

**Introduction**

- Hanishah Ventures Sdn Bhd is the mining leaseholder.
- Golden Prosperous Resources Sdn Bhd is appointed as project operator via Sutera Manja Sdn Bhd, legal representative of Hanisah Ventures Sdn Bhd

**Statement of Needs**

- Manganese ore is important in iron and steel production.
- Manganese reserves only available at Pahang and Kelantan based on JMG's study.

**Legal Requirement**

- Prescribed Activity: MINING
- Activity No. 8(b): Mining of minerals within or adjacent or near to environmentally sensitive area

**Project Proponent**



**鑫鴻集團  
GOLDEN PROSPEROUS  
GROUP OF COMPANIES**

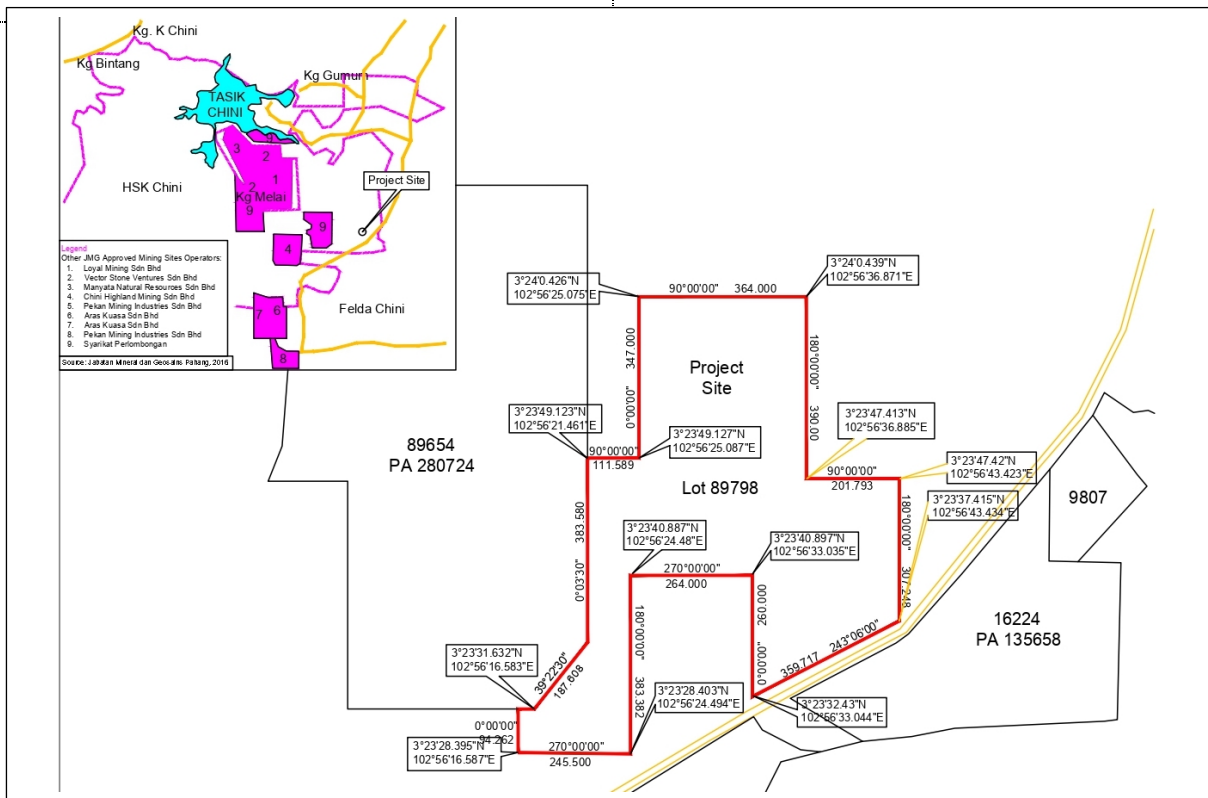
Golden Prosperous Resources Sdn Bhd

**EIA Consultant**

Capai Cerah Sdn Bhd  
32A-3A, Jalan PJU 1/3A,  
Sunwaymas Commercial Centre,  
47301 Petaling Jaya, Selangor Darul Ehsan

