularly in Scotland, range from 140mg/m^2/day for rural areas to 260mg/m^2/day for town centres.

These go some way to addressing the view that the annoyance impact (and hence potential for complaints) depends on the worsening of dust levels above existing background levels.

In 2005, the UK Highways Agency released an Interim Advice Note 61/05 '*Guidance for Undertaking Environmental Assessment of Air Quality for Sensitive Ecosystems in Internationally Designated Nature Conservation Sites and SSSIs*' as a supplement to the Design Manual for Roads and Bridges (DMRB) Guidelines. This interim guidance states that dust or particles falling onto plants can physically smother the leaves affecting photosynthesis, respiration and transpiration. The literature suggests that the most sensitive species appear to be affected by dust deposition at levels above 1,000 mg/m^2/day which is considerably greater than the level at which most dust deposition may start to cause a perceptible nuisance to humans. As such, once dust deposition rates are maintained within the standard guideline for human nuisance (350 mg/m^2/day) the impact of construction dust on sensitive ecosystems is considered negligible.

Therefore, the following dust deposition limits have been used in the assessment of measured levels;

- Dust Deposition Rate limit = 350 mg/m^2/day (averaged over a 30+/-2 day period).
- Dust Deposition Rate limit affecting sensitive ecological receptors = 1,000 mg/m^2/day.

2.2 BASELINE DUST SURVEY METHODOLOGY

A continuous baseline dust survey at the selected monitoring locations representative of the surrounding residential properties in proximity to the Proposed Rosslare Europort Offshore Renewable Energy Hub site has been undertaken from March – July 2023.

The assessment and evaluation of the baseline PM_{10} & $PM_{2.5}$ concentration and dust deposition rate in proximity to the proposed Rosslare Europort Offshore Renewable Energy Hub development has been undertaken in accordance with the following methodologies.

The particulate matter (PM_{10} and $PM_{2.5}$) measurements were conducted using the DM30 Dustsens monitors. The DM30 Dustsens monitor is designed for measuring airborne particulate matter (PM) in outdoor environments. The DM30 records real-time, accurate, mass-concentrations of particulate matter (PM_1, $PM_{2.5}$ and PM_{10}) using an optical particle counter (OPC). The DM30 Dustsens also simultaneously records the environmental variables of temperature (°C/°F) and relative humidity (%) using external sensors. The OPC uses a light scattering technique to determine the concentrations of airborne particulates in the air. The combination of a fan and heating system, enables air to be drawn into the DM30, where it is dried to reduce the presence of moisture droplets. As the particles pass by a photometer they are counted and profiled. The DM30 has the capability of recording a range of particle sizes from 0.35 µm to 40 µm. The DM30 continually determines the PM_1, $PM_{2.5}$ and PM_{10} unit mass concentrations in micrograms per cubic meter of air ($\mu g/m^3$).

The dust deposition monitoring survey was undertaken from 23rd March to 24th June 2023 according to the procedure outlined in the Standard Method VDI 2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Institute).

The monitoring locations are described as follows;

STN 1 - Caragh Lodge (Dennis & Kathleen Lawlor, Caragh Lodge)

A noise and dust combination unit (DM30 (00153) & EM2030 (10153)) and Bergerhoff dust monitoring stand were installed in the back garden of this dwelling. It is located circa. 70 metres from the railway line and circa 600 metres from what was deemed to be the nearest port activity. A water treatment plant is also located towards the back of the house circa 275 metres.

	Continuous PM_{10} & $PM_{2.5}$ concentration and dust deposition rate monitoring

STN 2 – Irish Rail Employee (Joe Quirke - Dwelling at the end of Cliff Road)

A EM2030 Noise unit with Solar Panel and Bergerhoff dust monitoring stand were installed in the front garden of a dwelling located at the end of the Cliff Road. The entrance to the dwelling is overlooking the west border of the port. The dwelling is located circa 70 metres from the railway line and circa 175 metres from the nearest port activity.

