EXECUTIVE SUMMARY

Environmental Impact Assessment (S1EIA) for The Upgrading of Sewage Treatment Plant from 14,000 PE to 36,000 PE for the Development at Senibong Cove and Senibong Hills, Mukim Plentong, Johor Bahru District, Johor Darul Takzim

Project Proponent

WM SENIBONG

SENIBONG COVE DEVELOPMENT SDN. BHD.

EIA Consultant

ES ECO SMART SDN. BHD.

INVIERA CONSULTING

INTRODUCTION

- Upgrading of sewage treatment plant for the proposed project with a capacity of Module 1: 36,000 PE with an area of 3.63 ac
- Located at PTD 215326, Senibong Cove and Senibong Hills, Mukim Plentong, Johor Darul Takzim

LEGISLATIVE REQUIREMENT

Section 34A, Environmental Quality Act (EQA) 1974, Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015;

First Schedule	Activity 14(c)(i). Waste Treatment and Disposal: Sewage: Construction of sewage treatment plant with 20,000 population equivalent or more.

STATEMENT OF NEEDS

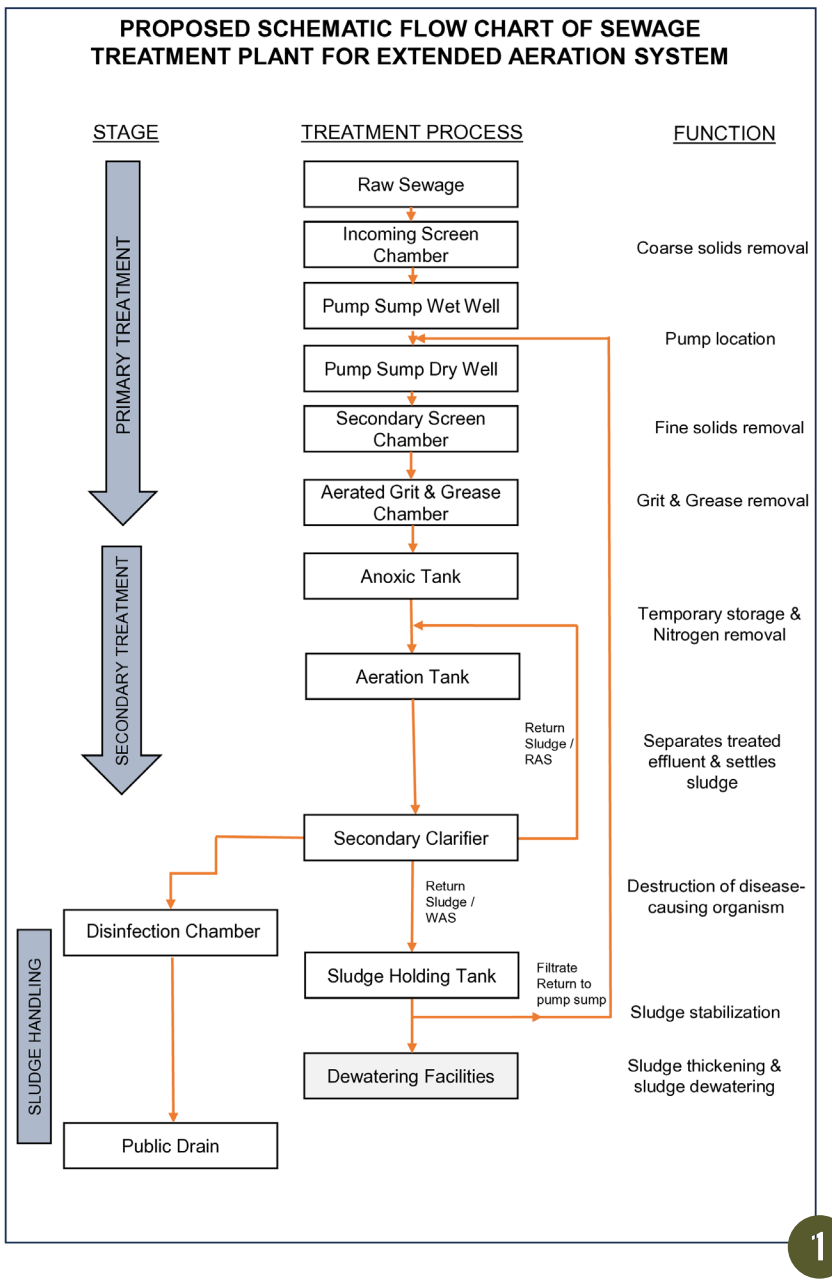
Upgrade sewage treatment plants with environmentally friendly technologies to decrease sewage pollution on water resources

