
From: Marlborough, Neil
Sent: 07 August 2020 10:16
To: Rob Smith; Mark Hill
Cc: David Mcluckie; Chris France
Subject: NYM/2019/0764/MEIA Further Environmental Information email 1 of 2

Rob, Mark

In response to the Savills review of the ES submitted with the Boulby Mine planning application, and the subsequent confirmation that this formed a request for further information under Regulation 25 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, please find attached the further information requested (3 documents on this email, 3 documents on a second email to follow).

There is a note included showing the various requests or queries raised by Savills, and how they have been answered in the submission.

Alongside the earlier submission made in May regarding the non-EIA queries, I believe this now provides all of the additional information requested on the planning application, outside of the discussion around Section 106 contributions. Work has commenced on the calculations for this following the receipt of the methodology from you recently, and I hope to have some preliminary information available for our meeting next week.

Please be aware that some of the pdf files open with an error message if you use Adobe Acrobat but if you ignore this they will open fully and with all content able to be read (the open without this message in other programs such as Nitro). Unfortunately most of the support staff at Wood are still off on furlough so we can't get to the bottom of why this message is coming up.

As ever if you have any queries please get in touch.

Regards

Neil

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wood.



NYMNP

07/08/2020

Contents

7. Technical Topic Chapter Air Quality and Dust 7-1

	Non-Technical Summary	7-1
7.1	Introduction and Overview	7-1
7.2	Policy Context, Legislative Requirements and Guidance	7-1
	Policy Context	7-1
	Legislative Requirements	7-3
	Guidance	7-4
7.3	Methodology and Approach	7-5
	Consultation	7-5
	Data Gathering Methodology	7-5
	Methodology for Identifying and Assessing Effects	7-5
7.4	Baseline	7-6
	Current Baseline	7-6
	Predicted Future Baseline	7-14
7.5	Assessment of Air Quality and Dust Effects	7-15
	Potential Receptors	7-15
7.6	Predicted Effects: Operational	7-18
7.7	Predicted Effects: Phased Deconstruction/Demolition	7-19
7.8	Predicted Effects: Cumulative	7-20
7.9	Mitigation and Enhancement Measures	7-20
7.10	Conclusions of Significance Evaluation	7-20
7.11	References	7-21

Table 7.1	Relevant Planning Policy	7-2
Table 7.2	Summary of Relevant Air Quality Standards and Objectives	7-4
Table 7.3	Consultation	7-5
Table 7.4	Sources of Desk Study Information	7-5
Table 7.5	RBC Continuous Monitor Site Information	7-6
Table 7.6	Redcar Dormanstown Monitor NO ₂ and PM ₁₀ Concentrations (µg m ⁻³)	7-6
Table 7.7	RBC Passive Monitoring Locations	7-8
Table 7.8	RBC Passive Monitor NO ₂ Concentrations (µg m ⁻³)	7-8
Table 7.9	Defra Mapped Predicted Background Concentrations of NO ₂ , PM ₁₀ and PM _{2.5} for 2019 (µg m ⁻³)	7-10
Table 7.10	Annual Average Dust Deposition at Boulby Mine for the period 2015 to 2019 (mg/m ² /day)	7-10
Table 7.12	Defra Mapped Predicted Background Concentrations of NO ₂ , PM ₁₀ and PM _{2.5} for 2030 (µg m ⁻³)	7-14
Table 7.13	Visual Dust Inspections - % of Ranking Per Year	7-18

Figure 7.1	Monitoring Locations in the Vicinity of Boulby Mine	7-9
Figure 7.2	Offsite dust monitoring locations	7-13
Figure 7.3	Wind Rose for Loftus Weather Station (2015)	7-19



7. Technical Topic Chapter Air Quality and Dust

Non-Technical Summary

This assessment considers the environmental effects of Air Quality and Dust associated with activities undertaken at Boulby Mine as described in Chapter 3.

A source-pathway-receptor semi-quantitative assessment was carried out to determine whether continuing operations at Boulby Mine would significantly affect sensitive residential receptors in the local area. Given that visual inspection on site at Boulby Mine suggests there is minimal wind-blown dust beyond the site boundary and air quality concentrations are well within recommended levels, as well as very few sensitive receptors in the area, it is concluded that there will be no significant effects.

7.1 Introduction and Overview

- 7.1.1 This chapter assesses whether significant environmental effects are likely as a result of air quality and dust. This chapter should be read in conjunction with the development description in Chapter 3 and Chapter 8 Transport.
- 7.1.2 Following a summary of relevant policy and legislation, this chapter describes the adopted assessment methodology and the overall derived baseline conditions. The scope of the assessment and a detailed assessment of the likely significant effects are presented, along with details of any environmental measures required to avoid, minimise, mitigate or compensate for any remaining adverse effects. The chapter provides a summary of residual effects and an evaluation of their significance. It concludes with the mechanisms for implementing the mitigation measures.
- 7.1.3 Operations at Boulby Mine have the potential to give rise to emissions to air, including:
- Emissions of combustion gases and particulate matter from product driers and boilers, which are vented through an 87.5 m stack;
 - Exhaust gases from extraction systems;
 - Vehicle emission from increased traffic movements;
 - Dust emissions from the phased demolition; and
 - Fugitive dust emissions from stockpiles.
- 7.1.4 The level of assessment required has been considered against relevant guidance. A qualitative assessment of dust has been undertaken considering meteorological conditions and the distance between Boulby Mine and potential sensitive receptors.

7.2 Policy Context, Legislative Requirements and Guidance

Policy Context

- 7.2.1 Table 7.1 lists relevant planning policies that have been considered in preparing this air quality and dust assessment.

Table 7.1 Relevant Planning Policy

Policy Reference	Policy Issue
National planning policies	
<p>National Planning Policy Framework (NPPF)</p>	<p>The National Planning Policy Framework (NPPF) sets out the Government’s reform of the planning system. The NPPF states:</p> <p><i>“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 or Clean Air Zones is consistent with the local air quality action plan.”</i></p> <p>In considering proposals for mineral extraction, minerals planning authorities should:</p> <ul style="list-style-type: none"> ● <i>“Ensure that there are no unacceptable adverse impacts on the natural and historic environment, human health or aviation safety, and take into account the cumulative effect of multiple impacts from individual sites and/or from a number of sites in a locality”; and</i> ● <i>“Ensure that any unavoidable noise, dust and particle emissions and any blasting vibrations are controlled, mitigated or removed at source”.</i> <p>This chapter assesses the risk and significance of dust disamenity effects to existing receptors. It takes into account the baseline air quality in the vicinity of Boulby Mine and discusses mitigation measures.</p>
<p>National Planning Practice Guidance (NPPG)</p>	<p>The Government’s online National Planning Practice Guidance (NPPG) states that air quality concerns are more likely to arise where development is proposed within an area of existing poor air quality, or where it would adversely impact upon the implementation of air quality strategies and / or action plans. It is stated in the NPPG that air quality is relevant to planning applications when the Development could:</p> <p><i>“Expose people to existing sources of air pollutants. This could be by building new homes, workplaces or other development in places with poor air quality.”</i></p> <p>The NPPF is supported by the NPPG which states that <i>“Where dust emissions are likely to arise, mineral operators are expected to prepare a dust assessment study, which should be undertaken by a competent person/organisation with acknowledged experience of undertaking this type of work.”</i></p> <p>The minerals section of the NPPG states that <i>“There are five key stages to a dust assessment study:</i></p> <ul style="list-style-type: none"> ● <i>Establish baseline conditions of the existing dust climate around the site of the proposed operations;</i> ● <i>Identify site activities that could lead to dust emission without mitigation;</i> ● <i>Identify site parameters which may increase potential impacts from dust;</i> ● <i>Recommend mitigation measures, including modification of site design; and</i> ● <i>Make proposals to monitor and report dust emissions to ensure compliance with appropriate environmental standards and to enable an effective response to complaints”.</i> <p>This chapter includes a dust assessment study which takes into account the recommended stages of assessment.</p>
Regional planning policies	
<p>Minerals and Waste Joint Plan for North Yorkshire</p>	<p>The Minerals and Waste Joint Plan was developed to provide guidance to developers, local communities and other interested parties on minerals and waste activities may be taking place over the next 15 years, and how these activities should be managed.</p> <p>Policy D03: Transport of minerals and waste and associated traffic impacts explains that <i>“where practicable minerals and waste movements should utilise alternatives to road transport including rail, water, pipeline or conveyor”</i> to reduce impact to air quality.</p>



Policy Reference	Policy Issue
Local planning policies	
Redcar and Cleveland Local Development Framework (LDF)	The LDF was developed in order to provide a spatial planning framework and aid decisions on planning applications. In relation to air quality, Policy DP6 – Pollution Control states that increased levels of air pollution will require mitigation measures to reduce pollution levels to meet acceptable limits.
Redcar and Cleveland Local Plan	A new draft Local Plan was adopted in May 2018. Policy SD 4 outlines the general development principals, one of which is to reduce pollution to meet acceptable limits.
North York Moors National Parks Authority Core Strategy and Development Policies	This document is part of the Local Development Framework for North York Moors and outlines development policies to ensure sustainable development in the area. Development Policy 1 – Environmental Protection states: <i>"To conserve and enhance the special qualities of the North York Moors National Park, development will only be permitted where:</i> 1. <i>It will not have an unacceptable adverse impact on surface and ground water, soil, air quality and agricultural land".</i>
North York Moors National Parks Authority Local Plan Preferred Options	A new Local Plan is currently being produced to guide development at North York Moors up to 2035. Policy ENV 7 – Environmental Protection states: <i>"In order to protect the natural environment, development will only be permitted where:</i> ... 5. <i>It does not have an adverse impact on air quality".</i>

Legislative Requirements

- 7.2.2 The legislative framework for air quality consists of legally enforceable EU Limit Values, transposed into UK legislation as Air Quality Standards (AQS), that must be at least as challenging as the EU Limit Values. Action in the UK is then driven by the UK's Air Quality Strategy (Defra, 2007) that sets the Air Quality Objectives (AQOs).
- 7.2.3 Relevant legislation concerning air quality which will need to be considered in this ES chapter includes:
- Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe;
 - The Air Quality Standards Regulations 2010;
 - The Air Quality Regulations 2000, as amended;
 - The Environment Act 1995; and
 - The Environmental Protection Act 1990.
- 7.2.4 The regulated pollutants of importance to this assessment due to the activities carried out on the site are particulate matter smaller than 10 µm in diameter (PM₁₀) and PM_{2.5}. In addition, pollutants associated with transport emissions, PM₁₀ and nitrogen dioxide (NO₂), will be discussed in relation to impact to air quality.
- 7.2.5 Table 7.2 sets out the AQOs that are relevant to this assessment, and the dates by which they are to be achieved.

Table 7.2 Summary of Relevant Air Quality Standards and Objectives

Pollutant	Objective (UK)	Averaging Period	Date to be Achieved by and Maintained thereafter (UK)
Nitrogen dioxide - NO₂	200 µgm ⁻³ not to be exceeded more than 18 times a year	1-hour mean	31 Dec 2005
	40 µgm ⁻³	Annual mean	31 Dec 2005
Particles - PM₁₀	50 µgm ⁻³ not to be exceeded more than 35 times a year	24-hour mean	31 Dec 2004
	40 µgm ⁻³	Annual mean	31 Dec 2004
Particles - PM_{2.5}	25 µgm ⁻³	Annual mean	2020
	Target of 15% reduction in concentration at urban background locations	3 year mean	Between 2010 and 2020

7.2.6 The amount of dust that may cause annoyance is difficult to determine. Dust can be a statutory nuisance under Section 79 (1)(d) of the Environmental Protection Act (EPA) 1990 Part III Statutory Nuisances and Clean Air. However, there are no UK dust deposition standards which can be used to assess whether a nuisance has occurred due to the normal variability of atmospheric dust and the variability of dust monitoring equipment.

7.2.7 In the UK, a criterion of 200 mg m⁻² day⁻¹, based on monthly averages, has been used as a threshold for nuisance in the past. This is comparable with the "complaints likely" guidance reported by Vallack and Shillito (1998). Comparison to this threshold is considered to be indicative in the absence of an accepted UK standard.

Guidance

Environmental Protection UK and Institute of Air Quality Management

7.2.8 Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) has produced guidance regarding the assessment of air quality issues within planning applications, which includes a summary of relevant legislation and the assessment of significance. Using this guidance, the magnitude of change due to an increase/decrease in the annual mean concentration of NO₂ and PM₁₀ and other pollutants due to the development is described using specified criteria. The overall significance of the development is then determined using professional judgement.

Institute of Air Quality Management

7.2.9 IAQM has produced specific guidance for assessing the impact of mineral dust for planning, including good practice approaches for operational assessment for use in the planning process. The criteria for undertaking a detailed assessment is provided and a source – pathway – receptor approach for assessing dust at mineral sites is suggested.

7.2.10 IAQM have produced guidance on the assessment of dust from demolition and construction, including thresholds for determining dust emission magnitude from specific activities and identification of sensitive receptors, both human and ecological. Mitigation measures are identified to reduce dust emission.

7.3 Methodology and Approach

Consultation

- 7.3.1 A range of organisations were consulted as part of the EIA scoping process.
- 7.3.2 Table 7.3 below summarises the key air quality and dust issues that were raised and how they have been addressed within the ES.

Table 7.3 Consultation

Consultee	Summary of Response	Addressed in the ES
North York Moors National Park Authority	Agreed that the proposed methodology for the air quality and dust assessment was appropriate	ES follows methodology proposed in the Scoping Request

- 7.3.3 In addition, the Environmental Protection team at Redcar and Cleveland Borough Council responded to the original AQ and Dust chapter submitted, confirming they had no objections.

Data Gathering Methodology

- 7.3.4 Sources of information used for the air quality and dust assessment are listed in Table 7.4.

Table 7.4 Sources of Desk Study Information

Source	Data
Defra	Predicted background NO ₂ , PM ₁₀ and PM _{2.5} concentrations based on 2015 base maps
Ordnance survey maps	Sensitive receptor locations
Boulby Mine	Daily inspection data and annual monitoring data

- 7.3.5 No survey work has been undertaken by Wood in completion of this assessment.

Methodology for Identifying and Assessing Effects

Air Quality

- 7.3.6 The potential impact on air quality from emissions due to operations at Boulby Mine will be considered with regard to EPUK & IAQM guidance, detailed in paragraph 7.5.4, including sensitivity of receptors.

Dust

- 7.3.7 The potential for impact of dust emissions to human health and disamenity will be assessed with regard to IAQM guidance on assessment of mineral dust impacts for planning using the source – pathway – receptor approach.

7.3.8 A conservative assumption that operations will remain constant in the coming years has been used, whereas in reality it is likely that emissions will decrease with improvements in best available techniques and practices in the future.

7.4 Baseline

Current Baseline

Continuous monitoring

7.4.1 Redcar and Cleveland Borough Council (RBC) operates one continuous monitor in Dormanstown, which records concentrations of both NO₂, PM₁₀ and PM_{2.5}. Table 7.5 and Figure 7.1 shows the location of the continuous monitor, and Table 7.6 shows monitored concentrations the most recent years monitored concentrations of NO₂ and PM₁₀.

Table 7.5 RBC Continuous Monitor Site Information

Site ID	Type	X	Y	Distance to relevant exposure (m)	Distance to kerb of nearest road (m)	Height (m)
Redcar Dormanstown	Suburban	458379	523486	1	150	2.5

Table 7.6 Redcar Dormanstown Monitor NO₂ and PM₁₀ Concentrations (µg m⁻³)

Pollutant	Data capture	2019	2015	2016	2017	2018	2019
NO ₂	94		12.7	-	12.0	10.0	9.0
PM ₁₀	97		15.7	12.7	12.0	12.0	14.0
PM _{2.5}	97		11	8.9	8.4	8.4	9.8

7.4.2 Annual mean concentrations of both NO₂ and PM₁₀ have been well below their respective 40µg m⁻³ AQOs for the past five years. Annual mean concentrations of PM_{2.5} were below the 25µg m⁻³ target in all years. It should be noted, however, that the automatic monitor is located approximately 18 km from Boulby Mine in a more urban area than that of the site, where concentrations may be expected to be more heavily influenced by traffic emissions. Therefore, it is reasonable to assume that concentrations will be lower in the vicinity of Boulby Mine.

Passive Monitoring

7.4.3 RBC also undertakes passive monitoring of NO₂ at a number of locations across the Borough using diffusion tubes. The diffusion tubes closest to Boulby Mine are included in Table 7.7 and shown on Figure 7.1; Table 7.8 shows the latest years of available monitoring data. It should be noted that RO31 and RO32 have only been installed since 2016. Monitoring was not undertaken in 2018 at monitoring points RO30 to RO32. This could be due to the annual review of the monitoring network undertaken by RBC resulting in the exclusion of these points from the monitoring campaign in 2018. Removal of these monitoring locations would suggest that RBC do not expect exceedance of the AQO at these locations.





