



**Project Management Plan  
(Construction Phase Plan)**

**Contractor:**  
ASSOCIATED MINING CONSTRUCTION UK

**Client:** Sirius Minerals PLC

**AMC UK Contract Number:** RPA-127

**Scheme:** Phase 3 – Site Establishment and  
Concrete Batch Plant

**Document Number:**  
40-AMC-WS-71-PM-PL-0001 Rev. 0

**Head Office Address**

Associated Mining  
Construction UK  
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Haustenbecke 1  
44319 Dortmund

<b>TEL</b>	+
<b>No</b>	
<b>FAX</b>	+
<b>No</b>	

**Project Address**

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**Telephone**

+

**Fax**

+

**Designer Address**

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**Designer Phone  
Number**

+

**CONTRACTOR**

Associated Mining  
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**AMC UK STATUS**

<b>START</b>	<b>FINISH</b>
<b>June 4, 2017</b>	<b>Oct. 9, 2017</b>

<b>Designer</b>	<b>Contractor</b>		
Yes	Yes		

<b>Drafted By</b>	<b>AMC UK</b>	<b>Accepted By</b>	<b>Sirius Minerals PLC</b>
<b>Name</b>	Steve Farrell	<b>Name</b>	Duncan Smith
<b>Date</b>	30/03/17	<b>Date</b>	
<b>Signature</b>		<b>Signature</b>	

**CONTROLLED COPY CIRCULATION LIST**

<b>Contracts Manager</b>	<b>Project Manager</b>	<b>Client</b>	<b>Site File</b>	<b>Contractor</b>	<b>Sub-contractor</b>
Kirby Williston	Jonathan White	Duncan Smith		AMC UK	TBD
<b>Issue Date:</b>	30/03/17	<b>Current Revision Number:</b>			0

**REVISION HISTORY**

<b>Date</b>	<b>Revision number</b>	<b>Revision made</b>	<b>Signature required below</b>
01/02/17	A	Internal issue	SF
23/02/17	B	Issued to Project	SF
27/03/17	C	Revised as per Project comments	SF
30/03/17	0	Issued for Use	SF

**SUB-CONTRACTORS**

<b>Company</b>	<b>Specialism</b>	<b>Address</b>	<b>Contact</b>	<b>Number</b>
TBD	Batch Plant Civil Works	TBD	TBD	XXX
TBD	Batch Plant Installation	TBD	TBD	XXX
Bauer Technologies	Welfare/Offices Workshop	Millers Three, Southmill Road, Bishops Stortford, Herts, UK. CM23 3DH	Gustav Jahnert	+

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Appendix A – Drawings

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## SECTION 1 – PROJECT DESCRIPTION AND DETAILS

### 1.1. Description of the Contract/Project

#### 1.1.1. Project Overview

Sirius Minerals PLC intends to develop a new mine surface development, south of Whitby in North Yorkshire to extract and process polyhalite and transfer it to a harbour facility (the harbour facility is covered by a separate consenting regime). A full and detailed description of the project can be found in the Environmental Statement (as updated).

This Project Management Plan (PMP) relates to the Phase 3 construction activities performed between June and October 2017.

#### 1.1.2. Description of Works

- Set up the concrete batch plant.
- Set up any AMC UK required welfare/office facilities.
- Set up the workshop and sub-contractor required welfare/office facilities.

Drawings for the above are in Appendix A.

### 1.2. Details of Client, Designer and Other Consultants

ROLE	DUTY HOLDER	CONTACT DETAILS
CLIENT	Sirius Minerals PLC	<b>Name:</b> William Woods <b>Position:</b> Project Development Manager <b>Tel:</b>
DESIGNER	AMC UK	<b>Name:</b> Jürgen Franz <b>Position:</b> Engineering Director <b>Tel:</b>
HEALTH & SAFETY EXECUTIVE	N/A	<b>Address:</b> 8 City Walk, Leeds LS11 9AT <b>Tel:</b> <b>Web:</b> hse.gov.uk
CONTRACTOR	ASSOCIATED MINING CONSTRUCTION UK c/o Deilmann-Haniel GmbH Haustenbecke 1 44319 Dortmund	<b>Name:</b> Jonathan White <b>Position:</b> Operations Director

#### 1.2.1. Emergency Contacts

Client – Emergency Telephone Numbers

CONTACT NAME	TEL NO.
Robert Staniland, Environment Manager	
William Woods, Project Development Manager	
Duncan Smith, Project Manager	
John Price, Construction Manager	
Gary Ward, HSE Advisor	

Statutory Undertakers – Emergency Telephone Numbers

SERVICE	TEL NO.
Gas, National Grid	
Water Services, Yorkshire Water	
Electricity, Northern Power Grid	
Oil or Gas Pipeline (British Pipeline Agency)	
Telephone, BT	
Cable, Virgin Media	
Sewerage Services, Yorkshire Water	
Environment Agency	
Local Police Station	

Other – Emergency Telephone Numbers

CONTACT/POSITION	NAME	TEL NO.
Head Office	Annemarie Kulig	+
Operations Director	Jonathan White	+
Project Manager	TBD	TBD
Engineering	Steve Farrell	+
Commercial Director	Kirby Williston	
Health and Safety Advisor	Hugh Medcalf	+
Environmental Advisor	Hugh Medcalf	+

Emergency Procedures

EMERGENCY PROCEDURES	REQUIRED	DISPLAY LOCATION
Environmental Emergency Preparedness Plan	✓	Office
Emergency Response Plan	✓	Office
Accident and Emergency (A&E) Hospital and Route	✓	Office

Further environmental procedures will be discussed at induction, displayed on site notice boards & detailed in the environmental section.

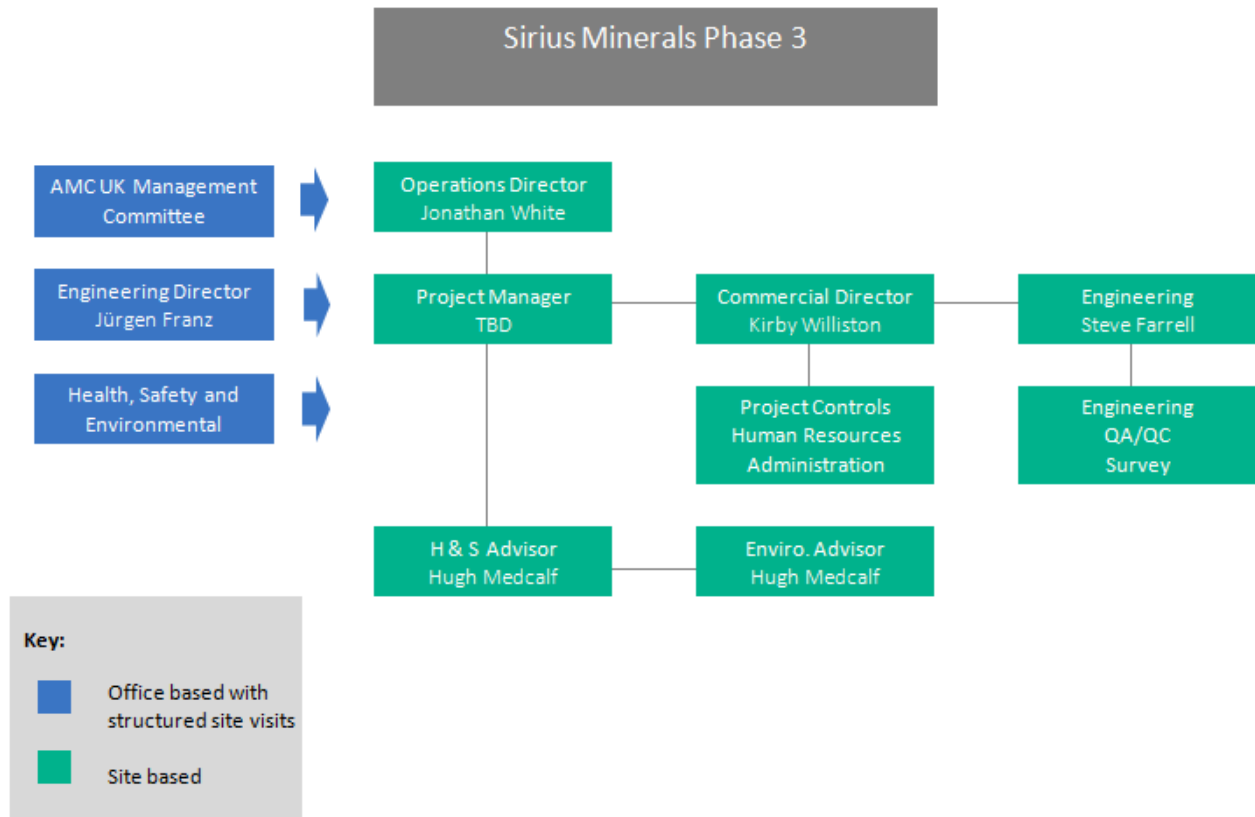
**1.3. Existing Plans/Records**

RECORDS AND INFORMATION	FORMAT	PROVIDED BY
ECI Scope of Works	Documents	Sirius Minerals
Key Deliverables agreed with client	Documents	Sirius Minerals
Project Risk Register	Documents	AMC UK
Buried services plans	Electronic and colour print	Arup
Health, Safety and Environmental Files	Documents	AMC UK

## SECTION 2 – SITE OPERATIONS

### 2.1. AMC UK Management Structure

#### 2.1.1. Organizational Chart



2.1.2. Project Team - Responsibilities

Responsibility	Role (In order of Seniority)	Coordinators												Controllers									
		Project Management Plan	Legal Requirements	Environment Aspects and Impacts	Risk Assessment and Method Statements	Document Control and record Keeping	Emergency Preparedness and Response	Waste Management (SWMP)	Monitoring and Measurement	Accidents, Incidents and near miss Reporting and Investigations	Non-conformances, Corrective and Preventive action	Procurement	Temporary Works coordinator	Water Permits Control and Sampling	Site Safety	Control of Substances Hazardous to Health (COSHH)	Permits to work	Lifting Operations	Site Inductions and Briefings	Fire Coordinator (RP)/Marshals (D)	Plant Records	First aiders	Site Security
Nominated person																							
Jonathan White	Operations Director	X	X				X																
Kirby Williston	Commercial Director	X	X			X					X												
TBD	Project Manager	X	X	X	X	X	X	X	X	X	X	X	X								X		X
Steve Farrell	Engineering	X			X	X			X		X	X									X		
Hugh Medcalf	Health and Safety Advisor				X	X	X		X	X					X	X	X	X	X			X	X
Hugh Medcalf	Environment Advisor			X		X	X	X	X							X	X		X				
Gustav Jahnert	Sub-Contractor												X	X	X	X	X	X	X	X	X	X	X



### 2.1.3. Management Team - Roles and Responsibilities

NAME	POSITION	CONTACT PHONE NO.	RESPONSIBILITIES (in brief)
Jonathan White	Operations Director	+	Overall responsibility for the projects safety, health and environmental management, resources, procedures and support to meet the arrangements documented in this plan.
TBD	Project Manager	TBD	Control and manage on site construction activities, manage sub-contract activities on site, ensure client satisfaction throughout construction process, implement best practise regarding QESH procedures.
Hugh Medcalf	Health and Safety Advisor	+	Advice, support and monitoring of health, safety policies and procedures to meet the arrangements documented in this plan and current legislation.
Hugh Medcalf	Environmental Advisor	+	Advice, support and monitoring of environmental management policies and procedures to meet the arrangements documented in this plan and current legislation.

### 2.2. Objective and Goals

It is our objective to carry out the on-site construction process of the works in such a way as to give due regard to the welfare of all persons involved in carrying out the works, and without putting their health and safety at significant risk, along with that of others who may be affected by the works, including members of the general public, and visitors to the site of the works.

The overall Quality goals are to:

- Meet or exceed the client's requirements
- Comply with project drawings and other written specifications
- Report all non-conformances
- Comply with product/process legislation

The overall Health and Safety goals are to:

- Achieve zero RIDDOR (Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013) and accidents
- Prevent or minimise the number of non-RIDDOR accidents and incidents
- Comply with project H&S requirements
- Report all accidents, incidents and near misses

The overall Environmental goals are to:

- Prevent or minimise any environmental disturbance
- Comply with project environmental requirements
- Report all incidents and near misses
- Comply with Environmental Legislation

**2.2.1. Project QESH and Other Specific Objectives and Targets**

Environmental, Quality, Health and Safety and client key objectives and targets for the project and arrangements for monitoring and review of environmental performance will be as follows:

OBJECTIVE	TARGET	MEASURE	REVIEW PROCESS	OWNER
Environmental objective/targets	Zero environmental incidents	Contractor's Report	Monthly	Project Manager
	My Brother's Keeper reporting	Contractor's Report	Monthly	Project Manager
Quality objectives/targets	Zero defects at handover	Defects list at handover	Review at handover	Project Manager
Health and Safety objectives/targets	Zero accidents	Contractor's Report	Monthly	Project Manager
	My Brother's Keeper reporting	Contractor's Report	Monthly	Project Manager

**2.2.2. Standard Setting**

Through management team supervision and monitoring, AMC UK will ensure that work carried out is in accordance with relevant Policies, Legislation, Approved Codes of Practice and Guidance Notes.

The company will operate under the control of a Health and Safety Plan, and Environmental Management Plan and Quality Management Program (in accordance with UK Mining Regulations).

Reference should be made to the following AMC UK documentation for further information:

- Health and Safety Policy
- Life Saving Rules Policy
- Violence and Harassment Prevention Policy
- Substance Abuse (Drugs and Alcohol) Policy
- Disciplinary Policy
- Environmental Policy
- Sustainability Policy

**2.2.3. Arrangements for Monitoring Quality, Environment, Health and Safety (QESH) Performance**

Site inspections and audits will be carried out to ensure compliance with the project requirements. This may include first parties, i.e. people working for AMC UK, second parties, i.e. clients' representatives, and third parties such as an outside Health and Safety auditor.

During Phase 3, AMC UK will be responsible for ensuring that its quality, environment and health and safety performance and the performance of its subcontractors are reviewed on an ongoing basis.

Members of the management team will also monitor performance of the activities they undertake and those undertaken by its subcontractors through regular audits and inspections.

Performance will be reviewed at each Project Review Meeting attended by all relevant members of the Project.

Any issues identified will be raised immediately with the relevant party who will be expected to implement the appropriate corrective action within timescales agreed between both parties.

**2.2.4. Site Monitoring, Inspections and Monthly Audits**

Monitoring procedures and documentation used are held on the AMC UK file server. Monitoring records shall be held by the management team in the project office and reviewed by the management team.

TYPE OF MONITORING	CARRIED OUT BY	SCHEDULE
SHE inspection	Project Manager	Quarterly
Internal audit	Health and Safety Manager	Annually
Weekly site inspection	Supervisor	Weekly

Quality Test Requirements (e.g. concrete test cylinders/other inspections)	Project Manager	As per Inspection and Test Plan
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More information on site monitoring, inspections and audits in relation to environmental matters is contained within the Environmental Management Plan.

### 2.3. Communications

#### 2.3.1. Regular Liaison between Parties On and Off Site

AMC UK will maintain regular project meetings with the project team and labour resource.

Regular liaison meetings will be held with the Local Authorities, Health and Safety Executive, the Environment Agency, and other government bodies such as DEFRA (Department for Environment, Food and Rural Affairs) throughout the duration of the project, as required.

AMC UK will attend meetings with local authorities, trades, amenities and service providers as required.

The management team will, where identified, contact the trades, amenities and services to communicate the arrangements and controls, ensuring understanding to reduce risk and disruption.

In accordance with the Environmental Emergency Preparedness Plan, Appendix C of the attached Environmental Management Plan (Appendix B), the Project Manager will notify the Environmental Manager of environmental incidents, who will follow the relevant process for managing the incident. The Environmental Manager will complete an investigation report for issue to the client and, where appropriate, the regulatory authorities.

The client has developed the following Complaints Procedure, which will be implemented.

#### 2.3.2. Complaints Procedure

All complaints or commendations received from members of the public shall be reported to the Project Manager, who shall arrange suitable corrective action and will report the contact to Sirius.

All other public queries shall be handled by the Project Manager, and as agreed with the client.

Further to the above procedures, the following Sirius Minerals' documents shall be adhered to, which shall be maintained in the Site Office at all times throughout construction.

- Community and Stakeholder Engagement Plan.
- 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:

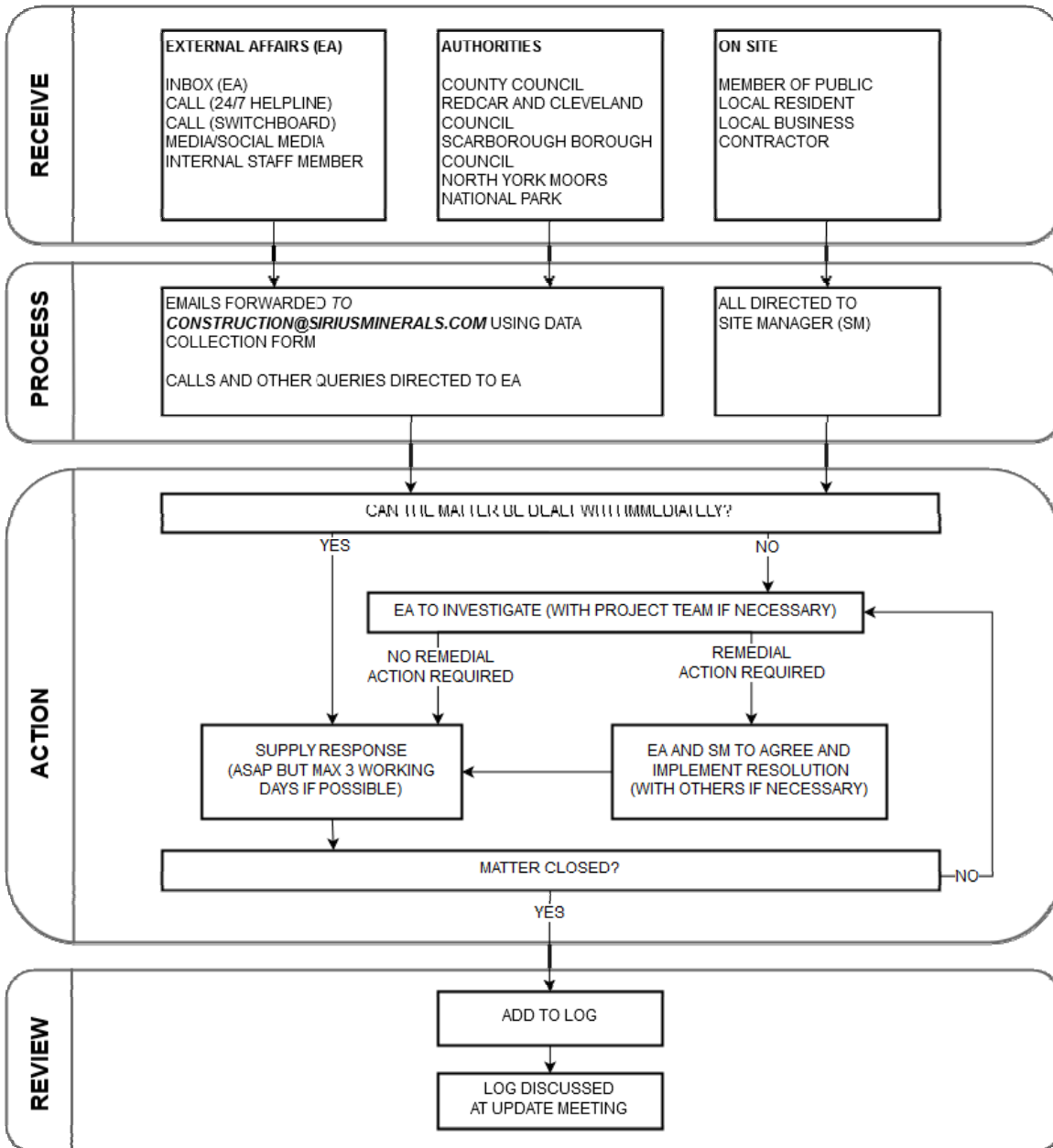
info@siriusminerals.com – email address managed by the External Affairs (EA) team

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, Woodsmith Mine)

Log – Complaints log managed by the External Affairs team

Update meetings – Regular construction progress meetings



The involvement of the local community and stakeholders will be encouraged.

**2.4. Internal Consultation Process**

Meetings will be held as detailed below to secure co-operation between the Client, Designer, Contractor, other Contractors and Designers to ensure that Health and Safety objectives are being adequately addressed and achieved.

MEETING/REPORT TYPE	CLIENT REQUIREMENT	AMC UK REQUIREMENT	TRAINING AND CONSULTATION	FREQUENCY			
				DAILY	WEEKLY	MONTHLY	ONCE
Contractors coordination meetings	x	x			x		
Contractors Report Design H&S Review meetings	x	x					x
Health, Safety and Environmental Inspection Report	x	x			x		
Joint Site Safety and Environmental Advisor Site Inspections	x	x				x	
Progress meetings	x	x				x	
Progress photographs	x	x		x			
Safety committee meetings (Monthly)		x				x	
Site safety coordination meeting		x			x		
Site team meeting		x			x		
Subcontractors progress		x				x	
Contractors progress/coordination meeting	x	x				x	
Progress photographs	x	x		x			
Site Induction	x	x					x
Subcontractors pre-commencement meetings	x	x					x
Activity briefings		x		x			
Environmental Alerts		x				x	
Safety Alerts		x				x	
Weekly Safety Meeting		x			x		
Daily monitoring of construction works by the contractor	x			x			
Weekly inspections by the Environment Team	x				x		
Preparation of environmental reports	x				x		
Progress reports covering environmental issues	x					x	
Meetings with Sirius Minerals	x					x	

#### 2.4.1. Consultation with the Workforce

Managers/Supervisors will communicate daily to the operatives they are responsible for. As part of the communication and the documented monitoring process, all operatives will be asked to communicate any health, safety or environment issues they may have. Brother's Keeper cards will be provided in the Site Office and Welfare facilities to encourage open communications on all matters. Issues raised will be logged on the tracking spreadsheet, raising a "pending action", until satisfactorily closed-out.

On a daily basis a Daily Safety Huddle meeting is held. This is a daily brief of site activities that may require special attention.

On a monthly basis there are Representatives of Health and Safety (RoHS) meetings between management and employee representatives. The meeting dates and minutes are issued by the Health and Safety Manager.

Should there be non-English speaking operatives on site these will be managed through the use of an interpreter to be supplied by the contractor or subcontractor. This can either be in the form of a professional translator – or a

bilingual member of the team. This translator will be used to ensure that all members of the team understand the site induction and the method statement briefing.

As well as the above we will ensure that all people understand simple commands such as “Stop” and “No.” Any further instruction will then be passed on through the interpreter.

More information on consultation with the workforce on environmental matters is contained within the Environmental Management Plan.

#### **2.4.2. The Exchange of Design Information**

Regular meetings, for the purpose of exchange of information, will be set up in agreement with the Project Manager. These will include, where appropriate, the client, client’s representatives, designer, designers, contractors and other interested parties.

#### **2.4.3. Permits/Consents and Constraints**

Any permit or consent applied for / issued to AMC UK as part of this works, or site constraints, must be logged. This is to allow proactive monitoring of all consents and associated duties held by AMC UK.

The requirements are listed in the Environmental Management Plan.

#### **2.4.4. Managing Design Changes**

Design changes will be managed in accordance with the relevant procedure for the group concerned.

Where the Project Manager identifies that the construction or installation activity cannot proceed or continue as planned he will inform the client. A visit to the site may be arranged to discuss and instruct any minor changes, these will be confirmed in writing to the designer and the client.

Where major changes are required, the Project Manager may close down the site and contact the designer and seek a re-design. Upon receiving a revised design this shall be communicated to the team undertaking the activity and the works will recommence. Changes to existing consents, or additional consents, will be obtained, as required by the change.

Designers are required, as far as reasonably practicable, to identify foreseeable risks to health and safety associated with the design, both permanent and temporary works, and provide information regarding the significant risks to all parties involved in the project.

Designers when preparing or modifying a design are required to avoid foreseeable risks to the health and safety of any person involved with:

- Constructing the design
- Operating the constructed design
- Maintaining the constructed design
- Clearing the constructed design
- Future construction/alteration of the constructed design
- The ultimate demolition/dismantling of the constructed design

AMC UK’s design planning will include design Input Reviews and Design Change Control, to ensure co-operation and co-ordination of the works with the Designer and/or other Designers is adequately achieving requirements.

All temporary works required will be assessed and where they are found to give rise to significant risk that cannot be designed out by use of the proprietary structures, full design and calculation of the temporary works will be carried out.

Where the Designer identifies significant risk, these risks will be included within the relevant method statements with the associated control measures.

#### **2.4.5. Selection and Control of Suppliers and Subcontractors**

All suppliers and subcontractors are subject to the AMC UK selection procedures. Only suppliers and subcontractors on the AMC UK preferred suppliers list will be used on this project. These have successfully completed and met the minimum requirements of the selection procedure. The suppliers or subcontractors

performance will be monitored by the management team. If they fail to meet the minimum requirements documented within this plan, supporting policies, procedures and processes they will be instructed to improve or be removed from the contract.

Opportunities will be given to local suppliers by considering price, delivery schedule, and ease of QA/QC surveillance. If all elements are equal, local suppliers will be preferred. Where a local supplier's price is significantly higher, Sirius will be consulted.

**2.4.6. Subcontractors/Supplier Schedule**

WORKS PACKAGE	SUBCONTRACTOR/SUPPLIER	METHODS OF CONTROL							
		Pre-commencement Meeting	Health and Safety Plan	Risk Assessment	Method Statement	Permit to Work	Inspection and Test Plan	Weekly Coordination Meeting	Monthly Coordination Meeting
Batch Plant Civil Works	TBD	x	x	x	x	x	x	x	N/A
Batch Plant Installation	TBD	x	x	x	x	x	x	x	N/A
Welfare/Offices Workshop	Bauer Technologies	x	x	x	x	x	x	x	N/A

To be updated as subcontractors are appointed.

**2.4.7. Communication and Exchange of Information between Contractors**

Contract-specific awareness training will be arranged as necessary by AMC UK as identified by the client. Regular meetings, for the purpose of exchange of information, will be set up in agreement with the Project Manager. These will include, where appropriate, the client, client's representatives, contractors and other interested parties.

Information will be provided by AMC UK to all personnel via the site orientation. Records will be tracked in the training matrix.

This information will include information about the project made available by reference to the relevant parts of the Health and Safety Plan during safety meetings.

All personnel will be made aware of the AMC UK Policy Statements for Health and Safety and the Environment.

**2.5. Site Controls**

**2.5.1. Site Security**

The objective of security is to ensure business continuity and to minimise damage and theft by preventing and/or minimising the impact of security incidents. Sirius' Site Security Procedure and Customer Care Policy will apply.

Where excavations are to be left open at night suitable covers will be positioned over the top of the excavation and/or barriers or fencing. The level of protection shall be assessed and resourced by the Project Manager.

Sirius Minerals is to provide perimeter security. A perimeter fence will be installed and Sirius will provide a security watchman at the security cabin. AMC UK will control its designated work area with the most senior representative on site being responsible for security. His reports will be active in the field and will act on or report any suspicious activity.

Operations will typically be 12 hours per day, Monday to Friday, 6 am to 6 pm. Before leaving site at the end of a workday, AMC UK will secure the work area by locking up welfare facilities, locking equipment, barricading active works which pose a risk, etc.

The non-working hours will be communicated to the Sirius Minerals security watchman so he can check on the area as a part of his rounds. AMC UK may also hire a temporary watchman if the site is to be unoccupied depending upon the current works. The plan will take into consideration the prevention of unauthorised persons entering the site and the prevention of theft and unauthorised use of plant.

The following methods of site security will be implemented as detailed below. Although open to change as the works progress or conditions dictate, all actions and control methods must be followed and regularly reviewed throughout the contract to minimise the risk of unauthorised entry to / theft from the site. Where the option "Other" is chosen, this must have approval of the Contracts Manager and the reasons for use clearly stated.

ITEM	POTENTIAL METHODS OF CONTROL	OPTION TO USE	COMMENTS
Allocation of Responsibilities	Shift Supervisor	YES	
Police Liaison	Emergency contact details provided	YES	
Access	Sirius Minerals Security Watchman	YES	
Perimeter Protection	Anti Climb Fencing	YES	
Compound Protection	Heras Fencing	YES	
Control Procedures for Goods and Materials	Authorised signatories Secure storage areas	YES	
Security of Heavy Plant Items	Locks	YES	
Security of Small Plant	Site register Secure stores	YES	
Security Lighting	Sensory Controlled Time Switch	YES	
Security Containers	Steel construction	YES	
Site Office Accommodation	Steel construction	YES	
Office Equipment	Lockable offices	YES	
Keys	Access restricted Secure key box	YES	
Security Guarding	Out of hours	YES	
Alarm system	Monitored	NO	
CCTV	Monitored with response	NO	
Site closure	Contact details to police Roster for site visit	YES	
Car/Van parking	Designated area within compound	YES	
General	Advice to staff Discipline implications Advice to sub-contractors Safety meetings Warning notices Local community involvement	YES	

### 2.5.2. Site Visitors

Site visitors will report to the Project Manager and a site safety induction will be given. The pre-commencement safety questionnaire will be given out by the Project Manager or designate and reviewed so that any special requirements can be dealt with. PPE as prescribed by the PPE requirements procedure will be worn. No visitors are to be within close proximity to any plant in operation. All visitors must be recorded on the sign in / sign out register.

Any accidents/incidents involving either the Health and Safety Executive or the Environment Agency must be notified to the HSE Department within 24 hours by phone, then complete an accident / incident / near miss form.



### **2.5.3. Site Induction, Information and Training**

Information will be provided by AMC UK to all personnel on the site via a Site Induction. The pre-commencement safety questionnaire will be given out by the Project Manager or designate and reviewed so that any special requirements can be dealt with.

Records will be maintained in the project office in the sign in / sign out register.

### **2.5.4. On-Site Training**

AMC UK will ensure that its employees have received appropriate information, instruction and training.

Information and instruction are delivered by Daily Safety Huddles, Welcome Back Meetings and Weekly Meetings. All training will be given by AMC UK or other suitable bodies nominated by AMC UK.

Project specific awareness training will be arranged as necessary by AMC UK as identified by the Designer, the Health and Safety Manager, Site Management and/or Safety Advisors.

## **2.6. Provision of Welfare and First Aid Facilities**

Welfare Facilities, following the minimum required by CDM 2015 as a guideline, will be provided by AMC UK and subcontractors. The facilities will be regularly serviced and maintained. There must be changing facilities, canteen/mess room and adequate toilet facilities on site.

All offices and site accommodation are non-smoking, in accordance with the Smoking Policy and regulations.

### **2.6.1. First Aid**

The provision of First Aid facilities throughout the project will be:

- First Aid kits will be available at the Site Offices, Concrete Batch Plant, and within all AMC UK vehicles.

## **2.7. Reporting/Investigation of Accidents, Incidents and Near Misses**

Site Management shall ensure that an Accident Book, GS0309, is available on site for recording any injury to anyone at the site.

All incidents resulting in injury to any employee, subcontractor or member of the public and any incidents regarded as dangerous occurrences must be reported in consultation with the client. This procedure is in accordance with the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR).

All Incidents that require to be reported under the RIDDOR shall be reported by telephone to the Director Responsible for Safety and the Health and Safety Manager. All accidents reportable under the RIDDOR regulations shall be investigated and a report produced.

In the event of a Near Miss incident, it shall be either the Health and Safety Manager or Environmental Manager by using an Incident Report Form.

The Health and Safety Manager will respond to significant health and safety issues and the Environmental Manager will respond to any significant Environmental issues reported by the site.

All Sub-Contractors are obliged to pass information to the Contractor either verbally or in writing on accidents/incidents and near miss situations in accordance with the Health and Safety and Environmental Management Plans.

All Emergency Procedures and Incident Reporting are covered by the Health, Safety and Environmental Management Plans. Specific plans are drawn up by the site staff and displayed and practised copies of the plans are filed on site. All key personnel carry mobile phones, as do a number of operatives.

Staff will, in addition, report all accidents and incidents to the Client or nominated person when requested.

## **2.8. Risk Assessments and Written Systems of Work**

Standard format Risk Assessments and Method Statements (RAMS) which cover the risk controls and safe systems of work will be used.

Prior to any major or non-routine activity commencing, a site specific risk assessment is carried out by the Project Manager. This is then communicated to the rest of the team and formally monitored by the supervisor.

**2.9. Site Rules**

The site rules will be communicated to and signed by any new hires.

**2.9.1. Drug and Alcohol Policy**

The project will follow the AMC UK Substance Abuse Policy and procedures. Both employees and sub-contractors (including supervisory and management staff) are subject to the policy. Employees and sub-contractors involved in an accident/incident may be tested automatically for drugs and alcohol.

