

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE *CADANGAN PEMBANGUNAN RUMAH MAMPU MILIK DAN BERCAMPUR DI ATAS TANAH KERAJAAN & LOT 2201 DI BUKIT TEBOK, MUKIM KUALA DUNGUN, DAERAH DUNGUN, TERENGGANU DARUL IMAN*

EXECUTIVE SUMMARY

PROJECT DEVELOPER:



**DINASTI SAKTI
SDN. BHD**

ENVIRONMENTAL CONSULTANT:



Engineering Services Sdn. Bhd.

PROJECT AREA

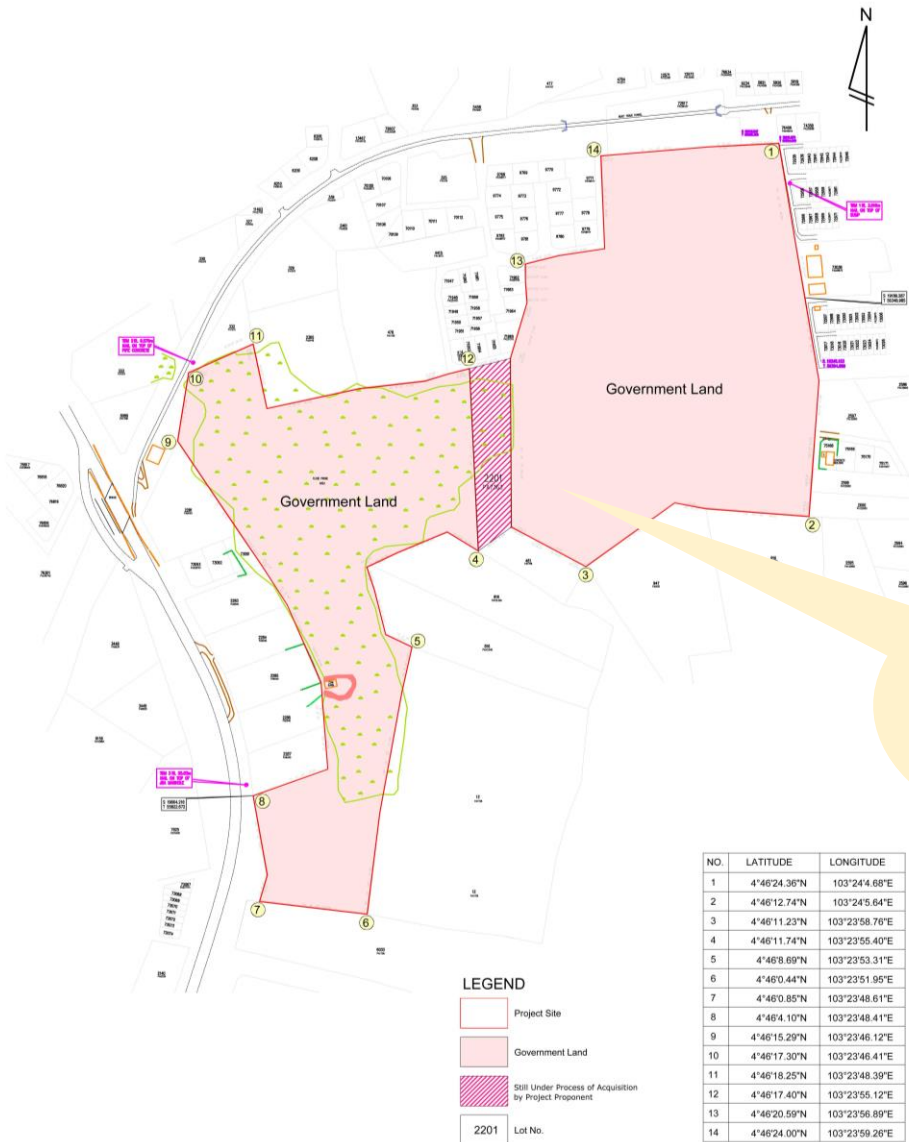
The total area of the Project Site is 41.93 acres (16.97 hectares).

PROJECT CONCEPT

Proposed Mixed Development

JURISDICTION

Majlis Perbandaran Dungun (MPD)



**STUDY BOUNDARY
(SCOPE OF EIA)**

NO.	LATITUDE	LONGITUDE
1	4°46'24.36"N	103°24'4.68"E
2	4°46'12.74"N	103°24'5.64"E
3	4°46'11.23"N	103°23'58.76"E
4	4°46'11.74"N	103°23'55.40"E
5	4°46'8.69"N	103°23'53.31"E
6	4°46'0.44"N	103°23'51.95"E
7	4°46'0.85"N	103°23'48.61"E
8	4°46'4.10"N	103°23'48.41"E
9	4°46'15.29"N	103°23'46.12"E
10	4°46'17.30"N	103°23'46.41"E
11	4°46'18.25"N	103°23'48.39"E
12	4°46'17.40"N	103°23'55.12"E
13	4°46'20.59"N	103°23'56.89"E
14	4°46'24.00"N	103°23'59.26"E

ACCESSIBILITY



- In terms of accessibility, the Project Site is accessible via:
- East Coast Expressway → Exit Kuala Dungun (Exit 851) → Jalan Bukit Besi - Dungun [132] → Jalan Kuala Terangganu (FT3) → Project Site

CURRENT CONDITION

- The Project Site is dominated by secondary forest which made up of secondary vegetation, bushes, shrubs and swampy area.
- In addition, this area mainly made up of undisturbed area and few cut slopes at the project site at the eastern of the project site which has been used for earth work construction of Rumah Mampu Milik (RMM) Bukit Tebuk in 2006



Immediate Receptors of The Project Site

Direction	Residential	Others
North	• Kampung Tanjung Pagar • Kampung Nibung	• Secondary forest • Surau Ashabul Kahfi • Kawasan Perindustrian Pulau Serai • Sungai Dungun • Terowong Bukit Tebuk
East	• RMM Bukit Tebuk • Kampung Padang Jambu	• Secondary forest • Surau Nurul Ehsan Padang Jambu • SMA Sultan Ismail
South	• Taman Darul Iman Utama • Kg. Che Lijah	• Secondary forest • Hospital Dungun • SMK Kompleks Padang Jambu
West	-	• Secondary forest • Sungai Dungun

