

PROPOSED EXPANSION OF OFFSITE WASTE RECYCLING AND RECOVERY PLANT FOR SCHEDULED WASTES AND RELATED WASTES AT PLOT 34 (1479), LORONG PERUSAHAAN MAJU 6, PRAI INDUSTRIAL ESTATE, PHASE 4, PRAI, SEBERANG PERAI TENGAH, PULAU PINANG.

FIRST SCHEDULE ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

EXECUTIVE SUMMARY

INTRODUCTION

This is an Environmental Impact Assessment (EIA) prepared for Shan Poornam Metals Sdn Bhd, to be submitted to the Department of Environment (DOE) Pulau Pinang for approval. This EIA Project is herewith referred to as the "PROPOSED EXPANSION OF OFFSITE WASTE RECYCLING AND RECOVERY PLANT FOR SCHEDULED WASTES AND RELATED WASTES AT PLOT 34 (1479), LORONG PERUSAHAAN MAJU 6, PRAI INDUSTRIAL ESTATE, PHASE 4, PRAI, SEBERANG PERAI TENGAH, PULAU PINANG". Hereafter, it will be known as the Project.

PROJECT PROPONENT AND QUALIFIED PERSON



PROJECT PROPONENT

SHAN POORNAM METALS SDN BHD (SPM)

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PROJECT PROPONENT AND QUALIFIED PERSON



EIA STUDY TEAM MEMBER

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Risk Assessment, Water Quality

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Noise Quality Modelling

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EIA Study Supporting Personnel

1. ChM. Siti Ezury Binti Sanusi
Project Coordination & Air Pollution Control System
2. Suzana Antasila Binti Kamalludin
Project Coordination, Landuse Assessment, Social Study

LEGISLATIVE REQUIREMENTS

This Project which falls under First Schedule, Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order, 2015:

- First Schedule, Activity 14(a)(i): Waste Treatment and Disposal: Scheduled Waste: Construction of Recovery Plant (off-site);
- First Schedule, Activity 14 (b)(ii): Solid Waste: Construction of Recovery Plant or Recycling Plant



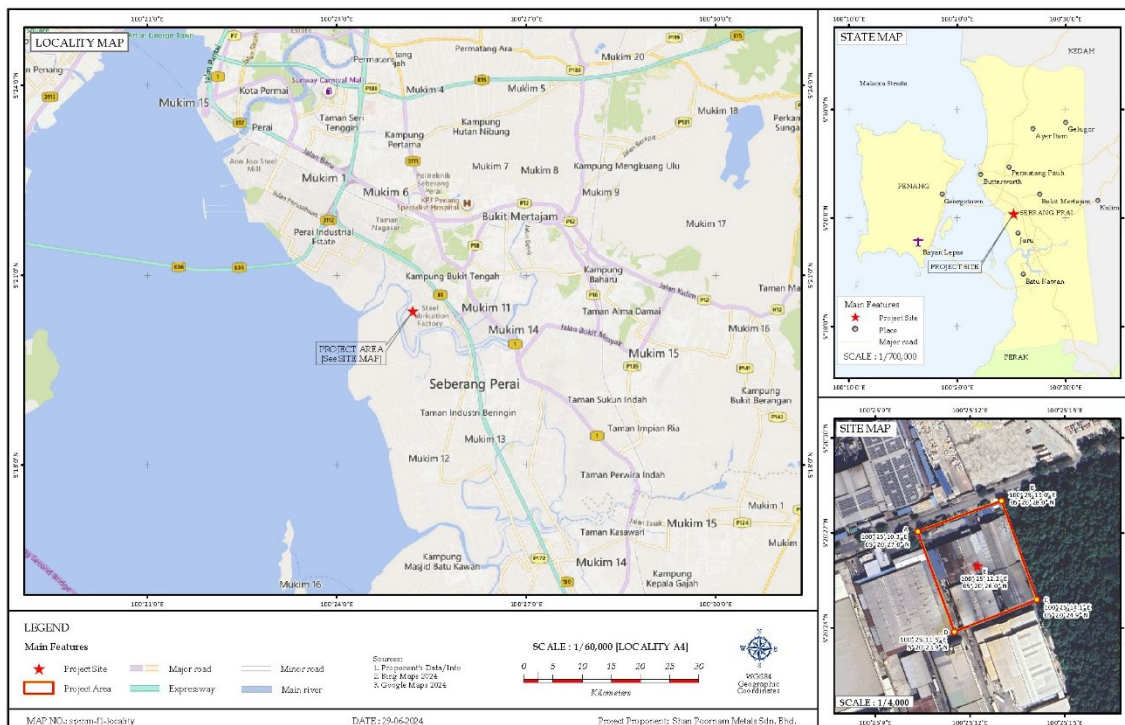
STATEMENT OF NEED

- The scheduled waste facility will introduce a new dimension to the economics of the manufacturing sector.
- The economic activities directly created include collection, transportation and recovery from wastes, sales of recovered products and disposal of scheduled wastes. Indirect services created include environmental consultancy, impact assessment, management and monitoring services by professionals.
- These economic activities and benefits are derived from environmental awareness and consciousness in conservation of resources and responsibility of all waste generators in circular economy.
- The need for this Project is therefore justified from environmental and sustainability point of view besides offering economic benefits, business and job opportunities.

