

# EXECUTIVE SUMMARY

Environmental Impact Assessment (2<sup>nd</sup> Schedule)

**Projek Melombong Bijih Timah ML 1/2019 di Atas**

**Lot 61034 Berkeluasan 55.14 Hektar di Kawasan Ban Ho, Mukim Bandi, Daerah Kemaman, Terengganu**

## DBS Resources Sdn Bhd

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**Project Proponent:**

**EIA Consultant:**



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## INTRODUCTION

● The Project site is a secondary forest which cover total area 55.14 Ha (136.25 acre)

● The Project site location is at Ban Ho area (Lot 61034) of Mukim Bandi, Kemaman, Terengganu.

● The prescribed activity pertaining to the Project is:

***“Activity 8 (b) – Mining of minerals within or adjacent or near to environmentally sensitive area”***

● Project located approximately 200 meters from the Hutan Simpan Bukit Bandi and 3.5km from the Hutan Simpan Cerul

## NEED OF STATEMENT



### Increased Demand

To generate income and to fulfill the demand in mining processing industry



### Advanced Technology

Utilization of advanced tin mining processing technology to reduce environmental impact



### Economic Growth

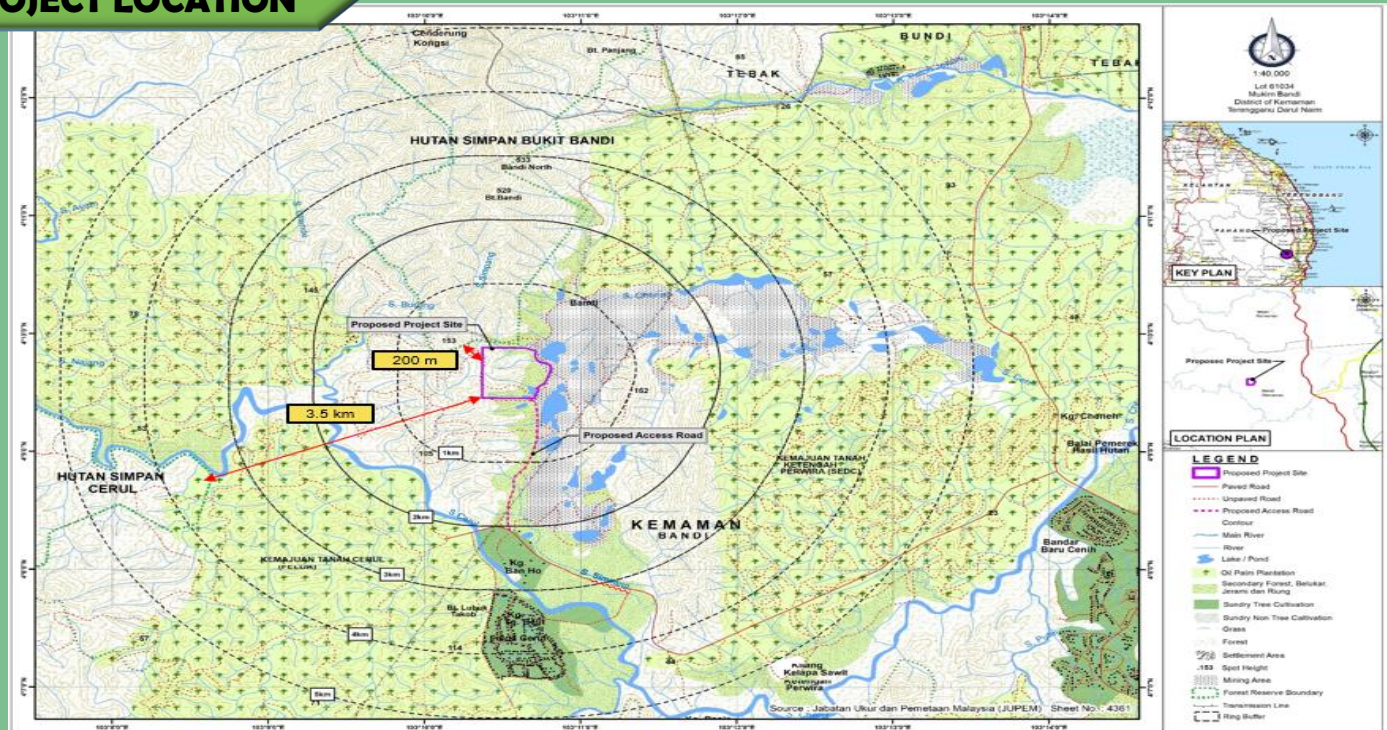
Malaysia economic development



### Employment

The Project is expected to produce 99% job opportunities to nearby community

## PROJECT LOCATION



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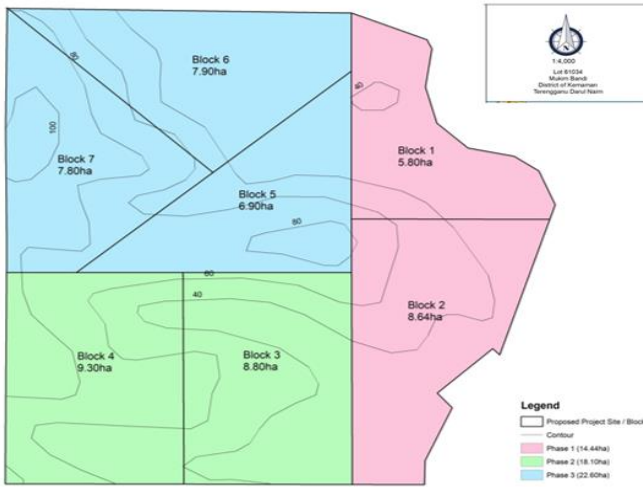
### PROJECT CONCEPT



The proposed mining site is active tin ore potential zone which occurs form of cassiterite SnO<sub>2</sub>



Project area will be divided into 3 phases (7 block area)



Phase	Block	Area (Hectare)	Estimated Tin reserve (Tons Sn)	Operation Mining Life (years)
1	1 & 2	14.44	54.42	2.5
2	3 & 4	18.10	69.69	3.1
3	5, 6 & 7	22.60	87.02	3.4
<b>Total</b>		<b>55.14</b>	<b>211.13</b>	<b>9.4 ≈ 10</b>

