

EXECUTIVE SUMMARY

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)
For
PROPOSED OIL PALM PLANTATION PROJECT (2,026.0 HA)
AT LOT 1913, MUKIM ULU NENGGIRI, DAERAH BERTAM, JAJAHAN GUA MUSANG,
KELANTAN D.N.

This **Environmental Impact Assessment (EIA)** report entitled “**Proposed Oil Palm Plantation Project (2,026.0 Ha) at Lot 1913, Mukim Ulu Nenggiri, Daerah Bertam, Jajahan Gua Musang, Kelantan D.N.**” is prepared in accordance to requirement of *Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015* under the *Item 13 of First Schedule: Development or land clearing less than 50 percent of an area with slope greater than or equal to 25° but less than 35°*. I.Z. EnvironMind Sdn Bhd, the established environmental risk management consultant has been appointed by Value Greenworld Sdn Bhdin 18th September 2017 to carry out the EIA study of the proposed project. The proposed project had obtained official consent on **Term of Reference (TOR)** from **Department of Environment (DOE) Negeri Kelantan** through letter ref: AS(B)D11/123/000/079 dated on 24th July 2017. The EIA study will focus on the potential negative and positive impact that may arise during the project implementation. Various **Pollution Prevention & Mitigation Measures 2M2** then will be recommended and to be carried out by project proponent in order to minimize, control and as possible to resolve the potential and residual impact. The EIA report shall be submitted to **DOE Negeri Kelantan** and other relevant authority, where approval is required before any activity of proposed oil palm plantation project can be undertaken on-site by project proponent. The outline of **Environmental Management Plan (EMP), Land Disturbance, Pollution Prevention & Mitigation Measures (LD-P2M2), Environmental Monitoring Report (EMR)** as well as **Environmental Auditing Report (EAR)** is also present in the report as a brief guide in implementing the recommendations as well as to monitor the proposed project from the environmental point of view. Any inquiries on the EIA report can be address to the following contact person.

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The project proponent is a company incorporated in Malaysia on 15th June 2012 and having its registered office at No.171-A, Jalan Sri Pelangi, Taman Pelangi, 80400 Johor Bharu, Johor D.T. However, the project proponent had used address at 9th Floor, Wisma Bunga, 11, Jalan Lambak, 86000 Kluang, Johor D.T. for official correspondence. Any further clarification on the proposed oil palm plantation project can be contacted or addressed to the person in-charge as listed below.

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The proposed project is to develop 5,006.335 acres (2,026.0 ha) at Lot 1913, Mukim Ulu Nenggiri, Daerah Bertam, Jajahan Gua Musang, Kelantan D.N into the proposed oil palm plantation project area. The objective of the proposed oil palm plantation project is to enrichment back the proposed project site area which experiencing several logging activities in the past to become high commercial value forested area. It is involved the logging, site preparation, planting, maintenance, harvesting and replanting of the oil palm trees. The project proponent had granted the

respective land area which classified as **Sultanate Land PW 1094** through leasing agreement undertaken with **HRH Tengku Muhammad Faris Petra Ibni Sultan Ismail Petra** on 3rd August 2014. The leasing of respective **Sultanate Land** is only specifically for the development of proposed oil palm plantation project with a period of ninety nine (99) years which expected to be at end on 2nd August 2113. According to *Rancangan Struktur Negeri Kelantan 2020 (RSNK 2020)* and *Rancangan Tempatan Jajahan Gua Musang 2020 (RTJGM 2020)*, the proposed project site has been identified as forest reserve known as **HSK Limau Kasturi** which later has been converted to **Sultanate Land PW 1094**. Based on the **Master Plan for Ecological Linkages** or best known as **CFS** produced by the **Department of Town & Country Planning** noted that the proposed project site is located outside of the potential area for **CFS** which approximately 3.8 km (straight line) from **Secondary Linkage 6(SL6)**. This linkage will enable to connect **Taman Negara** and **HSK Chiku** thus it does not give any interruption for the ecology corridor or primary or secondary linkage.

The proposed project site is found surrounded by various existing neighbouring oil palm plantation area developed by **Alam Muhibah Sdn Bhd**, **Kemajuan Tanah Limau Kasturi** and **Hektar Kurnia Sdn Bhd & Ladang Rakyat** available within 5.0 km area from proposed project site. The abandon gold mining area owned by **Dataran Mineral Sdn Bhd** located at the center east part of the proposed project site. The information gathered from **Jabatan Kemajuan Orang Asli (JAKOA)** Kelantan revealed that there is no settlement of orang asli community located within 5.0 km radius of proposed project site area. However, there are various local community settlement areas within 5.0 km radius from proposed project site (Kg Bertam Baru, Kg Limau Kasturi, RPT Limau Kasturi 2, Kg Limau Kasturi 2, Kg Kalar Baru, Kg Pasir Mayat, Kg Star, Kg Star Baru, Kg P Setulu, Kg Tool, Kg Chegar Atas, Kg Perak, Orang Asli Kuala Lah and Kg Layak). Based on the additional informations had given by En. Mahasin Bin Yahya (Penghulu Mukim Bertam Barat), En Mohd Othman Bin Mustafa (Penghulu Mukim Bertam Baru) dan En. Zabidi Bin Mat Noor (Penghulu Mukim Limau Kasturi), most of local communities in these settlement areas work as a plantation worker (rubber tappers). These local settlements area also had been provided with electricity supply and it has been supplied through **TNB** distribution line. **Air Kelantan Sdn Bhd (AKSB)** plays significant role to supply the clean water to the communities in local settlements nearby the proposed project site. The proposed project site can be easily access through four (4) access road which through **Jalan Gua Musang-Jeli** some 1.5 km and 2.0 km, respectively at the west part of proposed project site and through **Jalan Limau Kasturi-Kg Bertam Baru** some 1.0 km and 3.7 km, respectively at the east part of the proposed project site (all in actual distance). This access road is noted passing through community area of **Kg Kalar Baru** and **Kg Limau Kasturi 2** before reaching the proposed project site area. Therefore it seems to be an easy access for project proponent pertaining for transportation purposes during early stages activity until of re-planting stage. It is observed that the average traffic flow rate captured for **Jalan Gua Musang-Jeli** is 591 vehicles per day respectively during day time (consists of cars, lorries, tractors, jeeps, 4-wheel drives, motorcycles, buses, etc.). From **Jalan Gua Musang-Jeli** to proposed project site is recorded as 23 units of vehicles passing through the accessible roads within the project site. While from the **Jalan Limau Kasturi-Bertam Baru** is recorded as much as 290 vehicles per day and to the proposed project site is as much as 153 units of vehicles per day. Both roads noted to have a low rate of traffic flow. It was noted that the current number of road traffic data recorded at these routes are mainly generated from the community of nearby local community and neighbouring planters.

The proposed oil palm plantation project encompasses the followings major activities such as logging, site preparation, planting, maintenance, harvesting, and re-planting activity. It will begin with deforestation, logging and land clearing during the initial stage followed by terracing, lining, holing, planting of oil palm trees as well as planting of cover crops. The necessary infrastructures for instance the access road, plantation road, drainage system, timber or concrete culvert for water flow across the plantation road will be provided accordingly. The proposed oil palm plantation project will then enter the maintenance stage where herbicide, fertilizer and pesticide application activity will take place as per schedule for the planted oil palm trees. And the next stage is harvesting activity and trading activity of the harvested oil palm trees before the replanting activity being undertaken by the project proponent. The proposed project is economically feasible with area 2,026.0 ha which has been granted in **Sultanate Land PW 1094**. The development of this proposed project site area will keep on maintain the primary objectives set up by the **State Government of Kelantan** and **Federal Government of Kelantan** in enhancing and enriching the existing forest reserve area also to sustain the green status of respective area. It also compliments not only to the **State Government of Kelantan** but also the overall nation initiative in encouraging private agencies involvement in the forestry and agriculture plantation

program. Information obtained from **Pejabat Pengarah Tanah & Galian (PPTG) Negeri Kelantan** revealed that the proposed project site has been converted into **Sultanate Land PW 1094** and no overlapping issue occur at the proposed project site (refer **Appendix B**). And information obtained from the fieldwork exercise as well as from the project proponent revealed that about 780.0 ha of area within the proposed project site has been developed and planted with oil palm trees (refer **Figure 1.5**). Balance 1,246.0 ha still undeveloped and remain with natural existing condition with bushes, vegetations and small trees. Thus, the development phase of the proposed project site will focus on the un-developed area (about 29 blocks, out of 47 blocks) which initially planned will be carried out phase by phase basis. The proposed project site is divided into nine (9) phase and the development will be started at **Phase 1** (Block B19 & B20 – 82.3 ha) then followed by **Phase 2** (Block B21 & B22 – 100.4 ha), **Phase 3** (Block B23, B24 & B25 – 130.2 ha), **Phase 4** (Block B26, B27 & B28 – 131.1 ha), **Phase 5** (Block B29, B30 & B31 – 155.5 ha), **Phase 6** (Block B32, B33, B3, B35 & B36 – 167.1 ha), **Phase 7** (Block B37, B38, B39 & B40 – 191.8 ha), **Phase 8** (Block B41, B42 & B43 – 140.9 ha), and finally followed by **Phase 9** (Block B44, B45, B46 & B47 – 146.7 ha). In general, the development of proposed oil palm plantation project will take a period of four (4) to six (6) months for each proposed phases depending on the availability for executing the overall proposed oil palm plantation project.

Generally, the proposed project site is mixed of hilly and undulating area. The proposed project site area has an altitude ranging from 100 to 360 meter above the sea level (ASL). According to the **Department of Agriculture (DOA)** the area with more than 25° slope is not advisable and practical to undergo any kind of plantation activity. Whilst according to **Department of Forestry (DOF)** the area with more than 40° is not allowed for any logging activity. General geological profile of the proposed project site indicates that it is included in Triassic and Permian age. The eastern part of proposed project is dominated by Triassic age which consists of interbedded sandstone, siltstone and slate. The western part of proposed project site is prominent by limestone which is included in Permian age. Limestone is unique since it is soluble in even slightly acidic waters, such as carbonic acid formed from the dissolution of carbon dioxide in water. The analysis made on the **Soil Suitability Report** produced by **Department of Agriculture (DOA) Negeri Kelantan** revealed that the study area (**2,026.0 hectares**) consists of six (6) different soil series which are Bungor Series, Batang Merbau Series, Durian Series, Kuala Brang Series, Musang Series and Steepland area. From the analysis, 380.2 ha (18.8%) of the area within proposed project site were occupied by Bungor Series and 132 ha (6.5%) has been occupied by Batang Merbau Series. About 23.7 ha (1.2%) of proposed project site has been occupied by Durian Series. Proposed project site has been occupied by Kuala Brang Series which 191.2 ha (9.4%) and 227.6 ha (11.2%) has been occupied by Musang Series. Meanwhile, Steepland area covered about 1,071.3 ha (52.9%) of total proposed project site. As referred to the **Soil of Malaysia – Their Characteristics and Identification**, Bungor Series is a member of the Bungor Family which is a fine, kaolinitic, isohyperthermic, red-yellow Tipik Lutualemkuts and is developed over mixed sedimentary rocks, interbedded sandstones and shales or sandy shales. Soils of the Bungor Series show very little variation in the areas mapped to date and have colours which range from strong brown, brownish yellow and yellowish brown. It is well drained, has a good permeability and commonly planted with a variety of crops including rubber, oil palm, fruit trees, cocoa as well as other forestry tree species. It is well drained, has a good permeability and commonly planted with a variety of crops including rubber, oil palm, fruit trees, cocoa as well as other forestry tree species. Kuala Brang Series is basically brownish and yellowish in colour with sub-angle block structure, medium size and grade and medium depth. It is present at the depth of 60.0 cm below the ground level and capable to exchange the cation < 5 cmol(+). However, these two (2) type of soil series (Bungor Series and Kuala Brang Series) are having fewer nutrients, need to partially undertake the fertilizer application if it is going to be used for agriculture purposes and must be provided with proper terracing and cover crops as a **P2M2** for soil erosion. The total area of **921.6 ha (45.4%)** which has been reported suitable and **1,104.4 ha (54.6%)** was reported moderate suitable for proposed oil palm plantation by **DOA Negeri Kelantan**. Whilst the balance of **1,071.3 ha (52.9%)** of the proposed project site area has been classified as “**Steep**” in terrain profiles thus this area not advisable and practical to undergo any kind of plantation activity. This area normally has high possibility to generate huge erosion especially during initial stage of proposed oil palm plantation. Therefore a proper **Pollution Prevention & Mitigating Measure (P2M2)** shall be implemented accordingly by project proponent in order to minimize as well as to prevent any significant impact to the environmental surrounding.

