

# ASIAN FORESTRY COMPANY (SABAH) SDN. BHD.

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## ENVIRONMENTAL COMPLIANCE REPORT

For

**Proposed Industrial Tree Plantation (ITP) in Kota  
Marudu / Pitas District, Sabah by Begaraya  
Sdn. Bhd.**

**1<sup>st</sup> REPORT OF YEAR 2023**

DECEMBER 2022 - MARCH 2023	APRIL 2023 - JULY 2023	AUGUST 2023 – NOVEMBER 2023
√		

AEC Ref. No. : JPAS/PP/15/600 – 1/01/3/28  
Report Reference : CK/MO411/1351–1/23  
Date of Report : 2<sup>nd</sup> May 2023



**CHEMSAIN  
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ENVIRONMENTAL ENGINEERING  
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# ASIAN FORESTRY COMPANY (SABAH) SDN. BHD.

## ENVIRONMENTAL COMPLIANCE REPORT

### 1.0 INTRODUCTION

The Project is an Industrial Tree Plantation development located on the northern part of Sabah, within the District of Kota Marudu / Pitas.

The Project area comprises of an area of approximately 42,000 hectares (ha) of land which includes 37,800 ha of plantable areas and 4,200 ha of reserved areas for village reserve, Native Customary Rights (NCR) and conservation reserves [steep slope areas (>25°), riparian reserve, etc.].

However, the Project Proponent has been given the approval to carry out the ITP development within steep area of up to 32° which comprises of an additional plantable area of approximately 11,943 ha.

### 1.1 Monitoring Information

<b>Project Name:</b>	: Proposed Industrial Tree Plantation (ITP) in Kota Marudu / Pitas District, Sabah by Begaraya Sdn. Bhd.
<b>EIA Letter Reference No.</b>	: JPAS/PP/15/600-1/01/3/28(84) dated 14 <sup>th</sup> October 2009
<b>Monitoring Period</b>	: December 2022– March 2023
<b>Date of Monitoring</b>	: Compliance Audit Visit : 1-2 March 2023 Surface Water Sampling : 2 March 2023
<b>EIA Consultant</b>	: Chemsain Konsultant Sdn. Bhd.

### 1.2 Project Proponent Information

<b>Project Proponent</b>	: Asian Forestry Company (Sabah) Sdn. Bhd.
<b>Contact Person</b>	: Mr. Guy Thornton
<b>Tel. No.</b>	: 088 – 663494
<b>Fax No.</b>	: 088 – 662494
<b>Environmental Officer</b>	: Ms. Wilvia Olivia William
<b>Email</b>	: w.william@forestsolutions.com.my
<b>Contact No</b>	: 019 – 822 6958

### 1.3 Post – EIA Consultant Information

<b>Post – EIA Consultant</b>	: Chemsain Konsultant Sdn. Bhd.
<b>Tel. No.(Office)</b>	: 088 – 381 277 / 278
<b>Fax No.</b>	: 088 – 381 280
<b>Contact Person</b>	: Jessica Malagkas / Vianah Boman
<b>Designation</b>	: ESH Consultant / Section Head
<b>Email</b>	: jessica.malagkas@chemsain.com/vianah.boman@chemsain.com

## 1.4 Other Approvals

Development Plan Ref.	:	Nil
Earthwork Plan Ref.	:	Nil
Drainage Plan Ref.	:	Nil
ESCP Ref.	:	Nil

## 1.5 Project Status

Project Completion	:	Total planted area	:	4,840.20 ha
		Total logging	:	5,444.60 ha

\*Project progress status as of 30/11/2022.

\*\*It shall be noted that logging progress is subject to change. Currently, there is no field operation (ie no logging, planting and maintenance). Project activity covers minor road maintenance only.

\*\*\*A variance of 0.5 ha (in relative to previous Q1 progress update) due to adjustment of planting area progress report.

## Chronology of Events :

**Table 1.0: Chronology of Events**

No	Event	Date
1.	Signing of AEC Ref. No.: JPAS/PP/15/600-1/01/3/28	23 <sup>rd</sup> May 2012
2.	Request for amendment in the Approval Conditions regarding the colour of demarcations for River Reserve Areas, Boundaries of Slope with Gradients of 25° or more and Water Catchments Areas Ref. No.: CK/MO411-317/0159/11	30 <sup>th</sup> March 2011
3.	Submission of EIA Supplementary Report titled "Industrial Tree Plantation (ITP) in Kota Marudu/ Pitas Districts for Area on Slope 25 Degrees to 32 Degrees" Ref. No.: CK/EV413-4055/0178/14	7 <sup>th</sup> April 2014
4.	Additional Information for Supplementary Report Ref. No.: CK/EV413-4055/0393/14	30 <sup>th</sup> June 2014
5.	Additional Conditions for AEC Ref. No.: JPAS/PP/15/600-1/01/3/28 KLT. 2(22)	20 <sup>th</sup> August 2014
6.	Project Proponent's feedback to EPD to agree with Additional Conditions Ref. No.: AFCS/KM/14/09/241	12 <sup>th</sup> September 2014

## 2.0 LEGAL REQUIREMENT

The industrial tree plantation is classified as a prescribed activity under the **Second Schedule of the Environment Protection Enactment (Prescribed Activities) (Environmental Impact Assessment) Order 2005**, under **Activity 2 (ii)**:

### (2) FORESTRY

(i). *Development of forest plantation or restoration covering an area of 500 hectares or more.*

Under this Order, Environmental Compliance Report (ECR) is to be carried out **once in every four (4) months**, and reported in accordance with the Approval Conditions as specified in the **Syarat-Syarat Alam Sekitar (Seksyen 3 Subseksyen (1) dan (2) Enakmen Konservasi Alam Sekitar, 1996)** ref: JPAS/PP/15/600-1/01/3/28 dated 23<sup>rd</sup> May 2012 and the additional conditions as specified in the EPD letter ref: JPAS/PP/15/600-1/01/3/28 KLT.2(22) dated 20<sup>th</sup> August 2014.

