

# Executive Summary

**PROPOSED SEMICHEMICAL PULP PLANT ON PT33743, PT33744, PT33745, PT33746 AND PT33747, COATED DUPLEX BOARD PLANT ON PT46458, ONE MULTIFUEL BOILER ON PT41097 IN MAHKOTA INDUSTRIAL PARK, WASTEWATER TREATMENT PLANT AND WATER TREATMENT PLANT ON PART OF PT48313 AND PT48314, AND A RIVER WATER INTAKE STATION NEAR PT23941, MUKIM TANJUNG DUABELAS, DAERAH KUALA LANGAT, SELANGOR, MALAYSIA**

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## **Legislative Requirements**

The Project is a prescribed activity under the Second Schedule of the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015, made under Section 34A of the Environmental Quality Act 1974.

### **Second Schedule – Activity No. 6: Industry**

Sub-activities (e): Pulp, or pulp and paper: Production capacity of 50 tonnes or more per day

Sub-activities (f): Recycle paper industry: Production capacity of 50 tonnes or more per day

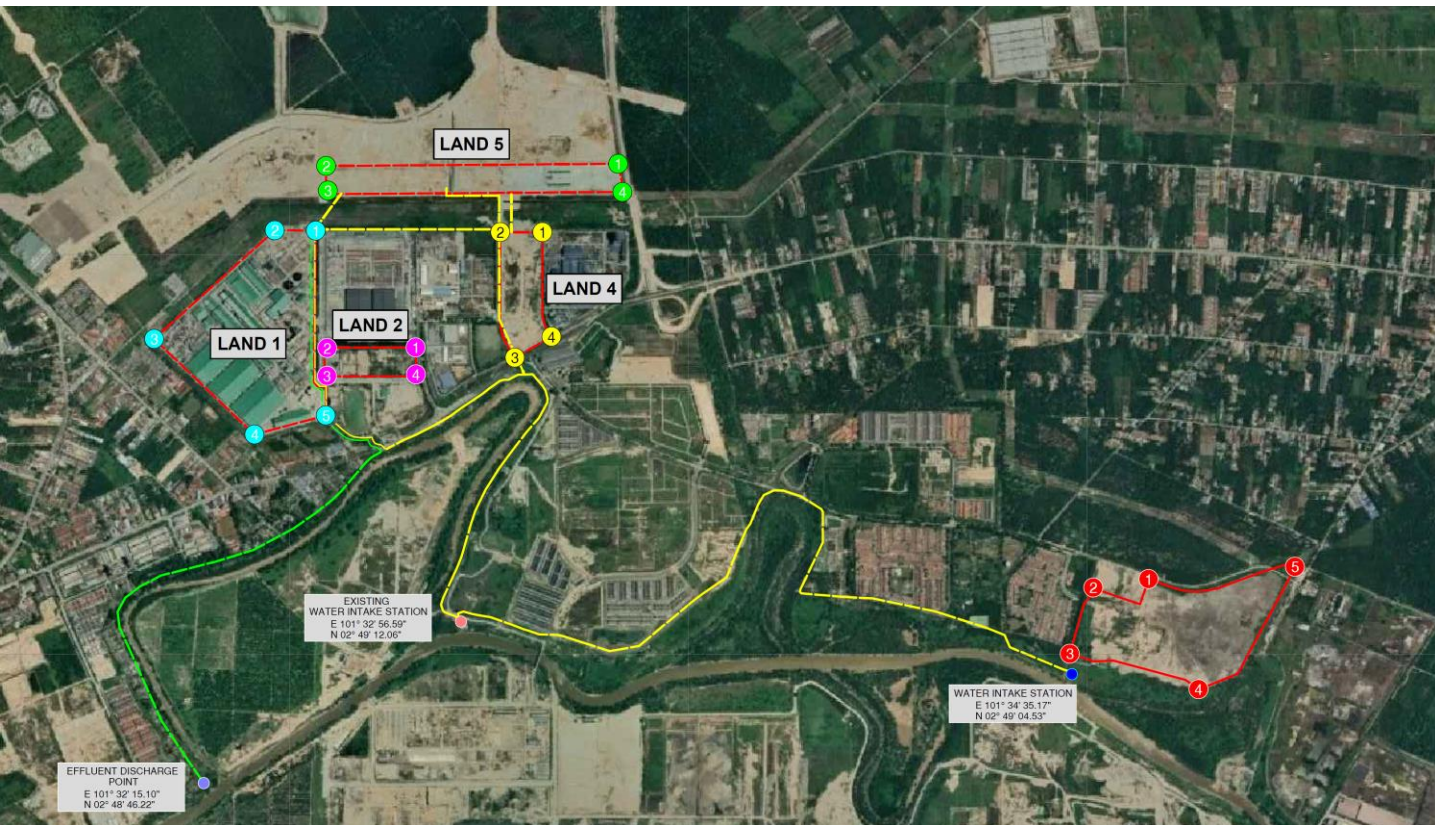
### **Second Schedule – Activity No. 11: Power Generation and Transmission**

Sub-activities (a): Construction of coal fired power station and having the capacity of 10 megawatts or more with or without transmission line

# Statement of Need



# Project Location



### LEGEND:

- PROJECT SITE
- EFFLUENT DISCHARGE PIPELINE
- PROPOSED EFFLUENT DISCHARGE POINT
- WATER PIPELINE
- WATER INTAKE STATION
- EXISTING WATER INTAKE STATION

LAND 1 : MULTIFUEL BOILER		
NO.	LATITUDE	LONGITUDE
1	N 2°50'15.29"	E 101°32'32.47"
2	N 2°50'15.66"	E 101°32'26.24"
3	N 2°49'58.05"	E 101°32'06.92"
4	N 2°49'42.86"	E 101°32'23.29"
5	N 2°49'45.93"	E 101°32'34.48"

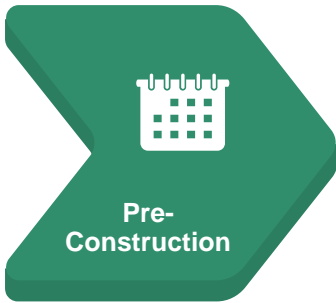
LAND 2 : SEMI-CHEMICAL PULP PLANT		
NO.	LATITUDE	LONGITUDE
1	N 2°49'56.92"	E 101°32'48.98"
2	N 2°49'56.77"	E 101°32'34.22"
3	N 2°49'52.47"	E 101°32'34.52"
4	N 2°49'52.89"	E 101°32'49.37"

LAND 3 : WATER INTAKE STATION		
NO.	LATITUDE	LONGITUDE
1	N 2°49'19.47"	E 101°34'47.78"
2	N 2°49'17.81"	E 101°34'38.64"
3	N 2°49'07.23"	E 101°34'34.59"
4	N 2°49'01.60"	E 101°34'55.98"
5	N 2°49'21.71"	E 101°35'11.61"

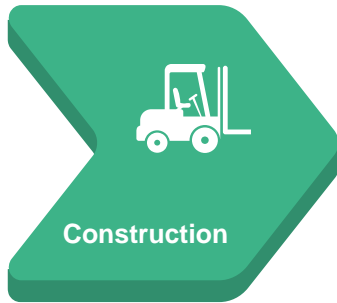
LAND 4 : COATED DUPLEX BOARD PLANT		
NO.	LATITUDE	LONGITUDE
1	N 2°50'16.10"	E 101°33'09.50"
2	N 2°50'16.10"	E 101°33'03.01"
3	N 2°49'55.80"	E 101°33'05.26"
4	N 2°49'59.20"	E 101°33'11.09"

LAND 5 : IETS AND WATER TREATMEN PLANT		
NO.	LATITUDE	LONGITUDE
1	N 2°50'26.76"	E 101°33'21.99"
2	N 2°50'26.34"	E 101°32'55.35"
3	N 2°50'22.38"	E 101°32'55.22"
4	N 2°50'22.79"	E 101°33'22.65"

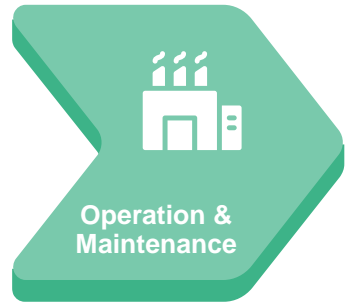
# Project Activities



- Project planning
- Design works
- Site surveys and investigations studies
- Baseline monitoring



- Mobilisation
- Transportation of construction material and equipment
- Foundation works
- Civil and structural works
- Mechanical and electrical works
- Testing and commissioning
- Demobilisation



- Logistics of raw materials and products
- Production activities
- Operation and maintenance of pollution control systems
- Largely automated with process control system
- Waste management
- Estimated employees: 500

# Project Description

## SEMI-CHEMICAL PULP PLANT

Location: Land 2  
Capacity: 300,000 tonnes/year

### Raw Material



EFB Shredded Fibre



Wood Chips

### Product



Semi-chemical Pulp (SCP)

SCP will be used as raw material at the existing Paper Packaging Plants.

# Project Description

## COATED DUPLEX BOARD PLANT

Location: Land 4

Capacity: 500,000 tonnes/year

### Raw Material



Old Corrugated Containers (OCC)  
(HS code: 4707.10.0000)



Sorted Office Paper (SOP)  
(HS code: 4707.20.0000)



Old Newspaper (ONP)  
(HS code: 4707.30.0000)



Leaf Bleached Kraft Pulp (LBKP)  
(HS code: 4703.29.0000)



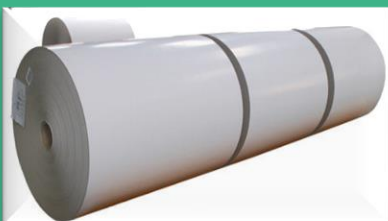
Sorted Mixed Office Waste (SMOW)  
(HS code: 4707.20.0000)

### Waste Paper Requirements

No.	Types of Waste Paper	Percentage (%)	Daily Consumption (tonne)	Annual Consumption (tonne) based on 340 days operation
1	OCC	61.3	1,190	404,600
2	SOP	35.3	685	232,900
3	ONP			
4	SMOW			
5	LBKP	3.4	66.67	22,668
<b>Total</b>		<b>100.0</b>	<b>1,941.67</b>	<b>660,168</b>

Note: 95% of the waste paper will be imported (majority from US & UK) while 5% from local source

### Product



Coated Duplex Board (CDB)

CDB will be stored at the finished products warehouse located on Land 4.