Table 7.7 RBC Passive Monitoring Locations

Site ID	Type	X	Y	Distance to site (km)	Distance to relevant exposure (m)	Distance to kerb of nearest road (m)	Height (m)
RO30	Urban background	465523	518376	10	0	6	2
RO31	Roadside	471967	518208	4	0	5	2
RO32	Roadside	463609	522253	13	0	13	2

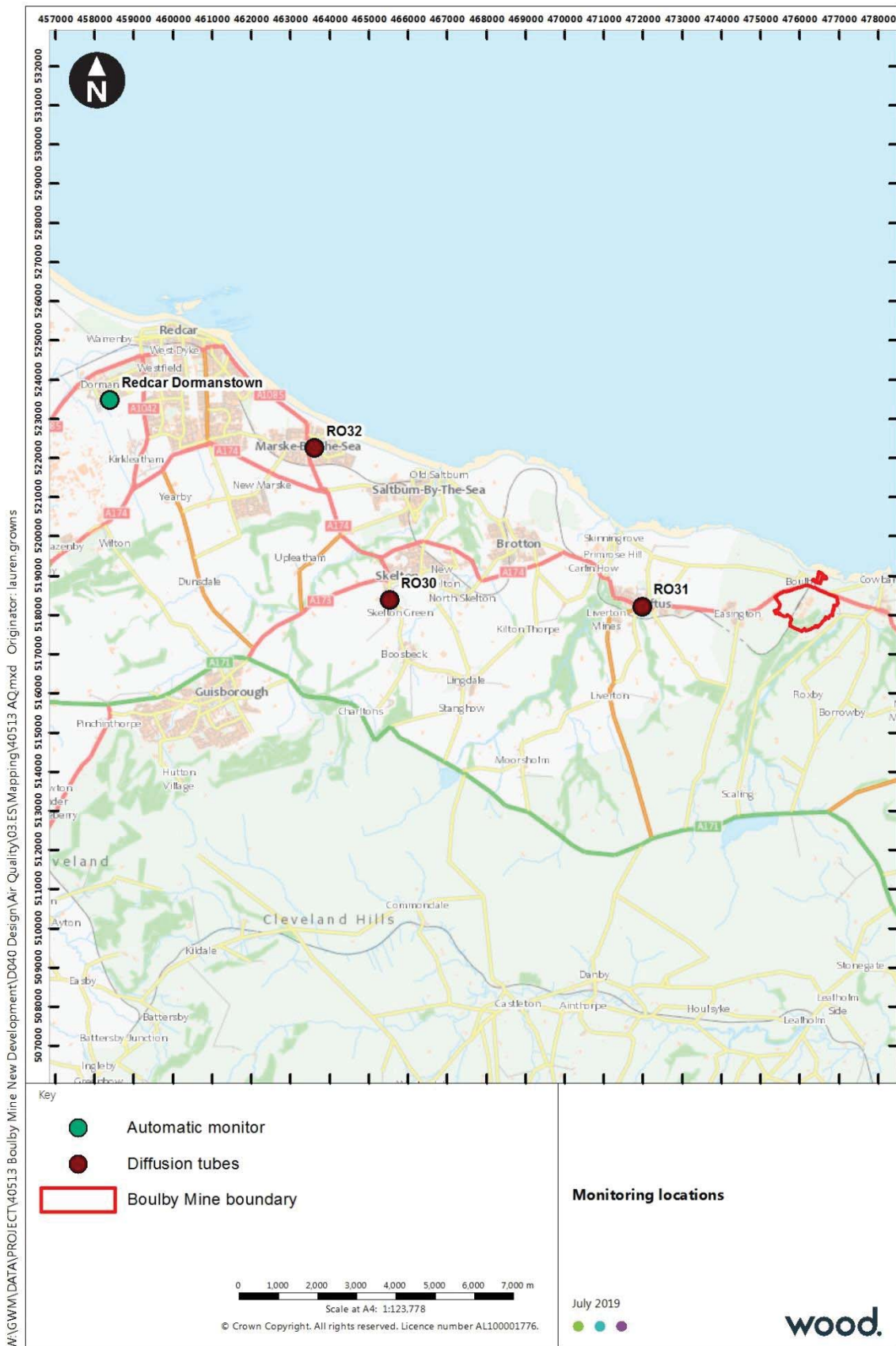
Table 7.8 RBC Passive Monitor NO₂ Concentrations (µg m⁻³)

Site ID	Data capture 2017	2016	2017	2018
RO30	100	6.3	6.2	-
RO31	100	-	12.9	-
RO32	100	-	10.2	-

7.4.4 Annual mean concentrations of NO₂ were well below the 40 µg m⁻³ AQO in 2017. Even though none of the above tubes are in close proximity to Boulby Mine, they are located in more urban areas likely to have a higher volume of traffic than at the site. Therefore, it is reasonable to assume that annual mean concentrations of NO₂ close to Boulby Mine will not be significantly higher than those shown above.



Figure 7.1 Monitoring Locations in the Vicinity of Boulby Mine



Estimated Ambient Background Concentrations

7.4.5 Defra has made estimates of background pollutant concentrations on a 1km² grid for the UK for seven of the main pollutants using a base year of 2017, including NO₂, PM₁₀ and PM_{2.5}. Table 7.9 shows the Defra mapped concentrations for grid square 476500, 518500 in which Boulby Mine is located.

Table 7.9 Defra Mapped Predicted Background Concentrations of NO₂, PM₁₀ and PM_{2.5} for 2019 (µg m⁻³)

Pollutant	2019
NO ₂	8.5
PM ₁₀	12.9
PM _{2.5}	6.9

Dust

7.4.6 Dust deposition rates are not monitored extensively in the UK. Monitoring that is undertaken, is usually connected with specific activities such as mining and mineral extraction operations and major infrastructure projects. Dust monitoring may also be undertaken to investigate specific complaints received by local authorities, who are then empowered to investigate dust nuisance under the Environmental Protection Act (1990). Monitoring currently undertaken by Boulby Mine is presented in Table 7.10, with offsite monitoring locations provided in Figure 7.2.

7.4.7 The dust deposition results presented in Table 7.10 show that monitoring points downwind of the site (east) at the boundary measure higher dust deposition in comparison to monitoring points upwind (west). Hence, the prevailing wind directions from the west, south-west and west-southwest influence dust dispersion at the site.

7.4.8 Generally, dust deposition decreases with distance from the site, however it should also be noted that monitoring points located beyond the boundary of the mine may be influenced by dust generating activities or natural sources (i.e. agricultural or track out) not controlled by the mine. This could account for the high dust deposition at monitoring location 16 when locations located between gauge 16 and the potentially dust activities onsite record a lower dust deposition, for example gauge 265.

Table 7.10 Average Dust Deposition at Boulby Mine for the period 2015 to 2019 (mg/m²/day)

Location	NaCl	KCl	Insoluble
265-1	113.2	81.0	0.01
265-2	206.6	201.3	0.01
265-3	432.9	393.6	0.06
265-4	355.3	299.9	0.08
266-1	84.3	92.4	0.01
266-2	72.6	65.5	0.04



Location	NaCl	KCl	Insoluble
266-3	260.9	276.0	0.05
266-4	242.5	207.3	0.05
267-1	191.7	121.7	0.02
267-2	134.6	86.0	0.01
267-3	89.0	45.0	0.01
267-4	253.1	126.9	0.06
268-1	383.9	202.2	0.03
268-2	359.4	254.7	0.05
268-3	587.8	347.8	0.04
268-4	755.2	516.9	0.08
269-1	225.9	303.8	0.04
269-2	65.1	49.0	0.02
269-3	189.5	252.5	0.06
269-4	238.9	242.9	0.06
270-1	105.6	100.0	0.02
270-2	87.5	56.5	0.01
270-3	47.5	45.2	0.02
270-4	67.5	70.5	0.03
336-1	525.4	311.7	0.17
336-2	115.3	59.6	0.03
336-3	332.4	197.3	0.04
336-4	620.5	394.6	0.12
337-1	303.8	203.0	0.02
337-2	53.5	37.0	0.01
337-3	227.5	190.3	0.02



Location	NaCl	KCl	Insoluble
337-4	328.9	231.3	0.04
638-1	37.0	14.1	0.01
638-2	31.7	12.0	0.01
638-3	21.6	9.5	0.02
638-4	16.9	6.0	0.01
639-1	31.3	10.1	0.01
639-2	20.5	8.6	0.01
639-3	25.0	9.6	0.01
639-4	21.0	8.4	0.03
DG14-1	52.2	15.0	0.01
DG14-2	51.9	11.8	0.01
DG14-3	47.5	11.1	0.01
DG14-4	39.3	8.3	0.01
DG15-1	110.4	47.9	0.03
DG15-2	68.7	23.8	0.01
DG15-3	86.9	43.3	0.03
DG15-4	60.7	22.2	0.02
DG16-1	1117.9	859.2	0.21
DG16-2	1529.2	867.5	0.30
DG16-3	349.7	225.4	0.06
DG16-4	497.7	354.2	0.08

Figure 7.2 Offsite dust monitoring locations

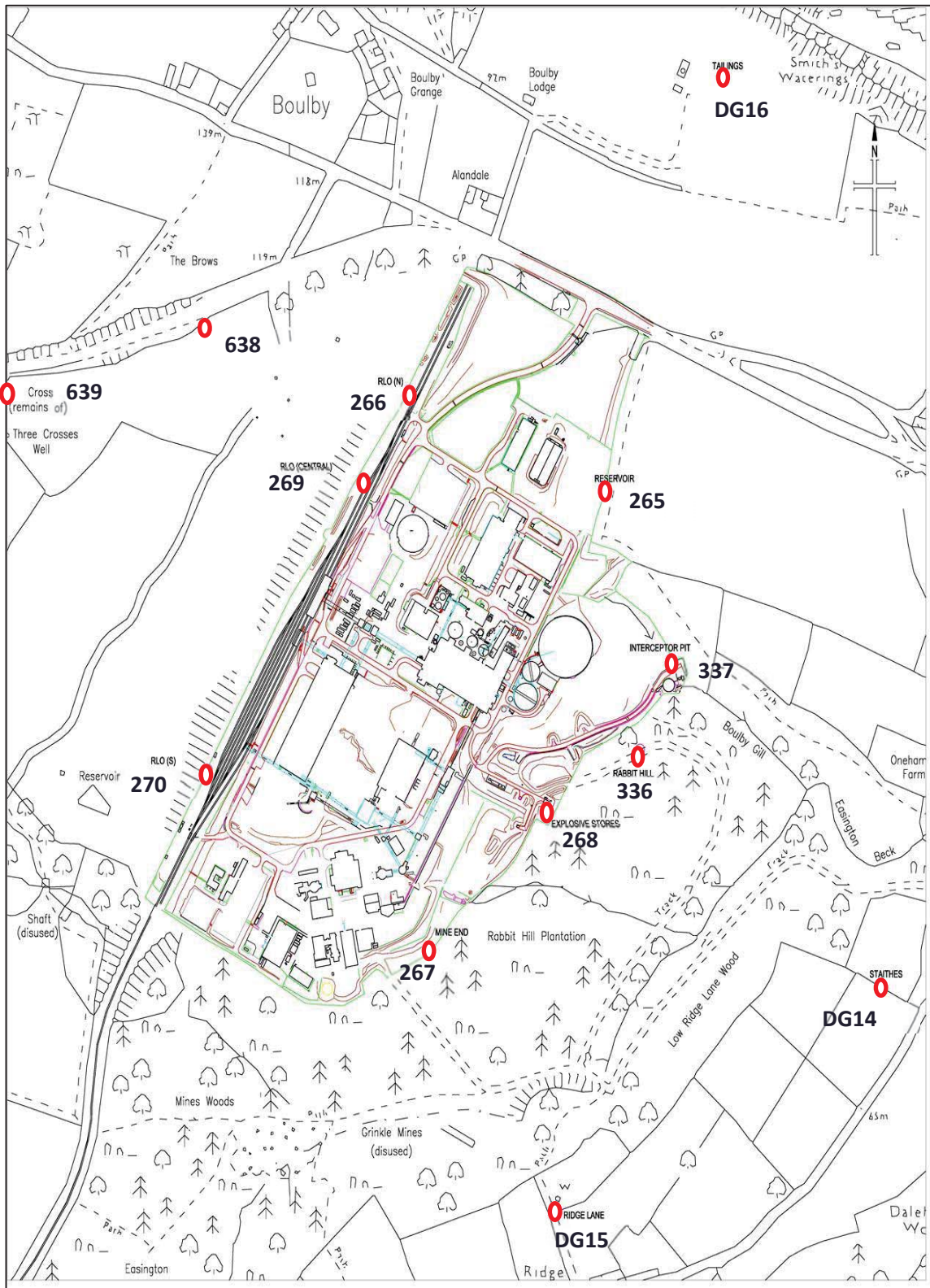


Figure provided by ICL Boulby

7.4.9 In addition to dust deposition monitoring, daily inspections are carried out by operators as per the current permit (CPL-209A) to ensure no visible dust is present beyond the site boundary. Specific areas around the site are also visually inspected for dust, such as close to stockpiles. A daily record



of inspections shows that generally low levels of dust are recorded. Where a moderate to high level of dust is identified, the likely cause of the dust is also recorded.

7.4.10

Annual stack monitoring is required for compliance with the current permit, which states that concentrations of PM must be below 100mg m^{-3} with efforts made to reduce the emissions to 50mg m^{-3} by 2017. The stack test results for 2019 are presented in Table 7.11. All of the stack emissions are compliant with the permit, although it is noted that the emissions from Dryer Stack B are above the advisory limits for 2017 onwards, with measured concentrations at 62.4mg/m^3 . It should be noted however that emissions from Dryer B in 2019 were affected by the processing issues described in Section 2.5 and which have been subject to remediation measures since the 2019 reporting.

Table 7.11: 2019 Stack Test Results for Boulby Mine (mg m^{-3})

Stack	Pollutant	Limit	2019 Concentration
Dryer B	PM	50	62.4
Dryer C	PM	50	29.8
A4 – Engine 4	NO ₂	250	103.5
	CO	NS	104.0
Boiler	NO ₂	250	105.9
	CO	NS	19.2

Predicted Future Baseline

7.4.11

If the Proposed Development is refused, operations at Boulby Mine will cease in 2023 and the site will be decommissioned and restored to agricultural and nature conservation uses. This would see all of the air pollutant emissions and dust arisings from Boulby Mine cease. It is not possible to predict future baseline without Boulby Mine as the mine predates monitoring data, so it is not possible to isolate its potential contribution to pollutant concentrations or dust levels in the area.

7.4.12

In practical terms, the approval of the Proposed Development would see operations at Boulby Mine continue. In this scenario, current background air pollutant concentrations are expected to be well below their respective AQOs, so with expected improvements to the UK vehicle fleet in general and continued application of best available techniques for industrial activities, it is likely that background concentrations will continue to improve. Defra mapped predicted background concentrations at the site (for grid square 476500, 518500) in 2030 (most distant predicted background concentrations available) are included in Table 7.12 and show the predicted downward trend in background concentrations into the future.

7.4.13

In addition, the conversion to mining polyhalite, which is a purer mineral at the site, will require less processing on site and therefore lead to fewer emissions.

Table 7.12 Defra Mapped Predicted Background Concentrations of NO₂, PM₁₀ and PM_{2.5} for 2030 ($\mu\text{g m}^{-3}$)

Pollutant	2030
NO ₂	7.0

PM₁₀	12.1
PM_{2.5}	6.3

7.4.14 With respect to dust, a future baseline scenario without the Mine would see the cessation of windblown dust arising from the Site. Due to good practice in managing stockpiles and the prevailing wind direction (blowing from the south west), whilst windblown dust is visually noticeable, this activity has only led to a small number of complaints from the nearest residential properties (along Roxby Lane) during the operational years of the existing Mine. As such the future baseline is not expected to be drastically different in terms of dust.

7.5 Assessment of Air Quality and Dust Effects

Potential Receptors

Air Quality

- 7.5.1 With regard to impacts to air quality from transport emissions associated with operations at Boulby Mine, EPUK & IAQM guidance states that potential impacts to sensitive receptors may be experienced where an increase in light duty vehicles (LDV) of 500 annual average daily traffic (AADT) flows or 100 AADT change in heavy duty vehicles (HDV). Vehicle movements are expected to stay at the current level into the future, therefore there are no sensitive human or ecological receptors identified.
- 7.5.2 With regard to pollutant emissions from the site, as previously stated annual stack monitoring is carried out to ensure that Boulby Mine is operating within permitted limits. This data has not been made available, however as this is regulated by the Environment Agency it is assumed that stack emissions are within legal limits. In addition, the release height of the emissions is 87.5 m above surrounding ground level, therefore it is likely that any pollutants released will have dispersed by the time they reach ground level. As such, there are no human receptors identified that could be significantly affected.
- 7.5.3 Industrial processes have the potential to impact air quality at sensitive ecological receptors within 10 km of the site. North York Moors Special Area of Conservation (SAC) and Special Area of Conservation (SPA) is located approximately 2.5km south of Boulby Mine. This is considered in more detail in Chapter 9 on Biodiversity.

Dust

- 7.5.4 The IAQM Guidance on the Assessment of Mineral Dust Impacts for Planning states receptors up to 1000 m of dust generating activities may experience dust impacts.
- 7.5.5 The IAQM Guidance on the Assessment of Mineral Dust Impacts for Planning (IAQM, 2016) defines receptor sensitivity:
 - High sensitivity receptors:
 - ▶ Users can reasonably expect enjoyment of a high level of amenity; or
 - ▶ The appearance, aesthetics or value of their property would be diminished by soiling; and the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land.

- Medium sensitivity receptors:
 - ▶ Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or
 - ▶ The appearance, aesthetics or value of their property could be diminished by soiling; or
 - ▶ The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land.
- Low sensitivity receptors:
 - ▶ The enjoyment of amenity would not reasonably be expected; or
 - ▶ The property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or
 - ▶ There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land.

7.5.6 As recommended by the IAQM Guidance, the judgement on significance relates to the consequences of the impacts and whether they are expected to have an effect on human health that could be considered significant.

7.5.7 Any judgement on the overall significance of effect of a development will need to take into account such factors as:

- The existing and future air quality in the absence of the development;
- The extent of current and future population exposure to the impacts; and
- The influence and validity of any assumptions adopted when undertaking the prediction of impacts.

7.5.8 If the magnitude of change is deemed to have a moderate adverse or substantial adverse effect, this is considered significant. Slight adverse or negligible are insignificant.

7.5.9 Screening criteria in IAQM guidance (IAQM, 2016) state that a detailed assessment may be screened out if sensitive receptors are greater specified distances from dust generating activities at the site, where it is unlikely that the AQO for PM₁₀ will be breached. These distances are 250m for soft rock, such as potash, or 400m for hard rock, such as polyhalite. The closest highly sensitive residential receptor is located to the north-west of Boulby Mine at a distance of approximately 415 m from the site boundary. The closest receptor downwind of the potentially dusty activities is Red House Farm holiday rental cottages which are approximately 480 m north-east of the site boundary. It should be noted that there are no other potential receptors within 1 km to the north-east of Boulby Mine.

7.5.10 In addition, as shown Section 7.4 concentrations of PM₁₀ in this area are well below the AQO and not likely to be breached.

- There will be changes to surface activities from the proposed phased deconstruction of various buildings and structures, and these will lead to a consolidation of activities on site. The screening criteria for the phased deconstruction/demolition of various building is based on the IAQM guidance for Construction Dust (IAQM, 2014): The magnitude of deconstruction/demolition activities will be considered. The magnitude is based on the scale of the proposed deconstruction/demolition activities and will be categorised according to the small, medium or large categorisation.

- The magnitude of the dust emitting activities and the overall sensitivity of the area surrounding the deconstruction/demolition activities, will be used as part of a matrix to determine the risk of dust impacts for the activity. The risk of impacts will be defined as either high, medium, low or negligible risk and based professional judgment.
- Based on the overall risk assessment for the activity, site specific mitigation measures may need to be adopted depending on the risk of the impact identified. Should the levels be rated as high, medium or low risk, mitigation measures will need to be developed as part of a dust management plan and implemented. The approach to determine the most applicable or effective mitigation measures, for the risk level determined, will done so through professional judgement. However, should the risk level be negligible, no additional mitigation measures may be required other than those required by legislation or the site permit.
- The assessment of the significance of dust effects will be undertaken after applying the site-specific mitigation. This would take account of the risk of dust impacts, and other factors that might affect the risk of dust effects arising, even after any site-specific mitigation has been implemented. The overall significance of the effects arising from the entire construction phase of the development is based on professional judgement.