## 3.0 CHANGES TO PROJECT CONCEPT / ENVIRONMENT

### 3.1 Project Concept

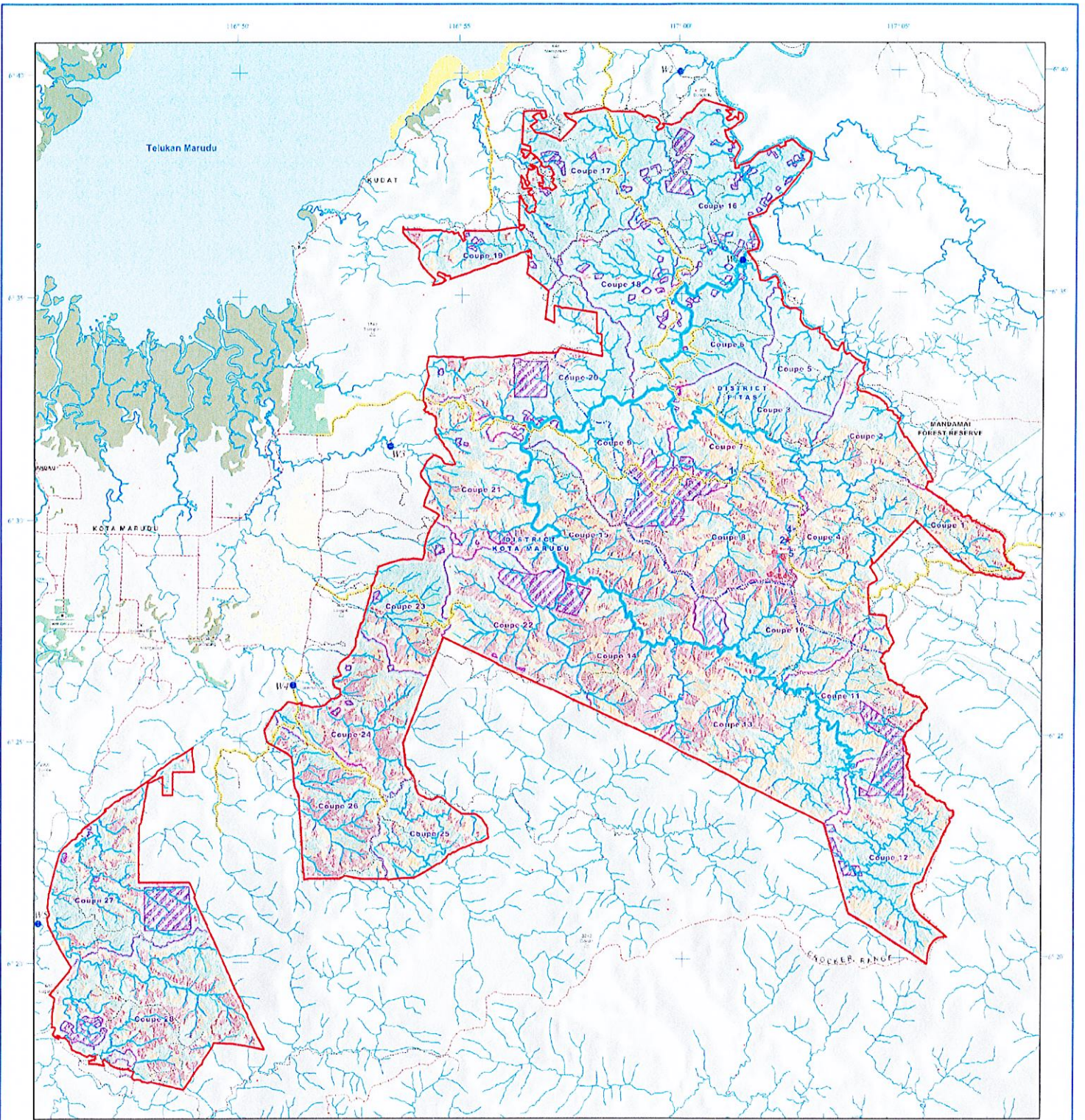
Table 2.0: Changes in Project Concept

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

### 3.2 Surrounding Environment

Table 3.0: Changes in Surrounding Environment

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



**LEGEND:**

- |                                   |                                              |                                  |
|-----------------------------------|----------------------------------------------|----------------------------------|
| Project Site Boundary             | Crocker Range Boundary                       | W/W/S Water Monitoring Locations |
| AFCS Office                       | Forest Reserve Boundary                      |                                  |
| AFCS Nursery                      | FMU2 Boundary                                |                                  |
| Gazebo                            | Project/Coupe Boundary                       |                                  |
| Village                           | Excised Area                                 |                                  |
| Trigonometry Stations             | Slope <25° (Plantable Area)                  |                                  |
| River Streams                     | Slope 25°-32° (Plantable Area - 11,943.5 Ha) |                                  |
| Riparian Buffer Zone (4,331.2 Ha) | Slope >32° (Protected Area - 10,125.7 Ha)    |                                  |
| Sea                               | Sand                                         |                                  |
| Public Road                       | Rubber                                       |                                  |
| Private Road                      | Swamp                                        |                                  |
| District Boundaries               | Paddy                                        |                                  |

**ENVIRONMENTAL MONITORING AND COMPLIANCE AUDIT**  
 Industrial Tree Plantation (ITP) in Kota Marudu/Pitas Districts  
 for Area on Slope 25 Degrees to 32 Degrees



**Mitigation and Monitoring Locations**

## 5.0 COMPLIANCE STATUS, OBSERVATION, CORRECTIVE ACTION & DATE OF COMPLETION

Nama Projek	: Proposed Industrial Tree Plantation (ITP) in Kota Marudu / Pitas District, Sabah by Begaraya Sdn. Bhd.
Nama Pemaju	: Asian Forestry Company (Sabah) Sdn. Bhd.
Rujukan fail jabatan ini	: JPAS/PP/15/600-1/01/3/28
Tarikh Akujanji	: 23 <sup>rd</sup> May 2012
Penyedia laporan pematuhan ini	: Chemsain Konsultant Sdn. Bhd.
Tempoh diliputi oleh laporan ini	: December 2022– March 2023

AEC No.	Approved Environmental Conditions (AEC)	Status	Observation / Comment	Photo No.	Corrective Action & Date of Completion
<b>5.1</b>	<b><u>Kawalan Kawasan Pembangunan</u></b>				
<i>i</i>	<i>Sempadan kawasan projek di daerah Kota Marudu dan Pitas hendaklah disukat sebelum aktiviti projek dimulakan. Penyukatank berkenaan disahkan oleh juruukur berdaftar di bawah Ordinan Juruukur 1960 (Surveyors Ordinance 1960).</i>	Comply	The Project boundary survey work had been previously done and submitted to EPD via the 3 <sup>rd</sup> <b>Environmental Monitoring and Compliance Audit Report (EMCAR) of 2012</b> (ref: CK/MO411/317-3/12).	-	-
<i>ii</i>	<i>Pelan penyukatank sempadan projek berkenaan hendaklah dikemukakan kepada JPAS bersama-sama dengan bacaan koordinat lalitud dan longitud sebelum aktiviti projek dimulakan.</i>	Comply	Refer to the comment in <b>AEC 5.1 (i)</b> .	-	-
<i>iii</i>	<i>Sempadan kawasan projek yang telah disukat, hendaklah ditanda di lapangan serta dipasang dengan papan tanda di lokasi-lokasi yang</i>	Comply	<ul style="list-style-type: none"> <li>▪ Project security guard house in place at the entrance of the project site, preventing unauthorised entry.</li> </ul>	1 to 3, 5	-



AEC No.	Approved Environmental Conditions (AEC)	Status	Observation / Comment	Photo No.	Corrective Action & Date of Completion
	<i>mudah dilihat sebelum aktiviti projek dimulakan.</i>		<ul style="list-style-type: none"> <li>▪ Blocks and coupes within the project site are demarcated with green signage.</li> <li>▪ The water catchment area within the site is also demarcated with signage.</li> </ul>		
<b>5.2</b>	<b><u>Hakisan Tanah dan Pemendapan Kelodak</u></b>				
<b>5.2.1</b>	<b><u>Kawalan Aktiviti Pemajuan Ladang Hutan</u></b>				
<i>i</i>	<i>Aktiviti pemajuan ladang dihadkan di kawasan yang ditandakan sebagai 'Plantable Area (0° – 25°)' seluas 24,556 hektar sebagaimana yang ditunjukkan di 'Figure 2.0' dalam maklumat tambahan rujukan CK/EV403-4090/0437/09 bertarikh 24 Ogos 2009.</i>	Not-Applicable	<ul style="list-style-type: none"> <li>• Approval from EPD to carry out planting activities on slopes of up to 32° (refer to EPD letter ref: <b>JPAS/PP/15/600-1/01/3/28 Klt. 2(22)</b> dated 20<sup>th</sup> August 2014) is received by the Project Proponent.</li> <li>• Slopes/steep areas (0° – 25°) are demarcated with signage onsite before ITP operations were carried out.</li> </ul>	<i>3 and 4</i>	-
<i>ii</i>	<i>Sebarang aktiviti pemajuan ladang hutan <b>tidak dibenarkan</b> di kawasan berkecerunan 25 darjah atau lebih, kawasan tadahan air dan kawasan perkampungan sebagaimana ditunjukkan di "Figure 2.0" dalam maklumat tambahan rujukan CK/EV403-4090/0437/09 bertarikh 24 Ogos 2009.</i>	Comply	<ul style="list-style-type: none"> <li>▪ Refer to the comments in <b>AEC No. 5.2.1 (i)</b>.</li> <li>▪ Water catchment or local settlement areas located onsite were off limits for ITP operations as sighted during the visit.</li> </ul>	<i>5</i>	-
<i>iii</i>	<i>Sempadan kawasan berkecerunan 25</i>	Comply	<ul style="list-style-type: none"> <li>▪ Refer to the comments in <b>AEC</b></li> </ul>	<i>2- 5 and</i>	-