The drainage system pattern within and surrounding proposed project site is characterised by several seasonal rivulets, streams and unknown small seasonal rivulets in which will finally flow into Sg Nenggiri and Sg Galas. Any disturbance to this physical water body will directly and indirectly affect the quality of the major river, Sg Nenggiri and

Sg Galas. Information gathered from **Department of Irrigation & Drainage (DID)** and **Air Kelantan Sdn Bhd (AKSB) Jajahan Gua Musang** revealed that the nearest water treatment plant was **Sg Bertam Water Treatment Plant** some 4.4 km away and at Sg Galas for **Limau Kasturi Water Treatment Plant** some 4.9 km away. The point **AKSB** water intake located at the Sg Nenggiri near Kg Bertam Baru and Sg Galas Kg Limau Kasturi respectively. River water quality sampling exercise has been carried out at twenty six (26) different locations set up within and surrounding the proposed project site which located at rivulets, streams. Sg Kalau, Sg Tadok, Sg Kerak, Sg Belu and eventually to Sg Nenggiri and Sg Galas. The selected parameters namely pH, Dissolved Oxygen (DO), temperature, Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Suspended Solid (SS), Turbidity, Sulphide, Nitrate, Phosphorus, Ammoniacal Nitrogen (AN), Oil & Grease (O&G), E-coli, Iron, Zinc and Manganeses has been analysed. Based on **DOE Water Quality Index**, it was noted that all twenty six (26) sampling stations have been analyzed to be in "Clean" category. Based on the analysis result, twenty (20) sampling stations had been measured to be in **Class II** category. For air quality analysis, the important air quality parameters were included the amount of Total Suspended Particulate (TSP), Sulphur Dioxide (SO₂), Nitrogen Dioxides (NO₂), Carbon Monoxide (CO), Ozone (O₃), Ammonia (NH₃) and Hydrogen Sulphide (H₂S) will be taken on-site and analyzed. Altogether twelve (12) samples were taken at different locations and period of time within and surrounding the proposed project site. A part of that, the weather parameter such as ambient air temperature, humidity, wind speed and barometer is also being recorded at respective sampling stations. The on-site sampling exercise of air quality sampling was conducted at proposed project site and it surrounding area on 28, 29th January and 7, 8th February 2018, using portable high volume, gas detector analyser equipment and also portable weather station. The noise level measurement carried out within the proposed project site recorded noise levels ranging from 46.2 to 59.8 dBA. Noise levels recorded at all sampling stations are noted below the recommended noise level of 65 dBA (day time level).

It is expected to have some potential impacts on the environment due to the project implementation will occur especially during early stage of development. The potential impacts that has been forecasted and identified are soil erosion, surface runoff, sedimentation, landslide, water pollution, air pollution, noise pollution, solid & scheduled wastes disposal, traffic congestion, ecology (flora & fauna), health & disease, safety & security and socio-economy. **Chapter 7.0** has comprehensively described various potential impacts that may occur as a result of the overall proposed project implementation. In order to control, minimize and resolve the possible impact, various **P2M2** has been recommended and suggested to be undertaken by project proponent as highlighted in **Chapter 8.0** of the **EIA** report. The implementation of proposed oil palm plantation project may affect the quality of river water available within and surrounding the proposed project site. It is expected that the main contributory sources of water pollution are eroded and sediment material, sewage from worker quarter, fertilizer and agriculture chemical application. The usage of fertilizer and pesticide during planting and maintenance stage may cause a contamination to the quality of nearby water body if not properly being controlled. The proposed oil palm plantation project will also forecast to have an affect to flora and fauna in several ways. The impact on flora can be considered permanent as it is removed from natural ground. This would eventually result in the loss of natural fauna habitat and the wildlife would have to migrate to new breeding places. The forested area nearby which is still with natural habitat condition is capable in accommodating the migrated wildlife that was displaced out from their original habitat during the implementation of the proposed project. Project proponent is suggested to carry out clearing activity with a proper phasing to give an ample time for the wildlife (if any) to migrate and adapt at new surrounding forest area. As to minimize, control and resolve the potential impact, the project proponentis recommended closely consulting and implementing the **P2M2** and guidelines issued by **Department of Wildlife & National Parks (DWNP)** as highlighted in the **EIA** report.

The project proponent is suggest to plan plantation development to fit existing condition of proposed project site by assessing physical characteristics of proposed project site to determine how it can be developed with smallest riskof environmental damage. An earthwork plan shall develop based on actual work to be carried out on-site by the project proponent before implementation of any earthwork activity. This earthwork plan shall prepare by qualified engineer and shall submit to **Local Authority** for approval. Upon approved, the earthwork plan shall be incorporated with **LD-P2M2** document that need to be prepared and submitted together with **EMP** document to **DOE Negeri Kelantan**. Upon execution the proposed project development, the development shall undertake on phase by phase basis to reduce the generation of huge surface runoff on-site. Project proponent recommended to properly controlling the proposed oil palm plantation project with a good time management system carried out by various parties involved against period of time. The most cost-effective for erosion control is vegetation as it prevents erosion rather than

controls it. Large exposed areas should be re-vegetated with fast growing species. Inspection and assessment exercise need to be carried out by the project proponent on periodical basis to check on unstable slopes, land slides or other related incidences that might contribute to the soil erosion problem. Remedial actions need to be taken immediately in case of land slips, slope failure or landslides. Exposed soils area need to be immediately covered or taken away as to prevent it from being washed away into rivulets, streams. Sg Kalau, Sg Tadok, Sg Kerak, Sg Belu and eventually to Sg Nenggiri and Sg Galas.

The project proponent is suggested to preserve at least 20.0 meter riparian zone area (both sided) stretching along all streams, rivulets and river bank within the proposed project site. The **Guideline for River Buffer Zone** produced by **Department of Irrigation & Drainage (DID)** shall follow in developing the natural riparian zone. This riparian zone area shall be maintain with existing natural trees, shrubs and vegetations as to minimize the movement of sediment or silt from directly flow into Sg Kalau, Sg Tadok, Sg Kerak and Sg Belu, Sg Nenggiri and Sg Galas. Approximately **131.47 ha (6.4%)** of natural river buffer zone area and **107.80 ha (5.3%)** of man-made river buffer zone is suggested to develop at proposed project site. And about **12.80** hectares is suggested to develop as biomass disposed area at proposed project site as first defence along the natural river buffer zone. The diversion channel is to be developed immediate after riparian zone area with approximately **5,550 meter** in total length to intercept any possible erosion movement towards the rivers. There are **twelve (12)** units of sediment basins and **thirty three (33)** numbers of check dams is recommended to construct on-site. And with implementation of **Best Management Practice (BMPs)**, the estimated soil erosion rate per block may occur on-site will be reduced from **898.82** to **100.34** tonnes/ha.year. Various **Best Management Practise (BMPs)** highlighted in this report shall implemented as additional control to the above-mentioned erosion and sediment **P2M2**. The project proponent is suggested having a permanent **Environmental Officer (EO)** to take care all the necessary environmental compliances as suggested by the consultant, **DOE Negeri Kelantan** and other relevant agencies. All the inspection and maintenance works shall recorded in a proper log book as evident that project proponent has put up an effort in fulfilling the environmental compliances. Daily activity of oil palm plantation project carried out on-site as well as movement of vehicles moving in and out of the proposed project site may give some impacts in term of noise generation. The impact is temporary and will be diminish as the activities are finished. Some buffer zone or natural vegetation shall be maintained as much as possible to act as natural **P2M2** that disperses and absorbs the noise generated from the proposed project activity (vehicle movements). The air quality impact during oil palm plantation project mostly comes from the dust generated from vehicles movement within the proposed project site. In order to control air pollution problem, the felling of timber tree and land clearance activity shall programmed in stage by stage to avoid proposed project site being cleared in one short of period thus significantly reduce the green area. Reduction of traffic speed may also reduce the dust generation when passing by the nearby local community area which found along main access road especially during dry season.

The proposed oil palm plantation project may also contribute to the disease and health impacts especially during major outbreak of certain infectious disease within and surrounding the proposed project site. Based on latest information gathered from **Department of Health (DOH) Negeri Kelantan**, from the year 2013 till early 2018 about 227 cases of dengue had been registered for the Jajahan Gua Musang area. Dengue disease remains a major public health concern in Malaysia and is likely to remain endemic for a long time. The predominant age group for dengue disease was young adults. Increasing levels of rainfall, humidity, temperature, and urbanization are also risk factors for outbreaks. Jajahan Gua Musang had recorded highest number of malaria cases from the year 2013 till early 2018 with the total number of cases is 438 cases recorded from the year 2013 till early 2018. Being one of the major parasitic diseases in Malaysia, malaria affects indigenous people, traditional villagers, mobile ethnic groups and land scheme settlers, immigrants from malaria endemic countries as well as jungle workers and loggers. An increase in typhoid infection has been reported in Kelantan. From the year 2013 till early 2018 about sixty three (63) cases of typhoid fever had been registered for the Jajahan Gua Musang area. Contaminated water and food are important vehicles for transmission of typhoid fever. Leptospirosis, a bacterial disease also known as rat urine disease causes fever, headache and chills and can even be fatal. The total numbers of leptospirosis recorded at Jajahan Gua Musang from the year 2013 till early 2018 is 487 cases. No chikungunya cases had been recorded from the year 2013 till early 2018. A constant as well as proper relationship and consultation shall maintained with **DOH**, hospital and health care facilities in Gua Musang town area in order to get immediate response and assistance during any major outbreak disease without further delay. Project proponent must clearly understand all requirements and compliances stated in

Destruction of Disease-Bearing Insect Act & Regulation (Act 154), 1975 and Prevention & Control of Infectious Disease Act & Regulation (Act 324), 1989. In addition, the project proponent shall at least provide a basic health facility on-site to cater initial stage of controlling disease. Regular health inspection of the workers shall be carried out so that immediate action can be taken to control the disease from become major outbreak. The outcome of inspection shall record in proper logbook and analyzed frequently for mitigating and follow up purposes.

Project proponent is advised to develop a proper communication and relationship with nearby local community area (Kg Bertam Baru, Kg Limau Kasturi, RPT Limau Kasturi 2, Kg Limau Kasturi 2, Kg Kalar Baru, Kg Pasir Mayat, Kg Star, Kg Star Baru, Kg P Setulu, Kg Tool, Kg Chegar Atas, Kg Perak, Orang Asli Kuala Lah and Kg Layak) to resolve any issue arise from the overall project development. Some solid wastes expected to be generate during the implementation of proposed oil palimplantation project. The entire tree trunk, branches, leaves, bushes and shrubs should be disposed on-site at area before the proposed river buffer zone area which can be used as disposed area for biomass. The portion of area can react as a first defense system for the rivers on the erosion and sedimentation issue. As shown in the Conceptual LD-P2M2, about 12.80 ha has been designated as area for dumping the generated biomass. It was estimated about 515,600 metric tonne of biomass generated from the proposed project can be dumped and naturally biodegrade at this designated dumping area. No open burning (strictly prohibited) shall carry out at all by project proponent, contractor, supplier, etc. within and outside the proposed project site. Under **Environmental Quality Act 1974 (Amendment 1998) – Prohibition on Open Burning**, any incomppliance may subject to action that can be taken by **DOE Negeri Kelantan** to the project proponent as stipulated clearly in the **Environmental Quality Act 1974** and a heavier penalty of a fine not exceeding RM 500,000.00 or to imprisonment for a term not exceeding five (5) years or both. The implementation of proposed oil palm plantation project also will involve the usage of heavy machinery, vehicles and other equipments (generator, water pump, etc). If the project proponent plans to set up a workshop, the oil wastes (scheduled wastes) expected to generate on-site. Improper handling of oil wastes may potentially create spillage problem, which may affect the nearby river water. Project proponent shall strictly follow requirements stated in **Environmental Quality (Scheduled Wastes) Regulations, 2005** and officially notify **DOE Negeri Kelantan** on the estimated scheduled wastes produced on-site. Inventory of scheduled wastes generated shall also be prepared, properly keep, compile and submit to **DOE Negeri Kelantan**. Continuous updating and submitting the information on the generation of schedule wastes shall be made to **DOE Negeri Kelantan** through 'E-Consignment Note (ECN)'.