90% of CDB will be exported while remaining for local market.

# Project Description

## RIVER WATER INTAKE STATION & WATER TREATMENT PLANT

Intake Location: Sg Langat river reserve near Land 3  
Average abstraction: 34,874 m<sup>3</sup>/day  
Maximum abstraction: 35,000 m<sup>3</sup>/day

WTP Location: Land 5  
Capacity: 35,000 m<sup>3</sup>/day

Abstracted water will be transferred via a ductile iron pipe of approximately 4.2 km from the proposed intake station to the existing water intake station of BERT. The water will then be channelled to the WTP located on Land 5 for treatment.



## WASTEWATER TREATMENT PLANT

Location: Land 5  
Capacity: 45,000 m<sup>3</sup>/day

Designed to meet Standard A limits of the Environmental Quality (Industrial Effluent) Regulations 2009.

## SOLID WASTE TREATMENT PLANT

Location: Land 5

Employs the principle of buoyancy separation to segregate type of wastes based on the difference in density. Separated steel, aluminium and plastics will be sold to licensed waste contractors. Fibre waste will be reused in the production process. Waste residue from the washing process will be burnt in the existing TTP for steam generation.

## MULTIFUEL BOILER

Location: Land 1  
Capacity: Design Steam Capacity 350 tonnes/hour + 60 MW Steam Turbine

Fuel: Wood chips, coal and biogas (from WWTP)

Adopt circulating fluidised bed (CFB) firing mode.

Flue gas treatment system consists of dry desulphurisation as well as electrostatic precipitator (ESP).



Treated flue gas will be emitted to the atmosphere via a common stack (100 m) with an existing multifuel boiler.

# Existing Environment

## Topography



Relatively flat, with elevation <20 m MSL.

Comprised of unconsolidated Quaternary marine and continental deposits of clay and silt.

On alluvium soil of Selangor – Kangkong series, small portions on peatland.



## Geology & Soil

## Hydrology



Located within Sg Langat basin. Labohan Dagang WTP is located at approximately 8 km upstream of the proposed Project intake.

High annual rainfall with relatively uniform high humidity and temperature.



## Meteorology & Climate

## Aquatic Ecology



Most of the fish found in Sg Langat are tolerant to poor water quality. The giant freshwater prawns are also found in Sg Langat.

Land 3 is located within BPK 1.9: Olak Lempit while the remaining are in BPK 1.2: Kota Seri Langat.

Socio survey on 8 to 10 June, 19 September and 26 October 2022.



## Socio-economic

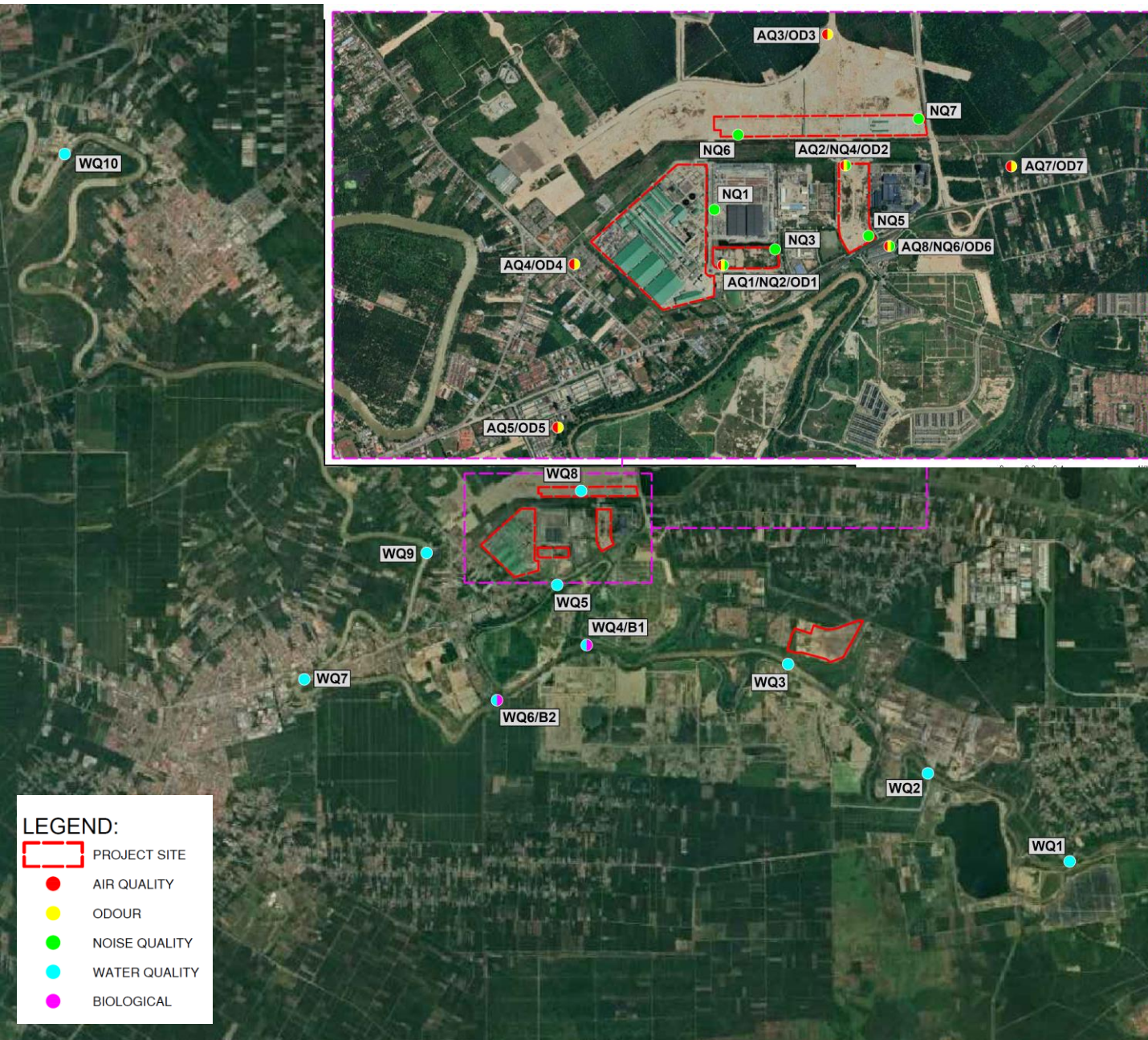
## Public Health



Disease burden of the exposed communities is relatively very small.

Some evidence of anxiety and depression among community members at present.

# Baseline Monitoring Locations



Most of the tested water parameters have fluctuated within respective Class III levels.



The tested ambient air parameters were reported to be within the applicable ambient air guideline limits except for H<sub>2</sub>S levels at WQ1, AQ3, AQ5, AQ6 and AQ7.



The highest D/T perceived for unpleasant smell is at 4 D/T (wet paper smell at Taman Bakti (OD4) as well as mud and vehicle combustion smell at north of Land 5 (new future housing area) (OD3).



The Project area and surrounding areas were already experiencing high noise levels.



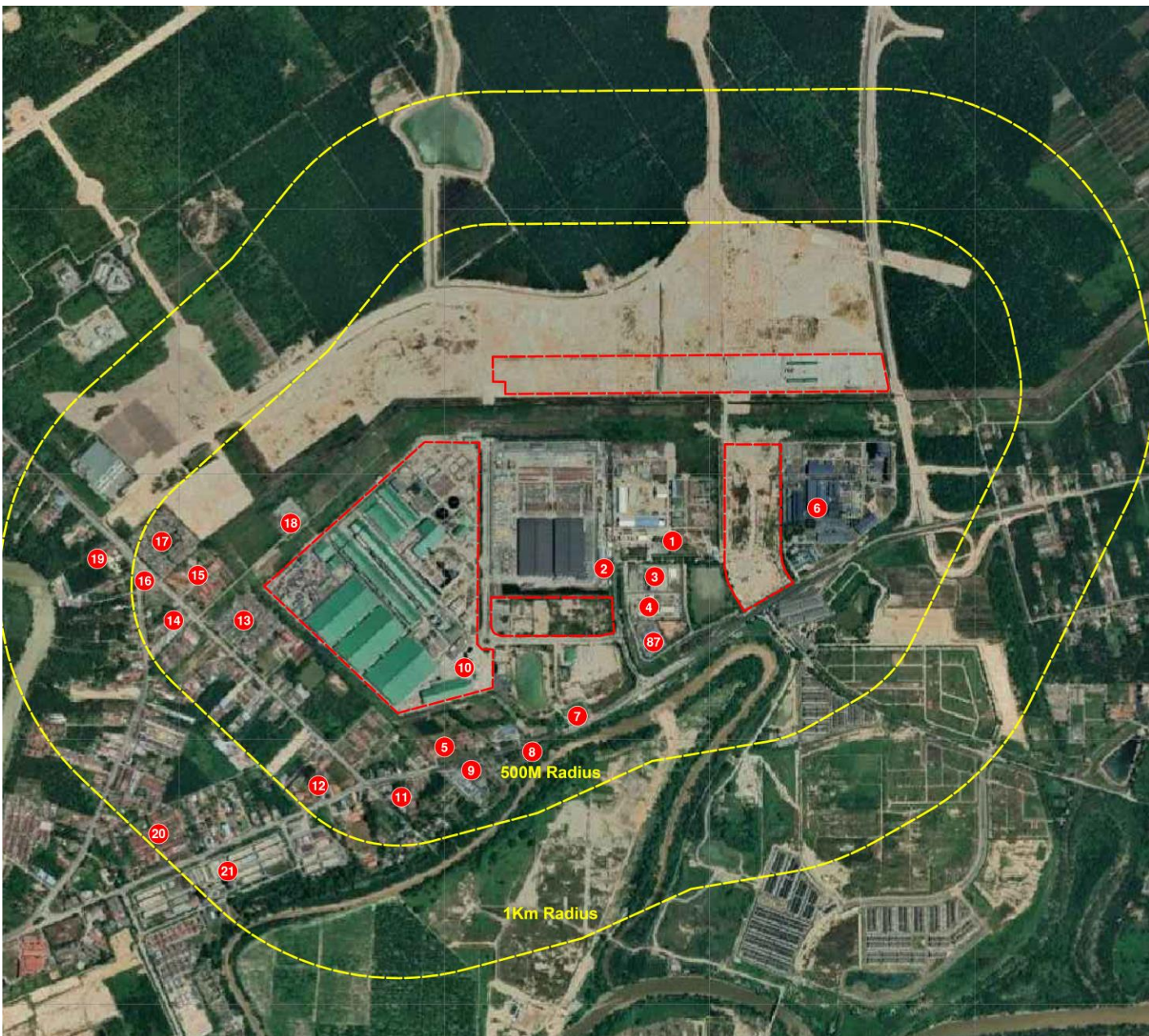
Macrobenthos: Phylum of Annelida dominated both sampling locations.

