

EXECUTIVE SUMMARY

PROPOSED PLASTIC PROCESSING PLANT AT PT 29470, 29471 AND 29472, BANDAR TECHPARK @ ENSTEK, MUKIM LABU, DAERAH SEREMBAN, NEGERI SEMBILAN DARUL KHUSUS

PROJECT PROPONENT

**MJ MATERIAL TECHNOLOGY
SDN. BHD.**

**Mr. Weng Wen Bin
(Managing Director)**

EIA CONSULTANT

ENVIRO PIONEER SOLUTIONS

**Dr. Ng Pang Soon (James)
(Lead EIA Consultant: CEP – C0116)**

LEGISLATIVE REQUIREMENT

Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order, 2015

FIRST SCHEDULE

14. WASTE TREATMENT AND DISPOSAL

(b) Solid waste

(i) Construction of recovery or recycling plant

EIA CHRONOLOGY

- First EIA report submitted to DOE Negeri Sembilan on 19th December 2023
 - Rejected because did not receive SPC approval (ref. no.: JAS.NHQ.600-2/13/18)
- SPC approval was obtained on 5th November 2025 (ref. no.: JPBD.N1/629/6308/13 Jld. 21(25))
- EIA report resubmitted with updated baseline monitoring and impact assessment

PROJECT BACKGROUND AND CONCEPT



- Local plastic processing plant owned by Japanese Meibun Group
- Existing plant at Bukit Minyak, Pulau Pinang since 2015 with capacity 120 t/d
- Produce high performance resin from secondary raw material
- Existing customers such as Sony, Konica Minolta, Sharp, and many more
- Propose to develop new second plant at Bandar Techpark @ Enstek, Negeri Sembilan with capacity 154 t/d



Site Selection

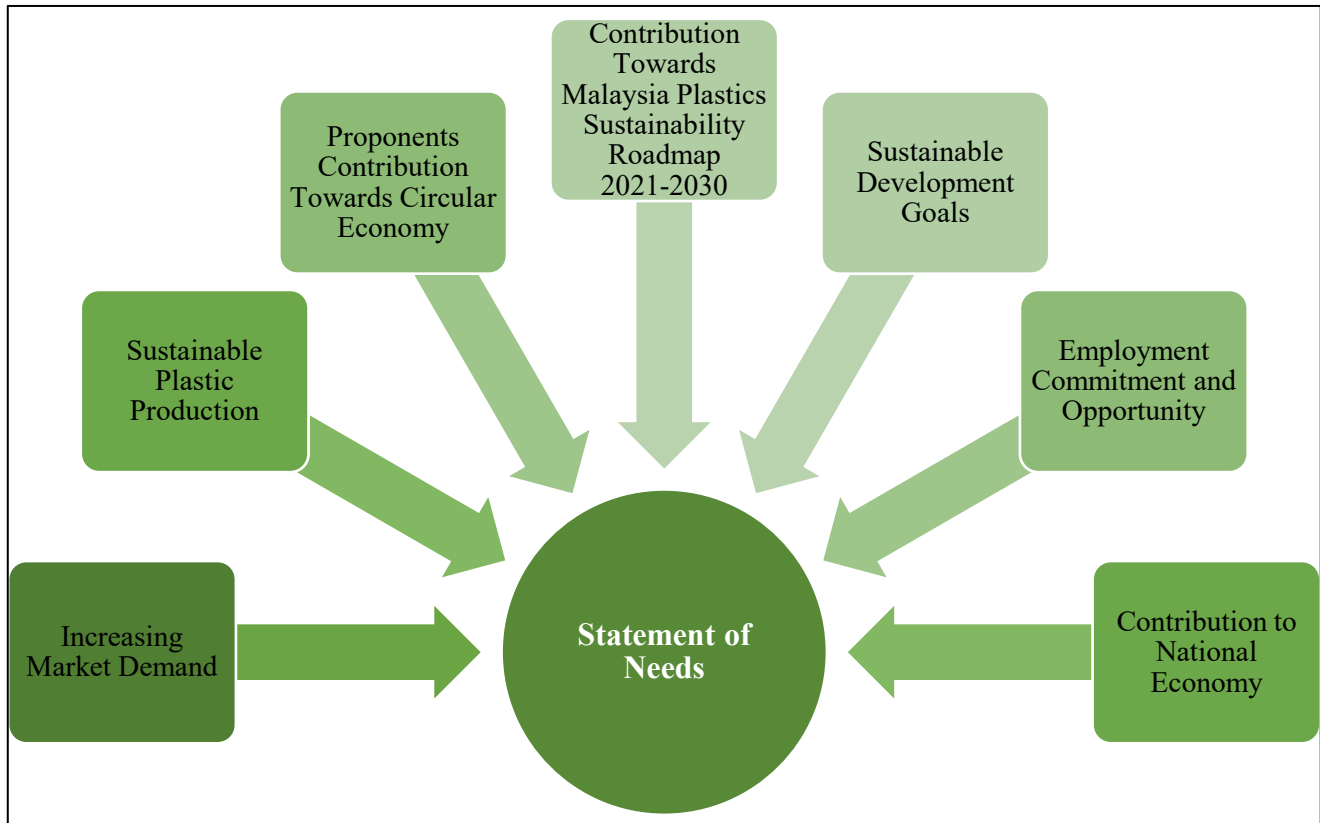
- Near to main customer such as Sony and Konica Minolta
- Near to Port Klang and KLIA – convenient logistic and shipments
- Ready with existing building structures. Minimize pollution from construction activities



Raw material acceptance

- Processed, homogenous, clean and some are crushed. Does not require pre-processing such as manual sorting and cleaning
- MJ pledges that no waste generation from raw material (**Appendix C**)
- Raw material obtained from both local

STATEMENT OF NEEDS



PROJECT ACTIVITIES



Pre-Renovation Phase

- Project planning and design
- Obtaining approvals from authorities



Renovation Phase

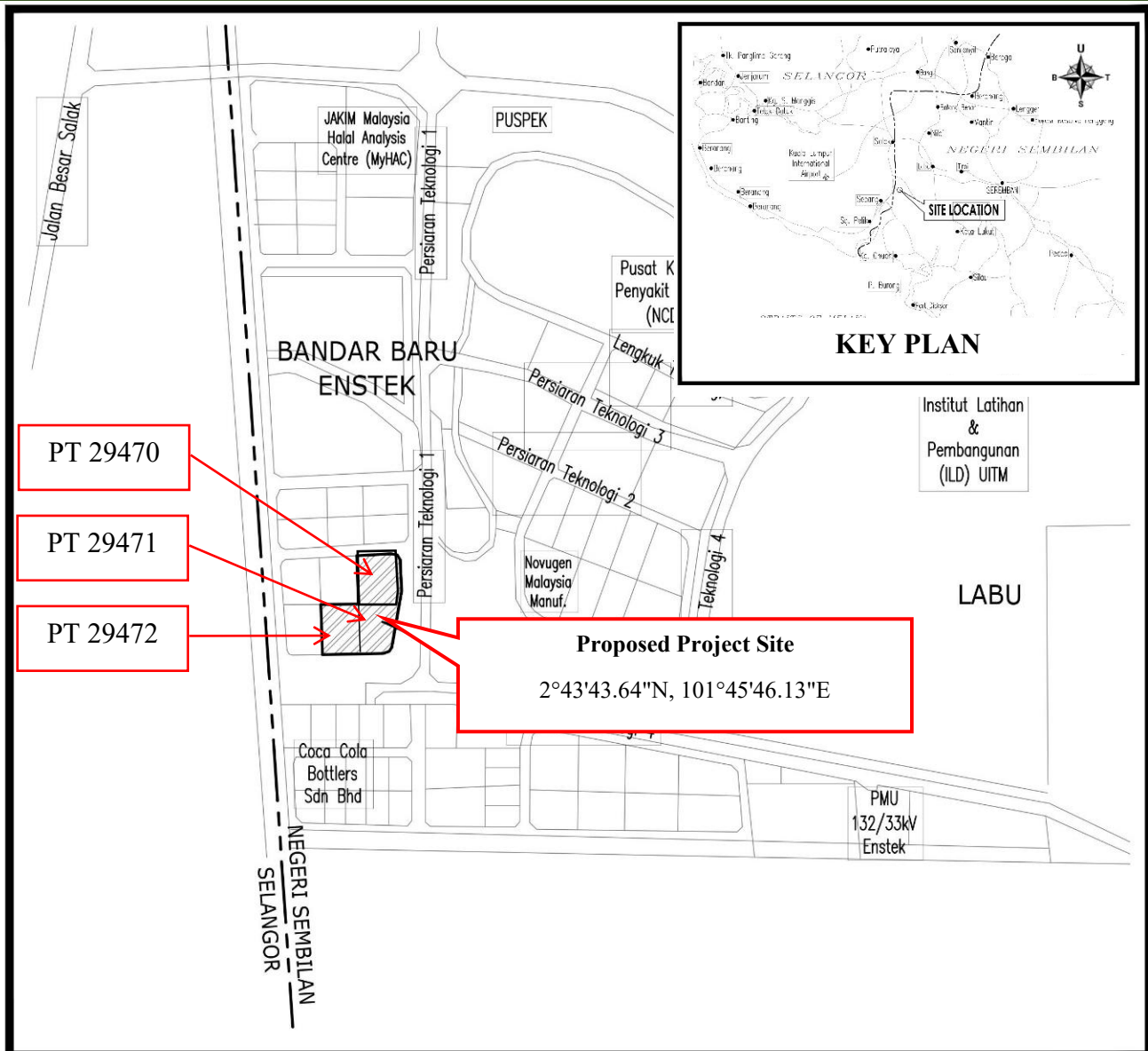
- Minor modification of existing building structures
- Install machinery and equipments
- Install air pollution control system
- Install industrial effluent treatment system