The purpose of upgrading the capacity of sewage treatment plant (STP) from 14,000 PE to 36,000 PE is to accommodate the proposed new development in Plot 1, 2, 3, & 4 (Tanah Baru) in Senibong Cove and Senibong Hills, Mukim Plentong, Johor Bahru.

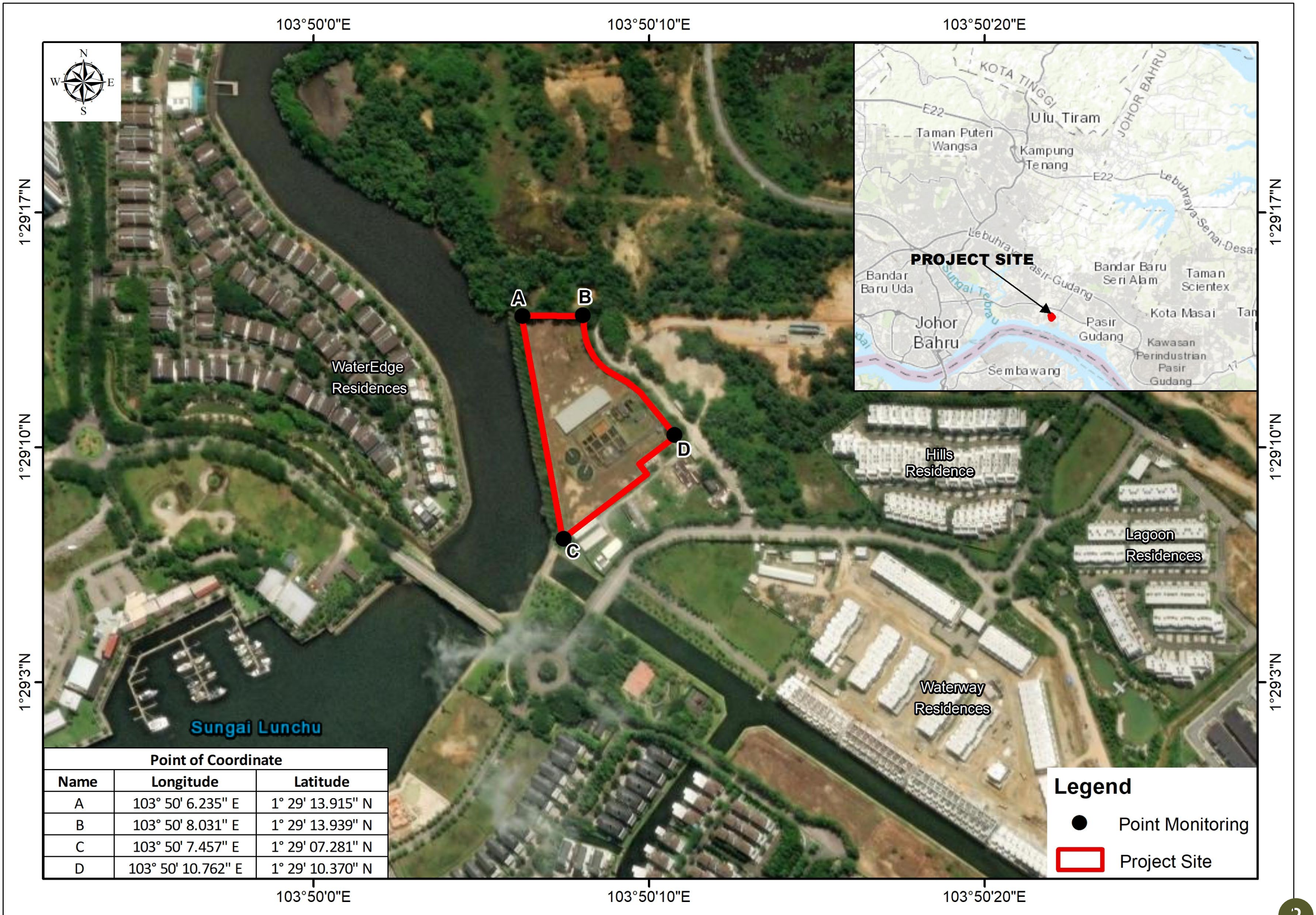
Signifies a commitment to the well-being of the community, environmental sustainability, and the responsible management of wastewater and to ensure a cleaner and healthier future for the region.

