

BYRNECUT

Navachab Gold Mine - Namibia

Mining Method Statement

QKR Namibia

A CUT ABOVE™ in contract mining

byrncutmining.com

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1. Clarification

In reference to this document and to avoid complications, Byrncut Offshore Pty Ltd will be further known as Byrncut or the Contractor, while QKR Namibia will be further known as the Principal, Client or Company.

1.1 Byrncut Group Overview

The Byrncut Group is a global company with industry specialized entities worldwide. The Byrncut Group consists of privately owned companies, including Byrncut Australia, Byrncut Offshore, Mining Plus, Murray Engineering, SRO, Jetcrete Oz, Quattro Project Engineering, Sano Health, and BOAB. The group employs over 5,000 people globally. Figure 1 is a summary of the Byrncut Group logos representing the company brands worldwide.



Figure 1 - Byrncut Group Logos

1.2 Relevant Experience

Byrncut is a leading underground contract miner, that always aims to grow through quality, safety, and reliability, with an open approach to innovation. Over the last 30 years of proven experience, we have demonstrated industry leading quality through a long-term management view of building lasting relationships with our employees, clients, and our OEM manufacturers as part of our culture.

Byrncut has comprehensive experience in executing highly efficient mechanised underground mining operations around the world. Project locations include Canada, Saudi Arabia, Indonesia, Ireland, New Zealand, Australia, Tanzania, Zambia, Burkina Faso, Ghana, Mali, DRC, and South Africa. Collectively, Byrncut has more than 20 years' experience contracting internationally and over 30 years' of contracting in Australia.

Byrncut ensures the execution strategy for each site is tailored to align with its specific objectives with a safety-first approach as each site comes with its own unique complexities and challenges. Byrncut leverages the collective experience, knowledge and insights developed from all its global operations to ensure a seamless initiation and consistent delivery that's on time and within budget.

2. Maintenance, Operations and Safety Database

Byrncut Offshore Pty Ltd (Byrncut) operations are managed consistently by adopting common standards and practices on all sites. As all Byrncut Offshore entities set up in country form a part of the Byrncut Group, these practices will be adhered to whilst undertaking work at any underground project. Three databases are used for recording and sorting of data and generating action items for Maintenance, Operations and Safety.

The operations database is used to record data and generate reports in relation to site physical activity and provide up to date information on progress against target, etc. It can also be used for generating contract income statements for payroll and standardised payroll reports. The database was developed internally to suit Byrncut and Byrncut Company requirements. With the commencement of each new project this database is updated

to take account of specific project requirements and invoicing standards so that reports are generated in the correct format for ease of invoicing.

The maintenance database was also developed internally after a search revealed that there were no suitable off-the-shelf products for the Byrnegut business. This database is used to record plant maintenance history, generate reports, schedule services, prepare maintenance payroll information, report on targeted component life and tyre wear and track work performed on each item of plant.

The safety system relies on use of the INX database, which is detailed in the Safety and Environmental Management Plan for the project.

All projects are linked electronically to head office allowing online access to information for both head office users and site users.

3. Work Safety – Control of Works

The underground Project Integrated Management Plan (IMP) documents the minimum standards to which the project partners will work to. The IMP provides a structure for the integration of over-arching safety, training, environment, quality and contractor management systems by the Company and Byrnegut by determining expectations and protocols that are to apply.

The plan references key documents from both the Company documents and standards, and Byrnegut documents and standards.

The aim of the IMP is to:

- Ensure understanding and acceptance of applicable standards and protocols that are to apply for the underground project,
- Deliver guidelines for applicable standards and processes that are to apply,
- Drive a proactive approach to safety, health, training, environment and quality by project management and supervisory personnel, and how it is applied to underground personnel.

As a minimum, all personnel working underground for Byrnegut will be required to complete the following TRM's:

- Byrnegut Underground Induction,
- Site Specific Procedures,
 - Firing Re-entry,
 - Tag board,
- Byrnegut TRM – Conduct Manual Scaling,
- Byrnegut TRM – Explosives (1) Handling, Transport and Storage,
- Byrnegut TRM – Mobile Equipment Operations Safety.

The Byrnegut Project Manager controls work on site with assistance from the Alternate Manager/Project Engineer, Project Foreman, Maintenance Foreman and Shift Supervisors. All of these positions are accountable for the implementation and adherence of company policy and plans on the site. Control of personnel in and out of the mine will be managed via an approved tagging system.

The Byrnegut OH&S practitioner, Manager and/ Supervisor, is a resource to assist in the implementation of the Safety Management Plan and complete certain functions within the execution of the plan.

Work safety is managed through interaction between all parties and promotion of a positive safety culture amongst the workforces. Byrnedcut upholds the philosophy that all tasks can be performed safely, and our goal is for zero accidents and incidents as evidenced in the Byrnedcut Group Safety Policy.

Work safety issues, where they are raised or become evident are dealt with through various avenues. If the issue is a hazard, then this must be rectified immediately by the person identifying the hazard or if not capable of rectifying the hazard, by reporting it to the shift supervisor for rectification. These are ordinarily detected through the workplace inspection forms, planned inspections or supervisor inspections of workplaces as per requirements of the relevant mining legislation.

If the issue is inherent in work practices, then a review of procedures will be undertaken, and job safety analysis conducted to develop alternate procedures.

If the issue is related to design, then the design will be reviewed in conjunction with the Company to determine a better design for the process. This may involve replacement of equipment or design of alternate equipment/attachments to perform specific tasks.

Communication of issues is achieved through pre-start safety toolbox meetings, formal safety meetings, OHS committee meetings, safety representatives and other unplanned meetings/discussions as necessary to ensure that issues are rectified, and hazards communicated.

4. Quality Management

Quality of works and associated activities is managed through implementation of the project IMP.

The Byrnedcut Project Manager is required to implement all plans and procedures, ensure that all necessary inspections and tests are conducted and ensure that documents are retained, filed and maintained as per the requirements of the Company.

The site document and system review process are detailed below in Figure 1 below. The abbreviations used are.

- DC – Document Control,
- SR – System Review,
- SV – System Verification,
- QV – Quality Verification,
- QC – Quality Control.

