

DEPARTMENT OF IRRIGATION  
AND DRAINAGE MALAYSIA



## Report of Meeting

# **The 36<sup>th</sup> Meeting of Malaysia - Thailand Joint Technical Working Group on the Golok River Mouth Improvement Project**

**5 July 2018  
Penang, Malaysia**

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**Report on the 36<sup>th</sup> Meeting of  
Malaysia - Thailand Joint Technical Working Group  
On The Golok River Mouth Improvement Project  
5<sup>th</sup> July 2018  
Penang, Malaysia**

**AGENDA 1: OPENING ADDRESS**

Ir. Haji Abdullah bin Isnin, Deputy Director General (Business Sector), Department of Irrigation and Drainage Malaysia, the leader of the Malaysian delegates welcomed the Thai delegates to the 36<sup>th</sup> Meeting of Malaysia – Thailand Joint Technical Working Group (JTWG) on the Golok River Mouth Improvement Project.

Mr. Chayan Muangsong, Executive Advisor on Civil Engineering (Control and Construction) for Deputy Director General for Engineering, Royal Irrigation Department Thailand, the leader of the Thai delegates expressed his appreciation for the warm welcome and arrangements for the Meeting.

Both sides introduced their delegates and the list of delegates as shown in APPENDIX A. The Meeting adopted the agenda as shown in APPENDIX B.

**AGENDA 2: MATTERS FOR INFORMATION**

**2.1 Report on Monitoring and Evaluation of Golok River Mouth**

**Report by JET**

- (1) The 2018 post-monsoon survey was carried out by the Thai side in April 2018, as shown in APPENDIX C. It was observed that no sedimentation area in the navigation channel same as pre-monsoon survey whilst erosion area on the Thai side has decreased compared to the pre-monsoon survey (October 2017).

- (2) The sedimentation volume (where bed level is shallower than -3.0m MSL within the navigation channel) have decreased when compared to the condition during the pre-monsoon (October 2017) and still no sedimentation was observed inside the navigation channel.
- (3) The maximum bed level at the river mouth was observed to be -3.1m MSL, located at the navigation channel; the observed bed level remain the same with previous survey (October 2017).
- (4) The deepest bed level around tip of Thai breakwater is observed to be -5.2 m MSL which may lead to instability of Thai breakwater. This level is shallower compared to previous survey in October 2017.
- (5) The meeting agreed to form a task force team instead of a committee to discuss regarding method of measurement for river discharge near Golok River Mouth. The taskforce team will study and decide on the hydrological stations at Golok River and its tributaries to be developed and shared by both countries. The member for the task force team for both sides shall be confirmed by JET34.

### **Discussion by JTWG**

The Meeting agreed that:

- (i) the monitoring survey to be continued and for JET to continue analyzing the dynamic phenomenon at the river mouth, sedimentation issue and the erosion at the tip of Thai breakwater; and
- (ii) the need to form a task force team to determine the method of measurement for river discharge and finalised matters of the hydrological station at Golok River and its tributaries. The team will be led by a hydrologist from both sides and the team members to be presented in JET34.

## **2.2 Maintenance Dredging of Golok River Mouth**

### **Criteria for Maintenance Dredging**

- (1) As agreed in JET25, JTWG32 and JSC14, the maintenance dredging is required based on the following criteria:
  - (i) When the cross section area of the river mouth between Thailand and Malaysia breakwater tip is blocked up to 30% (based on Thai study); or
  - (ii) When the bed level of the river mouth is at -2.0 m MSL or shallower (based on Malaysian study);
- (2) The sediment patterns are to be monitored for at least 2 consecutive monsoon seasons in order to identify the need for maintenance dredging.

### **Report by JET**

The post-monsoon survey (April 2018) as shown in APPENDIX D showed that:

- (a) The cross section of the river mouth is fully open (0% blockage).
- (b) The shallowest sea bed level at the navigation channel is at -3.1m MSL, which is deeper than the dredging criteria (-2.0m MSL).
- (c) Maintenance dredging is not required based on the post-monsoon survey (April 2018)

The Meeting agreed that based on the results of the pre-monsoon (October 2017) and post-monsoon (April 2018) surveys, the river mouth was not affected by sedimentation since it did not meet the dredging criteria. Hence, there is no need for the maintenance dredging of Golok River Mouth at the time being.

### **Discussion by JTWG**

The Meeting agreed that:

- (i) at present, there is no need to carry out maintenance dredging according to the maintenance dredging criteria.

## **2.3 Rehabilitation and Protection Works at Golok River Mouth**

### **Report by JET**

- (1) The Thai side presented the 3D physical model final result based on the conclusion of the Joint Technical Meeting for Golok River Mouth Physical Modelling Work No.4 as shown in APPENDIX E.
- (2) The Thai side presented the revised schedule and the approval of the Environmental Impact Assessment (EIA) study is expected to be obtained by Jun 2019.
- (3) The Malaysian side informed that the detailed design of additional dyke will be completed by October 2018 and the detailed design period will take fourteen (14) months.
- (4) The rehabilitation works for Golok River Mouth shall be started in July 2019.
- (5) The revised schedule of work for both sides is as shown in APPENDIX F.

### **Discussion by JTWG**

The Meeting acknowledged that:

- (i) the 2D and 3D physical modeling works have been completed and agreed by both sides; and
- (ii) both sides to proceed with the revised roadmap for implementation of the rehabilitation works.

