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Cleveland Potash Ltd

# Boulby Mine Environmental Statement

Volume 1: Non-Technical Summary



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# Executive summary

## Purpose of this report

This Non-Technical Summary has been produced for the purpose of providing an easy to understand summary of the findings of an Environmental Impact Assessment undertaken on the proposals to extend the operational life of the Boulby Mine in the North York Moors National Park for a period of 25 years from 2023 to 2048.



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# 1. Introduction

Boulby Mine is an existing underground mine which was originally granted planning permission in 1968. Production commenced in 1973 and has continued at the site since that time. The Mine Site is located between the villages of Staithes and Easington, just inside the northern boundary of the North York Moors National Park. Mining has previously taken place underneath an area of land within the north east corner of the National Park, from near Mickley in the east to just past Easington in the west, before extraction operations moved offshore, under the North Sea.

Cleveland Potash Limited operates the Mine and trades under the name of ICL Boulby

Boulby Mine originally extracted a potash bearing mineral called sylvinite as well as rock salt, and then in 2010 also started extracting another mineral called polyhalite. The sylvinite was processed on site to form a range of potash products including Muriate of Potash (MOP). Polyhalite contains 4 of the essential nutrients that plants need to grow: sulphur, potassium, and to a lesser extent calcium and magnesium. Sylvinite extraction and processing ceased at Boulby Mine in 2018 and going forward the mine will focus on polyhalite and rock salt extraction only.

The Proposed Development would see mining continue in the offshore areas for a further 25-year period from 2023. The application will also include the deconstruction of some buildings and structures on site and the early restoration of this decommissioned land. The Mine Site and the proposed underground extraction area is shown on below.







## 2. The Proposed Development

The proposals would see the existing extraction of polyhalite and rock salt continue at the Mine, and for the processing of these materials to continue on site for the first 10 years of the planning permission. Within this 10-year period, ICL Boulby will be refining their processing activities for polyhalite in order to ensure the products they are creating meet the demands of their customers. Over this time period ICL Boulby intend to identify a new processing facility on Teesside, close to their dock facility, and will switch the refined processing activities over to the new Teesside site once it is up and running. At this time, processing activities at Boulby Mine will be scaled back to more simple processing operations focussing on the crushing and screening of the minerals.

To allow this period of processing refinement, minerals products would also be imported to Boulby Mine to combine with the polyhalite. This importation would be absorbed into the existing HGV movements which are permitted on the site. The proposals would not increase any permitted transport numbers, either for road or rail, for the movement of mineral or fertiliser products.

Over the initial 10-year period, a number of buildings that are no longer needed would be removed from the surface site. The land on which these buildings were located will then be landscaped. Remaining buildings will also have a consistent colour scheme introduced to improvement their appearance. The images below show the extent of changes which are commitments of the application.

It is also possible that other buildings on site would be able to be reduced in scale and ICL Boulby will commit to further discussions with the National Park Authority over securing additional improvements.

The Mine would then continue to extract polyhalite and rock salt and undertake the scaled down processing works until the end of the 25-year period being applied for.

At the end of this 25 year period, the Mine would be decommissioned with the underground workings closed and shafts filled and capped. All remaining structures would be demolished on the surface site. This is likely to take around 3 years and the land would then be restored to a mixture of woodland, nature conservation areas, agriculture and public access.



## 3. The Assessment

The Environmental Impact Assessment undertaken has examined the impacts arising from the mining activities, operational activities, energy used and transport generated on the landscape, people's views, noise, air quality, highway users, ecology, ornithology, historic environment, tourists, recreational activities, health of workers, subsidence and climate.

Although the Proposed Development would see the continuation of mining and associated activities at Boulby Mine, the assessment has been undertaken against a consideration of a future scenario where the mine is not operational: the scenario which would be relevant for the 25-year period if the proposed Development did not go ahead. Certain assumptions have therefore had to be made for some subjects as to how that future scenario would look of that subject.