	Dust deposition rate monitoring

STN 3 – (Tony Keogh House Dwelling at the entrance of Cliff Road)

A noise and dust combination unit (DM30 (00219) & EM2030 (10219)) and Bergerhoff dust monitoring stand were installed in the back garden of this dwelling. It is circa. 40 metres to the railway and circa 120 meters to port activity. This dwelling is overlooking the main loading area for HGVs.

	Continuous PM_{10} & $PM_{2.5}$ concentration and dust deposition rate monitoring

STN 4 (noise and dust) - RNLI Station

A noise and dust combination unit (DM30 (00218) & EM2030-A (10218)) and Bergerhoff dust monitoring stand were installed on the RNLI Lookout. It is located circa 120 metres to the main entrance to the port and circa 75 metres to the Irish Rail turntable. This location is between the port and dwellings located on the Bay view Road.

	Continuous PM_{10} & $PM_{2.5}$ concentration and dust deposition rate monitoring

3 Description of Existing Environment

3.1 MEASURED DUST CONCENTRATIONS

The results of the continuous PM_{10} & $PM_{2.5}$ concentration monitoring at STN 1, STN 3 and STN 4 from March to July 2023 are presented in Table 5 and are assessed against the particulate matter (PM_{10} and $PM_{2.5}$) Limit Values in the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011).

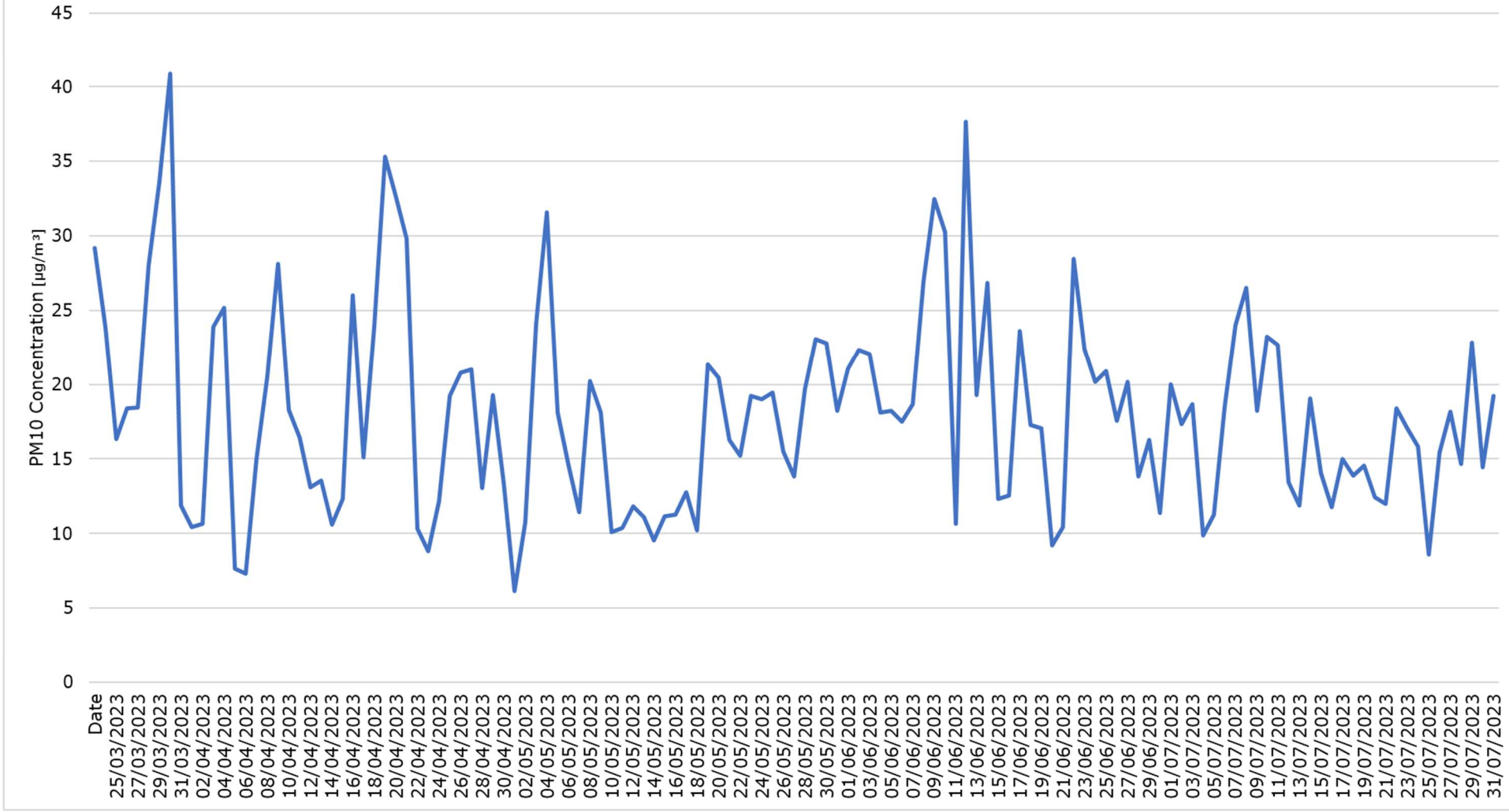
- PM_{10} 24 Hour Mean concentration limit = 50 µg/m^3 not to be exceeded more than 35 times a calendar year
- PM_{10} Annual Mean concentration limit = 40 µg/m^3
- $PM_{2.5}$ Annual Mean concentration limit = 20 µg/m^3