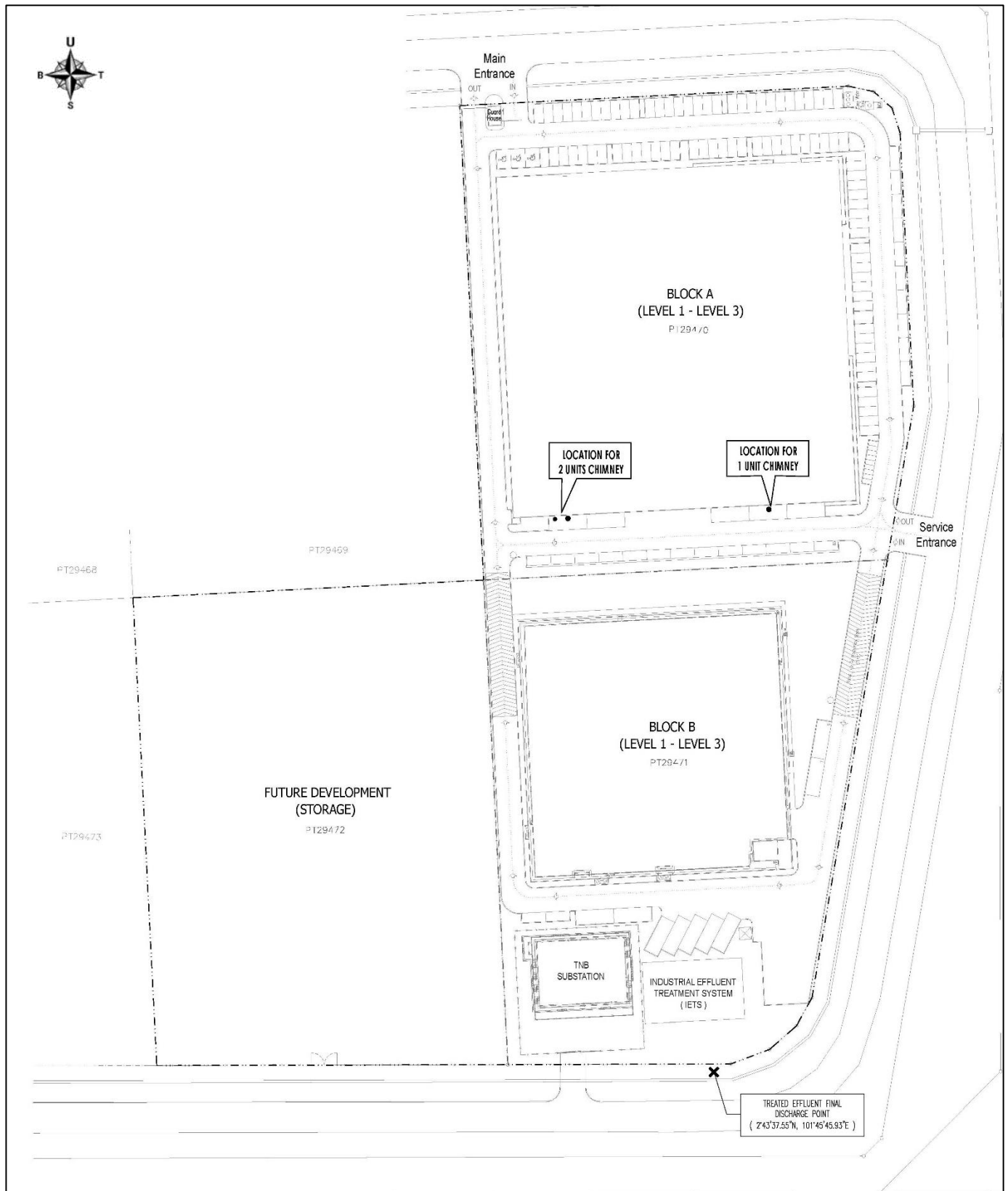
Operational Phase

- Plastic products injection moulding
- Meltblown filter extrusion
- Resin compounding
- Resin processing from plastic flakes

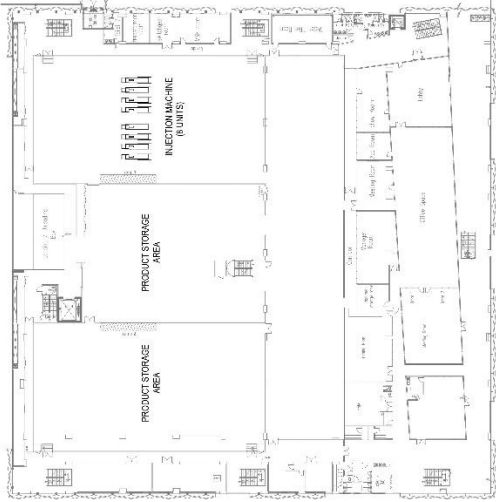
LOCATION OF PROJECT SITE



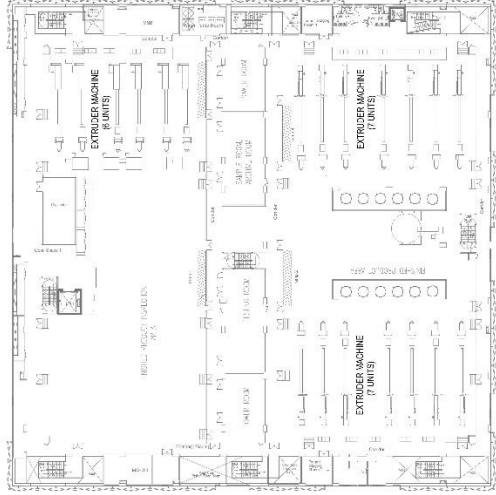
SITE LAYOUT



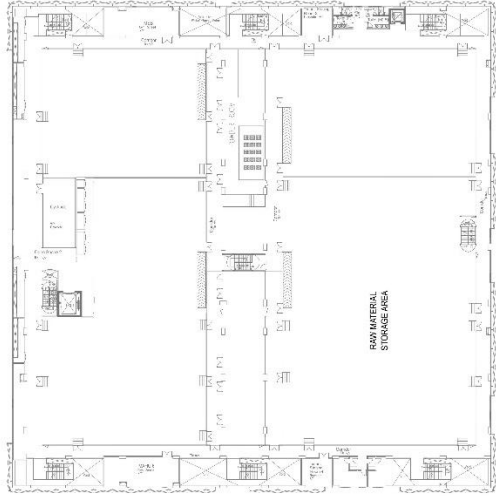
PROPOSED PLANT LAYOUT



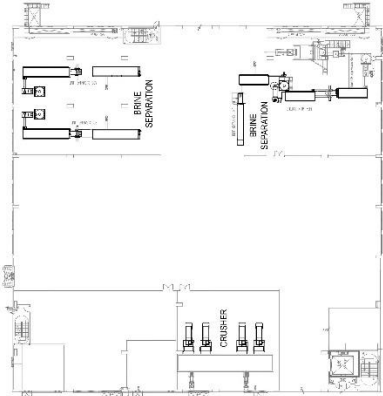
BLOCK A (LEVEL 1)
SCALE: 1:375



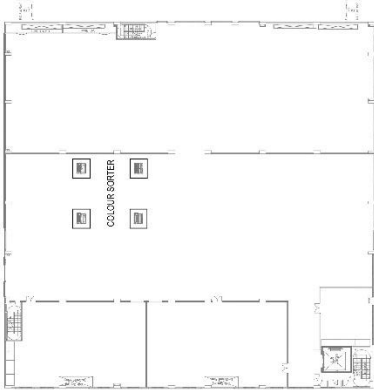
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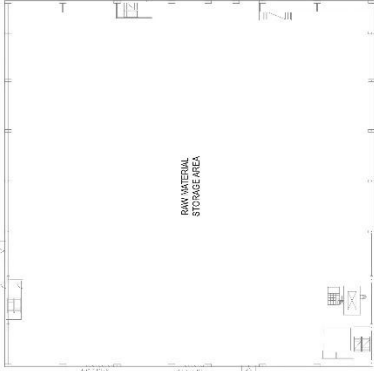
BLOCK A (LEVEL 3)
SCALE: 1:375



BLOCK B (LEVEL 1)
SCALE: 1:375



BLOCK B (LEVEL 2)
SCALE: 1:375



BLOCK B (LEVEL 3)
SCALE: 1:375

PROJECT PROPOSER : MJ MATERIAL TECHNOLOGY SDN. BHD.	
PROJECT TITLE : Environmental Impact Assessment (EIA) Study for Proposed Plastic Processing Plant at PT 2473, 2471 and 2472, Boracay Roadblock 6 Evesco Mainland, Lector Samarahan, Negros Oriental, Cebu (R. 1023)	
DRAWING TITLE : Floor Plan for Block A, Level 1, Level 2 & Level 3, Floor Plan for Block B, Level 1, Level 2 & Level 3.	
DWG : SPT/INT/2025	DATE : 24/8/2025
SCALE : AS SHOWN (A3)	REV : 1

PROCESS DESCRIPTION (MEDICAL MACHINE & PLASTIC ACCESSORIES AND PHOTOCOPY MACHINE & PLASTIC ACCESSORIES)

Raw Material, Compounding Resins (10 tonnes/day):



Process

Injection Moulding

Product (10 tonnes/day):



Photocopy Machine Parts



Medical Machine

Note: NG product or runner will be reused as compounding resin raw material before being sent back to the injection moulding machine

PROCESS DESCRIPTION (AUDIO PARTS & PLASTIC ACCESSORIES)

Raw Material, Compounding Resins (7 tonnes/day):



Process

Injection Moulding

Product (7 tonnes/day):



Headphones

Note: NG product or runner will be reused as compounding resin raw material before being sent back to the injection moulding machine

PROCESS DESCRIPTION (COMPOUNDING RESIN)

Raw Material, Plastic Resin (82 tonnes/day):



Processes

Drying and
Mixing



Extrusion

**Product, Compounding Resin
(82 tonnes/day)**



Note: 65 tonnes/day directly sell to client, 17 tonnes/day send to injection moulding lines

PROCESS DESCRIPTION (MELTBLOWN FILTER)

Raw Material, PP Resin (2 tonnes/day):



Processes

Drying and
Mixing



Melt Blown
Extrusion

Product, Melt Blown Filter (2 tonnes/day)



PROCESS DESCRIPTION (FDA-COMPLIANT RESIN AND PLASTIC PRODUCT)

Raw Material, Plastic Flakes (10 tonnes/day):



ABS Flakes



PC Flakes

Processes:

Crushing



Brine
Separation



Colour
Sorting



Drying and
Mixing



Extrusion



Injection
Moulding
(if required)

Product (10 tonnes/day):



FDA-Compliant Resins and Product

PROCESS DESCRIPTION (PLASTIC RESIN FROM PLASTIC FLAKES)

Raw Material, Plastic Flakes (60 tonnes/day):



ABS Flakes



PC Flakes

Processes:



Product (60 tonnes/day):



Plastic Resins

PROCESS DESCRIPTION (POLLUTION CONTROL SYSTEMS)

APCS, ACTIVATED CARBON FILTER

Source of air emission: Extrusion and injection moulding processes

Expected pollutant: volatile organic compounds (VOCs)

Total no. of chimneys: Three (3)

Proposed APCS: Activated carbon filter



Chimney No.	Emission Source	Quantity of Machinery	Location of Machinery	Expected Flowrate (Fan Capacity)		Efflux velocity (m/s)	Chimney Diameter (m)
				cfpm	m ³ /s		
1	Injection moulding	8	Block A, Lvl 1	3,200	1.51	15	0.36
2	Extruder	10	Block A, Lvl 2	8,850	4.18	15	0.60
3	Extruder	10	Block A, Lvl 2	8,850	4.18	15	0.60

Note: Basis flowrate 400 cfm/machine for injection moulding and 665 cfm/machine for extruder

PROCESS DESCRIPTION (POLLUTION CONTROL SYSTEMS)

