#### Report to:



PACIFIC BOOKER MINERALS INC.

Morrison Copper/Gold Project Feasibility Study Volume 2 - Project Execution Plan

Project No 0652720100-REP-R0007-02

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# PACIFIC BOOKER MINERALS INC.

# MORRISON COPPER/GOLD PROJECT FEASIBILITY STUDY VOLUME 2 - PROJECT EXECUTION PLAN

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APPENDIX C CONTRACTOR'S ORGANIZATION CHART

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# 1.0 PROJECT EXECUTION

## 1.1 Introduction

The Project Execution Plan presents how Pacific Booker Minerals (PBM) will successfully complete the Morrison Copper/Gold Project (Project). The Project Execution Plan specifies the approach, tasks and schedule. As well it identifies and addresses any unique challenges facing the Project.

The Project will be designed and constructed to industry and regulatory standards, with emphasis on addressing all environmental and safety issues. Adherence to the Project Execution Plan will ensure timely and cost effective completion while ensuring quality is maintained.

## 1.2 PROJECT APPROACH

To achieve successful project execution PBM will assemble a Project Management Team. The Project Management Team will be comprised of personnel with appropriate skills, knowledge and experience and act with the support of multi-discipline consultants. The Project Management Team will, with the support of the Contractor(s), ensure that checks, balances, progress monitoring, regulatory guidance and quality assurance to ensure it has the information to act effectively are implemented.

Project work will be carried out by a primary Contractor with, subject to PBM approval, appropriate sub-contracting support. Subject to PBM determination, the primary Contractor's responsibility will either be Engineering, Procurement and Construction Management (EPCM) or Engineering, Procurement and Construction (EPC). Irrespective the nature of the contract, EPC or EPCM, the Contractor will be required to implement a:

- · Project Management System
- Engineering Records System
- Procurement System
- Logistics Plan (see Section 5) will be developed to ensure that the objectives for delivering material and people to and from the site are met. Management staff and contractors with proven records of logistics in the type of harsh climate for the project location will be engaged to ensure that this key project execution element is achieved.
- · Health and Safety Plan
- Construction Managing and Contract Plan
- · Quality Assurance/Quality Control System



- Environmental Management Plan
- Labour Relations Plan

PBM, its consultants and its contractors will, as is financially feasible, to utilize other local resources, including human, natural, technical and commercial. In particular the Project will be executed with full awareness of aboriginal issues and appropriate use of aboriginal resources.

## 1.3 PROJECT MANAGEMENT SYSTEM

A proven and integrated Project Management System (PMS) will be utilized by the Contractor to facilitate monitoring and control of the Project. The PMS will provide precise and accurate information to the Contractor and PBM, enabling them to make decisions and implement actions for the successful execution of the Project. The PMS will provide reporting of the status of the Project, document scope changes, budget and schedule; it will also compare actual performance with planned activities and report the effect of anticipated changes on the final date and cost.

Three essential elements of the PMS are:

- Project controls personnel assigned to enable the decisions required to ensure performance meets the targets.
- A project plan to define the technical, construction and schedule requirements, and identify the work responsibilities of the team.
- A monitoring system to compare actual and forecast performance against the project plan, and to show actual and expected variances.

The PMS combines modern, interactive computer technology with proven methods to define, plan, monitor and control the Project. Its flexibility will help to reduce the size of project organization required for successful completion.

#### 1.3.1 PROJECT CONTROLS PERSONNEL

An integral part of the PMS is the project controls function. The personnel assigned to this function will plan and control the schedule and costs of the project by use of an integrated project control system which will encompass the functions of scheduling, cost control, estimating, change control, monitoring and reporting for the engineering, procurement, construction and pre-operational testing of the Project.

The Project Controls Personnel will include staff assigned to engineering, procurement and administrative departments as well as the construction:

 Preparing and maintaining a detailed Project Execution Schedule, to be updated on a monthly basis, to compared the progress of project activities against the schedule.



- Preparing of a definitive capital cost estimate, followed by acquiring PBM's agreement for the estimate's use as the Project Control Budget.
- Implementing the project cost control system using the Project Control Budget, and the updating of actual cost records and commitments for the supply of equipment, materials and contracts.
- Estimating the cost to complete for the different elements of the Project, on a monthly basis.
- · Highlighting possible overruns or delays as early as possible.
- Recommending corrective action as required and ensuring PBM understands and approves recommended corrections.
- Analyzing actual cost performance and identifying significant trends.
- · Deviations from forecasts.
- Developing and maintaining a monthly cash flow projection.
- Preparing and issuing details regarding the overall project progress.

The Projects Control group will be divided into three main sub-groups:

- · Planning and Scheduling
- Cost Control
- Cost Engineering/Estimating

The following describes the function of the three groups.

#### PLANNING AND SCHEDULING

The project schedule will set out the Project's planning and controlling schedules. At the commencement of the project, the following planning and control activities will be undertaken:

- The Project Master Schedule will be developed as the principal control document.
   This summary schedule contains sufficient detail to enable management to compare performance against plan. The master schedule will summarize project level schedules and define established goals and milestones, major elements and durations of work to be performed and major precedence relationships.
- The Front End Schedule is essentially a schedule produced early in the Project to
  monitor and accumulate detailed activity status and progress on flow diagrams, plot
  plans, design drawings, major equipment procurement logistical preparations,
  preliminary construction activities and other project activities that require attention in
  the first 90 days of the project execution.
- The Detailed Project Schedule will be developed as scope definition and work
  packages are finalized. This schedule will represent all detailed work activities and
  deliverables necessary to complete the Project. The end product is a time-scaled,



resource-loaded, precedence network diagram and a bar chart showing all major activities and logical restraints necessary to complete engineering, construction, pre-op testing and start-up of all Project facilities. It will show critical path activities and total and free float available to all activity chains. Each construction contractor will present a schedule for its Scope of Work at time-of-contract award. The Detailed Schedule will be based on approved contractor schedules to monitor contractor progress.

 The Control Level Schedules represent the day-to-day tasks which summarize activities and/or deliverables. The status of these tasks determines the status of related activities in the Project Level Schedules.

#### **ENGINEERING & PROCUREMENT COST MONITORING AND CONTROL**

Budgeted, committed and actual costs of hours for engineering and procurement activities will be monitored within the project cost control system together with other engineering costs and expenses. Monthly reports will be produced from the detailed schedule, manhour monitoring and forecasting system, and the Project cost control system showing the status of the engineering and procurement phase progress and costs.

The Cost Control group will provide cost monitoring, trending and forecasting in order to measure performance in relation to project budget and schedule. This group will also be responsible for the analysis, audit and verification of all sources of information which affect the forecast of total project cost.

The Project Control Budget will be formed on the basis of the Feasibility Study estimate. The Cost Control group will maintain cost trending and forecasting accountability by keeping the originally approved Feasibility Study capital cost estimate and maintaining an audit track of specific decisions managed through scope changes, as the Control Budget. Quotations, awards and cost trends will be utilized as forecasting tools to provide PBM with a current forecast of final installed costs. All negative trends will be evaluated and corrective actions taken.

The Cost Control system used to monitor costs allows quick response times and provides an effective system to control estimating and trend analysis for the different components of the Project on a monthly basis. A number of prepared templates will be used to recognize actual work progress to establish significant trends and forecasts. Templates will be used for progress of engineering design, procurement and construction, and allow earned weighted values to be compared with planned and actual expenditures. The analysis of the variance trends provides valuable indications of potential cost or schedule overruns or underruns. Cost Control will also carry out verification review of progress billings submitted by Contractors for agreement on quantities and/or percentages of completion. Each Consultant or Contractor will submit a monthly cost report categorizing major cost elements including engineering, materials, construction, applicable services, and report such items as:

original contract price



- · approved changes
- current contract price
- billings this period and to date
- · changes submitted but not approved
- forecasted final contract price

Invoices for subcontractor services, materials and equipment purchases and construction contracts will also be processed by the Cost Control group.

The cost control system will be updated and maintained throughout the Project to provide current timely reports on the cost status.

#### COST ENGINEERING/ESTIMATING

The Cost Engineering/Estimating group will develop capital cost estimates for the overall project, estimating in support of value engineering, scope change estimates and fair bid estimates for construction contracts. The estimating system will be used to develop the definitive capital cost estimate at 70% completion of detailed engineering. The group will issue periodic project progress reports, provide planned, actual and forecast expenditures, and communicate action taken or planned to correct negative trends. The following standard progress reports will be produced:

- Estimate summary and detailed reports.
- Cost summary indicating budget, forecast final cost and variances.
- Capital cost and forecast graph showing overall budget and monthly forecast cost trend.
- Project cost summaries and cost details indicating: budget codes, descriptions, original budget amounts, approved revised budgets, committed amounts, period and to date incurred costs, forecast to complete final cost, budget and period variances for the complete project.
- Commitment curves indicating planned and actual forecast commitment values.
- Engineering Services Management and Project Management reports showing budgeted hours, period and to date actual man-hours, earned values, forecast to complete, forecast final and budget variance for each discipline.
- Construction labour hour reports showing budget hours, period and to date actual man-hours forecast to complete, forecast final and budget variance for each contract.
- Scope change reports identifying the description, date raised approval status and amount.
- Cash flow reports indicating anticipated cash outlays.
- Detailed reports on an exception basis to evaluate project status.



#### 1.3.2 TRENDING/SCOPE CHANGE

Trends and scope changes may originate from any member of the project team and/or PBM.

Typically initial sources are identified from:

- · design instructions
- · minutes of meetings
- · performance analysis
- procurement changes due to vendor data, market prices and supply demand
- construction changes due to soils reports, weather, labour, equipment, material and field instructions
- environmental changes due to social, economic, and political forces

The following procedure will be used to control change:

- 1. The originator will collect and review all available support documents.
- 2. Including correspondence, minutes of meetings, drawings, etc.
- 3. Present the issue to the project engineer.
- 4. A decision will be made whether or not the issue is to be pursued further.
- 5. If the issue is determined to be a scope change or a trend, then the source and support documents will be forwarded to the cost controller who will assign a trend number and log it on the master trend listing.

#### **TREND**

An order of magnitude estimate is prepared by the cost engineer, and schedule impact is assessed. The trend is then reviewed by the Cost Controller, Project Director and others as required. The Project Director initiates corrective action. If the corrective action is successful and does not affect cost and schedule, the trend log is updated accordingly. If the corrective action is not successful, a trend report is prepared and other affected task force members are notified. The cost impact is incorporated in the project cost forecast and schedules are updated accordingly.

#### SCOPE CHANGE

The scope change is reviewed by the Project Cost Controller, Project Director and others as required. A change order number is allocated to the trend on the master trend listing and the change is added to the project change order log.

A detailed cost estimate is prepared and the impact on schedule is assessed. The cost and schedule impact are reviewed with the Project Director and the change order is



issued to PBM for approval. If the change is not approved, the work continues in accordance with the original scope. If the change is approved, the appropriate task force members are asked to incorporate the change into the design; the project control budget is revised, the change is incorporated into the project cost forecast and the schedules are updated accordingly.

Trend meetings are held on a regular basis to review changes and strategy for corrective action. All trends will be expeditiously priced. Routine changes will be estimated within two to five days depending on complexity and the availability of information.

## 1.4 PROJECT EXECUTION SUMMARY

A well-managed plan will be initiated from the date that project execution begins. An effective project management system will be implemented to assist in effectively managing project costs and scheduling. The team will ensure that:

- The critical path schedule of construction is met or improved upon.
- Engineering and procurement activities are completed to support construction requirements.
- Costs are monitored, controlled and reported to PBM on a regular basis.

The Project will be executed over a 30 month duration. Within six months from the project go-ahead, the following will be completed:

- · award of contract
- project control structure, including budget, schedule, procedures, and work plans
- bidders lists
- · completed flowsheets and material balances
- Project Procedures Manual (PPM)
- · process design frozen
- final site layout
- all design criteria including, but not limited to, environmental, applicable codes, materials of construction, and control philosophy
- · process equipment list with RFP packages
- the assignment of package contract numbers
- · modularizing, pre-assembly and purchasing strategies
- finalized contracting strategy
- · approved training program
- · contracts for early construction activities tendered, received and evaluated
- Health and Safety Management Plan (HSMP)



- Quality Assurance/Quality Control Plan (QA/QC)
- Environmental Management Plan (EMP)
- Construction Plan
- · all project management systems in place
- · all geotechnical and site survey data completed

The overall Pre-Production schedule listing key activities associated with the project is shown in Appendix B. The schedule indicates Milestone Dates for key activities including:

- · preparation and award of contract
- · basic/detail engineering
- · mobilization of general contractor
- the preparation technical specifications
- · tendering supply, service and subcontracts
- fabrication/delivery (including dates for commitment of construction and services contracts)
- equipment purchase orders (POs)
- permitting
- · full production

The schedule will be optimized in the early phase of detailed engineering.



# 2.0 PRE-PRODUCTION SCHEDULE

## 2.1 Construction Schedule

One of the major challenges for the project will be the delivery of long-lead items.

#### 2.1.1 SCHEDULE DEVELOPMENT

#### BASIS

A preliminary schedule for the Project has been developed using Microsoft Project scheduling software, showing a timeline basis. The schedule was developed based on:

- The number of manhours required to execute each activity as outlined in the Capital Cost Estimate.
- The logistics plan and schedule and operation of the forestry access road and barge.
- Discussions with suppliers, fabricators and vendors to determine lead times for manufacturing and delivery of equipment and materials.

The basic parameters for the schedule are:

- One working shift is 12h.
- One working week is 7d.
- The site is continuously operated 365d/a.
- There is continuous shipping of equipment throughout the year.
- · The barge operates throughout the winter.
- The existing forestry site access road will be maintained by an experienced contractor.
- Contractors will provide accommodations off-site and are able to use at their own
  expense any facilities available in the area. There are two privately owned forestry
  camps close to the site.
- The schedule follows the Work Breakdown Structure and the Wardrop Standard
   Discipline Sorting Code as used in the Capital Cost Estimate and Basis of Estimate.

#### **CRITICAL PATHS**

Initial Mobilization Critical Path

The following actions need to be taken prior to mobilization:



- Awarding of EPC or EPCM contract.
- · Establishing contracts with the following:
  - BC Hydro the current 25kV overhead powerline runs to the old Bell mine site, and can be extended 24.5km to the project site. 2MW of power will be available for construction; a new transformer at the Babine substation can be installed and the line upgraded to 138kV and supply 30MW for operations.
  - Road Maintenance Contractor the existing forestry access road from Granisle will require maintenance and repairs for the shipping of goods.
  - Barge Operator the existing operator will operate the access barge across
     Babine Lake throughout the year.
  - General Contractor construction activities will be conducted by one or more contractors.
  - Site Services Contractor site maintenance and infrastructure work will be conducted by one or more Contractor.
- Identify required resources, manpower, materials equipments, etc.
- The necessary government applications and permits.
- · The necessary detailed design.