The outline of **Environmental Management Plan (EMP), Land Disturbance, Pollution Prevention & Mitigation Measures (LD-P2M2), Environmental Monitoring Report (EMR)** as well as **Environmental Auditing Report (EAR)** is presented as guide in implementing the recommendations made and to monitor the proposed project. **EMP** document can be defined as an environmental management tool used to ensure reasonably avoidable adverse impacts of the project, operation and decommissioning of a project prevented and that the positive benefits are enhance. This is to determine the effectiveness of **P2M2** adopted and to monitor any changes occurred within and surrounding the proposed project site. The **LD-P2M2** document must be prepared by competent and certified consultants who have **Certified Professional in Erosion & Sediment Control (CPESC)** and need to submit to **DOE Negeri Kelantan** as to comply with **EIA Conditions of Approval**. A periodic **EMR** exercise covering logging, site preparation, planting, maintenance, harvesting and re-planting shall be carried out in order to monitor any potential impacts that may occur to the surrounding environment upon development stage. All result together with the progress development of the proposed prject site shall be submit to **DOE Negeri Kelantan** on monthly basis starting from site preparation until planting stage for at least seven (7) months then followed by quarterly basis. The **EMR** exercise shall carry out until **DOE Negeri Kelantan** satisfied on the effort and commitment that has been taken by the project proponent in managing, minimizing and controlling the environmental issues because of the project implementation. Project proponent is also required to prepare an **EAR** exercise, which is an exercise of self-assessment to minimize and control the generation of wastes and pollution or other type of potential impact. The **EAR** exercise is suggest to carry out during logging, site preparation, planting and maintenance stage twice a year by independent and registered environmental auditor.

Despite the potential impacts discussed above, the implementation of proposed plantation project may also generate some beneficial impacts. The project proponent is expected to gain substantial profit from the proposed oil palimplantation project development. As previously mentioned, the proposed project site is located nearby

localcommunities area (Kg Bertam Baru, Kg Limau Kasturi, RPT Limau Kasturi 2, Kg Limau Kasturi 2, Kg Kalar Baru, Kg Pasir Mayat, Kg Star, Kg Star Baru, Kg P Setulu, Kg Tool, Kg Chegar Atas, Kg Perak, Orang Asli Kuala Lah and Kg Layak). Due to its location, the proposed project will be beneficial to the surrounding local community area in improving the socio economy aspect by providing employment and business opportunity, upgrading of daily life, enhancing infrastructure facilities, sharing latest agriculture technology, increasing value of surrounding land area, etc. It is the consultant opinion that the proposed oil palm plantation project is viable, appropriate and can be considered for the implementation since it is beneficial to various parties. Even though there is some potential environmental impacts targeted to be occurred on the existing environment, it is more on localized as well as can be minimized and controlled provided all the recommended P2M2 and also guidelines issued by respective government agencies such as DOE Negeri Kelantan, Department of Irrigation & Drainage, Department of Forestry, Pejabat Pengarah Tanah & Galian Negeri Kelantan, Pejabat Tanah & Jajahan Gua Musang, Department of Agriculture, Department of Wildlife & National Parks, Department of Health, Department of Occupational Safety & Health, Jabatan Air Negeri Kelantan, Air Kelantan Sdn Bhd, etc. is being well undertaken by the project proponent. Understanding of each potential impact and its P2M2 as well as overall environmental compliances matter shall made known to all parties involve in the project development. By doing this, the overall proposed oil palm plantation project can generate more beneficial rather than negative impact not only to the project proponent but also to nearby local community, Daerah Bertam, Jajahan Gua Musang, State Government of Kelantan as well as Federal Government of Malaysia. It is strong recommended that overall P2M2 during the site preparation, planting, maintenance and harvesting phase shall be specified clearly in the Contract Document or Contract Agreement with respective contractor, sub-contractors and suppliers who involved directly on indirectly in the proposed oil palm plantation project activity. And with full commitment and effort given by project proponent, various potential impacts are expected to diminish once proposed project enters the established and maintenance phase. Summary of all the potential impacts, their magnitude and proposed P2M2 are shown in *Table 1.0*.

RINGKASAN EKSEKUTIF

KAJIAN PENILAIAN KESAN KEPADA ALAM SEKITAR
Untuk
CADANGAN PROJEK PENANAMAN LADANG KELAPA SAWIT (2,026.0 HA)
DI LOT 1913, MUKIM ULU NENGGIRI, DAERAH BERTAM, JAJAHAN GUA MUSANG,
KELANTAN D.N

Kajian Penilaian Kesan Kepada Alam Sekeliling (EIA) bertajuk "Cadangan Projek Penanaman Ladang Kelapa Sawit (2,026.0 Ha) di Lot 1913, Mukim Ulu Nenggiri, Daerah Bertam, Jajahan Gua Musang, Kelantan D.N "ini disediakan berdasarkan kepada keperluan di bawah arahan *Akta Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling), 2015 Perkara 5(e) Jadual Pertama: Skim kemajuan tanah yang meliputi kawasan seluas 100 hektar atau lebih tetapi kurang daripada 500 hektar untuk menjadikan hutan kepada pengeluaran pertanian*. I.Z. EnvironMind Sdn Bhd (IZE), juru perunding alam sekitar telah dilantik oleh Value Greenworld Sdn Bhd (VGW) pada 18 September 2017 untuk menyediakan laporan EIA bagi cadangan projek tersebut. Projek cadangan ini telah mendapat maklum balas rasmi **Term of Reference (TOR)** dari **Jabatan Alam Sekitar (JAS) Negeri Kelantan** melalui surat ruj: AS(B)D11/123/000/079 bertarikh pada 24 Julai 2017. Kajian EIA ini akan membincangkan impak-impak negatif dan positif yang bakal timbul sepanjang projek ini dilaksanakan. Pelbagai langkah kawalan seterusnya akan dicadangkan untuk dilaksanakan oleh pihak penggerak projek bagi mengurangkan, dan mengawal impak ini. Laporan EIA hendaklah dihantar kepada **JAS Negeri Kelantan** serta pihak berkuasa yang berkenaan untuk mendapatkan kelulusan sebelum sebarang aktiviti cadangan projek penanaman ladang kelapa sawit dijalankan di kawasan cadangan tapak projek. Penerangan mengenai **Dokumen Pelan Pengurusan Alam Sekitar (EMP)**, **Dokumen Gangguan Tanah, Pencegahan Pencemaran & Langkah Kawalan (LD-P2M2)**, **Kerja-kerja Pemantauan Kualiti Alam Sekitar (EMR)** dan juga **Kerja-kerja Audit Alam Sekitar (EAR)** juga terkandung di dalam laporan ini sebagai panduan dalam melaksanakan cadangan dan juga memantau keseluruhan projek. Sebarang pertanyaan berhubung dengan laporan EIA ini boleh diajukan kepada pegawai berkaitan seperti dinyatakan di bawah.

Haji Zaidi Zin CPESC, CESSWI, CISEC

Pengarah Urusan

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Penggerak projek merupakan sebuah syarikat yang telah ditubuhkan di Malaysia pada 15 Jun 2012 dan didaftarkan di alamat No.171-A, Jalan Sri Pelangi, Taman Pelangi, 80400 Johor Bharu, Johor D.T. Namun, semua urusan rasmi perlu menggunakan alamat Tingkat 9, Wisma Bunga, 11, Jalan Lambak, 86000 Kluang, Johor D.T. Sebarang penjelasan mengenai cadangan projek bolehlah berhubung dengan pegawai berkaitan.

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Projek yang dicadangkan adalah untuk membangunkan 5,006.335 ekar (2,026.0 hektar) di Lot 1913, Mukim Ulu Nenggiri, Daerah Bertam, Jajahan Gua Musang, Kelantan D.N ke cadangan projek perladangan penanaman ladang kelapa sawit. Hasrat projek penanaman ladang kelapa sawit yang dicadangkan adalah untuk memperkayakan kembali kawasan cadangan tapak projek yang telah mengalami beberapa aktiviti pembalakan pada masa lalu untuk dijadikan kawasan hutan yang mempunyai nilai komersial yang tinggi. Ia melibatkan penebangan, penyediaan tapak, penanaman, penyelenggaraan, penuaian dan penanaman semula ladang kelapa sawit. Pemaju projek telah diberikan

kawasan tanah masing-masing yang diklasifikasikan sebagai **Tanah Kesultanan PW 1094** melalui pajakan yang dilaksanakan dengan **DYMM Tengku Muhammad Faris Petra Ibni Sultan Ismail Petra** pada 3 Ogos 2014. Pajakan ini hanya khusus untuk pembangunan penanaman ladang kelapa sawit dengan tempoh sembilan puluh sembilan (99) tahun yang dijangka akan berakhir pada 2 Ogos 2113. Menurut **Rancangan Struktur Negeri Kelantan 2020 (RSNK 2020)** dan **Rancangan Tempatan Jajahan Gua Musang 2020 (RTJGM 2020)**, cadangan tapak projek telah dikenal pasti sebagai hutan simpan iaitu **HSK Limau Kasturi** yang kemudiannya telah ditukar kepada **Tanah Kesultanan PW 1094**. Berdasarkan '**Master Plan**' **Jaringan Ekologi** atau yang lebih dikenali sebagai '**Central Forest Spine (CFS)**' yang diterbitkan oleh **Jabatan Perancangan Bandar & Desa**, kawasan cadangan tapak projek terletak di luar kawasan jaringan ekologi iaitu kira-kira 3.8 km (garis lurus) dari **Secondary Linkage 6(SL6)**. Jaringan ini menghubungkan **Taman Negara** dan **HSK Chiku** oleh itu ia tidak akan memberi apa-apa kesan terhadap ekologi koridor terbabit.