## **2.4 Mutual Calibration of Rating Curve at Cableway Station**

### **Report by JET**

- (1) In 2018, five (5) mutual gauging measurements were done monthly. The mutual gauging measurements are as shown in APPENDIX G.

(2) The Meeting agreed on the 2017 mutual rating curve as shown in APPENDIX H.

### **Discussion by JTWG**

The Meeting acknowledged that:

- (i) the need to continue mutual gauging measurements at Golok Cableway Station;
- (ii) the establishment of mutual rating curve (2017) by JET. The mutual rating curve will be used for any study and improvement works related to the joint program of the Golok River in the future.

## **2.5 Real Time Monitoring System and Joint Website for Golok River Basin**

### **Report by JET**

#### **New Telemetry stations and joint website**

- (1) The Thai side informed that the data sharing of six (6) new telemetry stations are under progress and cannot be completed by December 2018. However, Thai side proposed to setup two (2) small scale telemetry stations expected to be completed in October 2018 and the Thai side will report on the development progress of the remaining four (4) stations in the next JET meeting.
- (2) The meeting agreed that data sharing will be conducted when both sides are ready. The revised schedule for new telemetry stations is as shown in APPENDIX I.

### **Discussion by JTWG**

The Meeting acknowledged that:

- (i) the Thai side will setup two (2) small scale telemetry stations which are expected to be completed in October 2018;
- (ii) the Thai side shall report the development progress of the remaining four (4) stations in the next meeting;
- (iii) both sides agreed to proceed with the revised schedule for new telemetry stations; and



- (iv) both sides further agree that data from the telemetry stations will be shared between both sides when the system is ready.

### **AGENDA 3: MATTERS FOR CONSIDERATION**

#### **3.1 Protection Work at Transit Point B**

##### **Report by JET**

- (1) The Thai side presented the Revised Detail Design of the Transit Point B protection work hexagonal shape based on the 2D physical model as shown in APPENDIX J and informed that the protection works will cost about 2.4 million baht.
- (2) The Malaysian side has not received the design report with the detailed calculation from Thai side. Thai side shall provide the report for the review and agreement of the Malaysian side.
- (3) The meeting agreed to propose the cost of the protection works to be shared equally by both parties based on the Agreement between the Government of the Kingdom of Thailand and The Government of Malaysia on The Golok Rivermouth Improvement Project, 1997 ("1997 Agreement"). The implementation of the physical works is to be referred to JTWG committee since it involves legal issues that need to be resolved at higher level.

##### **Discussion by JTWG**

The Meeting agreed that the Thai side to provide the detailed design report for consideration by Malaysian side.

The Meeting took note that:

- (i) based on the presentation of the detailed design, the Malaysian side observed that the proposed protection works involve new specifications and components which need to be further deliberated since it is not in line with the

- provisions in the 1997 Agreement. Hence, Malaysia proposed that a new agreement to be drafted and negotiated between both sides; and
- (ii) The Thai side confirmed that the 1997 Agreement includes the proposed protection works which is stated as protection works to transit point B under ANNEX 1 Paragraph 3.0 (b) of the 1997 Agreement.

The Meeting agreed to inform JSC that both sides have exchanged legal views on para (i) and (ii) above.

### **3.2 Integrated River Basin Management Plan (IRBM) for Golok River Basin**

#### **Report by JET**

The Malaysian side reported that:-

- a) The new Agreement for the IRBM for Golok River is still in progress by the Malaysian working committee. The first draft of the Agreement is still in consultation internally with relevant departments and ministries.
- b) The Meeting agreed that the JTWG to decide whether the IRBM Agenda to be continued under the Golok River Mouth working Committee.

#### **Discussion by JTWG**

The Meeting agreed that:

- (i) The IRBM Agenda to be continued and discussed under the Golok Rivermouth working committee; and
- (ii) The IRBM working committee from both sides will further discuss on the contents of the new IRBM agreement and shall report in the next JSC meeting for consideration.

## **AGENDA 4: OTHER MATTERS**

### **4.1 Road Map for Joint Implementation Works**

#### **Report by JET**

The Meeting was informed that the road map for the joint implementation works is shown as per APPENDIX K.

#### **Discussion by JTWG**

- (i) The Meeting agreed with the road map and insists that the road map for “Protection Works at Transit Point B” shall be inserted after the financial, technical and legal issues have been resolved by both sides.

### **4.2 Date and venue for the next JTWG meeting**

The Meeting agreed to convene the 37<sup>th</sup> JTWG Meeting as follows:

Host:	Thailand
Proposed date:	June 2019
Proposed venue:	1) Pattaya
	2) Hua Hin
	3) Sukhothai

### **4.3 Date and venue for the next JSC meeting**

The Meeting proposed to convene the 16<sup>th</sup> JSC Meeting as follows:

Host:	Malaysia
Proposed date:	2 <sup>nd</sup> week of September 2018
Proposed venue:	Kuala Terengganu

## **AGENDA 5: MATTERS TO BE REFERRED TO THE JSC**

### **Matters for Information:**

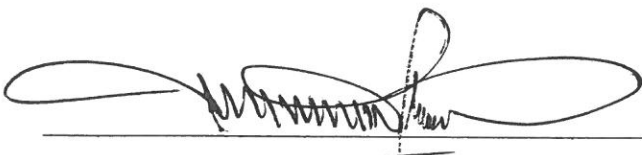
- 1) Report on Monitoring and Evaluation of Golok River Mouth
- 2) Maintenance Dredging of Golok River Mouth
- 3) Protection Work at Transit Point B
- 4) Rehabilitation and Protection Works at Golok River Mouth
- 5) Mutual Calibration of Rating Curve at Cableway Station
- 6) Real Time Monitoring System and the Joint Website for Golok River Basin

### **Matters for Consideration:**

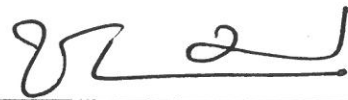
- 1) Integrated River Basin Management (IRBM) Plan for Golok River Basin

## AGENDA 6: ADOPTION OF MINUTES OF THE MEETING

The Meeting agreed to adopt the report of meeting of the Thirty-sixth Meeting of Thailand – Malaysia Joint Technical Working Group (JTWG) on the Golok River Mouth Improvement Project.



