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# REPORT

## **Phase 12 - Woodsmith Mine Construction Traffic Management Plan**

### **Woodsmith Mine Phase 12 - CTMP**

Client: Sirius Minerals PLC

Reference: 40-RHD-WS-70-CI-PL-0016 REV 1

Status: 01/Final

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Classification

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## Table of Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Background	1
<b>2</b>	<b>CTMP Co-ordinator (Objective 1)</b>	<b>2</b>
<b>3</b>	<b>Control of Personnel Movements (Objective 2)</b>	<b>3</b>
3.1	Introduction	3
3.2	Project Background	4
3.3	Objective 2 Target	4
3.4	Objective 2 Measures	4
3.5	Objective 2 Monitoring	6
<b>4</b>	<b>Control of HGV Movements (Objective 3)</b>	<b>6</b>
4.1	Introduction	6
4.2	Project Background	6
4.3	Objective 3 Target	7
4.4	Objective 3 Measures	7
4.5	Objective 3 Monitoring	8
<b>5</b>	<b>Monitoring Strategy (Objective 4)</b>	<b>8</b>
<b>6</b>	<b>CTMP Management Structure (Objective 5)</b>	<b>9</b>
6.1	Introduction	9
6.2	Purpose	9
6.3	Frequency and Duration	9
6.4	Outputs	9
6.5	Scope	9
<b>7</b>	<b>HGV Route Compliance (Objective 6)</b>	<b>10</b>
<b>8</b>	<b>Managing Road Safety (Objectives 7 &amp; 11)</b>	<b>10</b>
8.2	Background	10
8.3	Objectives 7 & 11 Measures and Reporting	11
<b>9</b>	<b>Driver Training (Objective 8)</b>	<b>11</b>
<b>10</b>	<b>CTMP Communication Procedures (Objectives 9 &amp; 10)</b>	<b>12</b>
10.2	Communications	12
10.3	Reporting	12

10.4 Complaints 12

**11 Enforcement (Objective 12) 12**

### Table of Tables

Table 1-1 Condition NYMNPA-34 Construction Traffic Management Plan 1

Table 3-1 Employee travel plan measures 5

### Table of Figures

Figure 2-1 CTMP Management Structure 3

Figure 5-1 Unique vehicle identifier 8

### Appendices

Appendix A CTMP Co-ordinator responsibilities & Timescales

Appendix B Peak Daily HGV Movements

Appendix C Delivery Pack Template

Appendix D Community & Stakeholder Engagement Framework

Appendix E Complaints Mechanism

## 1 Introduction

### 1.1 Background

- 1.1.1 In 2014 a planning application (reference NYM/2014/0676/MEIA) was submitted to the North York Moors National Park Authority (NYMNPA) for permission to develop a polyhalite mine and underground Mineral Transport System (MTS). Planning permission was subsequently granted in 2015, subject to conditions, as varied in February 2018 by NYM/2017/0505/MEIA. The planning applications were supported by a series of documents which considered the impact and management of transport matters.
- 1.1.2 This document has been prepared on behalf of Sirius Minerals plc (Sirius Minerals) and details the requirements with respect to traffic management for Phase 12 at Woodsmith Mine (see paragraph 1.1.4 below). This document is required to partially discharge condition 34 of the planning permission.
- 1.1.3 **Table 1-1** contains full details of condition 34 and how this document addresses the objectives.

Table 1-1 Condition NYMNPA-34 Construction Traffic Management Plan

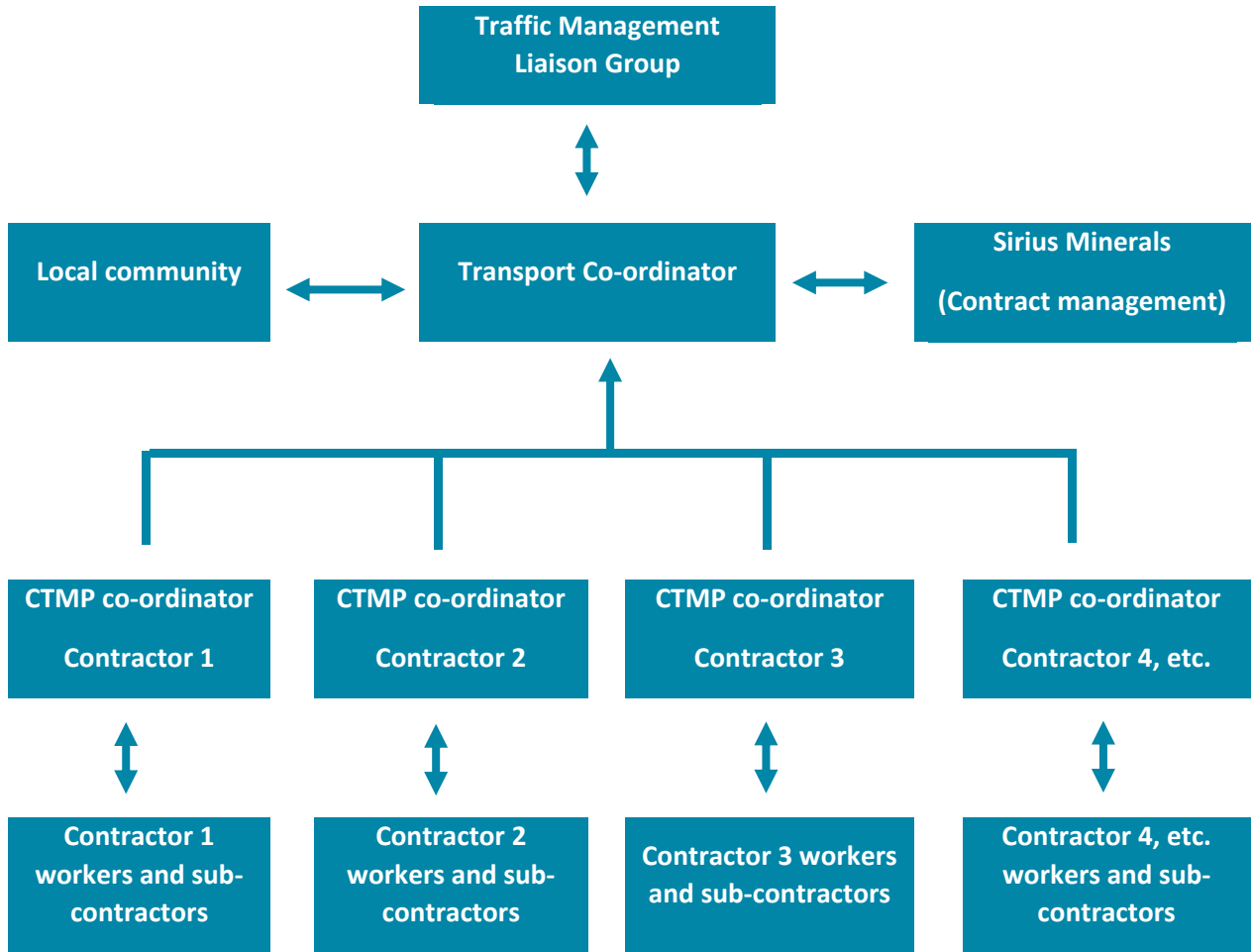
Objectives	Condition	Compliance with Condition NYMNPA-34
	Prior to the commencement of each Phase of Construction a Construction Traffic Management Plan (CTMP), based upon the submitted Framework Construction Traffic Management Plan dated February 2015 shall be submitted to, and approved in writing by the MPA [Mineral Planning Authority] in consultation with the appropriate Highway Authority. The approved Construction Traffic Management Plan shall be adhered to throughout the construction period unless otherwise agreed in writing with the MPA. The statements shall provide for:	-
Objective 1	The appointment of a CTMP co-ordinator	<b>Section 2</b>
Objective 2	Measures to control the number of employees travelling individually to the sites and their mode of travel	<b>Section 2</b>
Objective 3	The Traffic Management Liaison Group agreed level of HGV trips to the site	<b>Section 4</b>
Objective 4	Measures to identify HGVs associated with the development travelling to the construction sites	<b>Section 5</b>
Objective 5	The links to the Traffic Management Liaison Group	<b>Section 6</b>
Objective 6	Signing for HGV routes including prohibitive signing	<b>Section 7</b>
Objective 7	Accident record monitoring	<b>Section 8</b>
Objective 8	Driver training	<b>Section 9</b>
Objective 9	A communications plan	<b>Section 10</b>
Objective 10	A complaints mechanism	<b>Section 10</b>
Objective 11	An incident reporting mechanism including near misses	<b>Section 8</b>
Objective 12	A penalty system for breaches of the agreed CTMP	<b>Section 11</b>

- 1.1.4 Phase 12 will comprise of the following activities:
- Assembly and operation of Shaft Boring Roadheaders (SBRs) at both Service Shaft and Production Shaft;
  - Installation of additional welfare cabins;
  - Installation of segregated materials bunker;
  - Creation of laydown area for segment and tubing storage;
  - Installation of lightning protection and canopy to SSUs; and
  - Installation of access control measures.
- 1.1.5 Phase 12 works are currently programmed to commence in July 2020. Upon commencement of Phase 12 this CTMP will supersede previous CTMPs. It considers processes and controls with respect to all activities on site throughout Phase 12.
- 1.1.6 This CTMP has been prepared by Royal HaskoningDHV in liaison with the Contractors and is structured in the same way as the CTMPs for previous phases.

## 2 CTMP Co-ordinator (Objective 1)

- 2.1.1 Objective 1 of planning condition NYMNPA-34 requires the CTMP to set out the processes for the appointment of a CTMP co-ordinator.
- 2.1.2 Prior to the commencement of Phase 12, a CTMP co-ordinator (CTMPCo) will be appointed by the relevant Contractors for the duration of their respective phases. Their key responsibilities are as set out for previous phases (see Phase 4 CTMP, reference 40-RHD-WS-70-CI-PL-0004) and in the action plan (**Appendix A**).
- 2.1.3 During Phase 12 the numbers of Contractors will change as discrete contracts (work packages) are completed/commenced. Each Contractor will be required to appoint its own CTMPCo for their contract, and the CTMPCos will be required to collaborate to ensure that site-wide measures are co-ordinated and targets are met. The Contractors have each confirmed that a member of the site-based teams will undertake the roles of the CTMPCo as part of their weekly responsibilities, with an adequate time allowance made for them to undertake this function.
- 2.1.4 Recognising that the CTMPCos will be appointed by Contractors working on discrete contracts only, Sirius Minerals has developed the role of the Transport Co-ordinator (TCo) to take responsibility for the overall implementation of the CTMP for Woodsmith Mine. The TCo role was established initially for Phase 2 and will cover the entire duration of the construction phase, including and beyond Phase 12. The TCo responsibilities remain as set out in previous CTMPs (see Phase 4 CTMP, reference 40-RHD-WS-70-CI-PL-0004) and in the action plan (**Appendix A**).
- 2.1.5 The relationships between the CTMPCos, TCo and other parties are shown in **Figure 2-1**.

Figure 2-1 CTMP Management Structure



2.1.6 Contact details for the CTMPCOs and TCo will be submitted to North Yorkshire County Council (NYCC) Highways and the NYMNPAs for their records prior to commencement of Phase 12.

### 3 Control of Personnel Movements (Objective 2)

#### 3.1 Introduction

3.1.1 Objective 2 of planning condition NYMNPAs-34 requires the CTMP to set out measures to control the number of employees travelling individually to the sites and their mode of travel.

3.1.2 To ensure that Sirius Minerals and its contractors can comply with the UK Government advice regarding social distancing (related to Covid 19), the measures set out within this section to control the number of employees travelling individually may need to be temporarily suspended or amended.



## 3.2 Project Background

3.2.1 The Transport Assessment that accompanied the planning application assessed a worst-case traffic generation associated with the peak construction period. It was recommended that a reduction in single occupancy car trips be encouraged through the promotion of car-pooling and Park & Ride, and noted that details of traffic mitigation will be determined progressively as contractors are appointed. The assessment considered three potential journey options to provide flexibility, being:

- Option 1: Private minibus transport - pick-up from pre-determined points such as transport interchanges, accommodation clusters etc. and direct transfer to site;
- Option 2: Park & Ride - site located off the A171 south of Whitby (opposite Whitby Business Park). Car pool to Park and Ride, bus transport to site; and
- Option 3: as per option 2 but with a reduced commute reflecting up to 400 workers being accommodated at a purpose-built construction village and Park & Ride.

## 3.3 Objective 2 Target

3.3.1 The Transport Assessment utilised assumptions regarding employee numbers and origins. All three journey options set out in paragraph 3.2.1 were considered and it was established that the worst case for traffic movements at Woodsmith Mine would be associated with journey option 1. The Transport Assessment forecast a peak of 120 two-way daily movements to and from Woodsmith Mine (i.e. 60 vehicles arrive and 60 depart) and proposed that as a target. The following section sets out how this target will be achieved for Phase 12. This figure includes all 'contract staff' i.e. Contractors and their associated sub-contractors and suppliers. The figure does not include any 'non-construction' staff (i.e. Sirius Minerals managerial staff, statutory consultees etc.).