Phytoplankton: A total of four phyla were identified i.e. Bacillariophyta, Cyanobacteria, Miozoa & Chlorophyta.

Zooplankton: The sampling has recorded four phyla i.e. Annelida, Arthropoda, Mollusca & Chordata.

Fish: The dominant catchment was River Catfish.

# Land Use within 1 km Radius – Land 1, Land 2, Land 4 & Land 5



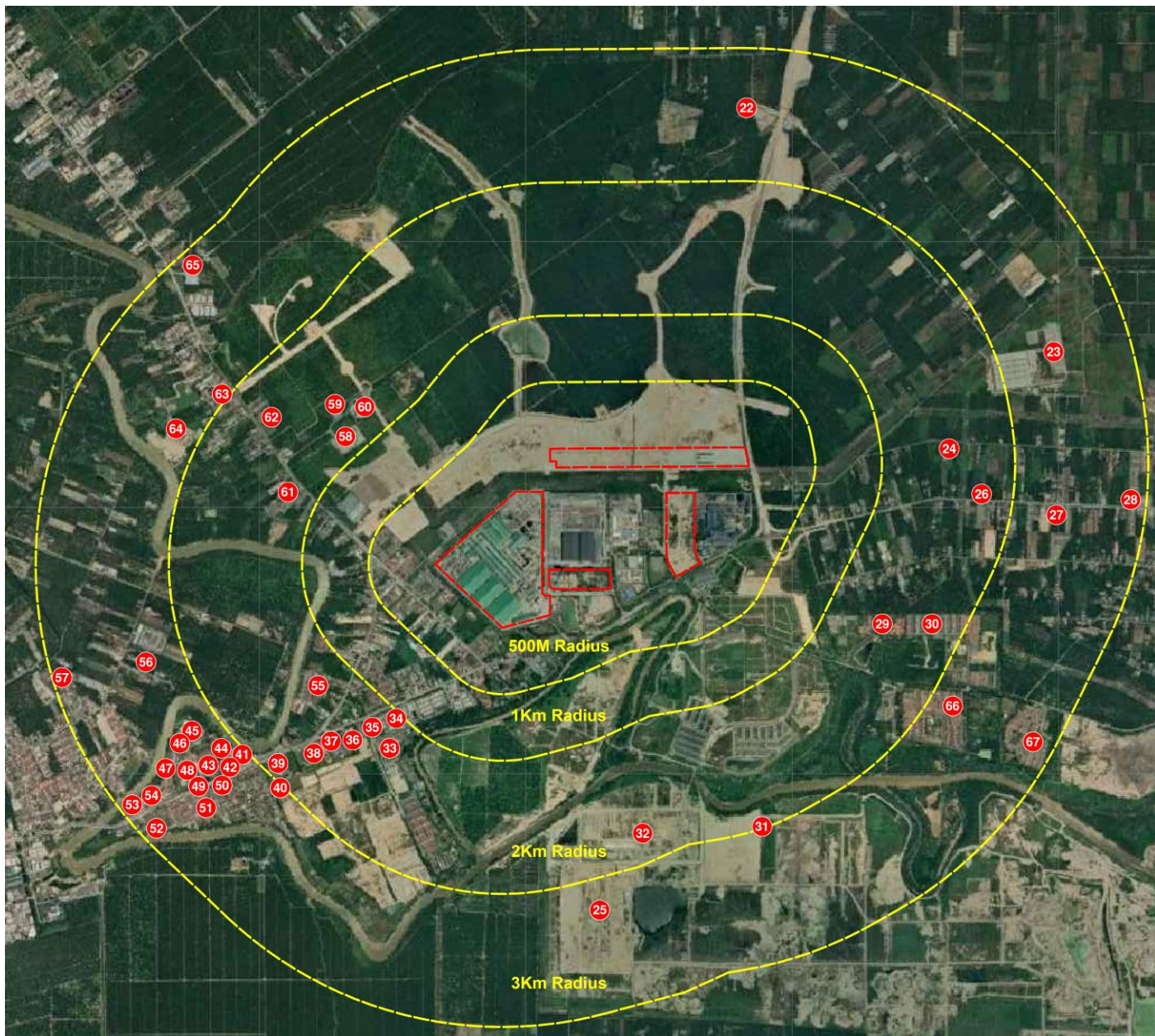
## LEGEND:

 PROJECT SITE

- 1) TAIKO RESOURCES SDN BHD
- 2) GAMUDA INDUSTRIAL BUILDING SYSTEM SDN BHD
- 3) SAKAMOTO MFG MALAYSIA SDN BHD
- 4) LINDE GAS PRODUCTS MALAYSIA SDN BHD
- 5) SJK(T) SUNGAI MANGGIS
- 6) SHOWA DENKO CARBON MALAYSIA SDN BHD
- 7) KUIL DEVI SRI LAKSHMY BAGAWATHY AMMAN
- 8) BANTING ABATTOIR COMPLEX
- 9) JABATAN PENGAIRAN DAN SALIRAN

- 10) BEST ETERNITY RECYCLE TECHNOLOGY SDN BHD
- 11) PEJABAT AGAMA ISLAM DAERAH KUALA LANGAT
- 12) SMK SG. MANGGIS
- 13) TAMAN BAKTI
- 14) PUSPAKOM BANTING
- 15) SMA TINGGI TENKU AMPUAN RAHIMAH
- 16) MASJID AR-RAHMAN
- 17) TAMAN PERIANG
- 18) PMU 132/33kV BANTING
- 19) PKAYDEM
- 20) TAMAN MANGGIS JAYA
- 21) VICTORIA INTERNATIONAL SCHOOL
- 87) PERNIAGAAN LABORGLAS TEKNIK

