EXECUTIVE SUMMARY

ENVIRONMENTAL IMPACT ASSESSMENT (SECOND SCHEDULE)
Proposed Reclamation for Tanjung Agas Industrial Area, Mukim Pekan, District of Pekan, Pahang Darul Makmur

PROJECT PROPONENT

TGA Solutions Sdn. Bhd. 200901013982 (857046-M),
No 28, Jalan Gambut,
25000, Kuantan,
Pahang Darul Makmur.

Telephone No.	: 09-5132505
Fax No.	: 09-5132446
Contact person	**: Kamalul Arifin bin Alwi**
Email	: kml.tgas@gmail.com

ENVIRONMENTAL CONSULTANT

Ir. Dr. Aziz Consults Sdn. Bhd. (709961-D)
No 2-A, Jalan Zirkon F 7/F, Seksyen 7,
40000 Shah Alam,
Selangor Darul Ehsan.

Telephone No.	: 03-55131864 / 03-55114822
Fax No.	: 03-55193694
Director	**: Dato' Ir. Dr. Abdul Aziz Ibrahim**
EIA Team Leader	**: Hazura Yaacob**
Email	: hazura.idac@gmail.com

LEGISLATIVE REQUIREMENTS

The Project is subjected under Section 34A of the Environmental Quality Act, 1974 (Amendment) 2015 and Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order, 2015 under:

Activity 7 (a) (Second Schedule): Coastal reclamation or land reclamation along riverbanks involving an area of 50 hectares or more

Activity 15 (a) (First Schedule): Capital dredging

PROJECT OVERVIEW

Following the approval of the First Schedule EIA for the Development of Tanjung Agas Industrial Area, the Project Proponent intends to expand the area by reclaiming the sea fronting Tanjung Agas Industrial Area. The focus of this new land development is to provide facilities for maritime industries in line with the gazettment of Tanjung Agas Port Limit.

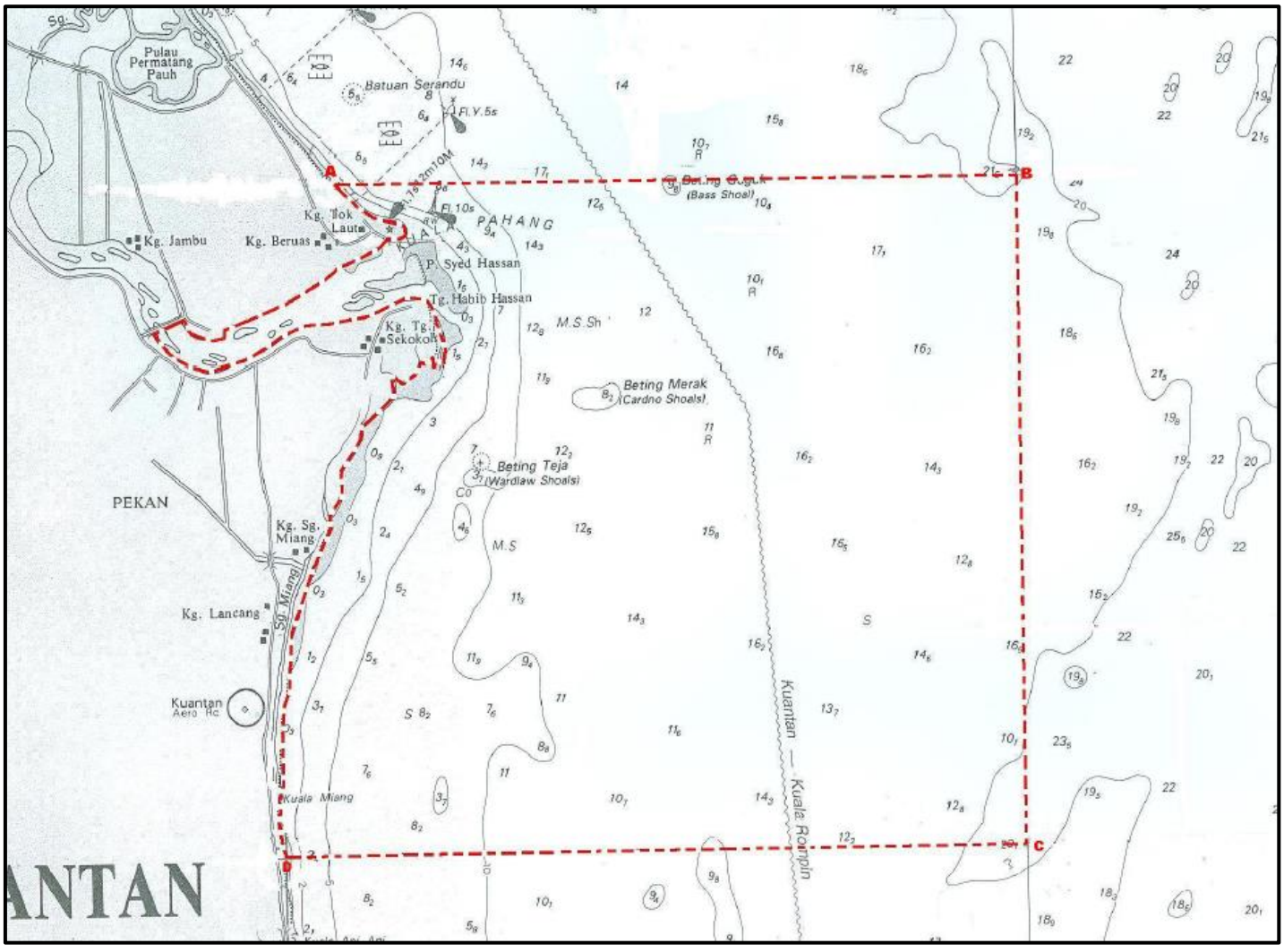
STATEMENT OF NEED

Decentralization of Industrial Hub
Distributing industrial areas in Pahang especially Pekan in order to become a stimulus for the automotive cluster and industrial hub in accordance with RSN Pahang 2050 and to balance regional development between urban and rural areas.

