AIR QUALITY ASSESSMENT

Additional Processing Plant Robertsbridge Works

Prepared for: British Gypsum

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1.0 INTRODUCTION

SLR Consulting Ltd has been commissioned by British Gypsum to undertake an Air Quality Assessment in support of their retrospective planning application for the installation of additional plant at their Robertsbridge Works site (the "Works").

The assessment describes the scope, relevant legislation, assessment methodology and the baseline conditions currently existing in the area. It then presents the potential impacts of the proposed development and an evaluation of the dust effects.

1.1 Summary of Proposed Development

The proposed development includes the installation of additional plant in response to recent investment at Brightling Mine that allows the greater use of locally-won gypsum in plasterboard production at the Robertsbridge Works. The additional plant comprises conveyors and a bunker that will connect the existing overland conveyor bringing gypsum from Brightling Mine to combine with the existing feed of Spanish gypsum into the factory building.

Construction of the new plant has already commenced and as such the planning application is retrospective. A detailed description of the proposed development can be found within the Planning Statement.

1.2 Scope of Assessment

The Institute of Air Quality Management (IAQM) *Guidance on the Assessment of Mineral Dust Impacts for Planning*[1] has informed the scope and methodology of this assessment, which addresses:

- baseline review: identification of relevant receptors, background pollutant concentrations and meteorological conditions;
- assessment of potential impacts arising as a result of dust deposition i.e. effects on amenity and ecological receptors;
- assessment of potential impacts arising as a result of suspended airborne dust with an aerodynamic diameter of less than 10 microns (PM_{10}); and
- review of the existing dust control measures at the site and recommendations for additional control, as required.

The proposed development, described above, would not generate any additional vehicle movements above the existing, permitted baseline and therefore, an assessment of vehicle emissions has been scoped out of the assessment.

[1] IAQM, Guidance on the Assessment of Mineral Dust Impacts for Planning, v1.1 2016.

2.0 AIR QUALITY LEGISLATION, POLICY AND GUIDANCE

2.1 Air Quality Standards Regulations

The Air Quality Standards Regulations 2010 (the regulations) transpose the Ambient Air Quality Directive (2008/50/EC), and the Fourth Daughter Directive (2004/107/EC) within UK legislation. The regulations include Limit Values, Target Values, Objectives, Critical Levels and Exposure Reduction Targets for the protection of human health and the environment (collectively termed Air Quality Assessment Levels (AQALs) throughout this report). Those relevant to this Air Quality Assessment are presented within Table 2-1.

Table 2-1
Relevant Air Quality Assessment Levels

Pollutant	Standard (µg/m^3)	Measured as	
Particulate matter with an aerodynamic diameter of less than 10µm (PM_{10}) (gravimetric)	40	Annual mean	-
	50	24 hour mean	Not to be exceeded more than 35 times a calendar year
Particulate matter with an aerodynamic diameter of less than 2.5µm ($PM_{2.5}$) (gravimetric)	25	Annual mean	-

2.2 Air Quality Strategy

The United Kingdom Air Quality Strategy (UK AQS) for England, Scotland, Wales and Northern Ireland[2], last updated in 2007, sets out the Government's policies aimed at delivering cleaner air in the United Kingdom (UK). It sets out a strategic framework within which air quality policy will be taken forward in the short to medium term, and the roles that Government, industry, the Environment Agency (EA), local government, business, individuals and transport have in protecting and improving air quality.

2.3 Local Air Quality Management (LAQM)

Section 82 of the Environment Act 1995 (Part IV) requires Local Authorities (LAs) to periodically review and assess the quality of air within their administrative area. The reviews have to consider the present and future air quality and whether any AQALs prescribed in regulations are being achieved or are likely to be achieved in the future.

Where any of the prescribed AQALs are not likely to be achieved the LA concerned must designate an Air Quality Management Area (AQMA). For each AQMA the LA has a duty to draw up an Air Quality Action Plan (AQAP) setting out the measures the LA intends to introduce to deliver improvements in local air quality in pursuit of the AQAL. As such, LAs have formal powers to control air quality through a combination of LAQM and by use of their wider planning policies.

2.4 General Nuisance Legislation

Part III of the Environmental Protection Act (EPA) 1990 (as amended) contains the main legislation on Statutory Nuisance and allows LAs and individuals to take action to prevent a statutory nuisance. Section 79 of the EPA defines dust as a potential Statutory Nuisance amongst other things emitted from industrial, trade or business

[2] Defra, The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volume 1), July 2007.

premises so as to be prejudicial to health or a nuisance. It also defines as a nuisance accumulation or deposit which is prejudicial to health.

In contrast to suspended particulate matter, there are no UK or European statutory standards that define the point at which deposited dust causes annoyance or disamenity. There are a number of "custom and practice" thresholds in use, however 'nuisance' is a subjective concept and its perception is highly dependent upon the existing conditions and the change which has occurred.

