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## **資料 1. 調査団員・氏名**



## 1. 調査団員・氏名

概略設計 (D/D I) インセプションレポート現地説明・協議：

2012年2月22日(水)～2012年2月29日(水)(8日間)

氏名	担当	所属
米田 一弘	団長	国際協力機構 (JICA) タイ事務所 所長
松元 秀亮	協力計画	国際協力機構 (JICA) 地球環境部 水資源・防災グループ 防災第一課 主任調査役
松本 良治	業務主任	(株)建設技研インターナショナル
三品 孝洋	副業務主任 (コンポーネント2)	(株)建設技研インターナショナル
三浦 実	道路計画	(株)建設技研インターナショナル
渡邊 亮平	道路設計Ⅱ	(株)建設技研インターナショナル
シュレスタ・ ロビンソン	道路設計Ⅲ	(株)建設技研インターナショナル
ロン・ チャンター	付帯構造物設計	(株)建設技研インターナショナル
石塚 一啓	測量調査	(株)建設技研インターナショナル (補強：国際航業株式会社)
幡野 貴之	環境社会配慮	(株)建設技研インターナショナル

概略設計 (D/D I) プログレスレポート現地説明・協議

2012年5月27日(日)～2012年6月1日(金) (6日間)

氏名	担当	所属
米田 一弘	団長	国際協力機構 (JICA) タイ事務所 所長
松元 秀亮	協力計画	国際協力機構 (JICA) 地球環境部 水資源・防災グループ 防災第一課 主任調査役
三品 孝洋	業務主任	(株)建設技研インターナショナル
石井 昌樹	副業務主任 (コンポーネント2)	(株)建設技研インターナショナル
三浦 実	道路計画	(株)建設技研インターナショナル
相良 秀孝	道路設計 I	(株)建設技研インターナショナル
須之内 典明	道路施設設計Ⅲ	(株)建設技研インターナショナル
シュレスタ・ ロビンソン	道路施設設計Ⅲ	(株)建設技研インターナショナル
清谷 啓介	道路施設設計Ⅳ	(株)建設技研インターナショナル
劉 自強	道路排水設計	(株)建設技研インターナショナル
緒方 博充	施工・調達計画/積算	(株)建設技研インターナショナル
清田 大作	環境社会配慮	(株)建設技研インターナショナル

概略設計 (D/D I) ファイナルレポート現地説明・協議

2012年8月26日(日)～2012年8月30日(木) (5日間)

氏名	担当	所属
山内 邦裕	団長	国際協力機構 (JICA) 地球環境部 次長 (計画・調整担当)
松元 秀亮	協力計画	国際協力機構 (JICA) 地球環境部 水資源・防災グループ 防災第一課 主任調査役
三品 孝洋	業務主任	(株)建設技研インターナショナル
石井 昌樹	副業務主任 (コンポーネント 2)	(株)建設技研インターナショナル
三浦 実	道路計画	(株)建設技研インターナショナル
相良 秀孝	道路設計 I	(株)建設技研インターナショナル
渡邊 亮平	道路設計 II	(株)建設技研インターナショナル
小川 淳一郎	道路設計 IV	(株)建設技研インターナショナル





## **資料 2. 調査行程**



2. 調査行程 東部外環状道路(国道9号線)改修計画

年	月日	実施項目	担当	三品 幸洋 (前業務主任(コンクリート部) / 河川施設設計 副)	三浦 実 (事業推進管理(橋梁) / ネットワークリーダー(2))	相良 秀孝 (施設設計(橋梁)(0) / 道路施設設計1)	津越 宗平 (施設設計(橋梁)(4) / 施設設計(橋梁)(7) / 道路施設設計2)	須之内 高明 (施設設計(橋梁)(6-1) / 道路施設設計1-1)	シムズタロビンソン (施設設計(橋梁)(5) / 施設設計(橋梁)(8-2) / 道路施設設計2-2)	清谷 彰介 (買付財産査定(無償) / 施設設計(橋梁)(9-1) / 道路施設設計2-1)	小川 淳一郎 (施設設計(橋梁)(9-2) / 道路施設設計17-2)	中島 隆志 (施設設計(橋梁)(10-1) / 道路橋水設計1-1)	新 自強 (施設設計(橋梁)(10-2) / 道路橋水設計2)	ロン・チャンター (施設設計(橋梁)(6) / 施設設計(橋梁)(11) / 道路橋水施設設計)	林方 博光 (施工計画(橋梁)(2) / 施設設計(橋梁)(1) / 道路施設設計)	
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31 Sat																

2. 調査行程 東部外環状道路(国道9号線)改修計画

年	月日	実施項目	地元 発表	JICA	三浦 実	相良 秀孝	津越 宗平	須之内 高明	シユネスタロピソソ	清谷 彰介	小川 淳一郎	中島 隆志	新 自 議	ロン・チャンター	研 究 方 法	
2012年4月	1 Sun															
	2 Mon															
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	29 Sun															
	30 Mon															
2012年5月	1 Tue															
	2 Wed															
	3 Thu															
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	6 Sun															
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	30 Wed															
31 Thu																

2. 調査行程 東部外環状道路(国道9号線)改修計画

年	月日	実施項目	松元 秀亮	三品 寿洋 (前業務主任(コンクリート ネット33)/河川施設計 画)	三浦 実 事業推進管理(橋梁)マ ンagementリーダー(2 画)	相良 秀孝 施設設計(橋梁)(0 →道路施設設計1)	東藤 宗平 施設設計(橋梁)(4 施設設計(橋梁) →道路施設設計2)	須之内 高明 施設設計(橋梁)(0→1 →道路施設設計1→1)	シユルスタロビンソン 施設設計(橋梁)(8→2 →道路施設設計2)	清谷 彰介 資機材調達計画(無償) 施設設計(橋梁)(9→1 →道路施設設計2)	小川 淳一郎 施設設計(橋梁)(0→2) →道路施設設計2	中島 隆志 施設設計(橋梁)(10→1 →道路施設設計1)	新 自雄 施設設計(橋梁)(10→2) →道路施設設計2	ロン・チャンター 施設設計(橋梁)(6 施設設計(橋梁)(11 →道路計画施設設計)	林乃 博光 施工計画(橋梁)(無償) →道路施設設計1		
2012年6月	1	Fri															
	2	Sat		打合せ	移動 JL718												
	3	Sun		移動 JL718													
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	13	Wed															
	14	Thu															
	15	Fri			打合せ	移動 JL717											
	16	Sat			打合せ												
	17	Sun			打合せ												
	18	Mon			打合せ												
	19	Tue			打合せ												
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	27	Wed			打合せ												
	28	Thu			打合せ												
	29	Fri			打合せ												
	30	Sat			打合せ												
2012年7月	1	Sun															
	2	Mon		打合せ	移動 JL717		移動 JL717	移動 JL717	移動 JL717								
	3	Tue	道路高橋		道路高橋		道路高橋	道路高橋	道路高橋								
	4	Wed		打合せ	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成								
	5	Thu	E/A署名		協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成								
	6	Fri	道路高橋		道路高橋		道路高橋	道路高橋	道路高橋								
	7	Sat		打合せ	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成								
	8	Sun		打合せ	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成								
	9	Mon		打合せ	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成								
	10	Tue	道路高橋		道路高橋		道路高橋	道路高橋	道路高橋								
	11	Wed		打合せ	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成								
	12	Thu		打合せ	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成								
	13	Fri		打合せ	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成								
	14	Sat		打合せ	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成	協議資料・報告書作成								
	15	Sun		打合せ	移動 JL718	移動 JL718	移動 JL718	移動 JL718	移動 JL718								
	16	Mon		打合せ	移動 JL718	移動 JL718	移動 JL718	移動 JL718	移動 JL718								
	17	Tue		打合せ													
	18	Wed		打合せ													
	19	Thu	道路高橋														
	20	Fri		打合せ													
	21	Sat		打合せ													
	22	Sun		打合せ													
	23	Mon		打合せ													
	24	Tue	道路高橋														
	25	Wed		打合せ													
	26	Thu	G/A署名														
	27	Fri	道路高橋														
	28	Sat		打合せ													
	29	Sun		打合せ													
	30	Mon	道路高橋														
31	Tue		打合せ														



## **資料 3. 関係者(面会者)リスト**





### 3. 主要面談者リスト

#### 在タイ王国日本国大使館 (Embassy of Japan in Thailand)

大鷹 正人	経済部公使
石本 毅	一等書記官
林 良太郎	二等書記官

#### JICA タイ事務所 (JICA Thailand office)

米田一弘	所長
川端 智之	次長
谷口 肇	所員
宮原 藍	所員
宮下 陽二郎	企画調査員

Ms. Katharine Maneethapodi Senior Program Officer

#### Strategic Committee for Water Resources management (SCWRM:水資源管理戦略委員会)

竹谷 公男	アドバイザー (JICA 客員専門員)
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#### ロジャナ工業団地株式会社 (ROJANA INDUSTRIAL PARK PUBLIC Co.,LTD.)

林 邦亮

#### 運輸省道路局 (Department of Highways)

Mr. Chusak Gaywee	Deputy Director General
-------------------	-------------------------

#### 道路局都市間高速道路専門部 (Inter-City Motorway Division)

Mr. Sittichai Boonsaat	Director of Inter-City Motorway Division
Mr. Aditt Thongkun	Secretary of Inter-City Motorway Division
Mr. Suvichan Surabal	Senior Civil Engineer
Mr. Somnuk Wangamornmit	Civil Engineer
Dr. Thanasak Wongtanakitemaroon	Civil Engineer
Dr. Niphan Yaiaboon	Civil Engineer
Mr. Rung Buayaoraksa	Civil Engineer
Ms. Kavalin Wangsiripaisal	Civil Engineer

**道路局都市間高速道路維持管理部 (Inter-City Motorway Maintenance District)**

Mr. Yongyos Vonnaradite Director of Inter-City Motorway Maintenance District

**道路局材料試験・検査部 (Bureau of Material Analysis and Inspection)**

Dr. Montri Dechasakulsom Director Bureau of Material Analysis and Inspection

Mr. Boonkua Janbanjong Director of Analysis Group

Ms. Jeerikun Boonkhum Director of Pavement Design Group

Dr. Poranic Jitareekul Civil Engineer

Mr. Piyapong Jiwatanakulpaosarn Civil Engineer

**道路局国際道路協力部 (Bureau of International Highways Cooperation)**

Dr. Chayatan Phromsorn Director of Bureau of International Highways Cooperation

Ms. Manlika Nuankerd Director of Foreign Relations Group

Dr. Punya Chupanit Director of Management Group in Bureau of International Highways Cooperation

Mr. Natthasak Ariyapurk Senior Civil Engineer

Mr. Thanapon Wirojarust Civil Engineer

Mr. Parin Mruetneatorn Civil Engineer

Ms. Kamonporn Sutthisuksri Foreign Relations Officer

Ms. Sanirat Ketkaew Foreign Relations Officer

Ms. Win Trivitayanurak Foreign Relations Officer

**国際道路協力部 マネジメントグループ**

**(Management Group in Bureau of International Highways Cooperation)**

Dr. Punya Chupanit Director of Management Group in Bureau of International Highways Cooperation

**道路局 調査・設計部 (Bureau of Location and Design)**

Mr. Sombat Jaroenpat Director of Bureau of Location and Design

Mr. Anuparp Oharuensale Senior Civil Engineer

Mr. Pakorn Sripanwong Civil Engineer

**道路局 企画・計画部 (Bureau of Planning)**

Mr. Chusak Gaywee Director of Bureau of Planning

**道路局 環境部 (Office of Environment and Public Involvement)**

Mr. Surajit Thipayakesorn Director of Office of Environment and Public Involvement

Dr. Win Trivitayanurak Environmentalist

## 道路局国道建設部-2 (Bureau of Highway Construction 2)

Mr. Phaithun Khumvongdi Director of Bureau of Highway Construction 2

### 現地コントラクター (Local Contractor)

Vichitbhan Construction Co., Ltd.

