The following is the text of a letter, summary of report on the Perak Magnesium Smelter by N.E.U. Engineering & Research Institute Co., Ltd, an independent qualified technical adviser, prepared for the purpose of incorporation in this prospectus.

1. NERI's Cover Letter

设计研究院（有限公司）

N. E. U. ENGINEERING & RESEARCH INSTITUTE CO., LTD

沈阳市和平区安图街 8 号高新技术企业服务中心

N.E.U. Engineering & Research Institute Co., Ltd.
No. 8 Autu Street
Heping District
Shenyang, PRC

21st November, 2008

Board of Directors
CVM Minerals Limited 南亞礦業有限公司
8th Floor, Gloucester Tower
The Landmark, 15 Queen's Road Central
Hong Kong

Anglo Chinese Corporate Finance, Limited
40th Floor, Two Exchange Square
8 Connaught Place
Central, Hong Kong.

Dear Sirs,

REPORT FROM INDEPENDENT TECHNICAL ADVISER ON PERAK MAGNESIUM SMELTING PLANT

N.E.U. Engineering & Research Institute Co., Ltd ("NERI") has been appointed by CVM Minerals Limited 南亞礦業有限公司 ("CVM" or the "Company" and together with its subsidiaries, the "Group") to review the proposed magnesium smelting plant of its major subsidiary, Commerce Venture Magnesium Sdn. Bhd. (formerly known as Commerce Venture Manufacturing Sdn. Bhd.), on a piece of industrial land held under HS(D) 24477, PT19594, Mukim of Asam Kumbang, District of Larut and Matang, in the State of Perak, Malaysia, measuring approximately 263,046 square metres and located in the Kamunting Raya III Industrial Estate, Taiping, Perak, Malaysia (the "Smelter Land") to produce magnesium metal ingots (the "Perak Magnesium Smelter").

NERI understands the source to extract magnesium metal will be from the 2 dolomitic limestone hills located at HS(D) 13756, PT13404 and HS(D) 13757, PT13405, Mukim of Sungai Siput, District of Kuala Kangsar in the State of Perak, Malaysia ("Dolomite Hills").

This report has been prepared in accordance with the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited (the "Listing Rules"), particularly Chapter 18. This report is an independent technical assessment of the Perak Magnesium Smelter for inclusion in a prospectus of the Company dated 21st November, 2008 (the "Prospectus") to support its proposed initial public offer on The Stock Exchange of Hong Kong Limited and is a summary of a full report submitted to the Company. This report is also prepared in accordance with the generally acceptable international practice in assessing a project of such nature. Standards of magnesium ingots used are based on the PRC National Quality Control & Inspection Department's guideline on specification for magnesium ingots (GB/T3499-2003).

Independence

NERI has no prior association with the Company and has no beneficial interest in the outcome of the technical assessment being capable of affecting its independence. Neither NERI nor any of the members of the project team has any material present or contingent interest in the outcome of this report, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of NERI. Neither NERI nor any of the project team members holds any share in the Company.

Sources

In the course of its works, NERI has performed, amongst other things, the following:

(i) Site visits to the Smelter Land and the Dolomite Hills.

(ii) Meetings with the Company's directors and senior management in Malaysia and Beijing, PRC.

(iii) Meetings with the directors and working team of the Company's Engineering, Procurement and Construction ("EPC") Contractor, namely, Beijing Tieforce Engineering Co. Ltd., who are responsible for the Perak Magnesium Smelter project.

(iv) Meetings with the directors of the Quarry Contractor.

(v) Meetings with the Company's legal advisers as to Malaysian law, Ben & Partners.

(vi) Review of the drawings and design of the Perak Magnesium Smelter and its proposed timetable for construction.

(vii) Review of the report from UKM Pakarunding Sdn. Bhd. ("UKM"), an expert party on geology and its technical report on the estimate of the dolomite reserves (the "UKM Report").

NERI had free access to the above-mentioned parties and procured relevant information freely and without any reluctance from the parties. NERI opines that the information provided by the Company was reasonable and nothing was discovered during the preparation of this report nor did any of the interviews suggest that there was any material omission or any significant error or misrepresentation in respect of the information provided.

The Smelter Land and the layout plan can cater for two lines of production, each expected to be producing about 15,000 tonnes of magnesium ingots a year, and if operating together will be expected to be able to produce 30,000 tonnes of magnesium ingots a year. Unless specifically mentioned, this report refers to the planned first line of production with an estimated annual production capacity of 15,000 tonnes of magnesium ingots a year.

Summary Findings

There are no prevailing standards for assessing a smelting plant, as opposed to the reporting standards on the classification of reserve estimation and the typical assessment of a smelting plant will involve an analysis of raw materials required, the different processes in manufacturing the product, and the output. The applicable standards relating to the manufacture of magnesium ingots used in the PRC are "The PRC National Standard Guideline on Primary Magnesium Ingots (GB/T3499-2003)" ("中國國家人民共和國國家標準 — 原生鎂錠(GB/T3499-2003)"), which cover technical requirements on, amongst other things, chemical composition, quality control, packaging, storage and transportation of magnesium ingots.

Summary conclusions of the findings are set out below:

(i) **Dolomite Reserves:** From the UKM Report, NERI is of the view that the dolomite reserves from the Dolomite Hills are of high quality and are suitable for the Pidgeon Process for the Perak Magnesium Smelter.

The reserves identified should be sufficient for the proposed production plan of the Perak Magnesium Smelter for approximately 58 years (based on two lines of an estimated production of 30,000 tonnes per annum in aggregate), and for approximately 116 years (based on one line of an estimated production of 15,000 tonnes per annum).

(ii) **Mining Method:** As the dolomite reserve is contained in dolomitic limestone rock formation, the most appropriate mining technique will be quarrying.

This technique is considered simple with no complicated process identified except for the proper handling of explosives. This is a heavily regulated area under the Perak State Quarry Rules 1992 and requires that an approval in writing from the Land Administrator be issued to the quarry operator.

From interviews with the Quarry Contractor, NERI is of the view that there is no reason to believe that the Quarry Contractor cannot perform the quarry operations, with the management of the Company overseeing and managing the process.

