資料

資料１．調査団員・氏名

(1) 第１次現地調査時（2015 年 2 月 21 日～2015 年 5 月 12 日）

	担　当	氏　名	所　属	派遣期間
(1)	総括	恒岡　伸幸	JICA 国際協力専門員	2/21 - 3/4
(2)	計画管理	風間　遥介	JICA 社会基盤・平和構築部 運輸交通・情報通信運輸通信ｸﾞﾙｰﾌﾟ	2/21 - 3/4
(3)	業務主任／橋梁設計Ⅰ	秋山　晴樹	(株)長大	3/7 - 4/5
(4)	副業務主任/橋梁設計Ⅱ	森下　潤	(株)長大	2/21 - 3/21
(5)	道路設計/交通計画	物江 紳夫	(株)長大（ランテックジャパン）	3/7 - 4/5
(6)	社会状況調査	長瀬　康徳	(株)長大（パセット）	3/7 - 4/5
(7)	自然条件調査Ⅰ （地形・地質）	杉山　睦三	(株)長大（基礎地盤ｺﾝｻﾙﾀﾝﾂ）	4/11 - 5/12
(8)	自然条件調査Ⅱ （気象/水理・水文）	朴　　栄秀	(株)長大	2/21 - 3/7
(9)	環境社会配慮	林田　貴範	(株)長大（IDCJ）	3/17 - 4/5
(10)	施工計画/調達事情/積算	林　建宗	(株)長大	3/7- 4/5
(11)	業務調整/道路設計Ⅱ	田代　義之	(株)長大	2/21 - 4/5
(12)	橋梁設計Ⅲ	松尾　隆	(株)長大	2/21 - 3/10

(2) 調達事情調査時（2015 年 11 月 30 日～2015 年 12 月 14 日）

	担　当	氏　名	所　属	派遣期間
(1)	施工計画/調達事情/積算	林　建宗	(株)長大	11/30- 12/14

(3) 第２次現地調査時（2016 年 5 月 14 日～2015 年 5 月 24 日）

	担　当	氏　名	所　属	派遣期間
(1)	総括	金縄　知樹	JICA 社会基盤・平和構築部 運輸交通・情報通信運輸通信ｸﾞﾙｰﾌﾟ	5/15-/22
(2)	計画管理	近藤　達仁	JICA 社会基盤・平和構築部 運輸交通・情報通信運輸通信ｸﾞﾙｰﾌﾟ	5/15-/22
(3)	業務主任／橋梁設計Ⅰ	秋山　晴樹	(株)長大	5/14-/23
(4)	副業務主任/橋梁設計Ⅱ	森下　潤	(株)長大	5/15-/24

資料２．調査工程(その１)

氏名		恒岡信幸	風間通介	秋山晴樹	森下 潤	物江紳夫	長瀬康徳	杉山睦三	朴栄秀	林田貴範	林建宗	田代義之	松尾隆
2月21日	土	羽田発			成田発				成田発			成田発	成田発
2月22日	日	マプト着			マプト着				マプト着			マプト着	マプト着
2月23日	月	JICA、ANEとの協議			総括に同行				設計資料収集			入札手配	
2月24日	火	ANEとの協議											
2月25日	水												
2月26日	木	ペンバへ移動			ペンバへ移動				ペンバへ				
2月27日	金	橋梁調査			橋梁調査				橋梁調査				
2月28日	土												
3月1日	日	マプトへ移動			マプトへ移動				マプトへ移動				
3月2日	月	ANEとのMD協議、EOJ及びJICA事務所			総括に同行				資料収集				
3月3日	火	マプト発			再委託開札							再委託開札	
3月4日	水	羽田着			資料収集							資料収集	契約手続き
3月5日	木												
3月6日	金								マプト発				
3月7日	土			成田発	資料整理	成田発			成田着		成田発		
3月8日	日			マプト着		マプト着					マプト着		
3月9日	月			ANEとの協議		資料収集					ANE		マプト発
3月10日	火										価格調査		帰国
3月11日	水												
3月12日	木												
3月13日	金			ペンバへ移動							ペンバへ移動	ペンバへ移動	
3月14日	土			橋梁調査	橋梁調査	現地調査					橋梁調査	道路調査	
3月15日	日												
3月16日	月												
3月17日	火				マプトへ移動					成田発	マプトへ移動		
3月18日	水				価格調査					ペンバ着	価格調査		
3月19日	木									現地調査			
3月20日	金												
3月21日	土				マプト発								
3月22日	日			マプトへ移動	成田着	マプトへ移動				マプトへ移動		マプトへ	
3月23日	月			ANEとの協議		資料収集				資料収集		資料収集	
3月24日	火												
3月25日	水			キリマネへ								キリマネへ	
3月26日	木			橋梁調査								橋梁調査	
3月27日	金			マプトへ移動								マプトへ移動	
3月28日	土			資料整理		資料整理				資料整理			
3月29日	日												
3月30日	月			MD案協議		資料収集				関係機関との協議	価格調査	資料収集	
3月31日	火												
4月1日	水												
4月2日	木												
4月3日	金												
4月4日	土			マプト発		マプト発	マプト発			マプト発	マプト発	マプト発	
4月5日	日			成田着		成田着	成田着			成田着	成田着	成田着	
4月6日	月												
4月7日	火												
4月8日	水												
4月9日	木												
4月10日	金												
4月11日	土							成田発					
4月12日	日							マプト着					
4月13日	月							ペンバへ					
4月14日	火							地質・地形調査管理					
4月15日	水												
4月16日	木												
4月17日	金												
4月18日	土												
4月19日	日												
4月20日	月												
4月21日	火												
4月22日	水												
4月23日	木												
4月24日	金												
4月25日	土												
4月26日	日												
4月27日	月												
4月28日	火												
4月29日	水												
4月30日	木												
5月1日	金												
5月2日	土												
5月3日	日												
5月4日	月												
5月5日	火												
5月6日	水												
5月7日	木												
5月8日	金												
5月9日	土												
5月10日	日							ペンバ発					
5月11日	月							ヨハネス発					
5月12日	火							成田着					

調査工程(その２)

調達事情調査	林建宗	第二次現地調査	金縄 知樹	近藤 達仁	秋山 晴樹	森下 潤
2015年	施工計画/調達事情/積算	2016年	総括	計画管理	業務主任／橋梁設計Ⅰ	副業務主任/橋梁設計Ⅱ
11月30日(月)	成田発	5月14日(土)				成田発
12月1日(火)	マプト着,JICA「モ」国事務所訪問	5月15日(日)	羽田発		関空発	資料整理
12月2日(水)	ANEとの協議	5月16日(月)	JICA「モ」国事務所打ち合わせ			
12月3日(木)	現地業者との協議	5月17日(火)	道路公社及び道路基金との協議			
12月4日(金)	ANEとの協議	5月18日(水)	経済財務省、道路公社及び道路基金との協議			
12月5日(土)	資料整理	5月19日(木)	道路公社との協議			
12月6日(日)	資料整理	5月20日(金)	M/D調印、日本国大使館への報告、JICA「モ」国工事務所報告			
12月7日(月)	財務省との協議	5月21日(土)	マプト発		資料整理	
12月8日(火)	道路基金との協議	5月22日(日)	羽田着		資料整理	マプト発
12月9日(水)	ANEとの協議	5月23日(月)			マプト発	成田着
12月10日(木)	ANEとの協議	5月24日(火)			成田着	
12月11日(金)	JICA「モ」国事務所					
12月12日(土)	資料整理					
12月13日(日)	マプト発					
12月14日(月)	成田着					

資料 3. 関係者（面会者）リスト

組織	役職	名前
在モザンビーク日本大使館	大使	水谷 章
	一等書記官	伊藤 哲郎
JICA モザンビーク事務所	所長	須藤 勝義
	次長	森田 千春
	企画調査員	下平 明子
道路公社 (ANE)	Director General	Mr. Atanasio Mugunhe
	Project Director	Mr. Aderito Guilamba
	Civil Engineer	Mr. Agostinho V. Notece
	Civil Engineer	Mr. Evaristo Mussupai
	Civil Engineer	Ms. Violeta Ngale
	PLANNING DEPARTMENT	Mr. Jose carlos Lichucha
	GIS engineer	Mr. Manuel Tangune
	Head of Crosscutting Issues	Ms. Emilia Tembe
	Projects concessions	Mr. Rafik Mamad
	Head of road division	Mr. Paulo Bauque
	Department of road safety	Mr. Adelind Serage
道路公社ペンバ事務所(ANE)	Deputy	Mr. Afonso Abilio Uamusse
	Civil Engineer	Mr. Atanacio Majimoto
	Civil Engineer	Mr. Claudio Bento Joao
Institute Nacional de Meteorology (INAM)	Meteorologist of Research & Application Department	Mr. Gonzalves Junior
	Technician	Mr. Celio Matuele
	TECHICIAN	Mr. Pedro Miguel Mahomed Couto

National Directorate of Water Department of Water Resources (Ministry of Public Works and Housing)	Hydro-Geologist	Mr. Egidio Lucas Govate
	Geophysics Engineer	Mr. Cristovao Cavier
	Engineer	Mr Carlos Bemzaue
National Institute of Disaster Management (INGC)	Vice‐director	Ms. Rita Almado
	Monitoring officer	Mr. Igor Honwana
Fews Net	Manager	Mr. Antonio Mavie
	secretary	Ms. Anabela
ARA-Norte	Director	Mr. Toao da Judacle Macombe
Government of Cabo Delgado Province	clerk	Mr. Arune Momade Issufo
Minister of Land, Environment and Rural Development -Maputo (MITADER)	Director of DINAIA	Ms Rosa Cesaltina
Minister of Land, Environment and Rural Development –Pemba (MITADER)	Environmental Superior Technician	Mr. Angelo Francisco
Tourism-Pemba	MITUR Regional Officer	Mr. Saide Seifo
	MITUR Regional Officer	Ms Lucia D. M. M.
Caminhos de Ferro de Moçambique-CFM	Administration Department: Finance	Mr. Baptista Duarte Napeio
Senhor Cabo Delgado de Portos de Pemba	Ad. Financas	Mr.Baptista Duarte Napeio
WWF Mozambique	Country Director,	Ms Anabela Rodrigues
Road Fund	Chairman	Mr. Cecilio Grachane
	Department of planning	Mr. Gune Abilio

資料 4. 討議議事録（M／D）

（1）第一次現地調査

MINUTES OF DISCUSSIONS
ON THE PREPARATORY SURVEY ON
THE PROJECT FOR CONSTRUCTION OF BRIDGES ON N380
IN CABO DELGADO PROVINCE
IN THE REPUBLIC OF MOZAMBIQUE

In response to a request from the Government of the Republic of Mozambique, Japan International Cooperation Agency (hereinafter referred to as "JICA") in consultation with the Government of Japan had decided to conduct a Preparatory Survey for Outline Design on the Project for Construction of Bridges on N380 in Cabo Delgado Province (hereinafter referred to as "the Project"), and sent a Preparatory Survey Team (hereinafter referred to as "the Team") to Mozambique.

The Team is headed by Mr. Nobuyuki TSUNEOKA, Senior Advisor, JICA, and is scheduled to stay in the Republic of Mozambique from 22 February to 2 May 2015.

The Team held a series of discussions with officials concerned of the Government of the Republic of Mozambique and conducted field surveys in the Project area. In the course of discussions and field surveys, both sides have confirmed the main items described in the attached sheets. The team will proceed to further studies and prepare a Preparatory Survey Report.

Maputo, 2 March 2015

Nobuyuki TSUNEOKA
Leader
Preparatory Survey Team
Japan International Cooperation Agency
Japan

Atanásio Mugunhe
General Manager
Administração Nacional de Estradas
Republic of Mozambique

1

ATTACHMENT

1. Title of the Project

Both sides confirmed that the title of the Project shall be "The Project for Construction of Bridges on N380 in Cabo Delgado Province".

2. Objective of the Project

Both sides confirmed that the objective of the Project is to secure smooth and safe connectivity at the whole of N380 by reconstructing eight bridges, which are shown in Annex 1.

3. Project Site

The Project site is located on N380 in Cabo Delgado Province, Mozambique, which is shown in Annex 1.

4. Objective of the Preparatory Survey

Both sides confirmed the objective of the Survey as follows:

4-1. To understand the background and objective of the Project and examine its impacts and appropriateness;

4-2. To identify the components, and conduct outline design and cost estimation of the Project, based on the data and information collected from and the results of discussions with the Mozambican side; and

4-3. To study the issues of environmental and social considerations through the Survey.

5. Responsible and Implementing Organization

The Responsible Organization of the Project is Ministério das Obras Públicas, Habitação e Recursos Hídricos, and the Implementing Organization of the Project is Administração Nacional de Estradas (hereinafter referred to as "ANE"). The organization charts are shown in Annex 2.

6. Items requested by the Government of the Republic of Mozambique

6-1. It is written on the application form that the Mozambican side requests reconstruction of the eight bridges with approach roads. JICA will assess the appropriateness of the request that would be examined in accordance with the further studies and analysis in Japan and the final components of the Project would be decided by the Japanese side mainly from the viewpoints of necessity, technical and financial viability, sustainability and cost-effectiveness.

6-2. Both sides confirmed that there was no duplication for the Project to be conducted by

other development partners or private enterprises.

7. Japan's Grant Aid Scheme

7-1. The Mozambican side understands the Japan's Grant Aid scheme explained by the Team, as described in Annex 3 and Annex 4.

7-2. The Mozambican side will take the necessary measures, as described in Annex 5, to facilitate the smooth implementation of the Project, as a condition for the Japan's Grant Aid to be implemented.

8. Environmental and Social Considerations

8-1. The Team explained that environmental and social considerations for the Project is categorized as "Category B" according to the JICA Guidelines for Environmental and Social Considerations, since the Project is constructing the eight bridges whose impact on the environment may be limited.

8-2. Both sides confirmed that the Mozambican side shall conduct the necessary procedures concerning the environmental assessment (including stakeholder meetings, Initial Environmental Examination (IEE) etc.) and make IEE report of the Project. The IEE approval shall be received from the responsible authorities and submitted to JICA Mozambique office by end of February, 2016.

8-3. The Mozambican side agreed to arrange the budget allocation for IEE study, land acquisition, resettlement and compensation for the Project Affected Persons (PAPs) or Indigenous People's Plan (IPP) and secure the land before the implementation of the Project.

9. Operation and Maintenance

9-1. The Mozambican side will take every necessary action including secure enough budget and personnel for the operation and maintenance of the facilities implemented by the Project.

The Mozambican side also understands to avoid clogging which could cause overflowing and damages to the road, is one of the most important concerns for maintenance and explains to take the necessary protection measures for the Project bridges.

9-2. The Team explained and the Mozambican side agreed that taking necessary actions to let the road users respect traffic regulations are fundamental regarding the following three issues to maintain the facilities and to ensure road safety.

9-2-1. Although the project includes some facilities to ensure traffic safety such as guardrails increasing traffic will inevitably raise the risks of accidents.

9-2-2. Overloading trucks which would exceed designed live load would cause earlier

rehabilitation and shorter life.

9-2-3. Proper asset management will impact greatly to maintenance cost and lifespan.

10. Safety Measures

10-1. To avoid accidents on site during the implementation of the Project, the Mozambican side agreed to make the consultant and the contractor take safety measures such as setting safety assurance to the site, providing information for security control to the public, and deploying adequate security personnel, based on "The Guidance for the Management of Safety for Construction Works in Japanese ODA Projects" which has been published on JICA's URL below.
http://www.jica.go.jp/activities/schemes/oda_safety/ku57pq00001nz4eu-att/guidance_en.pdf

10-2. The Team recommended ANE to explain to the site citizens about the Project (necessity and significance, construction period, sites, impact etc.), so that wide support of them can be obtained for the smooth implementation of the Project.

11. Misconduct

Both sides confirmed that if there is any suspicion of corruption or fraudulent practices in the implementation of the Project, ANE and relevant organizations shall provide JICA with related information reasonably requested by JICA, including information of any concerned official of the government and/or public organizations of the Mozambique.

ANE and relevant organizations shall not treat unfairly or unfavorably the person and/or company which provided the information related to suspected corrupt or fraudulent practices in the implementation of the Project.

12. Schedule of the Survey

Both sides confirmed the schedule of the Survey as follows. The schedule may be subject to change during the preparation and the course of the Survey.

12-1. The Team will continue further studies in the Republic of Mozambique until 2 May 2015.

12-2. JICA will prepare the Draft Final Report and send a mission team to explain the details of the Project including the final components and cost estimation to the Mozambican side around September 2015.

12-3. JICA will finalize the Final Report and send it to the Mozambican side around December 2015.

13. Other Relevant Issues

13-1. Provision of Conveniences to the Team by the Mozambican Side

The Mozambican side shall, at its own expenses, provide the Team with the following items in cooperation with ANE and other organizations concerned.

(1) Security-related information as well as measures to ensure the safety of the Team members;
(2) Information as well as support in obtaining medical service;
(3) Data and information related to the Preparatory Survey;
(4) Counterpart personnel;
(5) Suitable office space with necessary equipment and services;
(6) Credentials or identification cards;
(7) Entry permits necessary for the survey team members to conduct field surveys; and
(8) Support in obtaining other privileges and benefits if necessary.

13-2. Provision of Conveniences to the Project by the Mozambican Side

The Mozambican side confirmed that undertakings described in Annex 6 should be taken by the Mozambican side at its own expenses if implementation of the Project is approved by the Government of Japan.

13-3. Both sides agreed that the eight bridges should be reconstructed at the positions in reference to results of this preparatory survey, and the Team will inform about the best candidate positions of each bridge by the end of April, 2015 in the technical notes. After agreement by the Mozambican side, the Team commences the outline design of the bridges along the lines of the technical notes. And the Mozambican side recognized a possibility that the Mozambican side should be responsible for the removal of the current bridges within three years after the completion of the Project, if the new bridges are constructed on the new locations.

13-4. The Team prioritizes eight bridges respectively based on the data and information collected from and the results of discussions with the Mozambican side, and the Government of Japan identify the components based on the prioritization.

13-5. During the site survey from 26 to 28 February, 2015, the Team found that some rivers where the eight bridges are located need careful consideration of their river training. The team should conduct further survey and analysis on those rivers which might affect the above- mentioned schedule of the Survey.

13-6. Inspection on damaged condition of three bridges constructed by former projects

Due to flood of January 2015, three bridges, named Namilate, Licungo 2 and Licungo 3, constructed by Japan's Grant Aid Projects, namely 'The Project for

Reconstruction of Bridges on Main Roads' and 'The Project for Construction on Rural Roads of Bridges in Zambezia and Tete Provinces' were severely damaged. ANE and the Team examine the damaged condition in order to reflect the lessons learnt to the Project.

13-7. Mozambican side shall detect discriminate and clear UXOs (Unexpected Objects) in the Project site no later than the commencement of the geological survey (approximately the second week of April, 2015).

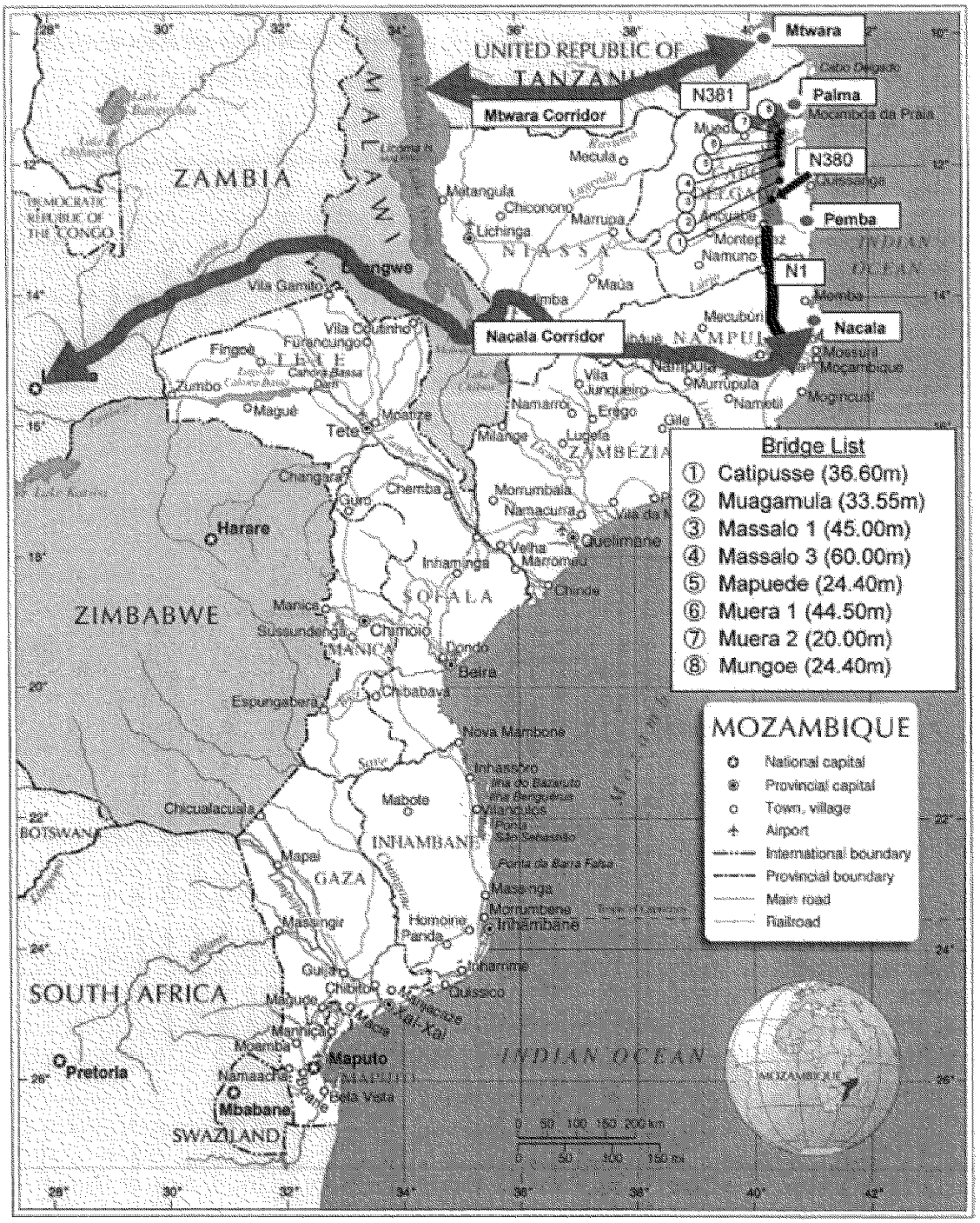
13-8. Issuance of Work Permit and VISA

The Mozambican side agreed that ANE shall facilitate with concerned agencies including the Ministério do Trabalho, Emprego e Segurança Social and assist Japanese nationals/others from third countries who are involved in the Project to obtain VISA and work permit smoothly so that they can enter and stay in Mozambique without any hindrance at the Study and the Project implementation stage.