PROJECT DESCRIPTION

PROPOSED SCHEMATIC FLOW CHART OF SEWAGE TREATMENT PLANT FOR EXTENDED AERATION SYSTEM



PROJECT LOCATION



Point of Coordinate		
Name	Longitude	Latitude
A	103° 50' 6.235" E	1° 29' 13.915" N
B	103° 50' 8.031" E	1° 29' 13.939" N
C	103° 50' 7.457" E	1° 29' 07.281" N
D	103° 50' 10.762" E	1° 29' 10.370" N

Legend

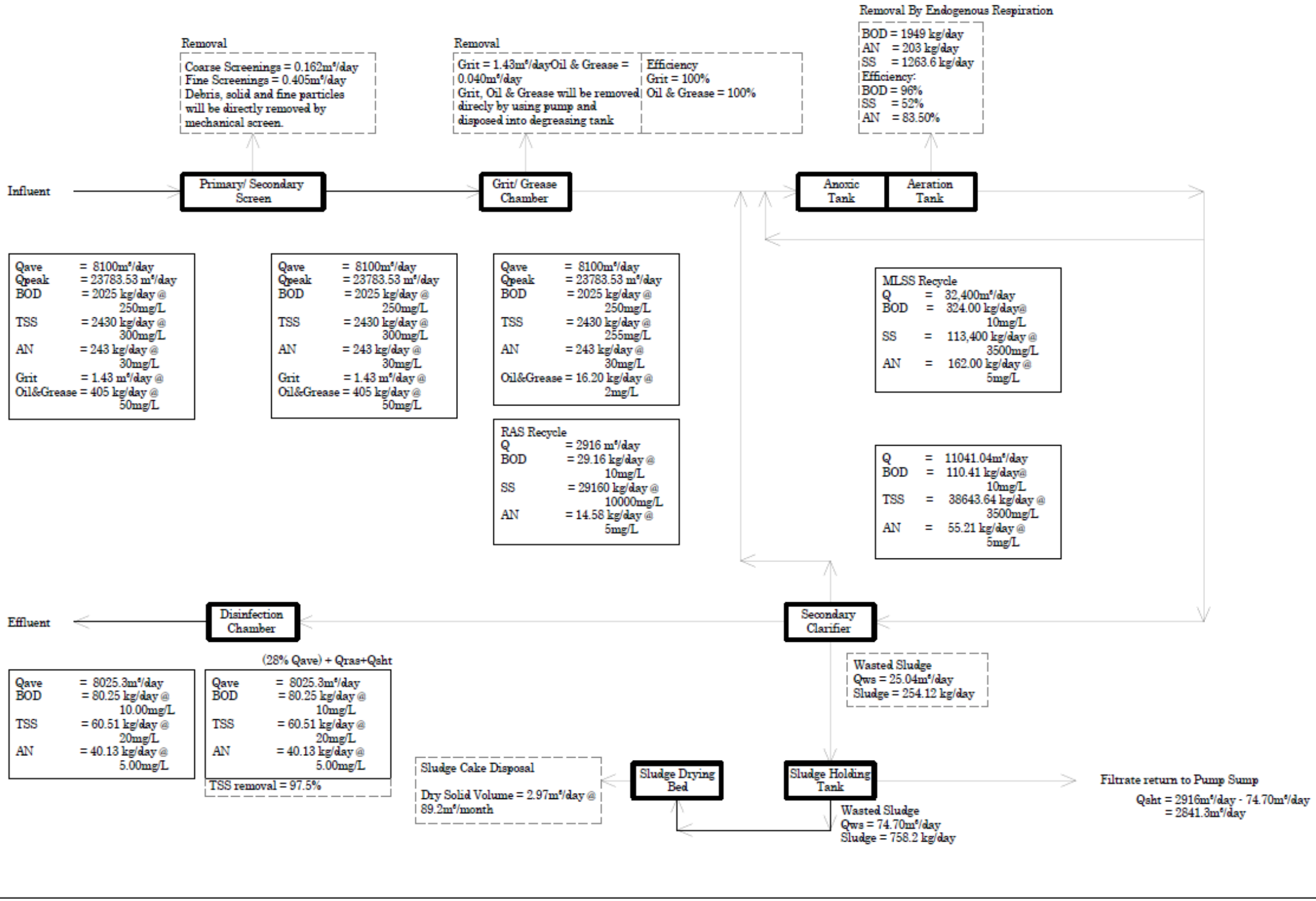
- Point Monitoring
- Project Site

IMMEDIATE RECEPTOR WITHIN 1 KM

No	Name of Location	Longitude	Latitude
1	Hills Residence	103° 50' 20.965" E	1° 29' 10.326" N
2	Lagoon Residences	103° 50' 24.950" E	1° 29' 9.055" N
3	Waterway Residences	103° 50' 20.043" E	1° 29' 4.751" N
4	Ayera Residences	103° 50' 33.252" E	1° 29' 5.919" N
5	Isola Grandeur	103° 50' 6.006" E	1° 28' 53.389" N
6	Isola Villas	103° 50' 13.675" E	1° 28' 55.838" N
7	WaterEdge Residences	103° 49' 54.965" E	1° 29' 20.489" N
8	WaterEdge Apartments	103° 49' 50.894" E	1° 29' 22.793" N
9	Markas Pemerintahan Pasukan Simpanan TLDM	103° 49' 37.148" E	1° 29' 5.002" N
10	Senibong Villas	103° 50' 12.358" E	1° 29' 31.664" N
11	Green Haven	103° 50' 27.391" E	1° 29' 30.120" N
12	Kampung Lunchu	103° 49' 37.823" E	1° 29' 7.558" N
13	Taman Megah Ria	103° 50' 37.304" E	1° 29' 24.701" N

MASS BALANCE

MASS BALANCE DIAGRAM FOR STP M1 SENIBONG COVE (36,000PE)



PROJECT ACTIVITIES

PRE-CONSTRUCTION STAGE

- Planning and Preparatory Works;
- Data Collection, Field Surveys & Data Analysis; and
- Design and Report

CONSTRUCTION STAGE

- Site clearance;
- Drainage works;
- Building works; and
- Mechanical & Electrical.

INSPECTION, TESTING & COMMISSIONING

- Inspection by related authority;
- Internal and Official test run; and
- Certificate of Practical Completion (CPC)

OPERATION

- Maintenance

EXISTING ENVIRONMENT

Land Used

- The Project site is surrounded by residential properties in Senibong Cove and Senibong Hills and near to Sg. Lunchu and Johor East Parkway

Topography

- The Topography of the Project site is flat area with elevation range between 2 m and 3 m above sea level

Geography

- Underlain mainly by Quaternary-marine and continental deposits: clay, silt, sand, peat with minor gravel. Basalt of Early Pleistocene age in Kuantan area.