Table 1: Reserve Estimation

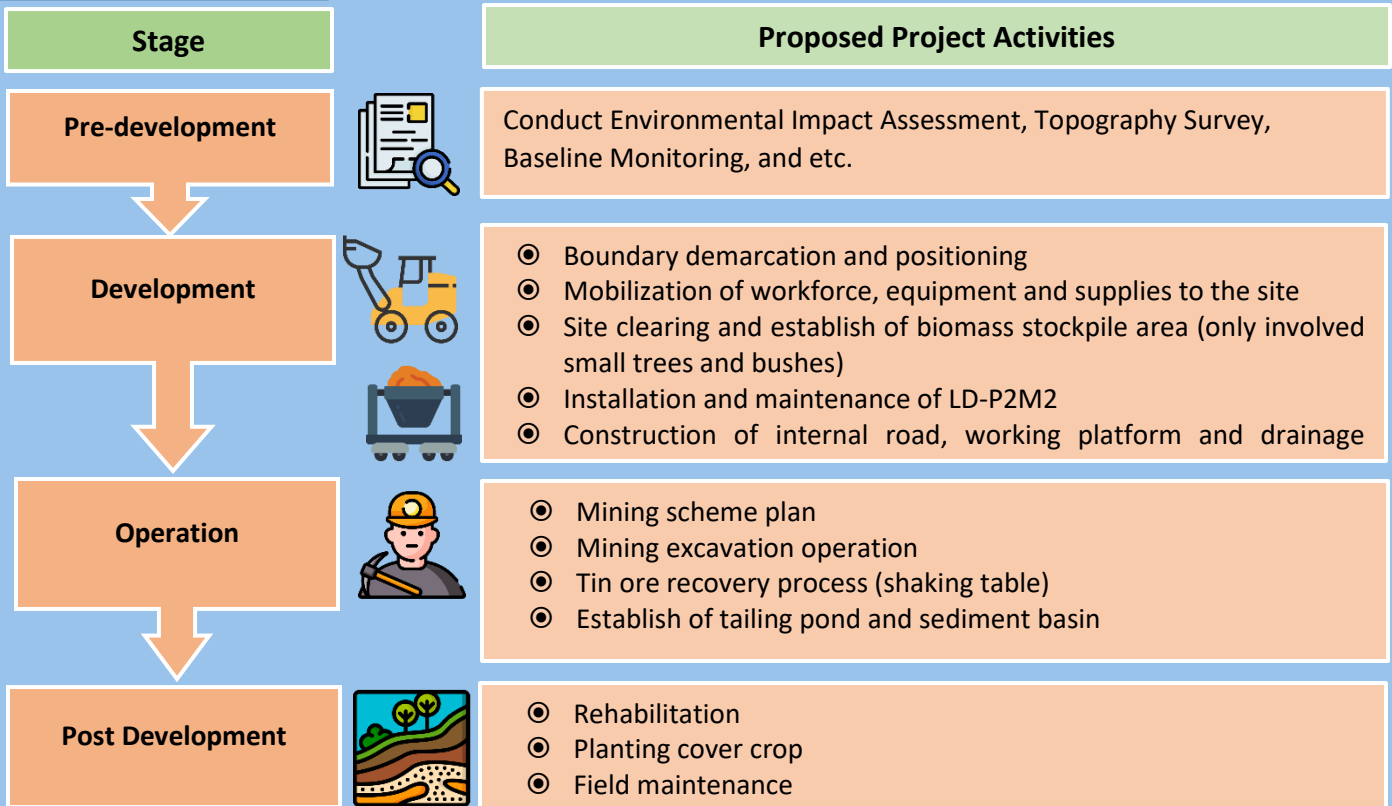
### REGIONAL SETTING

RTD 2011-2020: BPK 11.2- **Bandi/Tebak**

Landuse zoning: **Inland forest**

RFN-3, 2015: **Project located within ESA Rank 3 – Controlled Development** - Type and intensity of development shall be strictly controlled depending on nature of constraints.