Annex 1: Project Site
Annex 2: Organization Charts of ANE
Annex 3: Japan's Grant Aid
Annex 4: Flow Chart of Japan's Grant Aid Procedures
Annex 5: Major Undertakings to be taken by Each Government as a condition for the Japan's Grant Aid to be implemented
Annex 6: Major Undertakings to be taken by Each Government after an approval of Project implementation

Annex 1

Project Site



7

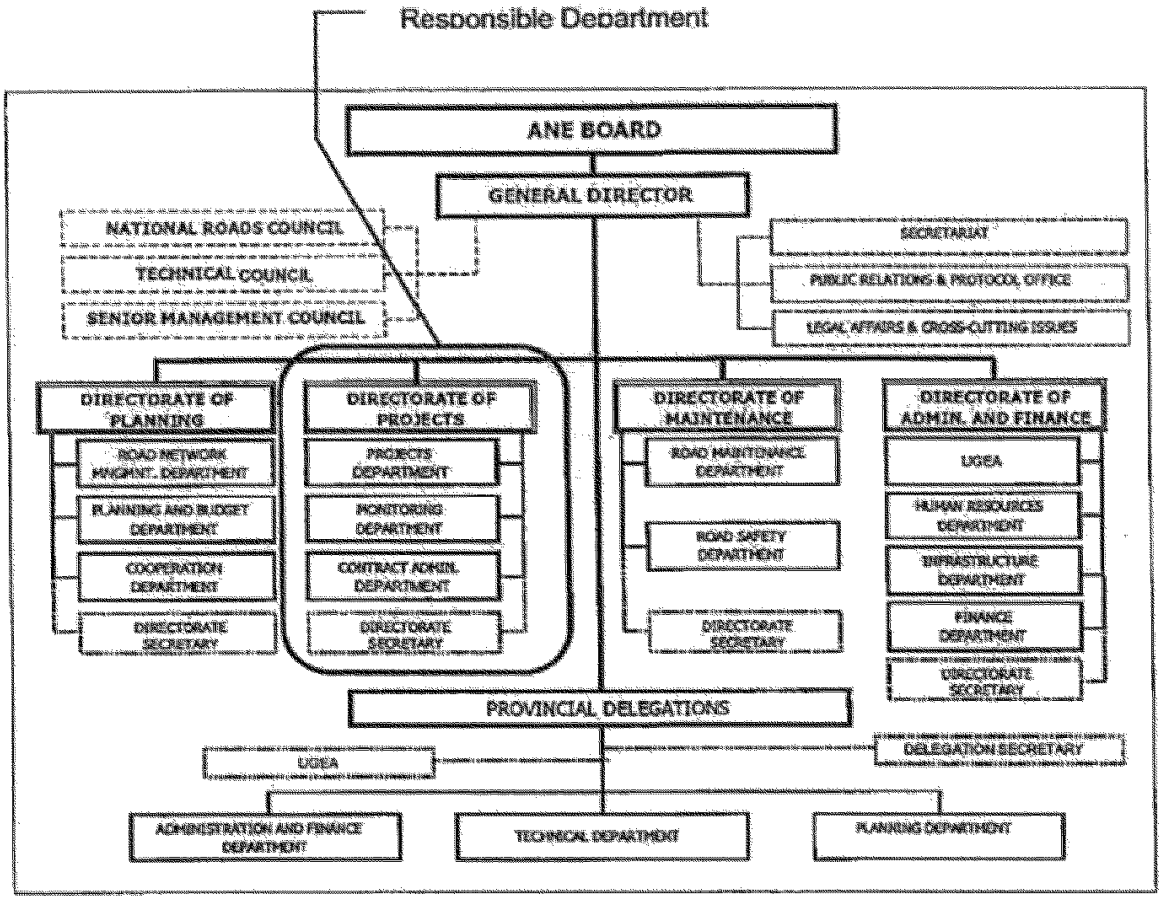
Annex 2

Organization Charts

1. Ministério das Obras Públicas, Habitação e Recursos Hídricos

8

2. Administração Nacional de Estradas



Annex 3

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:

a) Preparatory Survey
   - The Survey conducted by JICA

b) Appraisal and Approval
   - Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet

c) Authority for Determining Implementation
   - The Notes exchanged between the GOJ and a recipient country

d) Grant Agreement (hereinafter referred to as "the G/A")
   - Agreement concluded between JICA and a recipient country

e) Implementation
   - Implementation of the Project on the basis of the G/A

2. Preparatory Survey

(1) Contents of the Survey

The aim of the preparatory Survey is to provide a basic document necessary for the appraisal of the Project made by the GOJ and JICA. 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 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 Outline 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 recommends the GOJ to appraise the implementation of the Project after confirming the appropriateness of the Project.

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 singed 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 6.

(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.

(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)

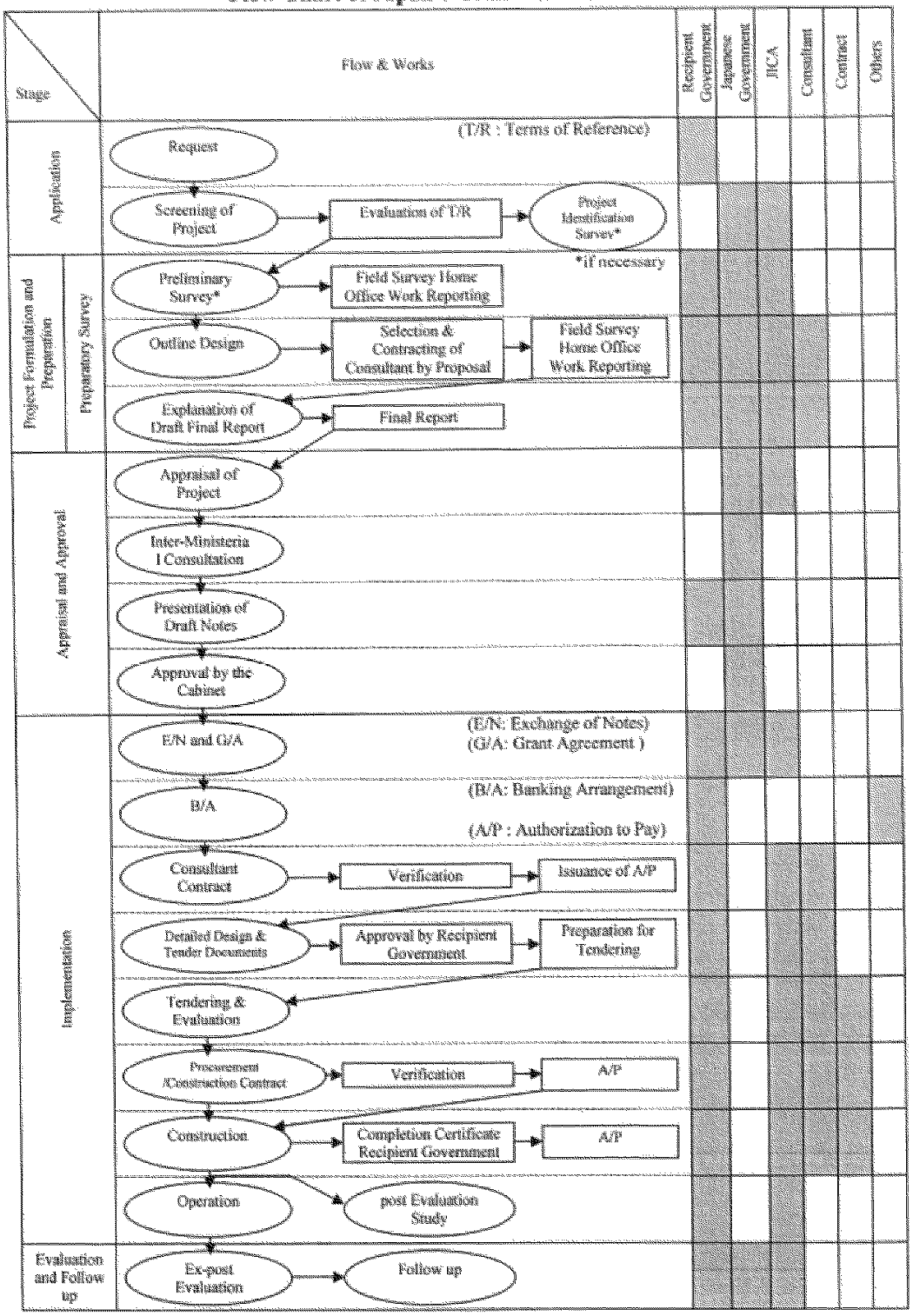
The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions paid to the Bank.

(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 socio-environmental guidelines.

Annex 4

Flow Chart of Japan's Grant Aid Procedures



Annex 5

Major Undertakings to be taken by Each Government
as a condition for the Japan Grant Aid to be implemented

No.	Items	To be covered by		Remarks
		Grant Aid	Recipient Side	
1	To confirm land registration and its property, and permission for the implementation of the Project and to clear the site		●	
2	To bear the following commissions paid to the Japanese bank for banking services based upon the Banking Arrangement (B/A)		●	
	1) Advising commission of Authorization to pay (A/P)		●	
	2) Payment commission		●	
3	To ensure prompt unloading and customs clearance at the port(s) of disembarkation, and internal transportation in the recipient country			
	1) Marine or Air transportation of the components from Japan and/or third countries to the recipient country	●		
	2) Tax exemption and customs clearance of the equipment and components at the port(s) of disembarkation in the recipient country		●	
	3) Internal transportation of the equipment and components from the port(s) of disembarkation to the project site in the recipient country	●		
4	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		●	
5	To accord Japanese physical persons and / or physical persons of third countries 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		●	
6	To maintain and use properly and effectively the facilities constructed and the equipment provided under the Grant Aid		●	
7	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		●	
8	To give due environmental and social consideration in the implementation of the Project		●	

●: denote the side responsible for the work

Annex 6

Major Undertakings to be taken by Each Government after an approval of Project implementation

No.	Items	To be covered by		Remarks
		Grant Aid	Recipient Side	
1	To secure lots of land necessary for the implementation of the Project and to clear the sites		●	
2	To secure sites for material storing yard, temporary construction yard and waste disposal		●	
3	To relocate existing utilities within the Project site to designated area or Project affected area		●	
4	To arrange issuance of license, permission and other necessary procedures for the Project		●	
5	To secure enough budget and personnel necessary for the operation and maintenance of the facilities implemented under the Grant Aid, including the periodical maintenance work after the completion of the Project		●	

●: denote the side responsible for the work

（２）第二次現地調査

Minutes of Discussions
on the Preparatory Survey for
The Project for Construction of Bridges on N380 in Cabo Delgado Province
(Explanation on Draft Preparatory Survey Report)

On the basis of the discussions and field survey in the Republic of Mozambique (hereinafter referred to as " Mozambique ") in March, 2015, and the subsequent technical examination of the results in Japan, the Japan International Cooperation Agency (hereinafter referred to as "JICA") prepared a draft Preparatory Survey Report on the Project for Construction of Bridges on N380 in Cabo Delgado Province (hereinafter referred to as “the Draft Report”).

In order to explain the Draft Report and to consult with the concerned officials of the Government of Mozambique on its contents, JICA sent to Mozambique the Preparatory Survey Team for the explanation of the Draft Report (hereinafter referred to as "the Team"), headed by Mr. Tomoki Kanenawa, Director, Infrastructure and Peacebuilding Department, JICA, and the Team is scheduled to stay in the country from 16 May to 20 May, 2016.

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

Maputo, 20 May 2016

金縄 知樹

Tomoki Kanenawa
Leader
Preparatory Survey Team
Japan International Cooperation Agency
Japan

Atanásio Mugunhe
General Manager
Administração Nacional de Estradas
Republic of Mozambique

Witness

Cecílio Grachane
Chairman
Road Fund Board
Republic of Mozambique

ATTACHEMENT

1. Objective of the Project

The objective of the Project is to secure smooth and safe connectivity at the whole of N380 (Sunate - Oasse) by/through reconstructing the target bridges, thereby contributing to facilitate the economy of Cabo Delgado and neighboring countries.

2. Title of the Preparatory Survey

Both sides confirmed the title of the Preparatory Survey as "the Preparatory Survey for the Project for Construction of Bridges on N380 in Cabo Delgado Province".

3. Project Site

Both sides confirmed that the site of the Project is on N380 in Cabo Delgado Province, which is shown in Annex 1. The locations for each bridge are as follows;

- Messalo I Bridge: Reconstruct at the existing location
- Messalo III Bridge: Reconstruct at the existing location
- Mapuede Bridge: Reconstruct at the existing location

4. Line Agency and Executing Agency

Both sides confirmed the line agency and executing agency as follows:

4-1. The line agency is Ministério das Obras Públicas, Habitação e Recursos Hídricos, which would be the agency to supervise the executing agency.

4-2. The executing agency is Administração Nacional de Estradas (hereinafter referred to as "ANE"). The executing agency shall coordinate with all the relevant agencies to ensure smooth implementation of the Project and ensure that the Undertakings are taken by relevant agencies properly and on time. The organization charts are shown in Annex 2.

5. Contents of the Draft Report

After the explanation of the contents of the Draft Report by the Team, the Mozambique side agreed in principle to its contents.

6. Cost Estimation

Both sides confirmed that the Project cost estimation described in Annex3 was provisional and would be examined further by the Government of Japan for its final approval.

7. Confidentiality of the Cost Estimation and Specifications
   Both sides confirmed that the Project cost estimation and technical specifications in the Draft Report should never be duplicated or disclosed to any third parties until all the contracts of the Project are concluded.

8. Japanese Grant Scheme
   The Mozambique side understands the Japanese Grant Scheme and its procedures as described in Annex 4, Annex 5 and Annex 6, and necessary measures to be taken by the Government of Mozambique.

9. Project Implementation Schedule
   The Team explained to the Mozambique side that the expected implementation schedule is as attached in Annex 7.

10. Expected outcomes and Indicators
    Both sides agreed that key indicators for expected outcomes are as follows. The Mozambique side has responsibility to monitor the progress of the indicators and achieve the target in year 2022
    .

    [Quantitative Effect]
    - Increase in Daily Traffic Volume
    - Reduction of Bridge Crossing Time
    - Reduction of Road Closures during the Rainy Season
    - Reduction of Travel Time

    [Qualitative Effect]
    - Acceleration of Surrounding Area Development by Enhancement of the Road Network
    - Improvement of Fundamental Living Conditions
    - Reduction of Transportation Costs
    - Decrease in Traffic Accidents near the Bridges
    - Mitigation of Disaster Risk
    - Benefits for Impoverished People

11. Undertakings Taken by Both Sides

Both sides confirmed undertakings described in Annex 8. The Mozambique side assured to take the necessary measures and coordination including allocation of the necessary budget which are preconditions of implementation of the Project.Annex8 will be attached to the Grant Agreement. It is further agreed that the costs are indicative, i.e. at Outline Design level. More accurate costs will be calculated at the Detailed Design stage.

12. Monitoring during the Implementation

The Project will be monitored every 6 months by the executing agency using the Project Monitoring Report (PMR) described in Annex 9.

13. Ex-Post Evaluation

JICA will conduct ex-post evaluation three (3) years after the project completion with respect to five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact, Sustainability) of the Project. Result of the evaluation will be publicized. The Mozambique side is required to provide necessary support for them.

14. Issues to be Considered for the Smooth Implementation of the Project

Both sides confirmed the issues to be considered and necessary measures to be taken for the smooth implementation of the Project described in Annex 8 .

Issues	Deadline for smooth implementation
Acquisition of Environmental License	End of October,2016
Clearing UXO's and Landmines	End of February,2017
Provision of VISA for all the parties concerned of the construction	During the construction
Relocation of existing utilities such as optical fiber cable	End of June,2017
Securing of construction sites and land forthe construction	End of June,2017
Permission of Bridge Construction	End of June,2017
Provision of quarries and disposal areas	End of June,2017
Maintenance of the roads for material and equipment procurements (including bailey bridges)	During the construction
Provision of the bailey bridges	During the construction

15. Schedule of the Study

JICA will complete the Final Report of the Preparatory Survey in accordance with the confirmed items and send it to the Mozambique side around August, 2016.

16. Environmental and Social Considerations

16-1 General Issues

16-1-1 Environmental Guidelines and Environmental Category

The JICA mission explained that 'JICA Guidelines for Environmental and Social Considerations (April 2010)' (hereinafter referred to as 'the Guidelines') is applicable for the Project. The Project is categorized as B because the Project, when the remaining five bridges included, is constructing the eight bridges whose impact on the environment may be limited.

16-1-2 Environmental Checklist

The environmental and social considerations including major impacts and mitigation measures for the Project are summarized in the Environmental Checklist attached as Annex 10. Both sides confirmed that in case of major modification of the content of the Environmental Checklist, the Mozambique side shall submit the modified version to JICA in a timely manner.

16-2 Environmental Issues

16-2-1 Environmental Impact Assessment (EIA)

Both sides confirmed the EIA report is not required for the Project in the country's legal system; however, a Simplified Environmental Impact Assessment(SEIA) is needed. Mozambique side will obtain the environmental license until the end of October, 2016.

16-2-2 Environmental Management Plan and Environmental Monitoring Plan

Both sides confirmed Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMoP) of the Project is as Annex 11 and 12, respectively. Both side agreed that environmental mitigation measures and monitoring shall be conducted based on the EMP and EMoP, which may be updated during the detailed design stage.

16-3 Social Environment

16-3-1 Land Acquisition and Resettlement

Both sides confirmed there are no land acquisition and resettlement in the Project.

16-4 Environmental and Social Monitoring

16-4-1 Environmental Monitoring

Both sides agreed that the Mozambique side will submit results of environmental monitoring to JICA by using the monitoring form attached as Annex 12.

16-4-2 Information Disclosure of Monitoring Results

Both sides confirmed that the Mozambique side will disclose results of environmental and social monitoring to local stakeholders [through their website / in their field offices].

The Mozambique side agreed JICA will disclose results of environmental and social monitoring submitted by the Mozambique side as the monitoring forms attached as Annex 10 on its website.

17. Other Relevant Issues

17-1. Operation and Maintenance of the Facilities(Equipment)

The team explained the importance of operation and maintenance of the facilities constructed by the Project considering that proper asset management impacts greatly on life-span of the facilities and its maintenance cost. The Mozambique side shall secure enough staff and budgets necessary for appropriate operation and maintenance of the facilities. The annual operation and maintenance costs are estimated and shown as follows.

Item	Frequency	Inspection location	Work contents	Annual cost (MZN/ year)
Inspection	One per half year	Surface, Joint, bearing, drainage, handrail, girder, abut, pier, guardrail	Inspection and cleaning	250.000
Pavement rehabilitation	Once per 5 years	Surface	Overlay	926.000
Revetment repair	Once per year	River bed front of Abutment	Gabion	1.481.000
Total				2.657.000

17-2. Quality Management Meeting

Both sides confirmed that JICA, ANE, consultant and contractor shall have quality management meetings approximately once in a half year during the implementation stage. The meetings should be convened by ANE before the commencement of construction works and during the construction to solve serious problems such as delay of utility relocation, resettlement exercise, construction works, etc.

17-3. Safety Measures

To avoid accidents on site during the implementation of the Project, the Mozambique side agreed to cause the consultant and the contractor to enforce safety measures such as setting safety assurance to the site, providing information for security control to public, and deploying adequate security personnel, based on "The Guidance for the Management of Safety for

Construction Works in Japanese ODA Projects" which has been published on JICA's URL below.
http://www.jica.go.jp/activities/schemes/oda_safety/ku57pq00001nz4eu-att/guidance_en.pdf

17-4. Misconduct

If JICA receives information related to suspected corrupt or fraudulent practices in the implementation of the Project, ANE and relevant organizations shall provide JICA with additional such information as JICA may reasonably request, including information related to any concerned official of the government and/or public organizations in Mozambique.

ANE and relevant organizations shall not, unfairly or unfavourably treat the person(s) and/or company which provided the information related to suspected corrupt or fraudulent practices in the implementation of the Project.

17-5. Cooperation among Relevant Organizations

ANE promised to work closely with relevant organizations, such as the Ministério das Obras Públicas, Road Fund(RF), Ministry of Economy and Finance(MEF), JICA and Embassy of Japan with mutual common understanding and cooperation for the Project.

17-6. Issuance of Work Permit and Visa

The Mozambique side agreed that ANE shall facilitate with concerned agencies including the Ministério do Trabalho, Emprego e Segurança Social and assist Japanese nationals/others from third countries who are involved in the Project to obtain VISA and work permit smoothly so that they can enter and stay in Mozambique without any hindrance at the Study and the Project implementation stage.

17-7. Project Component

Both side confirmed that the target site of the project is 3 bridges which are shown annex1. JICA will convey to Government of Japan that ANE strongly requested construction of remaining 5 bridges(Catipusse bridge, Muagamura bridge, Muera I bridge, Muera II bridge, Mungoe bridge) by Japanese Grant Aid.

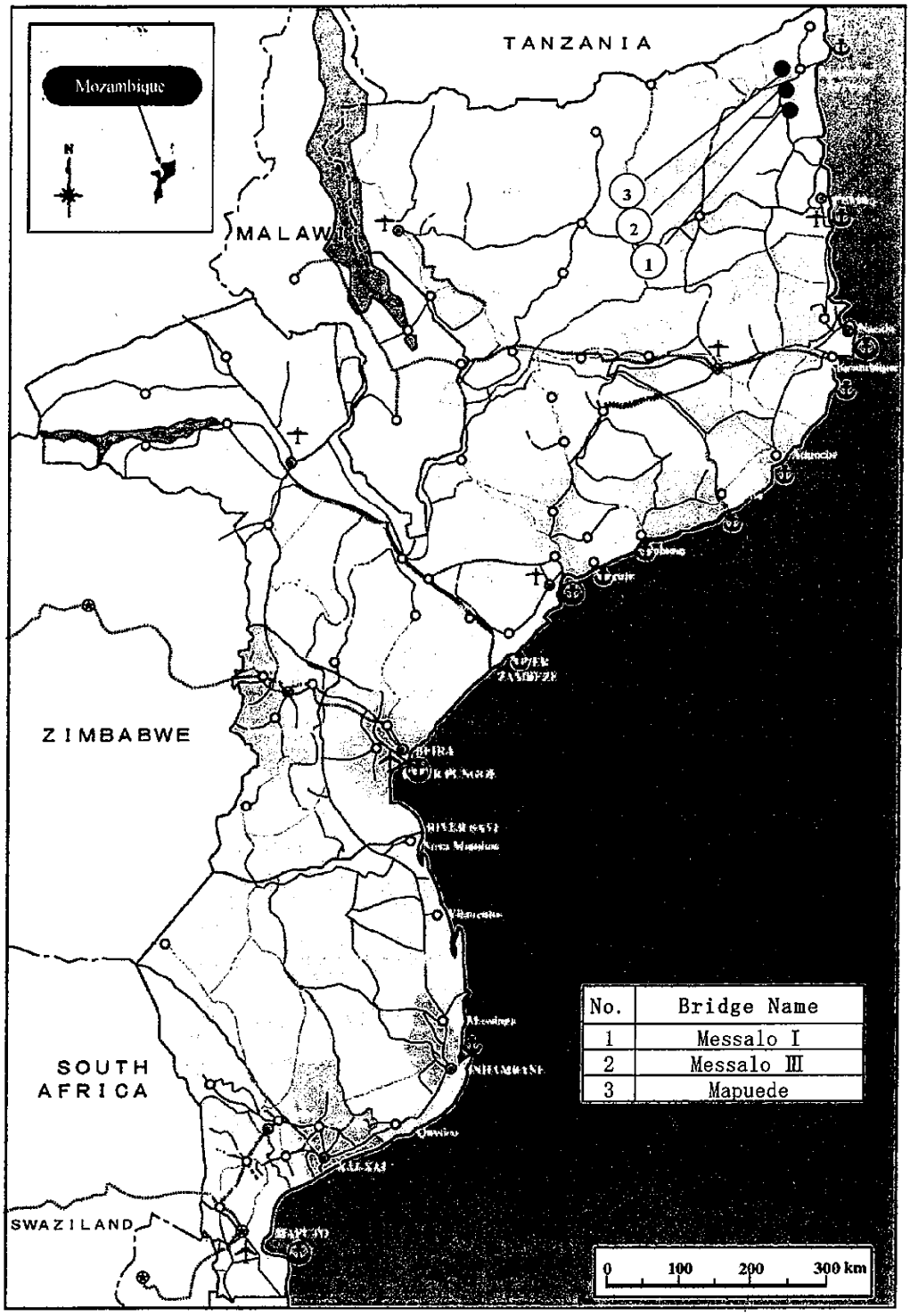
17-8. Repair of Catipusse Baily Bridge

Catipusse Baily Bridge will be used as the access road to the construction sites in the project. Catipusse Baily Bridge has a damage of a steel truss. ANE should repair the damage of this Baily Bridge before the start of construction works.

