Operational Form

Title	Risk Assessment and Method Statement	Panel Approval	01/11/2016
Series	RAMS	Issue Date	29/11/2016
Revision	K	Document Owner	H&S Manager

The RAMS pack is valid for 30 days from the date of signature or date of review

Ref no:	40-NMC-WS-70-CI-RA-0001	**Rev:**	1

PART P - PLANNING

PART P1 – General Details

Title of method statement:	**Phase 3 Enabling Works at Woodsmith Mine**		
Contract Name:	York Potash Phase 3 Enabling Works, Woodsmith Mine	**Contract Number:**	44394.002
Site Address & Telephone No:	NMC Site Office, Woodsmith Mine, Off B1416, Sneatonthorpe	**Start Date:**	05/06/2017
		Finish Date:	09/10/2017
		Duration:	17 weeks 1 day
		Working Hours:	07:00 – 19:00 Mon – Fri 07:00 – 14:00 Sat
Location of Works:	Sneatonthorpe		
Scope of Works / Work Activity:	Tree and vegetation removal, demolition of existing buildings, cut & fill, surface water drainage, spoil bunds, working platforms, concrete bases, water storage and pumping facilities.		

PART P2 – RAMS Sign Off, Consultation and Review

	Signed	Print Name	Position / Status	Date	Notes
Prepared by		Alex Spencer	Preconstruction Manager	13/03/2017	To be completed by Person Preparing Method Statement or Sub-Contractor)
Employee consultation		Chris Davis	Project Manager	13/03/2017	Persons carrying out the work MUST be consulted and sign here
Tech review by		Chris West	Operations Manager	13/03/2017	To be completed by a Competent Person or Sub-Contractor)
H&S, Env review by		Selina Morson	Environmental Manager	13/03/2017	To be completed by a Competent Person
Authorised for construction (Principal Contractor / Peer review)		Geoff Poyzer	Contract Director	13/03/2017	To be completed by the Principal Contractor or a peer of the person preparing the RAMS
Rejected by					To be completed by the Principal Contractor or Competent Person

The RAMS must be reviewed by someone other than the person who has prepared it.

PART P3 – Personnel and Resources

	Labour (Role/Trade and number of)	Qualification Required, to be shown at induction
Resources Required: (Including supervision)	6 x machine operators 2 x dozer operators 8 x dumper operators 4 x tractor operators 3 x roller operators 6 x groundwork operatives 1 x Foreman 1 x Setting out Engineer	CPCS CPCS CPCS CPCS CPCS CSCS SSSTS Civil Engineering degree or similar
Subcontractors	Tree surgery Earthworks Demolition	Task specific competencies (refer to subcontract Method Statements)
	How will they be supervised	NMC Foreman, Engineer and Site Agent

	Plant / Equipment Name	Rated Capacity	Minimum Operator Qualification
Plant and Equipment:	2 x Excavators	20T	CPCS
	4 x Excavators	30T	CPCS
	2 x Dozers	D6	CPCS
	3 x Wheeled dumpers	9T	CPCS
	6 x Wheeled dumpers	30T	CPCS
	4 x Tractors	New Holland T7	CPCS
	2 x bowsers	6000 litre towable	N/A
	3 x Single-drum Rollers	30T	CPCS
	Delivery lorries	20T / 28T	CPCS

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Materials:	Type 3 granular fill Type 1 road stone 6F2 granular fill Geogrids Geo-membranes Sand Cement / lime Reinforcement bar Ready mixed concrete Tanks and pipework for water storage and pumping Gas oil

PART P4 – Key Operational Risks Identification

Key Operational Risks	Reference	Applicable to this activity Y/N
Site Access, Deliveries and removal of materials	OP8/1.3	Y
Avoidance of buried underground services	OP8/3.2	Y
Stability of structures	OP8/4.5	Y
Demolition Operations	OP8/4.6	Y
Temporary Works	OP8/4.5	Y
Prevention of falls / work at height	OP8/4.2	Y
Work near fragile materials	OP8/4.2	Y
Control of lifting operations	OP8/5.1	Y
Plant and machinery / Quick Hitches	OP8/5.2	Y
Excavations	OP8/3.1	Y
Confined spaces	OP8/4.1	N
Working near water	NA	Y
Work in caissons or cofferdams	OP8/4.5	N
Working with compressed air	NA	Y
Cutting / Grinding Operations / breaking	NA	Y
Personal protective equipment	PPUEP (Policy)	Y
Asbestos	WI6/6.22	Y
Electrical (Severn Trent Water sites)	STSSOW (NMCN)	N
Working on Electrical Systems	OP6/6.20	Y
Ionizing radiation / Exposure to UV radiation	NA	N
Contaminated land	NA	N
Manual handling	OP8/6.6	Y
Control of substances hazardous to health (COSHH)	COSHH Manual	Y
Noise	OP8/6.3	Y
Vibration	OP8/6.2	Y
Non-English Speakers	OP8/1.7	N
Sharps and Needle sticks	OP8/6.5	N
Environment Risk Assessment	Aspects & Impacts on line	Y
Site Waste Management	OP9/1	Y
Site Pollution or Water Contamination	OP9/3	Y
Site Flooding	OP9/4	Y
Site – Protected Animals	OP9/5	Y
Site – Hedgerows	OP9/6	Y
Oil Storage	OP9/7	Y
Refuelling	OP9/8	Y

Where Y has been selected, the item identified **MUST** be included in the risk assessment for this operation

PART P5 – Critical Risk Study

Effect of Human Factors

(Insert "Y" for those that apply, "N" for those that don't)

Behavioral Issues

Alpha	N	Time v Risk	N	Habit	N	7+/-2	N
Repetitive tasks and high levels of competence increase the chance of alpha mode.		Potential for "time savers", lack of compliance due to shortcuts being taken		Have those involved developed habits. I've always done it this way.		Overloading people with too much information, keep instruction simple, break down tasks.	