Mr. Vivat Chavananand officer in Business Development Department

Mr. Chalermpon Phetsawad Civil Engineer

SSV Construction Co., Ltd.

Mr. Jirachai Na Caiyo Vice President

Mr. Vichan Lerthirancharoen Civil Engineer

D.B.T. Engineering Co., Ltd.

Sarit jenyavanija Director

Mr. Decha Horsuwan Director

NTP Applicater Co., Ltd.

Mr. Kittirote Punasiri General Manager

Banchakij Co., Ltd.

Mr. Patarachai Banchawattana Director

Mr. Patcharin Banchawattana Manager

### 現地コンサルタント (Local Consulting Company)

Asian Engineering Consultants Co., Ltd.

Mr. Somchai Achavanuntakul Chairman

Dr. Sakda Santathadaporn Vice Chairman

Mr. Charoon Patai Executive Director and Manager

Geo-Technology Consultants Co., Ltd.

Mr. Krittanon Nilpanich Director and Sr. Manager Engineering

Mr. Suchart Suksa-ard Senior Field Work and Testing Manager

STS Engineering Consultants Co., Ltd.

Mr. Unnop Tiyyajamorn Manager in Survey and Design Division

S.P.S Consulting Service Co., Ltd.

Ms. Sukon Khawgrib Senior Environmental Scientist



## **資料 4. 討議議事録(M/D, M/M)**



**a) インセプション・レポート現地説明・協議**





MINUTES OF DISCUSSIONS  
ON  
THE PREPARATORY SURVEY  
ON  
THE REHABILITATION PROJECT  
OF THE OUTER BANGKOK RING ROAD (EAST PORTION)  
IN THE KINGDOM OF THAILAND

In response to a request from the Government of the Kingdom of Thailand (hereinafter referred to as "GOT"), the Government of Japan decided to conduct a Project for Comprehensive Flood Management Plan for the Chao Phraya River Basin (hereinafter referred to as "the umbrella Project") which consists of (i) Comprehensive flood management plan (Component 1), (ii) Outline design for Japanese Grant Aid (Component 2) and (iii) Pilot projects for emergency rehabilitation (Component 3). The Japan International Cooperation Agency (hereinafter referred to as "JICA") has started the umbrella Project since December 2011, and had series of discussions on the project selection of Component 2 among organization concerned. Finally, a project titled "The Rehabilitation Project of the Outer Bangkok Ring Road (East Portion)" (hereinafter referred to as "the Project") has been selected by the Department of Highways, Ministry of Transport (hereinafter referred to as "DOH") and JICA. Necessary procedures and arrangements are in progress in respective governments.

According to the Record of Discussions of the umbrella Project signed on 13 January, JICA sent the Preparatory Survey Team (hereinafter referred to as "the Team"), which was headed by Mr. Kazuhiro Yoneda, Chief Representative, JICA Thailand Office, and was scheduled to stay in the country from February 22nd to the end of August, 2012. The Team held discussions with the officials concerned of GOT and conducted a field survey in the study area.

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Preparatory Survey Report.

Bangkok, February 24, 2012



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Mr. Kazuhiro Yoneda  
Leader  
Preparatory Survey Team  
Japan International Cooperation Agency



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Mr. Wanchai Parkluck  
Director General  
Department of Highways,  
Ministry of Transport

## ATTACHMENT

### 1. Background

- October 2012 The flood of the Chao Phraya River began to affect the people and economy of the Kingdom of Thailand.
- October 19 – 28, 2011 JICA Needs Survey Team investigated the flood damages.
- November 7, 2011 Government of Thailand (Ministry of Foreign Affairs) officially requested the umbrella Project proposed by the RID and DWR.
- December 22, 2011 Minutes of Meetings which described basic understanding both sides about framework, contents and important issues to be concerned of the umbrella Project was signed and exchanged by RID, DWR and JICA witnessed by the National Economic and Social Development Board (hereinafter referred to as “NESDB”).
- December 22, 2011 Consultant Team of the umbrella Project was assigned by JICA.
- January 13, 2012 Record of Discussion (hereinafter referred to as “R/D”) which stipulated contents of the umbrella Project was signed and exchanged by NESDB, RID, DWR and JICA.

### 2. Outline of the umbrella Project

- Component 1: Comprehensive flood management plan considering the effect of the climate change and land development. This component consists of two (2) sub-components as follows;
- Sub-component 1-1: Preparation of a detailed map necessary for reviewing the M/P of 1999 (Sub-component 1-2)
- Sub-component 1-2: Review of the “Study on integrated plan for flood mitigation in Chao Phraya River Basin” (hereinafter referred to as “M/P”)
- Component 2: Outline design for Japanese Grant Aid for Disaster Prevention and Reconstruction
- Component 3: Pilot projects of emergency rehabilitations and/or urgent countermeasures to protect the priority area such as the industrial complex and/or Bangkok are implemented

- This Preparatory Survey will be conducted under the Component 2.

### 3. Project Title

Both sides agreed that the project title for this survey was “The Rehabilitation Project of the Outer Bangkok Ring Road (East Portion)”.

*W. Parkluck.* 

4. Objective of the Project

The objective of the Project is to secure the function of logistic network even in the time of flood disaster by heightening the Outer Bangkok Ring Road (East Potion).

5. Project site

The site of the Project is located on the Outer Bangkok Ring Road (East Potion) from the traffic origin to 30 kilometers point as shown in ANNEX 1.

6. Responsible and Implementing Agency

The responsible and implementing entity for the Project is the Department of Highways, Ministry of Transport.

7. Items requested by the Government of Thailand

Through discussions between DOH and the Team, the requested components were confirmed as below.

➤ Heightening one side of the road surface level of the Outer Bangkok Ring Road (East Potion) which goes to the north bound where:

- (1) the level of the road surface is 20 centimeter or more lower than the highest level of the 2011 flood, and
- (2) the toll gates are situated.

Appropriateness and necessity of the request will be assessed and specifications of the request will be decided based on the result of the Preparatory Survey and additional survey done by the JICA's consultant in consideration with budget availability of Japan's Grant Aid and operation and maintenance capacity of DOH.

8. Japan's Grant Aid Scheme

8-1 Thai side understands the Japan's Grant Aid Scheme explained by the Team, as described in ANNEX 2. Thai side also understands that the procedure for the Project is specially arranged due to emergency treatment.

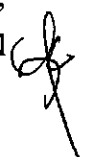
8-2 Thai side will take the necessary measures, as described in ANNEX 3, for smooth implementation of the Project.

9. Schedule of the Survey

9-1 The Team will proceed for further studies in Thailand until the end of August, 2012.

9-2 The Team will prepare the progress report of the Preparatory Survey in English. JICA will dispatch a mission to explain its contents in May.

Contents of the progress report will consist of technical notes, preliminary design, undertakings and inputs from each Government and necessary measures for environmental



and social consideration.

9-3 JICA will prepare the final report of the Preparatory Survey and dispatch a mission to explain its contents in August.

Contents of the final report will be detailed design, implementation plan, cost estimation, and maintenance and monitoring plan.

In addition to the final report, a set of reference documents for making bid documents will be prepared.

9-4 JICA will finalize the final report and send it to the GOT by the end of August, 2012.

## 10. Other relevant issues

### 10-1 Responsibility for the detailed design and bid document

Through the Preparatory Survey and additional survey, JICA will prepare detailed design and related documents just as reference documents for conducting bidding procedure. GOT has to take necessary procedure to authorize the detailed design and the bid document after receiving reference documents.

### 10-2 Provision of Disposal Area of Construction Debris

Thai side agreed to provide the area for construction debris which was from removing the existing pavement and its foundation of the road to be heightened by the Project and take necessary measures according to the related law before the commencement of the construction work.

### 10-3 Environmental and Social Considerations

Both sides agreed that it is not necessary to take procedures for the approval of Environmental Impact Assessment (hereinafter referred to as "EIA") for the Project according to the laws and regulations of Thailand.

The Team explained that the Project is temporally categorized as "B" based on JICA's Guidelines for Environmental and Social Considerations (April, 2010) because the Project does not have significant adverse impact but needs careful consideration for environmental and social impact as it is new construction project. Thus Initial Environmental Examination (hereinafter referred to as "IEE") shall be conducted for the Project.

Both sides agreed that IEE have to be applied to the Project, and IEE will be confirmed by DOH with support from the Team by the time of discussion on the progress report of the Preparatory Survey.

GOT shall have a full responsibility for explanation to stakeholders about environmental impacts of the Project, if necessary.

Also GOT is requested to take actions such as preparing environmental check list as shown in ANNEX 4 as a blank form and taking the monitoring procedure in accordance with the monitoring form as shown in ANNEX 5.

The environmental check list and the monitoring form have to be prepared by the time of discussion on the progress report of the Preparatory Survey.

#### 10-4 Design Policy and Condition

Both sides agreed on the design policy and condition as shown in the Inception Report as the related document to this Minutes of Discussions. If any changes and/or detailed technical issue to be confirmed between both sides arise, technical note will be made, signed and exchanged by both sides. Representative of JICA side for this technical matter is a leader of consultant team, and representative of Thai side is Deputy Director General for Engineering of DOH.

#### 10-5 Arrangement for the Survey

As response to the request by the Team, Thai side agreed to arrange following items:

- (1) To provide the Team with available data, information and materials necessary for the execution of the Survey which was agreed in R/D.
- (2) To prepare the answers for the Questionnaires presented by the Team,
- (3) To assign full-time counterparts to the Team during their stay in Thailand and to play the following roles as the coordinator to the Team:
  - 1) To make the appointments and to set up the meetings with the authorities, departments and all other factories and firms whatever the Team intends to visit,
  - 2) To attend site survey and any other visiting place with the Team and to make any convenience on accommodation, working room, adequate transportation, getting the permissions if required, etc., and
  - 3) To assist and to advise the Team for their collection of data and information as much as possible,
- (4) To take any necessary measures deemed necessary to secure the safety of the members of the Team, and
- (5) To make arrangements to allow the Team to bring back to Japan any necessary data, maps and materials related to the Preparatory Survey, subject to approval by the GOT, in order to prepare the report.

#### 10-6 Operation and Maintenance cost

Necessary cost for operation and maintenance of the project after the completion of the Project will be surveyed through the Preparatory Survey.

#### 10-7 Confidentiality of the Project

All the information related to the Project such as detailed drawings, specifications, and the result of cost estimation shall not be released to a third party before conclusion of all the contract(s) for the Project, because they are confidential documents that contain



information related to the tender.