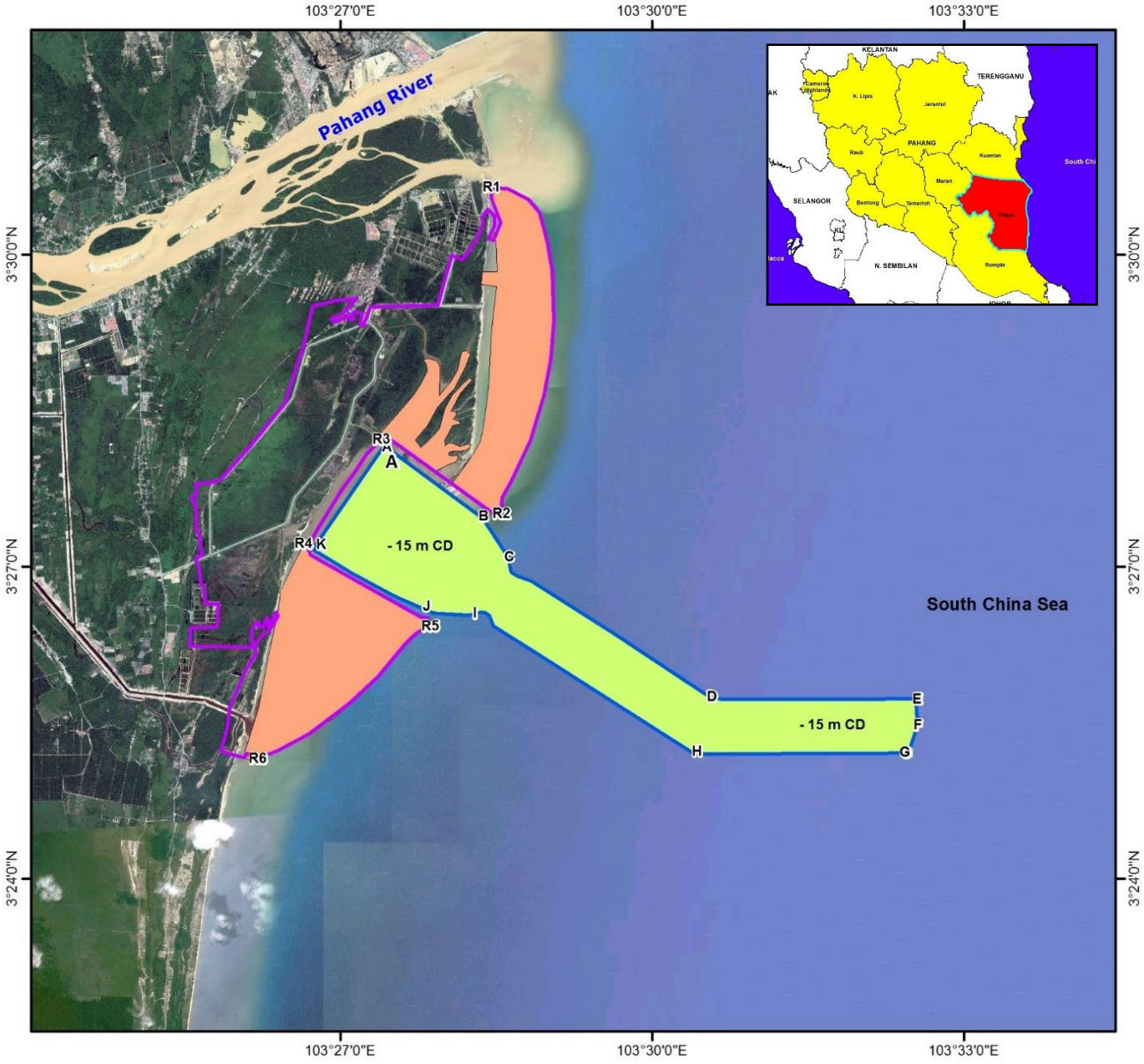
Shoreline Protection
The shoreline of Tanjung Agas Industrial Area has been severely eroded. The shoreline protection work would protect the area from being further eroded.

Strategic Location
The proposed reclamation is situated within the gazetted Port Limit of Tanjung Agas. The port limit will benefit the future maritime and associated industries that will be developed on the reclaimed area.

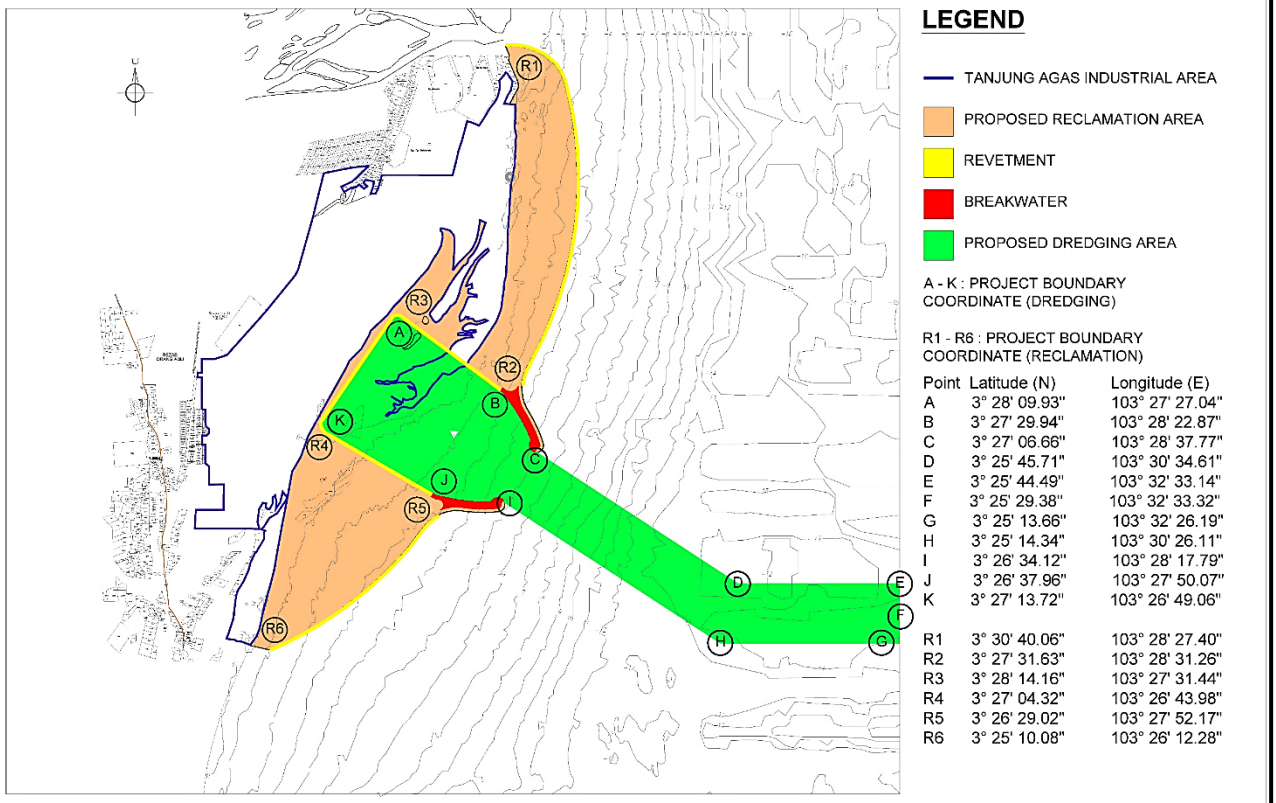
PROJECT LOCATION



PROJECT LOCATION



PROJECT COMPONENTS



PROJECT PHASING

PHASE 1

- River Diversion, Extension & New River Outlet
- Capital Dredging at Navigation Channel & Basin Area
- Coastal Restoration & Backfilling (North and South)