Human Factors

Workplace Layout	Y	Physical Capability	N	Environment	Y	Language	N
People in ALPHA do not see above head height or below knee level, housekeeping, identified routes etc.		Are the people involved capable of doing the tasks, is special strength or size an issue		Housekeeping, heat, cold, weather, noise, air quality and lighting all create environmental hazards		Are any personnel involved whose first language is not English	

PPE:	List PPE provided in **ADDITION** to standard PPE for the task **AND** identified in the RA.	
	Eye and hearing protection when cutting.	
Demolition Operations	Is demolition/dismantling required? (**OP8/4.6** applies)?	**Yes**
	Description of demolition/dismantling required: Demolition of existing farm buildings.	
	Using **OP8/4.6** demolition operations have been identified as Category:	Level 3
Temporary Works:	Is temporary works design required? (**OP8.4** applies)	No
	What Level of Design?	

Temporary Work Coordinator (TWC)	Name	N/A	Contact No.	N/A
Temporary Works Supervisor (TWS)	Name	N/A	Contact No.	N/A

Access / Egress arrangements to specific place of work:	Use of podiums, restricted access, chamber access, special requirements etc.
	N/A

Work at Height:

If work at height has been identified as part of this activity, how will the work be planned to reduce / control risks?

1. Avoid the need to work at height	2. Use an existing safe place of work	3. Provide work equipment to PREVENT falls	4. Mitigate distance / consequence of fall	5. Instruction and training	6. Other

Using OP8/4.2 ensure that work at height risks are included in the risk assessment

Lifting operations:

Are mechanical lifting operations being carried out for this task?

1. Machine Lifts	2. Lorry Mounted (HIAB)	3. Simple Crane Lift	4. Complex Crane Lift
Unloading / loading materials	Unloading / loading materials	N/A	N/A

Manual Handling:	Can manual handling be avoided?
	If NO, ensure that the manual handling risks are included in the risk assessment

PART P6 – COSHH

COSHH Assessment	Explosive	Oxidising	Highly Flammable	Acutely Toxic	Corrosive	Hazardous to Environment / Aquatic Life	Skin / Eye Irritant	Long Term Health Hazard	Gas under Pressure
Applicable	Y		Y			Y	Y	Y	

COSHH ASSESSMENT MUST BE ATTACHED WHEREVER SUBSTANCES ARE IDENTIFIED

PART P7 - Record of Amendments Form – Change 1

To be used for recording MINOR changes:

(To be used to get the right balance between controlling the new risks and not unnecessarily holding up the work.
For major changes a new / revised RAMS is required)

RAMS RECORD OF MINOR CHANGE		**RAMS Ref:**	
Work Activity:			
DESCRIPTION / EFFECT			
Proposed Change:			
New Risks Considered / existing risks reduced:			
Proposed / New Control Measures:			
Requested By:	**Signature:**	**Date:**	**Time:**
Agreed By:	**Signature**	**Date:**	**Time:**

PART P8 - Record of Amendments Form – Change 2

To be used for recording MINOR changes:

(To be used to get the right balance between controlling the new risks and not unnecessarily holding up the work.
For major changes a new / revised RAMS is required)

RAMS RECORD OF MINOR CHANGE		**RAMS Ref:**	
Work Activity:			
DESCRIPTION / EFFECT			
Proposed Change:			
New Risks Considered / existing risks reduced:			
Proposed / New Control Measures:			
Requested By:	**Signature:**	**Date:**	**Time:**
Agreed By:	**Signature**	**Date:**	**Time:**

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PART P9 - Record of Reviews of RAMS

RAMS Review Record

The RAMS must be reviewed upon a significant change and after a maximum of every 30 days.
Following each review the RAMS must be re-briefed to the team

Date of Review	Notes	Signature
13/03/2017	Rev A - Draft	

RISK ASSESSMENT

PART RA1 – Risk Assessment

Activity / Task Individual elements of the task being carried out	Hazard Anything with the potential to cause harm. Include H&S, Environmental, Operational / Process and Design hazards	People Affected E=employee S=Sub-contractor V=visitor P=public O=other	Potential Outcome e.g. injury, damage etc.	Pre-Control Risk Assessment			Control Measures required Control measures must be effectively implemented if they are to work as intended Include the title and controls of the applicable Operating Procedures identified in Part P4	Post Control Risk Assessment Have risks been reduced as far as reasonably practical			Risk Ranking
				Likelihood 1 - 5	Severity 1 - 5	Risk Score 1 - 25		Likelihood 1 - 5	Severity 1 - 5	Risk Score 1 - 25	
Access to site	Live traffic	E/S/V/P	Road traffic accident causing injury	2	5	10	• Access to site will be via the new Welfare Access, off B1416. • Signage will be in place to forewarn vehicles of the site access junction. • Deliveries are to be staggered to prevent large numbers of vehicles accessing site at the same time.	1	5	5	Low
Deliveries	Offloading and storage of materials	E/S/V/P	Injury due to materials being offloaded / stored incorrectly	3	4	12	• Compound Manager to be employed to control all deliveries. • Offloading to be undertaken using Hiab or forklift with Lift Plan in place. • Loose items to be palletized, where possible. • Materials to be stacked securely. • Stacking heights to be limited to 2m.	1	4	4	Low