Cadangan tapak projek itu telah dikelilingi oleh pelbagai kawasan ladang kelapa sawit yang sedia ada yang dibangunkan oleh **Alam Muhibah Sdn Bhd**, **Kemajuan Tanah Limau Kasturi** dan **Hektar Kurnia Sdn Bhd & Ladang Rakyat** yang berada dalam kawasan 5.0 km dari tapak cadangan projek. Terdapat kawasan perlombongan emas milik **Dataran Mineral Sdn Bhd** yang terletak di bahagian tengah timur dari kawasan cadangan tapak projek. Berdasarkan maklumat daripada **Jabatan Kemajuan Orang Asli (JAKOA) Kelantan** telah mendedahkan bahawa tiada penempatan masyarakat Orang Asli yang terletak dalam 5.0 km radius dari kawasan tapak projek. Walau bagaimanapun, terdapat pelbagai tempatan kawasan penempatan masyarakat dalam 5.0 km radius dari tapak cadangan projek (Kg Bertam Baru, Kg Limau Kasturi, RPT Limau Kasturi 2, Kg Limau Kasturi 2, Kg Kalar Baru, Kg Pasir Mayat, Kg Bintang, Kg Bintang Baru, Kg P Setulu, Tool Kg, Kg Chegar Atas, Kg Perak, Orang Asli Kuala Lah dan Kg Layak). Berdasarkan maklumat tambahan yang telah diberikan oleh En. Mahasin Bin Yahya (Penghulu Mukim Bertam Barat), En Mohd Othman Bin Mustafa (Penghulu Mukim Bertam Baru) dan En. Zabidi Bin Mat Noor (Penghulu Mukim Limau Kasturi), sebahagian besar daripada masyarakat tempatan di kawasan-kawasan penempatan bekerja sebagai pekerja ladang (penoreh getah). Kawasan penempatan ini juga telah disediakan dengan bekalan elektrik dan ia telah dibekalkan melalui talian pengagihan **TNB**. **Air Kelantan Sdn Bhd (AKSB)** turut memainkan peranan untuk membekalkan air bersih kepada masyarakat di penempatan penduduk berhampiran cadangan tapak projek. Cadangan tapak projek boleh diakses melalui empat (4) jalan masuk yang melalui Jalan Gua Musang-Jeli kira-kira 1.5 km dan 2.0 km, masing-masing di bahagian barat dari cadangan tapak projek dan melalui Jalan Limau Kasturi-Kg Bertam Baru beberapa 1.0 km 3.7 km masing di bahagian timur. Ini dapat diperhatikan, jalan ini akan melalui komuniti Kg Kalar Baru dan Kg Limau Kasturi 2 sebelum sampai ke kawasan tapak cadangan projek. Oleh itu ia merupakan akses yang mudah untuk penggerak projek bagi tujuan pengangkutan semasa aktiviti peringkat awal sehingga peringkat penanaman semula. Kadar aliran trafik purata bagi Jalan Gua Musang-Jeli merekodkan sebanyak 591 kenderaan setiap hari masing-masing pada waktu siang (terdiri daripada kereta, lori, traktor, jip, pacuan 4 roda, motosikal, bas, dan lain-lain). Dari Jalan Gua Musang-Jeli, direkodkan sebanyak 23 unit kenderaan yang melalui jalan raya yang boleh diakses ke dalam cadangan tapak projek. Manakala dari Jalan Limau Kasturi-Bertam Baru, direkodkan sebanyak 290 kenderaan setiap hari manakala kenderaan yang menghala ke cadangan tapak projek adalah sebanyak 153 unit kenderaan setiap hari. Kesimpulannya, data jalan raya yang dicatatkan pada laluan ini turut dijana oleh masyarakat setempat dan pemilik kawasan penanaman tempatan yang berdekatan.

Cadangan projek penanaman ladang kelapa sawit ini merangkumi beberapa aktiviti utama seperti pembalakan, penyediaan tapak, penanaman, penyelenggaraan, penuaian dan aktiviti penanaman semula. Ia akan bermula dengan penebangan hutan, pembalakan dan pembersihan tanah pada peringkat awal diikuti oleh pembinaan teres, lapisan, holing, penanaman pokok kelapa sawit dan seterusnya penanaman tanaman tutup bumi. Infrastruktur yang diperlukan misalnya jalan akses, jalan ladang, sistem saliran, kayu atau pemetung konkrit untuk aliran air di seluruh jalan ladang akan disediakan dengan sewajarnya. Cadangan projek penanaman ladang kelapa sawit ini akan memasuki peringkat penyelenggaraan di mana racun herba, baja dan aktiviti permohonan racun perosak akan berlangsung mengikut jadual untuk pokok-pokok kelapa sawit ditanam. Peringkat seterusnya adalah aktiviti penuaian dan aktiviti dagangan pokok-pokok kelapa sawit dituai sebelum aktiviti penanaman semula yang dilaksanakan oleh pihak penggerak projek. Cadangan projek itu adalah dilaksanakan dari segi ekonomi dengan keluasan kawasan 2,026.0 hektar yang telah diberikan dalam **Tanah Kesultanan PW 1094**. Cadangan pembangunan di kawasan tapak projek ini akan terus mengekalkan objektif utama yang telah diambil oleh **Kerajaan Negeri Kelantan** dan **Kerajaan Persekutuan Kelantan** dalam meningkatkan dan memperkayakan kawasan rizab hutan sedia ada juga untuk mengekalkan status hijau kawasan masing-masing. Ia juga pujian bukan sahaja kepada **Kerajaan Negeri Kelantan** tetapi juga negara

keseluruhan yang mengambil inisiatif dalam menggalakkan penglibatan pihak swasta dalam program perladangan perhutanan dan pertanian. Maklumat yang diperolehi daripada **Pejabat Pengarah Tanah & Galian (PPTG) Negeri Kelantan** mendedahkan bahawa cadangan tapak projek yang dicadangkan itu telah ditukar kepada **Tanah Kesultanan PW 1094** dan tidak timbul isu pertindihan berlaku di cadangan tapak projek (rujuk Lampiran B). Berdasarkan maklumat yang diambil dari latihan kerja lapangan dan juga dari pihak penggerak projek itu mendedahkan bahawa kira-kira 780,0 ha kawasan dalam cadangan tapak projek itu telah dibangunkan dan ditanam dengan pokok-pokok kelapa sawit (rujuk Rajah 1.5). Baki 1,246.0 ha masih belum dibangunkan dan kekal dengan keadaan semula jadi yang sedia ada dengan semak, tumbuh-tumbuhan dan pokok-pokok kecil. Oleh itu, fasa pembangunan tapak projek yang dicadangkan akan memberi tumpuan kepada kawasan yang belum dibangunkan (kira-kira 29 blok, daripada 47 blok) yang pada mulanya dirancang akan dilaksanakan fasa demi fasa. Cadangan tapak projek dibahagikan kepada sembilan (9) fasa dan pembangunan akan bermula pada **Fasa 1** (Blok B19 & B20 - 82.3 ha) diikuti dengan **Fasa 2** (Blok B21 & B22 - 100.4 ha), **Fasa 3** (Blok B23, B24 & B25 - 130.2 ha), **Fasa 4** (Blok B26, B27 & B28 - 131.1 ha), **Fasa 5** (Blok B29, B30 & B31 - 155.5 ha), **Fasa 6** (Blok B32, B33, B34, B35 & B36 - 167,1 ha), **Fasa 7** (Blok B37, B38, B39 & B40 - 191,8 ha), **Fasa 8** (Blok B41, B42 & B43 - 140.9 ha), dan akhirnya diikuti oleh **Fasa 9** (Blok B44, B45, B46 & B47 - 146.7 ha). Secara umum, pembangunan cadangan projek ladang kelapa sawit akan mengambil masa empat (4) hingga enam (6) bulan bagi setiap fasa bergantung kepada keupayaan untuk mengendalikan cadangan projek penanaman ladang kelapa sawit ini.

Secara umum, cadangan tapak projek adalah terletak di kawasan berbukit dan beralun. Kawasan projek ini mempunyai ketinggian antara 100 hingga 360 meter dari aras paras laut (ASL). Menurut **Jabatan Pertanian (DOA) Negeri Kelantan** kawasan cerun yang lebih daripada 25° sangat tidak digalakkan dan praktikal untuk menjalani apa-apa jenis aktiviti perladangan. Manakala menurut **Jabatan Perhutanan (DOF)**, kawasan yang lebih daripada 40° tidak dibenarkan untuk sebarang aktiviti pembalakan. Profil geologi am bagi cadangan tapak projek menunjukkan bahawa ia termasuk dalam Triassic dan umur Permian. Bahagian timur cadangan projek dikuasai oleh umur Triassic yang terdiri daripada batu pasir batu lodak dan batu tulis. Bahagian barat tapak cadangan projek adalah penting oleh batu kapur yang termasuk dalam usia Permian. Batu kapur adalah unik kerana ia adalah larut dalam air walaupun sedikit berasid seperti asid karbonik terbentuk daripada pembubaran karbon dioksida dalam air. Analisis dibuat oleh Laporan Kesesuaian Tanah yang dihasilkan oleh **DOA** mendedahkan bahawa kawasan kajian (2,026.0 hektar) adalah terdiri daripada enam (6) siri tanah yang berbeza yang Siri Bungor, Siri Batang Merbau, Siri Durian, Siri Kuala Brang, Siri Musang dan kawasan curam. Daripada analisis, 380,2 ha (18.8%) daripada kawasan dalam cadangan tapak projek telah diliputi oleh Siri Bungor dan 132 ha (6.5%) telah diliputi oleh Siri Batang Merbau. Kira-kira 23.7 ha (1.2%) daripada cadangan tapak projek telah diliputi oleh Siri Durian. Cadangan tapak projek ini juga diliputi oleh Siri Kuala Brang sebanyak 191.2 ha (9.4%) dan 227.6 ha (11.2%) telah diliputi oleh Siri Musang. Sementara itu, kawasan curam meliputi kira-kira 1,071.3 hektar (52.9%) daripada jumlah cadangan tapak projek (rujuk laporan kesesuaian tanah di Lampiran B). Sebagaimana yang terkandung dalam Pengenalan dan Ciri-ciri Tanah Malaysia, Siri Bungor merupakan ahli Keluarga Bungor yang, kaolonitic, isohyperthermic, merah-kuning Tipik Lutualemkuts dan dibangunkan di atas batuan bercampur sedimen, batu pasir dan syal atau berpasir syal. Tanah di kawasan Siri Bungor menunjukkan variasi sangat sedikit di kawasan dipetakan dan mempunyai warna yang terdiri daripada coklat terang, coklat coklat kuning dan kekuningan. Ia bersaliran baik, mempunyai kebolehtelapan yang baik dan biasanya ditanam dengan pelbagai tanaman termasuk getah, kelapa sawit, pokok buah-buahan, koko serta lain-lain spesies pokok perhutanan. Siri Kuala Brang pada asasnya adalah coklat dan kekuningan dengan sub-sudut struktur blok, saiz sederhana dan gred dengan kedalaman sederhana. Pada kedalaman 60.0 cm di bawah permukaan tanah, ia mampu untuk bertukar-tukar kation <5 cmol (+). Walau bagaimanapun, kedua-dua (2) jenis siri tanah (Bungor dan Kuala Brang) menghadapi kurang nutrien, perlu sebahagiannya menjalankan pembajaan jika ia akan digunakan untuk tujuan pertanian dan perlu disediakan dengan pembinaan teres yang betul dan penutup tanaman sebagai P2M2 untuk hakisan tanah. Jumlah kawasan 921,6 ha (45.4%) yang telah dilaporkan adalah sesuai dan 1,104.4 ha (54.6%) telah dilaporkan sederhana sesuai untuk dicadangkan ladang kelapa sawit oleh **DOA**. Sementara baki 1,071.3 ha (52.9%) projek penanaman yang dicadangkan itu telah diklasifikasikan sebagai "curam" dalam profil kawasan itu kawasan ini tidak digalakkan dan praktikal untuk menjalani apa-apa jenis aktiviti perladangan. Kawasan ini biasanya mempunyai kemungkinan tinggi untuk menjana hakisan besar terutamanya semasa peringkat awal dicadangkan ladang kelapa sawit. Oleh itu **Pencegahan Pencemaran & Langkah Pencegahan (P2M2)** perlu dilaksanakan dengan sewajarnya oleh pihak penggerak projek untuk mengurangkan dan juga untuk menghalang apa-apa kesan yang besar kepada alam sekitar di sekitarnya.