### PROJECT ACTIVITY



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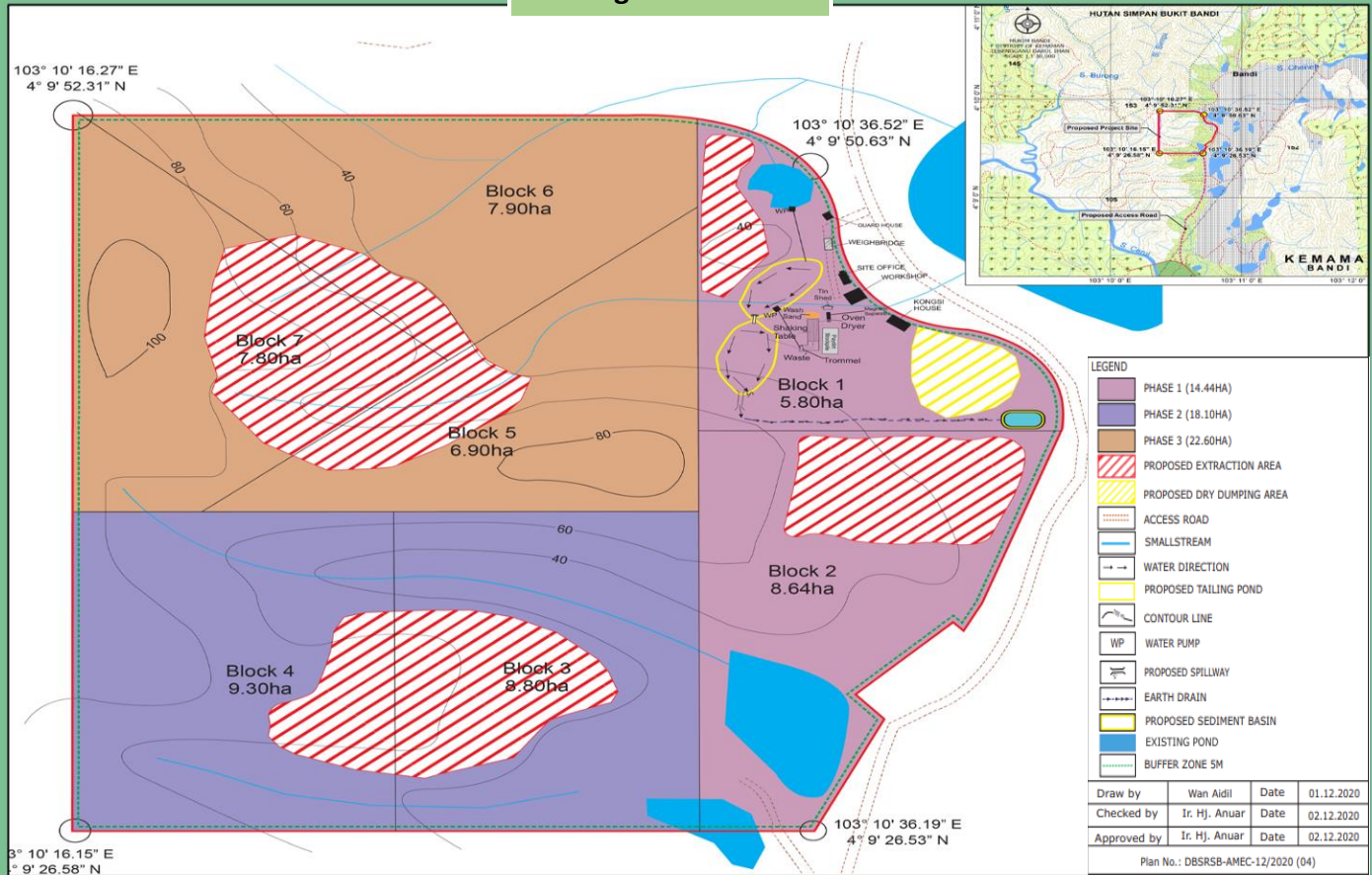
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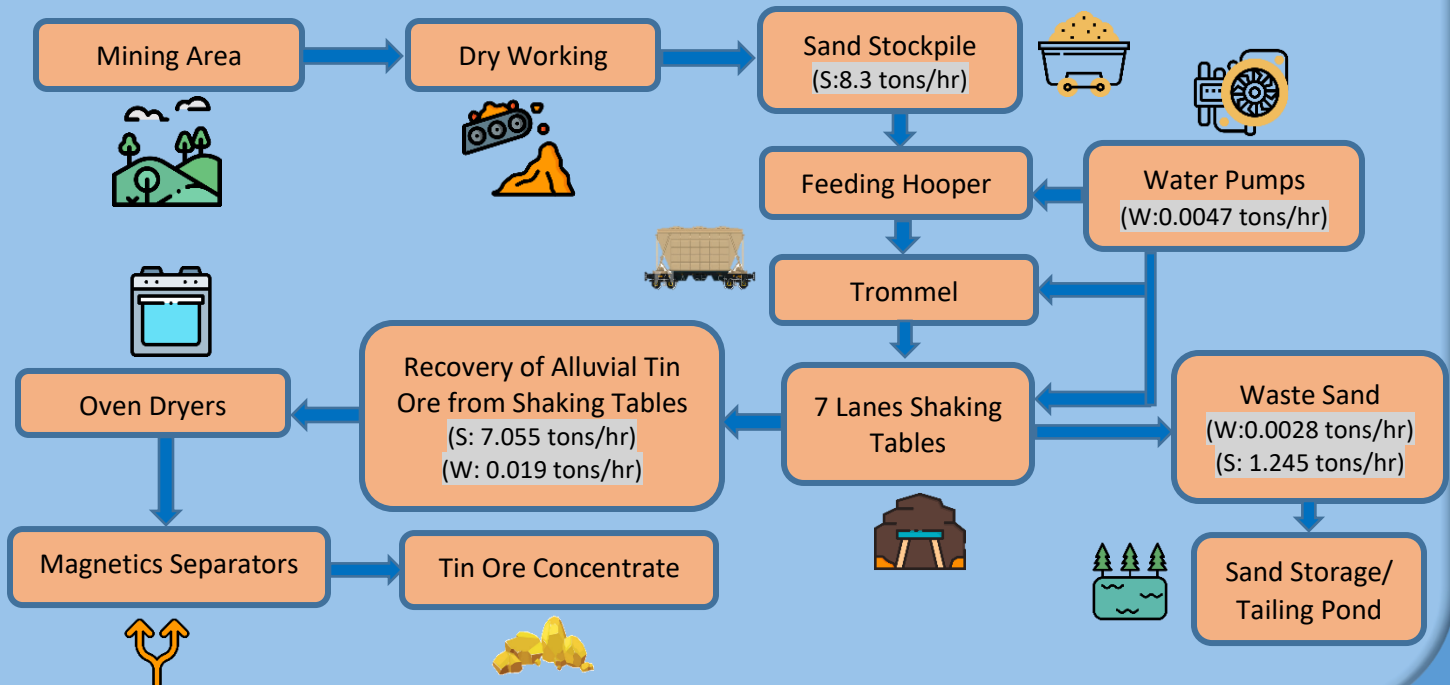
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## PROJECT ACTIVITY