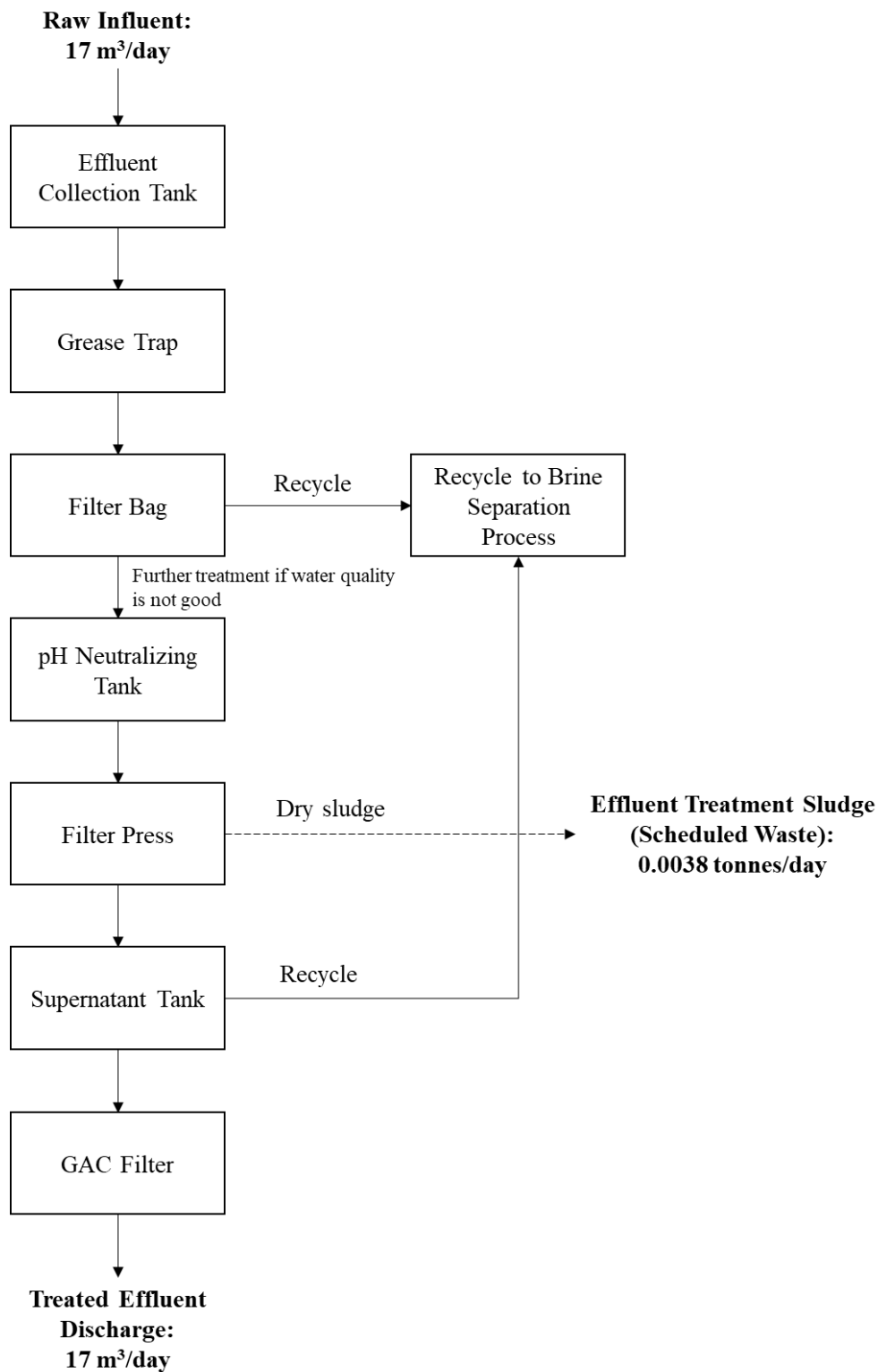
INDUSTRIAL EFFLUENT TREATMENT PLANT

Source of effluent generation: brine separation using salt solution

Estimated effluent generation: 17 m³/day

Capacity of IETS: 50 m³/day

Design specification: Follow existing Bukit Minyak plant (proven to comply with **Std A**, Environmental Quality (Industrial Effluent) Regulations, 2009



EXISTING ENVIRONMENT



SURROUNDING LAND USE

- Residential
- Commercial
- Industrial



AMBIENT AIR QUALITY

Air quality at all sampling stations (A1, A2 & A3) below Malaysian Ambient Air Quality Standard 2020

Parameter	Value
PM ₁₀	27.8 – 69.4 µg/m ³
PM _{2.5}	13.9 – 27.8 µg/m ³
SO ₂	< 1 µg/m ³
NO ₂	< 1 µg/m ³
CO	< 0.0001 µg/m ³
O ₃	< 1 µg/m ³
VOC	< detection limits



NOISE

Equivalent noise level (L_{Aeq}) at all sampling stations (N1, N2 & N3) Recommended Permissible Noise Level at Existing Built Up Areas (DOE Reprint, 2021)

Time	Noise Level (L _{Aeq})
Day time	44.7 – 56.2 dBA
Night time	41.6 – 54.1 dBA



ODOUR

- No odour detected at O1, O2, O4 and O5
- Fecal smell at O3 expected from nearby cow barn
- Sniff testing intensity: 0 (no odour)



CLIMATE AND METEOROLOGY

Data obtained from KLIA Meteorological Station

Mean monthly rainfall	94.1 – 271.1 mm
Mean monthly rain days	10 – 21 days
Temperature	27.2 – 28.4 °C
Relative humidity	72.6 – 83.5 %
Wind pattern	- Predominantly from north and northeast - Annual average speed: 1.3 m/s



SURFACE WATER QUALITY

Compared with National Water Quality Standards (NWQS) for Malaysia

Monitoring Location	WQI (Sept. 2023)	WQI (Sept. 2025)
Sg. Chincang	Class II – III (69 – 89)	Class III (71-72)
Sg Labu	Class III (73.6)	Class III (71)

Note:

A1, N1, O1 refers to project site

A2, N2, O2 refers to Bandar Baru Enstek

A3, N3, O3 refers to Kg. Felda L.B. Johnson

O4 refers to Coca Cola Bottlers Sdn. Bhd.

O5 refers to FGV Innovation Centre

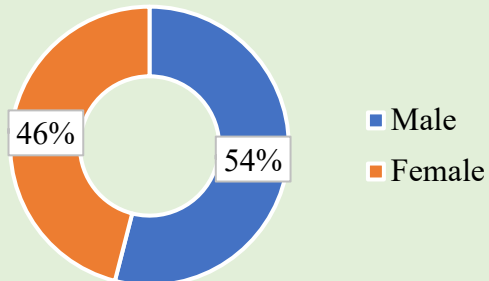


SOCIO-ECONOMY

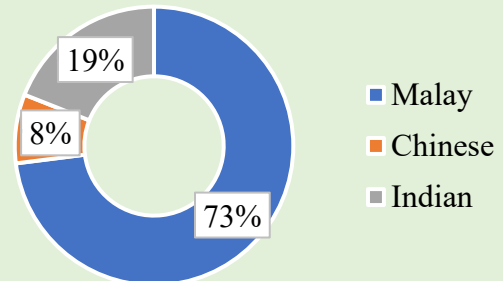
* 100 respondents

* coverage within 3 km radius

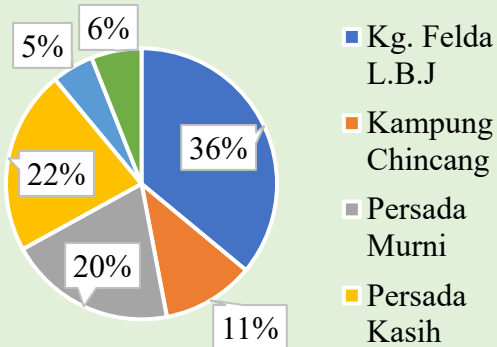
Respondent Gender



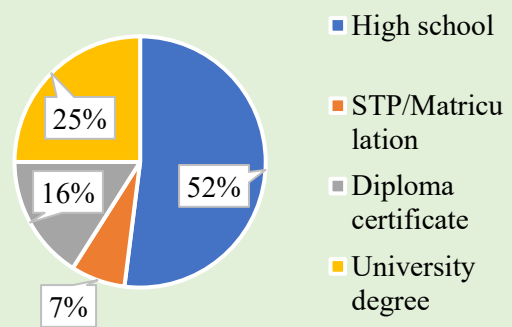
Racial Background



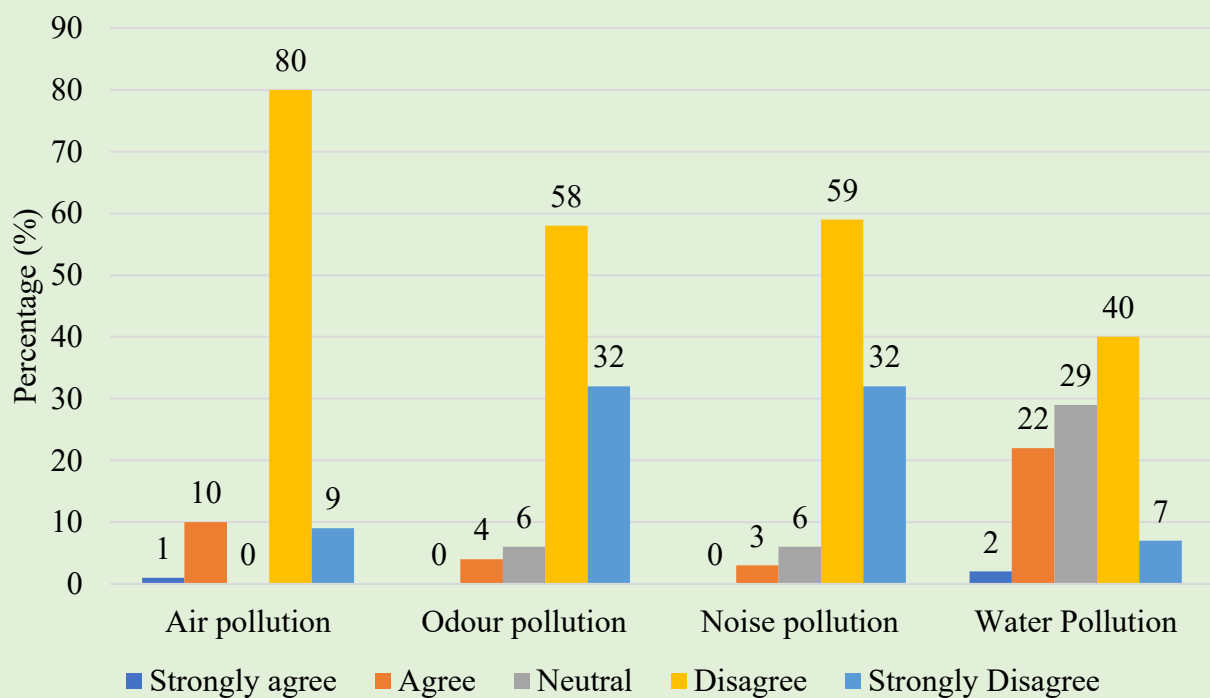
Place of Residency



Educational Level



Existing Environmental Condition at Surrounding Project Site



IMPACT EVALUATION AND PROPOSED P2M2 (OPERATIONAL PHASE)