2.5 Planning Policy

2.5.1 National Policy

The National Planning Policy Framework[3] (NPPF) describes the policy context in relation to pollutants, with specific reference to air quality its states:

> *"Para 170: Planning policies and decisions should contribute to and enhance the natural and local environment by:*
>
> *e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of […] air […] pollution […]. Development should, wherever possible, help to improve local environmental conditions such as air […] quality […]"*
>
> *"Para 180: Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development."*

Specifically, in terms of development with regards to air quality:

> *"Para 181: Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."*

The NPPF is accompanied by supporting Planning Practice Guidance[4] (PPG) which includes guiding principles on how planning can take account of the impacts of new development on air quality. In regard to air quality, the PPG states:

> *"The Department for Environment, Food and Rural Affairs carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with relevant Limit Values. It is important that the potential impact of new development on air quality is taken into account where the national assessment indicates that relevant limits have been exceeded or are near the limit, or where the need for emissions reductions has been identified."*
>
> *"Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas*

[3] Ministry of Housing, Communities and Local Government, The National Planning Policy Framework, 2019.
[4] Ministry of Housing, Communities and Local Government, Planning Practice Guidance Air Quality, 2019 update. [accessed: https://www.gov.uk/guidance/air-quality--3].

where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity."

The PPG sets out the information that may be required within the context of a supporting air quality assessment, stating that "*Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific […] Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact.*"

The policies within the NPPF and accompanying PPG in relation to air pollution are considered within this assessment.

2.5.2 Local Policy

In September 2014, Rother District Council (RDC) adopted the Rother Core Strategy[5], the key planning policy document within the Local Plan. Within the Core Strategy the following policy relates to air quality:

Policy OSS3: Location of Development

"In assessing the suitability of a particular location for development, when both allocating land for development and determining planning applications, sites and/or processes should accord with the relevant policies of this Core Strategy and be considered in the context of:

[…]

(viii) Any constraints relating to land stability, contamination, air quality, agricultural land quality and coastal erosion, and the ability to satisfactorily address these"

East Sussex County Council (ESCC) adopted the Waste and Minerals Plan[6] in February 2013. Within this Plan, the following policies relate to air quality:

Policy WMP 19: Co-location of Complementary Facilities

"*The Authorities will encourage opportunities to co-locate facilities provided this does not cause unacceptable impacts on the environment or communities.*

Any proposal involving co-location must:

a. Address the likely cumulative impacts of the proposal to ensure that overall effects on communities and the environmental are within acceptable limits including noise, transport movements, and emissions to air

[…]"

Policy WMP25: General Amenity

"All proposals should ensure:

[…]

a. There is no significant adverse impact on air quality or the local acoustic environment;
b. Adequate means of controlling noise, dust, litter, odours and other emissions, including those arising from traffic generated by the development, are secured

[5] Rother District Council, Rother Local Plan; Core Strategy, Sept 2014
[6] East Sussex, South Downs and Brighton & Hove, Waste and Minerals Plan, Feb 2013

[…]"

The policies mentioned above have been taken into consideration throughout this assessment.

2.6 Assessment Guidance

The primary guidance documents consulted in undertaking this assessment are detailed below.

2.6.1 IAQM 'Guidance on the Assessment of Mineral Dust Impacts for Planning'

The IAQM published the document *Guidance on the Assessment of Mineral Dust Impacts for Planning*[7] in June 2016. Designed specifically for the planning process, the guidance sets out a structured methodology for the assessment of mineral dust impacts and consideration of their significance.

2.6.2 The Mineral Industry Research Organisation (MIRO)

A 'Good Practice Guide'[8] issued on behalf of MIRO was released in 2011. The purpose of the Guide is to assist in the identification, control and management of dust arising from the extractive industries. The guidance provides a useful reference for available methods of mitigation and monitoring.

2.6.3 EPUK-IAQM 'Land-Use Planning and Development Control: Planning for Air Quality'

Environmental Protection UK (EPUK) and the IAQM have together published guidance[9] to help ensure that air quality is properly accounted for in the development control process. It clarifies when an air quality assessment should be undertaken, what it should contain, and recommendations on how impacts should be described and assessed.

2.6.4 Defra Local Air Quality Management Technical Guidance

The Department for Environment, Food and Rural Affairs (Defra) Local Air Quality Management Technical Guidance (LAQM.TG(16))[10] was published for use by LAs in their LAQM review and assessment work. The document provides key guidance in aspects of air quality assessment, including screening, use of monitoring data, and use of background data that are applicable to all air quality assessments.

[7] IAQM, Guidance on the Assessment of Mineral Dust Impacts for Planning, v1.1 2016.
[8] MIRO, Good practice guide: control and measurement of nuisance dust and PM_{10} from the extractive industries, Issue 1 February 2011.
[9] EPUK and IAQM, Land-Use Planning and Development Control: Planning for Air Quality, v1.1 2017.
[10] Defra, Local Air Quality Management Technical Guidance (TG16), February 2018.

3.0 METHODOLOGY

The assessment has been undertaken in accordance with the IAQM *'Guidance on the Assessment of Mineral Dust Impacts for Planning'*. The methodology is summarised below and available to download on the IAQM website[11] and therefore not reproduced in full within this assessment.

The IAQM method is a risk-based approach based on the source-pathway-receptor conceptual model, i.e. the hypothetical relationship between the source (S) of the pollutant, the pathway (P) by which exposure might occur, and the receptor (R) that could be adversely affected.