LIKELIHOOD	RATING	SEVERITY - HEALTH	SEVERITY - SAFETY
Almost Certain (>90%)	5	Multiple worker deaths e.g. Asbestos / Silica dust	Fatal accident to member of public or worker
Probable (50% - 90%)	4	Single worker death / life shortening health effect e.g. Lung disease	Major injury (RIDDOR) resulting in lost time. Irreversible disability
Possible (10% - 50%)	3	Irreversible health effects e.g. Loss of hearing, HAVS, Serious dermatitis	Injury resulting in over 7 days lost time
Remote (1% - 10%)	2	Reversible health effects e.g. Minor dermatitis, respiratory, treatment off site	Injury resulting in 1 to 7 days lost time
Unlikely (<1%)	1	Minor health effect for short period, no lost time e.g. skin irritation	Injury requiring First Aid but no lost time

Severity						
	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
		Likelihood				

RISK RANKING	ACTION REQUIRED
High (12 – 25)	Do NOT start task; either engineer or design out the hazard, look at alternative methods
Medium (7 – 11)	Do NOT start task; impose further control measures such as alternative methods or plant / materials
Low (1 – 6)	No additional control measures required

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				Likelihood 1 - 5	Severity 1 - 5	Risk Score 1 - 25		Likelihood 1 - 5	Severity 1 - 5	Risk Score 1 - 25	
Use of plant	Plant	E/S/V/P	Severe injury or death	2	5	10	• Segregation of plant and people where possible, e.g. pedestrian walkways. • Designated haul routes to be established across site. • Working areas to be fenced using pedestrian fencing. • All reversing on site to be controlled by a banksman. • All plant to have reversing beepers. • Operatives to maintain a safe distance from operated plant (e.g. outside of slew area of excavators). • All plant operators to hold relevant competency tickets (CPCS). • Plant to be operated in line with manufacturer's guidance (e.g. seat belts). • All people on site to wear high-visibility PPE.	1	5	5	Low

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				Likelihood 1 - 5	Severity 1 - 5	Risk Score 1 - 25		Likelihood 1 - 5	Severity 1 - 5	Risk Score 1 - 25	
Construction works	Slips, trips and falls	S/E/V	Injury	4	4	16	• Excavations to be backfilled as soon as possible, and fenced when open (refer to "open excavations" risk for more details). • Materials and other equipment not in use are to be stored appropriately and not congest the working area. • Loading/unloading to be carried out on level ground, within designated areas. • Operatives to be informed of the presence of swales and drainage ditches across site.	1	4	4	Low
Excavation works	Open excavations	E/S/V/P	Injury caused by falling into excavation	3	4	12	• Excavations to be backfilled as soon as possible / at the end of each shift, if practicable (e.g. drainage trenches). Otherwise, excavations to be fenced off. • Excavations to be fenced using pedestrian barrier while works ongoing.	1	4	4	Low
Excavation works	Underground services	E/S	Damage to / injury from underground services	4	3	12	• Permit to Excavate to be issued ahead of mechanical excavations starting (review utility plans, CAT scan, trial holes).	1	3	3	Low

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				Likelihood 1 - 5	Severity 1 - 5	Risk Score 1 - 25		Likelihood 1 - 5	Severity 1 - 5	Risk Score 1 - 25	
Demolition	Collapse or partial collapse of structure	E/S	Injury	3	5	15	• Method Statement to be in place for demolition of existing farm buildings. • Works to be undertaken by specialist demolition contractor, in line with site specific Risk Assessment. • Exclusion zone to be established to prevent unauthorized access into demolition area.	1	5	5	Low
Use of COSHH materials (e.g. gas oil, concrete)	COSHH materials	E/S	Injury	5	3	15	• Use of COSHH materials to be avoided where possible. • All COSHH materials to be stored in a lockable, bunded COSHH store at Woodsmith Mine compound when not in use. • COSHH Assessments to be produced for all COSHH materials, including gas oil, lime, cement and concrete. • Only trained and competent operatives to use COSHH materials, in line with COSHH Assessment.	2	3	6	Low

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				Likelihood 1 - 5	Severity 1 - 5	Risk Score 1 - 25		Likelihood 1 - 5	Severity 1 - 5	Risk Score 1 - 25	
Mechanical lifting	Load being lifted	E/S	Injury	3	4	12	• Machine Lift Permit to be issued for all machine lifts (typically offloading and moving materials on site). • Slinger / signaler to be in place for all lifting to control lift operations.	1	4	4	Low
Manual lifting of heavy / bulky objects	Manual handling	E/S	Injury	4	3	12	• Manual handling to be avoided where practicable (e.g. through mechanical lifting). • Manual handling training to be given to all operatives involved in lifting works. • For bulky objects which can be safely lifted by hand (e.g. small drainage pipes), use 2-person lifting.	2	3	6	Low
Specialist works	Various	E/S/V/P	Various	-	-	-	Risk assessments to be produced by appointed contractors for all specialist works, including tree removal, earthworks and demolition.	-	-	-	-