# Land Use within 3 km Radius – Land 1, Land 2, Land 4 & Land 5



## LEGEND:

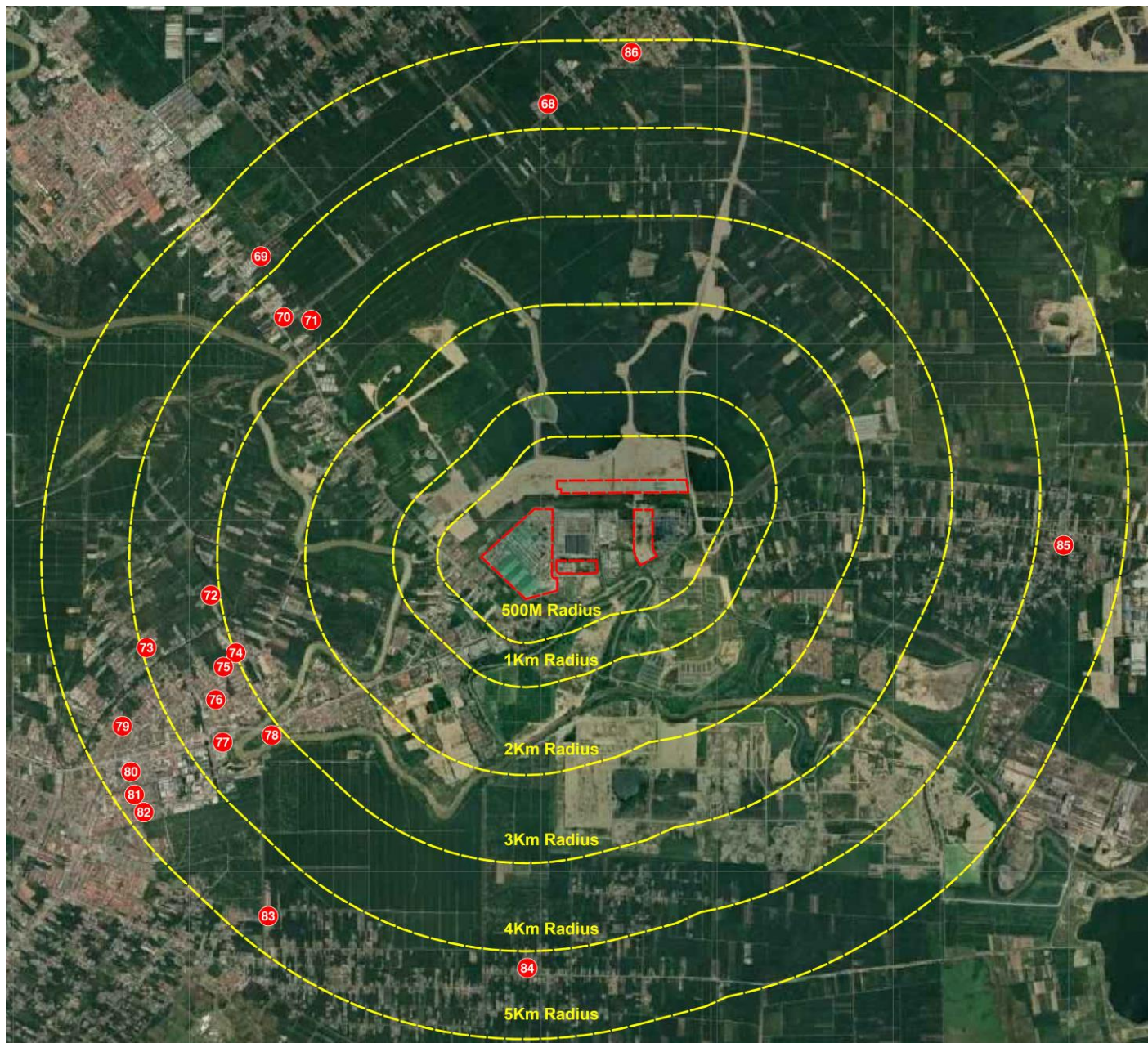
 PROJECT SITE

- 22) KG. ORANG ASLI BUKIT PERAH
- 23) PENCAWANG SUPERGRID 500/275/132kV
- 24) MADRASAH TAHFIZ ANAK YATIM
- 25) ND PAPER MALAYSIA (SELANGOR) SDN BHD
- 26) MASJID AL-KHAIRAT OLAK LEMPIT
- 27) KAMPUNG SG. LEMPIT
- 28) TAMAN DESA IDAMAN
- 29) BANDAR BARU MAHKOTA
- 30) TAMAN ANGKASA
- 31) KUIL SRI MAHA PUTRU MUNISWARAR BROOKLAND
- 32) JINGXING HOLDINGS (M) SDN BHD
- 33) BANDAR SUNGAI EMAS
- 34) COLLEGE MCS

- 35) JABATAN SUKARELAWAN MALAYSIA (RELA)
- 36) TAMAN SUNGAI MANGGIS
- 37) SMK BANTING
- 38) SULTAN ABDUL SAMAD VOCATIONAL COLLEGE
- 39) SMK TELOK DATOK
- 40) SJK (T) TELOK DATOK
- 41) JKR KUALA LANGAT
- 42) AIR SELANGOR KUALA LANGAT
- 43) STADIUM JUGRA
- 44) TELOK DATOK MAGISTRATE COURT
- 45) SMK METHODIST BANTING
- 46) KUALA LANGAT CIVIL DEFENCE
- 47) TELOK DATOK HEALTH CLINIC
- 48) MAJLIS DAERAH KUALA LANGAT
- 49) PEJABAT BULAN SABIT MERAH
- 50) MASJID AS-SYARIF TELOK DATOK
- 51) TAMAN SERI TELOK DATOK

- 52) PETER AND PAUL CATHOLIC CHURCH
- 53) PUSAT GIAT MARA KUALA LANGAT
- 54) KUALA LANGAT DISTRICT ARGICULTURE OFFICE
- 55) TAMAN LANGAT JAYA
- 56) TELUK BUNUT
- 57) TAMAN DELIMA MUTIARA
- 58) KOMPLEKS ISLAM KUALA LANGAT
- 59) KUALA LANGAT SYARIAH LOWER COURT
- 60) PEJABAT DAERAH & TANAH KUALA LANGAT
- 61) TAMAN LANGAT INDAH
- 62) SJK(T) SUNGAI SEDU
- 63) KAMPUNG SERDANG BELAH
- 64) RCC MARKETING (JETI RCC)
- 65) KAMPUNG TANJUNG DUA BELAS
- 66) TAMAN MENTARI
- 67) TAMAN SURIA

# Land Use within 5 km Radius – Land 1, Land 2, Land 4 & Land 5

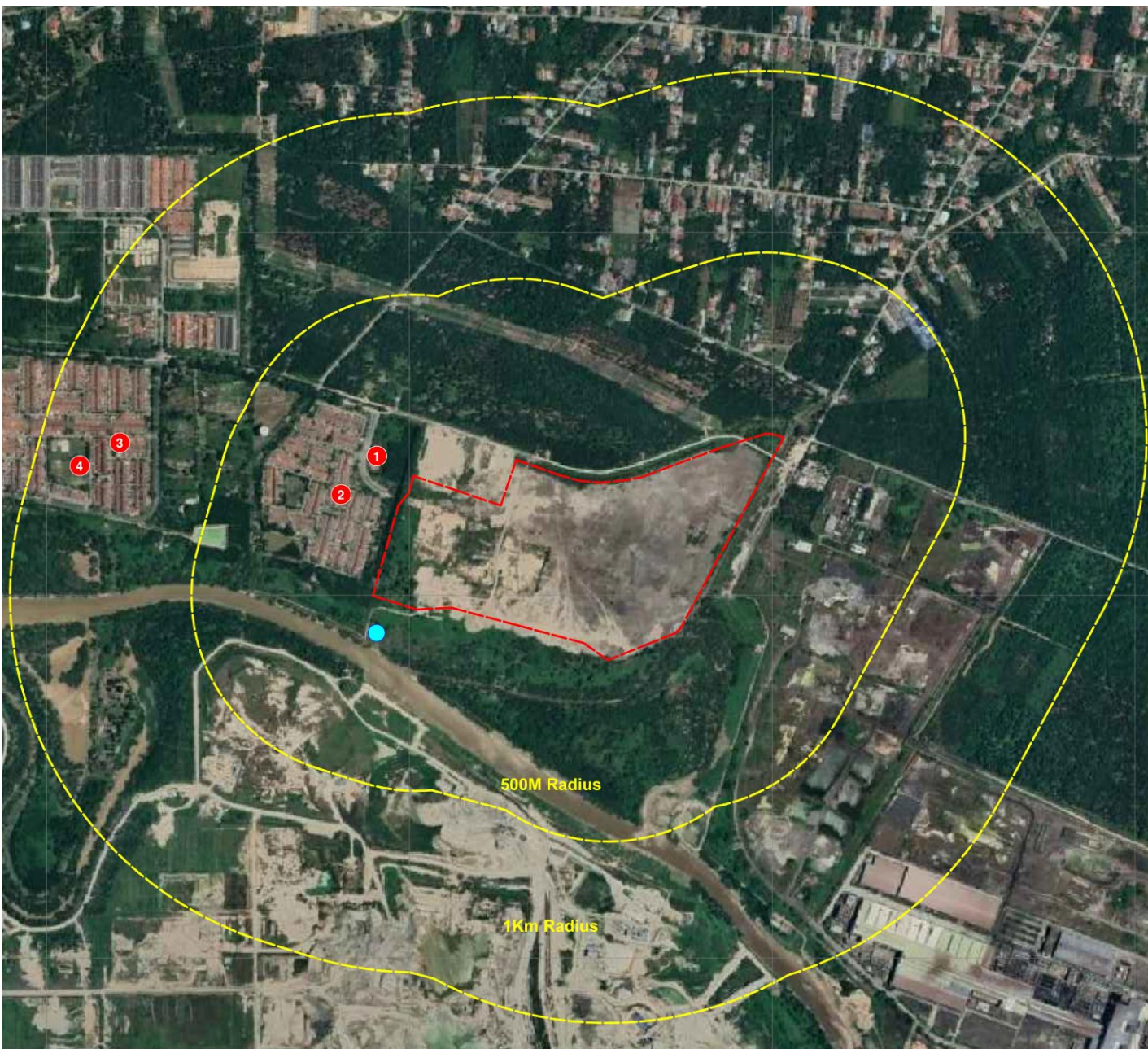


## LEGEND:



 PROJECT SITE

- 68) NAM TIAN MEN TEMPLE
- 69) SRI LANGAT PALM OIL MILL
- 70) TAMAN SENTOSA
- 71) TAMAN SRI CHEEDING
- 72) KAMPUNG PULAU BANTING
- 73) SRK(C) KAH WAH
- 74) TELUK BUNUT RURAL CLINIC
- 75) KAMPUNG BUNUT
- 76) TAMAN MUHIBBAH
- 77) PERTUBUHAN PELADANG KAWASAN KUALA LANGAT
- 78) GUDWARA SAHIB GURU RAMDAS BANTING
- 79) TAMAN DELIMA
- 80) TAMAN SERI
- 81) TAMAN GEMBIRA

