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ENVIRONMENTAL MONITORING & COMPLIANCE AUDIT REPORT

FOR

PROPOSED REPLANTING AND PLANTING OF 25,000 HA
OF ACACIA MANGIUM AT BENGKOKA PENINSULA,
DISTRICT OF PITAS, SABAH BY ACACIA FOREST
INDUSTRUES SDN BHD.

2ND REPORT OF YEAR 2020

FEBRUARY	JUNE	OCTOBER
	✓	

EIA Approval Letter Ref. No. : JPAS/PP/15/600-1/01/3/29

Approval Date : 19th May 2010

Report Reference : CK/MO411/1187-2/20


Date of Report : 25th June 2020




CHEMSAIN KONSULTANT SDN BHD (130904-U)


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 On-site Sampling & Testing

 Chemical & Microbiological Laboratory Services

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ACACIA FOREST INDUSTRIES SDN BHD

ENVIRONMENTAL MONITORING AND COMPLIANCE AUDIT REPORT

1.0 INTRODUCTION

The Project site covers an area of 25, 000 ha involving planting and replanting of acacia trees within the gazetted land for SAFODA. The said area will be managed as a single Forest Management Unit (FMU) by the Project Proponent. The Project comprises of felling of commercial trees, site clearing and preparation for the replanting and planting on-site. The Project site is located approximately 4 km northeast of Pitas and situated at Bengkoka Peninsula, Pitas and is accessible via the Pitas-Kanibongan Highway.

1.1 Monitoring Information

Project Title	: Proposed Replanting and Planting of 25,000 Ha of Acacia Mangium at Bengkoka Peninsula, District of Pitas, Sabah by Acacia Forest Industries Sdn Bhd
EIA Letter Approval Ref.	: JPAS/PP/15/600-1/01/3/29 dated 19 th May 2010
Monitoring Period	: March - June 2020
Date of Monitoring	: Compliance Audit : 21 th May 2020 Water Sampling : 21 th May 2020
EIA Consultant	: Kiviheng Environmental Consultants Sdn. Bhd.

1.2 Project Proponent Information

Project Proponent	: Acacia Forest Industries Sdn. Bhd.
Contact Person	: Mr. Junextopher J. Maing
Tel. No.	: 088 – 438 021
Fax No.	: 088 – 424 077
Environmental Officer	: Mr. Maxzhelson B. Thomas
Contact No.	: 010 – 584 7847 (Mobile)
E-mail	: -

1.3 Post-EIA Consultant Information

Post-EIA Consultant	: Chemsain Konsultant Sdn. Bhd.
Tel. No.	: Office : 088 – 381 277 / 278
Fax No.	: 088 – 381 280
Contact Person	: Agatha Francis / Edgar Nichols Cosmas
Email	: agatha.fr@chemsain.com / edgar.cosmas@chemsain.com

1.4 Project Status

Percentage Completion :

Activities	Percentage (%)
Replanting	TBA
Planting	TBA

Chronology of Evens :

Table 1.0: Chronology of events

No.	Event	Date
1.0	Signing of AEC Ref. No.: JPAS/PP/15/600-1/01/3/29	19 th Mei 2010

2.0 LEGAL REQUIREMENT

The Project is classified as a prescribed activity under the **Second Schedule** of the **Environment Protection (Prescribed Activities) (Environmental Impact Assessment) Order 2005** under **Item 2 (i) & (ii)**.

Environmental Monitoring and Compliance Audit (EMCA) is to be carried out on quadrimester basis, and reported in accordance to the Approval Conditions as specified in the **Syarat-Syarat Alam Sekitar [Seksyen 12(1) dan 20, Enakmen Perlindungan Alam Sekitar 2002]** of the EPD ref: **JPAS/PP/15/600-1/01/3/29** dated 19th May 2010.

3.0 CHANGES TO PROJECT CONCEPT / ENVIRONMENT

3.1 Project Concept

No.	Item	Changes
1.	Project Component	Nil
2.	Changes to Land Lot	Nil
3.	Land Area	Nil

3.2 Surrounding Environment

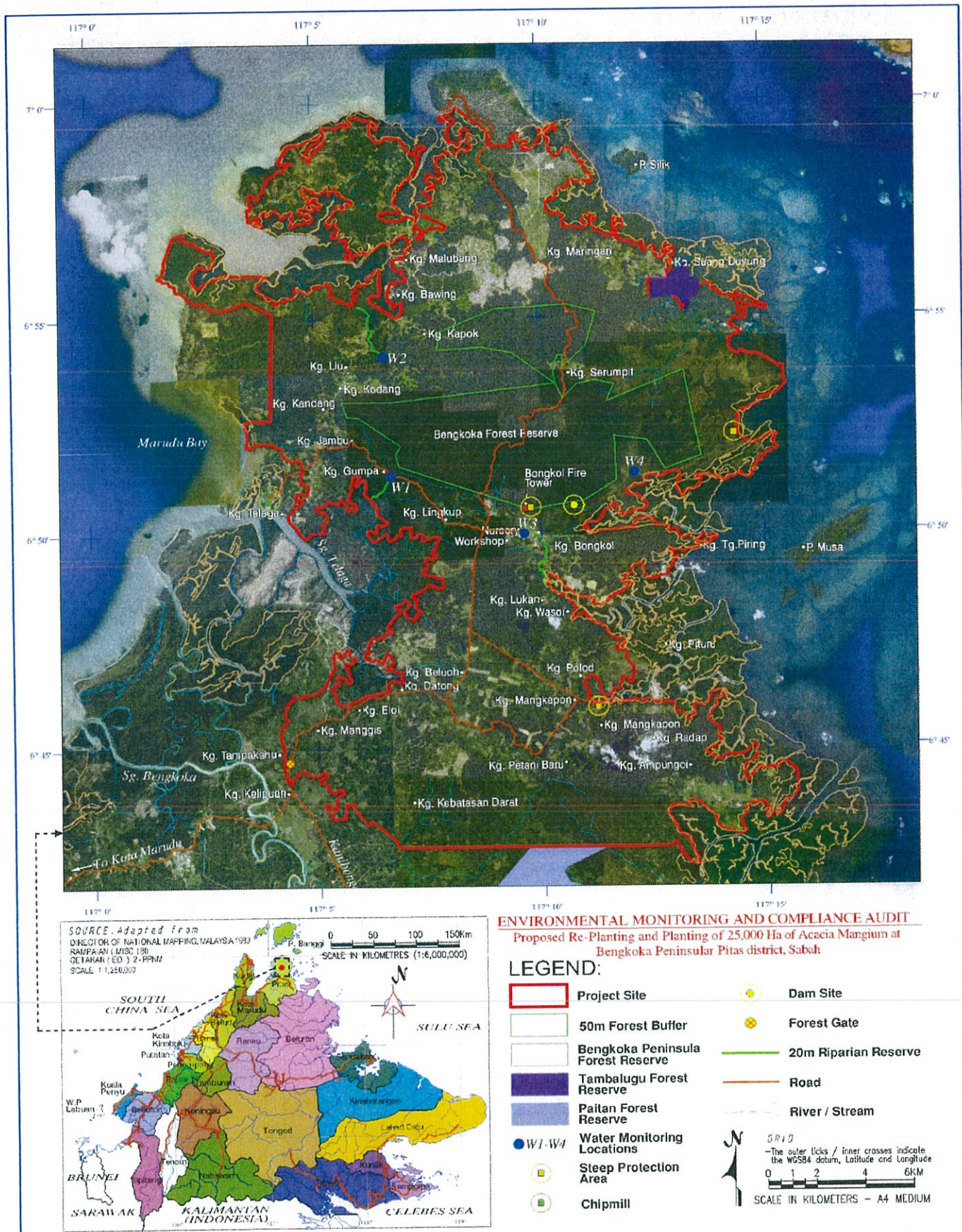
No.	Item	Changes
1.	Land Use	Nil
2.	River / Costal Morphology	Nil