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SAFE SYSTEM OF WORK

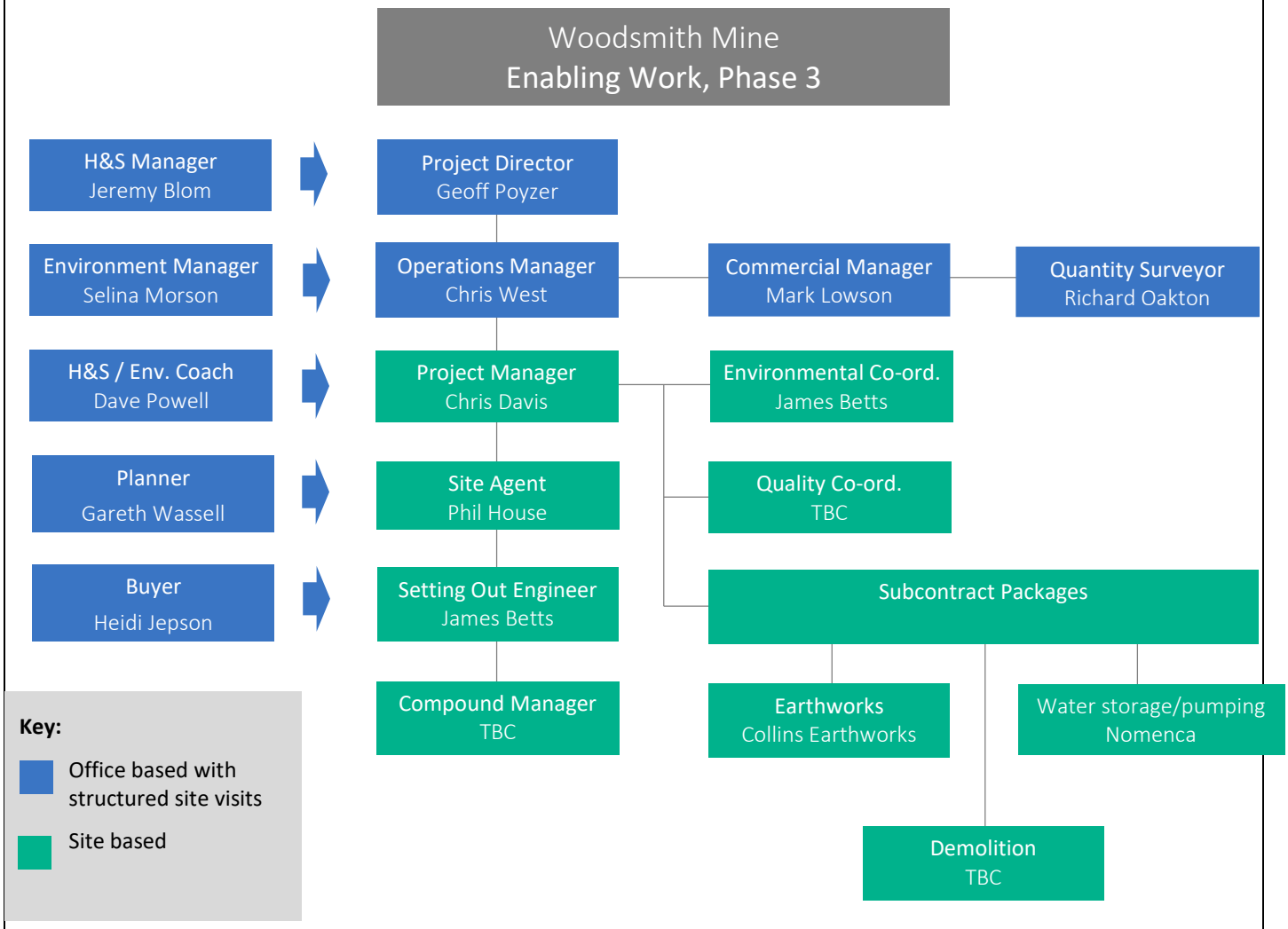
PART MS1 – Contacts and Emergency		
Emergency Contact Numbers	**Name:**	**Contact Number:**
Person Responsible For Works	Chris West	
Supervisor	Chris Davis	
Hospital	Scarborough General (A&E) Whitby Community Hospital (medical treatment only)	(EMERGENCY 999/112)
First Aider	TBC	
Location of First Aid Box	Site welfare at Woodsmith Mine, NMC vans	
Process Impact Assessment Contacts	N/A	
Gas Emergency Call Out	National Grid	
Electricity Emergency Call Out	Northern Power Grid	
Water Emergency Call Out	Yorkshire Water	
Sewage Emergency Call Out	Yorkshire Water	
Emergency Procedures & Permits Required	Permit to Excavate, Permit to Lift	

PART MS2 – Management Arrangements, Emergency and Communication

Describe the management arrangements for undertaking the works:
(including arrangements prior to the start of work, welfare, first aid, change sanctioning arrangements, inspection and testing arrangements and details of sub-contract arrangements, how sub-contractors will be managed)

NMC Management Team

The following shows the NMC management structure for this scheme:



This structure chart is to be updated once "TBC" positions have been filled

Site Inductions

Prior to accessing site, all operatives and visitors working on this scheme are to receive a site induction at NMC's Site Office at Woodsmith Mine.