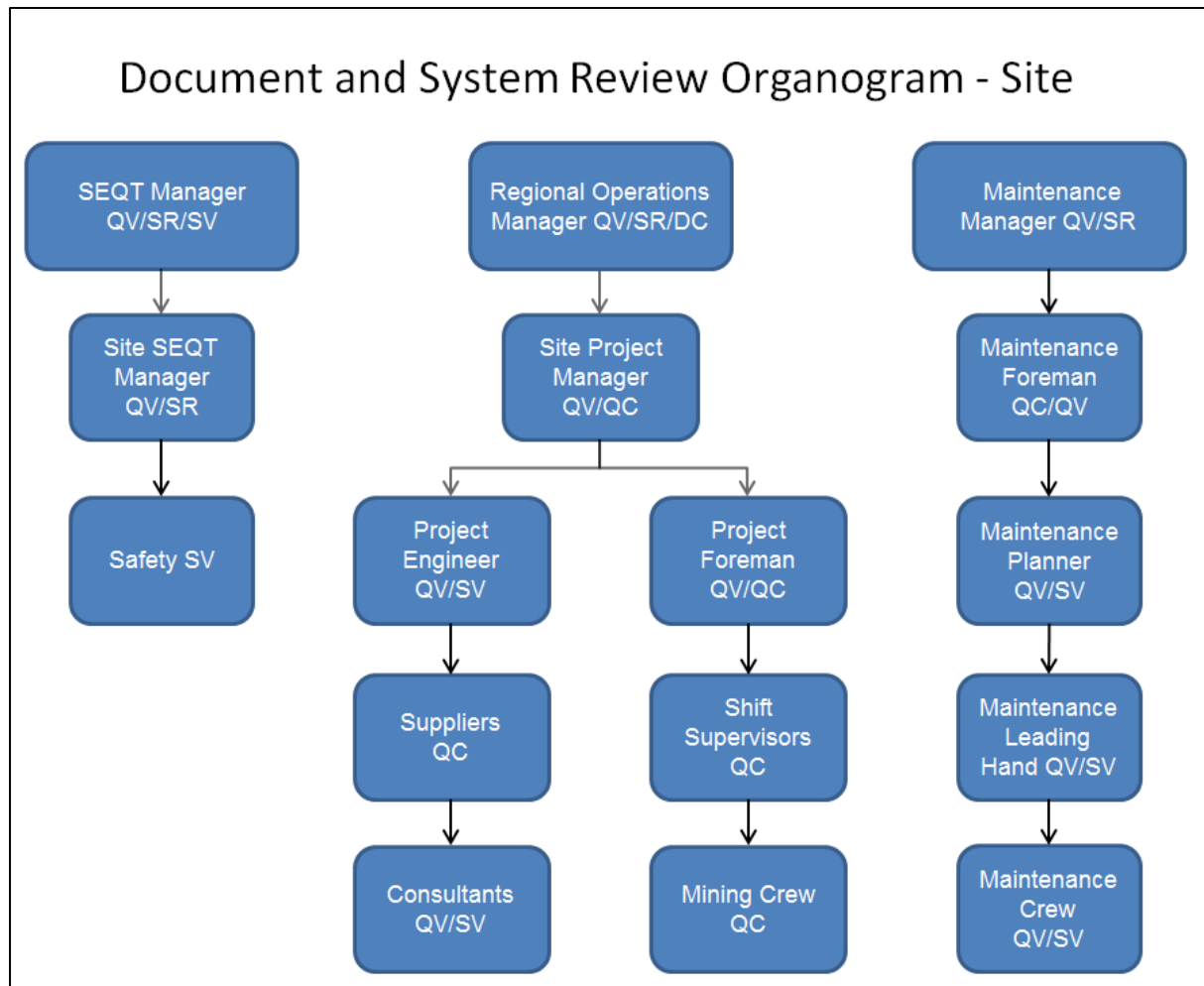


Figure 1 - Document, system and quality control and verification structure - Site

The Company is run on a project management basis. The organisation structure for a typical project is shown below. This structure is modified as required for non-typical projects.

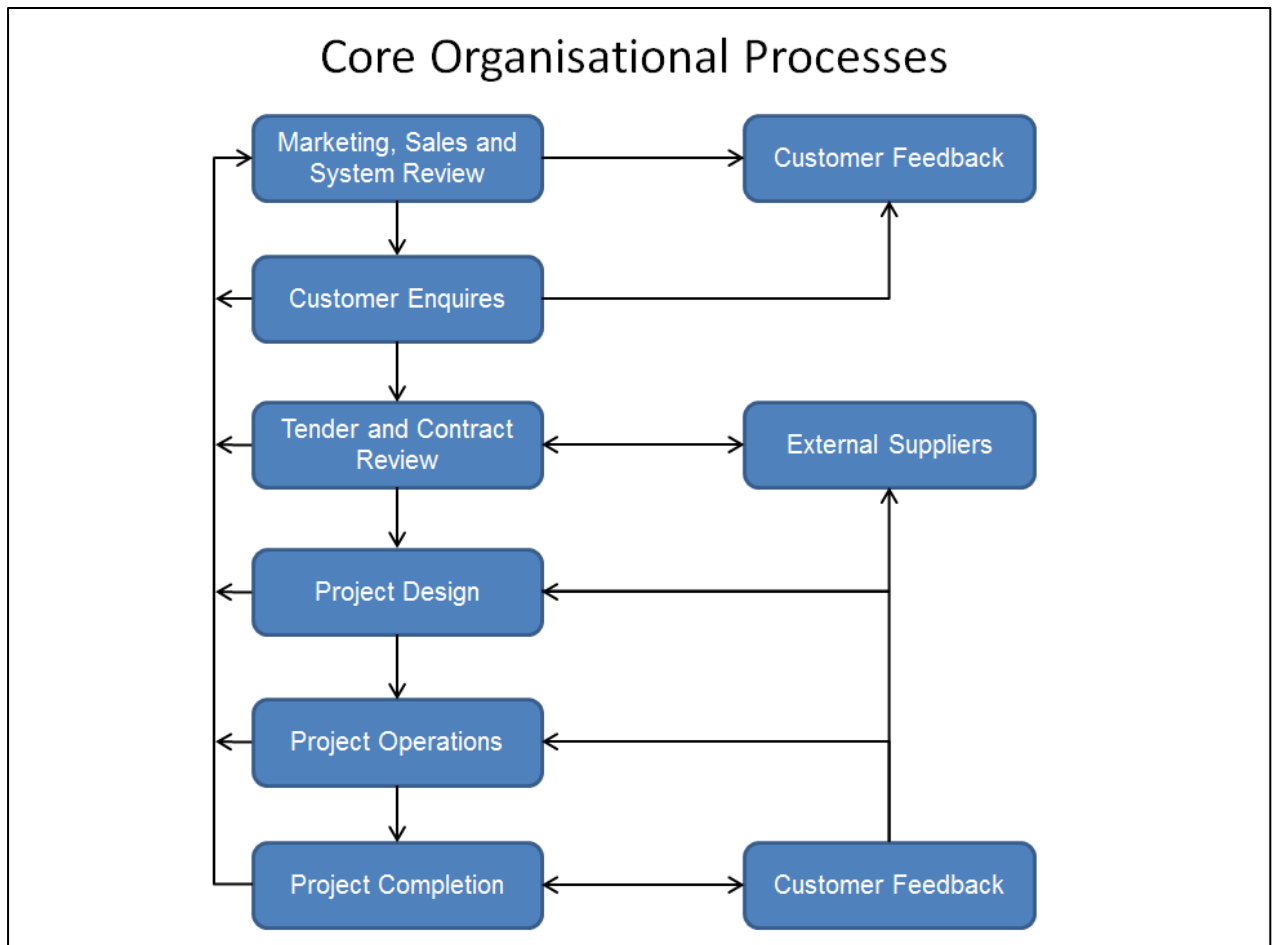


Figure 2 – Core Organisational Processes - Site

5. Reporting

5.1 Shift Reports

Byrncut will comply with the requirements of the Company and all relevant mines regulations for shift reports. Shift reports are completed by the Shift Supervisor and checked on a daily basis by the Project Foreman for the mine.

Plant operating hours are recorded on pre-start Inspections for each item of plant at the commencement of each shift as well as being recorded by maintenance personnel whilst conducting daily services on the plant. Plant availability and utilisation reports are produced on a weekly basis.

In addition to paper recording, Byrncut utilises an electronic whiteboard for recording of heading status, equipment location and allocation of personnel, hazards, designated firing personnel and other relevant information. This forms an integral part of the planning process on a shift basis and satisfies statutory requirements for providing written instruction.

5.2 Daily Reports

Daily reports are prepared on a daily basis by the Project Engineer. This report includes actual performance on a daily and monthly basis for key areas of physical activity and provides an updated project status report.

5.3 Weekly Basis

Project status is updated on a daily basis and then reported on a progressive cumulative basis which satisfies the weekly reporting requirements.

Weekly availability and utilisation reports are prepared for all mobile plant as previously mentioned.

5.4 Monthly

A monthly report is produced for the project generated from the Byrnegut Production Database. In addition, monthly mechanical availability and utilisation reports are generated from the Maintenance Database.

Inspection outcomes and any reportable environmental or safety incidents are included in the Safety and Environment Management Plan.

6. Company Liaison

Byrnegut will comply with all requirements with respect to the contract and attendance at meetings with the Company personnel. Active communication at all levels is encouraged to ensure accurate and timely transfer of information. Meetings may be undertaken daily, weekly or monthly.

Monthly planning meetings for review and setting of monthly targets will be held as required by the Company. Activities included as a minimum will be:

- Horizontal development including ground support installation,
- Vertical development including installation of escapeway ladders (where required),
- Haulage,
- Secondary fan relocations and ventilation maintenance,
- Substation and electrical relocations/installations,
- Major pump relocations and installations,
- Major planned maintenance tasks.

Progress against this schedule will be monitored on a daily and weekly basis and updated in preparation for the weekly production meetings.

7. Site Mobilisation, Infrastructure Establishment, Freight and Demobilisation

7.1 Site Mobilization and Infrastructure Establishment

Mobilisation includes lump sums for Byrnegut site establishment and freight. The combined Electrical, Maintenance and Mining items include items such as small tooling, some once-off purchases such as work baskets, electrical and maintenance tooling as well as first fills for mining, maintenance, electrical spares, communication, stench gas system, survey equipment, partial subcontractor items, safety and personal protective equipment (PPE).

The IT Computing Equipment includes computers and software as well as the necessary hardware to setup Byrnegut's servers.