**(Ir. Haji Abdullah bin Isnin)**  
Co-Chairman  
Joint Technical Working Group, Malaysia  
Deputy Director General  
(Business Sector)  
Department of Irrigation and Drainage  
Malaysia







**(Mr. Chayan Muangsong)**  
Co-Chairman  
Joint Technical Working Group, Thailand  
Executive Advisor on Civil Engineering  
(Control and Construction) for  
Deputy Director General  
for Engineering  
Royal Irrigation Department  
Thailand

## APPENDIX A

### THE 36<sup>TH</sup> MEETING OF MALAYSIA - THAILAND JOINT TECHNICAL WORKING GROUP (JTWG) ON THE GOLOK RIVER MOUTH IMPROVEMENT PROJECT





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## **APPENDIX B**

# **THE 36TH MEETING OF MALAYSIA - THAILAND JOINT TECHNICAL WORKING GROUP (JTWG) ON THE GOLOK RIVER MOUTH IMPROVEMENT PROJECT**

## **AGENDA**

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### **AGENDA 1: OPENING SESSION**

### **AGENDA 2: MATTERS FOR INFORMATION**

- 2.1 MONITORING AND EVALUATION OF GOLOK RIVER MOUTH
- 2.2 MAINTENANCE DREDGING OF GOLOK RIVER MOUTH
- 2.3 REHABILITATION AND PROTECTION WORKS AT GOLOK RIVER MOUTH
- 2.4 MUTUAL CALIBRATION OF RATING CURVE AT CABLEWAY STATION
- 2.5 REAL TIME MONITORING SYSTEM AND THE JOINT WEBSITE FOR GOLOK RIVER BASIN

### **AGENDA 3: MATTERS FOR CONSIDERATION**

- 3.1 PROTECTION WORK AT TRANSIT POINT B
- 3.2 INTEGRATED RIVER BASIN MANAGEMENT (IRBM) PLAN FOR GOLOK RIVER

### **AGENDA 4: OTHER MATTERS**

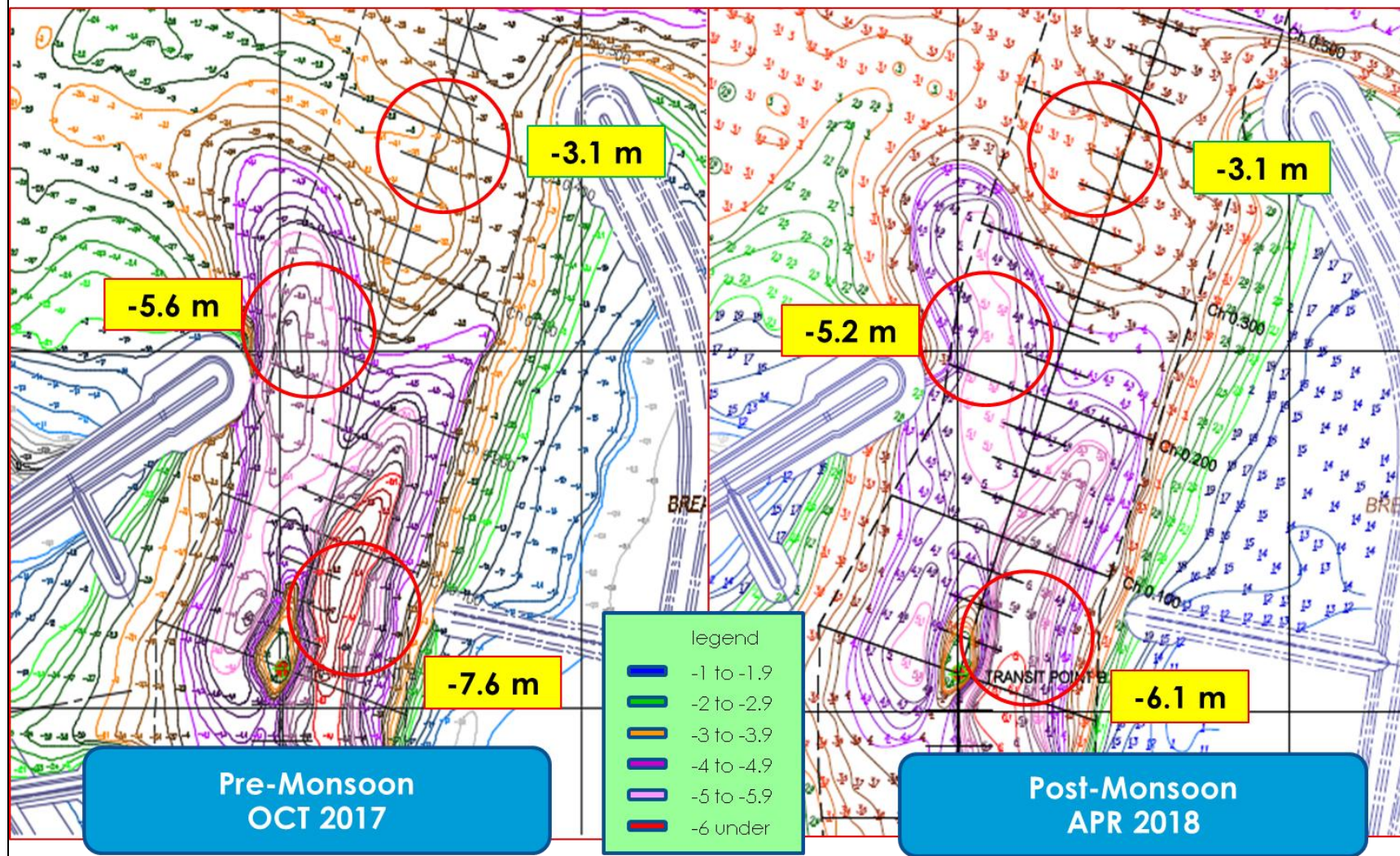
- 4.1 ROAD MAP FOR JOINT IMPLEMENTATION WORKS
- 4.2 DATE AND VENUE FOR NEXT JTWG MEETING
- 4.3 DATE AND VENUE FOR NEXT JSC MEETING