#### 10-8 Tax Exemption

The tax exemption including Value Added Tax (VAT), custom duty, and any other taxes and fiscal levies in Thailand which is to be arisen from the Project activities will be ensured by DOH. DOH and the Thailand International Development Cooperation Agency will take any procedures necessary for tax exemption with the Ministry of Finance of Thailand at their responsibility.

Annex 1: Project Site


Annex 2: Grant Aid Scheme JAPAN'S GRANT AID

Annex 3: Major Undertakings to be taken by Each Government

Annex 4: Environmental Checklist

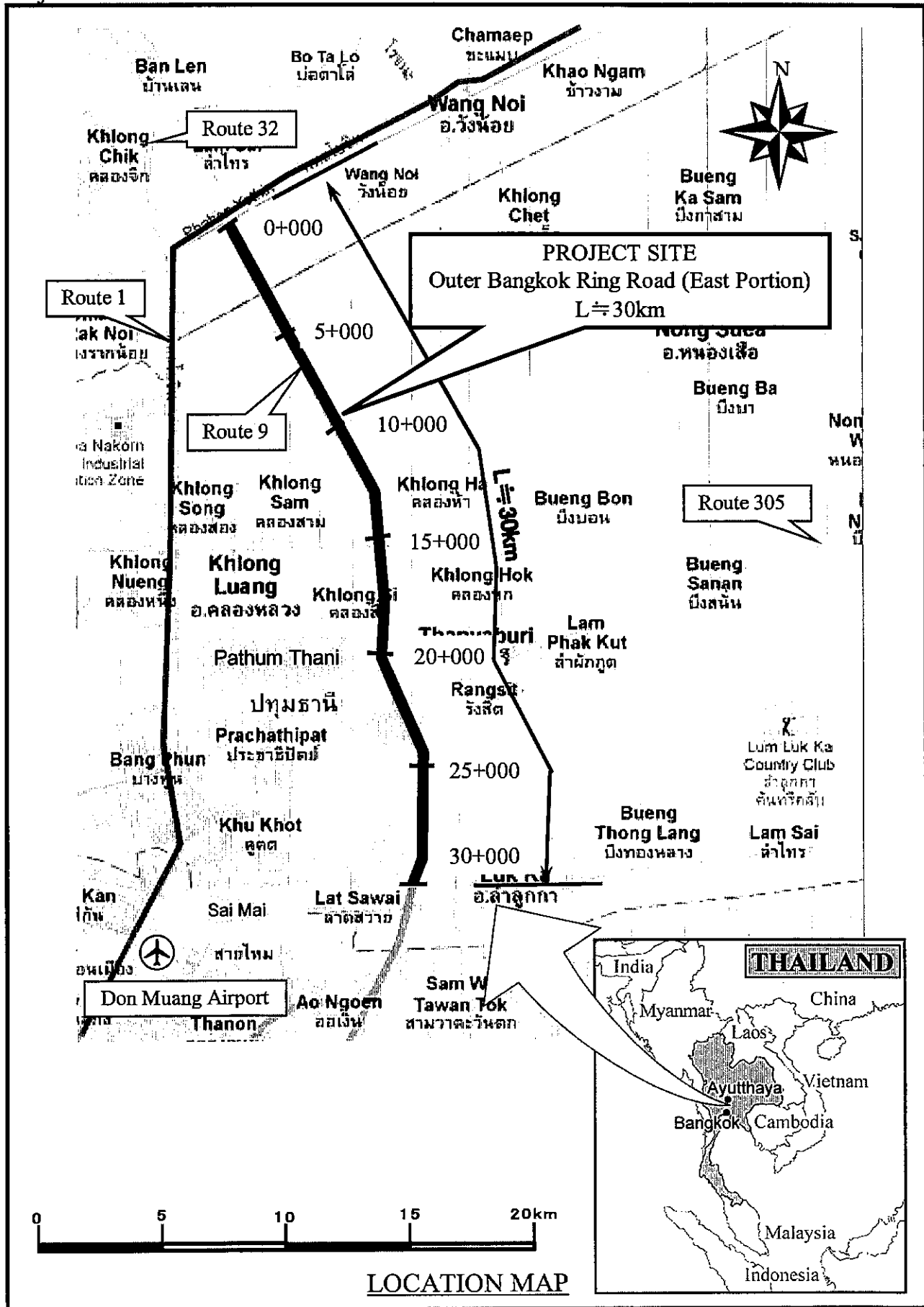
Annex 5: Monitoring Form

Related Document to the Minutes of Discussions: Inception Report



W. Porakul.

Project Site



*N. Parkluek*

## Grant Aid Scheme JAPAN'S GRANT AID

The Government of Japan (hereinafter referred to as “the GOJ”) is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on this law and the decision of the GOJ, JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

The Grant Aid is non-reimbursable fund provided to a recipient country to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

### 1. Grant Aid Procedures

The Japanese Grant Aid is supplied through following procedures:

- Preparatory Survey
  - The Survey conducted by JICA
- Appraisal & Approval
  - Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet
- Authority for Determining Implementation
  - The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as “the G/A”)
  - Agreement concluded between JICA and a recipient country
- Implementation
  - Implementation of the Project on the basis of the G/A

### 2. Preparatory Survey

#### (1) Contents of the Survey

The aim of this Preparatory Survey is to provide reference documents for making bid document for the contract of the Project. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the recipient country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of an outline design and detailed design of the Project.
- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant Aid project. The Detailed Design of the Project is confirmed based on the guidelines of the Japan's Grant Aid scheme.

JICA requests the Government of the recipient country to take whatever measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed



by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA employs (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the Report on the results of the Survey and transfers it to the Government of recipient country.

**3. Japan's Grant Aid Scheme**

(1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes (hereinafter referred to as "the E/N") will be signed between the GOJ and the Government of the recipient country to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the recipient country to continue to work on the Project's implementation after the E/N and G/A.

(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by JICA. This "Verification" is deemed necessary to fulfill accountability to Japanese taxpayers.

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as Annex 3.

(6) "Proper Use"

The Government of the recipient country is required to maintain and use properly and effectively the facilities constructed and the equipment purchased under the Grant Aid, to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Grant Aid.

(7) "Export and Re-export"

The products purchased under the Grant Aid should not be exported or re-exported from the recipient country.

*W. Park*

(8) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority should open an account under the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.
- b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions paid to the Bank.

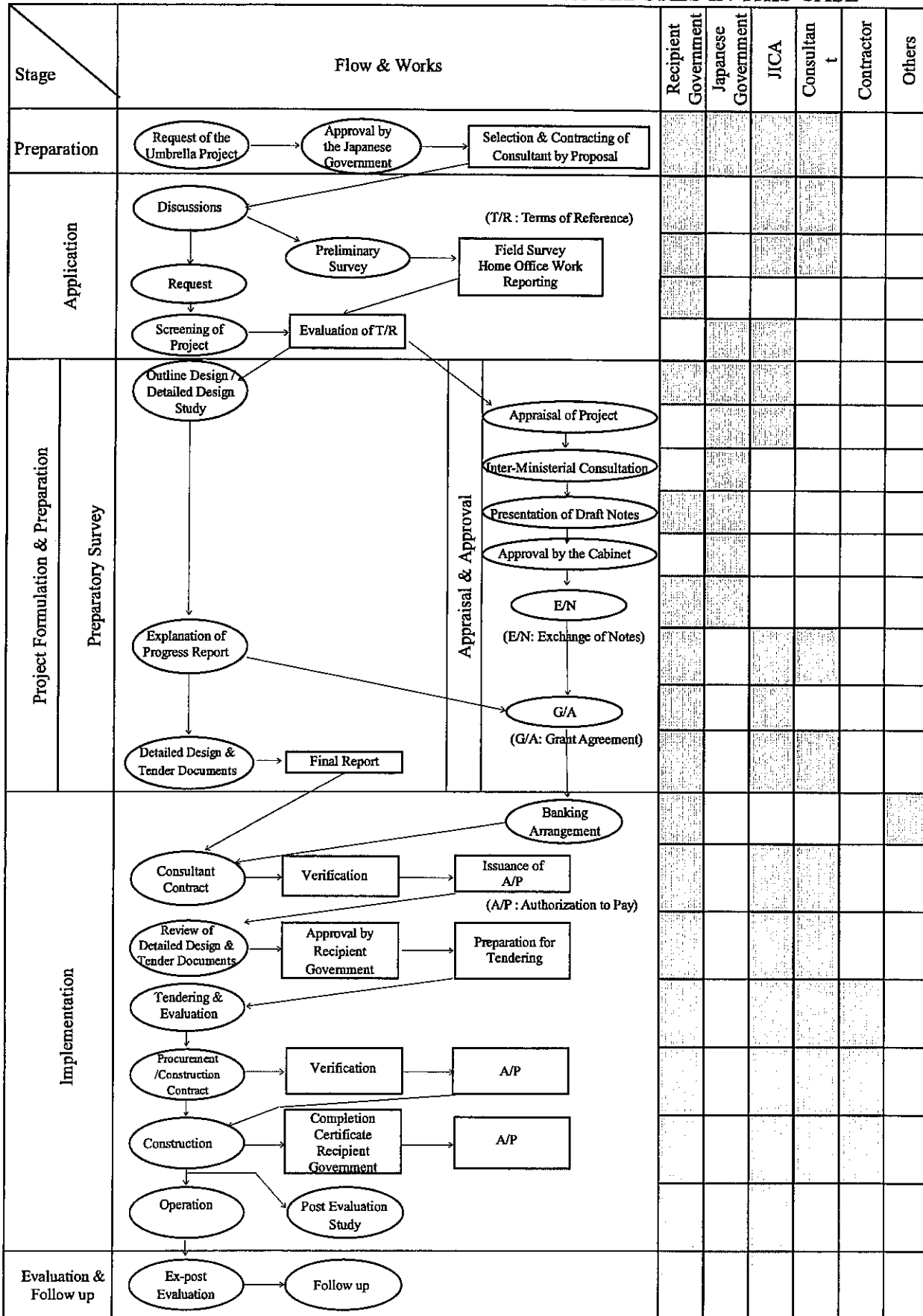
(10) Social and Environmental Considerations

A recipient country must carefully consider social and environmental impacts by the Project and must comply with the environmental regulations of the recipient country and JICA's Guidelines for Environmental and Social Considerations (April, 2010).