Annex 1 Project Site
Annex 2 Organization Chart
Annex 3 Project Cost Estimation
Annex 4 Japanese Grant
Annex 5 Flow Chart of Japanese Grant Procedures
Annex 6 Financial Flow of Japanese Grant
Annex 7 Project Implementation Schedule
Annex 8 Major Undertakings to be taken by Each Government
Annex 9 Project Monitoring Report
Annex 10 Environmental Check List
Annex 11 Environmental Management Plan/Environmental Monitoring Plan
Annex 12 Environmental and Social Monitoring Form

Annex 1 Project Site

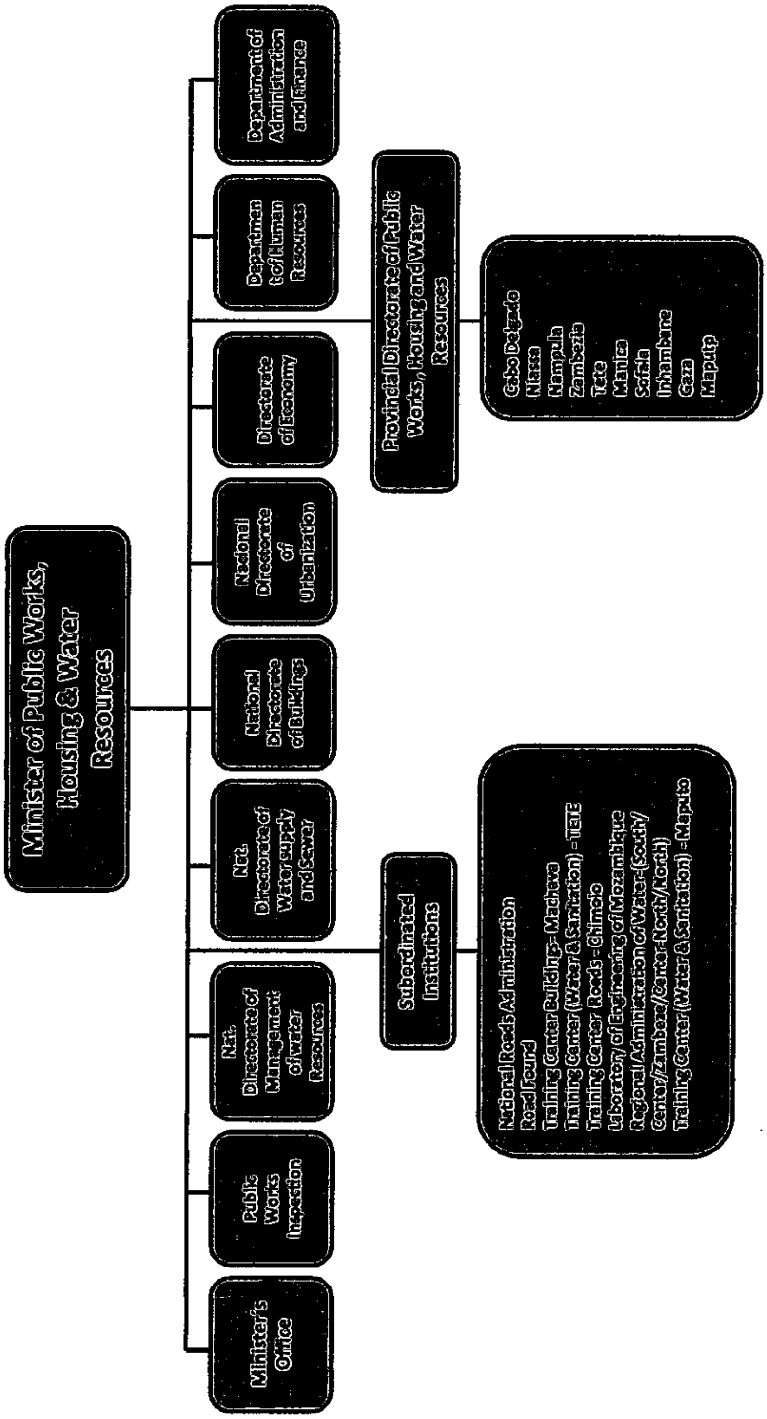
Location Map



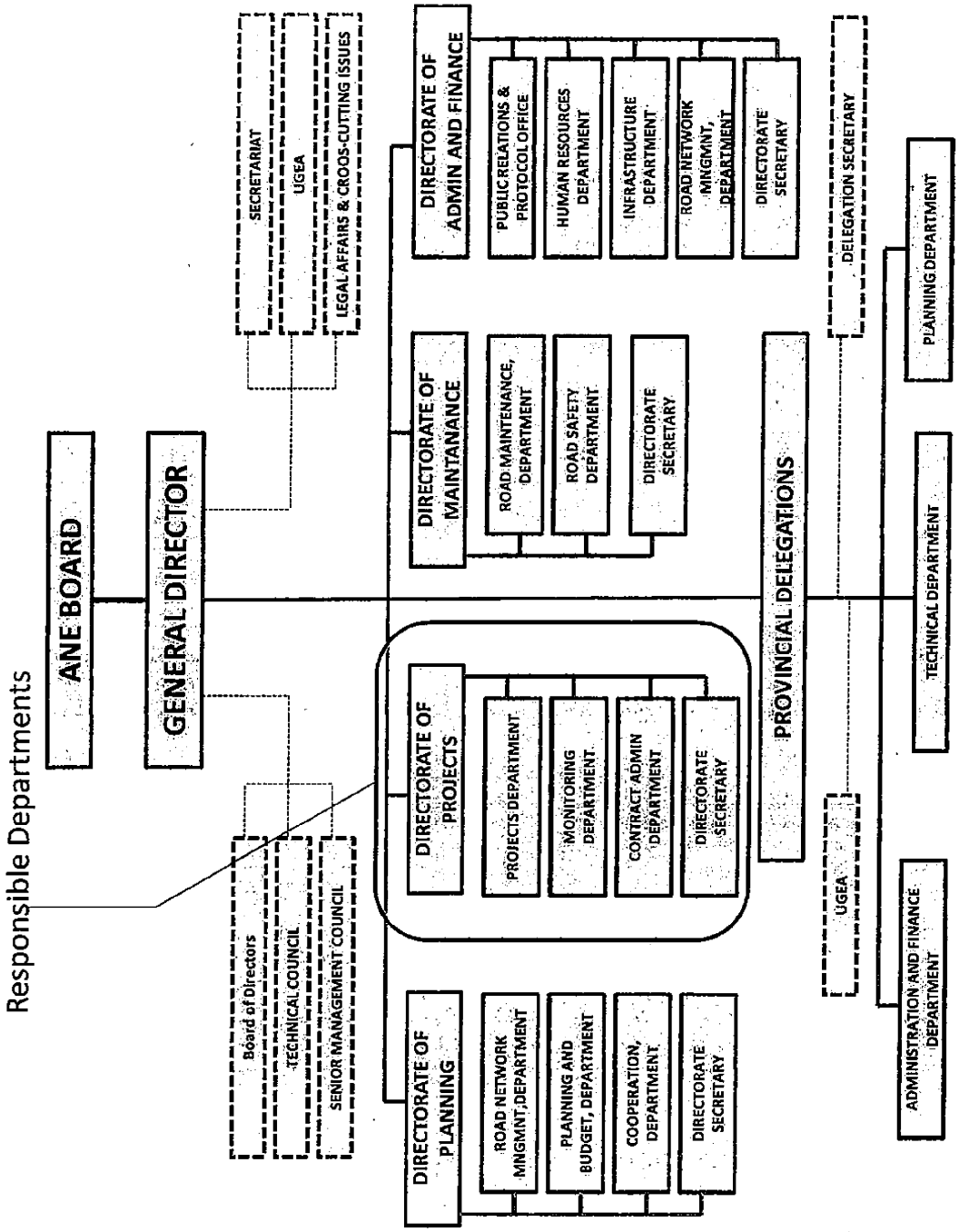
Annex 2 Organization Chart

Organization Charts

1. Ministério das Obras Públicas, Habitação e Recursos Hídricos



2. Administração Nacional de Estradas



Annex 3 Project Cost Estimation

1. Project Cost

Items		Amount (Million Japanese Yen)
Construction cost	Bridges and approach road	3,141.3
Detailed design and supervision		306.8
Contingency		172.4
Total		3620.5

2. Payment of Mozambique Side

Items	Cost (MZM)	Equivalent (JPY)
1. Land acquisition fee	1,564,000	5,380,160
2. Investigation and removal of landmine and UXO's	12,515,000	43,051,600
3. Custom duty & Value added tax (IVA)	76,704,000	263,861,760
4. Payment of bank service charges for bank arrangement (B/A) and Authorization to pay (A/P)	1,163,000	4,000,720
Total	91,946,000	316,294,240

3. Rate

Items	Condition
1. Estimate time	April, 2015
2. Exchange Rate	1 USD = 120.55 JPY 1 MZM = 3.44 JPY
3. Construction Period	30 months

Annex 4 Japanese Grant

JAPANESE GRANT

The Japanese Grant (hereinafter referred to as the "Grant") 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 is not supplied through the donation of materials as such.

Based on a JICA law which was entered into effect on October 1, 2008 and the decision of the GOJ, JICA has become the executing agency of the Japanese Grant for Projects for construction of facilities, purchase of equipment, etc.

1. Grant Procedures

The Grant 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 the preparatory Survey is to provide a basic document necessary for the appraisal of the Project made by the GOJ and JICA. 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 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 of the Project.
- Estimation of costs of the Project.

accountability to Japanese taxpayers.

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

In the implementation of the Grant Project, the recipient country is required to undertake such necessary measures as Annex. The Japanese Government requests the Government of the recipient country to exempt all customs duties, internal taxes and other fiscal levies such as VAT, commercial tax, income tax, corporate tax, resident tax, fuel tax, but not limited, which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract, since the Grant fund comes from the Japanese taxpayers.

(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, to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Grant.

(7) "Export and Re-export"

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

(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"), in principle. JICA will execute the Grant 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) Environmental and Social Considerations

The Government of the recipient country must carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the recipient country and JICA Guidelines for Environmental and Social Consideration (April, 2010).

(11) Monitoring

The Government of the recipient country must take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and must regularly report to JICA about its status by

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant project. The Outline Design of the Project is confirmed based on the guidelines of the Japanese Grant 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) 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 recommends the GOJ to appraise the implementation of the Project after confirming the appropriateness of the Project.

3. Japanese Grant 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 singed 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, in accordance with the E/N, 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 Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. The Grant may be used for the purchase of the products or services of a third country, if necessary, taking into account the quality, competitiveness and economic rationality of products and services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals", in principle.

(4) Necessity of "Verification"

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

using the Project Monitoring Report (PMR).

(12) Safety Measures

The Government of the recipient country must ensure that the safety is highly observed during the implementation of the Project.

(13) Construction Quality Control Meeting

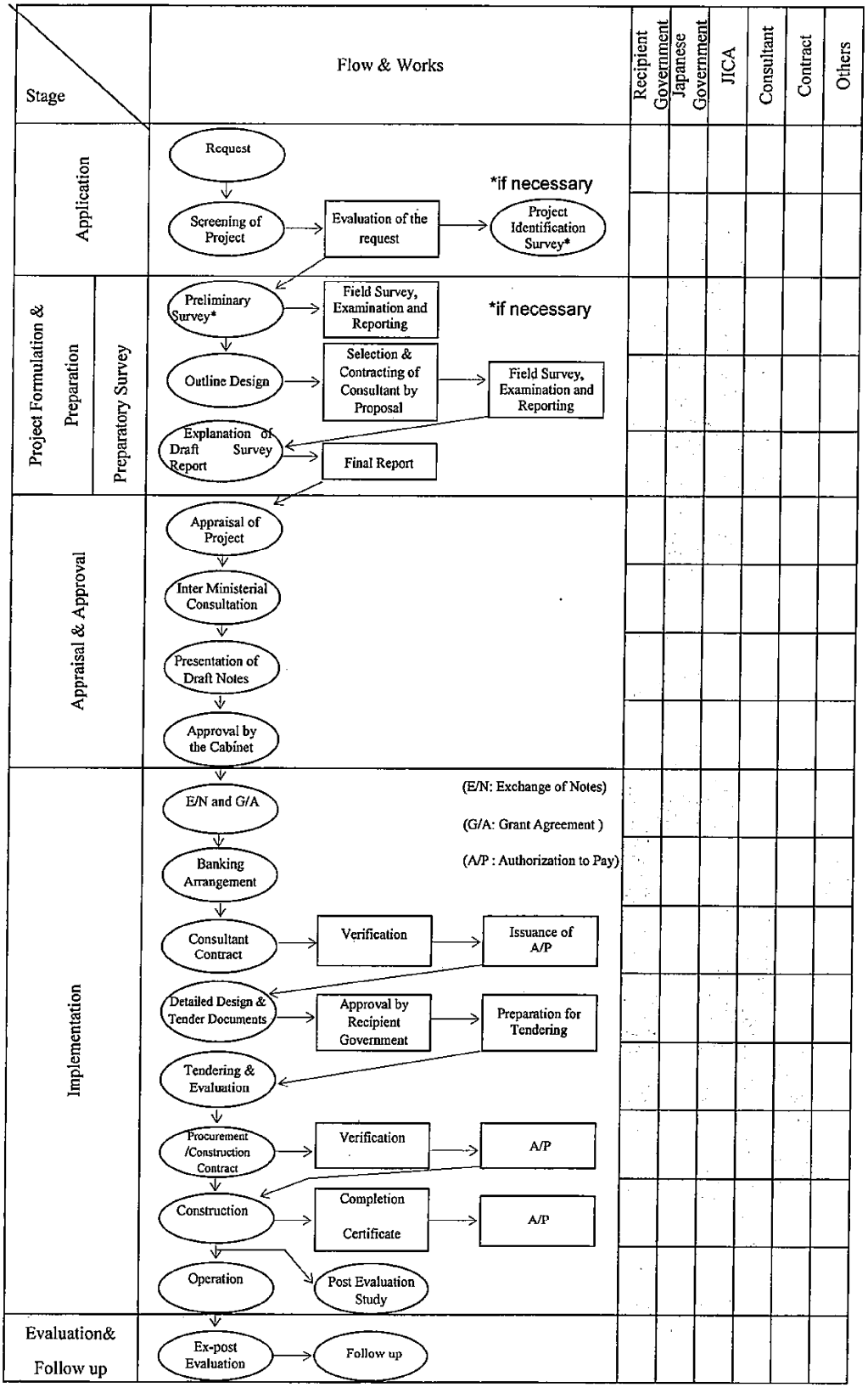
Construction Quality Control Meeting (hereinafter referred to as the "Meeting") will be held for quality assurance and smooth implementation of the Works at each stage of the Works. The member of the Meeting will be composed by the Client, the Consultant, the Contractor and JICA. The functions of the Meeting are as followings:

a) Sharing information on the objective, concept and conditions of design, before start of construction.

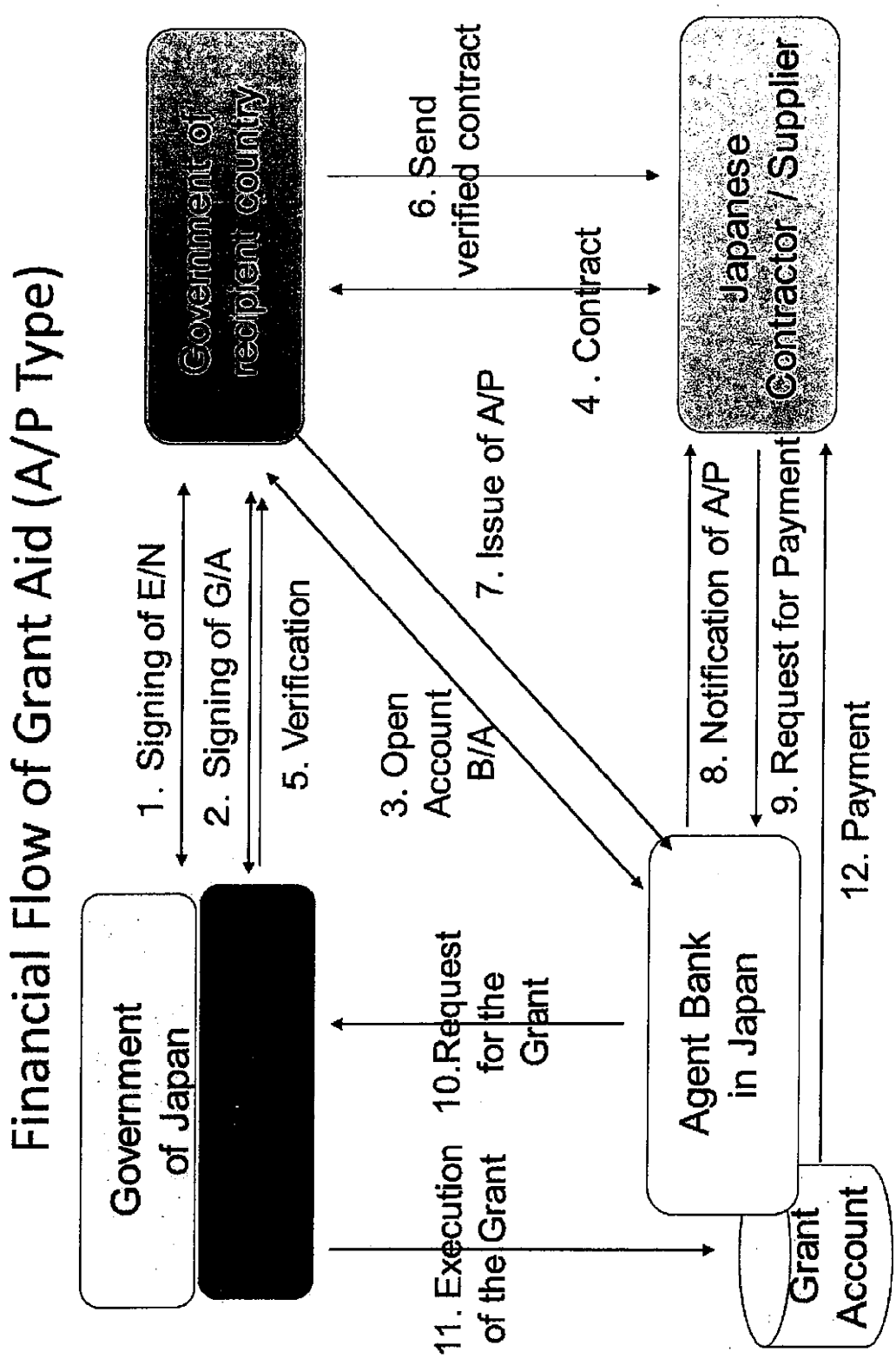
b) Discussing the issues affecting Works such as construction progress, modification of the design, test, inspection, safety control and the Client's obligation progress, during of construction.

Annex 5 Flow Chart of Japanese Grant Procedures

FLOW CHART OF JAPANESE GRANT PROCEDURES

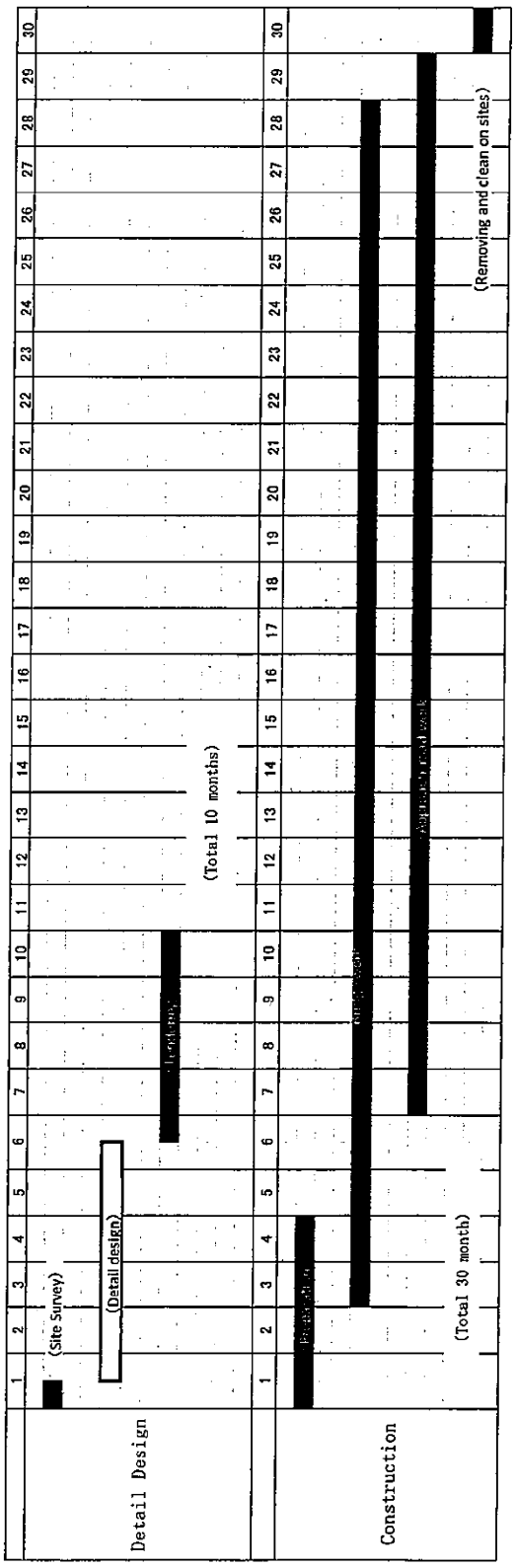


Annex 6 Financial Flow of Japanese Grant



Annex 7 Project Implementation Schedule

1. Schedule



2. Project Implementation Schedule (tentative)

Year	2016								2017								2019	
Item	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7		11	12
Prerparatory survey																		
Explanation of draft final report	▼																	
Minute of discussion	▼																	
IEE licence						▼												
Contract																		
Cabinet meeting			▽															
Exchange of notes				▼														
Grant agreement				▼														
Consultant agreement					▲													
Detail design/ tender																		
Site survey				▬	▬					▬								
Detail design					▭	▭	▭	▭	▭	▭								
Publication of tender											△							
Opening tender/ evaluation													△					
Contract of construction													△					
Contract veification														▽				
Construction (about 30 month)															▬	▬	▬	▬

Annex 8 Major Undertakings to be taken by Each Government

1. Before the Tender

NO	Items	Deadline	In charge	Cost(MZN)	Financial year			Ref.
					2017	2018	2019	
1	To open Bank Account (Banking Arrangement (B/A))	within 1 month after G/A	MEF	-				
2	To approve IEE license	End of October,2016	MITADER	-				
3	To secure the following lands 1) right of way for 3 bridges 2) project sites (148,800m2 for 3 bridges) for investigation and demine of landmine at Project sites	before notice of the tender document	ANE	1,564,000 12,515,000	1,564,000 12,515,000			
4	To obtain the planning, zoning, building permit	before notice of the tender document	ANE	-				
5	To clear, level and reclaim the following sites 1) remove utilities (OPC fiber cable at Messalo I, III and Mapuede bridge)	before notice of the tender document	ANE	1,776,000	1,776,000			

2. During the Project Implementation

NO	Items	Deadline	In charge	Cost(MZN)	Financial year			Ref.
					2017	2018	2019	
1	To bear the following commissions to a bank of Japan for the banking services based upon the B/A							
	1) Advising commission of A/P	within 1 month after the singing of the contract	MEF	2,000	2,000			
	2) Payment commission for A/P	every payment	MEF	1,161,000	232,200	464,400	464,400	
2	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country							
	1) Tax exemption and customs clearance of the products at the port of disembarkation	during the Project	MEF/ANE	-				
	2) Internal transportation from the port of disembarkation to the project site	during the Project	-	-				
3	To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work	during the Project	ANE/ Immigration/ MLES	-				
4	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the Products and/or the Services be borne by its designated authority without using the Grant;	during the Project	MEF/ANE/ Road Fund	8,506,000	4,253,000	4,253,000		
	Such customs duties, internal taxes and other fiscal levies mentioned above include VAT, commercial tax, income tax and corporate tax of Japanese nationals, resident tax, fuel tax, but not limited, which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract			68,198,000	27,279,200	20,459,400	20,459,400	
5	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for construction of the facilities as well as for the transportation and installation of the equipment	during the Project	ANE	-				
6	To construct access roads							
	1) Outside the site	-	-	-				
7	To provide facilities for the temporary road on the river of project sites		ANE	-				
	1) Bailey bridge The existing Bailey bridges at the project sites (Messalo I, Messalo II and Mapuede bridge)	before start of the construction						
8	To implement EMP and EMoP	during the construction	ANE/ Contractor	-				
	To submit results of environmental monitoring to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	during the construction	ANE	-				
9	To announce the associated organization regarding to the temporary operation by temporary roads and bridges at the project sites	during the construction	ANE					
10	To secure the following lands 1) temporary construction yard and stock yard near the Project area 2) borrow pit and disposal site near the Project area	before the start of construction	ANE	1,500,000	1,500,000			
11	Access road to the construction sites 1) maintenance of Baily bridge Catipusse and Muagamura bridges	during the construction	ANE	478,000	95,600	191,200	191,200	

Ministry of Labor, Employment and Social Security (MLES)

3. After the project

NO	Items	Deadline	In charge	Cost (MZN)	Ref.
1	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Operation and maintenance structure 3) Routine check/Periodic inspection	After completion of the construction	ANE	2,657,000 per annual	
2	To implement EMP and EMoP	for a period based on EMP and EMoP	ANE	-	
3	To submit results of environmental monitoring to JICA, by using the monitoring form, semiannually - The period of environmental monitoring may be extended if any significant negative impacts on the environment are found. The extension of environmental monitoring will be decided based on the agreement between ANE and JICA.	for three years after the Project	ANE	-	
4	To maintain and rehabilitate the dyke road in Messalo river	After completion of the construction	ANE	-	

4. Major Undertakings to be Covered by the Japanese Grant

No	Items	Deadline	Cost Estimated (Million Japanese Yen)*
1	To construct bridges		3,141.3
	- Replacement of bridges		
	1) To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		
	a) Marine(Air) transportation of the products from Japan to the recipient country		
	b) Internal transportation from the port of disembarkation to the project site		
	2) To construct access roads		
	a) Within the site		
	3) To construct the temporary building		
	4) To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	a) Electricity		
	- Supply by generator		
	b) Water Supply		
	- The supply system within the site (receiving and/or elevated tanks)		
	c) Drainage		
	- The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site		
	d) Furniture and Equipment		
	- Project equipment		
2	To implement detailed design, tender support and construction supervision		306.8
	(Consultant)		
3	Contingencies		172.4
	Total		3,620.5

Annex 9 Project Monitoring Report

G/A NO. XXXXXXX
PMR prepared on DD/MM/YY

Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXX
20XX, Month

Organization Information

Authority (Signer of the G/A)	Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Executing Agency	Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Line Agency	Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____

Outline of Grant Agreement:

Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of (_____): _____
Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:

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PMR prepared on DD/MM/YY

1: Project Description

1-1 Project Objective

1-2 Necessity and Priority of the Project

- Consistency with development policy, sector plan, national/regional development plans and demand of target group and the recipient country.