The PM_{10} and $PM_{2.5}$ concentrations at each of the monitoring locations was well below the relevant limit value. A graphical representation of the 24-hour PM_{10} concentrations recorded at S STN 1, STN 3 and STN 4 from March to July 2023 are presented in Charts 1 - 3.

Table 5: PM_{10} & $PM_{2.5}$ concentration results (µg/m^3).

Location	Average $PM_{2.5}$ concentration (µg/m^3)	Average PM_{10} concentration (µg/m^3)	Time Period
STN 1	10.4	18.1	24-03-2023 to 31-07-2023
STN 3	13.8	26.6	15-04-2023 to 31-07-2023
STN 4	6.6	11.5	07-05-2023 to 31-07-2023
Annual Mean Limit Value	20 µg/m^3	40 µg/m^3	

Chart 1: 24-Hr PM10 Concentrations recorded at STN 1 from 24th March to 31st July 2023 [µg/m³].
(PM_{10} 24 Hour Mean concentration limit = 50 µg/m³ not to be exceeded more than 35 times a calendar year)



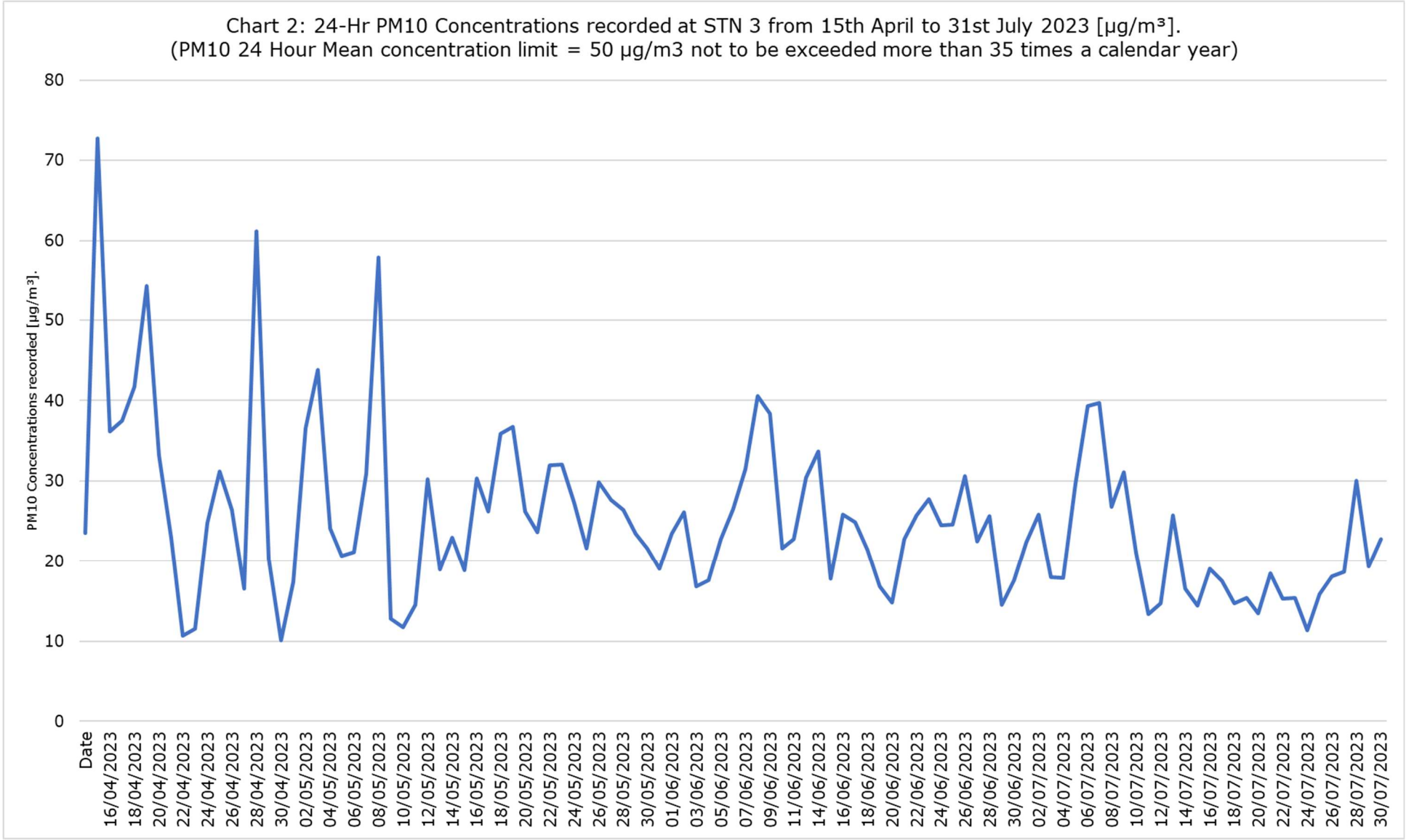


Chart 2: 24-Hr PM10 Concentrations recorded at STN 3 from 15th April to 31st July 2023 [µg/m³].
(PM10 24 Hour Mean concentration limit = 50 µg/m3 not to be exceeded more than 35 times a calendar year)
PM10 Concentrations recorded [µg/m³].
0
10
20
30
40
50
60
70
80
Date
16/04/2023
18/04/2023
20/04/2023
22/04/2023
24/04/2023
26/04/2023
28/04/2023
30/04/2023
02/05/2023
04/05/2023
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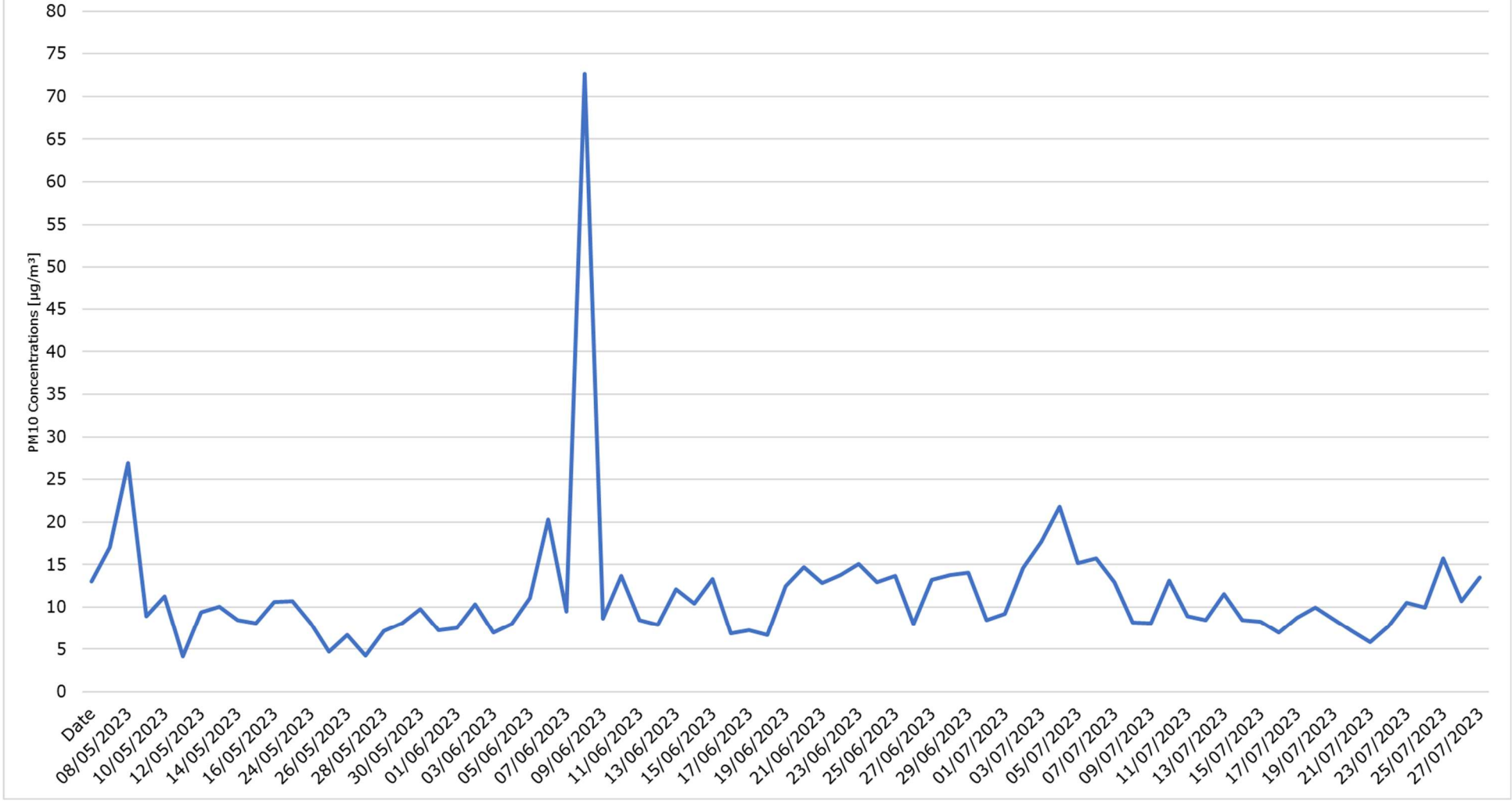
16/07/2023
18/07/2023
20/07/2023
22/07/2023
24/07/2023
26/07/2023
28/07/2023
30/07/2023

Chart 3: 24-Hr PM10 Concentrations recorded at STN 4 from 7th May to 31st July 2023 [µg/m³].
(PM10 24 Hour Mean concentration limit = 50 µg/m3 not to be exceeded more than 35 times a calendar year)



3.2 MEASURED DUST DEPOSITION RATES

The results of the dust deposition monitoring at STN 1 – STN 4 from March to July 2023 are presented in Table 6 and are assessed against the Dust Deposition Rate limit of 350 mg/m^2/day. The average dust deposition rate at each of the dust deposition monitoring locations was well below the Dust Deposition Rate limit value of 350 mg/m^2/day. The laboratory analysis reports are presented in Appendix A.

Table 6: Dust deposition rate results (mg/m^2/day).