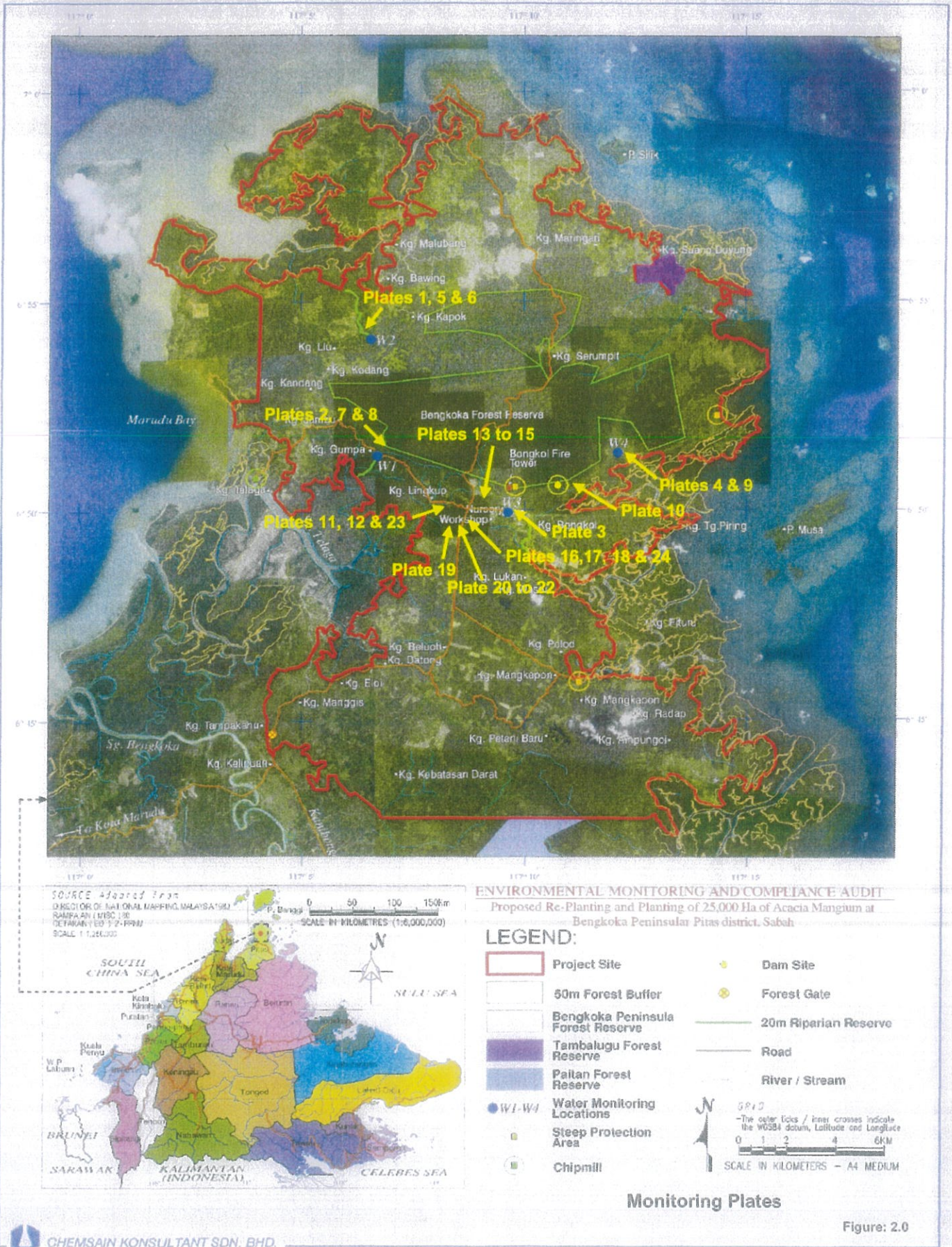
4.0 MONITORING LOCATIONS

Designated monitoring and sampling location are shown in **Figure 1.0** with details tabulated in **Table 2.0**.

Table 2.0: Environmental Monitoring and Sampling Particulars

Monitoring Component	Key	GPS Coordinates (Datum: Timbalai)	Location Description
Water Quality	W1	N 05° 51' 18.56" E 117° 06' 41.09"	Sg. Gumpa
	W2	N 05° 54' 12.40" E 117° 06' 36.87"	Tributary of Sg. Malubang
	W3	N 06° 50' 02.73" E 117° 09' 31.55"	Sg. Bongkol
	W4	N 06° 51' 22.08" E 117° 12' 06.83"	Sg. Kakarangan





5.0 COMPLIANCE STATUS, COMMENTS & RECOMMENDATIONS

Nama Projek : Replanting and Planting of 25,000 Ha Acacia Mangium at Bengkoka Peninsula, District of Pitas, Sabah
 Nama Pemaju : Acacia Forest Industries Sdn Bhd
 Rujukan fail jabatan ini : JPAS/PP/15/600-1/01/3/29
 Tarikh Aduan : 19 Mei 2010
 Penyedia laporan pematuhan ini : Chemsain Konsultant Sdn. Bhd.
 Tempoh diliputi oleh laporan ini : March - June 2020

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
5.1	Kawasan Tapak Pembangunan				
i.	Sempadan kawasan projek seperti yang ditunjukkan di "Figure 3.2 – Locality Map" dalam laporan EIA hendaklah disukat sebelum aktiviti projek dimulakan. Penyukatannya hendaklah disahkan oleh jurukur yang berdaftar di bawah Ordinan Jurukur 1960 (Surveyor Ordinance 1960).	Non Compliance	<ul style="list-style-type: none"> According to the Project Proponent, the boundary survey that was presented in the previous EIA report was the gazette plan that was owned by SAFODA and did not represent the actual boundary of the Project site for Acacia Forest Industries Sdn. Bhd. SAFODA had previously appointed Jurukur Dhiya Suria, to conduct the survey. However, it was strongly objected by the local community. 	-	<ul style="list-style-type: none"> A copy of the objection letter was attached in the 3rd Report of 2019, as Appendix D. The letter had been previously written to EPD on this matter.
ii.	Pelan Penyukatannya hendaklah dikemukakan kepada JPAS bersama-sama dengan bacaan koordinat latitud dan longitud sebelum aktiviti projek dimulakan.	Non Compliance	<ul style="list-style-type: none"> Refer to the comments in AEC 5.1 (i). 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
iii	Sempadan kawasan projek yang telah disukat, hendaklah ditanda di lapangan serta dipasang dengan papan tanda di lokasi-lokasi yang mudah dilihat sebelum aktiviti projek dimulakan.	Comply	<ul style="list-style-type: none"> According to the Project Proponent, the demarcation of the Project boundary on-site will be erected in tandem with the Project operation and progress. 	-	-
5.2	<u>Kualiti Sumber Air</u>				
i	Kaedah pemajuan ladang Acacia mangium yang terkawal dan mesra alam serta dengan menyediakan alternatif sumber air kepada penduduk yang terjejas hendaklah diamalkan.	Comply	<ul style="list-style-type: none"> The Project Proponent practices eco-friendly approach towards the planting and replanting activities on-site. Rainwater was utilized as an alternative source of water supply. The Project Proponent ensures that water supply will be provided to the affected villagers (if any). 	-	-
ii	Penggunaan baja dan racun perosak (pesticide) secara terkawal hendaklah diamalkan. Pelupusan atau pembuangan bahan baja dan racun perosak adalah <u>tidak dibenarkan</u> di dalam sungai atau alur air.	Comply	<ul style="list-style-type: none"> There were no signs of any fertilizer or pesticides being disposed into any nearest natural waterways as observed during the site visit. The Project Proponent assured that pesticides and fertilizers were only utilized when necessary. The agrochemical storage area was situated near the nursery on-site. 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date				
5.2.1.2	<p>Laporan pemantauan kualiti air juga hendaklah dikemukakan kepada JPAS bersama dengan laporan pematuhan tersebut.</p> <p>Lokasi dan parameter yang perlu dianalisa adalah seperti berikut:</p> <table border="1" data-bbox="598 1444 1053 2004"> <thead> <tr> <th data-bbox="598 1713 646 2004">Lokasi</th> <th data-bbox="598 1444 646 1713">Unit/Parameter</th> </tr> </thead> <tbody> <tr> <td data-bbox="646 1713 1053 2004">Sebagaimana yang ditanda sebagai "Water Sampling Point" di "Figure 6.1" dalam laporan EIA tersebut.</td> <td data-bbox="646 1444 1053 1713">Turbidity, pH, Total Suspended Solids, Oil & Grease, Biochemical Oxygen Demand, Chemical Oxygen Demand, Ammoniacal Nitrogen</td> </tr> </tbody> </table>	Lokasi	Unit/Parameter	Sebagaimana yang ditanda sebagai "Water Sampling Point" di "Figure 6.1" dalam laporan EIA tersebut.	Turbidity, pH, Total Suspended Solids, Oil & Grease, Biochemical Oxygen Demand, Chemical Oxygen Demand, Ammoniacal Nitrogen	Comply	<ul style="list-style-type: none"> Water sampling conducted at all monitoring locations, W1 – W4, as per Figure 1.0. 	Plates 1 to 4	-
Lokasi	Unit/Parameter								
Sebagaimana yang ditanda sebagai "Water Sampling Point" di "Figure 6.1" dalam laporan EIA tersebut.	Turbidity, pH, Total Suspended Solids, Oil & Grease, Biochemical Oxygen Demand, Chemical Oxygen Demand, Ammoniacal Nitrogen								