### **AGENDA 5: MATTERS TO BE REFERRED TO JSC**

### **AGENDA 6: ADOPTION OF MINUTES OF MEETING**

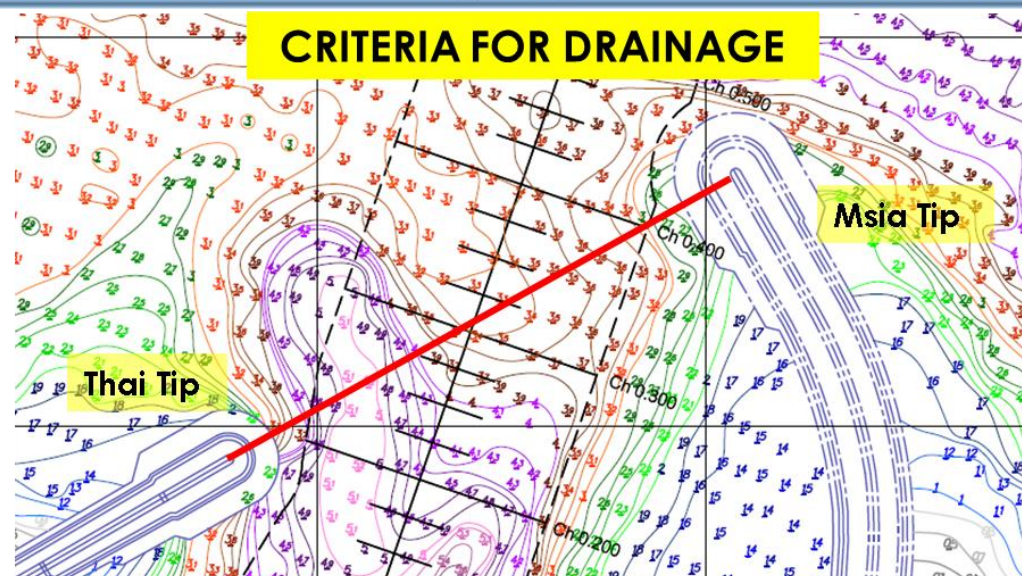
## Monitoring and Evaluation of Golok River Mouth

