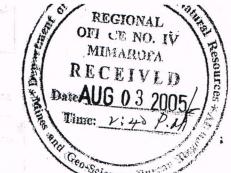
# ANNEX -A SECRETARY'S CERTIFICATE

# ORIGINAL

#### SECRETARY'S CERTIFICATE



KNOW ALL MEN BY THESE PRESENTS:

I, Adrian S. Arias, being the duly elected Corporate Secretary of BERONG NICKEL CORPORATION, a corporation duly organized and existing under and by virtue of Philippine laws, with office address at the 5<sup>th</sup> Floor, Quad Alpha Centrum, 125 Pioneer, Mandaluyong City, DO HEREBY CERTIFY that at the meeting of the Board of Directors held on 11 July 2005, at which meeting a quorum was present and acted throughout, the following resolutions were unanimously passed and approved:

"RESOLVED, That the President of Berong Nickel Corporation (BNC), Mr. Frank N. Lubbock, be, as he is hereby, authorized to sign the mineral agreement application, or any similar form, file the same with the central and regional offices of the Mines and Geosciences Bureau (MGB) in behalf of BNC, and sign all relevant documents for the perfection of the said application, including the Mineral Production Sharing Agreement (MPSA) applications filed by Anscor Land Management and Development Corporation (ALMDC) with the MGB Regional Office No. IV documented as AMA-IVB-147 (consolidating AMA-IVB-002, 017, 020 and 036), AMA-IVB-038 and AMA-IVB-047 which have been transferred to BNC;

"RESOLVED FURTHER, To authorize the President, Mr. Frank N. Lubbock, with the assistance of Mr. Eduardo S. Arejola, whose specimen signatures appear below, to follow-up BNC's mineral agreement application and the above-mentioned AI MDC MPSA applications with MGB, and to represent BNC in connection therewith and in any matter required to be done in the processing or approval of the said mineral agreement application and MPSA applications and, generally, to perform and do any and all acts or things necessary to implement the foregoing.

Frank N. Lubbock

.

Eduardo S. Arejola \_ tolule

IN WITNESS WHEREOF, this Certificate has been issued and signed this 18<sup>th</sup> day of July 2005 at Mandaluyong City.

ADRIAN S. ARIAS Corporate Secretary

SUBSCRIBED AND SWORN to before me this July 18, 2005, affiant personally appeared and signed the foregoing document in my presence and, as proof of his identity, exhibited his community tax certificate no. 13986697, issued on January 24, 2005 at Mandaluyon, City.

Doc. No. 316 Page No. 69 Book No. 89

Series of 2005.

REBUBLIKA NG PILIPINAS MEDI SI

BENIGNO F. MORALES
NOTARY PUBLIC
DEC. 31, 2005
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# <u>ANNEX – B</u>

# OR SKETCH PLAN

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AIR

OF THE AREA APPLIED FOR MINERAL PRODUCTION SHARING AGREEMENT (MPSA) NO. AMA-IVB-47 BERONG NICKEL CORPORATION CONTAINING AN AREA OF 288.0000 HAS. BARANGAY OF BERONG MUNICIPALITY OF QUEZON PROVINCE OF PALAWAN ISLAND OF PALAWAN REGINO V. SOBREVIÑAS 118013'30.958" 118013'30.936"  $1.18^{0}13^{\circ}21.103^{\circ}$ 118<sup>0</sup>13'21.060" 118012'22.086" 118012,22.063"  $118^{0}12'02.420"$ 118012,02.398"  $118^{0}12'22.063"$ 118013721.038" 118<sup>0</sup>13'30.849" 118014'20.035" 118013,21.060 118013'40.660" 118014'00.326" 1.18014'00.369" LONGITUDE 1180.13,30.871 118013'39.720" 118"14"00.477 GEOGRAPHIC COORDINATES 9<sup>0</sup>24'38.811": 9024,09,604" 9024'48.598" 9024,19,304" 9024,19,282" 9024'28.916" 9024'28.871" 9024'38.811" 9024'48.576" 9025'08.149" 9024'38.635" 9024'58.363" 9024'38.680" LATITUDE 9025'08.192" 9024'58.385" 9024'48.662" 9023'59.881" 9024,48.705" 9023,59.839 CORNERS 16 13 14 15 18 6 A STATE OF THE STA 

LOCATION PLAN

As Prepared for

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2648 1 INDEX TO ADJOINING SHEETS INDEX TO BOUNDARIES

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4000 Meters

4000 Yards

3000

2000

1000 1000

Scale 1:50,000

CONTOUR INTERVAL 20 METERS
WITH SUPPLEMENTARY CONTOURS AT 5 AND 10 METER INTERVALS

VERTICAL DATUM: MEAN SEA LEVEL

TRANSVERSE MERCATOR PROJECTION

HORIZONTAL DATUM: LUZON DATUM

HYDROGRAPHIC DATUM: MEAN LOWER LOW WATER

Nautical Miles

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REG NO. 996 / 01/06/66 PTR NO. 6067216834 / 01/10/06 QUEZON CITY

GEODETHEENGINEER

SCALE OF 1:50,000 M.

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Province of Palawan.

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NATIONAL MAPPING & RESOURCE INFORMATION AUTHORITY Department of Environment and Natural Resources

Fort Bonifacio, Makati

# **ANNEX-C**

TEMPORARY EXPLORATION
PERMIT
(TEP-IVB-008-2005)

Republic of the Philippines

# Department of Environment and Natural Resources MINES AND GEOSCIENCES BUREAU

North Avenue, Diliman, Quezon City

TEMPORARY EXPLORATION PERMIT

Temporary Exploration Permit No.

TEP-IVB-008-2005

Permittee

Berong Nickel Corporation

Address

7<sup>th</sup> Floor, Quad Alpha Centrum Bldg. 125 Pioneer Street, Mandaluyong City

This Temporary Exploration Permit (TEP) covering an area of 288.00 hectares situated in the Municipality of Quezon, Province of Palawan bounded by the following geographical coordinates:

CORNER	LATITUDE	LONGITUDE
1	9° 24' 09.604"	118° 14' 00.455"
2	9° 24' 09.539"	118° 13' 30.958"
3	9° 24' 19.304"	118° 13' 30.936"
4	9° 24' 19.282"	118° 13' 21.103"
5	9° 24' 38.811"	118° 13' 21.060"
6	9° 24' 38.680"	118° 12' 22.063"
7	9° 24' 28.916"	118° 12' 22.086"
8	9° 24' 28.871"	118° 12' 02.420"
9	9° 24' 38.635"	118° 12' 02.398"
10	9° 24' 38.680"	118° 12' 22.063"
11	9° 24' 38.811"	118° 13' 21.060"
12	9° 24' 48.576''	118° 13' 21.038"
13	9° 24' 48.598''	118° 13' 30.871''
14	9° 24' 58.363"	118° 13' 30.849''
15	9° 24' 58.385"	118° 13' 39.720"
16	9° 25' 08.149"	118° 13' 40.660"
17	9° 25' 08.192"	118° 14' 00.326"
18	9° 24' 48.662"	118° 14' 00.369"
19	9° 24' 48.705"	118° 14' 20.035"
20	9° 23' 59.881"	118° 14' 20.142"
21	9° 23' 59.839"	118° 14' 00.477"

(Please refer to attached Location Map marked Annex A)

is hereby granted to **Berong Nickel Corporation**, having filed the TEP application in the Mines and Geosciences Bureau (Bureau) Regional Office No. IVB (MIMAROPA) on July 19, 2005 under Mineral Production Sharing Agreement application (MPSA) denominated as AMA-IVB-047, in accordance with Republic Act No. 7942, otherwise known as "The Philippine Mining Act of 1995" and all the pertinent implementing rules and regulations promulgated thereunder: *Provided*, That areas with conflict, within ancestral lands/domains without the free and prior informed consent by the concerned Indigenous

Q D

- 11. The Bureau Director may, at any time, cancel the TEP for violation of the provisions of the Philippine Mining Act of 1995 and all the pertinent implementing rules and regulations or the terms and conditions of this Permit;
- 12. The Permittee shall comply with its obligations under the TEP and other terms and conditions which the Bureau Central Office/Regional Office concerned may deem appropriate in accordance with existing laws, rules and regulations;
- 13. The Permittee shall strictly secure a written consent from any surface owner/s, occupant/s and concessionaire/s within the Permit Area prior to entry or conduct of any form of exploration activities therein;
- 14. The Permittee shall submit to the Bureau Central Office a copy of the baseline environmental study, i. e., pedological and water quality, within six (6) months after the issuance of this TEP; and
- 15. The Permittee shall furnish a copy of the approved EnWP to the Sangguniang Panlalawigan concerned.

Quezon City, Philippines, NOV 1 5 2005

JEREMLAS L. DOLINO, CESO III
Asst Secretary and Concurrent Director

I hereby accept the terms and conditions of this TEP as above stated.

BERONG NICKEL CORPORATION

By:

FRANK N. LUBBOCK

Authorized Representative

TIN: <u>CC1200424756996</u>

Signed in the presence of:

(Signature over Printed Name)

(Signature over Printed Name)

#### **ACKNOWLEDGEMENT**

Republic of the Philippines) Quezon City
Quezon City
SUBSCRIBED AND SWORN to before me, JEREMIAS L. DOLINO, CESO
III, with Community Tax Certificate No. 22887631 issued on 2-17-55 at
Autum City, in his capacity as Asst. Secretary and Concurrent Director of the
Mines and Geosciences Bureau and FRANK N. LUBBOCK, as the Authorized
Representative of Berong Nickel Corporation with Community Tax Certificate No.
and to me known to be the same persons who executed the foregoing instrument consisting
of <b>four</b> (4) pages, including this acknowledgement page, and acknowledged to me that the same is their voluntary act and deeds.
same is their voidilitary act and deeds.
IN WITNESS WHEREOF I have bereinto set my hand and affix my Notarial
IN WITNESS WHEREOF, I have hereunto set my hand and affix my Notarial Seal, this day of _  1 6 NOV 2005
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DOC. NO. 470
Page No. 91
Book No
Series of 2005

# ANNEX – D

# EXPLORATION WORK PROGRAM

# Republic of the Philippines Department of Environment and Natural Resources MINES AND GEOSCIENCES BUREAU North Avenue, Diliman, Quezon City

#### **EXPLORATION WORK PROGRAM**

MPSA Application: AMA IVB - 047

#### 1.0 Name and Address of Company/Proponent:

#### BERONG NICKEL CORPORATION

7<sup>th</sup> Floor Quad Alpha Centrum 125 Pioneer St., Mandaluyong City

Frank N. Lubbock
President

#### 2.0 Location of Project:

The Project Area covered by Mineral Production Sharing Agreement application denominated as AMA IVB - 047 is located in Barangay Berong, Municipality of Quezon Province of Palawan, and is bounded by the following geographical coordinates:

Table I. Coordinates of Corner Boundaries of Berong Nickel Corporation Property.

		В	erong Prop	perty		
Corner	La	titude (No	orth)	Lo	ongitude	(East)
Corner	Deg	Min	Sec	Deg	Min	Sec
1	9	24	09.604	118	14	00.455
2	9	24	09.539	118	13	30.958
3	9	24	19.304	118	13	30.936
4	9	24	19.282	118	13	21.103
5	9	24	38.811	118	13	21.060
6	9	24	38.680	118	12	22.063
7	9	24	28.916	118	12	22.086
8	9	24	28.871	118	12	02.420
9	9	24	38.635	118	12	02.398
10	9	24	38.680	118	12	22.063
11	9	24	38.811	118	13	21.060
12	9	24	48.576	118	13	21.038

	Berong Property													
	Lat	itude (No	Lo	ngitude (	East)									
Corner	Deg	Min	Sec	Deg	Min	Sec								
13	9	24	48.598	118	13	30.871								
	9	24	58.363	118	13	30.849								
14		24	58.385	118	13	39.720								
15	9	25	08.146	118	13	40.660								
16	9	25	08.192	118	14	00.326								
17	9		48.662	118	14	00.369								
18	9	24	48.702	118	14	20.035								
19	9	24		118	14	20.142								
20	9	23	59.881		14	00.477								
21	9	23	59.839	118	14	00.477								

#### 3.0 Area of coverage:

288.00 hectares more or less

# 4.0 Type and Nature of the Mineral Deposit

The Exploration Work Program will cover the resumption of activities for the Nickel Laterite / Saprolite Deposit covered by AMA IVB - 047 located in Quezon, Palawan. The objective of the work program is to fast track the development of the project to commence commercial mining operation within one (1) year period.

The nickeliferous laterite is confined within the weathering of ultramafic bedrock. Assay results of previous test pit samples generally indicate high nickel in areas underlain by saprolite. Nickel content varies from 0.5% Ni to more than 3.0% Ni.