1-3 Effectiveness and the indicators

- Effectiveness by the project

Quantitative Effect (Operation and Effect indicators)		
Indicators	Original (Yr)	Target (Yr)
Qualitative Effect		

2: Project Implementation

2-1 Project Scope

Table 2-1-1a: Comparison of Original and Actual Location

Location	**Original:** *(M/D)* **Attachment(s):Map**	**Actual:** *(PMR)* **Attachment(s):Map**

Table 2-1-1b: Comparison of Original and Actual Scope

Items	Original	Actual
(M/D)	*(M/D)*	*(PMR)* Please state not only th e most updated schedul e but also other past re visions chronologically.

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'Soft component' shall be included in 'Items'.		All change of design shal l be recorded regardless of its degree.

(Sample)Table 2-1-1b: Comparison of Original and Actual Scope

Items	Original	Actual
1. Upgrading of the Kukum Highway	length 20km, single lane (3.47m*2), path(1.25m*2) Concrete Pavement 200mm (motor lane only)	length 20km, single lane (3.47m*2), path(1.00m*2) C oncrete Pavement 200mm (motor lane only)
2. Replacement of Old Matariko Bridge	Bridge length 40m, Width 9.5m, path(1.00m*2), compound steel box-girder bridge, Inverted T type-abutment spread foundation	Ditto

(Sample)Table 2-1-1b: Comparison of Original and Actual Scope

Items	Original	Actual
1. Outpatient Department	RC, Double Storey Ground floor: Consultation room 6 Reception Satellite Lab. Pharmacy, etc 1st floor: Consultation room 5 Dental Clinic 2	RC, Double Storey Ground floor: Consultation room 5 ditto
2. Operation Theatre, Casualty Unit, Maternity Ward	RC, Double Storey Ground Floor: Operation room 2 Casualty Unit 1st Floor: Maternity Ward 50 beds	 ditto Maternity Ward 60 beds

(Sample)Table 2-1-1b: Comparison of Original and Actual Scope

Items	Original	Actual
1. Primary and Secondary Surveillance Radars at Chittagong Int'l Airport	i) OSR/SSR 1 set ii) RDP 1 set iii) VHF Transmitters 2 sets	Ditto
2. Access Control System for Dhaka Int'l Airport	1 set	Ditto
3. Doppler VOR/DME at Saidpur Airport	1 set	Ditto
4. Aerodrome Simulator for Civil Aviation Training Center	1 set	Ditto

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5. Baggage Inspection System for Dhaka Int'l Airport	i) Hold Baggage Xray Inspectin system 7sets ii) Hold Baggage Explosive Trace Detecting System 7sets iii) Cabin Baggage Xray Inspection System 2sets	Ditto
6. Airport Fire Fighting Vehicles for Dhaka Int'l Airport	2 sets	3 sets

2-1-2 Reason(s) for the modification if there have been any.

(PMR)

2-2 Implementation Schedule
2-2-1 Implementation Schedule

Table 2-2-1: Comparison of Original and Actual Schedule

Items	Original		Actual
	DOD	G/A	
【M/D】	*(M/D)*		*(PMR)* As of (Date of Revision)
'Soft component' shall be stated in the column of 'Items'.			Please state not only the most updated schedule but also other past revisions chronologically.
Project Completion Date*			

*Project Completion was defined as _____ at the time of G/A.

(Sample)Table 2-2-1: Comparison of Original and Actual Schedule

Items	Original		Actual
	DOD	G/A	
Cabinet Approval	11/2015	-	-
E/N	12/2015	1/2016	24/1/2016
G/A	12/2015	1/2016	24/1/2016 Amended 13/3/2017
Detailed Design	12/2015-4/2016	1/2016-5/2016	1/2016-5/2016
Tender Notice	5/2016	5/2016	1/6/2016
Tender	6/2016	6/2016	15/7/2016
(Lot1) Construction Period	7/2016-11/2018	7/2016-11/2018	8/8/2016-30/11/2018
(Lot2) Installarion of Equipement	7/2016-6/2018	7/2016-6/2018	6/8/2016-30/60/2017

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Project Completion Date	11/2018	11/2018	30/11/2018
Defect Liability Period	11/2019	11/2019	30/11/2019

*Project Completion was defined as Check-out of Construction work at the time of G/A.

2-2-2 Reasons for any changes of the schedule, and their effects on the project.

2-3 Undertakings by each Government

2-3-1 Major Undertakings

See Attachment 2.

2-3-2 Activities

See Attachment 3.

2-3-3 Report on RD

See Attachment 4.

2-4 Project Cost

2-4-1 Project Cost

Table 2-4-1a Comparison of Original and Actual Cost by the Government of Japan
(Confidential until the Tender)

Items			Cost (Million Yen)	
	Original	Actual	Original	Actual
Construction Facilities (or Equipment)	'Soft component' shall be included in 'Items'.			Please state not only the most updated schedule but also other past revisions chronologically.
Consulting Services	- Detailed design -Procurement Management -Construction Supervision			
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = Yen

Table 2-4-1b Comparison of Original and Actual Cost by the Government of XX

Items			Cost (Million USD)	
	Original	Actual	Original	Actual
				Please state not only the most

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				updated schedule but also other past revisions chronologically.
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = (local currency)

(Sample)Table 2-4-1a Comparison of Original and Actual Cost by the Government of Japan
(Confidential until the Tender)

Items			Cost (Million Yen)	
	Original	Actual	Original[1),2)]	Actual
Construction Facilities	1. Outpatient Department 2. Operation Theatre, Casualty Unit, Maternity Ward	Ditto Ditto	1,169.5	1,035.0
Equipment	1) Primary and Secondary Surveillance Radars at Chittagong Int'l Airport 2) Access Control System for Dhaka Int'l Airport 3) Doppler VOR/DME at Saidpur Airport 4) Aerodrome Simulator for Civil Aviation Training Center 5) Baggage Inspection System for Dhaka Int'l Airport 6) Airport Fire Fighting Vehicles for Dhaka Int'l Airport	Ditto	2,374.6	2,110.0
Consulting Services	- Detailed design -Procurement Management -Construction Supervision -Soft Component	Ditto	0.87	0.87
Total			3544.97	3145.87

Note: 1) Date of estimation: October, 2014
2) Exchange rate: 1 US Dollar = 99.93 Yen

(Sample)Table 2-4-1b Comparison of Original and Actual Cost by the Government of Bangladesh

Items			Cost (1,000 Taka)	
	Original	Actual	Original[1),2)]	Actual
Dhaka International Airport	Modification of software of existing Rader Data Processing System	Ditto	8,000	9,240
	Provision of a partition, lighting, air conditioning and electric power supply at transfer hold baggage check point	Ditto	5,000	2,453

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	Replacement of five doors in the international passenger terminal building	Ditto	4,000	5,340
Chittagong Int'l Airport	Preparation of the radar site including felling of trees, clearing and grabbing	Ditto	5,000	3,400
Total			22,000	20,433

Note: 1) Date of estimation: October, 2014
2) Exchange rate: 1 US Dollar = 0.887 Bangladesh Taka (local currency)

2-4-2 Reason(s) for the wide gap between the original and actual, if there have been any, the remedies you have taken, and their results.

(PMR)

2-5 Organizations for Implementation

2-5-1 Executing Agency:

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original: *(M/D)*

Actual, if changed: *(PMR)*

2-6 Environmental and Social Impacts

- The results of environmental monitoring as attached in [redacted] in accordance with Schedule 4 of the Grant Agreement.
- The results of social monitoring as attached [redacted] in accordance with Schedule 4 of the Grant Agreement.
- Information on the disclosed results of environmental and social monitoring to local stakeholders, whenever applicable.

3: Operation and Maintenance (O&M)

3-1 O&M and Management

- Organization chart of O&M
- Operational and maintenance system (structure and the number ,qualification and skill of staff or other conditions necessary to maintain the outputs and benefits of the project soundly, such as manuals, facilities and equipment for maintenance, and spare part stocks etc)

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Original: *(M/D)*
Actual: *(PMR)*

3-2 **O&M Cost and Budget**
- The actual annual O&M cost for the duration of the project up to today, as well as the annual O&M budget.

Original: *(M/D)*

4: Precautions (Risk Management)

- Risks and issues, if any, which may affect the project implementation, outcome, sustainability and planned countermeasures to be adapted are below.

Original Issues and Countermeasure(s): *(M/D)*	
Potential Project Risks	Assessment
1.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):
2.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):

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3.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):
Actual issues and Countermeasure(s)	
(PMR)	

5: Evaluation at Project Completion and Monitoring Plan

5-1 Overall evaluation

Please describe your overall evaluation on the project.

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3 Monitoring Plan for the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

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Attachment

1. Project Location Map
2. Undertakings to be taken by each Government
3. Monthly Report
4. Report on RD
5. Environmental Monitoring Form / Social Monitoring Form
6. Monitoring sheet on price of specified materials (Quarterly)
7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (Final Report Only)

Attachment 6

Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

	Items of Specified Materials	Initial Volume A	Initial Unit Price (¥) B	Initial total Price C=A×B	1% of Contract Price D	Condition of payment	
						Price (Decreased) E=C−D	Price (Increased) F=C+D
1	Item 1	●●t	●	●	●	●	●
2	Item 2	●●t	●	●	●		
3	Item 3						
4	Item 4						
5	Item 5						

2. Monitoring of the Unit Price of Specified Materials

(1) Method of Monitoring : ●●

(2) Result of the Monitoring Survey on Unit Price for each specified materials

	Items of Specified Materials	1st ●month, 2015	2nd ●month, 2015	3rd ●month, 2015	4th	5th	6th
1	Item 1						
2	Item 2						
3	Item 3						
4	Item 4						
5	Item 5						

(3) Summary of Discussion with Contractor (if necessary)

-
-
-

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)
(Actual Expenditure by Construction and Equipment each)

	Domestic Procurement (Recipient Country) A	Foreign Procurement (Japan) B	Foreign Procurement (Third Countries) C	Total D
Construction Cost	(A/D%)	(B/D%)	(C/D%)	
Direct Construction Cost	(A/D%)	(B/D%)	(C/D%)	
others	(A/D%)	(B/D%)	(C/D%)	
Equipment Cost	(A/D%)	(B/D%)	(C/D%)	
Design and Supervision Cost	(A/D%)	(B/D%)	(C/D%)	
Total	(A/D%)	(B/D%)	(C/D%)	

Annex 10 Environmental Check List

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) N (b) N (c) - (d) N	(a)ANE informed that IEE report will be made by the end of October, 2016 (at the time of discussion of May, 2016). (b)ANE informed that IEE license from MITADER are acquired in the end of October, 2016 (at the time of discussion of May, 2016). (c)The detailed content is unclear because approval is necessary after the making of the IEE report. (d) The authorization except the IEE license does not need it.
	(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) Y (b) Y	(a)The JICA survey team carried out an individual interview. The inhabitants around the bridge almost welcome you about a plan to replace the permanent bridge because an existing bridge is a temporary solution. ANE is going to hold the Stake holder meeting in about September, 2016 (at the time of discussion of May, 2016). (b) The system of the formal objection that compensation requires is going to be secured. When there is an objection, the person concerned states an objection to a local leader, and report to the county from village leader, and discuss it, and the effectiveness of the objection is considered.
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) Y	(a)As a result of having compared with the zero option, The alternative is concluded that the project should secure a function as National highway No. 1 for economic development.
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) If air quality already exceed country's standards near the route, is there a possibility that the project will make air pollution worse?	(a) Y (b) N	(a)During works, the outbreak of the dust is assumed by the operation of the construction machine. There is a little number of the construction machines. It is expected that the outbreak gross weight of the dust in the Cabo delgado province are not big effectiveness after project completed. Periodical monitoring is going to carry out during works. (b)The neighboring environment has good atmosphere environment without a factory. The pollutant occurring from a construction machine has decreased atmospheric pollutant density by an advection and diffusion to the lee in a river basin. It is assumed these decrement effects that there is few it the influence. In the estimating traffic volume, traffic volume in 2015 was 344, in 2022 may become 570 in the future. The influence of air pollution is not assumed because there is little traffic.
	(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 the project will contaminate water sources, such as well water?	(a) N (b) N	(a)During a construction period, a method of construction will be adopted by coffer dam and the piers are constructed in the dry season. By these methods are prevented quality of the water aggravation. The embankment works sets a sandbag and prevents soil and sand outflow. (b)There is not the well around a project. The digging during pile works minimizes the influence to the outskirts by the coffer dam method.
	(3) Noise and Vibration	(a) Do noise and vibrations from the vehicle and train traffic comply with the country 's standards? (b) Do low frequency sound from the vehicle and train traffic comply with the country 's standards?	(a) Y (b) Y	(a)The noise and the vibration have a small influence to pass a bridge in comparison with a road run. It is expected that there is not the influence around the bridge because there are not a house and facilities, (b) The influence of the low frequency vibration is not assumed around a bridge because there are not a house and facilities,.
3 Natural Environment	(1) Protected Areas	(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) N	(a)There is no protected area at the surrounding area of bridges.
	(2) Ecosystem	(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 bridges and access 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?	(a) N (b) N (c) N (d) N (e) N	(a)The project enforcement area is not a habitat important for primeval forests, tropical rain forests, ecologically valuable habitats. (b)The existence of the precious species is not reported. (c)In the project enforcement area, the existence of large wildlife and the domestic animal is not confirmed. (d)The same as above (e)It is not expected to cause impacts, such as destruction of forest, poaching, desertification, reduction in wetland areas, and disturbance of ecosystems due to replace the bridge only. The NGO is concerned about increase of the poaching with road development. NGO suggest night traffic prohibition of National highway No. 380 to the government at the national park section. Patrol around the bridge should be carried out. When an unidentified vehicle passed on bridge, should report to the police to prevent a poacher.
	(3) Hydrology	(a) Is there a possibility that hydrologic changes due to the installation of structures will adversely affect surface water and groundwater flows?	(a)N	(a)The length of bridge become longer in comparison with existing bridge in result of hydraugical analysis and the passing water of the river becomes smooth. It is not assumed to affects surface water and a flow of the groundwater.
	(4) Topography and Geology	(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) N (b) N (c) N	(a)No serious impact is anticipated. (b)Possibility of landslide is few case due to not large-scale embankment and excavation on the sites. (c)The embankment works assumes a plan to prevent the outflow of soil and sand by a large sandbag.

4 Social Environment	(1) Resettlement	(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) Is the compensations going to be paid prior to the resettlement? (e) Is 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?	(a) N (b) N/A (c) N/A (d) N/A (e) N/A (f) N/A (g) N/A (h) N/A (i) N/A (j) N/A	(a)No resettlement is associated to the project. (b)No replacement is associated to the project. (c)The same as above (d)The same as above (e)The same as above (f)The same as above (g)The same as above (h)The same as above (i)The same as above (j)The same as above
	(2) Living and Livelihood	(a) Where bridges and access 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 project will impede the movement of inhabitants? (f) Is there any possibility that bridges will cause a sun shading and radio interference?	(a) N (b) N (c) Y (d) N (e) N (f) N	(a)It is not assumed to impact for the residents (b)The same as above (c)A risk might be enhanced by the emigration of the worker during a construction period temporarily but various seminars and enlightenment activity will be held regularly and reduce a risk. (d)Influence on some traffic is expected during the construction and after the construction. (e)No serious negative impact is anticipated. (f)No serious negative impact is anticipated.
	(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) N	(a)Not applicable
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) N	(a)The change of landscape with the present conditions is not assumed the influence due to the project of bridge replacement.
	(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 respected?	(a) N (b) Y	(a)Ethnic minorities and indigenous peoples are not confirmed around a project enforcement area. (b)The rights of ethnic minorities and indigenous peoples respect.
	(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 taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	(a) Y (b) Y (c) Y (d) Y	(a) The working condition of the country is going to be followed. (b) The construction at the high place work sets up the fence and performs safety management. The contractor submits a work safety management plan before a construction start and approved by ANE. (c) The contractor submits a safety management plan and, carries out a periodical safety seminar during construction. (d) Traffic control staff and a guard are plan to post in the spot office during construction.
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) Y (b) Y (c) Y	(a) The mitigation measure for air pollution assumes the periodical check and maintenance of the construction machine, and to sprinkle the road with water. The mitigation measure of the water pollution adopt the method of coffer dam, and construct in the dry season, and embankment work uses a large sandbag. The mitigation measure of the waste carry the waste materials to the appropriate area, and perform the patrol around the construction site. (b) Observation with the animals and plants around the bridge shall be carried out routinely in the habits situation. (c) Infectious disease, and labor circumstances, and the accident are possible during works. A seminar about the infectious disease prevention should be held regularly. The high place work sets up a fence and carries out safe construction. A periodical safety management seminar should be held to manage the driving speed during the material transportation,
	(2) Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program? (c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? (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?	(a) Y (b) Y (c) Y (d) Y	(a)Monitoring of air quality, the quality of the water, waste, soil pollution, ecosystem will be conducted (b)It is going to be established based on a scale of construction scale, the experience in the country and past JICA project. (c) It is possible because the plan was considered based on the similar project in the country. (d)Contractor make the result of monitoring and report every month.
6 Note	Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Roads, Railways and 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).	(a) N (b) N/A	(a)The large-scale deforestation is not assumed due to bridge replacement project only. (b)Not applicable
	Note on Using Environmental Checklist	(a) If necessary, the impacts to trans boundary or global issues should be confirmed (e.g., the project includes factors that may cause problems, such as trans boundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) N	(a)The influence is not assumed because it is small scale project.

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,

Annex 11 Environmental Management Plan/Environmental Monitoring Plan

Environmental Management Plan (tentative)

Item	Monitoring	Method	Expected schedule	Responsible organization
Planning phase				
Environmental License	Situation of obtaining the license	Handing in relevant documents to JICA office (copy of licene, application documents)	End of October, 2016	ANE
Information to the Local residents	Information about the results of preparatory survey	Repoeting to JICA office about the results of activities	June, 2016	ANE
Item	**Monitoring**	**Location**	**Frequency**	**Responsible organization**
During works				
Air quality	Visual monitoring	Around the bridge sites	Every month	Contractor
Water quality	pH, turbidity(Use by simple equipment and visual monitoring)	Upstream and downstream from the bridge	Every month	Contractor
Waste	Visual monitoring	Around the bridge sites	Every month	Contractor
Soil pollution	Patrol (leaking oil from construction equipment or storage yard to ground)	Around the bridge sites	Every month	Contractor
Ecosystems	Monitoring if there is wild animal from Quirimbus National park	Around the bridge sites	Every month	Contractor
In service				
Water quality	pH, turbidity(Use by simple equipment and visual monitoring)	Upstream and downstream	Every month (until 6 month	ANE
Ecosystems	The patrol for unidentified vehicle of the poaching should be carried out during road maintenance periodically.	Around the bridge sites	Every month	ANE

Annex 12 Environmental and Social Monitoring Form

Monitoring Form

The latest results of the below monitoring items shall be submitted to the lenders as part of Quarterly Progress Report throughout the construction phase.

1 Construction Phase

1.1 Response/Actions to Comments and Guidance from Government Authorities and the Public

Monitoring Item	Monitoring Results during Report Period
Number and contents of formal comments made by the public	
Number and contents of responses from Government agencies	

1.2 Pollution

(1) Water Quality

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Standards for Contract	Referred International Standards	Measurement Point	Frequency
pH	-			6.5-8.5			Upstream and downstream sites	Monthly
COD	mg/l			-		50		

(2) Air Quality (Ambient Air Quality)

Monitoring Item	Monitoring Results during Report Period
The change of fauna and the flora shall be observed by visual survey and confirm abnormality of the air quality at near the construction site every monthly	Details of survey results, such as findings.

(3) Waste and soil pollution

Monitoring Item	Monitoring Results during Report Period
Waste: Monthly patrol should be carried out for prevention of illegal dumping.	Details of survey results, such as findings.
Soil pollution: Monthly patrol should be carried out for checking the leaking from construction equipment.	Details of survey results, such as findings.

1.3 Natural Environment

Ecosystem

Monitoring Item	Monitoring Results during Report Period
Number of unusual death of wildlife, fish and aquatic fauna around project sites When an unidentified vehicle passed on the construction sites, should be report to the police due to prevent a poacher.	Details of survey results, such as findings.

1.4 Social Environment

HIV/AIDS and other STDs

Monitoring Item	Monitoring Results during Report Period
HIV/AIDS and other STDs	Incidences per 1000 inhabitants

2 Operation Phase

The latest results of the below monitoring items shall be conducted by ANE based on sampling on monthly basis for the first 6 month of operation and submitted to JICA.

2.1 Response/Actions to Comments and Guidance from Government Authorities and the Public

Monitoring Item	Monitoring Results during Report Period	Frequency
Number and contents of formal comments made by the public	To be counted and reviewed through the Grievance Redress Mechanism to be established within this project.	Monthly basis.
Number and contents of responses from Government agencies	To be responded based on review of comments, to be collected through GRM, mentioned above.	

2.2 Pollution

(1) Water Quality

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Standards for Contract	Referred International Standards	Measurement Point	Frequency
pH	-			6.5-8.5			Upstream and downstream sites	Monthly
COD	mg/l					50		

2.3 Natural Environment

(1) Ecosystem

Monitoring Item	Monitoring Results during Report Period
Number of unusual death of wildlife, fish and aquatic fauna around project sites. When an unidentified vehicle passed during the periodic road maintenance monitoring, ANE shall report to the police due to prevent a poacher.	Details of survey results, such as findings.

資料 5. 討議議事録（テクニカルノート）

TECHNICAL NOTES

ON THE PREPARATORY SURVEY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ON N380 IN CABO DELGADO PROVINCE IN THE REPUBLIC OF MOZAMBIQUE

The Preparatory Survey Team (hereinafter referred to as "the Team") has conducted a series of site surveys holding meetings with the National Road Administration (ANE) and the officials concerned of the Government of the Republic of Mozambique. ANE and the TEAM reviewed the survey results obtained by the end of March and confirmed the main items of the Project for Construction of Bridges on N380 in Cabo Delgado Province in the Republic of Mozambique (hereinafter referred to as "the Project) on the 2nd of April 2015 as shown in the following.

