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1.0 INTRODUCTION

The project is entitled "**Preliminary Environmental Impact Assessment for the Proposed Sand Mining Activities Off the Southeastern Coast Pahang by Directteam Sdn Bhd (Directteam)**".

The Project Proponent proposes to extract sand from the seabed of the area off the south-eastern coast of Pahang. The Project area is approximately 23.74 km² (2,374 ha) and is located approximately 7 nautical miles (nm) off the coast of Teluk Cempedak on the south-eastern coast of the State of Pahang. The location of the proposed sand concession is shown in **Figure ES-1** and the details in **Table ES-1**.

Table ES-1: Concession Site Coordinates

Point	Latitude	Longitude
A	3° 51' 53.3" N	103° 32' 00.3" E
B	3° 51' 44.5" N	103° 32' 23.0 " E
C	3° 48' 10.4" N	103° 30' 55.8 " E
D	3° 49' 02.5" N	103° 30' 40.0" E
E	3° 49' 57.7" N	103° 29' 26.6" E
F	3° 50' 56.7" N	103° 29' 06.3" E
G	3° 51' 35.5" N	103° 29' 04.4" E
H	3° 51' 50.7" N	103° 29' 35.4" E

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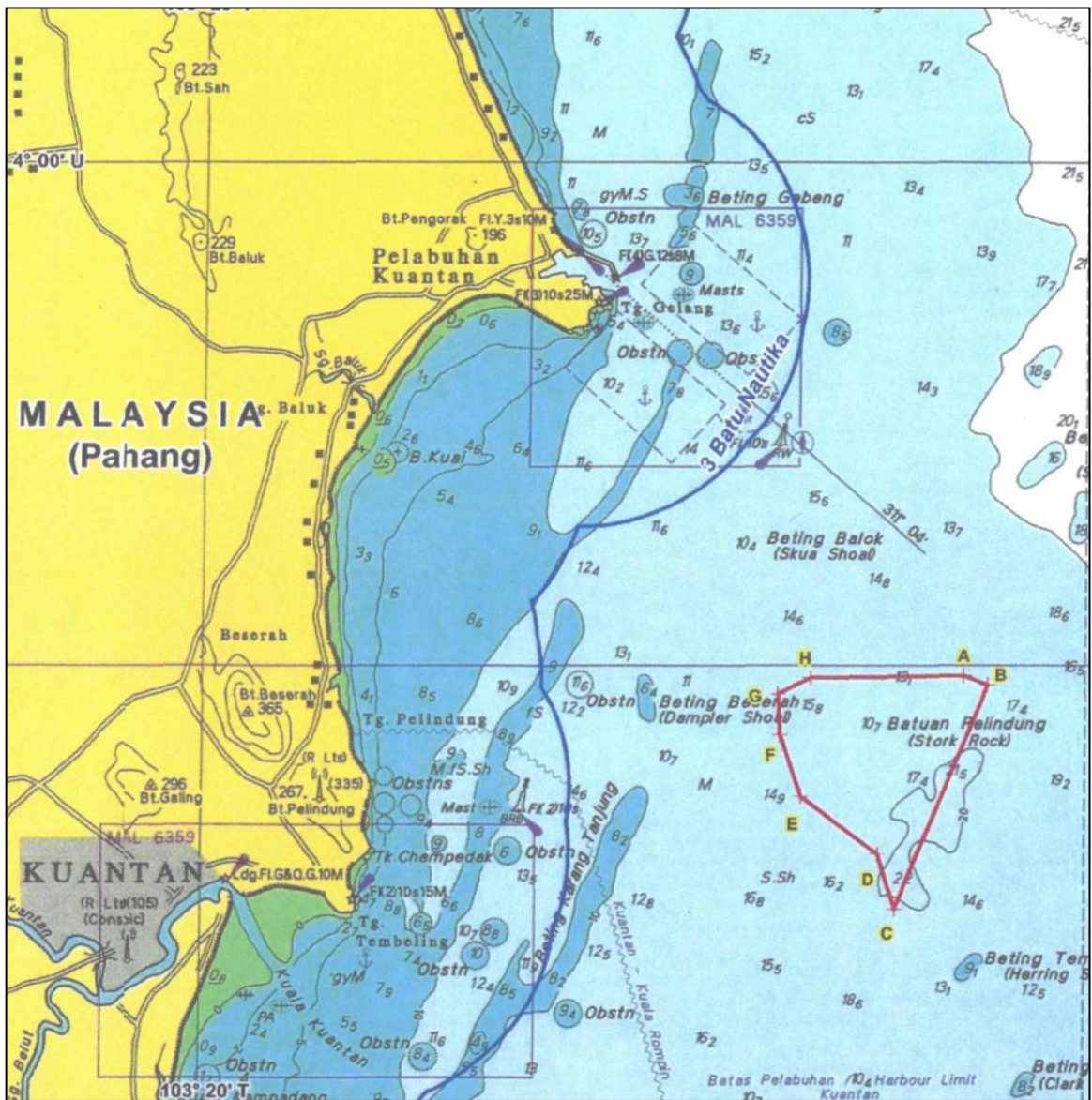