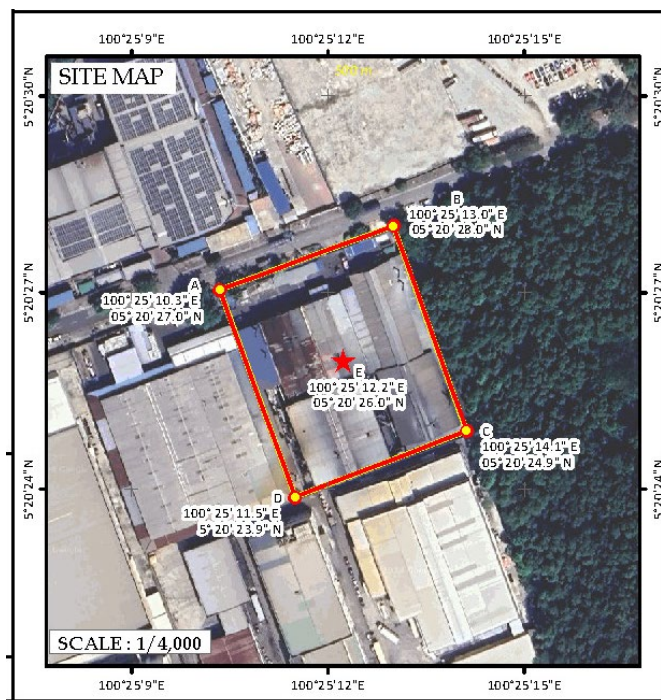
PROJECT LOCATION



LOCALITY MAP



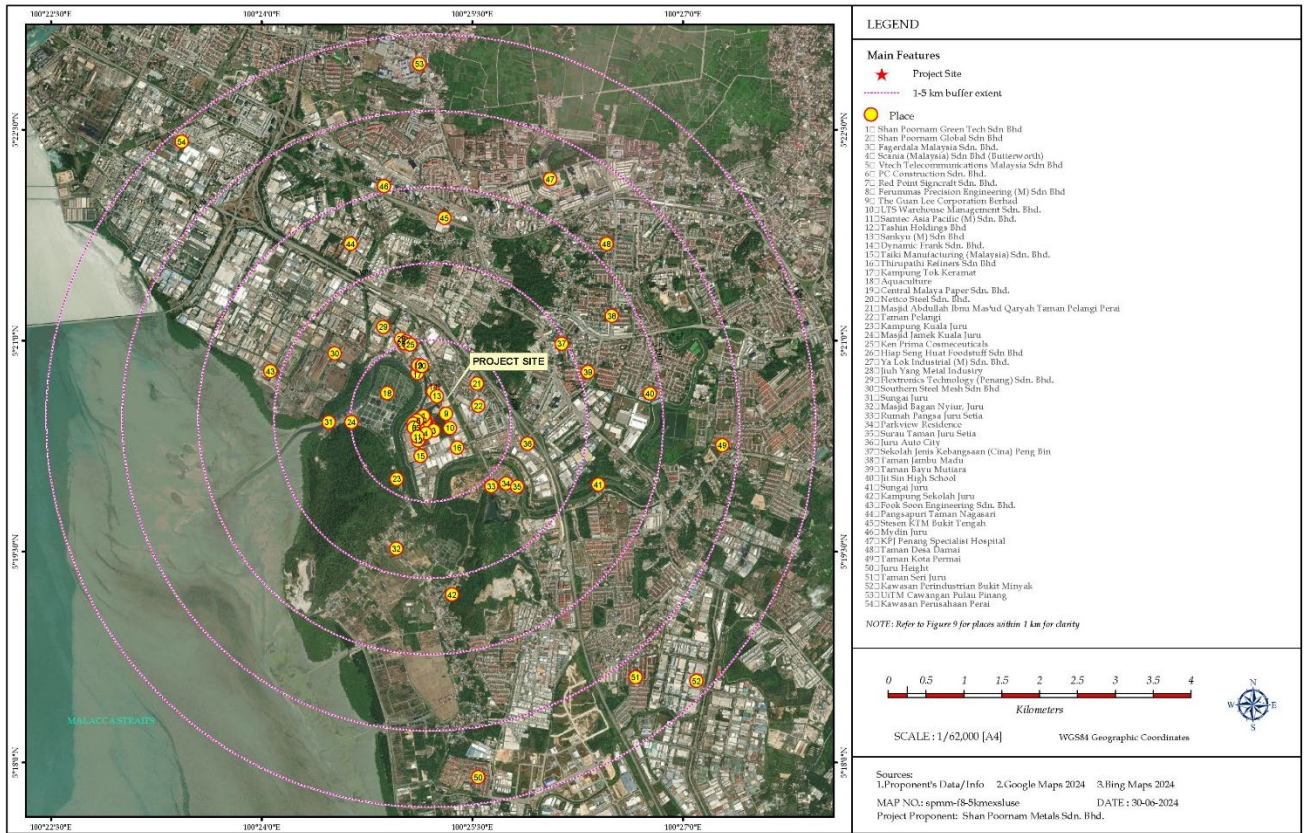
SITE MAP



Point	Northing	Easting
A	5°20'28.01"N	100°25'12.99"E
B	5°20'24.92"N	100°25'14.12"E
C	5°20'23.94"N	100°25'11.54"E
D	5°20'27.04"N	100°25'10.38"E
E	5°20'25.93"N	100°25'12.27"E



