2.0 TERMS OF REFERENCE

This chapter provides the endorsed Terms of Reference (TOR) for the proposed project. The TOR endorsement letter from the DOE is as attached in **Appendix I**.

2.1 Introduction

This Terms of Reference (TOR) is written as part of the preparation for an Environmental Impact Assessment (EIA) for:

THE PROPOSED "PENAMBAKAN KAWASAN LAUT SELUAS 400 EKAR UNTUK CADANGAN PEMBANGUNAN BERCAMPUR-CAMPUR, KAWASAN BANDAR XLVI, DAERAH MELAKA TENGAH, MELAKA SECARA PENSWASTAAN UNTUK YAYASAN MELAKA".

The TOR is prepared prior to the preparation of the EIA report in accordance with the latest EIA guidelines issued by the Department of Environment (DOE). The purpose of the TOR is as follows:

i. To describe, and provide details of, the scope and major project work components of the project;
ii. To list and describe, in detail, potential significant environmental impacts that can arise by the project works or components in the EIA;
iii. To study, analyse and describe alternatives measures or methods that will eliminate, ameliorate or mitigate these impacts;
iv. To list out standards, criteria, methodologies etc. that will be used to assess the environmental impacts to be investigated; and
v. To outline possible mitigation measures or best management practices from similar projects that may be used to address the environmental impacts on this project.

2.2 Project Initiator

This Project is initiated by **Yayasan Melaka.** Any enquiries regarding the Project may be directed to :

YAYASAN MELAKA
No.40 - 48 & 52, Jalan BKD 27,
Taman Bukit Katil Damai 2,
75450 Bukit Katil, Melaka, Malaysia
(Attn: Pn. Azlinah binti Aziz)
Tel / Fax : 06-2311822 / 06-2311307

2.3 Project Consultants

An environmental study team comprising of multi-discipline specialists has been appointed to carry out the Environmental Impact Assessment (EIA) Study. The team will be led by **Gopinath Nagaraj**, an EIA Consultant registered with the Department of Environment (DOE Reg. No. CS0474). Enquiries and correspondence pertaining to this report can be made to:

CIRI SELASIH SDN. BHD. (Co. Reg. No.: 372321-V)
No. 40, Jalan TU 40,
Taman Tasik Utama,
75450 Ayer Keroh, Melaka.
(Attn : Datuk Ir. Othman Abdul Rahim)
Tel / Fax : 06 – 253 4005 / 06 – 231 0895
E-mail : ciriselasih@gmail.com

Table 2.1 shows the list of team members who will be involved in the EIA study.

Table 2.1 : List of EIA Team Members

Name	Qualification	Registration With DOE				Proposed Study Area
		Category	Area/ Field	ID. No.	Valid Date	
A. EIA STUDY TEAM LEADER						
Gopinath Nagaraj	Certificate in Fish Hatchery Management, BSc (Aquatic Biology), Master in Aquaculture	EIA Consultant	• Fisheries • Ecological Studies (Marine & Freshwater Ecology) • Aquaculture	CS0474	1 October 2019	• Fisheries & Aquaculture
B. EIA CONSULTANT / SUBJECT CONSULTANT						
Datuk Ir. Othman bin Abdul Rahim	B.Sc (Hons) Civil Engineering	EIA Consultant	• Hydrology • Water Quality	C0006	31 July 2019	• Hydrological Regime • Water Quality
Puvanesuri Sandera Sagaren	Master of Environment B.Sc (Hons.) Aquatic Biology	EIA Consultant	• Ecological Studies (Freshwater & Marine Ecology) • Fisheries & Aquaculture	CS0956	30 November 2020	• Aquatic Ecology
Ms. Ng Shu Chin	M.Sc (Sanitary and Environmental Engineering), Certified Professional in Erosion & Sediment Control (CPESC No. 6585)	EIA Consultant	• Hydrology • Water Quality	C0270	31 July 2019	• Water Quality
Prof. Dr. Mohd Shahwahid Haji Othman	BS (Forestry), MA (Economics), MS (Resource Management & Policy), PhD (Resource Management & Policy)	Subject Consultant	• Economic Valuation / Economic Analysis • Social Impact Assessment	SS0523	9 April 2021	• Social Impact Assessment

Name	Qualification	Registration With DOE				Proposed Study Area
		Category	Area/ Field	ID. No.	Valid Date	
Prof. Dr. Capt. Mohd Ibrahim Hj. Mohamed	PhD (Marine), M.(Marine Affairs)	EIA Consultant	• Maritime Studies • Marine Studies	SS1054	31 March 2020	• Marine Traffic Assessment
C. EIA ASSISTANT CONSULTANT						
Norhayati Sabudin	B.Sc (Fishery Science)	Assistant Consultant	• Ecological Studies (Marine & Freshwater Ecology) • Aquaculture	AC1050	Not applicable	• Fisheries & Aquaculture
Faizah binti Othman	B. Eng (Hons) (Chemical Engineering)	Assistant Consultant	• Water Quality • Wastewater • Chemical & Industrial Processes	AC1321	Not applicable	• Water Quality

2.4 Project Description

The project is located at Kawasan Bandar XLVI, District of Melaka Tengah, Melaka. The nearest landmark is Sekolah Henry Gurney, located at the northwest of the site. **Figure 2.1** shows the location of the project site.

Yayasan Melaka intends to reclaim 400 acres (161.87 hectares) of the sea at the proposed location. The overall layout is as shown in **Figure 2.2**.