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date						
5.3	<u>Perlindungan Sungai</u>										
i	<p>Simpanan sungai seperti berikut hendaklah dilindungi, disukat dan ditanda di lapangan:</p> <table border="1" data-bbox="475 1435 1098 1989"> <thead> <tr> <th data-bbox="475 1715 528 1989">Lokasi</th> <th data-bbox="475 1435 528 1715">Unit / Parameter</th> </tr> </thead> <tbody> <tr> <td data-bbox="528 1715 580 1989">Sg. Gumpa, Sg. Malubang, Sg. Bongkol dan Sg. Kakarangan serta semua sungai lain yang mempunyai kelebaran 3 meter atau lebih</td> <td data-bbox="528 1435 580 1715">Sekurang-kurangnya selebar 20 meter pada mendatar dari tebing sungai.</td> </tr> <tr> <td data-bbox="580 1715 1098 1989">Semua sungai yang mempunyai kelebaran kurang daripada 3 meter</td> <td data-bbox="580 1435 1098 1715">Sekurang-kurangnya selebar 5 meter pada jarak dari tebing sungai.</td> </tr> </tbody> </table>	Lokasi	Unit / Parameter	Sg. Gumpa, Sg. Malubang, Sg. Bongkol dan Sg. Kakarangan serta semua sungai lain yang mempunyai kelebaran 3 meter atau lebih	Sekurang-kurangnya selebar 20 meter pada mendatar dari tebing sungai.	Semua sungai yang mempunyai kelebaran kurang daripada 3 meter	Sekurang-kurangnya selebar 5 meter pada jarak dari tebing sungai.	Comply	<ul style="list-style-type: none"> ▪ Blue signboard was sighted in place at the Riparian Reserves situated within the tributary of Sungai Malubang and Sungai Gumpa. ▪ Tree trunks along the Riparian Reserve belt situated within the tributary of Sg. Malubang marked with blue paint for demarcation purposes. ▪ However, some parts of the Riparian Reserves (i.e. Sungai Kakarangan and tributary of Sungai Bongkol) were not demarcated as observed during the site visit. ▪ According to the Project Proponent, the Riparian Reserves were previously demarcated but the locals took out the pegs and the signboard erected. ▪ Nonetheless, as per their SOP, demarcation of Riparian Reserves on-site will be done 6 months prior to any operation start in the area. ▪ The previous old water pump house located near the riparian reserves of Sungai Bongkol had been dismantled by the Project Proponent. 	Plates 5 & 7	-
Lokasi	Unit / Parameter										
Sg. Gumpa, Sg. Malubang, Sg. Bongkol dan Sg. Kakarangan serta semua sungai lain yang mempunyai kelebaran 3 meter atau lebih	Sekurang-kurangnya selebar 20 meter pada mendatar dari tebing sungai.										
Semua sungai yang mempunyai kelebaran kurang daripada 3 meter	Sekurang-kurangnya selebar 5 meter pada jarak dari tebing sungai.										