W. Parkluck.

## FLOW CHART OF JAPAN'S GRANT AID PROCEDURES IN THIS CASE



*W. Parkhurst.*

## Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	to secure [a lot]/[lots] of land necessary for the implementation of the Project and to clear the [site]/[sites];		●
2	To ensure prompt customs clearance of the products and to assist internal transportation of the products in the recipient country		
	1) Marine (Air) transportation of the Products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the Products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	(●)	(●)
3	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services [be exempted] / [be borne by the Authority without using the Grant]		●
4	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
5	To ensure that the Facilities be maintained and used properly and effectively for the implementation of the Project		●
6	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		●
7	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
8	To give due environmental and social consideration in the implementation of the Project.		●

(B/A : Banking Arrangement, A/P : Authorization to pay)

N. Parkleuk

**Environmental Checklist: 7. Roads**

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) (b) (c) (d)	(a) (b) (c) (d)
	(2) Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) (b)	(a) (b)
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a)	(a)
2 Pollution Control	(1) Air Quality	(a) Is there a possibility that air pollutants emitted from the project related sources, such as vehicles traffic will affect ambient air quality? Does ambient air quality comply with the country's air quality standards? Are any mitigating measures taken? (b) Where industrial areas already exist near the route, is there a possibility that the project will make air pollution worse?	(a) (b)	(a) (b)
	(2) Water Quality	(a) Is there a possibility that soil runoff from the bare lands resulting from earthmoving activities, such as cutting and filling will cause water quality degradation in downstream water areas? (b) Is there a possibility that surface runoff from roads will contaminate water sources, such as groundwater? (c) Do effluents from various facilities, such as parking areas/service areas comply with the country's effluent standards and ambient water quality standards? Is there a possibility that the effluents will cause areas not to comply with the country's ambient water quality standards?	(a) (b) (c)	(a) (b) (c)
	(3) Wastes	(a) Are wastes generated from the project facilities, such as parking areas/service areas, properly treated and disposed of in accordance with the country's regulations?	(a)	(a)

*N. Parkkuk.*

	(4) Noise and Vibration	(a) Do noise and vibrations from the vehicle and train traffic comply with the country's standards?  (a) Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?  (a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem? (d) Are adequate protection measures taken to prevent impacts, such as disruption of migration routes, habitat fragmentation, and traffic accident of wildlife and livestock? (e) Is there a possibility that installation of roads will cause impacts, such as destruction of forest, poaching, desertification, reduction in wetland areas, and disturbance of ecosystems due to introduction of exotic (non-native invasive) species and pests? Are adequate measures for preventing such impacts considered? (f) In cases the project site is located at undeveloped areas, is there a possibility that the new development will result in extensive loss of natural environments?	(a)  (a)  (a) (b) (c) (d) (e) (f)	(a)
	(1) Protected Areas		(a)	(a)
	(2) Ecosystem		(a) (b) (c) (d) (e) (f)	(a) (b) (c) (d) (e) (f)
	(3) Hydrology	(a) Is there a possibility that alteration of topographic features and installation of structures, such as tunnels will adversely affect surface water and groundwater flows?  (a) Is there any soft ground on the route that may cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides, where needed? (b) Is there a possibility that civil works, such as cutting and filling will cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides? (c) Is there a possibility that soil runoff will result from cut and fill areas, waste soil disposal sites, and borrow sites? Are adequate measures taken to prevent soil runoff?	(a)  (a) (b) (c)	(a)  (a) (b) (c)
	(4) Topography and Geology		(a) (b) (c)	(a) (b) (c)

3 Natural Environment

*W. Park-Neech*

<p>(1) Resettlement</p> <p>(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement?(b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement?(c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement?(d) Are the compensations going to be paid prior to the resettlement?(e) Are the compensation policies prepared in document?(f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples?(g) Are agreements with the affected people obtained prior to resettlement?(h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan?(i) Are any plans developed to monitor the impacts of resettlement?(j) Is the grievance redress mechanism established?</p>	<p>(a)(b)(c)(d)(e)(f)(g)(h)(i)(j)</p>	<p>(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement?(b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement?(c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement?(d) Are the compensations going to be paid prior to the resettlement?(e) Are the compensation policies prepared in document?(f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples?(g) Are agreements with the affected people obtained prior to resettlement?(h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan?(i) Are any plans developed to monitor the impacts of resettlement?(j) Is the grievance redress mechanism established?</p>	<p>(a)(b)(c)(d)(e)(f)(g)(h)(i)(j)</p>
<p>4 Social Environment</p> <p>(2) Living and Livelihood</p>	<p>(a)(b)(c)(d)(e)(f)(g)(h)(i)(j)</p>	<p>(a) Where roads are newly installed, is there a possibility that the project will affect the existing means of transportation and the associated workers? Is there a possibility that the project will cause significant impacts, such as extensive alteration of existing land uses, changes in sources of livelihood, or unemployment? Are adequate measures considered for preventing these impacts?  (b) Is there any possibility that the project will adversely affect the living conditions of the inhabitants other than the target population? Are adequate measures considered to reduce the impacts, if necessary?  (c) Is there any possibility that diseases, including infectious diseases, such as HIV will be brought due to immigration of workers associated with the project? Are adequate considerations given to public health, if necessary?  (d) Is there any possibility that the project will adversely affect road traffic in the surrounding areas (e.g., increase of traffic congestion and traffic accidents)?  (e) Is there any possibility that roads will impede the movement of inhabitants?  (f) Is there any possibility that structures associated with roads (such as bridges) will cause a sun shading and radio interference?</p>	<p>(a)(b)(c)(d)(e)(f)(g)(h)(i)(j)</p>

*N. Parkhokh*

	(3) Heritage	(a) Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a)	(a)
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a)	(a)
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources to be respected?	(a) (b)	(a) (b)
4 Social Environment	(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project? (b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.? (d) Are appropriate measures being taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	(a) (b) (c) (d)	(a) (b) (c) (d)
5 Others	(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?	(a) (b) (c)	(a) (b) (c)

*W. Parkhach.*



	(2) Monitoring	<p>(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts?</p> <p>(b) What are the items, methods and frequencies of the monitoring program?</p> <p>(c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)?</p> <p>(d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?</p>	(a) (b) (c) (d)	(a) (b) (c) (d)
6 Note	Reference to Checklist of Other Sectors	<p>(a) Where necessary, pertinent items described in the Forestry Projects checklist should also be checked (e.g., projects including large areas of deforestation). (b) Where necessary, pertinent items described in the Power Transmission and Distribution Lines checklist should also be checked (e.g., projects including installation of power transmission lines and/or electric distribution facilities).</p>	(a)(b)	(a)(b)
	Note on Using Environmental Checklist	<p>(a) If necessary, the impacts to transboundary or global issues should be confirmed, if necessary (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).</p>	(a)	(a)

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made.

In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).

2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which it is located.

*W. Parkhuck*



## MONITORING FORM

-If environmental reviews indicate the need of monitoring by JICA, JICA undertakes monitoring for necessary items that are decided by environmental reviews. JICA undertakes monitoring based on regular reports including measured data submitted by the project proponent. When necessary, the project proponent should refer to the following monitoring form for submitting reports.

-When monitoring plans including monitoring items, frequencies and methods are decided, project phase or project life cycle (such as construction phase and operation phase) should be considered.

### 1. Responses/Actions to Comments and Guidance from Government Authorities and the Public

Monitoring Item	Monitoring Results during Report Period
ex.) Responses/Actions to Comments and Guidance from Government Authorities	

### 2. Mitigation Measures

#### - Air Quality (Emission Gas / Ambient Air Quality)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
SO <sub>2</sub>						
NO <sub>2</sub>						
CO						
O <sub>3</sub>						
Soot and dust						
SPM						
Dust						

#### - Water Quality (Effluent/Wastewater/Ambient Water Quality)

I. II. III. Item	1. 2. 3. Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
pH						
SS (Suspended Solid)						
BOD/COD						
DO						
Total Nitrogen						

Total Phosphorus						
Heavy Metals						
Hydrocarbons / Mineral Oils						
Phenols						
Cyanide						
Temperature						

**- Waste**

Monitoring Item	Monitoring Results during Report Period

**- Noise / Vibration**

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
Noise level						
Vibration level						

**- Odor**

Monitoring Item	Monitoring Results during Report Period

**3. Natural Environment**

**- Ecosystem**

Monitoring Item	Monitoring Results during Report Period
ex.) Negative effects/Actions to Valuable species	

**4. Social Environment**

**- Resettlement**

Monitoring Item	Monitoring Results during Report Period

**- Living / Livelihood**

Monitoring Item	Monitoring Results during Report Period

*W. Park/cek*



**b) 概略設計プロセス・レポート  
現地説明・協議**



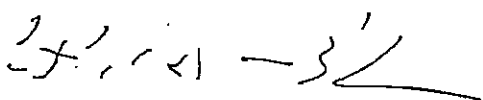
MINUTES OF MEETINGS  
ON THE PREPARATORY SURVEY  
ON THE REHABILITATION PROJECT  
OF THE OUTER BANGKOK RING ROAD (EAST PORTION)  
IN THE KINGDOM OF THAILAND

According to the Minutes of Discussions on the Preparatory Survey on "The Rehabilitation Project of the Outer Bangkok Ring Road (East Portion)" (hereinafter referred to as "the Project") on February 29, 2012, JICA Study Team conducted series of field survey and discussion among related organization, and finally made Progress Report as attached.

On this occasion, the JICA Preparatory Survey Team (hereinafter referred to as "the Team"), which was headed by Mr. Kazuhiro Yoneda, Chief Representative, JICA Thailand Office and Department of Highways (hereinafter referred to as "DOH") had discussions on the contents of the Progress Report, and reached to the agreement.

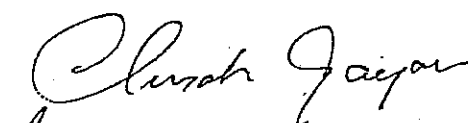
The contents of the discussions which should be taken note are attached as the Annex.

Bangkok, May 31, 2012



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Mr. Kazuhiro Yoneda  
Leader  
Preparatory Survey Team  
Japan International Cooperation Agency



---

Mr. Wanchai Parkluck  
Director General  
Department of Highways,  
Ministry of Transport

## 1. Technical Issue

The Thai side basically understood and agreed on the Technical Note as the Attachment-3 of the Progress Report as main points of technical issues and preliminary design of the road and related structures.

## 2. Obligation of Thai side

2-1 The Team explained the obligations of Thai side and Thai side agreed on the contents as follow.

- (1) To provide documents, data and information necessary for the execution of this project;
- (2) To acquire land for construction works;
- (3) To secure land for the construction yard, stock-piling yard, site office, girders' manufacturing yard, and detour routes;
- (4) To secure borrow pits, spoil-banks, and industrial waste disposal areas;
- (5) To obtain all necessary permits, to coordinate and share necessary information with concerning organizations regarding the method of road occupancy of the Motorway, method for allowing public vehicles, traffic restrictions, and day-time, night-time works;
- (6) To release information and take necessary steps before hand regarding blockage of road for public vehicles during relocation of overhead facilities such as traffic signs ;
- (7) To coordinate with the concerned organization of underground utilities pertaining to its protection, reinforcement/ repair and to release information as well as to take necessary steps to alert the road users and the locals in case disruption of water and electricity are anticipated;
- (8) To coordinate with the concerned organization of street lights and electronic traffic sign regarding its protection or/and its relocation and to take necessary steps to inform the road users beforehand in case of disruption of electricity is anticipated;
- (9) To obtain necessary permits for allowing the personnel engaged in the construction work such as the supervision engineer, construction workers etc. to access the motorway;
- (10) To obtain necessary permits to allow the construction vehicles and equipment to enter and exit the motorway;
- (11) To bear the Advising Commission and Payment Commission to the Japanese bank where an account related to the project is opened, for the banking services like service charge and disbursement charge;
- (12) To bear the value-added-tax related to the project;
- (13) To assist in the process for exemption of materials imported for the construction work from taxation and Customs clearance in order to ensure smooth inland transportation;



- (14) To assist in the process for exemption of Japanese nationals engaged in the construction work from Customs duties and other fiscal levies on products and services necessary for the execution of the project;
- (15) To assist in the process for exemption of Japanese nationals from all legislation measures necessary for entering and staying in the Kingdom of Thailand;
- (16) To ensure proper use and maintenance of the road after its construction;
- (17) To cooperate in solving potential troubles with the local people or any third party in connection with the execution of the project; and
- (18) To bear all expenses required for the execution of the project, other than those borne by the Grant-Aid of Japan.