LANDUSE MAP – 5 KM



SENSITIVE RECEPTORS



Sham Poor Nam Global Sdn Bhd



Vtech Telecommunications Malaysia Sdn Bhd



Surau Kampung Tok Keramat



Kampung Tok Keramat



Red Point Signcraft Sdn. Bhd



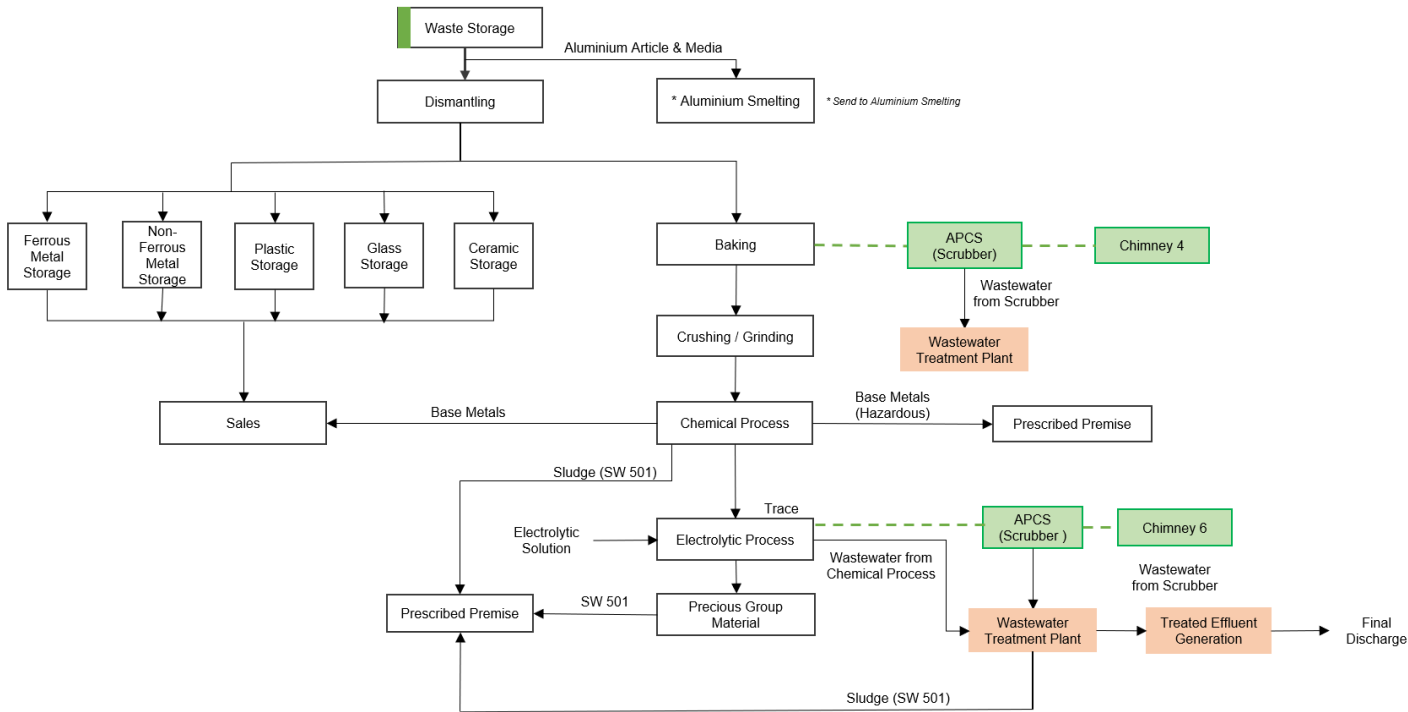
PC Construction Sdn. Bhd.

PROJECT DESCRIPTION

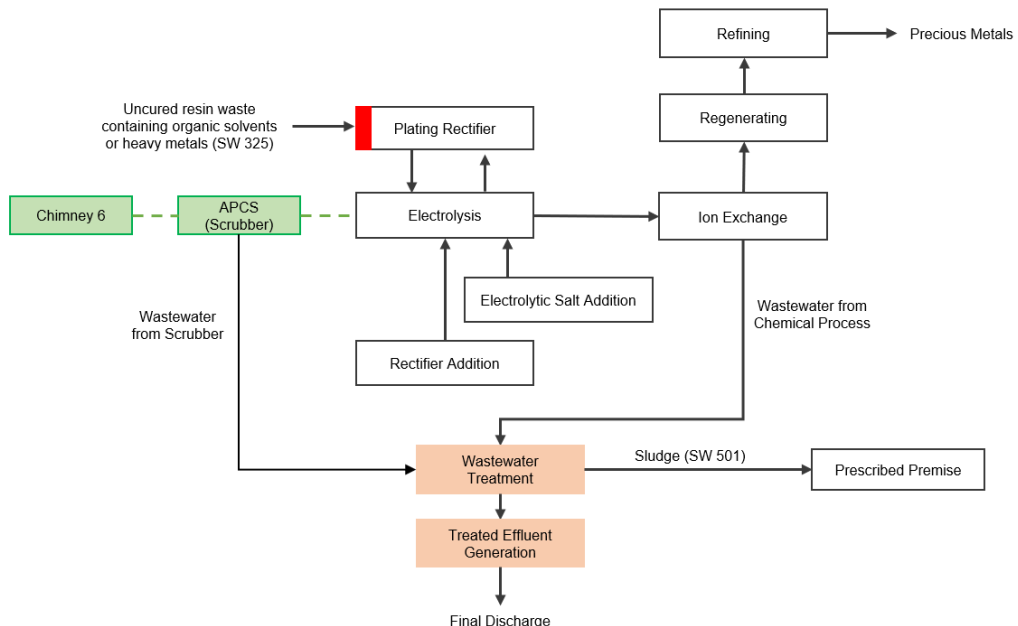
This Project involves the process of recovery of scheduled wastes SW 110, SW 325, SW 422 and SW 423, as well as aluminium scraps:

- (i) Segregation and Smelting Line;
- (ii) Stripping & Electrolysis Line Chemical Process;
- (iii) Air Pollution Control System (APCS);
- (iv) Industrial Effluent Treatment System (IETS)

The detailed process flows and mass balances of scheduled SW 110, SW 325, SW 422 and SW 423, as well as aluminium scraps are shown as follows.