Impact Evaluation

- Potential emission (VOC) from extrusion and injection moulding processes

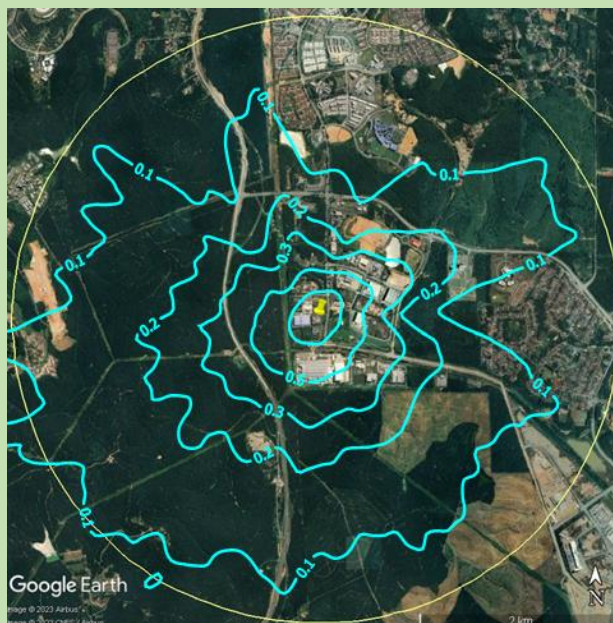
Assessment Methodology

- AERMOD Modelling

Modelling Parameter

- Volatile organic compounds (VOCs)

Modelling Result



Air Quality

Monitoring Location	24-hr Average VOC Concentration ($\mu\text{g}/\text{m}^3$)	
	Without APCS	With APCS
Project site	41.6	2.0
Bandar Baru Enstek	1.3	0.1
Kg. Felda L.B. Johnson	2.8	0.1

AAAQG limits: Butadiene: $1.3 \mu\text{g}/\text{m}^3$, Acrolein: $2.0 \mu\text{g}/\text{m}^3$ &
Formaldehyde: $16 \mu\text{g}/\text{m}^3$

- With control measures, the VOCs concentration for 24-hour average is **lower than the limit listed in AAAQG**
- Without control measures, the VOCs concentration for 24-hour average exceed the limit of butadiene and acrolein as listed in AAAQG

Proposed P2M2

- Optimize the extrusion process to reduce VOC emission. Optimizing processing parameters, such as temperature, pressure, and residence time, can minimize VOC emissions.
- Install air pollution control system i.e. activated carbon filter that help capture and treat VOC emissions before they are released into the atmosphere.
- Monitor the emission to ensure the concentration of VOC is within the stipulated limit
- Replace the activated carbon filter according to schedule to ensure the air pollution control system is operating in good condition

IMPACT EVALUATION AND PROPOSED P2M2 (OPERATIONAL PHASE)



Noise
level

Impact Evaluation

Expected noise source from the drying and mixing process

- According to site observation
 - Noise level at source (inside production building), L_{Aeq} : 90.4 dBA
 - Noise level outside of production building, L_{Aeq} : 67.8 dBA

Assessment Methodology

- Noise attenuation equation

Modelling Result

- No significant noise from renovation activity at surrounding sensitive receptor
 - Estimated noise level at Bandar Baru Enstek and Kg. Felda L.B. Johnson: 23.2 dBA
 - Noise limit: 65 dBA for day time, 60 dBA for night time (DOE, 2021)

Proposed P2M2

- All equipment and machinery shall be properly lubed and maintained for smooth operation
- To confine noise generating equipment inside an enclosed building



Surface Water
Quality

Impact Evaluation

- Insignificant volume of effluent discharge
 - effluent discharge : Sg Chincang = 0.0004 : 1
 - effluent discharge : Sg Labu = 0.00001 : 1
- The water quality class at Sg. Chincang and Sg. Labu after receiving treated effluent discharge **remain the same** as baseline water quality class

Parameter	Unit	Treated Effluent Discharge	Concentration at Downstream			
			Sg. Chincang (W3)		Sg. Labu (W5)	
			Baseline	After Receiving Effluent	Baseline	After Receiving Effluent
BOD	mg/L	20	7.00 (Class IV)	7.01 (Class IV)	6.00 (Class IV)	6.00 (Class III)
COD	mg/L	80	35.00 (Class III)	35.01 (Class III)	35.00 (Class III)	35.01 (Class III)
SS	mg/L	50	32.00 (Class IIA)	32.01 (Class IIA)	35.00 (Class IIA)	35.00 (Class IIA)
Oil & grease	mg/L	1.0	1.00 (Class IIA)	1.00 (Class IIA)	2.00 (Class IIA)	2.00 (Class IIA)
DO	mg/L	0.0	6.52 (Class IIA)	6.52 (Class IIA)	5.01 (Class IIA)	5.01 (Class IIA)

Proposed P2M2

- Ensure all generated effluent is treated at the industrial effluent treatment system (IETS) before being discharged to public drainage
- Ensure the discharge quality of the treated effluent comply with the Standard A, Environmental Quality (Industrial Effluent) Regulations, 2009
- Conduct regular maintenance on the IETS to ensure good treatment at all times

IMPACT EVALUATION AND PROPOSED P2M2 (OPERATIONAL PHASE)



Waste Generation and Management

Solid Waste

No.	Type of Waste	Quantity (kg/day)	Management Method	Disposal Frequency
1	Torn jumbo bag	16	Sell to recycler	Monthly
2	Wood pallet	32	Sell to recycler	Monthly
3	Carton box	92	Sell to recycler	Monthly

Scheduled Waste

No.	Type of Waste	Quantity	Management Method	Disposal Frequency
1	IETS sludge (SW204)	100 kg/month	Prescribed premise	Every 6 months
2	Spent lubrication oil (SW305)	150 kg/6 months	Prescribed premises	Every 6 months
3	Spent hydraulic oil (SW306)		Prescribed premises	Every 6 months

PROPOSED PERFORMANCE MONITORING (IETS)

Process Unit/ Location	Parameter	Frequency	Setting Range
Incoming effluent	Flowrate	Daily	Peak flow
pH neutralizing tank	pH value	Daily	Neutral
GAC Filter	Flowrate	Daily	Peak flow

PROPOSED COMPLIANCE MONITORING

Environmental Component	Monitoring Parameter	Monitoring Location	Monitoring Frequency	Compliance Requirement
Air Emission	NMVOC	Stack	Annually	Environmental Quality (Clean Air) Regulations 2014
Discharged Effluent	31 parameters per stipulated in the Environmental Quality (Industrial Effluent) Regulation, 2009, Standard A	Treated effluent final discharge	Weekly (monthly submission of monitoring report to DOE via online environmental system (OER))	Standard A, Environmental Quality (Industrial Effluent) Regulations 2009

PROPOSED IMPACT MONITORING: RENOVATION PHASE

Environmental Component	Monitoring Parameter	Monitoring Location	Monitoring Frequency	Compliance Requirement
Air quality	- PM₁₀ - PM_{2.5}	AQ1, NL1: Bandar Baru Enstek 2°44'40.35"N, 101°45'47.22"E	Monthly	Ambient Air Quality Guidelines 2020
Noise Level	- L_{Aeq} - L_{Amax}	AQ2, NL2: Kg. Felda L.B. Johnson 2°43'31.47"N, 101°46'39.48"E	Monthly	Recommended Permissible Sound Level (L _{Aeq}) by Receiving Land Use Existing Built Up Areas, Guideline of Noise Control and Limits 2019

PROPOSED IMPACT MONITORING: OPERATIONAL PHASE

Environmental Component	Monitoring Parameter	Monitoring Location	Monitoring Frequency	Compliance Requirement
Air quality	- PM₁₀ - PM_{2.5} - VOC	AQ1, NL1: Bandar Baru Enstek 2°44'40.35"N, 101°45'47.22"E	Quarterly (Every 3 months)	Ambient Air Quality Guidelines 2020
Noise Level	L _{Aeq}	AQ2, NL2: Kg. Felda L.B. Johnson 2°43'31.47"N, 101°46'39.48"E	Quarterly (Every 3 months)	Recommended Permissible Sound Level (L _{Aeq}) by Receiving Land Use Existing Built Up Areas, Guideline of Noise Control and Limits 2019
Surface water quality	Parameters in the National Water Quality Standard for Malaysia	WQ1: Upstream of project site 2°43'46.45"N, 101°45'49.52"E WQ2: Sungai Chincang, downstream of project site (~ 0.3km) 2°43'53.82"N, 101°45'48.67"E WQ3: Sungai Chincang, downstream of project site (~ 3.0 km) 2°45'1.44"N, 101°45'5.49"E	Monthly	National Water Quality Standard for Malaysia

RINGKASAN EKSEKUTIF

CADANGAN KILANG PEMROSESAN PLASTIK DI PT 29470, 29471 DAN 29472, BANDAR TECHPARK @ ENSTEK, MUKIM LABU, DAERAH SEREMBAN, NEGERI SEMBILAN DARUL KHUSUS

PENGGERAK PROJEK

**MJ MATERIAL TECHNOLOGY
SDN. BHD.**

**Mr. Weng Wen Bin
(Pengarah Urusan)**

JURURUNDING EIA

ENVIRO PIONEER SOLUTIONS

**Dr. Ng Pang Soon (James)
(Ketua Jururunding EIA: CEP – C0116)**

KEPERLUAN BERKANUN

Perintah Kualiti Alam Sekeliling (Aktiviti yang Ditetapkan) (Penilaian Kesan kepada Alam Sekeliling) 2015

JADUAL PERTAMA

14. PENGOLAHAN DAN PELUPUSAN BUANGAN

(b) Sisa pepejal

(i) Pembinaan loji pulih guna atau loji kitar semula

KRONOLOGI EIA

- Laporan EIA pertama kali dikemukakan kepada JAS Negeri Sembilan pada 19hb Disember 2023
 - Laporan ditolak kerana belum menerima kelulusan SPC (no. ruj.: JAS.NHQ.600-2/13/18)
- Kelulusan SPC telah diterima pada 5hb November 2025 (no. ruj.: JPBD.N1/629/6308/13 Jld. 21(25))
- Laporan EIA dikemukakan semula dengan mengemaskini keputusan pemantauan dan penilaian impak