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
vi	Sebarang pembinaan rumah pekerja, kem pekerja, bengkel, tandas atau struktur bangunan lain tidak dibenarkan di simpanan sungai ini.	Comply	<p>for the previous water pump house, which had been dismantled.</p> <ul style="list-style-type: none"> Refer to the comments in AEC 5.3 (v). 	-	-
vii	Sebarang penyimpanan bahan minyak atau bahan toksik tidak dibenarkan di simpanan sungai ini.	Comply	<ul style="list-style-type: none"> There were no signs of any oily / toxic material being stored within the Riparian Reserves as observed during the site visit. The oily / toxic material storage area is situated near the workshop area and located more than 50 m away from nearest natural waterways. 	Plates 19 & 20	
viii	Sebarang bahan tanah lebihan, sisa tumbuhan, sisa pepejal, kumbahan, bahan minyak, kimia atau bahan-bahan toksik tidak dibenarkan dilupuskan di simpanan sungai, di dalam sungai atau alur air.		<ul style="list-style-type: none"> Disposal of overburden or any types of wastes (i.e. biomass, solid, sewage, oily / toxic material, etc.) into the Riparian Reserves area or any nearest natural waterways was not sighted. 	-	
5.4	<u>Hakisan Tanah dan Pemendapan Kelodak</u>				
5.4.1	<u>Larangan Aktiviti Pemajuan Ladang Acacia Mangium atau Pembersihan Kawasan</u>				
i.	Sebarang aktiviti pemajuan ladang Acacia mangium atau aktiviti pembersihan kawasan tidak dibenarkan di kawasan berkecerunan 25 darjah atau lebih dengan keluasan	Comply	<ul style="list-style-type: none"> There are no activities conducted within the high-risk area ($\geq 25^\circ$ slope area) as observed during the site visit. According to the Project 	Plate 10	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
ii	49 hektar dan kawasan perkampungan, sebagaimana ditunjukkan di "Figure 6.1" dalam laporan EIA tersebut. Sempadan kawasan yang berkecerunan 25 darjah atau lebih dan kawasan berisiko tinggi serta kawasan perkampungan ini hendaklah ditanda di lapangan dengan cat merah serta dipasang dengan papan tanda sebelum aktiviti pembersihan kawasan dimulakan di kawasan projek berkenaan dan hendaklah mencapai ketepatan pengukuran standard kelas ketiga.	Comply	Proponent, this area was not developed as it is part of the Bengkoka Forest Reserve. <ul style="list-style-type: none"> According to the Project Proponent, demarcation high risk area ($\geq 25^\circ$ slope), will be carried out 6 months prior to start of operation in the area (if any). 	-	-
iii	Pelan penyukatan kawasan yang berkecerunan 25 darjah atau lebih dan kawasan berisiko tinggi serta kawasan perkampungan berkenaan hendaklah dikemukakan kepada JPAS bersamasama dengan bacaan koordinat latitud dan longitud sebelum aktiviti pemajuan ladang Acacia mangium atau aktiviti pembersihan kawasan dimulakan di kawasan projek berkenaan.	Comply	<ul style="list-style-type: none"> Refer to the comment in AEC 5.4.1 (ii). 	-	-
5.4.2 Pembinaan Jalan					
i	Sistem perparitan hendaklah disediakan bagi mengalirkan air keluar dari struktur jalan dan dilencongkan ke kawasan yang mempunyai tumbuhan.	Comply	<ul style="list-style-type: none"> Roadside drainage in place along the access road on-site. The roadside drainage diverted flow into vegetated areas. 	-	-
ii	Aktiviti pelupusan atau pembuangan	Comply	<ul style="list-style-type: none"> There is no disposal of overburden into the nearest 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
	bahan tanah lebih (overburden) ke dalam sungai atau alur air <u>tidak dibenarkan</u> .		natural waterways as observed during the site visit.		
5.4.3	<u>Pembinaan Rumah Pekerja, Kem Pekerja, Bengkel atau Tapak Semaian</u>				
i	Rumah pekerja, kem pekerja, bengkel atau tapak semaian hendaklah dibina dengan meminimalkan kerja-kerja tanah dan pembersihan kawasan.	Comply	<ul style="list-style-type: none"> ▪ The workers' quarters, workshop and nursery were fully utilised. ▪ The Project Proponent utilized the existing workshop of the previous company, Hijauan Bengkoka Sdn Bhd. 	Plates 11, 13 & 16	-
ii	Sistem perparitan yang berkesan hendaklah disediakan bagi mengawal larian air permukaan dan air buangan dari kawasan rumah pekerja, kem pekerja, bengkel atau tapak semaian dan hendaklah dilencongkan ke kawasan yang mempunyai tumbuhan dan <u>tidak dibenarkan</u> dialir terus ke dalam sungai atau alur air.	Comply	<ul style="list-style-type: none"> ▪ Drainages provided at the workers' quarters area were diverted towards the vegetated area. ▪ The drainages provided at the nursery area was diverted towards the sedimentation pond via earth and concrete drainage. ▪ Drip tray was provided at the workshop area to contain any oil spillage during vehicular maintenance. ▪ Saw dust was in place at the workshop area and acted as spillage kits. 	Plates 12, 14, 15, 17 & 18	-
iii	Kedudukan rumah pekerja atau kem pekerja hendaklah terletak pada jarak mendatar tidak kurang 30 meter dari tebing sungai atau alur air.	Comply	<ul style="list-style-type: none"> ▪ The worker's quarters on-site were located at more than 30 m away from any nearest natural waterways as observed 	Plate 11	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
iv	Kedudukan bengkel atau tapak semaian hendaklah terletak pada jarak mendatar tidak kurang 50 meter dari tebing sungai atau alur air.	Comply	during the site visit. <ul style="list-style-type: none"> The nursery and workshop on-site were located at more than 50 m away from any nearest natural waterways as observed during the site visit. 	Plates 13 & 16	-
v	Semua rumah pekerja, kem pekerja, bengkel atau tapak semaian sedia ada yang tidak mematuhi peraturan-peraturan yang dinyatakan dalam syarat-syarat alam sekitar ini, hendaklah dipindah dan dikawal sebagaimana yang ditetapkan.	Comply	<ul style="list-style-type: none"> The location for the facilities were in compliance with the AEC requirement. 	-	-
5.4.4 Kawalan Larian Air Permukaan					
i	Sistem perparitan dan kolam perangkap mendap (sedimentation pond) hendaklah disediakan di lokasi yang strategik dalam kawasan tapak projek.	Comply	<ul style="list-style-type: none"> The drainage at the nursery were diverted towards the nearby sedimentation pond via the earth and concrete drainage. 	Plates 14 & 15	-
ii	Kolam perangkap mendap tersebut hendaklah diselenggarakan dengan mengeluarkan bahan sedimen sekurang-kurangnya satu (1) kali dalam sebulan.	Comply	<ul style="list-style-type: none"> The sedimentation pond was in good condition. According to the Project Proponent, they will assure to adhere to this condition. 	Plate 15	-
iii	Sebarang penyimpanan atau pelupusan bahan sedimen tidak dibenarkan di kawasan sungai atau simpanan sungai.	Comply	<ul style="list-style-type: none"> There is no disposal of any sediments into any of the nearest natural waterways of the Riparian Reserves area as observed during the site visit. 	-	-
iv	Sistem perparitan yang berkesan	Comply	<ul style="list-style-type: none"> Refer to the comments in AEC 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
	hendaklah dibina bagi mengawal larian air permukaan dari kawasan projek, terutamanya di sekitar kawasan rumah pekerja, kem pekerja, bengkel atau tapak semeaian.		5.43 (ii).		
v	Aliran parit tersebut hendaklah dilencongkan ke kolam perangkap mendap dan <u>tidak dibenarkan</u> dialir terus ke dalam sungai alur air.	Comply	<ul style="list-style-type: none"> Refer to the comments in AEC 5.43 (ii). 	-	-
vi	Sebarang pembinaan sistem perparitan dan kolam perangkap mendap <u>tidak dibenarkan</u> di dalam alur air semulajadi, kawasan simpanan sungai atau di dalam sungai.	Comply	<ul style="list-style-type: none"> Generally, there were no on-site surface runoff mitigation structures constructed within any of the existing natural waterways and the Riparian Reserves on-site. 	-	-
vii	Semua kawasan yang terdedah hendaklah dilindungi dan ditanam dengan tumbuhan tutup bumi untuk mengurangkan hakisan tanah.	Comply	<ul style="list-style-type: none"> The exposed area on-site was planted with cover crops to reduce the risk of soil erosion on-site. 	-	-
5.5	<u>Pemajuan Ladang Acacia mangium Secara Berfasa</u>				
i	Operasi pemajuan ladang Acacia mangium hendaklah dilaksanakan secara berperingkat/berfasa dan terancang.	Comply	<ul style="list-style-type: none"> The development for the Acacia mangium plantation were carried out in phases. 	-	-
ii	Pelan pengurusan operasi pemajuan ladang Acacia mangium hendaklah disediakan dan dilaksanakan serta satu salinan pelan tersebut hendaklah dikemukakan kepada JPAS.	Comply	<ul style="list-style-type: none"> The Operation Management Plan was presented in the EIA report. 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
5.6	<u>Perlindungan Kawasan Sensitif</u>				
i	Zon penanaman sekurang-kurangnya selebar 50 meter hendaklah disediakan di sepanjang sempadan projek dengan Hutan Simpan Bengkoka dan Tambalugu (Kelas I), Hutan Simpan Semenanjung Bengkoka (Hutan Simpan Bakau Kelas V) dan Hutan Simpan Paitan (Kelas II). Sebarang aktiviti pemajuan ladang Acacia mangium atau aktiviti pembersihan kawasan tidak dibenarkan di dalam kawasan zon penanaman ini sebagaimana yang dinyatakan di bawah perkara "2 (ii)" serta ditunjukkan di "Figure 6.1" dalam maklumat tambahan laporan EIA tersebut.	Comply	<ul style="list-style-type: none"> The 50 m wide buffer zone was retained as observed during the site visit. According to the Project Proponent, the 50 m wide buffer zone of Hutan Simpan Semenanjung Bengkoka were no longer applicable since the forest reserve had now been developed by others. 	-	-
ii	Sempadan kawasan zon penanaman ini hendaklah dilindungi dan disukat sebelum aktiviti pemajuan ladang Acacia mangium atau aktiviti pembersihan kawasan dimulakan di kawasan projek berkenaan dan hendaklah mencapai ketepatan pengukuran standar kelas ketiga.	Comply	<ul style="list-style-type: none"> The survey work for the buffer zone had been previously carried out by the Project Proponent. 	-	-
iii	Pelan penyukatan kawasan-kawasan zon penanaman berkenaan hendaklah dikemukakan kepada JPAS bersamasama dengan bacaan koordinat latitud dan longitud sebelum aktiviti pemajuan ladang Acacia mangium atau aktiviti	Comply	<ul style="list-style-type: none"> The survey map was attached together with the EIA report. 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
iv	pembersihan kawasan dimulakan di kawasan projek berkenaan. Sempadan kawasan zon penanaman yang telah disukat, hendaklah ditanda di lapangan dengan cat merah serta dipasang dengan papan tanda di lokasi-loasi yang mudah dilihat sebelum aktiviti pemajuan ladang Acacia mangium atau aktiviti pembersihan kawasan dimulakan di kawasan projek berkenaan.		<ul style="list-style-type: none"> According to the Project Proponent, the demarcation process will be carried out as the Project Progress in the area. 	-	
5.7	<u>Bahan Minyak dan Sisa Toksik</u>				
i	Bahan minyak dan sisa toksik yang digunakan dalam aktiviti pemajuan ladang Acacia mangium ini adalah tidak dibenarkan dilupuskan atau dibiarkan mengalir ke dalam parit, sungai atau alur air.	Comply	<ul style="list-style-type: none"> Disposal of any oil and toxic material into the nearest natural waterways was not sighted. 	-	-
ii	Bahan minyak dan sisa toksik hendaklah dikumpul dan disimpan dalam bekas yang kukuh dan tidak mudah bocor. Bekas-bekas penyimpanan tersebut hendaklah dilabel.	Comply	<ul style="list-style-type: none"> There is no significant amount of scheduled waste stored on-site during the visit. According to the Project Proponent, the disposal of scheduled wastes was handled by Petrojadi Sdn. Bhd. 	-	-
iii	Kawasan penyimpanan bahan minyak dan sisa toksik tersebut hendaklah terlindung dari hujan dan hendaklah terletak pada jarak mendatar tidak kurang 50 meter dari tebing sungai atau alur air.	Comply	<ul style="list-style-type: none"> The oil and scheduled waste storage facility located near the existing workshop were located at more than 50 m away from any nearest natural waterways. The diesel skid tank on-site was located at more than 50 m 	Plates 19 & 20	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
iv	Kawasan penyimpanan bahan minyak dan sisa toksik hendaklah disediakan dengan sistem saliran perangkap minyak.		<p>away from any nearest natural waterways.</p> <ul style="list-style-type: none"> ▪ The oil and scheduled waste storage facility located near the existing workshop were equipped with a perimeter concrete containment bund filled with sand to prevent any leakage from seeping directly into the ground. ▪ The diesel skid tank on-site was equipped with an oil trap. ▪ Drip tray was provided at the workshop area, to contain any oil generated from vehicle maintenance. ▪ Saw dust was provided at the workshop and diesel skid tank storage building and acted as spillage kit. 	Plates 19, 21 & 22	-
v	Bahan minyak dan sisa toksik tersebut hendaklah dilupuskan mengikut garis panduan, peraturan atau undang-undang kerajaan yang sedang berkuatkuasa.	Comply	<ul style="list-style-type: none"> ▪ According to the Project Proponent, the disposal of scheduled wastes was handled by Petrojadi Sdn. Bhd. 	-	-
5.8	Bahan Sisa Pepejal dan Sisa Biomas				
i	Sebarang aktiviti pelupusan bahan sisa pepejal dan sisa biomass tidak dibenarkan ke dalam parit, alur air, di dalam sungai atau simpanan sungai.	Comply	<ul style="list-style-type: none"> ▪ There is no disposal of any solid wastes and biomass within the Riparian Reserves area or any nearest natural waterways as observed during the site visit. 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
ii	Kemudahan mengumpul dan mengutip bahan sisa pepejal dan sisa biomass hendaklah disediakan. Lokasi kawasan pengumpulan bahan sisa pepejal dan sisa biomass hendaklah dikaji agar tidak mendatangkan kesan negatif kepada penduduk sekitar.	Comply	<ul style="list-style-type: none"> The biomass generated on-site were stacked properly on the exposed area of the Project site and left in-situ for natural decomposition. Garbage bins were provided at the workers' quarters and workshop area. Recycle bins were provided at the workshop, nursery and site office area to facilitate solid waste segregation. 	Plates 23 & 24	-
iii	Semua kawasan pengumpulan bahan sisa pepejal dan sisa biomass hendaklah terletak pada jarak mendatar tidak kurang 30 meter dari alur air atau tebing sungai.	Comply	<ul style="list-style-type: none"> The waste collection facility was located at more than 30 m away from any nearest natural waterway as observed during the site visit. 	-	-
iv	Semua bahan sisa pepejal seperti botol, tin, plastik, dan besi hendaklah dikumpul secara berasingan dan dikitar semula.	Comply	<ul style="list-style-type: none"> Scrap metals from old machineries were temporarily stockpiled at the Project site and will be disposed at the later stage or recycled if applicable. Recycle bins were provided at the workshop, nursery and site office area to facilitate solid waste segregation. 	-	-
v	Sekiranya tiada kawasan pelupusan yang sesuai dalam kawasan projek, bahan sisa pepejal dan sisa biomass tersebut hendaklah dilupuskan di	Comply	<ul style="list-style-type: none"> Refer to the comments in AEC 5.8 (ii). 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
	kawasan yang disediakan oleh pihak berkuasa tempatan				
5.9	<u>Kawalan Kualiti Udara dan Kebakaran</u>				
<i>i</i>	Pembakaran terbuka adalah <u>tidak dibenarkan</u> .	Comply	<ul style="list-style-type: none"> ▪ According to the Project Proponent, traces of open burning on-site were caused by the high heat exposure during the dry season. ▪ The Project Proponent assured that no open burning will be conducted during the Project development activities. 	-	-
<i>ii</i>	Pelan pengurusan dan pencegahan kebakaran kawasan pempajuan ladang Acacia mangium hendaklah disediakan dan satu salinan pelan tersebut hendaklah dikemukakan kepada JPAS.	Comply	<ul style="list-style-type: none"> ▪ The Fire Prevention and Management Plan had been submitted to the EPD via the November 2010 – February 2011 ECR (Ref: Y1/2011). 	-	-
5.9	<u>Penghentian Projek</u>				
<i>i</i>	Semua struktur binaan yang tidak digunakan hendaklah dibuka secara teratur apabila berlaku penghentian projek tersebut	Not Applicable	<ul style="list-style-type: none"> ▪ Not applicable at the current stage of the Project development as it is still in progress. 	-	-
<i>li</i>	Semua struktur binaan yang didapati tidak selamat atau yang tidak dapat dipastikan selamat, hendaklah dibuka.		<ul style="list-style-type: none"> ▪ Refer to the comments in AEC 5.10 (i). 	-	-
<i>iii</i>	Semua tanah yang tercemar dengan bahan minyak dan bahan berbahaya hendaklah dikeluarkan dan dibersihkan.		<ul style="list-style-type: none"> ▪ Refer to the comments in AEC 5.10 (i). 	-	-