Establishment Team and Labour Mobilisation includes an allowance for a small group of personnel starting prior to first physicals. This initial team ensures that the project is prepared for first physicals, by ensuring all necessary construction is completed, service take-offs are appropriate, stores and consumables are located and stocked appropriately, site specific project plans are developed, and local recruitment has occurred.

7.1.1 Mobilization Freight

All non-containerised freight (Roll on – Roll off) cost is from origin to site, with all handling charges. The freight estimate includes containerised freight for first fills & tooling.

Byrncut has a long history of shipping MME direct from an Original Equipment Manufacturer (OEM) to various international ports and mine sites to ensure the fastest delivery of the lowest base price equipment. Importantly for an efficient start-up and efficient equipment commissioning, the equipment is manufactured and delivered to site according to “Byrncut Specifications” for safe, high speed mechanised underground mining. Additionally, Byrncut is familiar with logistical requirements in Namibia due to the current operation of Wolfshag Mine.

7.1.2 Import Duties

Import duties have been included in this proposal.

7.1.3 Demobilization

Demobilisation costs have been included in this proposal.

7.2 Layout of Surface Facilities

It has been assumed that the Principal shall supply a flattened and graded land area for surface infrastructure construction for Byrncut with supplied connections for Power, water and Sewage. Byrncut will supply the following facilities:

- 100-person capacity Camp and messing (Includes Civils, Laundry Unit, Recreation facility, camp office, kitchen, furniture, and provision for water treatment, sewage treatment and backup power).
- Office block with ERT training room, muster room and crib room with fitout
- Change House with fit out
- Electrical and Maintenance Workshop and Service Bay
- Mobile Batch Plant

7.3 Camp Management

Byrncut has allowed for Camp management for contractor employees which includes minor camp maintenance, messing costs and general operation.

8. Underground Development

The development cycle for a bolt and mesh drive profile will be completed in the following sequence:

- Mark up face, wash out and delineate sockets (butts),
- Face bored out by twin boom jumbo,
- Bored out cut will be charged by Normet charge rig, blasted with time for fume clearance,
- The loader will bog waste and transfer to stockpile,
- Extension of services/ventilation if required,
- Scale and Installation of support bolts and surface mesh with twin boom jumbo,
- Rebog (if required),
- Cycle repeated.

The development cycle for a bolt and fibrecrete drive profile will be completed in the following sequence:

- Mark up face, wash out and delineate sockets (butts),

- Face bored out by twin boom jumbo,
- Bored out cut will be charged by Normet charge rig, blasted with time for fume clearance,
- The loader will bog waste and transfer to stockpile,
- Extension of services/ventilation if required,
- Backs and face will be scaled with twin boom jumbo,
- Normet Spraymec will hydroscale then spray a layer of shotcrete over the unsupported ground,
- Rebog of scaled material,
- Installation of support bolts or surface mesh with twin boom jumbo,
- Cycle repeated.

Laser survey systems will keep the development on line and on grade. A Sandvik LH621i loader or similar will use its bucket to remove fired material from a development heading and transfer to a stockpile for future truck haulage. The loader will then load up empty underground trucks (Sandvik TH663i) that will transfer the material to the designated location depending on if it is ore or waste.

The below table shows the various roles of the equipment that might be used at a Byrnegut site:

Development Machines - Model	Description
Sandvik DD422i_DC, DD422i twin boom jumbos	Face drilling and ground support installation. DD422i intelligent jumbo uses auto boring functions with adequate # headings available to maximise the benefit.
Sandvik LH621i, LH517i or similar	Face bogging, truck loading, and specialist designed assistance with services, e.g. fan installation
Sandvik TH663i, TH551i or similar	Haulage of development rock to designated tip points
Normet Spraymec or similar	Spraying of Fibre/Shotcrete.
Normet LF600 Agitator or similar	Transportation of Fibre/Shotcrete, cement products.
Caterpillar 930/962, Volvo L120H or similar Integrated Tool Carrier	Service installation including ventilation ducting, communications, electrical cables, pump lines, air and water lines.
Normet/Macleans Charge Carrier or similar	Development charging carrier will be fitted with an emulsion pump from local explosives supplier.
Normet/MacLeans Boom Service truck or similar	Transport of bulk materials underground, including ground support, chemicals and general mining consumables (where scope requires it)
Normet/MacLeans Fuel and Lube Truck or similar	Mobile refuelling and lubrication of underground MME. (where scope requires it)
Caterpillar 140 Grader or similar	Road construction and grading of declines to maintain acceptable roadway conditions
Toyota Landcruiser, Toyota Twin cabs or similar Light Vehicle	Personnel transport, supervision and maintenance transport

Development shall be completed using twin-boom drilling jumbos. Rails will be telescopic to maximise productivity in terms of round length per set-up in the capital development headings. The split feed length will be suited to the size of the drives while still being able to efficiently and correctly install ground support using optimal bolt installation angle. In this case, the rails will allow the installation of 2.4m bolts in the ground support cycle and rod lengths of up to 4.9m whilst face drilling. The round length will vary depending on geological information and ground type visible at the time. An automated Sandvik DD422i is normally costed in proposed projects exceeding 900m lateral advance per month. Using advanced automated drilling the drill is able to continue drilling across shift change and crib breaks unmanned. Byrnegut has been trialling the newer Jumbos and has found it to gain more advance per blast with smaller over break due to programmable drill patterns. Development advance of greater than 4.5m per blast is expected when utilising this machine.

Face blast holes will be drilled at 45/48mm diameter and reamer holes at 102mm diameter. Perimeter holes will be drilled at the marked-up heading size as per the specifications with respect to spacing and burden and as per

the prevailing ground conditions. Standardised development patterns are adhered to making allowance for decreased spacing on profile holes to ensure over break and excavation tolerances is kept within the scope of work specifications. Bit gauging will ensure correct hole sizes for bolt type. Regular installation and marking of pull-rings shall enable regular pull-testing of installed ground support.

All face drilling will be undertaken in accordance with:

- Byrnegut TRM – Jumbo Operation

Ventilation and services will be installed where possible concurrent with face drilling, however the installation of heavy pump line and extension of permanent ventilation ducting will be completed in cycle due to the restrictive nature of these tasks.

Face markup will be performed by the jumbo operator and/or shift supervisor prior to drilling of the round. During this process, sockets (butts) will be cleaned out and marked. Achievement of construction tolerances will be managed by ensuring all faces are marked prior to boring, grade lines and centre lines are maintained within 10m of the face and drilling is carried out as per the marked-up face. Jumbo maintenance procedures, including daily services, will ensure the functionality of the boom parallelism to ensure parallel holes are drilled in the face.

The final grade will be achieved with the use of fill and road base as required to ensure the final road pavement is at the required height. The surveyor will be utilised for the final profile, alignment and grade checks.

Excavation of stockpiles and other take offs will be completed concurrently with decline advance. At stockpiles, sufficient back and wall stripping will be taken to allow efficient truck loading and turning.

9. Underground Production

Longhole stoping mining method will be the primary method used to extract ore. The Contractor has selected various roles of the equipment that might be used at the site that are shown in the table below.

Production Machines - Model	Description
Sandvik DL432i-9C	Longhole capable of drilling 89 mm blast holes and drill string. Reaming holes of 152 mm for both rise and stope slots
Sandvik LH617i LHD with Sandvik Automine or similar	Stope bogging (conventional and tele-remote with navigation guidance), truck loading
Sandvik TH663	Haulage of stope ore to designated tip points
Caterpillar 930/962, Volvo L120H or similar Integrated Tool Carrier	Stope charging back up basket (if required with emulsion unit a larger IT may be used), services extraction for safe blasting and water sprayer system set ups
Normet EC-3 (Emulsion) or similar Charge Carrier	Stope charging carrier fitted with a hose pusher and local explosive supplier emulsion pump
Toyota Landcruiser, Toyota Twin cabs or similar Light Vehicle	Personnel transport, underground explosives transport, supervision and maintenance transport

The production cycle, commencing with Company survey mark-up will be completed in the following sequence:

- Survey mark-up of Longholes and slots to be drilled,
- Drill holes as per drilling designs with longhole or Rhino,
- Uphole survey every second ring longest HW and FW hole,
- Prepare holes for charging,
- Charge up longholes as per blast designs, blast and fume clearance,
- Water down and bog (conventional and/or teleremote).