The summaries of the assessments undertaken are provided below.

### 3.1 Landscape and Visual Impact Assessment

The Landscape and Visual Impact Assessment (LVIA) has been undertaken by chartered landscape architects at Wood in accordance with the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (Landscape Institute and IEMA, May 2013), hereafter referred to as GLVIA 3. The assessment process has encompassed the operational, decommissioning and restoration phases of the Proposed Development.

Consultation relevant to the landscape, visual and cumulative assessment has been undertaken with North York Moors National Park (NYMNP) who commented on aspects of methodology, sources of information, scope of assessment and the visual assessment.

#### Mitigation and Restoration

A number of measures are proposed to mitigate the effects of the Proposed Development for landscape and visual receptors. The measures have been developed following consultation with NYMNP and include; the protection of existing areas of woodland and scrub within the site during the operational period; the introduction of additional planting to provide screening of the building in key views and the application of a finish to unify and improve the appearance of the mine buildings.

Following decommissioning of the mine a restoration scheme will be implemented which will comprise a mix of naturalistic landscape elements including broad leaved woodland, scrub, meadow and improved agricultural land.



## Significant Landscape and Visual Effects

In order to assess the effects of Development on the landscape, it is important to first understand the characteristics in which schemes are to be located. Landscape Character Types and Areas are identified to allow an assessment of the effect a scheme will have on different types of landscape. Likely significant effects arising as a result of the Proposed Development would be contained within the host Coastal Hinterland (Boulby to Whitby), and two other areas of surrounding landscape character within approximately 5km of the Proposed Development. The LVIA has identified that there will be significant landscape effects experienced within this area to a maximum distance of 1.5km from the site.

Significant effects would be experienced in relation to three of the twenty eight special qualities of the North Yorkshire Moors National Park and for a restricted area of the North Yorkshire and Cleveland Heritage Coast.

A Zone of Theoretical Visibility (ZTV) has been produced to show the theoretical visibility of the Proposed Development; the ZTV indicates that the primary visibility will be within 5km of the Development Site. An assessment has been completed to consider the effects the scheme would have on a number of identified receptors including settlements, transport and recreation routes and the closest individual properties and groups of properties within 2km. Significant visual effects have been assessed on three settlements, six property groups two transport routes, three regional recreational routes, and six areas of the public right of way network all contained within approximately 2.5km of the Proposed Development.



## 3.2 Noise and Vibration

This assessment considers the environmental effects of Noise and Vibration effects associated with the operation of Boulby Mine upon existing sensitive receptors. Noise surveys have been undertaken at the Mine Site during operations, and during a shutdown period to provide a view of what noise is generated by the mine and what noise is likely in the area if the mine wasn't operating.

The assessment found that there would be no significant effects on noise sensitive receptors from either operational activities or road traffic associated with the development. This is due to the nature and level of noise sources and the location and layout of the receptors.

## 3.3 Air Quality and Dust

A source-pathway-receptor semi-quantitative assessment was carried out in relation to air quality and dust 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 generally within recommended levels, as well as there being very few sensitive receptors in the area, it is concluded that there will be no significant effects.

## 3.4 Traffic and Transport

This assessment considers the environmental effects of the traffic generated by Boulby Mine on the surrounding local road network. The assessment takes into account the forecast future day to day operation