**Location**

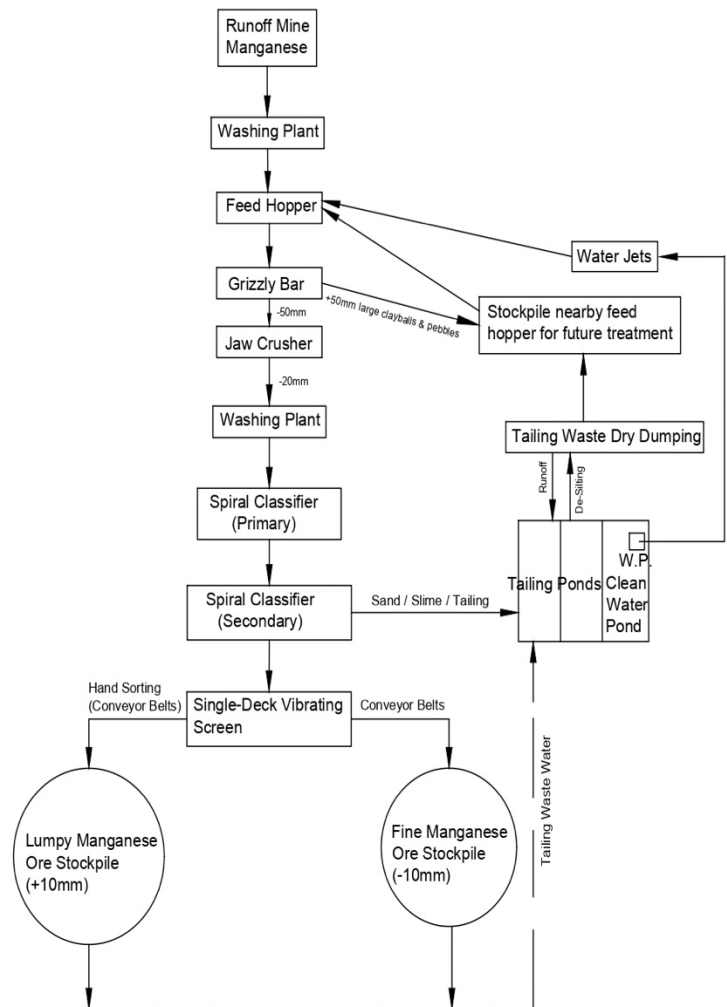
- Lot 89798 is approx. 3km south east of Tasik Chini and 700m north of Felda Chini Dua.
- Project site is accessible via Jalan Bandar Chini.
- Project site is sited under Blok Perancangan ZU 3 (Bukit Chini)



**Project Description**

- Manganese and other minerals mining operation.
- The project site is outside of Kawasan Warta Tasik Chini.
- The project site is disturbed by illegal miners.
- Opencast mining method is adopted.
- Closed circuit water recirculation concept is adopted.
- Estimated lifespan of mine is 2.2 years
- Nearby mining operators:
  - a. Loyal Mining Sdn Bhd
  - b. Vector Stone Ventures Sdn Bhd
  - c. Manyata Natural Resources Sdn Bhd
  - d. Chini Highland Mining Sdn Bhd
  - e. Pekan Mining Industries Sdn Bhd
  - f. Aras Kuasa Sdn Bhd

**Process Flow Chart**



**Project Activities**

**Operation Stage**

- Mine ore excavation
- Haulage operation
- Washing operation
- Crushing operation
- Stockpiling
- Sales
- Road maintenance
- Best management practices maintenance
- Waste management

