

# **HAND AUGER WORK**

**FOR**

**SECOND SCHEDULE ENVIRONMENTAL IMPACT ASSESSMENT  
(EIA) REPORT FOR LOGGING AND OIL PALM PLANTATION IN  
MUKIM PADANG ENDAU, DAERAH MERSING, JOHOR DARUL  
TAKZIM**

**MARCH 2021**

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**REPORT  
FOR**

**HAND AUGER FOR SECOND SCHEDULE ENVIRONMENTAL IMPACT  
ASSESSMENT (EIA) REPORT FOR LOGGING AND OIL PALM PLANTATION IN  
MUKIM PADANG ENDAU, DAERAH MERSING, JOHOR DARUL TAKZIM.**

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**1. INTRODUCTION**

This report presents the results of the soil investigation works for **HAND AUGER FOR SECOND SCHEDULE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT FOR LOGGING AND OIL PALM PLANTATION IN MUKIM PADANG ENDAU, DAERAH MERSING, JOHOR DARUL TAKZIM.**

The work was carried out under the instructions given by Golden Ecosystem Sdn Bhd [Consultant].

The purpose of the Hand Auger works is to develop a small piezometer in order to collect water samples for Laboratory Testing.

**2. SCOPE OF WORKS**

The scope of works for this soil investigation works in the contract comprises the following:-

- a) Carry out SEVEN (7) numbers of Hand Auger.
- b) Installation of standpipe piezometers
- c) Collection of water samples.

**3. HAND AUGER**

Hand auger holes were carried out with an auger of approved design to ASTM.D1452-65 (1972), "Soil Investigation and Sampling by Auger Boring". The hand auger boring method uses light hand-operated equipment. The auger and drill rods are usually lifted out of the borehole without the aid of a tripod, and no borehole casing is used. Thin-walled tube sampler can be fitted at the auger end and undisturbed samples may be taken.

Hand auger holes up to 100mm dia. may be made in suitable ground conditions to a depth of about 5m. It shall be terminated when the sides of the hole start to collapse or when the resistance to auger is so great that the auger cannot be advanced with the forces of 2 healthy workers of average Malaysian physique.

Disturbed samples recovered from the auger were collected at 1.50m intervals or when there is a change of the material encountered. Undisturbed samples may be required in very soft to cohesive soils, taken with a thin walled sampler. The sampler shall be

pushed into the soil with the body weight of the operators or with the use of hydraulic force.

The results of Hand Auger are shown in Appendix A and location plan are shown in Appendix B.

#### **4. STANDPIPE PIEZOMETERS**

Standpipe piezometers are used to monitor piezometric water levels. Water level readings are typically obtained with a water level indicator. The standpipe piezometer, which consists of a filter tip and a riser pipe, is installed in a borehole. The zone around the filter tip is backfilled with sand and a concrete seal is place above that to isolate the intake zone. The remainder of the borehole is backfilled with bentonite-cement grout.

Pore water flows into the standpipe until pressure equilibrium is reached. The water level in the pipe then represents the pore-water pressure in the soil around the intake zone. Readings are taken with a water level indicator.

The depth of the standpipe piezometer was installed and water level record are shown in Appendix A.

Photos of the progress of work are shown in Appendix C.

#### **5. COLLECTION OF GROUNDWATER SAMPLE**

Groundwater samples collected are representative of the groundwater found in the borehole. It was taken as soon as practicable after groundwater first encountered. About 1.5 litre was collected by bailing with a clean or otherwise container and stored in a clean watertight glass or plastic container. The name of the project, borehole number and date of sampling are indicated on the outside of the container.