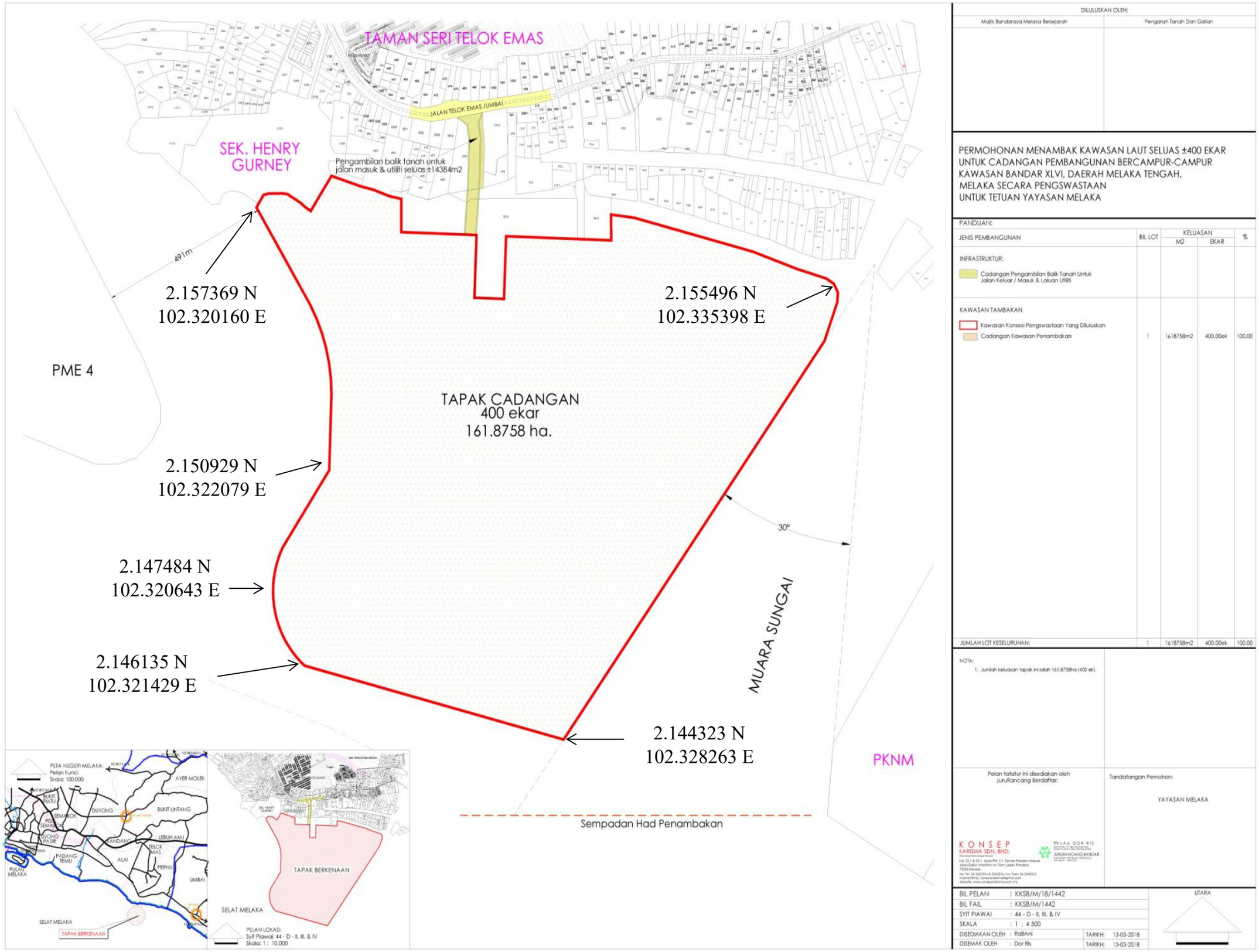
Since the proposed project is a prescribed activity that falls under **Activity 7(a)** i.e. coastal reclamation or land reclamation along river banks involving an area of 50 hectares or more in the **Second Schedule, Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015,** the project proponent is required to prepare and submit an Environmental Impact Assessment (EIA) report to ensure the EIA is undertaken, consonant with the protocols established by the Director General of the Department of Environment (DOE), Malaysia.

2.5 Scope of Project

The works that will be involved in realising the proposed project includes the following:-

i. Pre-survey works and site preparation;
ii. Land acquisition for access;
iii. Environmental mitigation works;
iv. Reclamation works;
v. Revetment works; and
vi. Post survey works.


N
Not To Scale
NEGERI SEMBILAN
JOHOR
Daerah Alor Gajah
Daerah Jasin
Daerah Melaka Tengah
Selat Melaka
Project Site
LEGEND
Alor Gajah District
Melaka Tengah District
Jasin District
Paved Road
State Boundary
District Boundary
Sungai Punggor
Parit I.S.K.K.
Sungai Umbai
Ikan Bakar Parameswara
Sek. Henry Gurney
Tapak Perhentian Bot Nelayan
Ikan Bakar Klasik Terapung Umbai Baru
Pulau Menatang
Project Site
Jeti Anjung Batu
Jeti Nelayan Pantai Siring
Pulau Burong
Pulau Lalang
Pulau Serimbun
Pulau Besar
Petunjuk
Badan Air
Hutan
Industri
Infrastruktur dan Utiliti
Institusi dan Kemudahan Masyarakat
Komersial
Pantai
Pembangunan Bercampur
Pengangkutan
Pertanian
Perumahan
Tanah Kosong
Tanah Lapang dan Rekreasi
Sempadan Daerah
Sempadan Mukim
Sempadan PBT
Jalan Raya
Jalan Keretapi
Reclaimed Land