Corak sistem saliran di dalam dan di sekitar cadangan tapak projek mempunyai ciri-ciri tertentu iaitu beberapa sungai kecil terutamanya yang mengalir secara bermusim, di mana ini akan mengalir ke Sg Nenggiri dan Sg Galas. Apa-apa gangguan kepada badan air fizikal ini secara langsung dan secara tidak langsung akan memberi kesan kepada kualiti sungai utama, Sg Nenggiri dan Sg Galas. Maklumat yang diperolehi daripada **Jabatan Pengairan dan Saliran (JPS)** dan **AKSB** Jajahan Gua Musang mendedahkan bahawa loji rawatan air yang terdekat adalah Loji Rawatan Air Sg Bertam beberapa 4.4 km jauhnya dan Sg Galas untuk Loji Rawatan Air Limau Kasturi beberapa 4.9 km jauhnya. Pengambilan punca air oleh **AKSB** adalah terletak di Sg Nenggiri berhampiran Kg Bertam Baru dan Sg Galas di Kg Limau Kasturi. Pensampelan kualiti air telah dijalankan pada dua puluh enam (26) lokasi yang berbeza di dalam dan sekitar kawasan cadangan tapak projek yang terletak di sungai kecil terutamanya Sg Kalau, Sg Tadok, Sg Kerak, Sg Belu dan akhirnya ke Sg Nenggiri dan Sg Galas. Parameter yang terlibat dalam persampelan kualiti air adalah pH, pepejal terampai, kekeruhan, oksigen terlarut, keperluan oksigen biokimia, keperluan oksigen kimia, Nitrogen Ammonia, E-Coli, minyak & gris, Fosforus, Nitrat, Sulfida and logam berat (Zink, Mangan dan Ferum). Berdasarkan Indeks Kualiti Air **JAS**, ianya dinyatakan bahawa semua stesen persampelan di dua puluh enam (26) telah dianalisis dan berada dalam kategori "bersih". Berdasarkan keputusan analisis, dua puluh stesen (20) persampelan telah diukur untuk berada dalam kategori Kelas II. Untuk analisis kualiti udara, Diantara parameter kualiti udara yang terlibat ialah Partikel Terampai (TSP), Sulfur Dioksida (SO₂), Nitrogen Dioksida (NO₂), Karbon Monoksida (CO), Ozon (O₃), Ammonia (NH₃) dan Hidrogen Sulfid (H₂S) akan diambil di lokasi dan dianalisis. Sebanyak dua belas (12) sampel diambil di lokasi dengan tempoh masa yang berbeza. Selain dari itu, parameter cuaca seperti suhu udara ambien, kelembapan, kelajuan angin dan barometer juga telah direkodkan di stesen pensampelan masing-masing. Pensampelan kualiti udara juga telah dijalankan di cadangan tapak projek dan kawasan sekitarnya pada 28, 29 Januari dan 7, 8 Februari 2018, dengan menggunakan pengesan gas, peralatan penganalisis dan juga stesen cuaca mudah alih. Pengukuran tahap bunyi pula telah dijalankan dan mencatatkan paras bunyi antara 46,2-59,8 dBA. Paras bunyi yang dicatatkan di semua stesen pensampelan dicatatkan adalah di bawah paras bunyi yang disyorkan iaitu 65 dBA (tahap masa hari).

Beberapa kesan negatif kepada alam sekitar berikutan pelaksanaan projek itu akan berlaku terutamanya pada peringkat awal pembangunan. Kesan yang berpotensi yang telah diramalkan dan yang dikenal pasti ialah hakisan tanah, air larian permukaan, pemendapan, tanah runtuh, pencemaran air, pencemaran udara, pencemaran bunyi, pepejal & buangan terjadual pelupusan, kesesakan lalu lintas, ekologi (flora & fauna), kesihatan & penyakit, keselamatan & keselamatan dan sosio-ekonomi. **Bab 7.0** akan menerangkan secara komprehensif pelbagai kesan negatif yang terhasil akibat daripada cadangan pelaksanaan projek secara keseluruhannya. Dalam usaha untuk mengawal, mengurangkan dan menyelesaikan segala kemungkinan yang bakal terjadi, pelbagai **P2M2** telah disyorkan untuk dilaksanakan oleh penggerak projek di dalam **Bab 8.0** laporan **EIA**. Pelaksanaan cadangan projek penanaman ladang kelapa sawit boleh menjejaskan kualiti air sungai yang terdapat di sekeliling cadangan tapak projek. Ia turut dijangka bahawa sumber penyumbang utama pencemaran air adalah dari sisa kumbahan suku pekerja dan penggunaan baja kimia untuk pertanian. Penggunaan baja dan racun perosak semasa peringkat penanaman dan penyelenggaraan boleh menyebabkan pencemaran kepada kualiti air yang berdekatan jika tidak dikawal oleh penggerak projek ladang kelapa sawit juga akan diramalkan mempunyai kesan kepada flora dan fauna dalam beberapa cara. Kesan ke atas flora boleh dianggap kekal kerana ia dikeluarkan dari tanah semula jadi. Ini akhirnya akan menyebabkan kehilangan habitat fauna semula jadi dan hidupan liar perlu berhijrah ke tempat-tempat pembiakan baru. Kawasan hutan berdekatan yang masih kekal dengan keadaan habitat semula jadi mampu untuk menampung migrasi hidupan liar yang dijangkakan akan keluar dari habitat asal mereka semasa pelaksanaan cadangan projek. Pihak penggerak projek disarankan untuk menjalankan kerja-kerja pembukaan kawasan secara berfasa bagi memberi masa yang secukupnya serta membantu hidupan liar (sekiranya ada) untuk berpindah ke habitat yang baru. Bagi mengurangkan, mengawal dan menyelesaikan potensi kesan pihak penggerak projek disyorkan untuk berunding dan melaksanakan langkah-langkah kawalan mengikut garis panduan yang telah dikeluarkan oleh pihak **Jabatan Perlindungan Hidupan Liar & Taman Negara** sepertimana dinyatakan dalam laporan **EIA** ini.

Pihak penggerak projek perlu merancang pembangunan perladangan agar sesuai dengan keadaan yang sedia ada dengan menilai ciri-ciri fizikal cadangan tapak projek untuk menentukan bagaimana ia boleh dibangunkan dengan mengurangkan risiko terhadap kerosakan alam sekitar. Pelan kerja tanah hendaklah dibina berdasarkan kepada kerja sebenar yang akan dilaksanakan di tapak oleh penggerak projek sebelum pelaksanaan apa-apa aktiviti kerja tanah. Pelan kerja tanah hendaklah disediakan oleh jurutera bertauliah dan hendaklah dikemukakan kepada Pihak

Berkuasa Tempatan untuk mendapatkan kelulusan. Setelah mendapat kelulusan, pelan kerja tanah hendaklah dikeipkan bersama dokumen **LD-P2M2** dan dokumen **EMP** kepada **JAS Negeri Kelantan**. Pihak penggerak projek dicadangkan untuk sentiasa mengawal dengan pengurusan masa yang teratur yang melibatkan pelbagai pihak dari masa ke semasa. Kos yang paling efektif untuk mengawal hakisan adalah dengan penanaman tumbuh-tumbuhan kerana ia menghalang dan mengawal hakisan. Kawasan besar yang terdedah harus ditanam semula dengan spesies yang cepat tumbuh. Pengawasan dan penilaian hendaklah dijalankan oleh pihak penggerak projek secara berkala untuk memeriksa lereng yang tidak stabil, slaid darat atau kejadian berkaitan lain yang mungkin menyumbang kepada masalah hakisan tanah. Tindakan pemulihan perlu diambil dengan serta merta sekiranya berlaku tanah runtuh, kegagalan cerun atau gelongsoran tanah. Tanah yang terdedah perlu ditutup dengan segera atau dibuang untuk mencegahnya daripada jatuh ke dalam anak sungai, sungai dan akhirnya ke Sg Kalau, Sg Tadok, Sg Kerak, Sg Belu dan akhirnya ke Sg Nenggiri dan Sg Galas.

Pihak penggerak projek juga dicadangkan untuk mengekalkan sekurang-kurangnya 20.0 meter kawasan zon penampan semulajadi (kedua-dua belah) di sepanjang sungai terutamanya sungai kecil dan tebing sungai dalam kawasan cadangan tapak projek. **Garis Panduan untuk Zon Penampan Sungai** yang dikeluarkan oleh **Jabatan Pengairan & Saliran (JPS)** hendaklah dipatuhi dalam menyediakan zon penampan semulajadi. Kawasan zon penampan ini seboleh mungkin perlu dikekalkan dengan pokok-pokok dan tumbuh-tumbuhan semulajadi. Penyediaan zon penampan semulajadi telah terbukti berkesan dalam memerangkap mendapan dan seterusnya akan meminimumkan pergerakan mendapan atau kelodak dari terus dialirkan ke Sg Kalau, Sg Tadok, Sg Kerak dan Sg Belu, Sg Nenggiri dan Sg Galas. Kira-kira 131.47 ha (6.4%) daripada sungai semula jadi kawasan zon penampan dan 107,80 ha (5.3%) daripada zon penampan sungai buatan manusia dicadangkan untuk dibangunkan di cadangan tapak projek. Sebanyak 12.80 hektar dicadangkan untuk dibangunkan sebagai kawasan pelupusan biomass di cadangan tapak projek sebagai pertahanan pertama di sepanjang zon penampan sungai semula jadi. Pengalihan ini perlu dibangunkan dengan segera selepas kawasan zon penampan semulajadi dengan kira-kira 5,550 meter dalam jumlah panjang untuk menghalang sebarang pergerakan hakisan yang mungkin menghala ke arah sungai. Terdapat dua belas (12) unit kolam perangkap mendapan dan tiga puluh tiga (33) bilangan check dam adalah disyorkan untuk dibina di cadangan tapak projek. Dengan pelaksanaan **Amalan Pengurusan Terbaik (BMP's)**, tanah kadar purata hakisan dianggarkan setiap blok boleh berlaku di lokasi akan dikurangkan dari 898.82 kepada 100.34 tan/ha.tahun. Pihak penggerak projek juga disarankan untuk melaksanakan pelbagai langkah-langkah yang telah dicadangkan dalam laporan ini sebagai tambahan terhadap kawalan hakisan dan kelodakan yang dijangka akan berlaku. Pihak penggerak projek juga disarankan agar melantik seorang **Pegawai Alam Sekitar (EO)** bagi menguruskan semua pematuhan alam sekitar yang telah dicadangkan oleh juru perunding, **JAS Negeri Kelantan** serta agensi-agensi lain yang berkaitan. Semua kerja-kerja pemeriksaan dan penyelenggaraan mestilah direkodkan dengan sempurna sebagai bahan bukti bahawa pihak penggerak projek telah berusaha bagi mematuhi keperluan alam sekitar yang telah ditetapkan. Aktiviti harian yang dijalankan di tapak semasa pelaksanaan cadangan projekserta pergerakan kenderaan keluar masuk ke kawasan cadangan tapak projek dijangka akan meyebabkan berlakunya pencemaran bunyi. Impak ini adalah bersifat sementara sahaja dan dijangka akan berakhir setelah aktiviti ini selesai sepenuhnya. Pokok-pokok dan tumbuh-tumbuhan semulajadi perlu dikekalkan sebagai agen penyerap bunyi semulajadi dan seterusnya mengelak sebarang gangguan bunyi kepada pekerja dan kawasan komuniti setempat yang terletak berdekatan dengan kawasan cadangan tapak projek. Impak terhadap kualiti udara pula dijangka berpunca dari debu-debu yang terhasil dari pergerakan kenderaan. Bagi mengawal pencemaran udara, pelaksanaan cadangan projek ini perlu dijalankan secara berfasa untuk mengelak sesuatu kawasan dari dibiarkan terdedah dalam tempoh masa yang agak lama. Kelajuan kenderaan juga perlu dikurangkan semasa melalui jalan berhampiran dengan kawasan komuniti setempat bagi mengurangkan masalah debu terutamanya semasa musim kemarau.