The critical activities in this period are:

- Establish site forestry road access for trucking of goods.
- Establish lay-down areas for in-coming mechanical equipment, construction equipment, materials, etc.
- · Construction Fuel Storage Facility.

#### PROCESS PLANT CRITICAL PATH

The program for construction of the process facilities is controlled by manpower resources and effective supply of equipment and materials.

The most critical items in the process plant include:

- ball mills
- · vertical regrind mills
- HPGR

#### 2.2 Overall Pre-Production Schedule

#### 2.2.1 INITIAL IMPLEMENTATION SCHEDULE

The project schedule as a management tool is structured to serve many purposes. At its most basic level it serves as an information vehicle in the public review process, or for in-



house orientation; it will point out the logical idiosyncrasies of this particular project — for instance, long-lead item deliveries.

At project inception, the schedule becomes more of an internal management tool that outlines project accountability. For example, the schedule will identify outstanding decisions and which parties are responsible for them.

The process expands with final engineering to not only scheduling deliverables within the project logic framework, but also tracking progress by individual specification and drawing measured against a progress template. The drawing schedule itself, for example, is a sub-schedule appearing on the basic schedule as a single line entry or another "sub-sort". The engineering schedule will also address such items as the availability of raw structural steel, availability of steel fabrication shop space, duration of shop fabrication, delivery of fabricated steel to the marshalling yard and ultimate delivery to site. All these factors serve as part of the contributing logic to the actual timing of the structural design.

Procurement will be tracked similarly to engineering with a Purchase Order (PO) schedule in keeping with the dictates of the construction program logic. The PO schedule is expanded into "mini-sub-schedules" tracking the progress of the more complicated individual orders. This tracking will identify quality inspections at the factory at critical points of the fabrication of the units, dates leaving the shops linked to seasonal shipping window restrictions, and so on. Receiving of orders for the project will need to identify shipping of all equipment and materials to marshalling yards at Granisle, BC, depending on the point of origin.

#### **CONSTRUCTION SCHEDULE**

The first construction schedule issue will be to identify activities that clearly outline the project logic. This logic is constrained by a number of factors:

- PBM's direction on start-up date
- · government approval of the Project
- environmental permits
- · winter and weather conditions
- sufficient laydown areas to receive materials
- sufficiency of fuel(s) supply on-site
- off-site camp availability and related amenities
- · BC Hydro's extension of Powerline to site for temporary power
- buildings closed in before winter
- capacity for transport of personnel
- · availability of consumables, such as explosives, cement and rebar



The construction schedule will expand with sub-schedules addressing specific activities and contracts. The construction schedule will typically control all activities. For example, activities in years two and three are essential to the Project's timing and limiting commitments; therefore, a sub-schedule will outline the "ramping up" activities in detail. Scheduling will be linked as required to the construction contract packages which will in turn be required to produce schedules, depending on the nature of the individual contracts. These in turn will be monitored by the EPCM controls staff.

#### 2.2.2 YEARS TWO AND THREE PROGRAM

#### **Purpose**

The Project will be constructed in an orderly, organized, cost-effective manner. To achieve this, it is planned that early works will include when PBM gives direction to go ahead with the project, the necessary government approvals are in place, initial mobilization to establish a spearhead is completed, the management team is identified and functioning, initial detailed design is under way and POs are placed for critical items.

#### SCOPE OF WORK

- Preparation and award of EPCM contract.
- Issue the environmental application.
- Start basic and detailed engineering:
  - access road
  - HPGR POs
  - ball mills and regrind mills POs
- Plan and order necessary equipment for:
  - pre-mining activities
  - access road maintenance
  - bulk excavation at plant site
  - initial concrete activities
- Continue detailed engineering:
  - ancillary buildings
  - site electrical
  - building services
  - piping and P&IDs
  - mechanical systems
  - instrumentation and control
- Finalize contract with EPC or EPCM contractor:



- establish organization
- identify necessary recourses
- set-up procedures and management systems
- Issue specifications and issue orders for balance of long lead items:
  - primary crusher
  - electrical equipment
  - process mill equipment

## **CONSTRUCTION PACKAGES**

For this scope of work it is anticipated the primary Contractor will split the activities into the following packages:

Construction Packages			
CONTRACT NAME	SCOPE		
Construction			
Civil Contract	Diversion Ditches and Dams Buildings foundation drilling and excavation Laydown areas at mine site Site roads and pipe benches		
General Contractor	Foundations and building erection Mechanical installation Electrical installation Piping and instrumentation installation Supervision of all other construction sub-contractors		
Power Transmission Contractor	25kV power lines to site for construction (Upgrade transformer for 138kV operations by BC Hydro)		
Mining Contractor	Excavation of open pit Maintenance of mining equipment Excavate overburden		
Services			
Site Services Contractor	Site road maintenance Repairs to trucks and equipment Site sewage treatment and water supply Warehousing and supplies Janitorial and First Aid		
Barge Operator	Access across Babine Lake		
Trucking Contractor	Logistics and shipping of construction equipment to site		
Fuels and Lubricants	Supply of Fuel and Lubricants for the construction period		
Canfor Contract	For use of shared forest road		



#### **CONSTRUCTION INFRASTRUCTURE**

The foregoing scopes of work will allow the infrastructure required for subsequent construction to be in place. The accommodations for construction personnel will be offsite of the mine. Contractors will be responsible for accommodations and meals at offsite camps, hotels and apartments, which includes the nearby community of Granisle or the two existing logging camps. Contractors will also be responsible for transporting the workers to the site.

Communications at site will use several different methods that will achieve redundancy for operational effectiveness and emergency preparedness. Communications will include satellite internet for data and VoIP, satellite telephones, radio and towertel and cellular telephone.

A portable aggregate crusher plant with screens will be required on site. The plant will be capable of producing road materials and material for the concrete batch plant.

A small portable concrete batch plant will also be required on site and will be housed in a portable fabric covered building where aggregate will be heated and stored in sufficient quantities to batch during the winter months.

Construction offices with lunch rooms may be set up by the Contractor in modular trailers.

A small modular building with tanks and chlorination system will be used for potable water service for the construction trailers. As well as a small portable Sewage Treatment Plant and vactor truck will be used to treat waste water from construction personnel. These will be used until the permanent systems become available.

#### **SERVICE CONTRACTORS**

To support the construction effort a number of service contractors will be required for the including:

- site services
- fuel supply
- logistics shipping
- · forestry access road maintenance
- helicopter transport

These contracts will be awarded early in year three. Awarding them will provide the various contractors sufficient time to mobilize since none of them require a long lead time to obtain equipment and supplies.



## SCHEDULE AND MANPOWER

Appendix B shows the Pre-Production Schedule and Appendix A shows the manpower required to meet this program.

#### YEAR TWO SHIPPING WINDOW

To achieve the overall program the following will be shipped to the site from spring of year three:

- Contractor's Construction Equipment will include:
  - rock drills
  - D9 dozers
  - D8 dozers
  - D7 dozers
  - 980 loaders
  - 950 loaders
  - 25t articulated trucks
  - 35t articulated trucks
  - 55t rigid dump trucks
  - portable crusher
  - screeners
  - graders
  - 7t rollers
  - 15t rollers
  - 45t excavators
  - 25t excavators
  - 65t excavators
  - 50t rubber tyre crane
  - 80t crawler crane
  - 100t crawler crane
  - powder trucks
  - anfo mixer
  - mechanic's trucks
  - service trucks
  - lube trucks
  - fuel trucks
  - boom trucks
  - cement mixer trucks



- personnel bus
- construction office trailers
- mobile fuel tanks
- fuel unloading/dispensing module
- explosives magazines
- portable welders and torch cutters
- rigging equipment
- power tools
- hand tools
- tool boxes
- portable light plants
- · contractor's supplies will include:
  - explosives
  - equipment spare parts and consumables
  - timber and plywood
  - cement
  - re-enforcing steel
  - electrical supplies and cables
  - mechanical supplies
  - safety supplies
  - fuel
- construction materials, temporary equipment and buildings will include:
  - field offices
  - quality control laboratory
  - generators
  - sewage treatment modules
  - water treatment modules



# 3.0 ENGINEERING

The detailed design engineering program will include all disciplines from geotechnical to computerized controls. Each discipline will utilize both recent technological advances and proven techniques as are appropriate for this project.

Once PBM has authorized the project to proceed, the Contractor will establish the engineering organization and assemble the necessary resources required to meet Project demands.

The first step of establishing project standards and procedures melding with those required by PBM and the relevant regulatory bodies has been completed during the feasibility level design resulting in a set of Design Basis Memorandum's. The design basis is based on local requirements, industry guidelines and North American standards. The design basis addresses all aspects to be considered during the detailed design, e.g. Health & Safety, structural, architectural, environmental etc. and specific requirements raised by PBM. Additionally and in compliance with the Design Basis Memorandum the feasibility level design provided Process Design Criteria, Process Flow Diagrams, Piping and Instrumentation Diagrams (P&ID), and general arrangements. During the detailed design, the internal, public and environmental review process may highlight the need for revision of these documents. Such changes will be noted and any alterations or improvements precipitated by this process will be incorporated in the facility design on a continuous basis.

Drawing preparation will be done utilizing a recent version of AutoCAD software. Standard details and installation details will also be developed in this format. Where appropriate, 3D modelling techniques will be utilized to establish module configuration and parameters; for example, pipe routing interference with process equipment or building structural members.

In addition to detailed design drawings, detailed engineering will provide:

- work scope definitions
- installation specifications
- modularization detail where appropriate
- shipping requirements for larger or more delicate items
- heavy lift instructions

These will be coordinated with the work packages, construction schedule and logistics schedule. The Construction Manager will undertake constructability reviews throughout the development of detailed designs.



The list of project activities with a budgeted time for each activity and a corresponding list of deliverables (drawings, specifications, data sheets, requisitions, MTO's, BOM's) will be placed into the Engineering Management System for project control purposes.

Procurement and contract packages will be finalized for the construction work packages outlined in Section 3. All of the engineering deliverables will be allocated to the appropriate work packages and design resources optimized accordingly.

Prior to the drawings and specifications reaching the "Issued for Construction" status, an inter-discipline check will be conducted to update team members and identify potential conflicts between disciplines. Ideally, contractors will be provided with completed sets of "Issued for Construction" drawings at the time of contract award along with Certified Vendor data and drawing information as it pertains to their work / procurement packages.

Concurrent with the later stages of detailed engineering program, the major process and support equipment POs will be awarded and entered into the system. Each order must adhere to its own production/inspection/certified vendor data turnover/delivery schedule. Specialists will track each individual PO until they are formally received at site, in keeping with the logistics plan, construction schedule and project procedures.

Additionally, engineers and technical staff will be assigned to the construction program for drawing interpretation, and updating drawings to an "as built" status. The final engineering step will be the cataloguing and entering of all design and procurement information into the PBM central library including computerized drawing and administration files at the site and head office in Vancouver.



# 4.0 PROCUREMENT PLAN

#### 4.1 PROCUREMENT

Procurement of goods and services will adhere to the highest ethical standards and shall be performed in a transparent manner. Contractor shall develop and implement procurement policies that:

- · Comply with Project technical requirements
- · Comply with the HSE policy
- Comply with legal and regulatory
- Deliver goods and services to satisfy PROJECT schedule requirements
- Where quality, price and availability are competitive on a global basis, sourced within Canada

Contractor shall prepare, for COMPANY approval, procurement procedures and a procurement plan for the execution of the Project, including procedures for purchasing, inspection, progress monitoring, material control, expediting, batch crating and packaging, transhipping, consolidating and transportation.

Contractor shall be responsible for the procurement of all construction, commissioning spare parts and special tools required for use by COMPANY during start up and test, initial operation, up to Handover.

Contractor shall be responsible for the provision of all first fill material, oils, catalysts, refrigerants, etc., as required and agreed by COMPANY, and for their continued replenishment if necessary up to Handover of the plant.

Contractor shall be responsible for arranging the complete handling, storage, protection of all equipment and materials, all construction plant and equipment, all temporary facilities and all other materials and supplies, catalysts, lubricants, refrigerant gases, chemicals, construction consumables, utilities power, fuel used in the performance of the WORK, including the shipping, forwarding, transporting, storage in transit, insuring, expediting, unloading receiving and storage on SITE.

Concurrently, the controls group will develop budget and schedule information and track project progress. The contracts group will follow the project controls group by collating and writing more detailed purchase and site oriented contracts.



#### 4.2 CONTRACTS

#### 4.2.1 CONTRACT FORM

PBM will use a widely recognized standard Form of Contract (i.e., ICE or FDIC) for all tendering, including the primary EPC or EPCM Contract. Use of such a contract form ensures key aspects of the contract (i.e., arbitration) are not overlooked. As well contractors tendering should already be familiar with the Form of Contract so shall not required excessive time understanding and assessing the implication of any nuances in a project specific unique contract form.

In support of the standard Form of Contact project specific Terms of Reference, Scope of Work and Deliverables will be prepared. These Contract Sections as well as source data will be assembled to comprise a Tender Package.

It is anticipated that the Contract Deliverables will include items of each of the following types:

- Lump Sum Fixed amounts for specified works.
- Re-Measureable Unit prices with re-measureable quantities.
- Provisional Sum Fixed amounts for specified works that may or may not be executed.

For the EPC or EPCM Contract, a Request for Proposals (RFP) will be publicly advertised requesting firms to submit proposals. The submissions will be used to either enter into negotiations with a firm or, if the proposals are unsatisfactory, to pre-qualify a short list of firms for participation in a bidding process. In the event tendering pre-qualified firms will be issued a Tender Package and be invited to submit a bid.

Once Tender Packages are issued time will be of the essence in the Tender process. Hence a limited period of time will allowed for submission of Bid Packages. Revisions or late submissions will not be accepted.

Review of tendered bids leading to award of EPC or EPCM Contract will be based on both technical and financial evaluation of submitted Bid Packages. Bids that are not technically accepted will not be evaluated financially. The lowest price may not be accepted.