Effects Scoped out of the Assessment

- Effect of traffic emissions on air quality at sensitive human receptors as a result of continued operations at Boulby Mine. Currently, potash is transported via rail directly from the site and in the future it is expected that volume of material transported by rail will remain constant. In addition, as operations are not expected to significantly increase in the future, there are not expected to be any additional vehicle movements from the site, as the operator intends to maintain the current 66 Heavy Goods Vehicles (HGV) per day threshold (see Chapter 8: Transport). Therefore, with the gradual improvement in vehicle fleet emissions over time, it is likely that the impact on air quality from traffic emissions will decrease over time. In addition, it is acknowledged that when compared to current levels traffic flows to the site may increase, however in recent years operation at the site has been reduced when compared to previous years. Therefore, future traffic flows are likely to be below historical levels;
- The impact to human receptors from the release of dust from activities undertaken at Boulby Mine. As previously discussed, background concentrations of PM₁₀ are below 17 µg m⁻³; therefore, any process contribution from Boulby Mine is unlikely to breach AQOs according to IAQM guidance and, therefore, does not require further assessment of potential impact to human health. In addition, complaints relating to air quality have been noted, however due to the frequency of the complaints and the background PM₁₀ concentrations, the air quality impacts may be regarded as anomalous as the release of dust from the site is mitigated on a continuous basis;
- The impact of emissions to air from activities at the site are not currently exceeding legal limits as demonstrated by concentrations monitored annually by external consultants as part of the existing permit. Additionally, with the release height of any pollutants at 87.5 m it is likely that pollutants will have effectively dispersed by ground level;
- Effect of impacts to air quality from Boulby Mine on nearby ecological receptors is discussed in the screening report for a Habitats Regulations Assessment (HRA), which concluded that there are no likely significant effects as a result of continued operation at Boulby Mine at the North York Moors SAC/ SPA, therefore an HRA is not required.

7.6 Predicted Effects: Operational

Dust

7.6.1 IAQM guidance suggests a source-pathway-receptor approach should be adopted when considering impact of dust from operational mineral sites.

Source

7.6.2 The storage and processing of the mineral above ground has the potential to give rise to effects from fugitive dust, which is effectively a source of emissions.

7.6.3 In line with the Environmental Permit, site operatives carry out visual inspection of dust at 7 locations around the site daily. Table 7.13 shows that on-site visible dust (likely to cause nuisance) has been predominantly ranked as 'Minimal', therefore it is reasonable to assume that off-site visible dust is minimal. If 'Severe' or 'Major' dust is observed, appropriate action is taken by operatives to resolve the issue.

Table 7.13 Visual Dust Inspections - % of Ranking Per Year

Rating	2012	2013	2014	2015	2016	2017	2018
1 - 2 – Minimal Dust	100.0	100.0	97.3	97.3	99.0	99.1	100.0
3 – Severe Dust	0.0	0.0	2.6	2.6	1.0	0.9	0.0
4 – Major Dust	0.0	0.0	0.1	0.1	0.0	0.0	0.0

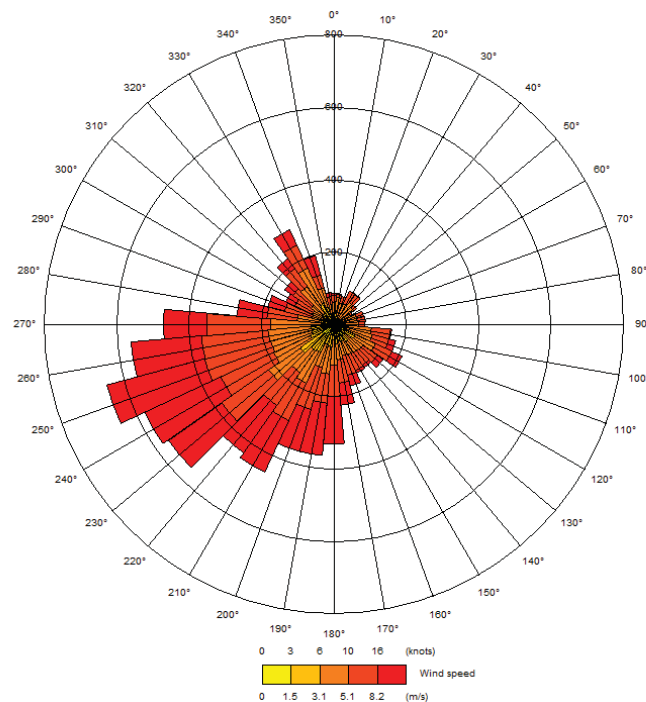
7.6.4 In addition, dust deposition around the site is presented in Table 7.10 and shows that generally dust deposition decreases with distance from the potentially dusty activities on site.

Pathway

7.6.5 Uncovered stockpiles are often subject to windblow, which allows dust particles to be carried from the source to the receptor, acting as a pathway.

7.6.6 Loftus Weather Station is located approximately 2.5 km to the north-west of Boulby Mine. Figure 7.3 shows a wind rose for Loftus meteorological data; the predominant wind direction is south-westerly.

Figure 7.3 Wind Rose for Loftus Weather Station (2015)



Receptor

- 7.6.7 Given that daily site observations show very few instances of ‘Severe’ or ‘Major’ dust and there are no receptors downwind of the facility within 250 m of process units, it is not considered necessary to progress to a detailed assessment as dust impacts, both health impacts and disamenity, as a result of operations at Boulby Mine are not considered to be significant.
- 7.6.8 There are expected to be no likely significant effects to air quality or dust as a result of continued operation at Boulby Mine.

7.7 Predicted Effects: Phased Deconstruction/Demolition

- 7.7.1 The phased deconstruction/demolition activities will be undertaken on-site and due to the small scale of the activity is not expected to have an adverse impact on air quality. With reference to the IAQM’s guidance on the impact of dust from demolition and construction, the potential dust emission magnitude from demolition is small. In addition, the closest sensitive receptor is greater than 350 m from the site boundary, therefore risk of dust annoyance from demolition is considered to be negligible. It should be noted that any short-term changes to dust emission from the site would be recorded on the existing dust gauges and in the event of elevated dust emissions, mitigation could be increased.
- 7.7.2 There may be increased vehicle movements to transport debris off-site, however due to the phased approach of the deconstruction/demolition activity it is anticipated that these movements will be as and when required. Hence, vehicle emissions will not be continuous and are not likely to exceed the IAQM threshold of an additional 100 HDVs per day, and emissions are likely to disperse prior to the next phase of deconstruction/demolition. Therefore, vehicle emissions are not expected to be significant during this phase.
- 7.7.3 The overall phased deconstruction/demolition will lead to a consolidation of activities on site which is likely to reduce the emission of air pollutants and raising of dust. The eventual cessation of

processing to create compound fertilisers will also see a substantial reduction in air pollutant emissions. Hence, this will result in a positive impact.

7.8 Predicted Effects: Cumulative

- 7.8.1 A review of the area surrounding Boulby Mine indicates that it is unlikely there will be cumulative impact to dust or air quality as there have been no similar industries identified in the vicinity.
- 7.8.2 With regard to cumulative impact to air quality from transport emissions, Chapter 8 Transport states that it is likely vehicles from the site will have dispersed into the wider network past the junctions with the A173 and A171, therefore cumulative impacts would be most likely on the A174. However, there are no committed proposed developments within the primary A174 route that would need to be considered.

7.9 Mitigation and Enhancement Measures

- 7.9.1 Opportunities to mitigate potential adverse effects have already been incorporated within the development or are imposed through a number of existing regulatory controls. It is the development that exists with these measures and controls in place that has been subject to assessment. No assessment has been undertaken of the Proposed Development excluding these measures and regulatory controls as a scheme is not being proposed without them. No other measures are proposed as mitigation in relation to the effects that are identified in this ES. However, these measures should be reviewed and updated should there be any air quality related complaints or permitted pollutant concentration exceedances that the existing mitigation measures may not be able to control.

7.10 Conclusions of Significance Evaluation

- 7.10.1 As described in the preceding section, the proposed development would have no significant air quality or dust effects.

7.11 References

- Department for Communities and local Government (DCLG) (2019) National Planning Policy Framework;
- Department for Communities and Local Government (DCLG) (2014) National Planning Practice guidance – Air Quality;
- North Yorkshire County Council (2016) Minerals and Waste Joint Plan: Publication Draft;
- Redcar and Cleveland Borough Council (2007) Local Development Framework;
- Redcar and Cleveland Borough Council (2016) Publication Local Plan (November 2016);
- Redcar and Cleveland Borough Council (2019) Annual Status Report;
- North York Moors National Park Authority (2008) Core Strategy and Development Policies;
- North York Moors National Parks Authority (2018) Local Plan: Preferred Options;
- IAQM and EPUK (2017) Land-Use Planning & Development Control: Planning for Air Quality;
- Institute of Air Quality Management (2016) Guidance on the Assessment of Mineral Dust Impacts for Planning;
- Institute of Air Quality Management (2014) Guidance on the assessment of dust from demolition and construction;
- Defra (2019) Background mapping data for Local Authorities – 2017;
- European Commission (2007) Methodical Guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC;
- Amec Foster Wheeler (2017) Boulby Mine: Habitats Regulations Assessment Screening.

A number of Savills comments are repeated throughout the review report. The references provided are to the first reference made.

Savills review reference	Comment	Response
COM3(A)	No description of the phased deconstruction provided	A description of the deconstruction proposals and an assessment against the relevant subjects is provided in the Environmental Statement: Further Information, Chapter 4
COM3(A)	Estimates of waste/residues are not provided (waste materials, emissions to air, transport related emissions)	<p>Waste</p> <p>Waste arisings from the deconstruction works are covered within the Environmental Statement: Further Information, Chapter 4. There are no waste arisings proposed from the minerals workings (the previous tailings that were discharged to sea were from the sylvinate processing, polyhalite does not produce tailings material). day to day waste from the site operations is covered by the existing site waste management plan (which will be continued) and subject to relevant legislation on waste disposal and therefore it is not considered relevant to repeat information on this in the ES.</p> <p>Emissions to air</p> <p>A revised Air Quality chapter has been provided which provides more detail on emissions to air as well as an updated consideration of the performance against the environmental permits.</p> <p>Transport emissions</p> <p>Appendix A to the Environmental Statement: Further Information contains details of discussions with Natural England regarding emissions from transport and how these could have effected the North York Moors SAC and SSSI. These details conform NE have no objections to the emissions arising, and no Habitats Regulations Assessment is needed.</p>
COM3(B)	More detail required regarding alternatives	A summary of the alternatives (which are currently provided in the Planning Statement) are included with in the Environmental Statement: Further Information, Chapter 2.
COM3(E)	No assessment of the interaction between effects within the development	An assessment of the interaction between effects is included in the Environmental Statement: Further Information, Chapter 10.
COM3(E)	Query around how climate change has been considered?	A clarification on how climate change has been considered is included in the Environmental Statement: Further Information, Chapter 8.
COM3(F)	No light assessment provided	A Night-time landscape and visual impact assessment to consider the impact of lighting has been provided.
COM3(F)	Cumulative effects are not comprehensively addressed	The Environmental Statement: Further Information, Chapter 9 confirms that no change to the cumulative effects assessment is required. Planning applications in the surrounding area have been reviewed again and no further proposals have been identified which could lead to a significant cumulative effects.
COM3(F)	Vulnerability to climate change is not addressed	A clarification on how climate change has been considered is included in the Environmental Statement: Further Information, Chapter 8.

NYMNP A

07/08/2020

COM3(G)	Residual significant effects are not consistently set out.	A clarification on the residual significant effects is provided in the Environmental Statement: Further Information, Chapter 12.
COM4(A)i	Hydrology is not included in the ES and was not specifically scoped out	Justification for why hydrology has been scoped out is clarified in the Environmental Statement: Further Information, Chapter 6.
COM4(A)i	Have mitigation proposals addressed advise in Scoping Opinion (traffic reductions, ecological enhancements, tree planting, enhancement of existing buildings)	Ecological enhancements, tree planting and the enhancement of existing buildings are included in the Proposed Development. Traffic reductions have not been possible to accommodate, but no traffic increases are proposed from the current permitted numbers.
COM4(A)ii	Ecological receptors are not considered against noise emissions	Noise is considered on ecological receptors within Chapter 9 of the ES, Ecology and Ornithology.
COM4(A)ii	Tranquillity should be addressed within the assessment	Tranquillity is assessed within the Landscape and Visual chapter, and also within the separate Planning Statement.
COM4(A)iii	Further justification of why some subjects have been scoped out	Savills raise the point that paragraph 2.3.11 and Table 2.4 in the ES identify what subjects have been scoped out and asks for further justification to be provided. However all of the subjects in these sections are justified in the Scoping Reports, Scoping Opinion or Scoping Opinion Addendum. These documents are all appended to the original ES (Appendix 1A). No further justification is considered necessary.
COM4(A)iii	Reasoning on why noise and vibration not being considered in demolition section	Noise from demolition activities is considered within the Further Environmental Information document, Chapter 4.
COM4(B)iii	Further detail of the consultation should be provided within the ES.	Consultation is considered within the Further Environmental Information document, Chapter 4.
COM4(C)i	Clarification on whether the Environmental Health Officer was included in the consultations	The EHO was included in the Scoping consultations and the original consultations by the NPA on the planning application submission. Responses confirm they raise no objections to the proposals.
COM5(A)i	Noise Incorrect version of the Noise PPG is referenced Noise survey dates from 2017 and it is queried whether the survey results are still appropriate Complaints made by nearby residents regarding noise are not referred to in the assessment Queries are made regarding the future baseline assumptions	Considered within the Further Environmental Information document, Chapter 7
COM5(A)i	Air Quality Query regarding age and suitability of some of the baseline data Concern over compliance with the permit Additional detail needed on dust	A revised Air Quality assessment is provided alongside the Further Environmental Information document.

COM5(A)i	Traffic The ES implies that the traffic numbers will increase at the Mine and this has not been assessed Increase in rail movements to be assessed Query regarding age and suitability of survey data	Clarification on the issue of traffic numbers and date of survey information has been supplied to the NPA (Response to NYMNPA queries, May 2020) and are also included in Appendix A of the Environmental Statement: Further Information Report. All rail movements would occur within the existing permitted numbers and no changes to rail transport will therefore occur.
COM5(A)i	Query regarding age of ecology surveys	The original ecology surveys were supplemented by a further walkover survey in 2019 and no objections have been made to this information from any of the ecology consultees. The information is therefore considered to be valid.
COM5(A)i	Query regarding age of geological baseline data	No changes to the geological baseline can be reasonably expected to have occurred. The information is therefore considered to be valid.
COM5(A)i	No baseline set regarding vulnerability to climate change	The matter of climate change is considered within the Further Environmental Information document, chapter 8.
COM5(A)ii	Clarity of air quality methodology is requested	A revised Air Quality assessment is provided alongside the Further Environmental Information document.
COM5(B)i	Ecology and ornithology chapter refers to the 2nd edition EclA guidelines, not the 3rd edition published in 2018.	The ecology and ornithology chapter explains that the assessment was undertaken using the 2nd edition guidance (which was relevant when the assessment work commenced) and after the release of the 3rd edition in 2018 " <i>any changes/additional information provided in the 2018 guidance have been used within this assessment</i> " (paragraph 9.2.3 of the ES). The assessment has therefore been produced in compliance with the appropriate guidance.
COM5(B)i	Clarity needed on how levels of sensitivity and magnitude relate to this topic	Considered within the Further Environmental Information document, Chapter 11
COM5(B)ii	Clarity needed on how 'moderate' has been judged as either Significant or Not Significant in the different chapters	Considered within the Further Environmental Information document, Chapter 11.
COM5(B)ii	Clarity needed on the difference in conclusions between UK scale effects	Considered within the Further Environmental Information document, Chapter 11.
COM5(C)i	Is a restoration scheme needed for the deconstructed area	Clarification on the restoration scheme for the deconstructed area is provided within the Further Environmental Information document, Chapter 4.
COM5(C)i	Request for a Travel Plan to be provided	Previously provided with the Response to NYMNPA queries, May 2020 document
COM5(C)i	Clarification on the commitment to ecology mitigation	This is confirmed within the Environmental Statement: Further Information, Chapter 13
COM5(C)i	Need for further heritage assessment at restoration phase to be incorporated into mitigation	This is confirmed with the Environmental Statement: Further Information, Chapter 13
COM5(C)i	Clarification needed on residual tourism effects and mitigation required	Considered within the Further Environmental Information document, Chapters 12 and 13
COM5(C)i	Clarification needed on residual climate effects and mitigation required	Considered within the Further Environmental Information document, Chapter 8 and 13.
COM5(C)i	Clarification needed on residual effects and how mitigation relates to these.	Considered within the Further Environmental Information document, Chapters 12 and 13

COM6(A)i	Table 3.1 is incomplete	Considered within the Further Environmental Information document, Chapter 14
COM6(A)iii	Inconsistency of timescales	There is no inconsistency of timescales. The sections Savills refer to here are separately referring to the future baseline and Proposed Development timescales.
COM6(A)v	No glossary of terms provided	No glossary of terms is required under the Regulations. Terms are explained throughout the document as they are unused.



Cleveland Potash Ltd

Boulby Mine Planning Application

Environmental Statement:
Further Information



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Doc Ref. 40513-WOOD-XX-XX-RP-T-003_A_P01.1

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Document revisions

No.	Details	Date
1	Draft	July 2020
2	Final	Aug 2020

Executive summary

Purpose of this report

This report has been produced for the purpose of providing Further Information to the Environmental Statement which was submitted in support of the planning application (NYM/2019/0764/MEIA) to extend the operational life of Boulby Mine. The report is submitted in response to the request for further information made by North York Moors National Park Authority under regulation 25 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, that comprises a review of the submitted Environmental by Savills (dated March 2020).

Contents

1.	Introduction	4
2.	Alternatives	5
2.1	Introduction	5
2.2	Locating the Proposed Development Outside of the National Park	5
2.3	Meeting the Need in Another Way	7
2.4	Conclusion	7
3.	Consultation	8
4.	Deconstruction of Structures	11
4.2	Description of Deconstruction	11
4.3	Environmental Effects of Deconstruction Works	13
5.	Air Quality	16
6.	Hydrology	17
7.	Noise 18	
7.2	Reference to Noise Planning Practice Guide	18
7.3	Noise Survey data	18
7.4	Complaints Made by Local Residents	18
7.5	Future Baseline	19
8.	Climate	20
8.2	The Water Environment	20
8.3	Biodiversity	20
8.4	Greenhouse Gas Emissions	21
9.	Cumulative Effects	24
10.	Interaction Between Subjects	25
10.2	Noise, Air Quality and/or Light on Ecological Receptors	25
10.3	Noise, Dust and Visual Impact on Human Receptors	25

11.	Significance Conclusions	29
11.1	Review of Use of 'Moderate' Effects	29
11.2	Other Conclusion on Significance	29
11.3	Traffic and Transport	32
12.	Residual Effects	35
13.	Mitigation	37
14.	Corrections	41
14.2	ES Table 3.1	41
14.3	ES Paragraph 3.4.19	42
14.4	Missing Links to References.	42
Appendix A Correspondence with Natural England regarding traffic emissions		1

Figures 1-4 Existing views and photomontages of Year 10 views

After Chapter 4

1. Introduction

This report has been produced for the purpose of providing Further Information to the Environmental Statement (ES) which was submitted in support of the planning application (NYM/2019/0764/MEIA) to extend the operational life of Boulby Mine. The report is submitted in response to the request for further information made by North York Moors National Park Authority (NYMNP) under regulation 25 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, that comprises a review of the submitted Environmental by Savills (dated March 2020).