**2.10. Emergency Procedures**

**2.10.1. Fire**

Personnel will attempt to fight small fires if competent to do so while not exposing them to undue risk. When a fire occurs the Emergency Response Plan is to be followed. A check of personnel using the sign in register is to be conducted and the emergency services are to be alerted to anyone unaccounted for and their possible location on the site.

**2.10.2. Damage of Underground Services**

Where damage has been caused to underground services the industry and the AMC UK Emergency Response Plan will be followed as documented in publication HSG 47 Avoiding Danger From Underground Services (Third Edition) (HSE 2014).

**2.10.3. Liquid/Chemical Spills**

Spill kits will be placed at strategic locations around the site near to storage areas. These are to be used to contain small spills and have absorbents to soak up liquids. Care should be taken if the spill involves hazardous chemicals and spill kits should not be used if there is any risk to the person(s) attempting a clean-up.

Large spills should be contained by barriers where possible. Where a serious incident has occurred which is likely to cause serious pollution or flooding then the Environment Agency will be contacted (Tel: 0800 807060).

**2.10.4. Environmental Emergency Procedures**

The Environmental Emergency Response Plan can be found in Appendix C of the Environmental Management Plan (Appendix B).

An Environmental Emergency Preparedness Plan (EEPP) will be communicated to all staff and displayed on site notice boards.

In the event of a pollution incident the Environmental Emergency Preparedness Plan must be followed. The Project Manager / Contract Manager must be informed immediately and immediate steps taken to minimise the impact of the incident. Spill kits will be available on site for use in the event of a spillage. The Plan must be briefed to all site personnel at their site induction and throughout the project. Records of all briefings are to be kept on site.

The Environmental Manager is to be notified of an incident, and an investigation will be undertaken by the Client, and/or the Environmental Manager and a detailed pollution incident report compiled.

Emergency contacts are detailed in the table below:

CONTACT/POSITION	NAME	TEL NO.
AMC UK Operations Director	Jonathan White	+
AMC UK Project Manager	TBD	TBD
AMC UK Environmental Advisor	Hugh Medcalf	
Yorkshire Water	N/A	
Environment Agency	N/A	
North Yorkshire County Council	Pam Johnson	
North York Moors National Park Authority	Mark Hill	

## **SECTION 3 – PLANS TO REDUCE RISKS**

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The risks are split into three areas each shown in a separate plan:

- Quality Management Plan
- Health and Safety Plan
- Environmental Management Plan

### **3.1. Quality Management Plan**

#### **3.1.1. Document Control**

All documents relating to the contract, whether electronic or hard copy will be processed in accordance with the Document Control Procedure.

All completed site records shall be generated and maintained.

On receipt, documents will be dated stamped and annotated with the contract number and status; superseded documents will be clearly marked "S/S" when retained for legal and/or knowledge preservation purposes.

#### **3.1.2. Human Resources**

AMC UK is an equal opportunity employer and complies with all current statutory legislation.

Site management must obtain authorization from the Human Resources Manager prior to placing recruitment adverts for site based personnel.

All Human Resource activities are to take place in accordance with the relevant policies and procedures. The main areas for consideration with respect to HR are:

- Recruitment
- Job Descriptions
- Personnel Detail Record
- Orientation
- Appraisal
- Absenteeism
- Absence with Permissions
- Sickness Absence Self Certification
- Disciplinary Action

#### **3.1.3. Procurement**

All procurement on this contract shall be undertaken in accordance with site established procedures.

In accordance with Section 6 of the Health and Safety at Work Etc. Act 1974 all orders shall contain the statement that any article or substance to be supplied is, so far as is reasonably practicable, safe and without risk to health whilst being prepared for use, used, cleaned or maintained. Also, in accordance with the above, details of any tests or examinations carried out and full instructions for the safe use etc. of the article or substance shall be provided and to ensure no adverse effect upon the environment.

The buyer shall obtain any relevant technical data or samples required by the Client for their subsequent approval. They would be sent officially, seeking approval by the Client, by the buyer or nominee.

Within the engineering group, the nominated person will carry out technical evaluations on behalf of the Buyer with respect to Tenders and Quotations.

#### **3.1.4. Deliveries and Logistics**

Materials requiring storage prior to use will be placed in designated storage areas as close as possible to final point of use. Material/equipment that is prone to damage by weather or contamination will be given appropriate

protection. Packaging will not be removed, other than to verify condition on delivery, until material/equipment is to be used/installed. Storage of materials shall be undertaken in consideration with relevant environmental planning to ensure no pollution.

Newly installed material/equipment will be given appropriate protection to prevent unintentional damage.

Any problems are recorded against the supplier using the non-conformance system which is part of the supplier review process.

### **3.1.5. Product Identification and Traceability**

Identification is originally established by the accompanying documentation, i.e. delivery ticket, or product marking. Identification is maintained only for materials or product to be retained in permanent or temporary storage areas and is at the discretion of the contract Management.

The methods of maintaining identification, as appropriate to the products/materials, include the following:

- Segregation by location.
- Existing labelling or product marking.
- Attaching labels if necessary.
- Grouping of components.
- Shelf life of items, where appropriate (first in / first out).

The Control of Substances Hazardous to Health (COSHH) risk assessment will identify any purchased materials or products hazardous to health and to the environment and the Project Manager shall implement appropriate identification and control measures for handling, storage and traceability.

### **3.1.6. Verification on Receipt**

The following routine will be followed by the contract management for all deliveries to this site:

The person receiving products/materials, whether purchased or Client supplied shall:

- Compare supplier delivery note against pertinent copy purchase order.
- Determine if goods conform to delivery note.
- Visually examine goods for any obvious signs of transit damage, contamination or deterioration.
- Quantity checks where appropriate.
- Identify "Use by date" of items, where appropriate (check with manufacturer if unsure).

Records of verification will be established by endorsing the delivery ticket as follows:

- Date of receipt (if not pre-printed on the ticket on day of receipt).
- Signature and printed name of person receiving the goods.
- Comments as to acceptability of products as appropriate.

Any problems are recorded against the supplier using the non-conformance system which is part of the supplier review process.

### **3.1.7. Handling, Storage, Packaging and Preservation**

All materials shall be handled in such a manner as to prevent damage, pollution or injury. Materials containing a substance hazardous to health are handled in accordance with the specific COSHH Assessment.

Materials will be stored in a manner and location to prevent damage, pollution or deterioration. For materials being temporarily stored on site prior to use, packaging will only be removed to enable product verification at time of delivery. Packaging shall be ultimately disposed of in a controlled manner, either back to the supplier or in the appropriate waste receptacles.

Items with a defined shelf life shall be used on a first in / first out basis to avoid creating waste from unused, out of date stocks.

Packaging and protection to materials with sensitive finishes shall remain on the goods until handed over to the Client. Alternatively, adequate additional protection may be applied after incorporation into the contract works, to comply with Client specifications, if applicable, until handover to, or takeover by, the Client. Removal of protection material shall only be undertaken with the approval of the Client, upon handover to, or takeover by, the Client.

**3.1.8. Client Property**

AMC UK shall execute care with Client property (including intellectual property) whilst it is under our care. All Client property shall be identified and protected. If any Client property is damaged, lost or otherwise found to be unsuitable for use then this must be reported to the Client and a non-conformance logged.

**3.1.9. Audits, Inspections and Reports**

Regular site safety, quality and environmental monitoring will be carried out to ensure compliance with this PMP and that safe system of work and best practice are being employed.

In addition, at regular intervals during the contract, audits will be undertaken by various parties to monitor the safety standard and hazard control on the site.

The following parties may attend site for the purpose of undertaking an audit:

- AMC UK Senior Management
- Health and Safety Manager or Environmental Manager
- Approved third party
- Client
- Health and Safety Executive

Any recommendations made will be implemented in the order of priority stated and within the time frame given.

Refer to the appropriate plan for audit, inspection and monitoring schedules.

Routine quality assurance testing is carried out in accordance with the Inspection and Test Plan (ITP). A schedule of test types, frequency and hold points is to be kept with this plan.

**3.1.10. Laboratory Testing Details**

Testing will be undertaken in accordance with the Specification. Laboratory testing will be undertaken by a certified third party.

**3.1.11. Non-Conforming Products/Services**

In the instances of non-conforming products or undesirable/unplanned events, such as Client complaints etc. a Non-Conformance Note shall be raised to facilitate effective closeout in a timely manner and by identification of root-causes to minimise the risk of recurrence.

Non-conformances relating to subcontractors will be categorised in the following manner:

DESCRIPTION
Poor Records
Incorrect Delivery
Late Delivery not affecting Construction Programme
Poor Communication
Incorrect Invoicing
Minor Failure within Allowed Tolerances
Attitude of AMC UK Site
Health and Safety
Environmental
Product Failure requiring Rework/Cost
Works requiring Concession
Non-conformances highlighted by Client

DESCRIPTION
Late Delivery affecting Construction Programme
Property Damage
Insurance Claim
Breach of Contract
Design Failure
Theft
Inadequate Tender resulting in Extra Cost

Corrective action shall be undertaken on all significant issues as soon as reasonably practicable, all non-significant non-conformances shall be monitored and actioned as appropriate.

### 3.1.12. *Client Satisfaction*

On completion of a project, a contract performance questionnaire is to be given to the client to assess the level of workmanship delivered by our workforce. The completed form is then passed to the Operations Director for any actions to be taken. If a client has an alternative system then this should be used. Any complaints are dealt with as non-conformances.

## 3.2. Health and Safety Plan

Where an activity is identified as having significant safety risks or hazard not covered by the normal scope of works this will be documented and communicated to the team undertaking the activity on a site specific RAMS. The RAMS will be provided by AMC UK project management.

The overall Health & Safety goals for the project are as follows:

- Achieve Zero RIDDOR (Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013) and accidents;
- Prevent or minimise the number of non-RIDDOR accidents and incidents;
- Comply with project H&S requirements;
- Report all accidents, incidents and near misses; and
- Comply with Health & Safety legislation

### 3.2.1. *Health and Safety – Life Saving Rules*

1. Never use or be under the influence of Drugs or Alcohol at work.
2. Never remove another person's personal lock or a person's underground access tag.
3. Never work or travel under a suspended load (surface works); or in, or under, unsupported ground.
4. Never move or operate machinery or equipment without the appropriate training and authorization.
5. Never tamper with or make a safety device inoperable.
6. Always follow project isolation procedures before working on equipment or where there may be an energy source.
7. Never enter an area that has access prohibiting barricades or signs – without authorization.
8. Never work at height above the sites prescribed distance, this includes from open holes without suitable fall protection.
9. Always comply with explosives, blasting and re-entry procedures.
10. Never operate heavy equipment within 10 meters of any pedestrians without first establishing and then maintaining positive contact and never approach mining equipment within 10 meters without positive contact.

**3.2.2. Illustrated Mandatory and Advisory Information to be Displayed**

POSTER/DOCUMENT c = Compulsory, o = Optional / Site Specific	LOCATION	
	Site Office	Welfare Units
Accident/Incident Flowchart	c	o
Accident book (GS0309)	c	o
Cabin Electrical certificates	c	c
Confined Spaces Poster	o	o
Control of Substances Hazardous to Health Poster (Enfield GS1129)	o	c
COSHH Assessments (Current)	c	o
COSHH Symbols	c	o
Details of emergency services	c	c
Emergency Response Plan	c	c
Emergency Resuscitation (Enfield GS1103)	o	c
Employers Liability Insurance Certificate	c	
Fire Action Sign	c	c
Control of Noise at Work Poster (Enfield GS1127)	o	c
Working at Height Poster (Enfield GS1242)	o	o
Health and Safety and environmental contacts	c	c
Health and Safety Law poster	c	c
AMC UK Policies	c	o
Know Where to Get First Aid Poster (Enfield S472S)	c	c
Manual Handling Operations Poster (Enfield GS1123)	o	c
Method Statements (current)	c	o
Brother's Keeper Cards	c	c
Occupational Health and Safety Management Permits (current)	c	o
Permits (current)	c	o
Representatives of Employee Safety	c	c
Risk Assessment (current)	o	o
Site Layout Drawing	c	c
Site Register of Weekly Inspections	c	o
Site Rules	c	c
Construction Site Safety Checklist Poster (Enfield GS1246)	o	c
Bad Vibrations Poster (Enfield GS1215)	o	c

**3.2.3. Permits**

A permit is required to ensure a safe, controlled system of work is employed for various tasks to be undertaken, these tasks must NOT be undertaken without a valid, signed permit and the permit signatory/holder being on site. All permits issued will be signed off upon completion of the work as stated below.

During the course of this contract it is anticipated that the following permit / combination of permits will be required:

PERMIT TYPE	REQUIRED	DURATION *	ACTIVITY/LOCATION
Permit to Work	Yes	N/A	N/A
Hot Work Permit	Yes	Duration of work	Cutting
Permit to Dig	Yes	Weekly	Ground excavation
Electrical Work Permit	Yes	N/A	N/A
Confined Space Permit	No	N/A	N/A
Client Issued Permit	Yes	N/A	N/A
Lift Plan / Permit to Lift	Yes	Weekly	Mechanical lifting

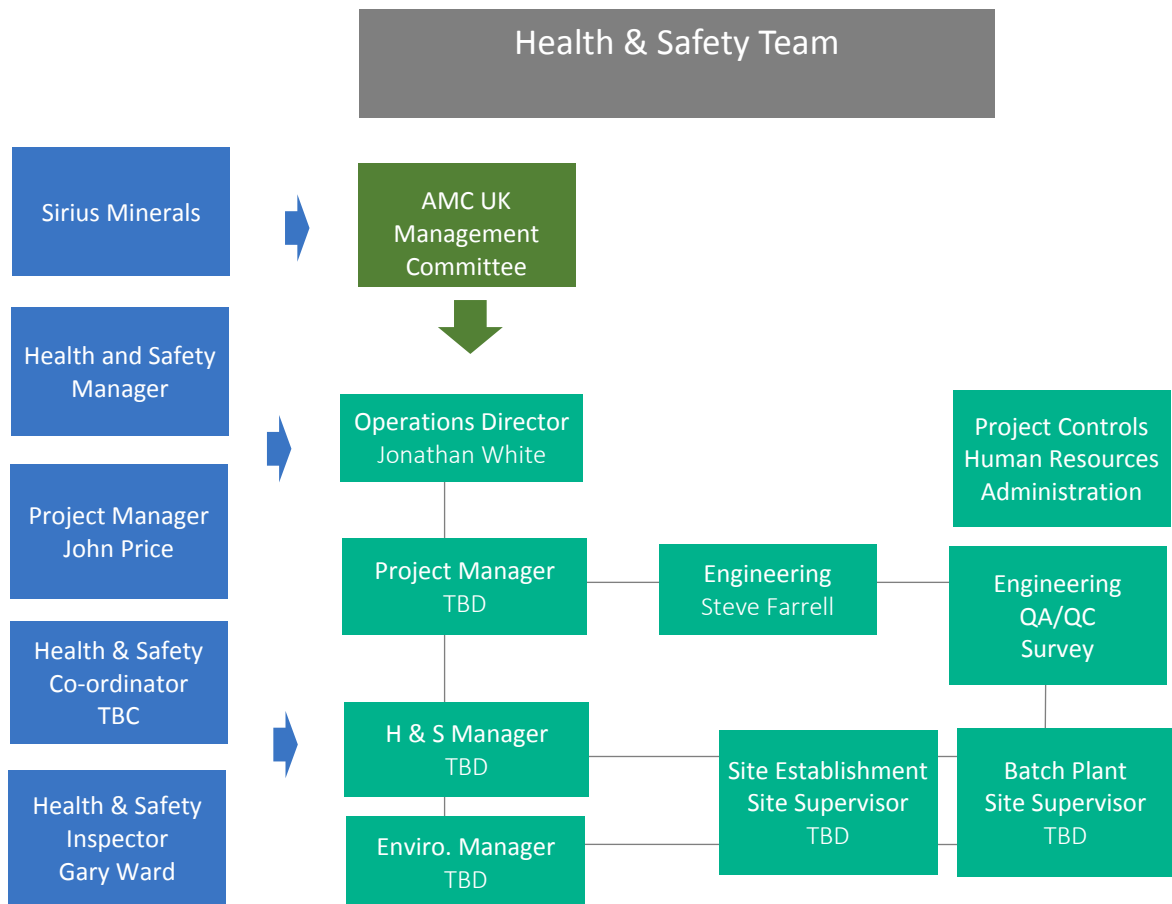
\*Maximum of 1 week is allowed except for confined spaces which are daily, providing that the work is continuous and the details of the permit e.g. working party, conditions and method remain unchanged.

### 3.3. Implementation of Health and Safety Plan

The management of health and safety is outlined in the Construction Phase Health and Safety Plan (CPHSP).

#### 3.3.1. Organizational Chart

The following organizational chart shows the key personnel responsible for implementing the Construction Phase Health and Safety Plan



#### 3.3.2. Responsibilities

The following outlines the responsibilities each person will hold with respect to health and safety performance across the contract.

##### 3.3.2.1. Client

The Client is responsible for ensuring that the persons undertaking the works are suitably competent to safely deliver the works, ensuring a suitable CPH&S Plan is in place before construction begins, allowing sufficient time and resources for all projects and legal and planning requirements of the overall project are fully complied with. The Client will receive monthly reports on health and safety matters as a part of established management processes.

##### 3.3.2.2. Client's Project Manager

The Client's Project Manager is responsible for leading the construction phase of the project to a successful conclusion. The Client's Project Manager will be supported by the Client's Health and Safety Manager and Inspectors, as necessary.

Duties of the Client's Project Manager include:



- Implementing systems and processes which enable effective monitoring of health and safety compliance and quality of the project.
- Exercising controls and continuously monitoring the delivery of the project.
- Coordinating and directing the work of the Health and Safety Manager and Inspector(s).
- Reviewing the health and safety performance.
- Advising the Client of any failure of the Contractor to meet its obligations under the Contract.

#### 3.3.2.3. *AMC UK Management*

The AMC UK Management has overall responsibility for project support from its head office and is accountable to the Client. AMC UK Management is responsible for the following:

- Holding the project team accountable for Health and Safety performance through ongoing monitoring of project performance;
- Providing the physical and financial resources and management support necessary to carry out the works safely;
- Leading by positive example;
- Requiring the safe execution of contracted work and the implementation of the CPHSP;
- Emphasising to project team that Health and Safety issues must be given equal priority to cost, schedule, and quality;
- Facilitating and support the safe design and constructability process; and
- Building a 100% safe culture where incidents are an unacceptable consequence of performing work.

#### 3.3.2.4. *AMC UK Project Manager*

The Project Manager has responsibility for planning, leading, organising, and controlling the Phase 3 Construction Works. The Project Manager is responsible for the following:

- Taking ownership, support implementation, and actively participate in the Health and Safety program within their area of responsibility;
- Communicating Health and Safety objectives to employees and sub-contractors within their area of responsibility;
- Ensuring supervisors and employees know and understand their Health and Safety responsibilities and are held accountable for compliance;
- Emphasising to project team that Health and Safety issues must be given equal priority to cost, schedule, and quality;
- Ensuring that suitable risk assessments and method statements are prepared and reviewed prior to commencing works;
- Liaising with the Designer(s) for any design undertaken during the construction phase and provide the requested information for the health and safety file;
- Verifying area and field activity compliance to the CPHSP requirements;
- Implementing a system to ensure that identified corrective actions are followed-up to completion;
- Verifying sub-contractor compliance to the established Health and Safety requirements and take corrective action on noncompliance;
- Reviewing and taking action on safety issues; and
- Ensuring all safety personnel have the experience and support to fulfil their functions on the project and that these persons are approved by the Client.

#### 3.3.2.5. *AMC UK Health & Safety Manager*

The AMC UK Health & Safety Manager has the overall responsibility for the CPHSP coordination and is accountable to the Project Manager. The Health & Safety Manager is responsible for the following:

- Coordinating project specific Health and Safety management systems;
- Helping develop and implement Health and Safety training, environmental, security, emergency response, and occupational health services plans;
- Communicating the Emergency Response Plan to all site project workers;
- Advising the Project Management team on Health and Safety issues;
- Preparing and issuing weekly and monthly Health and Safety performance reports;
- Monitoring compliance to project, client and regulatory requirements, and initiate corrective action through line supervision or senior management;

- Working with and be a resource to Project Manager, senior management, line supervision, sub-contractors, and other project stakeholders on Health and Safety;
- Administering project Health and Safety record keeping system.
- Participating in sub-contractor selection process, as required;
- Maintaining positive relationships with line supervision, customer, contractors, and regulatory enforcement representatives;
- Possessing sound knowledge of incident causation, incident investigation techniques, hazard identification and risk management processes;
- Establishing a system to ensure all actions identified during planned inspections, incident investigations, and Health and Safety communications are tracked to completion;
- Ensuring that incident investigators are trained and experienced in incident investigation and reporting technique;
- Conducting joint audits and workplace inspections;
- Assisting in developing procedures to implement site security policies;
- Identifying security loss exposures related to company personnel, operations, or assets; and
- Maintaining suitable First Aid cover for the site.

#### 3.3.2.6. *AMC UK and Sub-contractor Site Supervisors*

Both AMC UK and sub-contractor Site Supervisors have the responsibility for planning, leading, organising, and controlling field activities within their area of responsibility. Supervisors are responsible for the following:

- Taking ownership, support implementation, and actively participate in the Health and Safety program within area of responsibility;
- Conducting pre-job hazard assessments and identify mitigation methods;
- Ensuring tools and equipment required to execute the job safely are available;
- Enforcing compliance to site specific and regulatory Health and Safety requirements;
- Communicating Health and Safety performance expectations to crews;
- Investigating, or ensuring the investigation of, all incidents, regardless of severity; verify corrective action has been taken;
- Performing job observations and employ other such means to ensure compliance to established requirements;
- Knowing and understanding their role within an emergency response;
- Ensuring staff and employees possess the requisite training and demonstrated ability to do their work safely;
- Identifying and facilitating, in conjunction with Health and Safety Manager, training requirements and set up programs as required in order to safely complete upcoming work;
- Identifying and eliminating Health and Safety risks within area of responsibility;
- Conducting and documenting weekly inspections of work-site and initiate corrective action on observed substandard acts / conditions;
- Conducting and documenting daily safety huddles, toolbox and weekly safety meetings; and
- Possessing a valid first aid certificate, relevant plant and supervisor's certification.

### 3.4. **Communication of Health and Safety Issues**

Communication on Health and Safety is detailed in the Construction Phase Health and Safety Plan. This includes routine daily Safety Huddle meetings, planned Toolbox Talks and regular meetings and feedback.

### 3.5. **Management of Health & Safety on Site**

#### 3.5.1. *Delivery and Removal of Materials*

Delivery and removal of all materials will be approved by AMC UK and kept within the work site boundaries where reasonably practicable. All waste transfer notes from both AMC UK and its subcontractors will be handed to the client and held in the Site Waste Management Plan.

##### 3.5.1.1. *Delivery Routes*

The routes used by HGVs will be consistent with those identified in the planning permission. All HGVs will all depart from the Welfare Access onto the B1416 east towards the A171 avoiding Ruswarp. At the junction of the B1416 with the A171, the primary haul route will be north on the A171 towards Teesside via Whitby.

In addition to the primary haul route, two local quarries were also identified as potentially being suitable to supply aggregate, therefore two secondary haul routes are also permitted to serve these quarries. From the junction of the A171 and B1416 HGVs heading towards the quarry at Wykeham will head south on the A171 towards Scarborough before travelling west along the A170 to Wykeham. HGVs heading towards the quarry at Pickering will head north from the junction of the A171 and B1416 towards Whitby, to the west of Whitby HGVs will then head south on the A169 towards Pickering.

All suppliers and drivers will be given a toolbox talk at their premises prior to their first delivery. They will be advised on the permitted and prohibited HGV routes, as well as the actions which will be taken if they deviate from the permitted routes.

To help the public distinguish Phase 3 construction traffic from other traffic on the network and therefore effectively report any concerns, each vehicle would be required to display a unique identifier within the window of the cab (the Sirius Minerals logo).

In addition to the toolbox talks drivers will also be issued with information packs. The packs will be a convenient size so it can be stored in a truck cab and include key information on:

- The unique identifier to display in the window.
- A plan of showing the delivery routes.
- Details of procedures for dealing with emergencies.
- Details of driver training requirements.
- Details of disciplinary measures for non-compliance.

#### **3.5.1.2. *Penalty System for Breaches of Traffic Management Requirements***

Please refer to the Construction Traffic Management Plan (CTMP) concerning breaches and penalties.

#### **3.5.2. *Prevention of Falls***

Where identified that site activities will present a fall risk at a specific location, arrangements will be made to carry out RAMS to assess the controls to be followed to prevent risk of fall. Where necessary a specialist engineer will be consulted.

#### **3.5.3. *Control of Lifting Operations***

Where identified that site activities will employ lifting equipment and carry out lifting operations at a specific location, arrangements will be made to carry out RAMS / lifting plan to document the controls to be followed to prevent risk of damage or injury from lifting operations. Where necessary a specialist in lifting operations will be consulted.

#### **3.5.4. *Maintenance - Plant and Machinery***

AMC UK will ensure that where applicable the maintenance records of equipment are detailed, recorded and made available when appropriate for periodic review.

Sub-contractors will be responsible for servicing and maintaining the plant they use.

All operational sub-contractor employees will be trained in the safe use of equipment, records of training when deemed necessary be made available for periodic review at the contract office.

#### **3.5.5. *Excavations***

All excavations are treated as high risk and care will be taken at all times to keep open excavations barricaded or suitably covered. Where there are excavations in soft unstable ground conditions or deeper than 1.2 m suitable sloping and/or shoring and/or bracing protection measures shall be used. Where excavations are in close proximity to structures, suitable shoring shall be provided. Risk assessments will be carried out for excavations. Where necessary a specialist will be consulted.

#### **3.5.6. *Confined Spaces***

Where identified that site activities will be working in a confined space, arrangements will be made to assess the controls to be followed to prevent/reduce the risk identified for the confined space. Where necessary a specialist will be consulted.

### 3.5.7. Working On/Near Water

Where identified that site activities will be working in close proximity to water at a specific location, arrangements will be made to assess the controls to be followed to prevent/reduce the risks identified. Where necessary a specialist will be consulted. There may be specific Environmental laws/rules that apply which will need to be incorporated into the RAMS.

### 3.5.8. Working with Compressed Air

Only competent people are permitted to use compressed air. Care will be taken when working with compressed air.

### 3.5.9. Storage of Materials, Plant and Work Equipment

AMC UK will ensure that suitable and sufficient provisions for the storage of plant, equipment and materials have been established, in a safe manner to protect the public and secure from trespass by unauthorised persons.

#### 3.5.9.1. Materials Storage

Materials will be delivered to and stored at the site.

Where bulk materials can be immediately used on site, such as aggregates, deliveries will be directed to the working location, with a suitable haul road/route made available for the delivery vehicle.

#### 3.5.9.2. Plant and Work Equipment Storage

At the end of each working day, large items of plant (mobile cranes, front end loaders, etc.) will be secured and left on site. Smaller items of plant (e.g. tampers) and work equipment will be stored at the designated location within the site.

#### 3.5.9.3. Site Fencing

For Phase 3, 2 m tall anti-climb fencing will be present around the site perimeter. Should the 2 m tall anti-climb fencing not be installed, temporary Heras high visibility netlon fencing will be in its place. Site Perimeter fencing is by North Midlands Construction.

An access gate and manned security cabin will be implemented by Sirius Minerals at the south of the site from B1416. This will permit authorised access, as required.

All fencing will be checked regularly to ensure no breach or damage has occurred. If a breach or damage is discovered, it will be reported immediately and measures taken to re-secure the site.

#### 3.5.9.4. Site Notice Boards

A site notice board will be erected at the following locations:

- Woodsmith Mine Office
- Woodsmith Mine Canteen

The notice boards will detail the names and contact details of the key personnel on site, including the Project Manager and the Contractor's Environmental Manager and will include details of how to make a complaint. In addition the details for the NYMNPAs and the Environment Agency's Emergency Help Desk number will be included on the notice boards. The notice boards will be reviewed on a regular basis to ensure that the information remains up to date.

### 3.5.10. Personal Protective Equipment

At all times, as a minimum, on all AMC UK construction sites:

Item of PPE	Use Requirement	Replacement/Location
Hard hat	Always	PPE stores
Safety boots	Always	PPE stores
Gloves	When Working	PPE stores
High visibility top	Always	PPE stores
Full length trousers and sleeves / overalls	Always	PPE stores

Item of PPE	Use Requirement	Replacement/Location
Eye protection	Always	PPE stores
Ear protection	When required	PPE stores
FR overalls	Exposing services, hot works	PPE stores
Dust mask	When required	PPE stores

Flame retardant overalls (Proban® or similar) are to be worn whenever undertaking any hot work (i.e. welding/burning/cutting/grinding) or when working near buried services.

Transparent eye / full face protection is to worn where there is a likely impact to face or specifically to the eyes. For hot work purposes i.e. burning/welding, appropriate tinted facial protection to be worn.

Ear protection to be worn (i.e. ear muffs or plugs) when using noisy machinery or working within a noisy environment. Ear protection must never be shared between people due to possible ear infection.

Respiratory protection must be worn to give protection for specific hazards i.e. dust, mists, fumes, etc. Manufacturer's instructions must be followed with reference to the replacement of masks and filters (where fitted). All respiratory protection used must match the hazard. (Product Safety Data sheets should be consulted for advice).

Safety footwear i.e. work boots including 'Wellington' (rubber) boots must be steel toe capped and have good sole treads.

Harnesses are subject to quarterly thorough examinations and should be checked before each use.

Specific types of PPE may be requested by regulatory requirements, the client, or in the risk assessment for the activity being carried out and you will be expected to comply with these. If in doubt, speak to your supervisor.

Refer to the Personal Protective Equipment (PPE) Requirements Procedure for further information.

### **3.5.11. Manual Handling**

Where ever possible manual handling is to be avoided by using mechanical means. Operatives are instructed to ask for assistance and where possible to break up or dismantle a load into smaller loads. They are also instructed to follow the rules of safe lifting - legs apart, bend knees with straight back, elbows in and arms close to body.

### **3.5.12. Control of Substances Hazardous to Health (COSHH)**

AMC UK will comply with the Control of Substances Hazardous to Health Regulations 2002 through employee training, maintaining documentation and performing work assessments.

### **3.5.13. Reducing Noise and Vibration**

To reduce vibration exposure to operatives from vibrating tools, where ever possible large operator driven plant is to be used, for example a mini digger with a pecker fitted. AMC UK only allows authorised, trained competent personnel to use vibrating tools/machines. Operatives are instructed to always wear ear and eye protection when using plant and equipment. All plant and equipment is part of the AMC UK scheduled maintenance program.

### **3.5.14. Exposure to UV Radiation**

Operatives are instructed to keep arms and legs covered up or use sun block on sunny days to prevent skin damage from the suns UV radiation. Another source of UV radiation is welding which would normally involve barriers such as curtains to avoid stray UV light. Also the use of equipment has restricted access to those trained to do so.

### **3.5.15. Hazard Identification, Risk Assessment and Controls**

RAMS will be prepared for the effective management of all activities with significant risks to Health and Safety and the environment. RAMS shall include details on the following:

- Location of activity and access arrangement.
- Work to be undertaken and methods of construction.
- Plant and materials to be used.

- Supervision requirements.
- Health and safety considerations - all issues identified in the health and safety risk assessment.
- Environmental considerations - all issues identified in the Environmental Aspects and Impacts Assessment.
- Details of any permit or consent requirements.
- Identify significant environmental impacts that can be anticipated and how they are to be controlled.

RAMS will be reviewed by the Client's Project Manager and agreed in advance of works.

AMC UK will keep a copy of all RAMS and Toolbox Talks, along with signature sheets, in the main site office, and will ensure that actions in the documents are fully implemented.

All RAMS and Toolbox Talks will be kept under review. They will be revised, updated, or re-written as a result of lessons learnt, changes in legislative requirements, incidents and/or as part of the continuous improvement of construction environmental management on site.

### **3.6. Auditing and Reporting Performance**

Monitoring, auditing and reporting of health and safety performance will be completed by the Contractor's Health and Safety Manager with the support of the Contractor's Site Health and Safety team to ensure that the requirements of the Construction Phase Health and Safety Plan and this PMP are fully implemented on site.

The process of auditing, monitoring and reporting the performance of health and safety is outlined in the Construction Phase Health and Safety Plan.

### 3.7. Environmental Management Plan

#### 3.7.1. Environmental – Golden Rules

**WASTE:**

- Kept safe or secure in suitable containers to prevent pollution or harm.
- Re-use and recycle waste where possible – always dispose of in the correct skip.
- Hazardous wastes must not be mixed together or with general waste.
- Waste disposals must be fully documented.