#### 4.2.2 CONTRACT PACKAGING PLAN

Construction Management (CM) begins with an overall basic EPCM project philosophy. All planning from conceiving project environmental strategy through to the stages of project approval and financing to final design and procurement phases are involved in developing the actual construction program into logical consulting, technical, service, equipment supply and construction contract packages. The process of conceiving the actual packages and ultimately creating bidders lists is influenced by the following:



- Local advantages Packages will be structured to take advantage of local expertise and of such a scale to attract potential, local contractors.
  - Consulting and technical contract packages tailored to suit local firms that have the requisite background in local design and QA/QC experience.
- Specialized Experience and/or Expertise obvious examples are firms that have had
  recent mining and cold weather experience, and are familiar with local regulatory
  requirements, labour and climatic conditions. This local expertise will be melded with
  the experience of larger industrial contractors.
- In summary, CM will first address the project construction philosophy then create the
  contract packages that will achieve the goals of quality, safety, schedule, budget,
  northern benefit and ultimate plant operability.
- The process of writing the packages begins with the procurement section, preparing contracts early in the design phase. Both Contractor and PBM will participate advising scheduling and engineering from a constructability aspect. As the process advances, the Contractor will contribute continually to all activities, including:
  - Refining the CM team in terms of writing job scopes, start and duration of site assignments, addressing unique conditions and ultimately the selection of candidates.
  - Interviewing prospective contractors.
  - Viewing pertinent jobsites to assess contractors' current capabilities.
  - Assessing contractors' safety programs and safety performance records.
  - Developing the final bidders' lists for the contracts/POs.
  - Participating in the tendering process including recommendations of selected contractors/POs.
  - Reviewing and refining project Health and Safety Management Plan.
  - Reviewing and refining Environmental Management Plans.
  - Assisting in the environmental review process and identifying any deficiencies that need to be included in contract packages.
  - Writing job specific site procedures.
  - Developing personnel site ingress/egress procedures and schedules.
  - Refining camp and site rules.
  - Properly addressing the project schedule, demands an achievable "ramping up" stage in the first year of the Project.

#### 4.2.3 GENERAL SERVICES CONTRACT

To assist in the overall servicing of the site during construction, a General Services Contract will be awarded, the scope of which will include:



- maintain site buildings including:
  - cleaning and housekeeping of field offices
  - keeping building entrances snow and ice free
- operate and maintain water and sewer systems including:
  - above and underground piping
  - sewage treatment plant
  - water treatment plant
  - solid waste disposal from camp and operation of incinerator
  - removal of sewage from holding tanks and disposal at sewage treatment plant
- · operate and maintain construction power system including:
  - generators switchgear
  - transformers
  - poles, overhead, underground and on-ground transmission lines
  - other components of construction power system
- · material handling including:
  - unloading incoming freight and placing in laydown areas and/or warehouse
  - loading outgoing freight
  - moving construction materials and process equipment from laydown areas and/or warehouse to point of installation
  - maintain roads, airstrip, laydown areas and parking lots including snow, ice and dust control
- · bus workforce to and from workplace
- support to fuel delivery contractor as required
- · maintain fire-fighting equipment including supply of trained fire-fighters
- · maintain environmental spill equipment and operate as required



## 5.0 LOGISTICS PLAN

#### 5.1 Introduction

In developing the Logistics Plan it is important to note that the project site lies within an area that is remote and accessible by barge across Babine Lake.

The remote location of the Project site, together with environmental and safety concerns, plus the high cost to transport material, equipment, fuel and personnel to the job site, dictate that strict transportation controls be planned, established and maintained. The entire Project team from the conceptual planning through detailed engineering, procurement and construction have to be made more aware of the logistics plan and its schedule effects. The Logistics Plan addresses the need to procure and deliver materials, equipment and supplies to meet the restricted transportation delivery windows to the site. The team work and implementation of the logistics plan is critical and must be agreed upon by all concerned.

From the outset PBM and Wardrop have identified the uniqueness that logistics has on the Project. The shipping season and its effect on the material, equipment and supply deliveries and schedule are addressed in this section.

The scope of the logistics plan provides for and encompasses the services necessary for the efficient transport, traffic, warehousing and marshalling of personnel and all materials and equipment, fuel and cement required to construct the facilities. The objective of the traffic and logistics plan is to ensure that equipment, materials and personnel are transported to the Project site in a safe, efficient, economical and timely manner to meet construction schedules. It is imperative that materials and equipment transported during the shipping window arrive at the site without loss or damages and according to the planned window sequences to enable all work to be completed on schedule.

## 5.2 LOGISTICS PLAN BASIS

The project will have process and mobile equipment, structural steel and other architectural materials, pipe, valves, fittings, cement ammonium nitrate and other equipment, materials and consumables for the development of the project.

It is anticipated that approximately 80% of the goods will originate in North America with the remaining predominately from Europe with some coming from other points of origin such as South Africa, South America, Australia and Asia.



The project will require 1 main marshalling point; this will be in Granisle BC. This facility will be used to marshal the majority of the goods for onward shipment to the project site via the Babine Lake barge and forestry access road to the Morrison Lake mine site.

Most goods originating in North America will be transported to Granisle by road transport or rail (via Smithers, BC) if better suited and more cost effective for transport. The goods will be consolidated for shipment and loaded on trailers and hauled by tractor trucks across Babine Lake on the barge then onto Morrison site along the forestry road. Fully loaded trailers that arrive at Granisle can be forwarded onto Morrison Lake immediately if they fall into the right window of the construction schedule and site laydown is available.

Goods arriving at Granisle will be recorded on arrival and the laydown location duly noted on the receiving documents. On hand reports will be updated on a daily basis, indicating the PO number, a description of the goods received, and the location of the goods stored. The on hand reports will be issued to the construction manager at site. From this the cargo for the next shipment will be selected to suit the construction schedule requirements.

Load plans will be established based on the priority cargo to be shipped and the configuration of the nominated vessel prior to vessel loading. Load plans are generated by the super cargo (load master) and approved by the marine surveyor and vessel captain prior to commencement of loading. When the vessel(s) are completed loading the cargo is blocked and lashed to protect that cargo from shifting. At this point it is inspected by the marine surveyor and vessel captain and when approved can sail from the loading port to the project port site destination. This process will continue until all cargo destined for the project during a specific shipping season has been dispatched from origin and received at the final destination.

Goods arriving from overseas and via ocean shipping are expected to arrive in the port of Vancouver, BC. Freight forwarding will be pre-arranged to have cargo trucked or shipped via rail up to Granisle.

Backhaul will be kept to a minimum with the majority of the equipment transferred from construction to be used during the operating phase.

## 5.3 Administrative Responsibility

The Procurement and Materials Manager (P&MM) will be responsible for co-ordinating with all parties and will control the overall procurement of tagged, bulk and blanket ordered equipment and materials complete with their timely transportation logistics. The Traffic and Logistics Manager (T&LM) will report to the P&MM. The T&LM will work together with PBM, CM Team and Construction Contractors as well as Transport Companies and major Bulk Material Suppliers to ensure delivery requirements are met.



#### 5.3.1 INTEGRATED DATABASE

To execute procurement and materials control across the various parties and work break down areas, certain policies, procedures, forms and coding structures will be standardized, e.g. vendor communication policy, material requisition forms, material takeoffs (MTO), material status reports, document numbering systems, material reference codes, etc.

#### PROCUREMENT SCHEDULES

The procurement activities of preparing and issuing the request for proposal (RFP) bid tabulation, and the PO deliverable items list will be tracked. Customized milestones will be developed where the typical activities include:

- Engineering Procurement Action Request (PAR) received.
- Bid package issued for proposal.
- · Receiving and Distribution of Proposals.
- Bid Clarification.
- Bid evaluation issued.
- Recommendation to Purchase (RTP) issued for approval.
- · Approval to purchase (RTP) received.
- Final Bid Conditioning.
- Purchase Order awarded.

#### **EXPEDITING**

Expediting ensures a continuous flow of equipment and materials to the marshalling yards at the scheduled time and in the proper sequence to facilitate timely transport to site. In co-ordination with the purchasing and contacting function, expediting staff will complete shop evaluations, confirm shop loadings, and maintain regular verbal contact with vendors. All calls will be logged.

All shop drawings, vendor information, materials and equipment purchases will be expedited. Complexity, availability and project schedule will govern the intensity of the expediting effort. Materials and equipment will be identified according to required shipping seasons and vendor drawings will be tracked to ensure early submission and engineering compliance. All expediting activities will be coordinated with inspection and traffic functions.

Vendors will be tracked for the submission of the following typical deliverables:

- Return of the vendor acceptance for the order and for any subsequent change orders.
- Submission of vendor document submittal list.



- Submission of bonds, confidentiality agreements or other order-specific commercial documentation.
- Re-submission of a detailed recommended spare parts list.
- Submission of review drawings.
- · Submission of manuals for review.
- Progress of fabrication (including sub-components).
- · Progress of inspection.
- · Submission of final certified drawings.
- Submission of final certified manuals.
- Submission of test certificates and data sheets.
- Submission of shipping weights, volumes, dimension and final shipping documents.
- Monitoring of back-ordered equipment or materials.
- Forecast available pick up to allow FOB Carrier, and ex-works.

Detailed monitoring will be done of individual vendor document submittals, engineering review codes and required submittal dates.

#### LOGISTICS

The Logistics System function will track material and equipment deliveries to multiple project yards and job site lay down areas and maintain a control over multiple inventories at the various sites.

Although each warehouse will be a unique inventory location, the logistics function allows queries and evaluations of the inventory stock levels across the total project. The logistics System Function will allow for the monitoring of the following:

- · Progress of shipments.
- Receiving of equipment at marshalling yards or other destinations prior to the final site receipt.
- Issuance of equipment and materials receiving reports.
- Recording of material overages, shortages or damages associated with a delivery receipt.
- Transfers of equipment or materials between warehouses, laydown equipment or material returns to vendors.
- Equipment or material disposition of surplus, missing or damaged inventory.

The status reports will be provided to track equipment and materials from the design stage to final delivery and installation.



#### MATERIALS CONTROL

Materials control evolves from initial definition and packaging of materials by engineering, through purchasing, expediting, fabrication, delivery, receiving and use. Site materials management involves multi-warehousing, receipts, issues, returns, inventory management and inter-warehouse transactions.

The Materials Management System will allow for the following:

- Monitoring of required quantities against quantities ordered.
- Issuance of equipment and material receiving reports.
- Recording of material overages, shortages or damages associated with a delivery receipt.
- Monitoring of back-ordered equipment or materials.
- · Transfers of equipment or materials between warehouses.
- Monitoring of equipment or material issues to the contractors.
- Monitoring of equipment or material returns from the contractor.
- Monitoring of equipment or material disposition of surplus, missing or damaged inventory.

Materials control also involves the analysis of individual contract material requirements. The system generates reports that identify material and equipment availability and the storage location of the material. This provides invaluable assistance in the determination of transport, construction and erection priorities.

The system provides status reported on purchasing and expediting along with materials controls database to track equipment and materials from the design stage to final delivery and installation.

#### 5.3.2 TRAFFIC AND LOGISTICS COORDINATION

The Traffic and Logistics (T&L) will consist of support staff, computer systems, communications equipment, leased marshalling yard and warehousing facilities. Logistics will be the advanced planning for the movement of material from its point of origin to the location where it is required. Traffic will be the operational arm that refines the planning and data developed by the logistic reports and surveys into co-ordinated project procedures and actions for the shipping and transport of materials and personnel to the job site.

The T&L team will be headed by a T&L Manager reporting to the P&M Manager. The T&L Manager will receive schedules, from Projects design and procurement team, contractors plus vendors so as to co-ordinate documentation and confirm routine with carriers. Regular communication will be held with site construction, project management



and project controls to confirm required as site date and establish supplier shipping and marshalling release dates.

The traffic co-ordinator will implement the plan, schedule and expedite the following air and ground transport activities:

- Track POs through each segment of the transportation route. In as much as all the
  line items on the POs will be entered in to the system, each item can be tracked
  individually which is important when POs are split or shipped as partials.
- Establish the contractor's equipment, buildings supplies, and tools to be moved to site in accordance with contract obligations.
- Schedule the movement of cargo, once the FOB point for the PO has been determined and co-ordinate with the carriers being used for the project.
- Upon delivery to the marshalling area, perform the predetermined receiving and inspection. This process will involve 100% inspection of all line items including opening of cartons to verify piece count, conditions, marks and part numbers. A computer generated receiving document will be input to the system which lists all line items received for each PO.
- As required crate, skid, palletize, bundle, or containerize loads to assure a safe road or air transit.
- For each shipment generate a manifest and track the cargo with entries showing the cargo awaiting shipment or shipped.
- Arrange for oversize equipment handling and determine if any storage-in-transit will be required.
- Approve and co-ordinate air cargo transport plus determine routing.
- Waybills will outline the end user, the designated site laydown or warehouse, and the grid location within the laydown.



# 6.0 CONSTRUCTION PLAN

#### 6.1 CONSTRUCTION MANAGEMENT

The CM group will be responsible for the management of all field operations. Reporting to the Owner, the Construction Manager will plan, organize and manage construction quality, safety, budget and schedule objectives.

Construction of the Project will be performed by contractors under the direction of the CM team, reporting to the Owner's representative. The CM key objectives are as follows:

- Conduct Environmental, Health and Safety policy training and enforcement for all site and contractor staff. Site hazard management tools and programs will be employed to achieve the no harm/zero accident objective.
- Apply contracting and construction infrastructure strategies to support the Project execution requirements.
- Develop and implement a construction-sensitive and cost-effective master Project schedule.
- Establish a Project cost control system to ensure effective cost reporting, monitoring
  and forecasting as well as schedule reporting and control. A cost trending program
  will be instigated whereby the contractor will be responsible for evaluating costs on an
  ongoing basis for comparison to budget and forecasting for the cost report on monthly
  basis.
- Establish a field contract administration system to effectively manage, control and coordinate the work performed by the contractors.
- Apply an effective field constructability program, as a continuation of the constructability reviews performed in the design office.
- To develop a detailed field logistics and material control plan to maintain the necessary flow and control of material and equipment to support construction operations.
- Meet the schedule for handover of the constructed plan to the commissioning team.

The Construction Management Organization Chart (Appendix D) shows the CM team organization plan for the site.



## 6.2 TEMPORARY CONSTRUCTION FACILITIES

#### 6.2.1 Construction Power

The construction power system will be supplied from a new line installed by BC Hydro. Initially the existing 25kV line to Bell Mine will be extended 24.5km to the Morrison site. The feed will tie in to the existing grid and will provide 2MW of power for the construction phase. The line will later be upgraded to 138kV and provide 30MW of power for the operations phase. This will be accomplished by a BC Hydro transformer upgrade at the Babine Substation.

The initial construction set up of site infrastructure will rely on portable generators until the site distribution for temporary construction power is completed. The anticipated tie-in and completion date of the site construction power is in year one.

#### 6.2.2 Construction Fuel Storage

#### FUEL REQUIREMENTS

Fuel will be required for portable generators, portable light towers, portable heaters, mobile equipment used for construction, mobile equipment used for mining, and building heating.

#### FUEL STORAGE

The initial storage requirements will be covered by a number of double skinned prefabricated tanks. Alternatively a large fuel tanker could be used until a temporary dispensing station is available.

Initial filling will be from either a small bulk fuel carrier or a large tanker trailer.

#### 6.2.3 Construction Accommodations

There will be no accommodations on-site. Construction personnel will be housed off-site of the mine. PBM has identified two existing privately owned logging camps in the area. The nearby town of Granisle has hotels, lodges and apartments with a complete infrastructure. Contractors will be expected to make their own accommodation, meals and transportation arrangements.