<b>AEC No.</b>	<b>Approved Environmental Conditions (AEC)</b>	<b>Status</b>	<b>Observation / Comment</b>	<b>Photo No.</b>	<b>Corrective Action &amp; Date of Completion</b>
	<i>darjah atau lebih, kawasan tadahan air dan kawasan perkampungan ini hendaklah dilindungi dan disukat sebelum aktiviti pemajuan ladang hutan dimulakan di kawasan projek berkenaan dan hendaklah mencapai ketepatan pengukuran standard kelas ketiga.</i>		<b>No. 5.2.1 (i)</b> on slopes of up to 32°. <ul style="list-style-type: none"> <li>Demarcation of identified sensitive areas (i.e. water catchment area, settlement, communal area, riparian reserves etc.) located within the project areas were sighted in place during the visit.</li> </ul>	14	
iv	<i>Pelan penyukatan dengan skala minima 1:25,000 hendaklah dikemukakan kepada JPAS bersama dengan bacaan koordinat latitud dan longitud sebelum aktiviti pemajuan ladang hutan dimulakan di kawasan projek berkenaan.</i>	Comply	Refer to the comments in <b>AEC No. 5.1 (i)</b> .	-	
v.	<i>Sempadan kawasan berkecerunan 25 darjah atau lebih, kawasan tadahan air dan kawasan perkampungan yang telah disukat, hendaklah ditanda di lapangan dengan cat merah serta dipasang dengan papan tanda di lokasi-lokasi yang mudah dilihat sebelum aktiviti pemajuan ladang dimulakan di kawasan projek berkenaan.</i>	Comply	Refer to the comments in <b>AEC No. 5.2.1 (iii)</b> .	2 - 5 and 14	-
<b>5.2.2</b>	<b><u>Pembinaan Jalan</u></b>				
i	<i>Aktiviti pembinaan jalan dikawal dan gred jalan tidak melebihi 8 darjah (15%) untuk mengurangkan hakisan</i>	Comply	<ul style="list-style-type: none"> <li>No access road construction sighted during the visit, however, if any, earthwork will</li> </ul>	6 to 8	-

AEC No.	Approved Environmental Conditions (AEC)	Status	Observation / Comment	Photo No.	Corrective Action & Date of Completion
	<i>permukaan.</i>		be minimised as assured by the Project Proponent. <ul style="list-style-type: none"> <li>Existing access road were utilized as sighted during the visit.</li> </ul>		
ii	<i>Jalan hendaklah dibina dengan tidak melalui sungai atau anak sungai. Jambatan atau 'culvert' hendaklah dibina terlebih dahulu sekiranya pembinaan jalan perlu melalui sungai atau anak sungai.</i>	Comply	Bridges were constructed to enable stream crossing at the Project site.	-	-
iii	<i>Sistem perparitan hendaklah disediakan bagi mengalirkan air keluar dari struktur jalan dan dilencongkan ke kawasan yang mempunyai tumbuhan.</i>	Comply	Roadside earth drainage diverted towards vegetated areas.	6 to 8	-
iv	<i>Aktiviti pelupusan atau pembuangan bahan tanah lebihan (overburden) ke dalam sungai atau alur air adalah <b>tidak dibenarkan.</b></i>	Comply	Disposal of overburden into nearest natural waterways was not sighted during the site visit.	-	-
<b>5.2.3</b>	<b><u>Pembinaan Rumah Pekerja, Kem Pekerja atau Bengkel</u></b>				
i	<i>Rumah pekerja, kem pekerja atau bengkel hendaklah dibina dengan meminimalkan kerja-kerja tanah dan pembersihan kawasan.</i>	Comply	<ul style="list-style-type: none"> <li>Both the existing nursery and staff quarters within the base camp area were fully utilised.</li> <li>According to the Project Proponent, there is no workshop available within the project site and if needed, the services of an</li> </ul>	9 to 12	-

AEC No.	Approved Environmental Conditions (AEC)	Status	Observation / Comment	Photo No.	Corrective Action & Date of Completion
			external workshop would be utilized.		
ii	<i>Sistem perparitan yang berkesan hendaklah disediakan bagi mengawal larian air permukaan dan air buangan dari kawasan rumah pekerja, kem pekerja atau bengkel dan hendaklah dilencongkan ke kawasan yang mempunyai tumbuhan dan <b>tidak dibenarkan</b> dialir terus ke dalam sungai atau alur air.</i>	Comply	<ul style="list-style-type: none"> <li>▪ Surface runoff at the worker's quarters diverted into vegetated areas.</li> <li>▪ Surface runoff from the nursery and the staff quarters at the nursery was sighted diverted towards the sedimentation pond.</li> <li>▪ Refer to the comments in <b>AEC No. 5.2.3 (i)</b> on workshop.</li> </ul>	10, 12 and 13	-
iii	<i>Kedudukan rumah perkerja atau kem pekerja hendaklah terletak pada jarak mendatar tidak kurang <b>30 meter</b> dari tebing sungai atau alur air.</i>	Comply	<ul style="list-style-type: none"> <li>▪ The workers' quarters sighted located at least 30m away from the nearest natural waterways.</li> </ul>	9	-
iv	<i>Kedudukan bengkel hendaklah terletak pada jarak mendatar tidak kurang <b>50 meter</b> dari tebing sungai atau alur air.</i>	Not Applicable	<ul style="list-style-type: none"> <li>▪ Refer to the comments in <b>AEC No. 5.2.3 (i)</b> on workshop.</li> <li>▪ Nursery sighted located more than 50m away from any nearest natural waterways.</li> </ul>	11	-
v	<i>Semua rumah pekerja, kem pekerja atau bengkel sedia ada yang tidak mematuhi peraturan-peraturan yang dinyatakan dalam syarat-syarat alam sekitar ini, hendaklah dipindah dan dikawal sebagaimana yang ditetapkan.</i>	Comply	Siting of onsite facilities are in compliance with the <b>AEC</b> .	-	-

AEC No.	Approved Environmental Conditions (AEC)	Status	Observation / Comment	Photo No.	Corrective Action & Date of Completion						
5.2.4	<b><u>Rehabilitasi Kawasan</u></b>										
i	Semua kawasan tanah dan cerun yang terdedah hendaklah direhabilitasi dan distabilkan dengan segera.	Not Applicable	According to the Project Proponent, rehabilitation is applicable as it will only be carried out on degraded area/land.	-	-						
ii	Kawasan terdedah hendaklah direhabilitasi dengan menanam spesies tumbuhan yang diluluskan oleh Jabatan Perhutanan.	Not Applicable	Refer to the comments in AEC No. 5.2.4 (i).	-	-						
5.3	<b><u>Kawalan Pencemaran Kualiti Air</u></b>										
5.3.1	<b><u>Perlindungan Sungai</u></b>										
i	<p>Simpanan sungai seperti berikut hendaklah dilindungi, disukat dan ditanda di lapangan:</p> <table border="1"> <thead> <tr> <th>Sungai</th> <th>Simpanan Sungai</th> </tr> </thead> <tbody> <tr> <td>Sungai Bengkoka, Sungai Kinaram, Sungai Nibang, Sungai Tandek dan semua sungai lain yang mempunyai kelebaran 3 meter atau lebih.</td> <td>Sekurang-kurangnya selebar <b>20 meter</b> pada jarak mendatar dari tebing sungai.</td> </tr> <tr> <td>Semua sungai dan anak sungai yang mempunyai kelebaran kurang daripada 3 meter.</td> <td>Sekurang-kurangnya selebar <b>5 meter</b> pada jarak mendatar dari tebing sungai.</td> </tr> </tbody> </table>	Sungai	Simpanan Sungai	Sungai Bengkoka, Sungai Kinaram, Sungai Nibang, Sungai Tandek dan semua sungai lain yang mempunyai kelebaran 3 meter atau lebih.	Sekurang-kurangnya selebar <b>20 meter</b> pada jarak mendatar dari tebing sungai.	Semua sungai dan anak sungai yang mempunyai kelebaran kurang daripada 3 meter.	Sekurang-kurangnya selebar <b>5 meter</b> pada jarak mendatar dari tebing sungai.	Comply	Signage as well as trees marked with blue paint utilised to demarcate Riparian Reserves.	14	-
Sungai	Simpanan Sungai										
Sungai Bengkoka, Sungai Kinaram, Sungai Nibang, Sungai Tandek dan semua sungai lain yang mempunyai kelebaran 3 meter atau lebih.	Sekurang-kurangnya selebar <b>20 meter</b> pada jarak mendatar dari tebing sungai.										
Semua sungai dan anak sungai yang mempunyai kelebaran kurang daripada 3 meter.	Sekurang-kurangnya selebar <b>5 meter</b> pada jarak mendatar dari tebing sungai.										