**WATER**

- Ensure all consents/permits are in place.
- Must not contaminate water for example by disposal of a substance causing pollution.

**CONSERVATION**

- Ensure all permissions are in place – stop work if you find a protected plant or animal.

**NOISE AND VIBRATION**

- Switch off equipment when not in use – notify and inform co-workers.
- Operate and maintain plant and machinery preventing/minimizing noise/vibration.

**AIR POLLUTION**

- Reduce emissions – keep to site speed limits – use extraction equipment or practical means to prevent windblown dust.
- Plant and machinery maintained – preventing and minimizing emissions/dust.

**RESOURCES**

- Switch off equipment – report water leaks – only order what you need.
- Use energy efficiently – avoid waste.

**INCIDENTS**

- Always report Environmental Incidents / Near Misses / Positive Interventions however small.

**ASPECTS AND IMPACTS**

- Complete/Review/Update the Aspects and Impacts Register for the site.

**DRIP TRAYS**

- Use drip trays – maintain and lock fuel bowsers.

**FUELS, LUBRICANTS AND CHEMICALS**

- Adhere to procedures for storage, handling and dealing with spillages of these substances. Be familiar with the Environmental Emergency Preparedness Plan.

**TRANSPORT**

- Vehicles leaving site must use the wheel/vehicle cleaning facilities provided.

**SITE CLEANLINESS/HOUSEKEEPING**

- Keep site tidy at all times and ensure it is left in a clean and tidy condition when leaving site.

**HOURS OF WORK**

- Be familiar with and comply with restrictions on working hours.

#### 3.7.2. Illustrated Mandatory and Advisory Environmental Information

The following information is to be displayed on notice boards where applicable:

POSTER/DOCUMENT c = compulsory, o = optional / site specific	LOCATION	
	Site Cabin	Welfare units
EA Hotline Number	C	C
Environmental Alerts (Current)	C	C
Environmental Emergency Preparedness Plan	C	C
Environmental Aspects and Impacts Assessment	C	O
Brother's Keeper Cards	C	C

**3.7.3. Consents and Permissions**

Consents and permissions which are applicable on the project include:

Type of Consent	Regulator	Required	Activity or Location	Start Date
Environmental Permit for Flood Risk Activity (works in/near watercourses)	Environment Agency	No		
Ordinary Watercourse Consent (works in/near Ordinary watercourses)	Local Authority / Internal Drainage Board	No		
Environmental Permits: - Water Discharge Consent - Abstraction	Environment Agency	No		
Groundwater Permits		No		
Environmental Permit (Waste)		No		
Waste Exemptions	Environment Agency / Local Authority	No		
Registered Waste Carrier	Environment Agency	No		
Planning Permission	Local Planning Authority	Yes		
Hedgerow Removal	Local Authority	No		
Footpath Diversions (temporary/permanent)	Local Authority	No		
Protected Species Licenses e.g. Bats / Badgers / Great Crested Newts	DEFRA	No		
Scheduled Ancient Monuments	Ministry for Culture, Media and Sport	No		
Consent to work in SSSIs	Natural England	No		
Tree Preservation Orders	Local Authority	No		
Listed Building Consent	Local Authority	No		
Conservation Area Consent	Local Authority	No		
Construction (noise) Consent	Local Authority	No		

Constraints	Permitted	Activity/Location
Bonfires	No	
Smoking	Yes	In Designated areas
Radios	Yes	
Mobiles phones	Yes	Permitted for work use and emergencies
Night Lighting	Yes	
Night Working	Yes	Restricted to platform, welfare area and haul road

**3.7.4. Environmental Studies and Surveys**

Copies of completed environmental studies or surveys will be kept on site.

Mitigation measures identified in the surveys are to be incorporated into the site specific aspects and impacts assessment.

**3.7.5. Protected Species and Precautionary Method of Working**

The Construction Environmental Management Plan (CEMP) outlines precautionary methods of working which will be taken to protect reptiles, birds, and other protected species which may be found on site.



### **3.7.6. Environmental Monitoring and Measurement**

Mitigation measures identified in surveys undertaken, licences and permissions obtained for example, noise monitoring, water sampling to monitor water discharges etc. are incorporated into the site specific aspects and impacts assessment.

### **3.7.7. Environmentally Significant Changes**

Any potential changes in the proposed work processes or implementation must be communicated by the Contractor's Project Manager to the Client's Environment Manager immediately who will advise the Client's Project Manager. The Client's Environment and Project Managers will assess the significance of any changes and decide whether specific consultation or revision to this PMP is required.

### **3.7.8. Environment and Sustainability**

This project will be managed in a sustainable manner, using resources efficiently, protecting and enhancing the environment in which we work and reducing our impacts.

In order to undertake this project in a sustainable manner, during the planning and implementation phase of a project, a number of key areas will be considered:

- Aim to reduce carbon emissions
- Aim to reduce water consumption
- Reduce, reuse and recycle waste in preference to disposal
- Use sustainable practices and materials
- Conserve and enhance the areas in which we work
- Use local resources wherever possible

### **3.7.9. Site Waste Management Plan (SWMP)**

The Site Waste Management Plan (SWMP) is detailed in Appendix D of the attached Environmental Management Plan (Appendix B).

### **3.7.10. Considerations With Respect to Air**

Considerations regarding environmental air quality to meet legislation such as the Clean Air Act etc. will be made in conjunction with health and safety considerations under the Control of Substances Hazardous to Health Regulations 2002.

No fires are permitted on site for the burning of waste or any other use.

See the Construction Environmental Management Plan for dust management.

### **3.7.11. Considerations With Respect to Land and Water**

#### **3.7.11.1. Silt and Surface Water Management**

The surface water drainage design will be implemented ahead of AMC UK works in the vicinity. These works comprise:

- A silt removal facility
- An attenuation pond
- Swales and ditches with check dams
- Silt fencing
- Oil separator tanks

Monitoring of the effectiveness of the above measures will be recorded on daily inspection sheets by AMC UK and on-site inspection reports by the Environmental Co-coordinators and/or Environmental Manager during their inspections. These will be stored along with a record of the actions that were taken in the event of issues arising and their effectiveness. These reports will be stored by the Contractor.

### **3.7.12. Considerations with Respect to Noise and Vibration**

AMC UK will employ “best practical means” to minimise noise and vibration resulting from our operations and shall comply with the recommendations detailed in the Code of Practice for noise and vibration control on construction and open sites (BS 5228-1: 2009 & BS 5228-2:2009).

Please refer to the Noise and Vibration Management Plan for details of noise restrictions, and residential receptor and boundary noise monitoring locations.

### **3.7.13. Archaeology and the Built Heritage**

AMC UK’s work areas will already be prepared for construction purposes. Therefore it is unlikely that archaeological or historical features will be found during construction works.

If any unexpected finds are encountered works will immediately be stopped, the area will be blocked off and the advice of a qualified archaeologist sought.

### **3.7.14. Plant and Wheel Wash Arrangements**

Project provided wheel-wash facilities will be implemented on the access road between site and the Welfare Access.

All wheel washes will be self-contained, with waste water re-used and removed off site as appropriate.

### **3.7.15. Light Pollution**

Works will be undertaken during day light hours, 6 am to 6 pm, removing the requirement for external lights.

When illumination is required during hours of low light at dawn and dusk, the following will apply:

- Directional tower lighting with directional lanterns will be used, with lights directed down towards the area required to be lit and away from any area of concern (e.g. roads).
- Lights will be switched off when not in use.
- Task lighting will be used where appropriate to light up local areas of small works instead of mast illumination affecting a large radius.
- The lighting will comply with the lowest recommended criteria within the relevant British Standards and relevant Chartered Institution of Building Services Engineers Lighting Guides<sup>1</sup>.
- Lighting will comply with the Interim Guidance: Artificial lighting and wildlife: Recommendations to help minimise the impact artificial lighting<sup>2</sup>.

### **3.7.16. Carbon Reduction and Energy Management**

AMC UK will take all reasonable measures to reduce energy and fuel consumption and minimise carbon emissions from activities relating to the construction project.

Vehicles and items of plant should be switched off when not in use.

Office accommodation on construction projects or at depots should be well insulated to prevent excess heat loss and energy efficiency measures used where possible, for example timer controlled heating and movement activated lighting. Electrical equipment should be energy efficient and switched off when not in use.

Travel to and from sites should be minimised and the utilisation of video and telephone conferencing encouraged. Journeys should be planned to minimise fuel use, and alternative methods of travel should be encouraged such as car sharing, bus, train travel.

Local suppliers of materials will be used and deliveries planned to minimise unnecessary journeys.

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<sup>1</sup> BS EN 12464-2 Lighting of work places – Outdoor work place.  
CIBSE Lighting Guide 1 – Lighting of the industrial environment.  
CIBSE Lighting Guide 6 – Lighting of the outdoor environment

<sup>2</sup> Bat Conservation Trust Interim Guidance Lighting, June 2015  
[http://www.bats.org.uk/pages/bats\\_and\\_lighting.html](http://www.bats.org.uk/pages/bats_and_lighting.html)

### **3.7.17. Environmental Aspects and Impacts Assessment**

The environmental objective of AMC UK is to continually improve our environmental performance to prevent or minimise pollution, minimise waste and to conform to Environmental Legislation, Regulations and Company Policies and Procedures.

AMC UK will ensure all activities undertaken on site will be subject to an Environmental Aspects and Impacts Assessment (EAIA). The EAIA will be prepared with regard to the information in the CEMP, this PMP and all other relevant documents. These will:

- Identify any significant environmental impacts that can be anticipated.
- Assess the risks from these impacts.
- Identify control measures to mitigate the risk.
- Report any unacceptable residual risk such that changes can be implemented to reduce the risk to an acceptable level.

The findings of each EAIA and, in particular, the necessary controls to reduce risk, will be incorporated into the scheme RAMS (Risk Assessment Method Statement) and Daily Safety Huddle as required. These documents shall be briefed to all site operatives involved in the works prior to the commencement of activities on site. Daily Safety Huddles shall be used to target environmental issues of particular significance at relevant times throughout the works.

Should any aspect of the scheme change, the EAIA will be updated accordingly.

The Contractor will keep a copy of all EIAs in the main site office and will ensure that all control measures identified to control risk are fully implemented.

### **3.7.18. Control of Substances Hazardous to the Environment**

AMC UK will comply with the Control of Substances Hazardous to Health Regulations 2002 (COSHH) through employee training, maintaining documentation and performing work assessments.

Where possible the substances identified as hazardous to the Environment should be substituted for less harmful ones. The Project Manager can consult with the Environmental Manager over any concerns.

#### **3.7.18.1. Fuel**

Fuel will be delivered to the Woodsmith Mine where towable bowsers will be available to transport fuel to the various site locations. The towable bowsers will be bunded and have at least 110% of the capacity of their capacity. The bowsers themselves will be stored on an impervious hardstanding far from surface watercourses and drainage.

Refuelling on site will be undertaken using drip trays and plant nappies to ensure that any spillages are contained. There will be no refuelling in or near excavations.

In the event of a fuel spillage, this will be cleared up using an oil spill kit stored adjacent to the storage areas as well as at other key locations around the site.

#### **3.7.18.2. Chemicals**

All chemicals will be stored in sealed containers on a suitably bunded, impervious hardstanding. The bund will be capable of holding 110% of the total capacity of all containers stored within the bunded area. The chemical storage area will be located away from drains and watercourses. Any drainage valves will be closed and locked, unless under controlled use.

### **3.7.19. Environmental Incidents and Near Misses**

All incidents resulting in pollution must be recorded.

In the event of a Near Miss incident, it shall be reported preferably by using an Incident Report Form.

The AMC UK Environmental Manager or designate will respond to any significant Environmental issues reported by the site.

All Response Plans and Incident Reporting are covered by the Health and Safety and Environmental Management Plans. Specific plans are drawn up by the site staff and displayed and practised. All key personnel carry mobile phones, as do a number of operatives.

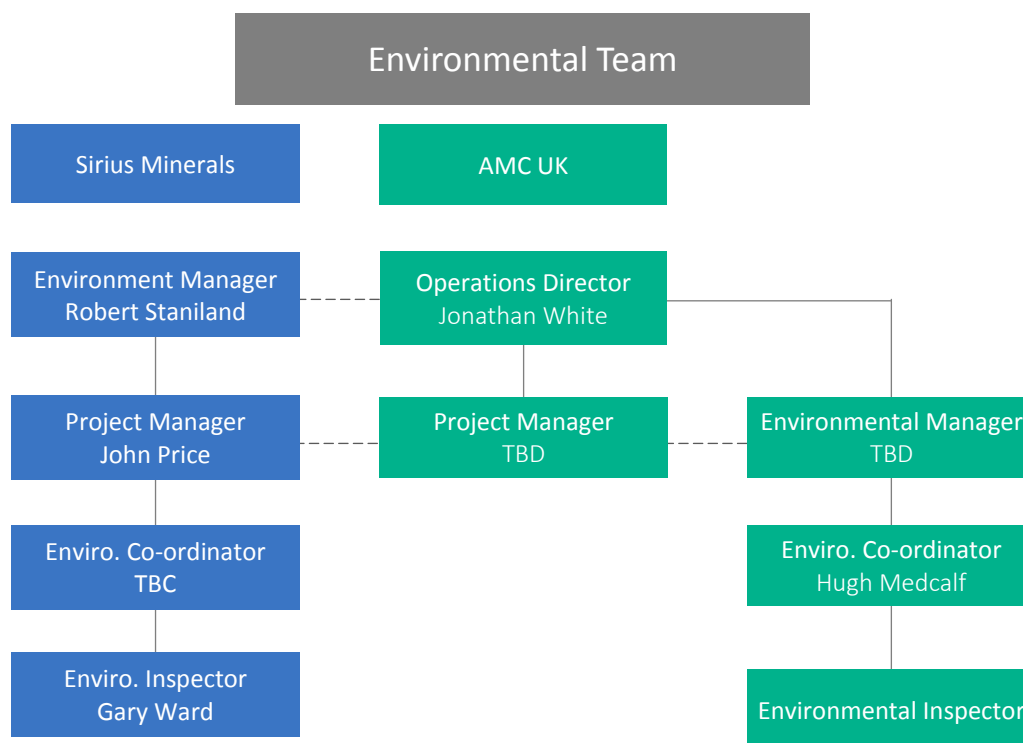
Staff will, in addition, report all accidents and incidents to the Client or nominated person when requested.

Refer to the Environmental Emergency Response Plan contained in Appendix C of the Environmental Management Plan (Appendix B).

### 3.8. Implementation of the Environmental Management Plan

#### 3.8.1. Organizational Chart

The following organizational chart shows the key personnel responsible for implementing this Environmental Management Plan:



#### 3.8.2. Responsibilities

The following outlines the responsibilities each person will hold with respect to environmental performance across the contract.

##### 3.8.2.1. Client

The Client is responsible for ensuring that the legal and planning requirements of the overall project are fully complied with. The Client will receive monthly reports on environmental matters as a part of established management processes.

##### 3.8.2.2. Client's Project Manager

The Client's Project Manager is responsible for leading the construction phase of the project to a successful conclusion. The Client's Project Manager will be supported by the Client's Environment Manager and Inspectors, as necessary.

Duties of the Client's Project Manager include:

- Implementing systems and processes which enable effective monitoring of environmental compliance and quality of the project
- Exercising controls and continuously monitoring the delivery of the project

- Coordinating and leading the work of the Client's Environment Manager and Inspector(s)
- Reviewing the status of environmental performance and reporting to the Client
- Advising the Client of any failure of the Contractor to meet its obligations under the Contract

#### 3.8.2.3. *Contractor's Project Manager*

The Contractor's Project Manager is responsible for ensuring the effective management of all construction issues, including the environmental requirements outlined in this PMP, the client Construction Environmental Management Plan, other relevant planning documentation, and the Client's contract documents. The Contractor's Project Manager will be responsible for regular review of this PMP and will receive and generate monthly reports on environmental matters associated with it.

The Contractor's Project Manager has responsibility for the delivery of environmental objectives throughout construction. This includes ensuring the dissemination of environmental information, including waste reduction and waste management procedures, and water sustainability matters to all relevant personnel on site and the application of environmental requirements during the construction process.

The Contractor's Project Manager will ensure that appropriate resources are available and any necessary environmental controls or mitigation measures are implemented. This includes those identified through environmental audits of the site works. As such, the Contractor's Project Manager is in a position to direct and control construction activities on site.

Duties of the Contractor's Project Manager include:

- Planning and ensuring that all environmental inductions are undertaken.
- Planning and ensuring that weekly environmental inspections of the site are undertaken.
- Ensuring the environmental competence of all personnel working on the project.
- Managing and supporting of all other environmental staff on site.
- Acting as the main point of contact with other (including external) parties for environmental matters, including complaints, concerns and general enquires.
- Monitoring construction activities to ensure that identified control measures are effective and in compliance with this PMP.
- Reviewing the inspection reports produced by the Environmental department and ensuring that any issues are resolved.
- Reviewing and updating this PMP, as required.
- Reviewing and revising construction method statements for environmental aspects of the work.
- Providing information to the Client's Environment Manager for inclusion in progress meetings, on a monthly basis.
- Ensure the Client's Environment Manager is fully informed on all environmental matters as construction works proceed.
- Being available for construction site audits with the Client's Project or Environment Manager(s) as required.

#### 3.8.2.4. *Contractor's Environmental Manager*

The Contractor's Environmental Manager will have responsibility for the environmental aspects of the work, the contract, and the provisions of this PMP. The Contractor's Environmental Manager will ensure compliance with environmental aspects of the construction works through the Environmental co-ordinators, together with the necessary monitoring, and will report to the Contractor's Project Manager.

Duties of the Contractor's Environmental Manager include:

- Planning and undertaking quarterly environmental audits of the work and reporting to the Client's Project Manager.
- Identifying and monitoring trends and identifying areas for environmental improvement.
- Advising when control measures are not effective and/or not being fully implemented and suggesting alternative mitigation as required.
- Reviewing and updating Environmental Procedures, as required.

- Providing feedback to the Contractor and their personnel on environmental impacts and risks prior to the commencement of any part of the works.
- Being available for construction site audits with the Client's Project or Environment Manager(s) as required.

#### 3.8.2.5. *Contractor's Site Environmental Co-ordinator*

Site Environmental Co-ordinators will be identified by the Contractor's Environmental Manager for overseeing specific construction activities on site.

Together with the Contractor's Project Manager, the Contractor's Site Environmental Co-ordinator will form the site Environmental Team. The Contractor's Environmental Manager will provide the Site Environmental Co-ordinator and any subsequent team members with a specific induction for the role prior to commencement of work and will be available for advice and guidance to them on an on-going basis. Construction activities are likely to run in parallel so this approach ensures coverage of all aspects of the works and a point of accountability for environmental matters on a continuous basis.

Duties of the Contractor's Site Environmental Co-ordinator include:

- Plan work to ensure that all inspections, reviews of documentation and other activities are undertaken in a timely manner and that all issues are reported and acted on.
- Consider how approaches for different aspects of the works can contribute to environmental improvement in performance and present these to the Contractor's Project Manager for consideration.
- Act as a conduit for dissemination of issues and lessons learnt across the site (through provision of toolbox talks).
- Ensuring implementation and monitoring of (the control of) nuisance matters such as noise, dust, light, and conduct on site that may have environmental implications.
- Attend site environmental audits with the Contractor's Environmental Manager and Project Manager or their advisors within the area they have responsibility for, as required.
- Ensure the Contractor's Environmental Manager and Project Manager are fully informed on all environmental matters as construction works proceed.
- Contribute to regular updates of this PMP as well as the preparation of method statements, task briefing sheets and risk assessments.

#### 3.8.2.6. *Contractor's Environmental Inspector*

The Contractor's Environmental Inspector has responsibility for monitoring and auditing the Contractor's compliance with environmental legislation, and conformance with its environmental procedures and this PMP.

Duties of the Contractor's Environmental Inspector include:

- Monitoring, auditing and reporting on the Contractor's compliance with environmental legislation, planning requirements, permits, licences and any other requirements.
- Monitoring, auditing and reporting on the Contractor's conformance with its environmental management procedures.
- Monitoring and reporting on the implementation and effectiveness of preventative and corrective actions.

### 3.8.3. **Communication of Environmental Issues**

#### 3.8.3.1. *Site Inductions and Toolbox Talks*

Refer to the Environmental Management Plan, Section 6 in Appendix B.

#### 3.8.3.2. *Communication with Site Staff*

Refer to the Environmental Management Plan, Section 5.1 in Appendix B.

#### 3.8.3.3. *Communication within the Contractor's Environmental Team*

Refer to the Environmental Management Plan, Section 5.2 in Appendix B.

### **3.8.4. Management of Environmental Issues on Site**

#### **3.8.4.1. Supervision of Construction Activities**

All construction and installation activities, including those carried out by sub-contractors, will be supervised by the Contractor's Project Manager with the support of members of their team on a daily basis. The Contractor's Project Manager and team will receive briefing from the Contractor's Environmental Manager to ensure that they are aware of the environmental requirements identified in risk assessments and method statements. The briefing will also ensure that they are able to assess whether the environmental requirements are being implemented properly.

All works on site will be supervised and records of the inspections made. Records, which will include areas inspected, examples of good practice and areas for improvement will be recorded in the Contractor's general site supervision forms. Copies of these forms will be forwarded to the Contractor's Project Manager, Environmental Manager and Sirius Minerals.

#### **3.8.4.2. Monitoring Environmental Impacts during Construction**

The environmental management identified within the Environmental Management Plan, this PMP and other related documents, will be subject to inspections by the Contractor's Site Environmental Co-ordinator at least once a week. These inspections will seek to confirm that:

- Construction works are progressing in accordance with the agreed RAMS and Daily Safety Huddle briefings.
- Agreed controls, protection and mitigation measures (including those detailed within this PMP) are in place prior to or during the implementation of construction activities.
- Construction works have been completed in accordance with commitments made during the statutory process as set out within permits, licences and consents.

Inspections will be recorded on inspections forms which will/may be adapted to suit a specific site. The form will outline the work being done on site at the time of the inspection, any good practice identified and/or any improvements made, and will also contain a section for the Contractor to record any improvements made as a result of the inspection. This will ensure that records of issues identified and remedial works undertaken are recorded in the same place and that any outstanding issues can be closed off. Photographs and other records can also be added to this form.

The Contractor's Environmental Manager will carry out an inspection of the construction areas, prior to the fortnightly/monthly meetings, to verify that the required methods and mitigation measures are being implemented effectively and will draw on information from the weekly inspection reports produced by the Contractor's Site Environmental Co-ordinator.

Records of water, fuel and power consumption will be maintained by the Contractor's Project Manager and will include metrics to measure aspects of performance, such as waste minimisation, recycling and reuse of materials. The metrics will include the volumes of different waste streams produced, the volumes of waste recycled and volumes of waste disposed of off-site.

#### **3.8.4.3. Auditing and Controlling Environmental Performance**

Monitoring environmental performance on site by the Contractor's Environmental Manager and inspections by the Contractor's Site Environmental Team are key to ensure that the requirements of the Environmental Management Plan and this PMP are fully implemented on site. It is important that the results of the monitoring are audited on a regular basis to ensure that any issues are identified and that changes to the operations on site can be made if required.

The site inspections reports completed will be audited by the Contractor's Project Manager on a regular basis, and no less than monthly and reported on at the monthly progress meetings, with recommendations for improvements made where necessary. Furthermore, the Contractor shall arrange for monthly site inspections and quarterly audits to ensure that the environmental controls detailed within this PMP, and other relevant environmental documents, are being implemented.

Reports of environmental inspections undertaken on site will be reviewed by the Contractor's Environmental Manager prior to their issue to the Contractor's Project Manager, the Client's Project Manager and the Client's Environment Manager, which will enable re-occurring issues to be identified at an early stage. The Contractor's

Project Manager must identify the cause of any re-occurring issues and work with the Contractor's Environmental Manager and the Client's representatives to identify actions to be taken to rectify to solution.

The Contractor's Environmental Manager will carry out an audit of environmental performance on site, based upon reports from the Contractor's Environmental Team and responses from the Contractor where required. This will be carried out on a monthly basis and will be reported at the monthly progress meetings.

The Contractor's Environmental Team will meet on a fortnightly basis to discuss the works being undertaken on site and any environmental issues identified. Minutes of these meetings will be forwarded to the Contractor's Project Manager, the Client's Project Manager and the Client's Environment Manager.

An assessment of the performance over the month, including information about water, fuel and power usage will be made and quantified, where possible and also reported at the monthly progress meetings.

The Construction Traffic Management Plan sets out how off site vehicle movements will be monitored. Monitoring, will include; numbers of employees vehicles, HGVs, parking demand, road accidents and near misses etc. Further detail is provided within the Construction Traffic Management Plan.

### **3.8.5. Reporting Environmental Performance**

Reports of all environmental audits, as well as monthly progress reports on inspections undertaken, construction activities, environmental performance and minutes from the fortnightly Contractor's Environmental Team meetings will be forwarded by the Contractor's Project Manager to the Client's Project Manager and the Client's Environment Manager. Copies of these documents, as well as an updated a register of incidents and actions taken, will be held on site and will be available for inspection by the statutory bodies, as required.

Monthly Progress Meetings will be used to disseminate the results of monitoring and audit reports. At these meetings, a review of the environmental performance on site to date will be undertaken and any improvements required during the construction phase will be identified. Details of where sustainable construction has been implemented or developed as the work proceeds will also be discussed and recorded and its suitability for implementation at other areas of the site will be considered and applied where appropriated. Decisions about amendments required to the processes and procedures will also be agreed at this time.

On completion of the scheme, a report detailing how the Contractor has complied with all elements of the Construction Environmental Management Plan, this PMP and supporting documentation relating to other environmental, planning and approvals requirements will be provided and will be issued to Sirius Minerals.

## **SECTION 4 - CLIENT SPECIFIC REQUIREMENTS**

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Client requirements have been integrated into the Quality Management Plan, and Health and Safety and Environmental Management Plans.

## **SECTION 5 - GATHERING/COLLECTION/STORAGE OF RECORDS AND INFORMATION**

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Records are to be maintained in accordance with the applicable policies and procedures.

## **SECTION 6 - CONTRACT FILING**

---

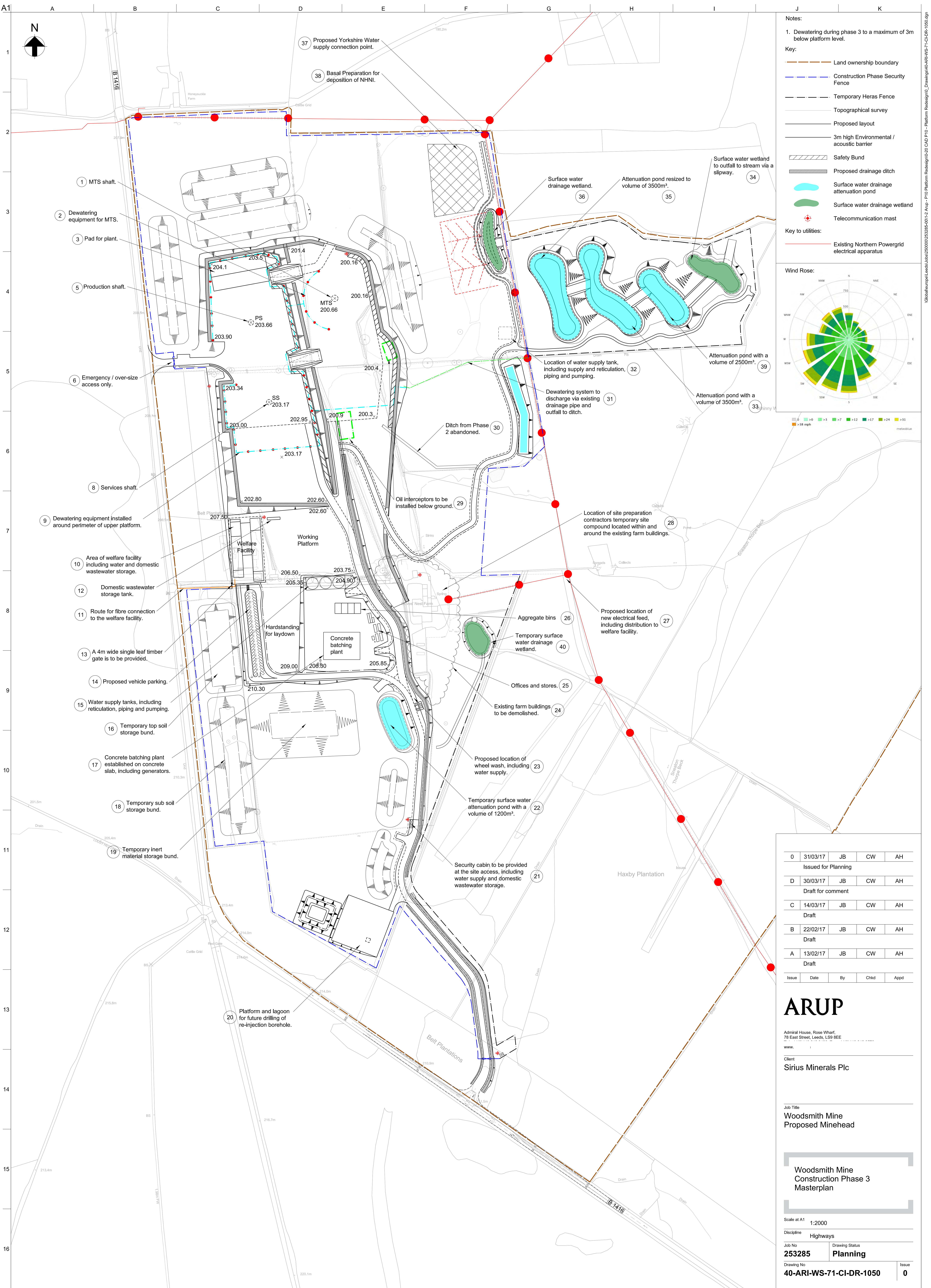
Records specific to this contract are to be filed in accordance with the contract filing index. This may require the set-up of a number of folders in order to accommodate the records specified but the numbering system must be maintained in order to ensure that interested parties can locate the relevant documents easily.