The sea bed level at rivermouth remain at -3.1 m MSL

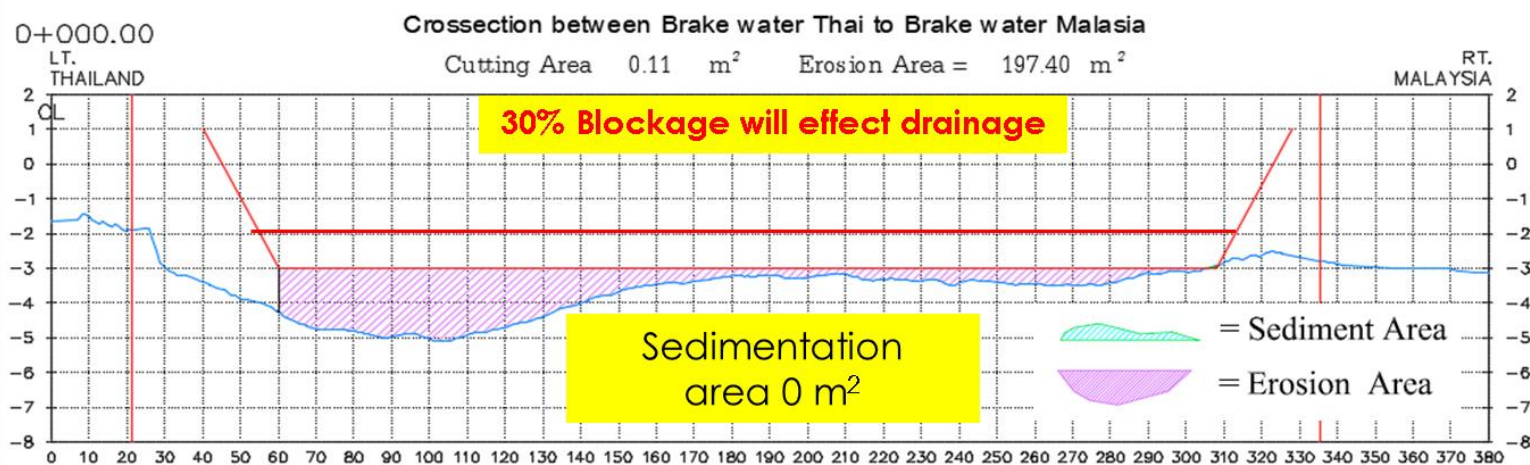




# Maintenance Dredging of Golok River Mouth



**POST MONSOON APR 2018**  
**Sediment DOES NOT AFFECT Drainage**



## 3D Physical Model Final Result (Conclusion)

Properties	Existing	Improvement
- <b>Scouring</b>	- <b>Severe scouring</b> at TPB (0.5 – 3.0 m.)	<u>Less</u> scouring at TPB (0 – 0.9 m.)
- <b>Velocity Pattern</b> around Transit Point B	<b>High Velocity</b> - around TPB <b>High Turbulence</b> - at left and right side of TPB - <b>Severe condition</b> for navigation - Flow direction <b>induce scouring</b> at the tip of Thai Breakwater	- <u>Less</u> Turbulence and lower velocity - <u>Better</u> condition for navigation

## 3D Physical Model Final Result (Conclusion) cont'd

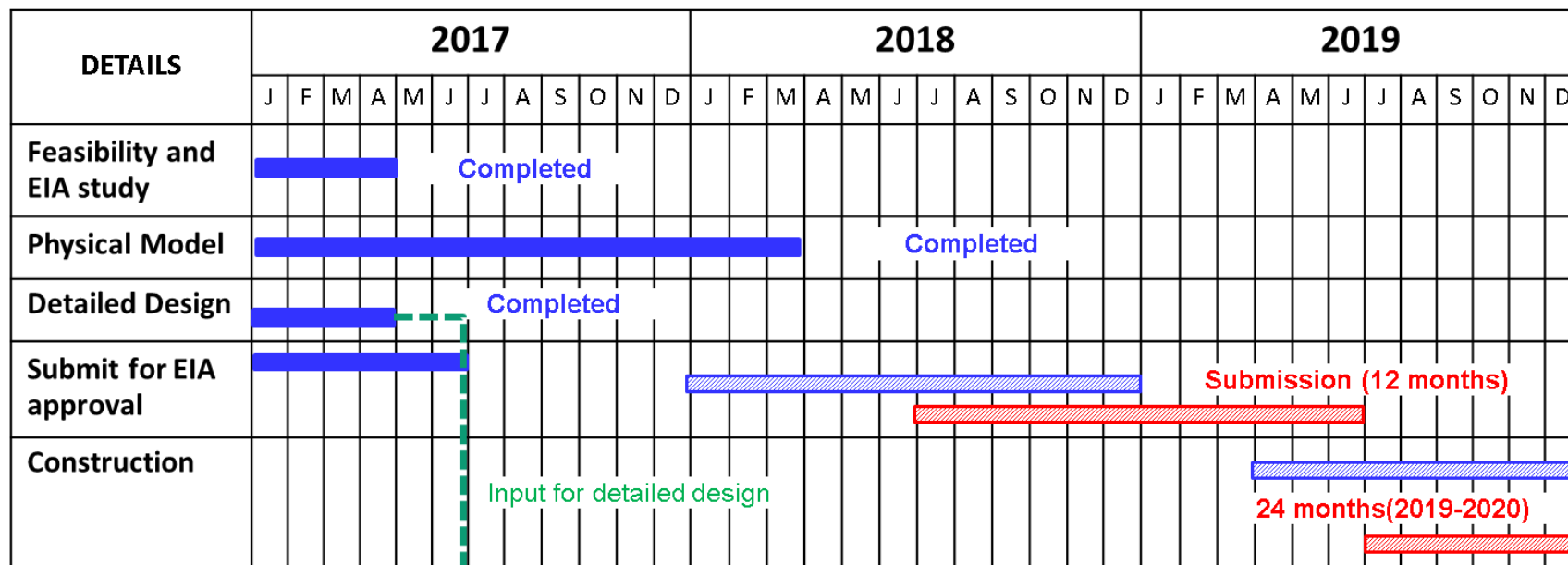
Properties	Existing	Improvement
- <b>Velocity</b> at river entrance	- <b>Low Velocity</b> - Cause sediment deposit at river entrance - <b>Serious scouring</b> at the tip of Thai breakwater	- <b>High Velocity</b> - No Sediment deposit at river entrance - Possible to have <b>scouring</b> at toe of Malaysia breakwater
- <b>Wave penetration</b> into river	<b>Wave height</b> - <b>Low</b> reduction from sea to river entrance (CH +400) - Gradually reduce to ripple with in 500 m from entrance	<b>Wave height</b> - <b>High</b> reduction from sea to river entrance (CH +400) - Gradually reduce to ripple with in 500 m from entrance