AEC No.	Approved Environmental Conditions (AEC)	Status	Observation / Comment	Photo No.	Corrective Action & Date of Completion
ii	<i>Sempadan simpanan sungai hendaklah disukat sebelum aktiviti pemajuan ladang hutan dimulakan di kawasan projek berkenaan dan hendaklah mencapai ketepatan pengukuran standard kelas tiga.</i>	Comply	According to the Project Proponent, the boundary survey plan for riparian reserve had been previously submitted to the EPD during EIA stage.	-	-
iii	<i>Pelan penyukatan simpanan sungai dengan skala minima 1:25,000 hendaklah dikemukakan kepada JPAS bersama-sama dengan bacaan koordinat latitud dan longitud sebelum aktiviti pemajuan ladang hutan dimulakan di kawasan projek berkenaan.</i>	Comply	Refer to the comment in <b>AEC No. 5.3.1 (ii)</b> .	-	-
iv	<i>Sempadan simpanan sungai yang telah disukat, hendaklah ditanda di lapangan dengan cat merah serta dipasang dengan papan tanda di lokasi-lokasi yang mudah dilihat sebelum aktiviti pemajuan ladang kelapa sawit dimulakan di kawasan projek berkenaan.</i>	Comply	Refer to the comment in <b>AEC No. 5.3.1 (i)</b> .	14	-
v	<i>Sebarang aktiviti pemajuan ladang hutan <b>tidak dibenarkan</b> di simpanan sungai ini.</i>	Comply	ITP development within the Riparian Reserves was not sighted during the site visit.	-	-
vi.	<i>Sebarang pembinaan rumah pekerja, kem pekerja, bengkel, tandas atau struktur bangunan lain <b>tidak dibenarkan</b> di simpanan sungai ini.</i>	Comply	Construction of structures within the riparian reserves was not sighted during the site visit.	-	-

AEC No.	Approved Environmental Conditions (AEC)	Status	Observation / Comment	Photo No.	Corrective Action & Date of Completion
vii.	Sebarang peyimpanan bahan minyak atau bahan toksik <b><u>tidak dibenarkan</u></b> di simpanan sungai ini.	Comply	Storage of oil and toxic material within the riparian reserves was not sighted during the site visit.	-	-
viii.	Sebarang bahan tanah lebihan, sisa tumbuhan, sisa pepejal, kumbahan, bahan minyak, kimia atau bahan-bahan toksik <b><u>tidak dibenarkan</u></b> dilupuskan di simpanan sungai, di dalam sungai atau alur air.	Comply	Disposal of overburden or any types of wastes (i.e. vegetative wastes, solid wastes, sewage, oily, chemical or toxic wastes, etc.) within the riparian reserve or nearest natural waterways was not sighted during the site visit.	-	-
<b>5.3.2</b>	<b><u>Kualiti Air Sungai</u></b>				
i.	Semua bahan agro-kimia hendaklah disimpan dan dikendalikan dengan cermat. Pemilihan racun perosak, teknik penggunaan, isipadu penyemburan dan masa penyemburan hendaklah berdasarkan syor oleh pengilang.	Comply	<ul style="list-style-type: none"> <li>▪ Fertilizer and pesticide sighted stored at designated storage shed (i.e. steel storage containers) within the Project site.</li> <li>▪ According to the Project Proponent, at the current project stage of maintenance, stored fertilizers are only utilised for nursery crops.</li> </ul>	15, 17, 18	-
ii.	Penggunaan bahan agro-kimia hendaklah dikawal dan berdasarkan isipadu dan jadual yang ditetapkan.	Comply	Pesticides records detailing usage, frequency, and quantity of agro-chemicals utilised, are kept at the nursery office.	-	-
iii.	Penggunaan racun perosak hendaklah diminimakan dan dihadkan kepada jangkitan yang serius sahaja.	Comply	According to the Project Proponent, pesticides will only be utilised as and when necessary.	-	-

<b>AEC No.</b>	<b>Approved Environmental Conditions (AEC)</b>	<b>Status</b>	<b>Observation / Comment</b>	<b>Photo No.</b>	<b>Corrective Action &amp; Date of Completion</b>
iv.	<i>Penggunaan bahan agro-kimia dan racun perosak pada waktu hujan hendaklah dielakkan.</i>	Comply	The Project Proponent duly noted and assured to adhere to this condition.	-	-
v.	<i>Penggunaan bahan agro-kimia hendaklah mematuhi peraturan di bawah Akta Racun Perosak 1974.</i>	Comply	According to the Project Proponent, the usage of the agrochemicals is in accordance to the Pesticides Act 1974.	-	-
5.3.3.5	<i>Laporan pemantauan kualiti air sungai dikemukakan kepada JPAS.</i>	Comply	<ul style="list-style-type: none"> <li>▪ Water sampling activities were carried out at monitoring location <b>W1</b> and <b>W2</b> as per <b>Figure 1.0</b>.</li> <li>▪ No water sampling carried out at locations <b>W3</b> – <b>W5</b> as Project development had yet to progress at areas affecting these sampling sites.</li> </ul>	19, 20	-
<b>5.4</b>	<b><u>Pemajuan Ladang Hutan Secara Berfasa</u></b>				
i	<i>Operasi pemajuan ladang hutan hendaklah dilaksanakan secara berperingkat / berfasa dab terancang sebagaimana yang dinyatakan di bawah perkara 2.6 dan ditunjukkan di "Figure 3.0" dalam maklumat tambahan rujukan CK/EV403-400/0437/09 bertarikh 24 Ogos 2009.</i>	Comply	<ul style="list-style-type: none"> <li>▪ Project development is carried out in phases (i.e. by coupes)</li> <li>▪ According to the Project Proponent, current Project activity is confined to maintenance of the plantation without harvesting (i.e. weeds/grasses slicing).</li> </ul>	-	-
ii	<i>Pelan pengurusan pemajuan ladang hutan disediakan dan dilaksanakan serta satu salinan pelan dikemukakan</i>	Comply	According to the Project Proponent, the Forest Plantation Development Management Plan had been	-	-