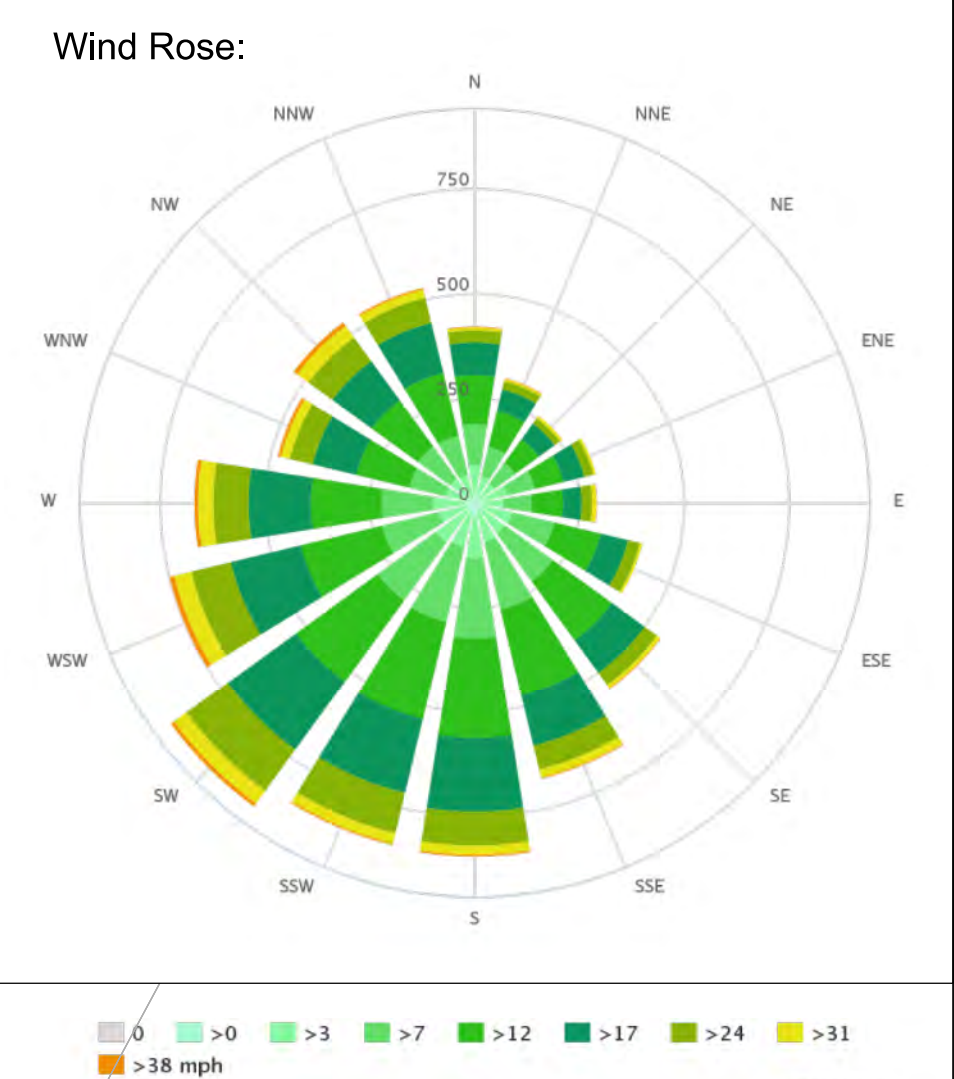
## **APPENDIX A – DRAWINGS**

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- Notes:
- Dewatering during phase 3 to a maximum of 3m below platform level.
- Key:
- Land ownership boundary
  - Construction Phase Security Fence
  - Temporary Heras Fence
  - Topographical survey
  - Proposed layout
  - 3m high Environmental / acoustic barrier
  - Safety Bund
  - Proposed drainage ditch
  - Surface water drainage attenuation pond
  - Surface water drainage wetland
  - Telecommunication mast
- Key to utilities:
- Existing Northern Powergrid electrical apparatus



0	31/03/17	JB	CW	AH
Issued for Planning				
D	30/03/17	JB	CW	AH
Draft for comment				
C	14/03/17	JB	CW	AH
Draft				
B	22/02/17	JB	CW	AH
Draft				
A	13/02/17	JB	CW	AH
Draft				
Issue	Date	By	Chkd	Appd

**ARUP**

Admiral House, Rose Wharf,  
75 East Street, Leeds, LS9 8EE  
www.arup.com

Client  
**Sirius Minerals Plc**

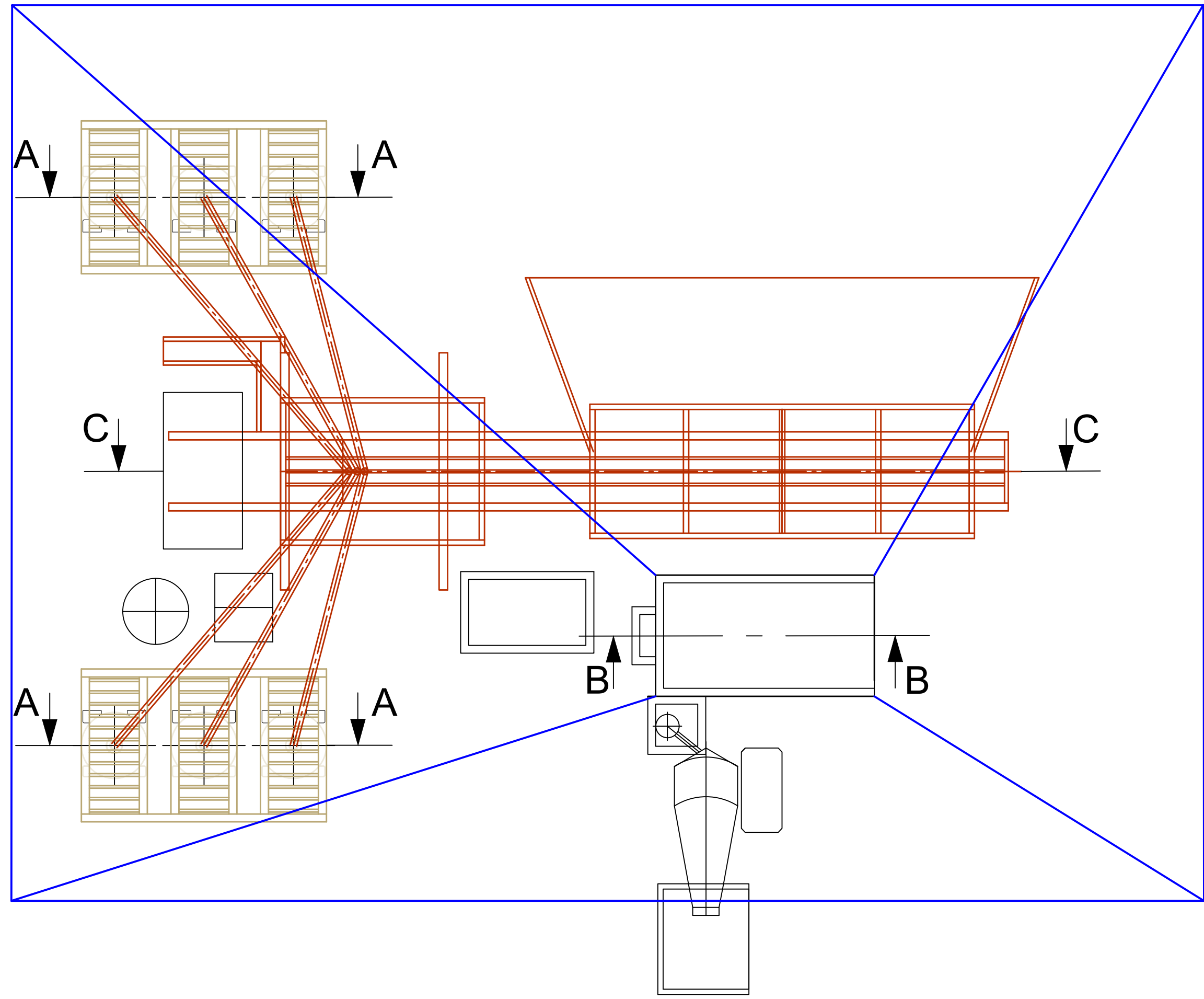
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**Woodsmith Mine  
Proposed Minehead**

**Woodsmith Mine  
Construction Phase 3  
Masterplan**

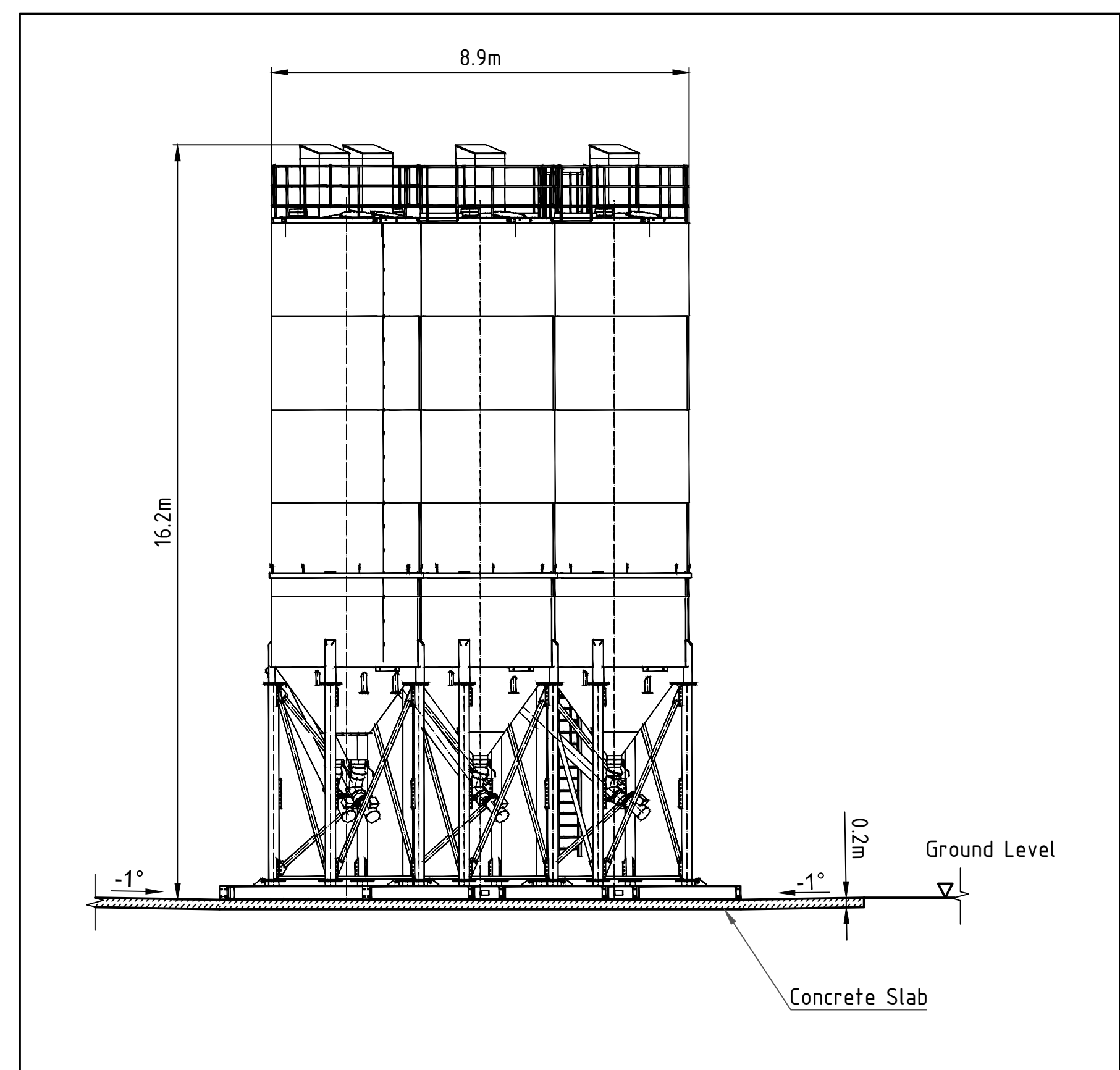
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Job No 253285  
Drawing Status Planning  
Drawing No 40-ARI-WS-71-CI-DR-1050  
Issue 0



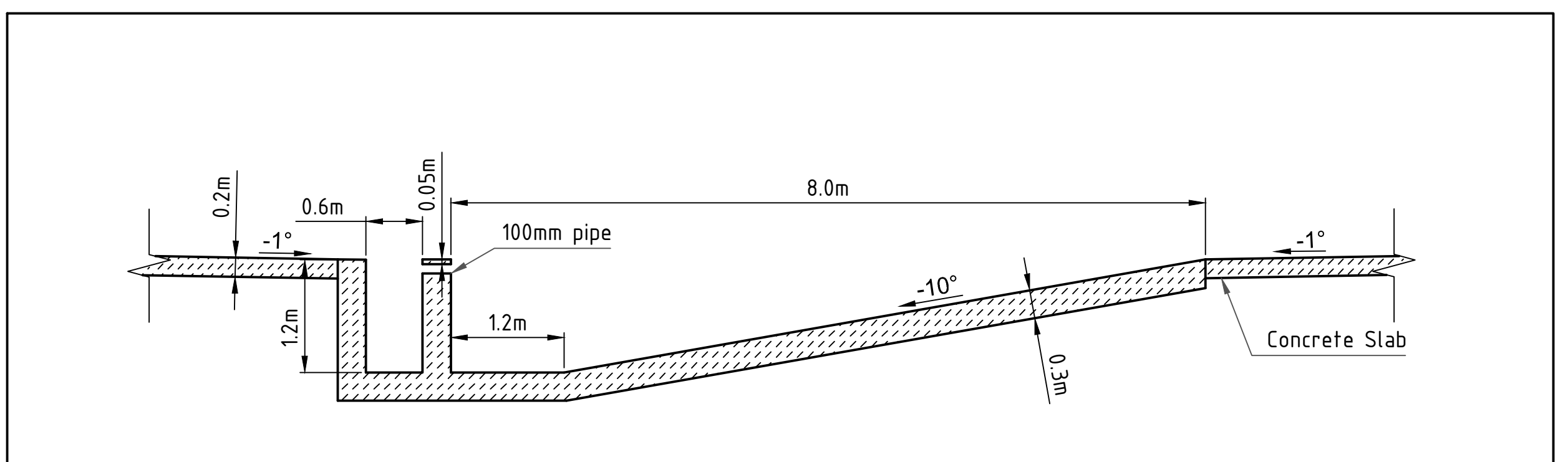
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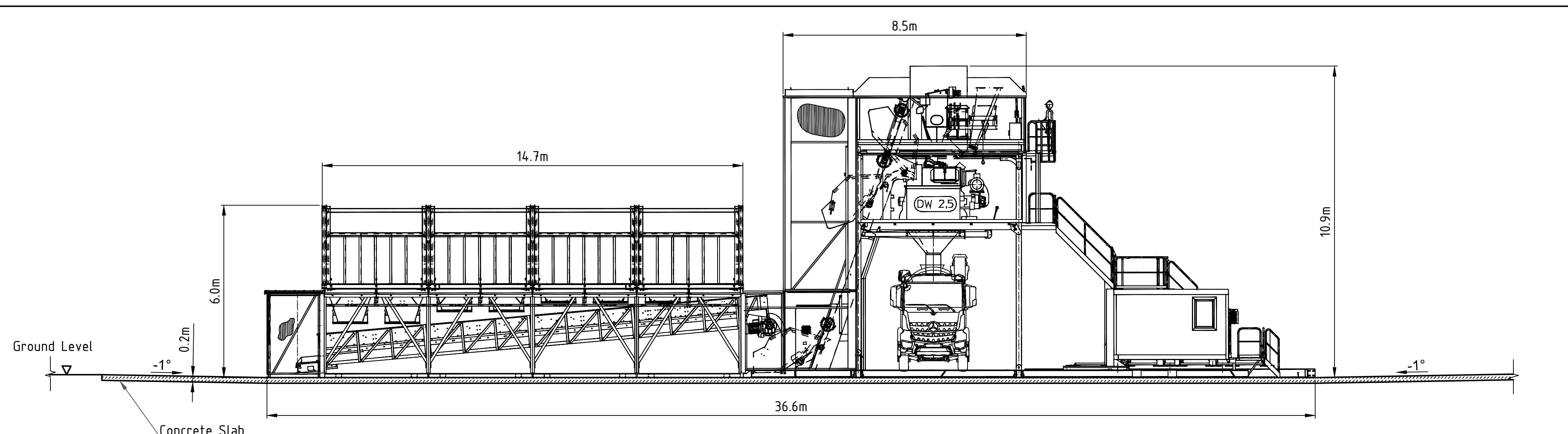
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B-B  
scale: 1:50



C-C  
scale: 1:100



FOR INFORMATION ONLY  
NOT TO BE USED FOR  
CONSTRUCTION

5						
4						
3						
2						
1	Updated Planview	Berber	28.03.2017	Farrell	28.03.2017	Dr. Franz
Rev	Revision Description	Drawn by	Date	Checked by	Date	Approved by
 		<b>YORK POTASH PROJECT - MINE SHAFT</b> EARLY CONTRACTOR INVOLVEMENT SITE PREPARATION AND PLANNING Batch plan view and sections				
Drawn by:	Checked by:	Approved by:	YPL Approved by:	SCALE	SIZE	DWG NO.
Berber	Farrell	Dr. Franz		1:150	A1	40-AMC-WS-12-SW-DR-0005
Date: 28.02.2017	Date: 22.03.2017	Date: 23.03.2017	Date:			

## **APPENDIX B – ENVIRONMENTAL MANAGEMENT PLAN**

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**March 2017**

Environmental Management Plan (EMP)  
Woodsmith Mine Site

Contractor: AMC UK

Client: Sirius Minerals PLC

AMC UK Contract Number: RPA-127

Scheme: Phase 3 – Site Establishment and  
Concrete Batch Plant Construction

**Document Reference:** AMC-EMP-SP1630-001-10-01A-170321  
**Sirius Minerals Document Reference:** 40-AMC-WS-72-EN-PL-0001

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B	25 March 2017	Issue to Project	HM/SF
C	29 March 2017	Revised as per Project Comments	HM/RS
0	30 March	Issue for Use	HM/RS

### Required Approvals

	Name	Role	Signature	Date
Prepared by				
Reviewed by				
Approved by				

### Employer Acceptance

	Name	Role	Signature	Date
Checked by				
Accepted by				

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Minimum Pollution Prevention Guidance

## **1.0 INTRODUCTION**

### **1.1 Terms of Reference**

This Environmental Management Plan (EMP) has been prepared by Associated Mining Construction UK (AMC UK) to provide a stand-alone management framework for dealing with environmental matters and performance during construction activities relating to the new mine surface development at Woodsmith Mine (Off B1416), Sneatonthorpe, North Yorkshire, YO22 5HZ, (hereafter referred to as 'the Site').

### **1.2 Project Description**

Sirius Minerals PLC (the Client and mine operator) is developing a new mine, which is located 3.5 km south of Whitby, in North Yorkshire.

The mine will comprise deep shafts and lateral workings for the extraction of polyhalite. The ore will be transferred via an underground mine transport system to a materials handling facility for processing, before subsequent export from a new harbour facility on the River Tees, some 37 km to the north-west of the Site.

A full and detailed description of the project can be found in the Environmental Statement.

### **1.3 Scope of Environmental Management Plan**

The purpose of the EMP is to set out a framework for managing activities that have potential to give rise to environmental risks or impacts during construction works. The EMP is intended to cover the Phase 3 Construction Activities only, which include the following:

- Set up of welfare facilities for the Phase 3 construction works, including offices, welfare facilities and workshops (inclusive of civil works and construction of temporary plant and building slabs);
- Set up of the concrete batch plant, including construction of the batching plant slab and the installation and commissioning of the concrete batch plant, complete with reticulated water supplies and tanks; and

Site Layout for Phase 3 construction activities is shown on Drawing YP-P10-DNF-CX-050 in Appendix A.

The EMP is a dynamic document and should be reviewed and updated at regular intervals to ensure that it remains relevant in the context of activities being undertaken on Site.

This report should be read in conjunction with the following documents:

- Construction Environment Management Plan (CEMP)
- Project Management Plan (PMP)
- Project Quality Plan (PQP)
- Construction Phase Health and Safety Plan (CPHSP)

### **1.4 Programme of Works**

The proposed start date for Phase 3 Construction activities is 4 June 2017 with the works anticipated to be completed in early October 2017.

## **2.0 ENVIRONMENTAL MANAGEMENT FRAMEWORK**

### **2.1 Environmental Policy**

AMC UK is committed to the protection of the environment and to ensuring that its operations and personnel create no significant impact to the environment. AMC UK supports the commitments of the Client's own Environmental Policy (Doc. 00-AMC-HS-PO-0003, dated March 2017), which sets out the Vision of 'Zero Harm' by 'minimising environmental impact through the planning construction and operation of our assets'.

By following AMC UK's Environmental Policy, procedures and regulatory standards, as well as maintaining due diligence, then this Vision can be accomplished.

In accordance with this Policy, the project will be planned and implemented with strict adherence to relevant regulatory requirements, guidelines and standards. Employees and sub-contractors at every level are accountable and responsible for ensuring all standards are met.

A copy of the AMC UK Environmental Policy is included in Appendix B.

### **2.2 Sustainability Policy**

AMC UK recognises that mineral exploration has the potential to change and sometimes transform local environmental and social conditions. AMC UK will aim to minimise the effects of its operations on the environment, actively support the sustainability of local communities and provide a safe workplace for all persons associated with its operations.

AMC UK is committed to embedding the following sustainable development principles throughout these works:

- respecting the environment, resources and biodiversity of the area and ensuring that processes and practices are technically appropriate and environmentally and socially responsible;
- identifying and addressing the diverse needs of people affected by, and within, our operations and promoting wellbeing, social cohesion and equal opportunity. Upholding fundamental human rights and respecting cultures, customs and values;
- creating sustainable economies both for our shareholders and those affected by our operations, delivering sustainable profitable growth whilst taking responsibility for any environmental and social costs of our operations and ensuring efficient use of resources;
- providing good governance by implementing effective systems of ethical governance and integrating sustainable development considerations within the corporate decision-making process;
- ensuring continual improvement of our health and safety and environmental performance, and working with partners and suppliers who have made a commitment to continuous improvement of their own sustainability development performance; and
- managing our projects in a sustainable manner, using resources efficiently, protecting and enhancing the environment in which we work and reducing our impacts.

A copy of the AMC UK Sustainability Policy is included in Appendix B.

### **2.3 Environmental Aspects and Impacts Assessment**

The principal environmental objective of AMC UK is to continually improve its environmental performance to prevent or minimise pollution, minimise waste and to conform to environmental legislation, regulations and Company Policies and Procedures.

AMC UK will ensure all activities undertaken on site will be subject to an Environmental Aspects and Impacts Assessment (EAIA). The EAIA will be prepared with regard to the information in the CEMP and all other relevant documents. These will:

- Identify any significant environmental impacts that can be anticipated.

- Assess the risks from these impacts.
- Identify control measures to mitigate the risk.
- Report any unacceptable residual risk such that changes can be implemented to reduce the risk to an acceptable level.

The findings of each EIA and, in particular, the necessary controls to reduce risk, will be incorporated into the scheme RAMS (Risk Assessment Method Statement) and Daily Safety Huddle as required. These documents shall be briefed to all site operatives involved in the works prior to the commencement of activities on site. Daily Safety Huddles shall be used to target environmental issues of particular significance at relevant times throughout the works.

Should any aspect of the scheme change, the EIA will be updated accordingly.

## **2.4 Environmental Objectives**

AMC UK has defined a series of environmental objectives for the project, based on the Environmental and Sustainable Policy commitments. These are set out as follows:

- Minimise significant adverse environmental impacts from construction particularly in regard to noise and vibration, air quality, water quality, and storage and handling of hazardous materials;
- Prevent unnecessary consumption of energy, fuel and water supplies where possible;
- Minimise waste production from all activities;
- Minimise disruption to residents, land owners and other neighbours by acting in a socially responsible manner: and
- Improve management of environmental issues across the project.

## **2.5 Environmental Targets**

AMC UK has defined its Environmental Targets for the project based on the Environmental Objectives defined in Section 2.4. These are included below:

- Design, implement and maintain a programme for monitoring and minimising the impact of construction processes on local receptors, including noise and vibration, air quality, water quality, and storage and handling of hazardous materials.
- Monitor energy and water use across Site and undertake a review of water use efficiency following six months of operations;
- Implement and maintain the construction Site Waste Management Plan (SWMP) including measures that follow the waste hierarchy – reduce, re-use, recycle. Undertake review of the SWMP on a six-month basis;
- Review relevant processes/procedures following receipt of justifiable complaint(s) and make appropriate operational changes. Document all complaints and corrective actions undertaken; and
- Hold two environmental protection awareness raising events for all workers per year.

Relevant monitoring programmes and record keeping will be implemented by the Environmental Manager and reviewed with the Project Manager and Health and Safety Manager. Progress against these targets will be reviewed monthly by the Environmental Manager and reported in the environmental review meetings.

## **3.0 LEGISLATION, REGULATIONS, GUIDANCE AND CONSENTS**

### **3.1 Legislation, Regulations and Guidance**

AMC UK will comply with relevant environmental legislation in implementing the construction works. This will include, but may not be limited to the following.

#### **3.1.1 Primary Legislation (Acts or Orders)**

Primary legislative requirements include:

- Town and Country Planning Act 1990;
- Environmental Protection Act 1990;
- Environment Act 1995;
- Control of Pollution Act 1974;
- Clean Air Act 1993;
- Water Resources Act 1991;
- Water Act 2004;
- Land Drainage Act 1991;
- Traffic Management Act 2004;
- Clean Neighbourhoods & Environment Act 2005; and
- The Wildlife and Countryside Act 1981.

#### **3.1.2 Subordinate Legislation (Regulations)**

Subordinate legislative requirements include:

- Waste (England and Wales) Regulations 2011;
- Site Waste Management Plans Regulations 2008;
- Control of Pollution (Oil Storage) (England) Regulations 2001;
- Control of Substances Hazardous to Health (COSHH) Regulations 2002;
- Control of Noise at Work Regulations 2005;
- Control of Asbestos Regulations 2012;
- Environmental Damage Regulations 2015
- Environmental Permitting (England and Wales) Regulations 2016; and

#### **3.1.3 Relevant Guidance**

Relevant guidance may include:

- Pollution Prevention Guidelines (PPGs) published by the Environment Agency were withdrawn in December 2015; however, they still form a basis for good operational practice. Relevant PPGs include the following;
  - PPG1 – Understanding your environmental responsibilities;
  - PPG2 – Above ground oil storage tanks;

- PPG4 – Treatment and disposal of sewage where no foul sewer is available;
  - PPG5 – Works and maintenance in or near water;
  - PPG7 – Safe operation of refuelling facilities;
  - PPG21 – Pollution incident response planning; and
  - PPG22 – Dealing with spills.
- Control of water pollution from construction sites - Guidance for consultants and contractors (CIRIA C532);
  - Environmental Good Practice – Site Guide (Fourth Edition) (CIRIA C741);

All RAMS prepared as part of the works will have due regard to legislative requirements and published guidance to ensure compliance with regulatory needs.

### **3.2 Environmental Consents/Permits Register**

AMC UK will ensure that all relevant consents and permits are acquired from statutory bodies prior to works commencing. AMC UK will develop and maintain a register of environmental consents required for the construction of the project. The list of consents/permits required for Phase 3 construction activities is set out in Table 1.

**Table 1: Relevant Environmental Consents/Permits**

<b>Consent Type</b>	<b>Reference No.</b>	<b>Regulatory Authority</b>	<b>Work Package/Duration</b>

The consent/permit requirements will be communicated to all relevant workers through Site Induction, Toolbox talks and training (see Section 5.0) so that there is compliance with the conditions of those consents. Non-compliance will be reported through the Non-Conformance Procedure (see Section 7.0).

## **4.0 ROLES AND RESPONSIBILITIES**

### **4.1 Organisational Structure**

A management structure showing the key roles of those responsible for implementing this EMP is shown in Figure 1.

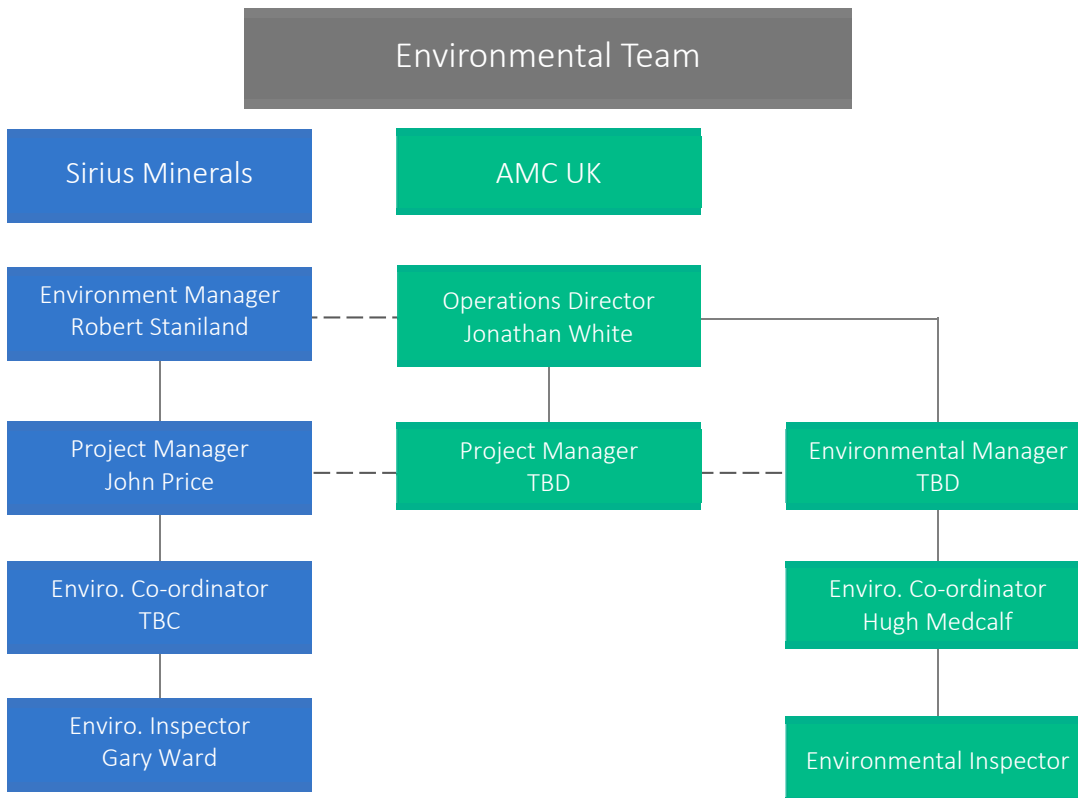


Figure 1: Project Structure and Key Roles

A summary of the roles and responsibilities to be undertaken by both Sirius Minerals and AMC UK are provided in the PMP.

## 5.0 COMMUNICATION

### 5.1 Communication with Site Workers and Visitors

The AMC UK Environmental Manager will communicate regularly with workers and visitors to the Site on environmental matters, providing advice and feedback on environmental matters during Site Inductions, routine site inspections and formal audits.

The AMC UK Environmental Manager will, in conjunction with the Project Team, liaise with all workers and provide feedback and guidance on pollution prevention and control; identify areas of good practice that can be shared with co-workers; and make recommendations for improving working practices.

Formal feedback will be provided following all inspections to assess compliance with environmental management and controls. Section 7.0 refers to Monitoring and Compliance.

### 5.2 Communication with the Contractor’s Management Team

At the beginning of the works, a specific induction will be given to the Contractor’s Project Manager and other members of their Environmental Team by the Contractor’s Environmental Manager to ensure they have broad appreciation of environmental matters. This training will include a presentation on sites designated for Nature Conservation, protected and invasive species, and an overview of legal requirements (including matters such as nesting birds). They will also include an overview of environmental permits licences and consents, and the implications of non-compliance or loss of those that apply to the works.

The AMC UK Environmental Manager will hold fortnightly meetings with the AMC UK's Management Team (including, as a minimum, the Project Manager, Health and Safety Manager) to ensure that current and forthcoming issues are identified, site environmental performance monitoring is discussed, and good practice disseminated. The key findings from these meetings will be communicated formally to the Client's Project Manager and the Contractor's Project Manager as a summary note. These meetings will cover:

- Review environmental performance at the Site over the preceding two week period;
- Identify any trends in performance and discuss reasons for these;
- Consider the need for amendments to the CEMP, PMP, RAMS, Site Waste Management Plan and other relevant documents;
- Propose actions required to mitigate issues that have arisen and/or forthcoming risks; and
- Identify best practice on Site, which can be shared with workers and adopted on other aspects of the project.

The key findings from these meetings will be communicated formally to the Client's Project Manager and Client's Environmental Manager and records maintained on Site.

### **5.3 Communication with Client's Representatives**

The AMC UK Environmental Manager will hold monthly project environmental reviews, attended by the Client's Environmental Manager, with other relevant representatives attending when required. These meetings will:

- Consider the past period performance;
- Review audits and available data from inspections;
- Provide an overview of any environmental monitoring results;
- Plan actions required to mitigate issues that have arisen and/or forthcoming risks; and
- Provide a mechanism to disseminate best practice across the Site.

The information discussed at these meetings will be presented at Site-wide monthly progress meetings, with notes from the meetings being used to prepare the monthly environmental progress report.

### **5.4 Communication with the Statutory Bodies**

When necessary, representatives from Statutory Bodies may be required to attend monthly project environmental review meetings in to address matters of concern to them or for them to provide information on changes to legislative requirements or its interpretation.

Communication with Statutory Bodies in the event of an incident will follow the procedures set out in the Emergency Response and Preparedness Plan (EPPP). A copy of this is included in Appendix C.

### **5.5 Communication with the Public**

AMC UK will communicate with members of the public, including adjacent landowners, local residents and businesses in line with the Client's Community Stakeholder and Engagement Framework (CSEF). This framework sets out the approach and rationale to community and stakeholder communications during the construction phase.

The CSEF includes provision for a quarterly Liaison Group Forum in which local elected representatives that are open to members of the public to attend to receive project updates and exchange feedback, on all project matters, not simply environmental ones. The AMC UK Environmental Manager may attend such meetings as required by the Client.

In addition, there is a 24-hour community helpline (telephone: 0845 543 8964) that can be used by local stakeholders to contact the Client.

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A copy of the Community Stakeholder and Engagement Framework is included in the CEMP.

## **5.6 Complaints Procedure**

Where a complaint from the public is received regarding environmental matters it will be handled in accordance with the Client's Complaints Procedure. All complaints, regardless of the source, will be managed through the Client's External Affairs team and will involve AMC UK representatives as appropriate.

Where a complaint from the public is received, it will be immediately logged and all relevant details obtained. The complaint will be investigated and the complainant contacted within five working days to be advised of the findings of the investigation and any mitigation required. All complaints will be acknowledged within 24 hours of receipt of the complaint, and will be closed out within five working days in order to satisfy the complainant.

A copy of the Complaints Procedure is included in the CEMP.

## **6.0 ENVIRONMENTAL AWARENESS, TRAINING AND COMPETENCY**

### **6.1 Site Inductions**

It is important that all individuals involved in the construction phase are aware of the environmental risks associated with their activities and their responsibilities in respect of avoiding environmental damage.