(iii) **Smelting Plant:** The Perak Magnesium Smelter plan is designed to cater for the production of magnesium ingots using the Pidgeon Process. The Pidgeon Process is very well developed in the Chinese metallurgical industry to produce magnesium metal.

The overall design can cater for the estimated production of 30,000 tonnes of magnesium ingots per annum. The detailed design for the first line of production is sufficient to cater for an estimated production of 15,000 tonnes of magnesium ingots per annum.

It is the opinion of NERI that the design of the Perak Magnesium Smelter is of a more advanced standard than most magnesium plants in the PRC. It is also designed to cater for modern environmental management needs.

(iv) **Timetable for Construction:** NERI has reviewed the construction plan and timetable of the EPC Contractor. It is of the opinion that the timetable allows for sufficient time for the completion of the Perak Magnesium Smelter subject to no unforeseen circumstances.

(v) **Management of Smelting Factory:** NERI had extensive interviews and discussions with the directors and senior management of the Company on the proposed management of the Perak Magnesium Smelter.

It is NERI's opinion that the Board comprises personnel of high technical qualifications and experience and with the general management skill necessary to enable the Group to operate a plant of such nature efficiently and effectively.

There is no reason to believe that the management team will not be able to manage the Perak Magnesium Smelter effectively. It is NERI's opinion that the current team itself has adequate and sufficient knowledge and experience to manage the Perak Magnesium Smelter without any external technical assistance.

However, NERI has been informed that it is the Group's intention to engage an operation and maintenance contractor to further assist the Group in managing the operation of the Perak Magnesium Smelter especially at the supervisory level as the Perak Magnesium Smelter is planned to be operational 24-hour a day.

This will further strengthen its day-to-day operational technical supervision on the production floor and also assist in training new personnel.

(vi) **Others:** The Group has received approval for the EIA report on the Perak Magnesium Smelter. Occupational health and safety is also a regulated area in Malaysia.

Given the design of the Perak Magnesium Smelter and the experience of the management team of the Group, there is no reason to believe that the Group will not be able to fulfill all the required conditions.

Qualifications of NERI

Please refer to Section 2 of the report for the qualifications of NERI and personnel involved in this project.

Consent

NERI consents to this report being included, in full, in the prospectus of the Company, in the form and context in which the technical assessment is provided.

Yours faithfully,

for and on behalf of
N.E.U. Engineering & Research Institute Co., Ltd

Zhao JiBiao

Expert Status Certificate in magnesium from
China Magnesium Association

Project Team Leader
Director of Magnesium Sector
Deputy Chief Engineer

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Appendices

2. Qualifications of NERI

N.E.U. Engineering & Research Institute Co., Ltd ("NERI") is a specialised research and engineering company in non-ferrous metal metallurgy industry. It is mainly engaged in feasibility studies, research, engineering consultation, engineering and technology development in the field of magnesium, alumina, refinery aluminium, carbon and titanium industries.

It has more than 200 employees and has been awarded ISO 9001:2000 on engineering design for metallurgy. It has also obtained A-grade qualification on non-ferrous metal industry engineering design issued by the PRC Ministry of Construction.

The major shareholders of NERI are the Northeastern University, China Non-ferrous Metal Mining Group Co. Ltd., and Shenyang BRD Engineering Co. Ltd.

NERI has been involved in various feasibility studies, design, construction plans, and industrial testing for the following magnesium plants in the PRC:

(i) Liaoning Province Rock Magnesium Plant

(ii) Jilin Province Dahu Magnesium Plant

(iii) Henan Province Hui County Magnesium Plant

(iv) Jilin Province Wan Gou Magnesium Plant

(v) Benxi County Cement Magnesium Transformation Plant

(vi) Chaoyang Magnesium Industry Company

(vii) Liaoning Magnesium Ore Plant

(viii) Jilin Province Tonghua Mining Bureau Magnesium Plant

(ix) Wushun County Magnesium Plant

(x) Hubei Province Xian Ning Magnesium Plant

(xi) Shanxi Pingding Magnesium Plant

(xii) Shanxi Zhongjin Magnesium Industry Company

(xiii) Baotou Electricity, Silicon, Magnesium Project

(xiv) Guangling Magnesium Essence Company

(xv) Ningxia Taiyang Shan Magnesium Industry Company

(xvi) Liaoning Qing Shan Huai Magnesium Plant

(xvii) Jilin Province FDA Magnesium Plant

(xviii) Datong Yunzhong Metal Magnesium Plant

(xix) Shanxi Guangling Magnesium Plant

(xx) Chongqing Huiyang Metal Magnesium Plant

NERI's project team undertaking this technical study comprises senior personnel with deep knowledge and experience in the magnesium industry. Amongst other personnel, the key project team members comprise the following:

(i) **Mr. Zhao Jibiao**, Deputy Chief Engineer and the project team head. Mr. Zhao is a senior engineer and graduated from the Northeastern University, PRC, majoring in magnesium smelting. He has wide working experience in magnesium sector and has worked for Shenyang Aluminium & Magnesium Design and Research Institute and Shenyang Ruili Industrial Technology Development Corporation.

Amongst other things, Mr. Zhao has been involved in various consultancy capacity in the following magnesium plants: Liaoning Province Rock Magnesium Plant, Jilin Province Dahu Magnesium Plant, Henan Province Hui County Magnesium Plant, Jilin Province Wan Gou Magnesium Plant, Benxi County Cement Magnesium Transformation Plant, Chaoyang Magnesium Industry Company, Liaoning Magnesium Ore Plant, Jilin Province Tonghua Mining Bureau Magnesium Plant, Wushun County Magnesium Plant, Baotou Electricity, Silicon, Magnesium Project, Guangling Magnesium Essence Company, Liaoning Qing Shan Huai Magnesium Plant, Jilin Province FDA Magnesium Plant.

He is also awarded expert status certificate in magnesium from China Magnesium Association (CMA).

(ii) **Mr. Wang Xingming**, Deputy Chief Engineer. Mr. Wang is a senior rank engineer and he graduated from the Northeastern University, the PRC, majoring in magnesium smelting. He has wide working experience in magnesium sector and has worked for Shenyang Aluminium & Magnesium Design and Research Institute and Shenyang RuiLi Industrial Technology Development Corporation.