Hydrology

- The proposed project site is in Senibong Cove Development which located within Sg. Lunchu catchment area.
- Surface runoff from the site will directly discharge into Sg. Lunchu and eventually into Straits of Johor

Climate

- Data collected from Senai Meteorological Station (25.27 km away)
- Daily temperature for 10 years (2015-2024) : 26.6°C – 27.7°C
- Relative humidity: 82.0 % (lowest, February) to 87.5 % (highest, November)
- Average annual rainfall 2015-2024: 2629.5 mm with annual mean rain: 198.2 days
- Monthly rainfall and rain days peaks: November (324.8 mm, 21.6 days)

Baseline

- Water Quality –WQI at Sg. Lunchu is 64.83(LT) and 73.14 (HT) both within Class III, categorized as “Slightly polluted”. MWQI for estuarine is 54.7 (LT) and 53.0 (HT) categorizes as "Moderate“. MWQI at Straits of Johor is 50.7 (LT) and 53.1 (HT), categorized as moderate.
- Ambient Air – complied with Malaysia Ambient Air Quality Standard
- Ambient Noise – mostly complied with the Guidelines for Environmental Noise Limits and Control
- Odour – the only noticeable unpleasant odor was detected at OD4 originated from vegetation, and river.

Ecology

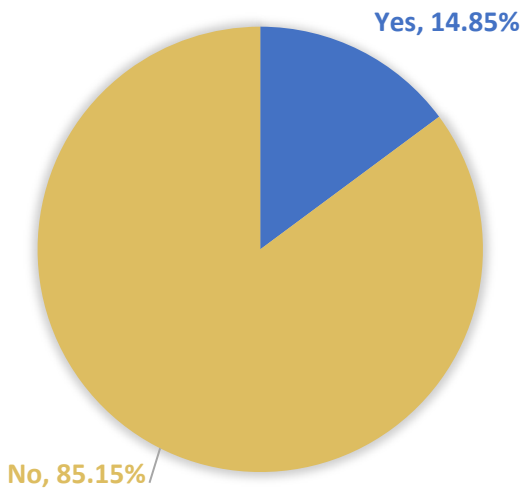
- Ecological condition of the project site is poor as interspersed with grasslands.

SOCIO ECONOMIC

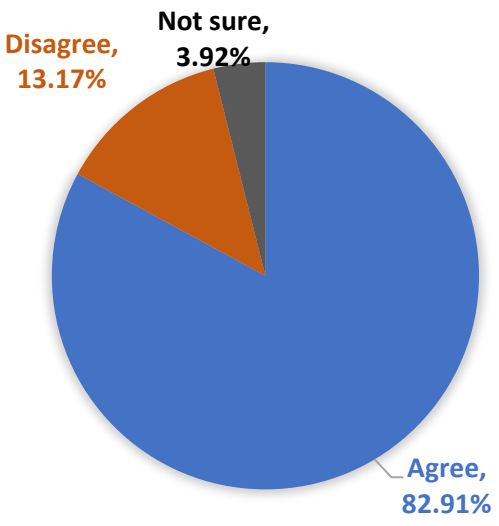
Total respondent: 357

Method: Questionnaire survey and interview.