LATAR BELAKANG DAN KONSEP PROJEK



- Kilang pemprosesan plastic tempatan yang dimiliki oleh *Japanese Meibun Group*
- Kilang sedia ada di Bukit Minyak, Pulau Pinang sejak 2015 dengan kapasiti 120 tan/hari
- Menghasilkan *high performance resin* daripada bahan mentah skunder
- Pelanggan sedia ada seperti Sony, Konica Minolta, Sharp, dan lain - lain
- Cadangan membangunkan kilang kedua di Bandar Techpark @ Enstek, Negeri Sembilan dengan kapasiti 400 tan/hari



Pemilihan Tapak

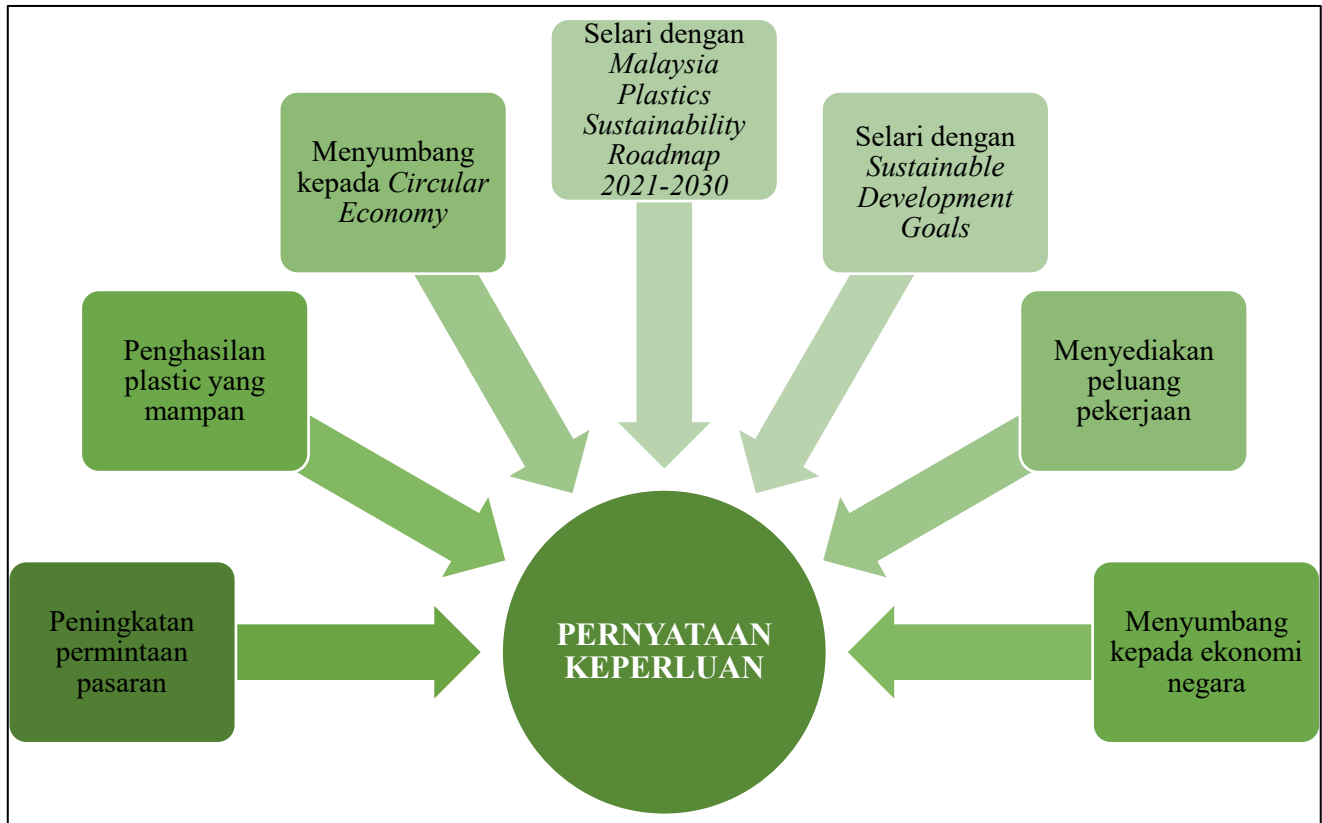
- Berdekatan dengan pelanggan seperti Sony and Konica Minolta
- Berdekatan Pelabuhan Klang dan KLIA – penghantaran dan logistik lebih mudah
- Sedia dengan struktur bangunan. Mengelak pencemaran daripada aktiviti pembinaan



Penerimaan Bahan Mentah

- Telah diproses, homogen, bersih dan ada yang telah dihancurkan. Tidak memerlukan pemprosesan awal seperti pengasingan manual dan pembersihan
- MJ berjanji bahawa tiada penajaan sisa daripada bahan mentah (**Appendix C**)
- Bahan mentah yang diperolehi dari tempatan

PERNYATAAN KEPERLUAN



AKTIVITI PROJEK



Fasa Pra Ubahsuai

- Merancang dan mereka bentuk projek
- Mendapatkan kelulusan daripada pihak berkuasa



Fasa Ubahsuai

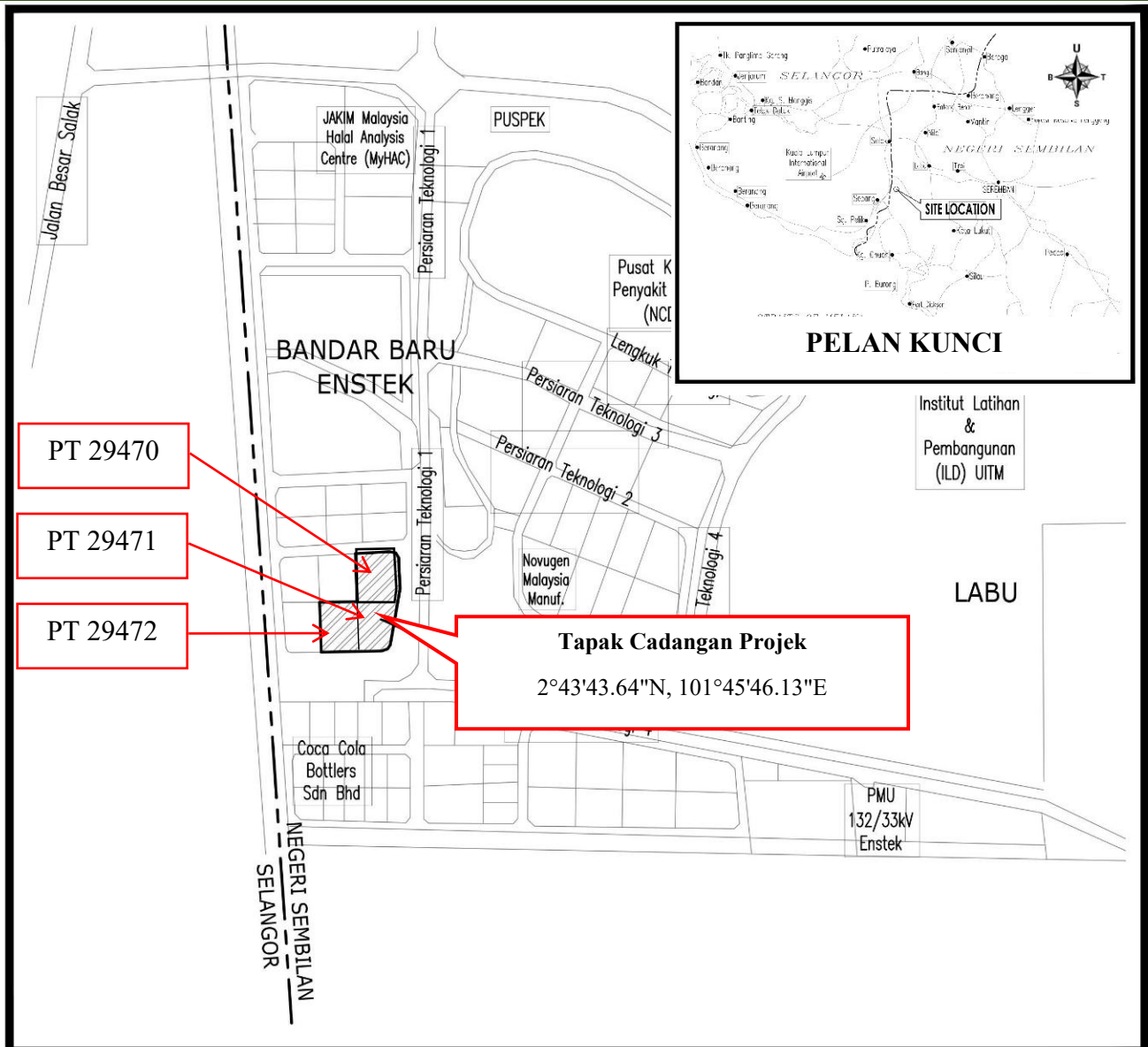
- Mengubahsuai struktur bangunan sedia ada
- Memasang mesin - mesin dan peralatan kilang
- Memasang sistem kawalan pencemaran udara
- Memasang sistem pengolahan efluen industri