Mr. Wang has participated in various roles in the following magnesium projects: Liaoning Province Rock Magnesium Plant, Jilin Province Dahu Magnesium Plant, Henan Province Hui County Magnesium Plant, Jilin Province Wan Gou Magnesium Plant, Benxi County Cement Magnesium Transformation Plant, Chaoyang Magnesium

Industry Company, Liaoning Magnesium Ore Plant, Jilin Province Tonghua Mining Bureau Magnesium Plant, Wushun County Magnesium Plant, Hubei Province Xian Ning Magnesium Plant, Liaoning Qing Shan Huai Magnesium Plant, Jilin Province FDA Magnesium Plant.

(iii) **Mr. Yang Daxian** is a Chief Designer and senior engineer and he graduated from the Northeastern University, the PRC, majoring in magnesium smelting. He has wide working experience in magnesium sector and has worked for Shenyang Aluminium & Magnesium Design and Research Institute and Shenyang RuiLi Industrial Technology Development Corporation.

He is also awarded expert status certificate in magnesium from China Magnesium Association (CMA).

Mr. Yang has been involved in a variety of roles in the following magnesium plants: Liaoning Province Rock Magnesium Plant, Jilin Province Dahu Magnesium Plant, Henan Province Hui County Magnesium Plant, Jilin Province Wan Gou Magnesium Plant, Benxi County Cement Magnesium Transformation Plant, Chaoyang Magnesium Industry Company, Liaoning Magnesium Ore Plant, Jilin Province Tonghua Mining Bureau Magnesium Plant, Wushun County Magnesium Plant and Hubei Province Xian Ning Magnesium Plant, Baotou Electricity, Silicon, Magnesium Project, Guangling Magnesium Essence Company, Liaoning Qing Shan Huai Magnesium Plant, Jilin Province FDA Magnesium Plant.

(iv) **Mr. Zhao Pengxi**, an engineer specialising in technique process and graduated from Changchun Construction School in engineering economics. He has wide working experience in magnesium sector and has worked for Zhengzhou Light Metal Research Institute.

Mr. Zhao has involved in various magnesium plants which include Shanxi Guangling Magnesium Plant and Chongqing Huiyang Metal Magnesium Plant.

3. Mining Assets of the Company and Reserves

3.1 Mining Assets

According to the UKM Report, the Group's mining assets comprises only two dolomitic limestone hills located at HS(D) 13756, PT13404 (North Hill) and HS(D) 13757, PT13405 (South Hill), Mukim of Sungai Siput, District of Kuala Kangsar, State of Perak, Malaysia (jointly the "Mining Sites").

As at the date of this report, the Group has commenced small-scale mining activities on the South Hill first. The proposed quarry operator has been quarrying an adjacent dolomite hill for the past ten years, supplying dolomites mainly for a glass manufacturing factory without further processing of the dolomite.

3.2 **Reserves**

According to the UKM Report on it is estimated that the total reserves of the two dolomite hills are sufficient to supply dolomite to the Perak Magnesium Smelter for approximately 58 years with an estimated annual production capacity of 30,000 tonnes of magnesium ingots per annum. The reserve is sufficient for the Perak Magnesium Smelter for about 116 years if it only produces 15,000 tonnes of magnesium ingots per annum using its first line of production.

The above-ground (above-surface) reserve of 12,988,413 tonnes is derived from 3,293,925 tonnes for the North Hill and 9,694,488 tonnes for the South Hill. This is based on the estimated ratio of 11.5 tonnes of dolomite per one tonne of magnesium ingot.

The average weight percentages (oxides) of MgO for the South Hill is 19.17% for above ground and 18.59% for below ground. As for the North Hill, they are 20.06% for above ground and 19.10% for below ground. We are of the view that such MgO weight percentages are suitable for the production of magnesium ingots at the Perak Magnesium Smelter using the Pidgeon Process.

3.3 **Mining Method**

As the dolomitic limestone hills are rock formation above-ground, the appropriate mining method should be quarrying.

This will normally include using the appropriate approved explosives to loosen up and crack the rocks. These rocks are then normally excavated and loaded on a conveyor belt to a crusher which will crush the rocks to smaller sizes. The smaller rock will then be moved onto another conveyor belt to be crushed again to even smaller pieces up to the requirement appropriate to be fed into the Perak Magnesium Smelter. The appropriate size is 10 to 30 mm each in terms of height, length and width. These rock will then be transported by roads to the Perak Magnesium Smelter.

Transportation

From discussions with the management of the Company, the proposed quarry operator and site visits, the mining site and the Perak Magnesium Smelter are connected by local trunk roads and also by the Malaysian North-South Highway. Thus, there is no reason to believe that transportation of dolomite to the Perak Magnesium Smelter will pose a problem.

Utilities

Currently, the proposed quarry operator uses its own generator to generate sufficient electricity to conduct its own quarry operation on its own at the adjacent mining site.

Crushed dolomite are also stock-piled on the Mining Sites.

Thus, any disruption in electricity supply, although it may disrupt the quarrying and crushing activities, should not disrupt materially, or at all, the operations of the Perak Magnesium Smelter, as the crushed dolomite at the stock-pile can be transported. Furthermore, there will be a dolomite stock-pile at the Perak Magnesium Smelter.

Bad Weather

Severe weather such as continuous heavy rainfall especially during the monsoon season may disrupt the quarrying and crushing activities.

Dolomite can be easily procured from the stock-pile at the Mining Sites or from the stock-pile at the Perak Magnesium Smelter to mitigate any disruption of supply of dolomite for continuous operation of the Perak Magnesium Smelter.

Risk Factor

Quarrying activities are regulated under the Perak State Quarry Rules 1992. However, it is a simple mining method and, there is no reason to believe that the proposed quarry operator will not be able to fulfill its obligations whilst adhering to the relevant regulations.