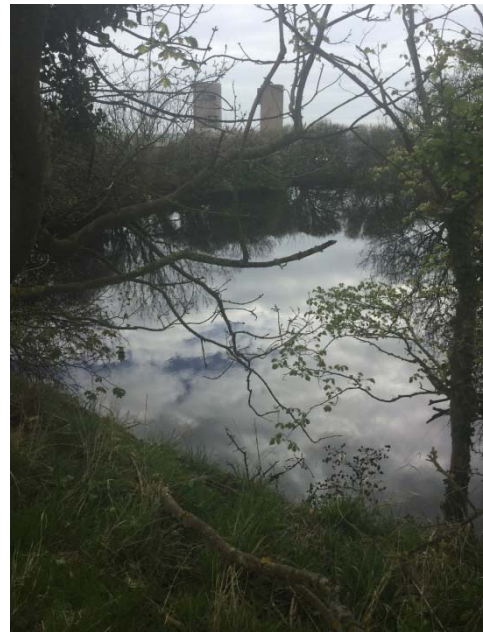
of the site and assesses these movements against the Institute of Environmental Management and Assessment (IEMA) guidelines which specify general thresholds for traffic flows that trigger the need for the assessment of effects.

This chapter analyses the impacts on sensitive receptors for the two main routes between Boulby Mine and the wider higher network. It has been established that for a future baseline of 2048, the impact of the development triggers the threshold for further assessment on all sections of both routes, for which further analysis has confirmed that the impact is not significant.

### 3.5 Ecology and Ornithology

This assessment considers the environmental effects of the proposed development on biodiversity, including any effects within the Mine Site of the proposed development and the surrounding area. The assessment has considered the potential effects of the proposed development on statutory and non-statutory biodiversity sites, priority habitats and species, and legally protected and controlled species that are within a defined zone of influence (ZOI). These are the sites, habitats and species that are of sufficient importance that effects upon them could be significant and are therefore the focus of the assessment. Those present, within the ZOI, and for which a potential effect is possible are listed below:

- North York Moors SAC;
- North York Moors SPA;
- Bats;
- Great crested newts (GCN);
- Amphibians;
- Notable aquatic fauna (for example brown trout);
- Birds;
- Invertebrates;
- Terrestrial mammals;
- Semi-aquatic mammals; and
- Reptiles.



During the future baseline phases (operational, decommissioning and restoration, and aftercare and semi-maturing restored site) the assessment concludes that there is potential for direct and indirect effects, none of which are significant, upon valued biodiversity receptors. These are primarily linked to the removal of or disturbance to habitats to allow for operation, decommissioning and restoration, and may necessitate the need for derogation licensing in some instances.

During the operational phase the potential for direct and indirect effects is considered to be limited to statutory sites only, with potential for direct and indirect effects on bats and GCN during the decommissioning and restoration phase. The restored site phase has the potential for effects on a range of ecology receptors. The receptors assessed within the ES are those that potentially could be significantly affected by the Proposed Development on the Mine Site.

Environmental measures incorporated into the proposed scheme would include minimising land take within valued habitats, habitat creation and management, the employment of standard best practice working methods, and replanting of habitats as close to their location and type as is possible, with the aim of

biodiversity gain. A Habitat Management Plan (HMP) would be developed, which incorporates all mitigation measures.

For the purpose of this chapter, "the Mine Site" is shown in Figure 1.3 and includes the "operational area" and the surrounding landholdings owned by Cleveland Potash Ltd. "Operational area" is defined as the mine footprint, ~32ha. "Offsite" is used to describe any land outwith the Site. The proposed development consists of four phases, the "working" phase which will be the continuation the working mine until 2048. "Demolition and landform creation" from 2048-2052 includes the decommissioning of the mine, site clearance, ground reprofiling, soil replacements and planting. "Restoration and aftercare" (2052-2057) and established site (2057 onwards).

The future baseline phase "Decommissioning and restoration area" is defined as any area within the Mine Site where works such as decommissioning of the mine, site clearance, ground reprofiling, soil replacements and planting will occur. The "restored site" is defined as the restored land following decommission and restoration.

### 3.6 Historic Environment

This assessment considers the effects of the proposed development upon the historic environment and incorporates an assessment of indirect effects upon designated assets that surround the site. Due to the indicative nature of restoration plans and the potential for the historic environment to be better recorded during the continued operation of Boulby Mine direct effects and indirect effects upon non-designated assets arising from decommissioning of the proposed development have not been assessed at this time. The assessment of indirect effects has been undertaken to the presence or eventual absence of the mine's buildings alone.