Welfare
NMC welfare facilities comprising toilets, washing facilities, canteen, and a drying room, are located at Woodsmith Mine. Please refer to the appended "Woodsmith Mine Compound Layout Plan" (40-NMC-WS-70-FC-DR-0002).

First Aid
First Aid equipment is located within the Site Office at Woodsmith Mine, and within all NMC vans.

A First Aid-trained nominated person will be located either on site or at NMC's compound during working hours.

Change Sanctioning
Changes to the method of work stipulated within this RAMS can only be sanctioned through completion of the "Record of Amendments Form" located within this RAMS, with the Project Manager's authorisation.

Inspection & Test Arrangements
Inspection & Test forms for the following will be undertaken throughout construction of these works:

- Site clearance.
- Demolition.
- Bulk excavation.
- Bulk filling.
- Membrane installations.
- Placement and compaction of aggregates.
- Reinforced concrete works.

Subcontract Arrangements
Specialist contractors will be appointed for the following elements of work.

- Earthworks (including tree removal)
- Demolition
- Provision of water supply tanks / pumping facilities (Nomenca – part of NM Group)

Works undertaken by specialist contractors will be subject to separate Method Statements covering each element of the above works.

Describe the emergency arrangements for any special risks:
(Include any special arrangement with emergency services, work at height rescue, confined spaces rescue etc.)

Fuel deliveries are to be undertaken in bulk loads to reduce the number of deliveries to site.

Fuel bowsers are to be used at the compound to provide adequate storage in case inclement weather affects planned deliveries.

Describe how the safe system of work will be communicated to those undertaking the activity and any others needing to be informed:
(Including briefings, toolbox talks, KSAW and other forms of communication. Communication may increase based on risk of work being carried out)

Communication of Safe System of Work

- This RAMS will be briefed to all operatives involved with this scheme, prior to commencing any associated works. Re-briefings will be undertaken for all changes to this RAMS, plus at least monthly.
- Daily "Keep Safe & Well" briefings will be undertaken at the start of each shift, summarising the works in hand plus associated hazards.
- Where applicable, toolbox talks will be given in order to update on changing risks that may arise as the work progresses (for example - hazards presented by changing weather conditions).

PART MS3 – Step by Step Sequence incorporating control measures

Provide a step by step sequence for the task, describing how the controls developed in the Risk Assessment are to be implemented:
(Description should be concise and bullet pointed for use when briefing the workforce as to how the task will be undertaken safely without risk to their health, safety or the environment.
Include '**Hold Points**' at the end of each activity or 7 +/- 2 bullets, to segregate phases.
There should be no jargon, abbreviations or acronyms. There should be no uncertainty about what needs to be done, how it is to be done and what is required.
Taboo words and phrases like 'where necessary', 'as approved', 'as appropriate' etc. are **not acceptable**)

Overview of Works

The purpose of this project is to construct working platforms and other infrastructure ahead of future mine shaft construction works. The works comprise:

- Tree removal and de-vegetation.
- Site clearance.
- Demolition of existing farm buildings.
- Surface water drainage construction (attenuation ponds and wetlands).
- Cut & fill operations, including ground preparation.

- Formation of storage bunds (topsoil and subsoil).
- Construction of working platforms (aggregate and concrete).
- Provision of a mains water supply and distribution network (tanks and pumping facilities).

The Site
Aerial view of site:

Housekeeping
- This scheme involves the co-ordination of a number of complex elements of work, including bulk earthworks, drainage construction and reinforced concrete works; as such, high standards of housekeeping are of particular importance.
- All materials not being used during the day's work must be transported and stored at the designated location within the site compound.
- Materials transported onto site for incorporation into the works must be stored close to the relevant working area.
- Daily inspections on housekeeping will be undertaken by NMC's nominated person.

Delivery and Storage of Materials
- Materials will be delivered to the site compound at Woodstock Mine.
- Materials will be offloaded at the designated offloading area and stored either within the compound, or taken directly to the required location on site.

Re-fuelling (generally)

- Fuel deliveries and re-fuelling of plant and equipment will be undertaken in accordance with NMC's Operating Procedure OP 9/8 "Re-Fuelling".
- Re-fueling of small plant and equipment will be undertaken only at the designated re-fuelling area, as shown on the attached "Woodsmith Mine Compound Layout Plan" (40-NMC-WS-70-FC-DR-0002), with a spill-kit in place at all times during the re-fuelling operation.
- Should any spillages occur, the process of "Stop, Contain, Notify, Clean Up", will be followed, as detailed within NMC's operational procedure OP 9/8.