## Appendix A: Hand Auger Log and Standpipe Piezometer Design



<b>Project :</b> HAND AUGER FOR INSTALLATION MONITORING WELL FOR SECOND SCHEDULE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT FOR LOGGING AND OIL PALM PLANTATION IN MUKIM PADANG ENDAU, DAERAH MERSING, JOHOR DARUL TAKZIM				
<b>Client :</b> AA SAWIT SDN BHD <b>Consultant :</b> Golden Ecosystem Sdn Bhd <b>Location :</b> Mukim Padang Endau <b>Type of drill :</b> Hand Auger		<b>Coordinate :</b> N2 °33.235' E103 °37.019' <b>Elevation :</b> 6m <b>Logged by :</b> Izzat <b>Checked by :</b> Ibrahim		<b>Sheet :</b> 1 of 1 <b>Hand Auger No. :</b> <b>GW 1 - PTD 4882</b> <b>Date started :</b> 24/2/2021 <b>Date completed :</b> 24/2/2021
Geological Log	Groundwater Level	Depth (m)	Sample	Remarks
x - x - x - x x x x x x - x x - x - x - x - - - - x - x - x - - □ - - - - - - x - x - x - - □ -	1.10m	0.5m		Top soil, light grey with brownish patches clayey SILT
		1.0m		Pale, light brown silty CLAY with organic content (decayed woods)
		1.5m		
		2.0m		Pale, medium grey with brownish patches CLAY
		2.2m		<b>Hand Auger terminated at 2.20m below ground level</b>
		3.0m		* Disturbed sample and water sample had been collected for laboratory test.
	3.5m			
	4.0m			
	4.5m			
	5.0m			
		5.5m		



## GW 1

Borehole ID : GW 1 - PTD 4882

Date of Installation of Standpipe : 24/2/2021

Water level before installation of standpipe :	1.10 m
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Final Water Level (FWL) : 0.9 m

[illegible]

Project : HAND AUGER FOR INSTALLATION MONITORING WELL FOR SECOND SCHEDULE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT FOR LOGGING AND OIL PALM PLANTATION IN MUKIM PADANG ENDAU, DAERAH MERSING, JOHOR DARUL TAKZIM				
Client : AA SAWIT SDN BHD		Coordinate : N2 '34.126' E103 °38.515'		Sheet : 1 of 1
Consultant : Golden Ecosystem Sdn Bhd		Elevation : 19m		Hand Auger No. : <b>GW 2 - PTD 4085</b>
Location : Mukim Padang Endau		Logged by : Izzat		Date started : 23/2/2021
Type of drill : Hand Auger		Checked by : Ibrahim		Date completed : 23/2/2021
Geological Log	Groundwater Level	Depth (m)	Sample	Remarks
	0.8 m	0.5m		Top soil, very dark brown PEAT soil
		1.0m		Dark brown, with slightly lighter brown patches PEAT soil
		1.5m		Dark brown, with light brown patches PEAT soil with clay and traces of decayed woods
		2.0m		
		2.2m		
		2.5m		
		3.0m		<b>Hand Auger terminated at 2.2 m below ground level</b>  * Disturbed sample and water sample had been collected for laboratory test.
		3.5m		
		4.0m		
		4.5m		
		5.0m		
		5.5m		



## STANDPIPE RECORD

Job. No : 496/SI/GS/2021

Standpipe No. :

GW 2

Project : HAND AUGER FOR INSTALLATION MONITORING  
WELL FOR SECOND SCHEDULE ENVIRONMENTAL  
IMPACT ASSESSMENT (EIA) REPORT FOR LOGGING  
AND OIL PALM PLANTATION IN MUKIM PADANG  
ENDAU, DAERAH MERISING, JOHOR DARUL TAKZIM

Depth of Monitoring Well : 2.20 m

Borehole ID :GW 2 - PTD 4085

Location : Near Logging area, North of 216

Depth of Standpipe	: 2.20 m
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Well Collar Height : 0.6 m