Figure ES-1: Location of the concession area bounded by A, B, C, D, E, F, G, and H

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1.1 Project Proponent

The Project Proponent for the proposed sand mining activities is **Directteam Sdn Bhd**. The proponent can be contacted at the following address:

Project Proponent : **DIRECTTEAM SDN BHD**
29, Jalan Rimba Riang 9/3A
Kota Damansara
47810 Petaling Jaya
Selangor Darul Ehsan

Contact Person : Yang Berhormat Mat Yusoff Bin Abdul Ghani
Tel/fax : 03 61567941

1.2 Consultant

The consultant commissioned to undertake the EIA Study is Advance Enviro Solution Sdn Bhd (AES). The correspondence address of the firm is given below:

EIA Consultant : **ADVANCE ENVIRO SOLUTION SDN BHD**
33A Jalan Indah 10/1
Taman Bukit Indah
81200 Johor Bahru
Johor Darul Takzim

Contact person : Na'imi Atan
Designation : Director
Telephone : 07-2323582
Fax : 07-2320598

1.3 Environmental Legislative Requirement

The proposed project is a **prescribed activity** which falls under activity **11(c)** of the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987; 11. Mining - c) Sand dredging involving an area of 50 hectares or more.

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2.0 STATEMENT OF NEED

Dredging of sand from an off-shore area is closely associated with reclamation of coastal areas for development purposes. Some of the major reclamation projects that have been proposed are located in Pahang. One such project is the proposed reclamation project at Kuantan Port, Pahang, located less than 9 nautical miles from the proposed concession area.

Some of the proposed projects in Pekan that would require substantial amount of sand would be the progressive development in Tanjung Agas due to the port development.

These reclamation projects would require huge amount of sand that can only be provided from the sea and not from on-land sources. The proposed sand mining project could cater for the large volume of sand required by the above reclamation projects. The concession area is sufficiently large, approximately 23.74 km² (or 2,374 ha) and so it would be able to provide a major portion of the demands.

2.1 Project Options

Development options are generally undertaken due to the various potential benefits obtained during its operational phase. The sand dredging activities will undoubtedly benefit proposed reclamation projects (especially in the states of Peninsula Malaysia) and initiate further development of the area/s. However, the marine ecosystem, fishing activities and marine traffic within the impact zone may experience some negative impacts, albeit most would be short-term. Nevertheless, with the implementation of proper mitigation measures, these impacts can be kept to the minimum.

3.0 PROJECT ACTIVITIES

This EIA Study was carried out for the proposed sand mining activities at the sand concession area off the coast of Pahang conditionally approved by the Director General of Pejabat Tanah dan Galian for Directeam Sdn Bhd. At the time of the study, there was no immediate plan for the dredging activities; it will only be carried out once a contract for the sand supply is approved by a project proponent that is planning to carry out land reclamation.

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4.0 EXISTING ENVIRONMENT

As a prelude to assess the likely impacts of the proposed sand mining activities associated with this project, the existing environment, including physical, climate, oceanographic conditions, water and air quality, noise level, biological system, fisheries, and socio-economy, will be described in this chapter.

4.1 Bathymetric/Geophysical Survey

A detailed bathymetry/Hydrographic survey was carried out along the boundary of study area (**Appendix 4-1**) as it is one of the requirements of hydraulic modeling works. Multibeam survey was carried out using standard National Hydrographic Center practice. The purpose of this survey was to provide high resolution and accurate multibeam data set with as much sand concession area coverage as be safely attained.