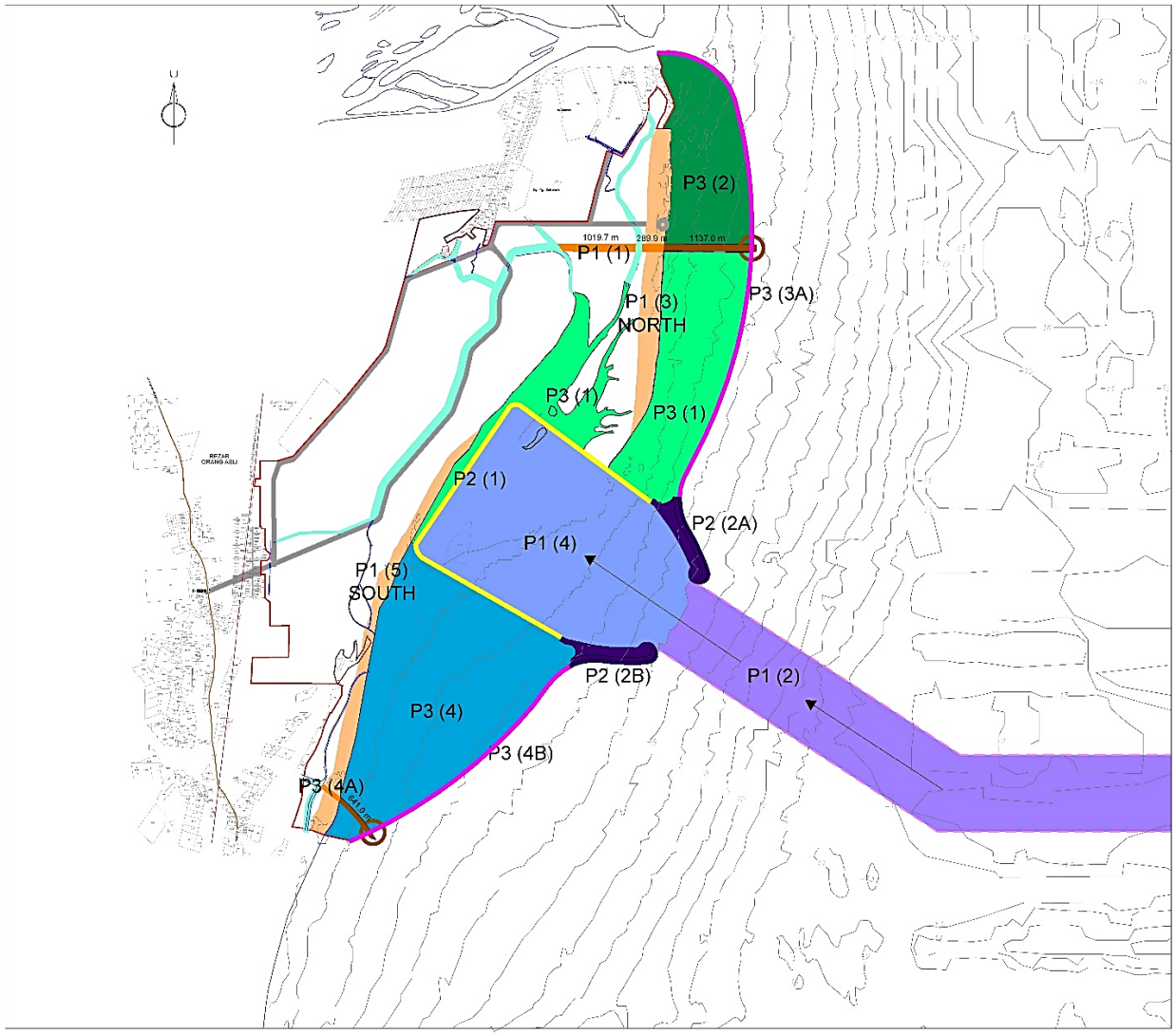
PHASE 2

- Construction of Shoreline Protection at Basin Area
- Construction of Breakwater

PHASE 3

- Reclamation
- Continuation of River Extension from Phase 1
- Construction of Coastal Protection

PROJECT PHASING



LEGEND

PHASE 1

- P1 (1) : RIVER DIVERSION, EXTENSION AND OUTLET (DIVERSION = 1309.7 m / EXTENSION = 1137 m)
- P1 (2) : CAPITAL DREDGING AT NAVIGATION CHANNEL (1922.69 ac x 7.9 km)
- P1 (3) : COASTAL RESTORATION NORTH (241.84 ac)
- P1 (4) : CAPITAL DREDGING AT BASIN AREA (1657.83 ac)
- P1 (5) : COASTAL RESTORATION SOUTH (224.76 ac)

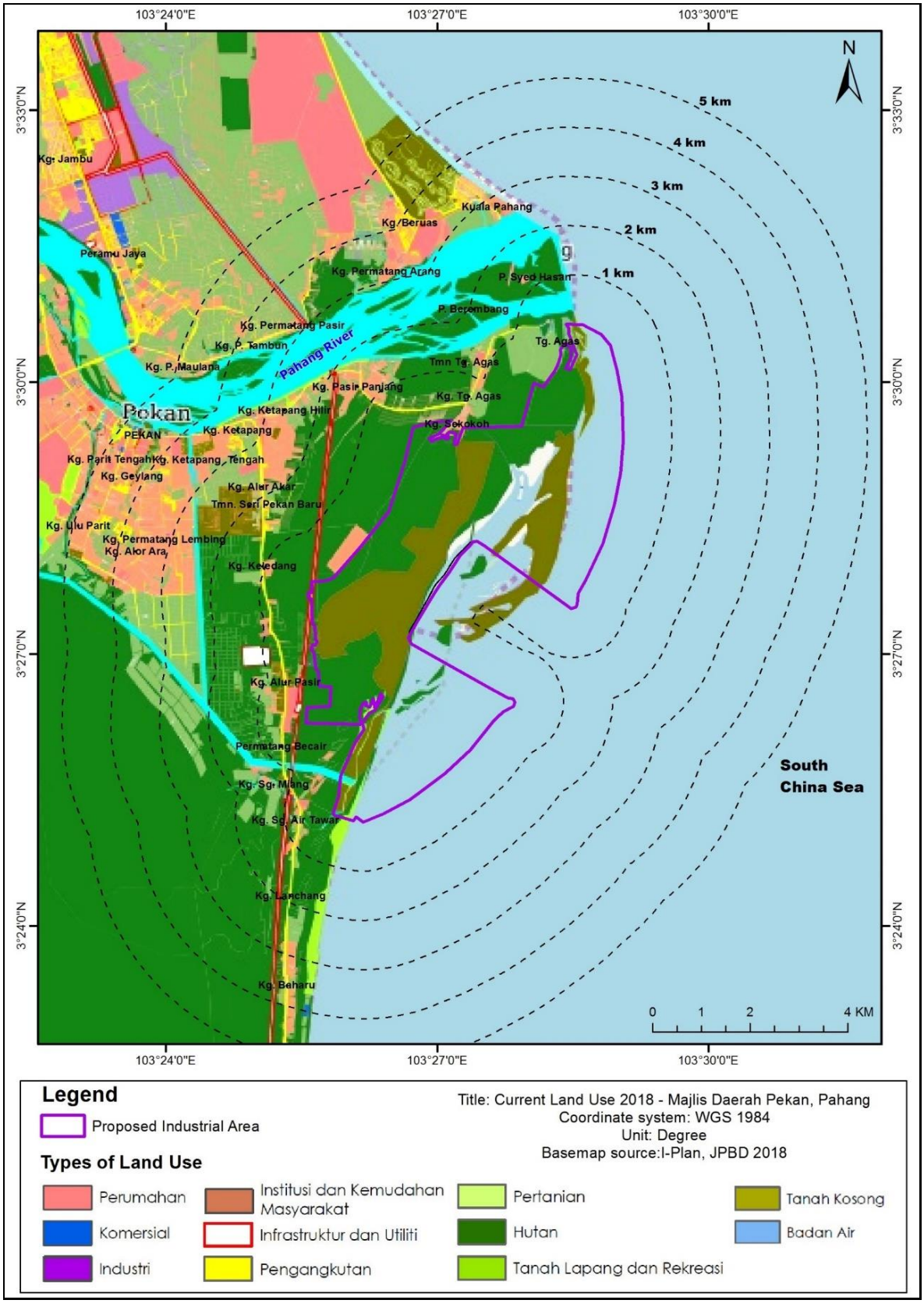
PHASE 2

- P2 (1) : CONSTRUCTION OF SHORELINE PROTECTION AT BASIN AREA (6.87 km)
- P2 (2A) : CONSTRUCTION OF BREAKWATER (1.23 km)
- P2 (2B) : CONSTRUCTION OF BREAKWATER (1.33 km)