Cadangan projek penanaman ladang kelapa sawit juga boleh menyumbang kepada penyakit dan memberi kesan terutamanya semasa wabak utama penyakit berjangkit tertentu di dalam dan di sekitar cadangan tapak projek. Berdasarkan maklumat terkini yang dikumpulkan dari **Jabatan Kesihatan (DOH) Negeri Kelantan**, dari tahun 2012 hingga awal 2018 kira-kira 227 kes denggi telah didaftarkan bagi kawasan Jajahan Gua Musang. Penyakit denggi masih merupakan masalah kesihatan awam yang utama di Malaysia dan dijangka kekal untuk jangka masa yang lama. Kumpulan umur utama sasaran penyakit denggi adalah orang dewasa. Peningkatan kadar hujan, kelembapan, suhu, dan pembersihan juga antara faktor wabak. Jajahan Gua Musang telah mencatatkan jumlah kes tertinggi malaria dari tahun 2013 hingga 2018 dengan jumlah bilangan kes adalah 438 kes dicatatkan dari tahun 2013 hingga

awal tahun 2018. Sebagai salah satu penyakit utama parasit dalam Malaysia, malaria memberi kesan kepada Orang Asli dan penduduk kampung tradisional, kumpulan etnik mudah alih dan peneroka tanah rancangan, pendatang dari negara-negara endemik malaria serta pekerja hutan dan pembalok. Peningkatan dalam jangkitan kepialu juga telah dilaporkan di Kelantan. Dari tahun 2013 hingga awal tahun 2018, kira-kira enam puluh tiga (63) kes demam kepialu telah didaftarkan bagi kawasan Jajahan Gua Musang. Air dan makanan yang tercemar adalah punca penting untuk penyebaran wabak demam kepialu. Leptospirosis, penyakit bakteria juga dikenali sebagai penyakit kencing tikus menyebabkan demam, sakit kepala dan juga boleh membawa maut. Jumlah bilangan leptospirosis direkodkan di Jajahan Gua Musang dari tahun 2013 hingga awal tahun 2018 adalah sebanyak 487 kes. Tiada kes chikungunya telah direkodkan dari tahun 2013 hingga awal tahun 2018. Hubungan yang baik dengan **Jabatan Kesihatan**, hospital serta klinik kesihatan yang terdapat di Gua Musang hendaklah diwujudkan bagi mendapat bantuan yang segera sekiranya berlaku penyebaran wabak. Pihak penggerak projek juga hendaklah mematuhi keseluruhan pematuhan yang dinyatakan di bawah **Akta Pemusnahan Serangga Pembawa Penyakit & Peraturan-Peraturan (Akta 154), 1975** serta **Akta Pencegahan Dan Pengawalan Penyakit Berjangkit & Peraturan-Peraturan (Akta 324), 1989**. Selain itu, pihak penggerak projek hendaklah menyediakan kemudahan asas kesihatan di tapak. Pemeriksaan kesihatan secara berkala terhadap pekerja perlu dijalankan agar tindakan segera dapat diambil untuk mengawal sebarang penyebaran wabak di kawasan cadangan tapak projek. Rekod pemeriksaan perlu dicatatkan dalam buku log oleh pihak pengurusan dan dipantau beberapa kali untuk langkah pencegahan.

Pihak penggerak projek dinasihatkan untuk membangunkan komunikasi dan hubungan yang baik dengan kawasan komuniti tempatan (Kg Bertam Baru, Kg Limau Kasturi, RPT Limau Kasturi 2, Kg Limau Kasturi 2, Kg Kalar Baru, Kg Pasir Mayat, Kg Bintang, Kg Bintang Baru, kg P Setulu, Tool kg, kg Chegar Atas, kg Perak, Orang Asli Kuala Lah dan kg Layak) bagi menyelesaikan sebarang isu yang timbul daripada pembangunan projek. Segala batang pokok, dahan, daun, semak dan pokok renek hendaklah dilupuskan di kawasan tapak sebelum kawasan zon penampungan yang dicadangkan yang boleh digunakan sebagai kawasan pelupusan untuk biomas. Kawasan tersebut boleh dijadikan sebagai sistem pertahanan pertama bagi sungai terhadap hakisan dan isu pemendapan. Berdasarkan **Pelan Konsep LD-P2M2**, kawasan seluas kira-kira **12.80 ha** dicadangkan untuk disediakan bagi pelupusan biomass ditapak yang mana ianya boleh menampung sehingga **515,600 metrik ton** biomass yang terhasil ditapak ladang ini. Pembakaran secara terbuka tidak boleh dijalankan sama sekali oleh pihak penggerak projek, kontraktor, pembekal dan sebagainya didalam atau diluar kawasan cadangan tapak projek. Dibawah **Akta Kualiti Alam Sekeliling, 1974** (Pindaan 1998) – Larangan Pembakaran Terbuka, sebarang kegagalan untuk mematuhi arahan ini akan dikenakan tindakan oleh **JAS Negeri Kelantan** kepada pihak penggerak projek iaitu penalti tidak lebih RM 500,000 atau penjara lima (5) tahun atau kedua-duanya sekali. Selain itu, pelaksanaan cadangan projek ini juga akan melibatkan penggunaan jentera berat, kenderaan dan peralatan (alat janakuasa, pam air dan sebagainya). Pihak penggerak projek dijangka akan menyediakan kemudahan bengkel sementara bagi menjalankan kerja-kerja penyelenggaraan dan seterusnya akan menghasilkan sisa minyak & geris yang diklasifikasikan sebagai sisa buangan terjadual. Kegagalan untuk mengendalikan dan menguruskan sisa minyak dengan sewajarnya akan menyebabkan berlakunya masalah tumpahan minyak yang boleh menjejaskan sumber air berdekatan. Pihak penggerak projek hendaklah mematuhi semua peraturan yang terkandung dalam **Peraturan Kualiti Alam Sekeliling (Buangan Terjadual), 2005** bagi pengurusan buangan terjadual. Inventori penghasilan buangan terjadual juga perlu disediakan dan dikemukakan kepada **JAS Negeri Kelantan** dan ianya perlu dikemaskini secara berkala dan dikemukakan kepada **JAS Negeri Kelantan** melalui 'E-Consignment Note (ECN)'.

Penerangan mengenai **Dokumen Pelan Pengurusan Alam Sekitar (EMP)**, **Dokumen Gangguan Tanah, Pencegahan Pencemaran & Langkah Pencegahan (LD-P2M2)**, **Kerja-kerja Pemantauan Kualiti Alam Sekitar (EMR)** secara berkala dan juga **Kerja-kerja Audit Alam Sekitar (EAR)** juga terkandung di dalam laporan ini sebagai panduan dalam melaksanakan langkah kawalan dan juga memantau keseluruhan projek dari aspek alam sekitar. **EMP** boleh ditakrifkan sebagai pelan pengurusan alam sekitar untuk mengenalpasti kesan buruk yang akan terhasil dari pelaksanaan sesuatu projek bagi mengurangkan kesan negatif dan meningkatkan kesan positif. Ini adalah untuk menentukan keberkesanan langkah-langkah tebatan dan memantau sebarang perubahan yang berlaku terhadap persekitaran sedia ada. Dokumen **LD-P2M2** perlu disediakan oleh profesional berdaftar dan perunding yang mempunyai kelulusan bagi **Pelan Kawalan Hakisan & Kelodakan (CPESC)** dan hendaklah dikemukakan kepada **JAS Negeri Kelantan** untuk mematuhi **Syarat-syarat Kelulusan EIA**. **EMR** yang merangkumi pembalakan, pembersihan kawasan, tapak semaian, penanaman, penyelenggaraan, penuaian dan penanaman semula bagi memantau sebarang impak yang mungkin berlaku terhadap alam sekitar. Laporan pemantauan alam

sekitar berserta kemajuan projek mestilah dihantar kepada **JAS Negeri Kelantan** bermula dari peringkat kerja tanah sehingga selesai peringkat penanaman untuk tempoh sekurang-kurangnya tujuh (7) bulan pertama secara bulanan dan kemudiannya diteruskan pada setiap tiga (3) bulan. **EMR** perlu dijalankan sehingga **JAS Negeri Kelantan** berpuas hati dengan segala komitmen serta usaha yang diberikan oleh pihak penggerak projek dalam mengurus, mengurangkan dan mengawal masalah alam sekitar hasil dari pelaksanaan projek ini. Penggerak projek juga dicadangkan untuk menyediakan **EAR**, iaitu satu penilaian bagi meminima dan mengawal penghasilan sisa-sisa buangan dan pencemaran atau kesan-kesan lain. **EAR** ini dicadangkan untuk dilaksanakan **sekali setahun** semasa peringkat penyediaan tapak, penanaman dan penyelenggaraan oleh juru audit persendirian yang diiktiraf atau juru audit berdaftar.

Selain dari kesan-kesan negatif yang telah dibincangkan, pelaksanaan cadangan projek penanaman pokok ladang hutan pelbagai spesies ini juga turut akan mendatangkan pelbagai faedah. Pihak penggerak projek dijangka akan mendapat keuntungan yang berterusan dari pelaksanaan cadangan projek ini. Seperti yang dinyatakan sebelum ini, tapak projek yang dicadangkan terletak kawasan berdekatan (Kg Bertam Baru, Kg Limau Kasturi, RPT Limau Kasturi 2, Kg Limau Kasturi 2, Kg Kalar Baru, Kg Pasir Mayat, Kg Bintang, Kg Bintang Baru, Kg P Setulu, Kg Tool, Kg Chegar Atas, Kg Perak, Orang Asli Kuala Lah dan Kg Layak). Berdasarkan lokasi ini, pelbagai faedah akan dapat diperolehi oleh komuniti Orang Asli berdekatan hasil dari pelaksanaan cadangan projek ini dalam meningkatkan aspek sosio ekonomi iaitu dengan menyediakan peluang pekerjaan dan perniagaan, meningkatkan taraf hidup, penyediaan kemudahan infrastruktur, perkongsian teknologi pertanian terkini, meningkatkan nilai tanah dan sebagainya. Berdasarkan kajian yang telah dijalankan, dapat disimpulkan bahawa cadangan projek ini boleh dipertimbangkan untuk dilaksanakan oleh pihak penggerak projek memandangkan ia akan memberi pelbagai faedah kepada pihak-pihak yang terbabit secara langsung atau tidak langsung dengan cadangan pelaksanaan projek ini. Walaupun berpotensi memberi kesan terhadap alam sekitar, ia adalah bersifat setempat dan boleh dikurangkan serta dikawal sekiranya langkah-langkah kawalan dan juga panduan oleh agensi kerajaan seperti **Jabatan Alam Sekitar (JAS)**, **Jabatan Pengairan & Saliran**, **Jabatan Perhutanan**, **Pejabat Pengarah Tanah & Galian**, **Jabatan Pertanian**, **Jabatan Perlindungan & Hidupan Liar**, **Jabatan Kesihatan**, **Jabatan Keselamatan & Kesihatan Perkerjaan**, **Jabatan Orang Asli**, **Jabatan Air Negeri Kelantan**, **Air Kelantan Sdn Bhd** dan lain-lain diambil berat oleh pihak penggerak projek. Kesedaran berhubung dengan kesan-kesan yang akan timbul dan langkah-langkah kawalan yang perlu dilaksanakan serta pematuhan alam sekitar perlu diterapkan kepada semua pihak yang terlibat. Ini adalah bagi memastikan keseluruhan pelaksanaan cadangan projek penanaman pokok ladang hutan pelbagai spesies ini dapat mendatangkan lebih banyak faedah berbanding dengan keburukan bukan sahaja kepada pihak penggerak projek, bahkan juga kepada komuniti Orang Asli dan komuniti setempat, Daerah Bertam, Jajahan Gua Musang, Kerajaan Negeri Kelantan dan Kerajaan Malaysia. Langkah kawalan berkesan serta garis panduan berkaitan dengan kepentingan alam sekitar perlu dinyatakan dengan jelas serta dijadikan sebagai Dokumen Kontrak atau Kontak Perjanjian dengan pihak kontraktor, sub-kontraktor dan pembekal yang terlibat secara langsung atau tidak langsung dalam pelaksanaan cadangan projek ini. Dan dengan komitmen penuh yang bakal diberikan oleh pihak penggerak projek, impak alam sekitar dijangka akan berkurangan sebaik sahaja keseluruhan projek memasuki peringkat penyelenggaraan. Ringkasan bagi keseluruhan kesan-kesan yang berpotensi dan juga P2M2 ada dikumpul dan dinyatakan di dalam **Jadual 1.0**.