#### GRANISLE, BC

The town of Granisle is on the west side of Babine Lake and barge service will be available for the transportation of workers to site. The town has several hotels, lodges and apartments that contractors can make arrangements with. There are also restaurants, banking facilities, service stations and other amenities that a town of approximately 350 residents has.

6-2



#### CONSTRUCTION CAMPS

Contractors may also make arrangements with the operators of existing logging camps to ensure adequate housing and meal allowances for their workers prior to mobilizing to site. The work required to make the camps suitable will be separate to their contract to PBM. Damages or de-mobilization charges must be arranged directly with the camp operators.

## 6.2.4 WAREHOUSING

Construction warehousing will evolve with the Project. All freight delivered will be received at a temporary warehouse and stored there or in designated laydown areas.

Initially, fabric or fold-out type structures will be erected to serve as the light and heavy vehicle maintenance shops and general shop/warehouse area for the relevant contractors.

At the commencement of construction, the lay-down area will be on levelled ground close to the main mill site, and erected away from any permanent building, powerlines or pipelines. This will be accomplished right at the very beginning.

All new explosives, including the Ammonium Nitrate arriving will be stored in special allocated areas designed according to the relevant government regulations.

From project inception, all purchases will be logged into the materials control software package, which will have sub-sorts outlining to which marshalling yard the item is to report, timing of the shipment, the end user, and the place of storage on-site. This will be the integrating control device for the entire expediting, initial receiving, shipping, site receiving, storing and dispensing effort. Standard warehouse practices will be added including: receiving reports, short or damaged shipment reports, material turnover reports, consumable issues/replacements records, tool crib dispensing control and day-to-day warehouse issue reporting. All site records will be keyed into the integrated control package, which in turn generates the project procedural reporting requirements, as well as calling up purchases of consumables which are near minimum supply.

There will be a marshalling yard near Granisle that may become the formal purchase order receiving destination, it will also perform marshalling, transhipping and dispatching functions. The first shipments in 2010 will see dispatching of consumables, pre-loaded construction equipment, water and sewage treatment plant modules, fuel tanks and plate, piling, temporary structures, communications. Then, building steel, cladding, rebar, cement, construction office modules, replacement spares for equipment already on-site, furniture, communications gear, laboratory equipment will arrive, along with a full range of large and small purchases necessary for a multi-faceted project.

The logistics personnel at the Granisle marshalling yard will be responsible for all above duties and arranging all personnel, materials and equipment transportation across the Babine Lake barge to the Morrison site.



## 6.2.5 LAY-DOWN AREAS

Rapid development of the lay-down areas at the site is absolutely essential to tie-in with the arriving loads.

The operation of haul, place and grade will begin at the Granisle marshalling site, and continue at the main plant site to create pads for all of the following:

- Temporary crushing/screening plant location including stockpiles.
- Lay-down for contractor explosives.
- Temporary fuel storage (construction of facility lay-down initially).
- Container staging area.
- · Construction office modules.
- Construction generators.
- Concrete batch plant location plus cement and reinforcing steel lay-down.
- · Water and STP modules.
- Materials for the permanent fuel storage tanks.

All lay-down areas will be clearly marked with sign posts and will be laid out in a grid system to eliminate confusion due to snow cover.

## 6.2.6 CONCRETE BATCH PLANT

The concrete batch plant will be managed by the General Contractor as a service to the Project and will be operated by the general or site services contractor.

In a cold weather environment, a dry batching system is the most efficient. "Dry batching" is the process whereby the various ingredients of the concrete design mix are weighed in a system of bins and conveyed into the mixer or "transit" truck into which a measured amount of water is added just prior to delivery of the concrete. The operator of the truck will know just how many revolutions of the mixer barrel on the truck are necessary to ensure complete mixing of each "batch" prior to discharge of the concrete.

The batch plant will be located in a protective fabric type building close to the Main Site. The building will be heated by portable diesel fired mobile heaters. It will be sized large enough to accommodate the aggregate material for batching, this way aggregates will stay dry.

#### 6.2.7 AGGREGATE PLANT

Please refer to Section 6.2.12 Quarry/Crushing Plant.



## 6.2.8 WATER SUPPLY AND TREATMENT PLANT

The construction project will require fresh water for the following:

- Potable drinking water
- Truck washing
- · Concrete batching
- Road dust control
- Fire water
- Building cleaning
- Washroom and cleaning purposes

During the construction period, the water will be pumped via a water truck with a pumping unit and tank on it. The water can then be transported to a small modular holding facility. Potable water will then be filtered, UV treated and chlorinated. Temporary water lines to buildings can be ran or trucked to holding tanks inside the buildings requiring water. A second water truck will always be kept full for fire protection purposes, during winter months, this truck will be stored inside a heated building.

The raw water will undergo the necessary treatment and testing to secure that the quality follows the required standards for potable water and concrete production.

#### 6.2.9 SEWAGE TREATMENT

A portable temporary Sewage Treatment Plant (STP) will be among the first items shipped to the Morrison project. It will be a modular system that is very easy and quick to set up. It does not require a large capacity due to the fact that there are no accommodations on-site so it will not have to handle human shower or clothes washing duties during the construction phase. These will all be done at the forestry camps or in the town of Granisle.

During construction and pre-operations phase of development, all buildings will have holding tanks and possibly lift stations. A vactor truck will pump out the holding tanks on a regular basis and truck it over to the STP for processing there.

The outfall line will run to a specific area of wetlands where the relatively clean discharge will flow to and eventually work its way back to the water table. It will be necessary to locate this outfall as far as possible from the water truck pumping area.

The permanent STP will be modularly trucked in and set up. Again these are relatively easy and quick to set up. After completion the temporary STP can be removed from site.



## 6.2.10 COMMUNICATIONS

The initial mobilization period will utilize the existing area communications system following which a permanent tower and systems will be installed.

The following services will be established at main site:

- · Connections to the surrounding world.
- Radios relay connections between the plant site, explosives site, offices and tailings area.
- · Satellite internet for data and VOIP.
- Satellite telephone.
- Cellular telephone.
- Communication services contractors are locally available and can offer relatively quick service to get the site up and running.
- Radio communications on the site can be achieved using VHF or UHF hand-held radios and base stations. These can be carried by workers, installed in trucks and installed in buildings. The tower can also accommodate a repeater antennas for the site VHF radios.
- Cellular telephone service is available in the area and a tower mounted system can be installed for a better and more reliable system.
- Satellite internet services are quick to set up on the tower as well. An omni directional
  antennae can be installed on the site with receivers at the temporary construction
  offices and contractor offices. As the site grows, receiver antennas can be installed
  on new buildings. Each building requires a small room for the communication rack,
  where an Ethernet system will distribute.

## 6.2.11 GENERAL SERVICES

A Site Services Contractor will be used for the general services to the site. These duties will include:

- Site road maintenance.
- Repairs to trucks and equipment.
- Site sewage treatment and plant operations.
- Water supply and delivery.
- Water treatment plant operation and maintenance.
- Warehousing and supplies receiving and delivery.
- Janitorial services to buildings.
- Maintenance to buildings and equipment after construction.



- Generator maintenance.
- · First aid services for all workers.
- · Fire protection services.
- Mine rescue coordination.

These services will be required from the beginning of the project and set up of a warehousing area will commence after the laydown area pad has been established. A separate office and lunch trailer for the personnel will be required and set up at the same time. This facility will be utilized until the permanent office and truck shop are completed.

## 6.2.12 QUARRY/CRUSHING PLANT

Process and infrastructure development at the Plant site can utilize the materials from rock excavation on-site at the main pit and from gravel identified as borrow pits.

The access road will require the quarrying of rock and borrow pit gravels located on several quarries/borrow pits on the site.

Batching Plant at Plant site will be set up to produce concrete aggregates. The gravel will be driven through crusher and screener to achieve suitable aggregate sizes.

The crushing/screening station will be a mobile plant and is to be set up and commissioned as per pre-production schedule.



## 7.0 MANPOWER PLAN

## 7.1 Construction Manpower

## 7.1.1 INTRODUCTION

The project is located in central BC. Local and regional construction manpower availability, although recently regarded as fairly low, especially within certain trades, is expected to become more available due to current economic conditions as well as the pending closure of the Huckleberry Mine.

## 7.1.2 SUPPLY AND DEMAND

Locally, the nearest community of Granisle, with a population of 350, has a small number of trades contractors and tradesmen. However the nearest source of construction manpower is Smithers which has a population of 5,400 and there is an airport with regular flights from other parts of the province including direct connections to Vancouver.

Regionally Prince George has a population in excess of 80,000 and has a long history of providing skilled manpower and services to both the forestry and mining industries.

It is foreseen that the majority of both skilled and non-skilled resources will come from the local and regional areas. Additional personnel including some specialized personnel will come from other areas in British Columbia.

The total manpower histogram including pre-mining is shown in Appendix A.

## 7.1.3 IMPACT TO THE PROJECT

Although the demand for skilled and unskilled workers will outstrip supply locally many workers will be attracted to this project for the following reasons:

- Extended work hours are provided.
- The project offers attractive labour rates.
- The project offers attractive working rotations.
- The construction contractors would have comfortable accommodations for their work force.



## 7.2 LABOUR RELATIONS

A sound labour relations plan will be in place to ensure that quality work, at good productivity rates with a content workforce, is achieved while maximizing local labour and business content and at the same time providing useful training to the local population.

The various labour options under which the project could be best constructed have been evaluated:

- 100% union
- 100% non-union
- open shop

After careful consideration, it has been decided that the "open shop "option is preferred. Conducting the construction in an open shop atmosphere will result in:

- The most economical project.
- Tapping the experienced union labour force.
- Maximizing the opportunity for the smaller local non-unionized labour force and contractors.

#### 7.2.1 Introduction

Good labour relations are essential for the efficient and safe execution of the Project.

The Project is expected to be executed on an "open-shop" basis, which will permit both union and non-union contractors to participate.

The following sections provide brief descriptions of the construction employer organizations, and BC labour codes, collective agreements, and labour strategies.

Canadian Construction Association is the body that represents the Canadian Coalition of Open Shop Construction Associations. The applicable association for British Columbia is the Independent Contractors and Businesses Association (ICBA) of BC.

## 7.2.2 Construction Employer Organization

## CONSTRUCTION LABOUR RELATIONS ASSOCIATIONS OF BRITISH COLUMBIA

Construction Labour Relations Association of BC (CLR) was established in 1969 with the objective of bringing labour relations stability and security to contractors in BCs unionized construction sector. CLR has grown and changed in many ways over the years, and its objectives have been expanded to include a commitment to health & safety and training excellence.

CLR is the main player from the Contractors side in negotiating Collective Agreements.



## 7.2.3 COLLECTIVE AGREEMENTS IN BRITISH COLUMBIA

Collective Agreements applying to the construction industry in British Columbia are negotiated by the CLR.

There are numerous separate Collective Agreements that the CLR has in place for buildings trades the CLR offers several services:

- · Labour Relations
  - collective agreement negotiation
  - agreement interpretation
  - pre-job conferences
  - advocacy in grievances, arbitrations and illegal work stoppages
  - jurisdictional expertise
- Health and Safety
  - generic and individualized company safety programs
  - safety and claims management seminars
  - interpretation of WCB regulations
  - assistance in assessment appeals
  - safety-related instructional videos
- Apprenticeship Training
  - representation on provincial Trade Advisory Committees where requested

## 7.2.4 INDEPENDENT CONTRACTORS AND BUSINESS ASSOCIATION

The Independent Contractors and Businesses Association (ICBA) dates back to 1975. ICBA has grown and continues to be the champion of open tendering and fair treatment for all contractors, regardless of their union affiliations. The association also offers a full suite of member services, including affinity programs, health benefits, and much more.

ICBA is the voice of the Open Shop construction industry in British Columbia. They assume the responsibility of making that voice heard. Toward this end, the principles of the open shop are the basis for the organization.

#### 7.2.5 LABOUR STRATEGIES

### **COMMUNICATIONS AND SUPPORT**

To minimize labour disputes, the items below will be addressed by the parties in the labour strategies for the Project:

Employee Orientation and Site Indoctrination Program.



- Procedures for Controlling and Resolving Labour Disputes or Disruptions.
- Subcontractor Compliance with Labour Relations Plans.
- Program for Effective Employee Communication On-site.
- Check-in Procedures.
- Policy on search of person, possessions and camp room, if determined necessary.
- Remote work site; cold weather clothing and safety wear requirements.
- Type of Site Labour Conditions: Open-site construction involving building unions, alternate unions and open-shop/non-union workers.
- Camp facilities, occupancy rules and accommodation set-up (1 person per room).
- Prohibition on alcohol and non-prescription drugs dry camp.
- · Ban on weapons and ammunition.
- Work schedule, extended hours of work and overtime to be paid.
- Travel and transportation schedules.
- Safety, Loss Control and fire prevention programs and procedures.
- · Training or testing requirements, i.e. WHMIS, Welding, Safety.
- · Environmental and Wildlife regulations on the site.
- Disciplinary, Termination of Employment Policies and Project Work Rule Violations.

## 7.3 MANPOWER TRAINING

## 7.3.1 TRAINING PROGRAMS - PRE-CONSTRUCTION

To assist construction contractors in securing qualified and trained local workers on the project, it is recommended to enter into early discussions with the local communities to encourage and support them in their work with training programs for the local work force. It should be noted that the stakeholders, e.g. Employer Associations, the unions, Government, First Nation communities are supportive with resources in order to assist in developing the labour market to support the construction and mining development.

At this time, it is recommended to:

- Inform people of the opportunities for employment during construction and operation.
- Encourage potential workers in preparing for a job search.
- Inform workers of employee expectations.
- Inform authorities on number of required workers, skills etc.
- Consult with First Nation's groups in a way that is culturally appropriate while following traditional protocols.



## 7.3.2 Training Programs During Construction

During the construction phase, the possibility for on-the-job training will be evaluated as the project develops. This will also include the possibilities of having more formal training like apprenticeship programs on-site. Apprenticeship programs are best planned together with the provincial educational institutions.

## 7.3.3 ORIENTATION TRAINING

During the construction phase, orientation programs will be required for all first time employees. The orientation program will be completed in 4 hours and will be conducted by the Health and Safety Coordinator and Environmental Coordinator.

## 7.3.4 OPERATIONS BUILD-UP

The turnover will be coordinated with PBM to ensure proper staffing levels are available from the operations workforce to assume responsibility for the facilities.