Date of Installation of Standpipe: 23/2/2021

Client: : AA SAWIT SDN BHD

Driller's Name : Sahrulnizan

Drilling Rig : Hand Auger Set

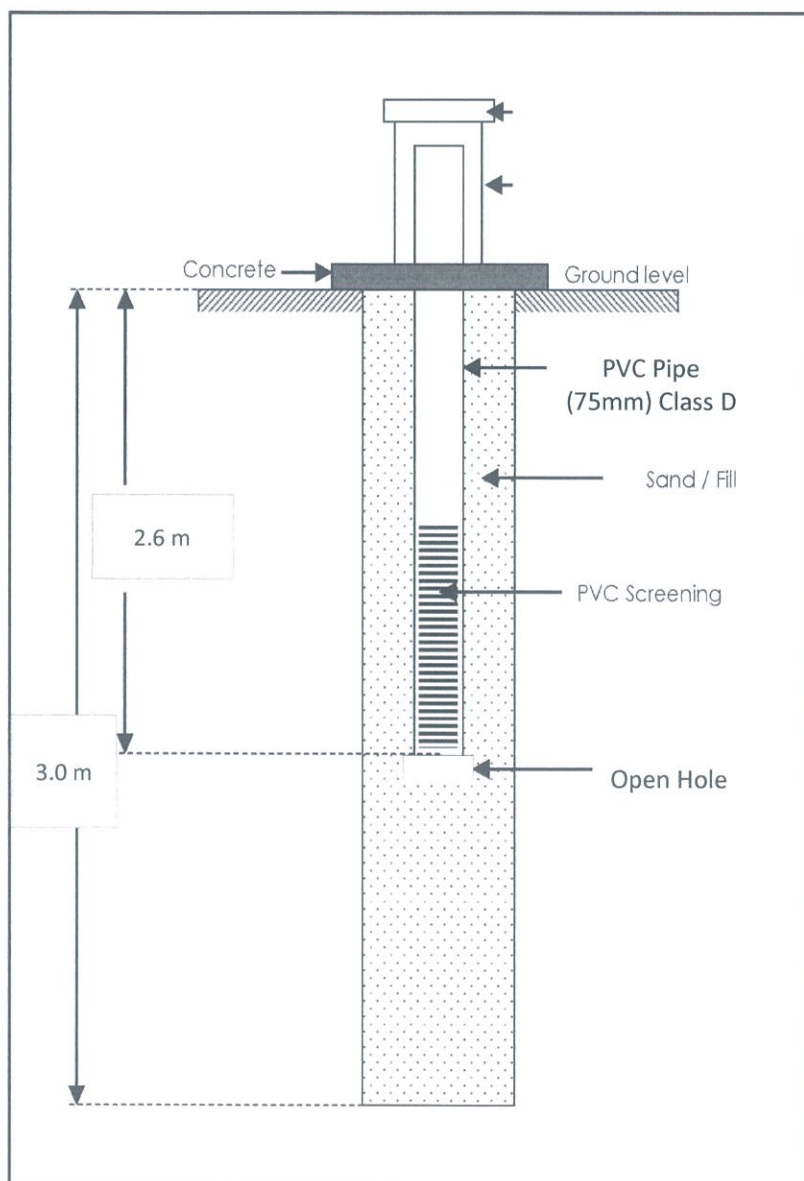
Water level before installation of standpipe :	1.10 m
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Main Contractor : Golden Ecosystem Sdn Bhd

Drilling Method	: Hand Auger
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Well Type : Deep Bored

Final Water Level (FWL) : 1.20 m



WATER LEVEL RECORD

[illegible]



Project : HAND AUGER FOR INSTALLATION MONITORING WELL FOR SECOND SCHEDULE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT FOR LOGGING AND OIL PALM PLANTATION IN MUKIM PADANG ENDAU, DAERAH MERSING, JOHOR DARUL TAKZIM				
Client : AA SAWIT SDN BHD		Coordinate : N2 '31.984' E103 '38.732'		Sheet : 1 of 1
Consultant : Golden Ecosystem Sdn Bhd		Elevation : 8m		Hand Auger No. : <b>GW 3 - PTD 4118</b>
Location : Mukim Padang Endau		Logged by : Izzat		Date started : 24/2/2021
Type of drill : Hand Auger		Checked by : Ibrahim		Date completed : 24/2/2021
Geological Log	Groundwater Level	Depth (m)	Sample	Remarks
xxxxxxxx xxxxxx xxxxx xxx x-x-x-x ----- x-x-x-x ----- ----- ----- ----- -x-x-x ----- -x-x-x ----- ----- -----	0.7 m	0.5m		Top soil, dark brown with bright orange patches, SILT with some peat.
		1.0m		Pale, yellowish brown silty CLAY
		1.5m		Pale, medium yellowish brown CLAY
		2.0m		Pale, medium yellowish brown silty CLAY with minor traces of very fine sand
		2.5m		<b>Hand Auger terminated at 2.20 m below ground level</b>  * Disturbed sample and water sample had been collected for laboratory test.
		3.0m		
		3.5m		
		4.0m		
		4.5m		
		5.0m		
		5.5m		