All staff and sub-contractors working on Site will be required to attend a pre-start Site Induction prior to commencing work on site. This will cover the key environmental aspects relating to the project and the roles and responsibilities of individuals.

All staff will be made aware of the key requirements with respect to the EMP and its appropriate implementation. This will include, but not be limited to, the following:

- Environmental Policy (AMC UK and its sub-contractors);
- Roles and Responsibilities;
- Communication;
- Environmental issues;
- Site Waste Management;
- Dust Control and Mitigation;
- Emergency Response and Spill Management; and
- Incident Response and Reporting.

### **6.2 Toolbox Talks**

Environmental Toolbox talks will be undertaken by the AMC UK Environmental Manager or other nominated personnel, throughout the duration of the project. The aim will be to communicate information to all staff and serve to educate, prompt and remind them of their responsibility to protect the environment. These talks will be relevant to the works being undertaken and the risks involved; they will outline pollution incident response procedures.

Toolbox talks will be undertaken when it is identified that there is a specific activity which has inherent environmental issues or potential risks. Attendance at Toolbox talks will be recorded. It is anticipated that each work team will receive at least one environmental-based Toolbox talk per month.

Awareness of environmental issues will be continually reinforced during the project through the use incident reporting, behavioural based safety awareness, poster campaigns and through Health, Safety, Security and Environmental (HSSE) communications.

## **6.3 Environmental Training**

Where necessary, job and role specific training will be provided by AMC UK to raise an awareness of environmental matters specific to the activity.

## **6.4 Training Records**

Training records will be held by the AMC UK Environmental Manager for all training attended by staff, including formal and informal (e.g. Toolbox talks) training. Records will be maintained in accordance with the applicable policies and procedures.

## **7.0 PERFORMANCE MONITORING AND REPORTING**

### **7.1 Inspection and Audits**

#### **7.1.1 Informal Inspections**

The AMC UK Environmental Manager or delegate, will be responsible for ensuring compliance with the EMP, RAMS and other environmental controls through daily informal inspections. Such inspections would normally be undertaken by the Site Supervisor/Foreman and will include Site surveillance and worker observation.

Where substandard conditions or working practices are identified then the responsible parties will implement prompt corrective actions. Any corrective actions will be communicated to the Project Team. Such inspections will not normally be formally documented, except to document that they have been completed.

#### **7.1.2 Formal Inspections**

The AMC UK Environmental Manager will undertake formal Site Inspections to identify potential risks, contravention to the EMP and RAMS, good working practice, and any required corrective actions. Such inspections will be planned in advance and may include a number of Project Team representatives. Following the inspection, the team will meet to discuss and agree any required actions, including sharing of good practice.

The AMC UK Environmental Manager will be responsible for ensuring that all corrective actions arising from formal inspections are implemented in an agreed timescale. Such inspections would be documented and records maintained on Site.

#### **7.1.3 Leadership Audits**

Formal leadership audits will be undertaken periodically during the works. A timetable for such audits will be agreed with the AMC UK Project Manager and Client's Environmental Manager in advance of works commencing. The following parties may attend Site for the purpose of undertaking an audit:

- AMC UK Senior Management;
- Client;
- Health and Safety Manager or Environmental Manager;
- Approved third party (e.g. regulatory body) (if required); and
- Health & Safety Executive (if required).

The audits will be specific to one or more aspect of the works (e.g. refueling procedure) and will include a review of the procedure in advance of the activity being undertaken; observation of the activity and workers; an inspection of any equipment and/or pollution prevention controls; and interviews with relevant staff.

The audits will determine if the activity is compliant with the procedure and provide feedback (positive or negative) to the relevant workers. Where the activity is not compliant, then a Corrective Action Report will be generated in line with the Non-Compliance Procedure (Section 7.4).

An audit report will be prepared that identifies the following:

---

- Non-conforming or non-compliance issues;
- Observations;
- Corrective and Preventative Actions; and
- Feedback.

## **7.2 Inspection Checklists**

AMC UK will ensure consistency and transparency in its approach to inspections and audits by using topic related checklists. These include, as a minimum the following:

- Waste management;
- Silt and water management;
- Pollution prevention and controls;
- Noise and air pollution;
- Storage of hazardous materials; and
- Energy, fuel and water consumption.

Copies of AMC UK Inspection Checklists will be available and stored at the site office(s).

## **7.3 Environmental Monitoring**

The AMC UK Environmental Manager will ensure that environmental monitoring is undertaken in accordance with relevant Monitoring Plans required under the planning consent or any other consent or permit required to monitor the effects of construction activities.

Monitoring may include recording emissions to air, land, water; rates of consumption of energy, water or fuel; and waste generation.

## **7.4 Reporting Environmental Performance**

The findings of routine (daily or weekly) inspections and formal audits will be recorded by the AMC UK Environmental Manager and the outcomes disseminated to the Project Team in weekly Progress Reports and monthly Progress Meetings.

The results of any monitoring works will be reviewed by appropriately experienced and competent personnel for compliance with relevant consents and permits. Any breaches in compliance limits will be reported to the AMC UK Environmental Manager.

Monthly Progress Meetings will be used to review the environmental performance of the works and to identify and agree any improvements required. The AMC UK Environmental Manager will be responsible for ensuring that all improvements are implemented and reviewed as required.

Copies of all inspection/audit records, meeting Minutes and other relevant information (e.g. compliance monitoring) will be held on Site throughout the duration of works and made available to third parties e.g. regulatory authorities on request.

## **7.5 Non-Conformance, Corrective and Preventative Actions**

In the event of non-conformance with any issue relating to environmental matters at the Site, the Environmental Manager shall follow the Non-Conformance Procedure set out in the PQP. Such events may include works not being undertaken in accordance the CEMP, task Method Statements, customer complaints, or breach of environmental performance limits. The procedure is summarised below:

- A Non-Conformance Report (NCR) will be raised where a deficiency is identified as a result of monitoring, inspection, surveillance and valid complaints. The NCR will be issued to the responsible parties for analysis and review. Such parties include sub-contractors, the AMC UK Project Manager, AMC UK Health and Safety Manager and the Client's Environmental Manager.
- A Corrective Action Report (CAR) will be issued once an agreement is reached on effective response measures. Any corrective or preventative actions will be assigned a nominated owner, together with a timescale for reviewing and closing out the actions.
- The results of any corrective or preventative actions will be recorded and held on Site throughout the duration of works and made available to third parties e.g. regulatory authorities on request.

## **8.0 OPERATIONAL CONTROL PROCEDURES**

### **8.1 Specific Management Plans**

#### **8.1.1 Dust Management Plan**

AMC UK will ensure that any Phase 3 construction activities that have the potential to give rise to noticeable levels of dust and particulates will be identified and appropriate risk control measures put in place through the site wide Dust Management Plan (DMP).

The DMP is a project-wide document that considers the control measures and monitoring required for the following activities:

- Haulage routes, vehicles and construction plant;
- Site preparation (excavations) and restoration;
- Materials handling, storage, stockpiling, spillage and disposal.

Specific control measures will be defined in the activity specific RAMS.

AMC UK will ensure that any processes requiring permitting by Local Authorities are adequately controlled and monitored.

#### **8.1.2 Site Waste Management Plan**

All waste arising from Phase 3 construction activities will be managed in strict accordance with the Site Waste Management Plan (SWMP) (refer to Appendix D). The SWMP will be reviewed and updated at regular intervals (as required).

The SWMP sets out the framework for managing responsibly all waste streams arising at the Site and minimising waste in accordance with the waste hierarchy as follows:

- Prevention – using less material in design and using less hazardous materials;
- Preparing for re-use – checking, cleaning, repairing, refurbishing items;
- Recycling – turning waste into a new substance or product;
- Other recovery – converting waste into energy or other materials;
- Disposal – landfill and/or incineration without energy recovery.

AMC UK will ensure that all waste is dealt with in accordance with the Waste Duty of Care Code of Practice (Defra, March 2016) and relevant legislation.

### **8.1.3 Noise and Vibration Management Plan**

AMC UK will ensure that any Phase 3 activities that have the potential to give rise to noise and vibration impacts will be identified and appropriate risk control measures put in place through the site wide Noise and Vibration Management Plan (NVMP).

The NVMP is a project-wide document that considers the control measures, restrictions and monitoring required to address the following:

- Impacts from noise and/or vibration on neighbouring properties;
- Impacts from vibration on site structures and any identified heritage sites;
- Complaints from neighbours, landowners and others in the local community.

Noise and vibration arising from the construction works will be controlled through the application of 'Best Practicable Means' (BPM), and monitored throughout the construction period. BPM will include the following measures:

- Control of noise at source;
- Selection of low noise or low frequency methods;
- Control of working hours;
- Selection of quiet or low noise equipment and/or isolation of the plant from the transfer medium; and
- Screening through earth bunds, hoardings or other purpose built screens.

### **8.1.4 Protected Species Management Plan**

AMC UK will ensure that any Phase 3 activities that have the potential to give rise to impacts to protected species (including bats, reptiles, badgers, or nesting birds) will be identified and appropriate risk control measures put in place through the site wide Protected Species Management Plan (PSMP).

The PSMP is a project-wide document that considers impacts from the following:

- Earthworks and excavations;
- Dust emissions;
- Lighting pollution; and
- Damage to trees or hedgerows.

## **8.2 Pollution Prevention and Control Measures**

Construction activities have the potential to give rise to pollution incidents from accidental spillages, leakages or acts of vandalism. To reduce the risk of pollution incidents occurring, AMC UK will ensure that adequate planning and design is undertaken to comply with specific legislative requirements and industry best practice measures.

AMC UK and its sub-contractors will incorporate suitable pollution prevention measures in all activities. The AMC UK Environmental Manager will all review proposals for such measures made by sub-contractors. Working methods or measures to protect key receptors from pollution incidents will be identified in task specific RAMS and communicated to all staff via the communication methods outlined in Section 5.0.

Table 2 summarises the minimum pollution prevention and control measures that will be incorporated by AMC UK and its sub-contractors in its construction activities. The final selection of the most appropriate mitigation measures and/or additional measures (as required on a case-by case basis) will be documented in the RAMS provided by the relevant sub-contractor.

A series of Pollution Prevention Guidance notes have been prepared by AMC UK to set out the overarching approach to reducing the risk from pollution during the activities in Table 2. These are included in Appendix E.

**Table 2: Summary of Minimum Pollution Prevention Measures Required**

Issue or Activity	Pollution Prevention Measures
Excavations, earthworks, stockpiling.	<p>Stockpiles of excavated material will be minimised as far as is reasonably practical.</p> <p>Stockpiles will be positioned at agreed locations and constructed / managed to collect drainage and direct to the site drainage system and to prevent loss of entrained water to ground. Stockpiles of material will be damped down during dry weather and / or covered with sheeting.</p> <p>Potentially contaminated or geotechnical unsuitable materials (unsuitable for re-use on site) will be disposed of in line with the Site Waste Management Plan.</p> <p>Dust suppression techniques will be implemented in line with the Dust Management Plan, including water spraying in dry weather, wheel washing facilities for vehicles leaving the site and covering stockpiled material.</p> <p>Refer PPG 003 '<i>Excavation Activities</i>', Appendix E</p>
Concrete washout	<p>Cement and, more importantly, concrete washout water is highly alkaline and can change the chemical balance of surrounding groundwater, natural watercourses and drainage systems.</p> <p>A designated concrete wash-out skip or facility will be located within the works area to stop the wash out water from entering drainage or natural water systems.</p> <p>Concrete wash out will be appropriately signed and all operatives and drivers trained in how to use it. Re-use of the water may be considered within the batch plant operations, alternatively it will be disposed off-site.</p> <p>Concrete waste from the washout facility will be broken out and reused on site as engineered fill, or sent off site as inert waste.</p> <p>Refer PPG 002 '<i>Cementitious Material Storage and Handling</i>', Appendix E.</p>
Storage, handling and use of hazardous materials	<p>The storage, handling, use and disposal of any potentially hazardous materials will comply with the relevant statutory provisions, Environment Agency and Health and Safety Executive codes of practice and guidance notes, together with any manufacturers' recommendations.</p> <p>Hazardous substance stores (including fuel and chemical stores) and areas at risk of spillage/leakage of polluting materials will be stored above ground and bunded.</p> <p>Storage compounds, tanks or stores will either have integrated bunds or housed in a purpose built bund with an impervious base, which can hold at least 110% of the capacity of the tank or drum it contains to minimise the risk of hazardous substances entering the drainage system or ground / groundwater.</p>

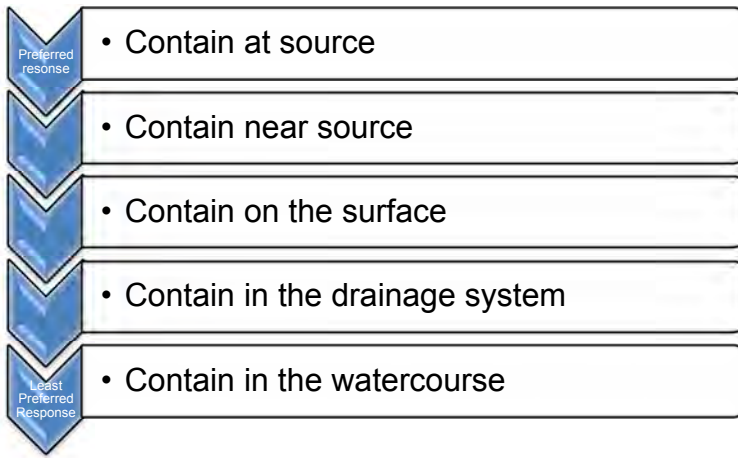
Issue or Activity	Pollution Prevention Measures
	<p>Labels will be used to clearly indicate the contents of containers. There should be no storage of hazardous substances near open drains. In cases of doubtful identification, waste materials should be treated as special waste until proven otherwise. Special waste shall be stored separately from other waste, and be adequately stored, labelled and covered.</p> <p>Environmentally considerate lubricants, such as synthetic, non-toxic biodegradable hydraulic fluids are available and may be used at sensitive locations.</p> <p>Refer PPG 001 '<i>Fuel &amp; Oil Storage and Handling</i>', Appendix E.</p>
Refuelling of vehicles and plant	<p>Delivery of fuel and oil will be supervised at all times and checks will be made to ensure that the correct type and quantity of fuel is being delivered.</p> <p>Refuelling of plant and vehicles will be undertaken at designated refuelling points at the Woodsmith Mine site, or on site in accordance with the RAMS and the Refuelling Procedure.</p> <p>All fuel lines and fuelling points will be protected from vandalism and unauthorised interference, and will be turned off and locked when not in use.</p> <p>Drip trays will be used when filling smaller containers from tanks or drums to avoid drips and spills from entering the ground or drainage system.</p> <p>Any drains in the vicinity of the refuelling point will be blocked off to ensure that any spillages cannot wash into the drainage system and into any adjacent watercourses.</p> <p>Plant and vehicles will be regularly inspected and well maintained so that leakages do not occur during refuelling (or during use).</p> <p>Refer PPG 001 '<i>Fuel &amp; Oil Storage and Handling</i>', Appendix E.</p>
Oil / Fuel Oil spillages	<p>Oil / fuel spill kits will be available at Site and appropriately trained staff will be present during all working activities. In the event of an oil or fuel spillage, staff will ensure that the spill area is properly sealed and that the Site Supervisor notified of the issue.</p> <p>Staff on site will clean up the spillage in accordance with their training and ensure that the oil or fuel contaminated spill kits are disposed of in accordance with the Control of Substances Hazardous to Health Regulations 2002 (as amended).</p> <p>If the volumes of oil / fuel spilled are such that the oil kits on site are not sufficient, additional oil spill kits will be obtained or external remediation contractors engaged.</p> <p>Oil spillages will be reported in line with the Environmental Incident Reporting Procedure.</p> <p>Refer PPG 001 '<i>Fuel &amp; Oil Storage and Handling</i>', Appendix E.</p>
Silt and Surface Water Management	<p>Measures to reduce or prevent mobilisation or loss of sediments/silt into surface water will be implemented. Such measures will be defined in the</p>



Issue or Activity	Pollution Prevention Measures
	<p>RAMS, but may include: silt traps, drainage ditches, earth bunds, silt fences and oil separator tanks.</p> <p>Accumulated sediment shall be removed to ensure the design capacity of surface water infrastructure (e.g. ponds and swales) is maintained.</p> <p>To ensure the reliability of the surface water drainage system, it should be inspected, maintained and repaired as required on a regular on-going basis.</p> <p>Refer PPG 003 'Excavation Activities', Appendix E</p>
Light Pollution (site wide)	<p>Directional tower lighting with directional lanterns will be used, with lights directed down towards the works area required to be lit and away from any sensitive receptors.</p> <p>Task lighting will be used where appropriate to light up local areas of small works instead of mast illumination affecting a large radius.</p> <p>Lights will be turned off when not required to avoid unnecessary light pollution.</p> <p>The lighting will comply with the lowest recommended criteria, particularly with regard to minimising impacts on wildlife from light spillage e.g. installation of hoods, shields, reflectors and baffles.</p>
Dust and particulate emissions (site wide)	<p>Dust suppression measures, including imposing speed limits on haul roads, damping down of road surfaces, road sweeping and wheel and vehicle wheel washing will be utilised across the site.</p> <p>Site fencing, barriers and scaffolding will be kept clean using wet methods where there is the risk of dust accumulation.</p> <p>Stockpiles will be located in agreed locations and away from sensitive receptors and in sheltered areas, where possible.</p> <p>Concrete batching plant feeders, conveyors, chutes and powder stores will be enclosed as practicable.</p> <p>Waste materials that have the potential to create dust problems will be removed, unless they are to be re-used on site. Where possible these will be covered or contained in fenced area until used.</p> <p>Burning of waste materials will be prohibited.</p>

Pollution control measures will be required to manage incidents of unplanned releases into the environment. AMC UK will adopt the guiding principles of the pollution control hierarchy, which is as follows:





The incident response will vary depending on the nature of the pollutant and severity of the incident. This is discussed more fully in Section 9.0.

## **9.0 ENVIRONMENTAL INCIDENTS, REPORTING AND INVESTIGATION**

### **9.1 Environmental Incidents**

The Environmental Emergency Preparedness Plan (EEPP) sets out the procedures to be followed in the event of emergencies and environmental/pollution incidents. This includes details of the arrangements for control and coordination of an effective response.

The EEPP will be communicated through Site Induction and Toolbox talks and attendance/training records maintained. All staff, site workers and visitors will be conversant with the EEPP, which will be displayed on noticeboards at the Site.

A copy of the EEPP is included in Appendix C.

### **9.2 Incident Categories**

The response to an environmental incident will be determined by its severity (or category), with notifications for higher ranked incidents escalating to a higher level within the Project Team and externally to emergency services and regulatory authorities.

A description of each incident category and the actions to be taken in the event of such an incident occurring is included in the EEPP. The incident categories are summarised in Table 3.

**Table 3: Environment Incident Category**

<b>Category</b>	<b>Description</b>
Major Incident (Cat 1)	Likely to be a large scale environmental incident in breach of regulatory consents or current legislation, with major damage or adverse effects, possibly irreversible harm to the environment/health/amenities. Likely to result in prosecution and cessation of works.
Significant Incident (Cat 2)	Likely to be a medium scale environmental incident, in breach of regulatory consents or current legislation, with significant damage or adverse effect, but possibly reversible harm to the environment/health/amenities. Likely to result in prosecution and restriction of works.

Category	Description
Minor Incident (Cat 3)	Likely to be small scale (localised) environmental incident, with minimal damage and transitory effects on the environment. May result in prosecution or enforcement notices. Limited restriction of works.
Near Miss (Cat 4)	An event that occurred, which had the potential to result in an environmental incident.

### 9.3 Incident Reporting

Any incident (observed or realised) on Site must be reported in accordance with the Incident Reporting Procedure set out in the EEPP (see Appendix C).

All near misses shall be reported using an Incident Report Form. The Environmental Manager will review and respond to near miss reports as appropriate.

In the event of an environmental incident occurring, the first priority will be to make the scene safe, ascertain if any person is injured, and if so, instigate the relevant procedure for dealing with the provision of first aid where necessary and preventing further incidents.

The incident will be reported immediately to the Site Supervisor, who will instigate the communication protocol by notifying the AMC UK Project Manager, H&S Manager and Environmental Manager immediately.

The Client's Representatives and relevant stakeholders will be notified in accordance with the Incident Reporting Procedure set out in the EEPP.

Monthly reports will be prepared by the AMC UK Environmental Manager, which includes details of Level 1, 2 and 3 incidents and any significant trends identified in Level 4 near misses.

### 9.4 Incident Investigation and Reporting

All incidents will be investigated by AMC UK in accordance with the procedure set out in the EEPP (refer to Appendix C). The investigation team for all incidents will involve the following participants as a minimum:

- AMC UK Environmental Manager;
- AMC UK Health and Safety Manager;
- Sub-Contractor's representative (in cases where a contractor was involved);
- The person(s) involved.

An investigation report will be prepared that identifies the root cause of any incident, actions taken and lessons learnt. The report will be shared with all parties involved, the Client and the relevant regulators.

### 9.5 Implementing Corrective and Preventative Actions

All corrective and preventative actions will be undertaken in agreement with the Client, the AMC UK Project Manager and any relevant stakeholders e.g. statutory bodies. The AMC UK Environmental Manager will review the success of such actions periodically.

### 9.6 Incident Recording

All actions, whether originating from hazards, incidents, inspections, audits or improvement suggestions, will be documented in a single Actions Register, which will be the responsibility of the AMC UK Environmental Manager to keep up-to-date, and which will detail the action, the action source, the date and the name of the person responsible for undertaking the action.

## **10.0 RECORD KEEPING AND MANAGEMENT REVIEW**

### **10.1 Record Keeping and Archiving**

All environmental records will be maintained in accordance with applicable policy and procedures and relevant legal requirements (e.g. Waste Transfer Notes).

Records will be maintained in either hard copy or electronic format (as required) so as to be readily identifiable, retrievable and protected against damage, deterioration or loss.

Records will be maintained for the applicable duration of time and can only be disposed of by the individual responsible for them.

### **10.2 Management Review**

The EMP will be reviewed by the AMC UK Environmental Manager (in consultation with relevant stakeholders) on a case-by-case basis in the following circumstances:

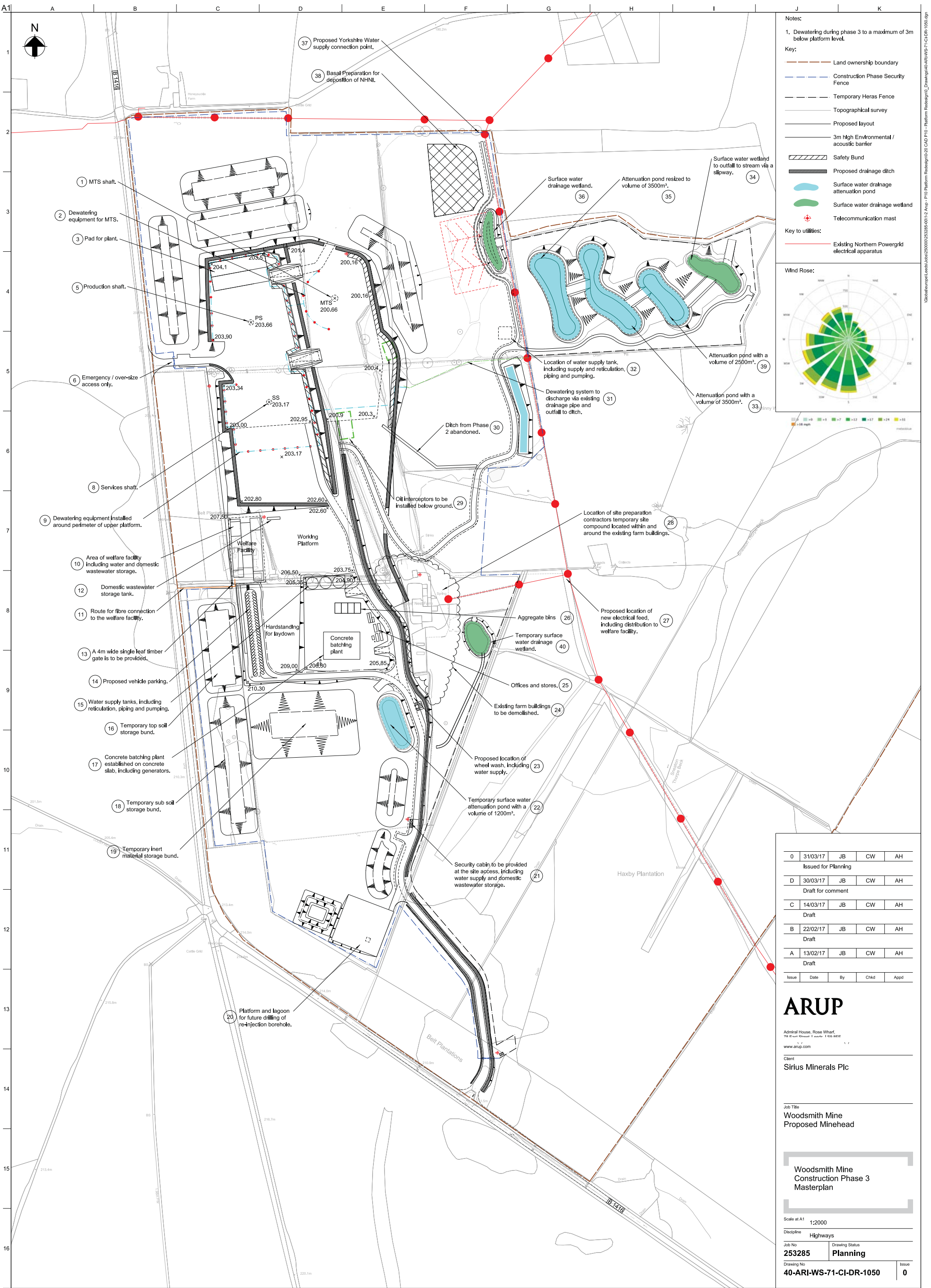
- An incident investigation makes recommendations for changes in the management of environmental issues;
- An audit or inspection makes recommendations for improvements in working practice; or
- There is a significant change to worksite activities e.g. a new activity is proposed that requires additional risk control measures;

In addition, the EMP will be reviewed by the AMC UK Environmental Manager at each phase of construction work, or on an annual basis, whichever is sooner, in order to ensure that the Plan remains relevant and current. Any changes to the EMP will be captured under the change control procedures identified in the PMP.

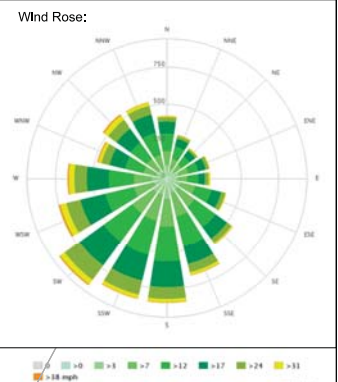
All changes will be communicated formally to the Client and other relevant stakeholders via the agreed communication routes set out in the PMP. All changes to the EMP will be communicated to Site workers during Toolbox talks and recorded on the training records and/or meeting notes.

# APPENDIX A

## Drawings



- Notes:
- Dewatering during phase 3 to a maximum of 3m below platform level.
- Key:
- Land ownership boundary
  - Construction Phase Security Fence
  - Temporary Heras Fence
  - Topographical survey
  - Proposed layout
  - 3m high Environmental / acoustic barrier
  - Safety Bund
  - Proposed drainage ditch
  - Surface water drainage attenuation pond
  - Surface water drainage wetland
  - Telecommunication mast
- Key to utilities:
- Existing Northern Powergrid electrical apparatus



0	31/03/17	JB	CW	AH
Issued for Planning				
D	30/03/17	JB	CW	AH
Draft for comment				
C	14/03/17	JB	CW	AH
Draft				
B	22/02/17	JB	CW	AH
Draft				
A	13/02/17	JB	CW	AH
Draft				
Issue	Date	By	Chkd	Appd

**ARUP**

Admiral House, Rose Wharf,  
78 Essex Street 1, London, E2 7AD, UK  
www.arup.com

Client  
**Sirius Minerals Plc**

Job Title  
**Woodsmith Mine  
Proposed Minehead**

**Woodsmith Mine  
Construction Phase 3  
Masterplan**

Scale at A1: 1:2000  
Discipline: Highways  
Job No: 253285  
Drawing Status: Planning  
Drawing No: 40-ARI-WS-71-CI-DR-1050  
Issue: 0

# APPENDIX B

## AMC UK Policies



# Associated Mining Construction UK Limited Corporate Policy For: Environmental

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Associated Mining Construction UK Limited is committed to the protection of the environment and to ensure that our operations and personnel do not create significant negative impacts to the environment. There is no task that cannot be done in an environmentally responsible manner and Associated Mining Construction UK Limited is committed to ensuring this philosophy is implemented at all our operations.

All Associated Mining Construction UK Limited projects are planned and carried out with strict adherence to government guidelines. In addition, Associated Mining Construction UK Limited follows the specific requirements of the client and their policies and procedures.

Employees and sub-contractors at every level are accountable and responsible for ensuring all standards are met. Complete and active participation by everyone, every day, in every job is necessary for the environmental excellence the company expects. Management supports coordination of environmental protection amongst all workers/contractors.

Management supports participation in environmental protection by all employees and provides proper equipment, training and procedures. Employees are responsible for following all procedures, working responsibly and, whenever possible, improving environmental protection measures.

***No negative environmental impact is our goal. By following policies, procedures and government standards as well as due diligence, we can accomplish this.***

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Jonathan White Operations Director

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**Innovation and Safety through Knowledge, People and Leadership**



**Environmental Policy**

Updated on: 31/3/2017  
00-AMC-HS-PO-0003

# Associated Mining Construction UK Limited Corporate Policy For: Sustainability

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Associated Mining Construction UK Limited recognizes that mining construction has the potential to change and sometimes transform local environmental and social conditions. As such it is our responsibility to minimize the effects of our operations on the environment, actively support the sustainability of local communities and provide a safe workplace for all persons associated with our operations. Associated Mining Construction UK Limited is committed to embedding the following sustainable development principles throughout our operations:

- **Operating within environmental limits** – respecting the environment, resources and biodiversity of the areas we operate in and ensuring that our processes and practices are technically appropriate and environmentally and socially responsible.
- **Upholding strong, healthy just societies** – identifying and addressing the diverse needs of people affected by and within our operations and promoting wellbeing, social cohesion and equal opportunity. Upholding fundamental human rights and respecting cultures, customs and values.
- **Creating sustainable economies** – both for our shareholders and those affected by our operations, delivering sustainable profitable growth whilst taking responsibility for any environmental and social costs of our operations and ensuring efficient use of resources.
- **Good governance** – Implementing effective systems of ethical governance and integrating sustainable development considerations within the corporate decision-making process.
- **Continuous improvement** - Ensuring continual improvement of our health and safety and environmental performance, and working with partners and suppliers who have made a commitment to continuous improvement of their own sustainability development performance.

All Associated Mining Construction UK Limited projects are planned and carried out with strict adherence to government guidelines and any specific requirements of the client and their policies and procedures.

Employees and sub contractors at every level are accountable for working responsibly in line with our guiding principles. Participation in our sustainability principles by all employees is supported by all at AMC UK.

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Jonathan White Operations  
Director

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Innovation and Safety through Knowledge, People and Leadership



Sustainability Policy

Updated on: 31/3/2017  
00-AMC-HS-PO-0004



# APPENDIX C

## Environmental Emergency Preparedness Plan

**March 2017**

Environmental Emergency Preparedness Plan  
Woodsmith Mine Site

Contractor: AMC UK

Client: Sirius Minerals PLC

AMC UK Contract Number: RPA - 127

Scheme: Phase 3 – Site Establishment and  
Concrete Batch Plant Construction

**Document Reference:** AMC-EMC-SPNANA-001-10-01A-170321  
**Sirius Minerals Document Reference:** 40-AMC-WS-72-EN-PL-0002

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B	25 March 2017	Issue to Project	HM/SF
C	29 March 2017	Revised as per Project Comments	HM/RS
0	30 March	Issue for Use	HM/RS

### Required Approvals

	Name	Role	Signature	Date
Prepared by				
Reviewed by				
Approved by				

### Employer Acceptance

	Name	Role	Signature	Date
Checked by				
Accepted by				

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## **1.0 INTRODUCTION**

### **1.1 Terms of Reference**

This Environmental Emergency Preparedness Plan (EPPP) has been prepared by Associated Mining Construction UK (AMC UK) to provide a stand-alone framework for dealing with emergency environmental incidents during construction activities relating to the Phase 3 Construction Works at Woodsmith Mine (Off B1416), Sneatonthorpe, North Yorkshire, YO22 5HZ, (hereafter referred to as 'the Site').