Revised EIA

KEY & LOCATION PLAN



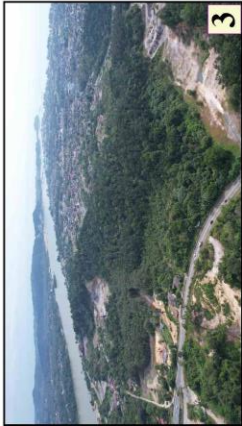
CURRENT CONDITION OF THE PROJECT SITE



View from Southern of the Project Site



View from Southwest of the Project Site



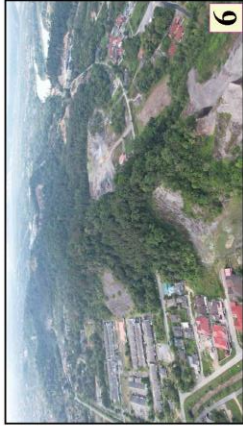
View from Western of the Project Site



View from Northwest of the Project Site



View from Northern of the Project Site



View from Northeast of the Project Site



View from Eastern of the Project Site



View from Southeast of the Project Site

IMMEDIATE RECEPTORS OF THE PROJECT SITE

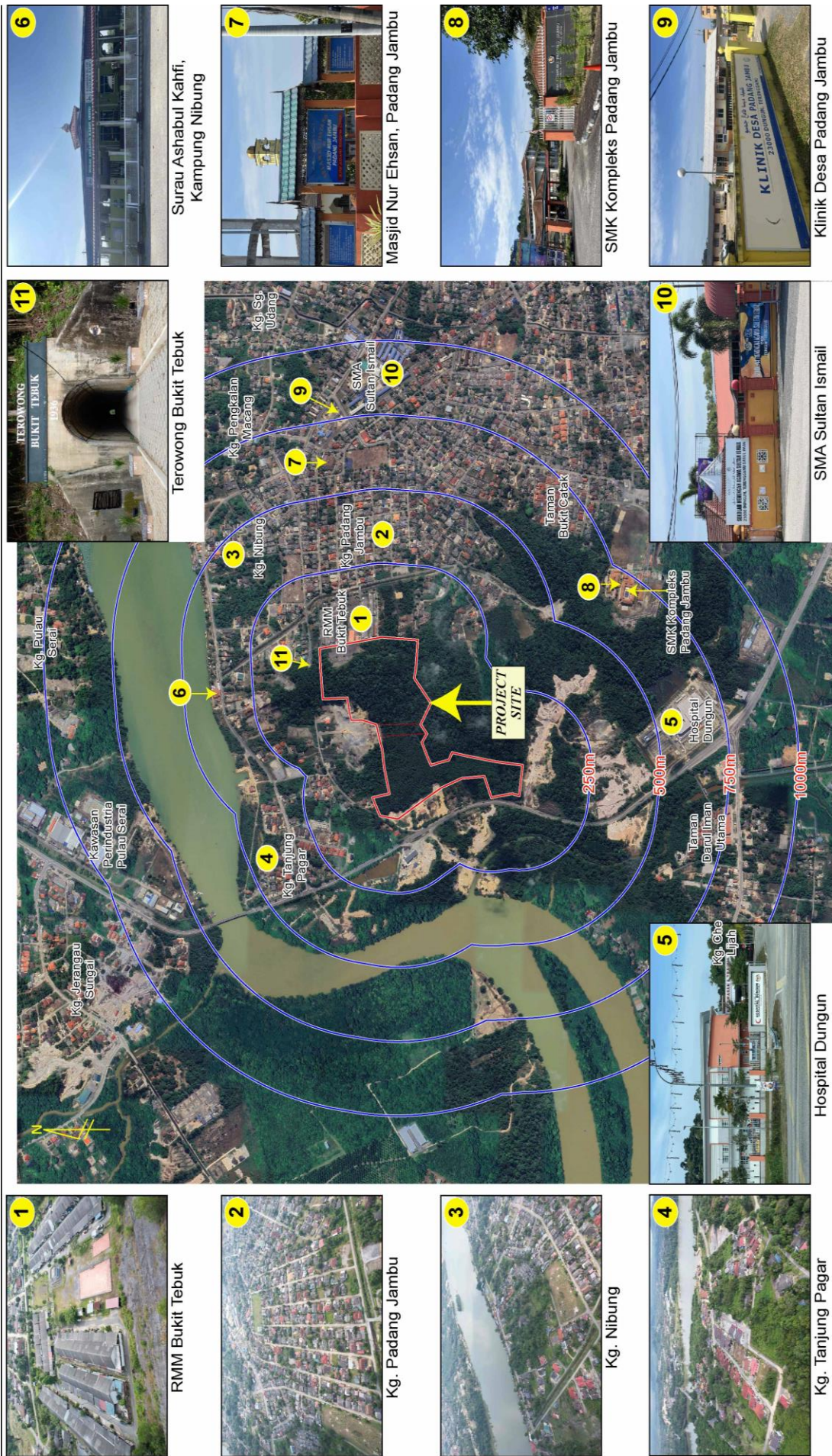
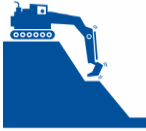


Figure 1.6 : Distance to the Immediate Receptors of the Project Site (i.e. within 1km radius)

Source : Europasia Engineering Services Sdn. Bhd.

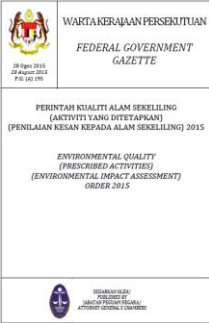
NOT TO SCALE



ACTIVITY 13: DEVELOPMENT IN SLOPE AREA

Development or land clearing less than 50 per cent of an area with slope greater than or equal to 25° but less than 35°.

There is approximately **7.59 %** of the Project Site which are steep slopes (26° - 35°).



STATEMENT OF NEED

1 STRATEGIC LOCATION & HIGH ACCESSIBILITY

- In terms of accessibility, the Project Site is accessible via:

East Coast Expressway → Exit Kuala Dungun (Exit 851) → Jalan Bukit Besi - Dungun [132] → Jalan Kuala Terengganu/Laluan Persekutuan 3/AH18 → Project Site

- Will cater to RMM Bukit Tebuk, Kg. Padang Jambu, Kg. Nibung and surrounding built-up area population catchment.

2 LANDUSE OPTIMIZATION

- The proposed Project will optimize the usage of land, which is presently covered with secondary forest.
- The proposed development will serve to fulfill the demand for mixed development in the area towards Year 2035.
- Congruent with the surrounding area landuse which consist of communities of Rumah Mampu Milik (RMM) Bukit Tebuk, Kg. Padang Jambu, Kg. Nibung and Kg. Tanjung Pagar.
- The development will indirectly increase the value of property in the surrounding areas.

3 ENVIRONMENTAL CONSIDERATION

- From an ecological point of view, the current biodiversity of the flora and fauna composition of the site will be slightly affected as the current secondary forest will have to be sacrificed during the construction state.
- The proposed development includes in its concept the development of greening areas and appropriate buffer zone with its surroundings.
- Proper geotechnical engineering to be applied to protect the Class III slope areas from any landslides and topography stabilization for a safe and secure inhabitation at the proposed site.

4 OTHER SUPPORTING MATTERS

- Expands employment market ranging from laborers (i.e., construction phase) to office/clerical works (i.e., operational phase of the commercial area).
- Increases in state and nation's revenue through issuance of licenses and collection of taxes.
- Expected to cater residential units for buyers.
- Provide an affordable housing area to purchase buyers

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CONCEPTUAL DEVELOPMENT PHASING

- Residential unit is the main component proposed in the project which occupies 15.37 acres (41.73%) of the Project area.
- Infrastructure is the second main component for this project which occupies 14.24 acres (38.65%).
- The residential components consist of:
 - Townhouse (TYPE A) (120 units)
 - 1 Floor Terrace House (TYPE B)(126 units)
 - 1 Story Terrace House (TYPE C) (133 units)
 - Link House Bungalow 1 floor ½ (TYPE D) (38 units)
 - 1 Story Semi-detached House (TYPE E) (18 Units)