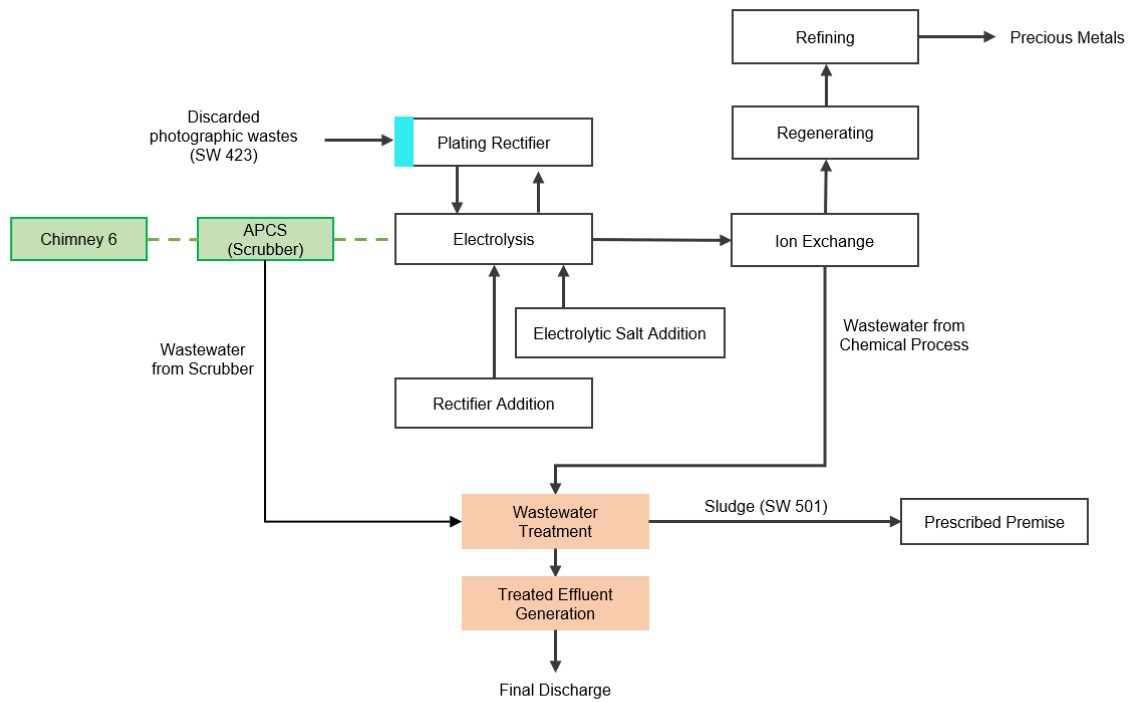


Recovery of Schedule Waste SW 110

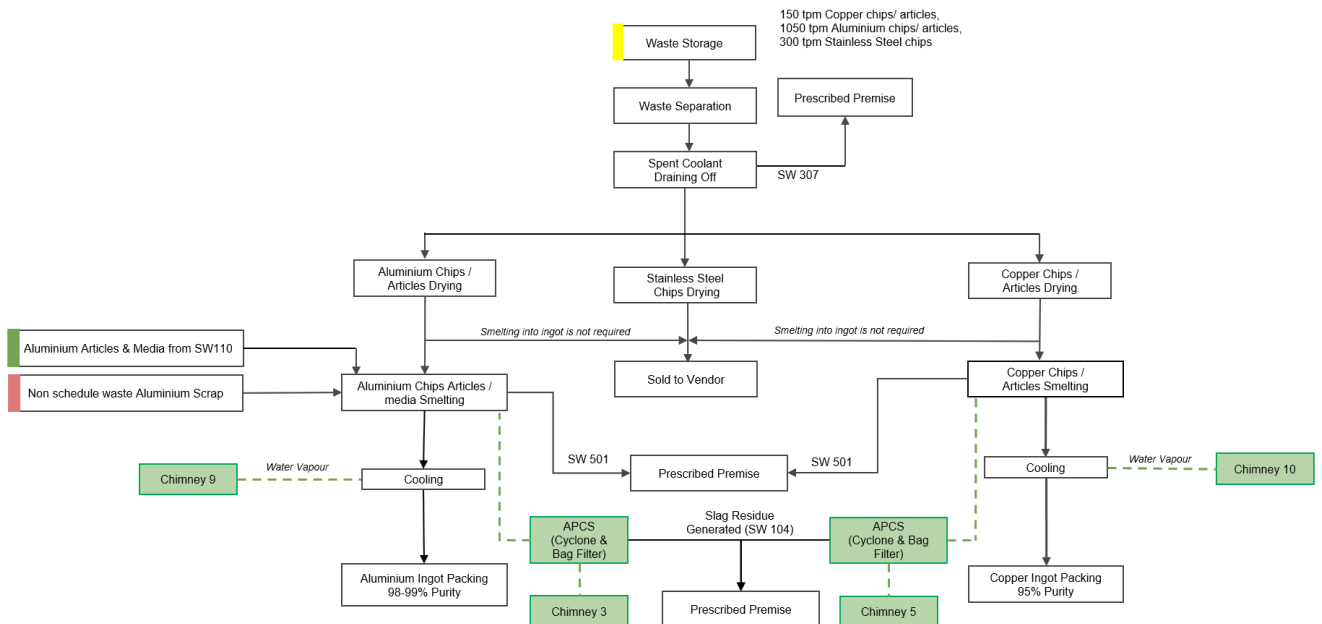


Recovery of Schedule Waste SW 325

PROJECT DESCRIPTION

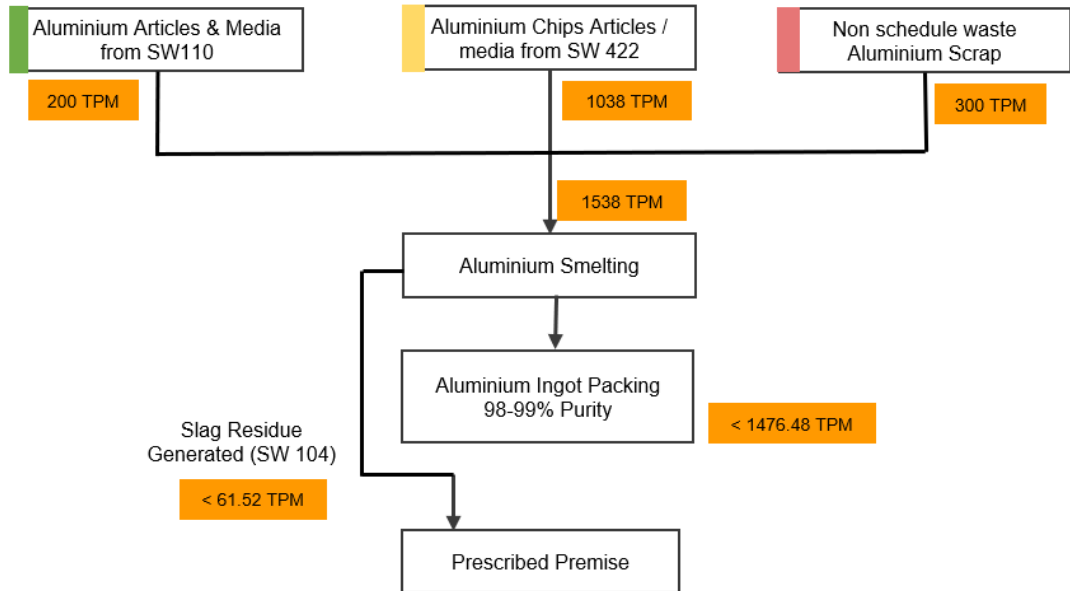


Recovery of Schedule Waste SW 423



Recovery of Schedule Waste Contaminated with spent Coolant (SW422)





Process Flow and Mass Balance Diagram for Aluminium Smelting

PROJECT ACTIVITIES



OPERATION PHASE

- Operation of scheduled wastes and metal scraps recovery facility
- Expansion and additional capacity of SW 325 and SW 422
- Maintenance of Building, Facilities and Utilities

EXISTING ENVIRONMENT



GEOLOGY

Quaternary Sediments, Sedimentary and Metamorphic Rocks Marine with continental deposits; clay silt, sand, peat with minor gravel



TOPOGRAPHY

This Project will be sited on a piece of flat land area within Prai Industrial Estate Phase 4



SOILS

Urban Land (Tanah Bandar) soil series



CLIMATE

Climate Data except Wind Rose (2011- 2020): Butterworth Station
Climate Data for Wind Rose (2016-2021): Butterworth Station
Average Annual Rainfall 2,279.0 mm
24-hr mean temperature 27.3 °C to 28.7 °C
24-hr mean relative humidity 71.5% to 83.6%
Surface winds often blow from east (28.1%), followed by northeast (16.7%) and then northwest (13.5%) and west (10.2%).



LANDUSE

Within the Project site:

- The Project site is located within Kawasan Industri Prai Fasa 4 – Industrial Area in Seberang Prai Tengah
- The immediate neighboring lots of the Project site are Shan Poornam Global Sdn Bhd and Vtech Telecommunications Malaysia Sdn Bhd

Within 3-km Radius from the Boundary of the Project site:

- Land use within 1 km to 3 km radius from the boundary of the Project site area made up of industry, residential areas, institutions and amenities



PERFORMANCE MONITORING (PM) PROGRAM

The proposed Project site is installed with eight (8) main air pollution control system (APCS) for the scheduled wastes and metal scraps recovery process to remove and trap dust particles and volatile organic compounds (VOC) fumes/mists. The performance monitoring shall be conducted to ensure the P2M2 facilities are performing effectively.

The PP shall appoint dedicated and trained personnel to monitor the performance of the wet scrubber as well as scheduled wastes management within the facility. These personnel shall be trained under DOE competent person training courses.

The appointed trained person with competency should conduct the preventive maintenance of the wet scrubbers in different periods of time such as weekly, monthly semi-annually. The procedures for the preventive maintenance of wet scrubbers are shown below.

Preventive Maintenance of APCS (Random Packed Scrubber Tower)

Procedures for the preventive maintenance of APCS for wet scrubbers are shown below. The parameters that must be monitored at the minimum and kept in log book are as below.