Thai side explained that some items such as Customs Clearance, Customs Duties, and Fiscal Levies were not responsibility of DOH, and DOH could just assist for those items. The Team understood it, and the Team requested DOH to consult with responsible organizations and Thailand International Development Cooperation Agency on the issue. DOH agreed on it.

2-2 According to the request from Thai side, the Team agreed that following issue would be included into the Japanese Grant Aid Project.

- (1) To install equipment for electricity at the site office;
- (2) To remove or/and relocate obstacles of construction (toll gate facilities, trees); and
- (3) To pay the toll fees for construction vehicles and equipment to enter and exit the motorway.

### 3. Environmental Consideration

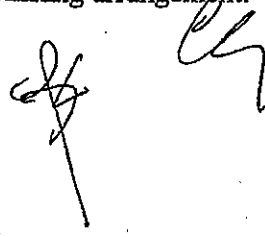
3-1 Both sides basically agreed on the draft of Initial Environmental Examination Report for the Project. Although the result of evaluation will not be changed from the draft version, it needs some modification on the wording according to the comments from the section/department in charge of the environmental issue of the both sides. The report will be finalized within three weeks by Thai side with the technical support from the Team and be confirmed by another minutes of meetings signed by Chief Engineer of the Team and representative of DOH.

3-2 DOH questioned regarding the Mitigation Plan whether the mitigation plans could be included into the contract and DOH would just conduct monitoring or not. The Team answered that contents of the mitigation plan could be included into the contract and DOH monitor those activities.

### 4. Banking Account

Thai side questioned to the Team whether the Bank could be Japanese Bank which has a branch in Bangkok or not. The Team answered that DOH has to open the Banking Account in Japan and opening the account in any branch in Bangkok or Thailand could not be accepted.

Thai side understood it and requested the Team to assist for the Process. The Team answered that Bank in Japan and consultant Team can assist DOH for banking arrangement.

Two handwritten signatures in black ink. The signature on the left is more complex and stylized, while the one on the right is simpler and more fluid.

MINUTES OF MEETINGS  
ON THE PREPARATORY SURVEY  
ON THE REHABILITATION PROJECT  
OF THE OUTER BANGKOK RING ROAD (EAST PORTION)  
IN THE KINGDOM OF THAILAND

According to the Minutes of Meetings on the Preparatory Survey on “The Rehabilitation Project of the Outer Bangkok Ring Road (East Portion)” (hereinafter referred to as “the Project”) on May 31, 2012, Department of Highways, Ministry of Transport (hereinafter referred to as “DOH”) finalized the Initial Environmental Examination Report (hereinafter referred to as “the IEE Report”) with the technical support from the JICA Preparatory Survey Team (hereinafter referred to as “the Team”) as attached.

On the meeting, DOH and the Team had discussions on the contents of the IEE Report, and reached the agreement.

Bangkok, June 19, 2012

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**Mr. Takahiro MISHINA**  
Chief Engineer  
JICA Preparatory Survey Team

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**Mr. Chusak GAYWEE**  
Deputy Director General for Engineering  
Department of Highways  
Ministry of Transport



**c) 概略設計ファイナル・レポート  
現地説明・協議**



MINUTES OF MEETINGS  
ON THE PREPARATORY SURVEY  
ON THE REHABILITATION PROJECT OF THE OUTER BANGKOK RING ROAD  
IN THE KINGDOM OF THAILAND

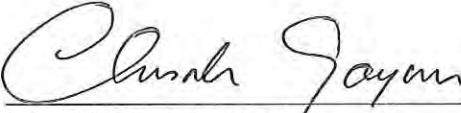
According to the Minutes of Discussions on the Preparatory Survey on “The Rehabilitation Project of the Outer Bangkok Ring Road” (hereinafter referred to as “the Project”) on February 24, 2012, JICA Survey Team conducted series of field survey and discussion among related organizations, and finally made draft report of the survey.

In order to explain and consult with Department of Highways (hereinafter referred to as “DOH”) on the components of the draft report, JICA sent the Draft Report Explanation Team (hereinafter referred to as “the Team”), headed by Mr. Kunihiro Yamauchi, Deputy Director General for Planning and Coordination, Global Environment Department, Japan International Cooperation Agency, from August 26 to 29, 2012.

As a result of the discussions, both sides confirmed the items described on the attached sheets.

Bangkok, August 29, 2012

  
\_\_\_\_\_  
Mr. Kunihiro Yamauchi  
Leader  
Draft Report Explanation Team  
Japan International Cooperation Agency

  
\_\_\_\_\_  
Mr. Wanchai Parkluck  
Director General  
Department of Highways,  
Ministry of Transport

## Attachment

### 1. Components of the draft report and related documents

DOH agreed with and accepted the contents of the draft report and the related document prepared by the JICA survey team. The Japanese side will finalize the Final Report according to the comments from DOH.

### 2. Schedule of the Survey

The Team explained the tentative implementation schedule as shown in Annex-2.

DOH requested to minimize construction period to be not more than one and a half years in order to minimize traffic congestion period.

The team answered to consider the request and report in the Final Report.

### 3. Japan's Grant Aid Scheme

DOH understood Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Thailand as explained by the Team which was described in the Minutes of Meetings signed on February 24, 2012.

### 4. Confidentiality on Detailed Specifications

Both sides confirmed all the information related to the Project including technical specifications and drawings and other technical information shall not be released to any other party(ies) before the signing of all the Contract(s) for the Project.

### 5. Undertakings of Government of Thailand

5-1 To provide documents, data and information necessary for the execution of this project;

5-2 To acquire land for construction works;

5-3 To secure land for the construction yard, stock yard, disposal area for construction debris, site office yard and detour routes;

5-4 To secure borrow pits, spoil-banks, and industrial waste disposal areas;

5-5 To obtain all necessary permits, to coordinate and share necessary information with the organizations concerned regarding the method of road occupancy of the Motorway, method for allowing public vehicles, traffic restrictions, and day-time, night-time works;

5-6 To release information and take necessary steps before hand regarding blockage of road for public vehicles during relocation of overhead facilities such as traffic signs;



- 5-7 To coordinate with the organizations concerned of underground utilities pertaining to its protection, reinforcement/repair and to release information as well as to take necessary steps to alert the road users and the locals in case disruption of water and electricity are anticipated;
- 5-8 To coordinate with the organizations concerned of street lights and electronic traffic sign regarding its protection or/and its relocation and to take necessary steps to inform the road users beforehand in case of disruption of electricity is anticipated;
- 5-9 To obtain necessary permits for allowing the personnel engaged in the construction work such as the supervision engineer, construction workers etc. to access the motorway;
- 5-10 To bear toll collection system;
- 5-11 To bear the advising commission and payment commission to the Japanese bank where an account related to the Project is opened, for the banking services like service charge and disbursement charge;
- 5-12 To exempt the value added tax related to the Project;
- 5-13 To assist in the process for exemption of materials imported for the construction work from taxation and customs clearance in order to ensure smooth inland transportation;
- 5-14 To assist in the process for exemption of Japanese nationals engaged in the construction work from customs duties and other fiscal levies on products and services necessary for the execution of the Project;
- 5-15 To assist in the process for exemption of Japanese nationals from all legislation measures necessary for entering and staying in the Kingdom of Thailand;
- 5-16 To ensure proper use and maintenance of the road after its construction;
- 5-17 To cooperate in solving potential troubles with the local people or any third party in connection with the execution of the Project; and
- 5-18 To bear all expenses required for the execution of the Project, other than those borne by the Grant Aid of Japan.

Thai side explained that some items such as value added tax, customs clearance, customs duties, and fiscal levies were not responsibility of DOH, and DOH could just assist for those items. The Team understood it, and the Team requested DOH to consult with responsible organizations and Thailand International Development Cooperation Agency on the issue, DOH agreed on it.

6. Design Policy and Liability on submergence in case of flooding

The Team explained and DOH agreed that:

- (1) the objective of the project is to secure the function of logistic network even in the time of flood disaster by raising existing road elevation;
- (2) the design road elevation is raised with an concept of allowing upto 20cm submergence of water above road surface during similar flooding as in 2011 which recorded historical highest flood level in the surrounding area of the Project sites; and
- (3) in case that the road structure will be soaked or submerged due to flooding and damage of the road occurs, Japanese side including the Consultant and the Contractor shall not be liable for such damages.

7. Consolidation Settlement

7-1 Additional boring investigation

The Team explained and DOH agreed the result of estimation of consolidation settlement, the prospected situation that submergence on the road would be still acceptable level, and that the countermeasures for settlement would not be provided under the Project.

The JICA survey team will conduct additional boring investigation located at the existing carriageway to confirm the calculation of consolidation settlement done by the JICA survey team.

7-2 Allowable consolidation settlement

Both sides agreed that allowable consolidation settlement should be specified in the technical specification of the tender document.