### Mining Scheme Plan



### Flow Chart of Tin Ore Mining Process (Sand-200t/day)



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### 01

#### TOPOGRAPHY

Moderate to hilly terrain  
Elevation: 21m -104m



### 02

#### GEOLOGY & SOIL

Metamorphic rock: Quaternary-Marine  
Soil: Clay, silt, Major Sand with minor Gravel



### 03

#### FLOOD RISK

Flood map DID (2014) – Site **not** located within flood prone



### 04

#### LANDUSE

<b>Residential:</b>	Kg. Ban Ho (1-2km), Felda Cherul (3-4km)
<b>Agriculture:</b>	Palm Oil Plantation (1-5km), Fish Farm (0-1km)
<b>River :</b>	Sg. Simpang (0-1km), Sg.Cerul (1-5km)
<b>Forest :</b>	Forest Reserve Bukit Bandi (0-5km) Forest Reserve Cerul (4-5km)



### 05

#### HYDROLOGY

Catchment: Cerul River Basin  
Eight (8) tributaries of Cerul River: Sg. Burung, Sg. Simpang, Sg. Mengkuang (Big), Sg. Putih (Big), Sg. Lawang, Sg. Jabur, Sg. Pinang Ulu and Sg. Paluh Jenang.



### 06

#### TRAFFIC

Accessible road to Project site:  
Jalan Bukit Cerol-Bukit Sagu (Route 2687)  
Jalan Jerangau-Jabor Penghantar 1  
Access point GPS: 4°08'19.1N and  
103°10'26.3"E

## EXISTING ENVIRONMENT



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## EXISTING ENVIRONMENT



07

### SOCIO-ECONOMIC

Department of Statistic Malaysia: Population at Mukim Bandi – 10,471.  
Social economy of nearby community: plantation, mining activity, agriculture activity and fish farm



08