## Land Use within 1 km Radius – Land 3

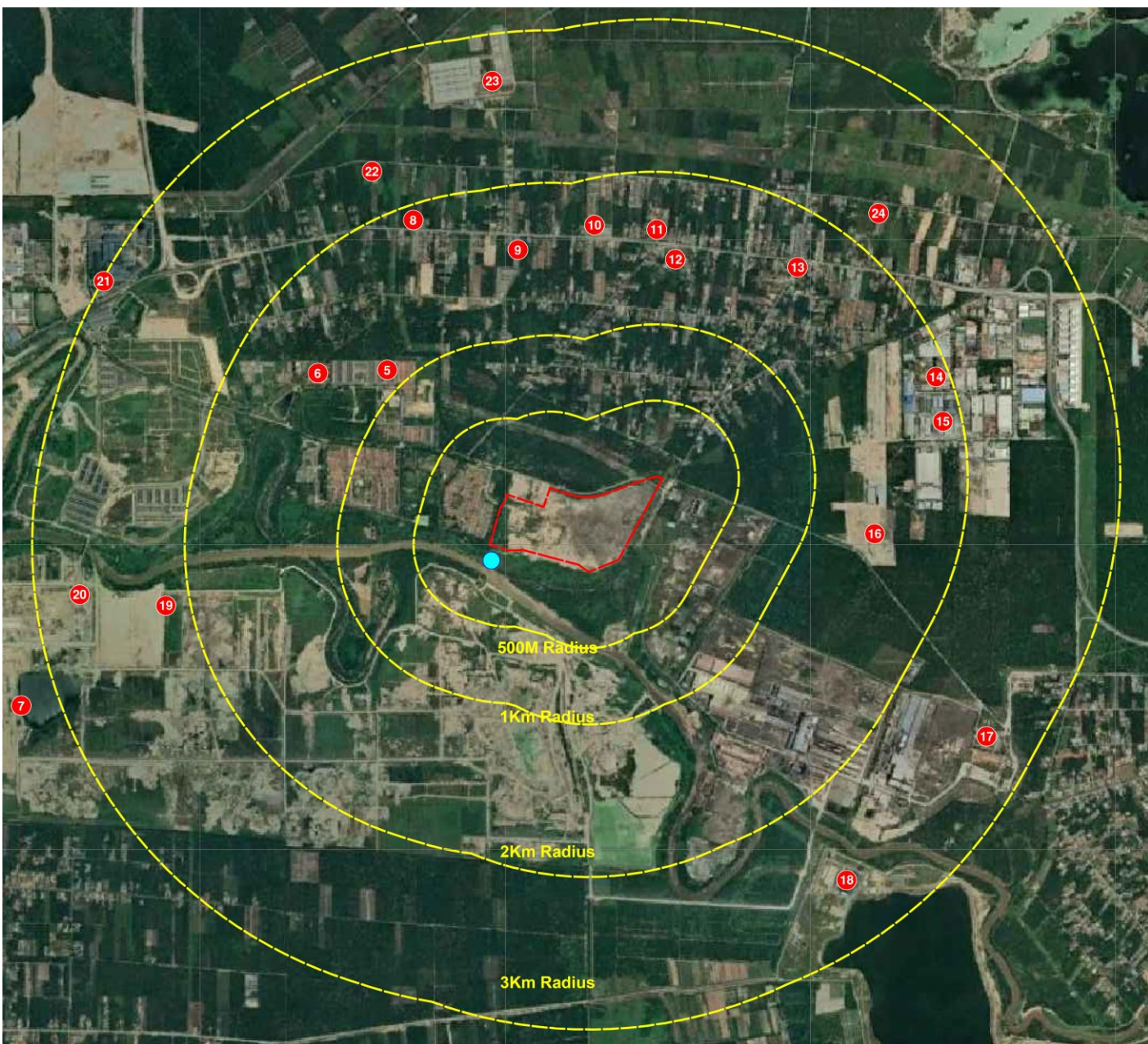


### LEGEND:

-  PROJECT SITE
-  WATER INTAKE STATION

- 1) SURAU AN-NUR
- 2) TAMAN SURIA
- 3) TAMAN MENTARI
- 4) SURAU AL-AMEEN

# Land Use within 3 km Radius – Land 3

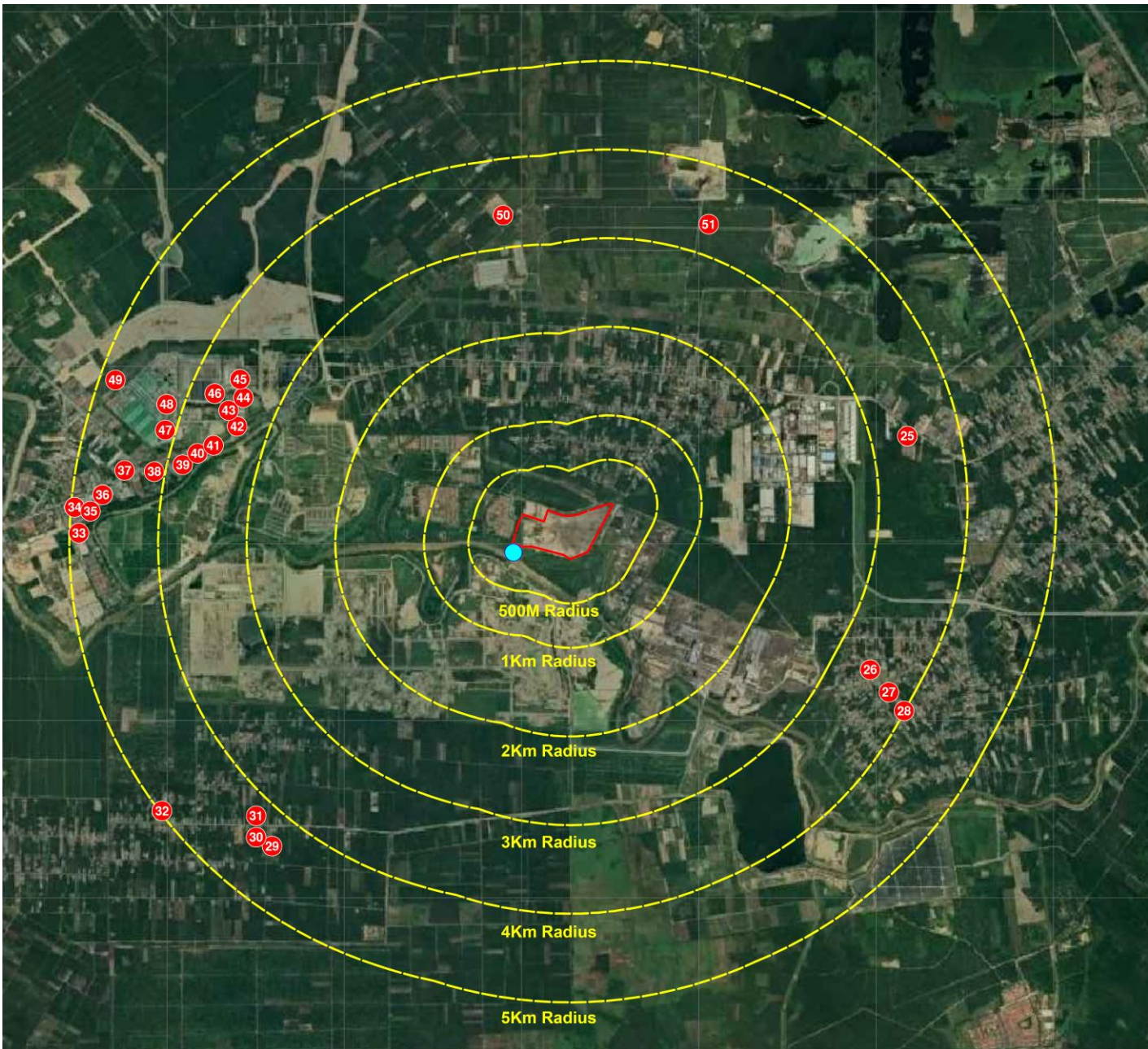


## LEGEND:

- PROJECT SITE
- WATER INTAKE STATION

- 5) TAMAN ANGKASA
- 6) BANDAR BARU MAHKOTA
- 7) ND PAPER MALAYSIA (SELANGOR) SDN BHD
- 8) MASJID AL-KHAIRAT OLAK LEMPIT
- 9) KAMPUNG SG. LEMPIT
- 10) TAMAN DESA IDAMAN
- 11) MASJID NURUL HUDA
- 12) SK OLAK LEMPIT
- 13) KAMPUNG OLAK LEMPIT
- 14) WENG MENG INDUSTRIES
- 15) FLEXITECH SDN BHD
- 16) TOP GLOVE FACTORY 44
- 17) MEGASTEEL SDN BHD
- 18) LABOHAN DAGANG WATER TREATMENT PLANT
- 19) KUIL SRI MAHA PUTRU MUNISWARAR BROOKLANDS
- 20) JINGXING HOLDINGS (M) SDN BHD
- 21) SHOWA DENKO CARBON MALAYSIA
- 22) MADRASAH TAHFIZ ANAK YATIM MISKIN RAUDHATUL BAIDURI
- 23) PENCAWANG SUPERGRID 500/275/132kV
- 24) TAMAN BAJURI