AEC No.	Approved Environmental Conditions (AEC)	Status	Observation / Comment	Photo No.	Corrective Action & Date of Completion
	kepada JPAS.		previously submitted to the EPD.		
iii	Aktiviti pembersihan dan pembukaan kawasan ladang hendaklah dijalankan pada musim kering.	Comply	The Project Proponent duly noted and assured to adhere to this condition as per required.	-	-
<b>5.5</b>	<b><u>Bahan Minyak dan Sisa Toksik</u></b>				
i	Bahan minyak dan sisa toksik yang digunakan dalam projek ini adalah <b>tidak dibenarkan</b> dilupuskan atau dibiarkan mengalir ke dalam parit, sungai atau alur air.	Comply	Disposal of any types of oil and toxic material into the nearest natural waterways was not sighted during the site visit.	-	-
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"> <li>▪ Diesel supply within the project site is contained inside a metal skid tank as sighted during the visit.</li> <li>▪ Generator-set room sighted equipped with perimeter bund wall and concrete flooring.</li> <li>▪ Lubricant, petrol and spent oils sighted stored inside the storage shed.</li> </ul>	21, 24, 26	-
iii	Kawasan penyimpanan bahan minyak dan sisa toksik tersebut hendaklah terlindung dari hujan dan hendaklah terletak pada jarak mendatar tidak kurang <b>50 meter</b> dari tebing sungai atau alur air.	Comply	<ul style="list-style-type: none"> <li>▪ The diesel skid tank, gen-set house and oils storage shed sited within the base camp area sighted properly sheltered.</li> <li>▪ All these facilities are located more than 50m away from the nearest natural waterways.</li> </ul>	21, 23, 26	-
iv	Kawasan penyimpanan bahan minyak	Comply	<ul style="list-style-type: none"> <li>▪ The diesel skid tank, generator-</li> </ul>	21, 22,	-

AEC No.	Approved Environmental Conditions (AEC)	Status	Observation / Comment	Photo No.	Corrective Action & Date of Completion
	<i>dan sisa toksik hendaklah disediakan dengan sistem saliran serta perangkap minyak.</i>		set room and the oily material storage shed are bunded and equipped with concrete floor. <ul style="list-style-type: none"> <li>The diesel skid tank's refuelling nozzle is affixed inside a concrete containment bund filled with sand preventing accidental leakage from seeping directly into the ground.</li> </ul>	24, 26	
v	<i>Bahan minyak dan sisa toksik dilupus mengikut garis panduan, peraturan atau undang-undang kerajaan yang sedang berkuatkuasa.</i>	Comply	Disposal of scheduled waste will be carried out by a DOE licensed service provider.	-	-
<b>5.6</b>	<b><u>Pengurusan Bahan Sisa Buangan</u></b>				
<b>5.6.1</b>	<b><u>Bahan Sisa Pepejal dan Sisa Biomas</u></b>				
i	<i>Sebarang aktiviti pelupusan bahan sisa pepejal dan sisa biomas <b>tidak dibenarkan</b> ke dalam sungai atau alur air.</i>	Comply	Disposal of solid waste or biomass into natural waterways was not sighted during the site visit.	-	-
ii	<i>Semua sisa pepejal dan sisa biomas hendaklah dikumpul dan dilupuskan di kawasan yang terletak pada jarak mendatar tidak kurang <b>30 meter</b> dari tebing sungai atau alur air.</i>	Comply	<ul style="list-style-type: none"> <li>The Project's dumping site is located at least 50m away from the nearest natural waterway, with perimeter fencing in place to prevent animals from food - scavenging.</li> <li>General waste bin is provided near the staff quarters at the base camp area.</li> <li>Biomass waste was left in-situ at</li> </ul>	27, 31	-

AEC No.	Approved Environmental Conditions (AEC)	Status	Observation / Comment	Photo No.	Corrective Action & Date of Completion
			ITP area for natural decomposition.		
iii	<i>Pembakaran sisa biomas adalah dilarang. Semua sisa biomas hendaklah dibiarkan mereput secara semulajadi.</i>	Comply	Refer to the comments in <b>AEC 5.6.1 (ii)</b> .	-	-
iv.	<i>Semua bahan sisa pepejal seperti tin, botol, plastik dan besi hendaklah dikumpul secara berasingan dan dikitar semula.</i>	Comply	Garbage bins sighted provided to facilitate proper solid waste disposal, where minimal recyclable volume is produced due to less workers during Project's maintenance phase of development.	31	-
v.	<i>Sekiranya tiada kawasan pelupusan yang sesuai dalam kawasan Projek, bahan sisa pepejal tersebut hendaklah dilupuskan di kawasan yang disediakan oleh pihak berkuasa tempatan yang berkaitan.</i>	Not Applicable	Refer to comments in <b>AEC No. 5.6.1 (ii)</b> .	-	
<b>5.6.2</b>	<b><u>Bahan Sisa Kumbahan</u></b>				
i	<i>Kemudahan pengumpulan dan perawatan kumbahan terutama bagi kawasan rumah pekerja hendaklah disediakan. Had pelepasan effluen kumbahan hendaklah mematuhi sekurang-kurangnya <b>Standard B, Peraturan-Peraturan Kualiti Alam Sekeliling (Kumbahan dan Efluen Perindustrian) 1979.</b></i>	Comply	Toilets located near the nursery and worker's quarters equipped with septic tanks.	28	-

AEC No.	Approved Environmental Conditions (AEC)	Status	Observation / Comment	Photo No.	Corrective Action & Date of Completion
ii	Sebarang pelepasan atau pelupusan terus bahan kumbahan <b>tidak dibenarkan</b> ke dalam mana-mana parit, alur air atau sungai.	Comply	Disposal of sewage material into natural waterways was not sighted during the site visit.	-	-
<b>5.7</b>	<b><u>Kawalan Kebakaran Hutan</u></b>				
i	Sebarang aktiviti pembakaran terbuka adalah <b>tidak dibenarkan</b> .	Comply	<ul style="list-style-type: none"> <li>▪ Open burning was not sighted during the site visit.</li> <li>▪ Signage prohibiting open burning was installed at the guard house (i.e. entrance gate).</li> </ul>	29	-
ii	Kawalan risiko kebakaran hutan hendaklah dilaksanakan sepenuhnya, sebagaimana yang dinyatakan pada perkara 2.5 dalam maklumat tambahan rujukan CK/EV403-4090/0437/09 bertarikh 24 Ogos 2009.	Comply	<ul style="list-style-type: none"> <li>▪ All the necessary mitigation measures have been properly carried out by the Project Proponent, as required.</li> <li>▪ Firefighting depot in place near the nursery, prepared to respond to occurrence of forest fire.</li> <li>▪ Fire indicator signage is also in place for notification purposes.</li> </ul>	30 and 31	-
iii	Pelan pengurusan dan pencegahan kebakaran hutan hendaklah disediakan dan satu salinan pelan tersebut hendaklah dikemukakan kepada JPAS.	Comply	According to the Project Proponent, the Forest Fire Prevention and Management Plan had been previously submitted to the EPD.	-	-

AEC No.	Approved Environmental Conditions (AEC)	Status	Observation / Comment	Photo No.	Corrective Action & Date of Completion
5.8	<b><u>Penghentian Projek</u></b>				
i	<i>Semua Struktur binaan yang tidak digunakan hendaklah dibuka secara teratur apabila berlaku penghentian Projek tersebut.</i>	Not Applicable	Not applicable at the current stage of development.	-	-
ii	<i>Semua struktur binaan yang didapati tidak selamat atau yang tidak dapat dipastikan selamat, hendaklah dibuka.</i>	Not Applicable	Refer to the comment in <b>AEC No. 5.8 (i)</b> .	-	-

## 6.0 COMPLIANCE STATUS, OBSERVATION, CORRECTIVE ACTION & DATE OF COMPLETION [ADDITIONAL CONDITIONS]

Nama Projek	: Proposed Industrial Tree Plantation (ITP) in Kota Marudu / Pitas District, Sabah by Begaraya Sdn. Bhd.
Nama Pemaju	: Asian Forestry Company (Sabah) Sdn. Bhd.
Rujukan fail jabatan ini	: JPAS/PP/15/600-1/01/3/28 klt.2(22)
Tarikh	: 20 <sup>th</sup> August 2014
Penyedia laporan pematuhan ini	: Chemsain Konsultant Sdn. Bhd.
Tempoh diliputi oleh laporan ini	: December 2022– March 2023