# 8.0 HEALTH SAFETY & ENVIRONMENTAL MANAGEMENT

To ensure safety of the workforce, and environmental protection, Health, Safety and Environmental Plans will be implemented on the project. Continuous monitoring and improvement of these plans is essential along with a strong commitment from PBM, the team and construction contractor's senior management. These plans include:

- · emergency response plan
- hazardous materials management plan
- · waste management plan
- · quarry management plan
- · explosives management plan
- blasting management plan
- construction area and activity environmental management plan
- · construction health, safety and security program
- · water management plan

## 8.1 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

## 8.1.1 WASTE MANAGEMENT PLAN

A Waste Management Plan will be prepared as part of the project's Environmental Management Plan. The primary objective of the plan is to achieve proactive waste management practices by incorporating an effective waste minimization program based on the "four Rs" principles: reduce, reuse, recycle, and recover. The Waste Management Plan will discuss the general waste management objectives and strategies, sources of waste and the facilities to be provided on-site to carry out the waste management process. The procedures for collection, temporary storage, off-site shipping and on-site disposal of wastes through incineration or land filling will also be discussed.

## 8.1.2 QUARRY MANAGEMENT PLAN

Rock quarries will be required for developing the ground profile to a suitable elevation and configuration in the area of the mainly primary crusher, main site, access road, air port and port.

The current plan involves the development of rock quarries for the production of various granular materials required for the construction of the roads, and site-work for the



production of concrete aggregates and to optimize site development. Classifications of materials include crushed granite, rockfill, riprap, road gravel, sub-base material, coarse concrete aggregate and fine concrete aggregate. In conjunction with the quarry, a crushing/screening plant will be established within the quarry areas to produce the various product requirements. The actual design, layout and execution plan for the quarry operations including the crushing/screening plant and material stockpiles will be submitted by the selected civil contractor after contract award for approval. The quarry management plan defines the issues that the civil contractor must address to develop the quarry execution plan. The procedures outlined in the contractor's execution plan will be monitored and audited to ensure that practices comply with the ecological objectives and applicable regulations.

## 8.1.3 EXPLOSIVES MANAGEMENT PLAN

Large numbers of explosives and blasting agents must be stored on-site for year round supply to the quarrying operations during the construction phase, and to the pre-mining and mining operations during the operations phase.

An Explosives Management Plan will be prepared to address the safety and security of on-site explosives storage, possession, transportation, handling and destruction. The transportation of explosives to the site is under the jurisdiction of the British Columbia Transportation of Dangerous Goods Act. The possession, storage, handling and destruction of explosives are governed by the Explosives Act of British Columbia. The main objectives of the Explosives Management Plan are to ensure compliance with the legislation and to outline how the ecological objectives will be achieved.

Bulk explosives will be manufactured on-site, the components of which will be transported to the site in separate bulk containers and stored in separate bulk storage facilities on the property. A building for the conditioning and blending of the components will be erected on-site and equipped and operated by the explosives contractor. The explosives contractor will also be responsible for the storage and down hole delivery of the finished product for facilities and equipment licensed and approved by British Columbia Authorities.

The explosives contractor will be required to have a valid explosives magazine permit issued in accordance with the Explosive Magazine Regulations prior to establishing explosive storage facilities on the project site. He will also be required to submit a comprehensive safety plan and procedures governing his operations.

The Contractor will carry out quality, environmental and safety audits at least once every three months to ensure that the requirements of the legislation and safe practice are documented and in compliance.

#### 8.1.4 BLASTING MANAGEMENT PLAN

Blasting will develop suitable profiles and elevations during the construction phase for the primary crusher, main site, site access roads, and to provide structural materials for the



construction of the roads and other earthwork structures related to the project. During the operations phase blasting will also be required for the pre-mining operations, based on a blasting management plan developed to provide a framework for safety and environmental management of the blasting operations.

The main purpose of the Blasting Management Plan is to demonstrate how the ecological objectives will be achieved during the blasting activities. The main environmental issues during preparation, execution and post blasting activities are:

- Spillage of the bulk explosives which predominantly consists of ammonium nitrate, an active oxidizing agent and nutrient.
- Creation of fugitive dust in the proximity of the blast.
- Noise and vibration impacts at the moment of blast.

The Blasting Management Plan addresses the following safety, environmental and regulatory issues:

- Certification required by personnel responsible for the blasting operations.
- Process for design, review and approval of the blast proposals.
- Responsibilities of personnel authorized to direct the blasting operations on-site.
- Control of traffic and personnel in the blast area.
- Training and safety sessions to identify and resolve any issues of concern.
- Pre-blast inspection of the blast site.

#### 8.1.5 Construction Area and Activity Environmental Management Plan

The Construction Area and Activity Environmental Management plan describes the environmental plans to be implemented during the various construction activities required for development of the mine and ancillary structures. Its prime objective is to make sure that the Project's ecological objectives are met during the construction phase. Due to the intensity of work that will be carried out and the number of people on-site, the construction phase poses a particular challenge with respect to environmental management. It is therefore important that comprehensive environmental management plans, guidelines and procedures are implemented during this phase.

The plans provide a framework on which the implementation of the necessary control measures will be based. An overview of the environmental sensitivities which will be affected by construction activities at the site will be provided and the potential issues associated with each of the major construction activities will be discussed. Methods of avoiding or mitigating the potential impacts will be provided, and monitoring and control programs proposed. Finally, corrective or remedial actions which may become necessary in the event of system failure will be outlined in the plan.

The major construction areas or activities discussed in the plan are as follows:



- clearing and stripping
- earthwork construction
- concrete works
- drilling and blasting
- forestry access road to site
- infrastructure erection and mechanical installation
- · tailings pond dam
- foundation grouting
- mine pre-stripping

During the detailed engineering phase, procedures will be developed to complement the plan.

## 8.1.6 WATER MANAGEMENT PLAN

A Water Management Plan will be implemented to ensure the quality of water flowing in to Morrison Lake as a result of construction activities complies with approved standards.

The main sources causing sediment-laden water are:

- treated effluent
- · run-off from the on-shore construction
- dewatering local excavations and other construction activities

To ensure compliance to regulations, the Water Management Plan will follow the guidelines within the Environmental and Social Impact Assessment (ESIA).

As detailed engineering progresses, these measures will be further refined, recognizing the importance of having systems in place prior to the spring run-off, to control run-off after construction activities of the first months.

## 8.2 HEALTH AND SAFETY MANAGEMENT PLAN (HSP)

Sound accident prevention techniques and a zero-tolerance approach result in a safe and more productive workplace. The Health and Safety Plan will realise these objectives by providing awareness and participation of all on-site parties.

The Health and Safety Plan establishes accident prevention policies such as:

• Minimizing unsafe conditions. Accidents are usually caused by unsafe physical condition of equipment or mechanical exposure to the working environment.



- Minimizing of unsafe acts by providing proper supervision to ensure that workers are using the proper techniques and methods.
- Correcting unsafe acts or conditions before an injury occurs.

A typical Health and Safety Plan table of contents will include:

- A brief description of the Project, Location, etc.
- Description of the Health and Safety organization. The organization will develop with the project and the number of contractors and labour force. Health and Safety coordination meetings will be held once every two weeks, and contractors' representatives and representatives elected from the work force will be required to participate.
- · Evaluation of potential dangerous activities
  - A timely identification and evaluation of potentially dangerous working areas and activities. This section will also cover hazardous materials.
- Site Plan
  - A site layout will be developed that will clearly show the location of first aid kits, telephones, escape routes, meeting points, pedestrian walk ways etc.
- Construction Schedule
  - Potentially dangerous activities are clearly highlighted and the Schedule is made widely available.
- · General Safety Rules
  - A list of Site Wide Safety Rules e.g. the use of helmets, light safety goggles, safety boots, no alcohol or drugs, use of mobile phones, etc. as a minimum according the relevant Rules and Regulations and a listing of who is responsible for Health and Safety in specific areas.
- Emergency Response Plan
  - The Emergency Response Plan gives the course of action if accidents should happen. The plan lists different courses to different incidents, e.g. near misses accidents at work, fire, electrical incidents, blasting incidents, land slide, etc. and gives a line of action to follow, who to contact, etc.
- Action and Follow Up
  - Regular inspections and documentation of the status and level of working environment in the working areas. Findings to be discussed at the Health & Safety Meetings.
- Sanctions
  - A listing of sanction to be imposed if contractors and employees fail to follow the Health & Safety policies on-site.



- Appendices
  - Appendix 1: Safety Organization
  - Appendix 2: Listing of Potentially Dangerous Activities
  - Appendix 3: Site Layout with icons
  - Appendix 4: Area Health & Safety Responsible
  - Appendix 5: Emergency Response Plan
  - Appendix 6: Schedule with Potentially Dangerous Activities marked



# 9.0 QUALITY ASSURANCE/QUALITY CONTROL PLAN (QA/QC)

Quality Assurance/Quality Control (QA/QC) will necessarily require PBM and the EPCM Contractor to set broad guidelines in terms of plant operability, safety of operation, and adherence to all regulatory requirements including environmental, safety, health and welfare of employees during all project phases. A strong company policy will apply to all project participants from suppliers to design engineers, contractors and individual company employees. Each contract, purchase order, agreement, public statement, public or site meeting, and official project announcement will reiterate this policy.

The Project Quality Plan will provide a list of engineering, procurement and construction activities that will be audited to ensure that the objectives of the QA/QC program are achieved. The objectives are:

- Products and services conform to specified requirements.
- Contractual and regulatory requirements are met.
- All facilities designed and equipment procured is safe, reliable, operable and maintainable.
- Errors and deficiencies are minimized, thereby creating efficiencies and cost effectiveness.
- Continuous improvement by supporting those activities which add value and eliminating those activities which do not.
- Audits will be performed on each project discipline to provide information to project management on the degree of adherence and conformance to project objectives.

Preventive actions rectify potentially non-conforming situations by addressing the root cause. Corrective actions are primarily those that rectify a non-conformance. Both actions will be initiated whenever a non-conformance is detected and their effectiveness evaluated in eliminating the root cause.

Equipment and material suppliers' drawings and specifications will be certified by the engineering team; inspections on the shop floor will be conducted in accordance with a prescribed schedule of inspection written into each purchase order. Construction contracts will be written to equally exacting standards incorporating discipline specifications current with industry and regulatory practice.

The assessment of the contractors' QA/QC manual will be weighted significantly in the overall contractor selection process. The selected contractor will provide the first level of QC; in most cases the Contractor will provide QA by continuously monitoring the contractors' work-specific inspection and test plans. Construction QA will begin with the



verification of the general site layout, specifically the control monuments that require signoff before any work begins. Subsequent layouts will be checked in a timely manner. Plant layout will be verified by third party professional surveyors.

QA/QC will include the following inspection measures to meet industry, regulatory and PBM's stated QA/QC policy:

- Compaction tests to place fill materials.
- Sieve/gradation analysis of crushed and natural materials.
- Slump, temperature and air entrainment tests of concrete.
- Cylinder compression tests of concrete and grout.
- Structural steel checks for level and plumb.
- · Structural steel bolting torque tests
- Visual and non-destructive examination (NDE) of structural welds as required.
- Gamma ray, vacuum box testing of bottom and corner welds and hydrostatic testing of tanks and pressure vessels.
- Inspection of membrane liners.
- Inspection of seam welding and leak testing of liners, placed in fuel storage areas.
- · Piping pressure tests.
- Rotating equipment alignment checks.
- Electric motor rotation checks and no-load amp tests.
- Power cable megger tests; electrical and instrumentation.
- High voltage cable hi-pot tests.
- Switchgear breaker tests.
- Instrument control wiring megger and continuity checks.
- Instrument control loop checking and instrument calibration.
- Ensuring there are no petroleum product spills.
- Site cleanup in accordance with environmental guidelines.
- · Inspection of sediment laden runoff water.
- Ensure that all collected site water is monitored and, if required, treated before discharge to Morrison Lake.

It is recommended that the Quality Management System complies with renowned standards, e.g. the DS/EN ISO 9001:2000 quality standard.

In summary, QA/QC forms the basis for one of the firm commitments that PBM and the Contractor will make for a successful project.



## 10.0 PRE-OPERATIONAL TESTING & START-UP

## 10.1 PROCESS PLANT

When construction is complete on any process unit, the construction organization will turn over responsibility to the Commissioning Manager for pre-operational testing and turnover of the facility to PBM prior to introducing ore into the plant for commissioning and start-up.

PBM's operating personnel will be involved in the pre-operational testing phase to the extent that they will progressively accept responsibility for sections of the plant as they are checked and handed over.

The Contractor's Commissioning Manager will be responsible for the development of the execution plan based on PBM's requirements and the specific conditions applicable to the Project. This plan will be developed during the construction phase of the Project in close coordination with PBM personnel and the CM team. The pre-operations testing group will be organized in a manner to ensure a smooth transition from construction to plant start-up. A technical document prepared for pre-operational testing will monitor the quality of the work to be accomplished.

The Commissioning Manager will report directly to the Construction Manager. A small team of construction contractor's personnel will be utilized to carry out modifications deemed necessary to ensure that the plant performs as required.

Close communication will be maintained between the construction, pre-operations testing and PBM's operating personnel during this phase to ensure the schedule is maintained. Assistance will also be given to the team by the vendor's engineers.

Pre-operations testing of equipment will begin once the equipment items have been delivered to site, erected and tested by the vendor's engineers. PBM's employee start-up training will be completed prior to ore commissioning and will comprise operational and maintenance segments. Where necessary, vendor engineers will be used during these programs.

The pre-operational testing phase for the process facilities will include all aspects of dry mechanical and electrical testing of equipment and water testing of process equipment, including pressure testing of pipework and wet pre-operational testing as far as practicable.

The following procedure and tagging system will be adopted in the execution of assignments as work is being completed.



## 10.1.1 VISUAL INSPECTION

The non-operational examination of an installation to check that it is in accordance with the engineer's and the manufacturer's drawings, specifications, and manuals.

## 10.1.2 PRE-OPERATIONAL TEST

The initial no-load test of a piece of equipment with test media such as water or air where required.

Visual inspection and pre-operational testing (Yellow Tag) will occur upon completion of installation of plant and equipment where the Construction Contractor will submit, one copy of the appropriate pre-operational check forms which will notify that the plant and equipment are ready for inspection and the following have been put into effect and/or completed:

- All electric motor starters have been locked out and are made secure.
- The flushing of equipment and final lubrication has been completed.
- Couplings have been double checked and dialled out with tolerances being recorded and submitted to the engineer.
- All piping systems relative to the equipment have been checked for proper anchoring and support.
- All piping systems have been thoroughly cleaned, checked and designated piping systems identified.
- All electric installations have been checked and the system is ready for the manual operation.
- All motors have been bumped to check proper rotation.
- Instrument pre-installation calibration form completed and attached to the instrument pre-operational check form.

The EPCM Contractor will then make an inspection of the installation, listing any deficiencies on the appropriate form, copies of which will be given to the Construction Contractor. Where required by the EPCM Contractor, a representative from the Construction Contractor will be present during the inspection.

Upon correction of the deficiencies the Construction Contractor will return the form duly noted. The engineer will then re-check the equipment or systems and, if this meets approval, the engineer will sign the pre-operational check forms.