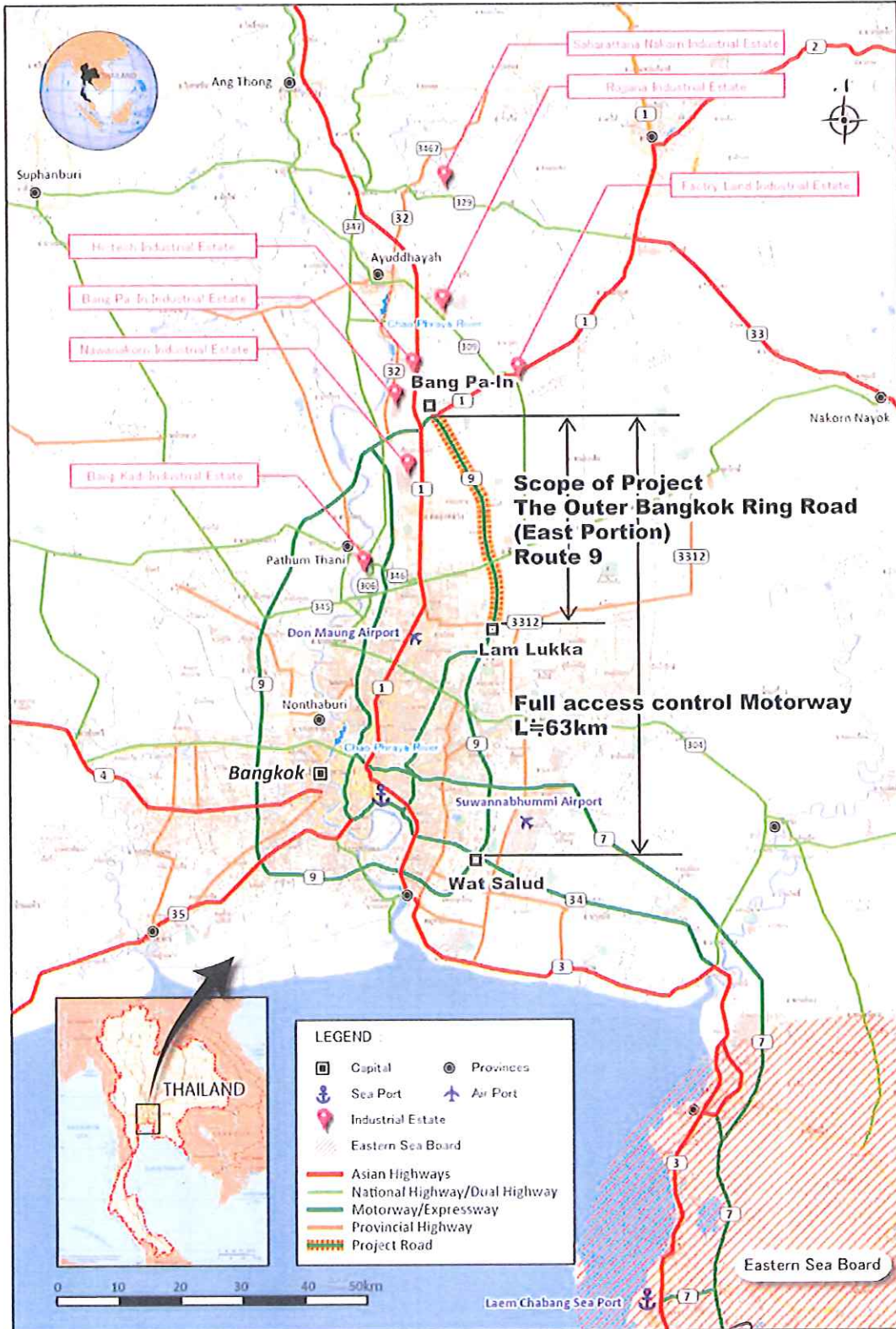
8. Modified Asphalt Concrete Pavement

Both sides agreed that modified asphalt concrete pavement would be applied on the toll gate area and two outer lanes of the normal section for heavy vehicles.



The Contents of the Project

1. Site Location



## 2. Scope of Work

The Project's scope of work consists of the following items.;

Work Items		Unit	Quantity
Removal Work		L.S.	1
	Asphalt Concrete Pavement in Motorway		
	Cement Concrete Pavement in Toll Gate		
	Median Concrete Barrier		
Pavement Work		L.S.	1
	Motorway		
	Toll Gate		
	Ramp and Frontage Road		
Median Work		L.S.	1
	Concrete Barrier,		
	L-Type Precast Concrete Wall		
Drainage Work		L.S.	1
	Catch Basin		
	Inlet/Outlet Protection		
Safety Work		L.S.	1
	Sign Post, Guide Post		
	Guardrail		
	Signage, Pavement Marking		
Road Earthwork	Slope Protection Work	L.S.	1
Toll Gate Work	Toll Gate, Pedestrian Overpass for Toll Gate Access	L.S.	1
Temporary Works	Traffic Control	L.S.	1







## **資料 5. 技術検討委員会設置**







คำสั่งกรมทางหลวง

ที่ บ.๑/ ๓๓ /๒๕๕๕

เรื่อง แต่งตั้งคณะกรรมการพิจารณาแบบรายละเอียดและข้อกำหนดมาตรฐานการก่อสร้าง  
โครงการบูรณะทางหลวงพิเศษระหว่างเมืองหมายเลข ๙ ถนนวงแหวนรอบนอก (ด้านตะวันออก)  
ภายใต้โครงการความช่วยเหลือแบบให้เปล่าจากรัฐบาลญี่ปุ่น

เพื่อประโยชน์แก่ทางราชการและเพื่อให้โครงการบูรณะทางหลวงพิเศษระหว่างเมืองหมายเลข ๙  
ถนนวงแหวนรอบนอก (ด้านตะวันออก) ภายใต้โครงการความช่วยเหลือแบบให้เปล่าจากรัฐบาลญี่ปุ่น  
เป็นไปอย่างมีประสิทธิภาพ รวดเร็ว และถูกต้องสมบูรณ์ จึงแต่งตั้งคณะกรรมการพิจารณาแบบรายละเอียด  
และข้อกำหนดมาตรฐานการก่อสร้าง โครงการบูรณะทางหลวงพิเศษระหว่างเมืองหมายเลข ๙  
ถนนวงแหวนรอบนอก (ด้านตะวันออก) ร่วมกับคณะที่ปรึกษาของ JICA ดังนี้-

๑. องค์ประกอบ

- |      |   |                            |
|------|---|----------------------------|
| ๑.๑  | รองอธิบดีฝ่ายวิชาการ  | ประธานกรรมการ              |
| ๑.๒  | ผู้อำนวยการสำนักแผนงาน  | กรรมการ                    |
| ๑.๓  | ผู้อำนวยการสำนักสำรวจและออกแบบ  | กรรมการ                    |
| ๑.๔  | ผู้อำนวยการสำนักบริหารโครงการทางหลวงระหว่างประเทศ                           | กรรมการ                    |
| ๑.๕  | ผู้อำนวยการสำนักก่อสร้างทางที่ ๒  | กรรมการ                    |
| ๑.๖  | ผู้อำนวยการสำนักวิเคราะห์และตรวจสอบ   | กรรมการ                    |
| ๑.๗  | ผู้อำนวยการกองทางหลวงพิเศษระหว่างเมือง                                      | กรรมการ                    |
| ๑.๘  | ผู้อำนวยการสำนักงานสิ่งแวดล้อมและการมีส่วนร่วมของประชาชน                    | กรรมการ                    |
| ๑.๙  | ผู้อำนวยการสำนักงานบำรุงทางหลวงพิเศษระหว่างเมือง                            | กรรมการ                    |
| ๑.๑๐ | นายปัญญา ชูพานิช ผู้อำนวยการกลุ่มบริหารโครงการเงินกู้และเงินช่วยเหลือ (สค.) | กรรมการและเลขานุการ        |
| ๑.๑๑ | นายปริญญา มฤตสาธร วิศวกรโยธาปฏิบัติการ (สค.)                                | กรรมการและผู้ช่วยเลขานุการ |

๒. อำนาจหน้าที่

- ๒.๑ พิจารณาและให้ความเห็นชอบร่างแบบรายละเอียด (Detailed Designs)
- ๒.๒ พิจารณาและให้ความเห็นชอบร่างข้อกำหนดมาตรฐานการก่อสร้าง (Specifications)
- ๒.๓ ให้ข้อมูลที่จำเป็นแก่ที่ปรึกษาในการจัดทำร่าง Detailed Designs และ Specifications
- ๒.๔ ดำเนินการอื่นๆ ตามที่เห็นสมควร

ทั้งนี้ ตั้งแต่บัดนี้เป็นต้นไป

สั่ง ณ วันที่ ๑๔ มีนาคม พ.ศ. ๒๕๕๕

(นายวันชัย ภาคลักษณ์)  
อธิบดีกรมทางหลวง

09 March 2012

Subject: Request for setting up of Department of Highways' Committee for The Rehabilitation Project of The Outer Bangkok Ring Road (East Portion) under Japan's Grant Aid

Dear Director General,

According to Japan's Grant Aid to Department of Highways for The Rehabilitation of the Outer Bangkok Ring Road (East Portion), JICA on behalf of Government of Japan assigned CTI Engineering International group for the preparatory survey task.

The Minutes of Discussion between Department of Highways and JICA representatives has signed on 27 February 2012, to allow CTI start their working on surveying, investigation, highway detailed design and specifications. The working complete date is determined as end of August 2012.

Therefore, I would like to request for setting up of the Committee that the members should be selected from related divisions. The purpose is to encourage the works and to attend the joint meeting with JICA consultant team in terms of detailed design and specifications' consideration and agreement approval.

This is for your consideration and approval.

Chayatarn Promsorn

Director of Bureau of International Highways Cooperation

15 March 2012

Subject: Setting up of Department of Highways' Committee for The Rehabilitation Project of The Outer Bangkok Ring Road (East Portion) under Japan's Grant Aid

For government advantage and effectiveness of the mentioned project, I therefore would like to set up Department of Highways' Committee as follows.

1. Members

1.1 Deputy Director General for Engineering	Chairman
1.2 Director of Bureau of Planning	Member
1.3 Director of Bureau of Location and Design	Member
1.4 Director of Bureau of International Highways Cooperation	Member
1.5 Director of Bureau of Highways Construction 2	Member
1.6 Director of Bureau of Material Analysis and Inspection	Member
1.7 Director of Inter-City Motorway Division	Member
1.8 Director of Office of Environmental and Public Participation, Bureau of Planning	Member
1.9 Director of Office of Inter-City Motorway Maintenance District, Inter-City Motorway Division	Member
1.10 Mr. Panya Chupanich	Member and Secretary
1.11 Mr. Parin Mruetusatorn	Member and Assistant Secretary

2. Duties

- 2.1 To consider and provide agreement for detailed designs proposed by JICA consultant
- 2.2 To consider and provide agreement for specifications proposed by JICA consultant
- 2.3 To provide necessary information to JICA consultant for the preparing of detailed designs and specifications
- 2.4 Others (if required)

Wanchai Parkluck

Director General



## 資料 6. テクニカル・ノート



**THE PREPARATORY SURVEY**  
**ON**  
**THE REHABILITATION PROJECT**  
**OF**  
**THE OUTER BANGKOK RING ROAD (EAST PORTION)**  
**IN THE KINGDOM OF THAILAND**  
**TECHNICAL NOTES**

**MAY 2012**

**CTI ENGINEERING INTERNATIONAL CO., LTD.**

**ORIENTAL CONSULTANTS CO., LTD.**

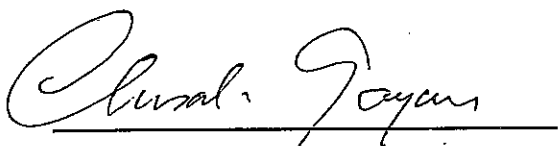
**NIPPON KOEI CO., LTD.**

**CTI ENGINEERING CO., LTD.**



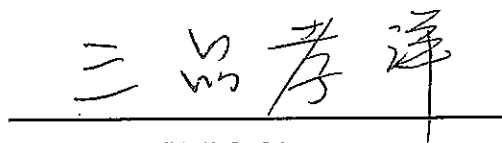
The Survey Team of Japan International Cooperation Agency (hereafter referred to as JICA Survey Team) and the members of Department of Highways' Committee for the "The Rehabilitation Project of The Outer Bangkok Ring Road (East Portion)," (hereinafter referred to the Project) have agreed upon items of the technical issues during the meeting held on May 15, 2012. The items of the technical discussion are discussed in (Annex-1) and the list of participants is shown in (Annex-2).