## 3.4 Objective 2 Measures

3.4.1 For the initial phases Sirius Minerals and its Contractors complied with the target daily vehicle movements through the adoption of a multi-occupancy vehicle strategy. This strategy allowed some employees to drive direct (either single occupancy or car-sharing), whilst providing scheduled shuttle bus services from pre-arranged locations to Woodsmith Mine for others.

3.4.2 As the numbers of employees based at Woodsmith Mine increased, Sirius Minerals supplemented the multi-occupancy vehicle strategy through the provision of 187 parking spaces at the existing NYCC Park and Ride facility to the west of Whitby (Cross Butts). Employees are then transferred by bus from Cross Butts to Woodsmith Mine.

3.4.3 Subsequent to the opening of the Cross Butts facility in October 2018, as the numbers of employees based at Woodsmith increased to meet construction demand, the availability of parking spaces at Cross Butts became scarcer. Sirius Minerals has therefore sought to add additional park and ride capacity to the south of Woodsmith Mine near to Scarborough. This additional capacity has been provided through an agreement with the Scarborough Rugby Club to make use of their parking. The majority of the circa 200 parking spaces are not used during the week and have therefore been made available to Sirius Minerals. Similar to the approach adopted for Cross Butts, employees are transferred by bus or minibus from the

Scarborough Rugby Club direct to Woodsmith Mine.

- 3.4.4 The Contractors have confirmed that, for Phase 12, the number of employees based at Woodsmith Mine per day will peak at up to 765 people. It is anticipated that these employees will be split across two shifts with approximately 450 working during the dayshift and the remaining 315 working during the nightshift. When considering the shift patterns, it can be calculated that the cumulative park and ride capacity (approximately 387 spaces) within Cross Butts and at the Scarborough Rugby Club would provide capacity for the majority of employees.
- 3.4.5 The CTMPCos will be required to ensure that employees are either permitted to park at Cross Butts, Scarborough Rugby Club or are offered 'alternative arrangements'. These alternative arrangements either include the issuing of a permit to allow them to drive to Woodsmith Mine (either single occupancy or car-sharing) or require them to utilise bus/minibus services from pre-arranged locations to Woodsmith Mine.
- 3.4.6 The TCo will issue each Contractor with a set number of parking permits for Woodsmith Mine, to ensure the target of '60 in and 60 out' vehicle movements at Woodsmith Mine can be achieved.
- 3.4.1 **Table 3-1** provides further details of the key mechanisms to ensure compliance with the target of '60 in and 60 out' vehicle movements at Woodsmith Mine and the rationale for the measures.

Table 3-1 Employee travel plan measures

Measures	Rationale and notes
Provision of park and ride facilities from Cross Butts	187 parking spaces are provided at Cross Butts to allow selected employees to park offsite and then to be transferred direct to Woodsmith Mine by bus. These buses are permitted to travel to Woodsmith Mine via the B1416 through Ruswarp except around school and network peak hours (08:00 – 09:00 and 15:00 – 17:00). During these hours the bus transfers will be required to take the longer route along the A171 to Whitby before heading south on the A171 through Hawsker towards the B1416. The bus movements from Cross Butts to Woodsmith Mine are not be included within the target 120 two-way movements.
Cross Butts access controls	In order to prevent more employees travelling to Cross Butts than there are parking spaces, the TCo and CTMPCos will introduce and maintain access controls. To gain access to the Cross Butts facility, drivers are required to swipe their Sirius Minerals identification card. The TCo and CTMPCos will therefore regularly review the number of identification cards issued (with Cross Butts access permission) to ensure vehicle numbers to Cross Butts are no greater than available parking spaces.
Provision of park and ride facilities from Scarborough Rugby Club	Parking spaces are provided at Scarborough Rugby Club to allow selected employees to park offsite and then to be transferred direct to Woodsmith Mine by bus or minibus. The bus/minibus movements from the Scarborough Rugby Club to Woodsmith Mine are not be included within the target 120 two-way movements.
Provision of bus and minibus services	The CTMPCos will establish their own fleet of minibuses/buses. These minibuses/buses will transfer employees from pre-agreed locations, such as, employee accommodation centres and local pickup points direct to Woodsmith Mine.
Issue parking permits	To prevent more vehicles turning up at Woodsmith Mine than are permitted, the TCo will issue each CTMPCo with a number of passes. The CTMPCos will prioritise the issuing of passes, to include, disabled drivers, minibus drivers and those who are car sharing.
Drivers required to park in marked bays and a display	All drivers to Woodsmith Mine will be required to park in marked bays and display their parking permit to prevent unauthorised parking. Drivers not parking in marked bays

Measures	Rationale and notes
parking permit	or displaying their permit will be subject to the enforcement action as set out in <b>Section 11</b> . Visitors outside the control of the Contractors and Sirius Minerals, e.g. NYCC Highways, Health and Safety Executive, etc. would not require a permit and additional parking spaces would be made available for these types of visitors.
Restricted access to site by foot	To prevent employees driving close to Woodsmith Mine and parking on the highway verge etc. and then walking in to the site, personnel will not be permitted to enter the site on foot unless by prior arrangement with a CTMPCo (for instance, for genuine walking trips).
Restrict parking on the B1416	To prevent employees driving close to Woodsmith Mine and parking on the highway verge along the B1416 and then walking in to the site, a 'clearway' traffic regulation order has been implemented. This clearway will remain in place for the entire duration of the construction phase.

### 3.5 Objective 2 Monitoring

- 3.5.1 The light vehicle movements associated with Phase 12 will be continuously monitored by a permanent classified Automatic Traffic Counter (ATC) positioned at the site access.
- 3.5.2 The Contractors have also confirmed that all workers and visitors are required to sign in and out of the site. This process will also capture the employees' method of travel to give a complete evidence base.
- 3.5.3 For the duration of the construction phase, ATC data, sign in sheets and surveys of parking will be collated by the CTMPCos. This will ensure that any issues are identified at an early stage and any necessary remedial action taken promptly.

## 4 Control of HGV Movements (Objective 3)

### 4.1 Introduction

- 4.1.1 Objective 3 of planning condition NYMNPA-34 requires the CTMP to set out the TMLG agreed level of HGV trips to the site.

### 4.2 Project Background

- 4.2.1 The HGV traffic generation that informed the planning application was derived by way of a 'first principles' approach. This generates traffic volumes from an understanding of material quantities and personnel numbers, informed by industry experienced consultants.
- 4.2.2 The application identified that, of the potential suppliers within the study area, Teesside was the most likely source for all materials. As such, the primary haul route assumed that all HGV trips will have an origin and destination in that region utilising the A171 corridor to access the site (via the B1416 south to avoid Ruswarp).
- 4.2.3 **Appendix B** (reproduced from the Transport Assessment that accompanied the planning application) illustrates peak forecast HGV movements from the Woodsmith Mine site of 127 daily two-way HGV movements. These deliveries were considered to occur within a 12-hour

window (7am to 7pm), Monday to Saturday, with Sunday reserved for incidental deliveries equivalent to 12 two-way movements (also between 7am and 7pm).

4.2.4 The application also identified that quarries along the A170 between Pickering and Scarborough could potentially provide some of the aggregates required. Therefore, two alternative haul routes were established:

- B1416, A171 (Scarborough), A170 Wykeham; and
- B1416 (south), A171 (Whitby), A169 (Pickering), A170 (Pickering).

4.2.5 NYCC Highways advised (as noted within the Transport Assessment) that they do not wish to see an escalation of HGV traffic on these alternative routes above those occurring historically within the existing permissions for the quarries.

4.2.6 **Appendix B** (reproduced from the SEI) illustrates a peak HGV assignment compliant with NYCC's position on the southern haul routes, of 40 two-way HGV movements from Wykeham to Woodsmith Mine routing via the A171 and 26 (two-way movements) from Pickering to Woodsmith Mine via the A169.

### 4.3 Objective 3 Target

4.3.1 To meet objective 3, the starting point for controlling HGV movements is to define a target for the maximum number of daily HGV trips to site.

4.3.2 An appropriate 'rounded' target is to focus on managing a daily profile of no more than 126 two-way HGV movements (63 in and 63 out) from Woodsmith Mine, of which no more than 40 two-way movements (20 in and 20 out) should originate from the A171 via Scarborough and 26 (13 in and 13 out) via the A169 from Pickering.

### 4.4 Objective 3 Measures

#### Control of HGV Numbers

4.4.1 The Contractors have confirmed that, for Phase 12, the combined programme has been established operating at a peak of 63 HGV deliveries (126 two-way HGV movements) per day.

4.4.2 To ensure that the Contractors comply with the target HGV movements, a Delivery Management System (DMS) has been developed and operates as set out in previous versions of the CTMP (see Phase 5 CTMP, reference 40-RHD-WS-70-CI-PL-0008).

#### Network Resilience

4.4.3 To reduce the potential for the Phase 12 construction traffic to have an adverse impact upon the highway network during planned and unplanned events, measures are being implemented across the project (see Table 4.1 of the Phase 4 CTMP reference 40-RHD-WS-70-CI-PL-0004).

#### Control of Abnormal Loads

- 4.4.4 The movement of Abnormal Loads will be outside of the restrictions contained within this CTMP and is subject to separate agreement with the relevant highway authorities and police through the Electronic Service Delivery for Abnormal Loads system (ESDAL). The preferred route, unless otherwise agreed through the ESDAL process, is for vehicles to travel south from the wider A road network along the A171 to access the site (via the B1416 south to avoid Ruswarp).
- 4.4.5 The Contractors have confirmed that for Phase 12, approximately 10 abnormal load deliveries per month will be required. Prior to the movement of any abnormal load the Contractors will notify stakeholders through ESDAL and agree timing and routes with the relevant highway authorities and police.

## 4.5 Objective 3 Monitoring

- 4.5.1 The vehicle movements associated with Phase 12 will be continuously monitored using a permanent classified ATC positioned at the site access point.
- 4.5.2 Sirius Minerals' bespoke Delivery Management System augments the traffic counts to give a complete evidence base.
- 4.5.3 ATC data and delivery records will be collated by the CTMPCOs to ensure that any issues are identified at an early stage and dealt with promptly.

## 5 Monitoring Strategy (Objective 4)

- 5.1.1 Objective 4 requires the CTMP to set out measures to identify HGVs associated with the development travelling to the construction sites.
- 5.1.2 Except for buses from Cross Butts Park and Ride, development traffic will be routed away from the most sensitive areas, such as Ruswarp. To help the public distinguish construction traffic from other traffic on the network, and thereby effectively report any concerns, each HGV and bus travelling to and from Woodsmith Mine will be required to display a unique identifier within the window of the vehicle. Currently this is the Sirius Minerals logo (as detailed in **Figure 5-1**), this may however be changed for future phases.

Figure 5-1 Unique vehicle identifier



- 5.1.3 The Contractors have also confirmed that all of their fleet, and the majority of their suppliers' fleets, are fitted with GPS tracking.

- 5.1.4 The GPS tracking and DMS will serve to augment the Unique Identifier to allow the CTMPCos to respond to any complaints.

## **6 CTMP Management Structure (Objective 5)**

### **6.1 Introduction**

- 6.1.1 Objective 5 requires the CTMP to set out the project's links to the TMLG.
- 6.1.2 A management structure has been developed to oversee the implementation of the CTMP, monitoring and enforcement of construction traffic movements. Sirius Minerals has established and will administer a TMLG.

### **6.2 Purpose**

- 6.2.1 The purpose of the TMLG is to facilitate liaison between Sirius Minerals, planning authorities, highways authorities and other key stakeholders in relation to the transportation aspects of the construction and operation of the Project. Its role, responsibilities and membership remain as set out in the Phase 4 CTMP (reference 40-RHD-WS-70-CI-PL-0004) and include representatives of all the Contractors.

### **6.3 Frequency and Duration**

- 6.3.1 Meetings will be held on a quarterly basis (or as otherwise agreed by attendees of the TMLG). There will be a formal review of the membership of the group and the timing of meetings every five years. The first review will take place five years after the first meeting of the TMLG.
- 6.3.2 The TMLG will remain in existence for the operational lifetime of the Project Secretariat.
- 6.3.3 Notice will be given to attendees at least two weeks before any proposed meeting.
- 6.3.4 The TCo will act as Chair of the TMLG and will nominate a substitute in their absence. Sirius Minerals will provide secretariat support for the TMLG including sending invitations, taking minutes and distributing meeting papers to TMLG members and other agreed recipients before and after meetings.

### **6.4 Outputs**

- 6.4.1 Outputs from the TMLG in Phase 12 will be consistent with those in earlier phases, as set out in the Phase 4 CTMP (reference 40-RHD-WS-70-CI-PL-0004).