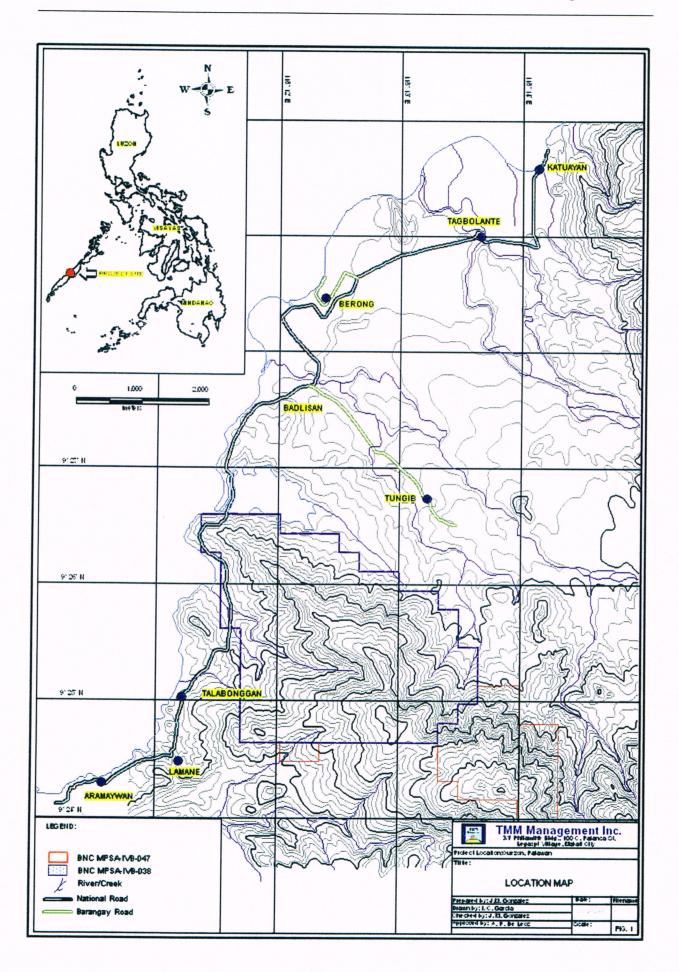
#### 5.0 Project Area Description:

#### 5.1 Terrain/Physiography:

The Project Area topography is moderate near the coast and becomes progressively rugged and terraced towards the interior. The nickel laterite deposits are generally thickest over broad and sinuous ridges and spurs with intervening steep-sided ravines. In the rugged terrains of Berong area, laterites found between elevations 300 m and 800 m above sea level.

#### 5.2 Accessibility:

The Project Area is under the jurisprudence of Barangay Berong, Municipality of Quezon, Province of Palawan (Fig. 1). Quezon can be reached from Puerto Princesa City by air-conditioned shuttle vans, and passenger jeepneys via a well-paved southwest provincial coastal road, then across the center of the island to the west. Berong proper can be reached from Quezon through a 50-km northeast gravel road. An old 16 km non-paved road, passable only during dry season, provides access to the Project Area.



Puerto Princesa City, the capital city of Palawan, is approximately 625-air km from Manila. Philippine Airlines, Cebu Pacific, Asian Spirit and Air Philippines provide daily scheduled flights to the city. Commercial ferryboats and cargo vessels from various Philippines centers make port calls in the city.

#### 5.3 Drainage System:

The Berong and Ibatong Rivers and their tributaries provide the drainage to the Project Area. These rivers flow northwest and empty their load to the South China Sea. Both rivers are active year-round and are the main sources of irrigation waters for the rice paddies on the coastal plains.

A prominent feature northwest of the project area is the 84 hectare Tagbong Saing Lake. This lake is bounded by ridges, the most prominent of which is the Dangla Ridge in the south.

#### 5.4 Vegetation:

The climate sustains lush and diversified fauna. The high relief of Berong is mostly covered with dense forest growth of commercial grade hardwoods and softwoods. Secondary growth in the timbered area is extremely dense consisting of bamboo, thorned bushes and a wide variety of vines. The laterite bearing areas are noticeably covered with dense but stunted growth hardwoods.

#### 5.5 Land use:

The Project Area covered by the proposed exploration activities is classified as forestland. The nature of the soil being iron-rich lateritic, is not conducive for agricultural purposes. Low-lying areas adjacent to the Project Area are mainly agricultural and human settlement zones.

#### 6.0 Description of Exploration Work Program:

Laterite deposits exploration in Central Palawan dates back to mid-1967, pioneered by the exploration group of A. Soriano y Cia, the forerunner of ANSCOR. Extensive exploration works were done in Central Palawan until 1989 where test pitting delineated extensive nickel laterite/saprolite resources in Long Point, Moorsom, Berong and Tagkawayan areas. Test pitting at Berong included 2,574 test pits, of which 158 were at 300 m spacing, 993 were at 50 meter spacing and 804 were at 25 meter spacing.

A review of test pitting results and assays at Berong from more closely-spaced test pits (at 50 m spacing or better), a calculated what was called "proven reserve" of 5.4 million tones grading 1.26% Ni and 0.16% Co in laterite and 12.2 million tones in saprolite grading 1.68% Ni and 0.046% Co. The currently accepted terminology would be "indicated mineral resources" for this mineralization.

The amended exploration work program is focused now in exploring and developing the property and synthesized into a commercial mining operation.

#### 6.1 Research Work:

### 6.1.1 Survey of previous work:

6.1.1.1 Nature of study:

Literature search on published and unpublished reports on the Project Area and surrounding areas.

6.1.1.2 Duration

: One month

6.1.1.3 Coverage

: Berong and Aramaywan

6.1.1.4 Proponent

: Berong Nickel Corporation

6.1.1.5 Results or Conclusions arrived at:

A much better overview of the geology and laterite mineralization will guide the planning and execution of the proposed exploration program outlined on this report. Furthermore, this will also facilitate the geological survey that will be conducted in congruence with the on-going exploration program.

6.1.1.6 Estimated cost: The cost for this activity will be included in the data compilation/collation cost.

### 6.1.2 Data compilation/collation:

6.1.2.1 Geochemical/Geophysical data:

Available information regarding the geochemical and geophysical studies conducted in the area by the Mines and Geosciences Bureau, BNC and other private companies will be compiled and analyzed. This information will not only hasten the laying out of grid lines for the exploration program but it will also enhance the location of priority areas for test pit resampling program.

## 6.1.2.2 Lithological data:

The different rock types/formations on the Project Area, as reported, will be studied carefully to have a better understanding of the mode of formation of the laterite. Samples for petrographic analysis will be collected, if no such studies were done, to accomplish this goal. Likewise, age determination studies on these rock suites will also be conducted to ascertain the age of mineralization.

# 6.1.2.3 Mineralization/Alteration studies:

Mineralized areas indicated by previous studies conducted in the

area will be noted and correlated. X-ray diffraction studies on the laterites, if available, will be re-evaluated to determine the primary and associated minerals on the lateritic soil. This will also help in establishing the minerals that evolved as the laterization process progresses to its ultimate form.

# 6.1.2.4 Various thematic maps covering the target areas:

A composite geologic map of the area is created to show the different lithologies and geologic structures in the Project Area and adjoining areas. Alteration and mineralized zones should be incorporated on the map to show their lateral extension and intensity.

6.1.2.5 Estimated cost: PhP 100,000.00

# 6.2 Detailed Geophysical Survey:

# 6.2.1 Geological mapping/alteration studies:

Areas showing anomalous results from the previous works will be reevaluated further by conducting detailed geological mapping and resampling.

Grid lines spaced 100x100 m will be re-established by cutting lines along the old line positions. This is in preparation for the Ground Penetrating Radar (GPR) Survey. Geological mapping will be carried out simultaneously with line cutting to define extent of laterization.

- 6.2.1.1 Coverage : Will cover the entire 288 has, tenement block.
- 6.2.1.2 Duration : One and a half (1 ½) months
- 6.2.1.3 Manpower : One geologist, five (5) team leaders and 15 laborers to comprise the 5 clearing teams.
- 6.2.1.4 Output

Geological maps with 1:10,000 scale will be presented showing potentially mineralized zones. This is going to accompany a geological report describing the obtained results.

6.2.1.5 Estimated cost: PhP 341,840.00

## 6.2.2 Topographic and Legal Survey:

A deputized Geodetic Engineer will be engaged to establish primary

survey controls, based on the NAMRIA map, for use in redefining the MPSA boundary lines, topographic survey controls and engineering design controls. The primary survey controls will be established with the use of geodetic-grade Global Positioning System (GPS) survey equipment.

Employing a combination of GPS and conventional Total Station survey equipment, the existing 100m on-center test pit grid will be re-established. This survey will include location and elevation of test pit collars.

Employing a combination of GPS and conventional Total Station survey equipment, a topographic survey will be undertaken to identify pertinent site features and ground elevations for use in engineering design.

- 6.2.2.1 Coverage : The entire tenement block of 288 has.
- 6.2.2.2 Duration : Approximately 36 days of fieldwork during the first couple of months.
- 6.2.2.3 Scale and contour intervals:

AutoCad drawing files will be created to enable drawing reproduction at any desired scale and contour interval. For report presentation purposes drawing scale proposed is 1: 20,000 and having a 10 meter contour interval.

- 6.2.2.3 Manpower : To be contracted to Geodetic Engineer to be supported by field crews of five 5 teams consisting of instrument man, rod man, 4 helpers and brushers, a total of 30 field men.
- 6.2.2.4 Output : A topographic survey map will be created and used for the planned EWP.
- 6.2.2.5 Estimated cost: PhP 1,349,040.00

# 6.2.3 Ground Penetrating Radar (GPR) Survey:

It has been proven by other laterite exploration projects in the Philippines that employment of GPR is an effective method in determining depth of the laterite mineralization. This geophysical survey method is going to be employed also in the entire project area. Line spacing will be 100 meters along north-south and 100 m along east-west lines (Figure 2).

- 6.2.3.1 Coverage : the entire 288 has of the tenement block.
- 6.2.3.2 Duartion : Approximately 15 days
- 6.2.3.3. Manpower : To be done by foreign contractor but to be supported by four (4) local laborers.
- 6.2.3.4 Output: A map showing line locations and interpreted depth. It

will provide a generalized overview of the geological horizons, supporting the previously completed test pits program and identify the approximate depth of the mineralized bedrock. This will give a more complete picture of the size of the ore body.

6.2.3.5 Estimated cost: PhP 3,746,820.00

#### 6.3 Test Pitting:

- 6.3.1 Phase 1 Re-sampling of old pits: All accessible old test pits will be resampled in known anomalous areas indicated by the geological, geophysical and geochemical survey done previously. The main purpose of which is to confirm the presence of economic laterite mineralization.
  - 6.3.1.1 Coverage : Priority block has been identified where 25m on-center grid test pits are located.
  - 6.3.1.2 Duration : To be done immediately and completed within 20 days. This activity can be done in parallel with the line clearing and topographic survey.
  - 6.3.1.3 Number and overall length or depth:

Approximately 392 old test pits is planned for re-sampling with an average depth of 7.5 meters, depending on the nature of the pit site and safety of the laborers, for an aggregate of 2,940 meters.

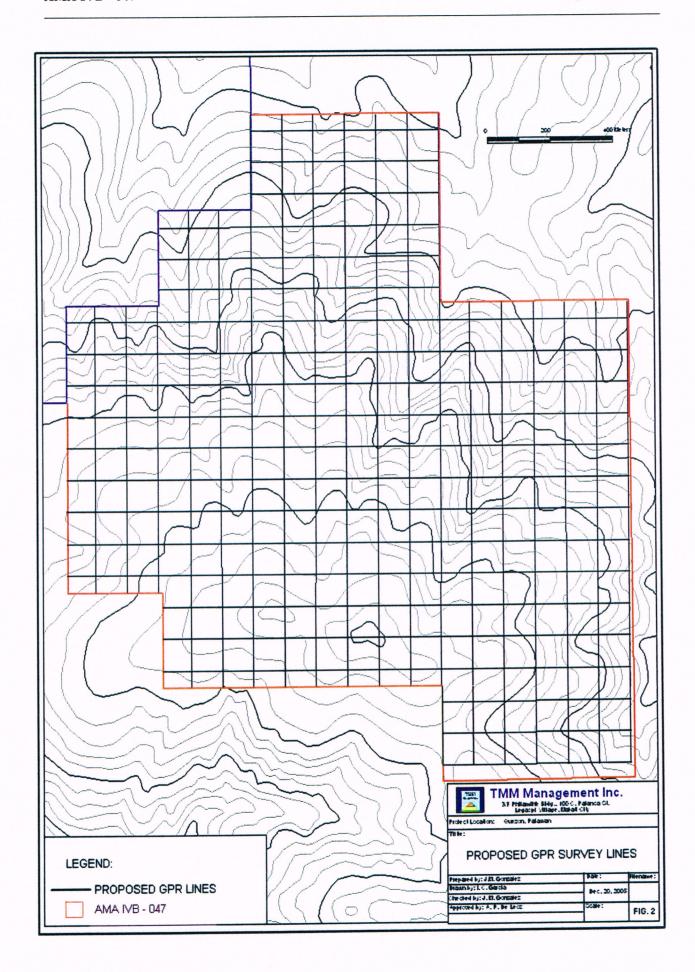
6.3.1.4 Estimated number of samples to be taken:

Samples will be taken every 1.0-meter depth of the test pit. Approximately 2,500 samples are expected to be collected.

- 6.3.1.5 Mode of analysis/target elements: Ni, Co, Fe, MgO, SiO<sub>2</sub>, etc. using XRF analysis.
- 6.3.1.6 Manpower : One geologist, three (3) geologic aides and 40 laborers to comprise 10 test pitting teams.
- 6.3.1.7 Output:

The thickness of the lateritic soil from anomalous areas will be determined. The grade of the laterite ore will also be known and characterized.