DILULUSKAN OLEH:

Majlis Bandaraya Melaka Bersejarah	Pengarah Tanah Dan Galian

PERMOHONAN MENAMBAK KAWASAN LAUT SELUAS ±400 EKAR UNTUK CADANGAN PEMBANGUNAN BERCAMPUR-CAMPUR KAWASAN BANDAR XLVI, DAERAH MELAKA TENGAH, MELAKA SECARA PENGSWASTAAN UNTUK TETUAN YAYASAN MELAKA

PANDUAN:

JENIS PEMBANGUNAN	BIL LOT	KELUASAN M2	KELUASAN EKAR	%
INFRASTRUKTUR:				
Cadangan Pengambilan Balik Tanah Untuk Jalan Keluar / Masuk & Laluan Utiliti				
KAWASAN TAMBAKAN				
Kawasan Konsesi Pengswastaan Yang Diluluskan				
Cadangan Kawasan Penambakan	1	1618758m2	400.00ek	100.00
JUMLAH LOT KESELURUHAN:	1	1618758m2	400.00ek	100.00

NOTA:
1. Jumlah keluasan tapak ini ialah 161.8758ha (400 ek).

Pelan tatatur ini disediakan oleh JuruRancang Berdaftar:

KONSEP KARISMA SDN. BHD.

Tandatangan Pemohon:

YAYASAN MELAKA

BIL PELAN	: KKSB/M/18/1442		
BIL FAIL	: KKSB/M/1442		
SYIT PIAWAI	: 44 - D - II, III, & IV		
SKALA	: 1 : 4 500		
DISEDIAKAN OLEH	: RaBAni	TARIKH:	13-03-2018
DISEMAK OLEH	: Dor Ris	TARIKH:	13-03-2018

UTARA

Figure 2.2: Overall Layout Plan

2.6 Alternative Consideration

This section shall outline alternative solutions which will be studied or described to justify that the project will result in the least environmental impacts. The following are options that will be taken into consideration and will be further detailed out in the EIA:

i. No-Project option – a comparison between "No-Project" and "With-Project" will be done to see the impacts and the advantages / disadvantages of having the project;
ii. Sand source option – to study the most suitable sand source and the route to be used;
iii. Structural measures for coastal protection option – to consider the best structural measures which can be implemented to protect the coastal area; and
iv. Reclamation method – to study the most suitable reclamation method to be adopted given the environmental conditions at the site.

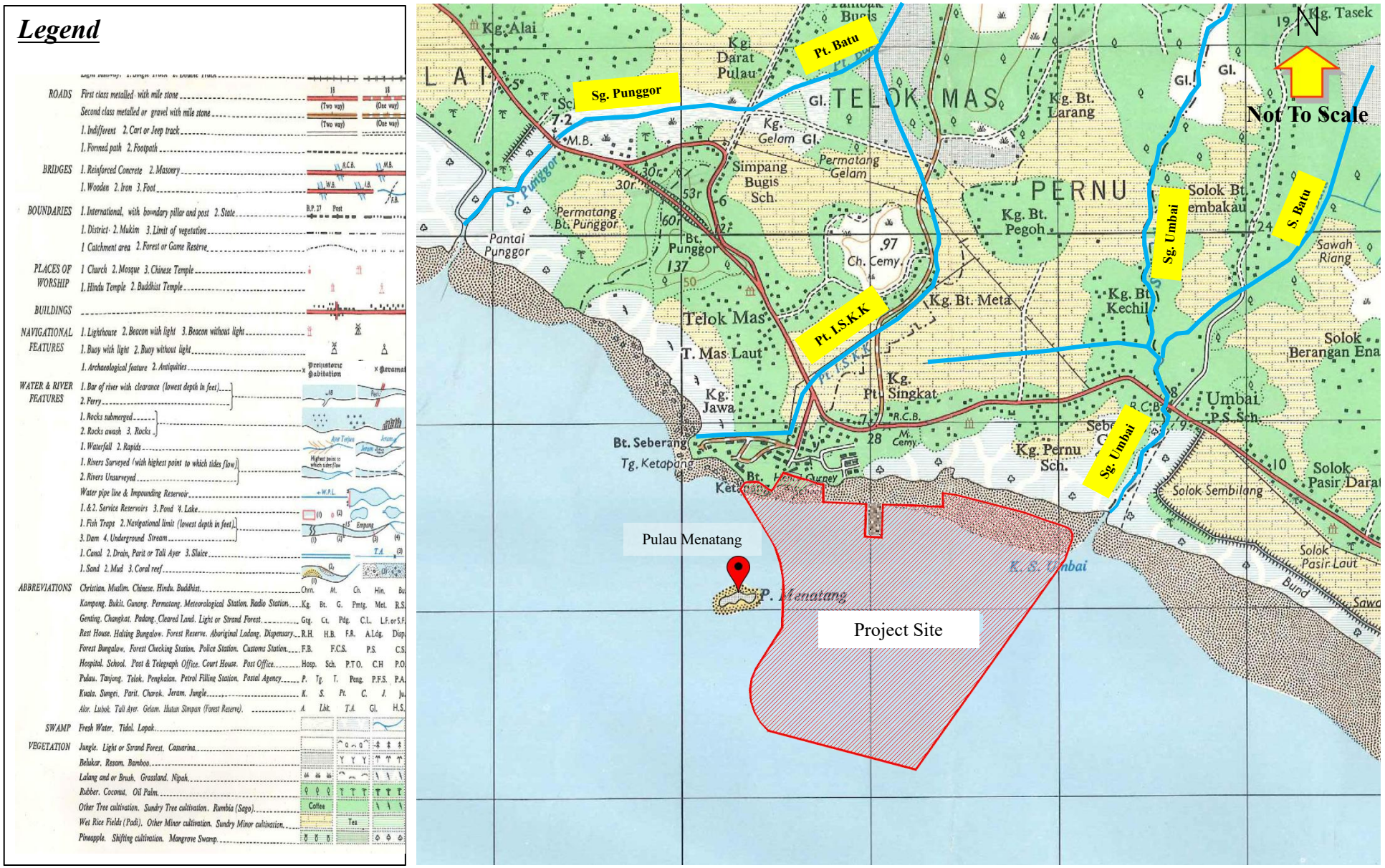
The outcome of the Hydraulic Study will also be included in the EIA Study.