The assessment has identified that no significant negative effects would occur as a result of the continued use of the Boulby Mine although there is the potential for significant beneficial effects to arise from the restoration of the site.

### 3.7 Subsidence

This assessment considers the environmental effects of subsidence resulting from the Proposed Development. Subsidence caused by Boulby Mine has been monitored on a regular basis since 1976 and so a good knowledge of the subsidence patterns has been established. The results of the subsidence monitoring indicate that the area affected by the workings is wide but that, as a result, the ground subsides in a uniform manner and that the possible effects of potentially damaging differential settlements and lateral strains are of a very low magnitude.

The subsidence which has occurred since 1976 is predominantly a result of the extraction of sylvinite. Sylvinite has more elastic properties than the salt or polyhalite which is also extracted, and the voids left behind by its extraction slowly close up over time. The rock salt and polyhalite materials which are worked have very different qualities to the sylvinite. These are much harder seams with less elastic properties than sylvinite. These properties, plus the methods of working, mean that the risk and rate of any subsidence is reduced.

The existing voids in the sylvinite seams will continue to be monitored and managed to reduce their closure where appropriate as part of the Proposed Development. The extraction of polyhalite and salt to take place within the Proposed Development, plus the continued management of the sylvinite subsidence, will mean the rates of subsidence occurring at the surface are estimated to slow over the Proposed Development period from what has been recorded since 1976. Therefore, no significant effects have been predicted.



### 3.8 Tourism and Recreation

This assessment considers the environmental effects of the Proposed Development on tourism and recreation. It focuses on recreational activities, public access and any indirect effects on tourism and the perception of visitors to the area. No information is available on how popular the local area would be for tourism and recreational activities without Boulby Mine being present. No records exist from prior to Boulby Mine being developed and there is no way to quantify what level of effect the Mine may have had. Instead the assessment has considered how tourism and recreational activity is established in the local area, with Boulby Mine being in existence. Some significant adverse effects are likely to be occurring on tourist accommodation facilities in very close proximity to Boulby Mine. The proposals to continue operations at the Mine are not considered to create significant effects on recreational users in the nearby area, or on tourism facilities further afield in the National Park.



### 3.9 Climate

This assessment considers the environmental effects of the Proposed Development on climate, taking into account energy use and associated greenhouse gas emissions and the effects that the provision of fertiliser products can create. The assessment finds the Boulby Mine would be a significant source of greenhouse gas emissions within the National Park, which would create a significant adverse effect at this level. Looking more widely at the Redcar and Cleveland level and up to the national level, these effects would be adverse but not significant. The provision of fertiliser products to the UK market from a UK source would bring significant positive effects.



### 3.10 Health and safety

This assessment considers the effects of the mine operations on the health and safety of employees at Boulby Mine. Mining is an inherently dangerous activity and Boulby Mine is heavily regulated by the Health and Safety Executive and the Mines Inspectorate. It cannot operate without the approval of these organisations. So whilst the operational activities proposed create a significant risk to the health and safety of employees, every effort is made to undertake working at the mine in a safe and healthy manner.



## 4. Mitigation

The Environmental Impact Assessment considers various mitigation measures which are incorporated into the design of the Mine, and also makes recommendations for further measures which will either reduce the level of effects identified or enhance positive effects.

Amongst others, these measures include:

- Phased transfer of operations to Teesside and associated deconstruction at Boulby Mine;
- Dust control, water management and atmospheric emissions management, and associated monitoring;
- Subsidence and coastal erosion monitoring;
- Limits on movement of product by HGV;
- Management of existing woodland;
- Finish of buildings;
- Creation of a Traffic Plan to encourage transport away from private car use;
- Habitat management and creation, and specific measures for bats and great crested newts;
- A restoration scheme for when the Mine is decommissioned.



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