The key steps are:

- Assess Site Characteristics and Baseline Conditions. Incorporates a review of baseline conditions including PM_{10} background, existing dust deposition data, and dust complaints; a description of Site activities to inform the Source Term; and characterisation of the Site setting in terms of the location and sensitivity of representative receptors, and meteorological conditions (wind patterns and rainfall);
- Estimate Dust Impact Risk. The Dust Impact Risk for each representative receptor is determined from the Source Term (residual dust risk after embedded mitigation) and Pathway. The 'pathway effectiveness' is based upon the distance of the receptor from the dust source (i.e. close <100m, intermediate 100m-200m, distant 200-400m) and the frequency at which it is down-wind from the source (factoring out the frequency of wet days); and
- Estimate Likely Magnitude of Effect. The risk predicted at each representative receptor is considered together with the sensitivity of that receptor, to give the likely magnitude of the effect that will be experienced.

With respect to PM_{10}, if backgrounds are less than 17µg/m^3, it is considered there is little risk of the Process Contribution (PC) from the Site causing an exceedence of the annual mean AQAL. Where backgrounds are greater than 17µg/m^3 the PC is estimated and total Predicted Environmental Concentration (PEC) used to assess the potential significance of effects on the surrounding receptors.

The IAQM uses a distance-based screening criterion for both airborne concentrations and deposited dust. The guidance states *"from the experience of the working group, adverse dust impacts from sand and gravel* [and soft rock, such as gypsum] *sites are uncommon beyond 250m and beyond 400m from hard rock quarries, measured from the nearest dust generating activity".*

In accordance with the IAQM methodology, assessment on the effects of deposited dust can be screened out if there are no receptors within 250m from the dust source. Assessment on the effects of PM_{10} can be screened out if there are no receptors within 1km of the dust source, or if background concentrations are below 17µg/m^3.

[11] IAQM, Guidance on the Assessment of Mineral Dust Impacts for Planning, v1.1 2016, https://iaqm.co.uk/text/guidance/mineralsguidance_2016.pdf, accessed August 2020.

4.0 BASELINE ENVIRONMENT

4.1 Site Setting and Receptors

Robertsbridge Works is located near the village of Mountfield and approximately 1.8km west of the A2100. The proposed development is located entirely within the existing external plant area to the west of the main Works building and centred on the National Grid Reference (NGR): x572100, y119500. The application site comprises 852m^2 (0.85ha), with the overall external plant yard constituting an area of >4ha.

Surrounding the site is predominantly woodland and open countryside with isolated properties in the locale. A conveyor connects the site to the Brightling Mine approximately 4.8km to the north-east. The closest residential receptor is approximately 680m to the south. Human receptors are considered further in Section 4.1.1 and the dust assessment.

Access to the site is gained from Eatenden Lane via a 1.5km private access road. This will be unaffected by the proposed development.

4.1.1 Human Receptor Locations

AQALs apply to locations where members of the public may be reasonably likely to be exposed to air pollution for the duration of the relevant AQAL. Therefore, the annual mean should apply only at locations where people are likely to be present for long periods (examples given are residential properties, schools, hospitals and care homes). In the case of the 24-hour AQAL a relevant location would be one where the individuals may be exposed for eight hours or more in a day. As such, all residential and workplaces, other than the Works itself, within 1km are considered of relevance to the assessment of potential PM_{10} impacts.

With respect to amenity impacts, the sensitivity will relate to the level of amenity that can be reasonably expected. For example, residential dwellings and schools are more sensitive than industrial units or farms typically. Receptor locations have been characterised as high, medium or low sensitivity according to the IAQM guidance. The IAQM guidance screening distance requiring detailed assessment for soft rock quarries (i.e. gypsum) is 250m for deposited dust and 1km for PM_{10}.

The five human receptors (HR1 – HR5) considered to be representative of the local area for the assessment of dust and PM_{10} impacts are presented in Figure 4-1 and detailed in Table 4-1. For the purposes of this assessment, all receptors are considered of high sensitivity to dust amenity impacts.

As noted in Table 4-1, the closest human receptors are all located in excess of 250m from the proposed development and therefore 'screened out' of further assessment for deposited dust.

Table 4-1
Summary of Receptors: Human

Ref.	Description	NGR (x,y)	Approx. Distance to Proposed Development (m)	IAQM Sensitivity
HR1	Residential	572304,120342	770m	High
HR2	Residential	572851,119047	870m	High
HR3	Residential	572496,118705	920m	High
HR4	Residential	572100,118773	740m	High
HR5	Residential	571945,118873	640m	High