2.7 Significant Environmental Impacts & Study Boundaries

The potential impacts to be studied and detailed out in the EIA report are as follow;

Table 2.2 : Potential Impacts

No.	Potential Impacts	Description
1.	Erosion of coastal / reclaimed banks.	Instability of the reclaimed banks might occur and will lead to banks erosion. Detail explanation on this issue will be deliberated in the EIA report.
2.	Hydrological regime	The proposed project can impact on the flow of nearby rivers i.e. Sg. Punggor and Sg. Umbai as well as nearby islands such as Pulau Menatang as shown in **Figure 2.3**. The impacts of the proposed development to the nearby islands / rivers and their tributaries shall be studied and deliberated in the EIA report.
3.	Solid waste	Expected to be generated during the construction phase i.e. during construction of structures for coastal protection.
4.	Scheduled waste	Generated from the usage of oil / chemicals for construction / operation (including machineries / equipment mobilization)



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ENVIRONMENTAL & TRAFFIC CONSULTANT

Figure 2.3: Rivers Nearby the Project Site

No.	Potential Impacts	Description
		purposes.
5.	Water quality	• Changes in water quality due to the dispersion of silt during the reclamation activities. • Increase in turbidity. • Changes in water quality due to the potential contaminated discharges from the project site.
6.	Air quality	Expected to be impacted during construction phase. A baseline monitoring will be conducted to determine the existing air quality at the site before the project starts.
7.	Noise level	Expected to arise during reclamation works and construction of relevant structures at the site. A noise level monitoring will be done to obtain baseline data for the existing condition at the site.
8.	Land traffic	During the reclamation activities and construction of the structural protection for coastal, the construction traffic including mobilisation of machineries and equipment will affect the tranquillity of the nearby area especially during mobilisation of equipment / machineries.
9.	Marine traffic	Additional vessels are expected during the reclamation activities and construction. Consequently, the marine traffic movement is expected to increase in the vicinity of the Project area, impacting the existing marine traffic including fishing traffic and daily service ferries at the nearby jetties. Hence, a marine traffic assessment shall be conducted to assess any impact of the project activities on traffic safety and navigational activity resulting from the proposed activities.
10.	Socio-economy	During the reclamation activities and construction of the structural coastal protection, local community may have perceptions on impacts of air and noise quality, tranquillity of the nearby area and disturbance and degradation to fishing activities. Impacts on health will also be studied based on secondary resources available. Local community perception survey and focus group discussions will be undertaken.
11.	Aquatic Environment, Fisheries and Aquaculture	Land reclamation activities and accompanying activities such as construction of coastal protection structures can have adverse effects on the marine environment, particularly the coastal and near-shore habitats within the impact zone e.g. estuaries (Sg. Punggor and Sg. Umbai), coral reefs (Pulau Besar) and mudflats as well as species occurring in these habitats e.g. fish and invertebrates (shrimp and crabs). Another most significant impact of reclamation works would be the deterioration of water quality due to increased suspended sediment caused by dispersion of sediment particles. This in turn could

No.	Potential Impacts	Description
		retard primary productivity and by extension, the rest of the marine food web. Sediment communities are expected to be permanently lost where land is reclaimed from the sea. Where the reclamation footprint is concerned, there is little scope for mitigation measures to totally ameliorate much of this loss. It is critical, therefore that the area being developed be carefully assessed with respect to the resources that it supports, and mitigation measures taken to reduce the negative impacts of the proposed project.
12.	Abandonment	The abandonment of the proposed project would definitely create an adverse impact on the environment as well as the local populace. The impact severity shall be further deliberated in the EIA.

The landuse surrounding the project shall cover a radius of 5km from the project site. The study shall also cover the impact from the project to the neighbouring area / activities as well as the impact from the neighbouring area / activities to the project. This shall include fishing activities, recreational fisheries nearby, Medan Ikan Bakar Umbai, recreational / tourism activities at Pulau Melaka, Environmental Sensitive Areas (ESA) as well as potential projects to be developed by KAJ Development Sdn. Bhd. and Perbadanan Kemajuan Negeri Melaka (PKNM) at the west and east of the project site respectively.