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
A	PLANNING STAGE			
1	<u>Site Suitability Analysis, Boundary Survey, Terms of Reference (TOR) and Environmental Impact Assessment (EIA)</u> <ul style="list-style-type: none"> • No potential impact 	<ul style="list-style-type: none"> • No potential impact 	<ul style="list-style-type: none"> • No P2M2 	5-1
B	SITE PREPARATION STAGE			
1	<u>Establishment Of Site Office, Worker Quarters and Storage Facilities, Plantation Road Construction and Nursery Establishment.</u> <ul style="list-style-type: none"> • Surface runoff 	<ul style="list-style-type: none"> • High potential impact 	<ul style="list-style-type: none"> • Fit the construction of logging/plantation roads to the existing terrain. • Undertake the oil palm plantation development on phase by phase basis. • Project proponent suggested to make a full use the usable area below 25° after deducted the riparian zone and road reserve area (244.75 ha – 12.0%) with planting the oil palm trees using terracing method whilst area more than 25° (182.87 ha – 9.0%) using a mini platform method. • An earthwork plan shall be developed based on actual work to be carried out on-site by project proponent before implementing of any earthwork activity. • Keep runoff velocities low and retain on the site. • Minimize length and steepness of slopes to reduce velocity of runoff, thus reducing potential for erosion by constructing proper terrace. • All plantation road network constructed within project site shall be incorporated with proper side drainage system. 	<p>8-1</p> <p>8-1</p> <p>8-1</p> <p>8-2</p> <p>8-2</p> <p>8-2</p> <p>8-2</p>

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2 (continued)

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
	<ul style="list-style-type: none"> • Soil erosion 	<ul style="list-style-type: none"> • High potential impact 	<ul style="list-style-type: none"> • Minimize exposure period once the proposed project site undergo site clearance activity as to avoid huge surface runoff being generated especially during heavy rainstorm event. • To use series of the check dam structure to slowing the surface runoff on the slopes and programming the proposed project activity for months that have less rainfall and minimizing extent of exposed graded area. • To prepare, implement and regularly maintain the overall component of Land Disturbing Pollution Prevention & Mitigation Measures (LD-P2M2) on-site. • Selective cutting of trees is recommended especially on the steep slopes or areas of soft ground and those to water body. • Plan the <u>plantation development to fit exiting condition of proposed project site</u> by assessing physical characteristics of proposed project site. • Fit the construction of plantation roads to the existing terrain. • The top soil generated from terracing and construction activity shall be removed and transported using dump truck to proposed top soil stockpile area. • Avoid or minimize the removal of natural vegetation cover. • Used any suitable erosion control blanket at expose steep slope. • Officially appoint a fulltime Environmental Officer (EO) to undertake all the necessary work pertaining to this potential impact as required by DOE Negeri Kelantan. 	<p>8-2</p> <p>8-2</p> <p>8-2</p> <p>8-3</p> <p>8-3</p> <p>8-3</p> <p>8-4</p> <p>8-4</p> <p>8-4</p> <p>8-4</p> <p>8-5</p>

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2 (continued)

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
	<ul style="list-style-type: none"> • Ecology (flora & fauna) 	<ul style="list-style-type: none"> • High potential impact 	<ul style="list-style-type: none"> • Areas that cannot plant or develop within three (3) months of clearing and unstable soil or local steep areas should immediately planted with legume. • Watercourses and protected areas shall at all times be kept clear of debris and other material brought into these areas by water, gravity or other means. • Animal hunting is prohibited, either by the workers, their family or unauthorized personnel especially within the proposed project site. • Ensure that the populations of wildlife are not isolated due to loss habitat. • Provide adequate opportunity for the wildlife to escape and seek refuge in the nearby undisturbed area by implementing stage logging/plantation. • Anti-poaching measures including regular patrol, security check at salt lick, access point and staff quarters should be carried out by project proponent. • Erecting electric fencing along the jungle fringes. • Light is another common method that used to scare away elephant. • Notify Department of Wildlife & National Parks (DWNP) at least 30 days prior to the commencement of proposed oil palm plantation project. • DWNP must be informed and for translocation may be taken. • No burning activities is allowed to be undertaken in clearing the forest area to avoid animal from burned alive in the flame or killed trying to escape the fire. 	<p>8-9</p> <p>8-10</p> <p>8-10</p> <p>8-10</p> <p>8-10</p> <p>8-10</p> <p>8-10</p> <p>8-10</p> <p>8-11</p> <p>8-11</p>

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2 (continued)

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
	<ul style="list-style-type: none"> • Solid wastes disposal 	<ul style="list-style-type: none"> • High potential impact 	<ul style="list-style-type: none"> • Project proponent shall provide a sufficient buffer zone and proper measures if there is a salt licks found within the proposed project site. • Record important information such as type of wildlife, numbers, location, date, time, etc in log book on regularly basis. • Hunting or killing of wildlife which has been designated as a totally protected species is strictly prohibited. • Immediately notify DWNP on discovery of any protected fauna species such as elephant, rhino or any significant biological habitats such as salt lick and not to log or plant within such area. • Continuously consult the DWNP in order to get advance information on the Central Forest Spine (CFS) implementation of ecological linkages activity for the respective forested area. • Area >25° should be left untouched with vegetation cover as to avoid soil erosion on the hill slope. • Project proponent shall reduce reliance on chemical which potentially harm the environment and favour alternative cost-effective methods and more benign chemicals that minimize adverse actual and potential impacts on the ecological environment. • The entire tree trunk, branches, leaves, bushes and shrubs should be disposed on-site at area before the proposed river buffer zone area which can be used as disposed area for biomass. • The leftover biomass from clearing activities, which is basically vegetative wastes, could be disposed by adopting the zero burning technique. 	<p>8-11</p> <p>8-11</p> <p>8-11</p> <p>8-11</p> <p>8-11</p> <p>8-12</p> <p>8-12</p> <p>8-12</p> <p>8-13</p>

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2 (continued)

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
	<ul style="list-style-type: none"> <li data-bbox="226 491 416 520">• Noise generation <li data-bbox="226 927 423 956">• Traffic congestion <li data-bbox="226 1362 416 1391">• Disease & health 	<ul style="list-style-type: none"> <li data-bbox="674 491 965 520">• Moderate potential impact <li data-bbox="674 927 909 956">• Low potential impact <li data-bbox="674 1362 909 1391">• Low potential impact 	<ul style="list-style-type: none"> <li data-bbox="1200 363 1827 424">• No open burning can be done either within or outside the proposed project site <li data-bbox="1200 440 1666 469">• The access road to be laid with crusher run. <li data-bbox="1200 485 1827 545">• Noise level can be reduces by undertaking the proposed project activity on phase by phase basis <li data-bbox="1200 561 1827 622">• Restricting numbers of heavy trucks and machinery using the sensitive routes. <li data-bbox="1200 638 1827 756">• Reduction of traffic speed is one of the most effective traffic measures controlling traffic noise levels. On high speed roads could lead to a noise level reduction of between 5 dBA and 6 dBA. <li data-bbox="1200 772 1827 833">• The proposed project activities shall be limited from 8.30 am till 5.00 pm and shall carry out during daytime only. <li data-bbox="1200 849 1827 909">• Some buffer zone or natural vegetation (trees) shall be maintained. <li data-bbox="1200 925 1827 986">• The traffic movement of vehicles from project activities should be done within working hours only. <li data-bbox="1200 1002 1827 1062">• Get official clearance from the related government agencies on the usage of the main road as an access road. <li data-bbox="1200 1078 1827 1165">• A proper safety road signage system shall develop based on same standard requirement at the entrance nearby the highway. <li data-bbox="1200 1181 1765 1209">• Transportation activity is prohibited during rainy days. <li data-bbox="1200 1225 1827 1343">• Reduction of traffic speed in order to reduce dust generation when passing by the nearby local community area (if any) which found along the main access road especially during dry season. <li data-bbox="1200 1359 1827 1420">• Built a proper septic tank and landfill at worker quarters area. 	<ul style="list-style-type: none"> <li data-bbox="1899 363 1957 392">8-17 <li data-bbox="1899 440 1957 469">8-17 <li data-bbox="1899 485 1957 513">8-18 <li data-bbox="1899 561 1957 590">8-18 <li data-bbox="1899 638 1957 667">8-18 <li data-bbox="1899 772 1957 801">8-18 <li data-bbox="1899 849 1957 877">8-18 <li data-bbox="1899 925 1957 954">8-18 <li data-bbox="1899 1002 1957 1031">8-18 <li data-bbox="1899 1078 1957 1107">8-19 <li data-bbox="1899 1181 1957 1209">8-19 <li data-bbox="1899 1225 1957 1254">8-20 <li data-bbox="1899 1359 1957 1388">8-20

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2 (continued)

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
C	PLANTING & MAINTENANCE STAGE			
1	<p><u>Planting, Cover Crops, Replanting, Weeding, Thinning, Fertilizer and Pesticides Application.</u></p> <ul style="list-style-type: none"> • Surface runoff 	<ul style="list-style-type: none"> • Low potential impact 	<ul style="list-style-type: none"> • Project proponent suggested to make a full use the usable area below 25° after deducted the riparian zone and road reserve area (244.75 ha – 12.0%) with planting the oil palm trees using terracing method whilst area more than 25° (182.87 ha – 9.0%) using a mini platform method. • Fit the construction of logging/plantation roads, skidding and landing to the existing terrain. • Undertake the oil palm plantation development on <u>phase by phase</u> basis. • An earthwork plan shall be developed based on actual work to be carried out on-site by the project proponent before implementing of any earthwork activity. • All plantation road network constructed within the project site shall be incorporated with a proper side drainage system. • Retain a 20.0 meter both side of natural river buffer zone. • Use series of the check dam structure in order to slowing the surface runoff. • Minimize length and steepness of slopes to reduce the velocity, thus reducing potential for erosion. • Use series of the check dam structure in order to slowing the surface runoff. 	<p>8-1</p> <p>8-1</p> <p>8-1</p> <p>8-2</p> <p>8-2</p> <p>8-2</p> <p>8-2</p> <p>8-2</p> <p>8-2</p>

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2 (continued)

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
	<ul style="list-style-type: none"> • Soil erosion 	<ul style="list-style-type: none"> • Low potential impact 	<ul style="list-style-type: none"> • All clearing, grading and stabilization operations shall be carried out at the current developed area before starting to the next phase or blocks. • All plantations roads network as possible should not cross main streams or rivers unless appropriate crossing structures. • Minimize exposure period once the project site has undergone site clearance activity. • To prepare, implement and regularly maintain the overall component of Land Disturbing Pollution Prevention & Mitigation Measures (LD-P2M2) on-site. • Install crossing drains within certain intervals at the plantation road. • Carry out regular monitoring exercise of river water quality in order to identify any changes so that an immediate action can taken. • To ensure that all Pollution Prevention & Mitigating Measures (P2M2) as well as other environmental compliances matter incorporated in the contract agreement with the respective contractor. • Undertake a regular checking, inspection and maintenance activity of all mitigating measures which has been implemented to minimize, control and resolve potential impact on-site. • Allocate and standby a vibrator roller in which to be used to compact plantation road, terracing or platform developed on-site. • Avoid or minimize the removal of the natural vegetation cover. 	<p>8-2</p> <p>8-2</p> <p>8-2</p> <p>8-2</p> <p>8-3</p> <p>8-3</p> <p>8-3</p> <p>8-3</p> <p>8-4</p> <p>8-4</p>

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2 (continued)

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
	<ul style="list-style-type: none"> • Ecology (flora & fauna) 	<ul style="list-style-type: none"> • High potential impact 	<ul style="list-style-type: none"> • Use Integrated Pest Management. • The pesticide should be stored at a minimum distance of 90 meters (30 feet) from surface water and wells. • A written record of all inspections and maintenance should be made. • Human wastes may not be disposed of in waterways. • Areas that cannot plant or develop within three (3) months of clearing and unstable soil or local steep areas should immediately planted with legume. • Fertilizer should be used in the best way possible and application should not exceed the rates. • Only chemicals that are registered under First Schedule (Section 2) of Pesticides Act 1974 (Act 149) shall be used. • Officially appoint EO to undertake all necessary work pertaining potential impacts. • All application of fertilizer and pesticide shall properly schedule. • Pesticide should be used only when pest numbers or impacts reach economic threshold level. • More environmental friendly chemicals should be chosen. • Provide adequate opportunity for the wildlife to escape and seek refuge in the nearby undisturbed area by implementing stage logging/plantation. • Animal hunting is prohibited. • Anti-poaching measures including regular petrol, security check at salt lick, access point and staff quarters should be carried out by project proponent. 	<p>8-8</p> <p>8-8</p> <p>8-8</p> <p>8-9</p> <p>8-9</p> <p>8-9</p> <p>8-9</p> <p>8-9</p> <p>8-9</p> <p>8-9</p> <p>8-9</p> <p>8-10</p> <p>8-10</p> <p>8-10</p>

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2 (continued)