# Land Use within 5 km Radius – Land 3

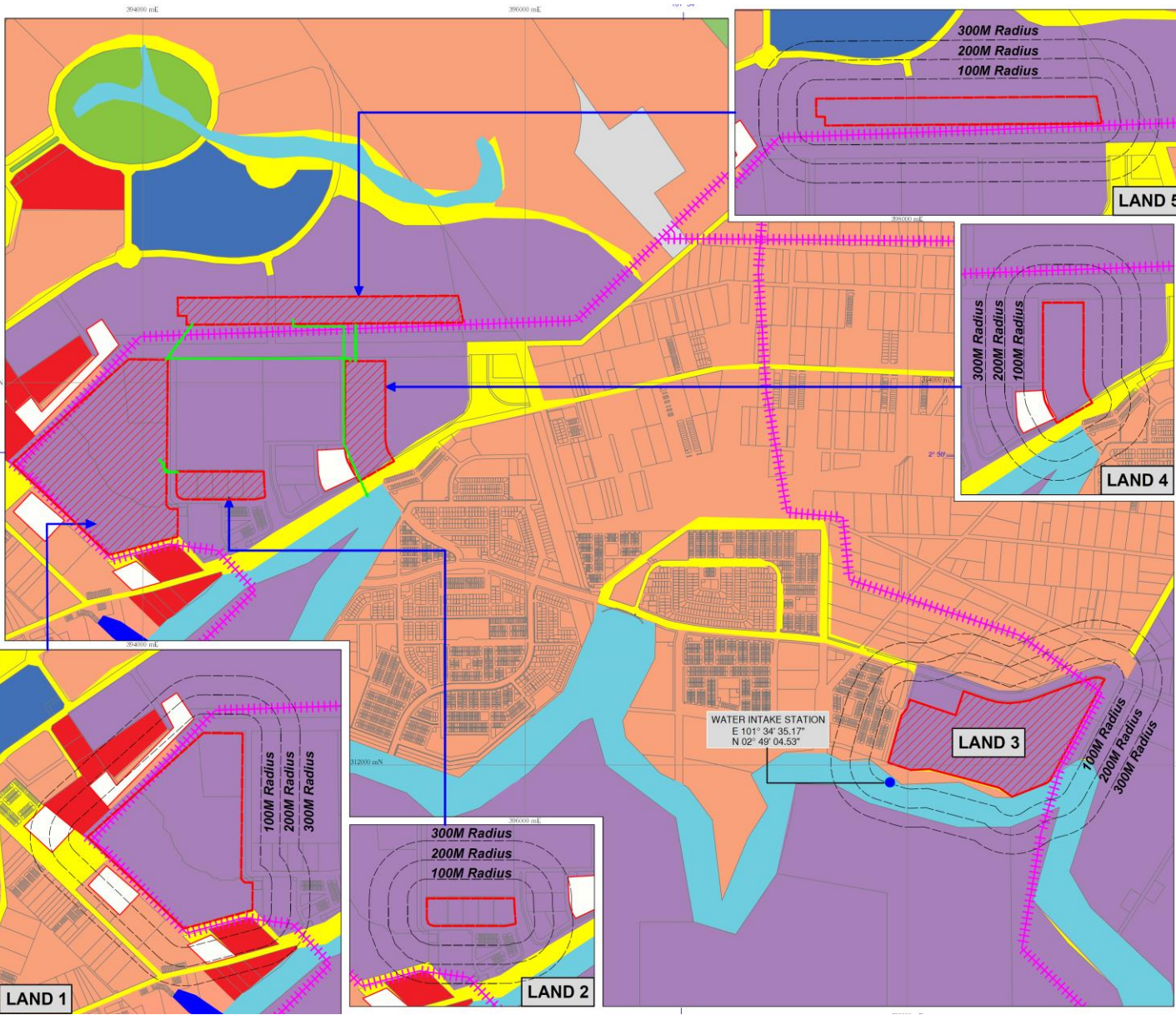


## LEGEND:

- PROJECT SITE
- WATER INTAKE STATION

- |   |   |
|---|---|
| 25) TAMAN SERI DAGANG                   | 39) KUATER PENGAIRAN DAN SALIRAN KUALA LANGAT                     |
| 26) SK LABOHAN DAGANG                   | 40) BANTING ABATTOIR COMPLEX<br>DEPARTMENT OF VETERINARY SERVICES |
| 27) KAMPUNG LABOHAN DAGANG              | 41) KUIL DEVI SRI LAKSYHMY BAGAWATHY AMMAN                        |
| 28) MASJID AL-MUTMAINAH                 | 42) MAHKOTA INDUSTRIAL PARK                                       |
| 29) SK SUNGAI KELAMBU                   | 43) LINDE MALAYSIA  |
| 30) MAAHAD TAHFIZ IHYA AL AHMAD         | 44) SAKAMOTO MFG MALAYSIA   |
| 31) KAMPUNG SUNGAI KELAMBU              | 45) TAIKO RESOURCES SDN BHD                                       |
| 32) MASJID AR-RAUDHAH                   | 46) GAMUDA INDUSTRIAL BUILDING SYSTEM                             |
| 33) BANDAR SUNGAI EMAS                  | 47) BEST ETERNITY RECYCLE   |
| 34) JABATAN SUKARELAWAN MALAYSIA (RELA) | 48) BERT SITE   |
| 35) COLLEGE MCS                         | 49) PMU 132/33kV BANTING  |
| 36) VICTORIA INTERNATIONAL SCHOOL (VIS) | 50) SFI AGRO BANTING  |
| 37) SMK SUNGAI MANGGIS                  | 51) LADANG PKPS TANJUNG 12 / OLAK LEMPIT                          |
| 38) PEJABAT AGAMA ISLAM KUALA LANGAT    |   |

# Future Land Use



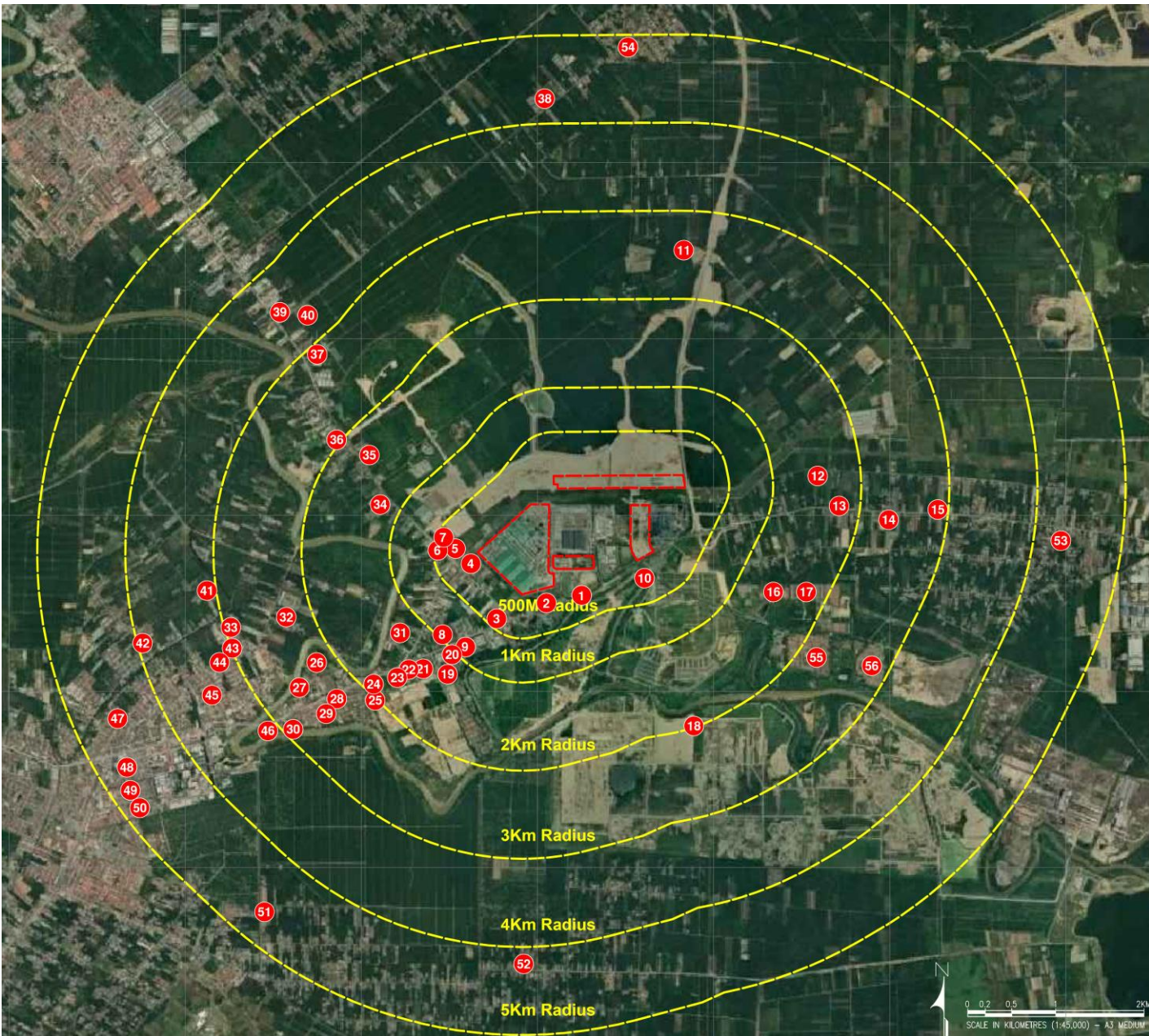
## LEGEND:

- PROJECT SITE
- PIPELINE
- HOUSING
- COMMUNITY INSTITUTION AND FACILITIES
- INDUSTRY
- COMMERCIAL
- INFRASTRUCTURE AND UTILITIES
- CEMETERY FACILITIES
- OPEN LAND AND RECREATION
- TRANSPORTATION
- WATER BODY
- PROPOSED ROAD
- TRANSMISSION LINE

Land 3 is located within BPK 1.9: Olak Lempit while the remaining are in BPK 1.2: Kota Seri Langat.

Land	Syarat Nyata Tanah on Land Title	Land Use Zoning in Local Plan	Compliance (Yes / No)
1	Heavy industry	Industry	Yes
2	Heavy industry	Industry	Yes
3	Heavy industry	Industry	Yes
4	Medium industry	Industry	Yes
5	Medium industry	Industry	Yes

# Sensitive Receptors



## LEGEND:

PROJECT SITE

- 1) KUIL DEVI SRI LAKSHMY BAGAWATHY AMMAN
- 2) KUATERS JABATAN PENGAIRAN DAN SALIRAN
- 3) SMK SG. MANGGIS
- 4) TAMAN BAKTI
- 5) SMA TINGGI TENKU AMPUAN RAHIMAH
- 6) MASJID AR-RAHMAN
- 7) TAMAN PERIANG
- 8) TAMAN MANGGIS JAYA
- 9) VICTORIA INTERNATIONAL SCHOOL
- 10) LANGAT RIVER
- 11) KG. ORANG ASLI BUKIT PERAH
- 12) MASJID AL-KHAIRAT OLAK LEMPIT
- 13) MADRASAH TAHFIZ ANAK YATIM
- 14) KAMPUNG SG. LEMPIT
- 15) TAMAN DESA IDAMAN
- 16) BANDAR BARU MAHKOTA
- 17) TAMAN ANGKASA
- 18) KUIL SRI MAHA PUTRU MUNISWARAR BROOKLANDS

- 19) BANDAR SUNGAI EMAS
- 20) COLLEGE MCS
- 21) TAMAN SUNGAI MANGGIS
- 22) SMK BANTING
- 23) SULTAN ABDUL SAMAD VOCATIONAL COLLEGE
- 24) SMK TELOK DATOK
- 25) SJK (T) TELOK DATOK
- 26) SMK METHODIST BANTING
- 27) TELOK DATOK HEALTH CLINIC
- 28) MASJID AS-SYARIF TELOK DATOK
- 29) TAMAN SERI TELOK DATOK
- 30) PETER AND PAUL CATHOLIC CHURCH
- 31) TAMAN LANGAT JAYA
- 32) TELUK BUNUT
- 33) TAMAN DELIMA MUTIARA
- 34) TAMAN LANGAT INDAH
- 35) SJK(T) SUNGAI SEDU
- 36) KAMPUNG SERDANG BELAH
- 37) KAMPUNG TANJUNG DUA BELAS