6.0 CONCLUSION

6.1 Overall Compliance


For the Environmental Compliance period of November 2019 – February 2020, the Proposed Replanting and Planting of 25,000 Ha of Acacia Mangium at Bengkoka Peninsula, District of Pitas, Sabah by Acacia Forest Industries Sdn. Bhd., generally complied with the EIA approval conditions, with only **two (2) non-compliances** recorded.

The following mitigation measures are recommended for the two (2) non-compliance to ensure Project operations comply with the EIA approval conditions:

AEC No.	Recommendations	Dateline
<u>Kawalan Tapak</u> <u>Pembangunan</u> 5.1 (i) & (ii)	<ul style="list-style-type: none"> Letter had been previously written and submitted to EPD together with the supporting details (i.e. objection letter from the locals). 	-

PERAKUAN PAS

Dengan ini saya mengaku telah turut serta dalam odit yang dijalankan oleh perunding alam sekitar dan telah meneliti dan bersetuju dengan isi kandungan Laporan Pematuhan Alam Sekitar bagi projek ini.

Tandatangan : 
 Nama : JUNEXTHOP J. MAING
 Jawatan : ~~Protection Manager~~ *Resource Manager*
 Tarikh : ACACIA FOREST INDUSTRIES SDN BHD
 6.7.2020



PERAKUAN PERUNDING ALAM SEKITAR

Dengan ini saya mengaku dan mengesahkan semua kenyataan dan butir-butir dalam Laporan Pematuhan Alam Sekitar yang dikemukakan adalah benar.

Tandatangan : 
 Nama : Agatha Francis
 Tarikh : 2. Julai 2020
 Cop Rasmi syarikat :



APPENDIX A

Plates



Kualiti Sumber Air



Plate 1

Water sampling conducted at monitoring location, **W1**.

GPS coordinates of the picture taken: N 06° 51' 18.9" E 117° 06' 41.1"



Plate 2

Water sampling conducted at monitoring location, **W2**.

Kualiti Sumber Air



Plate 3

Water sampling conducted at monitoring station **W3**.

GPS coordinates of the picture taken: N 06° 50' 01.8" E 117° 09' 30.9"

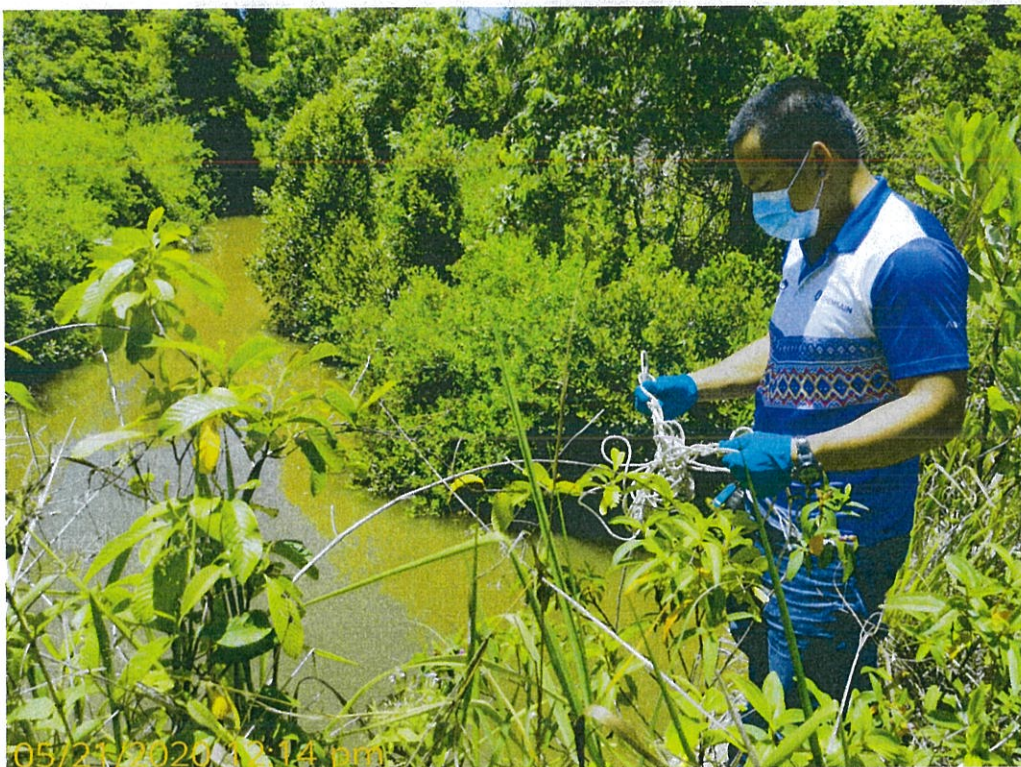


Plate 4

Water sampling conducted at monitoring station **W4**.

GPS coordinates of the picture taken: N 06° 51' 21.7" E 117° 12' 06.5"

Perlindungan Sungai



Plate 5

Signboard and painted peg in place demarcating the riparian reserves of Sg. Malubang

GPS coordinates of the picture taken: N 06° 54' 12.9" E 117° 06' 37.8"



Plate 6

View showing riparian reserves area for Sg. Malubang.

GPS coordinates of the picture taken: N 06° 54' 12.9" E 117° 06' 37.8"

Perlindungan Sungai



Plate 7

Signboard in place demarcating the riparian reserves of Sg. Gumpa.

GPS coordinates of the picture taken: N 06° 51' 18.9" E 117° 06' 41.1"



Plate 8

View showing the riparian reserves area for tributary of Sg. Gumpa.

GPS coordinates of the picture taken: N 06° 51' 18.9" E 117° 06' 41.1"

Perlindungan Sungai



Plate 9

View towards Sg. Kakarangan.

No markers sighted to demarcate the riparian reserve.

GPS coordinates of the picture taken: N 06° 51' 21.7" E 117° 12' 06.5"

Larangan Aktviti Pemajuan Ladang Acacia Mangium atau Pembersihan Kawasan



Plate 10

View showing high slope area within the Project site.