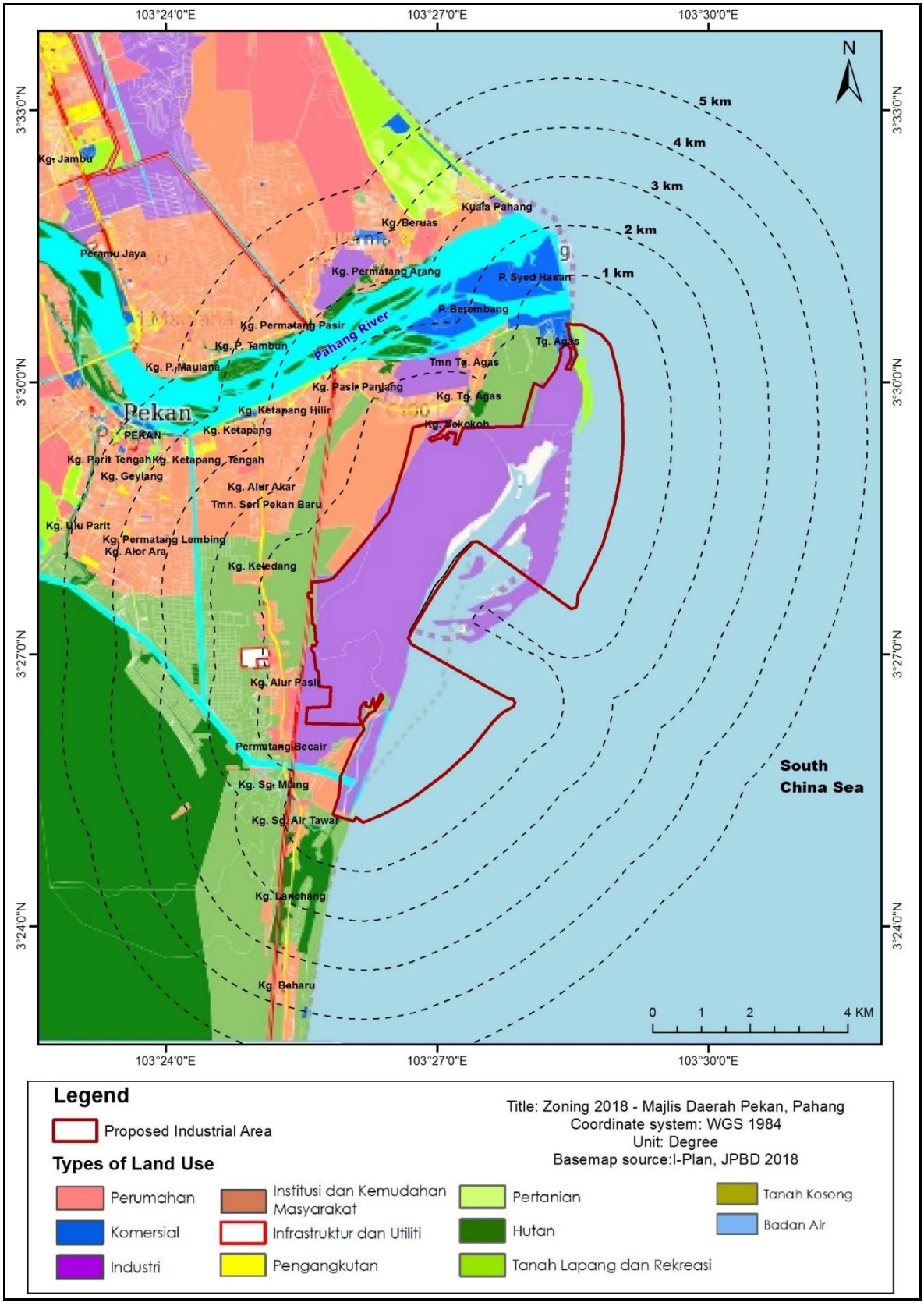
PHASE 3

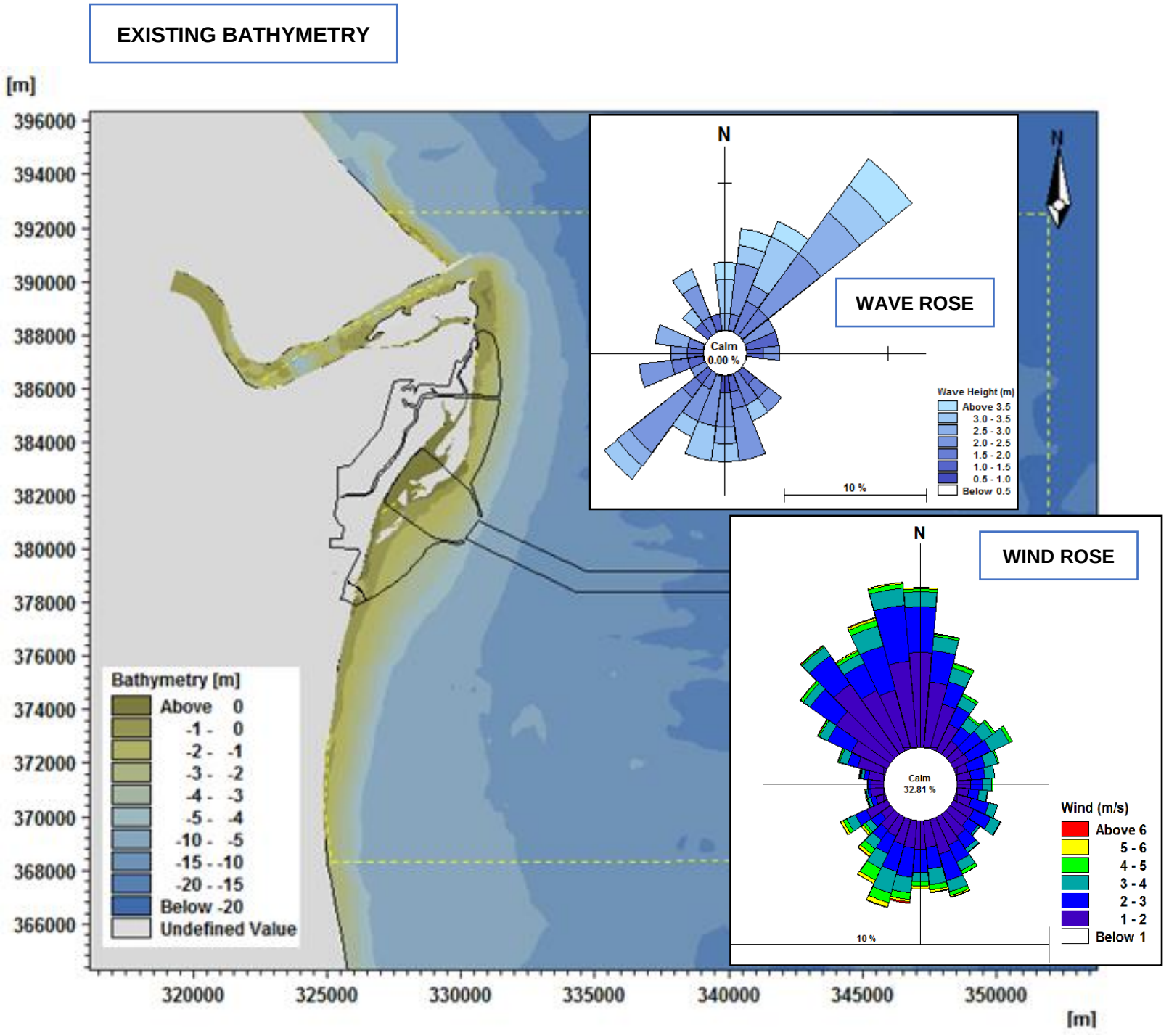
- P3 (1) : RECLAMATION NORTH AREA (1142.20 ac)
- P3 (2) : RECLAMATION NORTH AREA (584.13 ac)
- P3 (3A) : CONSTRUCTION OF COASTAL PROTECTION (7.9 km)
- P3 (4) : RECLAMATION SOUTH AREA (1513.03 ac)
- P3 (4A) : NEW RIVER OUTLET EXTENSION (641.0 m)
- P3 (4B) : CONSTRUCTION OF COASTAL PROTECTION (5.1 km)