Bangkok, May 15, 2012



**Mr. Chusak Gaywee**

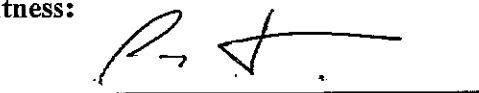
Chairman  
Deputy Director General for Engineering  
Department of Highways (DOH)



**Mr. MISHINA Takahiro**

Leader of Component 2,  
Preparatory Survey Team  
Japan International Cooperation Agency

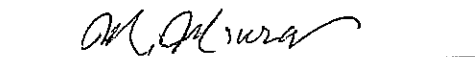
Witness:



**Dr. Punya Chupanit**

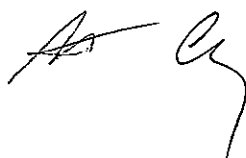
Committee Secretary  
Department of Highways (DOH)

Witness:



**Mr. MIURA Minoru**

Chief Engineer  
Preparatory Survey Team  
Japan International Cooperation Agency





## Technical Note

### 1 Technical Approach

#### 1.1 Sections of the road to be heightened

The study shall be planned based on the contents discussed in February 2012 with DOH. However, the section of the road to be heightened that was determined in February will be changed to the sections mentioned below. These new sections have been determined based on the results of the topographic survey carried out under this project. (Refer to Appendix-1)

**Elevating plan 1:** *Minus twenty (-20) cm from the largest recorded flood level in 2011 (historical highest flood level)*  
*North bound: Sta.10+600 to Sta.11+185, Sta.11+500 to Sta.20+580, Sta.23+690 to Sta.24+570, Sta.25+400 to Sta.29+200*

**Elevating plan 2\*:** *Plus ten (10) cm from the largest recorded flood level in 2011 (historical highest flood level)*  
*North bound: Sta.24+570 to Sta.25+400*

**Total Length**                      **15.18km**

\* The scope for this plan is tentative and will be decided following discussions between JICA and DOH.

#### 1.2 Design Standard

Design policy and standards for the design of road rehabilitation will be applied in accordance with the Inception Report as given below;

- 1) The design flood level is determined from the largest recorded flood level observed in 2011;
- 2) AASHTO (American Association of the State Highway and Transportation Officials) or Thai Design Standards based on AASHTO will be basically applied to the Project;
- 3) The Japanese Standards will be applied if there is no applicable item in the AASHTO or Thai Design Standards;
- 4) AASHTO Guide for Design of Pavement Structures 1993 will be applied for pavement calculation.

#### 1.3 Slope Protection

Block sodding and topsoil 20cm (Clay) will be planned for slope protection for the road section to be raised. The slope of fill/embankment will be 1 on 4 in principal (same as the existing design).

#### 1.4 Road Drainage System

The existing drainage system will be studied by estimation of run off volume and required capacity of the drainage facilities. The road surface drainage will be discharged to the existing drainage facilities. Additional drainage will be provided only if the existing drainage facilities lack capacity.

Rehabilitation of the existing facilities will be studied for facilitating smooth drainage within the raising section. However, this treatment will be limited inside the existing fence.

#### 1.5 Overhead Crossing Structures

The existing overhead crossing structures will be elevated in case the vertical clearance required (as designated by DOH) is affected by the heightening of the road. The overhead crossing structures will include gate-type signboards and overhead pedestrian crossing near the toll gate. The roads, ramps traversing the objective road will not be included. Vertical clearance at these locations shall comply at least with the absolute criteria of DOH Motorway Standard.

#### 1.6 Toll Gate

- 1 The scope for the toll gate area will be limited to the north bound as demarcated in the initial scope.
- 2 The works to be covered in the Project are the raising of existing road surface level and the structures of the toll gate.
- 3 The facilities related to the operation system such as detectors, machines and equipment, traffic signal etc. will not be included.

#### 1.7 Service Road along NR.9

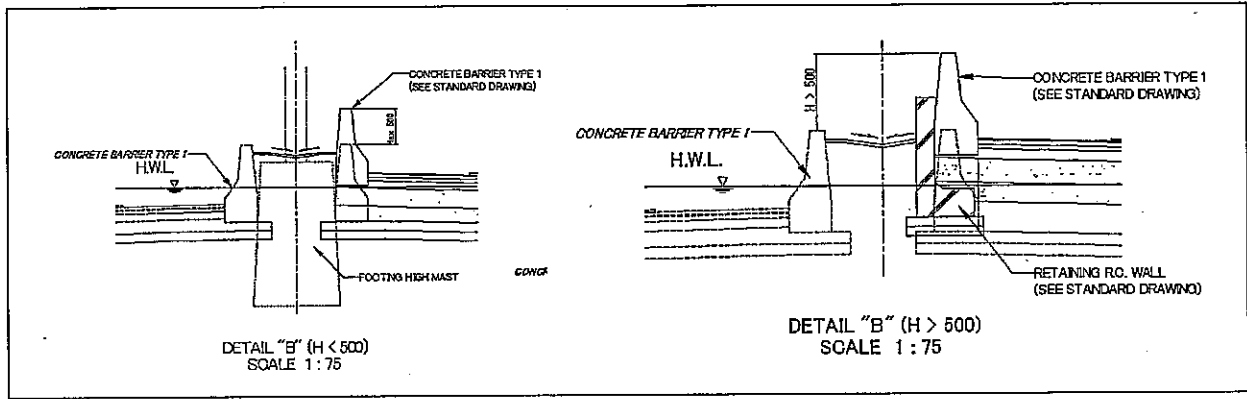
Heightening of service road along NR.9 will be out of project scope. The adjustment of ON and OFF ramp profile will be within the scope. However, the Preparatory Survey Team shall propose a conceptual plan for heightening of such service roads for DOH's implementation.

#### 1.8 Median

The existing concrete barrier for median within the project section shall basically be removed and reconstructed.

The structure of the median for raising section is as below;





### 1.9 Other road appurtenant facilities (except overhead structures)

Any other road appurtenant facilities such as light poles, traffic sign installed on the shoulder, kilometer post etc., shall be out of project scope in principle. However, the existing facilities which will not be able to accommodate DOH standard due to rise of road elevation shall be studied in detail in further step.

## 2 Alignment Design

### 2.1 Design Speed

120km/h

### 2.2 Vertical Gradient

Vertical gradient shall be applied in accordance with Thailand geometric design standard for motorway.

### 2.3 Normal crossfall

Normal crossfall of 2.5% which is same as existing design will be applied.

## 3 Pavement Design

In principal, pavement structure will be the same as of the existing pavement. The existing layer asphalt concrete pavement (surface course, base course and bound base course) shall be removed and new pavement shall be constructed above the existing base course. However, the damaged base course or sub-grade, which may be identified not suitable by the CBR test conducted under this Project, shall be removed and reconstructed by new adequate material and method of statement. The composition of the existing asphalt pavement structure according to the AS-built drawings is as follows;

Surface Course	: Asphalt Concrete t=5cm
Binder Course	: Asphalt Concrete t=5cm
Bound Base	: Asphalt Concrete t=10cm

- Base Course : Cement treatment base course t=25cm (unconfined compression strength 24.5 kg/cm<sup>2</sup>)
- Sub-Base : t=20cm (CBR>25)
- Sub-Grade : t=60cm (CBR>10)
- Original Ground : CBR>2

The pavement structure shown above will be reviewed and its rationality will be verified by using the traffic survey results conducted by DOH. It is also required to review the design documents of existing road construction for verification of the pavement structure.

The performance period of 10 years will be adopted for the pavement design for following reasons.

1. This will be in line with the performance period of other sections. As such, the entire section will be subject to upgrading in the same period, which will enable smooth and appropriate planning for upgrading of the existing pavement.
2. Review of widening assumed to be required in view with the growth rate of the traffics.

#### 4 Road Appurtenant Facilities

The design standards of DOH will be applied for the design of road appurtenant facilities.

#### 5 Construction Planning

##### 5.1 Construction method

The Survey Team has proposed construction plan as shown in **Appendix-2**, to be applied during construction. According to the plan, 3 north bound lanes and 3 south bound lanes will be secured for traffic

##### 5.2 Disposal area for the construction debris

The construction debris such as asphalt concrete and reinforcement concretes generated by the project shall be transported to the sites where the DOH will instruct with borne by the Project. However, its treatment after the transportation shall be responsibility of the DOH.

##### 5.3 Construction Yard

The DOH will prepare 3 locations with area of approximately 5,000m<sup>2</sup> (50mx100m) along NR.9 for the project for the construction yards including project office, motor pool, material stock yards etc.,. In case the property is belonging to the private owner, the DOH will take all responsibility to conclude agreement of its use with the land owner.

#### 5.4 Toll Fee

The toll fee required for the vehicles and equipment related to this Project will be borne by Japan side. However, DOH shall obtain any necessary permits to allow these vehicles and equipment to enter and exit the motorway.

#### 5.5 Responsibility for the Detailed Design

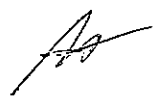
Based on the results of the Preparatory Survey and additional surveys, JICA will prepare detailed design drawings and bid documents which will be used as a reference documents for conducting the bidding procedure. It will be the obligation of the Government of Thailand to take necessary procedures to authorize the detailed design drawings and the bid documents after receiving the above mentioned reference documents.

### 6 Progress Report

The Preparatory Survey Team will prepare the progress report of the Preparatory Survey. JICA will dispatch a mission to explain its contents in May.

The contents of the progress report will consist of technical notes, detailed section to be heightened, typical cross section, and preliminary drawing of major civil works.

The undertakings of each government will be explained on that occasion.



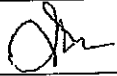
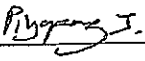
The Rehabilitation Project of the Outer Bangkok Ring Road (East Portion)  
In the Kingdom of Thailand  
On 15 May 2012 at 9.30 a.m.

Meeting Room of the Bureau of International Highways Cooperation,  
Department of Highways

Name	Position/Office	Contact number	Signature
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Mr. Chusak Gaywee	Director, Bureau of Planning		
Mr. Sombat Jaroenpat Mr. Anuparp Charoensri	Director, Bureau of Location and Design		
Mr. Chayatan Phromsorn	Director, Bureau of International Highways Cooperation		
Mr. Phaithun Khumvongdi	Director, Bureau of Highway Construction 2		
Mr. Montri Dechasakulson	Director, Bureau of Material Analysis and Inspection	Montri x 4300	Montri
Mr. Sittichai Boonsaat	Director of Inter-city Motorway Division		
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The Rehabilitation Project of the Outer Bangkok Ring Road (East Portion)  
 In the Kingdom of Thailand  
 On 15 May 2012 at 9.30 a.m.