According to the Project Proponent, this area was not developed as it is part of the Bengkoka Forest Reserve

GPS coordinates of the picture taken: N 06° 51' 54.3" E 117° 14' 22.1"

Pembinaan Rumah Pekerja, Kem Pekerja, Bengkel atau Tapak Semaian



Plate 11

View showing the workers' quarters on-site.

It is located more than 30 m away from the nearest natural waterways.

Perimeter drainage in place to divert surface runoff towards the vegetated area.

GPS coordinates of the picture taken: N 06° 49' 57.3" E 117° 09' 16.7"



Plate 12

Perimeter earth and concrete drainage in place, at the workers quarters area.

GPS coordinates of the picture taken: N 06° 49' 57.3" E 117° 09' 16.7"

Pembinaan Rumah Pekerja, Kem Pekerja, Bengkel atau Tapak Semaian



Plate 13

View showing the nursery.

It is located more than 50 m away from nearest natural waterways.

GPS coordinates of the picture taken: N 06° 49' 55.0" E 117° 09' 31.2"



Plate 14

The nursery is equipped with concrete drainage diverting flow into the nearby sedimentation pond.

GPS coordinates of the picture taken: N 06° 49' 55.0" E 117° 09' 31.2"

Pembinaan Rumah Pekerja, Kem Pekerja, Bengkel atau Tapak Semaian



Plate 15

The sedimentation pond is in good condition.

GPS coordinates of the picture taken: N 06° 49' 55.0" E 117° 09' 31.2"



Plate 16

View showing the existing workshop on-site.

It is located more than 50 m away from nearest natural waterways.

GPS coordinates of the picture taken: N 06° 49' 45.5" E 117° 09' 12.7"

Pembinaan Rumah Pekerja, Kem Pekerja, Bengkel atau Tapak Semaian



Plate 17

Provision of drip trays at the workshop to contain any oil spill generated from vehicle maintenance on-site.

GPS coordinates of the picture taken: N 06° 49' 46.1" E 117° 09' 11.8"



Plate 18

Sawdust was provided at the workshop in case of oil spillage.

GPS coordinates of the picture taken: N 06° 49' 46.1" E 117° 09' 11.8"

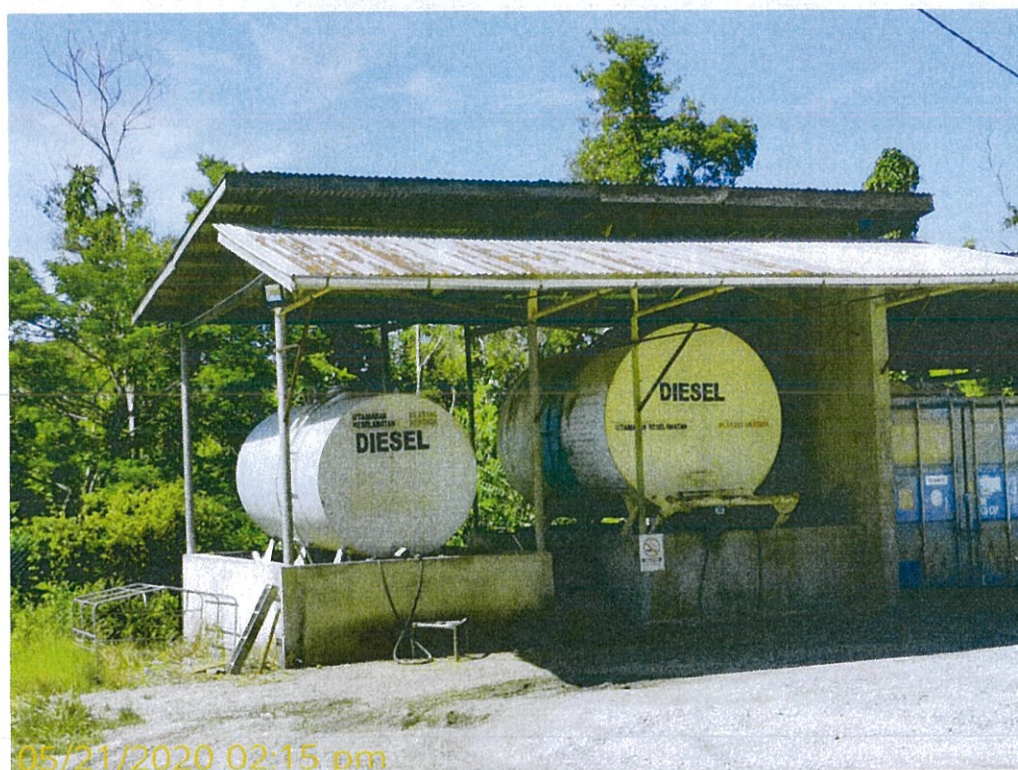
Bahan Minyak dan Sisa Toksik

GPS coordinates of the picture taken: N 06° 49' 46.1" E 117° 09' 11.8"

Plate 19

View showing the scheduled waste storage building, situated at the workshop nearby the site office.

It is sheltered from weather exposure, equipped with concretized floor and perimeter concrete containment bund.

Bahan Minyak dan Sisa Toksik

GPS coordinates of the picture taken: N 06° 49' 46.1" E 117° 09' 11.8"

Plate 20

View showing the diesel skid tank storage building situated near the workshop.

The diesel skid tank was equipped with concretized floor, bunded and sheltered from weather exposure.

It is located at more than 50 m away from any nearest natural waterways.

Bahan Minyak dan Sisa Toksik



Plate 21

The diesel skid tank equipped with an oil trap.

GPS coordinates of the picture taken: N 06° 49' 46.1" E 117° 09' 11.8"

Bahan Minyak dan Sisa Toksik



Plate 22

Sawdust utilised as spillage kit at the diesel skid tank storage building.

GPS coordinates of the picture taken: N 06° 49' 46.1" E 117° 09' 11.8"

Sisa Pepejal dan Sisa Biomas



Plate 23

Garbage bins provided at the workers' quarters area to facilitate solid waste collection.

GPS coordinates of the picture taken: N 06° 49' 57.3" E 117° 09' 16.7"



Plate 24

Garbage bins and recycle bins provided at the workshop area.

APPENDIX B

Environmental Monitoring Report



1.0 SURFACE WATER QUALITY

1.1 MONITORING LOCATION

Water sampling was carried out on the 21st May 2020 at four (4) monitoring locations, **W1**, **W2**, **W3** and **W4** as shown in **Figure 1.0**. The weather was fine and sunny throughout the sampling exercise.

1.2 SURFACE WATER

The surface water monitoring was designed to determine the chemical and physical characteristic of water at the designated monitoring locations shown in **Figure 1.0**. Water samples were collected, preserved and transported to the lab for analysis. Parameters of interest includes pH, Total Suspended Solids (TSS), Turbidity, Biochemical Oxygen Demand (BOD), Oil & Grease, Chemical Oxygen Demand (COD) and Ammoniacal-Nitrogen (as NH₃-N). Sampling and analytical methodologies for these parameters are summarised in **Table 1.0**.

Table 1.0: Sampling and analytical methodologies

Parameter	Method Reference
pH value	APHA 4500-H ⁺ B, 2017
Total Suspended Solids (TSS)	APHA 2540 D, 2017
Turbidity	APHA 2130 B, 2017
Biochemical Oxygen Demand (BOD)	APHA 5210 B & 4500-O G, 2017
Oil & Grease	APHA 5520B B, 2017
Chemical Oxygen Demand	APHA 5220 C, 2017
Ammoniacal-Nitrogen (as NH ₃ -N)	APHA 4500-NH ₃ F, 2017

1.3 RESULTS

Surface water quality results are tabulated in **Table 2.0** and compared against **Class IIB** of **National Water Quality Standards for Malaysia (NWQSM)**. The test reports are presented in **Appendix C**. **Charts 1.0 – 7.0** represent the historical surface water quality results for monitoring locations, **W1 – W4**.

Table 2.0: Surface Water Quality Monitoring Results

Monitoring Location	W1	W2	W3	W4	¹ LIMITS (Class IIB)
Monitoring Date / Time	21/05/2020 1.50 PM	21/05/2020 1.21 PM	21/05/2020 2.25 PM	21/05/2020 12.07 PM	
<i>Physical / Chemical Analysis</i>					
pH Value	8.35	8.25	8.32	6.37	6 – 9
Total Suspended Solids, mg/L	25	20	19	58	50
Turbidity, NTU	19	45	18	16	50
Biochemical Oxygen Demand, mg/L	<1.00	1.46	1.37	1.02	3
Oil & Grease, mg/L	<1.50	<1.50	<1.50	<1.50	40;N, 7000;N
Chemical Oxygen Demand, mg/L	16	24.3	11.2	40.5	25
Ammoniacal Oxygen Demand (NH ₃ -N), mg/L	0.20	0.19	0.23	0.17	0.3

Notes: < > Below / above detection limit

1.4 OBSERVATION

Water quality results for locations **W1** to **W4** show that overall parameters tested were fully complied with **Class IIB** except for the Total Suspended Solid and Chemical Oxygen Demand at monitoring location, **W4**. The slightly high total suspended solid may have been carried out from the upstream area, when rain occurred. High COD indicate that there are high soluble and particulate organic matter in the water. This may have been washed from the upstream area, which carry organic constituents from the settlements nearby.