6.3.1.8 Estimated cost: PhP 5,389,490.00



- 6.3.2 Phase II Re-sampling of old pits outside the priority block and fill-in and exploratory test pits will be dug and sampled to cover the entire tenement block. Test pit spacing will eventually be 25 meters on center grid (Figure 3).
  - 6.3.2.1 Coverage : 25 m grid spacing on area with good results covering the entire tenement block.
  - 6.3.2.2 Duration : Approximately 6 months to be done right after Phase I.
  - 6.3.2.3 Number and overall length or depth:

Approximately 240 re-sampling of old pits and 215 in-fill and exploratory test pits are planned for excavation and sampling with an average depth of 7.5 meters for an aggregate of 3,415 meters.

6.3.2.4 Estimated number of samples to be taken:

Samples will be taken every 1.0-meter interval of the hole. Approximately 3,415 samples are expected to be collected.

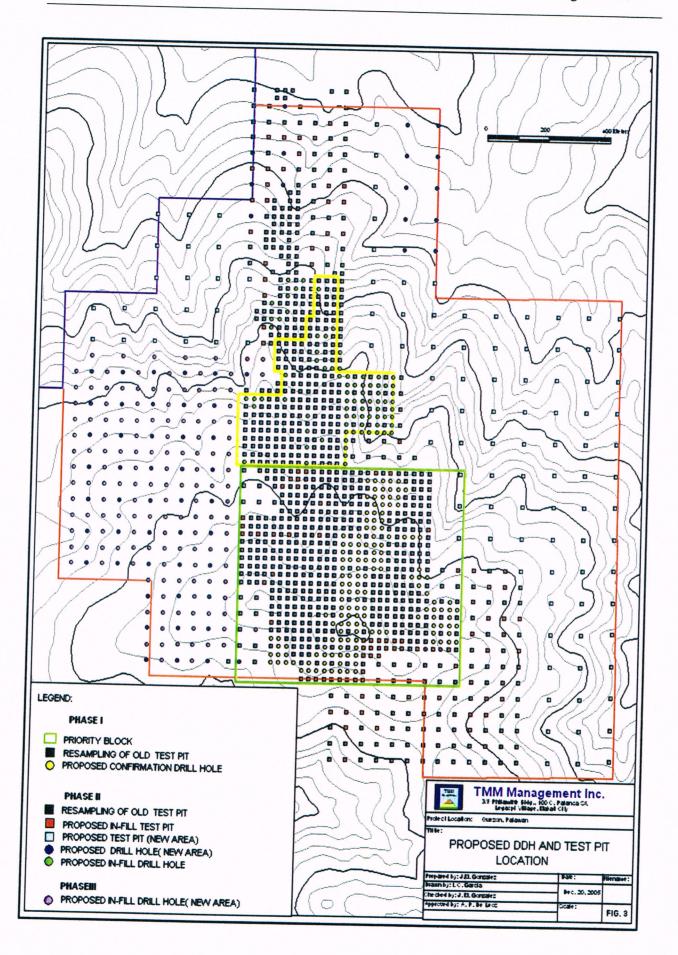
- 6.3.2.5 Mode of analysis/target elements: Ni, Co, Fe, MgO, SiO<sub>2</sub>, etc. using XRF analysis.
- 6.3.2.6 Manpower : One geologist, one geologic aide, 12 laborers
- 6.3.2.7 Output:

The thickness of the lateritic soil for new area will be determined. The grade of the laterite ore will also be known and characterized. The test pit program will support the GPR and to increase tonnage of the known laterite resource.

6.3.2.8 Estimated cost: PhP 8,016,150.00

#### 6.4 Diamond Drilling:

- 6.4.1 Phase 1 Core Drilling Drilling of HQ size hole within the priority block to serve as fill-in to the existing test pits. The objective of drilling is also to determine the depth of the laterite profile. Location of drill holes will be dependent on the result of GPR survey. Four to five portable rigs will be employed to do the work.
  - 6.4.1.1 Type of drilling: Portable drilling rig using HQ size diameter hole spaced.
  - 6.4.1.2 Coverage : Combined 150 holes aggregating to 3,000 m.



- 6.4.1.3 Duration : Approximately two (2) months to be implemented during the first half of the 1<sup>st</sup> year.
- 6.4.1.4 Number and overall length:

Approximately 150 holes with an average depth of 20 meters and aggregating to 3,000 meters are planned for drilling.

6.4.1.5 Estimated number of samples to be taken:

Samples will be taken every 1.0-meter interval of the hole. Approximately 3,000 samples are expected to be collected.

- 6.4.1.6 Mode of analysis/target elements: Ni, Co, Fe, MgO, SiO<sub>2</sub>, etc. using XRF analysis.
- 6.4.1.7 Manpower : Contract drilling by accredited drilling contractor to be supported by two (2) geologic aides and four (4) samplers.
- 6.4.1.8 Output : Confirmation of the depth of mineralization as indicated by GPR. This will also provide additional nickel grade information and increase the level of confidence on the resource estimate.
- 6.4.1.9 Estimated cost: PhP 11,426,530.00
- 6.5.2 Phase II Core Drilling— New holes will be drilled using HQ size diameter hole, spaced at 25 m interval, to serve as fill-in to the existing test pits outside the priority block. Drilling will also be done west of the priority block as exploratory holes to test the laterite zone (Figure 3). Holes will be spaced 100m on center grid. Four rigs used during Phase I will also be used on Phase II.
  - 6.5.2.1 Type of drilling: Portable drill rig using HQ size diameter hole spaced at 25 m interval.
  - 6.5.2.2 Coverage : Combined 150 holes aggregating to 3,000 m.
  - 6.5.2.3 Duration : 56 days or two (2) months during the first half of the first year
  - 6.5.2.4 Number and overall length:

Approximately 150 holes with an average depth of 20 meters and aggregating to 3,000 meters are planned for drilling.

6.5.2.5 Estimated number of samples to be taken:

Samples will be taken every 1.0-meter interval of the hole. Approximately 3,000 samples are expected to be collected.

- 6.5.2.6 Mode of analysis/target elements: Ni, Co, Fe, MgO, SiO<sub>2</sub>, etc. using XRF analysis.
- 6.5.2.7 Manpower: Contract drilling by local contractor to be supported by two (2) geologic aides and four (4) samplers.
- 6.5.2.8 Output: Confirmation of the depth of mineralization as indicated by GPR. This will also provide assay information on the old test pits no longer accessible. Drilling on new area west of the Priority block will provide additional resources.
- 6.5.2.9 Estimated cost

PhP 11,378,830.00

- **Phase III Core Drilling** To serve as fill in holes to the drill holes west of the priority block, 50m x 50m on-center holes will be drilled using the same rigs used in Phases I and II.
  - 6.5.3.1 Type of drilling: Portable drill rig using HQ size diameter hole spaced at 25 m interval.
  - 6.5.3.2 Coverage

: Combined 150 holes aggregating to 3,000 m.

6.5.3.3 Duration

: 26 days during the 2<sup>nd</sup> half of the first year.

6.5.3.4 Number and overall length:

Approximately 150 holes with an average depth of 20 meters and aggregating to 3,000 meters are planned for drilling.

6.5.3.5 Estimated number of samples to be taken:

Samples will be taken every 1.0-meter interval of the hole. Approximately 3,000 samples are expected to be collected.

- 6.5.3.6 Mode of analysis/target elements: Ni, Co, Fe, MgO, SiO<sub>2</sub>, etc. using XRF analysis.
- 6.5.3.7 Manpower : Contract drilling by local contractor to be supported by two (2) geologic aides and four (4) samplers.
- 6.5.3.8 Output : Confirmation of the depth of mineralization as indicated by GPR. This will also provide assay information on the old test pits no longer accessible. Drilling on new area west of the Priority block will provide additional resources.
- 6.5.3.9 Estimated cost: PhP 11,607,180.00

#### 7.0 Metallurgical Study

During the later part of the 1<sup>st</sup> year of exploration period, bulk sampling within the defined resources will be carried out and send to reputable offshore laboratory. Approximately 30,000 tons of ore grade material will be shipped out to determine the most appropriate beneficiation method.

#### 7.0.1 Coverage:

Approximately 30,000 dry metric tons of ore grade bulk sample materials will be extracted from defined ore grade resources and send to reputable offshore laboratory.

#### 7.0.2 Duration:

Excavation period will take about a month while the completed results are expected to be available within the first two months of the 2<sup>nd</sup> year.

#### 7.0.3 Manpower:

Extraction from the site of the materials will be done by accredited contractor under the supervision of Berong representative.

The samples will be shipped to a reputable offshore laboratory. The test work will be supervised by a foreign Metallurgical Consultant.

#### 7.0.4 Output:

The metallurgical studies will determine the most appropriate beneficiation method for the nickel laterite deposit.

#### 7.0.5 Estimated cost:

A total amount of PhP 15,000,000.00 is allocated for the bulk sampling and metallurgical studies.

#### 8.0 Ore Resource and Reserve Estimation and Validation

As soon as the compilation of all geologic and assay data have been completed, geologic and ore grade modeling activities shall commence. Geostatistical analyses, 3D geology and grade block models using GIS and mining softwares shall be generated to fully evaluate the configuration of the ore deposits.

#### 8.0.1 Coverage:

The entire 288 hectares of ground area shall be evaluated and from which geologic resources and mineable reserves of varying classifications shall be defined.

#### 8.0.2 Duration:

The entire exercise shall be undertaken in four (4) months.

#### 8.0.3 Manpower:

Two (2) Exploration/Resource Geologists, Two (2) Mine Planning/Ore Reserve Engineers, and Three (3) Data Management Assistants shall comprise the team.

A foreign consultant shall also be engaged for purposes of generating resource/reserve reports which will be JORC compliant and ready for international release.

#### 8.0.4 Output:

This activity will produce various maps, sections and 3-D representations of the geology and grade model of the Ni-laterite deposit. Estimates on the Geologic Resources classified into Inferred, Indicated and Measured Resources as well as the Mineable Reserves classified into Probable and Proven Reserves shall be derived.

#### 8.0.5 Estimated Cost:

A total amount of P 2,000,000.00 will be allotted for these activities.

#### 9.0 Definition In-fill Drilling/Test Pitting

Areas which need further sub-surface information in the modeling process shall be covered with test pitting or drilling. The aim is to increase the level of confidence in the estimation and possibly elevate resources and reserves to the measured and proven categories, respectively.

9.0.1	Type of drilling: Portable drill rig using HQ size diameter hole	e
	spaced at 25 m interval.	

9.0.2 Coverage: The entire 288 hectare MPSA area

9.0.3 Duration : Two (2) Months

9.0.4 Number and overall length:

75 drill holes with aggregate length of 1,500 meters.

20 test pits with aggregate length of 160 meters.

9.0.5 Estimated number of samples to be taken:

Approximately 1,660 samples are expected to be collected.

- 9.0.6 Mode of analysis/target elements: Ni, Co, Fe, MgO, SiO<sub>2</sub>, etc. using XRF analysis.
- 9.0.7 Manpower: Contract drilling by local contractor to be supported by one (1) geologist, two (2) geologic aides and four (4) samplers.
- 9.0.8 Output: The geologic and assay data to be generated from the activity will serve to define more fully the ore deposit and will produce a more representative orebody model.
- 9.0.9 Estimated cost: PhP 3,430,000.00

#### 10.0 Final Resource/Reserve Estimation Declaration

Base on the new dataset which includes the additional definition drill holes and pits, a reestimation shall be undertaken to come up with the final ore resource and reserve declaration. This output shall be the final information that will be reported to the MGB and this will be the basis for the feasibility study.

This activity is for a period of two months at the middle of the  $2^{nd}$  year. It will involve a cost of PhP 1,000.000.00

# 11.0 Preparation and Declaration of Mining Feasibility

All data will be collated by a team of Professionals. All technical, social, environmental and economic parameters will be considered to come up with a declaration of mining feasibility. The collation, validation, finalization of all pertinent information and the actual mine feasibility study will take six (6) months to complete. The amount to be spent is PhP 8,000,000.00.

### 12.0 Estimated Budget :

Approximately *Php 91,064,470.00* is allocated for the proposed exploration work program.

#### 13.0 Schedule of Activities

The implementation of the exploration work program commenced last November 28, 2005 after securing the Temporary Exploration Permit (TEP-IVB-008-2005) from the Mines and Geosciences Bureau Region IVB last November 15, 2005. The TEP program covers the first year component of this two (2) year Exploration Work Program for the MPSA application (AMA-IVB-047). The schedule of activities is presented in the attached Gantt Chart.

Prepared by:

Bounceleys.

JOVENAL M GONZALEZ JR.