1. Pressure drop
2. Temperature
3. Liquid flow rate
4. pH
5. Stack emission condition
6. Air flow rate

PERFORMANCE MONITORING (PM) PROGRAM

PREVENTIVE MAINTAINANCE OF APCS (RANDOM PACKED SCRUBBER TOWER)

Frequency	Procedure
Daily	<ul style="list-style-type: none"> Check recycle flow. Check scrubbing liquid pH value Check discharge wastewater flow rate Check discharge wastewater pH value Check scrubber overall pressure drop Check pressure drop across mist eliminator Check pressure drop across packing Check inlet & outlet temperature of gas stream Check air flow rate Check visually stack emission condition
Weekly	<ul style="list-style-type: none"> Check recirculation pump discharge pressure Check fan motor operating current Check circulation pump motor operating current
Monthly	<ul style="list-style-type: none"> Check fan vibration Check pump vibration Check pump/piping leakages Check fan motor temperature Check spray nozzles plugging or leaks Check pump motor temperature
Semiannually	<ul style="list-style-type: none"> Inspect fan on material build up
Half Yearly	<ul style="list-style-type: none"> Inspect fan drive mechanism, ie. Bearings, belt tensioning, grease level etc Inspect mist eliminator for any solid build up Inspect packing of any fouling Pump servicing – replace bearing, grease & mechanical seal (for end suction centrifugal pump)
Annually	<ul style="list-style-type: none"> Verify accuracy of monitoring instruments and calibrate Inspect physical conditions of scrubber, ie. Housing, ductwork etc Overall system cleaning



PERFORMANCE MONITORING (PM) PROGRAM

Performance Monitoring of APCS (Bag Filter)

Procedures for the preventive maintenance of APCS for bag filter are shown below. The parameters that must be monitored at the minimum and kept in log book are as below.

1. Filter pressure drop (4 – 6 inch water)
2. Flow rate (0.83 – 1.0 m³/s)
3. Opacity or stack emission condition (clear and without dark smoke)
4. Discharge hopper condition (no leakage and signs of damage)
5. Temperature (<120°C)
6. Compressed air pressure (1.5 – 3.0 bar)

PERFORMANCE MONITORING (PM) PROGRAM

PREVENTIVE MAINTAINANCE OF APCS (BAG FILTER AND CYCLONE)

Frequency	Procedure
Daily	<ul style="list-style-type: none"> • Check pressure drop • Observe stack (visually or with opacity meter) • Walk through system, listening for proper operation • Check unusual occurrences in process • Observe control panel indicators • Check compressed air pressure • Assure that dust is removed from system
Weekly	<ul style="list-style-type: none"> • Inspect screw-conveyor bearings for lubrication • Check packing glands • Operate damper valves • Check compressed air lines, including line filters and dryers • Check that the valves are opening and closing properly in bag cleaning sequence • Verify accuracy of temperature indicating equipment • Check pressure drop indicating equipment for plugged lines
Monthly	<ul style="list-style-type: none"> • Check all moving parts in shaker mechanism • Inspect fans for corrosion and material buildup • Check drive belt for wear and tension • Inspect and lubricate appropriate items • Spot check bag tension • Spot check for bag leaks • Check hoses and clamps • Check accuracy of indicating equipment • Inspect housing for corrosion.
Quarterly	<ul style="list-style-type: none"> • Inspect baffle plate for wear • Inspect bags thoroughly • Check duct for dust buildup • Observe damper valves for proper seating • Check gaskets on doors • Inspect paint, insulation etc • Check screw conveyor for wear or abrasion • Check fan belts
Annually	<ul style="list-style-type: none"> • Check welds • Inspect hopper for wear



COMPLIANCE MONITORING (CM) PROGRAM

Compliance monitoring (CM) is the monitoring of the performance of the implemented P2M2 within the facility, which shall be carried periodically to ensure the proposed P2M2 to be implement and EIA conditions of approval (COAs) are complied all the times during the operation. It could assess the overall project compliance and provide opportunity for optimization and further improvement in environmental management of the Project.

Table below shows compliance monitoring for APCS

APCS Compliance Limit for Parameter Total Particulate Matter

Chimney No.	Pollutant	Limit	Reference	Source
Chimney 1	Total PM	50 mg/m ³	Second Schedule, Category I, Table 2 of CAR 2014	Induction Electric Furnace, Muffler Oven, Stove Hood, Lantern Furnace
Chimney 2	Total PM	50 mg/m ³	Second Schedule, Category I, Table 2 of CAR 2014	Electrolysis and Stripping Process Bath
Chimney 3	Total PM	10 mg/m ³ *Continuous Monitoring	Third Schedule, Table D of CAR 2014	Furnace
Chimney 4	Total PM	50 mg/m ³	Second Schedule, Category I, Table 2 of CAR 2014	Stripping Line (Chemical and Electrolysis Zone), Fume Hood, Fume Cabinet
Chimney 5	Total PM	50 mg/m ³ *Continuous Monitoring	Third Schedule, Table D of CAR 2014	Rotary Dryer, Furnace
Chimney 6	Total PM	50 mg/m ³	Second Schedule, Category I, Table 2 of CAR 2014	Cementation Tank, Precious Group Metals Area, Refining Tumbler, Reactor, Fume Hood, Refining
Chimney 7	Total PM	50 mg/m ³	Second Schedule, Category I, Table 2 of CAR 2014	Electrolysis Aluminium Disk
Chimney 8	Total PM	50 mg/m ³	Second Schedule, Category I, Table 2 of CAR 2014	Electrolysis Aluminium Disk