### GROUNDWATER

There is no existing use of groundwater at surrounding the Project site  
Main source of water – Syarikat Air Terengganu



09

### ECOLOGY

Forest Reserve categorized ESA Rank 3 are found nearest project site – Bukit Bandi and Cherul. So ecological interesting flora and fauna area expecting to be found within the Project site.

10

### ENVIRONMENTAL BASELINE INVESTIGATION



<b>Water quality:</b>	Seven (7) surface water sampling for 34 parameters All samples collected were classified as Class II (Clean) except for point W1 was categorized Class III (Slightly Polluted) based on WQI
<b>Air Quality:</b>	Three (3) point location sampling for parameter air - PM2.5, PM10 and CO All readings were below than the stipulated standards except for PM2.5 at point A3 due to public vehicles
<b>Noise:</b>	Three (3) point location sampling for parameter LAeq, LAmin, LAmx, L90 and L10 All points noise level recorded complied the maximum permissible Sound Level, Annex A, Schedule 1
<b>Groundwater:</b>	Three (3) point groundwater sampling was conducted within the Project site and residential area.

### CENTRAL FOREST SPINE (CFS)



Department of Forestry Terengganu, the project site is located within the central forest spine corridor. The nearest CFS (SL4) is located approximately 53 km north of project site.

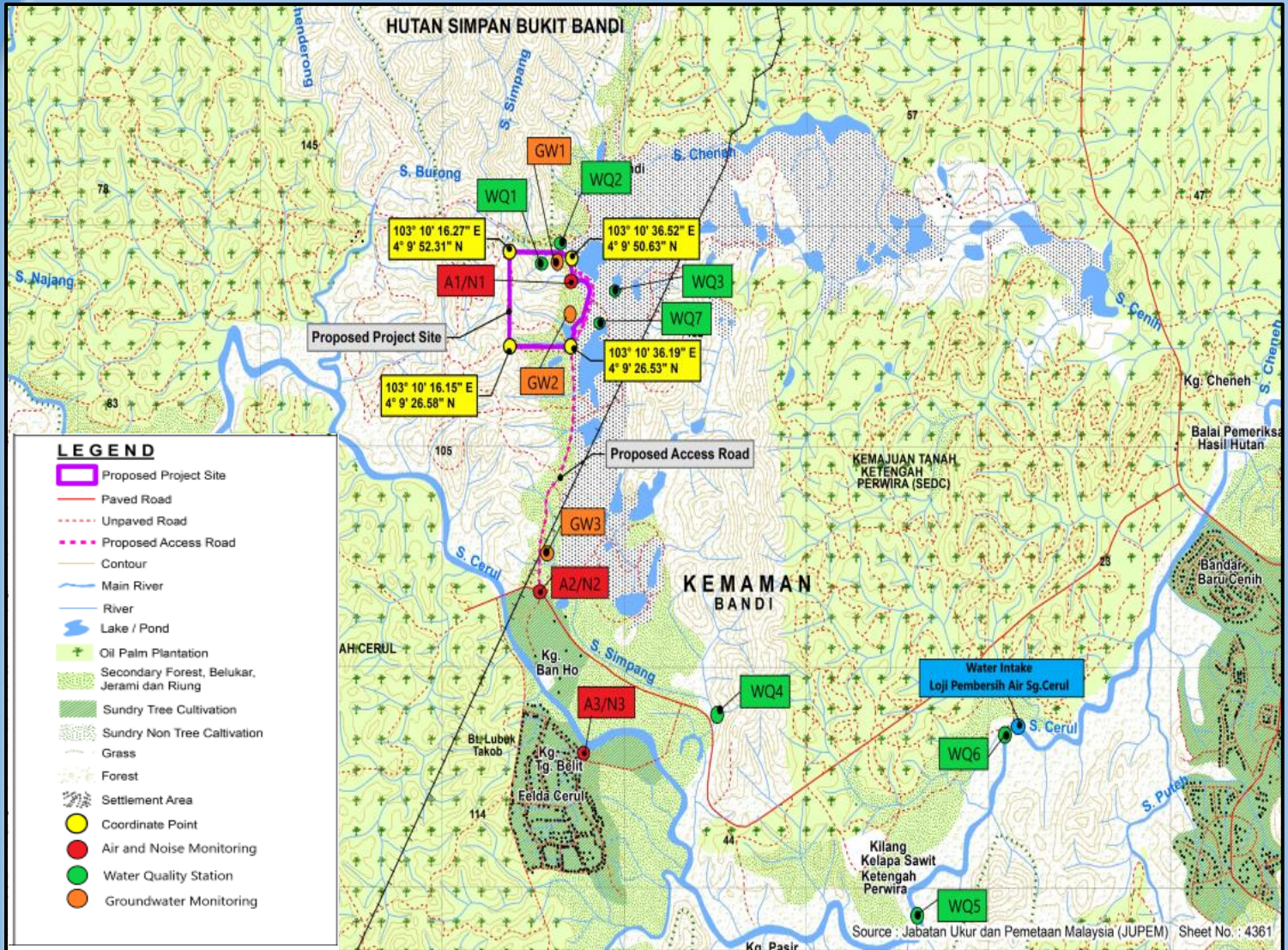
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## POINT LOCATION FOR BASELINE & ENVIRONMENTAL MONITORING