In light of (i) the ability to transport dolomite to the Perak Magnesium Smelter with ease; and (ii) the ability to mitigate disruption to the supply of dolomite to the Perak Magnesium Smelter, through stock-piling dolomite at both the mining site and the Perak Magnesium Smelter, we are of the opinion that the risk associated with mining activities for the purpose of procuring adequate dolomite for the continuous operation of the Perak Magnesium Smelter is very low.

4. Magnesium Smelting Plant

4.1 Dolomite Storage

The dolomite stock yard is designed to cater for up to three months of dolomite supply based on an estimated production rate of magnesium ingots of 15,000 tonnes per annum. This is more than adequate to protect against temporary disruption to the quarry operations at, or transportation to and from, the Mining Sites.

4.2 Layout Plan

The layout plan of the Perak Magnesium Smelter is attached in Appendix 5 to this report. More details are provided in the table below. It is expected that the buildings denoted as Phase 2 will enable the plant to produce 15,000 tonnes of magnesium metal ingots per annum. The rest of the buildings are required for the first line of production

which will produce an estimated 15,000 tonnes of magnesium ingots per annum. Phase 2 is independent of the initial phase of producing an estimated 15,000 tonnes of magnesium ingots per annum and can be constructed at a later stage. The cost for the EPC Contractor to construct the initial phase is detailed section 4.6 of this report.

Ref. No.	Name	Unit	Construction Area
1	Guard House	3	60 m^2
2	Steel Yard	1	114 m^2
3	Material Calcination (Phase 2)	1	2,880 m^2
4	Material Glomeration Workshop (Phase 2)	1	3,800 m^2
5	Dolomite Quicklime Storage Yard	1	14,168 m^2
6	Water Circulation Pond	1	1,800 m^2
7	Water Circulation Pond (Phase 2)	1	1,170 m^2
8	Water Pump Room	1	192 m^2
9	Water Station (Pumping Station)	1	108 m^2
10	Silicontron Store House	1	972 m^2
11	Power Distribution Room	1	216 m^2
12	Magnesium Deoxidization Workshop (1)	1	6,550 m^2
13	Magnesium Deoxidization Workshop (2)	1	6,550 m^2
14	Magnesium Deoxidization Workshop (Phase 2)	1	6,550 m^2
15	Material Calcination	1	2,880 m^2
16	Material Glomeration Workshop	1	3,800 m^2
17	End Product Store	1	972 m^2
18	Magnesium Refining Workshop (Phase 2)	1	3,528 m^2
19	Magnesium Refining Workshop	1	3,528 m^2
20	Equipment Electricity Room (Sub Station)	1	794 m^2
21	Waste Water Treatment Plant	2	774 m^2
22	Modulation Voltages Station	1	72 m^2
23	Fire Pump Room	1	72 m^2
24	Hose Reel	1	168 m^2
25	Oil Pump Room	1	135 m^2
26	Oil Storage Yard	1	856 m^2
27	Boiler House	1	204 m^2
28	Magnesium Deoxidization Cannery	1	1,080 m^2
29	Maintenance Workshop (Open)	1	2,500 m^2
30	Maintenance Workshop	1	972 m^2
31	Canteen	1	562 m^2
32	Office Building	1	1,090 m^2
33	Deoxidized Residual Disposite Transportation	1	3,854 m^2
34	Detention Pond	1	4,700 m^2
35	Gas Pressurization Room	1	192 m^2
Total Area		**38**	**77,863 m^2**

The Perak Magnesium Smelter is designed for the smelting process to produce magnesium ingots, using dolomite as source of magnesium, as described below.

4.3 **Magnesium Smelting Process**

The key processes of magnesium smelting are described below. Generally, they can be divided into the five major processes:

- Dolomite Calcination
- Material Proportioning
- Briquetting
- Reduction
- Refining

4.3.1 ***Dolomite Calcination***

The dolomite from the dolomite stock yard will be washed to remove the surface soil and dust. The ore is then fed into the rotary kiln via bucket lift machine and feeder.

The rotary kiln is divided into a preheating zone, a calcining zone and a cooling zone in terms of structure characteristics. The rotary kiln uses natural gas as fuel and utilises an automatic control combustion nozzle to form a calcining zone, over a length of 8 to 15 meters, and which automatically controls the temperature of the calcining zone at 1,100°C to 1,220°C. During the calcining of dolomite, the major chemical reaction occurring is:

$$CaCO_3 \bullet MgCO_3 = CaO \bullet MgO + 2CO_2\uparrow$$

Major control conditions are:

(i) Calcining temperature: 1,100°C - 1,220°C;

(ii) Particle size of the materials fed into the kiln: 15-25mm;

(iii) Staying time for materials in the kiln: 1.5-2.5 hours;

(iv) Natural gas pressure before combustion nozzle: 2.2-2.5kPa;

(v) Combustion-supporting air before combustion nozzle: 3,500Pa;

(vi) Cauterant decrease of calcined dolomite: ≤0.5%;

(vii) Active water of calcined dolomite: ≥32%.

The process in the rotary kiln uses an automatic control system, ensuring normal and stable conditions for the calcining process, such that the calcined dolomite is controlled in real-time.

Dolomite coming out from the rotary kiln is cooled to less than 160°C in the rotary cooling machine before moving on for material proportioning and briquette pressing procedures.

4.3.2 ***Material proportioning***

Calcined dolomite and silicon iron (ferrosilicon) are weighed and fed proportionately through an automatic computer material matching system into the composite materials two-compartment ball mill, mixed evenly and grounded. The particle size required for the powder material is less than 120 mesh.

4.3.3 ***Briquetting***

The composite powder materials, formed after grinding the three types of materials, are fed into a high pressure roll briquette pressing machine via a bucket lift machine, a materials mixing silo and speed adjustable screw conveyor, to be pressed into the briquettes. The briquette making pressure is $1.5t/cm^2$. There is a screen at the exit of briquette pressing machine, and the finished briquettes are loaded and sealed in a special material container through the belt, and returned to the reduction workshop. The broken powder materials not made into briquettes are returned to the briquette pressing machine as materials to be pressed again into the briquettes via the bucket lift machine and screw conveyor.