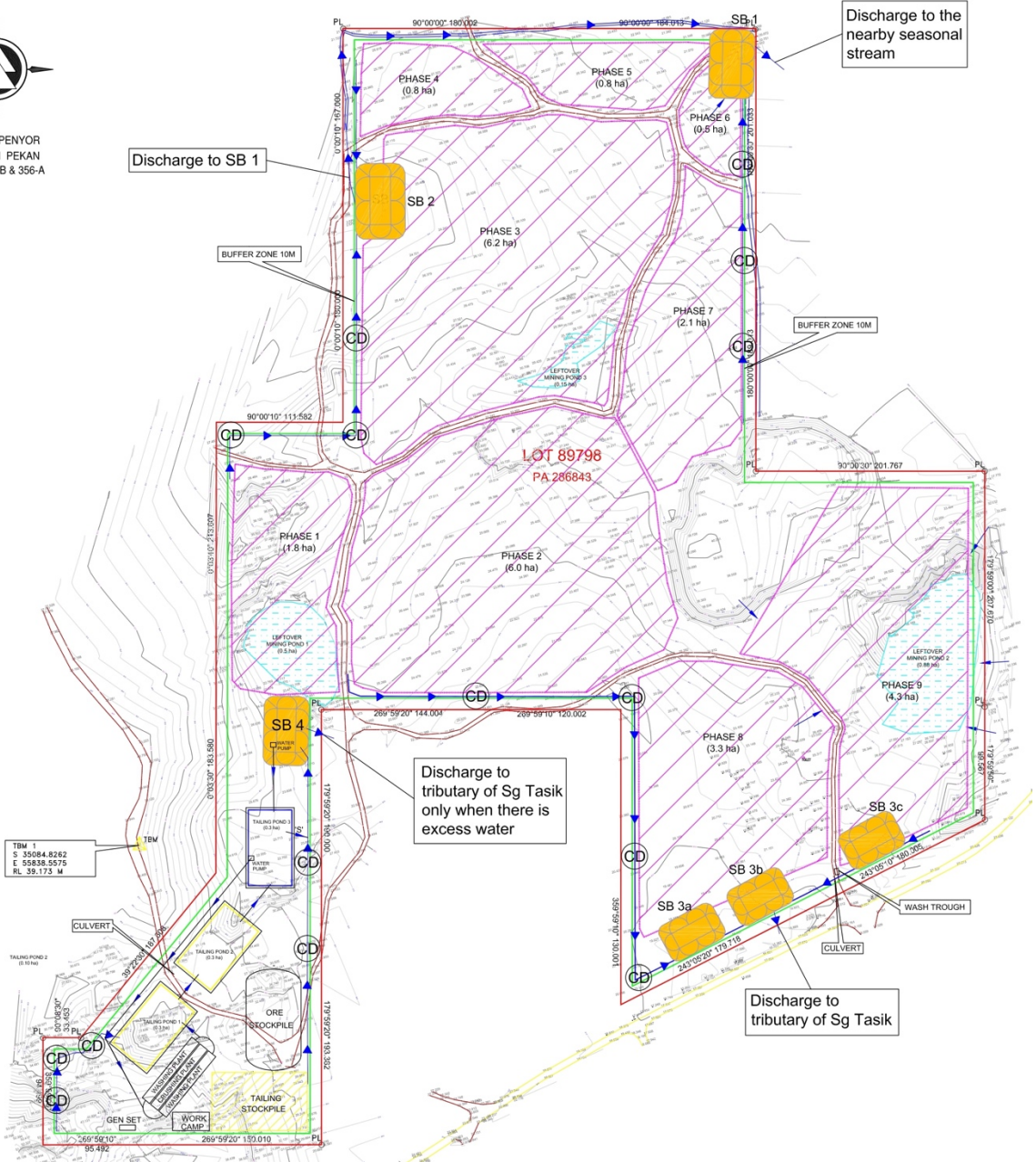
**Abandonment**

- Progressive rehabilitation
- Final rehabilitation and reclamation

**Mining Scheme**



MUKIM PENYOR  
DAERAH PEKAN  
SYIT 355-B & 356-A



**Phasing**

- Operated in nine (9) phases
- Ensure minimize disturbance to environment at one time

Existing Environment

**Terrain**

elevation -  
17m to  
54m

**Geology**

PERMIA  
N ROCK

**Soil Series**

Serdang-  
Bungor  
Muchong

**Hydrology**

Tributary of Sg Tasik to  
Tasik Mentiga to Sg Tasik  
to Sg Mentiga and to Sg  
Pahang

**Baseline Water Quality**

Total 12 samplings (2 set)  
and testing done to compare  
with Class III limit.