Re-fuelling on site (earthworks plant)

- A towable bowser will be taken to a suitable locations and secured.
- The machine shall approach the bowser with care; assisted by a banksman when necessary
- Adequate space will be maintained between the machine and bowser, ensuring space for the pump operator without being so far away that the hose becomes stretched or a trip hazard.
- The machine shall apply its parking breaks and the engine turned off; on level, firm ground.
- Plant nappies will be placed between the bowser and the machine to catch any drips / spills.
- The machine's bonnet/hatch door will be secured to prevent it swinging shut.
- The cap from the machine's fuel tank will be removed.
- The bowser's generator will be switched on.
- The hose will be extended and the hose nozzle locked into the fuel tank when possible.
- Refuelling the machine will be undertaken at an appropriate flow speed to prevent overfilling.
- The refuelling of machines should always be supervised throughout the whole process, even at automatic refuelling bowsers.
- Upon refuelling the machine, the bowser's generator will be switched off, the nozzle will be shaken into the machine fuel tank, the fuel tank cap secured, and the hose will be placed back into the designated location.
- The machine and the ground around the refuelling point will be inspected for spillages.
- Should any spillages occur, the process of "Stop, Contain, Notify, Clean Up", will be followed, as detailed within OP 9/8.

Permit to Excavate

- A Permit to Excavate will be issued ahead of all mechanical excavation works; the Permit will detail all known underground utilities and stipulate a safe system of work for excavation which includes CAT scanning and trail holes to locate all known services.

Temporary Fencing

- 2m tall anti-climb fencing will be erected to the perimeter of the earthworks and drainage working areas.
- Additional fencing will be erected within the working areas as follows:
    - Areas of deep excavations (e.g. during drainage works) - 2m tall anti-climb fencing.
    - Working areas without deep excavations but with other hazards – Pedestrian barrier.
    - At the interface with steep changes in gradient - High visibility Netlon fencing.

fencing

Pedestrian barrier

2m tall High-visibility Netlon fencing

anti-climb

Principal Items of Plant

The following plant will be used to undertake the works:

Excavators

- Excavators will be used for mechanical excavation works associated with surface water drainage, earthworks and platform construction.
- Excavators will also be used for archaeological investigation / sign-off purposes.

Dozers

- Dozers will be used for earthmoving and aggregates spreading across the earthworks and road construction works.
- Dozers will not be used to excavate / move earth until after archaeological inspections have been completed at the bottom-of-subsoil level. Excavation to this point will be undertaken by excavators only.

Tractors

- Tractors will be used for towing during, vegetation removal, re-fuelling and dust suppression activities.

Dumpers (small)

- Small dumpers (e.g. 9T) will be used to transport spoil and materials.

Dumpers (large, up to 30T)

- Large dumpers will be used to transport spoil during large-scale cut & fill operations and attenuation pond construction.

Single-drum rollers

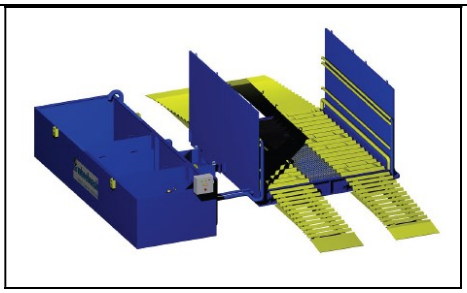
- Single-drum rollers will be used to compact of the formation, clay and granular layers during cut & fill operations and placement of platforms.

Vibrating rollers

- Vibrating rollers will be used to compact of the formation and aggregates during the construction of smaller platforms and car parking areas.

Wheel Wash

- Located on the access road between site and the Welfare Access.



Setting Out

- All works will be undertaken to a line and level marked on site by NMC's Setting-out Engineer.
- GPS models of the cut & fill profile will be set within earthworks plant, with the plant operated to achieve the model ("Trimble" or similar to be used).

Tree Removal and De-vegetation

- The existing trees and vegetation which fall within the footprint of the works will be removed by a competent tree surgeon, in accordance with a separate site-specific Method Statement.
- Tree trunks will be stored in the designated location at Woodsmith Mine; vegetation will be shredded and spread across adjacent wooded areas.

Archaeological Excavation

- A 25m x 25m grid will be established across the site for the recording of archaeological excavations, inspections and hand-over of areas; there will be approx. 130No grids across the Phase 3 area.
- Excavation will proceed across all areas using an excavator, under the supervision of an archaeologist from Cotswold Archaeology; dozers will not be used at this stage of the works.
- Once 10No grids are excavated to the required level, archaeological investigations will proceed with all plant excluded for the area.
- Following archaeological inspection, areas will be handed back for works to continue; at this stage, dozers can be used, as required.
- Should any archaeology be encountered at any stage of the works, works within a 25m x 25m section will stop, an exclusion zone established using high visibility Netlon fencing, and the guidance of Cotswold Archaeology will be followed.

The Importance of Surface Water Management During Construction

- High levels of silt suspended in water can suffocate fish by clogging their gills, can remove essential oxygen from the water and can kill plants, animals and insects living in the water by stopping sunlight reaching them.
- Silt pollution spoils the appearance of watercourses, is easily traceable to the site from where it originated and in the past has been a major cause of prosecution.
- When a site is water logged, water accumulates on the surface which is associated with several types of hazards and inconveniences, including:

- Unsafe surfaces for vehicle traffic.
- The concealment of trip hazards on the ground or excavations.
- Aiding in the transportation of contaminated or polluted water.
- Hosting wildlife such as rats, exposing site operatives to disease.
- Halting progression of works.
- Erosion of surfaces.
- Pollution of watercourses.
- Reduction of stability and bearing capacity of excavations, slopes or cuttings.