Registered Geologist PRC No. 0627 PTR No. 7548901 Issued on March 17, 2006 Issued at Quezon City

Conforme:

ALEX R. DE LEOZ

Vice President

# APPENDIX 'A'

		TOTAL BUDGET: 70,520.28 20,544.19	11. Environmental Management and Community Dev't. (10%)	Sub-Total:	10. Project Management	9. Preparation and Declaration of Mining Feasibility	8. Final Resource/Reserve Estimation and Declaration	7. Definition In-fill Drilling/Test Pitting	6. Ore Resource/Reserve Estimation/Validation	5. Bulk Sampling and Metallurgical Study	Phase III - New Area drilling (3,000 m)	Phase II - In-fill drilling and new area	Phase I - Confirmation Drilling of old pits (3,000 m)	4. DRILLING	c) New area (825 m)	b) In-fill within old pits area (790 m)	Phase II - a) Resampling of Old Pits (1,800 m)	Phase I - Confirmatory Resampling of Old Pits (2,940 m)	3. TEST PITTING	2.3. Ground Penetration Radar	2.2. Topographic Survey	2.1 Line Cutting	2. DETAILED GEOPHYSICAL SURVEY	1. RESEARCH AND PREPARATION WORKS	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	ACTIVITIES 1st YEAR 2nd YEAR	Monthly Schedule of Activities	
21 22 22	21 22 23	1.19		Н			Н		Н		Н	Н	Н	H	H	Н	Н	Н	Н	Н	Н	Н	Н	Н	-	AR		1
	2 2 2 2			Н			Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	-			
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# ANNEX – E

# ENVIRONMENTAL WORK PROGRAM

# Republic of the Philippines Department of Environment and Natural Resources MINES AND GEOSCIENCES BUREAU North Avenue, Diliman, Quezon City

# **ENVIRONMENTAL WORK PROGRAM**

# **MPSA APPLICATION: AMA IVB - 047**

#### 1.0 Name and Address of Company:

#### BERONG NICKEL CORPORATION

7th Floor, Quad Alpha Centrum125 Pioneer St., Mandaluyong City

Frank N. Lubbock
President

#### 2.0 Type and Nature of Project

#### 2.1 Project Description

The Two (2) – Year Environmental Work Program will cover the resumption of mineral exploration and evaluation activities under the Exploration Work Program for the nickel laterite / saprolite deposit covered by MPSA application denominated as **AMA IVB-047** located in the Municipality of Quezon , Province of Palawan.

The exploration program commenced last November 26 after securing the Temporary Exploration Permit (TEP-IVB-008-2005) last November 15, 2005.

#### 2.2 Type and Nature of Mineral Deposits

The contract area is known to contain nickel and cobalt mineralization in the form of laterite and saprolite. The nickel in the laterite is associated with hydrated iron oxides made up essentially of goethite.

Garnierite also occurs in the contract area within and below the laterite mantle. It correlates well with abrupt increase in the nickel content of the laterite.

# 3.0 General Location and Area to be Covered by the Permit/Contract Area.

# 3.1 Location and Accessibility

The Project Area covered by Mineral Production Sharing Agreement application denominated as AMA IVB – 047, is under the jurisprudence of Barangay Berong, Municipality of Quezon, Province of Palawan (Fig. 1). Quezon can be reached from Puerto Princesa City by air-conditioned shuttle vans, and passenger jeepneys via a well-paved southwest provincial coastal road, then across the center of the island to the west. Berong proper can be reached from Quezon through a 50-km. northeast gravel road. A 16 km non-paved road, passable only during dry season, provides access from the barangay proper to the Project Area.

Puerto Princesa City, the capital city of Palawan, is approximately 625-air km from Manila. Major commercial airlines provide daily scheduled flights to the city. Commercial ferryboats and cargo vessels from various Philippines centers make port calls in the city.

#### 3.2 Total Area

The total area under AMA IVB - 047 is 288.0 hectares more or less and is bounded by coordinates presented in Table 1:

Table I. Coordinates of Corner Boundaries of Berong Nickel Corporation Property.

		Bero	ng Propert	:у	/=	-4\
	Lat	itude (Noi	rth)	Long	itude (E	ast)
Corner	Deg	Min	Sec	Deg	Min	Sec
_	9	24	09.604	118	14	00.455
1	9	24	09.539	118	13	30.958
2		24	19.304	118	13	30.936
3	9	24	19.282	118	13	21.103
4		24	38.811	118	13	21.060
5	9	24	38.680	118	12	22.063
6	9	24	28.916	118	12	22.086
7	9		28.871	118	12	02.420
8	9	24	38.635	118	12	02.398
9	9	24	38.680	118	12	22.063
10	9	24	38.811	118	13	21.060
11	9	24		118	13	21.038
12	9	24	48.576	118	13	30.87
13	9	24	48.598	118	13	30.849
14	9	24	58.363		13	39.72
15	9	24	58.385	118	13	40.66
16	9	25	08.146	118		00.32
17	9	25	08.192	118	14	00.52

Table I. Coordinates of Corner Boundaries of Berong Nickel Corporation Property.

		Bero	ng Proper	ty		
	1 21	itude (No	The second secon	Lon	gitude (E	
Corner		Min	Sec	Deg	Min	Sec
	Deg		48.662	118	14	00.369
18	9	24		118	14	20.035
19	9	24	48.702		14	20.142
20	9	23	59.881	118		
	9	23	59.839	118	14	00.477
21	9	23	59.839	110	14	00111

# 4.0 Baseline Environmental Conditions

#### 4.1 Land Environment

## 4.1.1 Topography/Physiography

The Project Area topography is moderate near the coast and becomes progressively rugged and terraced towards the interior. The nickel laterite deposits are generally thickest over broad and sinuous ridges and spurs with intervening steep-sided ravines. In the rugged terrains of Berong area, laterites are found between elevations 300 m and 800 m above sea level.

#### 4.1.2 Land Use / Capability

The area covered by the exploration activities is classified as forestland. The nature of the soil, being lateritic, is not conducive for agricultural purposes. Low-lying areas adjacent to the Project Area are mainly agricultural and human settlement zones.

#### 4.1.3 Pedology

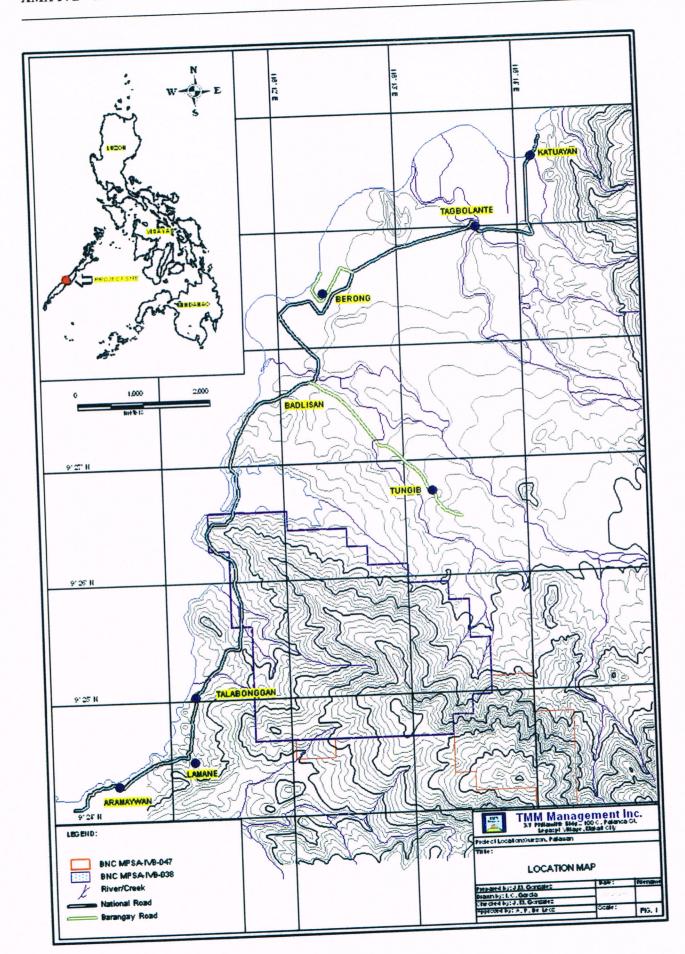
The soil types within Quezon town basically consist of two groups. The dominant type of soil which comprises 60 percent of the town is the entisols or soils without pedogenic horizons, either usually wet, moist or dry (Municipal Land use Plan).

About 40 percent of the total land area is classified as mountain soil or soils with various moisture and temperatures regimes which are found in steep slopes where relief and total elevation vary from place to place.

#### 4.2 Water Environment

#### 4.2.1 Water Quality

The entire area abounds with underground springs from water catchments that are scattered in the area. The residents of Barangay Berong get their water from these springs and from deep wells. The rest of the population, especially within the vicinity of the Project Area, rely mainly on open



wells, rainwater cisterns, rivers and streams. Many of these sources have doubtful water quality.

Water quality information from the local water sources such as springs and/or deep wells was gathered during the Environmental Impact Assessment done by Long Point Nickel Mining Project in 1997. Water quality sampling location and results are presented in Tables II and III.

Table II. Water Quality Sampling Location.

Station I.D.	Location	Depth	Width
1	Katuayan River, downstream (mangrove stand)	0.1 - 0.2	1.5 - 2.0
2	Katuayan River, upstream (along ricefield)	0.2 - 0.3	1.0 - 1.2
3	Malamig River	0.1 - 0.2	2.5 - 3.0
4	Tagbulante River	0.2 - 0.3	3 - 4
5	Confluence of Malamig and Tagbulante Rivers	2.0 - 2.5	5 - 6
6	Tagbulante River, downstream	1.8 - 2.0	6.5 - 12.0
7	Berong River, downstream	1.5 - 2.0	5 - 6
8	Berong River, upstream	0.2 - 0.3	1.0 - 1.5
9	Creek passing thru old quarry site	less than 0.1	0.5 - 1.0
10	Tagbung Saing River	0.1 - 0.2	0.5 - 1.0
11	Tagbung Saing Lake, outflow	0.3 - 0.4	3.0 - 4.5
12	Tagbung Saing Lake	0.2 - 0.5	
13	Creek along old Dangla Camp	0.1 - 0.2	1.0 - 1.5
14	Sea, near Peak Island		
15	Shallow well, old campsite		
16	Shallow well, old campsite		
17	Artesian well, Berong		

Table III. Water Quality Monitoring Results for the Headwaters, Underground Springs and Wells.

Parameters	Units					Stati	on I.D.					DENR
		2	3	4	8	9	10	13	15	16	17	Standard
Temperature	(°C)	30	28	30	30	30	28	28	29	29	29	34
рН		7.2	7	7	7	7.5	7.3	7.6	7.8	7.6	7.8	6.5 - 8.5
DO	ppm	8.6	8.7	10	6.8	4.8	6.5	5	6	5.5	5.5	5
BOD	ppm	1.8	1.1	2	2	3	2	2	3.5	3.3	3	5
SO4	ppm	0	0	0	0	10	0	0	0.0	0.0	0	250
Alkalinity	ppm	70	50	50	45	70	150	130	125	120	100	
Chloride	ppm	52	54	44	46	42	60	52	64	60	64	NR 250
NH3	ppm	0.19	0.15	0.19	0.24	0.3	28	0.2	0.18	0.2	0.2	250
PO4	ppm	0.2	0.18	0.2	0.31	0.3	0.35	0.35	0.18	0.28		0.5
Turbidity	FTU	3	0	0	0	0.0	0.00	0.55	0.3	0.26	0.21	0.1
Total						-	-	0	0	0	0	NR
Hardness	ppm	175	181	181	162	148	296	258	343	340	331	350
TDS	mg/L	400	260	184	205	520	810	482	310	390	350	1000
TSS	mg/L	52	18	16	76	120	220	110	150	120	122	50
NO3	ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10
NO2	ppm	0.01	0.01	0	0.05	0.03	ND	0.03	0.01	0.01	0.01	NR

ND - Not detectable

NR - No recommendation made

#### 4.2.2 Hydrology

The Berong and Ibatong Rivers and their tributaries provide the drainage to the Project Area. These rivers flow northwest and empty their load to the South China Sea. Both rivers are active year-round and are the main sources of irrigation waters for the rice paddies on the coastal plains.

A prominent feature northwest of the project area is the 84 hectare Tagbong Saing Lake. This lake is bounded by ridges, the most prominent of which is the Dangla Ridge in the south.

#### 4.3 Climatology/ Meteorology

#### 4.3.1 Climate

The prevailing climate in the project area falls under Type 1 of the Modified Corona's Classification of the Philippines. This climate type prevails over the western coast of Palawan Island, characterized by pronounced wet and dry seasons. The main factor controlling type 1 climate is topography where the area is shielded from the northeast monsoon by mountain ranges but is exposed to the southwest monsoon and cyclonic storms.

#### 4.3.2 Rainfall

The annual average recorded rainfall at the Palawan National Agriculcural College (PNAC) in Aborlan is 1,588.40 mm. Based on the data collected from this station, peak rainfall occurs during October to November, with driest period from February to March. Rainfall-causing system includes the southwest and northwest monsoons, intertropical convergence zone, tropical cyclones, easterly waves and thermal convection.

Rainfall patterns in the project area differ from that observed in the PNAC station, as these areas belong to different climate types.

Table IV. PNAC Agro-meteorological Station 25-year Climatological Averages (1977 – 2003)

	Ten	peratur	e ( C)	Rain	ıfall	
Month	Max	Min	Mean	Amount (mm)	No. of Rainy Days	Relative Humidity
January	30.6	21.8	26.2	48.1	6	89
February	31.0	21.5	26.3	22.8	4	88
March	31.9	26.5	26.9	34.0	5	86
April	32.8	22.9	27.8	50.4	7	84
May	32.5	23.8	28.2	126.5	12	85
June	31.6	23.7	27.6	147.2	14	88
July	31.3	23.1	27.2	159.7	17	89
August	31.3	23.2	27.3	179.3	18	89
September	31.6	23.0	27.3	162.8	17	89
October	31.3	23.1	27.2	227.2	18	88
November	31.2	23.0	27.1	264.8	16	90
December	30.5	22.6	26.6	165.7	10	89
Annual	31.5	22.8	27.2	1,588.5	144	88

#### 4.3.3 Temperature

Palawan Island is tropical and monsoonal. Daytime temperatures range from a low of 16 degrees Celsius in January to a high of 36 degrees Celsius in June. Seasonal changes in the mean monthly temperature are within the range of about 2 degrees Celsius only (1998 PFS-MBMI).