The Construction Contractor(s) will sign the Yellow Tags and submit to the engineer to identify readiness for pre-operational testing.

During the tests representatives from the Construction Contractor, the EPCM Contractor and the equipment supplier will be in attendance.



The equipment will be started and run by the Construction Contractor for a predetermined period of time as authorized by the engineer and in accordance with the equipment manufacturer's recommendation.

## 10.1.3 CHECKOUT AND ACCEPTANCE (GREEN TAG)

This procedure allows for the transfer of responsibility from the EPCM Contractor to PBM. This procedure establishes that the installation of the equipment and ancillaries has been completed in accordance with the EPCM Contractors' drawings, specifications and codes and the equipment has been energized to prove its readiness for the process commissioning and start-up. On acceptance, PBM assumes responsibility for operation and maintenance.

Upon correction of the deficiencies and on completion of the pre-operational tests to the satisfaction of the engineer, a representative from PBM will join the checkout team.

The EPCM Contractor will direct the visual inspection of the equipment and/or systems for PBM. Following a satisfactory visual inspection, the tests will be repeated for PBM's approval and signature at which time the Green Tags will be attached ensuring that the equipment involved cannot be operated without PBM's consent.

The Owner Acceptance of the Equipment form will then be signed by PBM and the form issued to the engineer. Thereafter, PBM assumes responsibility for the operation and maintenance.

All test reports and documentation will be turned over to PBM for their records and the engineer will retain copies.

PBM will then apply their lockouts on the starters and the switchgear of the accepted equipment. PBM has, at this time, assumed full responsibility for the operations and no systems, equipment; electric or automated apparatus will be started or activated without PBM's consent.

## 10.1.4 START-UP

Start-up (introduction of ore) is performed under the direction of the PBM Start-up Manager, and involves a select staff from pre-operations, process specialists and PBM's operating personnel. This will be the beginning of operations under load conditions and the systematic increase in capacity until process through-put and recovery requirements are met and sustained. This involves applying feed to the operations, check-out of the controls under load, calibration of instrumentation and modifications to the system (if required) to enable it to meet specifications.

10-3



## 10.2 INFRASTRUCTURE

The pre-operational testing and start-up exercise for permanent project infrastructure is a multi-faceted effort spread over virtually the entire time envelope of the Project. In a number of facilities there will be a temporary turnover to construction to allow the project to proceed followed by a permanent turnover when construction is complete. The facilities involved, include the following:

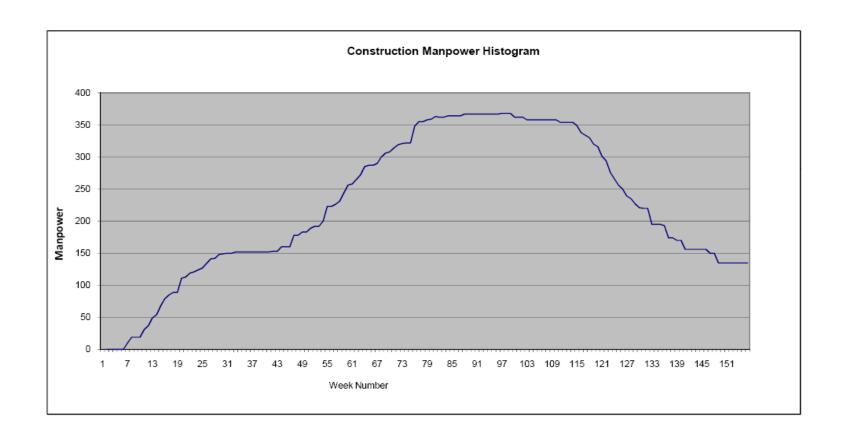
- · Fuel supply and distribution
- Power supply and distribution
- Fresh water supply
- Communications systems
- Sewage Treatment Plant