### **1.2 Objectives**

This document sets out the arrangements that AMC UK intends to operate in order to respond to and manage environmental incidents relating to its activities at the Site in a timely and responsible manner. All AMC UK Managers, Supervisors, and other duty holders must be familiar with this document in case they must assume and maintain command of a situation.

### **1.3 Scope of EPPP**

Mitigation of construction risks are considered during the design and planning stages, and routinely implemented on site through appropriate risk assessment and mitigation. Despite this there is still the risk of an unplanned event occurring. Therefore, the EPPP covers the potential environmental incidents occurring during construction works and details the arrangements for control and coordination of an effective response to, and recovery from environmental emergency situations.

The EPPP is intended to cover the Phase 3 Construction activities only, which include the following:

- Set up welfare facilities for the Phase 3 construction works, including offices, welfare facilities and workshops (inclusive of civil works and construction of temporary plant and building slabs);
- Set up of the concrete batch plant, including construction of the batching plant slab and the installation and commissioning of the concrete batch plant, complete with reticulated water supplies and tanks; and

### **1.4 Site Layout**

A Site Layout for Phase 3 construction activities is shown on Drawing YP-P10-DNF-CX-050 in Appendix A.

### **1.5 Related Documents**

Reference should also be made to the Construction Phase Health and Safety Plan (CPHSP) for Phase 3 Construction Activities for appropriate response procedures for dealing with health and safety related incidents. The emergency response roles in this EPPP are generally aligned with those in the CPHSP.

### **1.6 General Requirements**

The details of the EPPP will be communicated to all site workers and visitors through Site Inductions and Toolbox Talks.

Copies of this plan will be made available to all personnel involved in construction activities at the Site and will be displayed on noticeboards across the work site.

Copies will also be made available to other stakeholders as appropriate, including the Client and the Environment Agency.

The EPPP is a dynamic document and will be subject to regular review and update following an incident, management review, or significant changes to the Site and proposed works.

## **2.0 COMMUNICATION LINES**

### **2.1 Immediate Communications Process**

Communications on-site for environmental incidents will be via the site radio system linking AMC UK Site Supervisors with the wider site operations managed by Sirius Minerals.

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The emergency response and communication approach will differ based on the nature and severity of the incident. Figure 1, presents the communication approach to be adopted based on the scale of the incident.

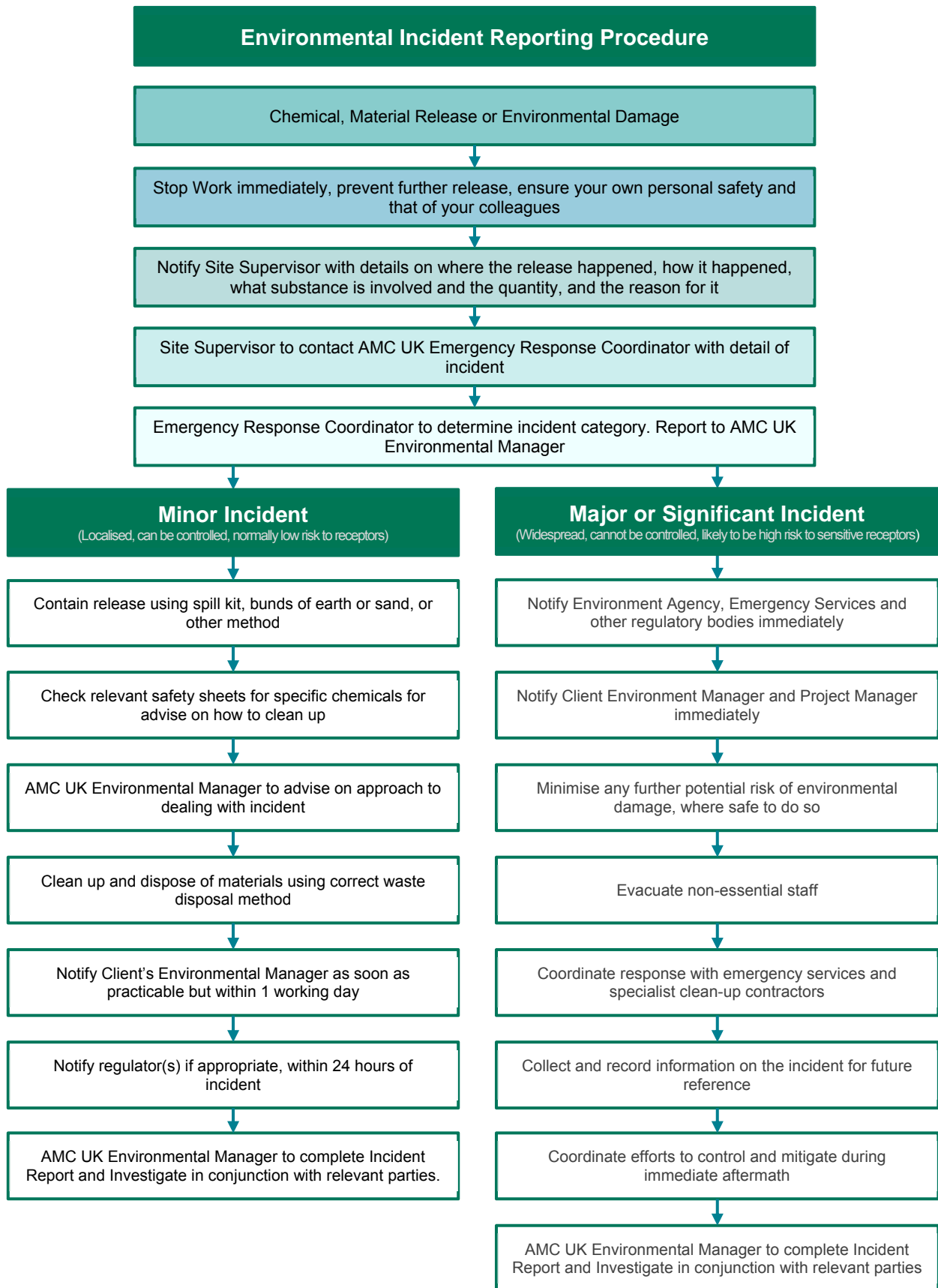


Figure 1: Emergency Response and Communication



## 2.2 Project Stakeholders

### 2.2.1 AMC UK – Emergency Telephone Numbers

CONTACT NAME	TEL NO.
TBC, Site Supervisor	TBC
Hugh Medcalf, Environment Advisor	
TBC, Project Manager	TBC

### 2.2.2 Client – Emergency Telephone Numbers

CONTACT NAME	TEL NO.
Gary Ward Health and Safety Advisor	
Robert Staniland, Environment Manager	
William Woods, Project Development Manager	
Duncan Smith, Project Manager	
Sirius Media Team	TBC

### 2.2.3 Other AMC UK Contact Details

In the event that immediate response is not available from the relevant site contacts, then other AMC UK contacts should be contacted.

CONTACT/ POSITION	NAME	TEL NO.
Head Office	Annemarie Kulig	+
Operations Director	Jonathan White	+
Engineering	Steve Farrell	+
Commercial Director	Kirby Williston	

## 2.3 Emergency Services

Key numbers for the Emergency Services are included in Table 1.

**Table 1: Emergency Service Contact Numbers**

Emergency Service	Contact Details	Purpose of Consultation
Fire Brigade	999 /112 (mobile)	Fire evacuation and rescue
Police - Emergency	999 /112 (mobile)	Emergency response to crime etc.
Ambulance	999 /112 (mobile)	Urgent medical attention/hospitalisation
A&E Department – Scarborough Hospital		Contact for admissions enquiries
Local Police Station	101	Security arrangements, crime etc.

## 2.4 Statutory Bodies and other External Stakeholders

Dependent on the nature of the environmental emergency, one or more of the statutory bodies shown in Table 2 may also need to be notified.

**Table 2: Statutory Stakeholders - Contact Details**

Service	Contact Details	Purpose of Consultation
Gas, National Grid (National Gas Emergency Service)		Report gas leak or if pipeline struck
Electricity, Northern Power Grid	Dial 105 to report a power cut	Report incidents involving underground cables or overhead assets
Environment Agency	Environment Incident - Flood Line - Contact: TBC	Pollution prevention measures and incident reporting/response
Water Services, Yorkshire Water		Report water leaks, loss of water
Sewerage Services, Yorkshire Water		Report incident involving sewage pipeline.
Oil (or gas) Pipeline, British Pipeline Agency		Report incident involving underground pipeline
North Yorkshire Council	Contact: Pam Johnson	
North Yorkshire Moors National Park Authority	Contact: Mark Hill	
Health and Safety Executive	TBC	TBC

## 2.5 Communication Protocols

### 2.5.1 Emergency Services

During an incident, the Emergency Response Coordinator will liaise with the Emergency Services as required, unless this role is delegated to the Project Manager or Environmental Manager.

Out of Hours, the nominated person in charge will assume this responsibility until otherwise advised by the Project Manager, the Environmental Manager or a more senior or qualified person.

### 2.5.2 Client Interface

During an incident the Project Manager or Environmental Manager will liaise with the Client contacts to ensure that they are fully apprised of the situation and to agree implementation of relevant actions.

### 2.5.3 Media, Regulatory Authorities and Members of the Public

All contact with the media, local authorities, community groups, businesses or other bodies regarding any environmental emergency will be handled by Sirius Minerals.

## **3.0 EMERGENCY RESPONSE ARRANGEMENTS**

### **3.1 Roles and Responsibilities**

#### **3.1.1 Emergency Response Coordinator**

The first or most senior person responding to the emergency will take control of the location and will coordinate the emergency response (acting as initial Emergency Response Coordinator). The position of Emergency Response Coordinator can be reassigned if a more qualified or senior person were to respond. The responsibilities are as follows:

- oversee all safety aspects of the environmental incident;
- assess the hazards that may be encountered for the emergency and mitigate the hazardous situations;
- coordinate the First Aiders to provide support to the injured person(s) (if required);
- contact the emergency response team, providing all relevant information on the incident;
- nominate persons to the roles outlined in this plan and ensure that any evacuation is undertaken;
- provide information/guidance to the Project Manager and Environmental (and Health and Safety) Manager(s) on the incident and safety implications, and request support as required;
- Appoint Entrance Guards to be strategically placed to guard entry into the incident area and maintain contact with them to ensure no unauthorized entries into the incident area and that emergency services are directed to the incident location.
- Coordinate the emergency response with the emergency response team or emergency services once they arrive on site.
- Exercise emergency authority to stop and prevent any unsafe acts which might either make the incident worse or lead to a secondary incident.
- Preserve evidence, record events and initiate preliminary investigation of accidents within the incident area.

#### **3.1.2 Project Manager and Environmental Manager**

The Project Manager and/or Environmental Manager will undertake the following:

- Assist the initial Emergency Response Coordinator. Ensure they have sufficient support and resources to effectively manage the situation;
- If necessary or available take control of the incident and take on the role of overall Emergency Response Coordinator (complete roles as defined above);
- Coordinate the emergency response with the emergency services (if required);
- Ensure that all appropriate government agencies have been notified.
- Ensure Client and relevant stakeholders are notified of the situation;
- Exercise emergency authority to stop and prevent any unsafe acts which might either make the incident worse or lead to a secondary incident;
- Preserve evidence, record events and initiate preliminary investigation of accidents within the incident area.

#### **3.1.3 Entrance Guard**

The Entrance Guard's responsibilities are as follows:

- barricade and guard the entrance to the Incident Area and to facilitate the access to the emergency services;
- guard and allow only authorized personnel to enter the Incident Area;
- maintain radio contact with the Emergency Response Coordinator on any personnel entering or exiting the Incident Area;
- Instruct any bystanders or people leaving the Incident area to report to the nearest muster point; and
- Remain at the post until the ALL-CLEAR has been given.

**3.1.4 Fire Warden**

Appointed Fire Wardens will be appointed and trained such that they can respond in the event of an environmental incident giving rise to fire. The responsibilities are as follows:

- Ensure all personnel are evacuated safely from the incident area;
- Undertake a roll-call at the muster points to ensure all workers and visitors are accounted for;
- Liaise with the emergency services as directed by the Emergency Response Coordinator.

**3.1.5 Appointed First Aider**

Appointed first aid personnel will be trained to a relevant standard and be required to maintain their skill level to allow them to undertake their duties. The Appointed First Aider will:

- Provide first aid to injured parties to the best of their abilities, without putting themselves in danger;
- If the injuries are not significant, provide first aid and escort the person to the nearest A&E hospital;
- Advise the emergency services of any first aid provided.

**3.1.6 Muster Point Coordinator**

The Muster Point Co-ordinator will be responsible for the following:

- Proceeding to the Muster Point and relaying information on AMC UK employees that have arrived at the muster points;
- Record the names and number of personnel at the muster point and relay the information to the Emergency Response Coordinator;
- Once all personnel are accounted for at the muster points contact the Site Supervisor and if applicable coordinate to move the personnel to a safe indoors location.

**3.2 Emergency Response Team**

The names and contact details of Emergency Response Team, together with their roles and responsibilities, will be displayed on noticeboards at the Site within the welfare area and at other points in the Site. These will include details of the Environment Agency’s 24 hour Freephone number for reporting environmental incidents.

These details will be communicated to all staff and visitors and updated regularly. Table 3 provides the list of nominated personnel for Phase 3 construction activities.

**Table 3: Emergency Response Team – Contact Details**

<b>Role</b>	<b>Contact Details</b>	<b>Organisation</b>
Emergency Response Coordinator		
Project Manager		



## ENVIRONMENTAL EMERGENCY PREPAREDNESS PLAN

Role	Contact Details	Organisation
Environmental Manager		
Entrance Guard		
Appointed First Aiders		
Muster Point Coordinator		

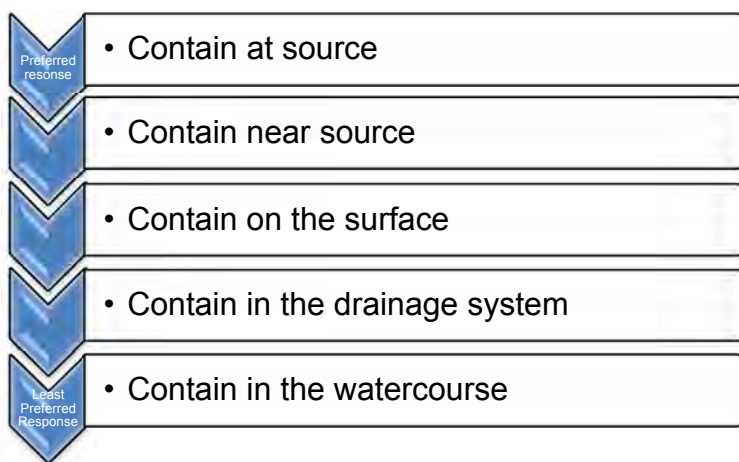
## 4.0 ENVIRONMENTAL INCIDENT RESPONSE PROCEDURES

### 4.1 Dealing with Pollution Incidents

#### 4.1.1 General Response Procedures

The workforce will be alerted to incidents by visual identification, verbal command, radio communications or telephone. Personnel raising the alarm shall ensure that all personnel on Site are alerted to any environmental incident likely to impact on others.

Pollution control measures undertaken in response to an environmental incident will follow the guiding principles of the pollution control hierarchy:



On identification of incident, or upon hearing the alert, project personnel shall:

- Stop all work immediately;
- Shut down and isolate all plant and equipment and make all substances safe;
- If safe to do so, remove or assist anybody in immediate danger;
- Raise the alarm;
- Evacuate the work site if required, proceeding to the assembly area via the safest route;
- If safe to do so, contain the incident using spill control measures and isolation of drains;
- Notify the Site Supervisor immediately with details on the location of the spillage, substance and estimated quantity involved, and reason for spillage;
- Implement response in accordance with the severity of the incident (see Section 4.1.1) and escalate as appropriate, up the chain of command.

#### 4.1.1 Incident Category

Pollution incidents will be managed in accordance with the severity or category of incident. Table 4 sets out the four categories of incident that have the potential to occur at the Site. The incident category may be elevated or reduced at any stage of the process as more details become available and the emergency services and/or regulators become involved.

**Table 4: Environment Incident Category**

<b>Category</b>	<b>Description</b>
Major Incident (Cat 1)	Likely to be a large scale environmental incident in breach of regulatory consents or current legislation, with major damage or adverse effects, possibly irreversible harm to the environment/health/amenities. Likely to result in prosecution and cessation of works.
Significant Incident (Cat 2)	Likely to be a medium scale environmental incident, in breach of regulatory consents or current legislation, with significant damage or adverse effect, but possibly reversible harm to the environment/health/amenities. Likely to result in prosecution and restriction of works.
Minor Incident (Cat 3)	Likely to be small scale (localised) environmental incident, with minimal damage and transitory effects on the environment. May result in prosecution or enforcement notices. Limited restriction of works.
Near Miss (Cat 4)	An event that occurred, which had the potential to result in an environmental incident.

Upon notification of an incident, the Site Supervisor will immediately contact the Emergency Response Coordinator and Environmental Manager to appraise him/her of the incident. The Emergency Response Coordinator will be responsible for determining the category of incident, in conjunction with the Environmental Manager.

The Emergency Response Coordinator will be responsible for managing the incident response as outlined in previous sections. Details on the Incident Response Procedures for each Incident Category are included in Section 4.5.

#### **4.1.2 Review the Pollution Inventory**

A comprehensive and up to date inventory of all substances to be stored on Site will be maintained by the Environmental Manager. This will include details of any hazardous substances that may fall under Control of Substances Hazardous to Health (COSHH) Regulations 2002. All containers will be clearly labelled and stored appropriately.

In relation to pollution of controlled waters (groundwater or surface water), substances are treated either as 'hazardous substances' or 'non-hazardous pollutants'.

Hazardous substances are toxic, persistent and liable to bio-accumulate in the environment. They should be prevented from being discharged into groundwater. Examples of hazardous substances relevant to Phase 3 Construction activities include the following: hydraulic oils, hydrocarbons (fuel) and solvents.

Non-hazardous pollutants are any substances capable of causing pollution but have not been classified as a hazardous substance. Examples may relevant to Phase 3 activities include the following metals, biocides (disinfectants), and substances that have a deleterious effect on the taste/odour of groundwater (e.g. bentonite, soil conditioners).

In the event of an emergency or incident occurring, the Pollution Inventory will be used by the Emergency Response Team, which may include the emergency services, to manage and deal with the incident appropriately.

The Pollution Inventory will be made available to all member of the Emergency Response Team.

### 4.1.3 Deploy Pollution Control Equipment

#### 4.1.3.1 Emergency Equipment Availability

The equipment available to site workers and visitors for use in incident or emergency situations is listed in Table 5. This list is not exhaustive and should be updated as works progress.

**Table 5: Emergency Equipment Availability**

Equipment Type	Details of Equipment	Location
Spill Kits	Type : TBC	Fuelling area
Drip Trays	Type : TBC	Fuelling area
Defibrillator Units	Type : TBC	Welfare
First Aid (including eye wash)	Type : TBC	First Aid kits will be available at the Site Offices, Concrete Batch Plant and within all AMC UK vehicles.

All emergency equipment will be routinely checked to ensure that it is available, accessible and within date.

#### 4.1.3.2 Spill Response Kits

Spill response materials including spill kits, booms and absorbent granules will be readily available and easily accessible on site, with all staff trained in their usage.

The content of spill kits will differ depending on the nature of the works, but will typically contain gloves, hazardous waste bags, heavy duty plastic bags, spades, hammer and stakes, absorbent booms, rolls, pads, socks drain seals and floating / turbidity silt curtains.

Spill kits designed for different purposes may be employed on Site, including dealing with fuel and oils, sediments and chemicals.

In the event of a major or significant spillage a specialist contractor will need to be engaged to deal with such an event. Such an organisation will provide 24/7 emergency response cover.

#### 4.1.3.3 Personal Protective Equipment (PPE)

All staff who are required to deal with pollution incidents will be issued with appropriate PPE to undertake the task safely and in accordance with the risk assessment for the task.

## 4.2 Dealing with Fire

For fires within the Site / Works Area the following actions must be undertaken (in this order):

- Shout “Fire”;
- Personnel will attempt to fight small fires if competent to do so while not exposing them to undue risk;
- The area will be vacated and all staff retire to a safe distance/local muster point;
- The Emergency Services should be contacted by dialling 999 and asking for the fire service. Give the operator your name, location and full particulars;
- The AMC UK Site Supervisor and/or Emergency Response Coordinator will be immediately informed of the situation.
- Follow the Emergency Evacuation Procedures outlined in the Emergency Response Plan (appended to the CPH&SP).



### **4.3 Dealing with Previously Unidentified Contaminated Land**

The discovery of contaminated land is not anticipated; however, visual and olfactory monitoring of excavated materials will take place and sampling undertaken if concerns arise. When contamination is suspected, then the following procedure will be followed:

- Stop work immediately;
- Report the discovery to the Site Supervisor so that further advice can be sought from the Environmental Manager;
- Isolate the area and contain any potential for spread of contaminants; isolate any potential sources of ignition;
- Agree the scope of testing and characterise the material to determine the best method for remediation and/or disposal in line with regulatory requirements and in conjunction with the Site Waste Management Plan.

### **4.4 Dealing with Flooding Incidents**

In order that sufficient warning may be given in the event of flooding affecting the Site, the following actions must be undertaken:

- If flooding is anticipated to occur, works will cease and the Site will undertake a controlled process shutdown where it is safe to do so.
- The area will be vacated and all staff retire to a safe distance/local muster point or stood down from site;
- The AMC UK Site Supervisor and/or Emergency Response Coordinator will be immediately informed of the situation.
- Follow the Emergency Evacuation Procedures outlined in Section the Emergency Response Plan (appended to the CPH&SP).

## **4.5 Incident Reporting Procedure**

### **4.5.1 Near Misses**

All near misses (Category 4) shall be reported using an Incident Reporting Form. The Environmental Manager will review and respond to near miss reports as appropriate. Feedback will be provided to the workforce through toolbox talks, poster campaigns and other staff awareness training. A copy of the Incident Reporting Form is included in Appendix B.

Such incidents may include, but not be limited to the following:

- Inappropriate storage of fuel/oil or other COSHH substances;
- Unstable stockpiles, presenting a risk of slippage of sediments into drainage system;
- Spill kits or drip trays not being available at a point of re-fuelling; and
- Identification of protected species in the works area.

### **4.5.2 Minor Incidents**

Minor Incidents (Category 3) will be managed locally by the Site Supervisor and workforce responsible for the working area/activity. Such incidents may include, but not be limited to, the following:

- minor spillages of fuel/oils with limited areal extent on the ground surface, which can be dealt with adequately using proprietary spill kits;
- sediments or contamination in a limited reach of the drainage system with potential to enter watercourse; and

- noise, vibration or dust temporarily exceeding permitted thresholds.

The Environmental Manager will be notified of the incident as soon as practicable, but as a minimum within two hours of the event occurring.

The Client's Environmental Manager will be notified within as soon as reasonably practicable, or at the latest within one working day, of any minor incidents occurring and the actions taken to remediate or mitigate the issue.

The response procedure to Minor incidents will follow the flow diagram in Figure 1. All Minor Incidents will be reported using the Incident Reporting Form.

If required, the Environment Agency's Emergency Hotline will be contacted as required or if more appropriate, the local regulatory contacts, to inform them of the event and the actions taken to manage this and limit the release.

It may be that a regulatory inspection may occur as a result of a complaint being lodged and that this then may result in such an incident being notified.

### **4.5.3 Significant or Major Incidents**

Significant or Major incidents (Category 1 and 2) will be dealt with as an Emergency and the response shall be managed by the Emergency Response Team. Such incidents will include, but not be limited to, the following:

- Unplanned releases that have the potential to impact on surface water or groundwater on a large scale. Materials include, but are not limited to: vehicle fuel, oils, chemicals, cementitious products, sewage effluent, silt and waste products.
- Chemical/fuel fires resulting from poor housekeeping or mixing of waste streams, resulting in emissions to air, and potential release of firewater to surface or groundwater.
- Persistent or long term impact on local habitats caused by unplanned releases.

The Project Manager or Environmental Manager will notify the Client's Environmental Manager immediately, or as soon as reasonably practicable in the event of an emergency environmental incident.

The Project Manager or Environmental Manager will notify the Environment Agency and/or other relevant regulators immediately and follow up with email communication with relevant local contacts.

The response procedure for Significant or Major Incidents will follow the flow diagram in Figure 1.

The Emergency Response Coordinator will take responsibility for managing and containing pollution source in the immediate aftermath of the incident. The Emergency Response Coordinator will perform the roles described in Section 3.1.1.

## **4.6 Incident Investigation Procedure**

All incidents will be investigated by AMC UK in conjunction with other stakeholders, as appropriate. The Incident Investigation Form included in Appendix C, will be used to report the findings of Category 3 and 4 Incidents. The investigation of such incidents can be closed out by the Environmental Manager.

Investigation of Category 1 and 2 incidents will be led by Senior Managers in the AMC UK and the Client's Project team. Such incidents will be subject to formal reporting that will likely extend beyond the standard proforma for the Incident Investigation Form. The investigation of such incidents can only be closed out by Directors of the AMC UK and Sirius Minerals teams.

Quarterly reports identifying the root cause of any incidents, actions taken and lessons learnt will be shared with the AMC UK team, the Client's team and the relevant regulators. These reports will include details of Category 1, 2 and 3 incident and any significant trends identified in Category near misses.

## **5.0 TRAINING AND AWARENESS**

### **5.1 Environmental Incident and Emergency Response Training**

Awareness training allows skills and knowledge to be transferred to employees, inducing motivation and a change in attitudes towards environmental issues and in particular pollution prevention and control techniques. Training is essential in providing a sound understanding of responsibilities for all employees involved with implementation of environmental initiatives within AMC UK.

Environmental Toolbox talks will be provided on a fortnightly basis, these will be relevant to the works being undertaken, the risks involved and outline pollution incident response procedures.

Site induction will detail specific environmental aspects and incident control procedures. All operatives and staff, including visitors, will have to undergo site induction training. Training will include:

- awareness of the potential for harm to people and the environment from the materials held on-site;
- information on the sensitivity of the environment surrounding the site;
- the environmental responsibilities of AMC UK;
- use of the correct personal protective equipment and any appropriate and/or necessary health and safety training;
- reporting and emergency procedures;
- safe and correct use of all spill clean-up equipment or pollution prevention structures and/or devices on site;
- safe handling and legal disposal of contaminated materials and wastes resulting from an incident, including arrangements for using specialist contractors and services; and
- appropriate and safe decontamination following an environmental incident.

### **5.2 Training Records**

AMC UK will maintain a training register to record training and induction and to monitor qualification expiry. Induction documentation and copies of qualifications and competencies shall be maintained within this training register. The training register shall be regularly reviewed to monitor qualification expiry and to update induction and training records for all personnel.

### **5.3 Emergency Response Exercises**

Emergency response exercises will be conducted throughout the project to test the efficiency of the Project's emergency response process and to additionally reinforce emergency procedures and processes to project personnel. Emergency response exercises may include the following:

- Spill emergency response exercise – in the event of uncontrolled release of substances; and
- Fire evacuation procedures.

Evacuation drills shall be undertaken on site at least once per year.

The Environmental Manager shall be responsible for initiating and coordinating emergency response exercises. The Environmental Manager will facilitate a de-briefing following an emergency response exercise and shall provide a written report on exercise, results and recommendations to the Sirius Minerals Environment Manager.

## APPENDIX A

**Drawings - Refer to Drawing *Construction Phase 3 Masterplan*  
reference 40-ARI-WS-71-CI-DR-1050**

# APPENDIX B

## Incident Reporting Form

## INCIDENT REPORTING FORM

### BASIC DETAILS

Incident Number:	Client Incident Number:
Incident Date/Time:	Supervisor:
Reported Date/Time:	Project Description:
Reported By:	Project Number:
Contracting Firm:	Exact Location:

### INCIDENT DESCRIPTION

Summary:
Incident Type:
Detailed Description:

### CONSEQUENCES

Please enter a rating (0-5) for all consequences		
Category	Actual	Potential
Injury / Illness:		
Environment:		
Plant & equipment damage:		
Financial:		
Outrage & Reputation:		
Security:		
Motor vehicle accident:		
Quality:		

### IMMEDIATE CORRECTIVE ACTIONS

--

### NOTIFICATION

People Immediately Notified:	People to be Notified:
Health and Safety Advisor for the area:	Site Supervisor (Who will review this notification):

Portion above to be submitted as first alert for all incidents.

# APPENDIX C

## Incident Investigation Form

## INCIDENT INVESTIGATION REPORTING FORM

BASIC DETAILS	
Incident Number:	Client Incident Number:
Incident Date/Time:	Supervisor:
Reported Date/Time:	Project Description:
Reported By:	Project Number:
Contracting Firm:	Exact Location:

INCIDENT DESCRIPTION
Summary:
Incident Type:
Detailed Description:

CONSEQUENCES		
Please enter a rating (0-5) for all consequences		
<b>Category</b>	<b>Actual</b>	<b>Potential</b>
Injury / Illness:		
Environment:		
Plant & equipment damage:		
Financial:		
Outrage & Reputation:		
Security:		
Motor vehicle accident:		
Quality:		

IMMEDIATE CORRECTIVE ACTIONS

NOTIFICATION	
People Immediately Notified:	People to be Notified:
Health and Safety Advisor for the area:	Site Supervisor (Who will review this notification):

Portion above to be submitted as first alert for all incidents.



INVESTIGATION DETAILS		
Investigator:	Start Date:	End Date:
Investigation Team:		
Detailed description of investigation:		
Witnesses to incident:		
Supporting documentation location:		

INCIDENT INVOLVING INJURY OR ILLNESS	
Injured or ill person:	Employee Type: Select From List
Employer:	Injury Classification: Select From List
Did Injury result in Loss of Consciousness? No	Was the injured person at work on modified work duties? No
Number of Days Lost:	Number of Restricted Days:
Bodily location 1: Select From List	Nature of injury 1: Select From List
Bodily location 2: Select From List	Nature of injury 2: Select From List
Agency: Select From List	Mechanism: Select From List
Detailed Description of injury:	

INCIDENT INVOLVING ENVIRONMENT DAMAGE:	
Type Of Ecological Loss: Select From List	Initiating Event: Select From List
Habitat Description:	
Detailed Description:	
Contaminant Type: Select From List	Other Contaminant:
Volume Released: Unit: Select From List	Volume Contained: Unit: Select From List
Area Impacted: Unit: Select From List	Distance from Sensitive Area:
Sensitivity Type – Area: Select From List	Sensitivity Type – Other:
Species:	Number: Protected: Yes <input type="checkbox"/> No <input type="checkbox"/>

INCIDENT INVOLVING PLANT, EQUIPMENT OR VEHICLE DAMAGE:	
Equipment damage of loss classification: Select From List	
Equipment Description:	
Model	Year
Serial number	Owner

**INCIDENT INVOLVING FINANCIAL LOSS:**

Financial Description:

**INCIDENT INVOLVING OUTRAGE / REPUTATION:**

Outrage / Reputation Description:

**INCIDENT INVOLVING SECURITY:**

Type of Security Incident: Select From List

Security Description:

Resolution Outcome Select From List

Resolution Property Select From List

**INCIDENT INVOLVING MOTOR VEHICLE:**

Weather Conditions: Select From List

Time of Day: Select From List

Road Type: Select From List

Road Surface Conditions: Select From List

Vehicle Type (eg sedan, 4WD etc):

Vehicle Make:

Vehicle Model:

Vehicle Year:

Registration Plate Number:

Company Vehicle? No

Driver Name:

Site Permit Number:

Driver License Number:

License Expiry Date:

Number of Passengers:

Number of Work Hours:

Vehicle Direction of Travel: Select From List

Vehicle Speed:

Length of Skid Marks:

**INCIDENT INVOLVING QUALITY:**

Type of Quality Incident: Select From List

Equipment Number

Machine Number

Summary of Deficiency:

Immediate Control Measure:

Explanation of Deficiency:

ROOT CAUSE ANALYSIS	
<i>Select the root causes for this incident</i>	
<i>Select general reason(s)</i>	<i>Select specific reason(s)</i>
Were procedures/safe systems of work/work instructions adequate? Yes	
Procedures not used / not followed <input type="checkbox"/>	Select From List
Procedures followed incorrectly <input type="checkbox"/>	Select From List
Procedures incorrect <input type="checkbox"/>	Select From List
<i>Comment:</i>	
Was training adequate? Yes	
No training given <input type="checkbox"/>	Select From List
Understanding needs improvement <input type="checkbox"/>	Select From List
<i>Comment:</i>	
Was quality control adequate? Yes	
No inspection/checklist <input type="checkbox"/>	Select From List
Quality control needs improvement <input type="checkbox"/>	Select From List
<i>Comment:</i>	
Was communication adequate? Yes	
Misunderstood verbal communication <input type="checkbox"/>	Select From List
No communication or not timely <input type="checkbox"/>	Select From List
<i>Comment:</i>	
Is the management system adequate? Yes	
Organization <input type="checkbox"/>	Select From List
Corrective action <input type="checkbox"/>	Select From List
Oversight/employee relations <input type="checkbox"/>	Select From List
Standards/policies/admin control not used/in place <input type="checkbox"/>	Select From List
Standards/policies/admin controls need improvement <input type="checkbox"/>	Select From List
<i>Comment:</i>	
Is the human engineering adequate? Yes	
Complex system <input type="checkbox"/>	Select From List
Human / machine interface <input type="checkbox"/>	Select From List
Non-fault tolerant system <input type="checkbox"/>	Select From List
Work environment <input type="checkbox"/>	Select From List
Error enforcing conditions <input type="checkbox"/>	Select From List
Violation Producing Conditions <input type="checkbox"/>	Select From List
<i>Comment:</i>	
Was the immediate supervision adequate? Yes	
Preparation <input type="checkbox"/>	Select From List
Selection of worker <input type="checkbox"/>	Select From List
Supervision during work/immediately unavailable <input type="checkbox"/>	Select From List
<i>Comment:</i>	
Was the plant design adequate? Yes	
	Select From List
<i>Comment:</i>	
Was the hardware adequate? Yes	
	Select From List
<i>Comment:</i>	
Was the maintenance management adequate? Yes	

ROOT CAUSE ANALYSIS	
	Select From List
<i>Comment:</i>	
Was housekeeping adequate? Yes	Select From List
<i>Comment:</i>	
Was there clear guidance about priorities? Yes	Select From List
<i>Comment:</i>	
Were the defences adequate? Yes	Select From List
<i>Comment:</i>	
Was the contractor management and alignment adequate? Yes	Select From List
<i>Comment:</i>	
Was hazard identification adequate? Yes	Select From List
<i>Comment:</i>	
Were there any other contributing factors? No	

CORRECTIVE ACTIONS				
No.	Category	Description	Issued To	Due Date
1	Select From List			
2	Select From List			
3	Select From List			
4	Select From List			
5	Select From List			
6	Select From List			
7	Select From List			
8	Select From List			

**PICTURES**

You may insert up to 4 photographs relevant to the incident. Include a caption in the text box below the frame. Please be sure to reduce file size prior to inserting them into the document.