Temperature data in Table IV shows average annual temperature of 31..5°C with April and May being the warmest month. However, due to its elevation, the project area experiences cooler temperatures.

#### 4.3.4 Relative Humidity

Relative humidity recorded at the PNAC station ranges from 84% to 90%. There is no information on relative humidity at the project site. Nonetheless, with the wetter and cooler conditions at the project area, humidity might slightly be above that of PNAV station.

#### 4.3.5 Wind Velocity

Palawan experiences infrequent tropical storms, usually at the northern end of the island. Only ten tropical storms have been recorded at Puerto Princesa between 1948 and 2005.

Monthly average wind speeds range between about 1.0 m/s and 3.0 m/s although strong winds can occur during major rain storms. The project area is expected to have dominantly southwest winds from May to September due to the southwest monsoon.

#### 4.4 Geological/Geomorphologic Environment

#### 4.4.1 Geology

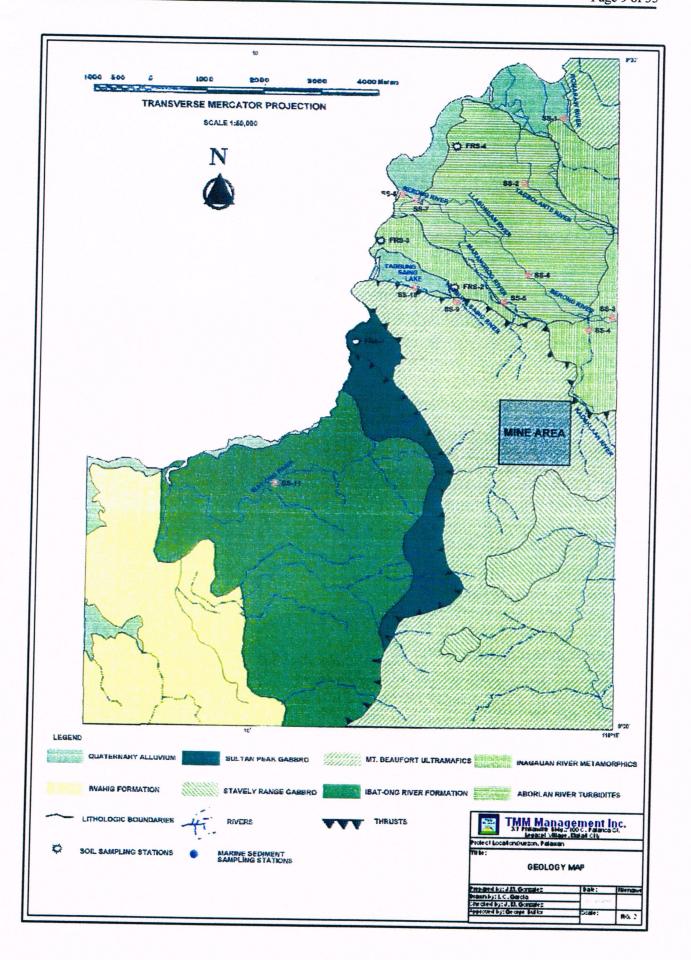
The surficial geology of the uplands in the Project Area typically consists of tropical soils (residual) overlying iron-rich lateritic material/saprolite which in turn overlies the bedrock. The geological mapping conducted by previous workers indicates primary intrusive (ultramafic) or ophiolite rock (basalt, gabbro, peridotite and dunite) towards the central portion of the island and in the vicinity of the Project Area (Figure 2). These types of ophiolitic rock formations are expected to be quite competent unless highly weathered in situ.

Towards the coastal regions, published geological mapping identifies older metasedimentary rocks consist of chert, quartzite, schist with quartz lens intrusion.

The coastal plains downstream from the uplands are expected to be overlain by alluvium, comprising mainly silts, sands, gravels and cobbles. The thickness of the alluvium appears to be substantially greater beneath the coastal lowlands to the south of Berong River but no drilling data is presently available.

# 4.4.2 Mineralization: Morphology of Nickeliferous Laterite

Nickeliferous laterite is the end product of the tropical weathering of ultramafic rocks, mainly the olivine bearing dunite and harzburgite. The mineral olivine is the principal progenitor of nickel where the metal occurs only as a minor constituent in the crystal lattice.



Typical weathering characterized by high humidity and temperature breaks down the complex mineralogical structures of the ultramafic rocks into their elemental components. Consequently, new minerals and chemical complexes are formed which are stable in the oxygenated environment e.g. iron oxides, aluminium oxides and clay minerals. Unstable species such as silica and magnesia are leached out from the system. Minor elements such as nickel and cobalt are incorporated with the stable species and together become enriched in the residuum.

As the weathering process progresses downward, the redistribution of the liberated rock components produces compositional layering as shown on the idealized vertical profile. The distinctive reddish-brown to yellow brown limonitic upper layers constitute the true laterite overlying the pale, greenish-grey, highly weathered ultramafic rock (called saprolite) that grades down to the parent unweathered rocks.

Mature laterite deposits normally exhibit distinct to subtle layers distinguishable by colour variations as well as the presence of common minerals such as chromite and magnetite.

Significant accumulations of laterites to tens of meters occur in places where there is free drainage and when the rate of erosion is much slower that the rate of weathering. Formation of nickeliferous laterite and its subsequent accumulation is therefore governed by a favourable combination of lithology, climate, topography and regional geological stability.

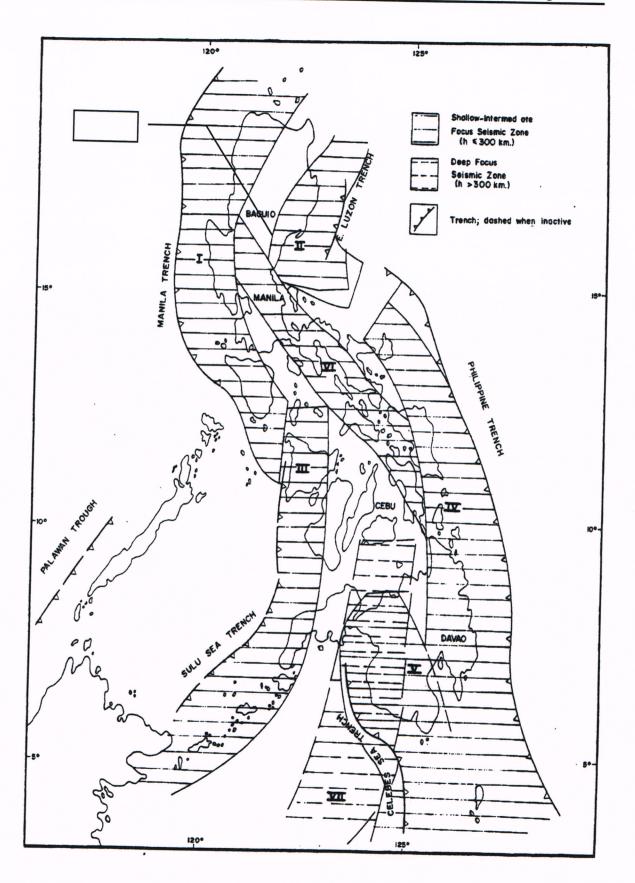
#### 4.4.3 Geomorphology

The topography in the Project Area is moderate to rugged. The central to southern part of the area, which hosts most of the known laterite deposits, features gently-sloping broad ridges and small plateaus, whereas the northern and eastern part of the terrain is precipitously rugged. The laterite-bearing grounds lie mainly between 200 m and 700 m elevation above sea level.

#### 4.5 Geologic Hazards

In general, the Philippines is located along the Circum-Pacific Seismic Belt where more than 80% of the world's earthquakes occur. Philippine seismicity is mainly related to the crustal underthrusting along several subduction zones and partly to strike-slip movement along the transcurrent faults. Earthquakes are generally shallow near the ocean trenches and progressively go deeper landward to a maximum of 700 km in depth.

The Philippine Seismic Zone Map (Figure 3) is presented on the next page showing the relationship of seismicity to the subduction zones. The National Structural Code classifies Palawan as Zone II. The available earthquake records indicate that Palawan Island is a relatively "quieter" zone of seismic activity compared to the rest of the Philippines, and there has been no recent documented seismic activity on the island.



The hazards identified in the project site are based on the geological and geomorphological setting, as well as on historical records. The minor risks identified are from geological structures, unfavourable subsurface conditions that

may result in excessive settlement or liquefaction and on migration of river channels and riverbank erosion.

#### 4.6 Biological Environment

#### 4.6.1 Flora and Fauna

The climate sustains lush and diversified fauna. The high relief of Berong is mostly covered with dense forest growth of commercial grade hardwoods and softwoods. Secondary growth in the timbered area is extremely dense consisting of bamboo, thorned bushes and a wide variety of vines. The laterite bearing areas are noticeably covered with dense but stunted growth hardwoods.

The general vegetation types covering Berong area consist of mangrove and coastal forest near the lake's ecosystem, agricultural and agro-forestry on the flat to rolling terrain, and disturbed secondary growth adjacent to the over logged forest in the proposed mining area. Grass shrub communities, agricultural crops and wildings on the forest floor occupy the lower stratum. The agricultural area is basically farmed using kaingin, irrigation, and rain-fed system to raise crops like cashew, mango, bananas, coconuts, and bamboo were observed. The tree layers occur as secondary growth interspersed with immediate and undergrowth layers.

The ecological status of plants found in the area varied from common, abundant to threatened. Based on the International Union of Nature Conservation (IUCN), five species (i.e. Malabayabas, Mangkono, Narra, Kalingang and Puso puso) from the secondary forest are classified as vulnerable. The dipterocarp species, Palosapis, encountered in Sitio Tungib is listed as critically endangered, while Malamaga species recorded from the secondary growth is an endangered species.

#### 4.6.2 Marine Plants and Animals

The project area has a diversified marine life based on the Environmental Impact Statement study made by MAUNSELL in June 2005 for Berong Nickel Corpoartion. Fresh water faunas include banak, samaral bangus, sigwil, dukuson tilapia and sugpo (present in Tagbaung Saing Lake). Freshwater benthos consisted of insects, annelids and nematodes. Among the insect larvae, a chironomid, Camptocladius byssinus, was the most abundant with density range of 44 individuals/m2 to 2,978 individuals/m2.

Aquatic insects, particularly the larval forms, are excellent overall indicators of aquatic environmental conditions. For instance, the order Diptera (midges) is generally known to be tolerant of higher pollution as they occupy the full spectrum of habitats and conditions in streams and lakes. The large numbers of the chironomid Camptocladius byssinus indicate an environment under some level of pollution mainly at the downstream section of the Berong River. Only chironomid dipterans were recorded in this section of the Berong River.

Overall, the Marangrong River appears to have the best water quality due to the presence of plecopterans (stoneflies), ephemeropterans (mayflies) and trichopterans (caddisflies), which are generally considered pollution-intolerant; while the presence of mainly dipterans in the midstream and downstream sections of the Berong River indicate fair to poor water quality.

A total of seven seagrass species was recorded along the coastal waters of Berong. Four of these species belong to Family Potamogenotaceae, while three belong to Family Hydrocharitaceae. Cymodocea rotundata and Enhalus acoroides were the most frequently encountered species. The least-frequently encountered species was Halophila ovalis. All species present are considered common macrophytes, which can also be found in other coastal municipalities of Palawan.

#### 4.7 Socio-economic Environment

# 4.7.1 Population Size, Growth and Density

According to the Comprehensive Land Use Plan (CLUP) of Quezon, the estimated population of Berong for 2005 is 1,678 persons. The inhabitants are a mixture of settlers (mostly from the Ilonggo-speaking provinces and the Cuyonin-speaking parts of Palawan) and indigenous people, the Tagbanua. Settlements by and large are along ethnic lines with the Tagbanua almost wholly inhabiting Tungib and part of Badlisan in the coast. Berong Proper, on the other hand, is a settler community.

The CLUP cites the results of the survey by the Community-Based Monitoring System in 2000, which shows a high incidence of poverty (80% of households) in Quezon town. Barangay Berong, in turn, has one of the highest proportions of households in the municipality living below the subsistence threshold level at 97%. This observation is confirmed in BNC-initiated socio-economic surveys, which revealed average monthly cash earnings per household ranging from PhP 774 to 1,833. Again, as in settlements, low income in this instance is closely associated with the Tagbanuas. For example, the survey reveals that the average monthly cash income of Tagbanua households is less than half of settler counterparts. In other words, settler households tend to be better, twice over in income than households of indigenous communities.

# 5.0 Description of Exploration Work Program

The following were extracted from the amended Exploration Work Program submitted by Berong Nickel Corporation (BNC):

Laterite deposits exploration in Central Palawan dates back to mid-1967, pioneered by the exploration group of A. Soriano y Cia, the forerunner of ANSCOR. Extensive exploration works were done in Central Palawan until 1989 where test pitting delineated extensive nickel laterite/saprolite resources in Long Point, Moorsom, Berong and Tagkawayan areas. Test pitting at Berong included 2,574 test pits, of which 158 were at 300 m spacing, 993 were at 50 meter spacing and 804 were at 25 meter spacing.