4.2 Meteorological Condition

Wind

Wind strength in Kuantan is between 0.3 m/s to 7.9 m/s with mean speed of 1.7 m/s. The most dominant wind strength is between 1.6 m/s to 3.3 m/s which predominantly towards north.

Tides

Water level fluctuation within and around the project site is mainly due to astronomical tides. The nearest listed tidal station for the study area is Tanjung Gelang and Kuala Pahang (Standard Port).

Currents

The study area generally experiences moderate current speed with the amplitude ranging between 0.1 – 0.4 m/s and direction approximately from 30 degree and 200 degree.

4.3 Hydraulic Study

This study focused on finding the changes in ocean current and wave patterns in the area surrounding the mining site as a result of the mining activities.

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This modelling study has achieved the following objectives:

1. The proposed project would not cause any significant impact on the currents and waves.
2. The wave modelling results show that the dredging works do not give any significant impacts at the proposed site and nearest coastline.

4.4 Air Quality and Noise

At present, the air and noise quality around the project area is still within the accepted limit due to the fact that proposed project site is far from the vicinity of human habitation or activities. No impact on noise and air quality is expected because water is a good absorber of sound and the wind conditions over the sea offer a high atmospheric dispersion potential.

4.5 Water Quality

The existing sea water quality at the proposed project site is still good and satisfies Class II (Marine Life) of the proposed Malaysia Marine Water Quality Criteria and Standards.

4.6 Marine Biological System

The composition of the benthos population at a particular location is a reflection of the bottom condition. Normally in a muddy condition, the polychaetes would be dominant.

As with the phytoplankton and zooplankton, no endemic species were identified; all species recorded had, one time or another, been documented in earlier studies.

Sea Turtle nesting has been reported from the gazetted area which is Cherating beach and Tioman Island. The Karah or Hawksbill (*Eretmochelys imbricata*) and Agar or Green (*Chelonia mydas*) species are now the most common type of sea turtle landed on this gazette area. The nesting seasons occur between April to September and the peak landed recorded on June and July.

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4.7 Socio-Economic Environment

The nearest human settlements to the proposed sand-mining project are located on the south eastern of Pahang. It covers mainly the settlement in Kuantan district which specific to the Blok Perancangan (BP) Beserah (based on Pengubahan Rancangan Tempatan Daerah (RTD) Kuantan 2010-2015 by Majlis Perbandaran Kuantan) such as Kampung Baharu, Kampung Pelindung, Kampung Rumbia and a few resort and hotel along the coast line.

With refer to current RTD Kuantan, Kuantan district has a population of 401,368 people in 2009. BP Beserah have 39,314 peoples in 2009 and expectedly to increase peoples in 2015.

5.0 POTENTIAL IMPACTS AND MITIGATION MEASURES

The sand mining will without doubt, have certain impacts to the marine environment and perhaps the surrounding sensitive marine ecosystems. Effective measures to mitigate potential negative impacts are vital.

5.1 Pre-Dredging Phase

There is no significant impact during this phase as the baseline sampling only involves marine water sampling, benthic survey, fisheries and socio-economic study.

5.2 Dredging/Sand Mining Phases

The primary activities during the sand mining phase are the dredging or extraction of sand at Kuantan coast and transporting the sand and dumping at land reclamation sites.

Air Quality and Noise

No impact on noise and air quality is expected because water is a good absorber of sound and the wind conditions over the sea offer a high atmospheric dispersion potential.

Marine Water Quality

The process of dredging can cause re-suspension of sediments and pollutants in the water. The generation and dispersion of sediment would result in greater turbidity, which can cause a reduction in water quality.

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A close monitoring programme on marine water quality (especially on levels of oil and grease and TSS) must be enforced so that immediate response can be carried out should there be unpredicted negative impacts on the water quality around the project sites.

Oil spill during refueling or accidental spillage of oil from dredgers and workboats or bunkering activities may pollute the surrounding waters. Proper storage and handling of chemicals and oily products on board the dredgers and workboats must be carried out in order not to pollute the surrounding waters either from inadvertent spillage or from runoff.