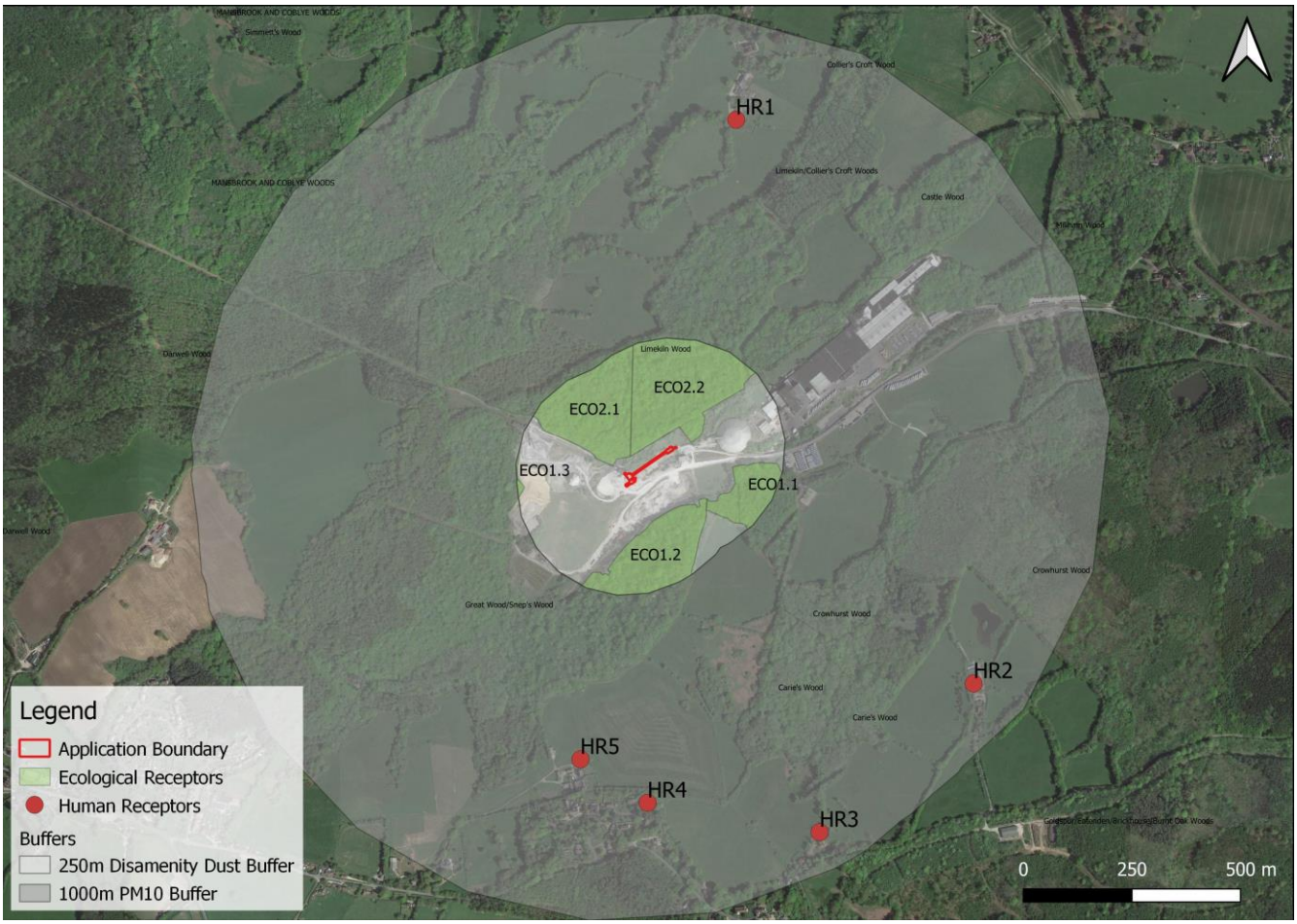

Figure 4-1
Receptors and IAQM Screening Distances

4.1.2 Ecological Receptors

There are no statutory designated nature conservation sites (e.g. Special Area of Conservation (SAC)) within 250m of the Site. However, there are two local non-statutory Ancient Woodland (AW) sites within the screening distance of 250m.

These are as follows:

- Great Wood/Snep's Wood AW – spans from the east-south-east around to the south-west and approximately 100m from the proposed development at the closest extent; and
- Limekiln Wood AW – spans from the north-west around to the north-east and approximately 30m from the proposed development at the closest extent.

As these receptors almost encircle the entire site, they have been broken down into segments for the purposes of this assessment. This enables the assessment to consider which areas of the receptors are likely to be most affected due to differences in wind speeds and direction and distance to the proposed development i.e. the 'pathway effectiveness'.

The ecological receptors considered within this assessment are presented in Figure 4-1 and Table 4-2 and are classified as 'low' sensitivity; this is in line with the IAQM guidance for non-statutory sites with no specific or known sensitivity to dust.

Table 4-2
Summary of Receptors: Ecological

Ref.	Description	NGR (x,y)	Approx. Distance to Proposed Development (m)	IAQM Sensitivity
ECO1.1	Great Wood / Snep's Wood	572145,119439	135	Low
ECO1.2			100	Low
ECO1.3			230	Low
ECO2.1	Limekiln Wood	572101,119594	30	Low
ECO2.2			30	Low

In terms of potential physical effects of dust deposition on habitats, an Interim Advice Note prepared as a supplement for the Design Manual for Roads and Bridges (and now incorporated into HA207/07[12]) suggests that only dust deposition levels above 1,000mg/m^2/day are likely to affect sensitive ecological receptors. It states that most species appear to be unaffected until dust deposition rates are at levels considerably higher than this. This level of dust deposition is approximately five times greater than the level at which most dust deposition may start to cause a perceptible nuisance to humans. As such ecological receptors are considered of comparative low sensitivity.

4.2 Baseline Air Quality

4.2.1 Local Air Quality Management

As required under Section 82 of the Environment Act 1995 (Part IV), RDC has conducted an on-going exercise to review and assess air quality within their administrative area.

A review of their most recently published Air Quality Annual Status Report (ASR)[13] indicates that the AQALs for NO_2 and PM_{10} are not exceeded within the district. As such, no AQMAs have been declared for exceedences of the AQALs.