## Standpipe No. : GW 3

Borehole ID : GW 3 - PTD 4118

Date of Installation of Standpipe: 24/2/2021

Water level before installation of standpipe	0.7 m
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Final Water Level (FWL) : 0.6 m

[illegible]

Project : HAND AUGER FOR INSTALLATION MONITORING WELL FOR SECOND SCHEDULE ENVIRONMENTAL  
IMPACT ASSESSMENT (EIA) REPORT FOR LOGGING AND OIL PALM PLANTATION IN MUKIM PADANG  
ENDAU, DAERAH MERSING, JOHOR DARUL TAKZIM

Client : AA SAWIT SDN BHD  
Consultant : Golden Ecosystem Sdn Bhd  
Location : Mukim Padang Endau  
Type of drill : Hand Auger

Coordinate : N2 °31.895' E103 °37.055'  
Elevation : 30m  
Logged by : Izzat  
Checked by : Ibrahim

Sheet	:	1	of	1
Hand Auger No. :		<b>GW 4 - PTD 4963</b>		
Date started	:	24/2/2021		
Date completed :		24/2/2021		

Geological Log	Groundwater Level	Depth (m)	Sample	Remarks
x - x - x - x ----- x - x - x - x -----<				

## STANDPIPE RECORD

Job. No : 496/SI/GS/2021

Standpipe No. : GW 4

Project : HAND AUGER FOR INSTALLATION MONITORING  
WELL FOR SECOND SCHEDULE ENVIRONMENTAL  
IMPACT ASSESSMENT (EIA) REPORT FOR LOGGING  
AND OIL PALM PLANTATION IN MUKIM PADANG  
ENDAU, DAERAH MERISING, JOHOR DARUL TAKZIM.

Depth of Monitoring Well : 2.3 m

Borehole ID : GW 4 - PTD 4963

Location : Palm Oil Plantation

Depth of Standpipe	: 2.3 m
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Well Collar Height : 0.60 m

Date of Installation of Standpipe : 24/2/2021

Client: : AA SAWIT SDN BHD

Driller's Name : Zaki

Drilling Rig : Hand Auger Set

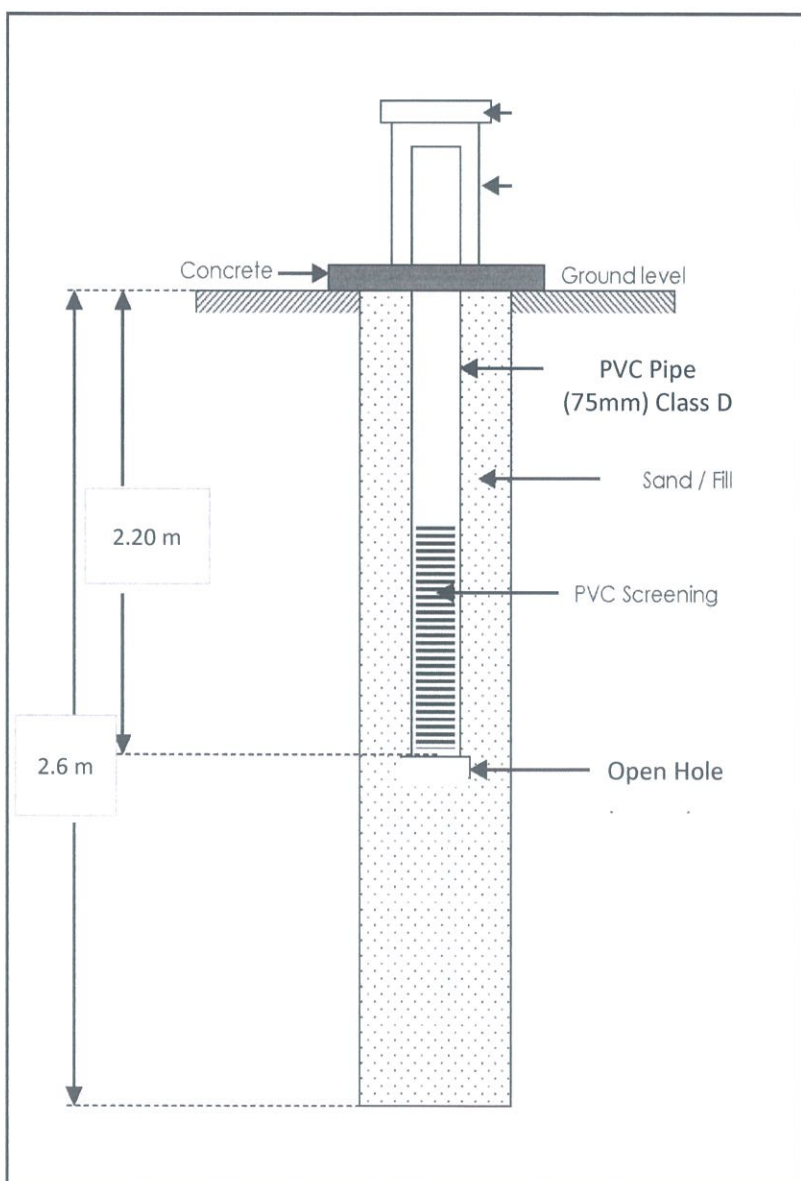
Water level before  
installation of  
standpipe :