2.8 Assessment Standards & Methodologies

Table 2.3 : Summary of Assessment Standards & Methodologies

No.	Items	Assessment Standards & Methodologies
1.	Landuse, Topography & Geological Character and Meteorology	• Site visit. • Secondary resources (topography maps, Google Earth / Map, Local Plans etc.) • Meteorological data from Batu Berendam Meteorological Station. • Study on the geology of the site will only be done using secondary resources. However, registered geologists have already been appointed by the Civil Engineering consultant to study the settlement behaviour of the reclaimed land. This more

No.	Items	Assessment Standards & Methodologies
		detail study shall be done later during the Soil Investigation (SI) and is not part of the EIA Study. The appointed registered geologists for the proposed project are Muhammad Farhad bin Ramli (Contact No.: 012-3790384) and Muhamas Aidil bin Mustafa (Contact No.: 017-3966732).
2.	Coastal Erosion & Hydrology	• Site visit. • Secondary resources (topography maps, Google Earth / Map, Local Plans, *Manual Saliran Mesra Alam* (MSMA) etc.) • Hydraulic study findings.
3.	Solid Waste & Scheduled Waste	• DOE and SWCorp guidelines / regulations.
4.	Water Quality Assessment	• Sets of water samples taken will be used as reference to establish the baseline profiles. • Parameter analysed will be based on *Malaysia Marine Water Quality Criteria and Standard (MWQCS)* and *National Water Quality Standard For Malaysia (NWQSM)*. • Calculation of Marine Water Quality Index (MWQI) to indicate the classes of existing marine water quality.
5.	Air quality	• Data collection i.e. air quality sampling. The measurement of Total Suspended Particulate (TSP) shall be carried out in accordance to the ASTM D4096 method. • The monitoring results will then be compared to the standard as specified in Malaysian Recommended Environmental Air Quality Guidelines.
6.	Noise level	• Data collection i.e. noise level measurement. The parameters to be tested include L_{eq}, L_{Max} L_{Min} and L_N of the A – weighted sound level. The results will then be compared with the standard as specified in Schedule 1 in Annex A of The Planning Guidelines For Environmental Noise Limits and Control.
7.	Land traffic	• Traffic count survey will be conducted to determine the existing traffic volume and to analyse the road capacity nearby the project site.
8.	Marine traffic	• Site visit • Primary and secondary data collection including vessel traffic data, type of vessel and traffic density data, vessel traffic in related ports and harbours, fishing traffic and vessel accident data. • Data analysis of marine vessel activity along route, traffic volume, vessel traffic volume for the past 5 years (if available).
9.	Social Impact Assessment (SIA)	• Site visit • Involve both secondary data and surveys to be conducted to identify the key stakeholders and their socio-economic profile

No.	Items	Assessment Standards & Methodologies
		as well as to gather their initial feedback, opinions or views about the development proposal. • Public Stakeholders Consultation Meetings with targeted groups via public meetings and discussions will also be conducted as part of the study. • Secondary resources to be used to study health impacts.
10.	Aquatic Environment, Fisheries and Aquaculture	• Site appreciation. • Primary data collection including assessment of: - Marine biological resources (plankton, macrobenthic, fish fauna and coral reefs) - Coastal vegetation particularly mangroves - Marine fauna particularly turtle landings - Capture fisheries, aquaculture and recreational fisheries • Meeting and discussion with officers from Melaka State Department of Fisheries. • Secondary data collection from various sources, including literature review of existing data, reports (published and unpublished), records and other secondary sources with respect to the study area.

2.9 Consideration of Concurrent Projects

There is no on-going development at the immediate surroundings of the site. However, the western area and the eastern area of the site will be developed by KAJ Development Sdn. Bhd. and Perbadanan Kemajuan Negeri Melaka (PKNM) respectively (refer to **Figure 2.4**). The preliminary studies of these projects are currently on-going. The potential impact arising from the project site to the neighbouring potential projects and vice versa will be assessed.

2.10 Study Timeline

The study inclusive of the Hydraulic Study, the TOR and the EIA is expected to be completed within 30 weeks. **Figure 2.5** shows the timeline detail breakdown:

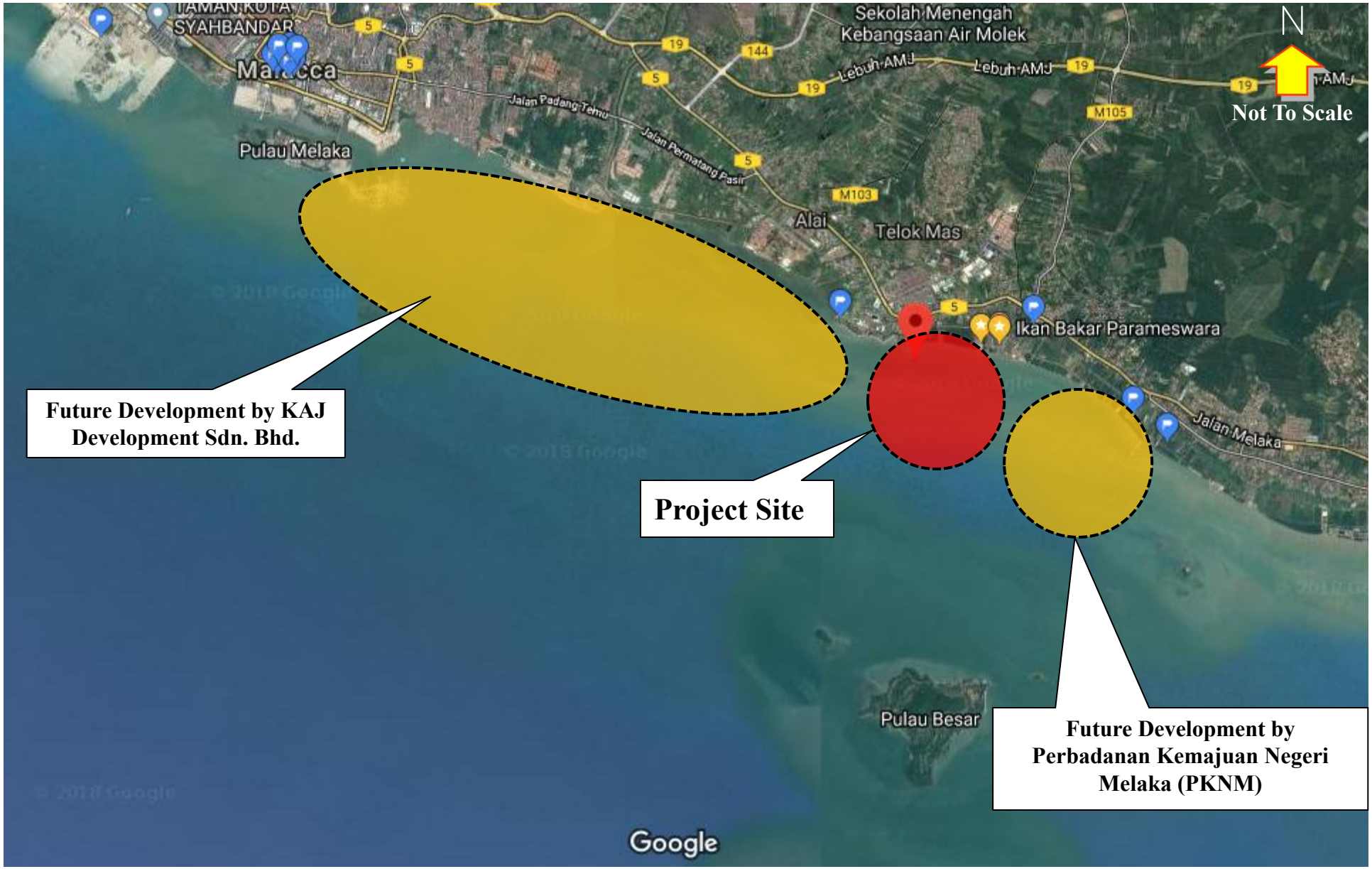

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Figure 2.4: Future Neighbouring Projects

ID	WBS	Task Name	Baseline Start	Baseline Finish
1	1	**STAGE 1: PLANNING**	**Fri 05-01-18**	**Tue 22-01-19**
2	1.1	**Town Planning**	**Fri 05-01-18**	**Tue 22-01-19**
3	1.1.1	Preparation and endorsement of planning drawings and LCP (for reclamation only)	Fri 05-01-18	Thu 18-01-18
4	1.1.2	KM Submission	Mon 21-01-19	Mon 21-01-19
5	1.1.3	KM Approval	Tue 22-01-19	Tue 22-01-19
6	1.2	**Survey Works**	**Fri 02-02-18**	**Thu 15-02-18**
7	1.2.1	Survey work at the access road for land acquisition	Fri 02-02-18	Thu 15-02-18
8	1.3	**Hydraulic Study**	**Fri 02-02-18**	**Fri 06-07-18**
9	1.3.1	Bathymetry data collection from surveyor	Fri 02-02-18	Thu 15-02-18
10	1.3.2	Marine data collection	Mon 19-02-18	Fri 23-03-18
11	1.3.3	Hydraulic and river modelling	Mon 26-03-18	Fri 04-05-18
12	1.3.4	Report preparation and submission to JPS	Mon 07-05-18	Fri 11-05-18
13	1.3.5	Hydraulic study approval	Mon 14-05-18	Fri 06-07-18
14	1.4	**EIA Study**	**Mon 19-02-18**	**Fri 18-01-19**
15	1.4.1	TOR preparation and submission	Mon 19-02-18	Fri 16-03-18
16	1.4.2	TOR approval	Mon 19-03-18	Fri 11-05-18
17	1.4.3	Detail study and report writing	Mon 14-05-18	Fri 17-08-18
18	1.4.4	Report preparation and submission to DOE HQ	Mon 20-08-18	Fri 31-08-18
19	1.4.5	EIA Public Display and comments	Mon 03-09-18	Fri 26-10-18
20	1.4.6	EIA Approval	Mon 29-10-18	Fri 18-01-19
21	1.5	**Soil Investigation**	**Mon 20-08-18**	**Fri 28-09-18**
22	2	**STAGE 2: CONSTRUCTION**	**Mon 14-05-18**	**Tue 03-12-19**
23	2.1	**Civil Works**	**Mon 14-05-18**	**Tue 26-03-19**
24	2.1.1	Engineering design	Mon 14-05-18	Fri 10-08-18
25	2.1.2	Earthwork / reclamation submission to authorities	Wed 06-02-19	Tue 12-02-19
26	2.1.3	Earthwork approval	Wed 13-02-19	Tue 26-03-19
27	2.1.4	Preparation of tender documents	Wed 13-02-19	Tue 12-03-19
28	2.2	**Survey Works**	**Mon 14-05-18**	**Tue 03-12-19**
29	2.2.1	Survey work for construction	Mon 14-05-18	Fri 25-05-18
30	2.2.2	Survey work for land title	Wed 23-10-19	Tue 05-11-19
31	2.2.3	Title submission to authority and approval	Wed 06-11-19	Tue 03-12-19
32	2.3	**EMP**	**Wed 27-03-19**	**Tue 28-05-19**
33	2.3.1	Report preparation and submission to DOE	Fri 12-04-19	Fri 24-05-19
34	2.3.2	EMP approval	Mon 27-05-19	Fri 31-05-19
35	2.4	**Construction Works**	**Mon 03-06-19**	**Mon 04-11-19**