# APPENDIX A

MANPOWER HISTOGRAM

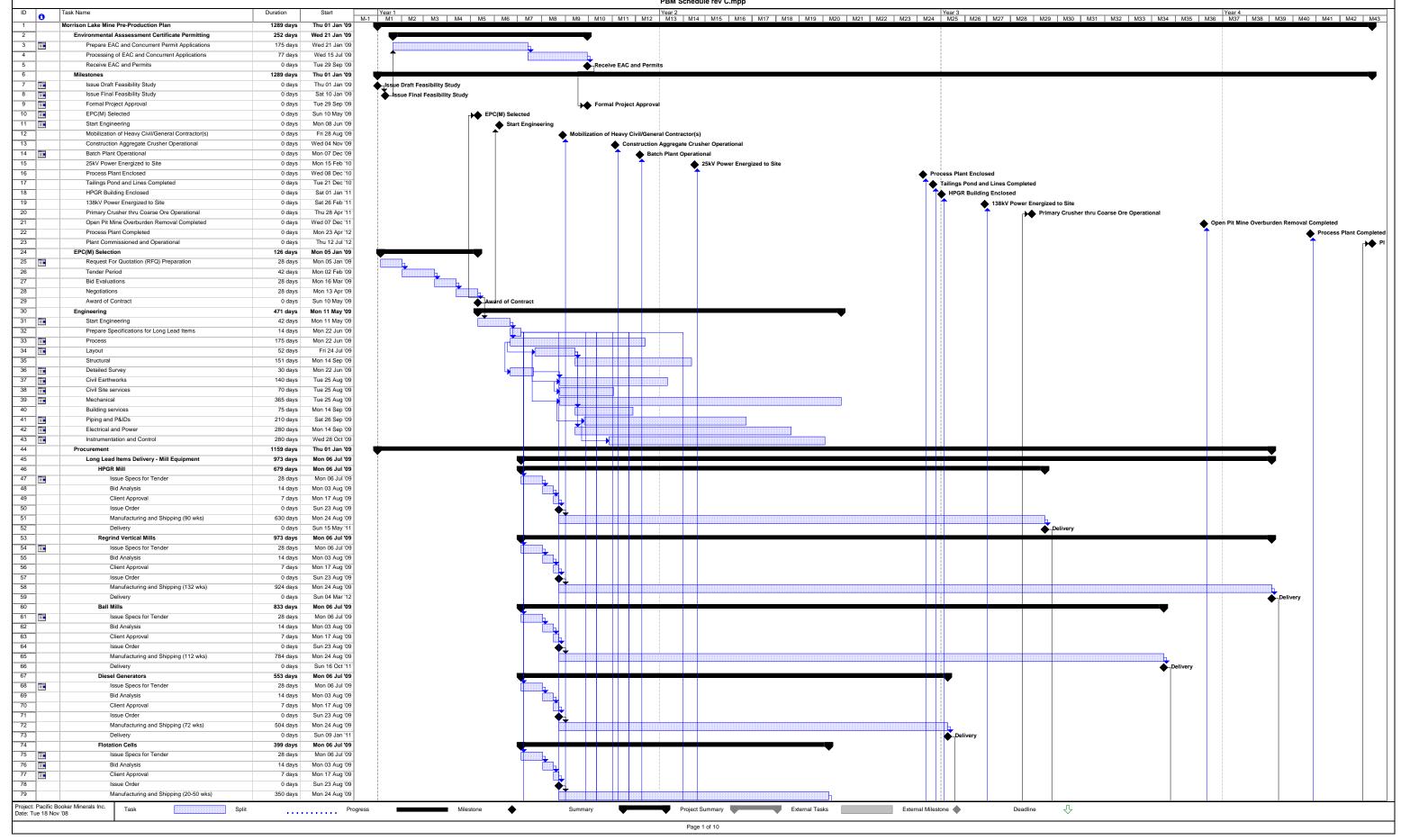


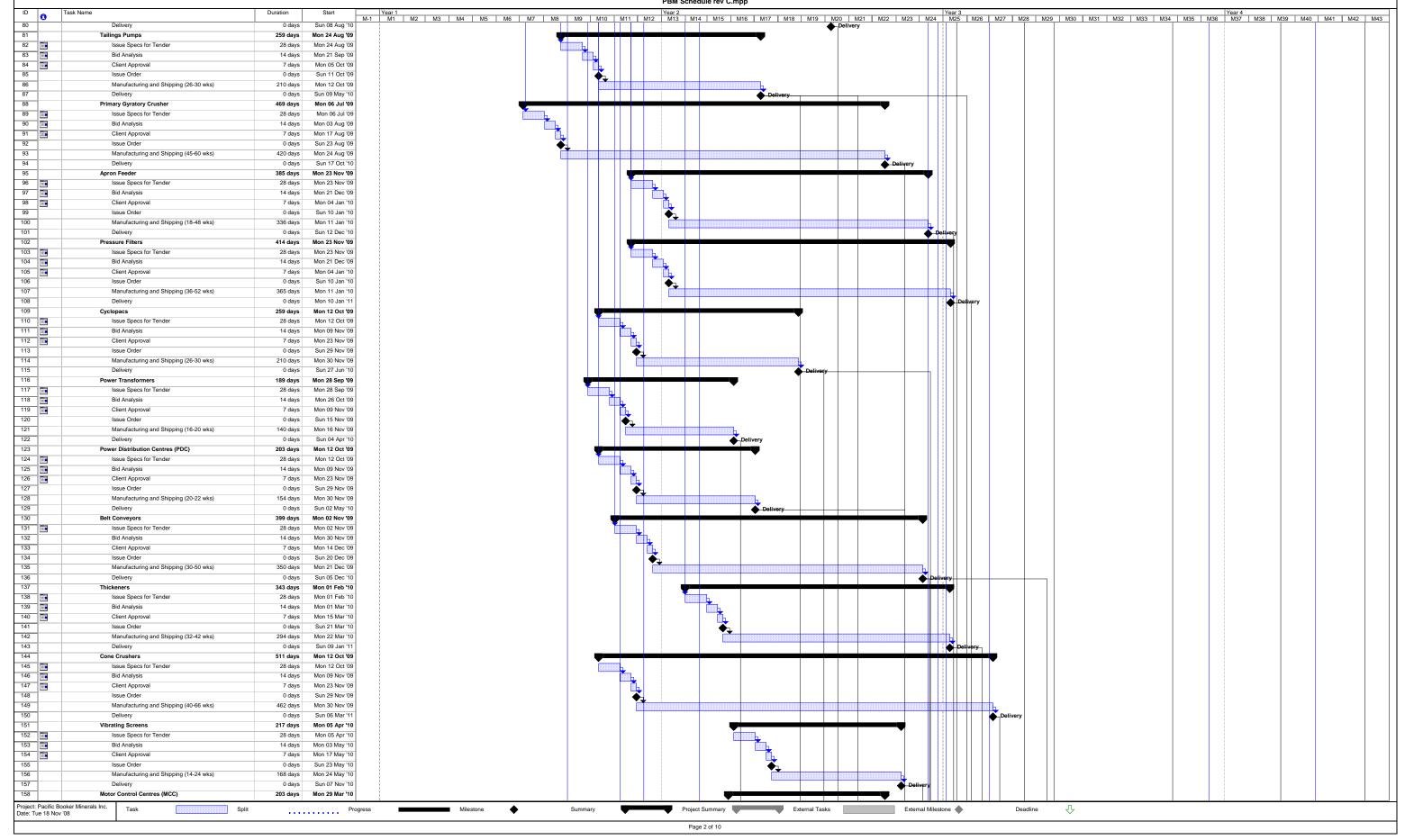


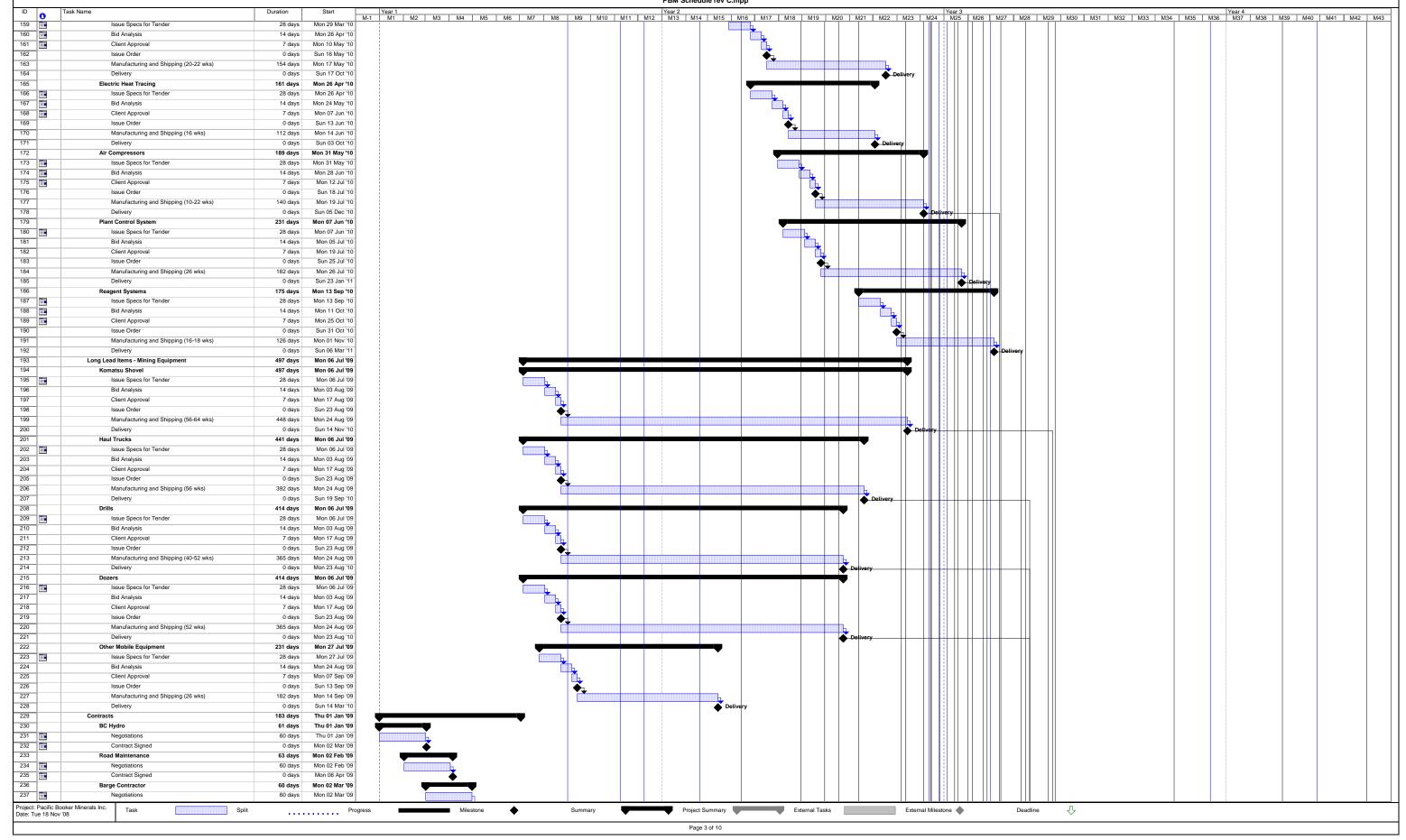


# APPENDIX B

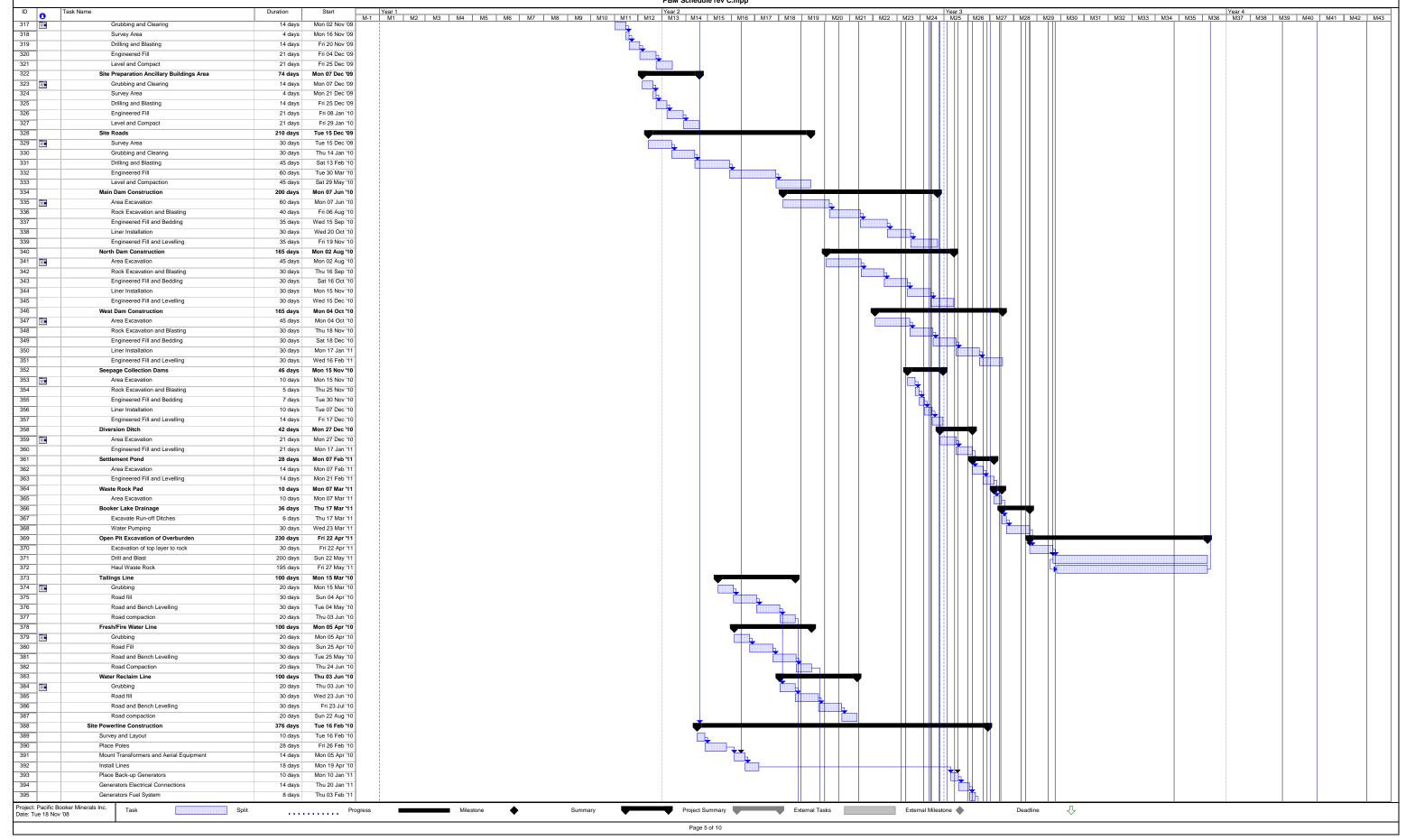
PRE-PRODUCTION SCHEDULE

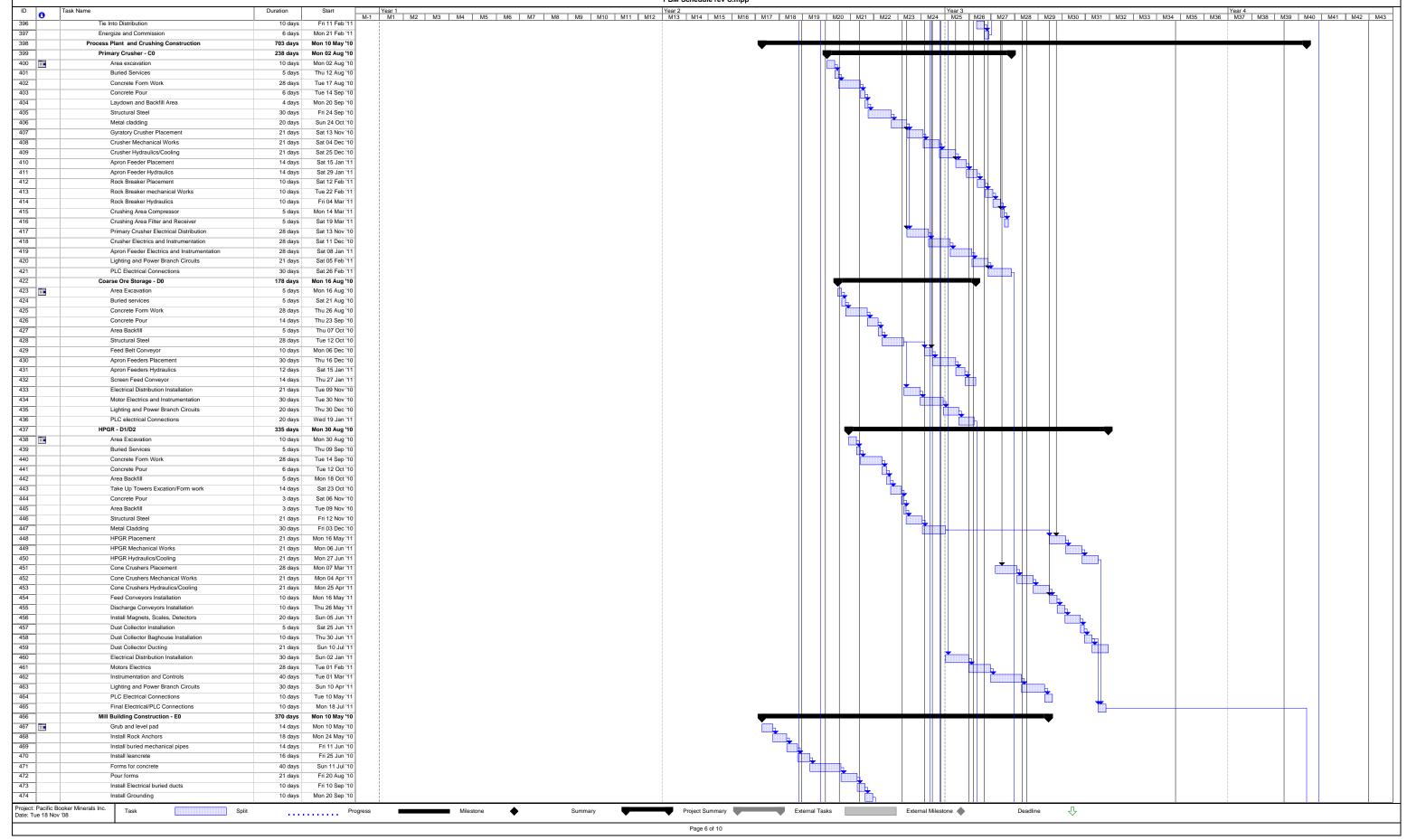


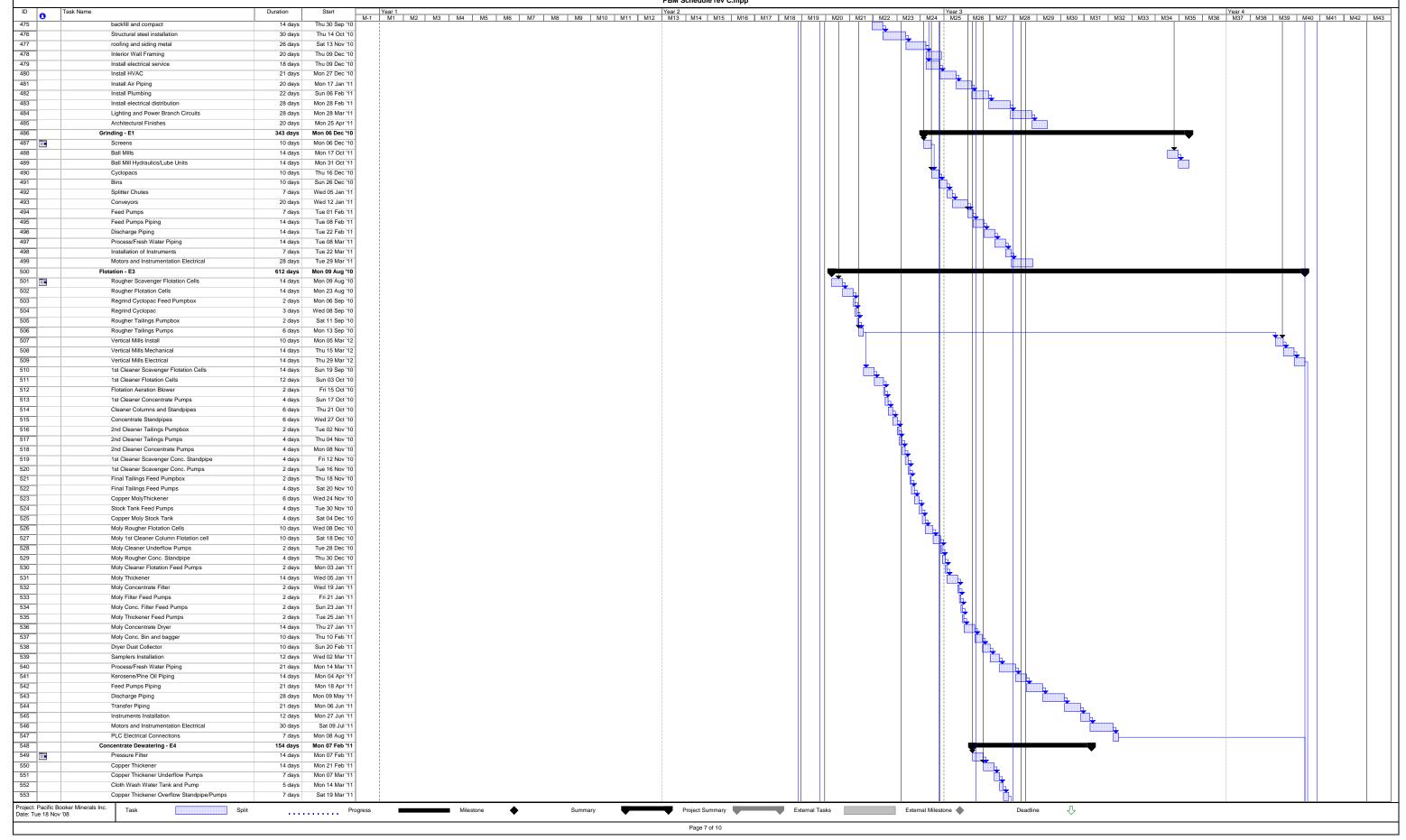


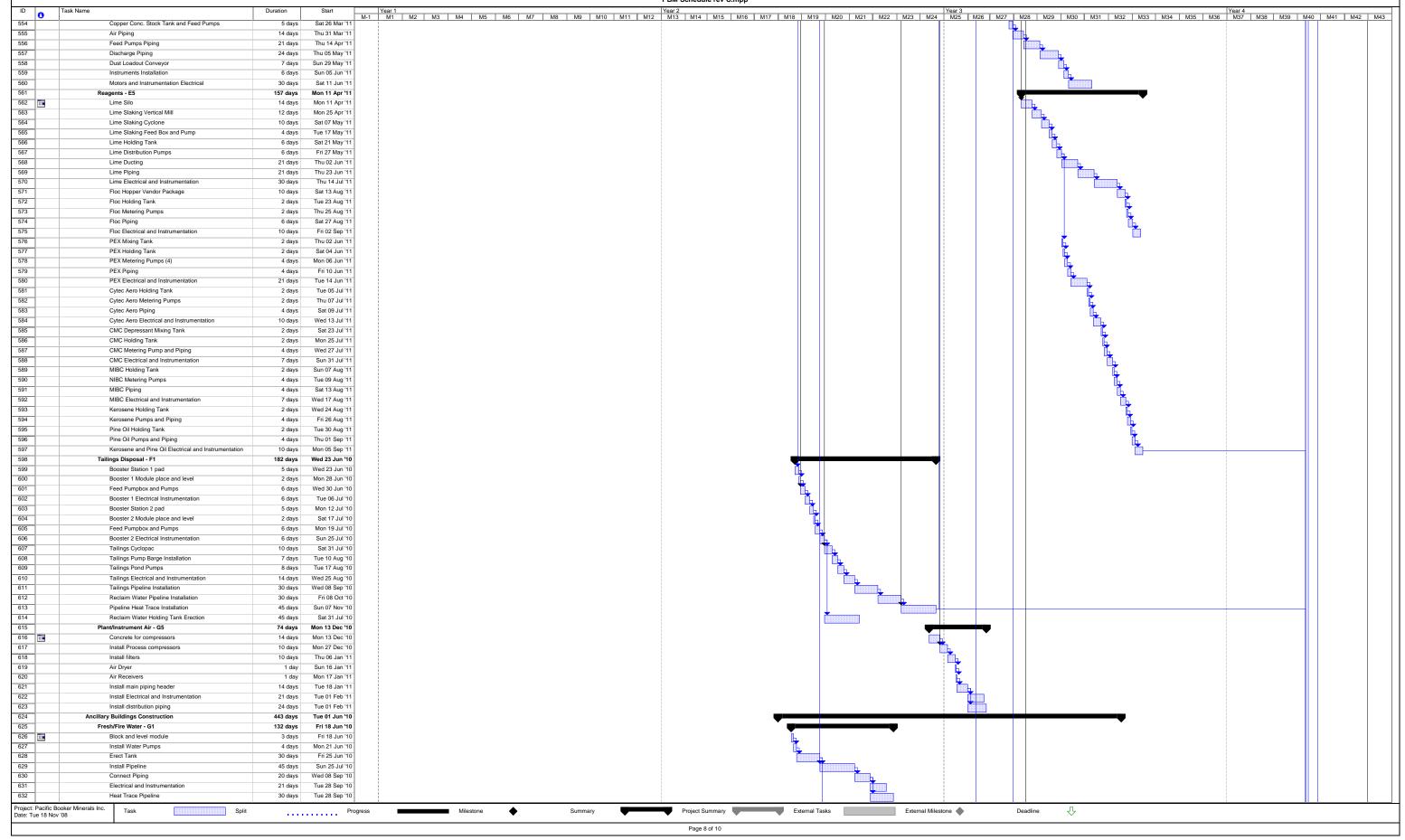


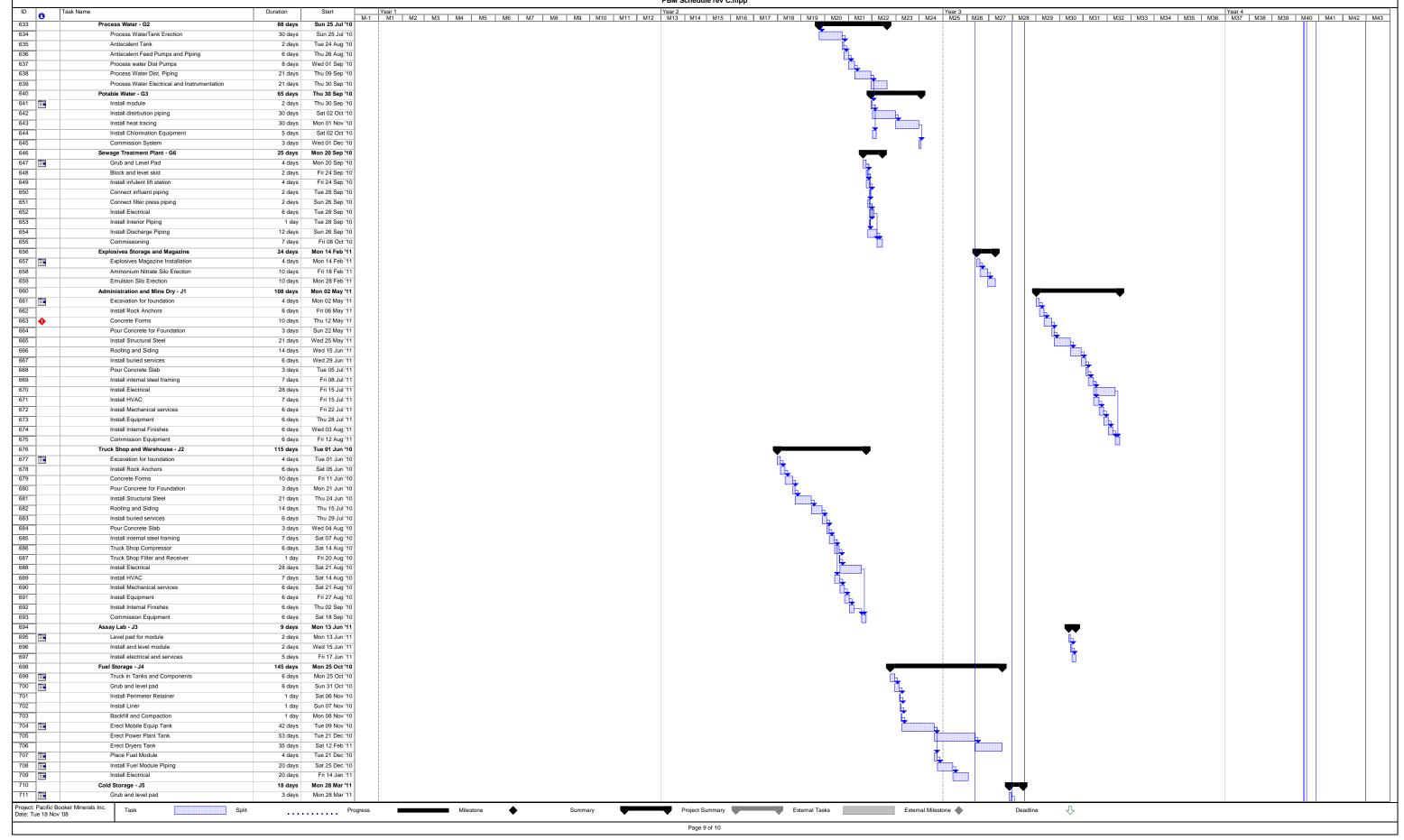
Pacific Booker Minerals Inc.
Morrison Copper/Gold Project Feasibility Study Pre-Production Schedule PBM Schedule rev C.mpp Thu 30 Apr '0 Port Of Stewart 60 days Mon 06 Apr '09 Mon 06 Apr '09 60 days 241 Contract Signed 0 days Thu 04 Jun '09 242 Concentrate Trucking Contracto 60 days Mon 04 May '09 243 Negotiations 60 days Mon 04 May '09 244 Contract Signed 0 days Thu 02 Jul '09 245 962 days Mon 24 Aug '09 246 Offsite Work 176 days Mon 24 Aug '09 247 Mon 24 Aug '09 Initial Forest Service Road Maintenance 64 days 248 Contractor Mobilized 5 days Mon 24 Aug '09 249 Tue 01 Sep '09 Grubbing and Clearing 14 days 250 Tue 15 Sep '09 Engineered Fill 21 days 251 Level and Compact 21 days Tue 06 Oct '09 252 Incoming Powerline Upgrade 25km 155 days Mon 14 Sep '09 253 Survey and layout 14 days Mon 14 Sep '09 254 Place poles 45 days Mon 28 Sep '09 255 Mount Transformers and Aerial Equipment 21 days Thu 12 Nov '09 256 Install Lines Thu 03 Dec '09 30 days 257 Main substation tie-in 45 days Sat 02 Jan '10 258 Temporary Facilities 91 days Mon 14 Sep '09 6 days Mon 14 Sep '09 259 Potable Water 260 Mon 14 Sep '09 Install module 2 days 261 Connect Piping 2 days Wed 16 Sep '09 262 Connect Flectrical 2 days Fri 18 Sep '09 263 Temporary C-Power and Generators Thu 17 Sep '09 264 Truck in Generator trailers Thu 17 Sep '09 Fri 18 Sep '09 Grub and level pad 3 days 266 Block and place containers 3 days Mon 21 Sep '09 267 Install Generators Mechanical and Fuel 5 days Thu 24 Sep '09 268 Install Generators Electrical 10 days Thu 24 Sep '09 269 Generator Power Running 0 days Sat 03 Oct '09 270 Build C-Power Distribution Centre 21 days Sun 04 Oct '09 271 Run temporary Feeder cables 30 days Sun 25 Oct '09 272 Install C-Power Panels 10 days Tue 24 Nov '09 273 Connect and Test C-Power Panels 10 days Fri 04 Dec '09 Lunch and Washcar Trailers 6 days Mon 21 Sep '09 275 Install module 2 days Mon 21 Sep '09 276 