4.3.4 ***Reduction***

Reduction is via a rectangular preheating reduction furnace or a normal compartment reduction furnace. Each furnace has a reduction tank built according to design, and has twin layers and double configuration. The reduction furnace is equipped with steam spraying vacuum pump system, forming a work unit. The comparatively small unit represents a mechanised process that can be effectively used to decrease reduction time and improve reduction rate.

The reduction furnace uses natural gas as fuel, and the high temperature fume discharged in the reduction combustion preheats combustion-supporting air. The fume temperature is comparatively lower after preheating the air, and discharged through mechanical fume from the exhaust. All preheating combustion process is controlled by the computer.

Under normal condition, the temperature difference within the reduction furnace is lower than 10°C with low furnace heat radiation. High preheating air temperature (above 1,000°C) and fast furnace temperature rise, achieves the effects of energy-saving and obtaining dense crystallised magnesium.

Reduction process happens in the reduction tank, and its major chemical reactions are as follows:

$$2(MgO \bullet CaO) + Si(Fe) = 2Mg\uparrow + 2CaO \bullet SiO_2 + Fe$$

The major technological conditions in the reduction process are:

(i) Temperature in reduction furnace: 1230~±10°C

(ii) Vacuum degree in reduction tank: 3~10Pa

(iii) Loading volume for each reduction tank: 180kg

(iv) Reduction cycle: 12 hours

(v) Cooling water temperature: entrance <30°C; exit 50~60°C

The reduction reaction produces magnesium steam, which is condensed to solid crystallised magnesium ring in the crystalliser placed at the end of reduction tank.

The feeding, slagging off, installing and removing crystalliser adopts special combined operation unit. Crystallised magnesium is ejected by ejecting machine, and transported to the smelting workshop to smelt.

The reduction slag from the reduction tank is transported to a reduction slag processing system through the reduction slag compartment. Slag is stored in different silos after cooling in the cooler, transporting and screening. This reduction slag can be comprehensively used as constituent material for cement or road bricks materials and fertilizer.

4.3.5 ***Refining***

The smelting of crystallised magnesium is performed in the crucible furnace heated by natural gas using a crucible sealed large smelting furnace.

The technological conditions for smelting are:

(i) Chamber temperature during melting magnesium: 1050±3°C (automatic control);

(ii) Smelting temperature: 710~730°C;

(iii) Casting temperature: 680~710°C;

(iv) Smelting time: 30 minutes;

(v) Time of repose: 30 minutes.

The liquid magnesium after smelting is automatically fed into continuous casting machine through special magnesium pump and with fixed amount to cast into magnesium ingot, washed by magnesium washer and packed as finished products.

During casting ingot, SO_2 gas protection is adopted, preventing magnesium oxidization combustion.

During the melting, smelting and ingoting of crude magnesium, the volatile matter containing chloride salt ($MgCl_2$, KCL, NaCl, etc), toxic gases such as HCL gas and SO_2 gas are produced. Acid fog tower is used to perform lye washing, both improving working condition, alleviating the corrosion against equipment and buildings, and meeting the environmental discharging standards.

4.4 **Raw Materials**

The main raw materials used in the Perak Magnesium Smelter are:

- Ferrosilicon (1.15 t/t.Mg)
- Flux (0.18 t/t.Mg)

These raw materials are not scarce minerals and are easily available and can be sourced easily.

4.5 **Utilities**

Main utilities used in the Perak Magnesium Smelter and requirements needed are as follows:

- Electricity ($2.85x10^7$ kW.h/a)
- Natural Gas ($5.87x10^7$ Nm^3/a)

Electricity, natural gas and water are obtained through national utilities, service providers in Malaysia and according to the management of the Company, they have discussed these requirements with the state-owned corporations and there is no problem in compliance with these requirements.

4.6 **Construction Cost**

We have also reviewed the design of the Perak Magnesium Smelter, and is of the view that the budget of US$39.625 million allocated for the EPC Contractor is adequate and sufficient to complete the construction of the Perak Magnesium Smelter subject to any unforeseen circumstances.

4.7 **Proposed Timetable**

We have reviewed the proposed timetable for the construction of the Perak Magnesium Smelter as detailed in Appendix 3 and have also visited the Smelter Land. In our opinion the timetable provides adequate and sufficient time for the completion of the Perak Magnesium Smelter subject to no unforeseen circumstances.

5. Current Progress

In accordance with the progress report from and interviews with the Infrastructure Contractor and the EPC Contractor and our site visit of the Smelter Land the following have been completed at the Smelter Land.

Site Infrastructure

- Site clearance
- Earthwork
- Drainage
- Road formation
- Crusher run
- Premix
- Water reticulation
- Telephone trunking

Perak Magnesium Smelter Design Work

- Main process design
- Special design
- Layout design

- Confirmation drilling location
- Detail geological survey
- Confirmation of equipment list
- Review of basic design

The Smelter Land is currently under the construction by the EPC Contractor, which is expected to be completed in or about March 2009.

6. Others

6.1 Environmental Issues

According to the legal due diligence report prepared by the Ben & Partners, environmental matters are regulated under Environmental Quality Act 1974 and the Company's EIA report has been approved for the Perak Magnesium Smelter. The Company's Environmental Management Plan has also been approved by the Department of Environment, State of Perak.

NERI has no reason to believe that from the experience of the Directors and senior management of the Company, the conditions attached to these approvals cannot be met.

6.2 Occupational Health & Safety

According to the legal due diligence report prepared by Ben & Partners, the Factories and Machinery Act 1967 regulates factories and machinery by way of registration and examination of such machinery to ensure the maintenance of health and safety standards, including the welfare of all parties involved. In addition, the Occupational Safety and Health Act 1994 regulates the safety, health and welfare of persons at work.

NERI has no reason to believe that, from the experience of the Directors and senior management of the Company, and if there are conditions imposed on the Company, that it will not be able to obtain these approvals.

6.3 Transportation

Transportation of magnesium ingots from the Perak Magnesium Smelter will typically be via the existing road network to the port nearby.