### **6.5 Scope**

- 6.5.1 The remit of the TMLG is to ensure compliance with transport conditions/consents established by the Planning Permission. This does not extend to reviewing matters established or agreed by the grant of the Planning Permission.
- 6.5.2 The TMLG can make recommendations to Sirius Minerals and the NYMNPA but it does not



have any legal enforcement or decision-making role, per se, nor will it override, interfere with or impede the legal mechanisms in place for the implementation of the development through the planning conditions and the Section 106 Agreement.

6.5.3 Issues relating to traffic that are raised by the LGF, which will also be chaired by Sirius Minerals and is open to local residents to attend, will be forwarded to the TMLG to consider and report back.

6.5.4 Matters relating to the safety of the travelling public which require immediate attention will be dealt with through the existing powers of the Local Highway Authorities and the Police. Where related to the matters within the remit of the group, these will be reported back to the group.

## 7 HGV Route Compliance (Objective 6)

7.1.1 Objective 6 of planning condition NYMNPA-34 requires the CTMP to set out signing for HGV routes, including prohibitive signing.

7.1.2 To ensure that HGVs use the designated haul routes, signing has been installed to direct construction traffic from the A171 and A169 to Woodsmith Mine along the agreed delivery routes. This signing will be maintained for the entire construction duration, including Phase 12 and subsequent phases.

7.1.3 To support the signing strategy, delivery routes will be communicated to all individuals and companies involved in the transport of materials and plant to and from site by the Contractors.

7.1.4 The routes will be communicated through the issuing of information packs. The packs will be a convenient size so they can be stored in a truck cab and include key information on:

- The unique identifier to display in the window, **Section 5** refers;
- A plan showing the delivery routes as defined in **Section 4**;
- Details of procedures for dealing with emergencies as detailed in **Section 4**;
- Details of driver training requirements, **Section 9** refers; and
- Details of disciplinary measures for non-compliance, **Section 11** refers.

7.1.5 A template pack is provided as **Appendix C**.

## 8 Managing Road Safety (Objectives 7 & 11)

8.1.1 Objective 7 requires the CTMP to set out a strategy for accident record monitoring.

8.1.2 In addition to objective 7, objective 11 requires the CTMP to set out an incident reporting mechanism including near misses.

### 8.2 Background

8.2.1 During the development of the Transport Assessment a detailed review of the baseline road safety record within the study area was undertaken to ascertain the potential for construction traffic to exacerbate existing trends.

8.2.2 Sirius Minerals proposed that rather than contribute towards preventive measures which are not guaranteed to address future road safety trends, a more appropriate solution would be to monitor and review accident trends during the construction programme in collaboration with NYCC Highways. This approach was agreed by NYCC Highways.

### 8.3 Objectives 7 & 11 Measures and Reporting

8.3.1 The Contractors have identified that on all of their projects they operate near miss reporting systems. This includes highways incidents. The Contractors will therefore ensure that all accidents and near misses are recorded within this system and that drivers are reminded to report all issues through inductions and within the delivery instructions.

8.3.2 Any accidents or near misses will be recorded, investigated, and reported to transport stakeholders via the TMLG.

8.3.3 If emerging issues are identified, proposals will be put to the TMLG and, if approved, funding will be made available to implement targeted mitigation under an agreement with Sirius Minerals.

8.3.4 It is anticipated that intervention will not entail 'hard' highway engineering solutions; rather the focus is to be applied to education, training, and publicity. The types of mitigation that could be employed include:

- Additional police enforcement (e.g. extra mobile cameras on the A171);
- Public awareness of the dangers of overtaking;
- Training – e.g. funding some Pass Plus driving courses aimed at new drivers; and
- Driver training – e.g. making all construction phase drivers aware of specific risks, issues (**Section 9** refers).

8.3.5 Pursuit of mitigation and other initiatives to improve road safety is the responsibility of the TMLG, the Project, Sirius Minerals and the Contractors as promoters of a Zero Harm Culture.

## 9 Driver Training (Objective 8)

9.1.1 Objective 8 of planning condition NYMNPA-34 requires the CTMP to set out a strategy for driver training.

9.1.2 Personnel will be required to attend 'toolbox talks' regarding safer driving. These talks will cover topics such as safe driving techniques related to the local hazards or incorporating emerging issues from the accident and near miss monitoring (**Section 8**).

9.1.3 Professional HGV and PCV drivers are required, by law, to obtain a Certificate of Professional Competence and must complete 35 hours of periodic training every five years to retain the certificate. Upon meeting this criterion drivers are issued with a Driver Qualification Card (DQC) and are required to carry it at all times while driving professionally. All drivers of HGVs and PCVs will be required to present, upon request, a valid DQC to security when delivering to site.



- 9.1.4 The Contractors will offer appropriate training to drivers to help them to maintain their Certificate of Professional Competence.

## 10 CTMP Communication Procedures (Objectives 9 & 10)

- 10.1.1 Objective 9 requires the CTMP to set out a Communications Plan.
- 10.1.2 In addition, Objective 10 requires the CTMP to set out a Complaints Mechanism.

### 10.2 Communications

- 10.2.1 Sirius Minerals has developed a Community and Stakeholder Engagement Framework (CSEF) which aims to set out a clear communications approach during the construction period. The full CSEF is provided as **Appendix D**.

### 10.3 Reporting

- 10.3.1 In addition to attending the TMLG, the TCo (with input and support from the CTMPCos) will also be responsible for producing a monthly monitoring report. The monitoring reports will be structured as during previous phases (see Phase 4 CTMP, reference 40-RHD-WS-70-CI-PL-0004).

### 10.4 Complaints

- 10.4.1 Sirius Minerals has developed a procedure for managing complaints from receipt through to resolution. All complaints, regardless of the source, will be managed by the Sirius Minerals External Affairs team and will involve the Company's Project team, Contractors and other parties as appropriate. The procedure is provided as **Appendix E**.

## 11 Enforcement (Objective 12)

- 11.1.1 Objective 12 of planning condition NYMNPA-34 identifies that the CTMP should include a penalty system for breaches of the agreed CTMP.
- 11.1.2 The mechanisms to ensure that the CTMP is effectively enforced remain the same as for earlier phases (see Phase 4 CTMP, reference 40-RHD-WS-70-CI-PL-0004).



## **Appendix A CTMP Co-ordinator responsibilities & Timescales**

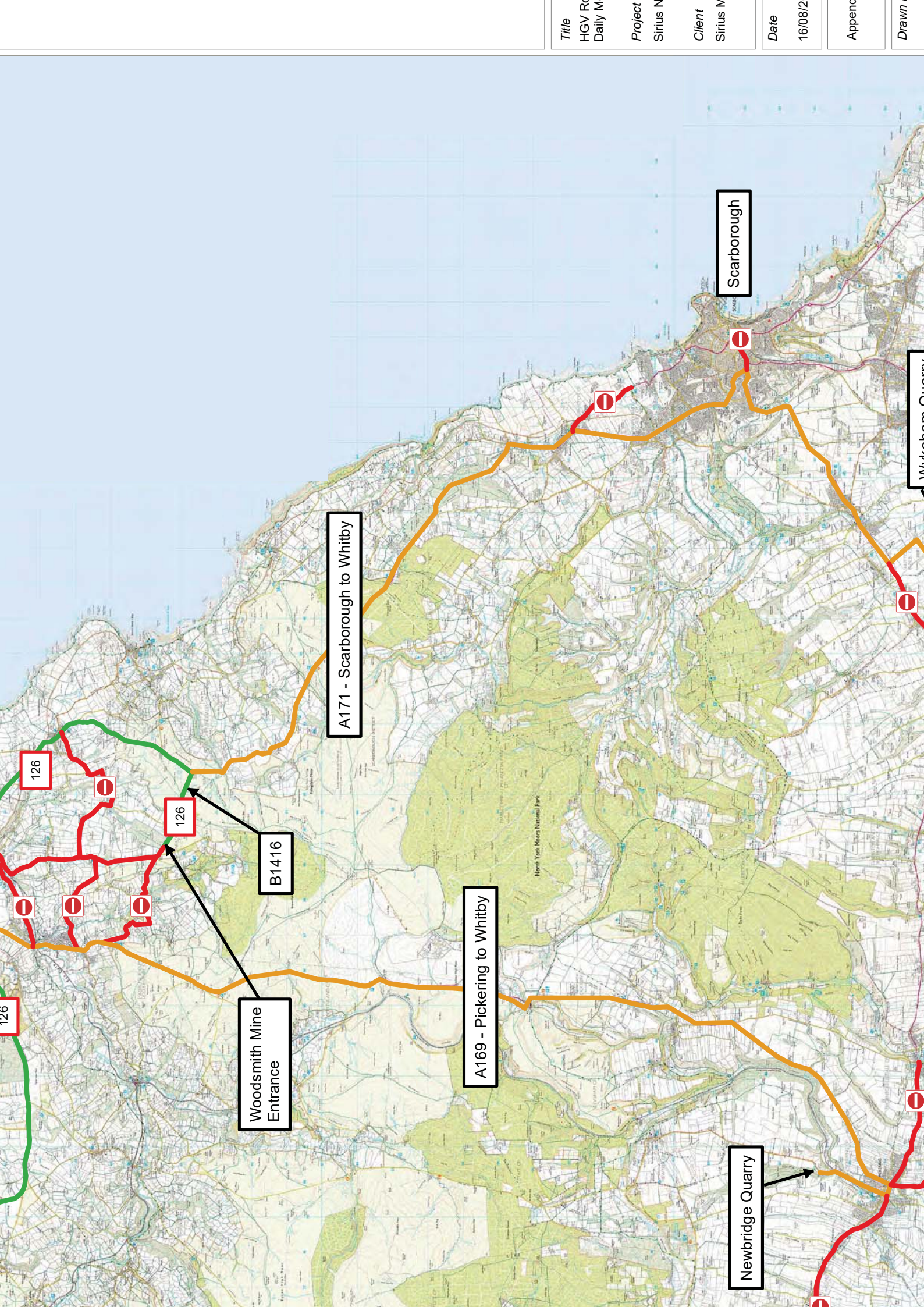
## Appendix A – Phase 12 CTMP Action Plan

Measure	Timescale	Responsibility
Appoint/Re-appoint Transport Co-ordinator (TCo)	Prior to commencement of Phase 12	Sirius Minerals
Appoint Construction Traffic Management Plan Co-ordinator (CTMPCo)	Prior to commencement of Phase 12	Contractor
Establish private transport fleet/pool of car sharers and pick up points.	Ongoing throughout construction	CTMPCo
Issue delivery packs to all suppliers	Ongoing throughout construction	CTMPCo
Issue parking passes to employees	Ongoing throughout construction	CTMPCo
Undertake toolbox talks including topic such as safe driving	Ongoing throughout construction	CTMPCo with specialist support
Monitoring of CTMP targets including: <ul style="list-style-type: none"> <li>- HGV movements</li> <li>- Employee parking</li> <li>- Accidents and near misses</li> <li>- Complaints</li> </ul>	Ongoing throughout construction	CTMPCo
Produce Monitoring Reports	Monthly throughout construction	CTMPCo
Undertake site induction for new starters including information on: <ul style="list-style-type: none"> <li>- details of restrictions on walking</li> <li>- details of the guaranteed lift home</li> <li>- details of the parking restrictions</li> </ul>	Ongoing throughout construction	CTMPCo
Meet with the TMLG	On-going throughout construction	CTMPCo, TCo and Sirius Minerals



## Appendix B Peak Daily HGV Movements





Title	HGV R	Project	Sirius N	Client	Sirius M	Date	16/08/2	Appenc	Drawn
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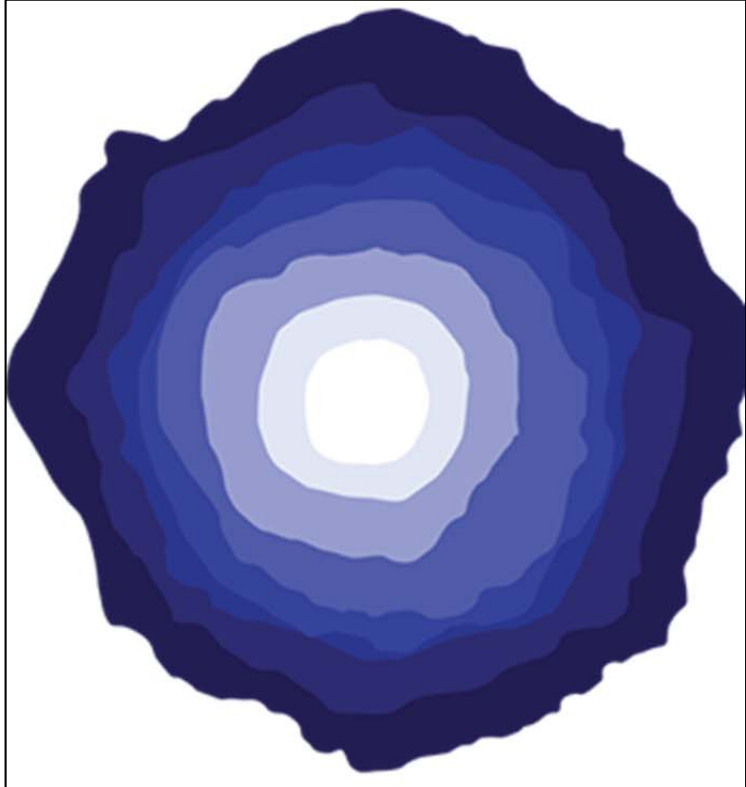