Location	23rd March – 27th April 2023	27th April – 23rd May 2023	23rd May – 21st June 2023	Average
STN 1	75.24	101.58	113.63	96.8
STN 2	170.71	126.97	103.37	133.7
STN 3	63.49	88.88	134.92	95.8
STN 4	74.77	58.31	114.92	82.7
Limit Value	350 mg/m^2/day			

4 Conclusions

AONA Environmental has been commissioned by Irish Rail to undertake a continuous baseline dust monitoring survey for the proposed Rosslare Europort Offshore Renewable Energy Hub. Baseline dust monitoring surveys have been conducted at four monitoring locations in the area surrounding Rosslare Europort. Continuous PM_{10} & $PM_{2.5}$ concentration and dust deposition rate monitoring has been undertaken at three locations and dust deposition rate monitoring only has been undertaken at one location.

The measured PM_{10} & $PM_{2.5}$ concentrations have been compared to the limit values outlined in the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011). The monitoring results show that there is no exceedance of the PM_{10} annual mean concentration limit of 40 µg/m^3 or the $PM_{2.5}$ annual mean concentration limit of 20 µg/m^3. At any of the three continuous monitoring locations. There was no exceedance of the 24 Hour PM_{10} concentration limit of 50 µg/m^3 n at STN 1, while there was four and one exceedance of the 24 Hour PM_{10} concentration limit of 50 µg/m^3 at STN 3 and STN 4 respectively. Overall, it is most unlikely that the 24 Hour PM_{10} concentration limit of 50 µg/m^3 will be exceeded more than 35 times a calendar year at any of the locations. In terms of the EPA Air Quality Index for Health (AQIH), it is evident that there is 'Good' air quality in the vicinity of the proposed Rosslare Europort Offshore Renewable Energy Hub.

The results of the dust deposition monitoring at STN 1 – STN 4 from March to July 2023 indicate that the dust deposition rate at all four of the monitoring locations were well below the Dust Deposition Rate limit value of 350 mg/m^2/day.

APPENDIX A

Dust deposition rate laboratory analysis reports

Iarnród Éireann
Irish Rail

Rosslare ORE Hub

EIAR Technical Appendices

Technical Appendix 18:

Air Quality

Appendix A: Dust Deposition Rate Laboratory Analysis Reports

venterra | GDG GAVIN & DOHERTY GEOSOLUTIONS | NICHOLAS O'DWYER an RSK company | Co-funded by the European Union

REFERENCE: 202304D146

ENVIRONMENTAL & STRUCTURAL MONITORING ~ LABORATORY ANALYSIS & TESTING
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Phone: 353 4198 37435
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Website: www.nvm.ie

Company Registration: 381641

CUSTOMER DETAILS	
Company Name:	**Site Name:**
AONA Environmental	Rosslare Harbour
Contact Names:	
Mervyn Keegan	**Phone No:**
	087 9136491
	Email:
	mervynkeegan@aona.ie

Certificate of Analysis ~ Bergerhoff Dust Standard: VDI 4320

Sample I.D.	Description	Sample Date	Analysis		Result
			Analytical Technique	Result (g)	Daily Dust-fall Levels (mg/m²/day)
D1	Cliff Road House	27.04.23	Gravimetric	0.0160	**75.24**
D2	P. Lawlor's house	27.04.23		0.0363	**170.71**
D3	Tony's house	27.04.23		0.0135	**63.49**
D4	Lifeboat Station	27.04.23		0.0159	**74.77**

Signed by: Cathy Dignam (Environmental Technician):

Cathy Dignam.

.....