Meeting Room of the Bureau of International Highways Cooperation,  
 Department of Highways

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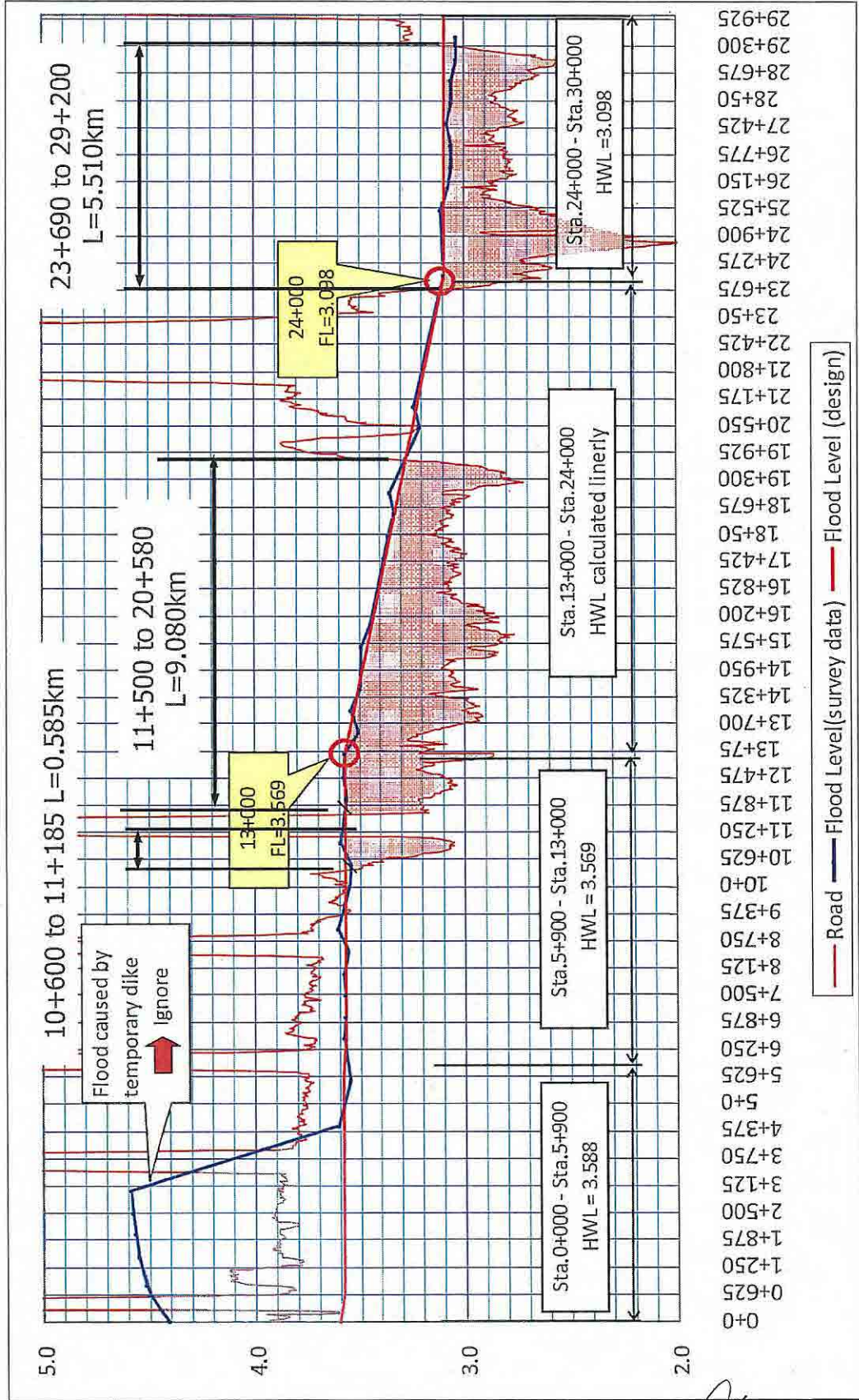

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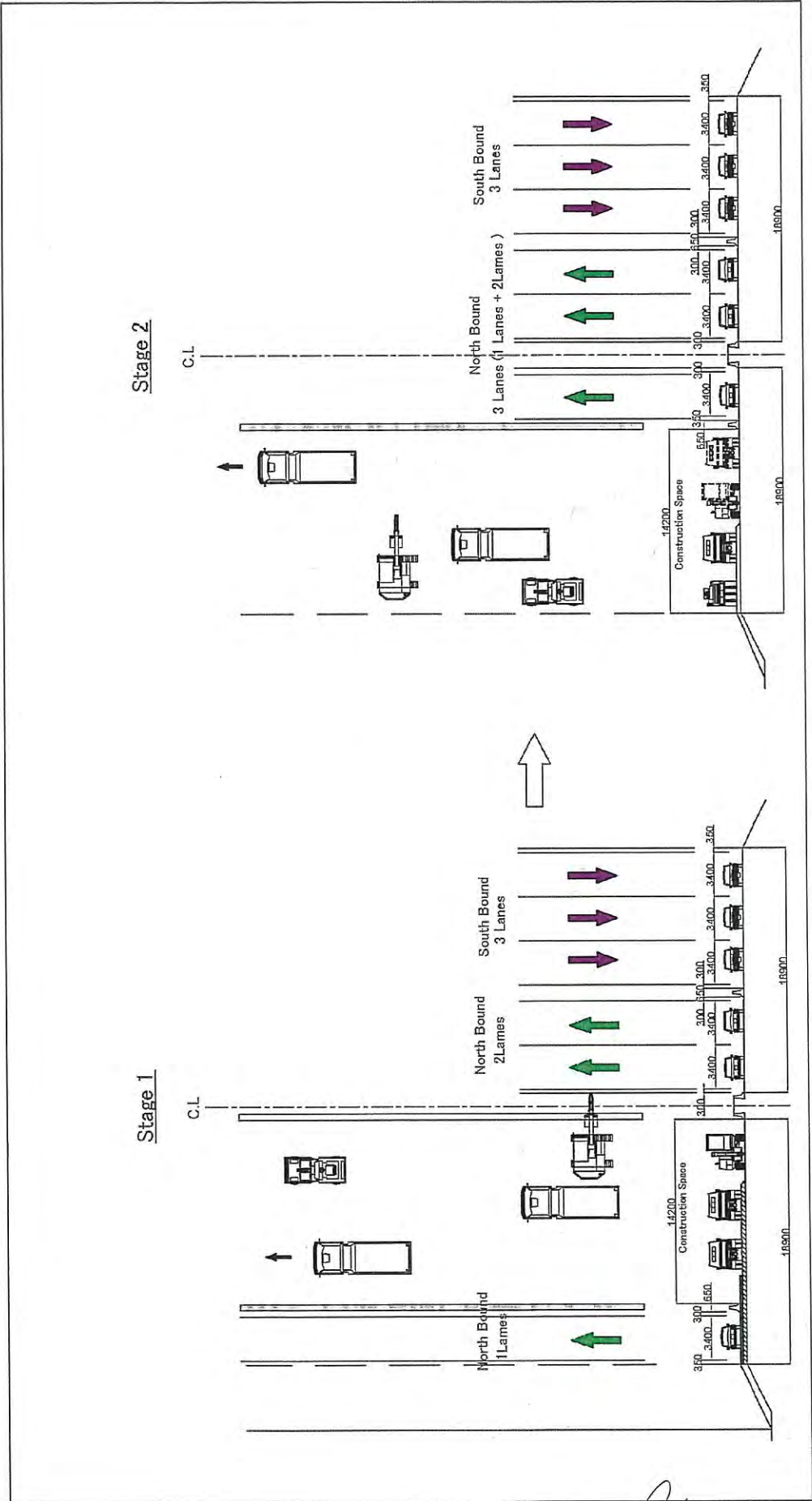
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7.	Yoshiaki Sunouchi	"	"	
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9.	Saranoot Suebchaiwang	JST / Civil Engineer		
10.				
11.				
12.				
13.				
14.				
15.				



# Diagram of Rehabilitation Plan for Road No.9





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## 資料 7. 収集資料リスト



## 7. 収集資料リスト

### DOHからの収集資料リスト

No.	資料項目	資料形態	オリジナル /コピー	発行機関	受領
1	軸重等価換算基準	印刷	コピー	運輸省道路局	2012年3月
1.1	タイにおけるESALの適用基準	印刷	コピー	運輸省道路局	2012年3月
2	補強鉄筋標準図集	印刷	コピー	運輸省道路局	2012年3月
3	アスファルトコンクリート配合設計基準および仕様書	印刷	コピー	運輸省道路局	2012年3月
4	セメントコンクリート配合設計基準および仕様書	印刷	コピー	運輸省道路局	2012年3月
5	高速道路標準図集	冊子	オリジナル	運輸省道路局	2012年3月
6	交通標識マニュアル	電子データ	コピー	運輸省道路局	2012年3月
7	施工時交通標識マニュアル	冊子	オリジナル	運輸省道路局	2012年3月
8	道路維持管理マニュアル	冊子	コピー	運輸省道路局	2012年7月
9	舗装設計計算例(2000年、2009年実施)	印刷	コピー	運輸省道路局	2012年3月
9.1	外環状9号線の舗装設計計算(将来交通需要予測含む)	印刷	コピー	運輸省道路局	2012年3月
10	図面テンプレート	電子データ	コピー	運輸省道路局	2012年4月
11	竣工図	電子データおよび印刷	コピー	運輸省道路局	2012年4月
12	Plan Drawing 計画平面図	電子データ	コピー	運輸省道路局	2012年4月
13	計画縦断面図	電子データ	コピー	運輸省道路局	2012年4月
14	計画横断面図	電子データ	コピー	運輸省道路局	2012年4月
15	排水設計資料	冊子	コピー	運輸省道路局	2012年3月
16	技術仕様書	冊子	オリジナル	運輸省道路局	2012年3月
17	料金所竣工図面一式(外環状9号線北側車線STA.25+150付近)	印刷	コピー	運輸省道路局	2012年4月
18	過去10年間の日降水量データ	印刷	コピー	運輸省道路局	2012年4月
19	外環状9号線の洪水観測データ	印刷	コピー	運輸省道路局	2012年3月
20	点の記	印刷	コピー	運輸省道路局	2012年4月
21	外環状9号線GPS基準点	電子データ	コピー	運輸省道路局	2012年4月
22	過去5年の予算配分および支出状況(下記の通り)	印刷	コピー	運輸省道路局	2012年4月
	- 運輸省の収支状況				
	- 道路局の収支状況				
	- 全ての道路維持管理に係る収支状況				
	- 高速道路維持管理に係る収支状況				
23	外環状9号線付近の土取場情報	印刷	コピー	運輸省道路局	2012年4月
24	総合建設会社一覧表	印刷	コピー	運輸省道路局	2012年4月
25	水資源管理マスタープラン	印刷	コピー	水資源管理戦略委員会 (SCWRM)	2012年2月

### 王室灌漑局からの収集リスト

No.	資料項目	資料形態	オリジナル /コピー	発行機関	受領
1	チャオブラヤダム 周辺洪水被害状況写真・ビデオ・プレゼンテーション資料	印刷 電子データ	コピー	王室灌漑局	2012年1月
2	ノーザンランシット事務所 仮道路堤防設置状況及び破損状況・水文洪水被害状況	印刷 電子データ	コピー	王室灌漑局	2012年1月
3	No.12地区事務所 洪水被害状況地図	印刷 電子データ	コピー	王室灌漑局	2012年1月
4	ナコン・ラング運営維持管理事務所 洪水被害状況地図	印刷 電子データ	コピー	王室灌漑局	2012年1月
5	No.10 地区事務所 ムハラット運営維持管理事務所 周辺洪水被害状況写真・ビデオ・プレゼンテーション資料	印刷 電子データ	コピー	王室灌漑局	2012年1月
6	ロジャナ工業団地株式会社 工業団地洪水被害状況・周辺産業幹線道路被害状況	印刷 電子データ	コピー	ロジャナ工業団地株式会社	2012年1月