EXISTING LANDUSE WITHIN 5KM RADIUS

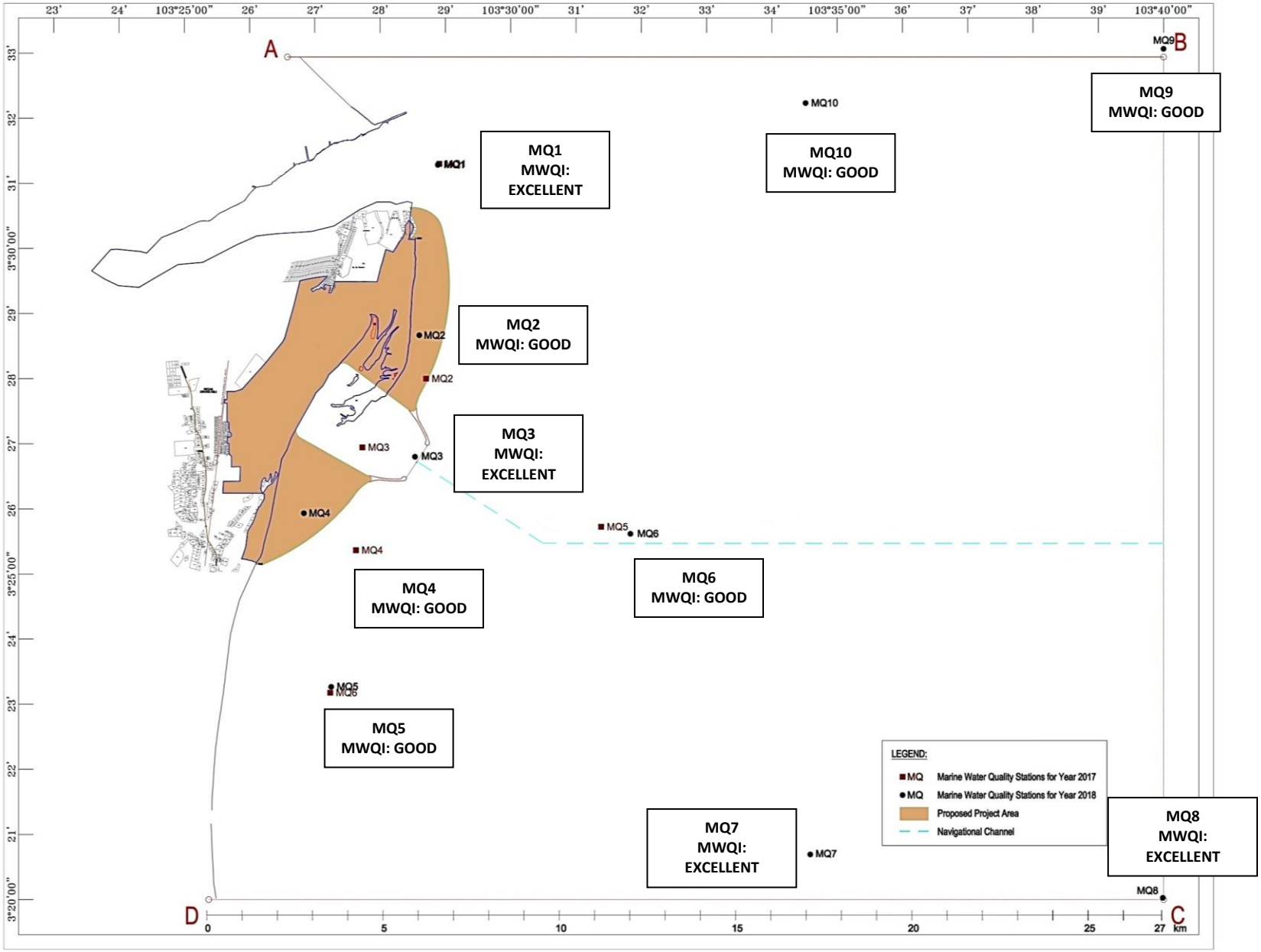


ZONING WITHIN 5KM RADIUS

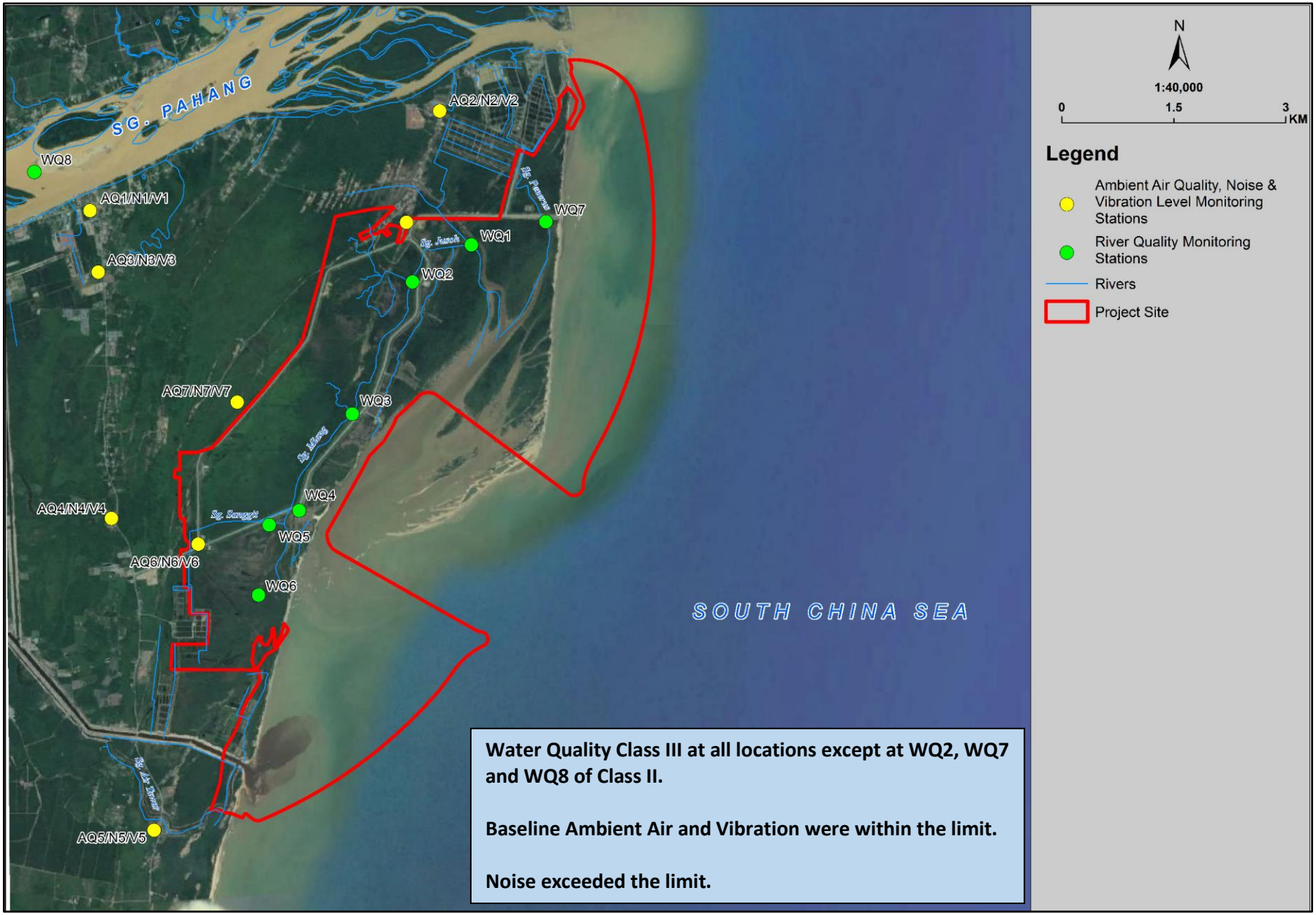


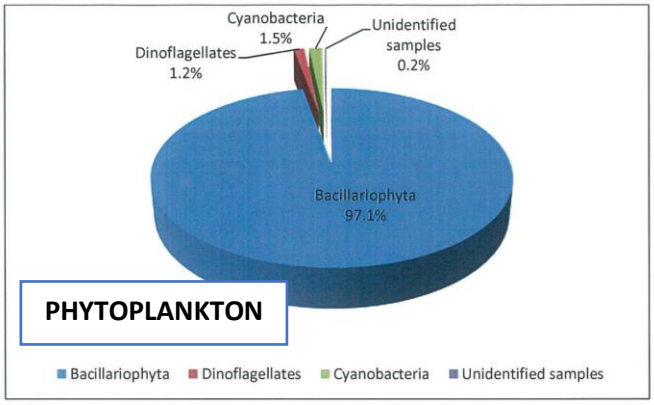

EXISTING BATHYMETRY
[m]
396000
394000
392000
390000
388000
386000
384000
382000
380000
378000
376000
374000
372000
370000
368000
366000
320000
325000
330000
335000
340000
345000
350000
[m]
N
WAVE ROSE
Calm
0.00 %
10 %
Wave Height (m)
Above 3.5
3.0 - 3.5
2.5 - 3.0
2.0 - 2.5
1.5 - 2.0
1.0 - 1.5
0.5 - 1.0
Below 0.5
N
WIND ROSE
Calm
32.81 %
10 %
Wind (m/s)
Above 6
5 - 6
4 - 5
3 - 4
2 - 3
1 - 2
Below 1
Bathymetry [m]
Above 0
-1 - 0
-2 - -1
-3 - -2
-4 - -3
-5 - -4
-10 - -5
-15 - -10
-20 - -15
Below -20
Undefined Value

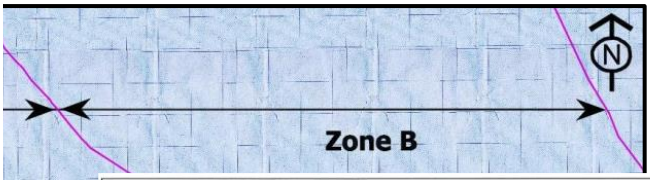
MARINE WATER QUALITY BASELINE SAMPLING STATIONS