A review of test pitting results and assays at Berong from more closely-spaced test pits (at 50 m spacing or better), a calculated what was called "proven reserve" of 5.4 million tones grading 1.26% Ni and 0.16% Co in laterite and 12.2 million tones in saprolite grading 1.68% Ni and 0.046% Co. The currently accepted terminology would be "indicated mineral resources" for this mineralization.

The exploration work program is focused now in exploring and developing the property and synthesized into a commercial mining operation.

## 5.1 Research Work:

# 5.1.1 Survey of previous work:

## 5.1.1.1 Nature of study:

Literature search on published and unpublished reports on the Project Area and surrounding areas.

5.1.1.2 Duration : One month

5.1.1.3 Coverage : Berong and Aramaywan

5.1.1.4 Proponent : Berong Nickel Corporation

# 5.1.1.5 Results or Conclusions arrived at:

A much better overview of the geology and laterite mineralization will guide the planning and execution of the proposed exploration program outlined in this report. Furthermore, this will also facilitate the geological survey that will be conducted in congruence with the on-going exploration program.

5.1.1.6 Estimated cost: The cost for this activity will be included in the data compilation/collation cost.

# 5.1.2 Data compilation/collation:

# 5.1.2.1 Geochemical/Geophysical data:

Available information regarding the geochemical and geophysical studies conducted in the area by the Mines and Geosciences Bureau, BNC and other private companies will be compiled and analyzed. This information will not only hasten the laying out of grid lines for the exploration program but it

will also enhance the location of priority areas for test pit resampling program.

#### 5.1.2.2 Lithological data:

The different rock types/formations on the Project Area, as reported, will be studied carefully to have a better understanding of the mode of formation of the laterite. Samples for petrographic analysis will be collected, if no such studies were done, to accomplish this goal. Likewise, age determination studies on these rock suites will also be conducted to ascertain the age of mineralization.

## 5.1.2.3 Mineralization/Alteration studies:

Mineralized areas indicated by previous studies conducted in the area will be noted and correlated. X-ray diffraction studies on the laterites, if available, will be re-evaluated to determine the primary and associated minerals on the lateritic soil. This will also help in establishing the minerals that evolved as the laterization process progresses to its ultimate form.

# 5.1.2.4 Various thematic maps covering the target areas:

A composite geologic map of the area is created to show the different lithologies and geologic structures in the Project Area and adjoining areas. Alteration and mineralized zones should be incorporated on the map to show their lateral extension and intensity.

5.1.2.5 Estimated cost: PhP 100,000.00

# 5.2 Detailed Geophysical Survey:

# 5.2.1 Geological mapping/alteration studies:

Areas showing anomalous results from the previous works will be reevaluated further by conducting detailed geological mapping and resampling.

Grid lines spaced 100x100 m will be re-established by cutting lines along the old line positions. This is in preparation for the Ground Penetrating Radar (GPR) Survey. Geological mapping will be carried out simultaneously with line cutting to define extent of laterization.

5.2.1.1 Coverage : Will cover the entire tenement block.

5.2.1.2 Duration : One and a half (1 ½) months

5.2.1.3 Manpower : One geologist, five (5) team leaders and 15 laborers to comprise the 5 clearing teams.

5.2.1.4 Output : Geological maps with 1:10,000 scale will be presented showing potentially mineralized zones. This is going to accompany a geological report describing the obtained results.

5.2.1.5 Estimated cost: PhP 341,840.00

# 5.2.2 Topographic and Legal Survey:

A deputized Geodetic Engineer will be engaged to establish primary survey controls, based on the NAMRIA map, for use in redefining the MPSA boundary lines, topographic survey controls and engineering design controls. The primary survey controls will be established with the use of geodetic-grade Global Positioning System (GPS) survey equipment.

Employing a combination of GPS and conventional Total Station survey equipment, the existing 100m on-center test pit grid will be re-established. This survey will include location and elevation of test pit collars.

Employing a combination of GPS and conventional Total Station survey equipment, a topographic survey will be undertaken to identify pertinent site features and ground elevations for use in engineering design.

- 5.2.2.1 Coverage : The entire tenement block of 288 has.
- 5.2.2.2 Duration : Approximately 36 days of fieldwork during the first couple of months.
- 5.2.2.3 Scale and contour intervals:

AutoCad drawing files will be created to enable drawing reproduction at any desired scale and contour interval. For report presentation purposes drawing scale proposed is 1: 20,000 and having a 10 meter contour interval.

- 5.2.2.3 Manpower : To be contracted to Geodetic Engineer to be supported by field crews of five 5 teams consisting of instrument man, rod man, 4 helpers and brushers, a total of 30 field men.
- 5.2.2.4 Output : A topographic survey map will be created and used for the planned EWP.
- 5.2.2.5 Estimated cost: PhP 1,349,040.00

# 5.2.3 Ground Penetrating Radar (GPR) Survey:

It has been proven by other laterite exploration projects in the Philippines that employment of GPR is an effective method in determining depth of the laterite mineralization. This geophysical survey method is going to be

employed also in the entire project area. Line spacing will be 100 meters along north-south and east-west lines (Figure 4).

6.2.3.1 Coverage : the entire 288 has of the tenement block.

6.2.3.2 Duration : Approximately 13 days

6.2.3.3. Manpower : To be done by foreign contractor but to be supported by four (4) local laborers.

6.2.3.4 Output: A map showing line locations and interpreted depth. It will provide a generalized overview of the geological horizons, supporting the previously completed test pits program and identify the approximate depth of the mineralized bedrock. This will give a more complete picture of the size of the ore body.

6.2.3.5 Estimated cost: PhP 3,746,820.00

#### 5.3 Test Pitting:

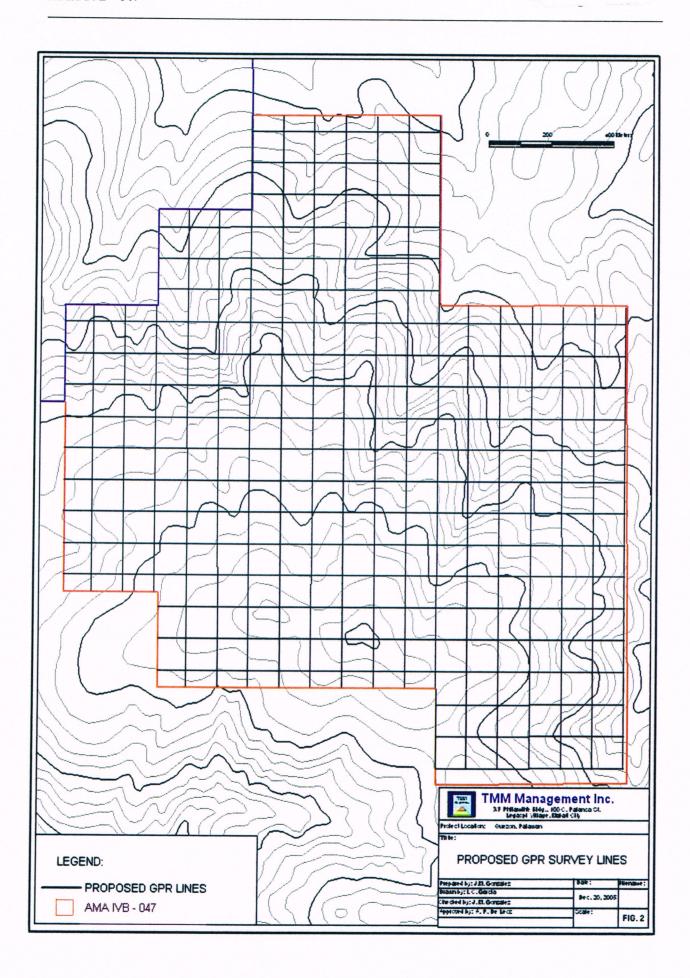
- 5.3.1 Phase 1 Re-sampling of old pits: All accessible old test pits will be resampled in known anomalous areas indicated by the geological, geophysical and geochemical survey done previously (Figure 5). The main purpose of which is to confirm the presence of economic laterite mineralization.
  - 5.3.1.1 Coverage : Priority block has been identified where 25m on-center grid test pits are located.
  - 5.3.1.2 Duration : To be done immediately and completed within 20 days. This activity can be done in parallel with the line clearing and topographic survey.
  - 5.3.1.3 Number and overall length or depth:

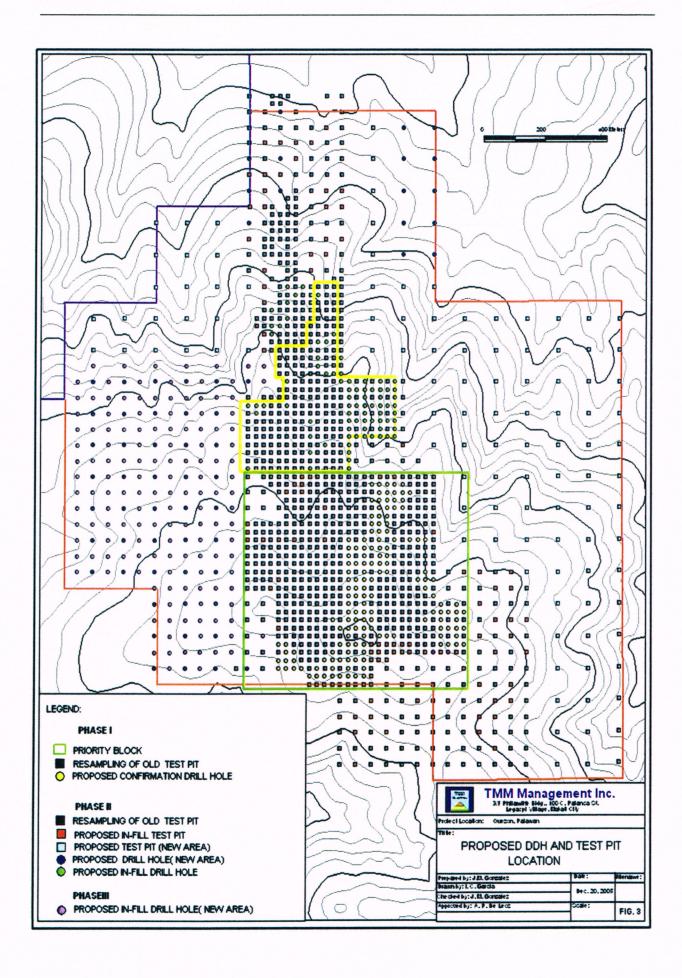
Approximately 392 old test pits is planned for re-sampling with an average depth of 7.5 meters, depending on the nature of the pit site and safety of the laborers, for an aggregate of 2,940 meters.

5.3.1.4 Estimated number of samples to be taken:

Samples will be taken every 1.0-meter depth of the test pit. Approximately 2,500 samples are expected to be collected.

5.3.1.5 Mode of analysis/target elements: Ni, Co, Fe, MgO, SiO<sub>2</sub>, etc. using XRF analysis.





- 5.3.1.6 Manpower : One geologist, three (3) geologic aides and 40 laborers to comprise 10 test pitting teams.
- 5.3.1.7 Output : The thickness of the lateritic soil from anomalous areas will be determined. The grade of the laterite ore will also be known and characterized.
- 5.3.1.8 Estimated cost: PhP 5,389,490.00
- **5.3.2 Phase II** Re-sampling of old pits outside the priority block and fill-in and exploratory test pits will be dug and sampled to cover the entire tenement block. Test pit spacing will eventually be 25 meters on center grid (Figure 5).
  - 5.3.2.1 Coverage : 25 m grid spacing on area with good results covering the entire tenement block.
  - 5.3.2.2 Duration : Approximately 6 months to be done right after Phase I.
  - 5.3.2.3 Number and overall length or depth:

Approximately 240 re-sampling of old pits and 215 in-fill and exploratory test pits are planned for excavation and sampling with an average depth of 7.5 meters for an aggregate of 3,415 meters.

5.3.2.4 Estimated number of samples to be taken:

Samples will be taken every 1.0-meter interval of the hole. Approximately 3,415 samples are expected to be collected.

- 5.3.2.5 Mode of analysis/target elements: Ni, Co, Fe, MgO, SiO<sub>2</sub>, etc. using XRF analysis.
- 5.3.2.6 Manpower : One geologist, one geologic aide, 12 laborers
- 5.3.2.7 Output : The thickness of the lateritic soil for new area will be determined. The grade of the laterite ore will also be known and characterized. The test pit program will support the GPR and to increase tonnage of the known laterite resource.
- 5.3.2.8 Estimated cost: PhP 8,066,150.00

#### 5.4 Diamond Drilling:

5.4.1 Phase 1 Core Drilling – Drilling of HQ size hole within the priority block to serve as fill-in to the existing test pits. The objective of drilling is also to determine the depth of the laterite profile. Location of drill holes will be dependent on the result of GPR survey. Four to five portable rigs will be employed to do the work.

- 5.4.1.1 Type of drilling: Portable drilling rig using HQ size diameter hole spaced.
- 5.4.1.2 Coverage : Combined 150 holes aggregating to 3,000 m.
- 5.4.1.3 Duration : Approximately two (2) months to be implemented during the first half of the 1<sup>st</sup> year.
- 5.4.1.4 Number and overall length:

Approximately 150 holes with an average depth of 20 meters and aggregating to 3,000 meters are planned for drilling.