PUBLIC ACKNOWLEDGEMENT



PUBLIC ACCEPTANCE



	IMPACT	MITIGATION
CONSTRUCTION STAGE	Ecology The project site may not have a significant ecological impact, discharges to adjacent rivers during the construction and operational stages pose potential risks to the aquatic environment.	Ecology The mitigation measures has been proposed in LD-P2M2 shall be implemented and maintain regularly. To ensure the water quality is always in good condition and subsequently can preserve the aquatic ecosystem
	Erosion and Sedimentation Site clearing will result in erosion and subsequent sedimentation. This will result in increased TSS and turbidity in Sungai Lunchu	Erosion and Sedimentation LDP2M2 needs to be implemented before the start of site clearing and construction work. BMP maintenance needs to be implemented as best as possible. Monitoring of water quality from the final discharge of the silt trap should be carried out.
	Hydrology Site preparation and construction will result in increased runoff which may cause flooding around the project site	Hydrology All drains will be designed and constructed to provide the best hydraulic characteristics and under normal conditions will not flood, either during construction or after the works are completed.
	Water Quality Site clearing and construction have the potential to increase TSS and turbidity levels in the Sg. Lunchu as well as sewage from workers may pollute the Sg. Lunchu.	Water Quality LDP2M2 recommendations need to be implemented before site preparation. BMPs installed at the project site need to be maintained periodically. The surveillance program must be implemented as recommended in the EMP. Need to provide mobile toilets around the construction area.
	Air Quality The results of the assessment of the impact of increasing PM10 on the nearest recipient area show an insignificant effect.	Air Quality Providing facilities for washing tires, cleaning roads that are affected by soil dirt, regularly wetting open areas by using a water browser
	Noise Activities that have the potential to generate noise are such as the use of heavy machinery and vehicles going in and out of the project site. The results of the noise impact assessment around the nearest sensitive area show that the increase in noise does not have a significant impact.	Noise Maintain plants around the project site. All vehicles need regular maintenance. Limit working hours during the day only. Strictly prohibited to work at night, weekends and public holidays.
	Wastes Management Among the waste expected to be generated from the project site are domestic solid waste, construction material waste and scheduled waste. Failure to properly manage waste has the potential to result water pollution in Sungai Lunchu.	Waste Management Provide a waste collection center within the project site. Garbage is separated by category. Scheduled waste must be handled in accordance with the Environmental Quality (Scheduled Waste) 2005 regulations. Provide a scheduled waste storage store. Domestic waste must be disposed of at the landfill site in Seelong.
	Safety and Health Safety → unsafe work condition that led to accident	Safety and Health The company must comply with all the provisions of the Occupational Safety and Health Act 1994 & Factories and Machinery Act 1967 and the Regulations Thereunder.
	Social Foreign workers → disease, poor hygiene, crime	Social ➢ Prioritize for local workers ➢ Legal employment of foreign workers with monitored movement.
	Land Traffic Heavy machinery transported by more vehicles on the road No worker camp → daily shuttles for workers needed.	Land Traffic Plan routes for construction material and soil transport to reduce disturbance to residential areas
OPERATION STAGE	Water Quality Failure of the STP to function properly and any leakage from the sewage drainage pipe can result in water quality pollution of the Sungai Lunchu.	Water Quality ➢ The discharge of treated water from the STP to Sungai Lunchu must comply with standards A. Conduct regular inspection, maintenance and monitoring. ➢ Maintenance STP facilities regularly
	Air Quality Air pollution from vehicular emissions are minor and have non-significant effect on the environment	Air Quality Regular servicing of vehicles.
	Odor Discomfort, health concerns, and a decreased sense of well-being in the vicinity from unpleasant odour and fugitive odour emissions	Odor Buffer zone is provided to reduce odour pollution and curtailing the spread of odorous nuisances in and around the project
ABANDONMENT STAGE	Soil Erosion and Sedimentation Soil erosion at cleared area especially during heavy rainfall. Sedimentation and water pollution at nearby water bodies	Soil Erosion and Sedimentation Properly establish turfing or landscaping to prevent severe soil erosion
	Water quality Ingress and accumulation of the construction materials via surface runoff. Silt runoff will increase the TSS and turbidity levels of nearby water bodies	Water Quality Prepare and submit a detailed abandonment/closure plan for approval, including closing date, site stabilization work, and site cleaning work.
	Socio Economic Loss of employment opportunity & Business Opportunity.	Socio Economic Prepare and submit a detailed abandonment/closure plan for approval, including closing date, site stabilization work, and site cleaning work