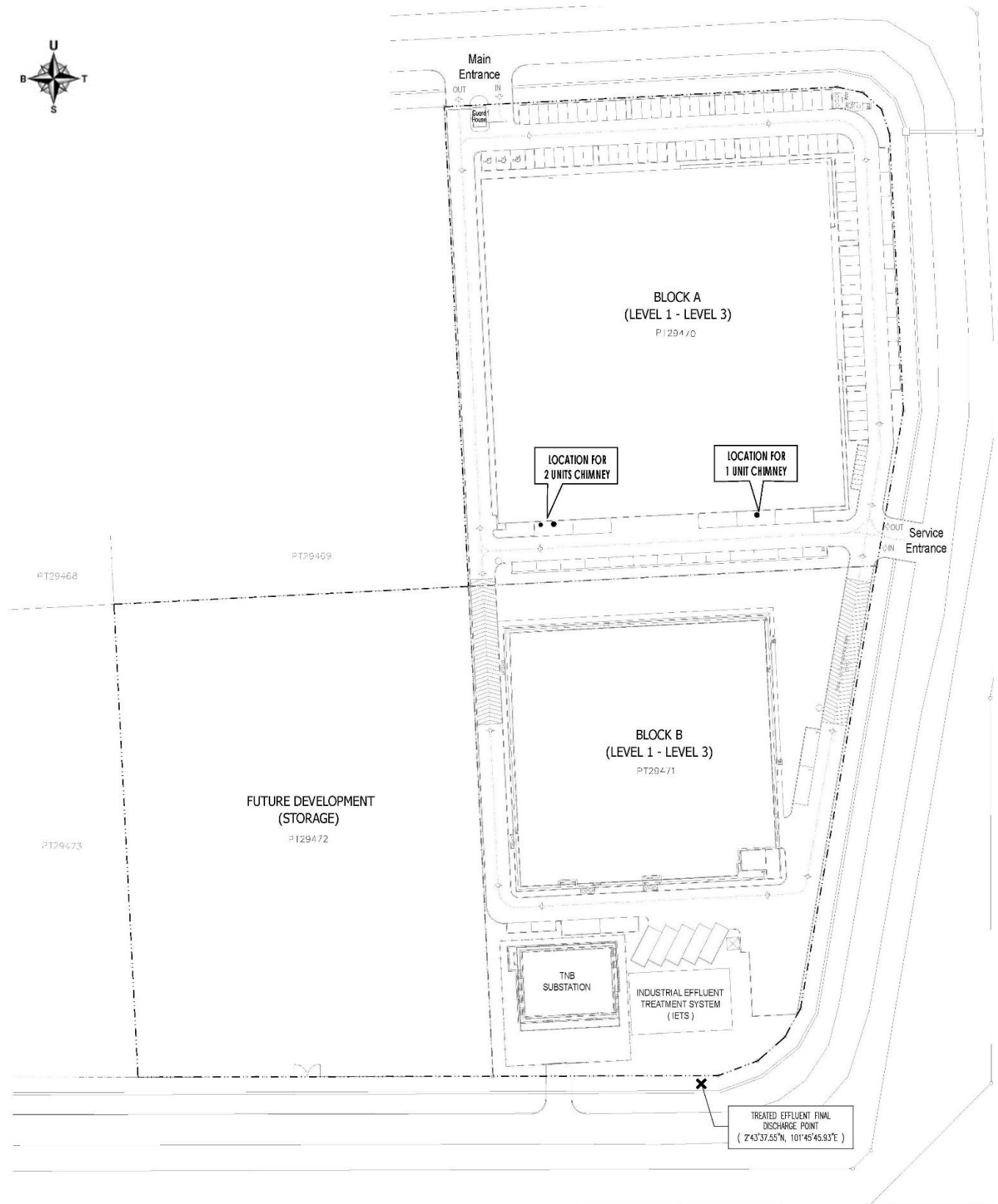
Fasa Operasi

- *High performance resin compounding*
- *Bio-degradable resin compounding*
- *Plastic products injection moulding*
- *Melt blown filter extrusion*

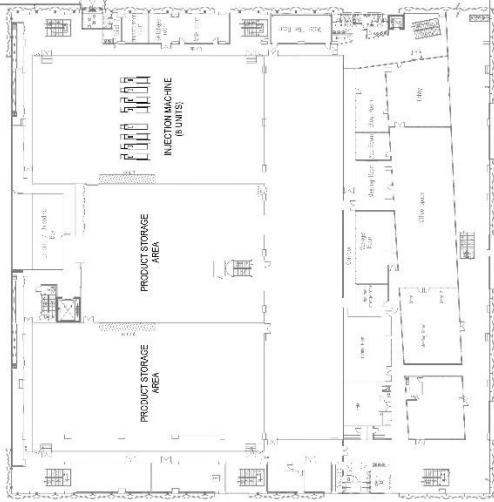
LOKASI TAPAK PROJEK



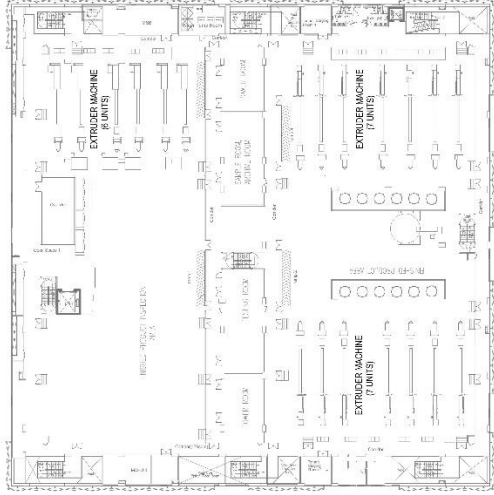
SUSUN ATUR TAPAK PROJEK



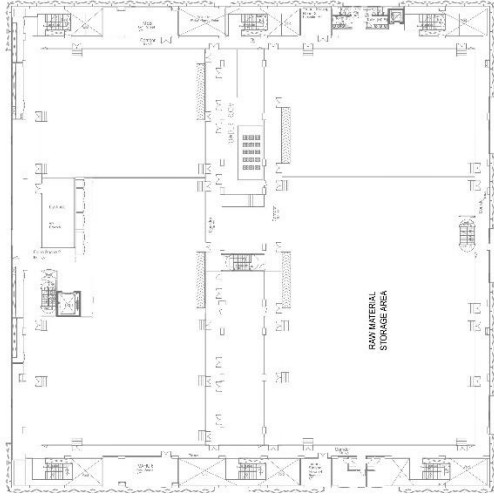
PCADANGAN SUSUN ATUR KILANG



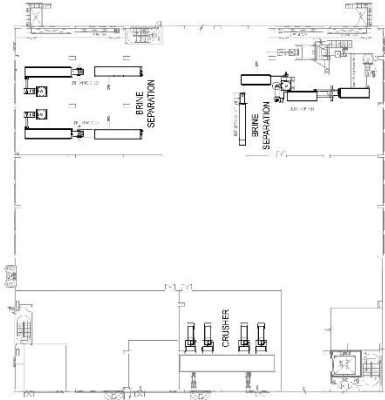
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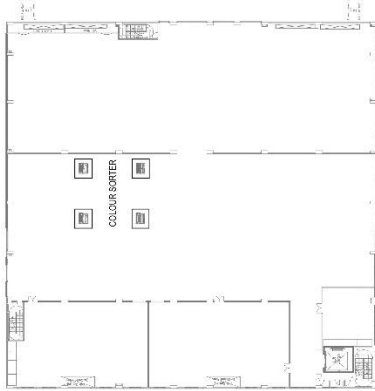
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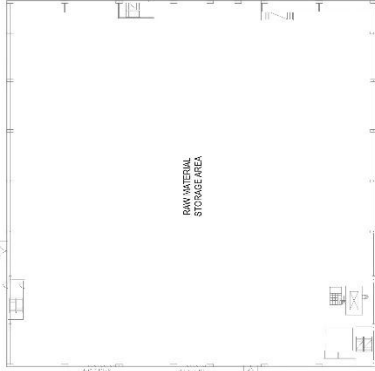
BLOCK A (LEVEL 3)
SCALE: 1:375



BLOCK B (LEVEL 1)
SCALE: 1:375



BLOCK B (LEVEL 2)
SCALE: 1:375



BLOCK B (LEVEL 3)
SCALE: 1:375

PROJECT PROPOSER :		MJ MATERIAL TECHNOLOGY SDN. BHD.	
PROJECT TITLE :		Environmental Impact Assessment (EIA) Study for Proposed Plastic Processing Plant at PT 29470, 29471 and 29472, Banjar Tondong, Nagari Sembilan Jauh Kuala	
DRAWING TITLE :		Floor Plan for Block A, Level 1, Level 2 & Level 3, Floor Plan for Block B, Level 1, Level 2 & Level 3.	
DATE :	SEPTEMBER 2025	DWG :	2/2
SCALE :	AS SHOWN (A)	REV :	1

HURAIAN PROSES (MEDICAL MACHINE & PLASTIC ACCESSORIES AND PHOTOCOPY MACHINE & PLASTIC ACCESSORIES)

Bahan Mentah, *Compounding Resins* (10 tan/hari):



Proses

Injection Moulding

Product (10 tan/hari):



Photocopy Machine Parts

Medical Machine

Note: NG product or runner will be reused as compounding resin raw material before being sent back to the injection moulding machine

HURAIAN PROSES (AUDIO PARTS & PLASTIC ACCESSORIES)

Bahan mentah, *Compounding Resins* (7 tan/hari):



Proses

Injection Moulding

Produk (7 tan/hari):



Headphones

Note: NG product or runner will be reused as compounding resin raw material before being sent back to the injection moulding machine

HURAIAN PROSES (COMPOUNDING RESIN)

Bahan mentah, *Plastic Resin* (82 tan/hari):



Proses

*Drying and
Mixing*



Extrusion

Produk, *Compounding Resin*
(82 tan/hari)



Note: 65 tan/hari akan terus dijual, 17 tan/hari akan dihantar ke injection moulding lines

HURAIAN PROSES (MELTBLOWN FILTER)

Bahan mentah, *PP Resin* (2 tan/hari):



Proses

*Drying and
Mixing*



*Melt Blown
Extrusion*

Produk, *Meltblown Filter* (2 tan/hari)



HURAIAN PROSES (FDA-COMPLIANT RESIN AND PLASTIC PRODUCT)

Bahan mentah, *Plastic Flakes* (10 tan/hari):



ABS Flakes



PC Flakes

Proses:

Crushing



*Brine
Separation*



*Colour
Sorting*



*Drying and
Mixing*



Extrusion



*Injection
Moulding
(if required)*

Produk (10 tan/hari):



FDA-Compliant Resins and Product

HURAIAN PROSES (*PLASTIC RESIN DARIPADA PLASTIC FLAKES*)

Bahan mentah, *Plastic Flakes* (60 tan/hari):



ABS Flakes



PC Flakes

Proses:



Produk (60 tan/hari):



Plastic Resins

HURAIAN PROSES (SISTEM KAWALAN PENCEMARAN UDARA)

APCS, ACTIVATED CARBON FILTER

Sumber pelepasan udara: Proses *extrusion* dan *injection moulding*

Pencemar yang dijangkakan: *volatile organic compounds (VOCs)*

Jumlah cerobong: Tiga (3) unit

Sistem kawalan yang dicadangkan: Activated carbon filter



Chimney No.	Emission Source	Quantity of Machinery	Location of Machinery	Expected Flowrate (Fan Capacity)		Efflux velocity (m/s)	Chimney Diameter (m)
				cfpm	m ³ /s		
1	Injection moulding	8	Block A, Lvl 1	3,200	1.51	15	0.36
2	Extruder	10	Block A, Lvl 2	8,850	4.18	15	0.60
3	Extruder	10	Block A, Lvl 2	8,850	4.18	15	0.60

Note: Basis flowrate 400 cfm/machine for injection moulding and 665 cfm/machine for extruder

HURAIAN PROSES (SISTEM PENGOLAHAN EFLUEN INDUSTRI)