AEC No.	Approved Environmental Condition	Status	Observation / Comment	Photo No.	Recommendations
<b>1.0</b>	<b><u>Aktiviti Pembangunan ITP Dalam Kawasan 25° hingga 32°</u></b>				
<b>1.1</b>	<b><u>Kawalan Kawasan Pembangunan ITP</u></b>				
<i>i</i>	<i>Sempadan projek pembangunan ITP seluas 11,943.5 hektar sebagaimana yang dinyatakan pada perkara "3.7" dan ditunjukkan pada "Figure 3.7.1" dalam "supplementary report" rujukan CK/EV413-4054/13 10 April 2014 hendaklah ditanda dengan jelas di lapangan dan dipasang dengan papan tanda di lokasi-lokasi yang mudah dilihat sebelum aktiviti penanaman dimulakan.</i>	Comply	Signage (in yellow) demarcating identified high-risk, erosion prone areas with slopes >25° within the ITP development area, sighted in place during the site visit.	32	-
<i>ii</i>	<i>Kawasan-kawasan sensitif seperti kawasan "steep area" (kecerunan &gt;32° dan ke atas) dan kawasan simpanan sungai hendaklah ditanda dengan jelas di lapangan dan dipasang dengan</i>	Comply	<ul style="list-style-type: none"> <li>Sensitive areas (i.e. riparian reserve, steep area with gradient &gt;32°, etc.) located within the ITP development area were provided with buffer zones.</li> </ul>	33 and 14	-

AEC No.	Approved Environmental Condition	Status	Observation / Comment	Photo No.	Recommendations
	<i>papan tanda di lokasi-lokasi yang mudah dilihat sebelum aktiviti penanaman dimulakan.</i>		<ul style="list-style-type: none"> <li>▪ Buffer zone sighted demarcated with yellow signage.</li> </ul>		
iii	<i>Sebarang aktiviti "salvage logging" dan pembersihan kawasan adalah di larang di kawasan sensitif sebagaimana yang ditunjukkan pada "Figure 6.3.1" dalam "supplementary report" CK/EV413-4054/13 bertarikh 10 April 2014.</i>	Comply	Refer to the comments in <b>AEC No. 1.1 (ii)</b> .	33 and 14	-
iv.	<i>Semua sungai dan alur air dalam kawasan projek hendaklah disediakan kawasan simpanan sungai dengan kelebaran sebagaimana yang dinyatakan pada perkara "3.9.1.6" dan Jadual "3.9.1" dalam "supplementary report" CK/EV413-4054/13 bertarikh 10 April 2014.</i>	Comply	<ul style="list-style-type: none"> <li>▪ Identified streams/rivers within the Project site were provided with riparian reserve.</li> <li>▪ Signage and trees marked with blue paint utilised to demarcate riparian reserves.</li> </ul>	14	-
<b>1.2</b>	<b><u>Kawalan Aktiviti Pembangunan ITP</u></b>				
i	<i>Aktiviti "salvage logging" dan pembersihan kawasan pembangunan ITP hendaklah dilaksanakan secara berfasa bagi mengawal impak hakisan tanah dan pendedahan kelodak.</i>	Comply	Project development is carried out in phases.	-	-
ii	<i>Sisa biomas dari pembersihan hendaklah ditinggalkan di kawasan cerun sedia ada untuk melindungi permukaan tanah dari terhakis.</i>	Comply	Biomass generated from the site clearing activity was left spread out on exposed surface in-situ for natural decomposition.	-	-
iii	<i>Semua kawasan yang terdedah yang tidak terlibat dengan aktiviti projek</i>	Comply	Vegetation within areas not involved with ITP development was	32	-

AEC No.	Approved Environmental Condition	Status	Observation / Comment	Photo No.	Recommendations
	<i>tersebut hendaklah ditanam dengan rumput, pokok atau tumbuhan tutup bumi untuk mengurangkan hakisan tanah.</i>		retained to reduce the risk of soil erosion.		
iv	<i>Semua langkah kawalan dan mitigasi sebagaimana yang dinyatakan di perkara "5.2.1" dalam "supplementary report" CK/EV413-4054/13 bertarikh 10 April 2014 hendaklah dilaksanakan.</i>	Comply	All necessary mitigation measures have been properly carried out as assured by the Project Proponent.	-	-

## 7.0 CONCLUSION



### 7.1 Overall Compliance for December 2022– March 2023

The Project (*Industrial Tree Plantation (ITP) in Kota Marudu/ Pitas District, Sabah*) generally complied with the EIA approval conditions, without any **non-compliance** recorded.



### 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 : THONDIK VENANTIUS  
Jawatan : PROJECTS DIRECTOR  
Tarikh : 2 MAY 2023  
Cop Rasmi syarikat : 

### 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 : Jessica Malagkas  
Tarikh : 2 May 2023  
Cop Rasmi syarikat : 

# APPENDIX B

Environmental Monitoring Report



## 1.0 SURFACE WATER MONITORING

### 1.1 MONITORING LOCATION

Surface water sampling was scheduled to be carried out on the 2<sup>nd</sup> March 2023 at five (5) monitoring locations, **W1** to **W5** as shown in **Figure 1.0**. However, no water sampling was conducted at locations **W3** – **W5**, as project development has yet to progress into these areas.

The weather was generally fine during the sampling session; however it had rained heavily the day prior to scheduled sampling date.

### 1.2 SURFACE WATER

Surface water quality monitoring was designed to determine the chemical and physical characteristics of water at the designated monitoring location shown in **Figure 1.0**. Water samples were collected, preserved and transported to the lab for analysis.

Parameters of interest includes *pH* value, Dissolved Oxygen (DO), Total Suspended Solids (TSS), Oil & Grease (O&G), Turbidity, Total Coliform Count (TCC) and Faecal Coliform Count (FCC). Analytical methodologies for these parameters are summarised in **Table 5.0**.

**Table 5.0:** Analytical methodologies

Parameter	Method Reference
<i>pH</i> Value	APHA 4500-H+ B, 2017
Dissolved Oxygen (DO)	APHA 4500-O G, 2017
Total Suspended Solids (TSS)	APHA 2540 D, 2017
Oil & Grease	APHA 5520 B, 2017
Turbidity	APHA 2130 B, 2017
Total Coliform Count (TCC)	APHA 9221 B, 2017
Faecal Coliform Count (FCC)	APHA 9221 E, 2005

### 1.3 RESULTS

Surface water quality results tabulated in **Table 6.0** are compared against **Class IIB** of **National Water Quality Standards for Malaysia (NWQSM)**.

**Charts 1.0 – 7.0** present the historical water quality results for monitoring location **W1** and **W2**.

Test reports are presented in **Appendix C**.

Table 6.0: Surface water quality results

Monitoring Location	W1	W2	<sup>1</sup> Limit (Class IIB)
Monitoring Date Sampling Time	2/03/2023 1:28 PM	2/03/2023 12:30 PM	
<b><u>Physical / Chemical Analysis</u></b>			
pH ( <i>in-situ</i> )	6.8	6.9	6 – 9
Dissolved Oxygen (DO), mg/L ( <i>in-situ</i> )	5.5	5.1	5 – 7
Turbidity, NTU	<b><u>110</u></b>	45	50
Total Suspended Solids (TSS), mg/L	<b><u>113</u></b>	41	50
Oil and Grease, mg/L	<1.5	<1.5	N
<b><u>Microbiological Analysis</u></b>			
Total Coliform Count (TCC), MPN/100mL	<b><u>9200</u></b>	<b><u>5400</u></b>	5000
Faecal Coliform Count (FCC), MPN/100mL	<b><u>9200</u></b>	<b><u>3500</u></b>	400

Note: < > = Below / above detection limit

**Bold and underlined** = above limit

Surface water quality results for **W1** and **W2** show Project parameters comply with the **National Water Quality Standards for Malaysia, Class IIB**, and exception for Turbidity and TSS at **W1** as well as TCC and FCC content at **W1 and W2**, which are **above** the standard limit.