435 units for residential component



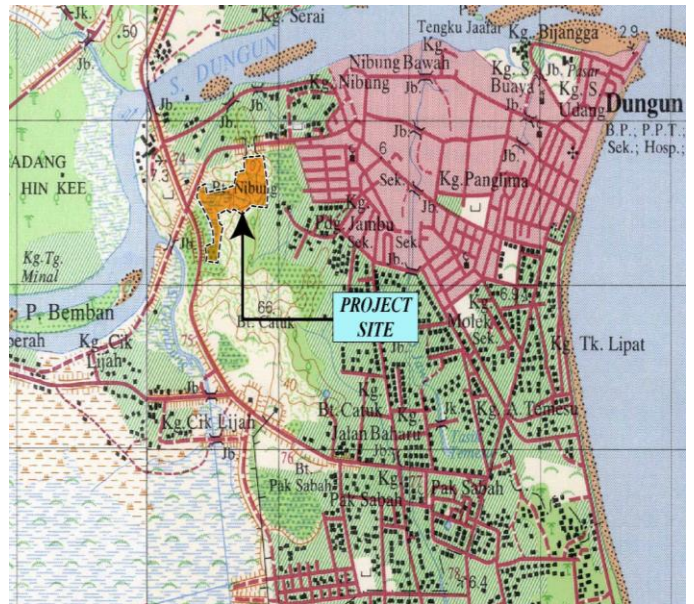
KOMPONEN PEMBANGUNAN	UNIT	EKAR	%
FASA 1			
RMM (A) Rumah Bandar (Jenis A)(Hakmilik Strata) - (40 Unit x 3 Tingkat = 120 Unit)	120	0.747	2.03
PP Pejabat Pengurusan	1	0.015	0.04
PP Pondok Pengawal	1	0.002	0.01
Rumah Sampah	1	0.014	0.04
Loji Rawatan Kumbahan	1	0.456	1.24
PE (I) TNB Substation	1	0.091	0.25
Taman Permainan	-	0.165	0.45
JUMLAH KECIL FASA 1	125	1.490	4.05
FASA 2			
RMM (B) Rumah Teres 1 Tingkat (Jenis B)(22'x70')	28	1.233	3.35
RLB (D) Rumah Link Banglo 1 Tingkat 1/2 (Jenis D)(40'x70')	38	2.612	7.09
RKB (E) Rumah Berkembar 1 Tingkat (Jenis E)(35'x80')	18	1.262	3.43
RT (C) Rumah Teres 1 Tingkat (Jenis C)(22'x70')	33	1.413	3.84
Tangki Air	1	0.259	0.70
PE TNB Substation	1	0.055	0.15
JUMLAH KECIL FASA 2	119	6.835	18.56
FASA 3			
RMM (B) Rumah Teres 1 Tingkat (Jenis B)(22'x70')	19	0.816	2.22
RT (C) Rumah Teres 1 Tingkat (Jenis C)(22'x70')	100	3.951	10.73
Surau	-	0.344	0.93
Rumah Pam	1	0.055	0.15
PE TNB Substation	1	0.050	0.14
JUMLAH KECIL FASA 3	121	5.216	14.16
FASA 4			
Kedai 1 Tingkat (20'x70')	16	0.619	1.68
Ruang Penjaja	-	0.220	0.60
JUMLAH KECIL FASA 4	16	0.839	2.28
FASA 5			
RMM (B) Rumah Teres 1 Tingkat (Jenis B)(22'x70')	52	2.040	5.54
JUMLAH KECIL FASA 5	52	2.040	5.54
FASA 6			
RMM (B) Rumah Teres 1 Tingkat (Jenis B)(22'x70')	27	1.298	3.52
JUMLAH KECIL FASA 6	27	1.298	3.52
LAIN-LAIN			
Tapak Dewan Terbuka	-	0.251	0.68
Tapak Taska	-	0.102	0.28
Kolam Takungan	-	1.206	3.27
Kawasan Lapang & Pemandar Komunikasi	-	3.738	10.15
Jalanraya & TLK	-	13.815	37.51
JUMLAH KECIL LAIN-LAIN	-	19.112	51.89
JUMLAH KESELURUHAN	460	36.830	100.00





TOPOGRAPHY

- Nearly flat terrains to steep sloping and undulating terrain with an average elevation ranging from 2.27m to 62.20m above mean sea.
- Highest point ~ 62.20m is located at the northeastern portion of the Project Site
- Lowest point ~2.27m lies in the western boundary of the Project Site

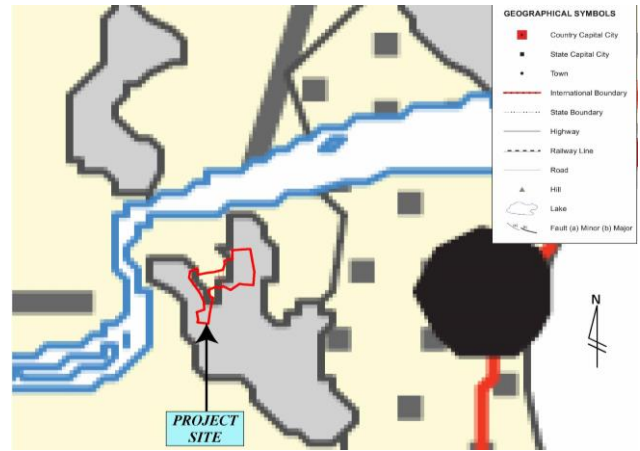


HYDROLOGY

- The Project Site lies within the Sg. Dungun catchment area and is located approximately 86 km upstream of the Sg. Dungun estuary at Kuala Dungun.
- There are four (4) water intakes located within the Sg. Dungun catchment and none of the water intakes located downstream of the Project Site.
- The surface runoff from the eastern portion of the Project Site will flow into the existing drain which located at the western region near to Rumah Mampu Milik (RMM) Bukit Tebuk.
- The surface runoff will then flow northwards along this drainage prior discharge into Sg. Dungun near to Jalan Nibong Bawah.
- The surface runoff from the western portion of the Project Site will flow into the tributary of Sg. Dungun prior merge into the main river of Sg. Dungun. The river water of Sg. Dungun will flow eastwards before eventually drains into South China Sea.

GENERAL GEOLOGY

Project Site is situated on quaternary deposit and sedimentary rock at aged of Carboniferous which known as Sungai Perlis Beds



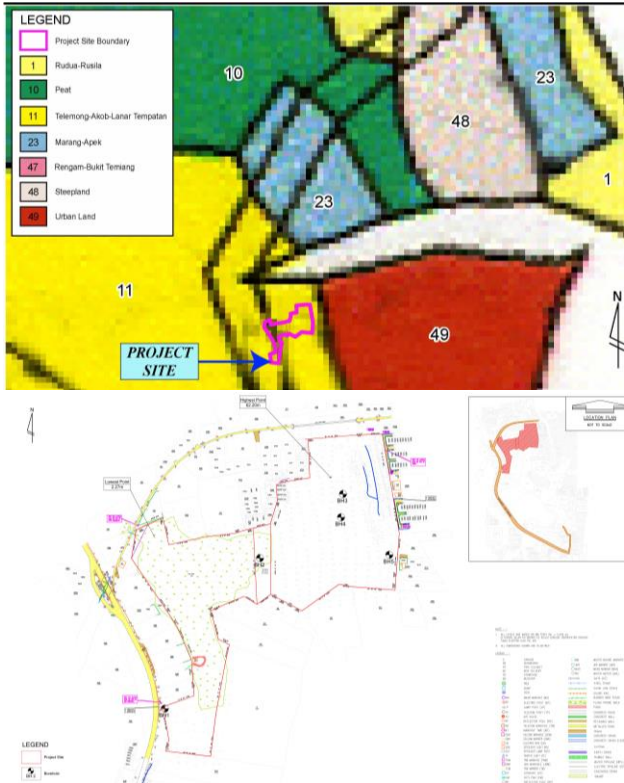
SOIL

Based on the Reconnaissance Soil Map of Peninsular Malaysia (*Pindaan* 2002), published by the Ministry of Agriculture Malaysia, the soil within the Project Site is situated on sedentary soils namely the Telemong-Akob-Lanar Tempatan Series.