Marine Biology

The dredging activity would undoubtedly destroy the macro benthic populations in the dredging site. This disturbance to the seabed has the potential to cause temporary or permanent changes to the environment, which will affect the re growth of the macro benthos.

The suspended particulates from the dredging activities will reduce light penetration and this could reduce primary productivity of phytoplankton and in turn affect zooplankton which grazes on the phytoplankton.

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. Continuous monitoring of the water quality and aquatic life, preferably over at least on a monthly basis is recommended. It is also recommended here that the dredging method (Trailer Suction Hopper Dredger) that gives the least environmental effects should be encouraged.

Fisheries

The sand dredging will potentially have negative impacts on the activities of the local coastal fishermen. The fishermen whose livelihoods are affected by the sand dredging activities shall be duly compensated. To be fair to both parties, a formal meeting/dialog involving representatives of the affected fishermen and the Fisheries Department is recommended to assess the damage and to agree on the quantum of compensation.

To minimize fish mortality as a result of intake into the suction pipe, it is recommended that a hood or mesh cage is placed around the suction head. The mesh should be small enough to prevent juvenile fish from being sucked in.

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Marine Turtles

Potential impacts of dredging on Sea Turtles include impaired oxygen exchange due to clogging of lung from suspended solids and reduced food availability.

The nearest turtle landings about 7-18 nautical miles from the proposed project site which is not gazetted area between Tanjung Agas and Kuantan Port. Therefore, the impacts are predicted to be minimal. All the dredging works only at day time while, nesting period for turtles are usually at night time so these dredging activities are not predicted to give adverse impact to the nearby turtle's nesting area. Department of Fisheries should make frequent surveillance at the project site and shoreline area nearby the project site.

Socio-Economy

The potential socio-economic impact could be reduced income for the commercial fishermen and recreational fishermen. During the dredging period, there should be continuous consultation with the affected parties as well as the fisheries agency officers to monitor the catch levels.

Hence to ensure that the project would give maximum economic benefit to the local communities and the state, it is recommended that certain aspect of the project to be carried out in the nearby commercial and services center. These include repair and maintenance works, procurement of supplies and recruitment of locals into the workforce.

5.3 Post- Dredging Phase Mitigation

The post dredging phase is unlikely to bring any new impacts to the marine environment. However, it will be necessary to monitor the recolonization of the benthic community and the well-being of the fish stock to determine the rate of recovery.

6.0 MONITORING AND CONTINGENCY PLANS.

To mitigate the occurrence of accidents, it is recommended that the project initiator:

- (i) prepare a detailed schedule of the dredging and transporting operations of the project and this should be adhered to as strictly as possible.
- (ii) Inform the relevant authorities of their presence in the mining area
- (iii) educate the workforce on the safety and contingency measures to be taken in the event of accidents so as to protect life and the surrounding environment.

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In order to safeguard this valuable resource and prevent its overexploitation, it is imperative that the relevant authorities at state level ensure proper monitoring procedures be undertaken and the project supervised. This would also enable the authorities to ensure that the mining contractor adhere closely to the proper rules and regulation prescribed for such projects.

7.0 CONCLUSIONS

The need of the proposed project was examined from many relevant factors, such as the policy and strategy of the Government, the overall development planning, socio economic value, economic viability, as well as the environmental aspects. It is established that the proposed project is in line with the State Government's policy of speeding up the development, particularly in rural areas.

The existing environmental aspects have been examined, analyzed and documented. The impacts that may arise during the investigation to operation stage have been evaluated, according to activity under each stage. Even though there are some significant impacts identified, such as the Suspended Solid (SS) however the mitigation and abatement measure are suggested to eliminate or minimize the impacts. The study has shown that adverse environmental impacts that are likely to result from the proposed project development can be mitigated or controlled.

With the implementation and operation of the project, some residual impact on the environment has been envisaged such as permanent net changes to seabed and changes to marine biological component.

Form the socio-economic viewpoint, the project would have very minimal net beneficial impact to the local communities as well as to the state. However, the main beneficiaries of the project such as support the development in our country especially in construction work. In terms of economic activities, due to the area being located close to the international water and in the vicinity of shipping channels, fishing activities are less prominent here.