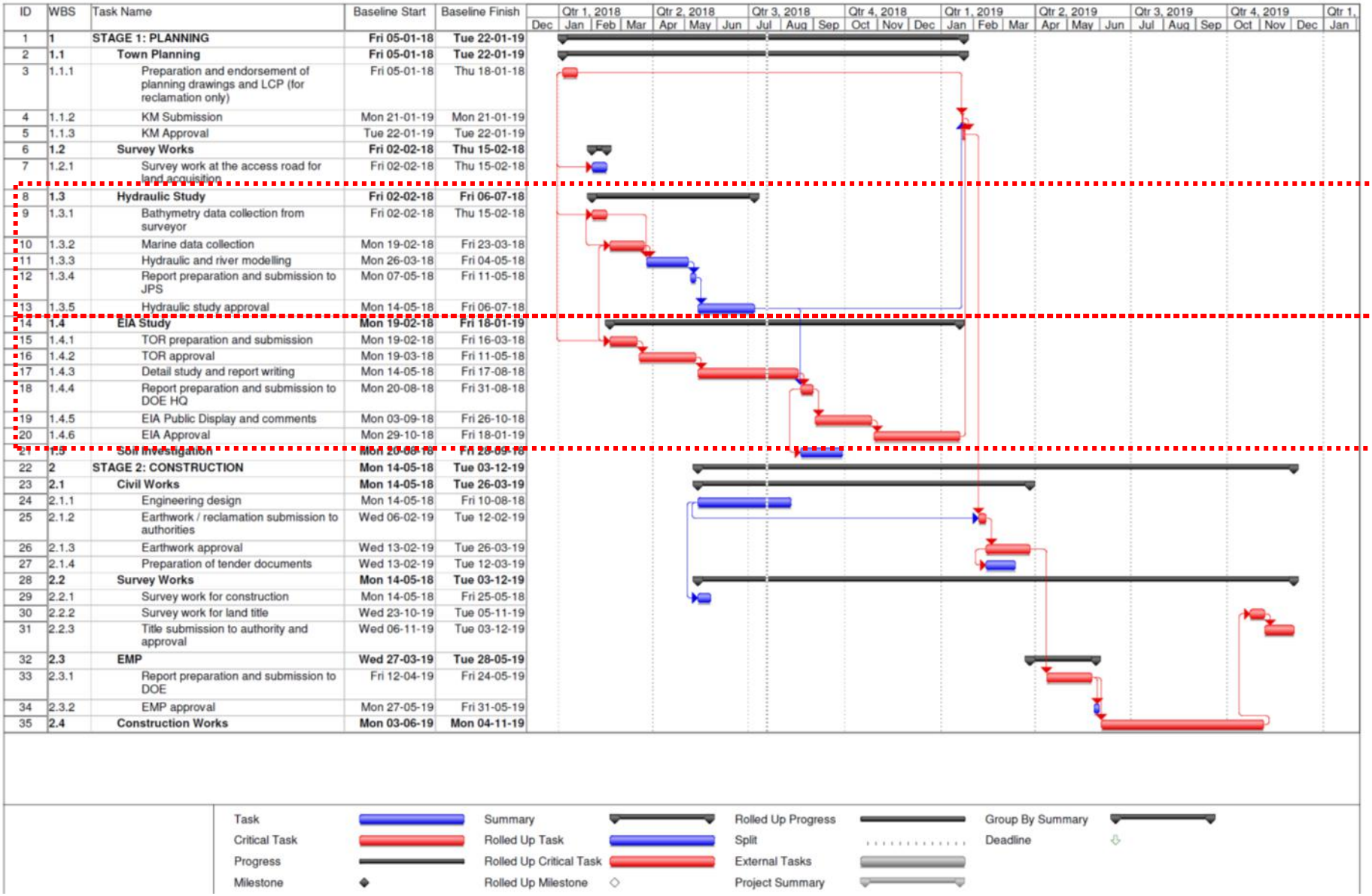

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Figure 2.5: Hydraulic and EIA Study Timeline

2.11 Possible Mitigation Measures

Table 2.4 : Possible Mitigation Measures

Issue	Possible Mitigating Measures / Best Management Practices (BMPs)
Coastal / reclaimed banks erosion	***During construction phase*** 1. Conduct shoreline monitoring before and during the construction period. 2. Provide coastal protection structures / system.
	During operational phase ***1.*** Conduct shoreline monitoring after the construction period.
Hydrological regime	***During construction phase*** 1. Impact of hydrological regime is negligible. 2. All waterways (drains or streams) at the existing coastline shall be maintained and outlet extension of the drainage shall be constructed to ensure flow is not hindered or reduced.
	During operational phase 1. All outlets structure constructed shall be maintained to ensure flow is not hindered.
Solid waste	***During construction phase*** 1. Waste generated from the reclamation activities and from the workers camp (if any) shall be collected and disposed off at the approved landfill site. 2. Inspection shall be done weekly to detect any improperly managed waste. 3. Water monitoring shall be done monthly to ensure that stipulated limits are complied to.
	During operational phase 1. No solid waste will be generated.
Scheduled waste	***During construction phase*** 1. Scheduled wastes produced during construction must be kept at a specific area before being transported. This area shall follow the requirements stated in the Guidelines for Packaging, Labelling and Storage of Scheduled Wastes in Malaysia. 2. The scheduled wastes shall be transported by a DOE licensed contractor, before being disposed at a prescribed site. 3. Inspection of the scheduled waste storage area must be periodically done. 4. An Emergency Response Plan must be prepared and followed in case of spillages.