Soil Investigation

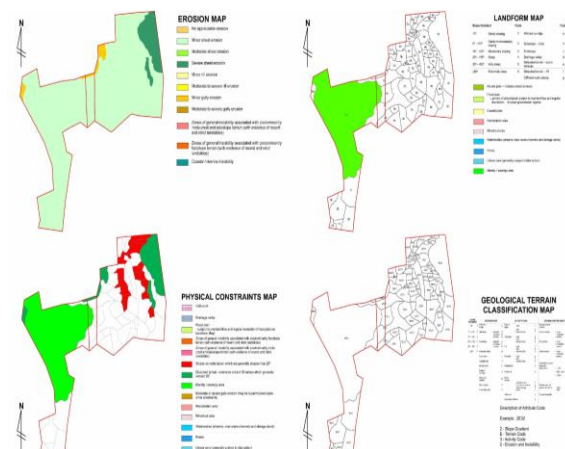
Borehole results:

- There is no peat, soft soil or organic soil was encountered within the Project Site.
- Subsoil Layer 1 ($9 < N \leq 20$) – Stiff to Very Stiff sandy SILT or gravelly SILT and Loose SAND – up to 3.0m depth.
- Subsoil Layer 2 ($N > 50$) – Hard sandy SILT or gravelly SILT and Very Dense silty GRAVEL – 1.50m to 34.63m depth.



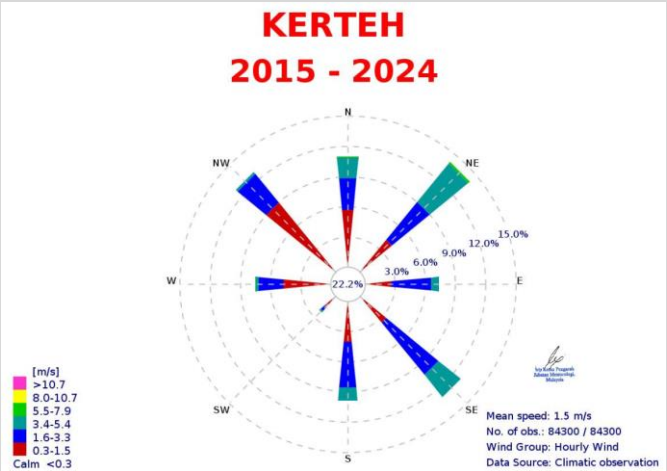
Geological Terrain Mapping

- The Project Site is generally characterised as generally gentle to very steep sloping.
- Based on the slope gradient analysis, the nearly flat areas between 0° to 5° in gradient covers approximately 37.5% (15.7 acres) of the Project Site while gently sloping areas between $>5^\circ$ to 15° in gradient covers about 24.3% (10.2 acres) of the Project Site total area.
- Moderately steep sloping areas of $>15^\circ$ to 25° in gradient covers approximately 20.8% (8.7 acres) of the Project Site.
- The steep sloping areas range from $>25^\circ$ to 35° covers approximately 7.6% (3.2 acres) meanwhile for very steep sloping areas range $>35^\circ$ to 60° made up of only 9.8% (4.1 acres) of the Project Site.



CLIMATE

- Based on the monthly temperature recorded at Kerteh, from the year 2015-2024 remains relatively stable throughout the year with average monthly variations not exceeding 0.6°C.
- The average of the total annual rainfall from the year 2015-2024 was recorded at approximately 3,245.8 mm.
- The wind rose data indicates northeast wind has the highest velocity with the mean speed of 2.6 m/s when compared to other directional winds



Environmental Baseline Monitoring

WATER QUALITY



The computed results showed that all sampling points fall under Class IIB of the National Water Quality Standards for Malaysia for physical water quality while for chemical and biology water quality, some of the parameter exceed the limit of Class IIB. Generally, water quality classification for the whole sampling points is clean and slightly polluted.

AIR QUALITY



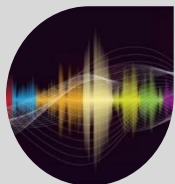
All parameters at all sampling stations comply with the Malaysian Ambient Air Quality Standards (MAAQS), Standard 2020.

NOISE LEVEL



Noise levels recorded complied with the permissible limits set forth in the DOE Guidelines for Environmental Noise Limits & Control, 3rd Edition, 2019, Reprint 2021, First Schedule, for both daytime and nighttime.

VIBRATION LEVEL



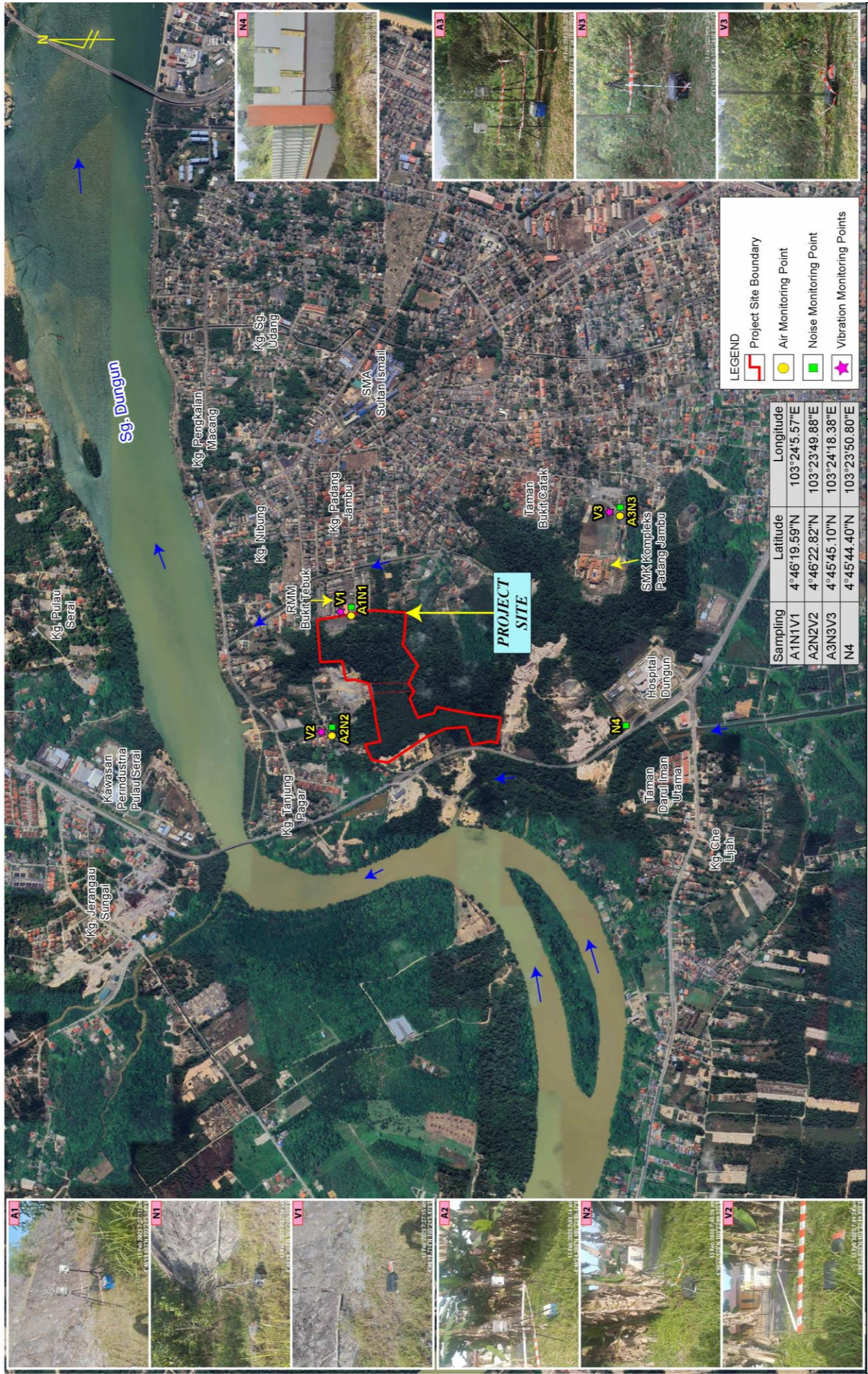
The root mean square (RMS) values on the z-axis (vertical) at all sampling points indicate that the values were within the maximum velocity level of 0.2 mm/s, as stipulated in the First Schedule for Residential in the DOE Guidelines for Environmental Vibration Limits and Control, 3rd Edition, 2021.