Main Contractor : Golden Ecosystem Sdn Bhd

Drilling Method	: Hand Auger
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Well Type : Deep Bored

Final Water Level (FWL) : 1.00 m



WATER LEVEL RECORD

[illegible]



Project : HAND AUGER FOR INSTALLATION MONITORING WELL FOR SECOND SCHEDULE ENVIRONMENTAL  
IMPACT ASSESSMENT (EIA) REPORT FOR LOGGING AND OIL PALM PLANTATION IN MUKIM  
PADANG ENDAU, DAERAH MERSING, JOHOR DARUL TAKZIM

Client :	AA SAWIT SDN BHD	Coordinate : N2 °31.621' E103 °39.787'	Sheet : 1 of 1
Consultant :	Golden Ecosystem Sdn Bhd	Elevation : 15m	Hand Auger No. : <b>GW 5 - PTD 4117</b>
Location :	Padang Endau	Logged by : Izzat	Date started : 25/2/2021
Type of drill :	Hand Auger	Checked by : Ibrahim	Date completed : 25/2/2021

Geological Log	Groundwater Level	Depth (m)		Sample	Remarks	
x - x - x - x x x x x x - x - x - x x x x x x - x - x - x - - - - x - x - x - x -	1.00 m		0.5m		Top soil, dark brown clayey SILT with organic material	
			1.0m		Dark brown, silty CLAY with organic material	
	1.00 m		1.5m		Dark brown CLAY with organic material (decayed woods)	
			2.0m			
		1.00 m		2.5m		Pale, medium grey CLAY with some organic material
				2.5m		Pale, medium grey CLAY with some organic material (decayed woods)
				3.0m		<b>Hand Auger terminated at 2.5 m below ground level</b>  * Disturbed sample and water sample had been collected for laboratory test.
				3.5m		
				4.0m		
				4.5m		
			5.0m			
			5.5m			



## Standpipe No. : GW 5

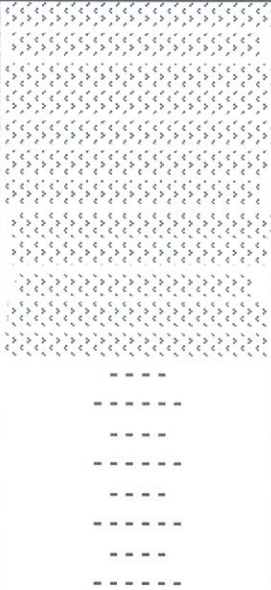
Borehole ID : GW 5 - PTD 4177

Date of Installation of Standpipe : 25/2/2021

Water level before installation of standpipe :	1.00 m
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Final Water Level (FWL) : 1.00 m

[illegible]