Technical Notes

On the basis of discussions and field surveys done up to now, the Team and ANE have confirmed the following main items of the Project in accordance with Article 13-3 of the Minutes of Discussions of the 2nd March 2015.

1. Bridge Width

The width of bridges is 9.6 m with two traffic lanes including the sidewalks on both sides as shown in Figure 1.

2. Location of new bridges

New bridge locations are determined based on the alignment of approach roads and natural conditions as shown Table 1.

3. Bridge Length

The lengths of the bridges are determined considering the flood flow of each river and the construction cost. The lengths of bridges are shown in Table 1.

4. Standard of the bridge design

The Team shall design the new bridges based on the ANE's design standard, and supplement with Japanese design standards and relevant manual as below.

1) ANEs design standards , SATCC
2) Design specification of highway bridges issued by Japan Road Association (JRA)
3) Drainage Manual by the South African National Roads Agency Ltd. 2006

5. Prioritization of the bridges

The eight bridges are prioritized based on the importance and emergency checked in this study. The result is shown in Table 1.

6. Environmental Issues

The items ANE shall undertake to implement the environmental preparation are as shown in Table 2. The Budget allocation for Relevant Environmental Studies (i.e., IEE and/or EIA Study) shall be

arranged by ANE before the implementation of Project.

7. Other Relevant Issues

The Team recommended ANE to take urgent countermeasure for some damaged bridges, such as Muaguide Bridge and Messalo 2 Bridge.

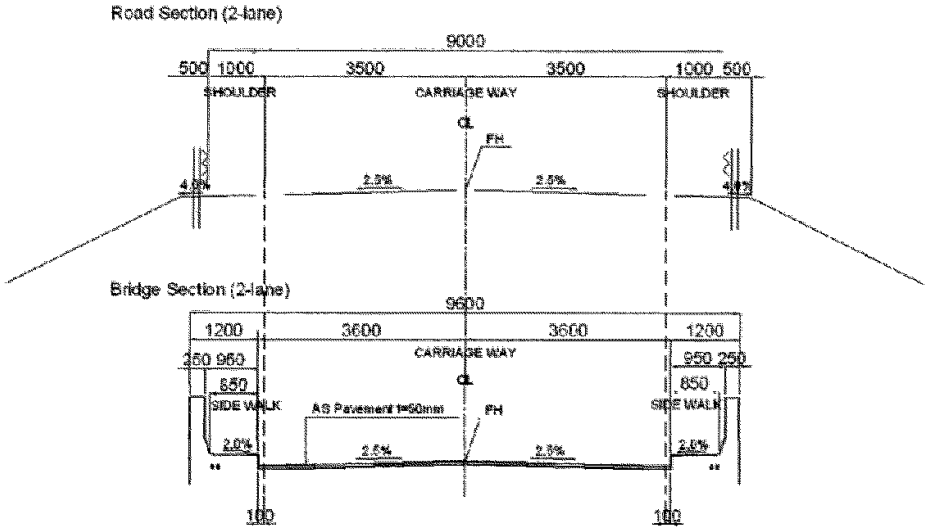


Figure 1. Road and Bridge Width

Table 1. Bridge List

No.	Bridge Name	Length of Existing Bridge(m)	Planning of Bridge Length(m)	Span	Location of the New Bridge	priority
1	Catipusse	30.0	35		Existing bridge	I
2	Muagamula	33.5	35		Down stream	II
3	Messalo 1	49.4	50	2@25m	Existing bridge	I
4	Messalo 3	74.4	75	3@25m	Existing bridge	I
5	Mapuede	24.4	25		Existing bridge	II
6	Muera 1	44.5	50	2@25m	Existing bridge	I
7	Muera 2	20.0	25		Existing bridge	I
8	Mungoe	15.5	25		Existing bridge	II

Table 2. List of ANE's Undertaking

Item	Deadline
Preliminary Discussions between ANE and MICOA.	End of May, 2015
Budget allocation of Relevant Environmental Studies (i.e., IEE and/or EIA Study), tender process, and the selection of qualified environmental consulting firm by ANE.	End of May, 2015
Relevant Environmental Studies (i.e., IEE and/or EIA Study) satisfying both relevant EIA codes of Mozambique and JICA Guideline.	End of February, 2016
Approval letter of Relevant Environmental Studies (IEE and/or EIA), and Environmental License.	End of February, 2016
Stakeholder Meetings, required by JICA Guidelines	During IEE and/or EIA study
Land acquisition	Before the implementation of the Project
Resettlement and compensation	Before the implementation of the Project

The survey will be continued until May and if any special condition change is recognized necessary, some items may be revised accordingly with beforehand notice from the Team to ANE.

Haruki AKIYAMA
Consultant Leader
Preparatory Survey Team
CHODAI Co., Ltd.

Atanasio Muguinhe
General Manager
National Roads Administration
Republic of Mozambique

資料 6. 参考資料

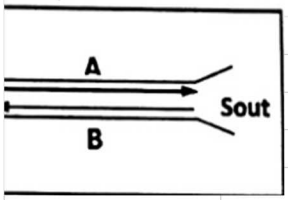
No.	資料の名称	発行元	媒体
1	ANES DESIGN STANDARDS	道路公社	PDF
2	Drainage Manual	SATCC	PDF
3	国道 380 号線交通量調査結果	道路公社	PDF
4	Bridge Inventory data (N380)	道路公社	コピー
5	橋梁点検マニュアル	道路公社	コピー
6	道路公社組織図	道路公社	PDF
7	メッサロⅢ橋設計図	道路公社	閲覧のみ
8	国道１号の設計図面(MASSINGA ～ NHACHENGUE 間)	道路公社	PDF
9	地形図(S=1/100 万,1/25 万,1/5 万)	地図局	PDF
10	河川観測データ	National Directorate of Water	PDF
11	降雨量観測データ	Iinstitute of National Meteorology	PDF
12	地質図 1:1,000,000	Direccao Nacional de Geologia	PDF
13	地質図 1:250,000	Direccao Nacional de Geologia	PDF
14	地質報告書	Direccao Nacional de Geologia	PDF
15	国道 380 号線・道路改修事業の EIA 報告書一式	Minister of Land, Environment and Rural Developmenl	PDF
16	キリンバス国立公園の植生・動植物相に関する資料	Minister of Land, Environment and Rural Developmenl	PDF
17	Road Development Programme	道路公社	コピー
18	MOPH の組織図	Ministry of Public Works and Housing	PDF
19	Environmental Guide october 2012	道路公社	コピー
20	Field Manual october 2012	道路公社	コピー
21	道路網図 (モザンビーク全体・各州)	道路公社	PDF
22	道路延長リスト 2015	道路公社	PDF
23	Plano de Maneio PNQ versao FINAL (com parecer micoa)キリンバス国立公園管理計画書 (2013－2022)	ＷＷＦ	PDF
24	Anuario Estatistico Statistical Year Book 2005	統計局	ハードコピー
25	メッサロ川の氾濫想定区域図	INGC	PDF

資料７．その他の資料・情報

資料７-1．交通量調査結果

(1)　カチプシ橋

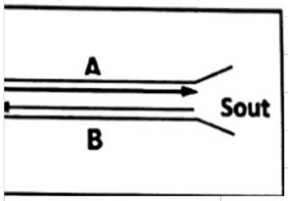
ion Map



BRIDGE NAME　CATIPUSSE (BRIDGE NO. 1)
DATE　APRIL 6, 2015
SURVEYOR　ANTIPHOP CHAISRISUK
DIRECTION　A (to South)

				Pedestrian and Bicycle	Total
	1	1		4	6
	6	4	3	5	18
	5	2	6	4	17
2	2	4		3	11
2	6	3		1	12
	7	5		6	18
	2	5			7
	3	3	2	4	12
	4	2		2	8
	6	2		3	11
	6	2	1	13	22
	3	4		4	11
4	51	37	12	49	153

ion Map

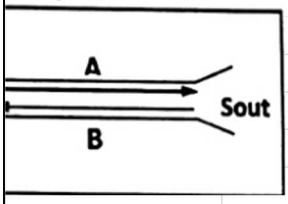


BRIDGE NAME　CATIPUSSE (BRIDGE NO. 1)
DATE　APRIL 6, 2015
SURVEYOR　BOONLIANG WONGKOTE
DIRECTION　B (to North)

				Pedestrian and Bicycle	Total
	4	5	3	10	22
1	5	1	6	16	29
2	8	3	6	5	24
	35		2	3	40
	25	5	5	2	37
	18	4	2		24
	12	2	2	1	17
	8	3			11
	9		3	2	14
	14	2			16
1	11	3	1		16
	6	2		1	9
4	155	30	30	40	259

(2) ムンゴエ橋

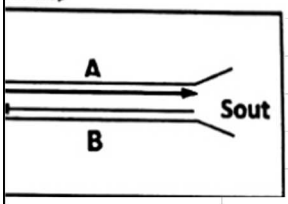
ion Map



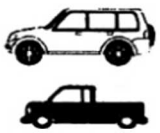
BRIDGE NAME MUNGOE (BRIDGE NO. 8)
DATE APRIL 6, 2015
SURVEYOR MAN SIDAM
DIRECTION A (to South)

				Pedestrian and Bicycle	Total
1	1	1		48	51
		1		31	32
	1	3		24	28
	1	3		28	32
1	2	1	1	38	43
	6	3		6	15
	2	3			5
	4	1		10	15
2	3	2	1	6	14
1		2	2	15	20
		2		15	17
	3	1		10	14
5	23	23	4	231	286

ion Map



BRIDGE NAME MUNGOE (BRIDGE NO. 8)
DATE APRIL 6, 2015
SURVEYOR TELEX FREDERICO CUNA
DIRECTION B (to North)

				Pedestrian and Bicycle	Total
1		1		5	7
1	4	6	1	10	22
	2	3	2	5	12
	2	5	3	11	21
1	7		3	13	24
	33	3	3	11	50
1	22	3	3	7	36
	15	6	6	15	42
	16	2	4	23	45
1	7	2	1	10	21
3	7	2		17	29
2	12	2		13	29
10	127	35	26	140	338

資料 7-2. 地質調査結果

各橋梁での座標位置を下表に示す。BH3 はメサロ I 橋、BH4 はメサロ III 橋、BH5 はマプエデ橋の座標を示す。

	Easting (X)	Northing (Y)	Elevation (Z)
BH1-A1	610 432.205	8 606 525.118	125.880
BH1-A2	610 433.845	8 606 579.479	125.980
BH2-A1	621 955.565	8 658 026.713	143.165
BH2-A2	621 929.353	8 658 074.110	144.136
BH3-A1	620 536.070	8 689 804.794	46.387
BH3-A2	620 488.000	8 689 862.844	46.700
BH4-A1	620 293.180	8 690 490.373	47.309
BH4-A2	620 265.756	8 690 576.296	46.540
BH4-P1	620 279.650	8 690 518.930	45.846
BH5-A1	617 299.474	8 692 056.371	43.627
BH5-A2	617 256.901	8 692 053.140	45.765
BH6-A1	610 658.134	8 713 456.960	89.646
BH6-A2	610 720.463	8 713 486.473	89.563
BH7-A1	610 900.101	8 713 507.888	87.311
BH7-A2	610 941.958	8 713 536.087	90.326
BH8-A1	612 525.757	8 724 730.665	151.064
BH8-A2	612 512.381	8 724 763.662	151.368

(1) メサロ I 橋

BORING LOG

BOREHOLE BH3-A1
SHEET 1 OF 2

PROJECT: Bridge Construction on N380, Cabo Delgado
LOCATION: Messalo 1 (Bridge 3) @ South Abutment
CLIENT: Chodai Co., Ltd.

Coordinates: S: 8689804.7940 E: 620536.0700
Ground Elevation (m-MSL): 46.3870 m
Max.Drilling Depth: 27.44 m

Water Level: -0.400 m
Starting Date: 7-10/4/2015
Finishing Date: 20-21/5/2015

DEPTH (m.)	GRAPHIC LOG	SOIL DESCRIPTION	SAMPLING METHOD	SAMPLE NO.	RECOVERY (cm)	Total Unit Weight (Ton/m³) 1.0 1.5 2.0	Plastic Limit / Natural Water Content / Liquid Limit (%) 30 60 90 120	Specific Gravity 2.4 2.6 2.8	SPT Blow Count (Blow/ft) 10 20 30 40
0		0.0-7.0 m, CL, silty CLAY, 10% silt, low-medium plasticity, medium stiff-stiff, dark brownish gray-dark gray, *Alluvium*	WO						
1			WO						
			SS	1	26				5
2			WO						
			SS	2	45				5
3			WO						
			SS	3	45				8
4			WO						
			SS	4	Loss				7
5			WO						
			SS	5	45				9
6			WO						
			SS	6	43				9
7			WO						
		7.0-9.0 m, ML, SILT, medium dense, non plasticity, rather clean, brownish gray-gray, *Alluvium*	SS	7	34				12
8			WO						
			SS	8	39				10
9			WO						
		9.0-12.0 m, SM, silty SAND, 20-30% silt, very fine-fine subangular sand, with little clay, clean, loose-medium dense, brownish gray-gray, *Alluvium*	SS	9	45				17
10			WO						
			SS	10	42				17
11			WO						
			SS	11	41				14
12			WO						
		12.0-13.0 m, SP, SAND, fine subangular sand, rather clean, poorly graded, medium dense, greenish gray, *Alluvium*	SS	12	37				15
13			WO						
		13.0-17.0 m, SM, silty SAND, very fine subangular sand-silt, nil-5% clay, very random presence of highly weathered granite gneiss subangular-subeound gravel of 1 cm max sized, medium dense, greenish gray with random brown mottled, *Alluvium*	SS	13	40				22
14			WO						
			SS	14	45				15
15			WO						
			SS	15	45				15
16			WO						
			SS	16	43				16
17			WO						
		17.0-20.0 m, SM, silty SAND, 15% silt, fine subangular sand, medium dense, brown, *Alluvium*	SS	17	45				21
18			WO						
		23.0-23.5 m, SP, SAND, fine subangular sand, clean, poorly graded, dense, light brown, *Alluvium*	SS	18	40				32
19			WO						
		19.0-20.0 m, SM, silty SAND, very fine subangular sand-silt, dense, brown with greenish gray mottled, *Alluvium*	SS	19	43				32
20			WO						
		20.0-21.0 m, ML, SILT, slight plasticity, medium dense, light brown with gray mottled, *Alluvium*	SS	20	44				21
21			WO						
		21.0-23.0 m, SM, silty SAND, 15-50% silt, very fine subangular-subround sand, rather clean, dense, brown with gray mottled-brownish gray, *Alluvium*	SS	21	45				30
22			WO						
			SS	22	45				31
23		23.0-27.0 m, SP, SAND, fine subangular-subround sand, clean, poorly graded, very dense mostly, brownish gray-grayish brown-greenish gray, *Alluvium*	WO						
			SS	23	45				35
24			WO						
			SS	24	29				50/24
25			WO						
			SS	25	28				50/27

BORING LOG

BOREHOLE BH3-A1
SHEET 2 OF 2

PROJECT:	Bridge Construction on N380, Cabo Delgado	Coordinates: N: 8689804.7940	E: 620536.0700	Water Level:	-0.40 m
LOCATION:	Messalo 1 (Bridge 3) @ South Abutment	Ground Elevation (m-MSL):	46.3870 m	Starting Date:	7-10/4/2015
CLIENT:	Chodai Co., Ltd.	Max.Drilling Depth:	27.44 m	Finishing Date:	20-21/5/2015

DEPTH (m.)	GRAPHIC LOG	SOIL DESCRIPTION	SAMPLING METHOD	SAMPLE NO.	RECOVERY (cm)	Organic Content (%) 1.0 2.0 3.0	Plastic Limit / Natural Water Content / Liquid Limit (%) 30 60 90 120	Specific Gravity 2.4 2.6 2.8	SPT Blow Count (Blow/ft) 10 20 30 40	
		23.0-27.0 m, SP, SAND, fine subangular-subround sand, clean, poorly graded, very dense mostly, brownish gray-grayish brown-greenish gray, *Alluvium*	SS	25	28					
			WO							
26			SS	26	45					50//30
			WO							
27		27.0-27.29 m, SW, SAND, fine-coarse sand, *Alluvium*	SS	27	33					50/29
		End of hole @ 27.44 m								

Loss

Lab, WO - Wash out, SS-Split Spoon Sampling

BORING LOG

BOREHOLE BH3-A2
SHEET 1 OF 2

PROJECT:	Bridge Construction on N380, Cabo Delgado	Coordinates: S: 8689864.0000	E: 620490.0000	Water Level:	-0.900 m
LOCATION:	Messalo 1 (Bridge 3) @ North Abutment	Ground Elevation (m-MSL):	44 (GPS) m	Starting Date:	11/5/2015
CLIENT:	Chodai Co., Ltd.	Max.Drilling Depth:	27.00 m	Finishing Date:	14/5/2015

DEPTH(m)	GRAPHIC LOG	SOIL DESCRIPTION	SAMPLING METHOD	SAMPLE NO.	RECOVERY (cm)	Total Unit Weight (Ton/m³) 1.6 1.8 2.0	Plastic Limit — Natural Water Content — Liquid Limit (%) 30 60 90 120	Specific Gravity 2.4 2.6 2.8	SPT Blow Count (Blow/ft) 10 20 30 40
0		0.0-4.0 m, CL, silty CLAY, 20% silt, medium plasticity, medium stiff, dark brownish gra, *Alluvium*	WO						
			WO						
1			SS	1	38				8
			WO						
2			SS	2	45				8
			WO						
3			SS	3	45				11
			WO						
4		4.0-5.0 m, SM, silty SAND, 15% silt, fine subangular sand, loose, gray with random brown stripe, *Alluvium*	SS	4	45				7
			WO						
5		5.0-6.0 m, CL, silty CLAY, 30% silt, medium plasticity, stiff, dark brownish gra, *Alluvium*	SS	5	45				10
			WO						
6		6.0-7.0 m, SM, silty SAND, very fine subangular sand-silt, non plasticity, loose, gray, *Alluvium*	SS	6	45				8
			WO						
7		7.0-8.0 m, ML, SILT, non plasticity, loose, greenish-brownish gray, *Alluvium*	SS	7	45				8
			WO						
8		8.0-12.0 m, SP, SAND, fine-medium subangular-subround sand with little coarse, clean, poorly graded, loose-medium dense, greenish-brownish gray, *Alluvium*	SS	8	43				9
			WO						
9			SS	9	45				12
			WO						
10			SS	10	42				17
			WO						
11			SS	11	34				15
			WO						
12		12.0-13.0 m, SM, silty SAND, very fine subangular sand-silt, loose-medium dense, greenish gray, *Alluvium*	SS	12	43				10
			WO						
13		13.0-19.0 m, SP-SW, SAND, fine-medium subangular-subround sand with little coarse,rather clean- clean, poorly graded with well graded at bottom, loose-medium dense, greenish gray-grayish to brownish green, *Alluvium*	SS	13	39				13
			WO						
14			SS	14	32				24
			WO						
15			SS	15	37				30
			WO						
16			SS	16	31				20
			WO						
17			SS	17	32				20
			WO						
18			SS	18	40				17
			WO						
19		19.0-22.0 m, ML, SILT, with little clay, non-slight plasticity, rather clean, medium dense, light-grayish brown-brown with some gray mottled, *Alluvium*	SS	19	45				21
			WO						
20			SS	20	45				18
			WO						
21			SS	21	44				13
			WO						
22		22.0-23.0 m, SM, silty SAND, 10% silt, fine subangular-subround sand, clean, very dense, grayish yellow-yellow, *Alluvium*	SS	22	37				50/22
			WO						
23		23.0-25.0 m, ML, SILT, with little clay, non-slight plasticity, medium dense, grayish-light brown, *Alluvium*	SS	23	39				27
			WO						
24			SS	24	45				28
			WO						
25		25.0-27.0 m, SP-SW, SAND, fine-coarse subangular-subround sand, clean, poorly-well graded, dense-very dense, pale gray-grayish yellow, *Alluvium*	SS	25	41				31
			WO						

BORING LOG

BORING NO. BH3-A2
SHEET 2 OF 2

PROJECT:	Bridge Construction on N380, Cabo Delgado	Coordinates: N: 8689864.0000	E: 620490.0000	Water Level:	-0.90 m
LOCATION:	Messalo 1 (Bridge 3) @ North Abutment	Ground Elevation (m-MSL):	44 (GPS) m	Starting Date:	11/5/2015
CLIENT:	Chodai Co., Ltd.	Max.Drilling Depth:	27.00 m	Finishing Date:	14/5/2015

DEPTH (m.)	GRAPHIC LOG	SOIL DESCRIPTION	SAMPLING METHOD	SAMPLE NO.	RECOVERY (cm)	Organic Content (%) 1.0 2.0 3.0	Plastic Limit / Natural Water Content / Liquid Limit (%) 30 60 90 120	Specific Gravity 2.4 2.6 2.8	SPT Blow Count (Blow/ft) 10 20 30 40
26		25.0-27.0 m, SP-SW, SAND, fine-coarse subangular-subround sand, clean, poorly-well graded, dense-very dense, pale gray-grayish yellow-yellowish gray, *Alluvium*	SS	25	41				
			WO						
			SS	26	45				48
27			SS	27	39				50//28
		End of hole @ 27.0 m							

Loss

Lab, WO - Wash out, SS-Split Spoon Sampling

(2) メサロⅢ橋

BORING LOG

BOREHOLE BH4-A1
SHEET 1 OF 2

PROJECT: Bridge Construction on N380, Cabo Delgado
LOCATION: Messalo 3 (Bridge 4) @ South Abutment
CLIENT: Chodai Co., Ltd.