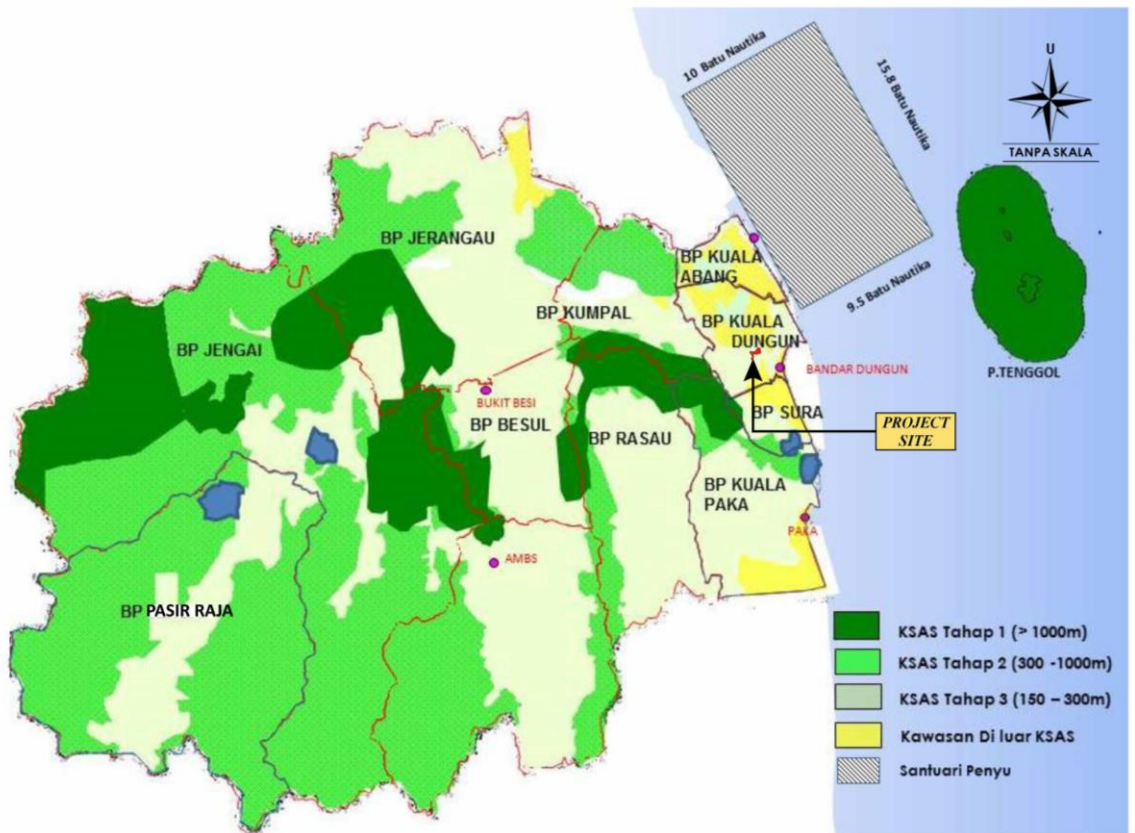
LEGEND

- Project Site Boundary
- Water Sampling Point
- River Flow Direction

Sampling	Latitude	Longitude
W1	4°46'8.67"N	103°24'13.58"E
W2	4°46'37.038"N	103°24'1.604"E
W3	4°45'35.621"N	103°23'50.581"E
W4	4°46'59.051"N	103°22'31.574"E
W5	4°46'37.401"N	103°23'34.942"E
W6	4°46'46.851"N	103°25'11.499"E

THE LOCATION FOR THE BASELINE AIR, NOISE AND VIBRATION QUALITY SAMPLING STATIONS





ENVIRONMENTAL SENSITIVE AREA

The Proposed Project Site is not located within any Environmental Sensitive Areas (ESA).

FLORA

- The proposed project site was covered by secondary forest that portrayed the characteristic of secondary vegetation.
- Thus, the Project Site could be considered as disturbed habitat.
- There was also disturbance from previous activity due to development of RMM Bukit Tebuk.
- The Project Site was dominated by *Camposperma* sp. (pokok terentang) at swampy area and secondary vegetation found in freshwater swamp such as *Oncosperma tigillarum* (pokok nibung), *Bauhinia* sp. (tapak kuda), and *Licuala* sp. (palas). In addition, Shrub such as *Melastoma malabathricum* (senduduk) and *Miconia crenata* (senduduk bulu) also commonly found at the Project Site.