<b>Project :</b> HAND AUGER FOR INSTALLATION MONITORING WELL FOR SECOND SCHEDULE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT FOR LOGGING AND OIL PALM PLANTATION IN MUKIM PADANG ENDAU, DAERAH MERSING, JOHOR DARUL TAKZIM				
<b>Client :</b> AA SAWIT SDN BHD		<b>Coordinate :</b> N2 '31.769' E103 °40.986'		<b>Sheet :</b> 1 of 1
<b>Consultant :</b> Golden Ecosystem Sdn Bhd		<b>Elevation :</b> 14m		<b>Hand Auger No. :</b> <b>GW 6 - PTD 4121</b>
<b>Location :</b> PTD 4121		<b>Logged by :</b> Izzat		<b>Date started :</b> 25/2/2021
<b>Type of drill :</b> Hand Auger		<b>Checked by :</b> Ibrahim		<b>Date completed :</b> 25/2/2021
Geological Log	Groundwater Level	Depth (m)	Sample	Remarks
		0.5m		Top soil, fibrous PEAT (top) soil of hardened CLAY (bottom)
		1.00 m	1.0m	Dark brown, fibrous PEAT
		1.5m		
		2.0m		Dark brown silty CLAY with peat
		2.5m		
			3.0m	
3.5m				
4.0m				
4.5m				
5.0m				
5.5m				





Standpipe No. : GW 6

Borehole ID : GW 6 - PTD 4121

Date of Installation of Standpipe : 25/2/2021

Water level before installation of standpipe :	1.00 m
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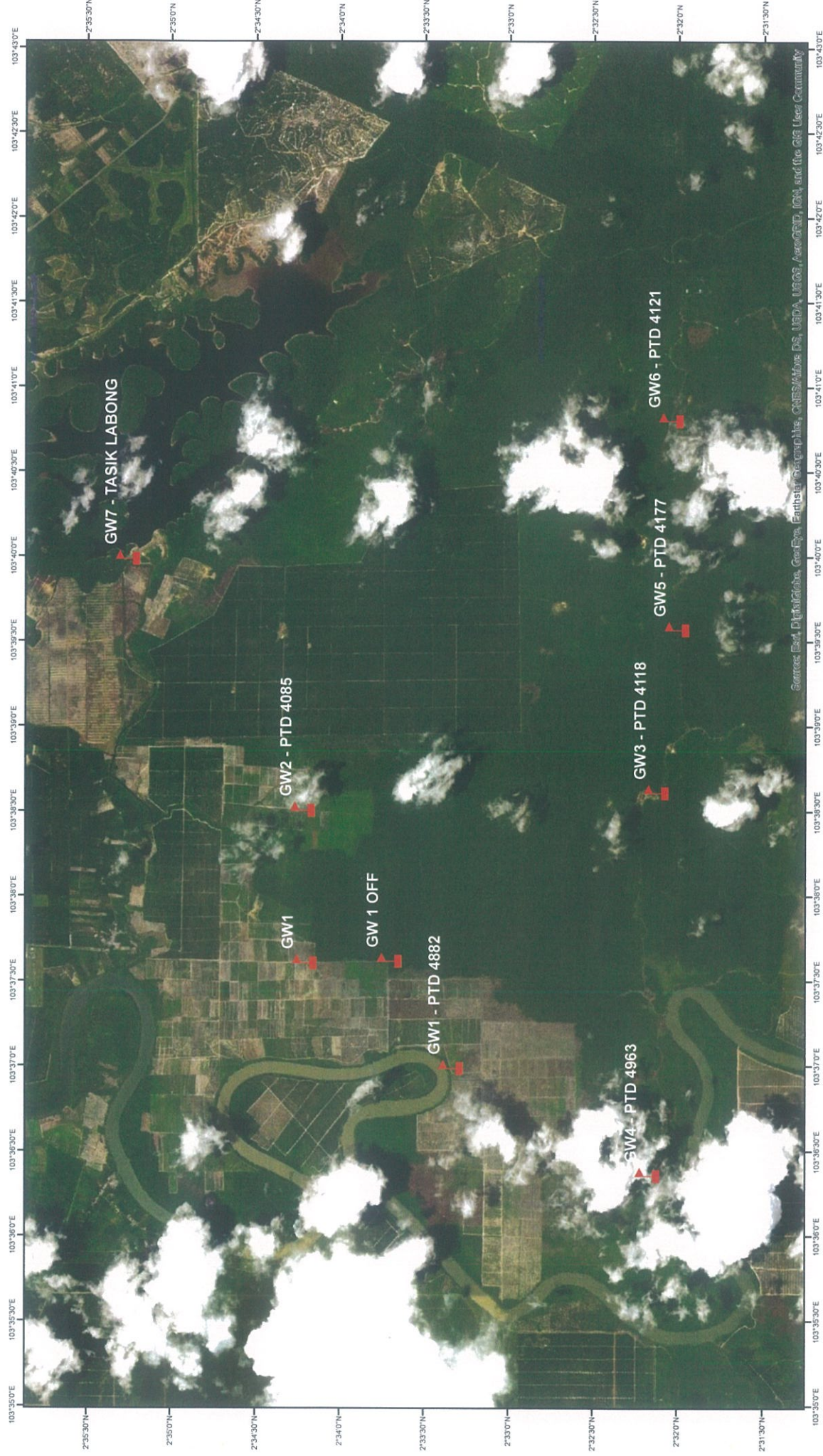
Final Water Level (FWL) : 0.80 m