Coordinates: S: 8690490.3730 E: 620293.1800
Ground Elevation (m-MSL): 47.3090 m
Max.Drilling Depth: 32.34 m

Water Level: -1.800 m
Starting Date: 15-18/4/2015
Finishing Date: 22/5/2015

DEPTH (m.)	GRAPHIC LOG	SOIL DESCRIPTION	SAMPLING METHOD	SAMPLE NO.	RECOVERY (cm)	Total Unit Weight (Ton/m³) 1.6 1.8 2.0	Plastic Limit / Natural Water Content (%) / Liquid Limit 30 60 90 120	Specific Gravity 2.4 2.6 2.8	SPT Blow Count (Blow/ft) 10 20 30 40
1		0.0-2.0 m, SW, SAND, fine-medium subangular-subround sand with some coarse, well graded, very loose, light brown, *Alluvium*	WO						
			WO						
			SS	1	20				5
2			WO						
		2.0-3.0 m, CL, silty CLAY, 30% silt, medium plasticity, medium stiff, brownish gray, *Alluvium*	SS	2	39				6
3			WO						
		3.0-6.0 m, ML, SILT-SILT with clay, nil-20% clay, non-low plasticity, loose, brown-brownish gray-gray, *Alluvium*	SS	3	45				5
			WO						
4			SS	4	32				4
			WO						
5			SS	5	41				4
			WO						
6		6.0-7.0 m, CL, silty CLAY, 30% silt, medium plasticity, stiff, brownish gray-gray, *Alluvium*	SS	6	45				10
			WO						
7		7.0-8.0 m, SM, silty SAND, 40% silt, very fine-fine subangular-subround sand, medium dense, gray, *Alluvium*	SS	7	41				10
			WO						
8		8.0-15.0 m, ML, SILT, with little clay, non-slight plasticity, medium dense, brownish gray-gray, *Alluvium*	SS	8	45				13
			WO						
9			SS	9	45				13
			WO						
10			SS	10	45				13
			WO						
11			SS	11	41				13
			WO						
12			SS	12	42				13
			WO						
13			SS	13	45				11
			WO						
14			SS	14	45				13
			WO						
15		15.0-16.0 m, SM, silty SAND, 30% silt, fine subangular-subround sand, medium dense, greenish gray, *Alluvium*	SS	15	45				16
			WO						
16		16.0-17.0 m, ML, SILT, non plasticity, clean, medium dense, gray, *Alluvium*	SS	16	42				19
			WO						
17		17.0-18.0 m, SM, silty SAND, 20% silt, fine subangular-subround sand, medium dense, gray, *Alluvium*	SS	17	32				14
			WO						
18		18.0-19.0 m, SW, SAND, fine-coarse subangular sand, clean, well graded, medium dense, pale gray, *Alluvium*	SS	18	30				22
			WO						
19		19.0-27.0 m, SP, SAND, fine-medium subangular sand, clean, poorly graded, medium dense with random dense @ 23 m, yellowish gray, *Alluvium*	SS	19	35				23
			WO						
20			SS	20	42				25
			WO						
21			SS	21	45				28
			WO						
22			SS	22	45				24
			WO						
23			SS	23	45				41
			WO						
24			SS	24	45				17
			WO						
25			SS	25	45				28
			WO						

BORING LOG

BORING NO. BH4-A1
SHEET 2 OF 2

PROJECT:	Bridge Construction on N380, Cabo Delgado	Coordinates: N: 8690490.3730	E: 620293.1800	Water Level:	-1.80 m
LOCATION:	Messalo 3 (Bridge 4) @ South Abutment	Ground Elevation (m-MSL):	47.3090 m	Starting Date:	15-18/4/2015
CLIENT:	Chodai Co., Ltd.	Max.Drilling Depth:	32.34 m	Finishing Date:	22/5/2015

DEPTH (m.)	GRAPHIC LOG	SOIL DESCRIPTION	SAMPLING METHOD	SAMPLE NO.	RECOVERY (cm)	Organic Content (%) 1.0 2.0 3.0	Plastic Limit / Natural Water Content / Liquid Limit (%) 30 60 90 120	Specific Gravity 2.4 2.6 2.8	SPT Blow Count (Blow/ft) 10 20 30 40
26		19.0-27.0 m, SP, SAND, fine-medium subangular sand, clean, poorly graded, medium dense with random dense @ 23 m, yellowish gray, *Alluvium*	SS	25	45				
			WO						
			SS	26	45				37
27			WO						
		27.0-32.19 m, SW, SAND, fine-coarse subangular sand, well graded, dense-very dense, gray-yellowish gray, *Alluvium*	SS	27	37				39
			WO						
28			SS	28	36				38
			WO						
29			SS	29	32				41
			WO						
30			SS	30	31				50//24
			WO						
31			SS	31	33				33
			WO						
32			SS	32	25				50/19
		End of hole @ 32.34 m							

■ Loss

▨ Lab, WO - Wash out, SS-Split Spoon Sampling

BORING LOG

BOREHOLE BH4-P1
SHEET 1 OF 1

PROJECT: Bridge Construction on N380, Cabo Delgado
LOCATION: Messalo 3 (Bridge 4) @ Middle Pier
CLIENT: Chodai Co., Ltd.

Coordinates: S: 8690526.0000 E: 620277.0000
Ground Elevation (m-MSL): 58 (GPS) m
Max.Drilling Depth: 25.50 m

Water Level: -0.500 m
Starting Date: 19/4/2015
Finishing Date: 21/4/2015

DEPTH (m.)	GRAPHIC LOG	SOIL DESCRIPTION	SAMPLING METHOD	SAMPLE NO.	RECOVERY (cm)	Total Unit Weight (Ton/m³) 1.6 1.8 2.0	Plastic Limit / Natural Water Content / Liquid Limit (%) 30 60 90 120	Specific Gravity 2.4 2.6 2.8	SPT Blow Count (Blow/ft) 10 20 30 40
1		0.0-2.0 m, ML, SILT with clay, 20% clay, low plasticity, loose, brownish gray, *Alluvium*	WO						
			WO						
			SS	1	38				6
			WO						
2		2.0-3.0 m, SP, SAND, fine subangular-subround sand, poorly graded, loose, brown, *Alluvium*	SS	2	45				5
			WO						
3		3.0-4.0 m, SM, silty SAND, 20% silt, fine subround sand, loose, yellowish gray, *Alluvium*	SS	3	35				4
			WO						
4		4.0-6.0 m, CL, silty CLAY, 20% silt, medium plasticity, medium stiff, dark gray-gray, *Alluvium*	SS	4	45				8
			WO						
5			SS	5	45				7
			WO						
6		4.0-6.0 m, CL, silty-sandy CLAY, 40% silt-fine subangular-subround sand, low plasticity, medium stiff, gray-brownish gray, *Alluvium*	SS	6	45				8
			WO						
7		7.0-8.0 m, ML, SILT, non plasticity, loose, brownish gray, *Alluvium*	SS	7	45				10
			WO						
8		8.0-9.0 m, CL, silty CLAY, 40% silt, low plasticity, loose, gray, *Alluvium*	SS	8	45				10
			WO						
9		9.0-13.0 m, ML, SILT, non plasticity, loose mostly, yellowish-brownish-greenish gray, *Alluvium*	SS	9	40				12
			WO						
10			SS	10	40				9
			WO						
11			SS	11	40				10
			WO						
12			SS	12	45				9
			WO						
13		13.0-14.0 m, SP, SAND, medium subangular-subround sand, poorly graded, medium dense, yellowish gray, *Alluvium*	SS	13	36				15
			WO						
14		14.0-15.0 m, ML, SILT, non plasticity, medium dense, greenish gray, *Alluvium*	SS	14	38				21
			WO						
15		15.0-16.0 m, CL, silty CLAY, 40% silt, low plasticity, very stiff,, brownish-greenish gray, *Alluvium*	SS	15	45				18
			WO						
16		16.0-17.0 m, SP, SAND, fine subround sand, poorly graded, loose, greenish gray, *Alluvium*	SS	16	38				10
			WO						
17		17.0-18.0 m, SM, silty SAND, silt-very fine sand,medium dense, greenish gray, *Alluvium*	SS	17	39				17
			WO						
18		18.0-19.0 m, SW, SAND, fine-coarse subangular-subround sand, clean, well graded, medium dense, grayish yellow, *Alluvium*	SS	18	25				24
			WO						
19		19.0-21.0 m, SP, SAND, fine-medium subangular-subround sand, poorly graded, medium dense-dense, greenish gray-grayish yellow, *Alluvium*	SS	19	37				29
			WO						
20			SS	20	32				32
			WO						
21		21.0-22.0 m, ML, SILT, non plasticity, medium dense, dark greenish gray, *Alluvium*	SS	21	42				21
			WO						
22		22.0-25.5 m, SP, SAND, fine-medium subangular-subround sand, poorly graded, dense-very dense, yellowish gray, *Alluvium*	SS	22	37				35
			WO						
23			SS	23	32				36
			WO						
24			SS	24	35				33
			WO						
25			SS	25	21				5022
		End of hole @ 25.5 m	WO						

BORING LOG

BOREHOLE BH4-A2
SHEET 1 OF 1

PROJECT: Bridge Construction on N380, Cabo Delgado
LOCATION: Messalo 3 (Bridge 4) @ North Abutment
CLIENT: Chodai Co., Ltd.

Coordinates: S: 8690575.0000 E: 620261.0000
Ground Elevation (m-MSL): 49 (GPS) m
Max.Drilling Depth: 25.50 m

Water Level: -1.600 m
Starting Date: 23/4/2015
Finishing Date: 25/4/2015

DEPTH (m.)	GRAPHIC LOG	SOIL DESCRIPTION	SAMPLING METHOD	SAMPLE NO.	RECOVERY (cm)	Total Unit Weight (Ton/m³)	Plastic Limit / Natural Water Content / Liquid Limit (%)	Specific Gravity	SPT Blow Count (Blow/ft)
						1.6 1.8 2.0	30 60 90 120	2.4 2.6 2.8	10 20 30 40
		0.0-1.0 m, SP, SAND, fine subround sand, poorly graded, very loose, reddish brown, *Backfill*	WO						
1			WO						
		1.0-2.0 m, CL, silty CLAY, 20% silt, medium plasticity, soft, dark brownish gray, *Alluvium*	SS	1	8				2
2			WO						
		2.0-3.0 m, ML, SILT, non plasticity, loose, grayish brown, *Alluvium*	SS	2	45				5
3			WO						
		3.0-4.0 m, SP, SAND, fine subround sand, poorly graded, loose, brown, *Alluvium*	SS	3	36				5
4			WO						
		4.0-6.0 m, ML, SILT-SILT with clay, nil-10% clay, non-low plasticity, loose-medium dense, brownish-yellowish gray-gray, *Alluvium*	SS	4	25				4
5			WO						
			SS	5	41				14
6			WO						
		6.0-7.0 m, CL, silty CLAY, 30% silt, low plasticity, medium stiff, gray, *Alluvium*	SS	6	45				8
7			WO						
		7.0-12.0 m, ML, SILT-SILT with clay, nil-10% clay, non-low plasticity, medium dense, brownish-yellowish gray-gray-dark gray, *Alluvium*	SS	7	45				11
8			WO						
			SS	8	41				12
9			WO						
			SS	9	37				13
10			WO						
			SS	10	21				11
11			WO						
			SS	11	42				11
12			WO						
		6.0-7.0 m, CL, silty CLAY, 30% silt, low plasticity, stiff, brownish gray, *Alluvium*	SS	12	43				12
13			WO						
		13.0-15.0 m, ML, SILT, non plasticity, medium dense, greenish-yellowish gray, *Alluvium*	SS	13	39				14
14			WO						
			SS	14	25				18
15			WO						
		15.0-16.0 m, CL, silty CLAY, 40% silt, low plasticity, very stiff, brownish gray, *Alluvium*	SS	15	45				15
16			WO						
		16.0-18.0 m, ML, SILT, non-slight plasticity, medium dense, brownish-greenish gray, *Alluvium*	SS	16	32				13
17			WO						
			SS	17	36				21
18			WO						
		18.0-21.0 m, SP, SAND, fine-medium subangular-subround sand, poorly graded, medium dense-dense, greenish-yellowish gray-grayish yellow, *Alluvium*	SS	18	23				20
19			WO						
			SS	19	25				27
20			WO						
			SS	20	25				34
21			WO						
		21.0-22.0 m, SW, SAND, fine-coarse subangular-subround sand,clean, well graded, dense, yellowish gray, *Alluvium*	SS	21	25				33
22			WO						
		22.0-25.0 m, ML, SILT, non plasticity, medium dense-dense, greenish gray-gray, *Alluvium*	SS	22	25				21
23			WO						
			SS	23	45				34
24			WO						
			SS	24	32				31
25			WO						
		25.0-25.5 m, SP, SAND, F-M sand,clean, poorly graded	SS	25	25				31
		End of hole @ 25.5 m	WO						

(3) マプエデ橋

BORING LOG

BOREHOLE BH5-A1
SHEET 1 OF 1

PROJECT:	Bridge Construction on N380, Cabo Delgado	Coordinates:	S: 8692058.0000	E: 617299.0000	Water Level:	-1.350	m
LOCATION:	Mapuede (Bridge 5) @ South Abutment	Ground Elevation (m-MSL):	49 (GPS)	m	Starting Date:	28/4/2015	
CLIENT:	Chodai Co., Ltd.	Max.Drilling Depth:	17.50	m	Finishing Date:	29/4/2015	

DEPTH (m.)	GRAPHIC LOG	SOIL DESCRIPTION	SAMPLING METHOD	SAMPLE NO.	RECOVERY (cm)	Total Unit Weight (Ton/m³) 1.6 1.8 2.0	Plastic Limit / Natural Water Content / Liquid Limit (%) 30 60 90 120	Specific Gravity 2.4 2.6 2.8	SPT Blow Count (Blow/ft) 10 20 30 40
0		0.0-2.0 m, ML, SILT with clay, 5% clay, slight-low plasticity, loose, grayish brown, *Alluvium*	WO						
1			WO						
			SS	1	42				4
2			WO						
		2.0-6.0 m, ML, SILT, non plasticity, loose-medium dense, brown-gray-greenish gray, *Alluvium*	SS	2	37				5
3			WO						
			SS	3	37				10
4			WO						
			SS	4	36				6
5			WO						
			SS	5	33				19
6			WO						
		6.0-9.0 m, CL, silty CLAY, 20-40% silt, low-medium plasticity, medium stiff, gray, *Alluvium*	SS	6	45				5
7			WO						
			SS	7	45				5
8			WO						
			SS	8	45				7
9			WO						
		9.0-12.0 m, ML, SILT with clay,10% clay, slight-low plasticity, loose-medium dense, gray ith red & yellow spot-yellowish gray, *Highly-Completely Weatheredd Tertiary Semi-Consolidated Siltstone Basement?*	SS	9	42				10
10			WO						
			SS	10	45				10
11			WO						
			SS	11	43				15
12			WO						
		12.0-17.0 m, ML, SILT, non plasticity, dense, yellow-yellowish brown with pale greenish gray stripe-yellowish gray with random pale greenish gray stripe, ith a bit clay @ 17 m, *Highly Completely Weatheredd Tertiary Semi Consolidated Siltstone Basement*	SS	12	40				
13			WO						
			SS	13	39				
14			WO						
			SS	14	32				30
15			WO						
			SS	15	32				36
16			WO						
			SS	16	45				
17			WO						
			SS	17	42				33
		End of hole @ 17.5 m							

BORING LOG

BOREHOLE BH5-A2
SHEET 1 OF 1

PROJECT: Bridge Construction on N380, Cabo Delgado
LOCATION: Mapuede (Bridge 5) @ North Abutment
CLIENT: Chodai Co., Ltd.

Coordinates: S: 8692052.0000 E: 617258.0000
Ground Elevation (m-MSL): 47 (GPS) m
Max.Drilling Depth: 16.50 m

Water Level: >-4.0 m
Starting Date: 26/4/2015
Finishing Date: 27/4/2015

DEPTH (m.)	GRAPHIC LOG	SOIL DESCRIPTION	SAMPLING METHOD	SAMPLE NO.	RECOVERY (cm)	Total Unit Weight (Ton/m³) 1.6 1.8 2.0	Plastic Limit / Natural Water Content / Liquid Limit (%) 30 60 90 120	Specific Gravity 2.4 2.6 2.8	SPT Blow Count (Blow/ft) 10 20 30 40
		0.0-4.0 m, SW-SP, SAND, fine-medium subangular-subround sand mostly,well-poorly graded, loose-medium dense, reddish brown, *Backfill*	WO						
			WO						
1			SS	1	29				4
			WO						
2			SS	2	36				19
			WO						
3			SS	3	32				10
			WO						
4		4.0-5.0 m, CL, silty CLAY, 20% silt, medium plasticity, medium stiff, gray, *Alluvium*	SS	4	35				6
			WO						
5		5.0-6.0 m, SP, SAND, fine-medium subangular-subround sand, poorly graded, medium dense, pale greenish gray, *Alluvium*	SS	5	45				15
			WO						
6		6.0-8.0 m, SP, SAND, fine subround sand, poorly graded, loose-medium dense, pale greenish gray, *Alluvium*	SS	6	25				8
			WO						
7			SS	7	35				17
			WO						
8		8.0-9.0 m, ML, SILT with clay,10% clay, low plasticity, loose, dark gray, *Alluvium*	SS	8	45				5
			WO						
9		9.0-10.0 m, ML, SILT with clay,10% clay, low plasticity, medium dense, green, *Highly-Completely Wieathered Tertiary Semi-Consolidated Siltstone (Basement)*	SS	9	34				11
			WO						
10		10.0-16.5 m, ML, SILT, non plasticity, medium-very dense, pale greenish-yellowish gray-grayish yellow, *Highly-Completely Wieathered Tertiary Semi-Consolidated Siltstone (Basement)*	SS	10	37				16
			WO						
11			SS	11	40				27
			WO						
12			SS	12	43				48
			WO						
13			SS	13	40				50/23
			WO						
14			SS	14	42				33
			WO						
15			SS	15	25				50/12
			WO						
16			SS	16	42				50/27
		End of hole @ 16.5 m							

資料 7-3. 環境モニタリングフォーム案とチェックリスト

(1) モニタリングフォーム

The latest results of the below monitoring items shall be submitted to the lenders as part of Quarterly Progress Report throughout the construction phase.

1 Construction Phase

1.1 Response/Actions to Comments and Guidance from Government Authorities and the Public

Monitoring Item	Monitoring Results during Report Period
Number and contents of formal comments made by the public	
Number and contents of responses from Government agencies	

1.2 Pollution

(1) Water Quality

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Standards for Contract	Referred International Standards	Measurement Point	Frequency
pH	-			6.5-8.5			Upstream and downstream sites	Monthly
COD	mg/l			-		50		

(2) Air Quality (Ambient Air Quality)

Monitoring Item	Monitoring Results during Report Period
The change of fauna and the flora shall be observed by visual survey and confirm abnormality of the air quality at near the construction site every monthly	Details of survey results, such as findings.

(3) Waste and soil pollution

Monitoring Item	Monitoring Results during Report Period
Waste: Monthly patrol should be carried out for prevention of illegal dumping.	Details of survey results, such as findings.
Soil pollution: Monthly patrol should be carried out for checking the leaking from construction equipment.	Details of survey results, such as findings.

1.3 Natural Environment

Ecosystem

Monitoring Item	Monitoring Results during Report Period
Number of unusual death of wildlife, fish and aquatic fauna around project sites	Details of survey results, such as findings.

1.4 Social Environment

HIV/AIDS and other STDs

Monitoring Item	Monitoring Results during Report Period
HIV/AIDS and other STDs	Incidences per 1000 inhabitants

2 Operation Phase

The latest results of the below monitoring items shall be conducted by ANE based on sampling on monthly basis for the first 6 month of operation and submitted to JICA.

2.1 Response/Actions to Comments and Guidance from Government Authorities and the Public

Monitoring Item	Monitoring Results during Report Period	Frequency
Number and contents of formal comments made by the public	To be counted and reviewed through the Grievance Redress Mechanism to be established within this project.	Monthly basis.
Number and contents of responses from Government agencies	To be responded based on review of comments, to be collected through GRM, mentioned above.	

2.2 Pollution

(1) Water Quality

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Standards for Contract	Referred International Standards	Measurement Point	Frequency
pH	-			6.5-8.5			Upstream and downstream sites	Monthly
COD	mg/l					50		

2.3 Natural Environment

(1) Ecosystem

Monitoring Item	Monitoring Results during Report Period
Number of unusual death of wildlife, fish and aquatic fauna around project sites. When an unidentified vehicle passed during the periodic road maintenance monitoring, ANE shall report to the police due to prevent a poacher.	Details of survey results, such as findings.