Appendix 1: Technical Glossary

Briquetting	The process when small particles of solid materials are pressed together to form coherent shapes of larger size.
Calcination	The process of heating a substance to a high temperature but below the melting or fusing point, causing loss of moisture, reduction or oxidation, and dissociation into simpler substances. The term was originally applied to the method of driving off carbon dioxide from limestone to obtain lime (calcium oxide). Calcination is also used to extract metals from ores. For example, the calcination process of dolomitic limestone ($CaCO_3 \bullet MgCO_3$), which may be used as the raw material, involves heating the limestone at high temperatures to decompose the carbonates and produce calcined dolomite (of which magnesium oxide forms a component). The reaction, which results in CO_2 emissions, is as follows: $CaCO_3 \bullet MgCO_3 = CaO \bullet MgO + 2CO_2\uparrow$
Magnesium	A light, silvery-white, moderately hard metallic element that in ribbon or powder form burns with a brilliant white flame. It is used in structural alloys, pyrotechnics, flash photography, and incendiary bombs. Atomic number 12; atomic weight 24.305; melting point 649°C; boiling point 1,090°C; specific gravity 1.74 (at 20°C); valence 2. Symbol is Mg.
Metallurgy	The science of metals, especially the science of separating metals from their ores and preparing them for use, by smelting, refining, etc.
Pidgeon Process	Pidgeon process is one method of producing magnesium metal. The other method is through electrolysis. In the Pidgeon Process, magnesium is produced from calcined dolomite under vacuum and at high temperatures using silicon as a reducing agent. The source of magnesium is from dolomitic limestone rock. In the process, the finely crushed dolomite is fed to rotary kilns where it is calcined, and where the carbon dioxide is driven off leaving a product of calcined dolomite. The calcined dolomite is then pulverized in a roller mill prior to mixing with finely ground ferrosilicon and fluorite. The fine calcined dolomite and ferrosilicon are weighed in batch lots and mixed in a rotary blender. This mixture is then briquetted in briquetting pressing machine. Briquettes are then conveyed to the reduction furnaces. Magnesium crowns are then further moved to the refining process with flux to produce magnesium metal.

Reduction

The process of extracting usable metal from an ore by heating to extreme temperatures in a furnace. Some metals may melt while being smelted and these can be run off or trapped in crucibles as ingots. But melting metals was not necessarily the aim; the main chemical reaction in smelting is that of reducing a metal oxide in the form of a bloom which can then be further worked by forging to drive off the remaining impurities.

The reaction in the Pidgeon Process during the reduction process is characterized as follows:

$$2(MgO \bullet CaO) + Si(Fe) = 2Mg\uparrow + 2CaO \bullet SiO_2 + (Fe)$$

Refining

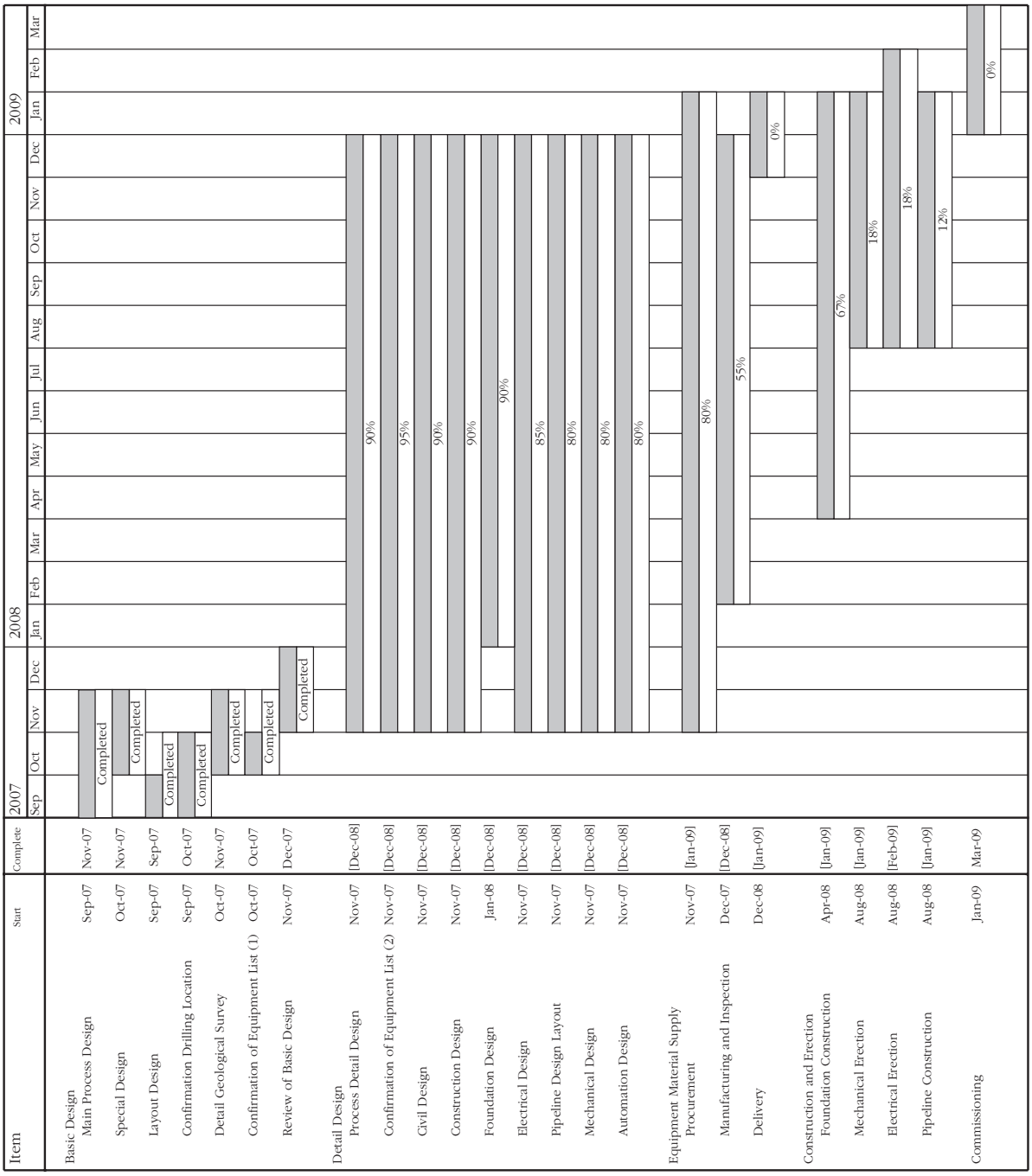
A process of removal of impurities, normally after extraction of a particular metal, and transformation into ingot form. It includes the finer processes of metallurgy. Crystallised magnesium is melted and the liquid magnesium after smelting is fed into continuous casting machine to cast into magnesium ingot, washed and packed as finished products.