[illegible]



<b>Project : HAND AUGER FOR INSTALLATION MONITORING WELL FOR SECOND SCHEDULE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT FOR LOGGING AND OIL PALM PLANTATION IN MUKIM PADANG ENDAU, DAERAH MERSING, JOHOR DARUL TAKZIM</b>				
Client :	AA SAWIT SDN BHD	Coordinate :	N2 °34.910' E103 °40.278'	Sheet : 1 of 1
Consultant :	Golden Ecosystem Sdn Bhd	Elevation :	18m	Hand Auger No. : <b>GW 7</b>
Location :	Empangan Lemoi	Logged by :	Izzat	Date started : 22/2/2021
Type of drill :	Hand Auger	Checked by :	Ibrahim	Date completed : 22/2/2021
Geological Log	Groundwater Level	Depth (m)	Sample	Remarks
x - x - x - x x x x x x - x - x - x x x x x x - x - x - x x x x x x - x - x - x x x x x x - x - x - x x x x x x - x - x - x x x x x . x . x . x . x x x x . x . x . x . x x x x . x . x . x . x x x x . x . x . x .	1.30 m	0.5m		Top soil, pale slightly brown with patches of orange and grey clayey SILT
		1.0m		Light brown with patches of pale orange clayey SILT
		1.5m		
		2.0m		Light brown with orange patches very fine sandy SILT
				Light to medium brown with mottled light grey, very fine sandy SILT
		2.5m		<b>Hand Auger terminated at 2.2 m below ground level</b>  * Disturbed sample and water sample had been collected for laboratory test.
		3.0m		
		3.5m		
		4.0m		
		4.5m		
		5.0m		
		5.5m		

**HAND AUGER FOR INSTALLATION  
MONITORING WELL FOR SECOND SCHEDULE  
ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT  
FOR LOGGING AND OIL PALM PLANTATION  
IN MUKIM PADANG ENDAU, DAERAH MERSENG,  
JOHOR DARUL TAKZIM**



1:40,000

0 0.5 1 2 3 4 Kilometers



## Appendix C: Photographs

**PROJECT :** HAND AUGER FOR INSTALLATION MONITORING WELL FOR SECOND SCHEDULE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT FOR LOGGING AND OIL PALM PLANTATION IN MUKIM PADANG ENDAU, DAERAH MERSING, JOHOR DARUL TAKZIM



Photo 1: Augered sample at GW1



Photo 2: Augered sample at GW1 OFF



Photo 3: Augered sample at GW1 OFF2



Photo 4: Completed Standpipe Piezometer at GW1

Photo 1-4: Hand Auger and Water Sampling in Progress



**PROJECT :** HAND AUGER FOR INSTALLATION MONITORING WELL FOR SECOND SCHEDULE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT FOR LOGGING AND OIL PALM PLANTATION IN MUKIM PADANG ENDAU, DAERAH MERSING, JOHOR DARUL TAKZIM