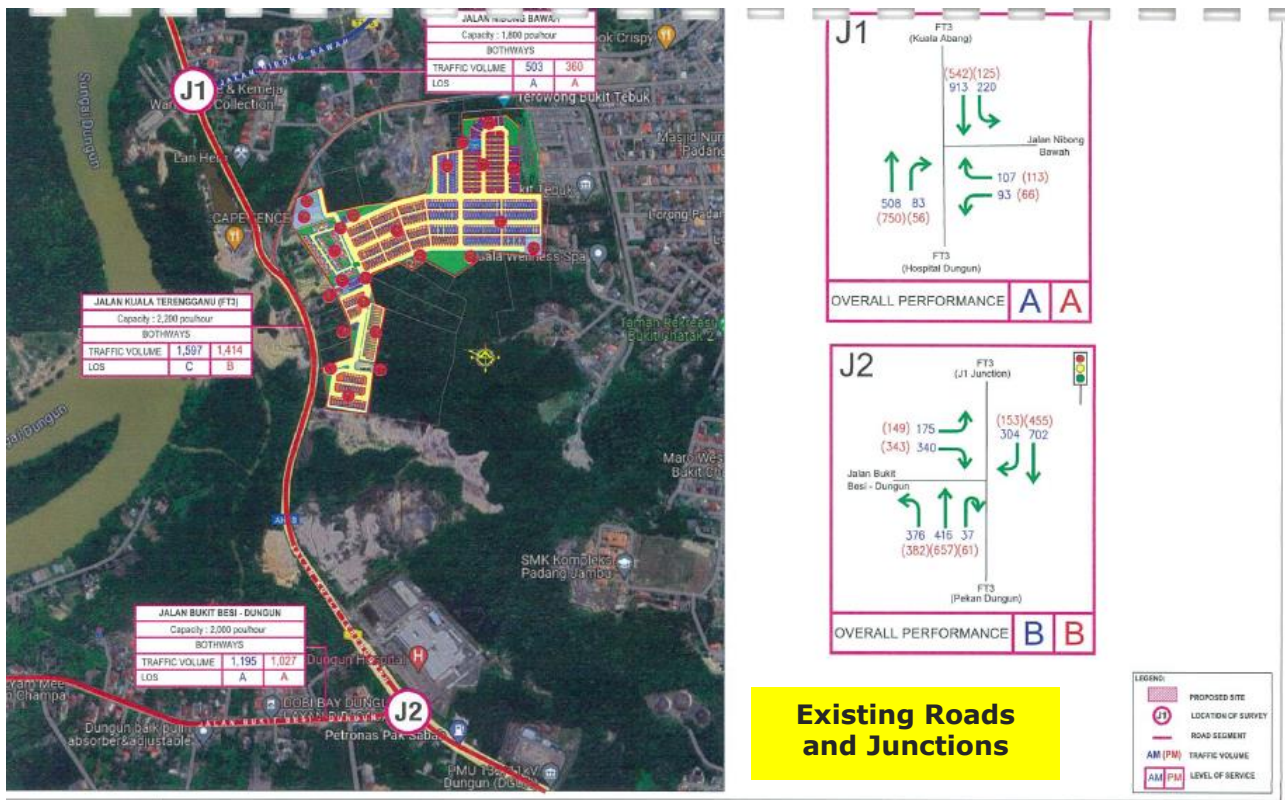
FAUNA

- No large mammal was recorded in the Project Site. Apart from that, there are other small animals, which belong to the shrew and rodent families expected in the Project Site.
- These mammals are quite common in secondary forest, palm oil plantation, and agricultural set-up.
- Only common typical species such as the common myna, oriental magpie-robin, and house sparrow were seen at the Project Site and the neighbouring housing area.
- There are a restricted number of reptile species in the Project Site, comprising mainly snakes, flying lizards, and green crested lizards.

EXISTING ENVIRONMENT- Traffic Conditions

PERFORMANCE OF EXISTING TRAFFIC PATTERNS

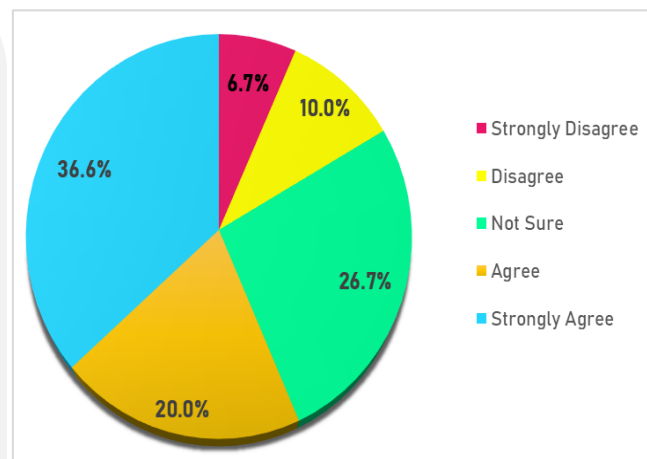
- Jalan Kuala Terengganu (FT3) and Jalan Bukit Besi – Dungun (FT132) serves as the main access roads to the Project Site. It is in close proximity to the new Hospital Dungun.
- Based on the analysis, Jalan Kuala Terengganu (FT3) and Jalan Bukit Besi – Dungun (FT132) are operating at good level of service (LOS) during peak hours.



EXISTING ENVIRONMENT- Socio Economic And Human Environment

PERCEPTION SURVEY

- Most of the respondents were positive towards the project development (83.3%, n=60) and have some additional comments for the proposed project.
- Comment and complain were receive regarding wildlife conflict and flooding issue during socio survey session.
- For those who agree, they think this project can improve the living standards, job creation, and housing availability in their surrounding area.



CONSTRUCTION PHASE

LOGISTIC ROUTES



Logistic access:

- East Coast Expressway → Exit Kuala Dungun (Exit 851) → Jalan Bukit Besi - Dungun [132] → Jalan Kuala Terengganu (FT3) → Project Site.

IMPACT

- Increase in traffic risks.
- Potential oil spills and leakage of raw construction materials onto public roads.
- Rise in traffic hazards.

MITIGATION MEASURES

- Regular sweeping / cleaning of access roads.
- Flagmen must be stationed at the access road junctions to control and direct traffic.
- Proper warning signs, signals or warning light and barricade are recommended to ensure safety and smooth flow of traffic.
- Wash trough is proposed at the Project Site's entrance/exit gateway.

SITE CLEARING

~1087.65 t/ha of biomass is estimated to be generated from the site clearing.



IMPACT

- Loss of existing vegetation and associated habitats.
- Noise and dust pollution during the construction works.
- Potential for soil erosion and increased surface runoff.
- Improper disposal may result in water quality deterioration and attract unwanted pests.
- Open burning of biomass or solid waste may generate soot and dust.

MITIGATION MEASURES

- Site clearing will be conducted in one (1) stage.
- A licensed contractor will be appointed, a Roll-On/Roll-Off (RORO) bin will be provided and the collection of waste will be scheduled.
- The vegetation will be shredded and mulched in the designated area.
- The undergrowth and small woody plants will be treated using the mulching method and left to decompose.
- Domestic and biomass waste will be disposed of at Bukit Lat Landfill, Che Lijah, Dungun.

CONSTRUCTION PHASE

WORKERS ACCOMODATION

- *Approximately 100 workers needed*
- *Workers’ quarters is provided on-site*

IMPACT

- Impact associated with the generation of sewage and solid waste.
- Without adequate sewage management, untreated raw sewage can lead to water pollution, unpleasant odours, and the spread of disease, thereby posing a risk to nearby communities.

MITIGATION MEASURES

- Strict protocol to be established to ensure the cleanliness of workers and the site office.
- Maintain high quality of housekeeping within the proposed Project Site.
- Total of four (4) septic tanks, each with a capacity of 30 population equivalents (PE), are required to manage sewage discharge at the site.
- Open burning of rubbish is strictly prohibited.

WATER QUALITY

IMPACT

Surface erosion or sediment washout in the area may lead to increased water turbidity if the drainage system is insufficient or inadequately maintained



MITIGATION MEASURES

- Design and implementation of the LD-P2M2.
- Supervision of the LD-P2M2 by a qualified individual.
- Regular maintenance of the drainage network and sediment basins.
- Allocation of budget for water quality and enhancement initiatives.