Longhole drilling will be undertaken with the longhole drill rig. The boom/mast of machines can either be the boom or horseshoe variety depending on site specifications however the horseshoe style drills are preferred

from higher drilling output. Both styles require drive sizes of at least 5.0m x 5.0m to allow for the boom and rod carousel. Rig selection of a boom mounted longhole rig can be substituted upon further analysis of the ore/ore drive orientation and stope design, for versatility. Sandvik longhole models can be upgraded with the option for remote drilling to remove the operator when drilling near hazards such as previously fired ground.

Blast holes drilled range from 76mm to 102mm diameters and as an up-hole or down-hole depending on stope or rise design. Drill rods of 1.8m in length will be used. Where holes are to be reamed, 127-200mm reamers can be utilised again depending on drill rig selection.

Mark-up of holes to be drilled will be undertaken by the survey department. A site-specific and machine specific standard for hole set-out will be developed between Byrncut and the survey department to ensure continuity of drilling design through to drill set-up, and hence quality of results from all longhole drillers.

All longhole drilling will be undertaken in accordance with:

- Byrncut TRM – Longhole Operation

10. Vertical Development

Escapeway rise (4m x 4m), service holes (if required), stope and ventilation rise slots will be undertaken with the Sandvik DL432i-9C. Vertical Raisebore development (3.5m D) will be undertaken by a Subcontractor as it is not a core competency of Byrncut.

Safescope installation has been allowed for in the Raisebore and subsequent rises.

11. Diamond Drilling

Grade Control and Diamond Drill hole drilling costs have been allowed for and will be subcontracted as it is not a core competency of Byrncut.

12. Large Excavations

The restriction on height is related to the capabilities of both jumbo and charging equipment, whereas the restriction on width is related to span lengths and associated geotechnical considerations. For any excavations exceeding the abnormal limitations, individual analysis of the excavation sequence will be conducted to determine the most appropriate methodology, taking into account equipment limitations and geotechnical considerations.

13. Explosives Usage, Handling and Transport

13.1 Type and Quantity

Explosive selection for the proposed project is emulsion which is being supplied by the Principal. Byrncut has not included costs for explosives but has provided a monthly estimate of usage requirements.

Development charging using Emulsion as the bulk product to load charge holes which are each primed with Nonel (shocktube) detonator encased with a 25-60g PETN cast primer. The detonators will be long period (LP) series and have 4.7 to 6m leads (depending on charge hole depth) for ease of tie-in. Detonators will be connected at the face with 5g/m detonating cord and initiated with two electric detonators.

Perimeter holes will be charged with a suitable density emulsion or decoupled explosives product if available in Country (barrel or similar), subject to the ground conditions and specifications. Trials will be conducted to ascertain the most effective form of perimeter control.

Production charging using Emulsion as the bulk product to load charge holes with electronic detonators will be utilised in combinations of 15m, 24m and 30m leads, depending on hole length. 90-250g Pentex Stopeprime boosters (with spiders) or similar will be used to prime all production blast holes depending on charge hole diameter. Detonators are placed every 8-10m of charge length.

Development blasts are initiated using two electric detonators attached to detonating cord at the face and bell wire / firing line back from this point. Initiation will be from designated firing point after all personnel have cleared the designated work area via a shot exploder after all personnel have cleared the designated work area and the underground tagboard has been cleared.

13.2 Design

Development blast designs will be developed in conjunction with the onsite explosives' supplier and Byrnegut. Several designs will be trialled initially to achieve desired outcomes with regards to fragmentation, blast damage and round length.

Production blast designs (drilling and charging patterns) will be developed by the assigned Drill and Blast Engineers and issued in a timely manner to ensure continuity of stoping operations. The plans will be easily read and understood by charge up crews with correct training.

13.3 Storage

The surface magazine provided by the Principal will be the primary storage area for explosives on site. The Contractor has made no allowance for a surface magazine or an underground magazine due to the small scope size. The project team will investigate the possibility of storing explosives in a working party magazine underground for ease of supply underground when deemed necessary.

Byrnegut will adhere to in country regulations, and various explosives regulations or acts. Further, the Company is requested to obtain required explosives approvals based on this method of work.

13.4 Ordering and Issuing

Due consideration will be given to lead times, storage and consumption rates to determine the best delivery schedule and ensure continuity of supply.

13.5 Explosives Usage

All explosive charging and firing activities will be undertaken in accordance with:

- Byrnegut TRM – Explosives (1) Handling, Transport and Storage,
- Byrnegut TRM – Explosives (2.1) Charge-Up Vehicle Operations,
- Byrnegut TRM - Explosives (2.2D) Development Charge-up,
- Byrnegut TRM - Explosives (2.2P) Production Charge-up,
- Byrnegut TRM - Explosives (2.2LR) Longhole Rise Charge-up.

13.6 Firing Times

Firing times will be coordinated between the Company and Byrnegut which forms part of the site-based Risk Assessment and IMP. Byrnegut has assumed that independent firing will be allowed for the majority of the project with suitable risk controls put in place before this commences.

14. Bogging and Trucking

After blasting the broken rock, backs and walls of the excavation will be watered down to minimise dust generation in the bogging cycle.

Development faces will be bogged and loaded directly into a haul truck if available at the nearest stockpile or alternately load directly into the stockpile for later removal. Direct loading will be utilised as much as possible to minimise rehandle, however priority will be on preparing the face ready for ground support application.

Trucking and traffic flow in the decline will be controlled by utilising radio communications. Loaded trucks travelling up hill will have priority over all other vehicles to minimise manoeuvring of loaded trucks. A site-specific Traffic Management Plan will be implemented on startup.

Speed will be restricted on the uphill journey due to the capabilities of the equipment and on the downward journey due to gear lock out on the trucks.

All load, haul and dump activities will be undertaken in accordance with:

- Byrnegut TRM – Conduct Load Haul Dump Operations,
- Byrnegut TRM – Conduct Remote Load Haul Dump Operations,
- Byrnegut TRM – Conduct Truck Operations.

15. Ground Support Procedures

The following Byrnegut procedures allows for all personnel to be well removed from unsupported ground during all bolt installation operations this also includes the meshing of faces during the ground support phase.

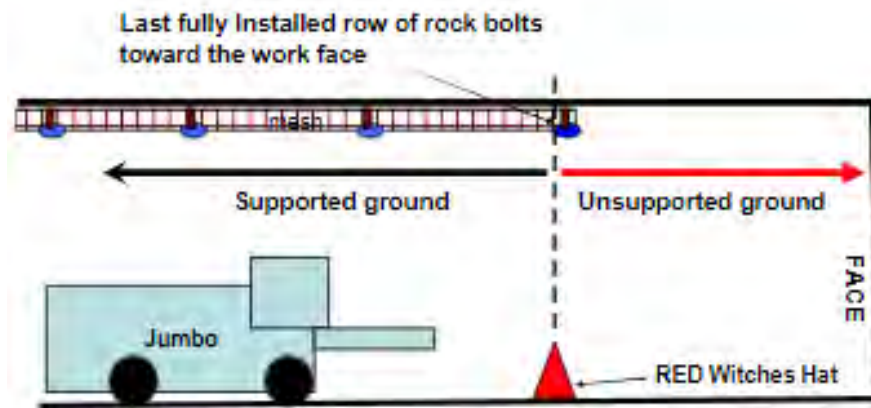
For this project Byrnegut has included Face meshing as a provisional rate based on the minimum standard that Byrnegut requires:

- For faces 6.5m high or less:
 - Minimum of eight 47mm x 900mm splitsets installed on 1.2m x 1.2m pattern (dice 5),
 - Minimum of one sheet of mesh installed in centre and towards top of the face,
 - Maximum distances
 - Mesh to side walls – 1m,
 - Mesh to floor – 3.5m,
 - Mesh to backs – 0.5m.
- For faces more than 6.5m high:
 - Minimum of thirteen 47mm x 900mm splitsets installed on 1.2m x 1.2m pattern (dice 5),
 - Minimum of two sheet of mesh installed in centre and towards top of the face,
 - Maximum distances
 - Mesh to side walls – 1m,
 - Mesh to floor – 1.5m,
 - Mesh to backs – 0.5m.

Byrnegut procedures state that no person is to go past the last row of fully installed ground support and no person to go past the jacks of the jumbo unless Drilling module movement prevention switch is in the locked position. Byrnegut procedures also has for two witches' hats to be placed on the ground to clearly mark the transition point between supported and unsupported ground.