1.1.1.1 The report contains information on

- alternatives considered under the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations);
- the consultation that has been undertaken and how that has influenced the design of the scheme;
- a description and an assessment of the deconstruction activities proposed;
- an updated Air Quality assessment;
- confirmation of why hydrology was screened out of the EIA;
- answers to queries on the noise assessment;
- answers to queries on the climate change assessment, an update on the energy usage and greenhouse gas emissions calculations and the proposals for off-setting 10% of these emissions through renewable energy generation;
- an assessment of the interaction between subjects;
- an update on the significance conclusions from the ES; and
- confirmation of the residual effects identified and mitigation measures proposed.

2. Alternatives

2.1 Introduction

2.1.1.1 A detailed appraisal of the alternatives considered by the Proposed Development was included within the Planning Statement submitted with the application, and the relevant sections have been reproduced here. The EIA Regulations require that “reasonable alternatives” are included (Regulation 18(1)(d) and Schedule 4(2)(d)) and “an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment”. A high-level environmental appraisal of alternatives to the location of the Proposed Development is provided in Section 2.2 of this report and information is also provided on other factors which are relevant to the option chosen.

2.2 Locating the Proposed Development Outside of the National Park

2.2.1.1 The Proposed Development is an unusual proposal in mining terms, in that it is essentially for the continuation of operations at an existing deep mine which is already located within the North York Moors National Park. The ability to consider alternative locations outside of the National Park is therefore restricted due to the costs associated with this approach. Either Boulby Mine would need to be decommissioned and restored and a new mine then developed, or a new mine would need to be developed whilst Boulby Mine was still operating before a ‘handover’ process is undertaken. This would require either a period of time where ICL Boulby had no income coming in from mining activities or a period where they had additional costs from operating one mine and constructing another, neither of which is a financially viable position. Notwithstanding this financial situation, there a number of basic requirements for the location of any mine which will dictate the location and availability of alternative sites. Those relevant to the Proposed Development are:

- A viable mineral resource;
- Suitable geology for accessing the resource;
- Sufficient land for the various buildings and processes required;
- Access to the transport network - road, rail, sea;
- Electricity supply;
- Water supply;
- Mine water drainage.

2.2.1.2 Geology is the main determining factors of location as this determines where an economically viable resource could be mined.

2.2.1.3 The polyhalite deposits are found under onshore land in the UK in a stretch of land from around Boulby Mine to a point east of Hull, and extending, generally, around 10 miles or so inland. Whilst the deposit is therefore located outside of the National Park around Whitby and Scarborough, and from the Vale of Pickering southwards, the deposit is at a greater depth and in a more fractured state in these areas which would make mining polyhalite unfeasible here. Alternative sites within this area were considered during the application for the Woodsmith Mine. Through this the NYMNP agreed to rule out the Vale of Pickering given the depth of the mineral resource and the extent of faulting. An area called the ‘Whitby Enclave’ and an area at Cloughton were also considered further through the Woodsmith Mine application process. The NYMNP concurred that

the area at Cloughton would not be appropriate because of the traffic implications for Scarborough, the proximity to faults and Groundwater Source Protection Zones and the need for substantial landform alteration.

- 2.2.1.4 In terms of the site considered within the 'Whitby Enclave', the NYMNP accepted that there was no robust evidence to conclude that a viable option exists to build a mine head at the Whitby Enclave due to the probable geological conditions and associated mining feasibility constraints. It is not considered that any matters have changed since the consideration of that application to alter these conclusions.
- 2.2.1.5 To the north of the National Park, a mine could theoretically be developed and underground tunnels driven out to sea to access the offshore deposits of polyhalite found under the North Sea. Whilst there is more flexibility on the location of a mine site outside of the National Park, there are still a number of considerations that have the potential to limit its location. These include the geology, in terms of its proximity and its nature as these can influence the viability of access from a technical and cost point, the size and availability of plots of land available and the environmental and amenity issues that would need to be addressed for any new mine development. These include nature conservation designations, heritage assets, proximity to residential areas and suitability of the road network.
- 2.2.1.6 The mine site requirements outlined above limit further the potential alternative sites outwith the National Park. To the north of the existing mine site ICL Boulby has identified four sites that, based on a very high-level consideration of topography and broad location in relation to services, could in theory satisfy most of these requirements. These are:
- Land to the west of Skinningrove Steel Works;
 - Land between Saltburn and Marske;
 - Land between Marske and Redcar (adjacent to Coast Road); and,
 - Land near to Coatham Sands.
- 2.2.1.7 These sites would all be able to access the sea (for minewater discharge), the rail and road network and are sufficiently large to accommodate a minehead of the size required by the Proposed Development. Sites further inland would not have access to the sea, nor to a rail line with capacity to accommodate the freight movements.
- 2.2.1.8 From ICL Boulby's geological investigations, the areas of the polyhalite deposits that are to be mined during the Proposed Development are located around 9km north east of the Boulby Mine shafts. The four potential locations identified would be between 15km and 28km away from these deposits, increasing the costs and labour required to transport the mineral underground to the shaft.
- 2.2.1.9 The Coatham Sands site is within a number of national and internationally important environment designations, and the environmental impacts on birds and their habitats is likely to rule out any development of the nature of a mine in this location. The sites at Marske and Saltburn are both located very close to residential areas, where amenity value for local people could be significantly affected by the construction and operation of a mine. Both sites are also identified as green spaces that should be kept free of development to avoid the built up areas of Redcar, Marske and Saltburn joining together and are within a buffer zone designed to protect the international environmental designations around Coatham Sands and Teesmouth. The land to west of Skinningrove Steel Works is located within the Heritage Coast designation and would also lead to the loss of a Local Wildlife Site and be adjacent to other Local Wildlife and Geological Sites. Whilst further away from residential areas than the Marske or Saltburn sites, it would be close to Huntley Hotel and Golf Club with impacts on the leisure and recreational offer found here.

- 2.2.1.10 As noted above, the fact that the Mine Site already exists is an important factor when considering the potential alternative locations. Even if an alternative site was available, which is not considered to be the case, it is not economic, sustainable or reasonable to close an existing mine site, develop a new mine site outside the National Park and tunnel to the mineral resource, with the associated costs and construction impacts this would create.

2.3 Meeting the Need in Another Way

- 2.3.1.1 The Planning Statement includes a consideration of whether the permitted Woodsmith Mine could supply the minerals under consideration. However, that is considered to be a planning matter rather than a "*reasonable alternative*" to be considered in an EIA, as the considerations are more of an economic nature than environmental.
- 2.3.1.2 In terms of rock salt, there are other suppliers located in Cheshire and Northern Ireland who could take up some of the supply which currently comes from Boulby Mine. However, their position to the west of the country means that customers on the east coast, or in Scotland (which Boulby Mine can supply by ship if needed), are more remote and increased emissions from greater transport distances would result.
- 2.3.1.3 The British Geological Survey Minerals Planning Factsheet on potash¹ considers the availability and use of alternatives to potash. It acknowledges that potassium fertilisers are essential for healthy plant growth and concludes that there are no substitutes, highlighting that unconventional sources of potassium have been examined in the past but without success. Research has continued into potash alternatives, driven in particular by the lack of potassium resources in the southern hemisphere and costs associated with sourcing potash from the northern hemisphere. However, these alternatives have yet to be used at a commercial scale. It is not considered there are any realistic alternatives to potash for the UK at the current time, nor are there likely to be over the timeframe of the Proposed Development.

2.4 Conclusion

- 2.4.1.1 It has therefore been demonstrated that though alternatives to Boulby Mine could exist, these alternatives would likely result in increased environmental impacts than the Proposed Development from:
- new mineral development locations that are damaging to residential areas and important designated areas and sites;
 - considerable harm to their local environment and ecological assets;
 - harm to existing leisure and tourism assets at Huntley Hotel and Golf Club;
 - mineral developments in locations with weaker transport links than the Boulby Mine site.
- 2.4.1.2 The Proposed Development is therefore considered to be the most appropriate in environmental terms of the alternatives considered.

¹ British Geological Survey and Department of Communities and Local Government, Mineral Planning Factsheet Potash, 2011. <https://www.bgs.ac.uk/mineralsuk/planning/mineralPlanningFactsheets.html>

3. Consultation

- 3.1.1.1 Consultation on the Proposed Development has been ongoing since early 2017 with the NYMNPA and is still continuing as the application is being considered. The consultation process since this time has also included two rounds of public consultation, as well as consultation and discussions with various consultees. All of this work has fed into the design of the Proposed Development and the EIA.
- 3.1.1.2 The original discussion with the NYMNPA was based around the principle of extending the life of the existing mine, and included the continuation of all activities that were ongoing at the mine at that time: extraction of sylvinitic, polyhalite and salt, and the processing of sylvinitic to muriate of potash (MOP) and other products at the mine.
- 3.1.1.3 These proposals were subject to pre-application discussions with the NYMNPA, an EIA Scoping Request and a round of public engagement events from April to June 2017. The EIA Scoping Request led to the involvement of statutory consultees and other relevant parties in the preparation of an EIA Scoping Opinion by the NYMNPA.
- 3.1.1.4 The public engagement events in 2017 included the publication of information on the ICL Boulby website, a series of public exhibitions and a number of briefings to the local Town, Parish and Borough Councils.
- 3.1.1.5 The public exhibitions were held at:
- Loftus, Staithes, Carlin How, Easington, Castleton, Margrove Park, Hinderwell, Marske by the Sea, North Skelton, Guisborough, Skelton, Lythe, Liverton, Skinningrove, Lingdale, Brotton and Moorsholm.
- 3.1.1.6 In total 391 people attended these events and 98% of those attending expressed support for the proposals.
- 3.1.1.7 The Councils which were briefed were:
- Aislaby PC, Guisborough TC, Newholm-cum-Dunsley PC, Redcar & Cleveland BC, Whitby TC, Hinderwell PC, Lythe PC, Lockwood PC, Glaisdale PC, Mickley PC, Saltburn, Marske & New Marske PC, Skelton & Brotton PC and Ugthorpe PC.
- 3.1.1.8 From the initial round of public consultations, the responses received presented a strong degree of local support for the continuation of the mine. A small proportion of people (6%) expressed concerns over the visual appearance of the mine buildings. Concerns raised regarding ecology or traffic were recorded at very low levels (1% and 2% respectively).
- 3.1.1.9 Responses received from the statutory consultees and other relevant parties through the EIA Scoping Opinion were mainly focussed on the approach to the EIA, and provided advice on methodologies and guidance to follow, but there were no substantial disagreements with the approach provided to undertaking the EIA in the EIA Scoping Request.
- 3.1.1.10 Over 2017, the NYMNPA raised key points around the visual impacts of the mine, traffic numbers, the impact on tourism and the need for the Proposed Development. The points made around the visual impact of the mine were focused around whether there was an opportunity to remove surface buildings or decrease their size through any operational improvements or changes which would occur over the Proposed Development lifespan. For example an expansion of polyhalite extraction would lead to more minerals passing through the surface plant which required less in the way of processing. Certain plant may therefore become redundant allowing the buildings housing

this plant to be removed. In such a way, the scale of the mine could be reduced and the visual impact minimised.

- 3.1.1.11 The EIA Scoping Opinion also advised that the EIA should consider the mine against a future baseline scenario of a restored site, which is what would occur if the mine did not receive an extended permission to operate. The existing operations would need to cease by 2023 and the site then reclaimed and restored. Further discussion then took place with the NYMNPA about how this would work in practice, given that there wasn't an approved restoration plan for the site, a restored site from 2023 would not be a static future baseline but would evolve over time as the restored landscape matures and the scenario would obviously never be able to happen in reality. An agreed approach to the EIA methodology to incorporate this future baseline scenario was agreed through an amendment to the Scoping Opinion.
- 3.1.1.12 Due to internal business decisions within ICL, progress on the planning application slowed in the latter part of 2017 as it became apparent that the future direction of the business was going to change and some of these changes would allow changes to the future design of the Site which would help to deal with some of the points that the NYMNPA had raised, particularly around visual impact.
- 3.1.1.13 The application was therefore put on hold in December 2017. Work continued within ICL Boulby throughout 2018 to refine their proposals for the future. These proposals saw sylvinitic extraction cease at the mine in 2018 and the extraction of polyhalite to be scaled up over a number of years. Salt would also continue to be mined.
- 3.1.1.14 Work on the planning application and EIA then recommenced in Spring 2019, with a Proposed Development of a polyhalite and salt mine, with imported MOP being used with the polyhalite to create various fertiliser products. Discussions with the NYMNPA re-emphasised the advice to reduce the surface buildings to minimise the visual impact and therefore the proposal was adjusted to see some of the main processing buildings continue on the Site for a period of 10 years before being reduced in size as alternative processing facilities were able to come on-line in a location outside of the National Park. Over this initial 10-year period, a range of minor buildings in the northern part of the Mine site would be removed, along with some of the conveyor systems and related towers and storage buildings.
- 3.1.1.15 As well as the ongoing discussions with the NYMNPA over 2019, a range of public engagements and meetings with relevant Councils were held to brief people on the revised proposals and gain their feedback. In addition, the relevant information was placed on the ICL Boulby website and feedback was able to be recorded via that route as well.
- 3.1.1.16 Public exhibitions were held throughout October 2019 at:
- Hinderwell, Lythe, Loftus, Staithes, Skinningrove, Skelton, Mickleby and Marske by the Sea.
- 3.1.1.17 Meetings were held with the following Councils over the period from October to December 2019:
- Loftus TC, Redcar & Cleveland BC, Skelton & Brotton PC, Mickleby PC, Saltburn, Marske & New Marske PC, Guisborough TC, Lockwood PC and Castleton & Danby PC.
- 3.1.1.18 128 people attended the public exhibitions, and a total of 122 feedback forms were received from the events or via the website. As with the public engagement exercise in 2017, the feedback from the 2019 events showed significant support for the proposals from the local community. 97% of the feedback received expressed support of the planning application. Where concerns were raised, they were again regarding visual impacts (6%), with very low levels of concern over ecology (1%) and traffic (2%).
- 3.1.1.19 Following these events, further discussions have been taking place with the NYMNPA in early 2020 regarding the details and timing of how buildings will be removed from the site or reduced in size.

This has led to further refinements to the proposals which are included within the Response to NYMNPA Queries report (May 2020). These amendments have seen a commitment made by ICL Boulby to move processing operations from the Boulby Mine site to an alternative location by 2027, with the main plant buildings reduced in size, minor buildings to be removed from site by 2025 and land restored to agricultural and nature conservation uses.

4. Deconstruction of Structures

4.1.1.1 Chapter 4 provides a description of the deconstruction activities proposed at the Mine Site and an assessment of those activities. The term deconstructed is used here deliberately as this work will need to be undertaken in a manner which allows operational activities to continue during the operations.

4.2 Description of Deconstruction

4.2.1.1 It is proposed that a number of structures at the Mine Site will be deconstructed as part of the Proposed Development. This will remove a number of structures at the Mine Site which will not be required for the future operations at the site, reduce the size of other buildings where the larger size is no longer required and consolidate the spread of built development on site to a smaller footprint. All of these proposals will reduce the visual impact of the mine in the landscape and provide a more efficient operational site. Standard demolition will therefore not be appropriate for all structures. The proposals would see the following structures deconstructed as shown on Figure 3.6 (Phase 1) and Figure 3.7 (Phase 2) of the ES (although note that the phasing has changed to the dates now contained within paragraph 4.2.1.8 of this report):

- Slimes and tails thickeners and associated pumping infrastructure;
- Centrifuges and belt filter building connected to the potash treatment plant;
- Oil storage building;
- Sports dome and construction store;
- General stores building;
- Administration building.
- 2,000 tonne surge bunker, and associated conveyor belts;
- Old boiler house;
- Engineering services building.

4.2.1.2 In addition, the main plant building would be reduced in height and the existing stack connected to this building would be removed. The exact reduction in height of the building cannot be confirmed at this point in time, as it will depend on the facilities required for the simple crushing and grinding processes required to produce Polysulphate and how other facilities in the plant building can be removed around the remaining equipment. It is however reasonable to assume that this building could be reduced in height by around 50% and photomontages showing a reduction of this scale are provided in Figures 1-4 of this report.

4.2.1.3 All structures will be checked for any pollutants or materials that would be classed as hazardous waste. These will be stripped out of the structures prior to any deconstruction works and disposed of to suitable waste management facilities. If specialist contractors are required to undertake this work these will be utilised. This could include asbestos in building structures or air control residues from within the stack.

4.2.1.4 The majority of structures identified for deconstruction are of a nature and size to allow standard demolition techniques to be used. These structures are typical breeze block wall and sheeted roof construction, timber framed in the case of the sports hall, or low-level concrete structures.

Demolition techniques are therefore likely to consist mainly of workers on elevated work platforms cutting sheets/steelwork away and excavators removing materials or breaking down structures. Works would be undertaken so that removed materials fall into the footprint of the building to avoid the spread of debris, and water sprays can be used to dampen down dust arisings.

- 4.2.1.5 For taller structures such as the 2,000 tonne bunker, conveyors and the plant building and stack, soft stripping will need to be undertaken to allow operational activities on the site to continue around the deconstruction works. Within the plant building, all services will be disconnected from the floors which are to be removed and cabling and other service features stripped out. The machinery and other service equipment no longer required will be removed by lowering to the ground floor and taken out of the main access doors where possible, or gaps will be created in the sheet walls/roof and the equipment will be taken out of those gaps and lowered to the ground by crane. The exact methods of deconstruction of the structure itself would need to be confirmed by demolition contractors in a method statement, but the two most likely options are:
- Deconstruction is done 'by hand'. Working from within the building, the structure will be dismantled, and waste materials lowered down through the structure to the ground floor. Equipment to be utilised is likely to involve cutting equipment such as grinders and torch burning (e.g. oxy-acetylene) for separating materials and producing manageable sized pieces. The internal hoist systems could then be used to lower materials to the ground floor. For the stack, a floating platform would be constructed to allow workers to utilise hydraulic jack-hammers to break off pieces of the concrete structure and drop them down through the internal void. The platform can then be lowered as the stack reduces in height and the deconstruction work completed in sections. Waste material can then be extracted from the base of the stack and transported offsite for disposal or recycling.
 - Deconstruction is done by high-reach excavators. The equipment has a high-reach boom with different tools being able to fitted to the end. Sheeting can be removed from the outside of the structures by grab tools and steel work cut by shear tools, and passed safely to ground level. The stack could be taken down using similar tools with waste material dropped down through the internal void.
- 4.2.1.6 Hardstanding areas at ground level will be broken up and services cut off 1m below ground level. The existing car parking in this area will be relocated within the southern end of the site to further consolidate the spread of built development.
- 4.2.1.7 It is unlikely that much waste will be able to be recycled on site, unless some quantities of fill are needed to fill foundation voids within the cleared land. If so, inert materials can be crushed and used here. The majority of waste products would therefore be separated according to type and sent off-site for recycling where possible or to appropriate waste disposal facilities.
- 4.2.1.8 Following discussions with the NYMNPA, ICL Boulby acknowledge that the NYMNPA would prefer to see these structures removed and reduced in height as soon as possible, and ideally by the end of the current planning permission period (2023). For the low level buildings and 2,000 tonne bunker and its associated conveyors these could be removed by 2023 (assuming a planning permission is granted in 2020). For commercial reasons ICL Boulby is unable to commit to such a short programme for the plant building and stack, as the existing plant is still in use in the development of new fertiliser products. ICL Boulby therefore commit to removing these structures identified for deconstruction by 2027 at the latest but also commit to ongoing progress meetings with the NYMNPA following the grant of any permission to agree any earlier timetable that may become possible.
- 4.2.1.9 The cleared land will be converted to agricultural land and nature conservation areas in accordance with the longer-term restoration plan for the site (ES Appendix 3A).