5.4.1.5 Estimated number of samples to be taken:

Samples will be taken every 1.0-meter interval of the hole. Approximately 3,000 samples are expected to be collected.

- 5.4.1.6 Mode of analysis/target elements: Ni, Co, Fe, MgO, SiO<sub>2</sub>, etc. using XRF analysis.
- 5.4.1.7 Manpower : Contract drilling by accredited drilling contractor to be supported by two (2) geologic aides and four (4) samplers.
- 5.4.1.8 Output : Confirmation of the depth of mineralization as indicated by GPR. This will also provide additional nickel grade information and increase the level of confidence on the resource estimate.
- 5.4.1.9 Estimated cost: PhP 11,426,530.00
- 5.4.2 Phase II Core Drilling— New holes will be drilled using HQ size diameter hole, spaced at 25 m interval, to serve as fill-in to the existing test pits outside the priority block. Drilling will also be done west of the priority block as exploratory holes to test the laterite zone (Figure 5). Holes will be spaced 100m on center grid. Four rigs used during Phase I will also be used on Phase II.
  - 5.4.2.1 Type of drilling: Portable drill rig using HQ size diameter hole spaced at 25 m interval.
  - 5.4.2.2 Coverage : Combined 150 holes aggregating to 3,000 m.
  - 5.4.2.3 Duration : 56 days or two (2) months during the first ahlf of the first year
  - 5.4.2.4 Number and overall length:

Approximately 150 holes with an average depth of 20 meters and aggregating to 3,000 meters are planned for drilling.

5.4.2.5 Estimated number of samples to be taken:

- Samples will be taken every 1.0-meter interval of the hole. Approximately 3,000 samples are expected to be collected.
- 5.4.2.6 Mode of analysis/target elements: Ni, Co, Fe, MgO, SiO<sub>2</sub>, etc. using XRF analysis.
- 5.4.2.7 Manpower: Contract drilling by local contractor to be supported by two (2) geologic aides and four (4) samplers.
- 5.4.2.8 Output : Confirmation of the depth of mineralization as indicated by GPR. This will also provide assay information on the old test pits no longer accessible. Drilling on new area west of the Priority block will provide additional resources.
- 5.4.2.9 Estimated cost: PhP 11,378,830.00
- 5.4.3 Phase III Core Drilling To serve as fill in holes to the drill holes west of the priority block, 50m x 50m on-center holes will be drilled using the same rigs used in Phases I and II.
  - 5.4.3.1 Type of drilling: Portable drill rig using HQ size diameter hole spaced at 25 m interval.
  - 5.4.3.2 Coverage : Combined 150 holes aggregating to 3,000 m.
  - 5.4.3.3 Duration : 26 days during the 2<sup>nd</sup> half of the first year.
  - 5.4.3.4 Number and overall length:

Approximately 150 holes with an average depth of 20 meters and aggregating to 3,000 meters are planned for drilling.

- 5.4.3.5 Estimated number of samples to be taken:
  - Samples will be taken every 1.0-meter interval of the hole. Approximately 3,000 samples are expected to be collected.
- 5.4.3.6 Mode of analysis/target elements: Ni, Co, Fe, MgO, SiO<sub>2</sub>, etc. using XRF analysis.
- 5.4.3.7 Manpower : Contract drilling by local contractor to be supported by two (2) geologic aides and four (4) samplers.
- 5.4.3.8 Output : Confirmation of the depth of mineralization as indicated by GPR. This will also provide assay information on the old test pits no longer accessible. Drilling on new area west of the Priority block will provide additional resources.
- 5.4.3.9 Estimated cost: PhP 11,607,180.00

# 6.0 Bulk Sampling and Metallurgical Study

During the later part of the 1<sup>st</sup> year exploration period, bulk sampling within the defined resources will be carried out. The samples will be sent to reputable offshore laboratories. Approximately 30,000 tons of ore grade material will be shipped out to determine the most appropriate beneficiation method.

#### 6.0.1 Coverage:

Approximately 30,000 dry metric tons of ore grade bulk sample materials will be extracted from defined ore grade resources and send to reputable offshore laboratory.

#### 6.0.2 Duration:

Excavation period will take about a month while the completed results are expected to be available within the first two months of the 2<sup>nd</sup> year.

#### 6.0.3 Manpower:

Extraction from the site of the materials will be done by accredited contractor under the supervision of Berong representatives.

The samples will be shipped to reputable offshore laboratories. The test work will be supervised by a foreign Metallurgical Consultant.

#### 6.0.4 Output:

The metallurgical studies will determine the most appropriate beneficiation method for the nickel laterite deposit.

#### 6.0.5 Estimated cost:

A total amount of PhP 15,000,000.00 is allocated for the bulk sampling and metallurgical studies.

## 7.0 Ore Resource and Reserve Estimation and Validation

As soon as the compilation of all geologic and assay data have been completed, geologic and ore grade modeling activities shall commence. Geostatistical analyses, 3D geology and grade block models using GIS and mining softwares shall be generated to fully evaluate the configuration of the ore deposits.

#### 7.0.1 Coverage:

The entire 288 hectares of ground area shall be evaluated and from which geologic resources and mineable reserves of varying classifications shall be defined.

#### 7.0.2 Duration:

The entire exercise shall be undertaken in four (4) months.

#### 7.0.3 Manpower:

Two (2) Exploration/Resource Geologists, Two (2) Mine Planning/Ore Reserve Engineers, and Three (3) Data Management Assistants shall comprise the team.

A foreign consultant shall also be engaged for purposes of generating resource/reserve reports which will be JORC compliant and ready for international release.

7.0.4 Output:

This activity will produce various maps, sections and 3-D representations of the geology and grade model of the Ni-laterite deposit. Estimates on the Geologic Resources classified into Inferred, Indicated and Measured Resources as well as the Mineable Reserves classified into Probable and Proven Reserves shall be derived.

7.0.5 Estimated Cost:

A total amount of P 2,000,000.00 will be allotted for these activities.

#### 8.0 Definition In-fill Drilling/Test Pitting

Areas which need further sub-surface information in the modeling process shall be covered with test pitting or drilling. The aim is to increase the level of confidence in the estimation and possibly elevate resources and reserves to the measured and proven categories, respectively.

8.0.1 Type of drilling:

Portable drill rig using HQ size diameter hole spaced at 25 m. interval.

8.0.2 Coverage:

The entire 288 hectare MPSA area.

8.0.3 Duration:

Two (2) Months

8.0.4 Number and overall length:

75 drill holes with aggregate length of 1,500 meters.

20 test pits with aggregate length of 160 meters.

8.0.5 Estimated number of samples to be taken:

Approximately 1,660 samples are expected to be collected.

8.0.6 Mode of analysis/target elements:

Ni, Co, Fe, MgO, SiO<sub>2</sub> etc. using XRF analysis.

8.0.7 Manpower:

Contract drilling by local contractor to be supported by one (1) geologist, two (2) geologic

aides and four (4) samplers.

#### 8.0.8 Output:

The geologic and assay data to be generated from the activity will serve to define more

fully the ore deposit and will produce a more representative orebody model.

8.0.9 Estimated cost:

PhP 3,430,000.00

#### 9.0 Final Resource/Reserve Estimation and Declaration

Base on the new dataset which includes the additional definition drill holes and pits, a reestimation shall be undertaken to come up with the final ore resource and reserve declaration. This output shall be the final information that will be reported to the MGB and this will be the basis for the feasibility study.

This activity is for a period of two months at the middle of the 2<sup>nd</sup> year. It will involve a cost of PhP 1,000.000.00

#### 10.0 Preparation and Declaration of Mining Feasibility

All data will be collated by a team of Professionals. All technical, social, environmental and economic parameters will be considered to come up with a declaration of mining feasibility. The collation, validation, finalization of all pertinent information and the actual mine feasibility study will take six (6) months to complete. The amount to be spent is PhP 8,000,000.00.

#### 11.0 Estimated Budget:

Approximately *Php 91,064,470.00* is allocated for the proposed exploration work program broken down as follows.

Total	PhP	91,064,470.00
Environmental/Community Dev't -		8,278,590.00
Second Year -		12,265,600.00
First Year -	PhP	70,520,280.00

#### 12.0 Identification of Potential Environmental Effects

A summary of the impacts of the exploration activities is appended. Within the defined impact zone, the nearest local residents will notice the presence of the exploration team. The Project Area is sparsely populated and the land is not used for agricultural purposes. The projected impacts are temporary and short in duration and will not cause any long term harm to the existing ecosystem.

#### 12.1 During the Exploration Phase

12.1.1 Limited surface disturbance of the Project Area subject to exploration.

#### 12.1.1.1 Road Construction

Existing tracks or roads shall be used. However, new roads will likely be constructed to access the drill sites as exploration progresses.

#### 12.1.1.2 Sampling

Exploration activities such as rock sampling on outcrops and floats will have very minimal effect on the ground surface.

Channel samples will be taken every 1.0-meter depth in the existing and newly-dug test pits. Approximately 10,000 samples of 4 kg weight each are expected to be collected for analysis.

#### 12.1.1.3 Construction of sumps

The construction of 2x2 meter sumps for the drilling operations will temporarily alter the ground surface and allow possible soil erosion and run-off siltation or sedimentation.

#### 12.1.1.4 Construction of Test Pits

Test pits will be dug in mineralized areas indicated by the geological, geophysical and geochemical surveys. The main purpose of test pitting is to probe the depth of the laterite deposits and allow high quality samples to be collected for analysis.

Test pits will be dug to about 10 meters depending on the nature of the pit site and safety consideration. Approximately 5,700 meters overall depth of new pits is planned.

#### 12.1.1.5 Construction of Tunnels/Adits

No tunnels or adits will be constructed.

#### 12.1.1.6 Construction of Drill Sites

Drilling program will be undertaken using a portable type diamond core drilling machine using triple tube for better recovery of samples. Large diameter HQ size drill-core samples shall be specified.

The use of portable drilling machine will minimize the cutting of trees in site preparation. The site will be located in such a way that no trees with greater than 4" diameter trunks will be cut.

#### 12.1.1.7 Construction of Campsites

The exploration team constructed a house at the edge of the Project Area. Minor clearing is needed for camp construction.

#### 12.2 Hydrology and Water Quality

#### 12.2.1 Potential generation of acid mine drainage

The generation of acid mine drainage occurs when sulfide deposits are oxidized by the action of water and air that produces acidic run-off. Since the exploration work is targeting lateritic deposit, no substantial acid mine drainage is expected because the soils are extensively naturally weathered.

#### 12.2.2 Siltation and Pollution of Surface Waters

It is expected that minor siltation and pollution of surface waters may occur especially when constructing access roads, drill sites and sumps for the drilling operations. Maintenance activity shall be carried out regularly particularly in handling, control and/or proper disposal of hazardous materials (fuel and lubricants), drill muds and industrial refuse.

# 12.2.3 Changes in Water Availability and Quality and Drainage Pattern Due to Construction of Water Storage Areas, etc.

Water availability and drainage pattern will not be affected by the exploration activities. There will be no massive clearing of vegetation to be undertaken in the Project Area. Small patches of shrubs and grass cover will be uprooted during construction of access roads and drill sites, if necessary, but will be replanted after usage.

The Berong and Aramaywan Rivers and their tributaries provide the drainage to the Project Area. The quality of water will not be affected by the above mentioned activity because strategically located sumps and dams will be installed to eliminate siltation of drainage channels.

#### 12.3 Potential Effects on the Ecology

The effects of the exploration activities on ecology, as a whole, are insignificant and temporary. There may be some clearing and uprooting of shrubs and bushes during the site preparation for test pits and drill sites. Such will be temporary, will be back-filled and reforested to restore to near original condition.

#### 12.4 Potential Effects on the Socio-Economic Environment

Base line data on the existing socio-economic status in the area have already been established and were fully discussed in the project's EIS. The studies included the culture and tradition of indigenous communities in the region.

However, the usual impacts of exploration are positive and are based on:

- Increase in employment opportunities for unskilled workers.
- Increase in small scale community entrepreneurs.
- Increase in income level would mean increase in the buying power of families.
- Provision of community facilities by the Project Proponent.
- Livelihood and skills training to local communities provided by the Project Proponent.

#### 13.0 Environmental Management Measures

13.1 Progressive rehabilitation/restoration of areas subject of exploration disturbance and related activities by reforestation or by undertaking civil structure programs such as rip-rap, retaining walls, etc., to prevent erosion and siltation.

#### 13.1.1 Revegetation

All disturbed areas will be assisted to regenerate or be revegetated upon completion of use. Vegetation established should be in harmony with the surrounding vegetation and local species will be cultivated in a nursery for supply of replanting stock.

13.2 Management of stockpile of excavated and removed earth, if any, to prevent dust and siltation problems (e.g., revegetation of disposal areas) and reduce the impact of topographical changes.

Any land disturbed during the exploration activity will be revegetated to allow regenerating similar to the adjacent land. Revegetation of disturbed areas will be done upon completion of use.

All test pits dug will be back-filled covered by the same soil material taken from it after completion of the exploration program. This will prevent living creatures from falling into the pit. If the pits need to be maintained for future re-sampling, re-mapping or any other necessary studies, the pits will be fenced off to avoid accidents to human and animals alike.

#### 13.3 Maintenance of Roads

Existing roads will be used whenever possible. New road/track access (if construction is required) will be kept to a minimum. Maintenance activity on the roads will be carried out. Any spillage of hazardous materials like oil, fuel, drill muds and industrial refuse on the road shall be collected for proper disposal off site.