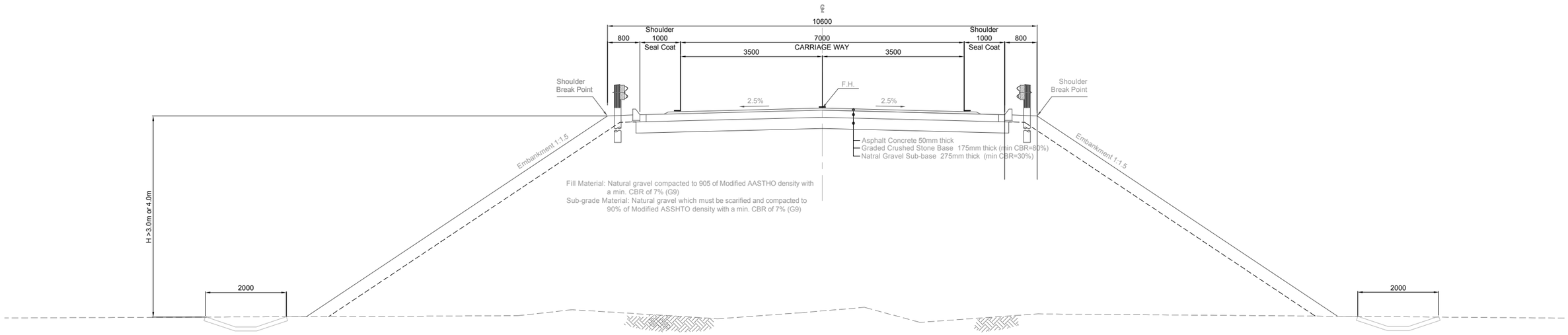
(2) チェックリスト

分類	環境項目	主なチェック事項	Yes: Y No: N	具体的な環境社会配慮 (Yes/Noの理由、根拠、緩和策等)
1 許認可・説明	(1)EIAおよび環境許認可	(a) 環境アセスメント報告書（EIAレポート）等は作成済みか。 (b) EIAレポート等は当該国政府により承認されているか。 (c) EIAレポート等の承認は付帯条件を伴うか。付帯条件がある場合は、その条件は満たされるか。 (d) 上記以外に、必要な場合には現地の所管官庁からの環境に関する許認可は取得済みか。	(a) N (b) N (c) - (d) N	(a)2016年6月末までには、IEE報告書を作成するとANEより伝えられた（2016年4月の協議時）。 (b)2016年7月末にMITADERよりIEEライセンスを取得するとANEより伝えられた（2016年4月の協議時）。 (c)IEE報告書の作成後に承認が必要となるため、詳細内容は不明である。 (d)IEEライセンス以外の許認可は必要としない。
	(2)現地ステークホルダーへの説明	(a) プロジェクトの内容および影響について、情報公開を含めて現地ステークホルダーに適切な説明を行い、理解を得ているか。 (b) 住民等からのコメントを、プロジェクト内容に反映させたか。	(a) Y (b) Y	(a)調査団により個別インタビューを実施した。既設橋が仮設橋であることから、橋梁周辺の住民は永久橋に架け替える計画について概ね歓迎している。道路公社によりテークホルダー協議は、2016年6月頃に開催予定である。（2016年4月時点） (b)補償にかかる異議申し立てのシステムは確保される予定である。異議がある場合は、当事者は地域リーダーに異議を申し立て、集落長より郡に報告、協議を行い異議の有効性が検討される。
	(3)代替案の検討	(a) プロジェクト計画の複数の代替案は（検討の際、環境・社会に係る項目も含めて）検討されているか。	(a) Y	(a)ゼロオプションと比較した結果、経済発展のために国道1号線としての機能を確保すべきであると結論付けた。
2 汚染対策	(1)大気質	(a) 通行車両等から排出される大気汚染物質による影響はあるか。当該国の環境基準等と整合するか。 (b) ルート付近において大気汚染状況が既に環境基準を上回っている場合、プロジェクトが更に大気汚染を悪化させるか。大気質に対する対策は取られるか。	(a) Y (b) N	(a)工事中は建設機械の稼動により大気汚染物質の発生が想定されるが、建設機械数は僅かであり、カーボデルガード州全域における粉塵や汚染物質の発生総量に対してプロジェクト実施前後で大きな変化はないと予想される。工事中は定期的なモニタリングを実施する。 (b) 周辺環境は、工場もなく大気環境は良好である。自動車や建設機械から発生する汚染物質は、河川流域において風下への移流（advection）や拡散(diffusion)により大気中の汚染物質濃度が低下すると考えられ、これら減衰効果により影響は少ないと考えられる。将来交通量予測では、2015年の交通量が344台に対して、2022年では570台という現状から鑑みて、増加はするが交通量が相対的に少ないため影響はないと予測する。
	(2)水質	(a) 盛土部、切土部等の表土露出部からの土壌流出によって下流水域の水質が悪化するか。 (b) プロジェクトによる周辺の井戸等の水源への影響はあるか。	(a) N (b) N	(a)基礎工事では締切り工法を採用し、橋脚工事は乾季に実施することにより水質悪化を防止する。また盛土工事では大型土のうを設定し、土砂流出を防止する。 (b)プロジェクト周辺には住居がなく井戸等の水源はない。基礎工事中の掘削は締め切り工法を用いることにより周辺への影響を最小限とする。
	(3)騒音・振動	(a) 通行車両や鉄道による騒音・振動は当該国の基準等と整合するか。 (b) 通行車両や鉄道による低周波音は当該国の基準等と整合するか。	(a) Y (b) Y	(a)橋梁を通過する車両による騒音・振動は道路に比べて影響が小さい。橋梁周辺には住居及び施設がないため、影響はないと予想される。 (b)橋梁周辺に住居及び施設がないため低周波振動の影響は想定されない。
3 自然環境	(1)保護区	(a) サイトは当該国の法律・国際条約等に定められた保護区内に立地するか。プロジェクトが保護区に影響を与えるか。	(a) N	(a)該当せず
	(2)生態系	(a) サイトは原生林、熱帯の自然林、生態学的に重要な生息地（珊瑚礁、マングローブ湿地、干潟等）を含むか。 (b) サイトは当該国の法律・国際条約等で保護が必要とされる貴重種の生息地を含むか。 (c) 生態系への重大な影響が懸念される場合、生態系への影響を減らす対策はなされるか。 (d) 野生生物及び家畜の移動経路の遮断、生息地の分断、動物の交通事故等に対する対策はなされるか。 (e) 橋梁・道路が出来たことによって、開発に伴う森林破壊や密猟、砂漠化、湿原の乾燥等は生じるか。外来種（従来その地域に生息していなかった）、病害虫等が移入し、生態系が乱される恐れがあるか。これらに対する対策は用意されるか。	(a) N (b) N (c) N (d) N (e) N	(a)プロジェクト実施地域では、原生林、熱帯の自然体、生態学的に重要な生息地となっていない。 (b)橋梁周辺での貴重種の存在は報告されていない。 (c)橋梁を架け替えるプロジェクトであることから生態系への重大な影響は想定されない。 (d)プロジェクト実施区域では、大型の野生生物及び家畜の存在は確認されていない。 (e)橋梁を架け替えるプロジェクトであることから、森林破壊や密猟、砂漠化、湿原の乾燥が生じることは想定されない。NGOは、道路開発に伴い密猟の増加を懸念しており、「モ」国政府に対して国道380号線の夜間通行禁止を提案している。本事業では、パトロールを実施し、密猟者を抑制するために、周辺で不審車両が通過した際には、警察へ通報する。
	(3)水象	(a) 構造物の設置による水系の変化に伴い、地表水・地下水の流れに悪影響を及ぼすか。	(a)N	(a)水理解析結果より既設橋の橋長と比べて長くなっており河川断面が広くなったことから、河川の通水はよりスムーズとなり、地表水・地下水の流れへの影響は想定されない。
	(4)地形・地質	(a) ルート上に土砂崩壊や地滑りが生じそうな地質の悪い場所はあるか。ある場合は工法等で適切な処置がなされるか。 (b) 盛土、切土等の土木作業によって、土砂崩壊や地滑りは生じるか。土砂崩壊や地滑りを防ぐための適切な対策がなされるか。 (c) 盛土部、切土部、土捨て場、土砂採取場からの土壌流出は生じるか。土砂流出を防ぐための適切な対策がなされるか。	(a) N (b) N (c) N	(a)急傾斜地や地質的に問題個所は存在しない。 (b)大規模盛土・切土などの土工は行われず、従って土砂崩壊地滑り発生の可能性は小さい。 (c)盛土工事では大型土のう等による土砂流出を防ぐ計画としている。
4 社会環境	(1)住民移転	(a) プロジェクトの実施に伴い非自発的住民移転は生じるか。生じる場合は、移転による影響を最小限とする努力がなされるか。 (b) 移転する住民に対し、移転前に補償・生活再建対策に関する適切な説明が行われるか。 (c) 住民移転のための調査がなされ、再取得価格による補償、移転後の生活基盤の回復を含む移転計画が立てられるか。 (d) 補償金の支払いは移転前に行われるか。 (e) 補償方針は文書で策定されているか。 (f) 移転住民のうち特に女性、子供、老人、貧困層、少数民族・先住民族等の社会的弱者に適切な配慮がなされた計画か。 (g) 移転住民について移転前の合意は得られるか。 (h) 住民移転を適切に実施するための体制は整えられるか。十分な実施能力と予算措置が講じられるか。 (i) 移転による影響のモニタリングが計画されるか。 (j) 苦情処理の仕組みが構築されているか。	(a) N (b) N/A (c) N/A (d) N/A (e) N/A (f) N/A (g) N/A (h) N/A (i) N/A (j) N/A	(a)橋梁周辺には住居がないため住民移転は発生しない。 (b)同上 (c)同上 (d)同上 (e)同上 (f)同上 (g)同上 (h)同上 (i)同上 (j)同上
	(2)生活・生計	(a) 新規開発により橋梁・アクセス道路が設置される場合、既存の交通手段やそれに従事する住民の生活への影響はあるか。また、土地利用・生計手段の大幅な変更、失業等は生じるか。これらの影響の緩和に配慮した計画か。 (b) プロジェクトによりその他の住民の生活に対し悪影響を及ぼすか。必要な場合は影響を緩和する配慮が行われるか。 (c) 他の地域からの人口流入により病気の発生（HIV等の感染症を含む）の危険はあるか。必要に応じて適切な公衆衛生への配慮は行われるか。 (d) プロジェクトによって周辺地域の道路交通に悪影響を及ぼすか（渋滞、交通事故の増加等）。 (e) プロジェクトによって住民の移動に障害が生じるか。 (f) 陸橋等による日照阻害、電波障害は生じるか。	(a) N (b) N (c) Y (d) N (e) N (f) N	(a)地域住民への影響は想定されない。 (b)地域住民への影響は想定されない。 (c)工事期間中の労働者の移住などにより一時的にリスクが増大するおそれがあるが、啓蒙活動を定期的に実施し、同リスクを低減させる。 (d)交通を開放しながら、工事を実施するため渋滞を引き起こすことは想定されない。 (e)交通を開放しながら、工事を実施するため住民の移動への影響は想定されない。 (f)橋梁周辺には住居等がないため日照阻害や電波障害は想定されない。
	(3)文化遺産	(a) プロジェクトにより、考古学的、歴史的、文化的、宗教的に貴重な遺産、史跡等を損なう恐れはあるか。また、当該国の国内法上定められた措置が考慮されるか。	(a) N	(a)橋梁周辺に遺跡等は無い。

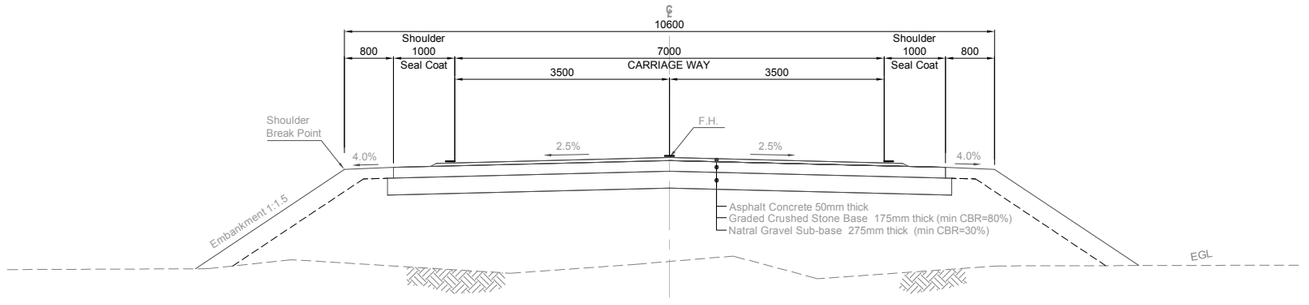
	(4)景　観	(a) 特に配慮すべき景観が存在する場合、それに対し悪影響を及ぼすか。影響がある場合には必要な対策は取られるか。	(a) N	(a)既設橋梁の架け替え事業であることから、現状との変化はほとんど無いため影響は想定されない。
	(5)少数民族、先住民族	(a) 当該国の少数民族、先住民族の文化、生活様式への影響を軽減する配慮がなされているか。 (b) 少数民族、先住民族の土地及び資源に関する諸権利は尊重されるか。	(a) N (b) Y	(a)プロジェクト実施区域周辺で少数民族、先住民族の定住は確認されていない。 (b)法令等に基づき、少数民族、先住民族への諸権利は尊重される。
	(6)労働環境	(a) プロジェクトにおいて遵守すべき当該国の労働環境に関する法律が守られるか。 (b) 労働災害防止に係る安全設備の設置、有害物質の管理等、プロジェクト関係者へのハード面での安全配慮が措置されているか。 (c) 安全衛生計画の策定や作業員等に対する安全教育（交通安全や公衆衛生を含む）の実施等、プロジェクト関係者へのソフト面での対応が計画・実施されるか。 (d) プロジェクトに関係する警備要員が、プロジェクト関係者・地域住民の安全を侵害することのないよう、適切な措置が講じられるか。	(a) Y (b) Y (c) Y (d) Y	(a) 労働時間・休憩時間および労働安全に関する労働法に基づき労働者の環境が守られる。 (b) 上部工工事等の高所作業となる工事では、落下防止柵等の設置を行い安全管理を行う。工事開始前には、作業安全管理計画の提出を工事請負業者に義務付け、道路公社からの承認を取る。 (c) 作業安全管理計画書の提出を義務付け、工事中は定期的な安全管理セミナーを実施する。 (d) 工事中は交通整理員を雇用し、現場事務所には警備員を配置する計画としている。
5 その他	(1)工事中の影響	(a) 工事中の汚染（騒音、振動、濁水、粉じん、排ガス、廃棄物等）に対して緩和策が用意されるか。 (b) 工事により自然環境（生態系）に悪影響を及ぼすか。また、影響に対する緩和策が用意されるか。 (c) 工事により社会環境に悪影響を及ぼすか。また、影響に対する緩和策が用意されるか。	(a) Y (b) Y (c) Y	(a) 緩和策として大気汚染に対して、建設機械を定期的に点検・維持管理を行い、粉塵が発生する場所には散水を行う。水質汚濁に対しては、締め切り工法の採用、乾季での施工とし、盛土部では大型土のうにより土砂流出を防止する。廃棄物に対しては、工事現場からの廃材等を適切な処理場へ運搬し、現場周辺のパトロールを行う。 (b) 工事中では自然環境（生態系）への影響はないと想定しているが、日常的に橋梁周辺の動植物を観察し、その生態状況をパトロールする。 (c) 工事中は感染症、労働環境及び事故において影響を及ぼす可能性がある。感染症予防に関するセミナーを定期的に開催する。高所作業時には、落下防止柵等を設置に安全施工を実施する。資材運搬時等での運転速度を管理するために定期的な安全管理セミナーを実施する。
	(2)モニタリング	(a) 上記の環境項目のうち、影響が考えられる項目に対して、事業者のモニタリングが計画・実施されるか。 (b) 当該計画の項目、方法、頻度等はどのように定められているか。 (c) 事業者のモニタリング体制（組織、人員、機材、予算等とそれらの継続性）は確立されるか。 (d) 事業者から所管官庁等への報告の方法、頻度等は規定されているか。	(a) Y (b) Y (c) Y (d) Y	(a)大気質、水質、廃棄物、土壌汚染、生態系等においてモニタリングを実施する。 (b)工事規模、当該国での実績、JICA類似事業をもとに計画した。 (c)当該国での実績、JICA類似事業をもとに計画していることから実施可能であると確信する。 (d)工事請負業者がモニタリング結果を取り纏め、モニタリング実施体制に基づき毎月報告する計画としている。
6 留意点	他の環境チェックリストの参照	(a) 必要な場合は、道路、鉄道、林業に係るチェックリストの該当チェック事項も追加して評価すること（大規模な伐採を伴う場合等）。 (b) 必要な場合には送変電・配電に係るチェックリストの該当チェック事項も追加して評価すること（送変電・配電施設の建設を伴う場合等）。	(a) N (b) N/A	(a)橋梁架け替え事業のため大規模な森林伐採は想定されない。 (b)該当せず
	環境チェックリスト使用上の注意	(a) 必要な場合には、越境または地球規模の環境問題への影響も確認する（廃棄物の越境処理、酸性雨、オゾン層破壊、地球温暖化の問題に係る要素が考えられる場合等）。	(a) N	(a)　小規模事業であり影響は想定されない。

TYPICAL ROAD CROSS SECTION

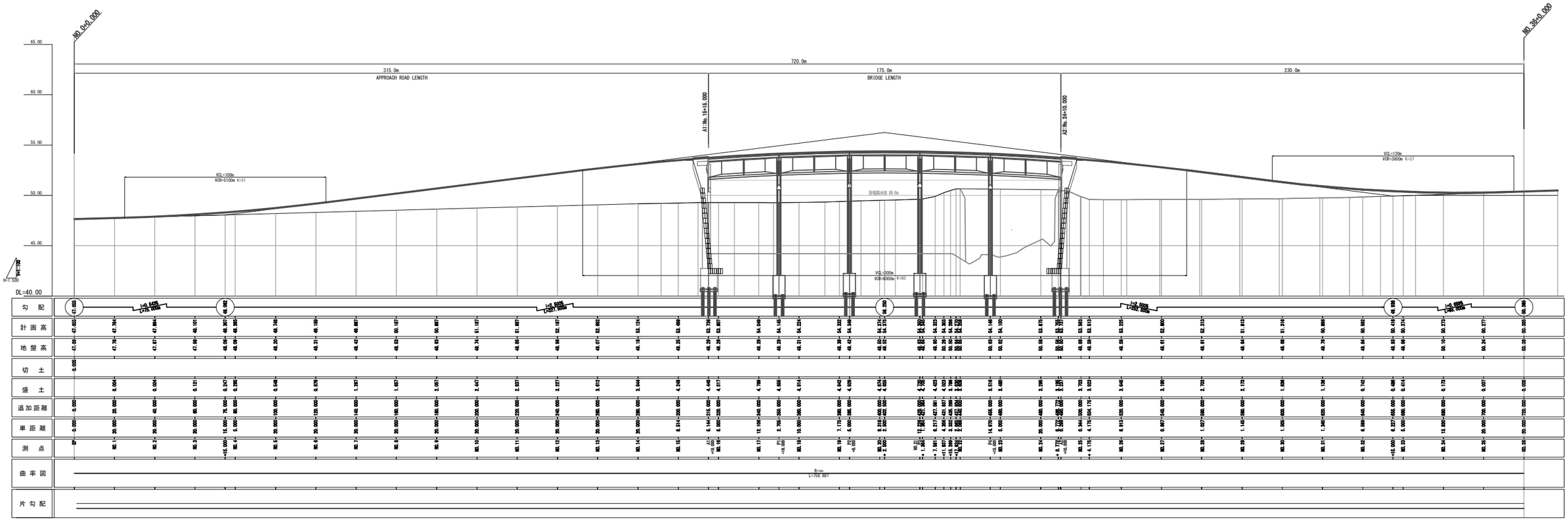
TYPICAL ROAD CROSS SECTION FOR 2-LANE (Paved Section)
H> 4.0m

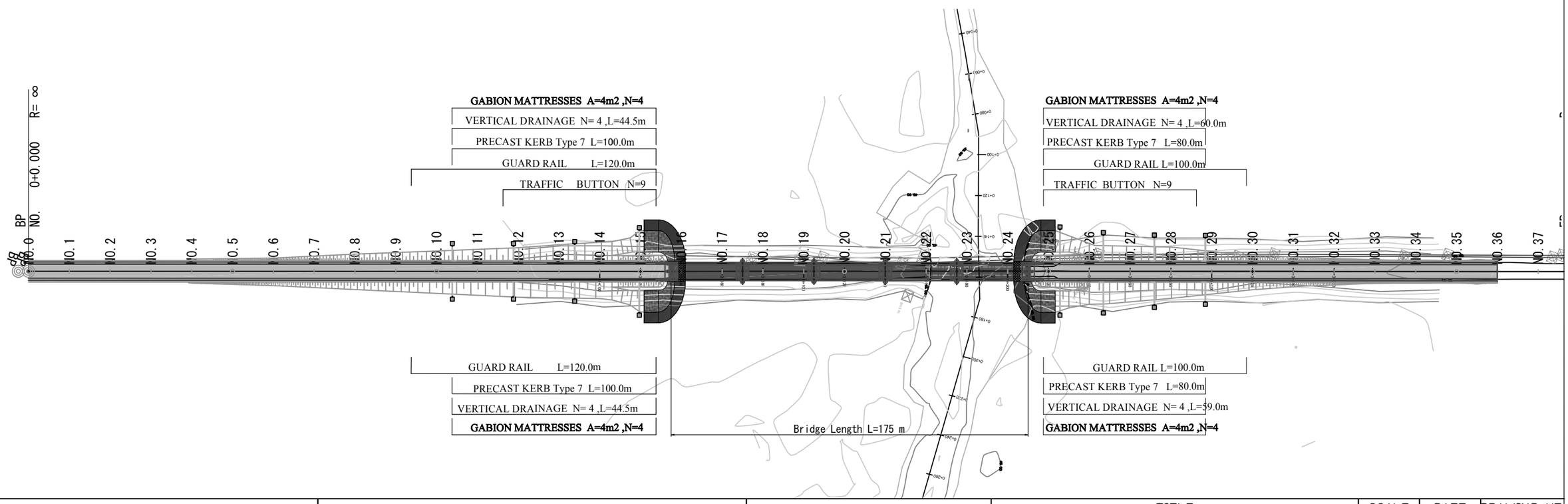


TYPICAL ROAD CROSS SECTION FOR 2-LANE (Paved Section)
H<4.0m

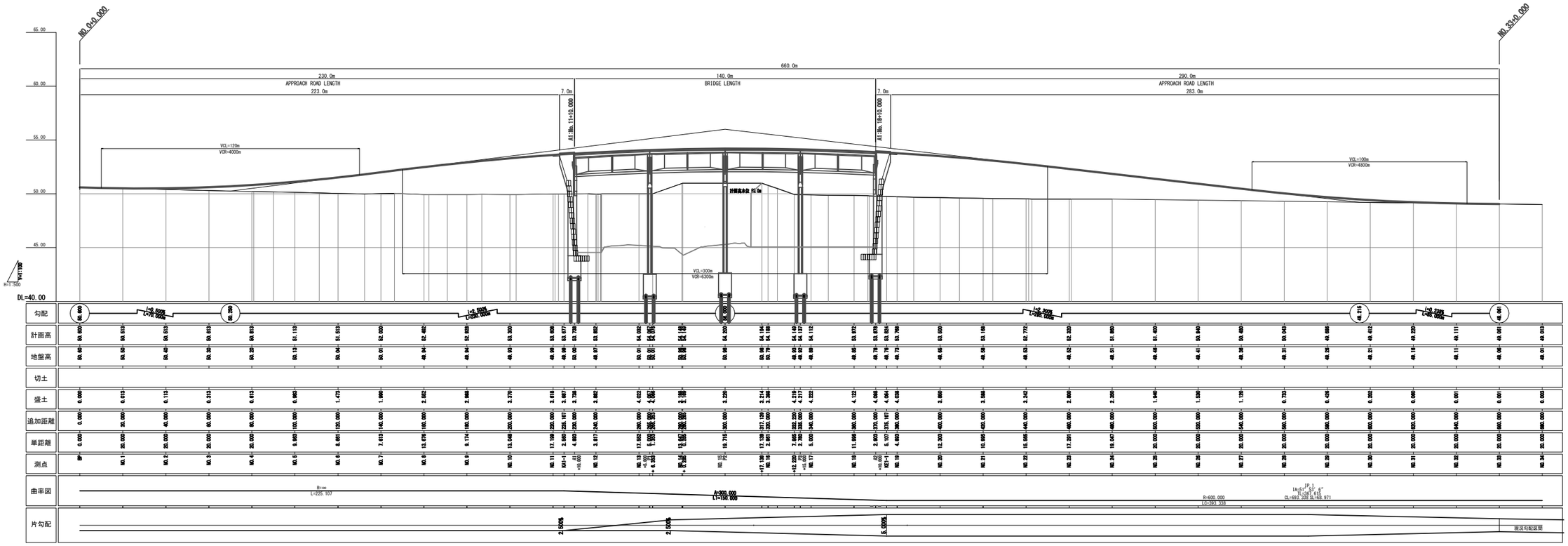


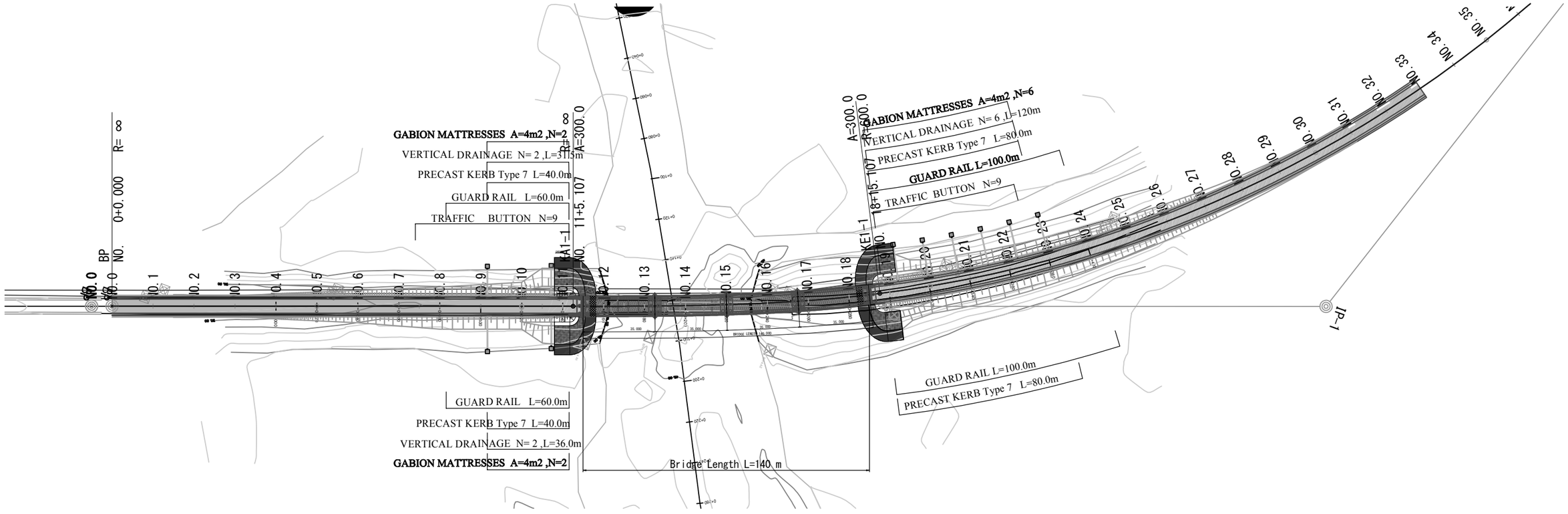
NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES ON N380 IN CABO DELGADO PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.