## Appendix C Delivery Pack Template

# SIRIUS

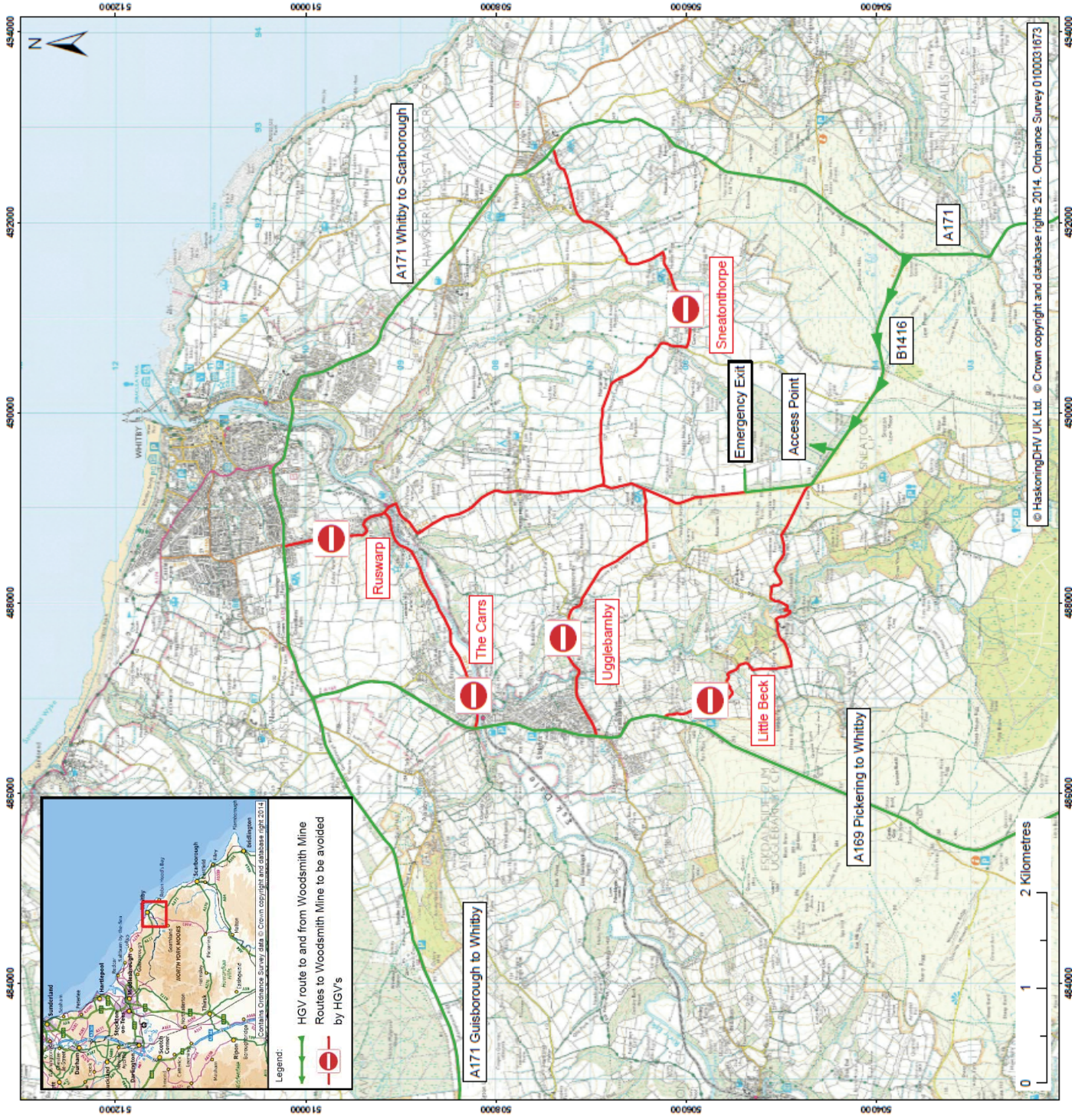
MINERALS PLC



**FAILURE TO DISPLAY THIS IDENTIFIER WOULD CONSTITUTE A BREACH  
OF CONTRACT RESULTING IN DISCIPLINARY ACTION**

# Sirius North Yorkshire Polyhalite Project

## Delivery Instructions



### Emergency Contact Information:

- Breakdown Assistance  
[Insert Recovery Company No.]
- Site Manager  
[Insert Site Manager No.]

### Delivery Hours: 07:00 – 19:00

(No admittance before or after these hours)

### Before You Depart:

- Familiarise yourself with the defined haul routes for (shown in figure to left).
- Ensure that your unique identifier is displayed in the cab windscreen.
- Ensure that you have your Driver Qualification Card (must be presented to [xx] when delivering to site).

### On Route:

- Comply with speed limits
- Follow the defined haul routes
- Record any accidents or near misses

### Upon Arrival:

- Present your Drive Qualification Card to [xx]
- Make [xx] aware of any accidents or near misses on route
- Provide delivery receipts to [xx]

**FAILURE TO COMPLY WITH THESE INSTRUCTIONS WILL RESULT IN DISCIPLINARY ACTION**





## **Appendix D Community & Stakeholder Engagement Framework**



Project Title / Facility Name:  
**North Yorkshire Polyhalite Project**

Document Title:  
**COMMUNITY AND STAKEHOLDER ENGAGEMENT FRAMEWORK**

**Document Review Status**

- 1. Reviewed – Accepted – Work May Proceed
- 2. Reviewed – Accepted As Noted, Work May Proceed, Revise & Resubmit
- 3. Reviewed – Work May Not Proceed, Revise & Resubmit
- 4. For information only

2	17-Jul-2018	Use	IFU	HillVict	ParsMatt	EdmuGare
Rev.	Revision Date (dd mmm yyyy)	Reason For Issue		Prepared by	Verified by	Approved by

Document ID:

**40-SMP-GE-0000-PU-PH-00001**

# Community and Stakeholder Engagement Framework

Document Number: 40-SMP-GE-0000-PU-PH-00001

Document Verification				
Revision	Date	Checked by	Approved by	Reason for Issue
0	11/01/2016	MP	GE	Issued for Use as 0000-EXT-EXE-PLN-001
1	02/09/2016	MP	GE	Issued for Use as 0000-EXT-EXE-PLN-001
2	17/07/2018	MP	GE	Issued for Use

# Community and Stakeholder Engagement Framework

## Contents

<b>1</b>	<b>Purpose and Scope .....</b>	<b>2</b>
1.1	Background .....	2
1.2	Purpose .....	2
1.3	Scope.....	2
<b>2</b>	<b>Engagement Strategy .....</b>	<b>3</b>
2.1	Rationale.....	3
2.2	Approach.....	3
<b>3</b>	<b>Stakeholder Identification.....</b>	<b>4</b>
<b>4</b>	<b>Engagement Methodology .....</b>	<b>5</b>
4.1	Identify stakeholders .....	5
4.2	Pre-briefings for key events.....	5
4.3	Ongoing management .....	6
4.3.1	Liaison Group Forum.....	6
4.3.2	Traffic Management Liaison Group .....	7
4.3.3	24-hour community helpline .....	7
4.3.4	Regular briefings and updates .....	7
4.4	Community benefit initiatives .....	7
4.5	Protocols and guidelines.....	8
<b>5</b>	<b>Roles and Responsibilities .....</b>	<b>9</b>
5.1	Sirius Minerals.....	9
5.2	Construction Contractors.....	9
	<b>Appendix A – Construction Events .....</b>	<b>11</b>
	<b>Appendix B – Engagement Activities Summary .....</b>	<b>12</b>

## Community and Stakeholder Engagement Framework

### 1 Purpose and Scope

#### 1.1 Background

There is widespread interest in the Company's North Yorkshire polyhalite project (the Project) at local, regional and national levels. This is demonstrated by the ongoing media and stakeholder enquiries, as well as the levels of participation during the planning consultations and at Company events.

Sirius Minerals (the Company) successfully engaged the community and other key stakeholders during this period, gaining widespread support for the Project. This has helped to provide the Company with a social license to operate. Maintaining this throughout the construction period is important to the successful delivery of the Project and is a key objective of the Company's board and management team.

This document has been updated since construction started at Woodsmith and Lockwood Beck, and the off-site highways improvement works were undertaken on the main transport route. During this eighteen months public support has remained high, with a relatively low number of complaints. The principles of the Framework therefore remain unchanged, with the addition of the good practice learnt over the last eighteen months.

#### 1.2 Purpose

This Community and Stakeholder Engagement Framework (CSEF or the Framework) aims to set out a clear communications approach during the construction period which, when implemented correctly, can help to maintain the Project's social license to operate.

#### 1.3 Scope

The Framework sets out an approach to community and stakeholder communications during the construction period. It outlines the overall strategy, identifies the main stakeholder groups and details the engagement objectives and activities. It sets out the roles and responsibilities of the Company and the principle construction contractors for implementing and managing its delivery.

It is not within the scope of this plan to include engagement with the planning authorities and other statutory bodies in relation to the compliance with planning obligations and further environmental requirements, other than those specifically regarding community engagement.

## 2 Engagement Strategy

### 2.1 Rationale

The strategy is based on the principle that the local community and key stakeholders will react best to being kept informed of developments and in advance of them occurring. The failure to communicate always leads to a communications vacuum and this in turn leads to misinformation and rumours which can negatively affect the perception of the Project.

Similarly, providing channels for feedback to the Company in the first instance allows local people or spokespeople to be engaged in matters that might affect them. It also allows them to be able contact the Company in the first instance. Over the last eighteen months the vast majority of questions or concerns about the Project have come directly to the Company, with North York Moors National Park Planning Authority receiving less than a dozen complaints during this period. This demonstrates the importance of developing and maintaining relationships ‘on the ground’.

Keeping people informed is not just about notification of physical activities during the construction period, but is also about allowing a channel for feedback that might raise an issue or local knowledge that the Company or its contractor teams was not aware of. It also enables a channel to positively promote the benefits of the Project as well as engaging in other positive public relations activities.

Any materials that are prepared for public consumption to explain parts of the construction work are designed and drafted in a manner that promotes the understanding of works or issues in as clear and straightforward manner as possible.

### 2.2 Approach

#### 1. Conduct pre-briefings for key events or activities

Providing clear information before each phase of works commences at the Project sites detailing what construction will involve, when it will take place and the measures to limit impacts. Since construction started this has included newsletters, mailouts, direct face-to-face meetings, drop-in events, public meetings and press releases and notices in the local media.

#### 2. Have effective ongoing management of local communications

Providing ongoing updates about construction progress and establish mechanisms that enable concerns to be raised and acted upon. This includes participation in the various liaison groups and clear processes to manage incoming queries or complaints. These have worked well since construction started. We also operate a 24-hour community helpline.

#### 3. Community benefit initiatives

Undertaking and promoting regular initiatives that deliver community benefits such as education schemes and employment and business opportunity information sessions. These have been ongoing since construction started and have been well received by the community.

Further details on the methodology for pre-briefings, ongoing management and community benefits initiatives are available in sections 4.2 – 4.4.

### 3 Stakeholder Identification

Stakeholder groups have been identified and engaged as the Project has developed and can be broadly categorised as follows:

**1. Local residents**

Residential neighbours and or landowners close to the individual construction sites. This also includes those directly affected in other areas such as those living close to key transport corridors or junctions. Approximately 60 households have been identified as ‘site neighbours’ to the Woodsmith and Lockwood sites and regular contact has been maintained since construction commenced.

**2. Community representatives**

This group includes elected representatives of the community including parish and town councils, local authority officers and councillors, and local MPs.

**3. Interest groups**

Business networks, environmental bodies, other local clubs and groups.

**4. Education Institutions**

This includes local schools, colleges, universities and other training providers.

**5. Media**

All online, print and broadcast outlets and journalists are considered key stakeholders.

**6. General public**

The wider public as accessed through media channels, the website or site signage etc.

## 4 Engagement Methodology

This section sets out how community and stakeholder communications will be handled.

### 4.1 Identify stakeholders

The broad stakeholder groups have been identified, together with specific stakeholders relevant to each of the construction sites that are most likely to be impacted by the works. This includes landowners and local residents in close proximity to the sites.