## 3D Physical Model Final Result (Conclusion) cont'd

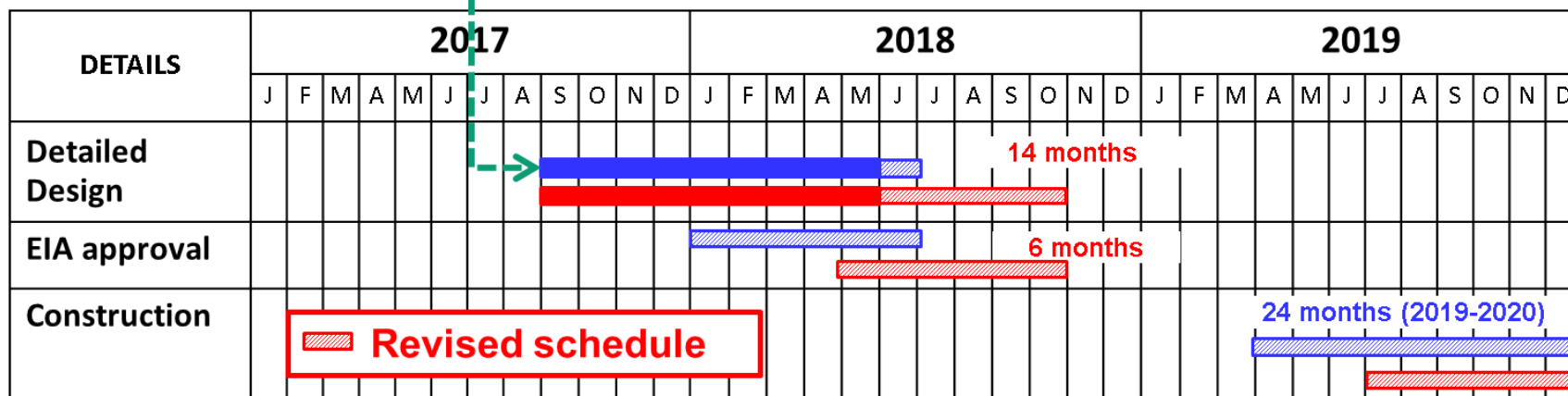
With reference to the “Minutes of Joint Technical Meeting for Golok River Mouth Physical Modeling Works No. 1, No. 2 and No. 3” and the presented 3D Physical Model revised results, the Meeting agreed to recommend:

- (a) The wave conditions for the physical model was calibrated based on the offshore wave parameters.
- (b) The results of the 3D physical model is taken qualitatively as the physical model is designed as moveable bed and the model scale is beyond recommended parameters previously suggested (1 : 40 – 1 : 60).
- (c) Both sides agree with the results of the 2D physical model conducted to study and determine the shape of the protection works at Transit Point B.
- (d) Both sides agree with the qualitative results of the 3D physical model conducted to study and assess the flow pattern, water level changes and wave penetration changes caused by the proposed protection works at Transit Point B and the proposed rehabilitation works at Golok River Mouth.
- (e) The improvement works at Golok River Mouth which includes the protection works at Transit Point B and rehabilitation works at Golok River Mouth (breakwater extension, training wall and dyke) to be undertaken based on the following justification:
  - i. The improvement works are expected to enhance river flow, reduce back water effect at upstream of Golok river and reduce water level.
  - ii. The construction of the extended breakwater is expected to reduce the wave penetration inside Golok River Mouth
  - iii. The improvement works are expected to reduce scouring around Transit Point B and at the tip of Thai breakwater