Mn in all samples **exceeded**  
the limit except W4 in set 1  
& 2, W6 in set 1 and W3 in  
set 2.

**Baseline Air Quality**

3 air samplings &  
testing for PM<sub>10</sub>,  
PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, Co  
and O<sub>3</sub> done. **ALL  
OK!**

**Baseline Noise  
Level**

3 baseline noise  
samplings done.  
**Daytime noise level  
> limit of 50dBA**

**Terrestrial Flora**

Disturbed  
Forest

Common  
species

**Terrestrial Fauna**

Camera trapping is adopted.

WCA Totally Protected - Mengkira  
sp, Burung Daun Kecil

IUCN Vunerable - Long-tailed  
Macaque

**Public  
Health**

Clean water  
supply

Health facilities

**Landuse**

0 - 1km - PKNP Mining, Felda  
Chini 2

2 - 3km - Tasik Chini, Kg Melai

3 - 4km - Kg Gumum

**Socio-Economy**

Public Acceptability (N = 238)

Agree - 42%

Disagree - 36.6%

Neutral - 21.4%

**Groundwater**

Mn level exceeded KKM  
(2000) limit



## Potential Impacts and Mitigating Measures

### Evaluation of Impacts

Air Quality

Potential of mine dust dispersion

### Mitigating Measures

- Cover the crushers and screen house to minimize the dispersion of dust.
- Reservation of existing vegetation and tree is must.
- 'Mulching' is proposed to avoid generation of dust due to wind agent and transportation.
- Stabilize disturbed earth
- Biomass shall be stored at a designated place and stabilized.
- No open burning of cut vegetation and trees is allowed.
- Cover the exposed slopes particularly those of steep ones after site clearing with canvas sheet prior to hydro-seeding and mulching.
- Set speed limit of trucks such as excavator, backhoe and hauling truck to 15km/hr
- Water browsing truck shall be available all the time at site.
- Adequate number of water sprinklers shall be fitted on crushing plant.
- 'Drop Height' of ore shall be as minimum as possible to avoid generation of unnecessary dust when falling on stockpile area.
- Mine face direction shall be planned in consideration of dominant prevailing wind direction.
- Cover the transporting truck filled with finished products with canvas sheet before entering public road.
- Provision of wash trough at main exit of proposed site is must.
- Visual inspection shall be conducted on regular basis to identify significant dust entrainment and as mean of assessing effectiveness or requirement for additional mitigation measures.
- Complaints received shall be investigated promptly with remedial measures implemented as appropriate. Complaints, investigation and corrective action shall be documented.



## Potential Impacts and Mitigating Measures

### Evaluation of Impacts

#### Noise Pollution

Noise generation due to vehicular movement, machineries, crushing plant and washing plant

### Mitigating Measures

- Wise planning of site clearance to create a vegetation or tree belt to surround the *project* site.
- Regular inspection and maintenance of machineries, trucks and crushing facility to avoid unwanted noise generated.
- Huge machineries and trucks shall be fitted with sound absorption system.
- Continual monitoring of noise level within *project* site quarterly.
- Submit an environmental quality monitoring (EQM) report to DOE
- Comply with Occupational Safety and Health Act (OSHA) standard of permissible exposure noise level which is 90dBA in exposure duration of 8 hours.
- Ensure the efficiency of hauling trip as to reduce number of daily trip to minimize noise generated.
- Use rubber linings in dumper trucks.
- Turn the vehicle engine off when not in use
- Keep lorry tailgates closed where possible.
- Set vehicles speed limit of 15km/hr within mine area.
- Minimizing the height which material drops from construction vehicles.
- Workers should appropriately be fitted out with protective gear, like ear mufflers and for occasional medical check-ups.