### 4.2 Pre-briefings for key events

Before each phase of construction starts, or before a specific construction activity that has the potential to impact stakeholders, it is important to provide information to the local community. For the purpose of this Framework these stages are defined as “construction events” (these are listed in Appendix 1). Each construction event triggers the requirement for pre-briefing activities. The level of pre-briefing activity will vary, taking into account the extent of the local impact anticipated.

The pre-briefing information will include details about what construction will involve and how people can contact the Company if they have questions or concerns. Reassurance will be given that measures will be taken to limit adverse impacts to an acceptable level and that planning conditions and other requirements are in place to ensure that this happens.

This will help to raise awareness of what to expect and demonstrate that concerns will be listened to and acted upon wherever reasonably possible. As a minimum, the pre-briefing activities will include:

- Letters – Letters and or emails should be sent to those that are likely to be immediately affected. This might include neighbouring residents or households and businesses on access routes. As a courtesy, the same information will be sent to the local Parish Council, borough and county councillors covering those areas.
- Visits and phone calls – In addition to letters, affected households and businesses will be visited, or at the very least receive a telephone call.

For construction activities that are more significant, in terms of their potential for stakeholders to be affected, the Company will use the following pre-briefing methods. The precise details and extent of pre-briefing will be a matter of judgement and as a result of discussions between the contractor and the Company and, where appropriate, the planning authorities. Activities may include:

- Newsletter / Leaflet – A short summary newsletter or leaflet about the works will be made available.
- Exhibitions / Open days – In the case of certain key events, such as the main shaft sinking, it will be appropriate to inform local residents and the wider general public through open days prior to works starting. This includes further information on exhibition boards and will be attended by key personnel from the Company and contractors, who are be able to respond to queries and provide reassurance on potential concerns. Four of these sessions have taken place since construction started.



- Press release – If appropriate (often where a wider audience is potentially affected or interested in the works planned) then a press release will be prepared detailing the key facts. Any press release needs to be signed off by the Company in a timeframe that makes sure newspaper deadlines are met. Where possible, coverage should always appear in the week prior to the proposed activities beginning. The local media has been particularly useful in instances where the community beyond the immediate site neighbours could be affected, such as public highways disruption.
- Website updates – Details of key events are uploaded to the Company website. Some works may also require more detailed information and documents to be uploaded.
- Social media updates – The Company will control its social media accounts. As above, the contractor will be expected to provide the relevant details to the Company in a timely fashion so the relevant information can be released through its social media channels.
- Stakeholder briefings – In some circumstances specific stakeholders will be individually briefed to inform them of key events. This may include elected representatives, local authority officers or interest groups. The Company will take the lead on such matters and will involve contractors where appropriate.

### 4.3 Ongoing management

Local residents and stakeholders will continue to be engaged throughout construction (i.e. general updates in addition to those covered under ‘key events’ in appendix 1). This will enable the Company to provide regular updates of the Project’s progress, and that it is being delivered in accordance with planning consents and any other Company commitments. Alternatively, if the Project is not progressing as expected it is important that stakeholders are provided with an explanation and reassurance that corrective measures will be implemented.

In addition, on-going engagement will include a range of communication channels that enable stakeholders to raise issues and ask questions and for the Company to respond to these.

#### 4.3.1 Liaison Group Forum

The Liaison Group Forum (LGF) was established prior to the commencement of construction and has met quarterly. There have been seven meetings to date and the LGF will continue to meet throughout the construction period. It is chaired by the Company and its membership includes representatives from the National Park Authority, parish and town councils and wider community stakeholder representation as appropriate. The meetings are open for the general public to attend and to ask questions.

The purpose of the group is to facilitate liaison between local stakeholders about construction, providing updates about progress, and to enable issues and concerns to be raised and resolved.

#### 4.3.2 Traffic Management Liaison Group

The purpose of this group is to facilitate liaison between local authorities and other interested stakeholders in regard to construction traffic. The group oversees the management and monitoring of the Construction Traffic Management Plan (CTMP), and is chaired by the Company.

There is representation from the National Park Authority, highways authorities, local authorities, the police and other stakeholders as invited. There have been seven meetings since construction started and traffic issues raised by the LGF are addressed.

#### 4.3.3 24-hour community helpline

To ensure that there are accessible points of contact for the local community and wider stakeholders a 24-hour community helpline has been established, which is delivered by a specialist contractor. In addition there is a community email address, which is managed by the Company.

#### 4.3.4 Regular briefings and updates

Key individuals and organisations are regularly briefed and updated. Similarly to pre-briefings for key events, updates are communicated through the following channels:

- Public meetings and presentations – Parish council and town council meetings are regularly attended, together with presentations to local interest groups.
- Site visits and meetings – visits to the Project sites for key stakeholders have been an effective way to communicate progress. In addition, drone footage of the project sites is regularly used to show progress and is used in Project presentations and on the Company's website.
- Press releases – the print and broadcast media are utilised extensively to communicate with the wider community and at a regional and national level.
- Newsletters, website and social media – regular updates produced throughout construction via the website, leaflets, newsletters, social media and publications relating to specific issues, such as careers. Videos, including footage of the sites and interviews with key Project personnel have been an effective tool.

#### 4.4 Community benefit initiatives

The Company has made a number of commitments to benefit the local area during construction such as providing employment and supply chain opportunities, training schemes, school outreach programmes and funding community projects. It important that these are implemented and widely promoted so that the community and stakeholders are aware that the Company's commitments are being delivered. The activities and initiatives, some of which are planning obligations in the S106 agreements, are outlined below:

- Funding to Scarborough Borough Council and Redcar and Cleveland Council to identify and prepare local people for employment opportunities.

- Funding to raise awareness of science, technology, engineering and maths (STEM) related careers in schools in North Yorkshire and Redcar and Cleveland.
- Targets specified in the S106 agreement - take on 50 apprentices, recruit 15 local students on the Company's Undergraduate Programme and train 300 adults.
- Quarterly employment opportunity sessions to promote job opportunities to local people and meet the buyer events for local businesses.
- Education outreach initiatives, careers events and presentations.
- Funding community projects through the Sirius Minerals Foundation.

#### 4.5 Protocols and guidelines

There are guidelines in place, as listed below, to ensure that communication methods are clear, consistent, responsive and appropriate to the audience when dealing with different situations. Contractors will be expected to adhere to these procedures.

- Complaints procedure
- Media protocol
- Crisis readiness

A clear communications approach is important should a major incident occur. The Company's will implement crisis management procedures following a major incident.

## 5 Roles and Responsibilities

This section provides a framework that identifies responsibilities for the delivery and management of community and stakeholder engagement, focusing on roles of the Company and the principle construction contractors. The Company will be responsible for community and stakeholder engagement during construction, supported by each construction contractor as required.

### 5.1 Sirius Minerals

The Company will be responsible for:

- Identifying key stakeholders likely to be impacted by the works.
- Undertaking pre-briefing activities before construction starts such as:
  - Open Days / exhibitions as appropriate.
  - Producing information outlining what is involved, impacts and mitigation, contact information, etc.
  - Direct correspondence with neighbours and landowners in regards to construction events such as blasting.
- Liaison with the planning authorities and community representatives, including chairing the Liaison Group Forum and Traffic Management Liaison Group.
- Media relations.
- Manage the complaints procedure.
- Producing project newsletters, social media and updating the website.
- Direct engagement and briefings with key stakeholders including local residents, community representatives and interest groups.

The Company's External Affairs Director has overall responsibility for all company communications and external relations. The External Affairs Director chairs the Liaison Group Forum and the Company's Logistics Manager chairs the Traffic Management Liaison Group.

The General Manager External Affairs, reporting to the External Affairs Director, manages the implementation of the approach detailed in the Framework. The Local Liaison Officer and Communications Officer both report to the GM External Affairs, and are further supported by the PA to the External Affairs Director.

### 5.2 Construction Contractors

Each of the construction contractors will be required to support the Company's stakeholder engagement approach as follows:

- Provide expected durations of phases or work, their potential impact on the local community and mitigation measures where required.

- Provide details of any expected public transport diversions, delays, planned road closures, impacts on highways, interrupted access for residents/ businesses, or other expected community disruption.
- Participate in employment opportunity sessions, meet the buyer events, and education outreach events as required.
- Cooperate with Sirius in media events and provide information to the Company for publications, the website, newsletters, etc.
- Adherence to Sirius' communications protocols and guidelines.
- Attend the liaison groups, parish/town council meetings and assisting Sirius as required.
- Ensure that all sub-contractors comply with stakeholder and community relations requirements.

## Appendix A – Construction Events

The following provides a list of construction events which trigger the requirement for pre-briefing activities, as outlined in section 4.2. The list is not exhaustive and there may be other events or activities not listed here that could be classified as construction events as a result of discussions between the Company and its contractors.

The construction events for the purposes of this Framework are:

- Any significant geotechnical investigation or drilling works
- Main Woodsmith Mine shaft sink
- Main Lockwood Beck shaft sinking
- MHF construction
- Harbour construction
- Other construction activities with the potential to affect stakeholders including site neighbours or road users in regards to noise, light, disruption to the public highway, etc. Examples include an abnormal load arriving to site or a short period of piling.

## Appendix B – Engagement Activities Summary

The table below provides an ‘at a glance’ overview of the main community and stakeholder engagement activities, together with the respective roles of Sirius Minerals and the construction contractors in delivering them.

	Pre-briefing activities	Ongoing management	Community benefit initiatives
<b>Sirius Minerals</b>	<ul style="list-style-type: none"> <li>Establish Liaison Group Forum and Traffic Management Liaison Group</li> <li>Project update newsletter</li> <li>Media, website update, social media</li> <li>Briefings with site neighbours, landowners, community representatives and other key stakeholders as identified</li> <li>Produce leaflet detailing upcoming construction activities</li> <li>Send letters to stakeholders likely to be immediately affected</li> <li>Hold public open days / exhibitions</li> </ul>	<ul style="list-style-type: none"> <li>Chair Liaison Group Forum and Traffic Management Liaison Group</li> <li>Manage 24-hour community helpline and <a href="mailto:info@siriusminerals.co.uk">info@siriusminerals.co.uk</a></li> <li>Attend parish and town council meetings quarterly</li> <li>Regular updates to site neighbours, landowners, community representatives and interest groups</li> <li>Site visits</li> <li>Media, website update, social media</li> <li>Manage complaints procedure</li> </ul>	<ul style="list-style-type: none"> <li>Training targets and promotion of initiatives funded by the S106</li> <li>Promote activities of the Sirius Minerals Foundation</li> <li>Organise meet the buyer events</li> <li>Organise regular employment opportunity sessions</li> <li>Deliver education outreach programmes</li> </ul>
<b>Construction Contractor</b>	<ul style="list-style-type: none"> <li>Provide information to Sirius to be used in leaflets, letters, web content, etc., as required</li> <li>Attend public open days/exhibitions and meetings with stakeholders as required</li> </ul>	<ul style="list-style-type: none"> <li>Attend liaison groups, parish council and other meetings as required</li> <li>Provide information to support on-going community and stakeholder relations</li> <li>Participate in media events as required</li> <li>Adherence to complaints procedure, media protocol and crisis response procedure</li> </ul>	<ul style="list-style-type: none"> <li>Involvement in community benefit initiatives as required</li> </ul>



## Appendix E Complaints Mechanism



### Complaints procedure

The procedure below outlines the process of managing complaints from receipt through to resolution. All complaints, regardless of the source, will be managed by the Sirius Minerals External Affairs team and will involve the Company’s Project team, contractors and other parties as appropriate.