4.2.2 Monitoring Data

RDC carried out monitoring of PM_{10} at one location during 2018; at a roadside location in Bexhill-on-Sea. This monitoring location is located approximately 12km to the south-east of the site. Due to the distance between the Site and the nature of this monitor, the recorded concentrations are not considered representative of the concentrations found at the site.

Defra operates the Automatic Urban and Rural Network (AURN) which is a UK-wide network of air quality monitoring stations. The AURN locations were reviewed and it was concluded that there are no relevant PM_{10} monitoring in close proximity to the Site.

4.2.3 Defra Modelled Background and Projections

Defra provide modelled background pollutant concentration data on a 1km x 1km spatial resolution across the UK that is routinely used to support LAQM and Air Quality Assessments[14]. Background pollutant concentrations are based upon the 2017 base year Defra update and projected forward. Mapped background concentrations of

[12] Design Manual for Roads and Bridges. Volume 11, Section 3. Part 1 HA207/07. Annex F.
[13] Rother District Council, 2019 Air Quality Annual Status Report (ASR), July 2019.
[14] Defra, UK Air Information Resource (UK-AIR) website, http://uk-air.defra.gov.uk/, accessed August 2020.

PM_{10} and $PM_{2.5}$ were obtained for the grid squares containing the Site and surrounding receptors for 2020 and are displayed in Table 4-3. These concentrations have been applied in the dust assessment.

As noted in Table 4-3, the mapped background concentrations of PM_{10} and $PM_{2.5}$ are 'well below' the relevant annual mean AQALs.

Table 4-3
Annual Mean Background Concentrations

Receptor	PM_{10} 2020 Concentration (µg/m^3)	$PM_{2.5}$ 2020 Concentration (µg/m^3)
Site, HR2	13.5	8.8
HR1	13.4	8.9
HR3, HR4	13.1	8.7
HR5	13.3	8.8

4.3 Meteorological Conditions

The most important climatic parameters governing the release and dispersal of fugitive emissions from the proposed development are wind speed, direction and rainfall:

- wind direction determines the broad direction of dispersal;
- wind speed affects ground level concentrations by increasing the initial dilution of pollutants in the emission. It will also affect the potential for dust entrainment; and
- rainfall naturally supresses dust release.

A windrose from Herstmonceux meteorological station, located approximately 10.5km to the south-west of the Site is presented in Figure 4-2. It is evident that winds from the south-west quadrant are predominate in the area with winds from the north-west and south-east being infrequent.

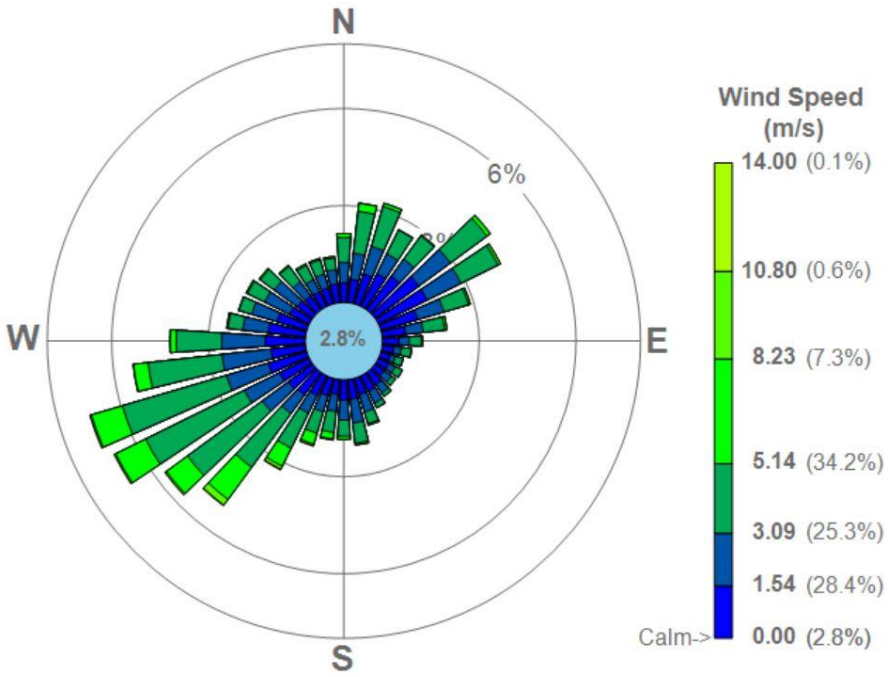

Figure 4-2
Windrose from Herstmonceux (avg. 2009, 2010, 2011, 2016)

Relevant rainfall data applicable to the Site has been obtained from the Meteorological Office website of UK mapped climate averages for 1981-2010. The average annual rainfall ≥0.2mm/day[15] for the area is 160 to 170 days per year, comprising 44% to 47% of the year.

[15] IAQM, Guidance on the Assessment of Mineral Dust Impacts for Planning, v1.1 2016.

5.0 ASSESSMENT OF EFFECTS

This section describes the assessment of dust effects from the proposed development. The assessment has considered the areas within the red-line boundary and consists predominantly of the new plant. Consideration has also been given to transportation of materials around the Works and off-site transportation which may occur outside the red-line boundary whilst being still associated with the proposed development.