Measures to Reduce Silt Generation

- Excavation works will not be undertaken during periods of heavy rainfall.
- Areas of exposed subsoil and stockpiles will be compacted no later than at the end of each shift.
- Where granular fill be being applied, this will be undertaken the same day as exposing the formation.
- Works will be phased to reduce the overall area of site exposed at any one time.

Surface Water Drainage – Sequence of Works

The order in which the proposed surface water drainage measures are implemented will have a bearing on the protection of Seaton Thorpe Beck; the proposed surface water drainage design will be constructed, in general, working from the downstream end towards the upstream end. The following sequencing will be undertaken (start date on site of 05/06/17 is assumed).

- (05/06) All existing surface water drainage measures implemented during Phase 3 will be inspected to ensure they are in good order. Any necessary remedials will be undertaken immediately.
- (05/06 to 16/06) The proposed wetland and attenuation pond will be excavated and formed; the slipway into the Seaton Thorpe Beck tributary will not be constructed until all other aspects of the wetland and pond are complete.
- (05/06 to 09/06) Before starting works to the platforms, the existing perimeter ditches will be extended to suit the extended platform profiles; check dams will be installed for de-silting purposes.
- (12/06 to 13/06) Once the platform ditches have been extended, the redundant section of the existing Phase 2 ditch will be abandoned.
- (12/06 to 16/06) The existing attenuation pond will be enlarged to suit the new design profile.
- (19/06 to 23/06) Modifications to utilise the existing carrier drainage system will be made such that the new surface water measures work with infrastructure constructed during Phase 2.
- (19/06 to 23/06) The drainage ditch and temporary attenuation pond located south of the concrete batching plant location will be constructed.
- De-watering of excavations and working areas will be undertaken using submersible pumps with discharge directed into the silt removal facility or a suitable area within the site upstream of this.

Drainage – Construction Methods

- Excavation of drainage trenches, ponds and swales will be undertaken using an excavator or dozer, as

detailed in the "Earthworks" section below.
- Spoil will be transported by dumper and incorporated into the earthworks cut & fill operations, as detailed below.
- Geotextile and geogrid membranes will be rolled out and overlapped / welded in accordance with the manufacturer's instructions.
- Concrete canvas will be placed within drainage ditches, with the canvas being lifted into position by an excavator and laid out by hand.

Earthworks
Bulk earthworks will commence in each location following implementation of the surface water drainage measures (as detailed above) at that location.

Cut & Fill
Areas of cut & fill will be formed to achieve the required formation level across site for the surface water drainage works, platforms, and future NINH storage location:

- The areas of cut will be trimmed with a D6 dozer and excess material loaded on dump trucks by 360 excavators. This material will then be transported to the fill areas where it will be tipped and levelled under the instruction of a D6 who will then level the material ready for compaction by a ride on roller.
- No areas of formation will be cut and left open to the weather.
- Clay, subsoil, topsoil and inert soils will be segregated during the cut & fill process and placed at the required locations, as detailed within the design.
- All materials will be placed and compacted in accordance with clause 612 of the Specification for Highways Works.
- Dust generation will be kept to an absolute minimum; damping down will be carried out using a tractor and bowser, as required by site conditions.

Bulk Fill Modification
- As the earthworks progress, material that is not suitably competent as fill in its current form will be modified with lime.
- This material will be pushed out into the areas of fill on top of good material.
- This none suitable material will be pushed out in a layer approx. 300mm thick, this will be done with the use of the D6 dozer.
- Quicklime will be applied to the surface in an accurate and uniform dosage using a spreader/ mixer.
- Wind speed and direction will be monitored using a windsock, with operations suspended in high winds.
- Mixing of the quicklime with the unacceptable material shall be carried out using a Gutzwiller mixing drum to produce a homogenous mixture throughout the full depth of treatment.
- The treated material will be compacted to ensure that reaction occurs about each particle of soil.
- Buxton lime has a very quick reaction time but it may be necessary to let it slake a while longer and even rotovate the material again to achieve the correct pulverisation.

- The material will then be compacted in accordance with clause 612 of the Specification for Highway Works.
- After all sampling has been taken and the layer has passed all post checks, another 300mm layer of excavated material will be placed and treated, if required, as previously described.

Cement Binder

- Quicklime will be applied and mixed to ameliorate the soil prior to the addition of the cement binder.
- It will be added and mixed to the soil not less than 24 hours or more than 72 hours before the subsequent addition; during this period it will be ensured that any quicklime added to the soil has been fully hydrated.
- Thereafter, mixing of the cement binder will be carried out by one or more passes of the purpose made mixer until uniformity has been achieved.
- Water will be added as determined by the MCV results.
- Degree of pulverisation and MCV (OMC) will be monitored.
- At final compaction the moisture content of the cohesive mixture shall not be less OMC determined in accordance with the 2.5 kg Proctor method of BS1924.
- Final compaction, including finishing rolling, will be completed within 2 hours of mixing of cement.
- On completion of final compaction, the surface layer shall be well closed, free from movement under the compaction plant and free from ridges, cracks and loose material.
- The full depth of the layer shall be compacted to an average density of 95% of the average fresh wet density.