**Key terms:**

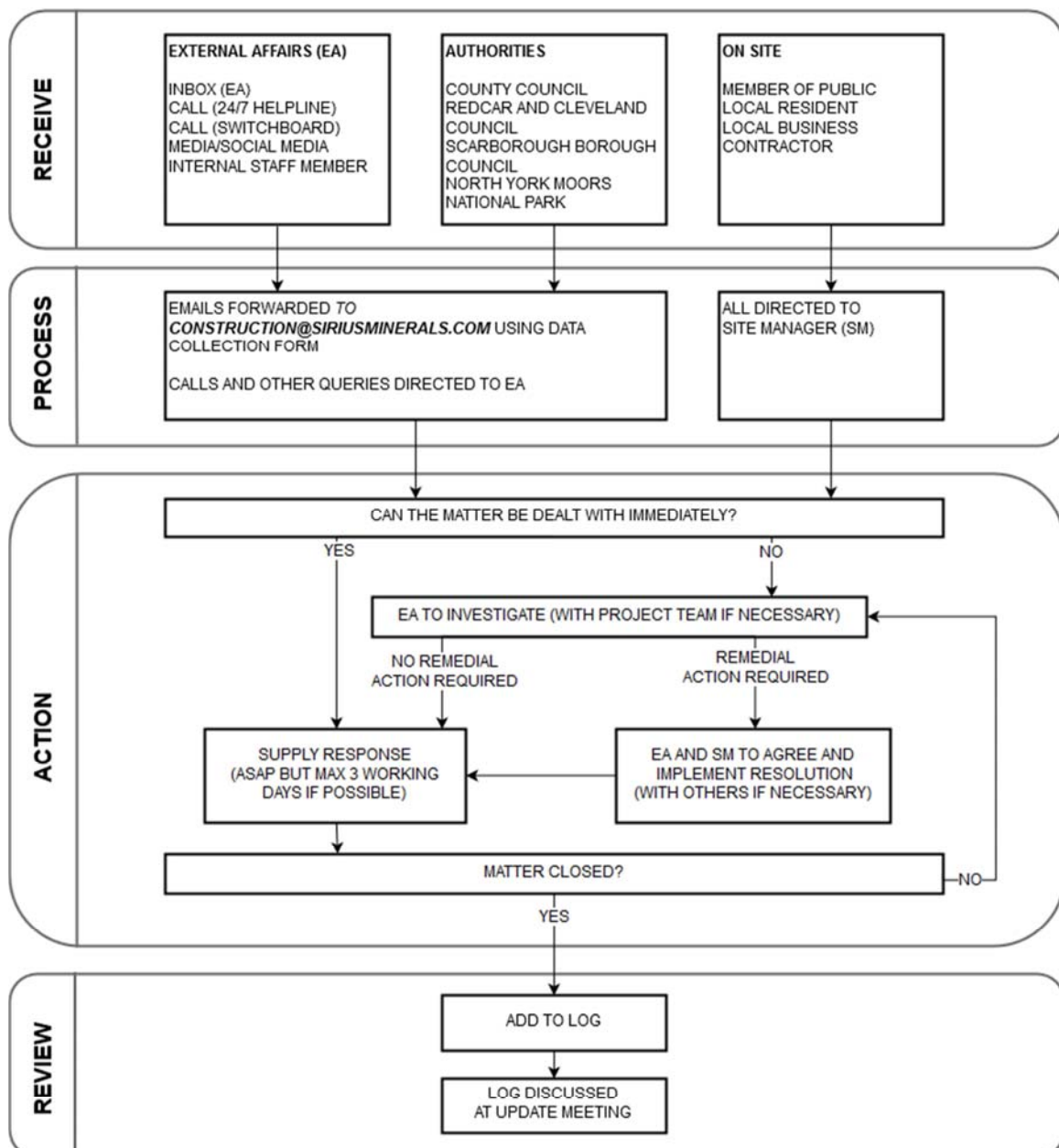
[info@siriusminerals.com](mailto:info@siriusminerals.com) – email address managed by the External Affairs team

*Data collection form* – details required from each complainant (e.g. full name, contact number)

*Site Manager* – Designated decision maker on each project site (e.g. highways site, Dove’s Nest)

*Log* – Complaints log managed by the External Affairs team

*Update meetings* – Regular construction progress meetings



NYMMPA

14/04/2020

## REPORT

# Phase 12 - Woodsmith Mine Noise and Vibration Management Plan

### Woodsmith Mine Phase 12 - NVMP

Client: Sirius Minerals plc

Reference: 40-RHD-WS-70-EN-PL-0044 Rev 1

Status: 01/Final

Date: 09-Apr-20

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VAT registration number: 792428892

Document title: Phase 12 - Woodsmith Mine Noise and Vibration Management Plan

Document short title: PHASE 12 NVMP  
Reference: 40-RHD-WS-70-EN-PL-0044 Rev 1  
Status: 01/Final  
Date: 09-Apr-20  
Project name: Sirius North Yorkshire Polyhalite Project  
Project number: PB1110  
Author(s): Dean Curtis

Drafted by: Dean Curtis

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Checked by: John Drabble

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Date / initials: 09/04/2020 JDD

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Approved by: John Drabble

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Date / initials: 09/04/2020 JDD

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Classification

Project related



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## Table of Contents

<b>1</b>	<b>INTRODUCTION</b>	<b>1</b>
1.1	Purpose of this Report	1
<b>2</b>	<b>GUIDANCE</b>	<b>5</b>
2.1	Legislation and British Standards	5
2.2	Construction Limits	5
2.3	Construction Method	5
<b>3</b>	<b>PREDICTED CONSTRUCTION NOISE AND VIBRATION LEVELS</b>	<b>6</b>
3.1	Baseline Receptor Locations	6
3.2	Predicted Noise Levels	6
3.3	Vibration	6
<b>4</b>	<b>NOISE MONITORING PROGRAMME</b>	<b>7</b>
4.1	Noise Monitoring	7
<b>5</b>	<b>BLASTING VIBRATION MONITORING PROGRAMME</b>	<b>8</b>
<b>6</b>	<b>MITIGATION AND PROCEDURES</b>	<b>9</b>
6.1	Purpose of the Section	9
6.2	Best Practicable Means	9
6.3	Specific Mitigation	9
6.4	Communications	10

## Table of Tables

Table 1-1:	Condition NYMNPA 18 Noise and Vibration Management Plan	1
Table 1-2:	Condition NYMNPA 20 Noise and Vibration Management Plan	3
Table 1-3:	Condition NYMNPA 21 Noise and Vibration Management Plan	3
Table 1-4:	Condition NYMNPA 24 Noise and Vibration Management Plan	3
Table 1-5:	Condition NYMNPA 27 Noise and Vibration Management Plan	4
Table 1-6:	Condition NYMNPA 28 Noise and Vibration Management Plan	4
Table 1-7:	Condition NYMNPA 29 Noise and Vibration Management Plan	4

## Appendices

Appendix A	Acoustic Terminology
Appendix B	Figures
Appendix C	Predicted Construction Noise Levels

## 1 INTRODUCTION

### 1.1 Purpose of this Report

- 1.1.1 In 2014 a planning application (reference NYM/2014/0676/MEIA) was submitted to North York Moors National Park Authority (NYMNPA) for permission to develop a polyhalite mine and underground Mineral Transport System (MTS). Planning permission was subsequently granted in 2015 subject to conditions, as varied in February 2018 by NYM/2017/0505/MEIA.
- 1.1.2 This document has been prepared on behalf of Sirius Minerals plc (Sirius Minerals) and details the requirements with respect to noise and vibration management for the Phase 12 Works (see Paragraph 1.1.5 below) at Woodsmith Mine. This document is required to partially satisfy the requirements of Condition 18 of the NYMNPA planning permission. This planning condition states that:

Table 1-1: Condition NYMNPA 18 Noise and Vibration Management Plan

NYMNPA 18	Compliance with Condition NYMNPA-18
Prior to the commencement of each Phase of Construction at Dove's Nest Farm or Lady Cross Plantation, a Noise and Vibration Management Plan (NVMP) for the control, mitigation and monitoring of noise and vibration for both construction and operational phases at the two sites shall be submitted to and approved in writing by the MPA in consultation with the SBC EHO. The scheme shall set out the following:	This document addresses Phase 12 Works at Woodsmith Mine. Works at Lady Cross Plantation are deferred and are therefore not addressed in this Plan.
Noise-sensitive receptors for which predictions shall be made and at which the noise and vibration limits shall apply and which shall include recreational receptors.	Section 3.1
Predicted noise levels at the noise-sensitive receptors from noise and vibration generated at the DNF and LCP sites for the key construction phases during the forthcoming year including any periods in which the higher daytime limit of 70 dB L <sub>Aeq</sub> shall apply (permitted 56 days for temporary works to create noise-reducing bunds and/or barriers as per Conditions 20 and 22).	Section 3, and Appendix C
The best practicable means which will be used to control noise and vibration levels on site including such measures proposed in the Environmental Statement (September 2014 as updated by the Supplementary Environmental Statement dated February 2015) and the Supplementary Environmental Statement dated July 2017 (updated by further information dated October and November 2017) as relevant. Such measures shall include, but are not limited to: the use of the quietest available plant, equipment and techniques; the regular maintenance and inspection of such plant and equipment; the use of cladding, attenuators and barriers to reduce noise levels from noisy plant and operations; the specification of appropriate reversing alarms to minimise annoyance; and, measures to reduce vibration and air overpressure during blasting.	Section 5
Details of the noise and vibration monitoring system to be installed around the DNF and LCP sites to continuously log noise levels during construction and operation. The system shall include at least six noise monitors installed around the boundary of the Dove's Nest site and at least four monitors at key residential receptors near the Dove's Nest site and at least four noise monitors around the Lady Cross Plantation Site and at least three monitors at key residential receptors near the Lady Cross Plantation site.	Section 4

NYMNPA 18	Compliance with Condition NYMNPA-18
<p>The precise number and location of noise monitors shall be set out in the NVMP. The developer shall use reasonable endeavours to obtain access to the residential receptor properties for the installation of noise monitors and only if access cannot be obtained the number or location of noise monitors may be reduced. The MPA and the SBC EHO and/or their advisers shall be granted access to inspect the noise and vibration data whenever required, records of the data should be kept for a reasonable period and these records should be accessible by the public.</p>	Section 3, Section 4 and Figure B.1
<p>Details of the procedure to be followed in the event that the noise predictions detailed in the NVMP or the noise limits detailed in conditions 20 to 23 are exceeded. Such procedures shall require the investigation of the reasons for the breach of the limits and the cessation of the activity causing the breach until such a time as additional mitigation can be provided.</p>	Section 5.4
<p>Details of how the residents will be informed and consulted about the site operations and progress, particularly in regard to blasting and especially noisy operations including details of complaints logging and management procedures and a 24-hour telephone incident hotline. Details of the procedure for investigating complaints and informing complainants of the results of such investigations and of any actions resulting from them.</p>	Section 5.4 and Scheme for the Prior Notification of Blasting (40-SMP-WS-1000-PA-PL-00001)
<p>The NVMP shall be adhered to at all times unless agreed previously in writing by the MPA.</p>	
<p>The NVMP shall be updated and agreed whenever appropriate to reflect changes in the programme during construction and operation and at intervals not less than 6 months after the initial start on site and thereafter annually.</p>	Section 1

- 1.1.3 This NVMP relates to the Phase 12 Works at Woodsmith Mine and does not include any activities at Lady Cross Plantation, as these works have been deferred. The NYMNPA has confirmed that it supports this approach.
- 1.1.4 Phase 7 and Phase 11 activities will continue past the start date of Phase 12. Phase 8 activities included the construction of permanent buildings and are subject to separate noise limits, as specified in condition NYMNPA-20. Phase 8 activities are therefore subject to a separate NVMP (40-RHD-WS-70-EN-PL-0034) and are not considered in this document.
- 1.1.5 This NVMP therefore supersedes all previous NVMPs (with the exception of that for Phase 8) upon the commencement of Phase 12 and considers processes and controls with respect to all activities on site throughout Phase 12. Specific activities required for Phase 12 comprise the following:
- Assembly and operation of Shaft Boring Road-headers (SBRs) at both Service Shaft and Production Shaft;
  - Installation of additional welfare cabins;
  - Installation of segregated materials bunker;
  - Creation of laydown area for segment and tubing storage;
  - Installation of lightning protection and canopy to SSUs; and
  - Installation of access control measures.

### Planning Conditions

- 1.1.6 In addition to Condition NYMNPA 18, two further conditions NYMNPA 20 and NYMNPA 21 establish noise limits relating to the Woodsmith Mine site (see **Section 2.2**). Planning condition detail is provided in Table 1-2 and Table 1-3.

Table 1-2: Condition NYMNPA 20 Noise and Vibration Management Plan

NYMNPA 20	Compliance with Condition NYMNPA-20
<p>Day-time (07.00 hrs to 19.00 hrs) noise levels <math>L_{Aeq,1hr}</math> from mine construction at the Dove's Nest site, excluding blasting operations, shall not exceed 55 dB <math>L_{Aeq,1hr}</math> and for short-term, construction activities solely relating to the demolition of existing buildings and erection of new structures excluding earth mound and bunds shall not exceed 65dB <math>L_{Aeq,1hr}</math>.</p> <p>An upper limit of 70 dB <math>L_{Aeq,1hr}</math> for the purposes of temporary noisy operations to provide noise-reducing earth bunds and / or barriers may be permitted for up to 56 days in any calendar year provided such temporary operations are specified and agreed in the NVMP described in Condition 18. Each calendar day when the higher temporary noise level is exceeded shall be counted as one day.</p> <p>Noise levels shall be measured in accordance with BS 4142:2014 and the limits apply at the curtilage boundary of residential properties and at the following recreational receptors: Falling Foss tea room, Lound House Camp/Caravan site, Sneaton Foss Lane Caravan site and at any location on the Wainwright Coast to Coast walk footpath as illustrated in drawing number PB1110-P2-7-002 which is Figure 7.2 of Part 2 of the York Potash Project Mine, MTS and MHF Environmental Statement dated September 2014.</p>	Section 3, and Appendix C

Table 1-3: Condition NYMNPA 21 Noise and Vibration Management Plan

NYMNPA 21	Compliance with Condition NYMNPA-21
<p>Evening (19.00 hrs to 22.00 hrs) and night-time (22.00 to 07.00 hrs) noise levels <math>L_{Aeq,1hr}</math> from mine construction at the Dove's Nest site, excluding blasting operations, shall not exceed 42 dB <math>L_{Aeq,1hr}</math> Noise levels shall be measured in accordance with BS 4142: 2014 and the limits apply at the curtilage boundary of residential properties and at the following recreational receptors: Lound House Camp/Caravan site and Sneaton Caravan site.</p>	Section 3, and Appendix C

- 1.1.7 Conditions NYMNPA 24, 27, 28 and 29 relate to vibration arising from blasting activities during underground chamber construction or shaft sinking activities involving blasting. Planning condition detail is provided in Table 1-4 to Table 1-7.