5.1 Potential Sources of Dust

Activities or sources associated with the proposed development that have the potential to result in the release of dust include:

- operation of the proposed additional plant;
- on-site transportation; and
- off-site transportation.

5.1.1 Proposed Additional Plant

The purpose of the proposed development is to enable greater use of gypsum from the nearby Brightling Mine. The additional plant comprises bunkers for storage and conveyors that will connect to the overland conveyor bringing gypsum from Brightling Mine. The gypsum from Brightling Mine will be blended with imported Spanish gypsum for use in plasterboard production.

Bunkers

Gypsum transported from Brightling Mine is currently stored within the existing Cement Rock Bunker (Bunker A) where it is destined for off-site cement manufacture. An additional bunker (Mill Rock Bunker) is proposed adjacent to and downstream of existing Bunker A. The proposed Mill Rock Bunker will have a 400-tonne capacity and will be 23.3m in height, similar to existing Bunker A.

The proposed Mill Rock Bunker will be enclosed on all sides, with the entry and exit points of the Bunker representing the only exposed areas required for the movement of material in and out.

The material is therefore sheltered from the wind and the potential for erosion and the generation of dust emissions is considered low. In addition, the point of material entry at a height of approximately 18m is also enclosed.

Overall and based on the above, the proposed bunker presents a low dust emission potential.

Conveyors

The installation of two new conveyors and a conveyor extension is proposed as part of the development.

The new proposed conveyor S9 will replace the existing conveyor S7 with the aim of loading gypsum directly into lorries for 3rd party cement manufacture. Proposed conveyor S9 will transport material at a rate of 600TPH (tonnes per hour). A proposed Transfer (T1) will move material between the existing Bunker A to the proposed Mill Rock Bunker. The new proposed conveyor S8 will then transfer the gypsum from the proposed Mill Rock Bunker towards the factory at a rate of 150TPH. The proposed extension to conveyor H2N will connect proposed conveyor S8, via a proposed In-line Blender, to the rest of the processing facility and transport material at a rate of 285TPH.

All proposed conveyors are covered to prevent the release of dust emissions. Proposed conveyor S8 and the H2N extension are positioned low to the ground which will impede the dispersal of released dust. There is potential for the release of dust emissions where the conveyors meet and adjoin to other plant, particularly if material is deposited from height, however this is considered to be minimal when the conveyors are enclosed.

Overall and based on the above, the proposed conveyors present a low dust emission potential.

In-line Blender

A new proposed blender will be located at the junction between the proposed conveyor S8 and the proposed extension to conveyor H2N. Gypsum imported from Spain and gypsum transported from Brightling Mine will be blended here before being taken onwards by conveyor H2N for further processing in the factory. The proposed blender will reach a maximum height of 6.18m. The blender is enclosed and protected from the wind therefore greatly reducing the potential for the generation and release of dust emissions.

Overall and based on the above, the proposed in-line blender presents a low dust emission potential.

5.1.2 On-site Transportation

Although on-site transportation falls outside of the red-line boundary, it has been given consideration to account for the potential changes in procedure associated with the proposed development. The proposed additional plant has been designed to allow for greater efficiencies in lorry loading arrangements. It is expected that these efficiencies may decrease the potential for the generation and release of dust emissions due to vehicle movements and procedures being more streamlined when compared to the existing configurations.

The majority of haul roads around the Works are either comprised of concrete slabs or asphalt, which limits the potential resuspension of dust compared to unpaved roads. For the purpose of this assessment, it is considered that Heavy Duty Vehicles (HDVs) would only have to travel approximately 100m on unpaved roads to the point of loading at Bunker A. A review of the design drawings indicates that there is room only for one HDV at the loading station at any one time and therefore vehicle movements will be controlled and constrained, in terms of speed and space.

On-site transportation presents a high dust emission potential in the absence of mitigation. The potential for dust emissions from unpaved haul roads can depend on the moisture content of the road and vehicle speed; which can be controlled by effective operational measures. For example, the Works has the capability to undertake water suppression of dusty road surfaces, if required.

Overall and based on the above, on-site transportation presents a medium dust emission potential.

5.1.3 Off-site Transportation

Although off-site transportation falls outside of the red-line boundary, consideration has been given to off-site transportation to account for any potential changes in procedure associated with the proposed development. Processed material (product) and gypsum for third party cement manufacture is transported off-site. This presents potential risk of trackout; when dust and dirt is transported onto the public road network, where it may be deposited and then re-suspended by vehicles using the network.

The Site is accessed via a 1.5km private access road off Eatenden Lane. According to IAQM '*Guidance on the assessment of dust from demolition and construction*'[16], the majority of trackout impacts occur within the first 500m. In addition, a wheel wash is located at the Works exit, adjacent to the weighbridge area, and is required to be used by all HDVs leaving the Works.

Overall and based on the above, off-site transportation presents a low dust emission potential.

5.2 Environmental Design and Mitigation Measures

British Gypsum operates an Environmental Management System (EMS) compliant with ISO 14001:2015 for mining, manufacture and supply of drylining and associated services. Robertsbridge Works is one of a number of British Gypsum sites registered under the certificate, EMS 543324.