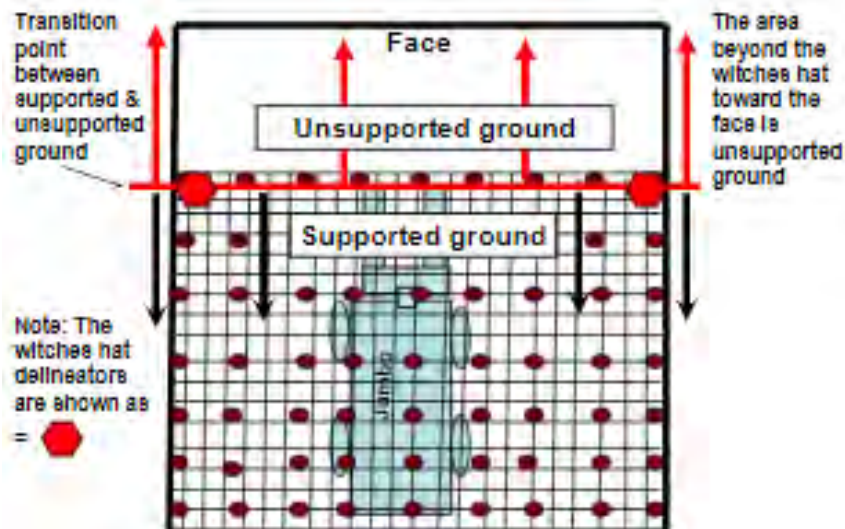
Picture (1) below shows the minimum Byrnegut standard for the position of the witches' hats in relation to the last fully installed and secure row of rock bolts toward the work face.

Picture (1)



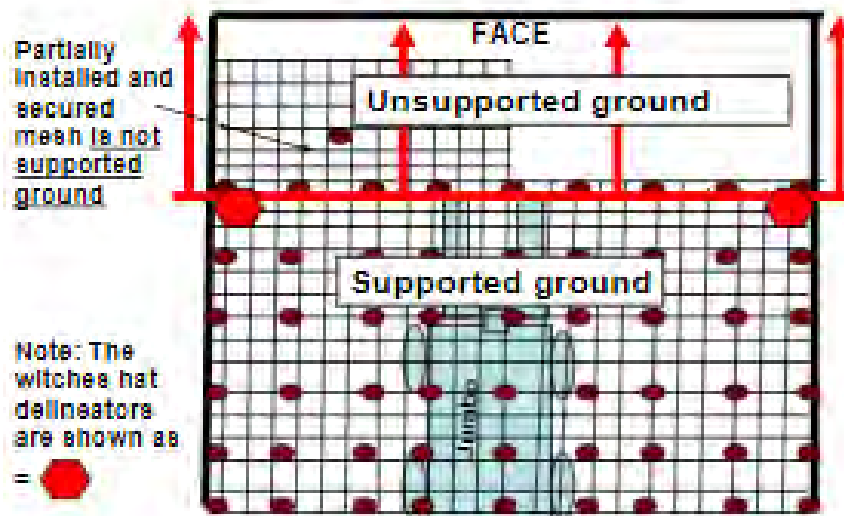
Picture (2) below shows a plan view of the minimum Byrncut standard for the position of the witches' hats in relation to the last fully installed and secure row of rock bolts toward the work face.

Picture (2)



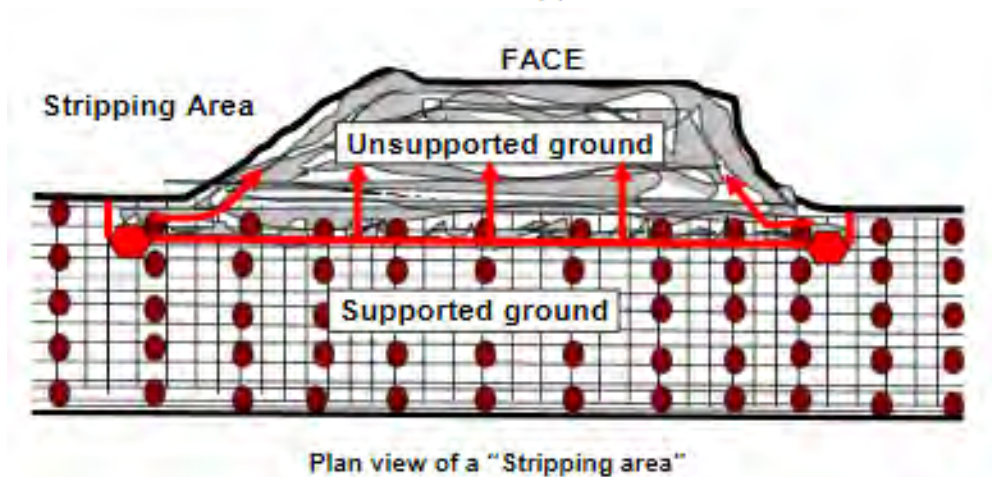
It must be remembered that only a fully installed and secure row of rock bolts can be used as the reference point for positioning the witch's hats. Picture (3) below shows an example of partially supported ground that sits ahead of the last fully installed row of rock bolts. Any partially supported ground is classified as unsupported ground.

Picture (3)



Picture (4) below shows an example of the minimum Byrnegut standard for positioning the witch's hats in relation to the last fully installed row of rock bolts in a stripping scenario.

Picture (4)



More detail of safe ground support installation is covered in the Byrnegut TRM – Jumbo operation.

15.1 Split Set Installation

If split set rock bolts are to be installed, they will be installed as required as per Byrnegut procedures and in compliance with the relevant Jumbo Operations TRM. All personnel will be well removed from unsupported ground during all bolt installation operations. The installation of split set rock bolts is completed by drilling the bolt hole with one boom and then pushing the bolt in the freshly drilled hole with the other boom. Hole diameters for split sets will be rigidly controlled with use of bit gauges to ensure that diameters are correct for the bolt size, and depending on the application type of the split set.

Shorter length split sets are also used to pin overlapping mesh of the next development round where resin bolts, CT, HGB, DCP, DCS or other bolts are used for the designated ground support profile.

15.2 MD Bolt Installation

MD bolt installation follows the same process as splitset bolt except once the bolt is fully driven into the hole, the nut at the bottom of the bolt is rotated to actuate a set of wedges inside the bolt that will firmly anchor the top end of the bolt into the rock.

15.3 Cablebolting Procedure

Cablebolt hole drilling shall be undertaken by the development jumbo.

Installation and grouting of cable bolts is to be performed from the IT service basket, installation and grouting of cable bolts will be undertaken in accordance with:

- Byrnegut TRM – Service Crew

All personnel will be equipped with appropriate PPE as per company procedure whilst conducting grouting operations. Grout mixes will be batched according to the correct ratio of cement to water as specified in relevant procedures.

Cables installed have set specifications ensuring a clean, an uncontaminated bolt loaded into drilled hole to maximise bonding between the grout and cable. Holes are flushed with water after drilling and prior to insertion to maximise bond between rock and grout. Cablebolts utilised shall be of a type and length as dictated by the GCMP however cables installed using the jumbo is normally limited to a 6.5m cable with 6m grout encapsulation. Pull testing of selected cables will be undertaken to confirm the minimum pull out strength is achieved. Further, Task Observations will be developed to ensure a full contact and encapsulation of the cable with the grout.

15.4 Installation of Galvanised Mesh

If galvanised mesh is to be installed, it will be installed as per Byrnegut procedures and in compliance with the relevant Jumbo Operations TRM. All personnel will be well removed from unsupported ground during all bolt installation operations.

The installation of mesh is easily completed by picking up the sheet of mesh using the bolt that is ready to insert, this bolt can be driven into the bolt hole, securing the mesh to the drive backs. The operators can then manoeuvre the mesh into its correct location using the jumbo booms. Once in place a second bolt can be driven in to a pre-drilled bolt hole. Once both bolts have been started and the mesh is in the corrected position, these bolts can be driven hard against the backs, firmly securing the mesh to the drive backs. Bolting through the mesh continues as normal. The use of 900mm stubby bolts (also known as mesh pins) can speed up the installation of mesh by pinning the mesh into existing split set bolts.

Mesh shall be transported on underground vehicles with the use of side hooks to ensure that mesh is not dragged on the ground. Dragging mesh can result in damage to the mesh and the galvanising. By utilising hooks this will ensure both the quality of the ground support and the safety of the persons handling the mesh.