Table 1-4: Condition NYMNPA 24 Noise and Vibration Management Plan

NYMNPA 24	Compliance with Condition NYMNPA-24
<p>Noise levels (air overpressure) from blasting shall not exceed 115dB (linear peak) as measured at any residential properties. No blasting shall take place outside the period 0700 until 2200 unless agreed in advance in writing by the MPA and it can be demonstrated that there will be no significant adverse noise effect on residents.</p>	Section 2 and Section 5



Table 1-5: Condition NYMNPA 27 Noise and Vibration Management Plan

NYMNPA 27	Compliance with Condition NYMNPA-27
Day time (07.00 hrs to 19.00 hrs) ground vibration as a result of underground chamber construction or blasting operations involved in shaft sinking shall not exceed a peak particle velocity of 6 mm/sec in 95% of all blasts measured over any period of 6 months and no individual blast shall exceed a peak particle velocity of 10 mm/s as measured at vibration sensitive buildings. Evening (19.00 to 22.00 hrs) ground vibration as a result of underground chamber construction or blasting operations involved in shaft sinking shall not exceed a peak particle velocity of 4.5 mm/sec in 95% of all blasts measured over any period of 6 months and no individual blast shall exceed a peak particle velocity of 6 mm/s as measured at Vibration Sensitive Buildings and Infrastructure.	Section 2 and Section 5

Table 1-6: Condition NYMNPA 28 Noise and Vibration Management Plan

NYMNPA 28	Compliance with Condition NYMNPA-28
Night time (22:00 hrs to 07.00 hrs) ground vibration from construction/blasting shall not exceed a peak particle velocity of 2 mm/s in 95% of blasts at residential properties and no individual blast shall exceed a peak particle velocity of 3 mm/s as measured at Vibration Sensitive Buildings and Infrastructure.	Section 2 and Section 5

Table 1-7: Condition NYMNPA 29 Noise and Vibration Management Plan

NYMNPA 29	Compliance with Condition NYMNPA-29
Prior to the commencement of any blasting operations associated with shaft sinking or chamber construction, a scheme for the monitoring of blasting vibration within 1 kilometre of the site shall be submitted to the MPA for approval. Blast monitoring shall take place in accordance with the approved scheme and the results forwarded to the MPA on a quarterly basis until the completion of those blasting operations.	Section 1 and Section 5

- 1.1.8 In this document, the term “*construction*” includes all physical and related engineering and construction activities associated with the Phase 12 Works, as described above. Updates to this plan will be prepared and submitted to the NYMNPA for approval in advance of subsequent construction phases and following any material design or method change.

## 2 GUIDANCE

### 2.1 Legislation and British Standards

2.1.1 Wherever practicable, construction will be carried out in accordance with:

- BS 5228:2009+A1:2014 *Code of Practice for noise and vibration control on construction and open sites*.

### 2.2 Construction Limits

2.2.1 Established construction noise limits (as measured at the identified receptors) remain as:

- 55 dB  $L_{Aeq,1hr}$  for daytime (07:00 – 19:00);
- 65 dB  $L_{Aeq,1hr}$  for the demolition of buildings and erection of new structures;
- Up to 70 dB  $L_{Aeq,1hr}$  for temporary noisy operations to provide noise-reducing earth bunds and / or barriers; and
- 42 dB  $L_{Aeq,1hr}$  for evening and night-time (19:00 – 07:00).

2.2.2 Established blasting vibration limits (peak particle velocity, PPV, as measured at the identified receptors) are:

- 6 mm/sec in 95% of all blasts, 10 mm/s in individual blasts for blasting during daytime (07:00 to 19:00).
- 4.5 mm/sec in 95% of all blasts, 6 mm/s in individual blasts for blasting during the evening (19:00 to 22:00); and
- 2 mm/sec in 95% of all blasts, 3 mm/s in individual blasts for blasting during the night (22:00 to 07:00).

2.2.3 Established limits for air overpressure noise levels (from blasting), as measured at any residential properties:

- shall not exceed 115dB (linear peak).
- no blasting shall take place outside the period 0700 until 2200 unless agreed in advance in writing by the MPA.

### 2.3 Construction Method

2.3.1 Contractors responsible for implementing these Phase 12 Works (see Construction Environmental Management Plan (CEMP; reference 40-RHD-WS-70-EN-PL-0045) have provided details of the construction plan, number and type of plant items to be used and location/duration of construction activities within the site. Further detail is provided in the Phase 12 Construction Method Statement (CMS) (reference 40-SMP-WS-7100-PA-MS-00011).

2.3.2 **Appendix C** details the plant items used within the model, their sound power level and location on site. Predictions of noise levels based upon these details are assessed within this NVMP.

### 3 PREDICTED CONSTRUCTION NOISE AND VIBRATION LEVELS

#### 3.1 Baseline Receptor Locations

3.1.1 Residential and recreational receptors for this NVMP remain as identified in the Environmental Statement (ES) which accompanied the planning application, in previous iterations of the NVMP (e.g. Phase 4 NVMP; document reference 40-RHD-WS-70-EN-PL-0017), and as shown in **Appendix B, Figure B1**. Whilst monitoring is not ongoing at Soulsgrave Farm it is still considered a receptor for the purposes of this NVMP.

#### 3.2 Predicted Noise Levels

3.2.1 Noise modelling was undertaken to provide predictions of noise levels throughout the Phase. **Tables C.1 and C.2 in Appendix C** outline the construction noise assessment predictions for the Phase 12 Works cumulative with continuing Phase 7 and Phase 11 works.

3.2.2 Noise levels due to construction activities in the Phase 12 Works were not predicted to exceed the agreed construction noise limits at any of the identified noise-sensitive receptors during the daytime, evening or night-time following the application of suitable measures, including activity timing and physical mitigation. It should be noted that the noise model is considered conservative and that exceedances of the noise limits during normal operations would not be anticipated.

3.2.3 During the past year, visits have been made to the various receptors for equipment maintenance and monitoring purposes. At those receptors to the south and west of the site (particularly Moorside, Thornhill and the Wainwright Coast to Coast Path) it was observed, over a number of visits, that site noise is generally inaudible. Predicted noise levels in the **Table C.1 and Table C.2 in Appendix C** can therefore, be considered to be a very conservative case.

#### 3.3 Vibration

3.3.1 In relation to all construction works, excluding blasting, ground borne vibration was considered according to the conservative approach outlined in previous NVMPs (e.g. Phase 4 document reference 40-RHD-WS-70-EN-PL-0017; see Table C.7, Appendix C for minimum set-back distances for vibration levels of reportable significance).

3.3.2 All identified sensitive receptors are at least 180m from the nearest site boundary, and the minimum distance between the primary haul route and any of the surrounding receptors is over 400m. Therefore ground-borne vibration levels due to construction works, excluding blasting, will be below levels considered to be *“just about perceptible in residential environments”*<sup>1</sup>.

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<sup>1</sup> Planning Policy Guidance Note 24 (PPG24, 1994), Department for Communities and Local Government

## 4 NOISE MONITORING PROGRAMME

### 4.1 Noise Monitoring

4.1.1 Continuous noise monitoring, as required by condition NYMNPA 18, is being undertaken during construction at three key residential receptor locations and seven boundary locations as described in previous NVMP (e.g. Phase 4 document reference 40-RHD-WS-70-EN-PL-0017) and shown in **Appendix B, Figure B1**. Sound Level Meters (SLMs) record  $L_{Aeq}$ ,  $L_{Amax}$ ,  $L_{A90}$ , and  $L_{A10}$  data with a “fast” time constant and A-weighting (see **Appendix A** for descriptions of these terms). Weather condition monitoring is carried out simultaneously.

4.1.2 A system of real time alerts enables remote monitoring of noise levels and appropriate action by Contractors. Reports are produced for submission to SBC and NYMNPA, and the full dataset is presented in graphical format. At the moment, summary reports are produced on a weekly basis and the monthly reports are on hold. We would anticipate going back to normal reporting during Phase 12.

## 5 BLASTING VIBRATION MONITORING PROGRAMME

- 5.1.1 Condition NYMNPA 29 requires a scheme for monitoring of blasting vibration within 1 kilometre of the site to be submitted to the MPA for approval. Blasting operations, approved under Phase 11, will continue to occur on only the MTS shaft during Phase 12, and the agreed monitoring programme is set out below.
- 5.1.2 As required by condition NYMNPA 29, and subject to approval from the MPA, continuous vibration monitoring is being undertaken during blasting operations at one key residential receptor location (Parkdown Bungalow, NM1) and one on site location (boundary location BML1).
- 5.1.3 Monitoring is undertaken using V9000 Seismographs recording Peak Particle Velocity (PPV) and air over-pressure. The V9000 Seismographs are self-calibrating.
- 5.1.4 PPV at the receptors is difficult to predict as the propagation of vibration through the ground depends upon a large number of factors including geological conditions between the blast location and receptor and maximum instantaneous charge weight per delay.
- 5.1.5 For this reason, a series of test blasts will be carried out to ascertain the blast design (including number of delays, powder velocity, charge weight etc.) that will ensure blasting vibration limits at the receptors is not exceeded.
- 5.1.6 Monitoring during test blasting will be undertaken concurrently at six additional locations including locations NM2 and NM3. The results from these monitoring locations will be used to optimise the blast design using regression line analysis.
- 5.1.7 The continuous monitoring and monitoring during test blasting will be undertaken in accordance with BS 7385:1990 Evaluation and measurement for vibration in buildings, Part 1 Guide for measurement of vibrations and evaluation of their effects on buildings.
- 5.1.8 The results from the blasting vibration monitoring will be forwarded to the Local Planning Authority on a quarterly basis.

## 6 MITIGATION AND PROCEDURES

### 6.1 Purpose of the Section

6.1.1 This section outlines measures to be taken by the Contractors to limit, and manage the impact of, noise. This section also outlines the Best Practicable Means and specific mitigation actions to be adopted.

### 6.2 Best Practicable Means

6.2.1 The Control of Pollution Act (1974) and BS 5228:2009+A1:2014 define working methods and mitigation measures referred to as Best Practicable Means (BPM). Appropriate BPM set out in previous NVMPs (e.g. Phase 4, reference 40-RHD-WS-70-EN-PL-0017), will continue to be applied to the Phase 12 Works.

#### **Management Structure and Responsibilities**

6.2.2 While overall responsibility for compliance with environmental and approvals requirements will remain with Sirius Minerals, all Contractors working on site are accountable for undertaking the construction activities in accordance with the requirements of this NVMP.

6.2.3 The CEMP (reference 40-RHD-WS-70-EN-PL-0045) provides details of the lines of responsibility for environmental management (including relating to robust implementation of noise management and mitigation measures) during the Phase 12 Works.

#### **Maintenance**

6.2.4 Maintenance of plant will be carried out routinely and in accordance with the manufacturers' guidance. Daily inspections will be undertaken as described in previous NVMPs (e.g. Phase 4, reference 40-RHD-WS-70-EN-PL-0017).

#### **Training**

6.2.5 The site induction programme and site rules will include good working practice instructions for site staff, managers, visitors and contractors to help minimise noise, as set out in previous NVMPs (e.g. Phase 4, reference 40-RHD-WS-70-EN-PL-0017).

### 6.3 Specific Mitigation

#### **Activity timing and barriers**

6.3.1 Crushing of extracted material within the materials handling area will not be undertaken between 19:00 and 07:00, unless it can be demonstrated that no exceedence of the noise limits would occur.

6.3.2 On the basis of Condition NYMNPA 20, placement of extracted material onto the bund F tipping area will not be undertaken between 19:00 and 07:00 until the berm profile is established to a sufficient height and width. This is to ensure the grading of any tipped material provides adequate screening from the on-site activity at the closest receptor (Parkdown Bungalow) to the boundary

of the Bund F works. The berm will be graded during the daytime (07:00 to 19:00) only, to ensure adequate attenuation from on-site works, before night-time tipping activity commences.