Issue	Possible Mitigating Measures / Best Management Practices (BMPs)
	During operational phase 1. No scheduled waste is expected during operational phase.
Water quality	***During construction phase*** 1. Construct dykes, bunds, culverts to control water. 2. Proper dredging techniques. 3. Control of dredging rate. 4. Use of unpolluted fill material. 5. Perimeter bunding during reclamation. 6. Install silt curtain to control the dispersion of sediment. 7. Provide adequate temporary sanitary facilities away from watercourses. 8. Monitor surface water quality.
	During operational phase 1. Structural works maintenance (revetment).
Ambient air quality	***During construction phase*** 1. Proper approach on transporting construction material (revetment materials). 2. Proper method and environmental friendly material. 3. Maintenance of the machineries (including barges, ships etc.) used for the project.
	During operational phase 1. The road to the project site shall be fully paved to reduce air pollution from the dust from the earth.
Noise Level	***During construction phase*** 1. Limit working hours to daylight hours only and construction activities are not allowed on rest day. 2. Controlling the speed of the vehicles entering the project site. 3. Proper maintenance of machineries used. 4. Hoarding shall be placed at proper locations not to disrupt the serenity of the residential areas.
	During operational phase 1. This impact is not expected to be significant.

Issue	Possible Mitigating Measures / Best Management Practices (BMPs)
Land Traffic	***During construction phase*** 1. Haulage activities, material transportation and heavy vehicles ingressing and egressing the site to be scheduled away from the commuter peak hours. 2. The allocation of warning signboards as a warning of heavy vehicles access and egress shall also be adopted at the road near to the entrance of the project site during construction stage.
	During operational phase 1. Land traffic is expected to increase with the improved facilities. Nevertheless, this impact is not expected to be significant after completion of the reclamation works until the reclaimed area is developed into commercial, residential or tourism projects.
Marine Traffic	***During construction phase*** 1. All dredgers and support vessel must be approved by the Marine Department of Malaysia including crew and fitted with Automatic Identification System (AIS) and DDMS (Dredging and Dumping Monitoring System) to record traversing path and to avoid any collision. 2. Vessel operating in the Melaka Port limits must adhere to the port limit rules. 3. Vessels shall be maintained frequently to prevent unnecessary breakdown 4. Supporting vessels, tug boats and tankers shall follow planned route to minimize disturbance to normal traffic in the area. 5. Project vessel to proceed at slow speed when encountering fishing or ferry boats to avoid capsizing them and keep a lookout for fishing gear to avoid damaging them.
	During operational phase 1. Marine traffic may increase once the reclamation is completed, depending on the type of development on the reclaimed land. Thus, a special delineation of the limited space, route direction timing and speed control may be required to avoid conflict of users once the topside development is completed at present not determined.
Socio-economy	***During construction phase*** 1. Timing of reclamation activities has to be limited to day time so as to minimise impact of noise pollution especially at night time. 2. Fishing trails and grounds are expected to be affected. Proper marine traffic has to be implemented so as not to endanger fishermen boat traffic. Any increase in travel time and fuel cost have to be compensated. 3. For land traffic, haulage activities, material transportation and heavy vehicles ingressing and egressing the site has to be scheduled not during commuter peak hours. Adequate warning signboards as a warning of heavy vehicles are needed.
	During operational phase 1. No impact is foreseen, not until the reclaimed area is developed.

Issue	Possible Mitigating Measures / Best Management Practices (BMPs)
Aquatic Environment, Fisheries and Aquaculture	***During construction phase*** 1. Installation of Fish Aggregating Devices (FADs) for Artisanal and Recreational Fishing. The installation of FADs would enable aggregation of fish stocks, which, in turn, would reduce the cost of fishing. 2. Installation of habitat enrichment infrastructures. These would be infrastructure that would protect and enhance existing habitats, enabling fish stocks to recover from the reclamation to some extent. 3. To reduce the impact on water quality, silt curtains should be installed at appropriate locations around working site. The silt curtain will retain mud particles within its confines. In addition, discharging of slurry within the near shore area as well as environmental sensitive areas (ESAs) should be strictly prohibited. 4. Dredgers should be confined to specific navigation channels that are clearly marked. This would prevent them from conflicting with fishing boat traffic. 5. Alternative jobs should be offered with priority given to fishermen who wish to seek alternative livelihood. ***6.*** Suitable compensation should be provided for the fishermen.
	During operational phase 1. Due to potential decline of fish catch, the project should prioritize alternative jobs for the affected fishermen and also provide suitable compensation so that their livelihood will not be severely affected.
Abandonment	A proper abandonment plan shall be prepared appropriately to ensure all measures are taken care off.