Placement and compaction of granular materials

- Working platforms will be formed at the following locations:
    - Shaft platforms
    - Welfare areas
    - Laydown areas
    - Car parks
    - Concrete batch plant area
    - Reinjection borehole location
- The formation will be prepared following the cut & fill operation, as detailed above.
- Formations will be smooth and free from roots, stones and other objects which could penetrate the lower membrane.
- Geotextile and geogrid membranes will be rolled out and overlapped / welded in accordance with the manufacturer's instructions, as the required depths within the platforms.
- The correct depth of aggregate will be placed in accordance with the design; aggregate will be imported by 8 wheeled / articulated lorries, tipped and levelled under the instruction of a D6 dozer, who will then level the material ready for compaction by a ride on roller.
- All materials will be placed and compacted in accordance with clause 612 of the Specification for Highways Works – the layer thickness and number of passes will be specified within the Inspection & Test Form, and closely monitored on site.

- Movements in and out of site will be monitored with the traffic restrictions of a maximum 58 movements per day for HGVs and 24 light vehicle movements per day being adhered to.
- The imported aggregate will be laid and compacted then trimmed in preparation for the drainage works.
- The following measures will be taken to avoid contamination of the sub base with subsoil.
    - Designated haul routes will be established.
    - Materials will be segregated at all stages of construction (when delivered, excavated and stored on site).
    - Plant will not access areas of granular stone during inclement weather without suitable cleaning taking place ahead, to prevent mud.

Concrete bases

Concrete bases will be constructed, as follows, for the concrete batch plant equipment and telecommunications tower:

- The area beneath the base will be formed as part of the platform construction works in each location.
- Reinforcement bar will be placed with adequate cover (typically 50mm) to the edge of the pour.
- Timber shuttering will be erected to the perimeter of the concrete base.
- Concrete will be delivered to site via concrete wagon, discharged directly into the shuttering, and compacted using a vibrating poker.
- A float finish will be formed by hand to form an even finish across the base, to the required finish level.

Demolition of existing farm buildings

The existing farm buildings will be demolished by a competent demolition contractor, who will produce a detailed demolition method statement ahead of works starting:

- An asbestos survey has been produced which has confirmed the presence of asbestos.
- Asbestos will be removed in by a licenced contractor, and disposed of at a licenced asbestos tip.
- Buildings will be demolished using an excavator with suitable demolition attachments – this will be detailed within the demolition method statement.
- An exclusion zone will be established around the demolition areas as works progress.
- Hard arisings (bricks, concrete, etc.) will be removed to a waste treatment facility for recycling.

Water tanks and pumping facilities

Water storage and pumping facilities will be constructed at the locations shown on the design:

- The new Yorkshire Water mains supply will be brought onto site by Yorkshire Water with spurs feeding the tank and pumping facilities.
- Tank and pumping facilities will be designed and installed by Nomenca, NMC's mechanical & electrical division, an accordance with a separate, site specific RAMS.

PART MS4 –Documents Required as Part of the RAMS Pack			
	Document	**Required**	**Attached or Location**
Attached Documents	**Environmental Risk Assessment (Aspects & Impacts)**	Yes	Attached
	Process Impact Assessment	No	
	Design Risk Assessment / Health & Safety File	No	
	Permits required for the work:		
	Confined Spaces	No	
	Hot Work	Yes	Issued as required
	Electrical	Yes	Pumping facilities
	Excavate and Break Ground	Yes	Issued for all excavations
	Lifting Operations & Lift Plan	Yes	Machine Lift Permit for machine lifts
	Demolition Operations	Yes	Demolition of existing farm buildings
	Restricted Access / Restricted Operations	No	
	Other	No	
	Drawings relevant to work taking place	Yes	Site Office
	Emergency Procedures	Yes	Site Office
	Service drawings and other utility identification	Yes	Attached to Permit to Excavate, and in Site Office

PART MS5 – Post Activity Review			
Look at how the task was done, can we improve the method?			
RAMS Ref No.	40-NMC-WS-70-CI-RA-0001	**Rev:**	1
Contract No.	44394.002	**Contract Name:**	York Potash, Woodsmith Mine Enabling Works, Phase 3

Brief description of task		
Are there any lessons for next time?		
Did the task create any new hazards?		
What could we change to make the task safer next time?		

BRIEFING RECORD

REMEMBER TO RE-BRIEF THE WORKFORCE WHEN THINGS CHANGE OR A MAXIMUM OF EVERY 30 DAY

PART BR1 - Briefing Record for RAMS	40-NMC-WS-70-CI-RA-0001	**Revision:**	1

By signing this Briefing Record you are accepting that you:

1. Have had the briefing on the date stated,
2. Understand how the task is to be completed,
3. Will complete the task as described or **STOP** if it cannot be completed as described,

Name (Please Print)	Consulted Y/N	Job / Role (During Task)	Signature	Date	Briefed By	Position	Original, Change 1, Change 2, Review

Personnel who are consulted in the preparation of the RAMS should indicate this by inserting Y in the consulted column.