- 38) NAM TIAN MEN TEMPLE
- 39) TAMAN SENTOSA
- 40) TAMAN SRI CHEEDING
- 41) KAMPUNG PULAU BANTING
- 42) SJK(C) KAH WAH
- 43) TELUK BUNUT RURAL CLINIC
- 44) KAMPUNG BUNUT
- 45) TAMAN MUHIBBAH
- 46) GUDWARA SAHIB GURU RAMDAS BANTING
- 47) TAMAN DELIMA
- 48) TAMAN SERI
- 49) TAMAN GEMBIRA
- 50) TAMAN AMAN
- 51) TAMAN MAWAR
- 52) KAMPUNG SUNGAI KELAMBU
- 53) KAMPUNG OLAK LEMPIT
- 54) KAMPUNG SERI CHEEDING
- 55) TAMAN MENTARI
- 56) TAMAN SURIA

# Impact Assessment & Mitigation Measures



## HYDROLOGY & HYDROGEOLOGY

### Impact

- There is no significant impact to Sg Langat water level at the Project area and the tidal reach.
- Additional water abstraction from Sg Langat for the plant expansion is not expected to have any impact on the hydrogeology regime as the raw water is abstracted from Sg Langat and not from the groundwater. The effluent discharge will be conveyed directly to Sg Langat and not seep into the groundwater.



## HYDROLOGY & HYDROGEOLOGY

### Mitigation Measures

- Installation and maintenance of river bank and inlet structure protection to prevent scouring along the river banks and toes of the inlet structures.
- Installation and maintenance of flow meter to record the volume of river water being abstracted.
- Periodical inspection and maintenance of all water pipelines.
- Standby pump to ensure no interruption of river water abstraction and supply to the production plant.



## WATER QUALITY

### Impact

#### Construction Stage

- No significant impact as construction works will be carried out on stabilised site.

#### Operation Stage

- With the BERT3 in operation, the simulated water for each parameter would marginally deteriorate as compared with pre-BERT3 condition. All parameters remain within the same water quality class at the immediate effluent discharge point.
- Recommend to adopt more stringent effluent limit: AN  $\leq$  5 mg/L and BOD  $\leq$  10 mg/L.
- Impact to Labohan Dagang WTP is insignificant as it is located 12 km upstream of BERT3 discharge point.



## WATER QUALITY

### Mitigation Measures

#### Construction Stage

- BMPs are recommended to be implementation at the impacted work areas.

#### Operation Stage

- Effluent discharged from WWTP shall comply to Standard A. Should the WWTP fails to meet Standard A quality, the wastewater shall be reused back in the production.
- Should the repair of WWTP is prolonged and wastewater quality is not acceptable for reuse in production, the production lines shall shut down until the WWTP is repaired.

# Impact Assessment & Mitigation Measures



## AIR QUALITY

### Impact

#### Construction Stage

- Dust pollution due to the construction activities is temporary.

#### Operation Stage

- During normal operation, the contribution of criteria air pollutants from all 3 Phases of BERT development was assessed to be of minimal impact and complied with the MAAQS [Standard (2020)].
- Predicted MAICs were within the calculated 25% threshold values of the adopted IFC standard.
- Under abnormal or failure scenarios, the predicted 1-hour averaging time of TSP was assessed to have significant impact to the surrounding areas while other air parameters were reported to be within the AEGL-1 guideline levels.

#### Construction Stage

- Proper control of fugitive dust.

#### Operation Stage

- Performance of air pollution control systems and emission from multifuel boiler, recovery boiler and wet scrubber to be monitored.
- Restrict acceptance of raw material known to be strongly malodorous/unpleasant/objectionable.
- Regular inspections, monitoring and maintenance of raw material handling areas.



## AIR QUALITY

### Mitigation Measures



## NOISE

### Impact

#### Construction Stage

- Any noise concern during construction stage will be short-term and at limited area. No significant impact is expected.

#### Operation Stage

- All predicted noise levels at Land 1, Land 2, Land 4 and Land 5 (with noise barrier) have been verified to comply with Second Schedule noise limit of 75 dB(A) for day and night time.
- Project activities will have little impact to no noise impact at the existing sensitive receptors as well as the future land uses at the new development area of Kota Seri Langat Development.

- No piling works at night time.
- Periodical maintenance of all motorised machineries and equipment.
- Provision of temporary noise barrier when necessary during construction.
- Acoustic design within building with various sources of noise.
- Enclosure for equipment which contribute to noise levels higher than 85 dB(A).
- Install safety signage at areas with high noise level.
- Adequate protective devices for workers who work in high noise level areas.



## NOISE

### Mitigation Measures

# Impact Assessment & Mitigation Measures



## WASTE MANAGEMENT

### Impact

#### Construction Stage

- Generation of construction waste, domestic waste and scheduled waste.

#### Operation Stage

- Wastes generated during the operation stage can be categorised as process related wastes (hazardous and non-hazardous) and domestic wastes.

- Construction wastes shall be stockpiled at designated area and away from waterways and sensitive receptors.
- Recovered plastics from the production process should be recycled into resins or sold off as recycled plastics. Metal residue should be sold off as scrap metals.
- Other waste residue from production should be burnt in the Thermal Treatment Plant (TTP).
- Scheduled wastes shall be managed and handle in accordance with the Environmental Quality (Scheduled Waste) Regulation 2005.



## WASTE MANAGEMENT

### Mitigation Measures



## RISK

### Impact

- There is no  $1 \times 10^{-5}$  per year IR contour for the Project.
- The  $1 \times 10^{-6}$  per year IR contour of the Project is slightly beyond the proposed Project site but does not encompass involuntary recipients of industrial risks such as residential areas, schools, hospitals and places of continuous occupancy, etc.

- Ensure zero ignition source policy at woodchip/biomass storage area to eliminate/minimise occurrence of fire.
- Prepare an emergency response plan (ERP) to include possible emergency scenarios due to Project operation.
- Perform regular emergency response drills as well as feedback and review sessions with the local fire and rescue services for handling and controlling the worst-case scenario.
- Undertake regular maintenance of the process equipment accordance with manufacturers guidance.



## RISK

### Mitigation Measures

# Impact Assessment & Mitigation Measures



## PUBLIC HEALTH

### Impact

- There should be no residual health impacts that may arise directly from the Project activities (emission, effluent and noise).
- However, from the existing health assessment, certain disease outbreaks (e.g. dengue fever, tuberculosis and COVID-19) are at the potential to occur.

- Worksites need to be always hygienic and free from any danger for everybody who enters the area.
- Each worker should have their complete vaccination and pre-employment health screening to determine whether they are healthy or not.
- Project Proponent has to adhere to the Malaysian guidelines for a comprehensive medical surveillance system to monitor those workers' health.
- Housekeeping and cleanliness of the whole Project site need to be put as the priority by all workers, contractors and visitors with aid from local government agencies.



## PUBLIC HEALTH

### Mitigation Measures



## SOCIO-ECONOMIC

### Impact

- Approximately 75% of the respondent felt that the Project would pose an impact to them while only 7% thought that the Project will not have any impacts on their livelihood.
- Most of the impacts concerned by the respondents were mainly related to environmental pollution such as air pollution and odour problem, change to tranquillity or issue on noise as well as water pollution. They were also worried on health risks, safety risks and influx of foreign workers.
- Apart from the negative impacts, some respondents felt that the proposed expansion would create more job opportunities and business opportunities to them.

- Provide employment and business opportunities to local community.
- BERT has implemented and shall continue to maintain transparency in its environmental performances by displaying the monitoring reports on the notice board.
- Provision of effective communication mechanism to enable the public to give feedback or to submit complaints related to the Project.
- Participation and contribution as Corporate Social Responsibility (CSR) in the effort to operate in ways that enhance the society and environment.



## SOCIO-ECONOMIC

### Mitigation Measures

# Impact Assessment & Mitigation Measures



## AQUATIC ECOLOGY

### Impact

#### Construction Stage

- Minimal impact since proper erosion and sediment control measures will be implemented and the sites are ready sites with limited land disturbance activities.

#### Operation Stage

- The proposed BERT3 abstraction will not have any significant impacts to the flow availability of Sg Langat. Water quality of Sg Langat will marginally deteriorates as compared to pre-BERT3 condition. Hence, minimal impacts to the existing aquatic ecology of Sg Langat will be expected.



## AQUATIC ECOLOGY

### Mitigation Measures

- All P2M2 proposed for water quality shall be implemented.



## ABANDONMENT

### Impact

- Impaired aesthetic due to abandoned structures.
- Contamination of soil, water and air from hazardous materials and wastes.
- Breeding of pests and disease vectors, such as mosquitoes, rats etc.
- Safety to workers and other passer-by due to falling materials or structures.