- 6.3.3 Condition NYMNPA 20 establishes a daytime (07:00 to 19:00) noise limit relating to the Woodsmith Mine site, specifically for temporary noisy operations to allow for the construction/reduction of earth bunds and or barriers as detailed in Table 1-2. The condition stipulates an upper limit of 70dB  $L_{Aeq,1hr}$  is applicable for up to 56 days in any calendar year in order for this activity to be undertaken.
- 6.3.4 The production shaft will include perimeter attenuation through stacked shipping containers whilst cranes are in use. Furthermore, where applicable, all individual operations will be kept under review and relevant mitigation will be applied.

## 6.4 Communications

### Procedure for complaints or exceedance of limits

- 6.4.1 The procedures to be followed in the event of a complaint or an exceedance of permitted noise limits will remain as set out in previous NVMPs (e.g. Phase 4, reference 40-RHD-WS-70-EN-PL-0017).

### Public relations

- 6.4.2 Good public relations with local residents in nearby noise-sensitive receptors will be maintained.
- 6.4.3 A Community and Stakeholder Engagement Plan is provided in Appendix A to the Phase 12 CEMP (40-RHD-WS-70-EN-PL-0045). It remains valid for Phase 12 Works, and details actions to be taken by Sirius Minerals plc and the Contractors.
- 6.4.4 A Scheme for the Prior Notification of Blasting (40-SMP-WS-1000-PA-PL-00001) was approved as part of the Phase 7 Works at Woodsmith and contains details of the procedures adopted for informing local residents of blasting operations.



## Appendix A Acoustic Terminology

Term	Definition
Noise sensitive receptors	People, property or designated sites for nature conservation that may be at risk from exposure to noise and vibration that could potentially arise as a result of the proposed development/project
Noise and Vibration study area	The area assessed for noise and vibration impacts during this assessment
Baseline scenario	Scenarios with the proposed development/project not in operation
Decibel (dB)	A unit of noise level derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is 20 $\mu$ Pa, the threshold of normal hearing is 0dB, and 140dB is the threshold of pain. A change of 1dB is only perceptible under controlled conditions. Under normal conditions a change in noise level of 3dB(A) is the smallest perceptible change.
dB(A)	Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 metre; heavy road traffic about 80 dB(A) at 10 metres; the level near a pneumatic drill about 100 dB(A).
$L_{Aeq,T}$	The equivalent continuous sound level – the sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period (T). $L_{Aeq,T}$ is used to describe many types of noise and can be measured directly with an integrating sound level meter.
$L_{A10,T}$	The A weighted noise level exceeded for 10% of the specified measurement period (T). $L_{A10}$ is the index generally adopted to assess traffic noise
$L_{A90,T}$	The A weighted noise level exceeded for 90% of the specified measurement period (T). In BS 4142:2014 it is used to define the 'background' noise level.
$L_{Amax}$	The maximum A-weighted sound pressure level recorded during a measurement.
PPV	Instantaneous maximum velocity reached by a vibrating element as it oscillates about its rest position.
'A' weighting	A frequency weighting to compensate for the varying sensitivity of the human ear to sound at different frequencies.
Fast time constant	Sound level meters have two conventional time weightings, F = Fast and S = Slow with time constants of 125 ms and 1000 ms respectively. Fast time constant relates to the response time of the meter which allows rapid variations in noise level to be registered.



## Appendix B Figures

**Legend:**

- Land Ownershi
- Site Boundary Mo**
- BML1 - Parkdo
- BML2 - Thornhill
- BML3 - Moorsid
- BML4 - Soulsgrg
- Coast Walk
- BML6 - Sneato
- BML7 - Betwee

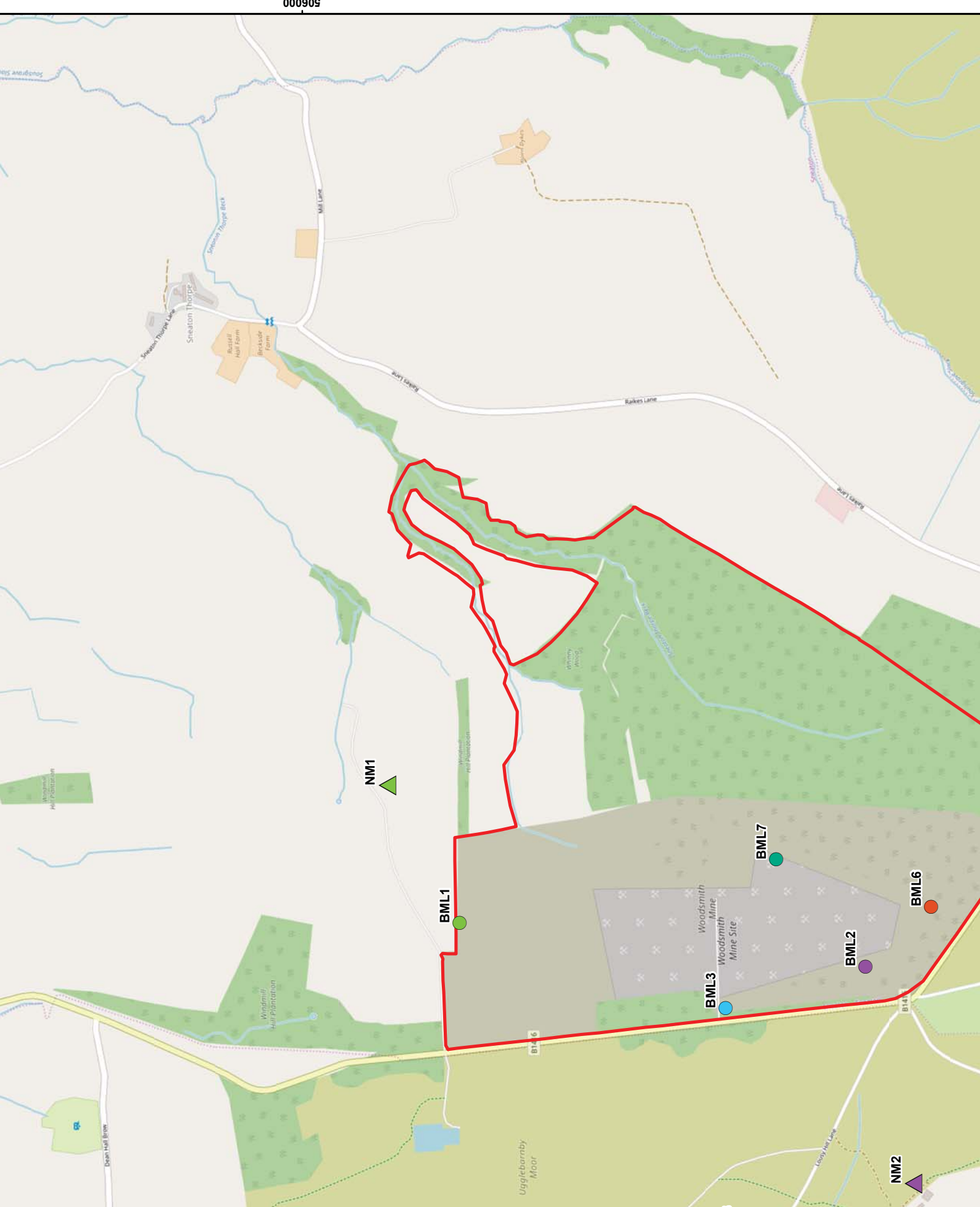
**Receptor Monitor**

- ▲ NM1 - Parkdo
- ▲ NM2 - Thornhill
- ▲ NM3 - Moorsid

Client:  
 Sirius Minerals plc

Title:  
 Proposed Re  
 Boundary Noi

Appendix:	B	Figure:	B.
Rev:	B	Date:	16/10/2018
	A	Date:	23/05/2017
Co-ordinate system:			



0009005



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## Appendix C Predicted Construction Noise Levels

The predicted noise levels detailed within the tables below are considered to represent the most conservative scenario.

**Table C.1 Calculated highest noise levels during Phase 12 – Daytime**

Receptor Location	Daytime (07:00–19:00)	
	Limit $L_{Aeq,1hr}$ dB	Maximum Predicted $L_{Aeq,1hr}$ dB
Parkdown Bungalow	55	51.3
Moor House Farm	55	46.9
Moorside Farm	55	45.6
Thornhill	55	44.9
Soulsgrave	55	46.2
Wainwright Coast to Coast Path	55	44.7
Sneaton Foss Caravan Park	55	45.0
Falling Foss Tearooms	55	29.9
Lound House Caravan Park	55	43.5

**Table C.2 Calculated highest noise levels during Phase 12 – Evening and night time**

Receptor Location	Evening and Night-time (19:00–07:00)	
	Limit $L_{Aeq,1hr}$ dB	Maximum Predicted $L_{Aeq,1hr}$ dB
Parkdown Bungalow	42	41.4
Moor House Farm	42	37.5
Moorside Farm	42	35.8
Thornhill	42	34.6
Soulsgrave	42	37.8
Wainwright Coast to Coast Path	42	36.4
Sneaton Foss Caravan Park	42	34.7
Falling Foss Tearooms	42	21.3
Lound House Caravan Park	42	34.7

### Modelling Assumptions

The modelled results for remaining Phase 7 (Production Shaft Foreshaft Excavation) and Phase 11 cumulative with Phase 12 are detailed in Tables C.1 and C.2.

The following Phase 12 equipment, associated sound power levels and conservative assumptions regarding plant 'ontimes' were used within the SoundPLAN noise model:

**Assembly and operation of Shaft Boring Roadheaders (SBRs) at both Service Shaft and Production Shaft**

1x Tracked mobile crane Liebherr LR1160 used to assemble SBR, 106 dB(A), 75% ontime  
1x Shaft Bore Roadheader at Service Shaft, LwA 118 dB(A), continuous operation  
1x Winch House MTS, LwA 100dB, continuous operation

**Installation of additional welfare cabins**

No significant works. Works considered to be represented by the crane included in SBR assembly above.

**Installation of segregated materials bunker**

1x Dozer, 109 dB(A), 75% ontime daytime only  
1x Dump truck, LwA 110.0, 15min/hr  
1x Mobile Elevated Working Platform, 108.4 dB(A), 75% ontime daytime only  
1x Crane, 106.5 dB(A), 75% ontime daytime only

**Creation of laydown area for segment and tubbing storage**

2x Dozer, 109 dB(A), 75% ontime daytime only  
2x Dump truck, LwA 110.0, 15min/hr

**Installation of lightning protection and canopy to SSUs**

No significant works. Short term works considered to be represented by the crane included in SBR assembly above.

**Installation of access control measures**

No significant works.

Plant associated with Phase 11 is also included in the noise model:

**Development of mitigation screening**

5x Dozer, 109 dB(A), 75% ontime daytime only  
1x Front end loader, 107dB(A), 75% ontime at MTS  
1x Dump truck, LwA 110 dB(A), 60min/hr daytime, 30min/hr night to Material Handling Platform  
1x Dump Truck LwA 110 dB(A), 60min/hr daytime, 30min/hr night to Bund F tipping area  
1x Dump truck tipping, 107dB(A) (measured on site), 15min/hr  
1x Mobile Crusher, 109dB(A), daytime only 20% on-time daytime only

**Grout shed and winches**

1x Grout Shed operations, 80dB(A), continuous operation  
3x Winch, 100dB(A), continuous operation  
1x MTS Winch House, LwA 100dB, continuous operation

**Service Shaft and Production Shaft Ventilation and Dust Silencer**

1x Silencer, 88dB(A), continuous operation  
1x Service Shaft Winch House, LwA 100dB, continuous operation  
1x Winch House PS, LwA 100dB, continuous operation  
1x PS ventilation, 88dB(A), continuous operation  
1x SS ventilation, 88dB(A), continuous operation



1x PS Winches, LwA 100 dB, continuous operation

1x SS Winches, LwA 100 dB, continuous operation

#### **Air Compressing Facility**

5x Compressors LR290, 90 dB(A), 100%

2x Condensates pumps, 80.5 dB(A), 100%

1x Adsorption Dryer, 106 dB(A), 100%

#### **NDWWTP**

1x Dissolved Air Flotation Unit, 93.1 dB(A), 80% on time, daytime only

3x Shaft Head Shaker Unit, 97.7 dB(A), 80% on time daytime only at MTS shaft, North and South shafts

The following Phase 7 equipment and associated sound power levels were used within the SoundPLAN noise model:

#### **Excavation of PS Foreshaft**

1x 22t Excavator mounted muffled rock breakers, 121 dB(A), daytime only

1x 35t Excavator moving rubble, 114 dB(A) daytime only

1x Crawler Crane, 110.6 dB(A), continuous daytime, 10% ontime evening and night time

1x Mobile Crane, 110.6 dB(A), continuous daytime, 10% ontime evening and night time

1x Dump truck being loaded, 116.5 dB(A), daytime only

1x Dump truck to MTS platform, continuous

1x Dump truck tipping fill, LwA 101.9 dB(A) 360s/hr

Mobile equipment was modelled as a moving point line source with speeds of between 5 and 20 kph.

Stationary plant was modelled as a point source.

Noise propagation was calculated using the BS 5228:2009+A1:2014 methodology.