4.3 Environmental Effects of Deconstruction Works

4.3.1 Landscape & Visual

4.3.1.1 The effects of the deconstruction works themselves will not be of a scale of activity or of a timescale to create any significant landscape effects. Visual effects from the demolition of the smaller buildings and ground level structures will result from the movement of plant and vehicles in this area during the works. These effects are going to be most visible from the A174 and coastal hinterland between Boulby and Staithes including the recreational path network to the north of the mine entrance. The remaining mine buildings, topography and woodland features will provide a great deal of screening from locations around Ridge Lane. Some activity may occasionally be perceptible from elevated land in and around Roxby to the south. Topography and distance will screen almost all views from longer distances. The deconstruction works for the taller structures will be more visible, and if high-reach plant is used this will introduce new, moving features on the skyline during the works. These effects will be most visible within an area from Ings Farm in the west, out to around 2km from the Mine Site to the south and east. Once beyond a 2km distance, views of these deconstruction works will still be available (from Hinderwell and Ellerby for example) but the increased distance will reduce the magnitude of the effects substantially. The slender nature of the high-reach plant will be less visible against the skyline from these distances, and only the movement of the plant having the potential to draw the eye. All of the deconstruction works, whether at low or high levels, will be temporary operations lasting a matter of weeks for the lower level works, and around a few months for the higher-level operations.

4.3.1.2 It is expected that significant visual effects will occur from the deconstruction works on receptors within a 1km distance of the proposed works to the west (towards Ings Farm), north west and north (Boulby and the coastal hinterland) and to the south east (Ridge Lane). Towards the north east these effects could extend to a 2km distance from certain viewpoints in Staithes. These significant effects would however be temporary and are required to provide an improved visual appearance for the longer-term benefit.

4.3.2 Noise

4.3.2.1 There will be noise effects associated with the deconstruction works, however the proposed activities described here have been designed to minimise their effects. The standard demolition works of the smaller buildings have been chosen as they can be controlled by well-established practices to reduce noise arisings (use of modern equipment which can include in-built noise abatement, auto-shut down facilities to avoid equipment running when not used, more efficient technology) but also because they can be completed quickly and efficiently to minimise any effects that do occur. The soft-stripping works to the taller structures would take longer than a harder demolition, but are necessary to allow operational activities to continue around them. They also have the benefit of reducing noise arisings that would occur due to the careful removal of materials from the structures and lowering them to the ground level (or dropping down through the stack void), rather than the process of collapsing a structure or letting materials fall from height externally. No significant effects are therefore predicted.

4.3.3 Air Quality

4.3.3.1 There will be air quality impacts from the plant used to deconstruct the structures in question, but this will be mitigated by the use of modern, efficient equipment with low emissions. There is potential for minor dust arisings from the demolition of the low level breeze block and concrete structures and hardstanding areas. Dust suppression measures are however standard features of modern plant and work can be scheduled around weather conditions to avoid particularly dry and

windy days. These works have also been chosen as they can be completed quickly and efficiently to minimise any effects that do occur. The soft-stripping works to the taller structures would give rise to lower dust arisings due to the nature of the materials being dealt with (in the plant building, 2,000 tonne bunker and conveyors) and the soft-stripping methods to be employed which will result in smaller areas of materials being broken up at any one time and waste materials not being dropped from height externally. In addition, IAQM guidance on 'Assessment of dust from demolition and construction' (2014) states that beyond 350 m there are unlikely to be impacts from dust and a detailed assessment can be screened out. The nearest highly sensitive (i.e. residential) receptor to the site is approx. 415 m to the north west. No significant effects are therefore predicted.

4.3.4 Traffic

4.3.4.1 Traffic created by the deconstruction works will come from the delivery of plant to site, contractor staff vehicles and the removal of waste materials. The delivery of plant will only occur once at the beginning of the works and then again at the end of the works to remove items. It will see the use of HGVs to deliver excavators, front loaders and high-reach equipment. Contractor staff vehicles are expected to be of relatively small numbers and within the usual operational fluctuations of the Mine. Waste removal is therefore likely to be the most extensive generator of traffic from these activities.

4.3.4.2 From examining information available for similar demolition schemes the following estimates have been made for the likely volumes of waste material. All of the estimates have taken a precautionary approach and rounded figures up (rather than down) or used the higher volume options where available. The estimates should therefore be considered to be a 'worst case' scenario and in reality, could be less than shown here.

4.3.4.3 The deconstruction of the stack, reduction in size of the plant building, demolition of the smaller scale buildings and the removal of hardstanding areas is estimated to create around 15,000 tonnes of waste material. Approximately 10% of that amount could be re-used on site for the filling of voids or re-profiling of certain areas of land, leaving around 13,500 tonnes for disposal to off-site waste management facilities. This would be expected to require around 450 HGVs. The most likely location for suitable waste management facilities will be Teesside, so it would be expected that the majority, if not all, of the HGVs will leave the site on the A174 and travel west.

4.3.4.4 A worse-case scenario for traffic would see all of the deconstruction works take place in one go, which is likely to take around 2 months to complete and the waste disposal journeys would therefore all take place during this time. Allowing for a few days to set up works on site, and assuming a 5 day working week, there would be an average of 12-13 HGVs per day (leading to 24-26 HGV movements). This number is unlikely to create much in the way of a noticeable difference when looked at on a single daily basis. Daily HGV fluctuations from existing operational deliveries or product exports can be greater than 26 movements. From the existing HGV data from 2017, it shows there are already 38 HGV movements a day and an additional 26 would create 64 HGV movements. This is considerably lower than the 132 daily HGV product movements permitted by the existing permission. No significant effects are therefore predicted.

4.3.5 Ecology

4.3.5.1 The only ecological feature of interest which would be affected by the deconstruction works is the bat roost located in building 6. This roost would be lost due to the removal of the building. Deconstruction works would take place under an ecological method statement and if necessary a Natural England licence (informed by updated surveys which would be carried out in accordance with best practice guidance) in order to prevent any harm to the bats that use the roost. The restoration of the land being cleared to agricultural and nature conservation uses will provide

additional foraging habitat than is currently found on site. There are existing bat boxes within the nearby woodland that could become more well used than at present and additional bat boxes can also be provided in order to provide additional roost opportunities. These additional bat boxes were originally planned to be provided on the final demolition and clearance of the whole site at the end of any new planning permission granted. It is now proposed that bat boxes will be provided prior to the deconstruction works proposed here, so they will be in place prior to the removal of building 6. With the mitigation proposed, no significant impacts are therefore predicted.

4.3.6 Cultural Heritage

4.3.6.1 The area of land subject to the deconstruction works is all land which was cleared and levelled in advance of the mine being constructed. Archaeological investigations and recordings were made of any features of interest in this area (Boulby Hall and Old Boulby) before the features were lost to the construction works. The deconstruction of the buildings and structures identified will therefore have no direct impact on archaeological remains. The works themselves will be visible from some of the nearby historic features (particularly the removal of the stack) but the temporary nature of the works will not create any significant impacts on their settings.

4.3.7 Subsidence

4.3.7.1 The proposed works will have no effect on the underground workings or the geology of the area and therefore there will be no effects relating to subsidence.

4.3.8 Tourism and Recreation

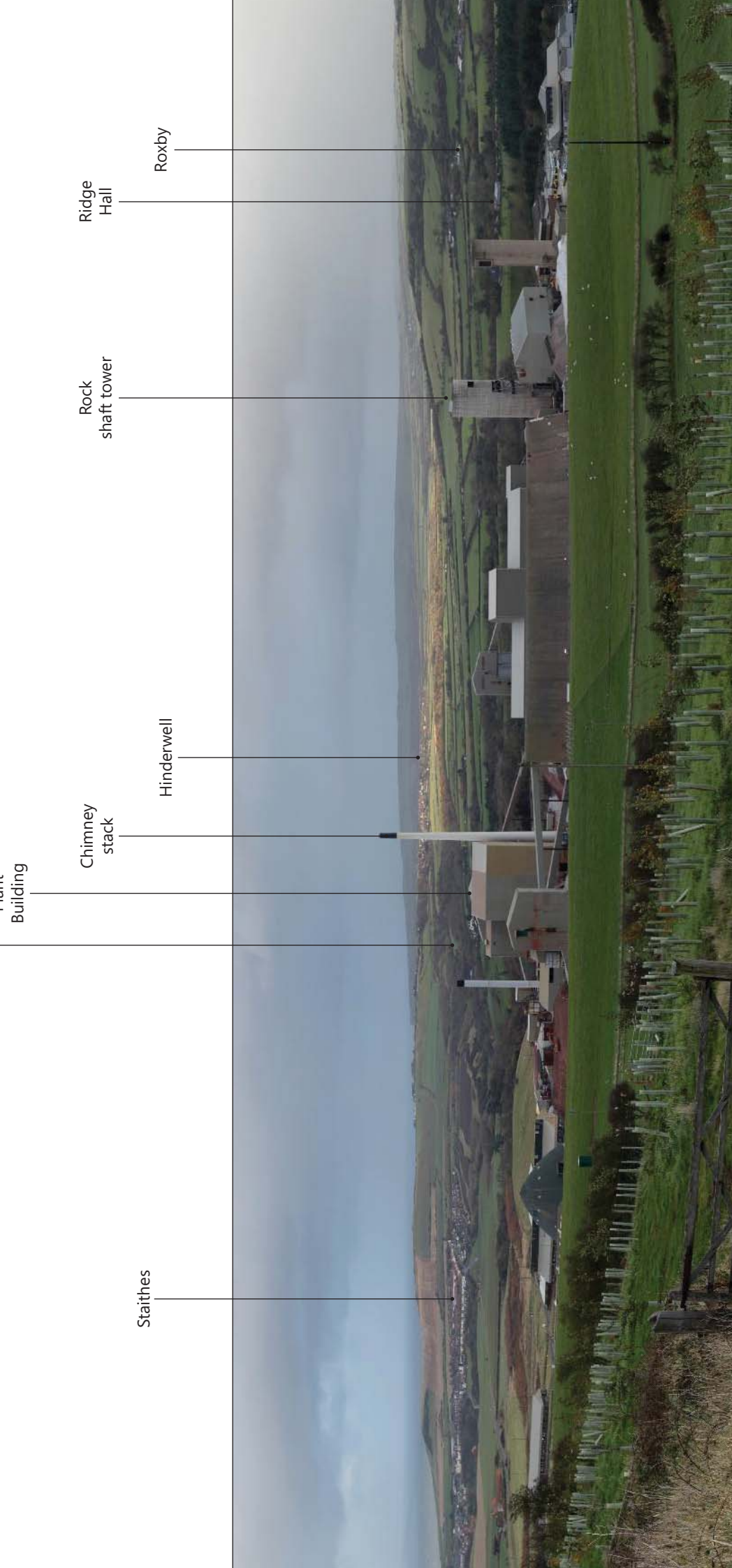
4.3.8.1 Deconstruction activities are considered unlikely to have a significant impact on the majority of tourism and recreation receptors considered in the EIA. This is due to the temporary nature of the works and limited impacts created from noise, air quality and dust and the restricted visibility of the works. Significant visual effects would however be experienced by users of the Cleveland Way and National Cycle Route 1 as these routes pass between Boulby and Staithes. These significant effects would however be temporary and are required to provide an improved visual appearance

4.3.9 Climate

4.3.9.1 The proposed works are not considered to be of a scale which would have any significant effect on the climate and changing climate conditions would not impact on the works themselves.

4.3.10 Health and Major Accidents or Disasters

4.3.10.1 All work will be undertaken under the appropriate health and safety legislation and therefore all workers or members of the public will be appropriately protected. Work will be undertaken in appropriate weather conditions, so high-reach plant would not be used in times of high winds or storms which will reduce the risk of accidents on site. The deconstruction works are considered to be standard practice operations with no particularly unusual or difficult activities that would give rise to high risks of accidents. The location of the mine is furthermore not in a location which is susceptible to natural disasters or extreme weather. Therefore there is not considered to be any significant risks to health or for major accidents or disasters to occur.



Staithe

Chimney
stack

Hinderwell

Rock
shaft tower

Ridge
Hall

Roxby

Printed at A3.



Printed at A3.

Main
Plant
Building

Chimney
stack

Rock
shaft tower



Printed at A3.



Printed at A3.



Building

Chimney stack

Rock shaft tower

Ridge Lane

Ings Farm

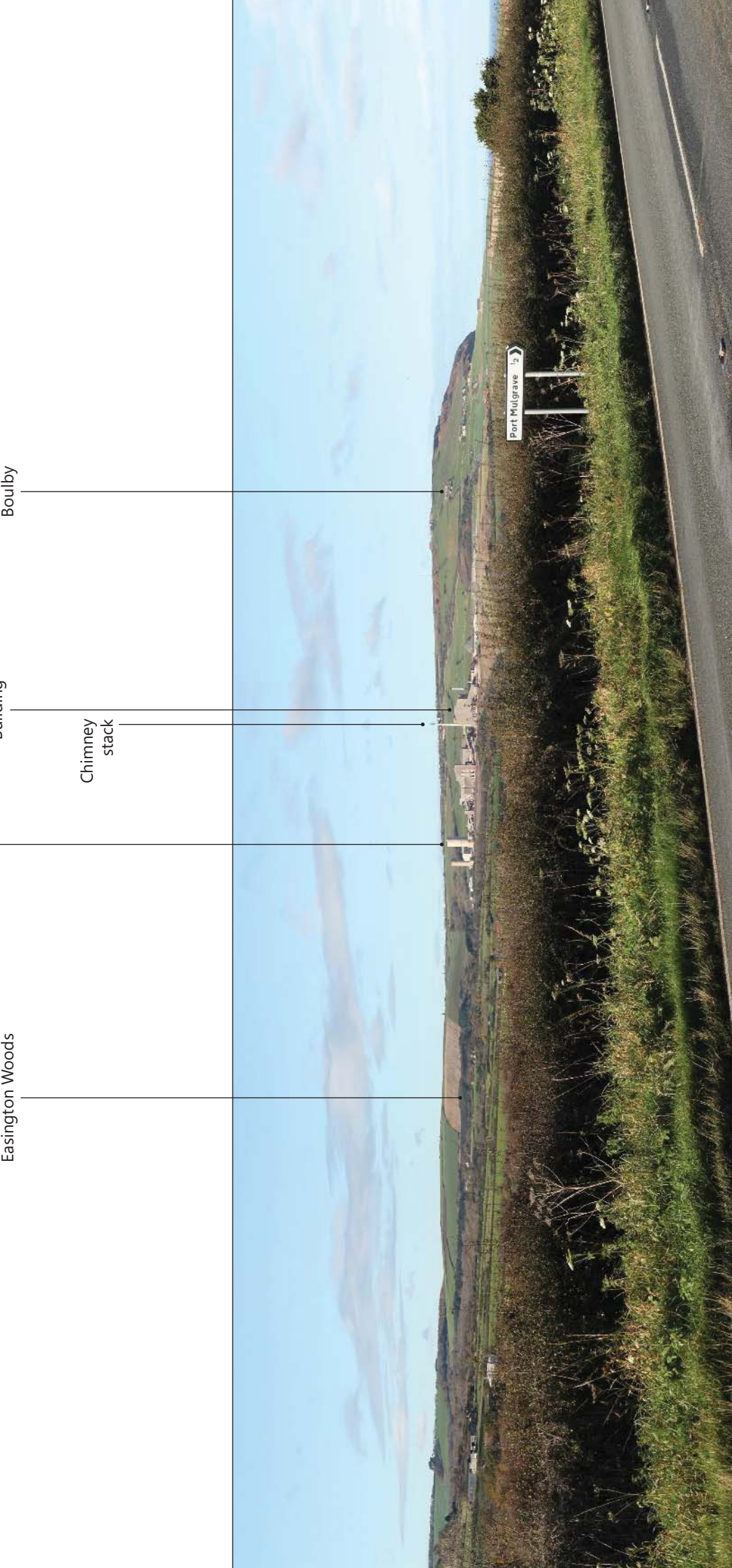
Roxby Woods

Easington Woods

Printed at A3.



Printed at A3.



Boulby

Chimney stack

Easington Woods

Port Mulgrave

Printed at A3.



Printed at A3.

5. Air Quality

- 5.1.1.1 Further detail has been provided by ICL Boulby on emissions to air from recent operational activity and this has been used to update the Air Quality ES chapter, considering the existing baseline position from operations and then how this is likely to change due to the proposals.
- 5.1.1.2 An amended Air Quality ES chapter is therefore submitted alongside this report.
- 5.1.1.3 In addition, correspondence is appended with Natural England regarding traffic movements, emissions to air and the potential for effects on the North York Moors Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI) in Appendix A of this report. This confirms Natural England have no objections to the proposals on this matter and that a likely significant effect on the designations in relation to the Habitats Regulations can be screened out.

6. Hydrology

- 6.1.1.1 In the original Scoping Request issued to the NYMNP (Boulby Mine: application to continue working. EIA Scoping request. June 2017 (ES Appendix 1A)), it was proposed that hydrology and hydrogeology would be scoped out. For hydrology, this was explained in Table 4.2 of that document where it was explained that:
- "Impacts on surface water.*
- As described above, surface water from the operational area and the wider site, are channelled into the interceptor from where the water is mixed with the inflowing sea brine stream, this is then used as the transport medium for the mine tailings. All surface water run-off is therefore prevented from entering any watercourses or discharging to land."*
- 6.1.1.2 The Scoping Opinion report issued by Savills on behalf of the NYMNP (August 2017) requested that hydrology and hydrogeology be scoped in but the justification for this appeared to be related to the possibility (at that time) that underground extraction would include working within the 'coastal buffer zone'. This coastal buffer zone was subsequently removed from the Proposed Development and hydrogeology was scoped out on that basis.
- 6.1.1.3 For hydrology, although parts of the Mine Site are at risk of flooding from surface waters according to EA information, the majority of the risk identified is low risk areas (0.1-1% chance of flooding per year), with only small pockets of land at higher risk. The Scoping Request, plus the subsequent ES, explains how all surface waters from the Mine Site are collected within the site and channelled into the site's internal interceptor system. This then is mixed with minewaters pumped from underground and discharged to sea. No surface waters are therefore discharged to nearby watercourses and surface water run-off reaches these watercourses in normal circumstances.
- 6.1.1.4 The Flood Risk Assessment (FRA) submitted with the planning application shows that the surface water system at the Mine Site is exceeded by rainfall events on average twice a year, which creates flows which over-spill into the Easington Beck. Whilst these events have the potential to increase flooding downstream of the Mine Site, the FRA shows that the Easington Beck has a flow and channel capacity to accommodate these over-spills without increasing flood risk to any receptors along its route. This work includes a consideration of the future implications of climate change.
- 6.1.1.5 It is therefore considered that there will be no effects resulting from hydrology matters which would be significant in EIA terms and the subject can therefore be scoped out of the EIA.