### STANDARD GUIDELINE FOR ENVIRONMENTAL MONITORING

<b>Water quality:</b>	National Water Quality Standards (NWQS)
<b>Air Quality:</b>	New Malaysian Ambient Air Quality Standard 2020 (NMAAQs)
<b>Noise:</b>	Guidelines for Environmental Noise Limits and Control, Third Edition, 2019
<b>Groundwater:</b>	Ministry of Health (MOH) National Standards for Drinking Water Quality (NSDWQ)

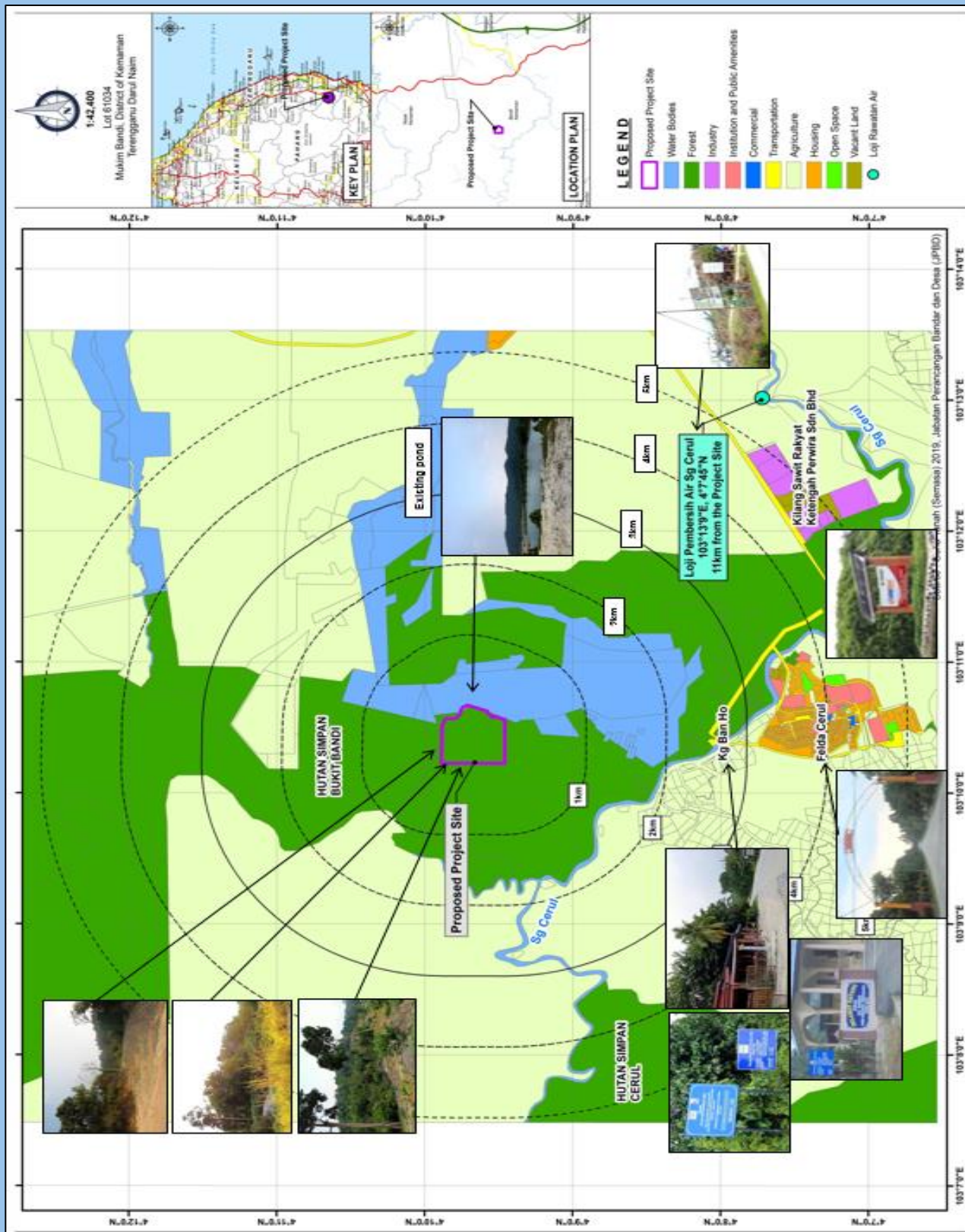
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### 5 KM LAND USE