## Physical Model & EIA road map (THAILAND)



## Detailed design & EIA road map (MALAYSIA)



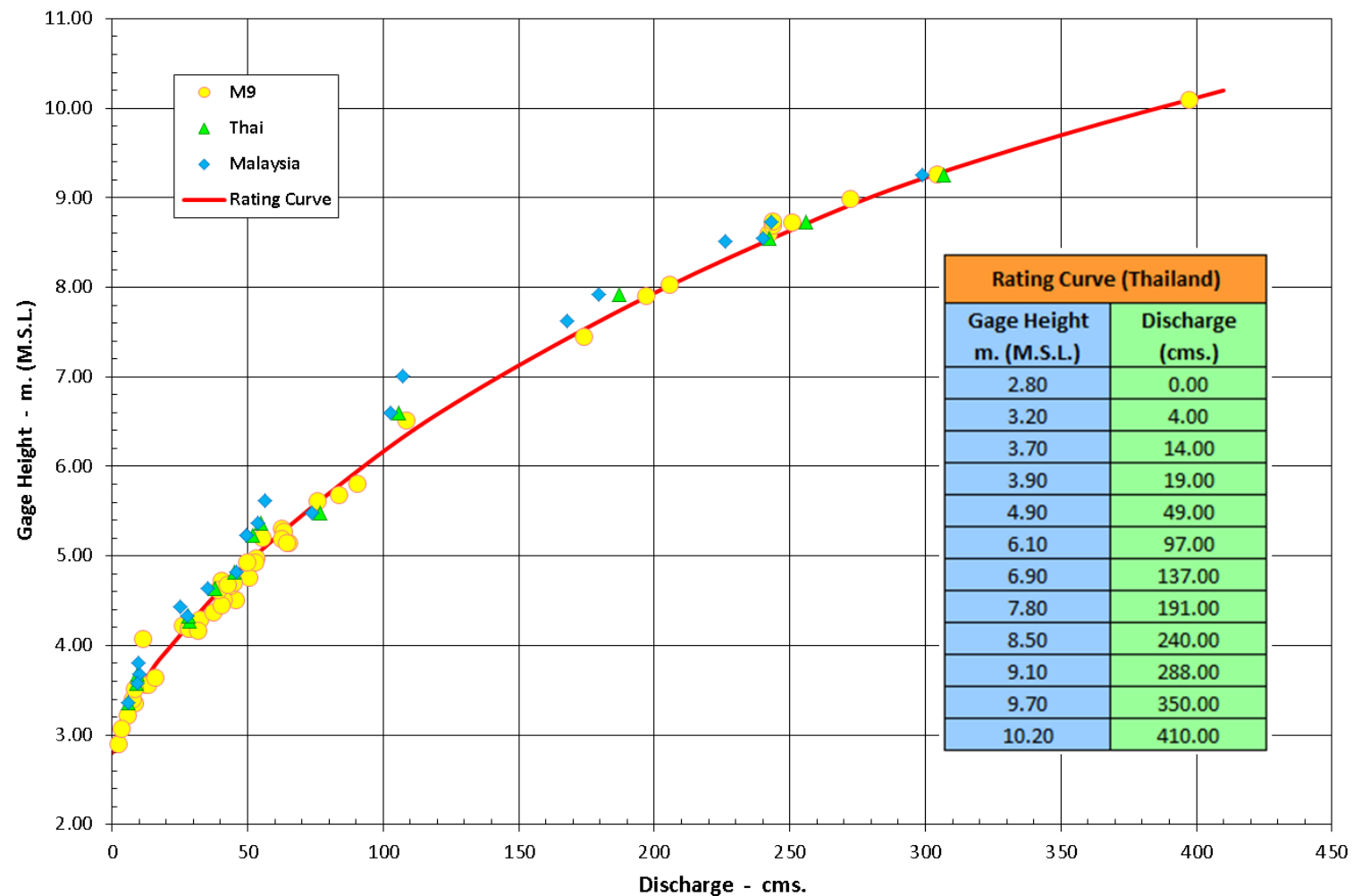


## **2017 & 2018 Mutual Gauging**

<b>Date</b>	<b>G.H. m. (M.S.L.)</b>	<b>Width m.</b>	<b>Area sq.m.</b>	<b>Velocity m./s.</b>	<b>Discharge cms.</b>	<b>Remark</b>
25 January 2017	8.990	64.60	288.012	0.945	272.210	M 9
21 February 2017	4.700	39.78	98.931	0.453	44.817	M 9
30 March 2017	4.190	34.74	73.497	0.385	28.305	M 9
20 April 2017	4.460	36.18	84.017	0.477	40.079	M 9
21 June 2017	4.190	37.84	73.690	0.384	28.266	M 9
20 July 2017	4.630	37.77	90.944	0.428	38.896	M 9
24 August 2017	4.930	38.39	104.912	0.503	52.725	M 9
18 September 2017	5.810	40.63	140.038	0.645	90.300	M 9
30 November 2017	10.100	65.09	360.100	1.103	397.190	M 9
27 December 2017	4.680	37.84	96.013	0.444	42.608	M 9
30 January 2018	4.930	38.96	105.600	0.470	49.636	M 9
15 February 2018	4.080	15.13	20.295	0.548	11.118	M 9
29 March 2018	3.410	22.26	24.700	0.295	7.277	M 9
26 April 2018	4.170	34.22	73.920	0.429	31.725	M 9
24 May 2018	3.520	21.14	25.178	0.328	8.263	M 9

## Rating Curve at Cableway station 2017 (Mutual)



**RATING CURVE WATER YEAR 2015-2017 STATION X.119A**  
**GOLOK RIVER AT BAN LANTU , SUNGAI KOLOK , NARATHIWAT**



# Progress of New Telemetry Station

ACTIVITIES	2016				2017				2018				2019			
	Q3	Q4			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	SEP	OCT	NOV	DEC	J - M	A - J	J - S	O - D	J - M	A - J	J - S	O - D	J - M	A - J	J - S	O - D
Setup	Completed															
Testing on data collection	Completed															
Calibration																
Data sharing																

Note:

 Progress (Thailand)  
 Planning (Thailand)

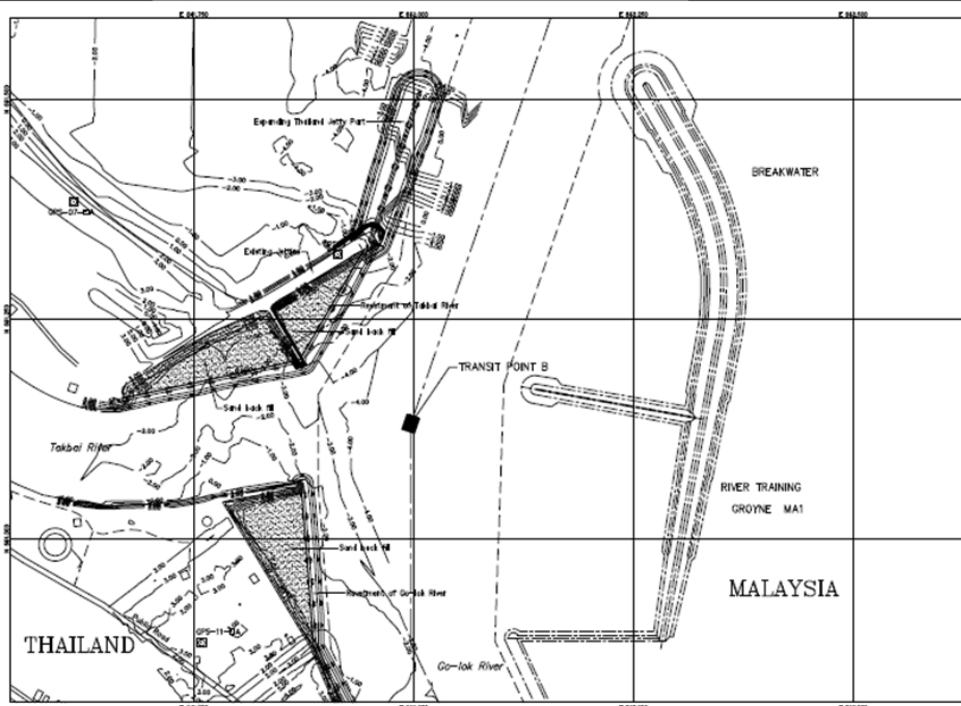
Note:

 Progress (Malaysia)  
 Planning (Malaysia)

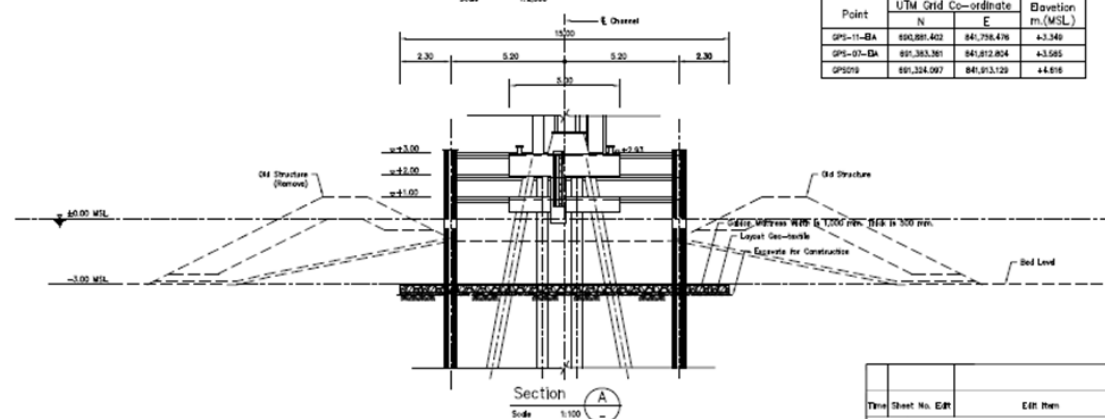
2 station only

\*data to be shared when both side are ready

# Protection Work at Transit Point B

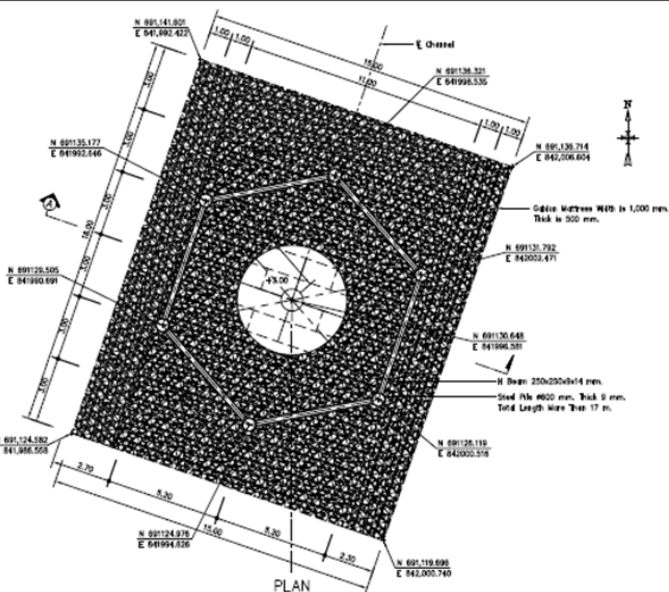


Master Plan  
Scale 1:2,500



Survey Control Point

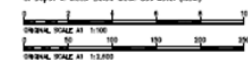
Point	UTM Grid Co-ordinate	Elevation m.(MSL)
GPS-11-BA	690,881.402    841,758.476	43.340
GPS-07-GA	691,383.381    841,812.804	43.585
GPS09	691,324.087    841,913.129	44.816



Layout Plan of Gabion Mattress  
Scale 1:100

## Note of Contractor:

1. Contractor must execute leveling before construction.
2. Layout Geo-textile.
3. Install Gabion mattress in the pattern by layout plan of Gabion mattress.
4. The contractor will have to offer the installation method to approve before construction.
5. Survey Map by Chikwanat Co., Ltd.
6. Survey Map in Potted September - October 2018
7. Unmanned Tracerless Monitor Grid Project (U.T.M.)
8. Depth in Meter below Mean Sea Level (MSL)



Royal Irrigation Department

Go-Iok River Mouth Improvement  
Narathiwat Province

Structure of Scour Protection  
Around Transit Point B  
Plan and Cross Section

Consultants  
Droid Consult Co., Ltd.  
Chikwanat Co., Ltd.  
Karnam Technology Consultant Co., Ltd.

Design		Royal Irrigation Department	
Drawing	Passed	Checked	Checked
Check	Approved	Approved	Approved
Approved	Approved	Approved	Approved

Time Sheet No. Edit	Edit Item	Check	Approved	Approved	Date
Contract No. 49/2558 (100)		ENCAO.CHULANARAT.KTC	Royal Irrigation Department	Office of Project Planning	Contract No. 49/2558 (100)

## Road Map for Joint Implementation Works

[illegible]