CONSTRUCTION PHASE

EARTHWORKS

Cut – 688,509.98 m³
Fill – 592,490.04 m³
Excess- 96,019.95 m³ (dumping site for the excess earth will be transfer out to Kg. Binjai, Che Lijah)

IMPACT

- The earthworks will be carried out in one (1) stage.
- Discharge of sediments from earthworks into the surrounding waterways, ultimately flowing into Sg. Dungun.
- Exposed slopes are susceptible to erosion, which may result in slope failure, particularly during the rainy season.
- In a worst-case scenario, the average soil loss rate for overall earthwork and construction of the project site is estimated at 414.85 tonnes/ha/year.
- The total estimated sediment yield, under the worst-case scenario, is projected to be 408.40 tonnes per storm event for the overall earthworks.

MITIGATION MEASURES

- Implementation of LD- P2M2.
- Earth drains and 2 sediment basins/silt traps to be provided.
- Sandbags and silt fences will serve as temporary perimeter controls.
- Regular maintenance of the drainage and sediment basins.
- Final formed platform and slopes will be turfed or covered as promptly as possible to prevent further erosion into the waterways.
- Compliance with Conditions of Approval (COAs) is required.



NOISE & VIBRATION

IMPACT

- Higher noise levels will create a nuisance and may have psychological effects on individuals, and to some extent, may also cause physiological effects.
- Vibration during piling works can cause structural damage to the adjacent residential buildings.

MITIGATION MEASURES

- Erection of hoarding along the boundary of the Project Site.
- Construction activities should be conducted solely during daytime hours.
- Proper maintenance of all equipment and machinery.
- Avoid using equipment that generate excessive noise levels.
- Operate the earthmoving equipment on the construction area as far away from vibration-sensitive areas.
- No blasting to be carried out.



CONSTRUCTION PHASE

AIR

IMPACT

- Increased level of PM₁₀ and PM_{2.5} due to spillage or wind-blown dust from uncovered material.
- Traffic movement on dirt road will churn up the surface and may incite hazy condition especially during dry and windy periods.
- Direct affect to the road users of Jalan Kuala Terengganu (FT3) and nearby residential (i.e. RMM Bukit Tebok, Kg. Tanjung Pagar, Kg. Padang Jambu).

AIR POLLUTION

MITIGATION MEASURES

- Provision of one (1) wash trough.
- Constant wetting and cleaning of roads connecting the Site to external public roads.
- Proper covering of raw materials and topsoil stockpiles.
- Traffic management trough speed limits and regular maintenance of vehicles / machinery.
- Erection of hoarding along the boundary of the Project Site.

SOLID WASTE

- Approximately 100 kg of domestic wastes for 100 workers are daily generated.

IMPACT

- Unattended debris could compromise the safety of the site as construction activities proceed.
- The indiscriminate disposal of domestic waste can lead to disease outbreak and pollution of waterways.
- Spills of diesel or hydraulic oil onto the soil may lead to soil and water contamination.



MITIGATION MEASURES

- Construction waste from the development will be reused and recycled and must be managed in accordance with the Solid Waste And Public Cleansing Management (Scheme For Construction Solid Waste) Regulations 2018.
- Separate containers should be provided for the collection of recyclable materials.
- Burning is strictly prohibited.
- All scheduled waste must be handled in accordance with the Environmental Quality (Scheduled Wastes) Regulations 2005.

CONSTRUCTION PHASE

TRAFFIC

IMPACT

- Increased traffic flow due to lorries and trucks delivering construction materials.
- Significant traffic congestion on Jalan Kuala Terengganu (FT3).
- Increased traffic hazards for workers and the public in the area.



MITIGATION MEASURES

- Develop a comprehensive Traffic Management Plan to manage traffic flow and construction timings.
- Schedule construction activities during staggered hours to avoid peak traffic times and alleviate congestion.
- Implement clear signage to alert drivers to construction activities.
- Deploy traffic control personnel to facilitate vehicle movement and assist pedestrians.
- Restrict heavy vehicle operations during peak hours.

SOCIO-ECONOMY

IMPACT

- Environmental issues such as water and air pollution, and noise and vibration nuisances are expected.
- Increased demand for both semi-skilled and skilled workers, providing job opportunities for local residents.
- An influx of foreign workers may lead to social conflicts due to diverse backgrounds of the workforce.
- The use of access roads by heavy vehicles is expected to disrupt traffic flow and elevate the risk of accidents from falling objects, posing dangers to local residents.
- Building on sloped areas may increase soil instability and erosion, potentially leading to flooding and compromising nearby properties.

MITIGATION MEASURES

- Conduct regular environmental monitoring to ensure compliance with guidelines and EIA measures.
- Ensure foreign workers are legally registered while prioritising local residents for job opportunities.
- Provide health education and sanitary facilities for workers, adhering to health guidelines to prevent disease.
- Supply safety equipment to workers and implement site management practices to mitigate risks.

CONSTRUCTION PHASE

GEOHAZARDS

IMPACT

- Potential of water ponding and ground settlement of the lowland and soft ground.
- Barren slope prone to erosion and potential rock slope failure at the exposed cut slope.

MITIGATION MEASURES

- Suitable fertilizers, periodic watering, imported suitable soil materials & erosion protection mattress / products, etc. shall be considered for possible hash conditions.
- Horizontal subsoil drains of at least 12 m long shall also be provided for open cut slope areas.
- Carry out regular inspections on the slopes in monthly basis during the construction stage.

ABANDONMENT

IMPACT

- Aesthetic value of the Project Site would be severely affected.
- Improper dismantling of built structures may result in illegal settlements by squatters and create opportunities for anti-social activities among local youth.
- The neglected condition of these structures serves as a potential habitat for the proliferation of various pests and diseases.
- The site will be used as an illegal dumpsite by irresponsible parties.

MITIGATION MEASURES

- All construction materials should be taken back and recycled for other developments elsewhere.
- The Site should be revegetated with grass and trees to prevent soil erosion and sedimentation problem.
- Waste materials should be disposed at designated dumpsites.

OPERATIONAL PHASE

STORMWATER
MANAGEMENT



IMPACT

The surface runoff will increase resulting from the reduction in rainfall infiltration capacity of the soil

MITIGATION MEASURES

- **Two (2) detention ponds** will be located in the low-lying areas within the Project Site, which will subsequently direct water flow into Sg. Dungun.
- The main receiving water discharge from the Project site is the existing roadside drain which connects to Sg. Dungun.

WATER
QUALITY



IMPACT

- Wastewater intrusion into waterways may occur due to pipe leakage, leading to the discharge of non-compliant effluent, causing odours and health issues.
- Improper waste disposal can lead to water pollution, unpleasant odours affecting atmospheric quality, breeding grounds for disease vectors and localized flooding from drainage blockages.

MITIGATION MEASURES

- Wastewater from the proposed development will be channeled to the proposed sewage treatment plant (STP) which is located on the northwest of the Project Site.
- It is essential to perform periodic inspections and regular preventive maintenance to ensure the proper functioning of the sewage reticulation system.
- Adherence to best waste management practices.

OPERATIONAL PHASE

AIR & NOISE

IMPACT

- Increased traffic is a significant contributor to air and noise pollution.
- Air pollutants such as dust, smoke and exhaust gases are primarily from vehicular combustion.
- Noise mainly emanates from the movement of heavy vehicles and other transport-related operations.