Elevated turbidity and TSS levels of the river water could be attributed by increased surface runoff laden with dirt / eroded soil due to prevailing heavy rain events prior to sampling date. The released of dirt/soil can settle out across the water body, giving a cloudy appearance, hence leading to high turbidity and TSS levels.

Faecal coliforms count (FCC) is defined as the total coliforms that are present specifically in the gut and faeces of warm-blooded animals. FCC in river water quality is possibly contributed by faecal matter from wildlife as well as from nearby community settlements and shifting agriculture occurring nearby the water sampling locations, which are washed into the river from rain events. This is deemed beyond the Project Proponent's control.

#### 1.4 RECOMMENDED MITIGATION MEASURES

- Construction of sedimentation pond or drainage system within existing waterway or river reserve is strictly prohibited.
- Vegetation clearing shall be carried out in stages and confined to areas that are essential for Project development. Existing vegetation shall be retained to reduce runoff velocity and act as a natural barrier to minimize soil erosion.
- Re-vegetation or planting of cover crops shall be carried out in tandem with the field establishment works. This is to avoid prolonged and unnecessary exposure of bare ground elements such as rainfall, wind and surface runoffs.
- Usage of agro-chemical is minimized and strictly adhered to the rules and regulations as stipulated under the Pesticides Act 1974. Disposal of agro-chemicals such as pesticide and herbicide into existing stream or any waterway is strictly prohibited.

<sup>1</sup> National Water Quality Standards for Malaysia (NWQSM)



# HISTORICAL WATER QUALITY RESULTS

Chart 1.0: Four-monthly pH Level at Monitoring Locations W1 - W5

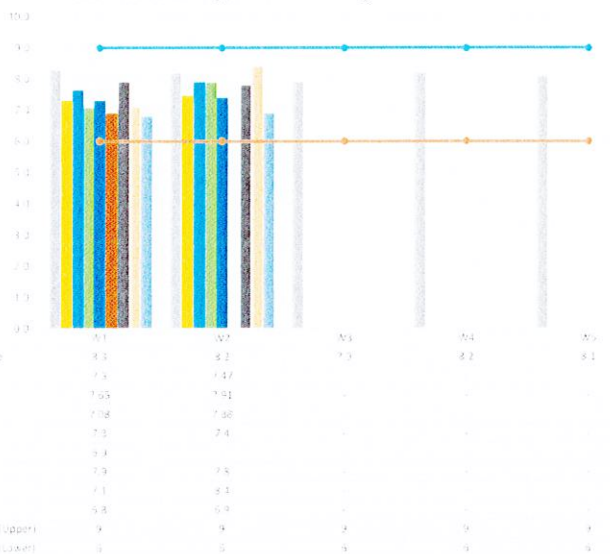


Chart 2.0: Four-monthly DO Concentration at Monitoring Locations W1 - W5

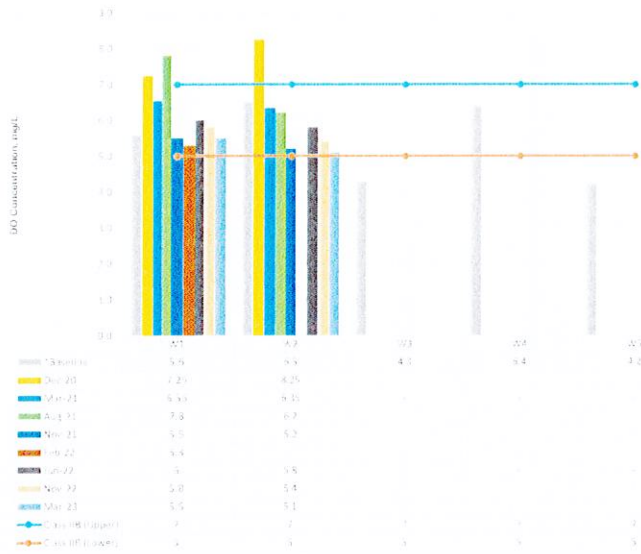


Chart 3.0: Four-monthly NTU Level at Monitoring Locations W1 - W5

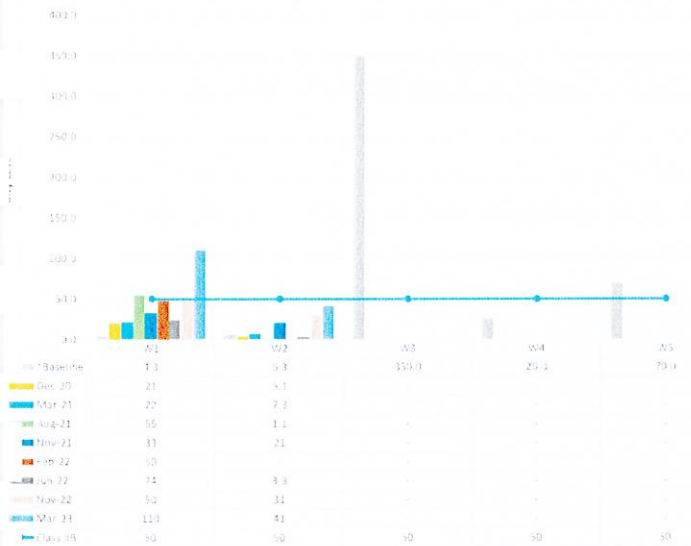


Chart 4.0: Four-monthly TSS Concentration at Monitoring Locations W1 - W5

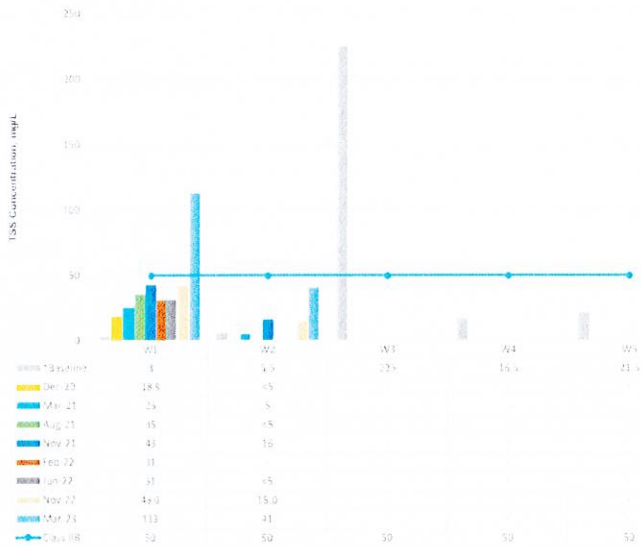
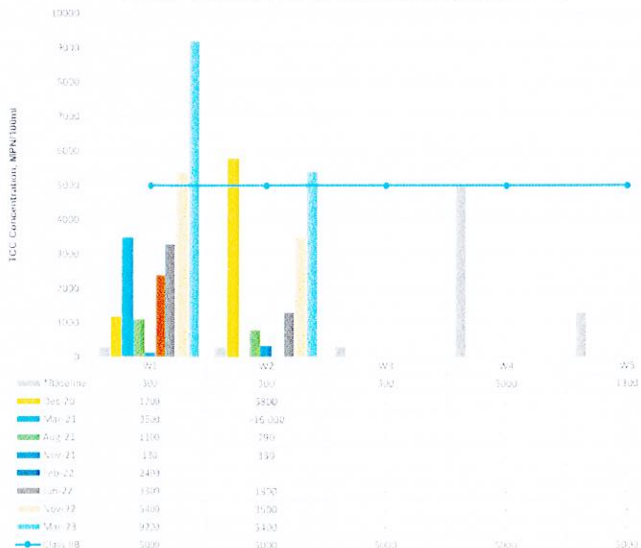