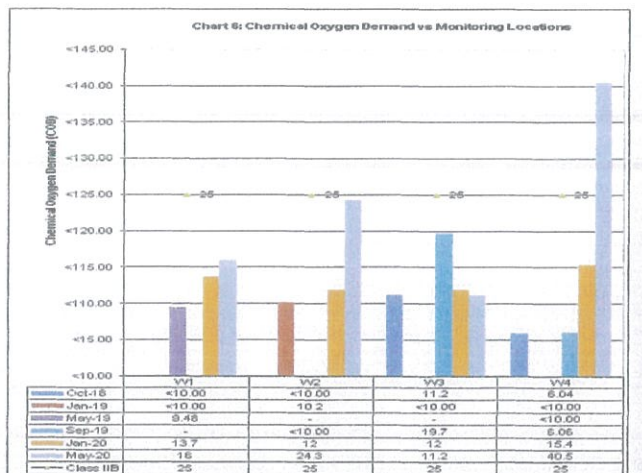
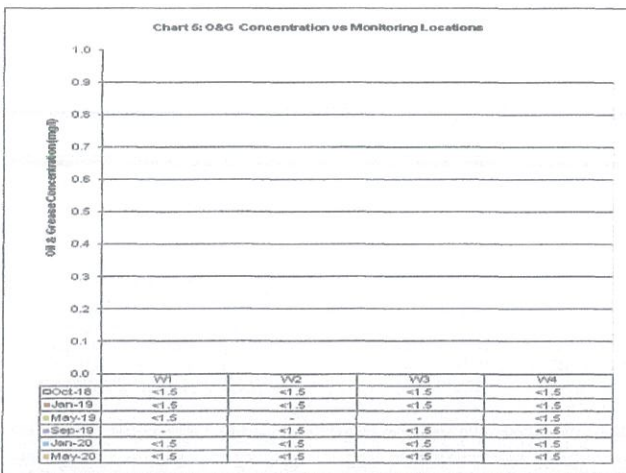
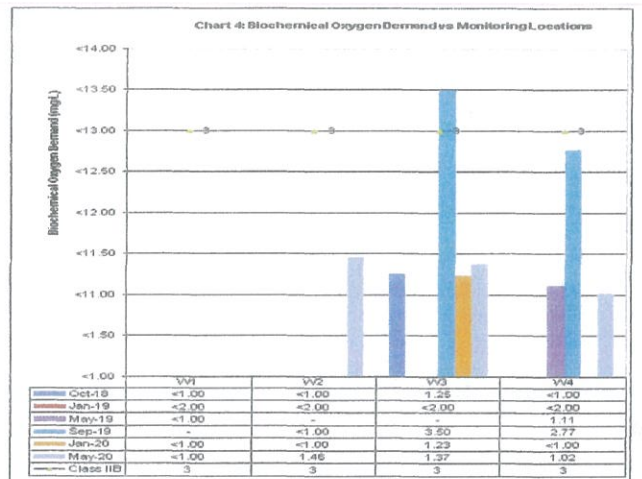
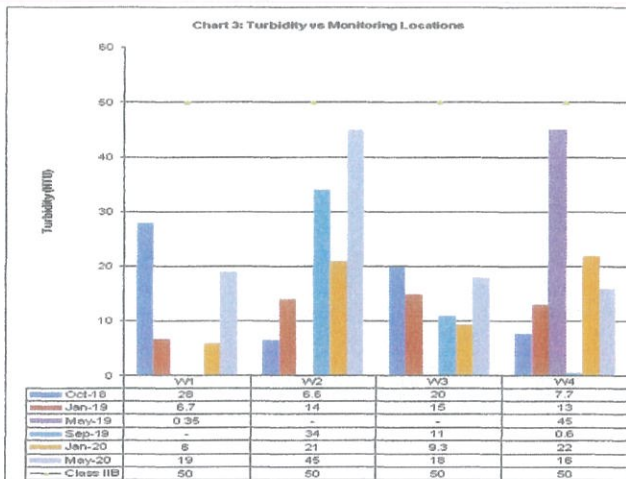
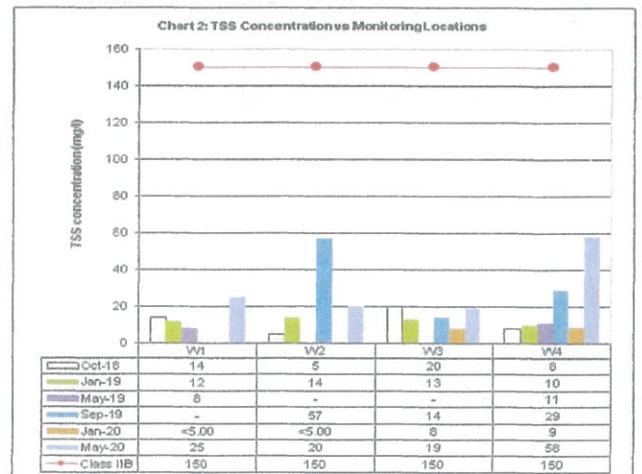
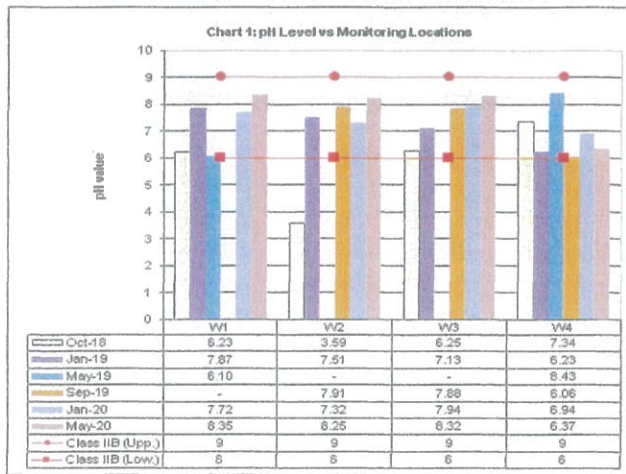
1.5 RECOMMENDED MITIGATION MEASURES

- ❖ Records to show regular maintenance of the earth drainage systems and sedimentation pond is advised to be kept/ provided. .
- ❖ Any maintenance of vehicles and machinery or storage of oily waste and fuel must be carried out at more than 50 meters away from any source of water.
- ❖ Clearing should be done in phases to minimise soil erosion. Cleared and exposed areas not utilized shall be re-vegetated with fast growing cover crops.

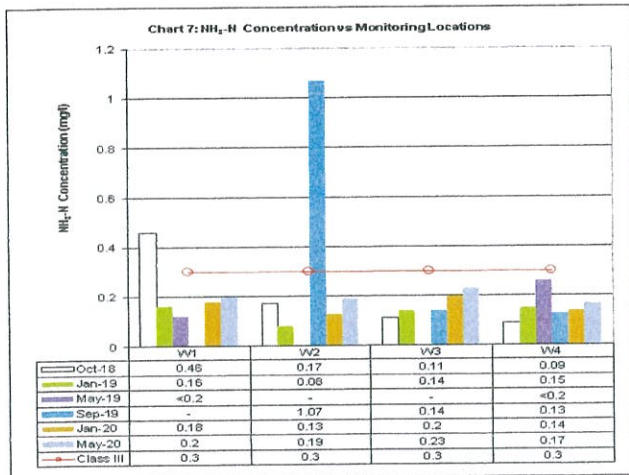
¹ National Water Quality Standards for Malaysia, Malaysia Environmental Quarry Report (DOE, 2006)



HISTORICAL WATER QUALITY RESULTS (W1 – W4)



HISTORICAL WATER QUALITY RESULTS (W1 – W4)



APPENDIX C

Surface Water Quality Test Report
National Water Quality Standards for Malaysia
(NWQSM)





CHEMSAIN KONSULTANT SDN BHD (130904-U)

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Email: laboratory.kk@chemsain.com

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TEST REPORT

NOT FOR ADVERTISEMENT PURPOSES

Customer : Acacia Forest Industries Sdn Bhd
1st Floor, Wisma Perkasa, Jalan Gaya,
88100 Kota Kinabalu, Sabah.