PERFORMANCE MONITORING

No	Type of P2M2	Parameter	Standard/ Recommendations	Frequency
1.	Runoff Management Control			
	Earth Drain	-	Remove accumulated silt when drain is 2/3 filled.	Weekly & after rainfall event or rainfall reading ~ 12.5 mm.
	Check Dam	-	Desilt when sediment reaches 1/3 of dam height.	Weekly & after rainfall event or rainfall reading ~ 12.5 mm.
2.	Erosion Control			
	Turfing	-	Do not mow until turf is rooted.	Water daily during the first week, unless rainfall is sufficient.
	Surface Roughening	-	Reseed or rework area as needed.	Periodically check the slopes of rills, gullies, and washes.
	Plastic Sheet/Geotextile/Blanket	-	Re-anchor and replace damaged plastic sheets.	weekly and after every significant rainfall
3.	Sediment Control			
	Washtrough	-	Periodically remove sediment.	Weekly & after rainfall event or rainfall reading ~ 12.5 mm.
	Silt Fence	-	Repair bulges or desilt when sediment reaches 1/3 of fabric height.	Weekly & after rainfall event or rainfall reading ~ 12.5 mm.
	Check Dam	-	Desilt when sediment reaches 1/3 of dam height.	Weekly & after rainfall event or rainfall reading ~ 12.5 mm.
	Silt Trap	TSS: 50 mg/l Turbidity: 50 NTU	Remove sediment after heavy rain or when basin is 1/2 full.	Weekly & after rainfall event or rainfall reading ~ 12.5 mm.
4.	Tracking Control			
	Stabilized Construction Entrance	-	Inspect and clean sediment traps after rainfall.	Regularly

IMPACT MONITORING DURING CONSTRUCTION

Ambient Air

- 4 Stations
- Monthly
- Malaysian Ambient Air Quality Standard (2020)

Noise

- 4 Stations
- Monthly
- Guidelines for Environmental Noise Limits and Control, Third Edition, 2021 (Reprint).

Water Quality

- 3 Stations
- Monthly
- National Water Quality Standard (NWQS) & Malaysian Marine Water Quality Standard for Estuarine Class E1 (Coastal Plain) & Class 2

COMPLIANCE MONITORING DURING CONSTRUCTION

Silt Trap

- 1 Station
- Monthly
- EIA Approval conditions

COMPLIANCE MONITORING DURING OPERATION

Sewage Treatment Plant (STP) Final Discharge

- 1 station
- Monthly
- Standard A limits of the Environmental Quality (Sewage) Regulations 2009