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
			<ul style="list-style-type: none"> • Notify Department of Wildlife & National Parks (DWNP) at least 30 days prior to the commencement of proposed oil palm plantation project. • DWNP must be informed and for translocation may be taken. • Erecting electric fencing along the jungle fringes. • Protect sensitive habitat with low impact land use designations and provide adequate buffers require a habitat assessment and appropriate mitigation measures. • Light is another common method that used to scare away elephant. • Hunting or killing of wildlife which has been designated as a totally protected species is strictly prohibited. • Provide proper sanitation at the worker quarter's area within the project site as human gastrointestinal parasites and pathogens can be spread to wildlife via water. • Eliminating animal attractants, wherever possible, will reduce human/animal conflicts that necessitate removal. • Record important information such as type of wildlife, numbers, location, date, time, etc in log book on regularly basis. • Continuously consult the DWNP in order to get advance information on the Central Forest Spine (CFS) implementation of ecological linkages activity for the respective forested area. • Immediately notify DWNP on discovery of any protected fauna species such as elephant, rhino or any significant biological habitats such as salt lick and not to log or plant within such area. 	<p>8-10</p> <p>8-10</p> <p>8-10</p> <p>8-10</p> <p>8-10</p> <p>8-11</p> <p>8-11</p> <p>8-11</p> <p>8-11</p> <p>8-11</p> <p>8-11</p>

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2 (continued)

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
	<ul style="list-style-type: none"> • Forest fire 	<ul style="list-style-type: none"> • Low potential impact 	<ul style="list-style-type: none"> • To build the workshop and setting up the water ump house as possible far away from the water sources or major river with a proper natural buffer zone. • All scheduled wastes container should be clearly labelled with the date of disposal, chemical identify, all relevant hazard code, reference number of scheduled wastes coding. • Undertake regular disposal of accumulated scheduled wastes through license scheduled wastes collector. • Provide emergency response plan for oil spillage problem and displayed at the easily seen for related parties involved on the oil palm plantation project activity. • At the entrance to the scheduled wastes storage area, a signboard should be set up. • To minimize leakage, wastes must not be kept in corroded, worn or damaged containers. • All empty oil containers shall collect and temporary stored at designated storage area. • The installation of skid tank shall be made according to the guidelines. • All collected oil wastes shall be disposed according to the requirement. • Project proponent shall apply the 'E-Consignment Note (ECN)' for the notification, inventory and consignment note of scheduled wastes generated within project site. • Develop and maintain fire-breaks around the perimeter of oil palm plantation project area. • Develop and maintain fire-breaks around the perimeter of multi species forest plantation project area. 	<p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-15</p> <p>8-15</p> <p>8-15</p>

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2 (continued)

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
	<ul style="list-style-type: none"> • Soil erosion 	<ul style="list-style-type: none"> • Low potential impact 	<ul style="list-style-type: none"> • Minimize exposure period once the project site has undergone site clearance activity. • To prepare, implement and regularly maintain the overall component of Land Disturbing Pollution Prevention & Mitigation Measures (LD-P2M2) on-site. • Install crossing drains within certain intervals at the plantation road. • Carry out regular monitoring exercise of river water quality in order to identify any changes so that an immediate action can taken. • To ensure that all Pollution Prevention & Mitigating Measures (P2M2) as well as other environmental compliances matter incorporated in the contract agreement with the respective contractor. • Continuously undertake maintenance works of the access road, plantation road and also all rivers crossing structure. • Officially appoint fulltime EO to undertake all necessary work pertaining to this potential impact as required by DOE Negeri Kelantan. • Undertake a regular checking, inspection and maintenance activity of all mitigating measures which has been implemented to minimize, control and resolve potential impact on-site. • Allocate and standby a vibrator roller in which to be used to compact plantation road, terracing or platform developed on-site. • Avoid or minimize the removal of the natural vegetation cover. 	<p>8-2</p> <p>8-2</p> <p>8-3</p> <p>8-3</p> <p>8-3</p> <p>8-3</p> <p>8-3</p> <p>8-3</p> <p>8-4</p> <p>8-4</p>

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2 (continued)

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
	<ul style="list-style-type: none"> • Ecology (flora & fauna) 	<ul style="list-style-type: none"> • High potential impact 	<ul style="list-style-type: none"> • Use Integrated Pest Management. • The pesticide should be stored at a minimum distance of 90 meters (30 feet) from surface water and wells. • A written record of all inspections and maintenance should be made. • Human wastes may not be disposed of in waterways. • Areas that cannot plant or develop within three (3) months of clearing and unstable soil or local steep areas should immediately planted with legume. • Fertilizer should be used in the best way possible and application should not exceed the rates. • Only chemicals that are registered under First Schedule (Section 2) of Pesticides Act 1974 (Act 149) shall be used. • All application of fertilizer and pesticide shall properly schedule. • Pesticide should be used only when pest numbers or impacts reach economic threshold level. • More environmental friendly chemicals should be chosen. • Undertake regular checking, inspection and maintenance activity of mitigating measures implemented to minimize, control and resolve respective potential impacts. • Provide adequate opportunity for the wildlife to escape and seek refuge in the nearby undisturbed area by implementing stage logging/plantation. • Animal hunting is prohibited. • Anti-poaching measures including regular petrol, security check at salt lick, access point and staff quarters should be carried out by project proponent. 	<ul style="list-style-type: none"> 8-8 8-8 8-8 8-9 8-9 8-9 8-9 8-9 8-9 8-9 8-9 8-9 8-10 8-10 8-10

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2 (continued)

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
			<ul style="list-style-type: none"> • Notify Department of Wildlife & National Parks (DWNP) at least 30 days prior to the commencement of proposed oil palm plantation project. • Translocation to nearest national parks or game reserve by DWNP. • Erecting electric fencing along the jungle fringes. • Notify Department of Fisheries on discovery of any protected or unique aquatic species at water body within proposed oil palm plantation project. • Light is another common method that used to scare away elephant. • Hunting or killing of wildlife which has been designated as a totally protected species is strictly prohibited. • Provide proper sanitation at the worker quarter's area within the project site as human gastrointestinal parasites and pathogens can be spread to wildlife via water. • Develop a proper contingency or action plan as to undertake various actions in the event of wildlife issue that may arise within the project site area. • Record important information such as type of wildlife, numbers, location, date, time, etc in log book on regularly basis. • Continuously consult the DWNP in order to get advance information on the Central Forest Spine (CFS) implementation of ecological linkages activity for the respective forested area. • Immediately notify DWNP on discovery of any protected fauna species such as elephant, rhino or any significant biological habitats such as salt lick and not to log or plant within such area. 	<p>8-10</p> <p>8-10</p> <p>8-10</p> <p>8-10</p> <p>8-10</p> <p>8-11</p> <p>8-11</p> <p>8-11</p> <p>8-11</p> <p>8-11</p>

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2 (continued)

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
	<ul style="list-style-type: none"> • Forest fire 	<ul style="list-style-type: none"> • Low potential impact 	<ul style="list-style-type: none"> • To build the workshop and setting up the water ump house as possible far away from the water sources or major river with a proper natural buffer zone. • All scheduled wastes container should be clearly labelled with the date of disposal, chemical identify, all relevant hazard code, reference number of scheduled wastes coding. • Undertake regular disposal of accumulated scheduled wastes through license scheduled wastes collector. • Provide emergency response plan for oil spillage problem and displayed at the easily seen for related parties involved on the oil palm plantation project activity. • At the entrance to the scheduled wastes storage area, a signboard should be set up. • To minimize leakage, wastes must not be kept in corroded, worn or damaged containers. • All empty oil containers shall collect and temporary stored at designated storage area. • The installation of skid tank shall be made according to the guidelines. • All collected oil wastes shall be disposed according to the requirement. • Project proponent shall apply the 'E-Consignment Note (ECN)' for the notification, inventory and consignment note of scheduled wastes generated within project site. • Develop and maintain fire-breaks around the perimeter of oil palm plantation project area. 	<p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-15</p> <p>8-15</p>

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2 (continued)

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
E	RE-PLANTING STAGE			
1	<p><u>Green Budding, Budded Stumps, Nursery Maintenance, Planting Options, Size Suitability, Nursery Pests and Disease, Land Preparation, Legume Covers, Lining, Holing and Planting</u></p> <ul style="list-style-type: none"> • Water pollution 	<ul style="list-style-type: none"> • Moderate potential impact 	<ul style="list-style-type: none"> • All hazardous wastes including material soiled with hazardous wastes and empty containers of hazardous materials shall be stored in designated area. • Irrigation systems shall be designated for nursery operation so excess water containing fertilizers or other agrochemicals do not flow directly into the natural waterways. • Project proponent should use Integrated Pest Management (IPM). • A written record of all inspections and maintenance should be made. • Considering that prolonged settlement of sewage in the septic tank would eventually result in the level of sewage to build up and subsequently reduce treatment capacity of septic tank. • Carry out regular monitoring exercise of river water quality in order to identify any changes so that immediate action can be taken. • To undertake a regular checking, inspection and maintenance activity of all mitigating measures which has been implemented to minimize, control and resolve potential impact on-site. • Human wastes may not be disposed of in waterways. 	<p>8-8</p> <p>8-8</p> <p>8-8</p> <p>8-8</p> <p>8-9</p> <p>8-9</p> <p>8-9</p> <p>8-9</p>

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2 (continued)

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
			<ul style="list-style-type: none"> • At the entrance to the scheduled wastes storage area, a signboard should be set up. • To minimize leakage, wastes must not be kept in corroded, worn or damaged containers. • All empty oil containers shall collected and temporary stored at designated storage area. • The installation of skid tank shall be made according to the guidelines. • All collected oil wastes shall be disposed according to the requirement. • Undertake regular disposal of accumulated scheduled wastes through license scheduled wastes collector. • All scheduled wastes container should be clearly labelled with the date of disposal, chemical identify, all relevant hazard code, reference number of scheduled wastes coding • Provide emergency response plan for oil spillage problem and displayed at the easily seen for related parties involved on the oil palm plantation project activity. • All water pump house shall be constructed with a proper bund system (either by earth bund or using the sand bag) as to prevent any possible excessive oil spillage from directly flow to the river or nearby water body. • Scheduled wastes should be segregated and stored safely and securely as to minimize the risk pollution. • Project proponent shall apply the 'E-Consignment Note (ECN)' for the notification, inventory and consignment note of scheduled wastes generated within project site. 	<p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-14</p> <p>8-15</p> <p>8-15</p> <p>8-15</p>

Table 1.0: Summary of Potential Impacts, Magnitude, Proposed P2M2 (continued)

#	Significant Potential Impact	Magnitude Significant Potential Impact	Pollution Prevention & Mitigating Measures (P2M2s)	Reference Page
	<ul style="list-style-type: none"> • Safety & security 	<ul style="list-style-type: none"> • Low potential impact 	<ul style="list-style-type: none"> • Avoid exposure to mosquitoes during the early morning and early evening hours between the hours of dusk and dawn. • Proper sanitation practices are allowed. • Boiling, filtering and chlorination of water to kill the bacteria produces by cholera patients and prevent infections from spreading. • Water filtration, chlorination and boiling are the most effective means of halting transmission. • Any occupational accidents that cause death, serious bodily injury and any dangerous occurrence have to be reported to the local Department of Occupational Safety & Health (DOSH) office. • Emergency response plan training should include the location and proper use of emergency equipment. • Used approved PPE. • Project proponent was encourage for local recruitment, as this will reduce costs to the contractor. • The employer is responsible to provide sufficient water supply to the living quarters. • A proper security and safety system need to be maintained to ensure harvested oil palm tree properly being collected and recorded. • Prepare and allocate a written statement of safety policy at strategic locations. • Notification and reporting of accident and dangerous occurrence shall be made according to the requirements. • Provide occupational safety orientation training to all the workers. 	<p>8-20</p> <p>8-20</p> <p>8-20</p> <p>8-21</p> <p>8-21</p> <p>8-21</p> <p>8-21</p> <p>8-21</p> <p>8-21</p> <p>8-21</p> <p>8-21</p> <p>8-22</p> <p>8-22</p> <p>8-23</p>