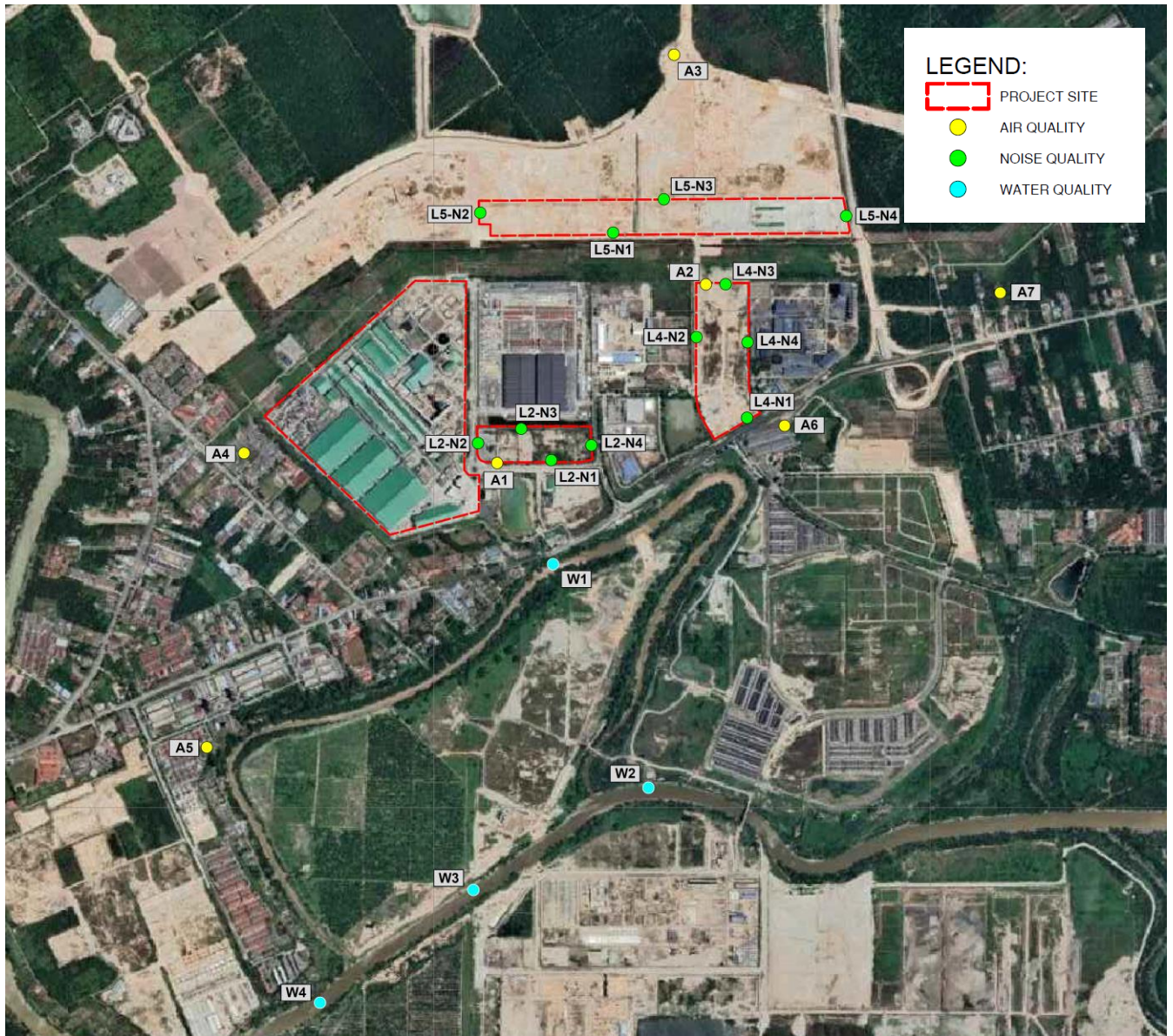


## ABANDONMENT

### Mitigation Measures

- Notification to the relevant authority(s).
- Removal of machineries, equipment and materials.
- Shut down any source of ignition or switches.
- Proper waste management.
- Clean-up of work area.
- Rehabilitation and restoration (e.g. re-vegetation of exposed areas).
- Post-abandonment inspection until the Project site is stabilised.

# Proposed Environmental Monitoring Programme – Construction Stage



## Water Quality



- Monthly
- Temperature, pH, DO, BOD, COD, TSS, AN, salinity, chloride, O&G, total coliform count, faecal coliform count, boron
- Baseline & Class IIB of the NWQS

## Air Quality



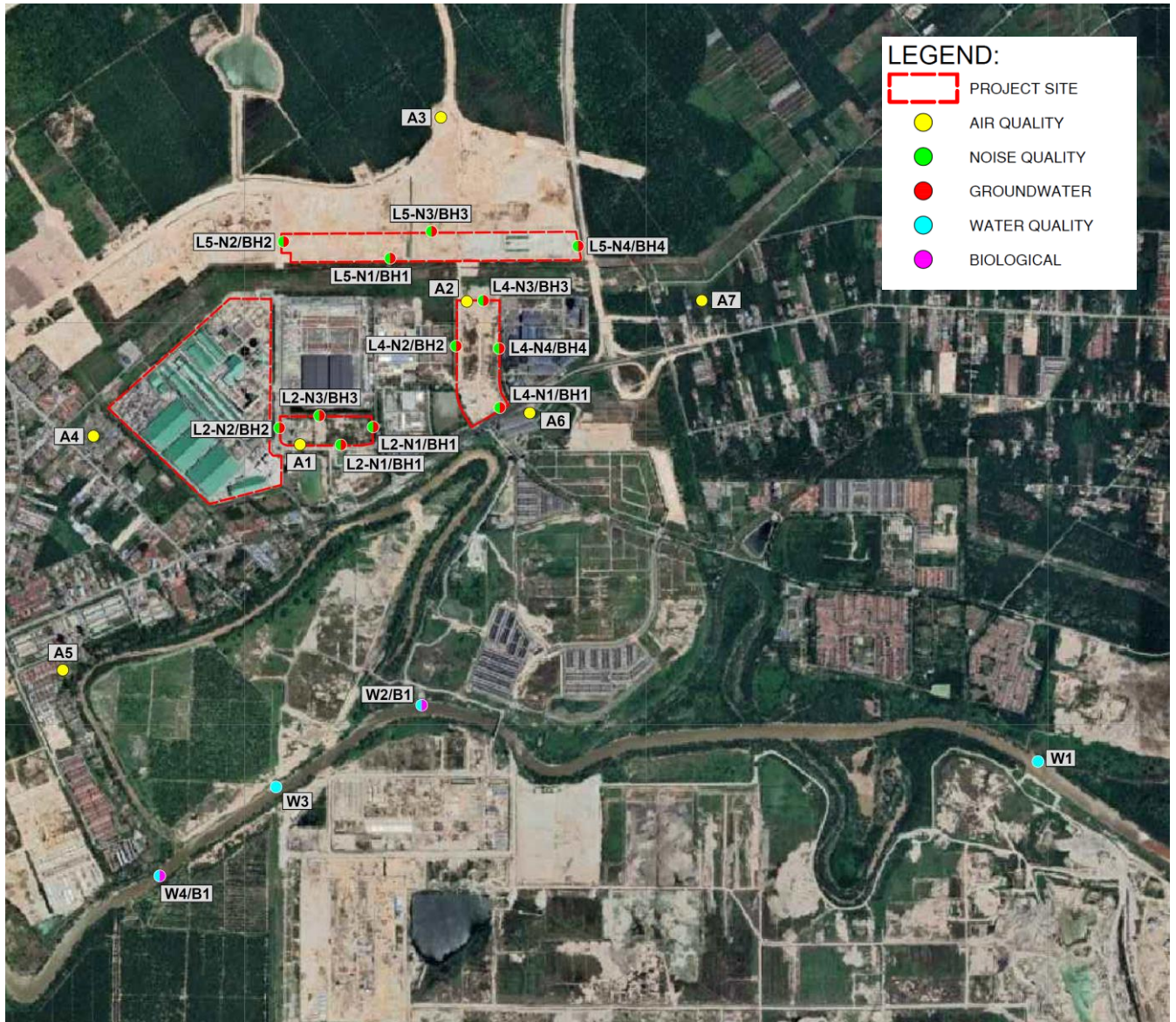
- Monthly
- PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, CO, O<sub>3</sub>
- Baseline & MAAQS 2020

## Noise



- Monthly
- L<sub>eq</sub>, L<sub>max</sub>, L<sub>min</sub>, L<sub>90</sub>, L<sub>10</sub>
- Baseline & Guidelines for Environmental Noise Limits and Control, First Schedule and Sixth Schedule

# Proposed Environmental Monitoring Programme – Operation Stage



## Water Quality



- Monthly (Quarterly for PFOA & PFOS)
- Temperature, pH, DO, BOD, COD, TSS, AN, salinity, chloride, O&G, total coliform count, faecal coliform count, boron (PFOA & PFOS only at W1, W2, W3 and W4)
- Baseline & Class IIB of the NWQS

## Groundwater Quality



- Every six months
- Temperature, pH, colour, conductivity, turbidity, DO, BOD, COD, TDS, total hardness, chloride, fluoride, nitrate nitrogen, nitrite nitrogen, sulphate, arsenic, chromium, cadmium, copper, iron, lead, magnesium, manganese, mercury, nickel, selenium, silver, sodium, zinc, ammoniacal nitrogen, cyanide, mineral oil, phenol
- Baseline

## Air Quality



- Monthly
- PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, CO, O<sub>3</sub>
- Baseline & MAAQS 2020



## **Noise**

- Monthly
- $L_{eq}$ ,  $L_{max}$ ,  $L_{min}$ ,  $L_{90}$ ,  $L_{10}$
- Baseline & Guidelines for Environmental Noise Limits and Control, First Schedule



## **Biological**

- Every six months
- Phytoplankton, zooplankton, macrobenthos, fish
- Baseline



## **Effluent Discharge**

- Weekly – Temperature, pH Value, BOD, COD, TSS, Mercury, Cadmium, Chromium Hexavalent, Chromium Trivalent, Arsenic, Cyanide, Lead, Copper, Manganese, Nickel, Tin, Zinc, Boron, Iron, Silver, Aluminium, Selenium, Barium, Fluoride, Formaldehyde, Phenol, Free Chlorine, Sulphide, O&G, AN Colour
- Quarterly – PFOA, PFOS
- Continuous online – Flow rate, pH, DO, COD, TSS, AN

## **MFB Stack**

- Continuous online –  $SO_2$ ,  $NO_2$ , CO, total PM
- Every six months – HCl, HF, Hg, PCDD/PCDF



## **Recovery Boiler Stack**

- Every six months – PM,  $NO_2$

## **Wet Scrubber Stack**

- Every six months –  $H_2S$ ,  $NH_3$