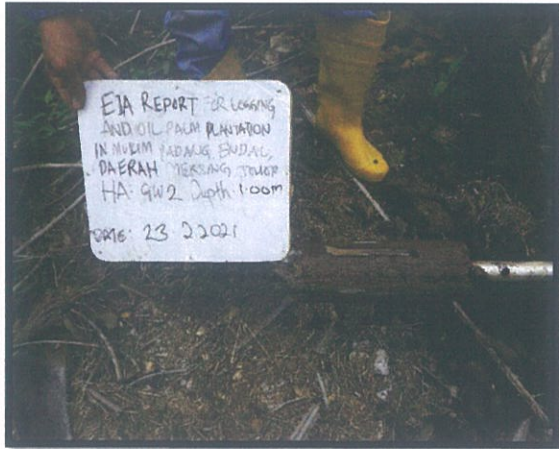


Photo 5: Augered sample at GW2



Photo 6: Installation of Standpipe Piezometer



Photo 7: Water sample collection after purging



Photo 8: Completed Standpipe Piezometer at GW2

Photo 5-8: Hand Auger and Water Sampling in Progress



PROJECT : HAND AUGER FOR INSTALLATION MONITORING WELL FOR SECOND SCHEDULE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT FOR LOGGING AND OIL PALM PLANTATION IN MUKIM PADANG ENDAU, DAERAH MERSING, JOHOR DARUL TAKZIM

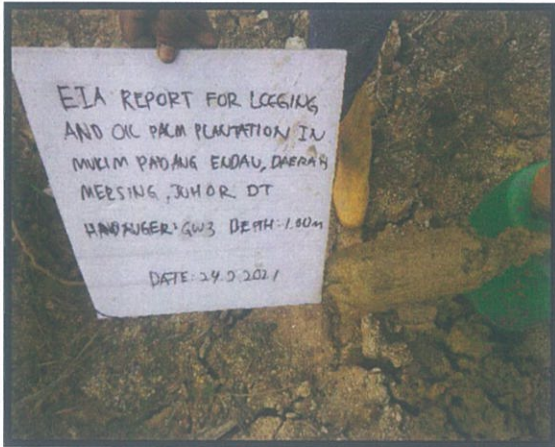


Photo 9: Augered sample at GW3



Photo 10: Installation of Standpipe Piezometer



Photo 11: Augered sample at GW 4



Photo 12: Completed Standpipe Piezometer for GW4

Photo 9-12: Hand Auger and Water Sampling in Progress



PROJECT : HAND AUGER FOR INSTALLATION MONITORING WELL FOR SECOND SCHEDULE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT FOR LOGGING AND OIL PALM PLANTATION IN MUKIM PADANG ENDAU, DAERAH MERSING, JOHOR DARUL TAKZIM



Photo 13: Augered sample at GW5



Photo 14: Completed Standpipe Piezometer of GW5



Photo 15: Augered sample at GW6



Photo 16: Slit Screen

Photo 13-16: Hand Auger and Water Sampling in Progress



**PROJECT :** HAND AUGER FOR INSTALLATION MONITORING WELL FOR SECOND SCHEDULE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT FOR LOGGING AND OIL PALM PLANTATION IN MUKIM PADANG ENDAU, DAERAH MERSING, JOHOR DARUL TAKZIM



Photo 17: Completed Standpipe Piezometer at GW6



Photo 18: Well purging at GW6



Photo 19: Augered sample at GW7



Photo 20: Augered Sample at depth 2.50m for GW7

Photo 17-20: Hand Auger and Water Sampling in Progress



**PROJECT :** HAND AUGER FOR INSTALLATION MONITORING WELL FOR SECOND SCHEDULE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT FOR LOGGING AND OIL PALM PLANTATION IN MUKIM PADANG ENDAU, DAERAH MERSING, JOHOR DARUL TAKZIM



Photo 21: installation of Standpipe Piezometer at GW7

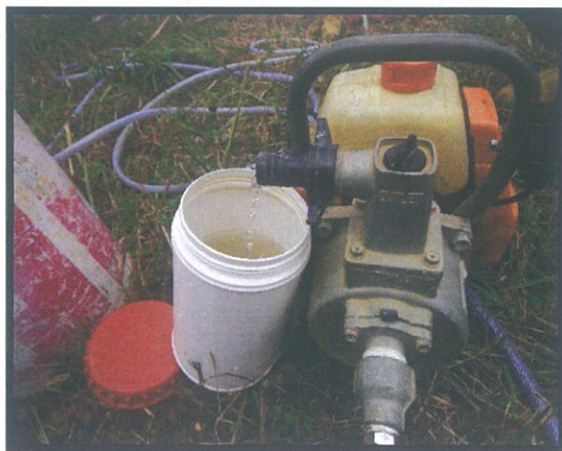


Photo 22: water sample collection after well purging



Photo 23: Filled GW7 with soil

Photo 21-23: Hand Auger and Water Sampling in Progress