### Potential Impacts and Mitigating Measures

#### Evaluation of Impacts

##### Water Quality

Potential water quality degradation due to earthwork and mineral ore extraction

#### Mitigating Measures

- Provision of adequate number of sediment basin at strategic location is must.
- Provision of proper drainage system to channel all runoff into sediment basin.
- Wastes and scheduled wastes shall be collected and treated in proper manner.
- Cease operation during period of high rainfall.
- Reduce site runoff by grassing soil and overburden mound through progressive restoration.
- Minimize exposed area at any one time.
- Buffer zone around the boundary with natural vegetation to be retained.
- Final mine floor shall have level temporary accumulate water during heavy rainfall.
- One toilet shall be provided for every 15 workers.
- Provision of 'Individual Septic Tank' facility shall be made available.
- Scheduled waste management shall be performed prudently and responsibly.
- Illegal disposal of any solid waste and scheduled waste to nearby water way will be prohibited.
- Stabilize loose soil structure to avoid rain drop impact to flush away sediment.
- Maintenance of drainage system shall be regularly carried out.
- Monthly water monitoring of TSS for the final discharge point is proposed.

### Potential Impacts and Mitigating Measures

#### Evaluation of Impacts

Soil erosion and  
sedimentation

Potential soil loss and sediment yield due to earthwork and mineral ore extraction

#### Mitigating Measures

- Provisions of well sediment basin design by experienced engineer is must.
- Water quality monitoring shall be carried out.
- Preserve existing vegetation on areas that are not affected by current activities.
- Use cut biomass (branches, leaves and roots) as protection barrier to protect bare soil from erosion agent.
- Use existing roads where practical, unless use of such roads would cause aggravate erosion problem.
- Cross drains, sumps and side ditches are recommended to disperse runoff and to retain soil loss.
- Attempts will be made for re-vegetation of exposed slopes as soon as possible.
- Outlet protection and check dam to be installed



### Potential Impacts and Mitigating Measures

#### Evaluation of Impacts

##### Slope Stability

Potential risk of slope stability due to mineral ore extraction

#### Mitigating Measures

- Bench shall have suitable height so that any tension of crack may have limited load to the slope.
- Slope shall be adequately drained to allow water flow.
- Any hanging wall shall be removed as soon as possible.
- Regular inspection on slope shall be carried out.
- Slope maintenance shall regularly be done and slope failure shall be repaired to avoid further failure.

### Potential Impacts and Mitigating Measures

#### Evaluation of Impacts

Solid and hazardous  
waste management

Potential water quality degradation if there is illegal management of solid and hazardous waste

#### Mitigating Measures

- General refuse generated on-site shall be stored in enclosed bins separate from hazardous wastes.
- Any extra dumping will utilize local dump site at local council dump site.
- Hazardous waste materials shall be stored in a secure area located at least 100 meter from watercourses and on-site drainage channels.
- Provision of a weather shelter over the storage area is an appropriate measure to prevent accumulation of rainwater within the bund.
- All scheduled wastes must be kept in proper containers, labeled appropriately and stored properly.
- The storage area shall be elevated at least 6 inches from ground level and shall not be subject to flooding.
- The floor of storage area must be covered with concrete or any suitable lining material.
- A concrete dyke or other equivalent structure shall surround the entire storage site and the dyke shall be designed to contain the wastes under worst spillage condition (110% of capacity of largest container).
- There shall be a sidewall and roof to protect waste containers from weather.
- At the entrance to storage site, a signboard shall be set up with word "BAHAYA" and "DANGER", painted with a letter size of 30 cm on a bright yellow background.
- All wastes storage drums shall be labeled.
- Material Safety Data Sheets (MSDS) shall be maintained for all materials.
- The change-out of lubrication oils from construction equipment and vehicles on the site shall be controlled.
- Relevant government authorities shall be immediately informed of any accidental spills of fuel, oil, or other hazardous materials.