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## IMPACT ASSESSMENT

### DEVELOPMENT STAGE

### OPERATION STAGE

01

#### SOIL EROSION & SEDIMENTATION

Land disturbance and erosion caused by the land clearing and platform level



Erosion and possibility of slope failure due to the excavation of raw materials (mining), which further may cause impact of sedimentation to downstream areas.

- Water pollution of water quality in nearby water bodies due to discharge of potential contaminated surface runoff
- High turbidity in nearby water bodies due to the increased of suspended solids caused by land clearing activities.



#### WATER QUALITY

Possible mine effluent water discharge overflow into the nearby river during monsoon season.

Increase of total suspended solids (TSS) levels and sedimentation in nearby water bodies due to the surface runoff from the exposed land and stockpile area within the Project site

02

03

#### HYDROLOGY

- Causing changes in the water flow
- Worst case scenario, potential flood incident might happen due to the overflow of used mining pond especially during monsoon season.



Worst case scenario, potential flood incident might happen due to the overflow of mining pond especially during monsoon season.

- Exhaust emissions and dust generation from the construction vehicles movement within the proposed Project.
- Dust generation caused by the clearing and construction activities



#### AIR QUALITY

- Exhaust emissions and dust generation from the construction vehicles movement within the proposed Project.
- Exhaust emissions from the machineries and equipment used for mining operation.

04

05

#### NOISE QUALITY

Noise level generated from machinery and construction vehicles movement within the project site.



Moderate noise level generated from mining operation activities such as heavy machinery operation and heavy vehicles movement during transportation of mining products.

- Generation of biomass waste during the site clearing activities.
- Generation of sewage, sullage and garbage from the workers.
- Minor generation of scheduled waste (SW305, SW306, SW409 and SW410) from earthwork activities



#### WASTE GENERATION

- Garbage and scraps generated from the operation.
- Generation of sewage, sullage and garbage from the operation area.
- Minor generation of scheduled waste (used oil) from workshop and working areas.

06

NEXT TO  
CONTINUES

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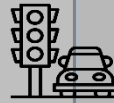
## IMPACT ASSESSMENT

### DEVELOPMENT STAGE

### OPERATION STAGE

#### 07 TRAFFIC CONGESTION

Safety issue/concern and dust generation during the transportation of construction



Safety issue/concern and dust generation during the transportation of mining products.

- Promote economic growth and create job opportunities.
- Pose noise pollution to public due to machineries and lorries.
- Risk of road safety due to the increase of traffic volume.



#### 08 SOCIO-ECONOMIC

- Promote economic growth and create job opportunities.
- Pose noise pollution to public due to machineries and lorries

#### 09 HEALTH & SAFETY

- Risk of occupational safety when handling machineries.



- Improper handling of heavy machineries and operation's equipment might cause injury to the workers.
- Dumping mound may pose safety hazard to workers if landslide occur.
- Mining pond may pose drowning incident to workers.

- Potential loss of habitat and population of flora and fauna due to clearance and development of the Project.



#### 10 BIOLOGICAL (FLORA & FAUNA)

Mining pond may pose drowning incident and hazard to wildlife

### ABANDONMENT STAGE

Soil Erosion	Erosion and possibility of slope failure due to the filled and levelled of excavated area and used mining pond during rehabilitation work.
Water Quality	<ul style="list-style-type: none"> <li>• Potential soil loss and sedimentation in water bodies</li> <li>• Possible formation of acid mine drainage (AMD), which could contaminate the nearby received water bodies</li> </ul>
Air Quality	Dust generation caused by exposed bare land that not be used.
Health and Safety	Used mining pond may pose hazard place to the public and wildlife especially the drowning incident.

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# MITIGATION MEASURES



## SOIL EROSION

### Development Stage

- Land Disturbing Pollution Prevention and Mitigation Measure (LD-P2M2) description and drawings based on various phases of development.
- A schematic layout plan of the project was provided after mining activities, outlining the location of overburden filling, pond formation, slope formation, final platform level, etc.
- All proposed BMPs component such as sediment basin, silt fences, earth drain and etc. should be installed first in designated area before commencement of construction activities.
- Implementation of slope and stockpile protection.