Appendix 2: Material Structure and Composition Used

No.	Item	Unit	Quantity
1	Construction scale	t/a	15,000
2	Magnesium Metal Ingot production	t/a	15,824
3	Quality of design products		
	• 99.90% magnesium	%	60
	• 99.95% magnesium	%	40
4	Major unit consumption index of magnesium		
	• Dolomite	t/t.Mg	11.5
	• Ferrosilicon	t/t.Mg	1.15
	• Flux	t/t.Mg	0.18
	• Retort	set/t.Mg	0.2
5	Process and technical index		
	• Dolime: Coarse Magnesium ratio		6.7:1
	• Refining process extraction yield	%	95
6	Major raw materials requirement		
	• Dolomite	t/a	181,987
	• Ferrosilicon	t/a	18,198
	• Flux	t/a	2,848
	• Retort	set/a	3,165
7	Power supply		
	• Annual consumption of electricity power	kW.h/a	$2.85x10^7$
8	Energy fuel		
	• Annual consumption of natural gas	Nm^3/a	$5.87x10^7$
9	Water supply and drainage		
	• New water used	m^3/d	1,339
	• Water drain used	m^3/d	1,523
	• Circulating water	m^3/d	28,881
10	External transportation and general layout		
	• Annual transportation capacity	10^4 t/a	30.00
	• Entrance capacity	10^4 t/a	19.50
	• Exit capacity	10^4 t/a	10.50
	• Area covered by plant site	m^2	287,300
	• Area covered by buildings and structures	m^2	33,112
	• Building coefficient	%	20.99
11	Labour requirement		
	• Total number of staff	person	398
	• Production staff	person	358
	• Management/Supervisory staff	person	40

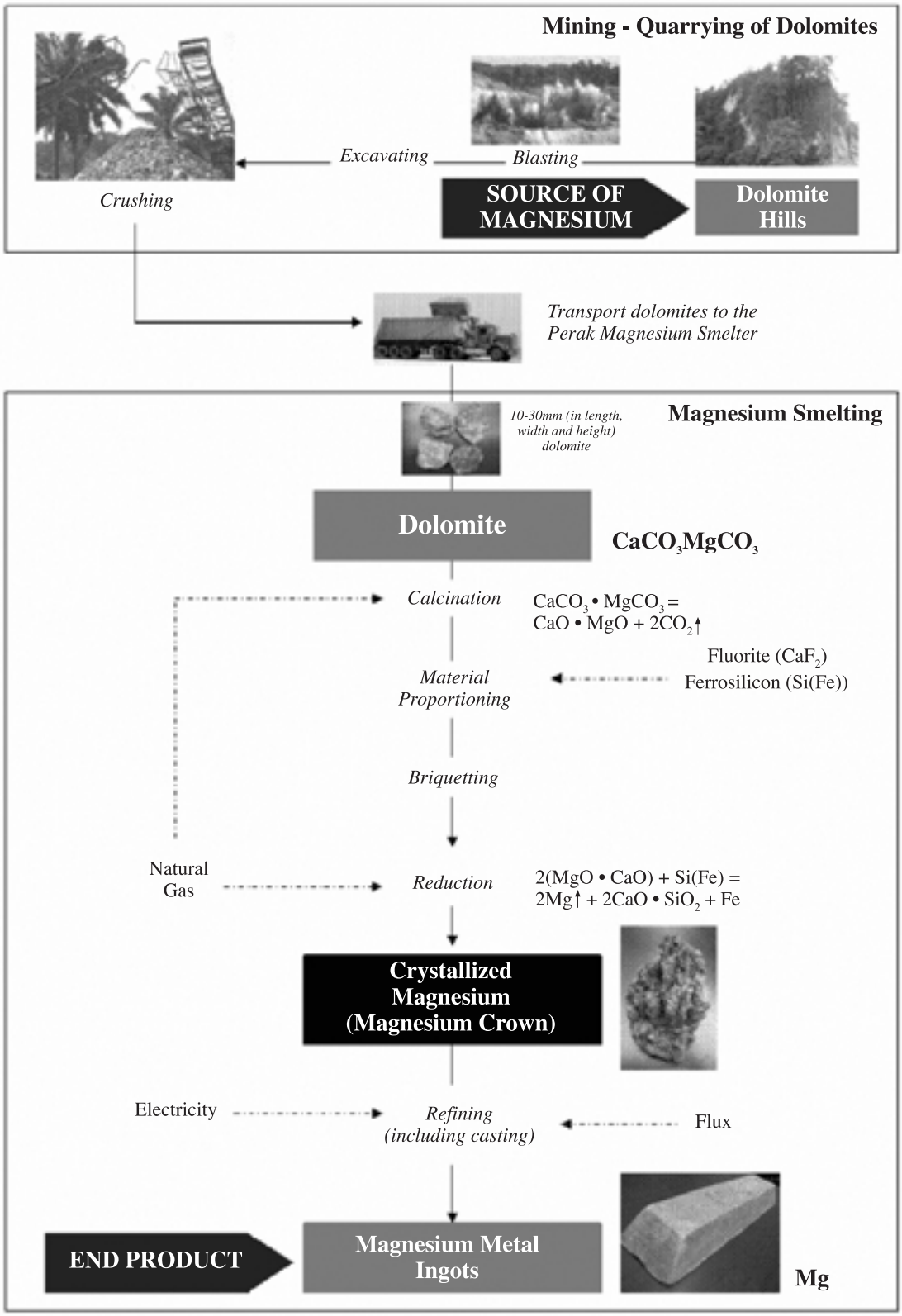
Appendix 3: Proposed Construction Timetable