COMPLIANCE MONITORING (CM) PROGRAM

APCS Compliance Limit for Others Parameter

Chimney No.	Pollutant	Limit	Reference	Source
Chimney 2	Chlorine as Chloride	5 mg/m ³	Fifth Schedule, Category (4) of CAR 2014	Electrolysis and Stripping Process Bath
	Flourine as Flouride	5 mg/m ³		
	Hydrogen Chloride	30 mg/m ³		
	Hydrogen Fluoride	5 mg/m ³		
	Hydrogen Sulfide	5 mg/m ³		
	Nitrogen Oxide	400 mg/m ³		
	Sulfuric Acid	5 mg/m ³		
	Sulfuric Trioxide	400 mg/m ³		
Chimney 3	Nitrogen Oxide	500 mg/m ³ *Periodic Monitoring	Third Schedule, Table D of CAR 2014	Furnace
Chimney 4	Chlorine as Chloride	5 mg/m ³	Fifth Schedule, Category (4) of CAR 2014	Stripping Line (Chemical and Electrolysis Zone), Fume Hood, Fume Cabinet
	Flourine as Flouride	5 mg/m ³		
	Hydrogen Chloride	30 mg/m ³		
	Hydrogen Fluoride	5 mg/m ³		
	Hydrogen Sulfide	5 mg/m ³		
	Nitrogen Oxide	400 mg/m ³		
	Sulfuric Acid	5 mg/m ³		
	Sulfuric Trioxide	400 mg/m ³		
Chimney 5	Nitrogen Oxide	500 mg/m ³ *Periodic Monitoring	Third Schedule, Table D of CAR 2014	Rotary Dryer, Furnace
Chimney 6	Chlorine as Chloride	5 mg/m ³	Fifth Schedule, Category (4) of CAR 2014	Cementation Tank, Precious Group Metals Area, Refining Tumbler, Reactor, Fume Hood, Refining
	Flourine as Flouride	5 mg/m ³		
	Hydrogen Chloride	30 mg/m ³		
	Hydrogen Fluoride	5 mg/m ³		
	Hydrogen Sulfide	5 mg/m ³		
	Nitrogen Oxide	400 mg/m ³		
	Sulfuric Acid	5 mg/m ³		
	Sulfuric Trioxide	400 mg/m ³		
Chimney 7	Sulfuric Acid	5 mg/m ³	Fifth Schedule, Category (4) of CAR 2014	Electrolysis Aluminium Disk
	Sulfuric Trioxide	5 mg/m ³		
Chimney 8	Sulfuric Acid	5 mg/m ³	Fifth Schedule, Category (4) of CAR 2014	Electrolysis Aluminium Disk
	Sulfuric Trioxide	5 mg/m ³		

IMPACT MONITORING (IM) PROGRAM



SAMPLING LOCATIONS FOR AIR AND NOISE MONITORING

An environmental impact monitoring (IM) program to identify the predicted and unanticipated changes to the environment brought about by the proposed Project will be carried out as stated below.

A quarterly Environmental Quality Monitoring Report is recommended for submission to DOE based upon monitoring data collected monthly, quarterly or annually. The locations and frequencies of monitoring are shown in the table below.

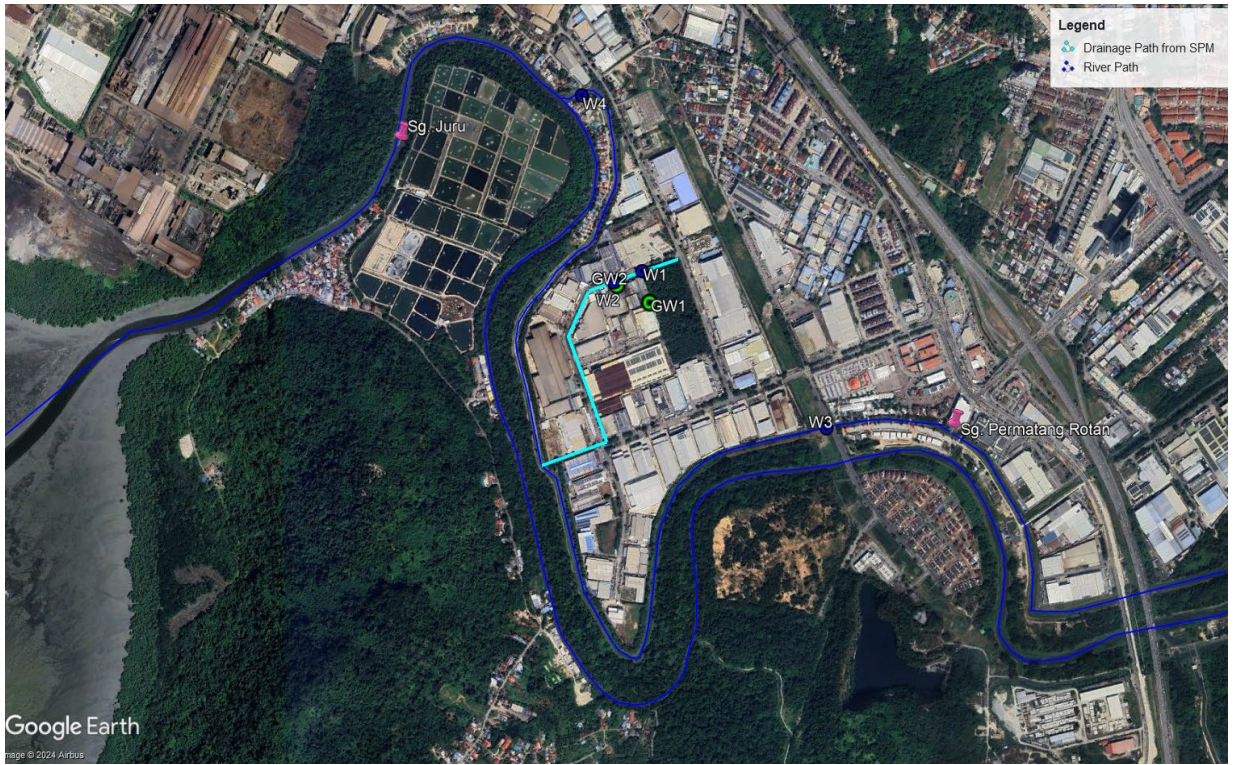


Location	Description	Coordinate	
		Latitude	Longitude
A1/N1	Project Boundary	5°20'28.01"N	100°25'12.75"E
A2/N2	Nearest House at Kampung Tok Keramat	5°20'31.36"N	100°25'6.64"E
A3/N3	Taman Pelangi	5°20'39.34"N	100°25'21.71"E