15.5 Portal Support and Steel Set Installation

Portal faces are risk assessed once on site for the need to further scale via mechanical means or other methods. Ramp material may be placed, and portal support marked up for further scaling and installation. The general face support used would be rock bolts, cable bolts and mesh installed by a jumbo and potentially grouted using an IT and work basket as required. Byrnegut would require ramps to be built to achieve the height required and the process would be done in 3 passes. In addition to this face support and depending on the catch berm size above the portal, a catchment fence may be created above each portal, designed to handle any small scats/rocks dislodged from the pit walls.

One portal support is complete, boring and firing of the portal would commence. Firing methodology depends upon the ground conditions expected and size of the working area established in front of the portal/s and infrastructure that would have to be moved/protected before firing.

Steel sets are not priced in this proposal, however if required each cut would be supported by mesh/bolts and would be assessed after each cut for the installation of steel sets. Ideally the portal would be advanced 15-20m before the installation of steel sets. Construction of the steel sets would commence before development is completed so that the sets could be put in position as soon as the final cut is supported, and concrete footing has set. Byrnegut would typically allow for 10m steel sets at each portal. The steel sets would have timber lagging between each steel upright. Once in position, timber would be used to wedge the sets into the backs. Then the gap between the sets and the portal face would then be sprayed to seal the gap.

Portal support and sequence is highly dependent upon the ground conditions, equipment available, support requirements stipulated, bench cut back and the area available at the specific portal site/s.

15.6 Supply and Application of Fibre Reinforced Shotcrete

When applicable, consistent supply of shotcrete will be supplied to ensure that spraying occurs in cycle with minimal disruption to the development cycle time. The application of in-cycle shotcrete will be as per Byrnegut procedures and in compliance with the relevant Shotcrete Operations TRM.

All personnel will be well removed from unsupported ground during all spray and bolt installation operation.

The Byrnegut Group have developed or introduced most of the modern technologies used for shotcreting in Australian and international mining today. This includes overhead wet shotcrete, robotic shotcrete units and recently, hydro-scaling. These advancements have resulted in increased development rates for faster excavation cycles, improved early strength support and increased bonding between the fibrecrete and the substrate surface.

Byrnegut sites are structured with an Inspection Test Plan (ITP) to govern the testing requirements that satisfy the Company, Byrnegut's and Australian Standards requirements.

Site testing (where applicable) is inclusive of but not limited to:

- Casting batch plant cylinders,
- Spraying of in situ and round determinate panels,
- Casting of beams,
- Periodical testing of aggregate and cement compliance,
- Testing site water for impurities,
- Calibration of batch plant scales and dosing units.

In addition to the ITP, Byrnegut conducts periodic auditing of all equipment and processes to ensure maximum quality.

16. Auxiliary Services

The rates for auxiliary services are included separately in the services development rate that includes the installation of industrial water, air, dewatering, cabling, ventilation ducting and other secondary systems that are necessary to perform the tasks in the heading.

Mine services shall comply with the site standards in terms of pipe classifications and cable hanging devices.

The following table lists Byrnegut's assumptions on Auxiliary Services to be installed with development and as such forms part of the cost basis of the unit rates for development.

Item	Decline	Access Development	Exploration Platform	Stockpile	Sump	Vent Drive	Ore Drives
63mm Air Line	No	No	Yes	No	No	No	Yes 0.75x
110mm Air Line	Yes	Yes	No	No	No	Yes	No
63mm Water Line	No	No	Yes	No	No	No	Yes 0.75x
110mm Water Line	Yes	Yes	No	No	No	Yes	No
110mm Dewatering Line	Yes	Yes 0.5x	No	No	Yes 0.5x	Yes 0.5x	No
1400mm Soft Vent	Yes x2	Yes	Yes	No	No	Yes	No
1220mm Soft Vent	No	Yes	No	No	No	No	Yes
70mm HV Cable	Yes	No	No	No	No	No	No
95mm2 LV Cable	Yes x2	Yes	Yes	No	No	Yes 0.75x	Yes 0.5x
Leaky Feeder Cable	Yes	Yes	Yes	No	No	Yes	Yes

Table 1, Guide for Installed Services

16.1 Installing and Advancing Services

All underground services shall be installed using an Integrated Tool Carrier with a purpose built, certified man riding service basket attached to the front of the vehicle. This will be for all service lines, pump lines, vent ducting and various cable installations depending upon the application. All services shall be installed in accordance with project standards, including the use of pipe hangers and cable hangers (where applicable).

All service installation activities and IT operation will be undertaken in accordance with:

- Byrncut TRM – Integrated Tool Carrier
- Byrncut TRM – Service Crew

16.2 Ventilation Duct Installation

Decline ventilation duct will be extended in 2 phases. Firstly, to maintain sufficient volume of air to the face shot bags will be installed in 20m sections. This would normally be installed concurrent with advance with the vent fans being reduced to single stage operation for the period in which the ducting is installed, (subject to meeting required ventilating air volume and practicability).

After the face has advanced sufficiently from the end of the permanent ducting, (40m typically), the shot bag will be replaced with the permanent ducting. This installation process will require the fan on which the ducting is to be installed to be turned off. By maintaining the permanent ducting at a distance from the face, this will minimise blast damage and result in more efficient ventilation of the headings.

Permanent ventilation ducting will be installed on catenary cable properly tensioned and secured to selected jumbo rock bolts. All vent ducting will be 1200mm to 1400mm diameter flexible bag depending on the ventilation requirements as well as the drive and equipment sizes.

16.3 Air, Water and Temporary Pump Line

Services will be located so as to minimize the likelihood of damage from mobile machinery. Services will be hung as flush to the wall as practicable.

Mine services (water, pump and compressed air) will be run using HDPE, with 110mm diameter in main travelling ways and 63mm diameter in level ore drives. The air, water and pump lines will be installed back from the face to minimise interaction between the construction/service crews and the development crew. Air and water lines will be at PN 12.5 pressure rating and dewatering lines at PN 16.

All services will be installed according to the Byrncut TRM Services installation.

Table 2 shown below lists equipment as a reference guide for water and air usage required at a site.

Equipment	Minimum Water Flow	Recommended Water Flow	Minimum Air Flow	Maximum Air Flow

DD421 Jumbo	150 L/min	130 L/min	250 L/min	350 L/min
DL431 Solo	240 L/min	300 L/min	200 L/min	300 L/min

Table 2, Guide for Equipment Air and Water usage

16.4 Low Voltage Cable (1000V)

Low voltage cable will be installed from the IT service basket using certified cable hangers or as supplied by the Company. It is anticipated this will be done in 100 to 250m increments. Jumbo extension cable will be run to service the jumbo in between cable runs.

16.5 High Voltage Cable (11kV)

High voltage cable will be installed from the IT service basket using certified cable hangers or as supplied by the Company. It is anticipated this will be completed prior to the requirement to move any substation. Intervals will be determined by the length of low voltage runs that are taken off any one substation.

16.6 Communications

Communications will be installed from the IT service basket. The communication system is being supplied by the client for this project and as such Byrnegut will install as specified by the Client. All underground machinery and light vehicles will be fitted with radios to ensure good communication. A channel will be dedicated to the underground project with additional channels available for chat channels.

17. Dewatering and Pumping

The mine dewatering strategy is investigated upon the mine design of each project and will require staged pumping from decline faces, sumps and hopper tanks using a selection of pumps.

Stage one of dewatering will use the small 8kW Flygt submersible pumps (or 20kW for high flow) at the decline faces that will discharge to the nearest sump. These sumps will be staged with 110mm piping used for reticulation. All required electrical cables, starters and distribution boards have been allowed for to operate this system. Several spare pumps can be kept on site.

Stage two of dewatering will be from the medium sized 20-37kW pumps located in the mine sumps that can pump similar flows of water as the initial stage however much longer distances. The medium sized pumps will direct the water initially to the box cut sump however as the mine develops further, they will repeat the stage pumping to another sump or too the hopper of a large mono pump that can range from 55-90kW.

Stage three utilises the large helical rotor pumps that pump moderate volumes at a high head pressure or long distances that require similar pressures to overcome the large frictional resistances caused from long runs of poly pipe. Initially the pump shall discharge into the boxcut sump, however once the primary pump stations are commissioned, they will be moved lower down into the mine to discharge into the pump stations. The mono pumps will be installed in an excavated cuddy.