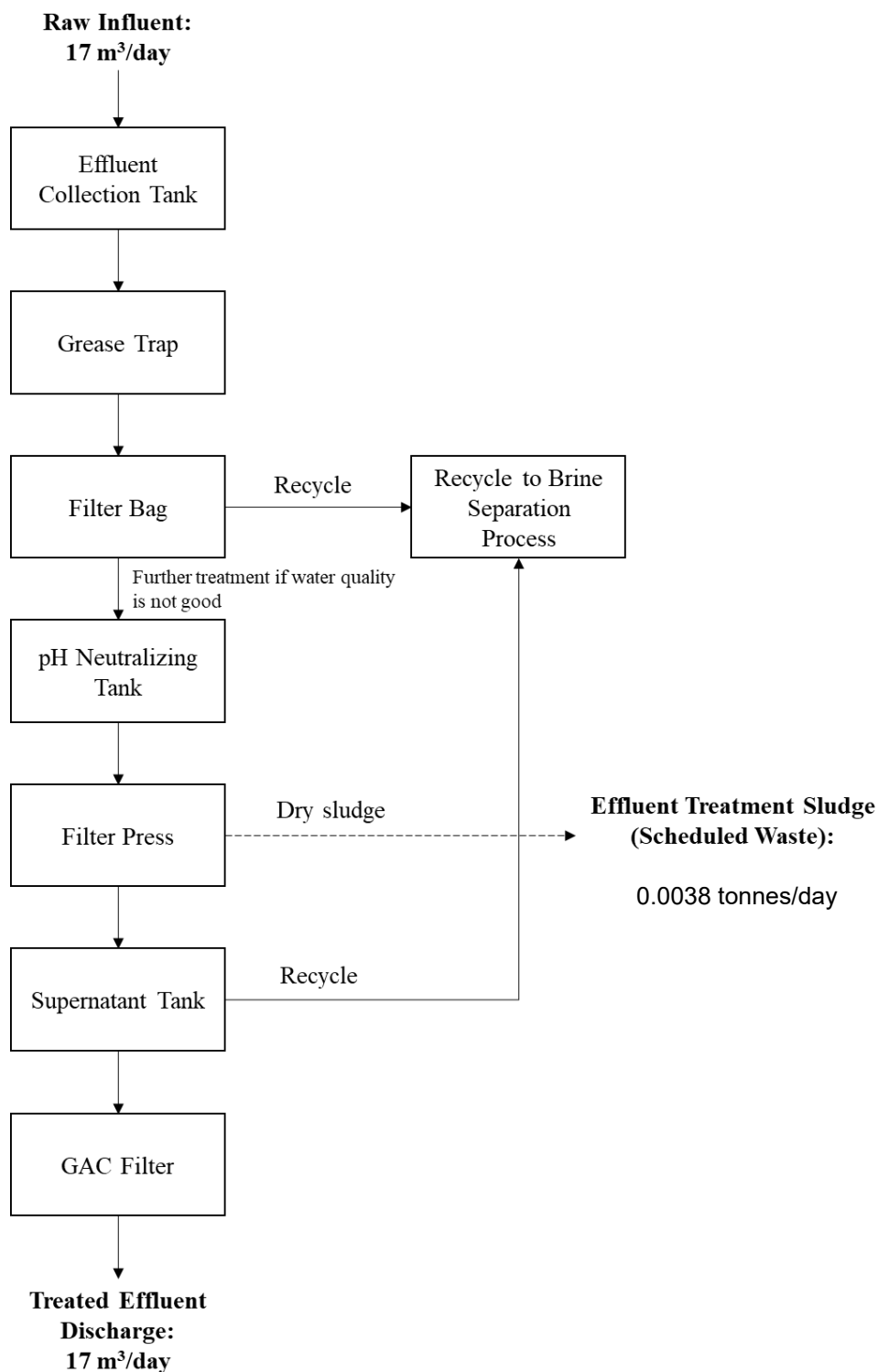
SISTEM PENGOLAHAN EFLUEN INDUSTRI

Sumber efluen: *brine separation*

Jangkaan efluen yang akan terhasil: 17 m³/hari

Kapsiti sistem IETS: 50 m³/day

Spesifikasi reka bentuk: Serupa dengan IETS di kilang Bukit Minyak (terbukti boleh mematuhi **Std A**, Peraturan-Peraturan Kualiti Alam Sekeliling (Efluen Industri) 2009)



KEADAAN PERSEKITARAN SEDIA ADA



GUNA TANAH SEKELILING

- Perumahan
- Komersial
- Industri



BAU

- Tiada bau dikesan di O1, O2, O4 dan O5
- Bau najis dikesan di O3, dijangkakan daripada kandang lembu berhampiran



KUALITI UDARA PERSEKITARAN

Kualiti udara di semua stesen pemantauan (A1, A2 & A3) dibawah *Malaysian Ambient Air Quality Standard 2020*

Parameter	Nilai
PM ₁₀	27.8 – 69.4 µg/m ³
PM _{2.5}	13.9 – 27.8 µg/m ³
SO ₂	< 1 µg/m ³
NO ₂	< 1 µg/m ³
CO	< 0.0001 µg/m ³
O ₃	< 1 µg/m ³
VOC	< had pengesanan



IKLIM DAN METEOROLOGI

Data diperoleh dari Stesen Meteorologi KLIA

Purata hujan bulanan	95.4 – 271.1 mm
Purata hari hujan	10 – 21 hari
Suhu	27.2 – 28.4 °C
Kelembapan relative	72.6 – 83.5 %
Corak tiupan angin	- Utama daripada utara dan timur laut - Purata kelajuan tahunan: 1.3 m/s



BUNYI BISING

Equivalent noise level (L_{Aeq}) di semua stesen pemantauan (N1, N2 & N3) di bawah *Recommended Permissible Noise Level at Existing Built Up Areas (DOE Reprint, 2021)*

Masa	Bunyi Bisling (L _{Aeq})
Waktu siang	44.7 – 56.2 dBA
Waktu malam	41.6 – 54.1 dBA



KUALITI AIR PERMUKAAN

Dibandingkan dengan Piawaian Kualiti Air Kebangsaan untuk Malaysia

Stesen Pemantauan	WQI (Sept. 2023)	WQI (Sept. 2025)
Sg. Chincang	Class II – III (69 – 89)	Class III (71-72)
Sg Labu	Class III (73.6)	Class III (71)

Note:

A1, N1, O1 merujuk kepada tapak projek

A2, N2, O2 merujuk kepada Bandar Baru Enstek

A3, N3, O3 merujuk kepada Kg. Felda L.B. Johnson

O4 merujuk kepada Coca Cola Bottlers Sdn. Bhd.

O5 merujuk kepada FGV Innovation Centre

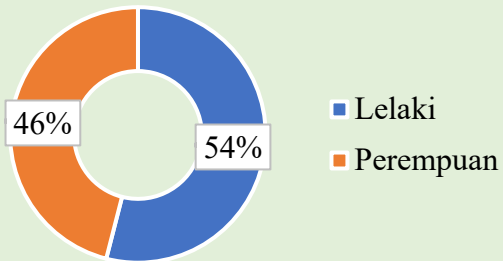


SOSIO-EKONOMI

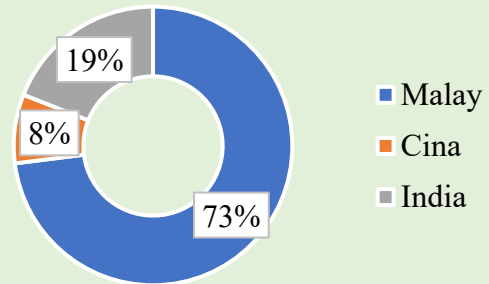
* 100 responden

* meliputi radius 3km

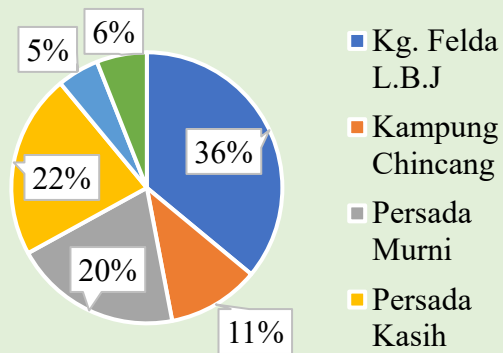
Jantina Responden



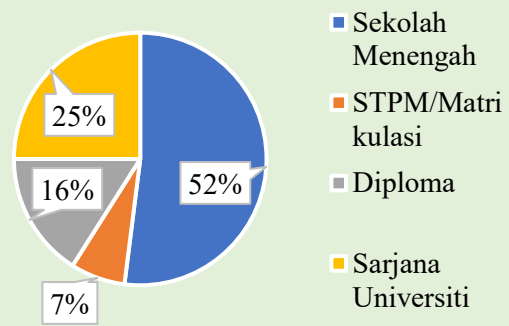
Bangsa



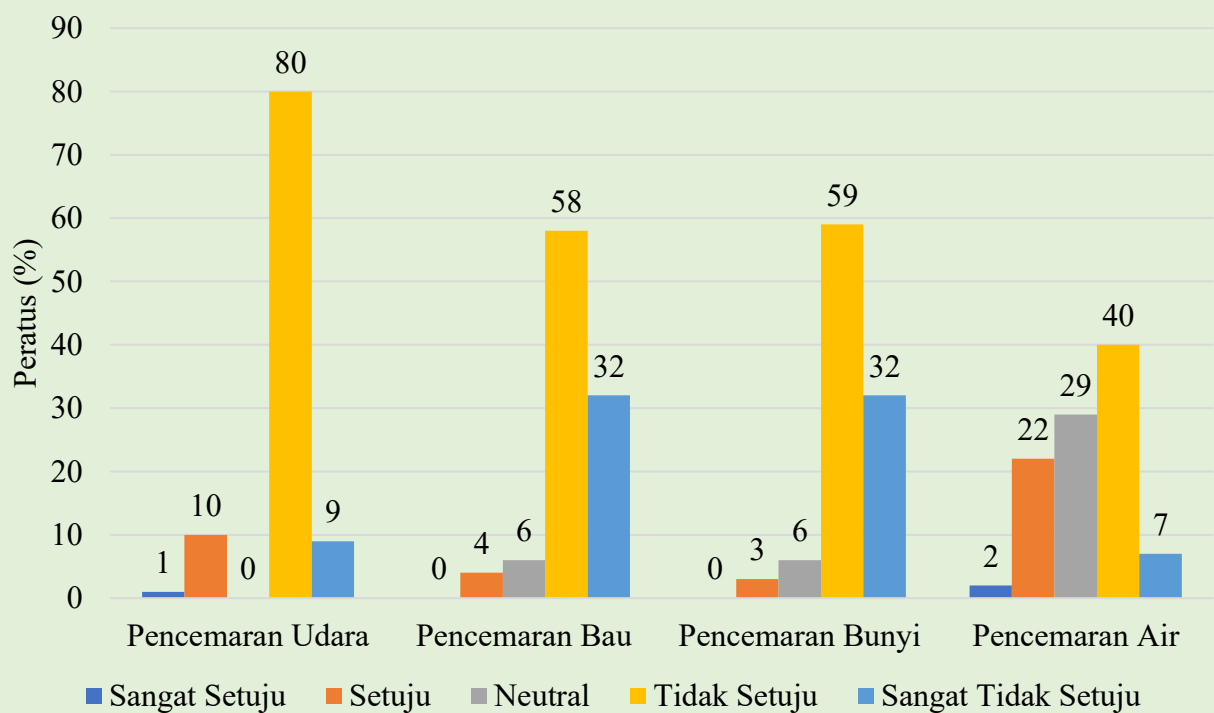
Kawasan Tempat Tinggal



Tahap Pendidikan



Keadaan Semasa di Sekitar Tapak Projek



PENILAIAN IMPAK DAN CADANGAN P2M2 (FASA OPERASI)