MITIGATION MEASURES

- Provision of sufficiently sized junctions, traffic signages and proper maintenance of road network system.
- Regulatory procedures or control of traffic emissions to comply with the legislative limits.
- Heavy landscaping can be used to naturally screen the surroundings.

SOLID WASTE MANAGEMENT



IMPACT

- Improper disposal of solid waste may affect aesthetic quality, a source of water contamination and proliferation of disease vectors.
- Localize flooding may happen due to river/drain blockage.

MITIGATION MEASURES

- Solid waste from the development will be reused and recycled where possible and must be managed in accordance with the current regulations.
- Implementation of an efficient waste collection system, which includes sufficient waste collection bins and regular collection services.
- Provision of a recycling center to promote the recovery of reusable materials.
- Domestic waste disposal to legal dumpsite i.e. Bukit Lat Landfill.

OPERATIONAL PHASE

TRAFFIC



IMPACT

- The development is estimated to produce 467pcu/hr trips and attract 272pcu/hr trips during the morning peak hour.
- The development is expected to produce 334pcu/hr trips and attract 371pcu/hr trips during evening peak hour.
- Existing junctions are projected to cater the existing traffic movement in year 2037.

MITIGATION MEASURES

Based on TIA study, proposed traffic improvement will be carried out:

- One junction is proposed to be designed as unsignalised T-Junction.

BIOLOGICAL ENVIRONMENT



IMPACT

Biological impacts are positive and primarily relate to the replanting of greenery through landscaping efforts.

MITIGATION MEASURES

- Re-establish and diversify the flora and fauna species in the site.
- The chosen plant species should be native to Malaysia and suitable for the local climate and environmental conditions.
- Implementation of aesthetically pleasing and extensive landscaping will attract small wildlife and create a wholesome environment.

OPERATIONAL PHASE

SOCIO - ECONOMIC
ENVIRONMENT



IMPACT

- Population increase, leading to higher traffic volumes and congestion as well as risks of road accidents.
- Increased demand causing water shortages.
- Higher population density could overwhelm sewage systems, causing overflows and health risks from waterborne diseases.
- Economic growth opportunities and employment generation.
- Social conflicts between long-standing residents and newcomers.

MITIGATION MEASURES

- Implementation of efficient traffic management plan to ensure safety of road users.
- Establish enforcement and monitoring committee.
- Establish hotlines for public complaints.
- A series of emergency response plans.
- Proper firefighting and prevention facilities.

SUMMARY OF IMPACT MONITORING, COMPLIANCE MONITORING AND PERFORMANCE MONITORING						
Impact/ Monitoring Aspect	Monitoring Parameter	Compliance Limit	Monitoring Frequency	Impact Monitoring (IM)	Compliance Monitoring (CM)	Performance Monitoring (PM)
CONSTRUCTION PHASE						
Water Quality	▪ pH	6.0-9.0	Monthly	✓	✓	Not Applicable
	▪ Temperature	-				
	▪ Dissolve Oxygen (DO)	5-7mg/L				
	▪ Chemical Oxygen Demand (COD)	25mg/L				
	▪ Biological Oxygen Demand (BOD ₅)	3mg/L				
	▪ Total Suspended Solid (TSS)	50mg/L				
	▪ Oil & Grease	7;N				
	▪ Ammoniacal Nitrogen (NH ₃ -N)	0.3mg/L				
	▪ Total coliform (CFU/100ml)	5000				
	▪ Faecal Coliform (CFU/100mL)	400				
	▪ Turbidity	250 NTU				
Sediment Basin	· Total Suspended Solid (TSS) · Turbidity	50mg/L 250NTU	(i) Monthly (ii) Biweekly (iii) Per rainfall event	Not Applicable	✓	✓
Check Dam		Not applicable	(i) Biweekly (ii) Per rainfall event	Not Applicable	Not Applicable	✓
Temporary Earth Drain/Bund						
Silt fence/ Silt bund Hoarding						
Stabilized Construction Access						
Interlocking Paver						
Wash through						
						E-28

SUMMARY OF IMPACT MONITORING, COMPLIANCE MONITORING AND PERFORMANCE MONITORING						
Impact/ Monitoring Aspect	Monitoring Parameter	Compliance Limit	Monitoring Frequency	Impact Monitoring (IM)	Compliance Monitoring (CM)	Performance Monitoring (PM)
CONSTRUCTION PHASE						
Ambient Air Quality	· PM ₁₀	100µg/m ³	Monthly			Revised EIA
	· PM _{2.5}	35µg/m ³				
	· NO ₂	70µg/m ³				
	· SO ₂	80µg/m ³				
	· CO	30mg/m ³				
Noise Level	· L ₁₀ · L ₉₀ · L _{min} · L _{max}	Guidelines for Environmental Noise Limits and Control, 3rd Edition, 2019 (reprint 2021) - First Schedule	Quarterly	√	√	Not Applicable
Vibration Level	· Peak Particle Velocity at: - X-axis - Y-axis - Z-axis · Peak Vector Sum · Vertical Vibration Peak Velocity	Guidelines for Environmental Vibration Limits and Control, Third Edition, Department of Environment #				
OPERATIONAL PHASE						
Ground movement & Groundwater level	To be proposed by engineer	Guidelines on Slope Maintenance in Malaysia by JKR	To be proposed by engineer	√	Not Applicable	√
Sewage Treatment Plant (STP) Final Discharge		Standard B limits of the Environmental Quality (Sewage) Regulations 2009	Monthly	√	√	√
						E-29



- ✓ The proposed Project is a residential development which falls under **Activity 13: Development in Slope Area** (Development or land clearing less than 50 per cent of an area with slope greater than or equal to 25° but less than 35°) of the First Schedule of the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment Order 2015) made under sub-section 34A(1) of the Environmental Quality Act 1974 [Act 127] (DOE, 2015).

Revised EIA

- ✓ Based on the "*Rancangan Tempatan Daerah Dungun 2035 (Pengubahan)*", the proposed development aligns with the designated land use for housing development.
- ✓ The Project Site features hilly, undulating terrain covered by a secondary vegetation with no evidence of human habitation. It is surrounded by residential and not located in any Environmental Sensitive Area (ESAs).
- ✓ Construction may lead to significant issues such as soil erosion, pollution, noise, and traffic impacts.
- ✓ Earthworks conducted in one stage without mitigation may violate compliance limits, threatening local water quality.
- ✓ Particulate matter (PM₁₀ and PM_{2.5}) from construction dust is a primary pollutant of concern.
- ✓ Construction activities will likely increase noise levels, requiring compliance with permissible limits. Additionally, vibrations may be perceptible at sensitive locations, necessitating careful assessment.
- ✓ Construction traffic is expected to cause congestion, particularly during peak hours. The completed development will increase traffic, posing safety risks.
- ✓ Key recommendations include strict adherence to the Land Disturbing Pollution Prevention and Mitigation Measures (LD-P2M2), Approved Engineering Plans and Best Management Practices (BMPs) to mitigate identified impacts during the construction phase.
- ✓ In conclusion, success of the residential development in integrating with the surrounding areas will contribute to the social acceptability of the proposed Project. With strict commitment and supervision on-site, it is anticipated that the development can progress within the framework of sustainable development.