Fig.1	Fig. 2
Fig. 3	Fig. 4

### INVESTIGATOR'S ACKNOWLEDGMENT

Investigation team members:

Investigator comments and key learning's:

Signature:

Date:

### SafeStart REVIEW

In your opinion what were the states of people involved prior to the incident?

- a.  Rushing  
b.  Frustration  
c.  Fatigue  
d.  Complacency

What do you believe contributed to these states?

NA

What critical errors did you think contributed to the incident?

- a.  Eyes not on task  
b.  Mind not on task  
c.  Line of fire  
d.  Balance/Traction/Grip

Can you provide further information on the errors?

NA

What critical error reduction techniques could have prevented these errors or avoid a similar incident from happening again?

- a.  Self triggering on the state or amount of hazardous energy so you don't make a critical error.  
b.  Analyzing close calls, and small errors to prevent agonizing over big ones.  
c.  Look at others for the patterns that increases the risk of injury  
d.  Working on improved habits  
e.  Other technique: \_\_\_\_\_

Why do you feel these techniques could be effective?

NA

Print Report

# APPENDIX D

## Site Waste Management Plan

**March 2017**

Site Waste Management Plan (SWMP)  
Woodsmith Mine Site

Contractor: AMC UK

Client: Sirius Minerals PLC

AMC UK Contract Number: RPA - 127

Scheme: Phase 3 – Site Establishment and  
Concrete Batch Plant Construction

**Document Reference:** AMC-SWM-SPNA110-001-10-01A-170321

**Sirius Minerals Document Reference:** 40-AMC-WS-72-WM-PL-0001



## DOCUMENT CONTROL AND APPROVALS

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### Required Approvals

	Name	Role	Signature	Date
Prepared by				
Reviewed by				
Approved by				

### Employer Acceptance

	Name	Role	Signature	Date
Checked by				
Accepted by				

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## **1.0 INTRODUCTION**

This Site Waste Management Plan (SWMP) provides a stand-alone framework for dealing with wastes arising from the Phase 3 Construction Activities associated with the new mine surface development at Woodsmith Mine (Off B1416), Sneatonthorpe, North Yorkshire, YO22 5HZ, (hereafter referred to as 'the Site').

Phase 3 Construction Activities include the following main phases of works:

- Set up of welfare facilities for the Phase 3 construction works, including offices, welfare facilities and workshops (inclusive of civil works and construction of temporary plant and building slabs).
- Set up of the concrete batch plant, including construction of the batching plant slab and the installation and commissioning of the concrete batch plant, complete with reticulated water supplies and tanks.

The exact nature of the works are outlined in the Phase 3 design documentation and identify activities that are likely to generate materials and waste for re-use and disposal. The proposed locations of the installations and activities are shown on Drawing YP-P10-DNF-CX-050 provided in Appendix A of the Environmental Management Plan.

The SWMP is a dynamic document and should be reviewed and updated at regular intervals to ensure that it remains relevant in the context of activities being undertaken on Site and any changes to legislation and regulations.

The SWMP has been prepared to enable a framework for the careful identification, segregation, management and recording of waste movements within and from the Site to ensure that the duty of care requirements are met.

### **1.1 Programme of Works**

The proposed start date for Phase 3 Construction activities is 4 June 2017 with the works anticipated to be completed in early October 2017.

## **2.0 OBJECTIVE**

Sirius Minerals (the Client and 'mine operator') and AMC UK are committed to implementing the Environmental Management Plan (EMP) and the SWMP so that works on Site are effective and economical whilst minimising impacts on the environment.

To effectively manage waste on Site, the approach outlined in the SWMP involves the effective planning, managing, monitoring and reporting of waste streams.

## **3.0 ROLES AND RESPONSIBILITIES UNDER THE SWMP**

The Site will be established as a stand-alone operation, owned and directed by Sirius Minerals (mine operator), with day to day activities undertaken by AMC UK (the contractor). The AMC UK Environmental Manager and Project Manager will maintain communication with the Client's senior management via the Sirius Minerals Environment Manager.

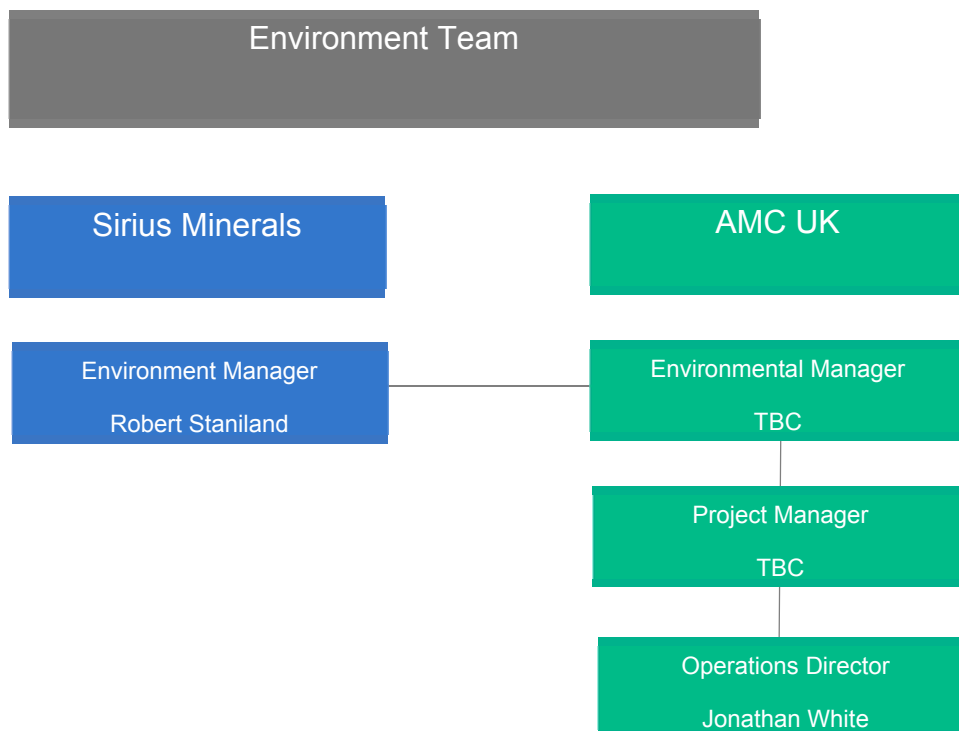
The implementation of the SWMP will be the responsibility of the AMC UK Environmental Manager, overseen by the AMC Project Manager and the Sirius Minerals Environment Manager.

**Table 1: Key Project Roles**

Position	Name	Contact Details
Client (mine operator)	Sirius Minerals PLC Environment Manager - Robert Staniland	7 – 10 Manor Court Manor Garth, Scarborough
Operations Director	AMC UK Jonathan White	7 – 10 Manor Court Manor Garth, Scarborough
Contracts Manager	AMC UK - TBC	
Project Manager	AMC UK Project Manager - TBC	
HSE Manager	AMC UK HSE Manager - TBC	
Site Supervisor	AMC UK - TBC	
Document Controller	AMC UK - TBC	

All staff working on the Site will have been selected on the basis of competency and relevant experience. Site staff will be supported by the AMC senior management team (Project Manager and Environmental Manager) who will be based on Site throughout the duration of the project.

The AMC Environmental Manager will be the SWMP co-ordinator and as such responsible for ensuring training, implementation and oversight of SWMP procedures.



*Figure 1: Project Senior Management*

## **4.0 LEGAL COMPLIANCE**

AMC UK and any associated subcontractors will comply with relevant legislation by:

- Identifying and describing the waste correctly on waste documentation;
- Preventing the escape of waste;
- Storing hazardous wastes separately from other wastes;
- Transferring waste to authorised waste carriers;
- Disposing of wastes at licensed waste management facilities;
- Keeping records; and
- Storing skips on hard standing in a secure area.

Both AMC UK and the Client must take reasonable steps to ensure that sufficient Site security measures are in place to prevent the illegal disposal of waste on the Site.

Waste generated will be removed from Site and sent for recycling or disposal using a registered waste carrier to a licensed recycling facility, transfer station, landfill Site, licensed incineration plant or to a Site or facility holding an appropriate Exemption from the Environment Agency.

AMC will undertake appropriate due diligence on all its appointed waste sub-contractors, including reviewing permits, licences and potentially even auditing Sites. The validity of licences (waste carriers, collectors, Site licences and waste management licences/ permits) will be checked on the Environment Agency public register. These documents will be filed in the Project Management file along with any correspondence.

The Waste (England and Wales) Regulations 2011 require all inert or non-hazardous waste leaving Site to be accompanied by a Waste Transfer Note. Waste Transfer Notes (or copies of them) will be retained on Site. A record (either paper or electronic) of any waste transfers must be retained for two years.

AMC UK will ensure that Waste Transfer Notes contain all the required information, including (but not limited to) an accurate description of the waste, time and date of transfer and the quantity. In order to avoid non-compliant Waste Transfer Notes (often provided by third party waste carriers) an AMC UK 'Waste Transfer Note' check sheet will be completed, where required.

An assessment of waste to be transferred for disposal or re-used on Site will be carried out in order to determine whether or not the waste is classified as hazardous. Where waste to be transferred is hazardous waste, then this falls under the Hazardous Waste (England and Wales) Regulations 2005. This will be dealt with in accordance with the Regulations and will require the completion of Hazardous Waste Consignment Notes. Copies of these will be retained for at least three years.

## **5.0 AUDITING OF SWMP**

The AMC UK Project Manager and Environmental Manager will monitor the effectiveness and accuracy of the SWMP at regular intervals during Site audits. Regular audits and reviews of the SWMP and associated procedures and document retention requirements will be carried out.

Duty of care checks will be undertaken as standard for all new licensed waste contractors. Minimum requirements will be that any waste operators, and any Sites to which the waste is being taken, hold a permit under the Environmental Permitting (England and Wales) Regulations 2016 or are registered (under those Regulations) as a waste operation exempt from the need for such a permit.

A schedule for auditing the SWMP will be agreed between Sirius Minerals and the AMC Environmental Manager.

## **6.0 RECORD KEEPING**

An up to date copy of the SWMP will be maintained at the main Site office. Associated records will be held in the AMC UK SWMP files, including copies of waste carriers licences, environmental permits, waste transfer notes and consignment notes. Records of waste transfers may be requested by an authorised officer of the Environment Agency or local authority on demand within seven days.

Measurements of the quantities of waste materials reprocessed and reused as aggregate within the project or recycled / disposed of off-Site will also be recorded and used to report on key performance indicators (KPIs).

## **7.0 REVIEW**

A review of the SWMP will be undertaken on a 6 monthly basis by AMC UK and the Client. The review will cover performance against waste targets, identification of any potential improvements / cost savings to waste handling procedures and contracts, and re-forecasting of anticipated waste production levels for the following period. Both parties will ensure that any changes in roles and responsibilities are clearly communicated to those affected.

## **8.0 DISTRIBUTION**

The SWMP will be distributed electronically to the Client, the AMC UK Environmental Manager, Project Manager and the Site Supervisor and all applicable subcontractors working on Site. Re-distribution will occur every time the SWMP is updated as defined by the under Document Control process.

## **9.0 TRAINING**

All staff and contractors will receive basic training on waste segregation, re-use and recycling on Site during Site inductions and tool box talks. Specific training relating to environmental issues will be delivered for key Site staff (namely Site Supervisor, cement batching plant manager etc.)

AMC UK will maintain a training register to record training and induction and to monitor qualification expiry. Induction documentation and copies of qualifications and competencies shall be maintained within this training register. The training register shall be regularly reviewed to monitor qualification expiry and to update induction and training records for all personnel.

## 10.0 IDENTIFIED WASTE STREAMS

The following summarises the main waste streams anticipated to be generated from the construction activities

**Table 2: Summary of Waste Types Anticipated to be generated as part of Construction Activities**

Construction Activity	Type of waste material
Construction and commissioning of Batching Plant	Concrete (surplus batches)
	Concrete truck washout waters
	Timber (from slab formwork)
	Scrap metal (reinforce mesh from slab construction)
	Concrete (surplus batches)
	Concrete truck washout waters
	Waste engine/hydraulic oil
General Site Operations	Recyclable waste from office and welfare areas
	General waste from office and welfare areas
	Domestic wastewater
	Sanitary waste

Section 15.0 outlines the anticipated volumes / mass of above wastes likely to be generated as part of the Phase 3 Construction Works.

## 11.0 MINIMISATION OF WASTE IN LINE WITH WASTE HIERARCHY

From an early stage, ways to minimise waste produced on Site have been considered. Design teams, Contractors and suppliers are tasked with looking at ways to minimise the amount of waste associated with the Phase 3 Construction activities.

During the Phase 3 Construction activities, wastes will be minimised through adoption of the following procedures:

- Soils being excavated as part of the general cut and fill of the Site for formation of the batching plant and other concrete slabs will be re-used in predefined mounds and are therefore not considered to be waste (as defined by the CL:aire The Definition of Waste CoP). This will reduce waste soils significantly, with only soils out of specification considered for off-Site disposal.
- Appropriate procurement of materials (volumes and options to use recycled materials).
- Use of 'Just in Time' delivery of raw materials to ensure that raw materials (aggregate and concrete for slab construction etc.) is not wasted or lost to the environment.
- Operation of a take back scheme for excess materials.
- Procedures for energy management and sustainable use of plant and fuels.



## 12.0 SEGREGATION AND STORAGE

A specific waste compound will be laid out and labelled to facilitate the separation of materials for re-use, recycling, and disposal.

The wastes generated will be temporarily stored in suitable containers, skips or controlled areas (where possible located on hard standing away from access routes to surface water bodies). The skips or areas will be clearly marked and segregated and suitable to contain the waste being stored.

For the small volumes of hazardous wastes likely to be generated (e.g. oils and greases) these will be stored separately in suitable containers and clearly marked / labelled to identify the contents and control measures required to handle and dispose of the waste.

## 13.0 MANAGEMENT OF WASTES

Waste materials will not be stored within an individual location for no more than 28 days, in line with the Permitted Development Rights<sup>1</sup>. Where materials cannot be re-used, recycled, or recovered, this waste will be disposed to an appropriately permitted Site. No materials will be stored on land within a Site of Specific Scientific Interest/ Specific Area of Conservation (SSSI/SAC).

Records of waste transfer notes will be maintained within the SWMP folder.

### 13.1 Soils

Soils being excavated as part of the cut and fill process for the slab constructions are not classified as waste. Soils generated from the Phase 3 construction works will be retained on-Site in accordance with the Soil Management Plan in landscaped mounds.

Excavated soils that do not meet the specification for re-use on-Site (either environmentally or geotechnically) will be stockpiled, tested and an appropriate disposal option defined (either re-use on-Site following treatment or disposed of-Site).

### 13.2 Recyclable Waste

AMC UK will aim to maximise the recycling opportunities and will separate waste streams to facilitate this. Scrap metal waste and wood waste from the slab construction and general recyclable waste from the office and welfare areas will be segregated and stored in appropriate skips located adjacent to the workshop area. The locations of these skips will be presented on Site plans clearly displayed in the various Site offices and welfare buildings. Recyclable materials will be removed from Site by an appropriately licensed waste contractor for recycling.

### 13.3 Oils and Greases and other Hazardous Wastes

Although it is not anticipated that significant quantities of hazardous waste will be generated on Site, all such waste will be stored separately from non-hazardous waste in fully sealed containers. Different streams of hazardous waste will be stored separately to prevent cross contamination before being disposed of in accordance with the legislation governing the storage, transportation, and disposal of hazardous waste.

### 13.4 Vehicle Washings

Sirius Minerals will operate a Site wide vehicle/wheel washing facility at the mine Site entrance. All vehicles associated with the Phase 3 construction works will use this facility as they leave the Site.

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<sup>1</sup> The Town and Country Planning (General Permitted Development) (England) Order 2015, Part B Temporary Use of Land.

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### 13.5 Cement Residues

Cement wastes (surplus or out of specification batches, washout water from the trucks etc.) from construction activities and the commissioning and operation of the cement batching plant will be stored in skips or proximal to the batching plant for either re-use on Site as engineering material or disposed off-Site via an agreed disposal route. Truck wash out waters will be temporarily stored in IBCs or tanks prior to either disposal off-site or re-use in the batching plant.

### 13.6 General Office Waste

General waste will be stored within labelled skips and disposed or recycled through a permitted waste facility.

### 13.7 Domestic Wastewater

Domestic wastewater will be collected in sealed tanks and will be removed from Site on a regular basis via tanker and disposed of to a suitably permitted facility.

### 13.8 Sanitary Waste

Sanitary waste will be temporarily stored in temporary effluent tanks and will be removed from Site on a regular basis via tanker, and disposed of to a suitably permitted facility.

## 14.0 REGISTER OF WASTE CARRIER LICENCES AND PERMITS

Where waste has to be transported off Site, registered waste carriers will be employed, ensuring all waste is sent to appropriately permitted Sites via agreed routes.

Waste consignment or transfer notes will be retained to provide a robust audit trail. All waste will be classified according to current legislative requirements, industry best practice, and the European Waste Catalogue Code.

**Table 3: Example of Waste Records to be Collected**

Waste description	EWC Code	Origin (who produced the waste)	Waste Carrier Name	Waste Carrier Licence Numbers

## 15.0 FORECASTING WASTE PRODUCTION

### 15.1 Installation and Commissioning of Concrete Batching Plant

The following presents a summary of the anticipated waste volumes likely to be generated from the construction of the concrete batching plant (including batching plant slab and commissioning works).

**Table 4: Summary of Forecast Waste Streams from the Batching Plant Construction**

Type of waste material	Estimated quantity	Material condition	Place waste generated
Batch plant slab construction (excavated material)	100 m <sup>3</sup>	Dry/wet excavated ground	<u>Not defined as waste</u>
Mixed waste	1 skip	Mixed waste	Batching plant construction
Timber	1 skip	Waste timber, old pallets	Form work for concrete slab
Scrap metal	1 skip	Rebar offcuts, batch plant construction etc.	Plant slab construction
Concrete (surplus batches)	2 skips	Concrete	Plant slab construction
Concrete truck washout waters	1000l per day	Water	Plant slab construction

### 15.2 General Waste

The following presents a summary of the anticipated waste volumes likely to be generated as general waste streams from the offices and welfare facilities.

**Table 5: Summary of Forecast General Waste Streams**

Type of waste material	Estimated quantity	Material condition	Place waste generated
Sewage from welfare unit	From 20 person welfare unit, estimated 1000l per day	Liquid sewage	Welfare block
Mixed waste	1 skip per week	Mixed waste	Welfare / workshop
Paper / cardboard	1 skip per month	From office & packaging	Welfare / office / workshop
Plastic	1 skip per month	From packaging	Welfare / office / workshop

### 15.3 Waste Targets

AMC UK has defined its Waste Targets for the project. These are included below:

- Maximise beneficial re-use of excavated materials arising from construction activities.
- Adopt segregation of waste to manage and optimise recycling and re-use options.
- Minimisation of waste generation via effective site management.
- Monitor energy and water use across the Site and undertake a review following six months of operations;

Relevant monitoring programmes and record keeping will be implemented by the Environmental Manager and reviewed by the Project Manager. Progress against these targets will be reviewed monthly by the Environmental Manager and reported in the environmental review meetings.

## 16.0 IMPLEMENTATION OF THE SWMP

The following checklist should be completed by the AMC UK Environmental Manager and those managing the works.

Item	Actions	Yes / No	Comment: If 'yes', what action has been taken? If 'no', why not?
1	Has SWMP administration and planning been fully completed?		
2	Have all key wastes been prioritised and forecasted?		
3	Have re-use/recycling/disposal options been identified for all waste streams?		
4	Have all off Site waste destination details been verified?		
5	Have data reporting procedures been agreed with relevant waste management contractor(s)?		
6	Has a waste collection / segregation area been prepared?		
7	Has the waste area been adequately labelled / signposted?		
8	Has an SWMP planning / review meeting been set?		
9	Has SWMP document control and filing system been set up?		
10	Have all necessary Site staff and contractors received and understood the SWMP?		
11	Have all SWMP training needs been met?		
12	Have waste management targets / KPIs been set?		
13	Has the SWMP been approved by (insert relevant people)?		

## 17.0 FORECASTS VERSUS ACTUAL QUANTITIES

The following summary is to be completed at the end of the project along with a review of the efficacy of the SWMP process.

Waste Materials	Forecast quantity (m3)	Actual quantity (m3)	Reason for variance	Target met/failed (quantity or procedural targets) if relevant
<b>Concrete Batching Plant Construction</b>				
Mixed waste	1 skip			
Timber	1 skip			
Scrap metal	1 skip			
Concrete (surplus batches)	2 skips			
Concrete truck washout waters	1000l per day			
<b>General Site Operation</b>				
Sewage from welfare unit	From 20 person welfare unit, estimated 1000l per day			
Mixed waste	1 skip per week			
Paper / cardboard	1 skip per month			
Plastic	1 skip per month			

## **18.0 LESSONS LEARNT**

To be completed at the end of the project.

# APPENDIX E

## Minimum Pollution Prevention Guidance

PPG 001 'Fuel & Oil Storage and Handling'

PPG 002 'Cementitious Material Storage and Handling'

PPG 003 'Excavation and Stockpile Activities'

PPG 004 'General Housekeeping'



## **FUEL & OIL STORAGE AND HANDLING (PPG - 001)**

This Pollution Prevention Guidance (PPG) provides guidance on the storage and handling of fuels (diesel or petrol) on-site. The aim of this PPG is to set minimum standards to reduce potential risks arising from the loss of fuels to ground or to water bodies (surface or groundwater). Other measures may be required on case by case basis.

### **1.0 LEGISLATIVE REQUIREMENTS**

The storage of oil or fuel will comply with the requirements of the Control of Pollution (Oil Storage) (England) Regulations 2001.

These regulations apply to any kind of container which is being used and stored above ground and situated outside a building - meaning a fixed tank, intermediate bulk container, drum (oil drum or similar container used for storing oil) or mobile bowser – with a storage capacity which exceeds 200 litres.

The Regulations above may contain specific requirements and these should be referenced to ensure full compliance.

### **2.0 PRACTICE**

#### **2.1 General Information on Fuel Storage Requirements**

The Phase 3 Construction Works involve the following works:

- Set up welfare facilities for the Phase 3 construction works, including offices, welfare facilities and workshops (inclusive of civil works and construction of temporary plant and building slabs).
- Set up of the concrete batch plant, including construction of the batching plant slab and the installation and commissioning of the concrete batch plant, complete with reticulated water supplies and tanks.

Each of these work activities will require the delivery, storage and handling of fuels (predominantly diesel to supply power to plant and generators). Fuel will be stored in either the fuel tanks of the mobile plant and machinery or in static fuel tanks linked to power generators.

#### **2.2 Siting of Fuel Storage**

The siting of the fuel storage facilities will be based on the requirement for ease of access (delivery and use), locality to required generators, plant and machinery; and locality to high risk locations or receptors. These high risk locations, or receptors, include:

- within 50 metres of a spring or well;
- within 10 metres of a watercourse; or
- areas where unplanned fuel releases could enter open drains boreholes, or soak into the ground, where it could pollute groundwater or surface water.

The storage of fuels on-site will include one or more of the following:

- storage of fuel within mobile plant and vehicles (fuel tanks);
- static fuel storage tanks linked to static plant, such as generators; and
- backup mobile fuel bowsers.

The siting of the static fuel storage tanks and backup mobile bowsers will take into account pollution prevention and health and safety aspects of filling the storage tank, including safe access and egress of the fuel tanker, the alignment of delivery pipes and access to the tank.

The static fuel tanks powering the generators and the storage location for mobile bowsers will be positioned in order to minimise the risk of damage from collision with mobile plant.

Tanks should be located with consideration to potential security threats e.g. theft and acts of vandalism. In any event all tanks will be locked to protect from unauthorised use.

All static fuel tanks and bowsers will be **integrally bundled tanks**. These have a primary container manufactured with integral secondary containment that holds a minimum of 110% of the volume of the inner tank and offer improved levels of pollution prevention. Ancillary equipment will be positioned within the secondary containment. Static fuel tanks (such as those linked to generators) will be sited on sealed level ground adjacent to the generators.

All storage tanks are to be installed by suitably qualified and experienced personnel, in accordance with the manufacturer's instructions.

All storage tanks should be type tested to a recognised standard and produced to that standard under a quality assurance system complying with ISO 9001.

All storage tanks will display appropriate labels with details of the contents, tank manufacturer, make, model and capacity markings.

The number and location of the static fuel tanks shall be clearly shown on site layout drawings and distributed to all relevant workers.

Fuel will also be stored in the fuel tanks of the mobile plant and machinery distributed within the works area.

## **2.3 Fuel Deliveries**

Prior to organising the fuel delivery the Site Supervisor will assess the:

- Fuel levels within the fuel tanks will be routinely monitored by AMC UK's Supervisor and fuel deliveries booked accordingly to demand.
- Weather forecasts shall be monitored and, when inclement weather is expected, fuel levels deliveries shall be brought forward or delayed, as required.

The following outlines guidance on the process for managing the delivery of fuels to site.

- Fuel will be delivered to the Woodsmith Mine via fuel tankers by registered fuel supply organisations.
- On arrival the delivery driver will be inducted and sign in to the site. They will meet with the Site Supervisor to confirm the locations of fuel tanks and plant requiring fuel, the volumes and type of fuel to be delivered, the nature of construction works being undertaken and confirm understanding of the hazards (human health and environmental) and control measures outlined in the Fuel Delivery RAMS (supplied by the delivery organisation).
- Where appropriate, the delivery driver will then be escorted by a support vehicle (containing additional spill kits and fire extinguishers).
- At each delivery location an exclusion area will be set up and the fuel tanks and plant refuelled in accordance with the Fuel Delivery RAMS.

## **2.4 Refuelling**

- Refuelling will be undertaken in accordance with the guidance provided in the Safe Working Procedure SWP 008 'Refuelling' and the Fuel Delivery RAMS. Care will be taken to ensure there is no potential source of ignition (flame, electrical, static, etc.).
- Delivery of fuel will be supervised at all times and checks will be made to ensure that the correct type and quantity of fuel is being delivered. This fuel supervisor will also control the keys to the locked tanks.
- The delivery driver will ensure that the delivery lines and connection to the tank fill point and the tanker are correct and secure prior to commencing the refuelling process.

- Fuel vapours are flammable. To prevent the possibility of personal injury, never fuel a generator that is in operation. Appropriate PPE should be used during refuelling (as defined in the RAMS).
- Signs detailing the refuelling procedures will be posted in the area with information relating to the location of the nearest oil spill kit. Personnel trained in the deployment of spill kits will be present during all fuel delivery and re-fuelling activities.
- Refuelling of plant and machinery on site will be undertaken using drip trays and plant nappies to ensure that any minor spillages (drips) are contained. In the event of a fuel spillage, this will be cleared up using an oil spill kits.
- Overfill prevention devices will form part of the refuelling safeguards. These can be electronic or mechanical which either sound an alarm and/or give a visual warning or automatically stop the fuel delivery into the tank (such as a trigger nozzle).
- During refuelling, monitoring of the condition of fuel lines, fuel tanks and the generators will be made.
- A notice giving details on safe delivery procedures (SWP 008) and what to do in an emergency should be sited at the delivery point.

## **2.5 Inspection and Maintenance**

All tanks will be maintained in accordance with the manufacturer's specification, but as a minimum, will be inspected as follows:

- Visual inspection for leaks, loose joints and oils staining, prior to re-fuelling any machinery or plant or receiving a fuel delivery;
- Visual inspection for leaks, loose joints and oils staining undertaken monthly, as part of any routine site inspections; and
- Maintain annually, or as part of any routine maintenance as recommended by the manufacturer.

Inspections and maintenance shall be carried out by a suitably qualified and competent person.

## **2.6 Record Keeping**

In order to monitor fuel consumption and potential losses of fuel, records will be made and maintained at the site for the duration of the works. Such records include the following:

- Fuel usage and fuel delivery volumes;
- Maintenance and Inspection reports;
- Fuel spillages (reported in line with the Environmental Incident Reporting Procedure).

### 3.0 CONTROL MEASURES

The following outlines control techniques to manage potential releases of fuel to ground or surface water from the storage, handling and use of fuels on-site.

Topic	Nature of impact	Environmental Mitigation Measures Identified
Delivery of Fuels	Fuel spilled during transportation of fuels on-site	<ul style="list-style-type: none"> <li>■ Access to site will be controlled and supervised.</li> <li>■ Delivery of fuel and oil will be supervised at all times and checks will be made to ensure that the correct type and quantity of fuel is being delivered.</li> <li>■ Vehicle movements on site (fuel tankers and plant) must adhere to site traffic management controls (speed and traffic routes).</li> <li>■ Vehicles must be maintained to a suitable standard.</li> </ul>
Storage of fuels in static tanks	Fuel spilled during storage	<ul style="list-style-type: none"> <li>■ Static tanks will be double skinned with at least 110% secondary containment.</li> <li>■ All tanks will be sited in an accessible, safe and level location.</li> <li>■ All tanks will be secured and maintained.</li> <li>■ All pipelines and fuelling points will be protected from vandalism and unauthorised interference, and will be turned off and locked when not in use.</li> <li>■ Fuel should not be stored in larger volumes than is required for the operation of the plant and machinery.</li> </ul>
Refuelling	Fuel spilled during refuelling	<ul style="list-style-type: none"> <li>■ Refuelling of plant and machinery will be undertaken in accordance with the RAMS and the Refuelling Procedure.</li> <li>■ Refuelling lines will have automatic or trigger shut offs.</li> <li>■ Any drains or access points to surface water in the vicinity of the refuelling point will be blocked off to ensure that any spillages cannot wash into the drainage system or any adjacent watercourses.</li> <li>■ Plant and machinery will be regularly inspected and well maintained so that leakages do not occur on refuelling (or during use).</li> </ul>

Topic	Nature of impact	Environmental Mitigation Measures Identified
Management of leaks and spills of fuel	Inability to contain and clean up spills Increases of cross contamination of fuel spilled	<ul style="list-style-type: none"> <li>■ A Spill Kit should be available onsite in the event of a spill.</li> <li>■ Staff on site will clean up the spillage in accordance with their training and ensure that the oil or fuel contaminated spill kits are disposed of in accordance with the Control of Substances Hazardous to Health Regulations 2002 (as amended).</li> <li>■ Oil spillages will be reported in line with the Environmental Incident Reporting Procedure.</li> </ul>

## 4.0 EMERGENCY PROCEDURES

- If safe - Stop the source of the leak or spill using the cut-off valves/taps or contain the leak in a bucket.
- Inform the Emergency Response Coordinator via the site radio.
- Spill kits will be available on-site and at the static tank locations in the event of a spill or leak. These should be deployed by trained personnel.
- Never wash down spills into a drains or gully as these could discharge into a watercourse; never wash into the ground.
- Never use detergents to clean up spilt oil; it could cause a worse pollution incident. The detergent itself is likely to be a pollutant and mixes oil into the water.
- Care will be taken to ensure that ignition of released fuel is not possible. If fire starts, commence the Fire Emergency Plan (outlined in the Emergency Response Plan, appended to the CPHSP)
- Fuel spillages will be cleaned up by trained staff in accordance with their training. They will ensure that the oil or fuel contaminated spill kits are disposed of in accordance with the Control of Substances Hazardous to Health Regulations 2002 (as amended).
- Records of the incident will be recorded in accordance with site procedures, including an estimate of losses to the environment.
- Inform relevant stakeholders of incident.
- Implement investigation and corrective or preventative measures.