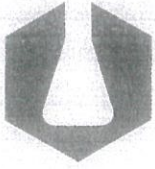
Lab No. : CK/CL405/1559/20
Type (No.) of Sample : River Water (4)
Date Received : 22nd May 2020
Date of Report : 16th June 2020
Project Code : CK/MO411/1187/20

Lab No.:	1559-1		
Parameter(s)	W1 Date: 21/05/2020 Time: 1.50 pm	Test Method	* Standard Limit
pH Value @ 25°C (in-situ / 21.05.2020)	8.35	APHA 4500-H B, 2017	6-9
Total Suspended Solids, mg/L	25.0	APHA 2540 D, 2017	50
Turbidity, NTU	19	APHA 2130 B, 2017	50
Biochemical Oxygen Demand in 5 days @ 20°C, mg/L	<1.00	APHA 5210 B & 4500-O G, 2017	3
Oil & Grease, mg/L	<1.50	APHA 5520 B, 2017	40:N, 7000:N
Chemical Oxygen Demand, mg/L	16.0	APHA 5220 C, 2017	25
Ammoniacal-Nitrogen (as NH ₃ -N), mg/L	0.20	APHA 4500-NH ₃ F, 2017	0.3

Lab No.:	1559-2		
Parameter(s)	W2 Date: 21/05/2020 Time: 1.21 pm	Test Method	* Standard Limit
pH Value @ 25°C (in-situ / 21.05.2020)	8.25	APHA 4500-H B, 2017	6-9
Total Suspended Solids, mg/L	20.0	APHA 2540 D, 2017	50
Turbidity, NTU	45	APHA 2130 B, 2017	50
Biochemical Oxygen Demand in 5 days @ 20°C, mg/L	1.46	APHA 5210 B & 4500-O G, 2017	3
Oil & Grease, mg/L	<1.50	APHA 5520 B, 2017	40:N, 7000:N
Chemical Oxygen Demand, mg/L	24.3	APHA 5220 C, 2017	25
Ammoniacal-Nitrogen (as NH ₃ -N), mg/L	0.19	APHA 4500-NH ₃ F, 2017	0.3

Shue
Page 1 of 2

NOTE: 1) This Test Report shall not be reproduced, except in full, without the written approval of the laboratory.
2) The above result(s) are based on sample(s) as received.
3) The result(s) relates to the sample(s) tested.



CHEMSAIN KONSULTANT SDN BHD (130904-U)

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TEST REPORT

NOT FOR ADVERTISEMENT PURPOSES

Lab No.: CK/CL405/1559/20

Lab No.:	1559-3	1559-4	<i>Test Method</i>	<i>* Standard Limit</i>
<u>Parameter(s)</u>	W3 Date: 21/05/2020 Time: 2.25 pm	W4 Date: 21/05/2020 Time: 12.07 pm		
pH Value @ 25°C (in-situ / 21.05.2020)	8.32	6.37	APHA 4500-H B. 2017	6-9
Total Suspended Solids, mg/L	19.0	58.0	APHA 2540 D. 2017	50
Turbidity, NTU	18	16	APHA 2130 B. 2017	50
Biochemical Oxygen Demand in 5 days @ 20°C, mg/L	1.37	1.02	APHA 5210 B & 4500-O G. 2017	3
Oil & Grease, mg/L	<1.50	<1.50	APHA 5520 B. 2017	40:N, 7000:N
Chemical Oxygen Demand, mg/L	11.2	40.5	APHA 5220 C. 2017	25
Ammoniacal-Nitrogen (as NH ₃ -N), mg/L	0.23	0.17	APHA 4500-NH ₃ F. 2017	0.3

Date of commencement of BOD₅ analysis: 22nd May 2020

* Class IIB of National Water Quality Standards Malaysia.

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National Water Quality Standards for Malaysia

PARAMETER	UNIT	CLASS				
		I	IIA/IIIB	III*	IV	V
Al	mg/l	↑	-	(0.06)	0.5	↑
As	mg/l		0.05	0.4 (0.05)	0.1	
Ba	mg/l		1	-	-	
Cd	mg/l		0.01	0.01* (0.001)	0.01	
Cr (IV)	mg/l		0.05	1.4 (0.05)	0.1	
Cr (III)	mg/l		-	2.5	-	
Cu	mg/l		0.02	-	0.2	
Hardness	mg/l		250	-	-	
Ca	mg/l		-	-	-	
Mg	mg/l		-	-	-	
Na	mg/l		-	-	3 SAR	
K	mg/l		-	-	-	
Fe	mg/l		1	1	1 (Leaf) 5 (Others)	
Pb	mg/l		0.05	0.02* (0.01)	5	LEVELS
Mn	mg/l		0.1	0.1	0.2	
Hg	mg/l	N	0.001	0.004 (0.0001)	0.002	
Ni	mg/l	A	0.05	0.9*	0.2	
Se	mg/l	T	0.01	0.25 (0.04)	0.02	
Ag	mg/l	U	0.05	0.0002	-	
Sn	mg/l	R	-	0.004	-	ABOVE
U	mg/l	A	-	-	-	
Zn	mg/l	L	5	0.4*	2	
B	mg/l		1	(3.4)	0.8	
Cl	mg/l	L	200	-	80	
Cl ₂	mg/l	E	-	(0.02)	-	
CN	mg/l	V	0.02	0.06 (0.02)	-	IV
F	mg/l	L	1.5	10	1	
NO ₂	mg/l	S	0.4	0.4 (0.03)	-	
NO ₃	mg/l		7	-	5	
P	mg/l	O	0.2	0.1	-	
Silica	mg/l	R	50	-	-	
SO ₄	mg/l	A	250	-	-	
S	mg/l	B	0.05	(0.001)	-	
CO ₂	mg/l	S	-	-	-	
Gross-α	Bq/l	E	0.1	-	-	
Gross-β	Bq/l	N	1	-	-	
Ra-226	Bq/l	T	< 0.1	-	-	
Sr-90	Bq/l	A	< 1	-	-	
CCE	µg/l	B	500	-	-	
MBAS/BAS	µg/l	S	500	5000 (200)	-	
O & G (Mineral)	µg/l	E	40; N	N	-	
O & G (Emulsified Edible)	µg/l	N	7000; N	N	-	
PCB	µg/l		0.1	6 (0.05)	-	
Phenol	µg/l		10	-	-	
Aldrin/Dieldrin	µg/l		0.02	0.2 (0.01)	-	
BHC	µg/l		2	9 (0.1)	-	
Chlordane	µg/l		0.08	2 (0.02)	-	
1-DDT	µg/l		0.1	(1)	-	
Endosulfan	µg/l		10	-	-	
Heptachlor/Epoxide	µg/l		0.05	0.9 (0.06)	-	
Lindane	µg/l		2	3 (0.4)	-	
2, 4-D	µg/l		70	450	-	
2,4, 5-T	µg/l		10	160	-	
2,4, 5-TP	µg/l		4	850	-	
Paraquat	µg/l	↓	10	1800	-	

Notes :

* = At hardness 50 mg/l CaCO₃

= Maximum (unbracketed) and 24-hour average (bracketed) concentrations

N = Free from visible film sheen, discolouration and deposits

PARAMETER	UNIT	CLASS					
		I	IIA	IIB	III	IV	V
Ammoniacal Nitrogen	mg/l	0.1	0.3	0.3	0.9	2.7	> 2.7
Biochemical Oxygen Demand	mg/l	1	3	3	6	12	> 12
Chemical Oxygen Demand	mg/l	10	25	25	50	100	> 100
Dissolved Oxygen	mg/l	7	5-7	5-7	3-5	< 3	< 1
pH	-	6.5-8.5	6-9	6-9	5-9	5-9	-
Colour	TCU	15	150	150	-	-	-
Electrical Conductivity*	µS/cm	1000	1000	-	-	6000	-
Floatables	-	N	N	N	-	-	-
Odour	-	N	N	N	-	-	-
Salinity	%	0.5	1	-	-	2	-
Taste	-	N	N	N	-	-	-
Total Dissolved Solid	mg/l	500	1000	-	-	4000	-
Total Suspended Solid	mg/l	25	50	50	150	300	300
Temperature	°C	-	Normal + 2 °C	-	Normal + 2 °C	-	-
Turbidity	NTU	5	50	50	-	-	-
Faecal Coliform**	count/100 ml	10	100	400	5000 (20000) ^a	5000 (20000) ^a	-
Total Coliform	count/100 ml	100	5000	5000	50000	50000	> 50000

Notes :

N : No visible floatable materials or debris, no objectional odour or no objectional taste

* : Related parameters, only one recommended for use

** : Geometric mean

a : Maximum not to be exceeded

CLASS USES

- Class I Conservation of natural environment.
Water Supply I – Practically no treatment necessary.
Fishery I – Very sensitive aquatic species.
- Class IIA Water Supply II – Conventional treatment required.
Fishery II – Sensitive aquatic species.
- Class IIB Recreational use with body contact.
- Class III Water Supply III – Extensive treatment required.
Fishery III – Common, of economic value and tolerant species; livestock drinking.
- Class IV Irrigation
- Class V None of the above.

Extracted from Malaysia Environmental Quality Report, 2006 (DOE).