### Operation Stage

- Provide proper drainage system to transport the silt with discharge from mining plant operation into the tailing pond.
- Slope maintenance shall regularly be done and slope failure shall be repaired to avoid further failure. All slope should be turfing

### Abandonment Stage

- Rehabilitation plan for each phase project.
- Replanting of tree for disturbed area



## WATER QUALITY

### Development & Operation Stage

- Stockpile of construction/biomass, skid tanks and any fuel storage will be located away from the river.
- Periodical maintenance and desludging of these portable toilets will be conducted.
- Proper on-site management from oil and grease material entering the water way
- Regular water quality monitoring.
- Ensure all discharges from the mining site will be treated and flow to the tailing pond/sediment pond and ensure no water discharged out of the Project site.
- Testing of chemical composition of the receiving water is free from sulphate mineral in contributing to the forming acid mine drainage.



## HYDROLOGY

### Development Stage

- Implementation of LD-P2M2 is a must
- During land clearing work, clear mapping of the stream and tributaries in the basin is compulsory to ensure the existence of the stream was not interrupted

### Operation Stage

- Volume discharge need to be monitored and stabilized from time to time
- Make sure the breakup/excavate is not too deep or does not exceed the depth of the groundwater level.



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## MITIGATION MEASURES

### TRAFFIC MANAGEMENT

#### Development & Operation Stage

- Use alternative routes, avoid peak hour and limit speed of site vehicles.
- Enforce safety measures, signpost warnings, and use barricades.



### HEALTH & SAFETY

#### Development & Operation Stage

- Construction site must be registered for any engineering work of site such as HIRARC.
- Proper safety signage should be posted at the entrances of the construction site to warn the public.
- Provide good facilities that related to emergency such as emergency plan, first aid kit, fire extinguisher and telecommunication facilities.
- Provide efficient sanitary and disposal system for unconsumed foods to prevent breeding ground for pests.
- Workers shall be provided suitable PPE.

#### Abandonment Stage

- Proper decommissioning and removal of all structures, equipment and machineries that used during mining operation



### SOCIO-ECONOMIC

#### Development & Operation Stage

- Maximize the use of local labour as operator the mining plant.
- Control the traffic and other possible risk for public safety purpose



### BIOLOGICAL ENVIRONMENT

#### Development Stage

- Preserving 50-metre reserve along each banks of Sungai Simpang (100-metre across).
- Sign posting and strict control on fire-zero burning.
- Clearing at the site heading towards Bukit Bandi Forest Reserve to best enable fauna escape and site clearing shall be limited to the areas dedicated for the mining activities, tailing plant, and related facilities only (by phase).
- Reserved buffer zone for any waterbodies in-site the Project area.
- Human-wildlife conflicts management if any.
- Development of fencing at the boundary of the project site.
- Wildlife and fauna management-monitoring, rescue and relocation.
- Sign posting and preventing wildlife related offences.
- Sign posting roadkill prevention alert

#### Operation Stage

- Development of fencing at the boundary of the project site.
- Taking into account on human-wildlife conflicts.



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# MITIGATION MEASURES

## AIR QUALITY

### Development & Operation Stage

- All vehicles wheels should be cleaned prior to exit the site mining to minimize dust generated during vehicle movement.
- Frequent spraying of water of access road and internal roads within the project site particularly during dry and windy weather.
- Maintain equipment, machinery and construction vehicles to reduce their emissions of smoke.
- Open burning of construction & operation debris is strictly prohibited.



## NOISE QUALITY

### Development & Operation Stage

- Suitable noise absorbent materials should be installed on machinery that produces high noise levels.
- Machinery emitting high noise shall be sitted within an enclosure to reduce noise pollution and silencer to be fitted to noisy equipment when necessary.
- Working hours for high noise emitting activities will be limited to day time only. (7.00 am to 7.00 pm)
- Screening of the mining area with landscaping helps to reduce noise generation and dust exposure.



## WASTE MANAGEMENT

### Development & Operation Stage

#### A. Construction and Domestic Waste

- Provide garbage bins on site.
- Separate waste types and implement recycling campaign.
- Discharges wastes directly into the water courses and open burning are prohibited.
- Disposed at a municipal approved landfill or dumping site.

#### B. Scheduled Waste

- Storage and handling of scheduled wastes should be carried out according to the Environmental Quality (Scheduled Wastes) Regulations, 2005, such as:
- The wastes should be stored in sealed drums, labelled and placed in a proposed scheduled wastes storage shed
- The shed should be concrete paved, bunded with a capacity to contain 110% of the largest container volume
- There should not be any opening in the bund wall that may allow leakages and spills to flow off-site
- Scheduled wastes should not be kept on site for more than 180 days or exceed 20 tonnes.

### Abandonment Stage

- All the wastes shall be transported out from the site area.