Accreditations:

The above testing and analysis is completed using equipment that is traceable to the Standards as listed below:

- **VWR Oven: Model: DRY-Line DL 56 PRIME; SN: DL56200085: INAB Certified 27th Feb 2023 Cert ref: IV24632**
  EN 61010-1:2010; EN 61010-2-010:2014; EN 60519-1:2015; EN 60529:2003; EN 61326-1:2013; EN IEC 63000:2018
- **VWR Electronic Balance: Model: TA414i SN: ITA2003531: INAB Certified 27th Feb 2023 Cert ref: BC25043**
  EN 61326-1:2013; EN 610610-1:2010; EN 61010-2-010:2014; EN 50581:2012
- **Test Sieve: SN: 747 12520; stainless steel bottom and body: 1.0mm sieve; 203mm diameter**
  DIN ISO 3310-1; ISO 3310-1; BS 3310-1

REFERENCE: 202305D181

ENVIRONMENTAL & STRUCTURAL MONITORING ~ LABORATORY ANALYSIS & TESTING
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Mervyn Keegan	**Phone No:**
	087 9136491
	Email:
	mervynkeegan@aona.ie

Certificate of Analysis ~ Bergerhoff Dust Standard: VDI 4320

Sample I.D.	Description	Sample Date	Analysis		Result
			Analytical Technique	Result (g)	Daily Dust-fall Levels (mg/m²/day)
D1	Cliff Road House B&B	23.05.23	Gravimetric	0.0216	**101.58**
D2	Seaview house	23.05.23		0.0270	**126.97**
D3	Tony's house	23.05.23		0.0189	**88.88**
D4	Lifeboat Station	23.05.23		0.0124	**58.31**

Signed by: Cathy Dignam (Environmental Technician):

Cathy Dignam.

.....

Accreditations:

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  EN 61326-1:2013; EN 610610-1:2010; EN 61010-2-010:2014; EN 50581:2012
- **Test Sieve: SN: 747 12520; stainless steel bottom and body: 1.0mm sieve; 203mm diameter**
  DIN ISO 3310-1; ISO 3310-1; BS 3310-1

REFERENCE: 202306D235

ENVIRONMENTAL & STRUCTURAL MONITORING ~ LABORATORY ANALYSIS & TESTING
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Phone: 353 4198 37435
Email: lab@nvm.ie
Website: www.nvm.ie

Company Registration: 381641

CUSTOMER DETAILS	
Company Name:	**Site Name:**
AONA Environmental	Rosslare Harbour
Contact Names:	
Mervyn Keegan	**Phone No:**
	087 9136491
	Email:
	mervynkeegan@aona.ie

Certificate of Analysis ~ Bergerhoff Dust Standard: VDI 4320

Sample I.D.	Description	Sample Date	Analysis		Result
			Analytical Technique	Result (g)	Daily Dust-fall Levels (mg/m²/day)
D1	Cliff Road House B&B	21.06.23	Gravimetric	0.0242	**113.63**
D2	Seaview house	21.06.23		0.0220	**103.37**
D3	Tony's house	21.06.23		0.0287	**134.92**
D4	Lifeboat Station	21.06.23		0.0244	**114.92**

Signed by: Cathy Dignam (Environmental Technician):

Cathy Dignam.

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Accreditations:

The above testing and analysis is completed using equipment that is traceable to the Standards as listed below:

- **VWR Oven: Model: DRY-Line DL 56 PRIME; SN: DL56200085: INAB Certified 27th Feb 2023 Cert ref: IV24632**
  EN 61010-1:2010; EN 61010-2-010:2014; EN 60519-1:2015; EN 60529:2003; EN 61326-1:2013; EN IEC 63000:2018
- **VWR Electronic Balance: Model: TA414i SN: ITA2003531: INAB Certified 27th Feb 2023 Cert ref: BC25043**
  EN 61326-1:2013; EN 610610-1:2010; EN 61010-2-010:2014; EN 50581:2012
- **Test Sieve: SN: 747 12520; stainless steel bottom and body: 1.0mm sieve; 203mm diameter**
  DIN ISO 3310-1; ISO 3310-1; BS 3310-1

RECOMMENDATIONS: During periods of exceptionally dry weather conditions, dust levels are expected to be higher than normal; therefore it is advised to water the ground as a means of dampening and minimising air-borne dust on site.