7. Noise

7.1.1.1 A number of points were raised in relation to noise:

7.2 Reference to Noise Planning Practice Guide

7.2.1.1 The Savills review notes that the Noise Planning Practice Guidance (NPPG) referred to was dated 2014, rather than the most up to date version from 2019. The only difference between the 2014 and 2019 NPPG is in the terminology used for perception. No amendments are therefore needed to the methodology of the noise assessment or the conclusions found from this update.

7.3 Noise Survey data

7.3.1.1 The Savills reviews queries whether the noise survey data from 2017 provides an up to date or representative baseline to work from. The review comments mention that this is because the works in 2017 were at a transitional stage, running down sylvinitic mining / processing and building up polyhalite mining. Whilst this comment is correct, it is not the case that this would lead to lower noise emissions than when the site is fully operational with polyhalite mining.

7.3.1.2 Of the 34 measurement locations on site (Table 6.17 of the ES), 21 of them will remain on site and will operate in the same manner as present. Nine of the measurements (numbers 4-9, 12, 19, 20) relate to features that will be removed during the deconstruction works and noise from these (including particularly noisy compressors) will therefore cease. Four measurements relate to the main plant building (numbers 10, 13, 16 and 21). Operations in this building will reduce from crushing / grinding and processing activities that created MOP from sylvinitic, to crushing / grinding operations only for polyhalite. This will therefore reduce the number of noise making activities within the plant building.

7.3.1.3 The weather data taken from online resources for the first 4 days of the survey was measured at Brotton, 10 km NWW of the site. For the purposes of precipitation this is considered sufficiently close. The wind direction at the time of this data used was primarily south-westerly. As such given the position of Brotton to the site the weather system is likely to be very similar, especially given the open environment surrounding the site.

7.4 Complaints Made by Local Residents

7.4.1.1 The Savills response noted that a number of complaints raised by local residents have not been considered in the ES. It is important to note that a noise complaint received does not necessarily mean that a significant noise effect has occurred. It is possible for noise to be audible without breaching the levels that would constitute a significant effect. The noise complaints were however acknowledged in the ES, where it was explained that these noises were arising from temporary operations. The ES went on to state that ICL Boulby were working to provide noise insulation around those parts of the plants suspected of emitting the noises and were in close consultation with the residents to ensure the insulation was having the desired effect. The temporary operations have been based around the use of plant and equipment designed for the historic minerals processing being used for the new minerals processing, and additional noise has resulted. The client has provided new insulation around certain pieces of plant and eliminated the noise. In addition, during the Proposed Development as plant is either replaced with more suitable equipment, or activities are moved to a new location, the source of the noise itself will also be lost.

7.5 Future Baseline

- 7.5.1.1 The ES describes a future baseline for noise in terms of the reclaimed and restored Mine Site if planning permission were not to be granted, but also states that if the planning application is approved, then *"in practical terms the future baseline is expected to remain the same as the Current Baseline for the further 25 year period of operation"* (ES Paragraph 6.4.9). This is queried by Savills in light of the proposed changes to processing, additional deliveries of MOP to the site, an increase in overall production and an identified increase in the number of staff.
- 7.5.1.2 As described in the ES (ES Paragraph 6.5.1) the actual noise levels from the Proposed Development are impossible to objectively identify at this point in time because it is uncertain as to which pieces of plant will remain at the Mine Site, and what will be replaced, once the main processing activities are re-located off-site. However, the Proposed Development will see a reduction in processing activities at the Mine Site, and those that do remain will be the simpler crushing and grinding activities (which already take place). There will be fewer conveyors operating on the Mine Site and operational activities will take place on a reduced footprint. There are therefore no activities being proposed which would add different or extra noise creating activities to that which already take place. A position was therefore taken that the existing baseline conditions were appropriate to use as a future baseline scenario, as they will provide a worst-case scenario when considering the practical realities of the mine continuing to operate.

8. Climate

- 8.1.1.1 The Savills review raises points that the following matters are not considered within the ES: the vulnerability of the proposals to climate change and the how the sensitivity of various receptors may change over the lifetime of the Proposed Development due to climate change.

8.2 The Water Environment

- 8.2.1.1 The only vulnerability that the Mine Site may have to climate change is considered to be through an increased risk of flooding through more intense rainfall events in the future. It should be noted that hydrology is scoped out of the ES (as discussed in Chapter 6 of this report) but the separate FRA does consider climate change projections in how the Mine Site's drainage system would deal with increased water volumes and also how these events would impact on receptors downstream. The FRA finds that the current drainage system and the capacity of the watercourses which it drains into are sufficient to deal with flooding events, including increased water volumes due to climate change.
- 8.2.1.2 In terms of the impact that the Proposed Development may have on other receptors, and how they may be affected by climate change and the proposals, the usual EIA subjects which would be relevant here are biodiversity, hydrology and hydrogeology and human health. As hydrogeology is scoped out of the EIA and the FRA considers the effects of local watercourses, no further comment is made on hydrology and hydrogeology.

8.3 Biodiversity

- 8.3.1.1 Whilst the ES Chapter on biodiversity does not go into specifics on how climate change may change the future baseline, paragraph 9.3.3 of the ES Chapter confirms that changing climatic conditions have been considered in the considerations about the future baseline. Climate change is expected to lead to hotter and drier summers and wetter and warmer winters over the 21st Century, although it is important to note that the Proposed Development would only be for a 25 year period and would not be a permanent development (as would be more usual with other built developments proposed: housing, industry, retail etc). The consideration of how climate change may affect biodiversity over the future baseline period is therefore limited to this 25 year period.
- 8.3.1.2 The clearance of the buildings and structures from the northern part of the Mine Site, and the expected reduction in noise and emissions to air from the reduced processing activities will create an environment which is more conducive to habitat establishment and maintenance, and the subsequent use of these habitats by a wide range of species. ICL Boulby will maintain ownership and responsibility for these restored areas plus the adjacent woodland within the land ownership boundaries shown in the planning application. The proposed Habitat Management Plan would allow the ongoing management of these areas to be reviewed and revised as necessary to reflect any changes which do occur from climate change. This can be controlled by a condition on any planning permission granted.
- 8.3.1.3 It is therefore considered that the Proposed Development would provide positive measures for biodiversity which could help to balance any negative effects which do occur due to climate change over a 25 year period of time. The effects on biodiversity from the Proposed Development, taking account of climate change impacts on the future baseline, are therefore considered to be not significant.

8.4 Greenhouse Gas Emissions

- 8.4.1.1 Following the submission of the original application package, further work has been ongoing to confirm the energy requirements of the mine, and these have taken into account the changes proposed to the timescales for deconstruction and removal of major processing activities from the Mine Site.
- 8.4.1.2 The principal matter which will affect the consideration of greenhouse gas emissions and their effect on climate change is the energy needed to operate Boulby Mine. The underground extraction, transportation of minerals from the working face to the surface, pumping of water from the mine, ventilation of the mine and processing of the minerals at the surface all require large amounts of energy. However, over time ICL Boulby have been able to reduce the amount of energy used as plant and machinery is replaced or upgraded to newer and more efficient models, working practices are refined to more efficient practices and energy saving measures are introduced across the Mine Site. This led to a 35% decrease in annual energy usage from 1996 to 2012.
- 8.4.1.3 Energy consumption at Boulby Mine over the Proposed Development would consist of:
- Electricity use for the operation of the underground and surface pumps, and the ventilation and fans which service the underground working area;
 - Electricity use for the extraction of polyhalite and salt, and transporting this to the surface;
 - Electricity and gas use for the processing of minerals to create mixed products (e.g. PotashpluS) up until 2027;
 - Electricity use for the simple processing of minerals to create Polysulphate products;
 - Gas use for generating electricity from the CHP plant.
- 8.4.1.4 The energy use calculations have been updated with the revised information from ICL Boulby regarding extraction and production at the Mine Site, taking into account the amended proposals to cease PotashpluS production at the Mine Site in 2027 rather than 2033. The reduction of processing by 6 years has therefore led to a substantial decrease in overall energy use predicted.
- 8.4.1.5 Electricity use would increase from around 90GWh in 2020 when it is expected that around 1 million tonnes of minerals will be extracted from the mine, to around 126 GWh in 2033 when extraction will have increased to around 2 million tonnes per year. Gas use can be split into two main categories: in the processing facilities to make PotashpluS and in other uses on site, principally the generation of electricity from the CHP plant. Gas use would therefore increase from 2020 as PotashpluS production increases, from around 114GWh to around 135GWh in 2027. As PotashpluS production then moves off-site, gas use will fall to around 58GWh per year.
- 8.4.1.6 In 2020 the electricity use would generate around 253 tonnes of CO₂e per GWh used². This figure is projected to drop to 43 tonnes per GWh by 2035³ as the electricity generation sector rapidly decarbonises. From the predicted electricity requirements of Boulby Mine and the conversion

² UK Government (BEIS and DEFRA) GHG Conversion Factors for Company reporting, v1.0 2020. UK electricity and Transmission and Distribution. <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020> last accessed 27 July 2020

³ UK electricity conversion factor from: BEIS Updated Energy and Emissions projections 2018, April 2019 <https://www.gov.uk/government/publications/updated-energy-and-emissions-projections-2018> last accessed 27 July 2020, plus T&D factor from GHG Conversion Factors for Company reporting, v1.0 2020

factors available, it is estimated that the Mine would generate an average of 10,053 tonnes of CO₂e per year over the Proposed Development period.

- 8.4.1.7 Gas as fuel gives rise to 184 tonnes of CO₂e for every GWh used². No projections are available for how this figure may change in the future, so the same figure has been used for each year of the Proposed Development. This would equate to an average of 14,047 tonnes of CO₂e arisings for each year proposed. The total CO₂e arising from the mine would therefore be an average of 24,101 tonnes per year, which is a saving of over 5000 tonnes per year (or 20%) from the original proposals in the planning application submitted in October 2019.
- 8.4.1.8 Policy ENV8 of the Local Plan requires that 10% of carbon emissions generated by large developments should be displaced by on-site renewable energy generation. A 10% displacement of Boulby Mine's predicted energy requirements would require a maximum of around 2,410 tonnes of CO₂e to be displaced per year by the use of renewable energy technology in the Proposed Development.
- 8.4.1.9 ICL Boulby are proposing to develop a solar farm within landholdings at Boulby Mine to generate renewable energy which will off-set the 10% requirement (the 2,410 tonnes of CO₂e produced each year). An area of land has been identified which has the ability to host solar panels covering a maximum of 7.5ha. Solar farms have a generation capacity of 1500kWh per year, and a capacity (or load) factor of 11%⁴. A solar farm of this size could therefore generate around 10.8 kWh per year (or 10.8 GWh).
- 8.4.1.10 In determining how much CO₂e a solar farm could save, a consideration needs to be made of the energy generating technology it would displace. For example, over recent years the amount of energy generated from coal fired power stations has dropped dramatically as renewable energy generation has increased. By 2033, it is predicted that the majority of electricity from major power producers, will be generated by nuclear and renewable means (271 TWhs), with generation from gas (25TWh). No figures are available for what the conversion factor of gas may be in 2033, with the 2019 figure being 370 tonnes of CO₂e per GWh generated⁵. This figure may be expected to decrease over time as technology improves, but the figure actually increased from 2018 to 2019 (from 340 tonnes⁶).
- 8.4.1.11 Due to these uncertainties, the 2020 conversion factor for all UK electricity generation is therefore used: 253 tonnes of CO₂e per GWh. The development of the full 7.5ha would therefore lead to savings of 2,743 tonnes per year, or 11.4% of the predicted emissions from the Proposed Development.
- 8.4.1.12 In addition, as part of their proposals to continue working Boulby Mine for a period of 25 years, ICL Boulby is aware that there will be a need to develop a long-term strategy to reduce energy consumption and carbon emissions in order to adhere to the UK's long-term commitment to move towards a carbon neutral society. This complies with both ICL Boulby's company strategy and that of the wider ICL group. ICL Boulby are working towards the ISO 50001 accreditation over the next few years and there are a number of different options available to the company which will help drive savings on energy use and carbon emissions. Given the energy savings and the subsequent savings on carbon emissions that Boulby Mine have achieved over the past 25 years, and the commitments from both ICL Boulby and the wider ICL group to continue to drive down energy use,

⁴ BEIS, Renewable electricity capacity and generation, 25 June 2020. <https://www.gov.uk/government/statistics/energy-trends-section-6-renewables> last accessed 27 July 2020

⁵ BEIS, 2019 UK greenhouse gas emissions, provisional figures, 26 March 2020.

⁶ BEIS, 2018 UK greenhouse gas emissions, provisional figures, 28 March 2019.

it is expected that the energy use and CO₂e emissions from the Proposed Development in the future are likely to be lower than identified here. In this scenario, the solar farm proposed would lead to a greater proportion of savings than the 11.4% shown here.

8.4.1.13

No information more recent than from 2006 is available to show the amount of greenhouse gases produced from within the North York Moors National Park. The Management Plan for the National Park shows that in 2006, 704,000 tonnes of CO₂e were produced from the National Park. As a major industrial development, with high energy requirements, it is likely the Proposed Development will continue to make a **significant** contribution to the overall greenhouse gas emissions from the National Park, but that this contribution will not be significant when considered on a wider geographic scale.

9. Cumulative Effects

- 9.1.1.1 No changes are proposed to the cumulative effects assessment contained within the ES. Due to the location within a National Park and the lack of any built-up areas or substantial development opportunities in the nearby area, no further proposed, permitted or under construction developments have been identified from that identified within the ES. In addition, any existing/operational developments which may have some kind of cumulative effect will have been included within the baseline information.
- 9.1.1.2 It is noted that the Savills review does not identify any projects that it considers would be included, nor have any other developments been raised by the NYMNPAs in our ongoing discussions with them.

10. Interaction Between Subjects

- 10.1.1.1 As well as individual impacts within the EIA subjects having the potential to create significant effects on receptors, there is also the possibility that some impacts across different EIA subjects could interact to create a separate significant effect.
- 10.1.1.2 The following subjects have been identified where such an interaction is possible:
- Noise, air quality and/or light having effects on ecological receptors
 - Noise, dust and visual impact having effects on human amenity
- 10.1.1.3 It is important to note that interactions in this sense do not cover effects such as from traffic creating noise. This would be picked up as a separate effect in the noise chapter (if relevant) as the traffic proposed leads to a noise effect, rather than traffic and noise interacting to create a separate effect that neither subject already considers.

10.2 Noise, Air Quality and/or Light on Ecological Receptors

- 10.2.1.1 Due to the nature of the proposals, the majority of effects assessed on ecological receptors have not been from direct effects such as habitat clearance but from effects such as noise emissions, emissions to air, dust arisings or from light sources. Whilst it is expected that the Mine Site being restored from 2023 (under the future baseline scenario) would provide improved habitats and increased species use over an operational mine, it is also relevant that a diverse range of species occupy the habitats available within the Mine Site and adjacent land. These species are sustaining successful populations with the Mine having been operational since the mid-1970s and both individual and interacting effects from noise, air quality and light from the existing operations being present.
- 10.2.1.2 The proposed works would see the scale of the Mine Site reduced, and processing activities reduced both in number and type, leaving only the simpler crushing and grinding activities. This will result in a decrease in the noise, air, dust and light arisings from the Site operations both at an individual effect level and also while interacting. No significant effects have been found for individual effects on ecology receptors, which has included a consideration of noise, air quality and light effects, and given the existing situation and proposed decreases in arisings for these subjects no significant interactions are expected.

10.3 Noise, Dust and Visual Impact on Human Receptors

- 10.3.1.1 A number of receptors in the vicinity of the Mine Site have been assessed due to the potential for effects to occur on human amenity. These include residential properties and recreational routes.
- 10.3.1.2 To consider the interaction of noise, dust and visual impact, four receptor locations have been identified which are representative of the receptors assessed within the individual subject chapters. These are:
- Redhouse Farm
 - Ridge Farm: representative of properties on Ridge Lane
 - Ings Farm

- Boulby Grange: representative of the properties at the eastern end of Boulby Bank, plus users of the coastal recreational routes.

10.3.1.3

Properties further away from the site than these have been scoped out from the noise and air quality assessments and therefore they cannot interact with any effects occurring as a result of visual impact.

Table 10.1 Summary of receptors and effects identified in the ES

Receptor	Noise	Dust	Visual
Redhouse Farm	Operational effects overall: Not significant BS4142:2014 daytime assessment: Low BS4142:2014 night time assessment: Adverse Minerals PPG Daytime assessment: Not significant Minerals PPG Night time assessment: Not significant Traffic effects: Not significant	Operational effects: Not significant The receptor is downwind of the average wind direction, but is 480 m from the site, well over the 250 m screening distance for dust effects.	Operational effects: Substantial and Significant Night-time visual effects: Substantial to Substantial / Moderate and Significant
Ridge Farm	Operational effects overall : Not significant BS4142:2014 daytime assessment: Adverse BS4142:2014 night time assessment: Adverse Minerals PPG Daytime assessment: Not significant Minerals PPG Night time assessment: Not significant Traffic effects: Not significant	Operational effects: Not significant The receptor is not downwind of the average wind direction, and is also around 445 m from the site, well over the 250 m screening distance for dust effects.	Operational effects: Moderate/Substantial and Significant Night-time visual effects: Substantial / Moderate to Moderate and Significant
Ings Farm	Operational effects: Not significant BS4142:2014 daytime assessment: Low BS4142:2014 night time assessment: Adverse Minerals PPG Daytime assessment: Not significant	Operational effects: Not significant The receptor is not downwind of the average wind direction, and is also around 600 m from the site, well over the 250 m screening distance for dust effects.	Operational effects: Substantial and Significant Night-time visual effects: Substantial to Substantial / Moderate and Significant

Receptor	Noise	Dust	Visual
	Minerals PPG Night time assessment: Not significant Traffic effects: Not significant		
Boulby Grange	Operational effects: Not significant BS4142:2014 daytime assessment: Low BS4142:2014 night time assessment: Significant Adverse Minerals PPG Daytime assessment: Not significant Minerals PPG Night time assessment: Not significant Traffic effects: Not significant	Operational effects: Not significant The receptor is not downwind of the average wind direction, and is also around 415 m from the site, well over the 250 m screening distance for dust effects.	Operational effects: Moderate/Substantial and Significant Night-time visual effects: Substantial to Substantial / Moderate and Significant

Dust

10.3.1.4 With regards to dust, existing mature woodland to the south east and north west provides screening for Boulby Grange and Ridge Farm, Ings Farm to the west is the furthest receptor away at 600m and there is a very prominent average wind direction of south west. Redhouse Farm is located down wind of the site, however is located 480m from the site boundary (and further away from dust creating activities), which is well beyond the 250m screening distance used to identify potential effects from dust. It is therefore considered that the four receptor locations are unlikely to receive any effects from dust that could interact with other subjects to affect significance.