## 5.0 REFERENCES

This PPG has been prepared with reference to the following:

- The Control of Pollution (Oil Storage) (England) Regulations 2001. Oils covered by these regulations include petrol, diesel, vegetable, synthetic and mineral oils. They apply to most industrial, commercial and institutional sites storing oil in containers over 200 litres.
- Environment Agency Pollution Prevention Guideline *Above Ground Oil Storage Tanks*: PPG2 (Pollution Prevention Guidelines (PPGs) published by the Environment Agency were withdrawn in December 2015; however, they still form a basis for good operational practice).
- Environment Agency Pollution Prevention Guideline *Dealing with spills*: PPG22.

## **CEMENTITIOUS MATERIAL STORAGE AND HANDLING (PPG - 002)**

This Pollution Prevention Guidance (PPG) applies to Site activities related to the storage and handling of the cement. The aim of this PPG is to set minimum standards to reduce potential risks arising from fugitive dust emissions and loss of cement and wash out materials to the environment. Other measures may be required on case by case basis.

### **1.0 LEGISLATIVE REQUIREMENTS**

The installation, commissioning and operation of the concrete batching plant is covered under planning controls defined for the Woodsmith Mine.

Relevant guidance on general construction activities are outlined in the *Environmental Good Practice – Site Guide (Fourth Edition)* (CIRIA C741).

### **2.0 PRACTICE**

#### **2.1 Commissioning and Operation of Concrete Batching Plant**

For the commissioning and operation of the concrete batching plant, fugitive dust emissions will be prevented whenever practicable.

All spillages of dry cement powder to ground which may give rise to dust emissions will be cleaned up promptly, normally by wet handling methods.

##### **2.1.1 Transport of Raw Materials**

The cement for the batching plant will be supplied by road tanker or truck by a registered supplier.

No concrete products (cement or aggregate) will be delivered to the site other than by use of a sheeted or enclosed vehicle to minimise particle emissions.

The delivery of cement to site must adhere to the site Traffic Management Plan, including the use of agreed transport routes.

The batching plant will have a consolidated surface capable of being cleaned. They should be kept clean in order to prevent or minimise fugitive dust emissions.

If necessary to prevent visible dust being carried off site, wheel-cleaning facilities will be provided and used by vehicles before leaving the site.

##### **2.1.2 Transfer of Cement to Silos**

The delivery of cement must follow the site silo filling procedure and the approved RAMS provided the cement supply company. These procedures will provide as a minimum information on the following:

- The reporting procedure for the delivery;
- The maximum pressure under which the tanker can discharge to the silo;
- The maximum flow rate for material allowed;
- Procedure for connection to the silo;
- Details of the alarm and pressure release measures and when to stop deliveries;
- Procedures to follow in the event of an incident / release;
- Procedure for venting of residual pressure in the tanker;
- Procedure for locking out of the silo;
- Reporting procedure at the end of the delivery.

The transfer of powdered materials from the tanker to the storage silos will be through a closed system of heavy duty hoses. The delivery of powder from road tankers generally relies on a compressor (blower) mounted on the tanker lorry. The pressure required to fill the silo is dependent on the height of the silo and the pipe length and diameter, this maximum pressure will be pre-defined in the procedures and RAMS.

During the transfer the cement powder to the silo, the tanker driver must maintain a constant flow of material into the silo without exceeding the flow capacity of the filter system or exerting excessive pressure in the silo (which is not a pressure vessel).

The silo will be installed with automatic protection systems to control the delivery of material from the tanker. The silo will include a pressure relief valve to protect the silo or filter unit. The pressure relief valves should be maintained to prevent pressurisation (the valve needs regular maintenance to prevent cement dust blocking the valve). The silo filter should be able to handle the flow rate of air generated during the delivery process (refer to filter manufacturers supply information on the pressure drop across filters and the filtration rate). The filter systems must also be cleaned to prevent blockages and accumulation of powder in the filter system.

Over pressurisation of the silo can occur due to one or more of the following:

- Increase in flow rate of air from the tanker at the end of discharge;
- Overfilling the silo;
- Failure of the pressure release valve to vent the flow rate from tanker;
- Inadequate flow through the filters;
- Inadequate maintenance or design of the above equipment; and
- Uncontrolled discharge of residual air from the tanker.

The operator should keep a record of the start and finish times of deliveries and report this to the batching plant supervisor.

If dust emission is noted during the filling process, then works will cease and the leak identified and rectified prior to any further delivery.

### **2.1.3 Operation of the Plant - Start up and Shutdown**

Higher risks of dust emissions may occur during the start-up and shut-down of a process. These emissions can be reduced, by minimising, where possible, the number of start-ups and shut-downs and having adequate procedures in place for start-up, shut-down and emergency shut-downs.

All appropriate precautions must be taken to minimise emissions during start-up and shutdown.

## **2.2 Storage of Aggregate / Sand**

The transport, storage and handling of aggregates and sand within the batching plant may also give rise to the potential for dust generation and sediment run-off. These materials will be transported to site in covered trucks and stored in dedicated storage bunds set on hard standing, with dust suppression techniques adopted, if required (such as water mists, covers etc.).

## **2.3 Concrete Washout**

Washout of concrete trucks will occur during the construction of the initial plant and building slabs. This washout will consist of concrete sediment loaded wash water from the cleaning of the trucks. All equipment used for the transport of concrete (internally and externally) will be washed out in a designated washout area specifically designed to contain wet concrete and wash water.



Waste materials from the washout process will be deposited in the truck wash-out system (lined skip or purpose built bunded area) which allows the solids to dry out / settle and overflow water to be collected or filtered for authorised disposal off-site. Wash waters will be stored to allow solids to settle out and where applicable re-circulated to the batch plant to minimise waste and reduce water usage. Any wash-water not re-used shall be collected for authorised disposal off-site.

Solids from the washout process will be reused in subsequent concrete batches or disposed off-site as inert waste.

The concrete wash-out area shall be located well away from any watercourse, drain or other elements sensitive to contamination.

**Never pour or hose down anything from the batching plant into a storm drain or area not covered by the wash-out system.**

## 2.4 Solid Concrete Waste

Solid waste generated from the construction and operation of the batching plant will be managed to ensure that the minimum of surplus solid concrete waste is generated.

The dried solids from the concrete wash out process will be used in subsequent concrete batches. Any additional out of specification material will be disposed of in accordance with the Site Waste Management Plan.

## 2.5 Inspection and Maintenance

During the construction and operation of the batching plant the contractor/operator will monitor fugitive dust emissions and inspections of the batching plant activities. The following monitoring and emission limits shall be complied with:

**Table 1: Summary of Fugitive Air Emission Monitoring - Batching Plant Construction and Operation**

Substance	Source	Emission limits/provisions	Type of monitoring	Monitoring frequency
Particulate matter	Whole Process	No visible airborne emission to cross the site boundary where harm or nuisance may be caused	Operator observations	At least daily
	Silo inlets and outlets	Designed to emit less than 10mg/m <sup>3</sup>	Operator observations. To be recorded in the site Log Book (including start and finish times)	At time of delivery
	Silo inlets and outlets	No visible emission		

All inspections shall be recorded in a log book on a daily basis. Details of visual assessments shall include the following information when a visible emission to atmosphere is apparent: -

- 1) Date and time of observation;
- 2) Wind direction;
- 3) Weather conditions;
- 4) Position of observation;



- 5) Assessment of potential cause; and
- 6) Identification of observed plant.

The operator of the batching plant will also continuously monitor for sediment run-off from the batching plant area, especially during periods of heavy rain. The surface water run-off from the batching plant area will be controlled and mitigated via silt traps, drainage ditches, earth bunds, and silt fences.

## 2.6 Record Keeping

Records will be kept and maintained at the site for the duration of the works. Such records include the following:

- Delivery records of plant and raw materials;
- Commissioning, Maintenance and Inspection reports;
- Cement or material losses (fugitive dust or sediments) (reported in line with the Environmental Incident Reporting Procedure).
- Disposal records of wastes, including concrete washout wastes and out of specification batches.

## 3.0 CONTROL MEASURES

The following outlines control techniques to manage fugitive dust and sediment run off.

**Table 2: Summary of Control Measures**

Activity	Nature of Impact (Sources of dust)	Environmental Mitigation Measures Identified
Delivery of materials to site	Potential fugitive dust emissions, from non-contained sources such as roads and other surfaces	Sheeted or enclosed vehicles to be used for all deliveries Dust suppression (water tankers)
	Loading and unloading processes	Use of containment and suppression of dust using water or proprietary suppressants
	Transfer of cement to mixer	The cement to mixer transfer is contained
	Double handling transfer points	Site and process design

Activity	Nature of Impact (Sources of dust)	Environmental Mitigation Measures Identified
Delivery of cement to silo	<p>Unplanned releases to ground or dust emissions to air</p> <p>Overcharging of silos can cause the pressure relief valve to lift, thereby causing an unacceptable emissions</p>	<p>The silo management system will include the high level alarms, arrestment plant and pressure relief device.</p> <p>Careful delivery by trained personnel will avoid materials being blown into silos at a rate which is likely to result in pressurisation of the silo, especially towards the end of the delivery when the quantity of material entering the ducting is reduced.</p> <p>Deliveries to silos from road vehicles should only be made using tankers with an on-board (truck mounted) relief valve and filtration system.</p> <p>Care should be taken to avoid delivering materials to silos at a rate which is likely to result in pressurisation of the silo. If compressed air is being used to blow powder into a silo then particular care is required towards the end of the delivery when the quantity of material entering the ducting is reduced and hence the air flow is increased.</p> <p>Silos should be fitted with an automatic system to cut off delivery in the event of pressurisation or overfilling.</p>
Silo Operation	Dust generated from the operation of the silos	Use of dust arrestment, including bag filters and cartridge filters
Aggregate and sand storage	<p>Dust generated from aggregate and sand stockpiles.</p> <p>Sediment run-off from storage areas.</p>	<p>Wind dynamics management, including the use of fencing, bunding, stockpile profiling etc. and storage bays for aggregate stockpiles. Stockpiles should not be higher than the external walls of the bay and should not be forward of the bay. If necessary, covers or dust suppressants should be used.</p> <p>Reduced drop heights.</p> <p>Suppression techniques (water and/or suppressants).</p> <p>Covering materials including below ground or covered stock bins, dust covers and housing indoors.</p> <p>Storage areas should have vehicle hard standing, which should be kept in good repair.</p>

Activity	Nature of Impact (Sources of dust)	Environmental Mitigation Measures Identified
Concrete truck washout	Generation of liquid and solid waste from washing out of the trucks.	Washout of trucks will be undertaken in a controlled manner, with all washout water captured in a 'washout area or facility'. Water from the washout process will be recycled (where applicable) and the solid waste solids reused in subsequent mixes or disposed off-site to a licensed facility.
Concrete waste	Concrete waste generated from management of spilt cement (wet method control) or surplus material.	Excess concrete (either brought to site or generated in the batching plant) will be minimised by correct ordering of concrete supplied and through the management of construction works. Cement powder lost to the batch plant slab during the commissioning or operation of the batching plant will be wetted and transferred to the washout area or facility for storage and disposal.

## 4.0 EMERGENCY PROCEDURES

- If safe - stop the delivery of cement.
- Inform the Emergency Response Coordinator via the site radio.
- Minor spillages of cement powder to the batch plant slab should be cleaned up promptly, normally by wet handling methods
- Major spillages shall be dealt with on the same day using, for example, wet handling methods or a vacuum cleaning system (for dry powders). It shall not normally be necessary for a vacuum cleaning system to be available on site at all times, provided that such equipment can be obtained in the event of a major spillage on the same day that it occurs. If this is not practicable measures to minimise fugitive dust emissions, such as dampening the surface to create a crust, shall be taken immediately.
- Records of the incident will be recorded in accordance with site procedures, including an estimate of losses to the environment.
- Inform relevant stakeholders of incident.
- Implement investigation and corrective or preventative measures.

## 5.0 REFERENCE

- Defra Process Guidance Note 3/01 (12) Statutory Guidance for blending, packing, locating, unloading and use of cement.

## **EXCAVATION AND STOCKPILE ACTIVITIES (PPG - 003)**

This Pollution Prevention Guidance (PPG) applies to construction activities including excavation and stockpiling works. These excavation and stockpiling works relate predominantly the set-up of the concrete batch plant, including construction of the batching plant slab and other plant or building slabs.

The aim of this PPG is to reduce the risks arising from fugitive dust emissions and sediment and surface water impacts from excavation and stockpiling activities.

### **1.0 LEGISLATIVE REQUIREMENTS**

The Environmental Protection Act 1990 provides legislation on the control of emissions into the environment from site activities.

Relevant guidance on general construction activities are outlined in the *Environmental Good Practice – Site Guide (Fourth Edition)* (CIRIA C741).

Pollution Prevention Guidelines (PPGs) published by the Environment Agency were withdrawn in December 2015; however, they still form a basis for good operational practice. Relevant PPGs include the following;

- PPG1 – Understanding your environmental responsibilities;
- PPG6 – Working at Construction and Demolition Sites.

## **2.0 PRACTICE**

### **2.1 Excavations**

The following sections outlines how potential environmental impacts from surface water, sediments and dust will be managed during any excavation and stockpiling activities associated with the Phase 3 Construction works.

#### **2.1.1 Surface Water Run-off into Open Excavations**

Surface water management within the Phase 3 works area needs to be managed to prevent the ingress of surface water (with potential high sediment loading) entering and eroding open excavations. To minimise this, excavation works will be planned to avoid periods of heavy rain.

Surface water drainage ditches will be constructed by Sirius Minerals across the Woodsmith Mine site, including around the Phase 3 works area and shaft pads. Surface water run-off from the Phase 3 works area and the wider site will therefore be captured and managed via this drainage system.

If required, swale drains and/or raised mounds may be constructed up topographic slope of open excavations or proposed slab areas to redirect surface water flows around the works area. The sediment loading of this surface water leaving the works area should be as low as is reasonably practicable. Consequently, sediment mitigation measures such as straw bales, geotextiles or silt curtains will be installed as part of the temporary surface water mitigation measures to manage sediment loads in the surface water run-off.

If surface water enters open excavations it will be pumped to an area down gradient of the excavation and controlled by site drainage system. The pumped discharge will pass via sediment reduction measures to minimise sediment loads entering the site drainage system.

A framework for monitoring and inspecting the surface water drain system around the Phase 3 works area is outlined the *Silt and Surface Water Management, Inspection and Maintenance Plan* (attached to this document).

### 2.1.2 Sediment and Surface Water Run-off from Stockpiled Material

It is anticipated that material generated from the various construction/excavation activities will either be temporarily stockpiled in proximity to the excavation (stockpiled for use as backfill material or placed as a surface water control measure for the open excavation) or transferred directly to its proposed re-use location (i.e. the planned earthen / rock mounds surrounding the mine site).

Stockpiles will be constructed (size, shape and location) in such a manner as to minimise sediment run-off and erosion of the stockpiles. They will be constructed such that the faces are compacted and stable and minimise the opportunity for slippage.

Surface water run-off from the stockpile(s) will be managed via the construction of temporary drainage controls around the base of the stockpile areas (such as bunds, swale drains, straw bales etc.).

Surface water and sediment controls will be installed around the temporary and permanent stockpile areas.

### 2.1.3 Dust Generation from Excavations

The potential for dust to be generated from construction excavations or earth works will be mitigated through the planning of works (avoiding days with high wind and dry conditions), dust suppression methods (water sprays), reducing excessive plant movements and reducing drop heights for the placement of materials (into vehicles or direct into stockpiles).

### 2.1.4 Dust Generation from Stockpiled Material

The potential for dust to be generated from temporary stockpiles or engineered mounds will be mitigated via the construction methods of the stockpiles (such as constructing the stockpiles with compacted surfaces, alignment to the prevailing wind and in less exposed locations etc.).

During the construction of the stockpiles the drop height of materials from the excavator will be minimised as far is practical to reduce dust generation. Dust suppression techniques (such as water sprays and covers) will be adopted in dry and dusty conditions.

Stockpiles will be monitored and if required will be dampened or covered to mitigate dust generation.

## 2.2 Inspection and Maintenance of Excavations and Stockpiles

The contractor or sub contractor undertaking Phase 3 excavation and civil works will undertake routine monitoring and inspections for fugitive dust emissions and sediment and surface water run-off from the excavation and stockpile areas. Table 1 sets out the monitoring and emission limits that shall be complied with.

**Table 1: Summary of Monitoring and Emission Limits**

Substance	Source	Emission limits/provisions	Type of monitoring	Monitoring frequency
Surface Water	Surface water drainage into open excavations	Minimal surface water entering into open excavations	Visual evidence of surface water impacts.	Continuous - Daily Monitoring
	Flooding or site inundation	Management of surface water discharged to the site drainage system to an acceptable level		
Sediment	Excavation activities	Minimal sediment loading in surface water discharged to the site drainage system.	Site observations	Continuous - Daily Monitoring
	Stockpile construction			
	Stockpile management			

Substance	Source	Emission limits/provisions	Type of monitoring	Monitoring frequency
Dust	Excavation activities	No visible airborne emission to cross the site boundary where harm or nuisance may be caused.	Site observations	Continuous visual monitoring with the Phase 3 works area (completed by AMC UK). Dust monitoring and sampling in accordance with the site wide Dust Management Plan (completed by Sirius Minerals).
	Stockpile construction			
	Stockpile management			
	Engineering backfill around guide wall			

All inspections shall be recorded on a daily basis (via pre-defined checklists). Details of visual assessments shall include the following information when a visible emission to atmosphere is apparent:

- 1) Date and time of observation;
- 2) Weather conditions;
- 3) Dust, surface water and sediment observations;
- 4) Assessment of potential cause; and
- 5) Identification of immediate rectification measures.

The nature of the works and the potential environmental risks will be identified prior to commencing work each day as part of the Daily Safety Huddle meeting (i.e. assessment of work practices and weather conditions).

## 2.3 Record Keeping

Records will be kept and maintained at the site for the duration of the Phase 3 construction works. These records will include the following:

- Records of the daily site inspections;
- Records of health & safety and environmental incidents and Near Misses;
- Records of modification or rectification to procedures and processes.
- Records of temporary works and design changes.

### 3.0 CONTROL MEASURES

The following outlines control techniques to manage fugitive dust and surface water / sediment run off.

**Table 2: Summary of Control Measures**

Activity	Nature of Impact	Environmental Mitigation Measures Identified
Excavation	Surface water quality and sediments	<p>Create a temporary surface water drainage system around open excavations or earth works areas to mitigate surface water run-off into open excavations.</p> <p>Surface water removed from open excavations will be directed to the site drainage system. Use of temporary bunds, swale drains, silt fences or traps to manage sediment loads (refer to <i>Silt and Surface Water Management, Inspection and Maintenance Plan</i>).</p>
Stockpiling	Surface water quality and sediments	<p>Construct all stockpiles to minimise surface water run-off and sediment loading (e.g. limit footprint, compacted faces etc.)</p> <p>Install surface water control measures around the stockpile areas. Including the use of temporary bunds, swale drains, silt fences or traps to reduce sediment levels.</p> <p>No loading of excavated materials to stockpiles during adverse weather conditions.</p>
Excavation	Dust generation	<p>Minimise excavation activities during periods of dry/windy weather conditions.</p> <p>Use dust suppression techniques at excavations to reduce dust generation.</p> <p>Limit traffic movements where possible and use the wheel wash for the vehicles.</p> <p>Schedule work to reduce delays between stages of earthworks, where practical (i.e. reduce the duration of temporary stockpiles on-site).</p>
Stockpiling	Dust generation	<p>Locate stockpiles in sheltered locations and near the point of re-use (minimisation of double handling of spoil).</p> <p>Construct stockpiles to minimise dust generation.</p> <p>Use dust suppression techniques during dry windy conditions (as required).</p>

### 4.0 EMERGENCY PROCEDURES

#### Excessive dust generation due to work practices or weather conditions

- For excessive dust generation due to work practices or weather conditions. Stop works, assess the cause of dust generation, cease or change working practices and/or employ dust suppression measures.
- Record the incident in accordance with site incident reporting procedures.
- Inform relevant stakeholders of incident.



- Implement investigation and corrective or preventative measures.

#### **Increased sediment and surface water run-off from the stockpile areas due to weather conditions**

- For increased sediment and surface water run-off from the stockpile areas due to weather conditions. Stop works, review the efficacy of the surface water and sediment mitigation measures around the stockpiles, if required install additional mitigation measures. Monitor stability of the stockpiles and undertake remedial works if required.
- Record the incident in accordance with site incident reporting procedures.
- Inform relevant stakeholders of incident.
- Implement investigation and corrective or preventative measures.

#### **Heavy rainfall / flooding conditions across the wider site**

- Heavy rainfall / flooding conditions across the wider site. Stop works, make the works area safe, review the efficacy of the surface water and sediment mitigation measures, if required install additional mitigation measures. Only recommence excavation works if safe to do so and where the works will not cause additional adverse environmental impacts.
- Record the incident in accordance with site incident reporting procedures.
- Inform relevant stakeholders of incident.
- Implement investigation and corrective or preventative measures.

## **5.0 REFERENCE**

*Environmental Good Practice – Site Guide (Fourth Edition) (CIRIA C741).*

PPG1 – Understanding your environmental responsibilities;

PPG6 – Working at Construction and Demolition Sites.

**Attachment:** AMC UK *Silt and Surface Water Management, Inspection and Maintenance Plan.*



## 1.0 OBJECTIVES

The objective of the silt and surface water management plan is to provide detail of the scope and frequency for the inspection and maintenance of the proposed silt and surface water system for the Site and to identify the responsible parties.

## 2.0 MANAGEMENT RESPONSIBILITY

Management and maintenance of the silt and surface water system within the Phase 3 works area will be the responsibility of AMC UK. However, all sub-contractors working on the site have a responsibility to ensure that there are no unplanned releases of pollutants into the silt and surface water system and that any such event, or breach of the system, is reported immediately to their Site Supervisor.

To ensure the reliability of the silt and surface water system, it should be inspected, maintained and repaired as required on a regular on-going basis. In particular inspections should be undertaken prior to, during and after significant rainfall or fluvial flooding events on Site.

A suitably experienced and competent staff member shall be appointed by AMC UK to take responsibility for the management and maintenance of the drainage system.

## 3.0 INSPECTION AND MAINTENANCE PROGRAMME

An Inspection and Maintenance Programme for the silt and surface water drainage infrastructure within the Site is provided within Table 1.

**Table 1: Inspection and Maintenance Programme**

Item	Description	Frequency
<b>Silt and Surface Water System Inspection</b>		
Routine site inspection of the silt and surface water system	Inspection of all components of the silt and surface water management system to identify where deficiencies exist and where maintenance and/or repair is required.	Weekly and before/after heavy rainfall or fluvial flooding events within the site.
<b>Attenuation Ponds (if required)</b>		
Attenuation pond	Inspection and cleaned of silt/sediment.	Monthly and before/after heavy rainfall or fluvial flooding events within the site.
Sediment forebay	Inspection for scour and cleaned of silt/sediment.	
Attenuation pond discharge control structures/outlets	Inspection of outlet pipes/channels and cleaned of silt/sediment and debris.	
Spillway/Slipway	Inspection and cleaned of silt/sediment and debris.	Quarterly, after spillway operation events and fluvial flooding events within the site.

Item	Description	Frequency
Pond Liner	Draw down of pond and inspection of pond liner.	Annually
<b>Drainage channels and Swales (infiltration channels)</b>		
Channels and swales	Inspection for scour and cleaned of silt/sediment and debris.	Monthly and before/after heavy rainfall or fluvial flooding events within the site.
Rock check dams (if used)	Upstream of dams to be cleaned of silt/sediment and repair to rock dams where damaged or scoured.	
<b>Road Culverts</b>		
Culvert pipework	Inspection for pipe blockages and cleaned of silt/sediment and debris.	Monthly and before/after heavy rainfall or fluvial flooding events within the site.
Culvert inlets and outlets	Inspection for scour and cleaned of silt/sediment and debris.	
<b>Sediment Control Devices</b>		
Silt Fences	Inspection and cleaned of silt/sediment and debris	Monthly and before/after heavy rainfall or fluvial flooding events within the site.

## 4.0 INSPECTION AND MAINTENANCE RECORDS

A written record of routine inspections and maintenance shall be maintained on site throughout the construction activities and should include, as a minimum, the following:

- Date;
- Personnel;
- Items inspected/maintained;
- Maintenance/remedial action undertaken;
- Recommended replacement/maintenance/remedial action that couldn't be completed on record date (if any); and
- Recommendations for further inspections.

## 5.0 REVIEW OF PLAN

An assessment of the adequacy of the inspection programme should be undertaken by AMC UK after three, six and twelve months following commissioning of the silt and surface water management system. Based on this assessment a more (or less) frequent inspection and maintenance programme may be more appropriate and should be implemented as required.

**INSPECTION CHECKLIST – SILT AND SURFACE WATER MANAGEMENT SYSTEM**

**Table 2: Inspection Details**

Inspector Name	Inspector Signature	Time and Date of Inspection

**Table 3: Weather Conditions at Time of Inspection**

Describe weather conditions (e.g. sunny, cloudy, raining, dry) and temperature

Other Observations (e.g. activities on site):

**Table 4: Storm Events in the preceding 7 Days**

Date	Time	Duration	Rainfall (mm)	Discharges Occur (Y/N)

**Table 5: Inspection Checklist - Silt and Surface Water Management System**

Attribute	Yes	No	N/A	Action Required
<b>Drainage System (Site-Wide)</b>				
Is water flowing, unimpeded through the drainage system?				
Are all channels free from silt and debris?				
Are all sediment traps undamaged and free from silt and sediment?				
Is the wheel wash operating such that it does not flood and overspill sediments?				
Are any sand bags/earth bunds used to contain silt/sands/soils from temporary works, stockpiles or				

Attribute	Yes	No	N/A	Action Required
other areas installed correctly or showing signs of damage?				
Is there any evidence of drains being incorrectly connected?				
<b>Attenuation Pond (if required)</b>				
Does water pond around the inlet when it rains?				
Is there sediment or debris accumulated around the inlet?				
Is there adequate scour protection at points of concentrated discharge?				
Is there evidence of damage to any scour protection measures?				
Is there evidence of scour at inlets and outlets?				
Is there evidence of contamination at the pond e.g. oil sheen on water?				
Is the pond ready to be cleaned of sediments?				
<b>Drainage Channels and Culverts</b>				
Are culverts free from sediment and obstacles to prevent backing-up and flooding?				
Is there evidence of scour or deposition at upstream and downstream sides?				
Is there damage to culverts or bank erosion in channels?				
<b>Silt Fencing</b>				
Is silt fencing installed in accordance with design drawings (e.g. correct depth, on the contour)?				
Is silt fencing pulled tight with no sags or tears?				
Are the end posts brought upslope of the rest so as to prevent run-of being diverted around them?				
Are there new areas that would benefit from silt fences being installed?				
Is there any evidence of erosion being caused by silt fences?				

## **GENERAL HOUSEKEEPING (PPG - 004)**

This Pollution Prevention Guidance (PPG) applies to general Site management and housekeeping. The aim of this PPG is to set minimum standards to reduce the environmental impacts from general site construction activities.

### **1.0 LEGISLATIVE REQUIREMENTS**

The Health and Safety at Work Act 1974 legislates the requirement for employers to ensure, so far as reasonably practicable, the health and safety of their employees, other people at work and members of the public who may be affected by their work. This includes the need to maintain a safe working environment. The Environmental Protection Act 1990 provides legislation on the control of emissions into the environment from site activities.

The practice of good site housekeeping helps maintain both a safe working environment and minimises the opportunity for fugitive emissions from operation to occur. Relevant guidance on general construction activities are outlined in the *Environmental Good Practice – Site Guide (Fourth Edition)* (CIRIA C741).

### **2.0 PRACTICE**

AMC UK recognises that effective housekeeping can eliminate some workplace hazards and is an integral part of accident and fire prevention, efficient performance and environmental management.

#### **2.1 Housekeeping**

AMC UK is committed to embedding the following good housekeeping practices throughout their operations to manage both health and safety risks and environmental impacts:

- Safety signs, equipment and emergency exits must never be obstructed.
- Fire escapes and means of access and egress throughout work areas must be kept clear and unobstructed at all times.
- Work shall be carried out in an area suitably configured and sized for the activity. Suitably demarcated and separated vehicle and pedestrian access routes will be set up within the Site.
- Work areas, storage areas and amenities shall be maintained in a clean, orderly, hygienic manner.
- Materials shall be sorted and located appropriately for the frequency of their usage.
- Storage containers will be suitable to the materials within them, banded as applicable and located in safe locations. Clear access to storage areas will be maintained.
- Cleaning of offices, welfare facilities and workshops and shall be undertaken regularly, as required.
- Suitable mitigation measures will be set up and maintained to minimise environmental impacts from noise, vibration, light, dust, sediment and surface water run-off.
- All spills must be cleaned up immediately and cleaning materials disposed of appropriately. Spill kits will be available at defined locations.
- Tools, equipment, machinery and work areas shall be stored and maintained in a clean and safe manner. Defects and unsafe conditions must be reported.
- Maintenance of equipment will be undertaken in line with manufacturer's specifications and the Site preventative maintenance programme.
- Compressed air and fire hoses must not be used for any housekeeping activity.

AMC UK employees and sub-contractors are all accountable for retaining good housekeeping standards.

## 2.2 Inspection and Maintenance

All employees associated with the Phase 3 construction works will undertake continuous monitoring of site conditions and general Site housekeeping in order to prevent potential health and safety hazards (such as trips and slips etc.) and opportunities for adverse environmental impacts (such as noise, vibration, light, dust, sediment and surface water run-off).

The AMC UK Environmental Manager and Health & Safety Manager will undertake regular formal Site Inspections to identify potential risks, contravention to the EMP and RAMS, good working practice, and any required corrective actions. The AMC UK Environmental and/or Health & Safety Manager will be responsible for ensuring that all corrective actions arising from formal inspections are implemented in an agreed timescale. These inspections will be documented and records maintained on Site.

## 2.3 Record Keeping

Records will be kept and maintained at the site for the duration of the Phase 3 construction works. These records will include the following:

- Records of site inspections;
- Records of health & safety and environmental incidents and Near Misses;
- Records of modification or rectification to procedures and processes.
- Records of training.

## 3.0 CONTROL MEASURES

The following outlines control measures to manage environmental impacts from the Phase 3 Construction Activities.

Topic	Nature of impact	Environmental Mitigation Measures Identified
Housekeeping	Adverse environmental impacts (such as noise, vibration, light, dust, sediment and surface water run-off).	<ul style="list-style-type: none"> <li>■ Adequate planning and design of works considerate of environmental impacts.</li> <li>■ Clean up of spills.</li> <li>■ Validation (visual/olfactory/sampling) following the clean-up of spills.</li> <li>■ Prompt cleaning of internal roadways during excavation and construction works.</li> <li>■ Adequate storage facilities for the storage of fuels and raw materials.</li> <li>■ Provide adequate facilities for segregation and disposal of wastes.</li> <li>■ Efficient and effective management of wastes generated on-site.</li> <li>■ Appropriate use and maintenance of plant and machinery.</li> </ul>
Training	Low environmental awareness of staff can result in unreported environmental impacts and poor environmental management at the Site.	<ul style="list-style-type: none"> <li>■ Staff awareness training and induction.</li> </ul>

## **4.0 EMERGENCY PROCEDURES**

Good Site housekeeping is a preventative approach to minimising the risks of injury and environmental releases. As such no emergency procedures are documented in this PPG.

If an incident does occur due to poor housekeeping practices, emergency response procedures outlined in the CPHSP Emergency Response Plan (Health and Safety focussed) or the Environmental Emergency Preparedness Plan will be enacted.

All Near Misses will be reviewed and if required corrective or preventative measures adopted.

## **5.0 REFERENCE**

*Environmental Good Practice – Site Guide (Fourth Edition) (CIRIA C741).*