### Potential Impacts and Mitigating Measures

#### Evaluation of Impacts

##### Fuel Oil Storage

Potential water quality degradation if there is illegal management of fuel oil

#### Mitigating Measures

- Fuel tanks and storage areas is sited on bund enclosure provided with drip collection devices and capable containing 110% of the largest tank inventory.
- These dyke bunds is built of impermeable material such as concrete or other approved impervious lining.
- Fuel storage in dumps is set back 30 meter from any water body and located on relatively flat land.
- Run-offs from tank area is routed through oil trap prior to discharge to external drains.
- Regardless of their size or contents all fuel containers is handled carefully.
- All containers, full or empty is handled with care, since drums with broken seals often contain some fuel.
- Transportation and storage of fuel and lubricants is in properly constructed containers of an approved design.
- Refueling activities is not be conducted nearby watercourses or on-site drainage channels.

### Potential Impacts and Mitigating Measures

#### Evaluation of Impacts

##### Traffic and Transportation

Potential traffic congestion and accident due to movement of trucks  
Potential spread of dirt on public road

#### Mitigating Measures

- Road spraying shall be undertaken regularly during dry spells.
- The access road is fully paved at least 10 meter from the internal road, but 20 meter is recommended.
- Lorry is undergo tyres cleaning process or water trough.
- Vehicles conveying product materials is covered
- Vehicles conveying product materials and equipment must not exceed the permissible tonnage.
- Proper maintenance of lorry can reduce vehicular smoke emission.
- Good planning and co-ordination will reduce frequency of delivery and therefore number of trips.
- The Project Proponent shall install clear speed limit and warning signs beside nearby the public road.
- To minimize traffic congestion and accidents, material transportation is avoided during peak hours.
- The Project Proponent kept and maintained records of any transportation accident with the history and details of causes for further planning of prevention measures.

## Potential Impacts and Mitigating Measures

### Evaluation of Impacts

Occupational  
Safety and Health

Potential health risk on mining workers

### Mitigating Measures

- The Project Proponent shall ensure that health, safety and general welfare of the employees as stipulated under the Occupational Safety and Health Act 1994 (Act 514) are properly taken care off.
- Briefing by '*Health and Safety Officer*' every morning before work starts to ensure workers aware of occupational safety procedures.
- Safety equipments or '*Personal Protective Equipments (PPE)*' will be provided for the workforce.
- The employer must be provided with information, instruction, training and supervision.
- Continual monitoring by '*Health & Safety Officer*'.
- Other utilities, such as, adequate drinking facilities, water and medicines will be in place to facilitate the mining operation.
- Prepare '*Emergency Respond Plan (ERP)*' involving '*Local Police, Bomba, Project Management, Site Manager and 'Main & Sub-Contractors'*' to ensure safety of the workers.
- Remind workers of '*Emergency Escape Route*' while working in critical areas, such as slopes or on crushing plants.
- Minutes of '*Safety & Health Committee*' meetings as required under the '*Occupational Safety and Health Act, 1994*'.
- Demarcation of hazardous areas and provision of '*Guidelines for Storage & Handling of Hazardous Materials*', so that workers aware of it and not causing any unwanted accident.
- Exposed soil areas, excavated materials, stockpiles and haulage road shall be dampened with water during dry ambient condition to minimize dust dispersion.
- Train workers to operate machinery properly so as to reduce dust generation.
- Establish a health surveillance system for workers.

## Potential Impacts and Mitigating Measures

### Evaluation of Impacts

Public Health

Potential health risk on surrounding stakeholders

### Mitigating Measures

- Need to ensure cleanliness of basecamp and workers
- Ensure no clogged drain or stagnant pond
- No raw sewage routing into nearby waterways.
- Increase awareness of the dangers of communicable and vector borne diseases
- Supply potable water dan test of water in the groundwater well prior to consumption
- Industrial hygiene amongst workers and regular environmental monitoring and submission of reports to authority.
- Apply BMPs (Best Management Practice) in mining operation dealing with communicable and vector-borne diseases.
- Wearing PPE including high quality mask to filter out fine dust including toxic Mn metal.
- Regular monitoring of TSP, PM 10 and PM 2.5.
- Periodical medical check up
- General health Insurance of all workforce
- Promote Hearing Conservation Programme