[16] IAQM, Guidance on the assessment of dust from demolition and construction, v1.1, 2014

Existing measures to mitigate dust have been addressed in two sections:

- mitigation measures that apply to day to day site operations; and
- environmental design mitigation measures (e.g. Site layout in relation to surrounding receptors).

The 2011 planning application (reference: RR/678/CM) associated with the Robertsbridge Works for "*Provision of a strategic Desulphogypsum (DSG) storage area and associated development for a period of 10 years […]*" states the following within the planning statement:

"*The methods of handling and management techniques to be employed as part of the proposed development will be the same as those set out within the Environmental Permit, as follows:*

- *DSG operations suspended during extreme atmospheric conditions, such as high winds, in order to mitigate fugitive particulate;*
- *limiting drop heights;*
- *stockpile height will be managed (up to 15m);*
- *use of water sprays to promote crust formation;*
- *stockpile compacted/smoothed utilising mechanical plant to stabilise loose particulate;*
- *road cleaning & wheel washing to prevent dust emissions from roads;*
- *dampening of roads with sprays when dusty;*
- *following construction, DSG stockpiles will be covered using a bespoke Geo Multi-Cover (matt finish and black colour), to the same specification as supplied to landfill site operators wishing to have a removable cover system;*
- *the cover is waterproof and extremely robust (with reinforced edges);*
- *the cover comprises a number of sections with pulling straps, allowing for quick and easy access (placement/replacement);*
- *the sectional cover system negates the need to remove the entire cover, thus avoiding exposing large sections of the stockpile; and*
- *the use of a cover means that at no point is the DSG exposed to the air other than when it is tipped from the transfer vehicle.*"

For the purposes of this assessment, it has been assumed that the above measures are still in place at the Works and those of relevance to the operation of the additional plant have been utilised in this assessment.

5.2.1 Operational Mitigation Measures

Site operations are undertaken in line with industry good practice. The control measures and equipment utilised as part of the existing activities have been described where necessary in Sections 5.1.1 to 5.1.3 and summarised below:

- a wheel wash is located close to the Works entrance;
- visual dust monitoring is undertaken as routine vigilance;
- road sweeper is in operation on the access road, as required;
- conveyors are covered where possible;
- water sprays are utilised around the site during dry conditions, as required;
- the Works access road operates a speed limit of 15mph;

- all HDVs are sheeted on leaving the Works;
- haul routes are regularly maintained by grading to minimise dust generation; and
- water suppression available for use as required.

5.2.2 Environmental Design Measures

Given the location of receptors in relation to Works activities a number of specific mitigation measures have been incorporated into the Works layout and design, these measures include:

- a 1.5km, paved access road to the entrance of the Works limits the possibility of dust being transported onto the public highway and limits the effects of trackout;
- the majority of internal haul roads are paved, enabling easier suppression of dust using water sprays and reducing the amount of dust generated from travelling over unsurfaced ground;
- the Works is situated within a valley which acts as a natural barrier to dust emission dispersal; and
- the Works is surrounded by woodland which acts as a natural barrier to dust emission dispersal.

5.3 Assessment of Effects – Disamenity Dust

5.3.1 Summary of Residual Source Magnitude

The residual source emission magnitude (i.e. the potential magnitude of dust emission after the designed in environmental measures have been taken into account) for each of the dust generating activities is presented in Table 5-1. This has incorporated potential sources from each of the proposed plant and transport on and off site.

Table 5-1
Residual Source Emission Magnitude

Potential Dust Generating Activity	Factors and Assumptions	IAQM Residual Emission Source Magnitude
Mineral Processing / Operation of Plant	Proposed Bunker Bunker will be enclosed, and material stored inside will not be exposed. 400 tonne capacity.	Small
	Proposed Conveyors Covered conveyors. Conveyors situated close to the ground to limit dispersal. Up to 600TPH throughput. Points of release are limited to junctions with other plant.	Small
	Proposed In-line Blender Enclosed plant. Maximum height 6.18m.	Small

Potential Dust Generating Activity	Factors and Assumptions	IAQM Residual Emission Source Magnitude
On-site Transportation	Majority of haul roads are paved. Approximately 100m of unpaved road to access loading areas. Capabilities for water suppression on dusty roads.	Medium
Off-site Transportation	Paved access road >500m in length. Wheel wash is located adjacent to the entrance/exit.	Small

5.3.2 Summary of Pathway Effectiveness

This assessment has focussed on the areas within the red-line boundary, i.e. the proposed additional plant. The IAQM screening distance of 250m has been applied to receptors in relation to their distance to the nearest proposed additional plant as detailed in Table 5-2 and displayed in Figure 4-1.

Table 5-2
Summary of Screening Assessment

Ref.	NGR (x,y)	Approx. Distance to Proposed Development (m)	Further Assessment of Disamenity Dust
HR1	x572304, y120342	770	No
HR2	x572851, y119047	870	No
HR3	x572496, y118705	920	No
HR4	x572100, y118773	740	No
HR5	x571945, y118873	640	No
ECO1.1	x572145, y119439	135	Yes
ECO1.2		100	Yes
ECO1.3		230	Yes
ECO2.1	x572101, y119594	30	Yes
ECO2.2		30	Yes

As noted in Table 5-2, all human receptors are >250m from the proposed development and therefore 'screened out' of further assessment for deposited dust.