Kualiti Udara

Jangkaan Kesan

- Potensi pelepasan VOC daripada proses *extrusion* dan *injection moulding*

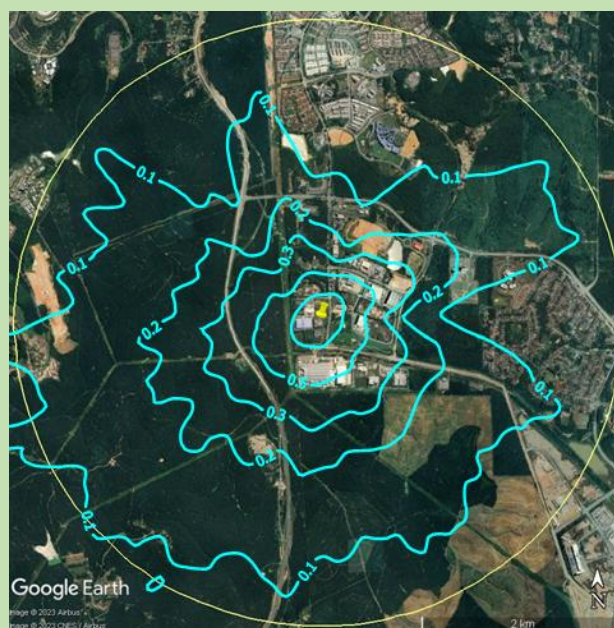
Kaedah Penilaian

- *AERMOD Modelling*

Parameter yang Dinilai

- *Volatile organic compounds (VOCs)*

Keputusan Permodelan



Lokasi Pemantauan	Purata Kepekatan VOC 24-jam ($\mu\text{g}/\text{m}^3$)	
	Tanpa Kawalan	Dengan Kawalan
Tapak projek	41.6	2.0
Bandar Baru Enstek	1.3	0.1
Kg. Felda L.B. Johnson	2.8	0.1

AAAQG limits: Butadiene: $1.3 \mu\text{g}/\text{m}^3$, Acrolein: $2.0 \mu\text{g}/\text{m}^3$ & Formaldehyde: $16 \mu\text{g}/\text{m}^3$

- Dengan AKPU, purata kepekatan VOCs bagi 24-jam adalah **di bawah had yang dinyatakan dalam AAAQG**
- Tanpa AKPU, purata kepekatan VOCs bagi 24-jam melebihi had bagi *butadiene* dan *acrolein* seperti yang dinyatakan dalam AAAQG

Proposed P2M2

- Optimumkan proses *extrusion* seperti suhu untuk mengurangkan pelepasan VOC
- Pasang sistem kawalan pencemaran udara iaitu activated carbon filter bagi menangkap dan merawat pelepasan VOC sebelum ia dilepaskan ke udara.
- Pantau pelepasan untuk memastikan kepekatan VOC berada dalam had yang ditetapkan
- Menggantikan activated carbon filter secara berkala untuk memastikan sistem kawalan pencemaran udara beroperasi dalam keadaan baik

PENILAIAN IMPAK DAN CADANGAN P2M2 (FASA OPERASI)



Tahap Bunyi Bising

Jangkaan Kesan

Bunyi dijangkakan daripada proses pengeringan dan penggaulan

- Berdasarkan pemerhatian di tapak, Kilang Bukit Minyak
 - Tahap bunyi bising di sumber, L_{Aeq} : 90.4 dBA
 - Tahap bunyi bising di luar bangunan kilang, L_{Aeq} : 67.8 dBA

Kaedah Penilaian

- Noise attenuation equation

Hasil Permodelan

- Tiada penghasilan bunyi yang ketara daripada aktiviti kilang
 - Jangkaan tahap bunyi bising di Bandar Baru Enstek dan Kg. Felda L.B. Johnson: 23.2 dBA
 - Tahap bunyi bising yang dibenarkan: 65 dBA untuk waktu siang, 60 dBA untuk waktu malam (DOE, 2021)

Cadangan P2M2

- Semua peralatan dan jentera hendaklah dilincirkan dengan betul dan diselenggara untuk operasi yang lancar
- Memastikan peralatan yang berpotensi menghasilkan bunyi bising diletakkan di dalam bangunan yang tertutup



Kualiti Air Permukaan

Jangkaan Kesan

- Isipadu pelepasan efluen yang tidak ketara
 - Pelepasan efluen : Sg Chincang = 0.0004 : 1
 - Pelepasan efluen : Sg Labu = 0.00001 : 1
- Kelas kualiti air bagi semua parameter di Sg. Chincang dan Sg. Labu selepas menerima efluen terawat **kekalkan seperti kelas kualiti air di peringkat garis dasar**

Parameter	Unit	Pelepasan Efluen Terawat	Kepekatan Bahan Cemar di Hilir			
			Sg. Chincang (W3)		Sg. Labu (W5)	
			Garis Dasar	Selepas Menerima Efluen Terawat	Garis Dasar	Selepas Menerima Efluen Terawat
BOD	mg/L	20	7.00 (Kelas IV)	7.01 (Kelas IV)	6.00 (Kelas IV)	6.00 (Kelas III)
COD	mg/L	80	35.00 (Kelas III)	35.02 (Kelas III)	35.00 (Kelas III)	35.01 (Kelas III)
SS	mg/L	50	32.00 (Kelas IIA)	32.01 (Kelas IIA)	35.00 (Kelas IIA)	35.00 (Kelas IIA)
Oil & grease	mg/L	1.0	1.00 (Kelas IIA)	1.00 (Kelas IIA)	2.00 (Kelas IIA)	2.00 (Kelas IIA)
DO	mg/L	0.0	6.52 (Kelas IIA)	6.52 (Kelas IIA)	5.01 (Kelas IIA)	5.01 (Kelas IIA)

Cadangan P2M2

- Memastikan semua efluen yang dihasilkan dirawat di sistem pengolahan efluen industri (IETS) sebelum dilepaskan ke saluran awam
- Memastikan kualiti pelepasan efluen terawat mematuhi Standard A, Peraturan-Peraturan Kualiti Alam Sekeliling (Efluen Industri), 2009
- Menjalankan penyelenggaraan dan pemantauan berkala pada IETS untuk memastikan rawatan yang baik pada setiap masa

PENILAIAN IMPAK DAN CADANGAN P2M2 (FASA OPERASI)



Penjanaan dan Pengurusan Sisa

Sisa Pepejal

No.	Jenis Sisa	Kuantiti (kg/hari)	Kaedah Pengurusan	Kekerapan Pelupusan
1	Beg jumbo yang koyak	16	Jual kepada pengitar semula	Bulanan
2	Palet kayu	32	Jual kepada pengitar semula	Bulanan
3	Kotak karton	92	Jual kepada pengitar semula	Bulanan

Buangan Terjadual

No.	Jenis Sisa	Quantity	Kaedah Pengurusan	Kekerapan Pelupusan
1	Enapcemar IETS (SW204)	600 kg/bulan	Premis yang ditetapkan	Setiap 6 bulan
2	<i>Spent lubrication oil</i> (SW305)	150 kg/6 bulan	Premis yang ditetapkan	Setiap 6 bulan
3	<i>Spent hydraulic oil</i> (SW306)		Premis yang ditetapkan	Setiap 6 bulan

CADANGAN PEMANTAUAN PRESTASI (IETS)

Lokasi/ Unit Proses	Parameter	Kekerapan	Tetapan
<i>Incoming effluent</i>	Kadar aliran	Harian	<i>Peak flow</i>
<i>pH neutralizing tank</i>	pH	Harian	Neutral
<i>GAC Filter</i>	Kadar aliran	Harian	<i>Peak flow</i>

CADANGAN PEMANTAUAN PEMATUHAN

Komponen Alam Sekitar	Parameter Pemantauan	Lokasi Pemantauan	Kekerapan Pemantauan	Keperluan Pematuhan
Pelepasan udara	NMVOC	Cerobong	Tahunan	Peraturan-Peraturan Kualiti Alam Sekeliling (Udara Bersih) 2014
Pelepasan efluen	31 parameter yang ditetapkan dalam Peraturan Kualiti Alam Sekeliling (Efluen Industri), 2009, Standard A	Pelepasan akhir efluen dirawat	Mingguan (penyerahan laporan pemantauan bulanan kepada JAS melalui sistem alam sekitar dalam talian (OER))	Standard A, Peraturan-Peraturan Kualiti Alam Sekeliling (Efluen Industri) 2009

CADANGAN PEMANTAUAN IMPAK: FASA UBAHSUAI

Komponen Alam Sekitar	Parameter Pemantauan	Lokasi Pemantauan	Kekerapan Pemantauan	Keperluan Pematuhan
Kualiti Udara	- PM₁₀ - PM_{2.5}	AQ1, NL1: Bandar Baru Enstek 2°44'40.35"N, 101°45'47.22"E	Bulanan	<i>Ambient Air Quality Guidelines 2020</i>
Bunyi Bising	- L_{Aeq} - L_{Amax}	AQ2, NL2: Kg. Felda L.B. Johnson 2°43'31.47"N, 101°46'39.48"E	Bulanan	<i>Recommended Permissible Sound Level (L_{Aeq}) by Receiving Land Use Existing Built Up Areas, Guideline of Noise Control and Limits 2019</i>

CADANGAN PEMANTAUAN IMPAK: FASA OPERASI

Komponen Alam Sekitar	Parameter Pemantauan	Lokasi Pemantauan	Kekerapan Pemantauan	Keperluan Pematuhan
Kualiti udara	- PM₁₀ - PM_{2.5} - VOC	AQ1, NL1: Bandar Baru Enstek 2°44'40.35"N, 101°45'47.22"E	Setiap 3 bulan	<i>Ambient Air Quality Guidelines 2020</i>
Bunyi bising	L _{Aeq}	AQ2, NL2: Kg. Felda L.B. Johnson 2°43'31.47"N, 101°46'39.48"E	Setiap 3 bulan	<i>Recommended Permissible Sound Level (L_{Aeq}) by Receiving Land Use Existing Built Up Areas, Guideline of Noise Control and Limits 2019</i>
Kualiti Air Permukaan	Parameters di dalam Standard Kualiti Air Kebangsaan bagi Malaysia	WQ1: Hulu Tapak Projek 2°43'46.45"N, 101°45'49.52"E WQ2: Sungai Chincang, Hilir Tapak Projek (~ 0.3km) 2°43'53.82"N, 101°45'48.67"E WQ3: Sungai Chincang, Hilir Tapak Projek (~ 3.0 km) 2°45'1.44"N, 101°45'5.49"E	Bulanan	Piawaian Kualiti Air Kebangsaan bagi Malaysia