Normally, combinations of submersible pumps, mono tanks, sumps and drain lines will be considered to achieve the best for project solution to efficiently pump water out of the mine as required to the capacities specified by the system agreed. Byrnegut will allocate costs and equipment for the project based on the litres/ second requirements stated by the Company.

18. Roadway Construction

Roadworks will play a pivotal role in limiting the amount of maintenance required to machinery. Haul roads will be constructed as advance progresses utilising where suitable, run of mine rock to form the subbase of the road. Run of mine waste will be placed by the bogger during face bogging to within 150mm of the final road profile.

This will form the subbase of the final road construction. This roadway will be rough graded with the correct gradient and fall by the bogger and compacted by the bogger prior to any application of roadbase.

After a suitable period of compaction, the roadbase will be applied to the road surface. This will be placed by the development bogger and the development bogger will be used to complete initial compaction. Roadbase will typically be a 35-40mm crusher run aggregate (dolerite). Strategic stockpiles will be developed with elevated back height for tipping and storage of roadbase.

Once the roadbed is suitably stable the grader will be utilised to grade the road to final finish. At this point drains will be constructed and final gradient, RL and fall, in compliance with the specifications will be established. Roads will be cambered on corners to suit the operation of the underground fleet. Thereafter maintenance will be completed on an as required basis to maintain the road in optimal condition for haulage and access.

All road grading activities will be undertaken in accordance with:

- Byrnegut TRM – Grader Operations

Final roadway construction will be maintained to the point of truck loading from the start to the mine decline, below this, only the subbase will be maintained (depending on ground conditions encountered).

19. Maintenance

Byrnegut has a strong history in maintaining its own equipment, in particular Sandvik and Caterpillar equipment. The Byrnegut expatriate Leading Hand Fitters will work in and amongst the local artisans to provide training and leading by example.

The Byrnegut MEMS database provides the detailed servicing requirements for each piece of machinery, whether this is for daily, weekly or monthly servicing. All of the maintenance workforces will undergo the Byrnegut Maintenance Procedures.

20. UG Power Supply and Consumption

Electrical distribution boxes, jumbo boxes, pump and fan boxes will be hung to Byrnegut standards ensuring that excavations for electrical installations are provided in all instances. The Byrnegut standard ensures that all installations are not subject to potential damage from machinery, blasting or other mining activities.

All of the electrical workforces will undergo the Byrnegut Electrical Procedures.

Equipment	Input Power (kW)	Current Draw (A)
DD422 Jumbo	180	130
DL431 Solo	75	58
DS420 Cablebolter	75	54
Twin 90kW Fans	180	130
Raise Bore Rig	75	54
Diamond Drill	90	65
Twin 90kW Fans	180	130
Twin 55kW Fans	110	79.4
90 kW Flygt Pump	90	65
37 kW Flygt Pump	37	26

20 kW Flygt Pump	20	14.5
8 kW Flygt Pump	8	6
Refuge Chamber	10	7
Air Compressor	160	115
Mono Pump	55-90	40-65

Table 3, Example of Power Requirements and Current Draw at 1000V.

Additional procedures and risk assessments will be required to be reviewed upon finalisation of the primary power generation system. Sub-Contractor procedures would be applied for the installation, running and maintenance of the system and analysis on the integration of the site set up.

21. Technical Services

Byrnegut has allowed for a drill & blast engineer, project engineer (for short term planning), survey and a ventilation officer. All other long-term planning, geology, geotechnical & ground control duties and other is the responsibility of the client to supply technical services for the works. These appropriately qualified and experienced personnel are chosen and employed to ensure the job runs efficiently, productively and safely. The most common position includes the services of a Surveyor that is experienced in dealing with high-speed mechanised development requirements of an underground contractor. Open pit survey teams that move into underground environments require specialised training by experienced underground surveyors due to the vastly different methods, requirements and procedures required.

Byrnegut Mining Engineers have in the past been responsible for total mine design, mine development design and planning, production design and planning, infrastructure design, surveying and developing a life of contract budget which involves the selection of equipment and personnel.

The Byrnegut Group capability and experience in regard to engineering resources includes:

- Mining studies such as – scoping and conceptual studies and pre-feasibility and feasibility studies,
- Mine planning optimisation,
- Mine development and stope design,
- Long term and short-term scheduling
- Implementation and training of Datamine Studio, Earthworks Production Scheduler and Deswik,
- Mine economics including budgets and forecasts,
- Reserve calculations,
- Mine Management,
- Mining Engineering mentoring,
- Drill and Blast optimisation and monitoring,
- Ventilation modelling,
- Mine services including distribution systems for water, air, dewatering, power and backfill,
- Underground facility design including workshops, fuel bays etc,
- Waste dump design and layout,
- MineCad implementation and training - level plans, stope file notes, emergency response plans, survey instructions etc.

If required, Mining Plus (a part of the Byrnegut Group) could be responsible for major mining engineering/planning works. Mining Plus provides integrated, innovative and financially viable mining solutions that result in optimum project outcomes to match business needs. From mine concept to design implementation, the Mining Plus team will work to provide an extensive range of mining services whilst maintaining practicality.

22. General

22.1 Ventilation

Fans are selected based on the duty for each fan, the equipment to be operated in the area, the length of forced ventilation runs and appropriate diameter of ducting for the heading size. These fans will be sufficient to supply the appropriate amount of ventilating air to the development faces. Fans are installed on Byrncut standard fan hanging devices utilising load stamped shackles and load rated chains in locations to ensure the purest possible source of air to the secondary ventilation fan.

Fan serviceability is tested through monthly earth leakage testing and full load current testing. Ventilating air volume tests are conducted by the Company's Ventilation Officer as per statutory requirements.

Byrncut has the ability to supply and install ventilation walls with or without access doors, drop board regulators and large mechanical doors used to regulate airflow through a mine. For this proposal, byrncut has provided a provisional rate for Vent Bulkheads and Double Vent Doors if required.

Byrncut has allowed for a provisional number of secondary fans & a primary ventilation fan that is sufficient for the contract period

22.2 Dust Suppression

Dust suppression shall be carried out through the use of water both from hosing down muck piles, the use of a water cart (by Surface Contractors or Company on surface roads) or sprinklers (underground). Standard procedures regarding the suppression of dust generated underground (as a result of drilling or bogging operations) shall be used which involve watering down of dirt piles before bogging. Before bogging, the walls/back and muck pile will be adequately saturated with water to suppress dust.

22.3 Electrical Generation

The Company will provide power generation to the portals, Primary Vent Fan locations and Mine & Camp Infrastructure. Byrncut to be responsible for all power infrastructure drawing from a power source take off point near the portal to UG.

22.4 Compressed Air Generation

Compressed air for underground operations will be supplied by the Contractor via one 132kW JN Series Rotary Screw Air Compressors. These are designed for underground and designed to have an output of between 653-870cfm depending on connected reticulation. A smaller compressor, supplied by the Contractor, will be installed for the workshop to meet the requirements of the surface set up. This compressor will need to be able to generate sufficient pressure for the inflation of truck and bogger tyres.

22.5 Potable Water

Potable water will be supplied by the Company at the mine workshop and offices facility. Employees will be expected to take their drinking water with them when working underground, as potable water reticulation will not be available underground.

22.6 Diesel

Fuel, Storage & Dispensing for this project is to be supplied by the Company and the cost of diesel to be back charged to the Contractor. The Contractor has included cost of diesel. A Satstat fuel dispensing bowser will be utilised at a selected point near the portal and potentially underground at a later stage with their internal bladders to be filled up from the surface facility.

22.7 Fresh Air Bases and Refuge Chambers

Fresh air bases will be excavated if instructed by the Company. There will be sufficient fresh air bases and/or mobile refuge chambers to allow the entire underground workforce to take refuge in the event of a fire underground. Byrncut will supply and maintain portable 6-man refuge chambers and 20-man refuge chamber for the project. The 20-man refuge chambers will be located every 750m in one decline. Byrncut recommend the use of Mine Arc or Wattrix suppliers.

22.8 Escape Routes

Byrncut has allowed for safescape installation for the rise and raise bore. Byrncut recommends the use of Safe scape for blasted escape rises stabilised by encapsulating the ladder way with cement or similar. Byrncut recommends the use of Wilshaw or Quattro steel enclosed ladder ways for the stable rises excavated with a raise bore. Byrncut will undertake inspections at regular intervals and move the portable refuge chambers as required to avoid safety risks.