Estimated Timetable for the Construction of Perak Magnesium Smelter

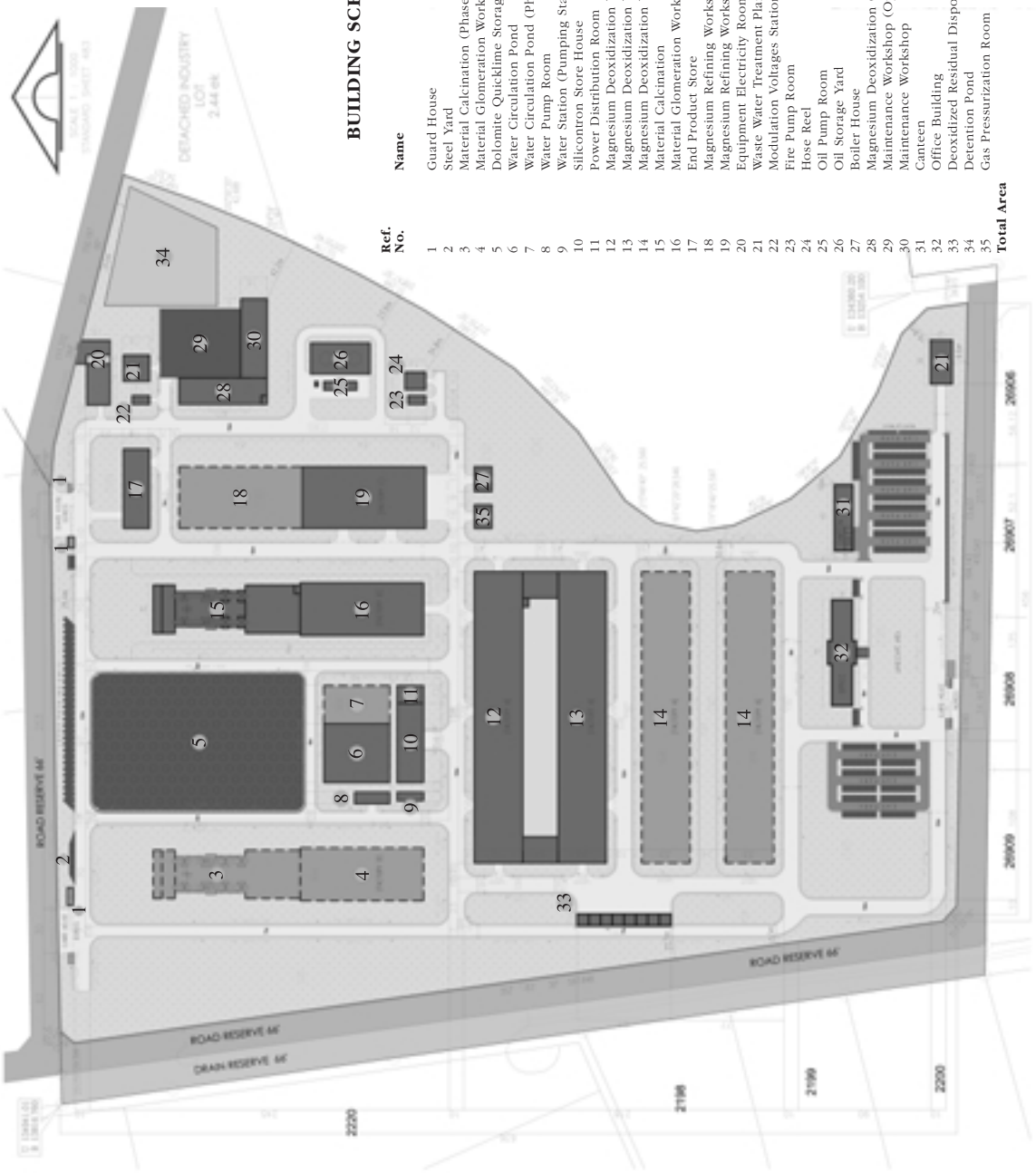


Appendix 4: Magnesium Production Flow Chart

(pictures courtesy of the Quarry Contractor and the Company)



Appendix 5: Perak Magnesium Smelter Layout Plan



BUILDING SCHEDULE

Ref. No.	Name	Unit	Construction Area
1	Guard House	3	60m²
2	Steel Yard	1	114m²
3	Material Calcination (Phase 2)	1	2,880m²
4	Material Glomeration Workshop (Phase 2)	1	3,800m²
5	Dolomite Quicklime Storage Yard	1	14,168m²
6	Water Circulation Pond	1	1,800m²
7	Water Circulation Pond (Phase 2)	1	1,170m²
8	Water Pump Room	1	192m²
9	Water Station (Pumping Station)	1	108m²
10	Silicontron Store House	1	972m²
11	Power Distribution Room	1	216m²
12	Magnesium Deoxidization Workshop (1)	1	6,550m²
13	Magnesium Deoxidization Workshop (2)	1	6,550m²
14	Magnesium Deoxidization Workshop (Phase 2)	1	6,550m²
15	Material Calcination	1	2,880m²
16	Material Glomeration Workshop	1	3,800m²
17	End Product Store	1	972m²
18	Magnesium Refining Workshop (Phase 2)	1	3,528m²
19	Magnesium Refining Workshop	1	3,528m²
20	Equipment Electricity Room (Sub Station)	1	794m²
21	Waste Water Treatment Plant	2	774m²
22	Modulation Voltages Station	1	72m²
23	Fire Pump Room	1	72m²
24	Hose Reel	1	168m²
25	Oil Pump Room	1	135m²
26	Oil Storage Yard	1	856m²
27	Boiler House	1	204m²
28	Magnesium Deoxidization Cannery	1	1,080m²
29	Maintenance Workshop (Open)	1	2,500m²
30	Maintenance Workshop	1	972m²
31	Canteen	1	562m²
32	Office Building	1	1,090m²
33	Deoxidized Residual Disposite Transportation	1	3,854m²
34	Detention Pond	1	4,700m²
35	Gas Pressurization Room	1	192m²
Total Area		38	77,863m²

Appendix 6: Location of the Perak Magnesium Smelter