IMPACT MONITORING LOCATION

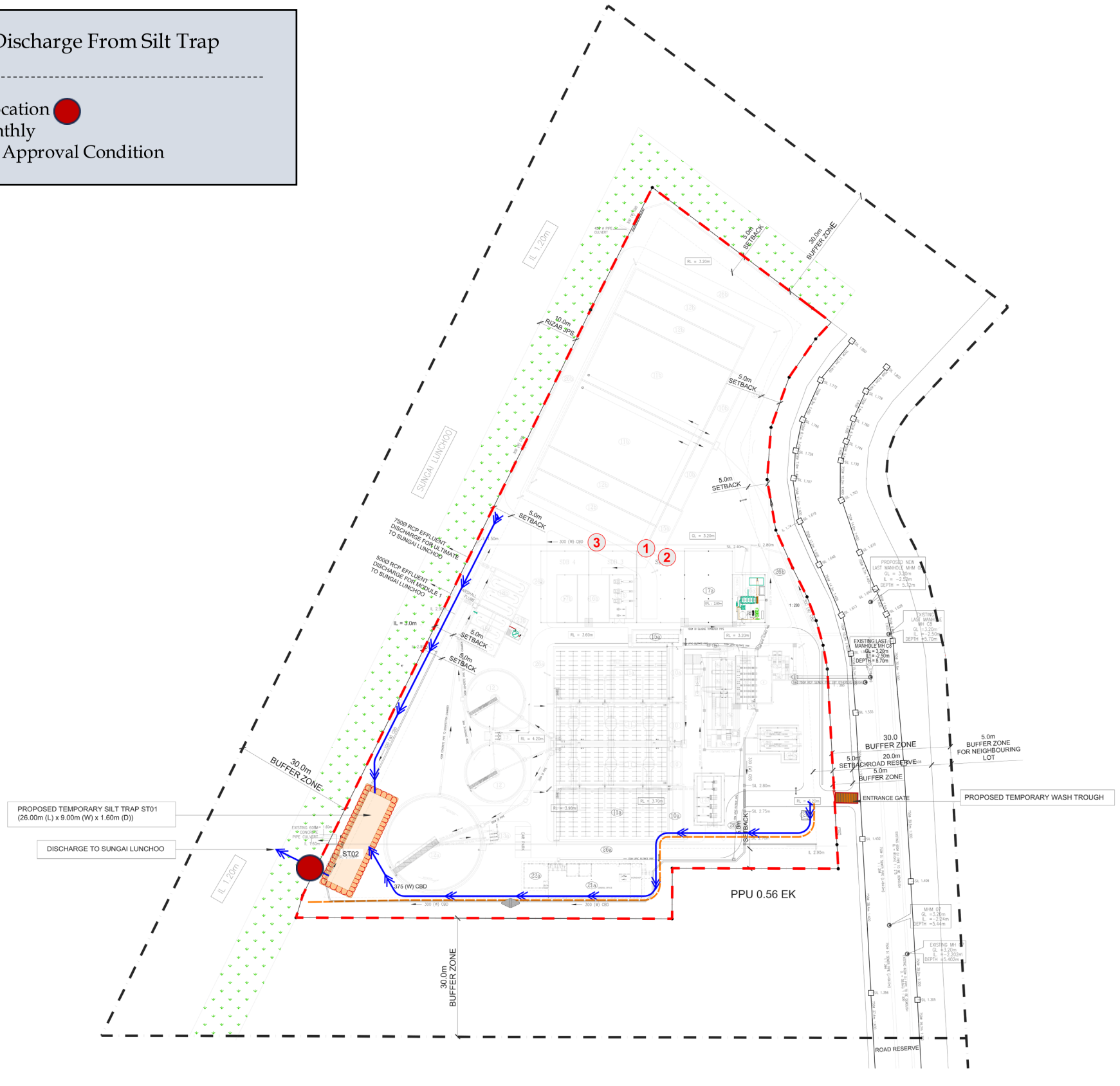
Coordinate of Air (A) and Noise (N) Monitoring Station		
Name	**Longitude**	**Latitude**
A1, N1	103° 49' 51.570" E	1° 29' 6.877" N
A2, N2	103° 50' 7.299" E	1° 28' 45.672" N
A3, N3	103° 50' 8.658" E	1° 29' 9.333" N
A4, N4	103° 50' 16.160" E	1° 29' 8.700" N

Coordinate of Surface Water (SW) and Marine Biology (MW) Monitoring Station		
Name	**Longitude**	**Latitude**
SW1	103° 50' 1.783" E	1° 29' 29.129" N
SW2	103° 50' 1.340" E	1° 29' 2.012" N
MW1	103° 49' 30.48" E	1° 28' 39.65" N

COMPLIANCE MONITORING DURING CONSTRUCTION STAGE

Final Discharge From Silt Trap

- ❑ 1 Location
- ❑ Monthly
- ❑ EIA Approval Condition



COMPLIANCE MONITORING DURING OPERATIONAL STAGE

Sewage Treatment Plant (STP) Final Discharge

- ❑ 1 Location
- ❑ Monthly