#### 13.4 Solid Waste Disposal

An existing base camp will be utilized for employee's accommodation. Solid waste generated from the camp will be disposed properly by implementing waste segregation scheme. Proper sewerage system will be employed to handle human

waste. Garbage pits will be dug to serve as dumping site of biodegradable waste. The pits will be covered with soil when full. Non-biodegradable waste shall be brought out of the site for disposal at the Municipality's designated dumpsite.

# 13.5 Handling of Toxic and Hazardous Materials, if any, Including an Emergency Response Program

Maintenance activity should be carried out such that spillage of hazardous materials like oil, fuel, drill muds and industrial refuse shall be collected for proper disposal off site.

#### 13.6 Accommodation of Other Economic Activities in the Area.

Economic development programs in the community will be encouraged to the extent of providing assistance to locals in developing livelihood projects that will both benefit the community and the project proponent. If drilling commences, the fabrication of core drill boxes using indigenous materials will be funded by the Project Proponent as one type of community livelihood project.

## 13.7 Alternative Plan if Special Habitat of Flora and Fauna Are Affected.

Preservation plans and measures of identified endangered species will be done in coordination with the proper government agencies like the DENR-PAWB, DENR-CENRO, etc.

#### 13.8 Socio-economic Mitigating Measures.

#### 13.8.1 Plans For Information And Education Campaign And Dialogue Between The Company And Populations Regarding Project Plans Including Compensation Measures, If Necessary.

A periodic educational and information campaign shall be undertaken to inform the affected communities, particularly the Indigenous Peoples, regarding the progress of the exploration program. Landowners, if any, will be compensated for any land use or disturbance like drilling (they are given the option to work for the company during a particular activity on their land.)

The company will closely coordinate with the LGU of Quezon, PCSD, NCIP, DENR and other government agencies as well as legitimate stakeholders in the implementation of and compliance to the exploration and environmental work programs.

# 13.8.2 Working Environment and Protection Measures for Employees.

In compliance with the mining and exploration safety standards, the Project Proponent will be providing its employees with the necessary onsite skills and safety training as well as safety equipment. This is a "first priority" corporate policy and working safely shall be the duty of every employee. The safety of every employee will not be compromised.

- 13.9 Abandonment Measures and Procedures after the Conduct of Exploration with Cost-Estimate Including, but not Limited to the Following:
  - 13.9.1 Control measures for acid mine drainage, the generation of which is not only limited to the period of exploration but occurs also after exploration.

Upon completion of any exploration activities in the area, all equipment will be decommissioned and removed from the Project Area. Other structures will be left for the local community to use unless constructed by competent authority. All non-toxic waste materials not salvaged or sold will be buried in the dug waste dump area. Waste oils and fluids will be collected in drums and trucked to an officially sanctioned disposal facility off site.

13.9.2 Rehabilitation of the Area by Replanting and Reforestation Programs

All areas of significant disturbance shall be assisted to regenerate or be revegetated upon completion of any activity. All drill holes will be plugged and cemented to prevent small animals from being trapped and to prevent surface run-off of ground water.

13.9.3 Restoration of the Original Flow of the River Systems that Have Been Diverted/Altered with Emphasis on Quality.

No diversion or alteration of water flow of drainage systems is expected during the exploration program.

14.0 Summary of Identification of Potential Environmental Effects and Environmental Management Measures.

The following tables show the identification of the different potential environmental effects and environmental management measures:

Table V. Identification of Potential Environmental Effects and Environmental Management Measures on the Project Area.

SOURCE	POTENTIAL EFFECT	MITIGATING MEASURES	BUDGET
Excavations (for Settling Ponds, Camp Construction, Test pits, Trenches, Auger Drilling, Drill Pad Preparation, Bulk Sampling)	Depression of selected areas due to excavations  Proliferation of insects particularly mosquitoes	<ul> <li>The Field Team will backfill the area immediately after target completion.</li> <li>Immediate backfilling of excavations, if any, upon work completion.</li> <li>Revegetation or reforestation after project completion but before abandonment to give ample time for rehabilitation measures maintenance.</li> <li>Proper drainage shall be provided to prevent accumulation of water from any excavation.</li> <li>Immediate backfilling of excavations</li> </ul>	P 200,000.00 P 450,000.00 P 325,000.00
	Entrapment of stray animals or accident to passers by	upon work completion.  Fencing of excavations using ropes and wood.  Provide warning devise/signs to as safety reminders to by-passers.  Immediate backfilling of excavations and drill holes upon work completion.	P 70,000,00 P 125,000.00
	Erosion	The topsoil excavated, if any, shall be stockpiled separate from the subsoil for proper backfilling and revegetation and each stockpile shall be maintained at considerable heights and low angles.  Any stockpiles or erosion prone areas shall be provided with drain channels to prevent erosion.  As much as possible the stockpile, if any, shall be put at the low-prone erosion areas or at the upper side of the excavations so that whatever will be eroded goes back to the excavated portion.	P 300,000,00
	Soil compaction	Enclosure of stockpile.  Ripping the contour to promote natural plant growth.  To ensure that slopes are stabilized to prevent erosion and loss of vegetation, moon scrapes will be introduced.	P 80,000.00 P 200,000.00
	Loss of vegetation	Encourage the growth of natural vegetation by spreading the stockpiled topsoil	

Table VI. Identification of Potential Environmental Effects and Environmental Management Measures on Hydrology and Water Quality.

SOURCE	POTENTIAL EFFECT		MITIGATING MEASURES		BUDGET
Excavation in Test Pitting and Drilling	Siltation, Soil Erosion, Water and Soil Contamination, Loss	•	Immediate backfilling of test pits and trenches (if any) and plugging of drill holes immediately after the desired samples are taken or after the study are completed.	P	250,000.00
Preparation of Stock Pile Area Excavation in bulk sampling	of Vegetation		Test pits and trenches, if any, during its active state will be provided with a canvass roof not only to prevent water from going into the excavation and disrupt the work schedule but also to protect the health of the workers.  Provide silt/sediment traps, ponds and dikes and drainage lines	P	65,000.00 1,229,000.00
Use of drilling chemicals	Water and soil contamination	•	Biodegradable drilling fluids shall be used as much as possible; Refuelling areas shall be provided with bunds and lined with impervious materials to prevent soil contamination	P	205,000.00
		•	Water recycling will be implemented through provision of water tanks/ponds in each drill site.	P	145,000.00
Clearing of vegetation	Siltation/ turbidity	•	Provide silt/sediment traps; Provide temporary silt ponds and permit the release of clear water only. De-siltation shall be done regularly to make the said ponds efficient. Silt materials will be either mixed with the soil stockpile or be immediately used in the progressive rehabilitation of the project.	P P	500,000.00 250,000.00
Camping	Contamination of river water due to generation of human related waste	•	Campsites will be located at least 100 meters away from creeks and/or river system, if any, and it will be provided with proper latrine facilities  A waste segregation scheme will be	P	42,000.00
		•	introduced to encourage recycling and to lessen the volume of waste generation.  Biodegradable waste shall be buried in pits while non-recyclable non-biodegradable waste shall be brought out of the site for disposal at the Municipality's designated dumpsite.	P	154,000.00

Table VII. Identification of Potential Environmental Effects and Environmental Management Measures on Socio-Economic Effects.

Management Measures on Socio-Economic Effects.											
SOURCE	POTENTIAL EFFECT		MITIGATING MEASURES	BUDGET							
Project implementation	Displacement of socio- economic activities	•	Promote employment opportunities by giving local residents priority on job available in relation to this project  Provide a just compensation to private property owners that may be disturbed by the project								
Misinformation on project implementation	Disharmonious relationship between the residents and the Contractor	•	Conduct IEC activities before the project implementation to keep the personnel, residents and the LGU well-informed of the programs of the company	P	83,000.00						
		•	Keep an open communication with the community through a conduct of regular meetings to give an update on the status of the project	P	275,000.00						
		•	Meet the community after the project has been accomplished to give them the information with regard to the findings and future company plans involving the area, if there are any.	P	65,000.00						
Movement of vehicles	Dust generation	•	Vehicular traffic, if any, shall be restricted to existing roads as much as possible and their speed will be regulated especially at populated areas;								
		•	Road maintenance shall be conducted regularly; Table drains at water prone areas shall be provided and growth of vegetation shall be	P P	650,000.00 175,000.00						
		•	encouraged to prevent erosion.  Trees shall be planted at roadside in order that roads constructed, if any, can be used even after the life of the project.	P	220,000.00						
rsafe working andition	Health hazards to workers	•	All employees shall be provided with protective equipment and proper medical attention will be accorded to them regularly All workers prior to hiring will be required	P	485,600.00						
		•	to submit to a medical examination as an assurance that they are indeed fit to work.  Training on safety and proper equipment handling shall be provided to all personnel.	P	173,040.00						
Increase of migration	relationship with	•	Limit the hiring of non-resident workers to technical personnel; Priorities for employment shall be given to all residents of the concerned Municipality/Province.								

Table VIII. Identification of Potential Environmental Effects and Environmental Management Measures on Ecology.

SOURCE	POTENTIAL EFFECT		MITIGATING MEASURES		BUDGET
Clearing of vegetation and noise generation	Displacement/loss of flora and fauna	•	Vegetation clearing will be avoided as much as possible and noise generation will be kept to its barest minimum.		
	Loss of rare species of flora and fauna	•	Areas identified as special habitat of flora and fauna will be avoided and its existence will be reported to concerned government agencies		
Waste generation	Foul odour, health problem, water pollution, visual nuisance, may displace sensitive flora and fauna	•	A specific site away from any source of water will be designated for any waste dumping, organic waste will be buried in pits while the inorganic waste will be collected and taken out of the site for possible recycling or disposal to Municipal dumpsite.	P	187,000.00

Table IX. Identification of Potential Environmental Effects and Environmental Management Measures Outside of the Project Area.

	POTENTIAL EFFECT	MITIGATING MEASURES	BUDGET
SOURCE			
Construction, restoration or upgrading of access	Loss of vegetation	The Field Team shall use existing access tracks as much as possible.	
routes from the main highway or Barangay site.		<ul> <li>Portions of wild vegetation to be brushed or cut during field exploration will be allowed to regenerate and revegetated after completion of the exploration program.</li> </ul>	P 200,000.00
Preparation of Ore Stock Pile Area	Siltation/turbidity	<ul> <li>Settling ponds and/or sediment traps and dikes will be installed where it is judged necessary</li> </ul>	P 200,000.00
	Erosion	<ul> <li>The Field Team shall:</li> <li>Minimize height of muck stockpile/s, if any, along slopes;</li> <li>Provide proper drain channels and direct the flow to siltation/sediment traps and ponds;</li> <li>Minimize stockpiling and accumulation of unwanted debris or waste;</li> <li>Promote the growth of grasses/shrubs along roadsides and over the stockpiles to prevent erosion and siltation;</li> <li>Conduct regular road maintenance</li> </ul>	P 700,500.00 P 124,450.00
Provision of base camp/makeshift laboratory outside the project area	Domestic and laboratory waste generation	lessen the volume of waste generation particularly in the field camp.	P 50,000.00 P 100,000.00

#### 15.0 Total Estimated Environmental Cost

A budget of *PhP* 8,278,590.00 equivalent to ten per cent (10%) of the exploration work program cost (PhP 82,785,880.00) will be allocated to cover the cost of the environmental work program and community development activities/programs on the Project Area. This budget allocation shall include drill pads and test pits rehabilitation, road rehabilitation, drainage, silt ponds and dikes, land use compensation, social awareness, community development projects, stakeholder consultations, etc. Surveying, supplies, field expenses and all other indirect cost are included in the exploration work program.

Please refer to the attached amended 2-yr Exploration and Environmental Work Programs schedule and budget estimates (Appendix "A").

This budget may be adjusted and amended or expedited dependent on the results of each survey.

Prepared by:

Douzelez 1.

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Registered Geologist PRC No. No. 0627 PTR No. 7548901

Issued on: March 17, 2006 Issued at: Quezon City

Conforme:

ALEX R. DE LEOZ/ Vice President

Berong Nickel Corporation

# APPENDIX 'A'

1   2   3   4   5   6   7   8   9   10   11   12   13   14   15   15   17   18   19   20   21   22   23   24   24   25   25   24   25   25   25	TOTAL BUDGET:	11. Environmental Management and Community Dev't. (10%)	Sub-Total:		10. Project Management	9. Preparation and Declaration of Mining Feasibility	8. Final Resource/Reserve Estimation and Declaration	7. Definition in-fill Drilling/Test Pitting	6. Ore Resource/Reserve Estimation/Validation	5. Bulk Sampling and Metallurgical Study	Phase III - New Area drilling (3,000 m)	Phase II - In-fill drilling and new area	Phase I - Confirmation Drilling of old pits (3,000 m)	. DRILLING	c) New area (825 m)	b) in-fill within old pits area (790 m)	Phase II - a) Resampling of Old Pits (1,800 m)	Phase I - Confirmatory Resampling of Old Pits (2,940 m)	3. TEST PITTING	2.3. Ground Penetration Radar	2.2. Topographic Survey	2.1 Line Cutting	2. DETAILED GEOPHYSICAL SURVEY	. RESEARCH AND PREPARATION WORKS		ACTIVITIES		AMENDED BERO
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