Chart 5.0: Four-monthly O&G Concentration at Monitoring Locations W1 - W5

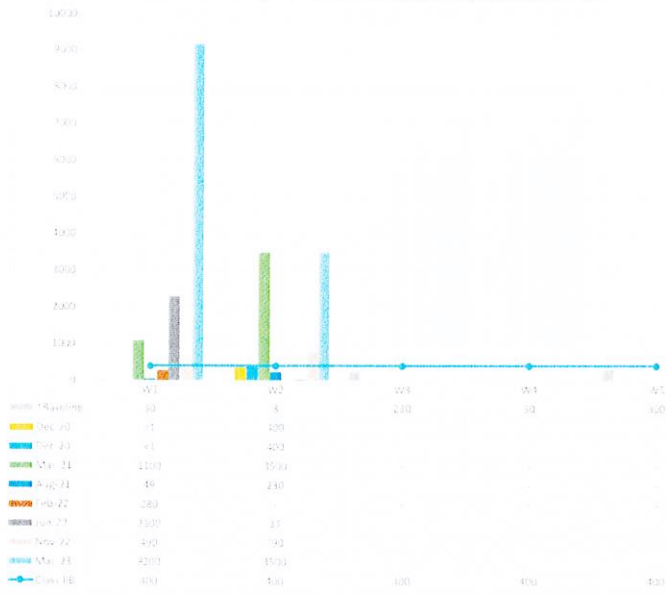


Chart 5.0: Four-monthly TCC Concentration at Monitoring Locations W1 - W5



# HISTORICAL WATER QUALITY RESULTS

Chart 7.9: Four-monthly FCC Concentration at Monitoring Locations W1 - W5



Note: \* Baseline data adapted from EIA for Proposed Industrial Tree Planting (ITP) In Kota Marudu / Pitas District, Sabah by Begaraya Sdn. Bhd. by Chemsain Konsultant Sdn. Bhd.



# APPENDIX C

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





## Test Report

\*Not for Advertisement Purposes\*

Customer : Asian Forestry Company (Sabah) Sdn Bhd  
Lot A6, Taman T & G 3  
Jalan Lotong, 89108 Kota Marudu, Sabah

Lab No. : CK/CL405/1035/23  
Type (No.) of Sample : River Water (2)  
Date Received : 03<sup>rd</sup> March 2023  
Date of Report : 21<sup>st</sup> March 2023  
Project Code : CK/MO411/1351/23

Lab No.:	1035-1	1035-2	Test Method	* Standard Limit
Parameter(s)	W1 Date: 02/03/23 Time: 1.28 pm	W2 Date: 02/03/23 Time: 12.30 pm		
pH Value	6.8	6.9	APHA 4500-H* B, 2017	6-9
Dissolved Oxygen, mg/L	5.5	5.1	APHA 4500-O G, 2017	5-7
Turbidity, NTU	110	45	APHA 2130 B, 2017	50
Total Suspended Solids, mg/L	113	41.0	APHA 2540 D, 2017	50
Oil & Grease, mg/L	<1.5	<1.5	APHA 5520 B, 2017	N

\* Class IIB of Interim National Water Quality Standards of Malaysia

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ChM. HO LI SIN  
B. Sc. (Hons)  
MMIC (5196/7297/16/19)  
CHEMIST



Note:

1. This Test Report shall not be reproduced, except in full, without the approval of the laboratory.
2. The above result(s) apply to the sample(s) as received.
3. The above result(s) relate only to the sample tested.





### Test Report

\*Not for Advertisement Purposes\*

Customer	: Asian Forestry Company (Sabah) Sdn Bhd	Lab No.	: CK/ML405/1036/23
	Lot A6, Taman T & G 3	Type (No.) of Sample	: River Water (2)
	Jalan Lotong, 89108 Kota Marudu, Sabah	Date Received	: 03 <sup>rd</sup> March 2023
		Date of Report	: 15 <sup>th</sup> March 2023
		Project Code	: CK/MO411/1351/23

Lab No.:	1036-1	1036-2	Test Method	* Standard Limit
Parameter(s)	W1 Date: 02/03/23 Time: 1.28 pm	W2 Date: 02/03/23 Time: 12.30 pm		
Total Coliform Count MPN/100ml, 35±0.5°C/48 h	9.2 x 10 <sup>3</sup>	5.4 x 10 <sup>3</sup>	APHA 9221 B, 2017	5,000
Faecal Coliform Count MPN/100ml, 44.5±0.2°C/24 h	9.2 x 10 <sup>3</sup>	3.5 x 10 <sup>3</sup>	APHA 9221 E, 2005	400

\* Class IIB of Interim National Water Quality Standards of Malaysia

----- End -----

STEPHANIE EVERT JOLE  
M. Sc.  
MJMM0369  
MICROBIOLOGIST



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## NATIONAL WATER QUALITY STANDARDS FOR MALAYSIA

Parameters	Unit	Classes					
		I	IIA	IIB	III	IV	V
Ammoniacal-N.	mg/l	0.1	0.3	0.3	0.9	2.7	>2.7
BOD	mg/l	1	3	3	6	12	>12
COD	mg/l	10	25	25	50	100	>100
DO	mg/l	7.0	5.0 – 7.0	5.0 – 7.0	3.0 – 5.0	<3.0	<1.0
pH		6.5 – 8.5	6.0 – 9.0	6.0 – 9.0	5.0 – 9.0	5.0 – 9.0	-
Colour	TCU	15	150	150	-	-	-
Elec. Cond*	µS/cm	1000	1000	-	-	6000	-
Floatables		N	N	N	-	-	-
Odour		N	N	N	-	-	-
Salinity*	%	0.5	1	-	-	2	-
Taste		N	N	N	-	-	-
Tot. Diss. Sol.*	mg/l	500	1000	-	-	4000	-
Tot. Susp. Sol.	mg/l	25	50	50	150	300	>300
Temperature	°C	-	Normal±2	-	Normal±2	-	-
Turbidity	NTU	5	50	50	-	-	-
F. Coliform**	counts/100ml	10	100	400	5000 (20000) <sup>a</sup>	5000 (20000) <sup>a</sup>	-
Total Coliform	counts/100ml	100	5000	5000	50000	50000	>50000

N = No visible floatable material / debris; or no objectionable odour; or no objectionable taste.

\* = Related parameters, only one recommended for use

\*\* = Geometric mean

± = Maximum not to be exceeded

### CLASS USES

- I represent water body of excellent quality. Standards are set for the conservation of natural environment in its undisturbed state. Water bodies such as those in the national park areas, fountainheads, and in high land and undisturbed areas come under this category where strictly no discharge of any kind is permitted. Water bodies in this category meet the most stringent requirements for human health and aquatic life protection.
- IIA / IIB represents water bodies of good quality. Most existing raw water supply sources come under this category. In practice, no body contact activity is allowed in this water for prevention of probable human pathogens. There is a need to introduce another class for water bodies not used for water supply but of similar quality which may be referred to as **Class IIB**. The determination of **Class IIB** standard is based on criteria for recreational use and protection of sensitive aquatic species.
- III is defined with the primary objective of protecting common and moderately tolerant aquatic species of economic value. Water under this classification may be used for water supply with extensive / advance treatment. This class of water is also defined to suit livestock drinking needs.
- IV defines water quality required for major agricultural irrigation activities which may not cover minor applications to sensitive crops.
- V represents other waters which do not meet any of the above uses.