Noise

10.3.1.5 With regards to noise, the Minerals PPG assessment method shows that all four receptors would have very similar predicted effects during daytime and night time operations, with daytime effects being 13 or 14 decibels below the identified guidelines and night time levels between 0 and 2 decibels below. The BS4142 assessment method shows a greater variety of noise levels, with daytime levels only showing as being above the standard levels for Ridge Lane (5 decibels above). For night time operations, all 4 receptors are showing as being above the standard levels, 7 or 8 decibels above for Redhouse Farm, Ings Farm and Ridge Farm and 10 decibels above for Boulby Grange. Although this should be noted in the context of the background noise at these locations being above the standard levels even when noise from Boulby Mine is removed from the assessment and that none of the effects identified under the PPG or BS4142 assessments are considered to give rise to significant effects in their own right. However,

Visual Impacts

10.3.1.6 Visual impacts are assessed as being substantial for Redhouse Farm and Ings Farm, both of which have largely uninterrupted views of the Mine, and moderate/substantial for Boulby Grange and

Ridge Farm where existing mature vegetation offers some screening effects. These are all considered to be significant effects in their own right.

10.3.1.7 Night-time visual impacts are assessed as being substantial to substantial / moderate at Ings Farm, Redhouse Farm and Boulby Grange, because of the largely uninterrupted views experienced of the site from these locations. Impacts are assessed as being substantial / moderate to moderate at Ridge Lane due to the screening provided by the mature tree cover. These are all considered to be significant effects in their own right.

10.3.2 Day Time Effects

10.3.2.1 For Redhouse Farm, Boulby Grange and Ings Farm, the day time noise levels are predicted to be below the existing baseline (using both methodologies) and therefore no increase in the adverse effects on human amenity are predicted during daytime operations.

10.3.2.2 At Ridge Lane, the BS 4142 assessment shows an increase of 5 decibels although the Minerals PPG assessment shows that noise levels would be well within all recommended limits within that guidance. It should be noted that the assessment process for noise has considered a 'worst case' scenario where operations continue at the levels experienced in 2017 (when both sylvinitic polyhalite processing was being undertaken) and the Proposed Development will eventually see a simpler these activities removed from the site. It is therefore considered that the worst case assessment may see Ridge Lane continue to experience some significant in-combination effects due to noise and visual impact, but these will already be reducing due to the ongoing noise abatement works undertaken at Boulby Mine and will continue to do so as operations change and plant is removed from the Boulby Mine site. This is predicted to lead to a situation where no significant in-combination effects are experienced at Ridge Lane.

10.3.3 Night Time Effects

10.3.3.1 For all four receptor locations, night time noise is assessed as being below, or in line with, recommend levels through the Minerals PPG assessment, and between 7 and 10 decibels above the standard levels in the BS4142 assessment. The night time visual assessment finds that substantial/moderate effects will occur at Ings Farm, Redhouse Farm and Boulby Grange. The visual effects are considered to be significant in their own right, and the noise effects not significant. The consideration in the in-combination assessment is therefore whether the visual and noise effect combined would lead to a greater negative effect than when experienced individually.

10.3.3.2 It is useful to note that the improvements proposed to the Mine Site from the deconstruction activities will reduce the extent and nature of the current effects from lighting on the receptors during night time conditions. So while significant effects are noted when assessed against the future baseline (of a restored site) the proposals will see an improvement from the existing situation. As with the day time noise assessment, this will also be relevant for the night time noise levels as well. It is therefore considered that the in-combination effects from noise and lighting on night time amenity will reduce in magnitude due to the proposals from the current situation.

11. Significance Conclusions

11.1 Review of Use of 'Moderate' Effects

- 11.1.1.1 Savills commented that the methodology in ES Chapter 2 for the identification of significant effects means that a 'Moderate' effect could be Significant or Not Significant but that no additional guidance is provided as to when the effects would fall either side of the classification. Savills concern with this approach is that, without an objective approach to the assessment of significance, there is the potential for some significant effects to be missed and therefore mitigation not provided.
- 11.1.1.2 The methodology in ES Chapter 2 does explain that Moderate effects will normally be Not Significant but there may be cases where some Moderate effects could be judged as Significant. Topic authors will use professional judgement to decide which is appropriate for their subject, and where it is considered to be Significant, the rationale for this conclusion will be provided.
- 11.1.1.3 To address the comment made by Savills a review has been undertaken of the ES Chapters to identify how Moderate effects have been categorised in terms of significance, and whether there is an explanation about why such a categorisation has been adopted. Where amendments have been found to be required, these are highlighted in bold text in Table 11.1.

11.2 Other Conclusion on Significance

- 11.2.1.1 The Savills review also highlights some conclusions where they do not believe sufficient explanation has been provided as to why that conclusion has been reached, or that the conclusion appears to be contradictory to the methodology provided. These comments are also considered in Table 11.1 with any proposed amendments highlighted in bold text.

Table 11.1 ES Moderate Effects Categorisation

ES Topic	Moderate effects categorisation	Rationale provided and Commentary
Chapter 2 Approach to Preparing the ES		ES Table 2.1 (guide to establishing level of effect) indicates that Moderate effects will be Significant. However, ES paragraph 2.2.15 states that Moderate effects and less are generally not deemed Significant, however, depending on the receptor being considered, it is possible that some potentially moderate effects could be judged as Significant. It is acknowledged that the wording here is slightly ambiguous. For clarity it is confirmed that ES Table 2.1 is amended to show that Moderate effects are generally Not Significant, but in certain circumstances could be considered to be Significant if the professional judgement for a relevant subject leads to that conclusion.
Chapter 5 LVIA	ES Tables 5.26 and 5.27 provide a summary of the landscape and visual effects. This identifies a number of receptors which would experience a Moderate effect, all of which are considered to be Not Significant. Moderate/substantial effects are classed as Significant. Slight/moderate effects are classed as Not Significant.	The ES Chapter includes a significance matrix (ES Table 5.6) where 3 levels of effect are referenced as Moderate: <ul style="list-style-type: none"> Moderate/substantial – Significant Moderate – possibly Significant Slight/moderate – Not Significant The ES Chapter states that judgements relating to the significance of individual effects are subject to interpretation and professional judgement, supported by the presentation of clear and accessible

ES Topic	Moderate effects categorisation	Rationale provided and Commentary
		<p>narrative explanations of the rationale, in accordance with GVLA3, and not solely the use of matrices.</p> <p>ES Appendix 5A then provides information on how sensitivity, susceptibility to change and magnitude of change is defined which provides clarity on how levels of effect are determined, and whether they are significant or not.</p>
Chapter 6 Noise and Vibration	<p>Moderate effects are not specifically used in the Significance methodology</p>	<p>The methodology in ES Chapter 6 sets out that the categorisation of whether an effect is Significant or Not Significant for noise takes a different approach to the standard methodology set out in ES Chapter 2, due to the guidance on noise assessments which is used to guide EIA work. Significance is instead based on the categories identified in the NPSE and NPPG – NOEL, LOAEL, SOAEL and UAEL.</p> <p>ES Chapter 6 sets out that Significant effects will occur above SOAEL. Exposure below LOAEL will be Not Significant. The ES Chapter states that, in determining whether exposure between LOAEL and SOAEL is a Significant effect, some professional judgement is required. ES paragraph 6.3.23 sets out what considerations will be used to inform this judgement.</p> <p>It is noted that the Savills review did not raise any concerns about the methodology and therefore it is considered that adequate explanation is provided as to the methodology for noise.</p>
Chapter 7 Air Quality and Dust	<p>The ES Chapter doesn't use Moderate effects.</p>	<p>The ES Chapter has screened out significant effects based on EPUK and IAQM guidance, the area being well below AQO and this not changing with the Proposed Development, and the lack of a source-pathway receptor. The criteria in both sets of guidance are clearly stated.</p> <p>The Savills review considers that the methodology is unclear and how significance is determined is not set out, and further clarification is required. The review also identifies that the assessment states that there are no significant effects associated with air quality and dust, but given the identification of complaints from local receptors it is recommended that this is acknowledged, and potentially further detail is provided</p> <p>This ES Chapter is different to the others in that significant effects have been screened out using acceptance guidance published by EPUK and IAQM. However, this methodology is clearly set out in the ES Chapter. The matter of the complaints raised regarding dust are considered in the amended Air Quality chapter submitted alongside this report, and it is further noted that the receipt of a complaint regarding any subject does not necessarily mean that an 'EIA significant' effect is occurring. It is therefore not considered that there is any need for further explanation or amendments in this chapter.</p>
Chapter 8 Traffic and Transport	<p>There is an inconsistency between the matrix table and explanatory text with regard to Moderate, with ES Table 8.6 not including a Moderate classification, but the text describing Moderate as being Significant.</p> <p>In addition, the assessment doesn't specifically refer to the sensitivity and magnitude of change categories (and subsequently the use of Moderate to other classifications) for each receptor.</p>	<p>Further information on Traffic and Transport and the use of moderate effects is provided in Section 11.3 below.</p>
Chapter 9 Ecology and Ornithology	<p>The significance evaluation methodology section describes that an effect will be assessed as Significant if the favourable conservation status would be compromised. The decision as to whether the conservation status has been compromised is made using professional judgement, drawing on the results of the assessment of how each receptor is likely</p>	<p>The Savills review states that out of date EclA guidelines are adopted. It identifies that the assessment was undertaken in accordance with the EclA Guidelines second edition, but the third edition was published in September 2018 and an update in September 2019. Savills comment that it would be reasonable to expect the assessment to be in accordance with the most up to date guidance available.</p> <p>Paragraph 9.2.3 of the ES Chapter does state that account was taken of the best practice in the CIEEM 2016 guidelines, but it also states that</p>

ES Topic	Moderate effects categorisation	Rationale provided and Commentary
	to be affected by the Proposed Development. 'Moderate' effects are not used in this ES Chapter.	during the course of the assessment updated EclA guidance (2018 guidelines ¹) was issued and where relevant, any changes/additional information provided in the 2018 guidance have been used in the assessment. Therefore the assessment has had regard to the most up to date guidelines available and the methodology used is considered correct. 'Moderate' effects are not used in this ES Chapter. Effects on the receptors included within the ES are described as 'Non-Significant adverse' and 'Non-Significant positive'. The conclusion on significance is based on a commentary that describes the effects that the Proposed Development would have. This is set out in section 9.7 of the ES Chapter. No changes are therefore proposed
Chapter 10 Marine Environment	Topic scoped out	n/a
Chapter 11 Historic Environment	Paragraph 11.3.14 of the ES Chapter highlights that because of the standard use of the word 'significance' when describing sensitivity of heritage assets and the confusion this could cause with EIA Significant effects, the chapter only describes effects as a description: Negligible/Low/Moderate/Substantial. Anything described as Substantial would be Significant in EIA terms.	The Savills review states that the significance matrix (ES Table 11.3) appears to be weighted in favour of effects being identified as Non-Significant, but the methodology is clearly defined. The significance matrix (ES Table 11.3) identifies that Significant effects would only occur where effects are Substantial, which is different to the original ES Table 2.1 which also identified Moderate effects as being Significant. However, given the comments made by Savills it is acknowledged above that ES Table 2.1 should be amended to better reflect the status of Moderate effects as generally 'Not Significant' (rather than generally Significant). This would bring the Historic Environment matrix in ES Table 11.3 into alignment with the general methodology and therefore cannot be considered to be weighted in favour of Non-Significant effects.
Chapter 12 Geology and Subsidence	The assessment makes use of the general methodology outline in ES Chapter 2.	No issues raised
Chapter 13 Tourism and Recreation	The assessment makes use of the general methodology outline in ES Chapter 2. The ES Chapter does use 'Moderate' effects.	The ES Chapter does use 'Moderate' effects, but there are examples where it is classed as a Significant effect. ES Paragraphs 13.5.13, 13.5.15 and 13.5.17 assess the effect on tourism accommodation where it is stated that there is a large magnitude of change that results in a Moderate and Significant negative effect. Tourism accommodation is classed as a medium sensitivity (ES paragraph 13.4.9). Based on the matrix in ES Table 2.1, a medium sensitivity receptor with a large magnitude of change would be a Substantial/moderate effect rather than just Moderate. In other paragraphs 'Moderate' effects have been treated as Not Significant, in line with the methodology in ES Table 2.1 The assessment of effects on the tourism accommodation receptors in Roxby, Ridge Hall Farm and west facing properties in Staithe is therefore amended to Substantial/moderate, although the overall conclusions remains the same: Significant.
Chapter 14 Climate	The ES Chapter does not make use of Moderate effects.	The ES Chapter does not make use of Moderate effects. The Savills review considers that a number of the conclusions are not clear and these are subsequently queried. Specific reference is made to needing clarification on why effects of carbon emissions from the plant are non-significant on a UK scale but reduced transport emissions resulting from the provision of fertiliser products from the plant is significant on a UK scale. It is considered that the reason for classing effects at a UK level as Not Significant in terms of carbon emission from the plant are given in ES paragraph 14.5.9 which concludes that the average CO ₂ e production figure from the mine in 2028 would equate to 0.005% of the UK total. No quantification is given for the transport of fertiliser to help understand why this is classed as a Significant positive effect. This conclusion was drawn due to the fact that supplying UK mined products

ES Topic	Moderate effects categorisation	Rationale provided and Commentary
		<p>to the UK market removed the need for shipping from international producers to the UK. On arrival at UK ports, the products then have to be transferred to HGVs and delivered by road to their final destinations. Maritime shipping emissions are difficult to calculate precisely as the emissions for every journey will be dependent on the ship used, the amount of product transported and the journey it undertakes. However, information from the EU, shows that between 2000 and 2014, CO₂ emissions from maritime transport averaged at 143 grams per tonne-km (i.e. each tonne of product produces 143 grams of CO₂ for every km travelled)⁷.</p> <p>The transport of that 80,000 tonnes of product to its final destination in the UK then needs to occur by road haulage. International shipments could make saving over ICL Boulby's products by utilising ports closer to the final destination but given the size of the UK and the location of ICL Boulby's markets within the UK, these savings are not expected to be of a substantial nature in comparison with the international shipping emissions.</p> <p>Emissions from road transport (from the same EU information) shows an average of 145g per tonne/km. So for example, ICL Boulby, supplying 80,000 tonnes of products to the Leeds area, would emit over 1400 tonnes of CO₂ from road haulage. However, a shipment from Amsterdam to Hull would generate over 3800 tonnes of CO₂ from the shipping (336km) and a further 1200 tonnes from the road haulage. The difference between the 1400 tonnes of CO₂ from Boulby and the 5000 tonnes from the international shipment is considered to be a significant, beneficial, difference.</p>
Chapter 15 Health and Safety	<p>The ES Chapter states that judgement is employed which draws on best currently available knowledge and experience, receptors, being human health and safety, will have the highest sensitivity rating, and given the nature of potential effects, the assessment of effects would be significant in almost all circumstances.</p> <p>The ES Chapter does not make use of Moderate effects.</p>	<p>No issues raised</p>

11.3 Traffic and Transport

11.3.1.1 There are two issues regarding the use of Moderate effects in the context of the Traffic and Transport assessment. The first is the inconsistency in the methodology between the matrix provided in ES Table 8.6 and the explanatory text, and the second is a lack of clarity on how the methodology has been used.

11.3.2 Methodology

11.3.2.1 The inconsistency between ES Table 8.6 and the text is due to an error in ES Table 8.6. The classification of effect where the magnitude of change and sensitivity combinations are Major/Low, Moderate/Medium and Minor/Low should be Moderate (rather than Major). The text in ES Paragraph 8.3.24 is correct in that these Moderate effects could however be Significant. This is different to the standard methodology described in ES Table 2.1 because, as explained in ES Paragraph 8.2.23, a Moderate effect would be one which creates a 'noticeable deterioration (or improvement) to the existing environmental effect'. For users of the highway network, this could be

⁷ https://www.eea.europa.eu/data-and-maps/daviz/specific-co2-emissions-per-tonne-2#tab-chart_1, last accessed 22/07/2020

Significant, although it is important to note that (as explained in (paragraph 8.3.14) the significance of effect has been based on GEART where possible. GEART advises that for many effects there are no simple rules or formulae that define thresholds of significance and there is a need for interpretation and judgement by the assessor backed up by data or quantified information wherever possible.

11.3.2.2 ES Table 8.6 is therefore amended to state:

ES Table 11.2 Significance Matrix

	Magnitude of effect				
		Major	Moderate	Minor	Negligible
Receptor sensitivity	High	Major increase/decrease – Significant	Major increase/decrease – Significant	Moderate increase/decrease – Significant	Negligible
	Medium	Major increase/decrease – Significant	Moderate increase/decrease – Significant	Minor to moderate increase/decrease – Not significant	Negligible
	Low	Moderate increase/decrease – Significant	Minor to moderate increase/decrease – Not significant	Minor increase/decrease – Not significant	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

11.3.3 Clarification of Assessment

Eastern Link

11.3.3.2 The eastern link consists of 6 sections, four of which are considered to be of negligible sensitivity, and two (through Staithes and Hinderwell) of Low sensitivity (ES Table 8.7). The traffic increases through the Eastern link as a result of the Proposed Development are calculated as being 5.5% in total vehicle terms or 60.7% for HGVs. A 60% increase in HGVs would be a Minor magnitude of change (ES Table 8.5) which would give a Negligible or Minor adverse effect, which is Not Significant.

Western Link

11.3.3.3 The Western link consist of seven sections, three of which are classed as negligible and three of which are classed as Low sensitivity. The seventh section, through the eastern part of Easington is classed as High sensitivity (ES Table 8.8). The traffic increases through the Western link as a result of the proposed development are calculated as being 24.1% in total vehicle terms or 97.4% for HGVs. A 97.4% increase in HGVs would give a Major magnitude of change.

11.3.3.4 On the three Negligible sensitivity sections, a major magnitude of change would give a Negligible and Not Significant effect.

11.3.3.5 On the three Low sensitivity sections, the matrix shows a Moderate and possibly Significant effect. Further analysis of the proposed numbers in ES Table 8.17 however, shows that the calculated traffic flows would equate to 3,648 vehicle movements, which would be well within the capacity of these roads which is between 10,192 and 27,777. The substantially different figure between the predicted traffic flows and the capacity of the roads has therefore led to a conclusion of effects being Not Significant.

11.3.3.6

On the High sensitivity section through part of Easington, a major magnitude of change would show in the matrix as a major adverse effect which would be Significant. ES Paragraph 8.6.15 goes onto explain how the high sensitivity rating was identified due to a lack of footway for three properties in this part of the village, and footways being narrow where they do exist. This section also explains how pedestrian activity from three dwellings would be negligible and the predicted development traffic along this route would be (on average) only one vehicle every minute. Therefore, the increase in the quantity of traffic and its impact on the severance, driver delay, pedestrian delay and amenity would actually be Not Significant.