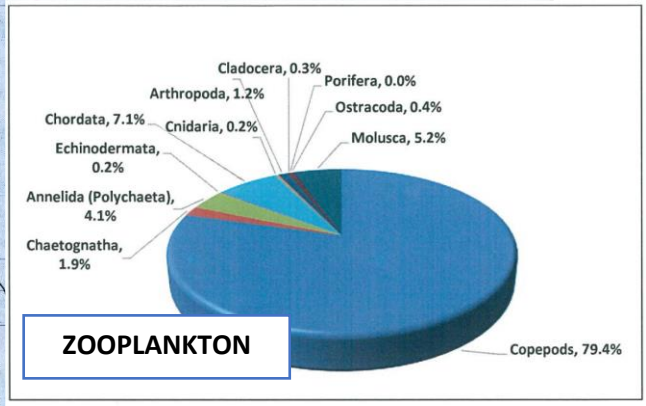


LOCATIONS OF BASELINE SAMPLING STATIONS FOR RIVER WATER QUALITY, AMBIENT AIR, NOISE AND VIBRATION



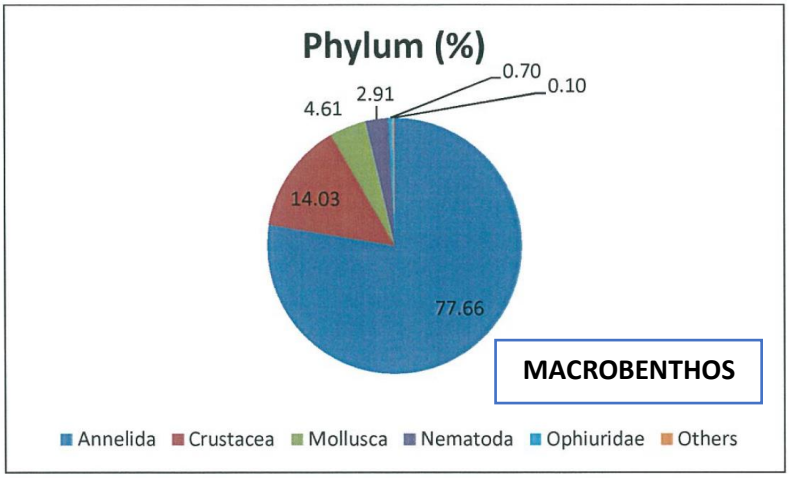


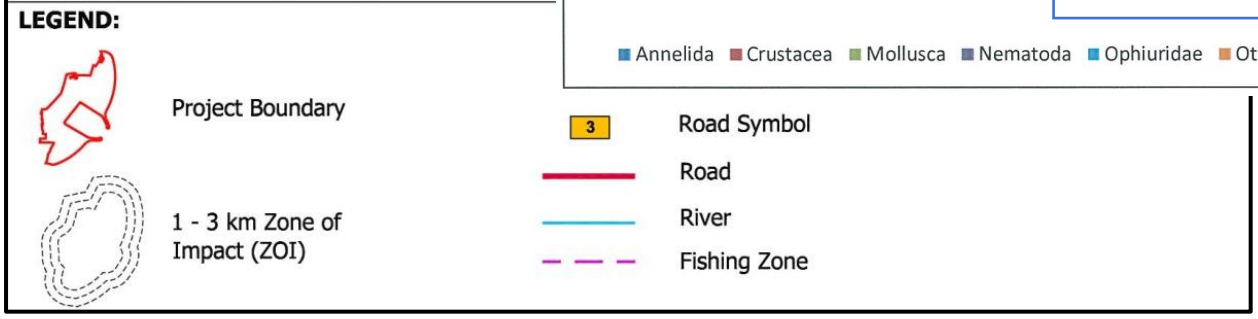




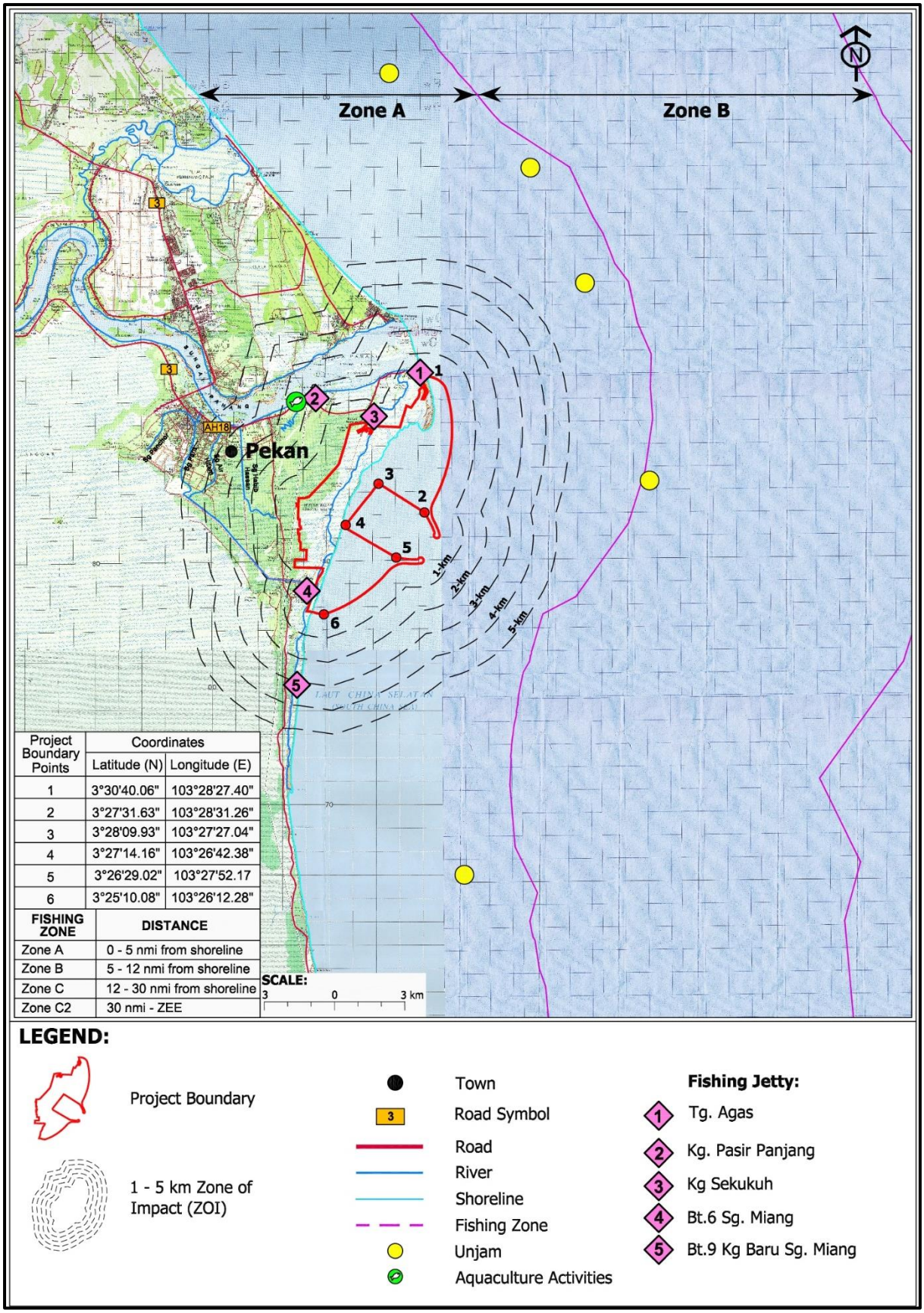
Project Boundary Points	Coordinates	
	Latitude (N)	Longitude (E)
A	3°30'40.06"	103°28'27.40"
B	3°27'31.63"	103°28'31.26"
C	3°28'09.93"	103°27'27.04"
D	3°27'14.16"	103°26'42.38"
E	3°26'29.02"	103°27'52.17
F	3°25'10.08"	103°26'12.28"
Sampling Stations	Latitude (N)	Longitude (E)
1	3°31'18.62"	103°28'54.43"
2	3°28'39.09"	103°28'36.75"
3	3°26'48.54"	103°28'32.74"
4	3°25'55.53"	103°26'49.11"
5	3°23'10.59"	103°27'15.42"
6	3°24'52.10"	103°28'36.71"
7	3°27'24.94"	103°30'23.89"
8	3°25'30.69"	103°31'48.39"
9	3°26'46.94"	103°32'42.43"
10	3°24'16.54"	103°32'31.01"

FISHING ZONE	DISTANCE
Zone A	0 - 5 nmi from shoreline
Zone B	5 - 12 nmi from shoreline
Zone C	12 - 30 nmi from shoreline
Zone C2	30 nmi - ZEE





LOCATIONS OF FISHING JETTIES AND UNJAM



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LEGEND:

Project Boundary

1 - 5 km Zone of Impact (ZOI)