Connect Piping 2 days Wed 23 Sep '09 277 Fri 25 Sep '09 Connect Electrical 2 days 278 Fuel Supply 3 davs Mon 28 Sep '09 279 Place Pre-fah Tanks 1 day Mon 28 Sep '09 280 Connect Piping 1 day Tue 29 Sep '09 281 Connect Electrical Wed 30 Sep '09 282 14 days Mon 28 Sep '09 Laydowns 283 Mon 28 Sep '09 Grubbing Area 3 days 284 Thu 01 Oct '09 Backfill and Level 7 days 285 Thu 08 Oct '09 Pad Compaction 4 days 286 Construction Offices 19 days Mon 12 Oct '09 287 Level pad 2 days Mon 12 Oct '09 288 Place and level modules 4 days Wed 14 Oct '09 289 Assemble Interior and Finishes 3 days Sun 18 Oct '09 290 Connect Water and Plumbing Wed 21 Oct '09 Fri 23 Oct '09 4 days Connect Electrical 4 days Tue 27 Oct '09 293 Mon 12 Oct '09 22 days Dry Storage 294 Install Foundation Timbers 4 days Mon 12 Oct '09 295 Erect Framework 4 days Fri 16 Oct '09 296 Install Fabric 4 days Tue 20 Oct '09 297 Install Doors 3 days Sat 24 Oct '09 298 Lighting and Electrical 7 days Tue 27 Oct '09 299 Temporary Construction Explosives Mon 12 Oct '09 300 Explosives Seacan Mon 12 Oct '09 AN and Emulsion Seaca 2 days Wed 14 Oct '09 302 Concrete Batch Plant Mon 26 Oct '09 41 days 303 Truck in batch plant, building, loader Mon 26 Oct '09 2 days 304 Grub and level pad 3 days Wed 28 Oct '09 305 Erect Building 8 days Sat 31 Oct '09 306 Install equipment 5 days Sun 08 Nov '09 307 Electrical and lighting 10 days Fri 13 Nov '09 308 Install heaters Mon 23 Nov '09 309 Sat 28 Nov '09 Install aggregate bins Tue 01 Dec '09 5 days 311 Heavy Civil Construction 773 days Mon 26 Oct '09 10 days Mon 26 Oct '09 Set Up Aggregate Crushe 313 Mon 26 Oct '09 Place and level crushe 4 days Set Up Generator and connect 3 days Fri 30 Oct '09 315 Commissioning 3 days Mon 02 Nov '09 316 Site Prenaration Process Area 74 days Mon 02 Nov '09 Project: Pacific Booker Minerals Inc. Date: Tue 18 Nov '08 Task Progress Project Summary External Tasks External Milestone  $\hat{\Phi}$ Milestone • Deadline Page 4 of 10

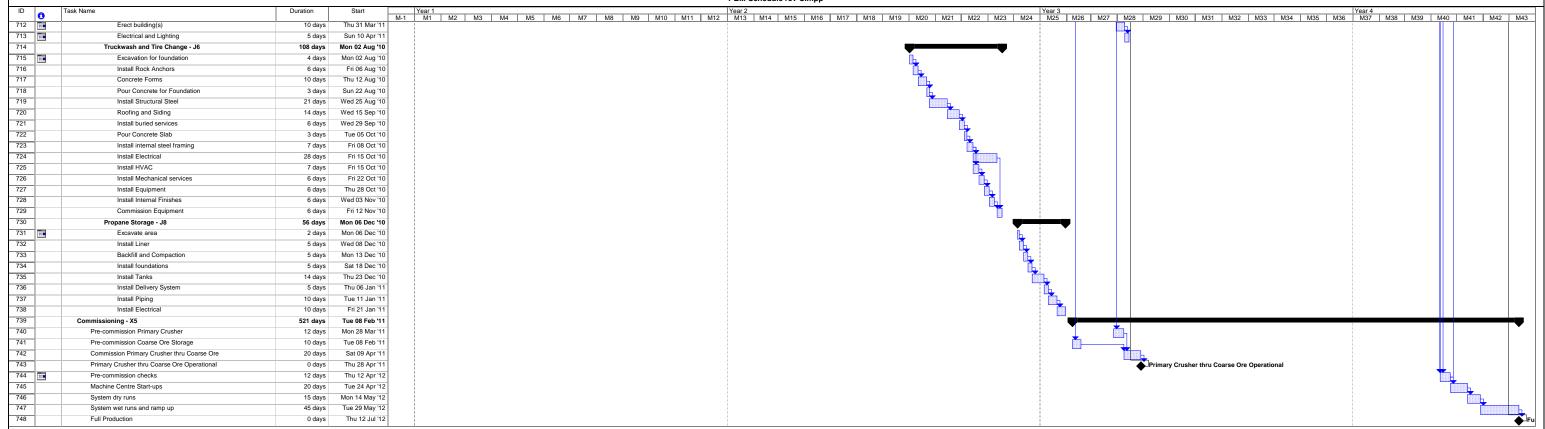










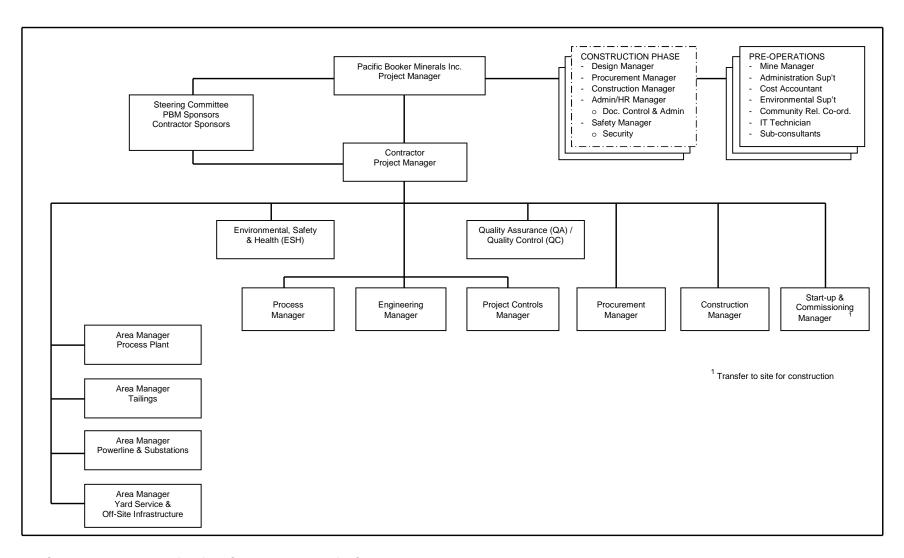




# APPENDIX C

CONTRACTOR'S ORGANIZATION CHART





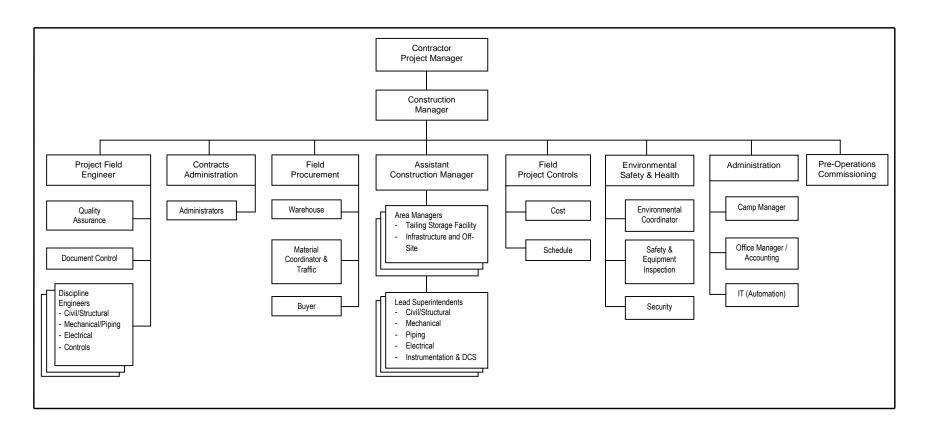
Contractor's Organization Chart – Appendix C



# APPENDIX D

CONSTRUCTION MANAGEMENT ORGANIZATION CHART





**Construction Management Organization Chart – Appendix D**