12. Residual Effects

- 12.1.1.1 The comments received from the Savills Review are that residual effects are not clearly defined in the technical chapters of the ES. However for the majority of the ES Chapters the ES finds that there are no Significant effects. Each technical chapter has a section detailing the assessment findings which clearly states whether the conclusions are Significant or Not Significant. The conclusion that there are so few Significant effects can, in summary, be explained due to the fact the existing operations have been designed and operated in close accordance with the planning permissions and environmental permits issued over the years. The Proposed Development includes that all of the existing mitigation measures and operating procedures are continued. So even when considering the Proposed Development against a baseline of a restored site, there are few Significant residual effects to be identified.
- 12.1.1.2 For clarity, the residual effects which are identified (taking into account the updated work included in this document) are set in Table 12.1.

Table 12.1 Residual significant effects

Topic	Receptor	Notes
Landscape	Landscape Character Area 4a: Boulby to Whitby	<i>Within the site and for an area reaching approximately 2km outside of it, due to the loss of landscape elements within the site and the indirect effects of the large mine buildings on the surrounding area.</i>
	North Yorkshire and Cleveland Heritage Coast	<i>Significant effects within the Heritage Coast designation, within an approximate 2km radius from the Proposed Development site.</i>
Visual	Staithes Upper Town	<i>NB: Effects will range from Not Significant to Significant depending on exact location in this area</i>
	Cowbar	
	Boulby	<i>NB: Effects will range from Not Significant to Significant depending on exact location in this area</i>
	Hinderwell	<i>NB: Effects will range from Not Significant to Significant depending on exact location in this area</i>
	Individual properties of: Ings Farm Redhouse Farm Twizziegill Farm Boulby Barn Farms Cowbar Farm Seaton Hall Midge Hall group Borrowby Grange group	
	Recreational users of: Cleveland Way England Coast Path National Cycle Route 1 Some PRowS in and adjacent to the Site	

Topic	Receptor	Notes
	Drivers on: A174 Cowbar Lane	<i>NB: Effects on A174 will be Significant only in certain locations within the sections between Easington and the Site entrance (eastbound) and Hinderwell and the Site entrance (westbound).</i>
North York Moors National Park	Tranquillity	<i>For an area measuring less than 4% of the National Park</i>
Greenhouse gas emissions from operations	Climate change	
Greenhouse gas emissions from transport	Climate change	<i>The provision of product from a UK based source, rather than an international source, would create a Significant, beneficial, difference in emissions for transportation.</i>

- 12.1.1.3 In addition it is worth noting here that there is no way of accurately assessing the tourism impacts that either the existing mine or the Proposed Development are having/would have on tourism in the National Park as there are no means of accurately knowing what a baseline position without the mine in existence would mean for tourism. The ES acknowledges that there may be some Significant adverse effects on tourism receptors in very localised proximity to the Site, but concludes that the Proposed Development will not have a Significant effect on the general tourism offer of either this corner of the National Park or the wider National Park as a whole.

13. Mitigation

- 1.1.1 This ES Chapter collates the mitigation which is identified within the ES and this Further Information document to a single location so the recommendations can easily be identified and if necessary secured during the planning application process. This includes a range of mitigation measures which are incorporated within the Proposed Development, due to the way that Boulby Mine already operates or which have been built into the Proposed Development from the outset (Table 13.1 Incorporated Mitigation). It also includes the recommendations for mitigation which have been made in addition to these incorporated measures (Table 13.2 Recommended Mitigation).

Table 13.1 Incorporated mitigation

Measure	Method of implementation	Details
Phased transfer of operations to Teesside and associated deconstruction at Boulby Mine	Section 106 agreement	By 2027, the major processing operations will switch to a new processing facility outside of the National Park, resulting in a reduction in noise, dust arisings, emissions to air, water consumption and energy use at Boulby Mine. This proposal will also allow a number of buildings to be deconstructed at Boulby Mine, or reduced in scale, which will provide mitigation on landscape and visual effects, effects on the settings of heritage assets nearby, reduce surface water runoff and provide opportunities for early restoration of parts of the Mine Site.
Working scheme for deconstruction works	Planning Condition	Due to the fact the Mine Site will continue to operate around the deconstruction works, these works must be of a 'soft' nature, involving the deconstruction of structures rather than simpler demolition techniques. These deconstruction activities will reduce the noise and dust impacts arising from the works, on human and ecological receptors.
Consolidation of colour scheme across remaining buildings	Planning Condition	To improve the visual appearance and landscape impact of the remaining Mine buildings and structures (following deconstruction).
Dust control and associated monitoring	Planning Condition	The continuing implementation of dust control measures that are currently in place, and adherence to relevant best practice guidance, to minimise the arisings of dust from the Proposed Development.
Water pollution and associated monitoring	Planning Condition	The continuing implementation of water pollution control measures that are currently in place, and adherence to relevant best practice guidance, to prevent the pollution of water resources.
Atmospheric pollution implementation	Planning Condition	The continuing implementation of atmospheric pollution measures that are currently in place, and adherence to relevant best practice guidance, to ensure that the Proposed Development adheres to all permitted emissions allowances.
Subsidence and coastal erosion monitoring	Section 106 agreement	To monitor the effects of mining activities on subsidence and coastal erosion, but on a reduced programme from previous requirements, to minimise the effects of subsidence from the Proposed Development.
Limits on amount of product to be transported by road	Planning Condition	The existing restrictions include: Except with the prior written approval of the NYMNP, the total weight of material transported by road from Boulby Mine in any period of twelve consecutive months shall not exceed 150,000 tonnes. The maximum number of loads of Product to leave the Site by road during each day shall not exceed 66. Cleveland Potash shall send to the National Park Officer each month details of the numbers of lorries which have been used each day during the previous month for the dispatch of Product and such details shall include information on the direction of arrival and departure to and from the Site together with the type and tonnage of Product dispatched by road.

Measure	Method of implementation	Details
		All road transportation of product, including the temporary importation of MoP required, will take place within these limits to avoid local roads and their users being adversely affected by HGVs.
Avoidance of dust arisings from product transportation	Planning Condition	All road vehicles carrying mineral from the site shall be securely covered or sheeted and all rail wagons carrying mineral from the site shall be fully enclosed or covered to ensure that dust arisings from transport are minimised.
Avoidance of disturbance by HGVs transporting product	Section 106 agreement	To avoid local roads and their users being adversely affected by HGVs: No lorries to be used for the dispatching of Product shall enter the site before 6.45 am or leave before 7.30 am each day and no lorries to be used for the despatching of Product shall leave the Site after 7.00 pm each day. Lorries will only be loaded on site between 7.00 am and 5.30 pm Mondays to Saturdays inclusive No lorries shall leave the Site for the purpose of transporting Product on Sundays or Public Holidays. Cleveland Potash shall provide to its contractors as a condition of hauling for Cleveland Potash written instructions that the lorries of each contractor shall in particular not use the Blakey Ridge Road (C20) for access to the Site or for the dispatch of Product except for the purpose of direct access to properties along such road and in any event comply with the Hauliers Code of Good Practice.
Screening through tree planting	Planning Condition	Tree planting and management: alongside the A174 overlooking the site south eastwards from The Brows; alongside the A174 looking eastwards from the section of road near Red House Farm and the site entrance; and general screening around the operational area to screen low level minehead clutter and activity in views from the north and east
Management of existing woodland	Planning Condition	Management of existing woodland and tree planting areas around the operational area to retain screening properties and ecological value.

Table 13.2 Recommended Mitigation

Measure	Method of implementation	Details
Habitat management and creation	Planning Condition	Preparation and implementation of a Habitat Management Plan (HMP). Proposed as an enhancement measure to improve ecological habitats in and around the site, will also cover potential mitigation measures needed to manage effects on bat roost loss (from building 6) and potentially for impacts on GCN should these be identified during deconstruction, restoration or landscaping works. It is expected that a HMP will be required i) in relation to the deconstruction activities proposed, and ii) a later version in relation to the decommissioning of the Mine Site at the end of the Proposed Development. The HMPs will need to be coordinated with the Restoration Plans.
Pre-deconstruction ecology surveys	Planning Condition	Undertaking of ecology surveys in areas of deconstruction works to ensure that ecological or ornithological features remain the same as identified in the existing EIA works. Should any differences have emerged this will allow suitable mitigation to be

Measure	Method of implementation	Details
Restoration Scheme	Planning Condition	<p>put in place if needed. The most likely mitigation required would be for bats and possibly Great Crested Newts, and recommendations are likely to feed into the HMP as well.</p> <p>A detailed Restoration Scheme should be developed i) prior to deconstruction works proposed to confirm the restoration proposals and any early stage mitigation screening (identified in the LV/A) and ii) prior to the final decommissioning of the Proposed Development in 2048 to ensure the restoration of the site is undertaken in accordance with best practice at the time and is compatible with the matured restoration of the deconstruction areas. The restoration scheme would also be able to be used to provide measures to enhance the setting of historic assets in the nearby area at this time. The restoration schemes will need to be coordinated with the HMPs.</p>
Solar farm to offset greenhouse gas emissions	Planning Condition	<p>Proposals have been included for a solar farm on an area of land covering 7.5ha within Boulby Mine's landholdings. The proposals are in response to the requirements of Policy ENV8 of the new Local Plan to provide at least 10% of energy requirements from renewable sources. The location has been chosen to minimise the visual impact and the Technical Note: <i>andscape and visual implications for a proposed Solar Farm within the Boulby Mine site area and consideration of siting options</i> details this. If the NYMNP are content the proposals would be appropriate for this location, a planning condition could be used to confirm the scheme with full details to submitted prior to construction.</p>

13.1.1.1 With the recommended mitigation, it is considered that there will be Significant residual effects remaining on the landscape, from visual impacts and on tranquility. Further discussion on these effects, and how they affect the planning balance, will be undertaken with the NYMNP in the wider planning application and planning obligation meetings.

14. Corrections

14.1.1.1 A range of minor errors were noted in the Savills review and corrections and clarifications to these are provided here.

14.2 ES Table 3.1

Query: It is noted that ES Table 1 omits the key data that the Table is intended to show (i.e. distances to nearby residential properties).

Response: This is actually Table 3.1 in the ES. The corrected table is provided below.

ES Table 14.1 Distances to Nearby Residential Properties

Location	Distance to Mine Site boundary (m)
Ridge Hall (and holiday cottages)	80
Ridge Farm	130
East Ridge Lane Farm	150
West Ridge Lane Farm	145
Twizziegill Farm	340
Upyonda	15
Ings Farm	15
Alandale	25
Boulby Lodge	165
Boulby Grange	145
Boulby Barns Cottages	205

Location	Distance to Mine Site boundary (m)
Red House Farm	15

Distances are measured from the main Mine Site boundary, not the pumping station site boundary.

14.3 ES Paragraph 3.4.19

Query: ES para 3.4.19 refers to a review of site operations with the NPA every two years to confirm a rolling five year plan for consolidation of other structures on the Mine site, whereas the Planning Statement para 3.3.32 states that ICL Boulby will commit to a review every five years to confirm the scope and timescale for deconstruction activities. Clarification is requested.

Response: A review every two years is correct

Query: It would be helpful if the Traffic and Transport Assessment could provide clearer differentiation and assessment of the volume of traffic generated by the current and proposed future importation of MOP to Boulby Mine.

Response: All HGV movements for the transport of minerals or products will be unchanged from the current permitted movements of product e.g. a maximum of 66 HGVs per day can currently exit the site carrying product (which gives 132 movements, 66 in and 66 out). The import of MOP will make use of the previously empty HGVs entering the site to pick up product for export.

14.4 Missing Links to References.

Query: A number of missing links to references are noted in the text and should be corrected.

Response: The Word documents making up the ES text have been reviewed and no missing reference links have been found. However, if there are any specific queries over the reference links in the ES documents, Wood will be happy to review and correct if these can be provided.

Appendix A

Correspondence with Natural England regarding traffic emissions



wood.



09 March 2020
Ref – 40513-Wood-XX-XX-CO-OE-0001_A_1

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Liam O'Reilly
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Dear Liam O'Reilly

Boulby Mine, Loftus

Wood are acting on behalf of ICL Boulby in regard to the planning application NYM/2019/0764/MEIA currently under determination by the North York Moors National Park Authority. In response to your letter to Mark Hill at the North York Moors National Park Authority dated 18 December 2019, please find below information relating to transport numbers connected with the planning application NYM/2019/0764/MEIA. Please accept my apologies for the delay in responding to this letter, we have been awaiting further comments from the National Park Authority on the application which we are only just starting to receive.

The transport numbers presented in the planning application show a snapshot of transport movements as of 2017, but as the application explains, mining activity at the mine has fluctuated across many years in response to market demand for the minerals produced at Boulby. The majority of minerals products from the mine are transported by rail, with a dedicated rail line running from Boulby to Teesside. Minerals products exported by road are therefore limited to smaller shipments for more local customers. These road movements are limited by the current planning permission to a maximum of 66 a day, but with a yearly total of 150,000 tonnes.

Transport numbers for deliveries and for staff or visitor journeys are not restricted by the current planning permission and numbers are representative of production levels. The key driver behind the overall transport numbers are the staff journeys as this shows the greatest variance.

During periods of the mine's lifespan, staff numbers have been over the 1000 mark, but in the past decade direct employee numbers peaked at 992 in 2015, were at 651 in 2017 and dropped to a low of 439 in 2019. They then increased to 468 at the beginning of 2020 and are predicted to grow to the 820 mentioned in the planning application by 2023. In addition to the direct employees there will also usually be between 60-80 contractors on site.

Traffic numbers have therefore been extrapolated from the changing staff numbers to provide estimates of traffic movements by 2023. Due to new processing arrangements on site, staff and traffic numbers are expected to be maintained around the same level from 2023 through the duration of the planning permission. Information is also provided below from 2015 to provide some context for how the predicted traffic numbers compare to the historic figures (and not just 2017).



Continued...

Year	Mineral HGVs	Deliveries (HGVs and LVs)	Staff
2015	58	1182	1093
2017	38	776	718
2019	26	523	484
2023	48	977	903

All figures show daily vehicle movement numbers. So a figure of 2 would relate to one vehicle entering the site and then exiting again.

Of these vehicle movements, approximately 68% of the movements are to/from the west towards Loftus/East Cleveland and Teesside. With 32% travelling east towards Whitby. It is these eastward journeys that have the potential to pass through the North York Moors SPA and SAC. Minerals HGVs travelling east are required to follow a route along the A174 through Hinderwell, before joining the A171 via the B1266. 5.5km of this route pass with 200m of the SPA and SAC. Delivery and staff traffic is not subject to the same requirement and could either follow the same route, or continue on the A174 through Sandsend and into Whitby. The latter option is unlikely to be a route taken by any delivery HGVs due to the steep bank and narrow bridge crossing in Sandsend, but would be feasible for LVs.

It is therefore not possible to confirm the exact vehicle numbers that could pass within 200m of the SPA and SAC from the proposals. An absolute worst-case scenario (i.e. no eastward vehicles pass through Sandsend) would be for 16 minerals HGVs, 312 delivery vehicles and 290 staff vehicles to travel through the SPA and SAC each day. Whilst this would be an increase on 2017 and 2019 numbers, it would be a decrease of 17% from the historic traffic movement seen in 2015 and would be lower still than historic numbers prior to 2010.

I hope that this provides you with the information you need to assist with your consideration of the likely significant effects on the designated sites. If you have any further queries though, please get in touch.

Yours sincerely



Neil Marlborough

Technical Director

Direct Line – 0191 2726334

E-mail – neil.marlborough@woodplc.com



Marlborough, Neil

From: O'Reilly, Liam <Liam.OReilly@naturalengland.org.uk>
Sent: 07 April 2020 17:38
To: planning@northyorkmoors.org.uk; m.hill@northyorkmoors.org.uk; Marlborough, Neil
Cc: rob.smith@northyorkmoors.org.uk; Chris France
Subject: FAO Mark Hill RE: Traffic information for Natural England HRA request - NYM/2019/0764/MEIA

Dear Mark and Neil,

Thank you for submitting the additional information regarding the proposed vehicle movements from Boulby Mine and through the North York Moors SAC/SSSI.

Based on the additional information and plans submitted, Natural England considers that the proposed development will not have likely significant effects on the North York Moors SAC and has **no objection** regarding impacts to the North York Moors SAC/SSSI.

To meet the requirements of the Habitats Regulations, we advise you to record your decision that a likely significant effect can be ruled out. The following may provide a suitable justification for that decision:

- Using the average baseline between 2015-2019, the increase in AADT will only amount to 157 HGVs and 138 cars traveling through the North York Moors SAC. This is below the standard threshold set by [Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations](#) when determining a Likely Significant Effect;
- The figures quoted (in the letter dated 9th March 2020 from Neil Marlborough of Wood plc.) for vehicle movements traveling through the North York Moors SAC are precautionary. This is because they assume that all traffic travelling to and from the East of the proposal will go through the North York Moors SAC (on the A171).
- Under the past permission, staff numbers (and vehicle movements) were significantly higher than the current proposal;
- [Case Study F \(Atmospheric nitrogen profile for North York Moors SAC\) of the Improvement Programme for England's Natura 2000 Sites - Planning for the Future IPENS049](#) showed that road emissions were not a major contributing factor to nitrogen deposition on the SAC at current;
- Unit 113 (Ugthorpe moor) is intersected by the A171 and is currently in favourable condition;
- Although not directly related to impacts on the SAC, the proposed travel plan may provide some mitigation.

Please note that the advice we provided in our letter (dated 18th Dec 2019), is still pertinent in the determination of this application. In particular, we had **no objection subject to securing conditions** regarding landscape and we also pointed your authority to the standing advice regarding ancient woodland. Please consult the letter for the full details.

If you have any queries relating to the advice in this email or our letter (dated 18th Dec 2019), please contact me.

Kind Regards

Liam

Liam O'Reilly
Sustainable Development Lead Adviser
Yorkshire Area Team
Natural England
Lateral

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To prevent the spread of coronavirus (COVID-19) I am working from home, please send any documents to me by email during this time. I am also working reduced hours due to childcare commitments.

[Get environmental advice on your pre-application planning proposals using our chargeable advice service.](#)

We are here to secure a healthy natural environment for people to enjoy, where wildlife is protected and England's traditional landscapes are safeguarded for future generations.



From: Marlborough, Neil [<mailto:neil.marlborough@woodplc.com>]

Sent: 18 March 2020 11:32

To: m.hill@northyorkmoors.org.uk

Cc: Rob Smith <rob.smith@northyorkmoors.org.uk>; Chris France <c.france@northyorkmoors.org.uk>; O'Reilly, Liam <Liam.OReilly@naturalengland.org.uk>

Subject: Traffic information for Natural England HRA request

Mark

Please find attached information regarding the proposed traffic numbers from Boulby Mine, and how they relate to historic numbers through the designated sites on the North York Moors. This has been provided in response to the consultation comments received from Natural England and Liam O'Reilly from NE has been copied in here.

Regards

Neil

Neil Marlborough

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The logo for Wood, consisting of the word 'wood.' in a lowercase, bold, sans-serif font. The period is a solid dot.

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