Town

Road Symbol

Road

River

Shoreline

Fishing Zone

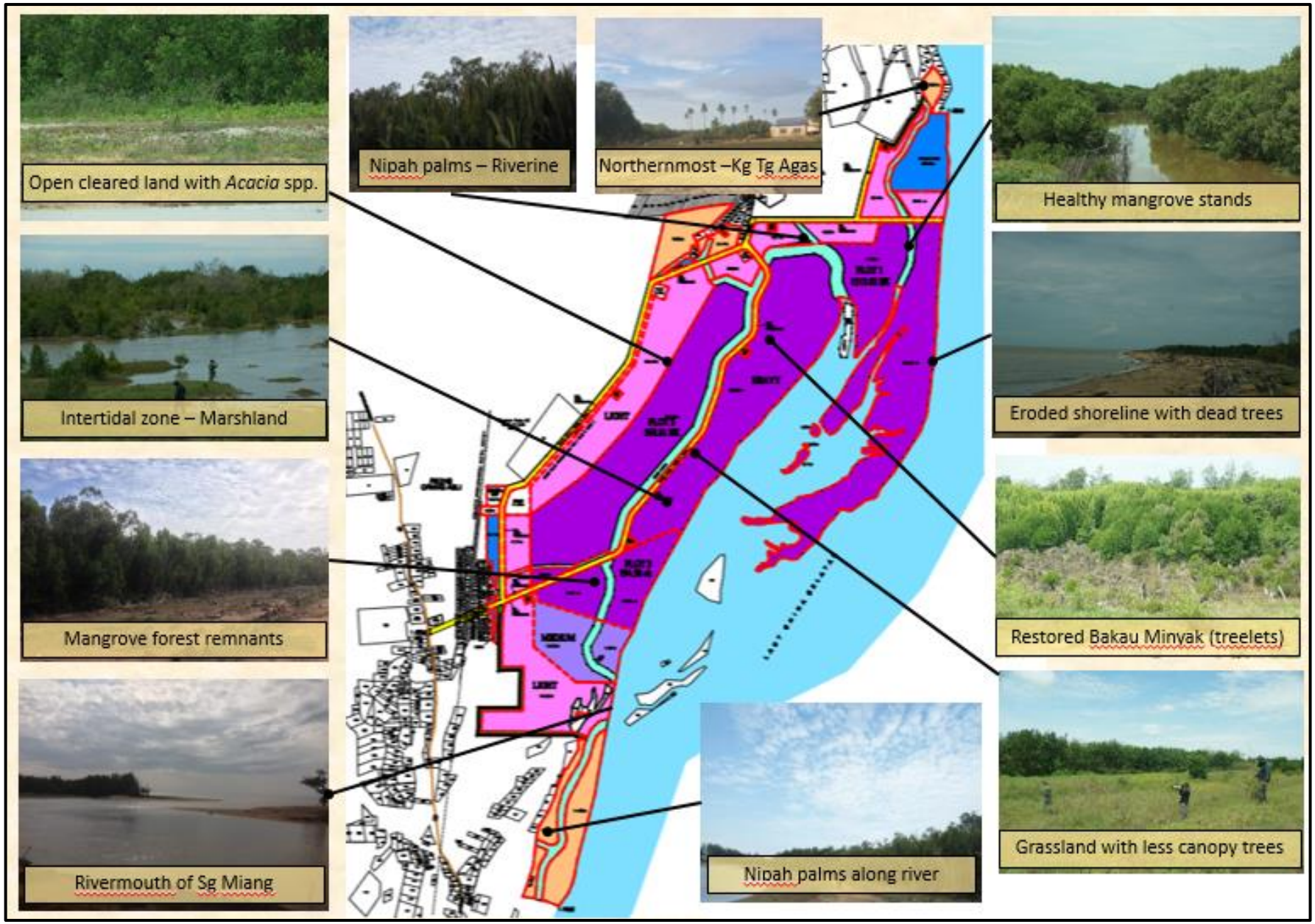
Unjam

Aquaculture Activities

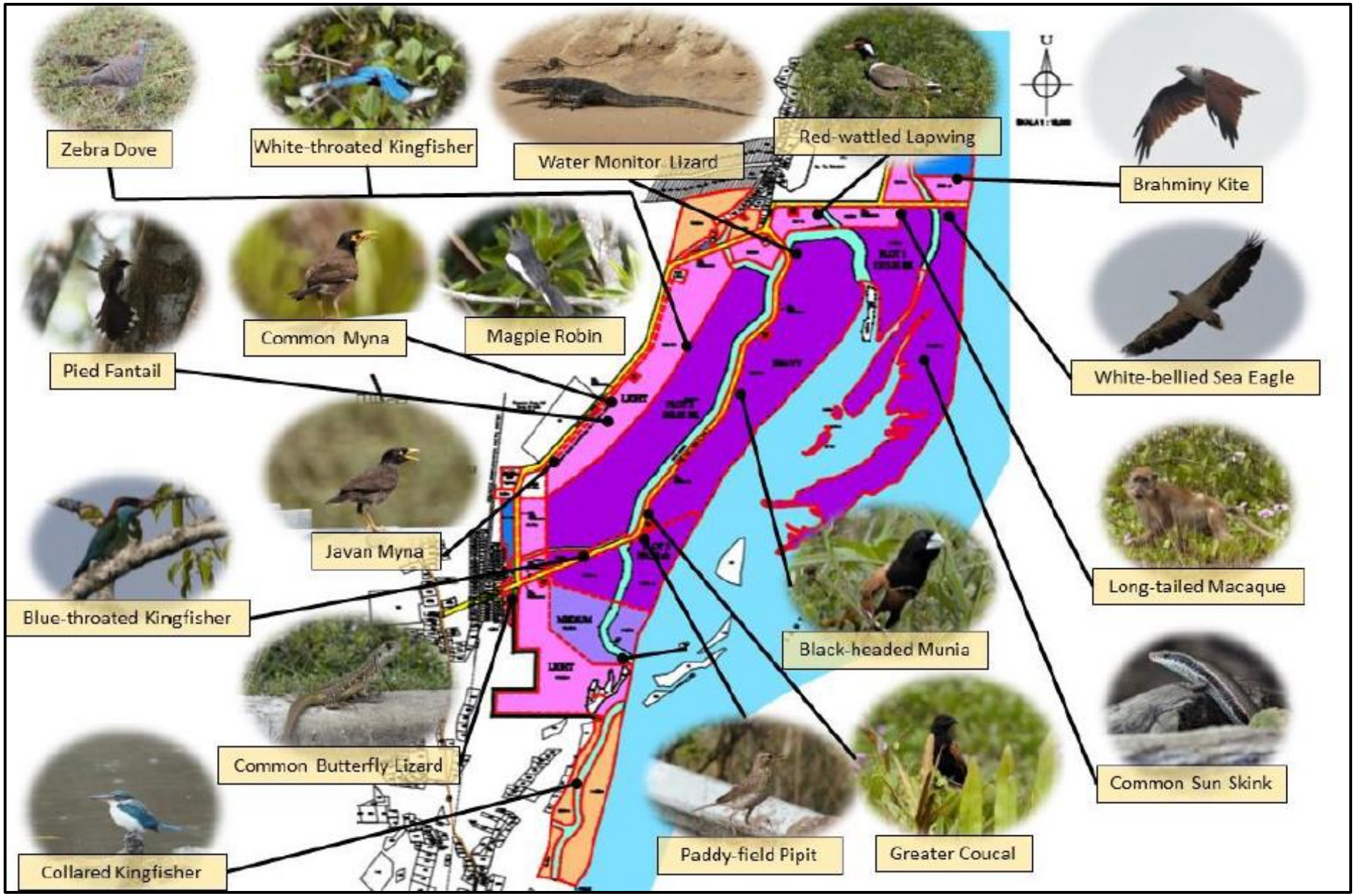
Fishing Jetty:

1. Tg. Agas
2. Kg. Pasir Panjang
3. Kg Sekukuh
4. Bt.6 Sg. Miang
5. Bt.9 Kg Baru Sg. Miang

TERRESTRIAL FLORA WITHIN TANJUNG AGAS INDUSTRIAL AREA



TERRESTRIAL FAUNA WITHIN TANJUNG AGAS INDUSTRIAL AREA



SOCIO ECONOMY

GROUP OF RESPONDENTS:
General Public
Fishermen
Orang Asal

Level of Awareness to the Project (%)	General Public	Fishermen	Orang Asal
Aware	79 (32.0%)	91 (59.5%)	15 (14.7%)
Not Aware	168 (68.0%)	62 (40.6%)	87 (85.3%)
Total	247 (100.0%)	153 (100.0%)	100 (100.0%)

Attitude towards Project	General Public		Fishermen		Orang Asal	
	No.	%	No.	%	No.	%
Very Agreeable	**31**	**12.6**	2	1.3	-	-
Agreeable	**185**	**74.9**	**78**	**51.0**	**36**	**35.3**
Do not agree	13	5.3	40	26.1	50	49.0
Highly not agreeable	7	2.8	10	6.5	1	1.0
No Comment	11	4.4	23	15.0	15	14.7
Total	247	100.0	153	100.0	102	100.0

Reasons for Agreeing to the Project	General Public		Fishermen		Orang Asal	
	No.	%	No.	%	No.	%
Increase employment opportunities	65	26.3	10	6.5	27	26.5
Improve local economic growth	**200**	**81.0**	**73**	**47.7**	**16**	**15.7**
Attract more tourists/visitors	63	25.5	2	1.3	-	-
Open more business opportunities	**203**	**82.2**	1	0.7	16	15.7
Makes Pahang more developed	111	44.9	-	-	-	-
Increase property values	65	26.3	-	-	-	-

Reasons for not Agreeing to the Project	General Public		Fishermen		Orang Asal	
	No.	%	No.	%	No.	%
Possible air pollution such as dust	11	4.5	-	-	-	-
Increase congestion of sea area	11	4.5	35	22.9	1	1.0
Polluting fishing area	**-**	**-**	45	29.4	24	23.6
Make fishing activities difficult	**-**	**-**	46	30.1	-	-
Threaten their safety at sea	-	-	42	27.5	-	-
Reduces opportunities to search for shells, crabs etc.	**-**	**-**	**-**	**-**	**41**	**40.2**

SUMMARY OF IMPACT AND MITIGATION

No.	Aspects	Potentially Significant Environmental Impacts	Magnitude of Significant Potential Impacts	Proposed Pollution Prevention and Mitigation Measures