### Potential Impacts and Mitigating Measures

#### Evaluation of Impacts

##### Flora & Fauna

Potential loss of food source and habitat for wildlife  
Insignificant impact on flora

#### Mitigating Measures

- Overburden due to earthwork and excavation shall not be removed from the site and kept for future filling and replanting exercise.
- All plant biomass to be stacked at designated place.
- The operator will engage consultant for the rehabilitation works for brownfield remediation
- The bare and exposed slope shall be immediately replanted with native species mentioned above
- Prohibition of capture, encroachment into adjacent forest reserve, disturbing, chasing, killing by any means and black-market sales and trade of any wildlife species
- Provision of Migratory corridor is mandatory
- There will be arrangement of Cage Trapping of endangered and vulnerable species already listed in the inventory of Camera Trap listing

### Potential Impacts and Mitigating Measures

#### Evaluation of Impacts

**Socio Economy**

Potential mine dust dispersion and risk of traffic accidents to public road users  
Aesthetic value depreciation

#### Mitigating Measures

- Reserve vegetation belt
- Water browser and wash trough should be provided for heavy vehicles before exiting to the main road
- Plant more crops for preventing erosion to the area
- Pay attention to the nearby residents' comment
- Maintaining remaining forest vegetation surrounding the project area and intensively re-planting/landscaping all open space including bare and exposed slopes
- Good planning and co-ordination will reduce frequency of delivery and therefore number of trips
- Install clear speed limit and warning signs beside nearby the public road
- Keep and maintain records of any transportation accident with the history and details of causes for further planning of prevention measures

#### Evaluation of Impacts

**Abandonment**

Potential loss of revenue to state government  
Potential further environmental degradation to the mining state

#### Mitigating Measures

- Preparation of rehabilitation program

**Environmental Management Plan (EMP)****Scope of EMP**

- Environmental Mainstreaming Tools
- Performance Monitoring
- Compliance Monitoring
- Emergency Response Plan
- Environmental Audit

**Proposed Compliance Environmental Monitoring Program**

Type of Monitoring	Parameter	Frequency	Compliance Guidelines
<b>River Water</b>	pH, Chemical oxygen Demand (COD), Biological Oxygen Demand (BOD), Total Suspended Solid (TSS), Oil & Grease, Dissolved Oxygen (DO), Temperature, Ammoniacal Nitrogen,	Monthly	National Water Quality Standard for Malaysia
<b>Sediment Basin</b>	Total Suspended Solid & Turbidity	Monthly	Standard A
<b>Noise</b>	LAeq	Quarterly	Schedule 1: Recommended Permissible Sound Level (LAeq) by Receiving Land Use for New Development
<b>Air</b>	particulate matter (PM <sub>2.5</sub> ) and (PM <sub>10</sub> )	Quarterly	Recommended Malaysian Guidelines for air quality standard
<b>Groundwater</b>	pH, Iron, E.coli, TDS, Sulphate, Nitrate, Phenol	Monthly	National Groundwater Quality Index

### Study Findings

#### **Hydrogeology**

Groundwater is tends to accumulate at the existing ponds.

#### **Water Quality**

Existing water quality is high in Mn level. Water recirculation system helps to reduce discharge from the project site.

#### **Soil Erosion and Sedimentation**

insignificant impact is expected with implementation of LDP2M2 practices

#### **Air Quality**

Fugitive mineral dust dispersion, existing vegetative belts act as buffer

#### **Noise level**

Insignificant impact as surrounding vegetative belt acts as sound barrier.

#### **Terrestrial Flora**

Insignificant impact as the project site is disturbed by illegal miners.

#### **Terrestrial Fauna**

Loss of habitat is unavoidable, with continual human wildlife conflict without proper regional wildlife management plan

#### **Social Impact**

Insignificant with implementation of appropriate mitigating measures

#### **Public Health**

Insignificant impact with proper operation and maintenance of the mining site

#### **Waste Management**

Minimal impact to surrounding due to waste is expected with the implementation of mitigation measures listed in the EMP