The pathway effectiveness at each receptor has been assigned in accordance with the IAQM criteria and is based on the distance of the receptor to the red-line boundary and the frequency of potentially dusty winds (>5m/s and dry). Consideration has also been given to the surrounding topography, which is described below. A summary of pathway effectiveness is displayed in Table 5-3.

The Robertsbridge Works, and in particular the proposed development, is situated in a depression in the landscape which, along with the surrounding woodland, would impede dust dispersion.

In a north to south trajectory, the landscape starts at a maximum elevation of 99m AOD, before falling to 72m AOD within the red-line boundary and a minimum of 68m AOD within the wider site. The topography then rises again to 100m AOD at a distance of 550m from the red-line boundary and 125m AOD at the first human receptor in a southerly direction.

In a west to east trajectory, the landscape starts at a maximum of 139m AOD, before falling to 72m AOD within the red-line boundary and a minimum of 60m AOD within the wider site. The topography remains relatively flat with a gentle decline heading east. There are, however, no sensitive receptors in an easterly direction for a distance of 1.1km from the red-line boundary.

Table 5-3
Summary of Pathway Effectiveness

Ref.	Approx. Distance to Proposed Development (m)	Distance Category	Frequency of Potentially Dusty Winds on dry days (%)	Frequency Category	Pathway Effectiveness
ECO1.1	135	Intermediate	1.16%	Infrequent	Ineffective
ECO1.2	100	Intermediate	0.76%	Infrequent	Ineffective
ECO1.3	230	Distant	0.18%	Infrequent	Ineffective
ECO2.1	30	Close	0.62%	Infrequent	Ineffective
ECO2.2	30	Close	2.55%	Infrequent	Ineffective

5.3.3 Summary of Dust Effects

On the basis of the source term, receptor sensitivity and pathway effectiveness the magnitude of effect due to potential dust deposition at each receptor has been estimated. Table 5-4 presents a summary of the magnitude of effect at the ecological receptor locations.

Table 5-4
Summary of Dust Effects

Ref.	Receptor Sensitivity	Pathway Effectiveness	Dust Impact Risk	Magnitude of Effect
ECO1.1	Low	Ineffective	Negligible Risk	Negligible Effect
ECO1.2	Low	Ineffective	Negligible Risk	Negligible Effect
ECO1.3	Low	Ineffective	Negligible Risk	Negligible Effect
ECO2.1	Low	Ineffective	Negligible Risk	Negligible Effect
ECO2.2	Low	Ineffective	Negligible Risk	Negligible Effect

In accordance with the IAQM guidance, the dust impact risk at all receptors is considered to be negligible and therefore the magnitude of effect is considered to be negligible.

5.4 Assessment of Effects – PM_{10}

With respect to PM_{10}, the maximum predicted background concentration in the area is 13.5µg/m^3 as an annual mean for 2020 (see Section 4.2.3).

The recommended screening value in accordance with IAQM guidance[17] and evidence provided by the Minerals Guidance Working Group is 17µg/m^3; this is based on the relationship between annual mean concentrations and the risk of the 24-hour PM_{10} AQAL being exceeded (see Section 3.0). Given that the predicted PM_{10} background concentrations are below 17µg/m^3 at the nearby receptor locations, it is considered that there is little risk of the contribution from the site causing an exceedence of the PM_{10} AQALs. The overall effect of the proposed development on PM_{10} concentrations in the local area is therefore considered to be 'not significant'.

[17] IAQM, Guidance on the Assessment of Mineral Dust Impacts for Planning, v1.1 2016.

6.0 GOOD PRACTICE DUST CONTROL MEASURES

6.1 Dust Control Measures

There are several operational good practice dust control measures and environmental design measures, detailed in Section 5.2, currently implemented at the Robertsbridge Works; being the result of conditions under existing planning permissions as well as routine good practice. These are summarised in Table 6-1 and it is recommended that these measures continue to be implemented throughout the proposed development.

Table 6-1
Dust Control Measures

Site Activity	Dust Control Measure
General	Visual dust monitoring is undertaken as routine vigilance.
	DSG operations suspended during extreme atmospheric conditions, such as high winds, in order to mitigate fugitive particulate.
	Complaints relating to dust are recorded and acted upon as required.
	Use of water suppression when required (across whole Works / all activities).
	Limiting drop heights
Mineral Processing	Covers on all conveyors
	Minimise points of dust release between junctures of different plant
	Water sprays are utilised
	Drop heights are controlled.
On-site Transportation	Large proportion of surfaced roads
	Vehicles are not overloaded with material.
	Haul roads are regularly maintained by grading.
Off-site Transportation	Hard-surfaced haul road.
	A wheel was is located close to the Works entrance/exit.
	1.5km access road.
	15mph speed limit on Site access road.

7.0 CONCLUSION

The conclusions of this air quality assessment, undertaken using the IAQM *'Guidance on the Assessment of Mineral Dust Impacts for Planning'* are that:

- the effect on amenity is considered to be 'not significant';
- the effect on PM_{10} concentrations at receptors is considered to be 'not significant'; and
- the effect from dust on ecological receptors is considered to be 'not significant'.

It is therefore considered that the potential impacts from dust and particulate matter arising from the proposed additional plant do not present a material constraint to the development proposals. Although mitigation is not required to reduce a significant effect, good practice dust management measures have been recommended.

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