22.9 Self-Rescuers and Cap lamps

All personnel underground will be required to wear a self-rescuer and cap lamp. Training for the use of both items will be a compulsory part of induction. Cap-lamps for this project will also have proximity detection included. These are only allowed for Contractor employees.

22.10 Emergency Response Team

Byrncut can offer dedicated personnel for permanent assignment to the team, to ensure maximum training attendance compliance, availability of rescue members and adequate training. Byrncut plan to offer ERT trainers and volunteer personnel already part of the underground workforce to partake in regular training run by Byrncut which will include volunteers from the Company.

Byrncut will supply the project with underground emergency response equipment. The equipment usually includes enough equipment for two lots of eight-man teams and cover the following:

- Underground, search and rescue,
- Self-container breathing apparatus (BG4's),
- Rope rescue,
- First aid and medical including access to an ambulance capable of travelling underground,
- Industrial firefighting equipment including access to a fire tender capable of travelling underground,
- Vehicle extraction,
- Confined space rescue,
- Hazardous material,
- Miscellaneous items such as PPE,
- Access to a mines rescue facility for training and storage of equipment,
- Dedicated vehicle for UG ERT team.

23. Environmental Considerations

Byrncut as part of standard operating procedures will adopt the Company Environmental Management Plan. This will be referenced via the project IMP.

24. Procurement and Logistics

Byrncut's operations are supported by a purchasing team comprising of seven people that manage all international procurement requirements. Resources available are:

- **Group Supply & Logistics Manager** - Oversees day to day operational performance of all sites, plus sets up global and local procurement agreements for key commodity groups.

- **Logistics Manager** - Handles all international shipments, documentation and customs clearances and delivery to sites.
- **Purchasing Officer** – Supports Logistic Manager and coordinates all functions from requisition to shipment.
- **Central Receivals** - Four people where goods are received and re-packaged/containerised and documents prepared for goods destined for overseas operations.

Overall control of procurement and logistics is managed by the ByrneCut corporate head office. In addition to the above Supply and Procurement Officers are employed at each site. Depending on the size of the site and nature of the project, a Supply and Logistics Manager may be required on site to oversee and ensure logistics run to requirement. Individual sites manage their own stock levels of key consumables via the use of monthly stock takes and forecasted usage data being submitted to key suppliers. Procurement, identification of suitable suppliers (driven by availability, price and quality) starts with head office for initial purchasing. As sites become established the function of purchasing reverts to being primarily site-based controlled.

Wherever possible, goods and services will be purchased from local suppliers and vendors. Preference shall be given to local suppliers when purchasing like-for-like items (both in price and quality) versus overseas sourced items, in order to facilitate the growth of the local supply industry. In ByrneCut's experience, significant cost savings can also be made by engaging local suppliers and manufacturers, as freight, duties and some taxes can be avoided or reduced. As the ByrneCut Group is Australia's largest underground mining contractor, we deal with all major mining equipment manufacturers.

In general, we supply major mobile equipment directly from the manufacturer's warehouse e.g. for Sandvik equipment we purchase directly from Finland and arrange transport and shipping internally. For spares procurement, we purchase from the manufacturer's local dealer where possible and beneficial. Due to our close relationship to all major equipment suppliers, there are no foreseeable problems with sourcing and maintaining mining equipment.

ByrneCut have been procuring major mobile mining equipment for its offshore projects for 15 years and have developed a specific 'ByrneCut Offshore Specification' for a range of fleet requirement to suit various site-specific or mining requirements. Set prices for these specifications are negotiated annually between the mining equipment manufacturers and ByrneCut. The procurement of all major mining equipment, as previously indicated, is actioned from the corporate head office based in Perth sourcing from point of manufacture.

The primary alliances that ByrneCut Offshore has are within the ByrneCut Group of companies, this benefits all parties as major product groups are subject to group level supply agreements where applicable, and savings are realised through the competitive mining rates. This includes personal protective clothing, mining consumables, drilling consumables, ground support, and machine spares etc. Where possible local suppliers and distributors are utilised to reduce the amount of site-based stock carried, this also serves to support local suppliers and industries.

24.1 Customs

ByrneCut is well versed in the aspects of a number of countries customs regimes and requirements. ByrneCut has successfully imported into all projects in a timely manner and on many instances', clients have utilised ByrneCut not only as a prime contractor but additionally as a reliable supplier for their own procurement.

24.2 Documentation

ByrneCut runs very well formatted and laid out shipping documents that carry all required details for all countries and in a number of countries are run in a dual language format.

Every effort is placed into ensuring shipping documentation is 100% accurate and carries all of the required information. ByrneCut has found that with well-presented and laid out documents that the group has little issue

with customs in any country. A full set of PDF documents are supplied showing product specifications for easy verification of HS codes that are contained on our shipping docs.

24.3 Packaging

When loading sea containers all smalls are crated, standard size 1100mm x 1100mm x 1100mm crates are used - all numbered with crate labels and weights. These refer back directly to our shipping documents and makes for easy verification at customs. This minimizes the time spent by customs undertaking any physical inspections. The same process applies for airfreight or break-bulk cargo. Cargo is presented in a very professional manner which assists the entire customs process.

24.4 Pre-Clearance

Once any international freight is shipped a pre-alert containing all relevant shipping documents, Bills of Lading or Airway Bills are forwarded electronically to our site personnel. This document set also goes to our clearing agents who can start the preclearance process and lodgement of documents in preparation of the impending arrival. This assists in reducing the actual customs clearance process by having everything prepared in readiness for the physical inspection.

24.5 Delivery to Site

Once the cargo is cleared and ready for collection, transportation is booked and site advised of an estimated time of arrival (ETA). Allowing the site to plan and ensure cranes are available minimising delays with unloading cargo and releasing trucks. A 50t crane is required for unloading 20 foot and 40-foot containers bringing in international goods that can range from 25 to 30 tonnes. The contractor has allowed for a crane during 3-mth mobilisation and thereafter assumes the Company will provide these services free of charge.

25. Technology

The prospective project represents an opportunity to introduce world leading technology to the local mining industry. The size and complexity of the works will present opportunities for a first world mining contractor to implement efficiency improving technology to increase workforce and equipment productivities.

The Byrncut Group currently operate a mining fleet that includes autonomous drilling machines (development and production), semi-autonomous loaders (tramming on guidance) and semi-autonomous trucks. The benefits of computer assist technology have proven to increase productivities, reduce damage and improve working conditions for operators. Byrncut can offer the following to the prospective site:

- Autonomous face drilling on selected twin boom jumbos,
- Single hole data drilling on selected longhole drills,
- Semi-autonomous guidance technology on teleremote LHDs,
- Fibre Optic Back bone for monitoring and remote machine operations from surface.

Cost benefit analysis will also be undertaken on the potential to implement semi-autonomous truck guidance technology on the haulage fleet. This technology may be retro-fitted to the trucking fleet so the decision to implement need not be made on purchase of equipment.

Computerised face drilling technology has been proven to decrease face drilling time and improve blasting outcomes. Additionally, in the local mining context where skills and training may not be up to first world standards, it will allow national operators to hold their own against expatriate workers (in the short term while skills transfer is taking place), thereby allowing a greater percentage of workforce participation by national operators.

Single hole data drilling on longhole drills is a basic addition that increases productivity of a machine and operator. It allows the machine to drill a complete hole during meal breaks or shift changes where otherwise it would sit idle. It also allows for safer drilling out of bridges or hung-up material where there is a risk of equipment damage; the operator can remove themselves from the vicinity of the drilling that is taking place to



negate potential injury. There is the potential to run the production drills on teleremote operations in order to improve productivity over shift changes and blasting times. The advent of bit changing technology will open up this possibility in the near future.

When teleremote bogging is required, semi-autonomous guidance technology has proven to increase productivity of the loaders, while at the same time reducing downtime and operator fatigue. It also allows the potential for a centralised control room where several loaders can be remotely operated by only one operator.

25.1 Mine Control

Depending on the scale of the mining complex and various discreet working areas Byrncut can offer a centralised control system to ensure coordination of mining activities and effective fleet utilisation.

In addition, productivity and efficiency improvement initiatives, such as real time fleet monitoring and employee tracking systems may be implemented once a robust data backbone is installed.