1	Marine Water Quality	• Decline in marine water quality particularly increase in Total Suspended Solids (TSS), turbidity, oil and grease	[1]Severity: Moderate [2]Duration: Long-term but localized at the dredging area and the reclamation site	• Overflow from the dredger shall be directed below the water surface, preferably at depths that do not allow the upwelling of sediment resulting from the wake created by the dredger. • Placement of silt curtain at the reclamation site • Provision of embankment at the proposed reclamation area and stockpile area.
2	Marine Traffic	• Increase in Marine Traffic	[1]Severity: Minor [2]Duration: Long-term at the dredging area and along the route to the reclamation area.	• Relevant authorities e.g. Marine Department and Fisheries Department must be advised on the dredging schedule. Dredger captain must have regular communications with Marine Department and relevant Harbour Master. • Proper navigational aids shall be installed to minimize the possibility of collision.
3	Marine Ecology	• Disturbance to Marine Ecology	[1]Severity: Minor [2]Duration: Long-term, but localized at the dredging area and proposed reclamation area.	• Mitigating measures for the marine biological impacts are directly dependent on the mitigating measures for the water quality impact. Optimal reductions in water column turbidity would minimize the impacts on the pelagic marine life.

No.	Aspects	Potentially Significant Environmental Impacts	Magnitude of Significant Potential Impacts	Proposed Pollution Prevention and Mitigation Measures
				• Use of suction dredger recommended to reduce disturbance to bottom materials as compared to other types of dredger.
4	Waste	• Generation of waste from the dredger (sewage, sullage and scheduled waste)	[1]Severity: Minor [2]Duration: Long term, but localized at the dredging area and proposed reclamation area.	• All wastes shall be collected and disposed at designated disposal area onshore. • Scheduled waste shall be handled as per the Environmental Quality (Scheduled Wastes) Regulations 2005.
5	Land Traffic	• Increase of traffic at Jalan Ahmad Shah and the Junction during the construction of the breakwater and others	[1]Severity: Moderate [2]Duration: Long term	• Implementation of the Traffic Management Plan such as signages and flagmen • Heavy vehicles should avoid peak hours

Note:

[1]Severity:

1. Negligible
2. Minor
3. Moderate
4. Major
5. Catastrophic

[2]Duration:

1. Short Term
2. Long Term