IMPACT MONITORING (IM) PROGRAM



SAMPLING LOCATION FOR WATER AND GROUNDWATER QUALITY



Location	Coordinate	
	Latitude	Longitude
W1	5°20'28.13"N	100°25'13.23"E
W2	5°20'26.96"N	100°25'10.15"E
W3	5°20'11.63"N	100°25'33.30"E
W4	5°20'46.58"N	100°25'6.65"E
W5	5°20'28.13"N	100°25'13.23"E

Location	Description	Coordinate	
		Latitude	Longitude
GW1	Southeast of Project Site	5°20'24.85"N	100°25'14.06"E
GW2	Northwest of Project Site	5°20'26.73"N	100°25'10.64"E

IMPACT ASSESSMENT AND MITIGATION MEASURES

Impact	Sources of Impact	Degree of Impact	Proposed P2M2	Reference in EIA Report
Operational Phase				
1. Water/Soil pollution due to handling	Spillage and accidental discharge	Can Be Significant	<p>Safe Storage and handling of scheduled wastes</p> <p>Use jumbo bags and pallets for containment.</p> <p>Store all raw materials in compliance with good practice guidelines.</p> <p>Check incoming feedstock to ensure acceptance based on waste acceptance criteria.</p>	Section 8.2.1
2. Water/Soil pollution due to transportation	Spillage or accidental discharge of scheduled wastes during transportation	Can Be Significant	<p><u>Transport of Scheduled Wastes</u></p> <p>Prepare a logistic and routing plan.</p> <p>All vehicles to be equipped with cleaning up facilities</p> <p>Check condition of the trucks before use.</p> <p><u>Accidental Spillage or Discharge</u></p> <p>Use appropriate personnel protective equipment (PPE) to provide protection for workers in handling any accidental spillage</p> <p>The contractor/PP to contain, clean and abate any accidental spillage or discharge of the waste as soon as possible.</p> <p>Transport route to avoid densely populated areas, water catchment areas and other environmentally sensitive areas.</p>	Section 8.2.2
3. Fire hazard in the plant	Accidental ignition of fuel used for furnace combustion	Can Be significant	<p>Have a well-rehearsed ERP that can be put into effect at short notice.</p> <p>A fire-fighting system with sirens to be installed.</p> <p>The system to be regularly inspected and maintained.</p> <p>No smoking and prohibition of matches, lighters and other ignition devices in the Plant.</p> <p>Firefighters, when required, to wear proper protective equipment and self-contained breathing apparatus.</p> <p>To call the fire stations when needed.</p> <p>All enclosed rooms should be fitted with fire rated doors of at least one hour.</p> <p>Fire extinguishers should be placed at various strategic locations for easy access.</p>	Section 8.2.6

IMPACT ASSESSMENT AND MITIGATION MEASURES

Impact	Sources of Impact	Degree of Impact	Proposed P2M2	Reference in EIA Report
4. Scheduled waste/ residual waste/ waste/ sludge	Rejects from recovery process Furnace slag/ash Carbonizer system	Can Be Significant	Scheduled wastes (furnace slag/ash—SW 104) generated from the recovery operation shall be stored in suitable contained, labelled and then disposed at Kualiti Alam (KA) Rejects/Residues from waste recovery process shall be stored in suitable container and then disposed at approved landfill for non-scheduled wastes. Carbonized materials (SW501) generated from carbonizer system shall be stored in suitable container and then disposed at KA. The storage area must be roofed to prevent entry of rainwater and must be ventilated adequately. .	Section 8.2.8
5. Solid waste	Domestic waste	Insignificant	Domestic waste will be managed by local authority and disposed at their designated landfill	Section 8.2.8
6. Noise pollution	Caused by transport vehicles during the operation Pumps and exhaust fan operations	Can Be significant	Ensure all operation equipment has functional exhaust systems Air fan and centrifugal air pumps shall function adequately throughout the smelting process operation, with regular service and maintenance	Section 8.2.4
7. Air pollution	Emission of hazardous gases and particulate matters from chimneys (APCS)	Can Be significant	Fugitive dusts can be controlled by pre-wetting of the scraps (oversize materials) if require Maintenance of all air pollution control equipment in the Plant Performance monitoring of the air pollution emissions by conducting periodic monitoring for important parameters	Section 8.2.3
8. Health and safety hazards	During operation	Insignificant	To adopt industrial safety procedures given in the OSHA Regulation 1994. Safety Data Sheets to be kept on site for inspection. Emergency procedures, action plans and regular drills to be executed. No smoking allowed within the Plant. Workers, when necessary, to wear protective gloves, safety goggles and other protective clothing. Train certain workers to provide first aid and have available easily accessible first aid kits. Intensive training on safety procedures should be provided for all personnel.	Section 8.2.7

IMPACT ASSESSMENT AND MITIGATION MEASURES

Impact	Sources of Impact	Degree of Impact	Proposed P2M2	Reference in EIA Report
9.Socio-Economy	Employment; Environmental Aesthetics; Public Welfare	Insignificant	Local to given priority in recruitment process Landscaping and replanting with suitable plants and shrubs Foreign workers need to be checked for health status to avoid possible spread of epidemics among workers	Section 8.2.10