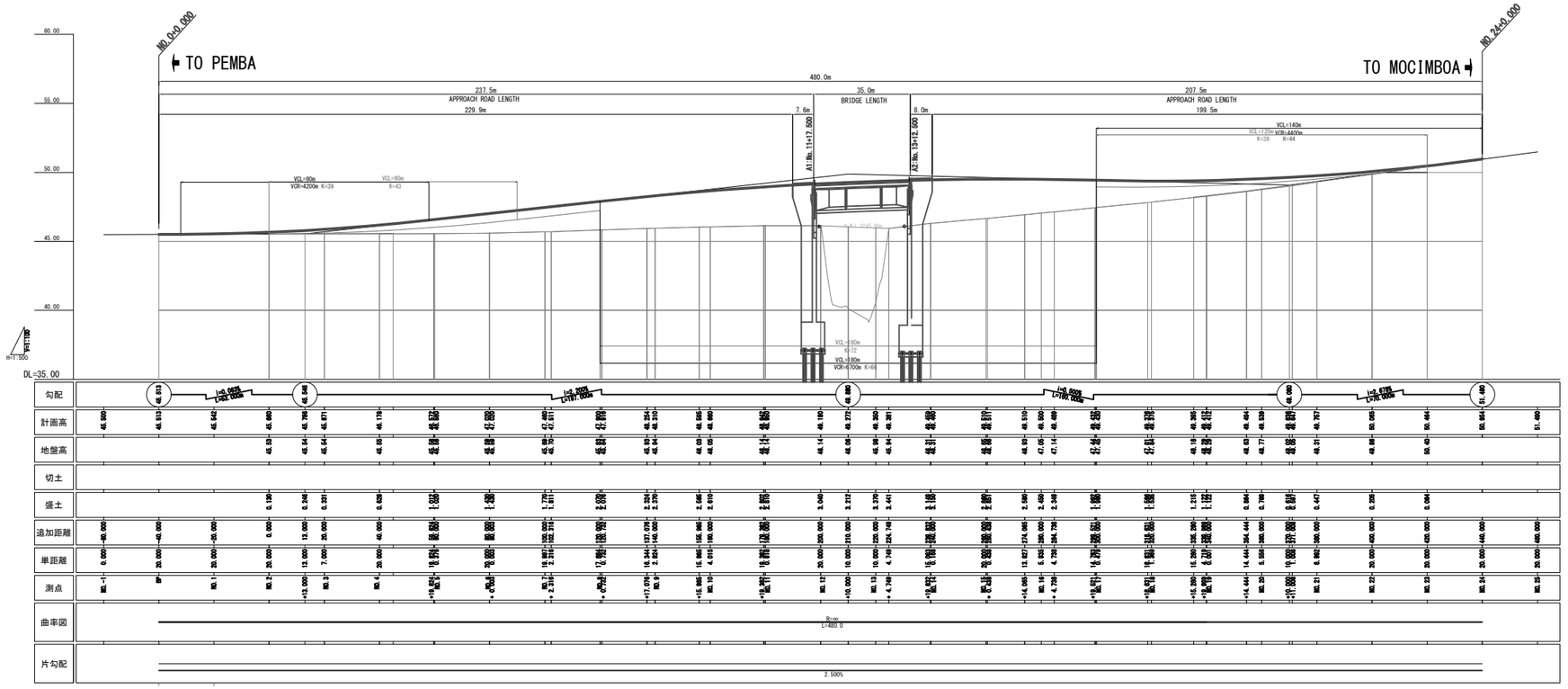


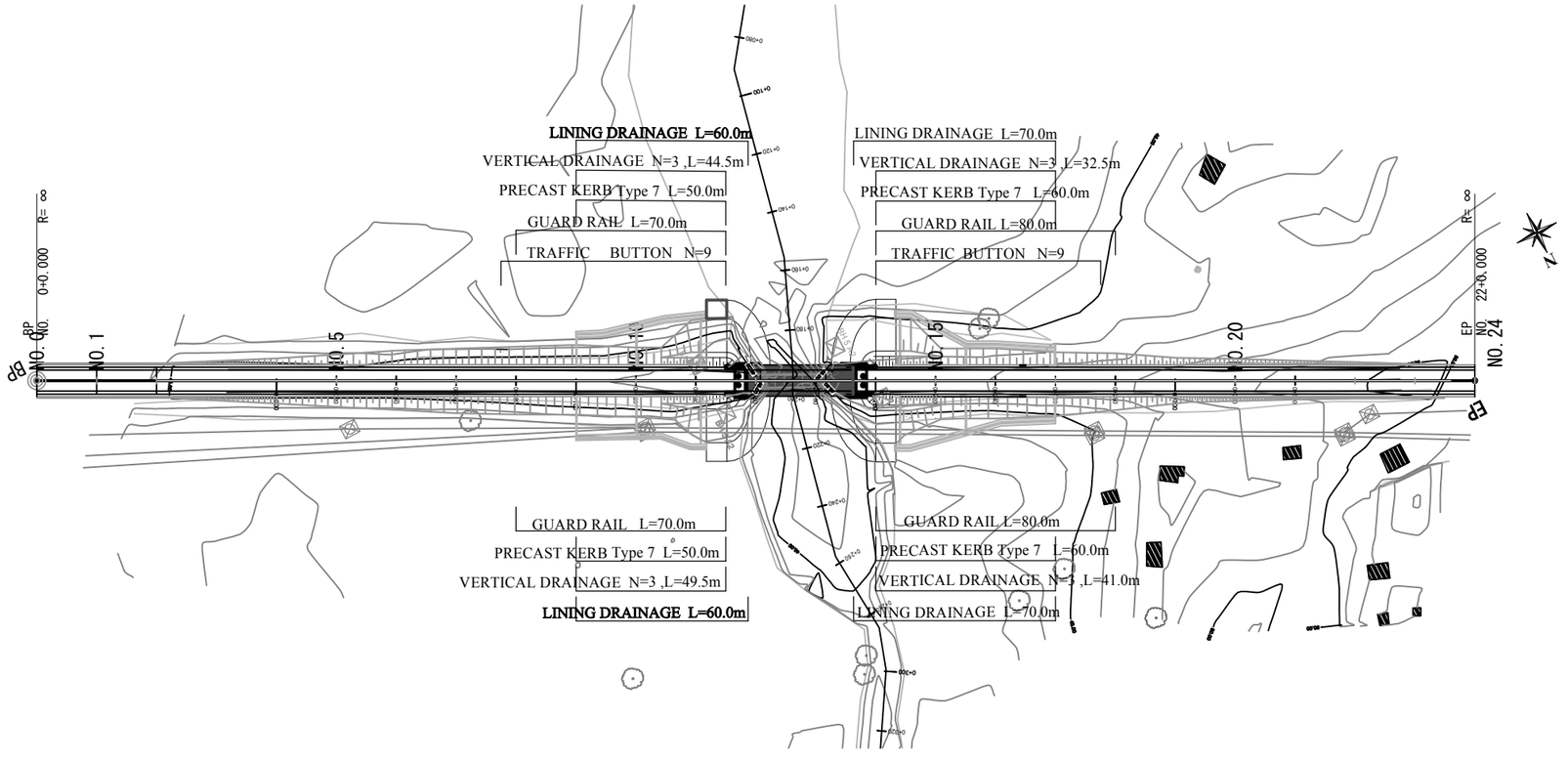
NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES ON N380 IN CABO DELGADO PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			PLAN and PROFILE (MESSALO 1)	1:2000		





NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES ON N380 IN CABO DELGADO PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			PLAN and PROFILE (MESSALO 3)	1:2000		

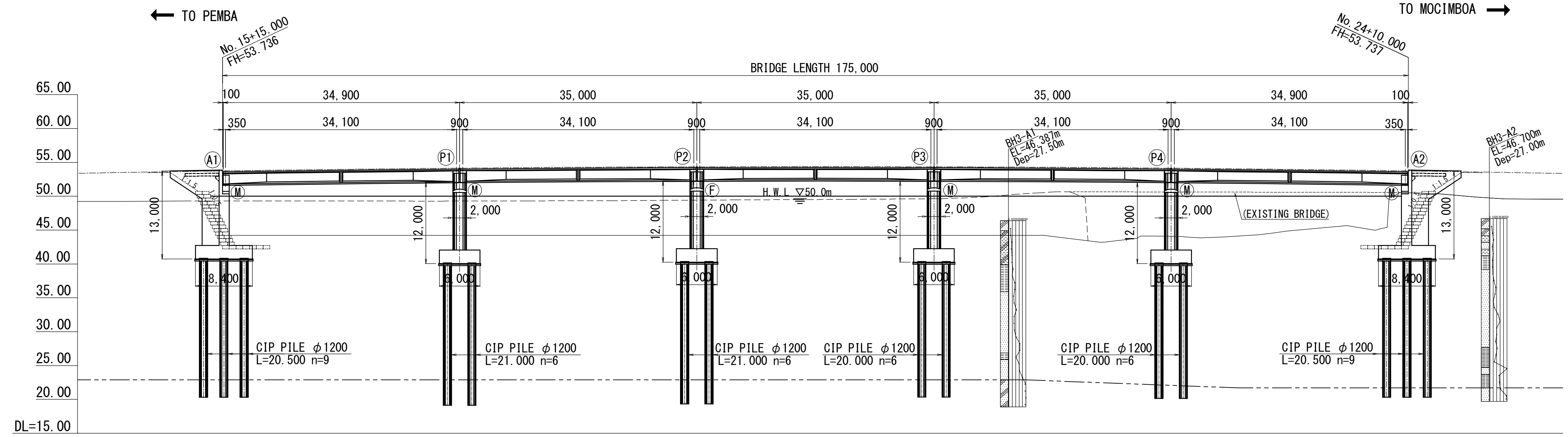




NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES ON N380 IN CABO DELGADO PROVINCE	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			PLAN and PROFILE (Mapuede)	1:2000		

GENERAL VIEW OF MESSALO 1

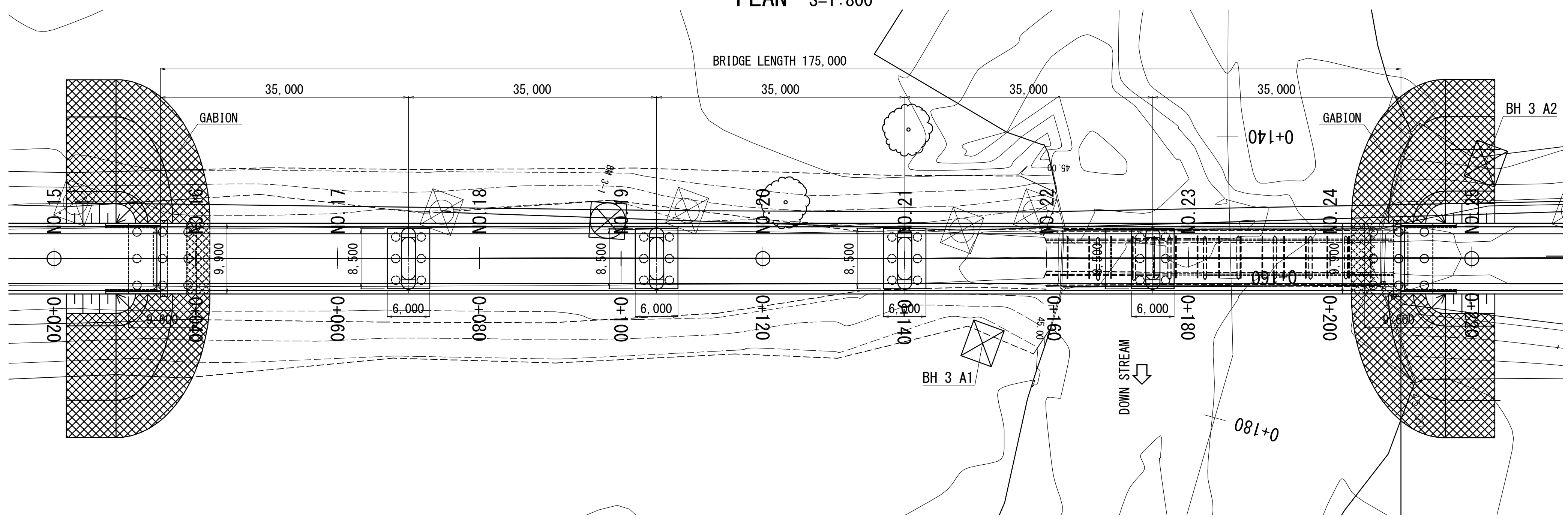
ELEVATION S=1:800



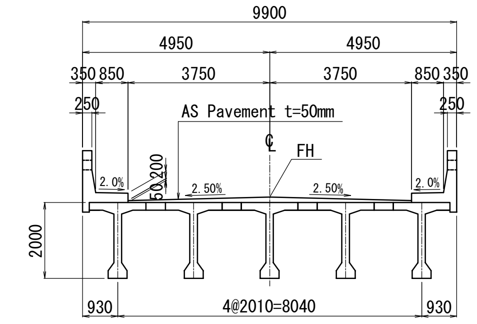
GRADIENT: i=2.500% L=327.500m — 56.250 — i=2.500% L=252.500m

CHAINAGE	DISTANCE	GROUND LEVEL	PROPOSED HEIGHT
NO.15	300.000	49.25	53.499
+ 9.856	309.856	49.29	53.660
A1 +15.000	315.000	49.29	53.736
NO.16	320.000	49.29	53.807
+ 7.894	327.894	49.29	53.911
NO.17	340.000	49.28	54.049
+ 7.295	347.295	49.28	54.121
P1 +10.000	350.000	49.29	54.145
NO.18	360.000	49.31	54.224
+12.825	372.825	49.34	54.301
NO.19	380.000	49.39	54.332
P2 +5.000	385.000	49.42	54.349
+10.682	390.682	49.46	54.364
NO.20	400.000	49.50	54.374
+ 2.500	402.500	49.52	54.375
+ 7.774	407.774	49.54	54.372
NO.21	420.000	49.63	54.350
P3 + 1.364	421.364	49.64	54.345
+ 7.581	427.581	49.90	54.323
+11.937	431.937	50.28	54.303
+15.269	435.269	50.50	54.286
+17.934	437.934	50.64	54.270
NO.22	440.000	50.65	54.258
P4 +15.000	455.000	50.63	54.146
NO.23	460.000	50.62	54.100
NO.24	480.000	50.58	53.875
+ 8.772	488.772	50.56	53.755
A2 +10.000	490.000	50.50	53.737
+14.223	494.223	50.37	53.674
+19.656	499.656	49.90	53.588
NO.25	500.000	49.88	53.583
+ 4.175	504.175	49.59	53.513
+11.087	511.087	49.58	53.392

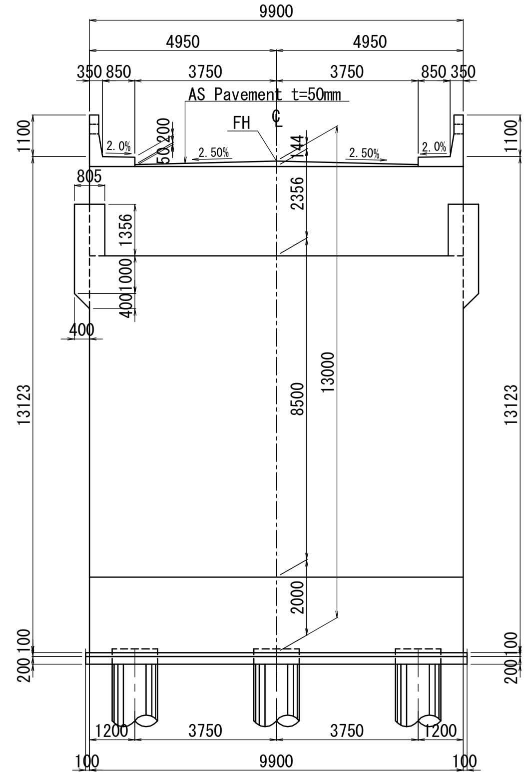
PLAN S=1:800



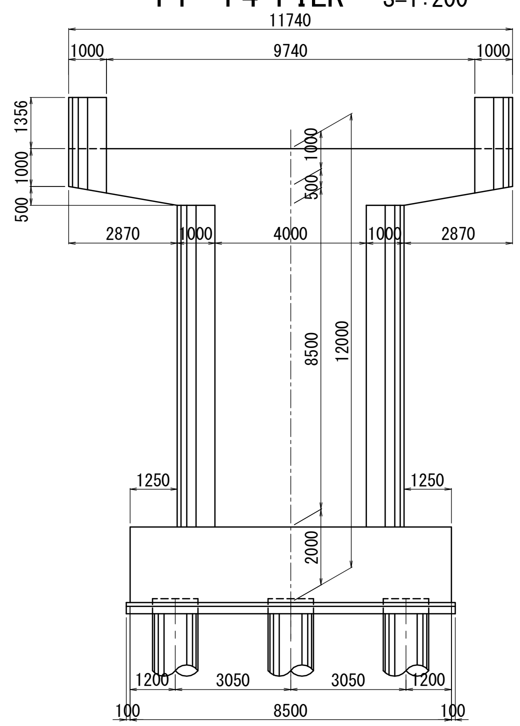
GIRDER SECTION S=1:200



A1, A2 ABUTMENT S=1:200



P1～P4 PIER S=1:200



NOTE:
1) HWL was estimated based on the hearing of the field survey.
It will be finalized based on the hydraulic analysis results.
2) Dashed Line was estimated existing ground Line.
It will be excavating.

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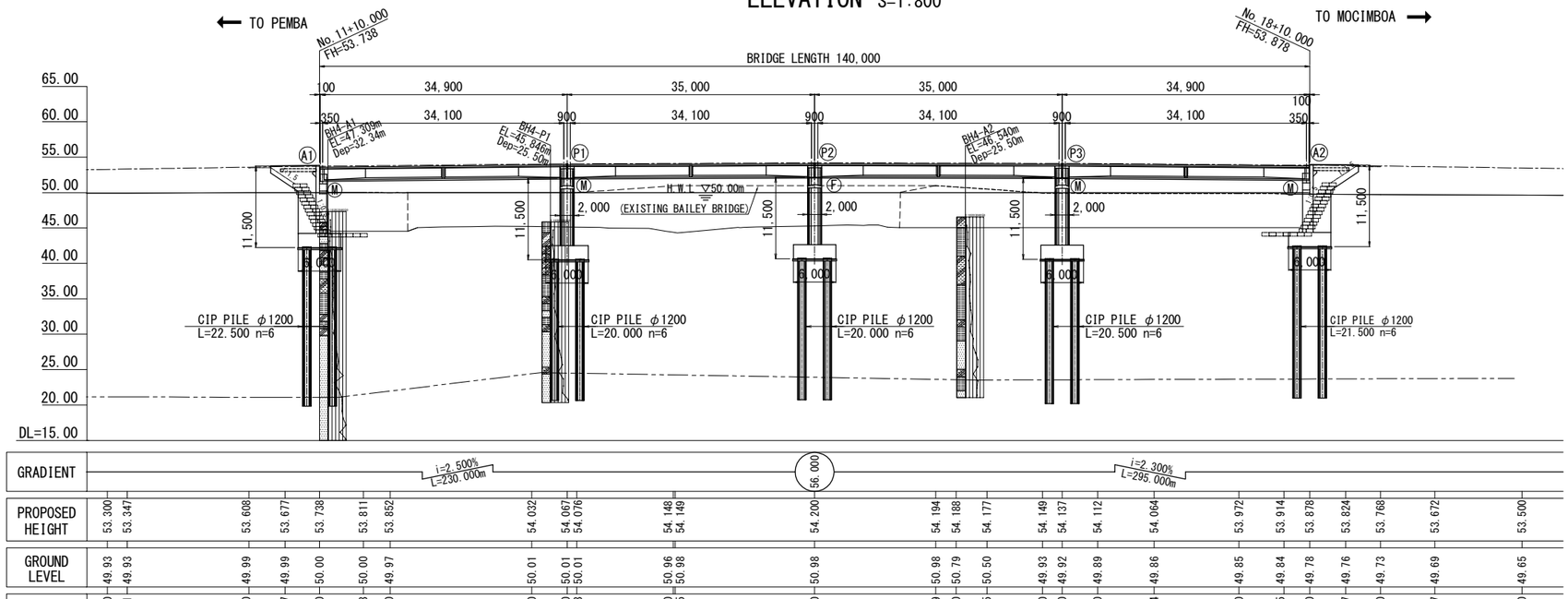
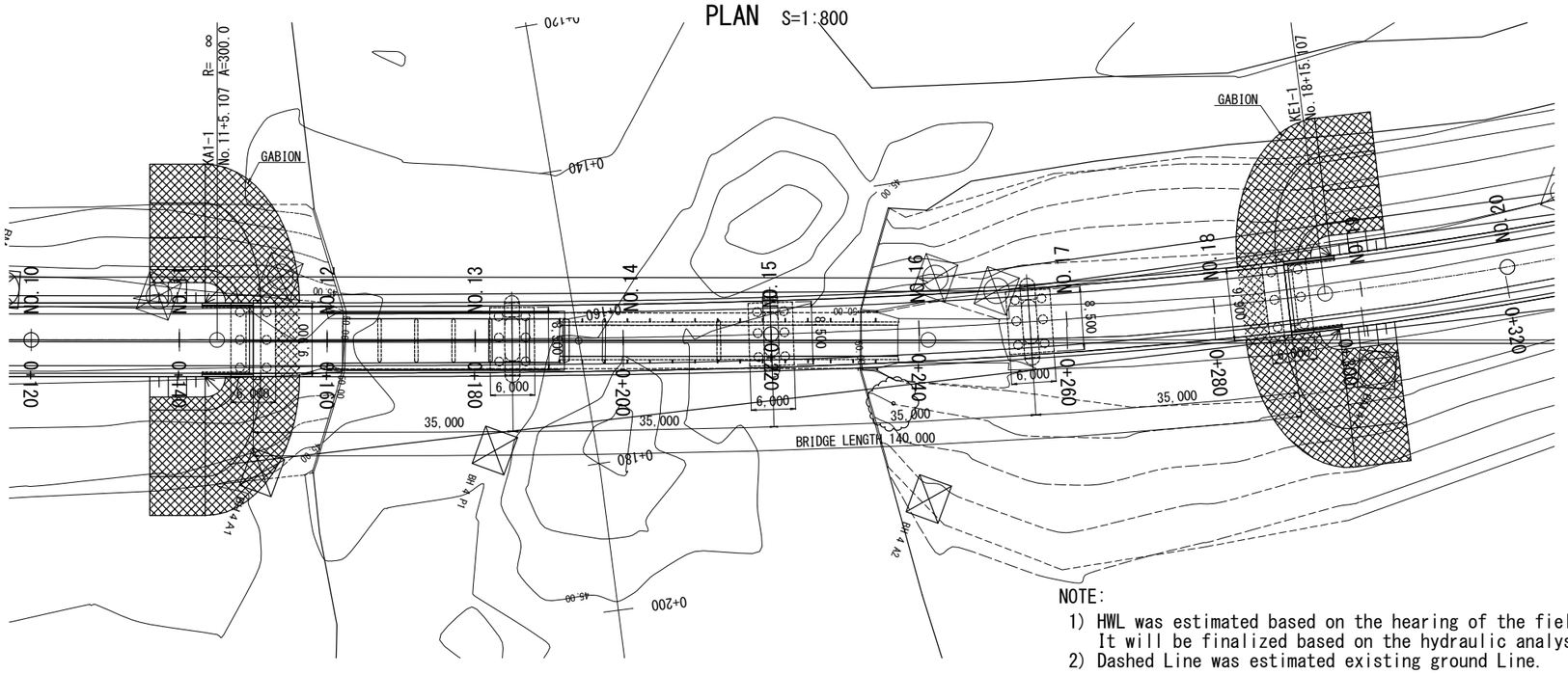
			GENERAL VIEW OF MESSALO 1	AS SHOWN		

GENERAL VIEW OF MESSALO 3

ELEVATION S=1:800

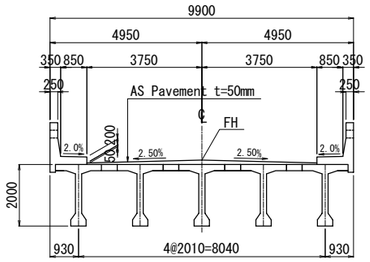


PLAN S=1:800

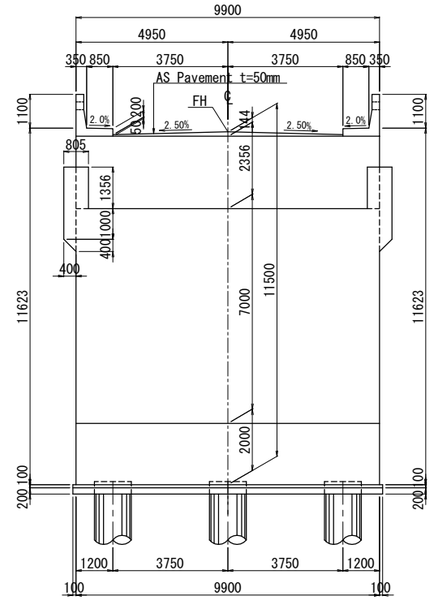


NOTE:
1) HWL was estimated based on the hearing of the field survey. It will be finalized based on the hydraulic analysis results.
2) Dashed Line was estimated existing ground Line. It will be excavating.

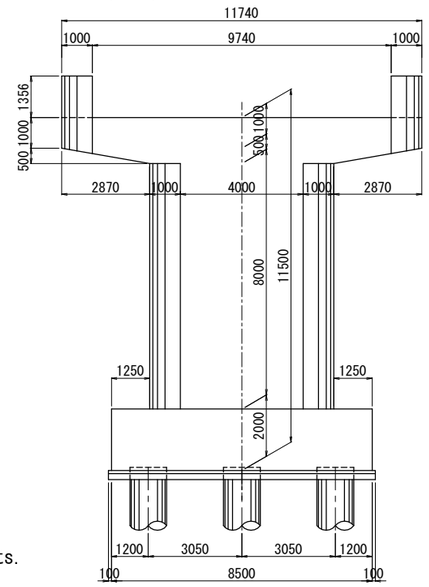
GIRDER SECTION S=1:200



A1, A2 ABUTMENT S=1:200



P1, P2, P3 PIER S=1:200



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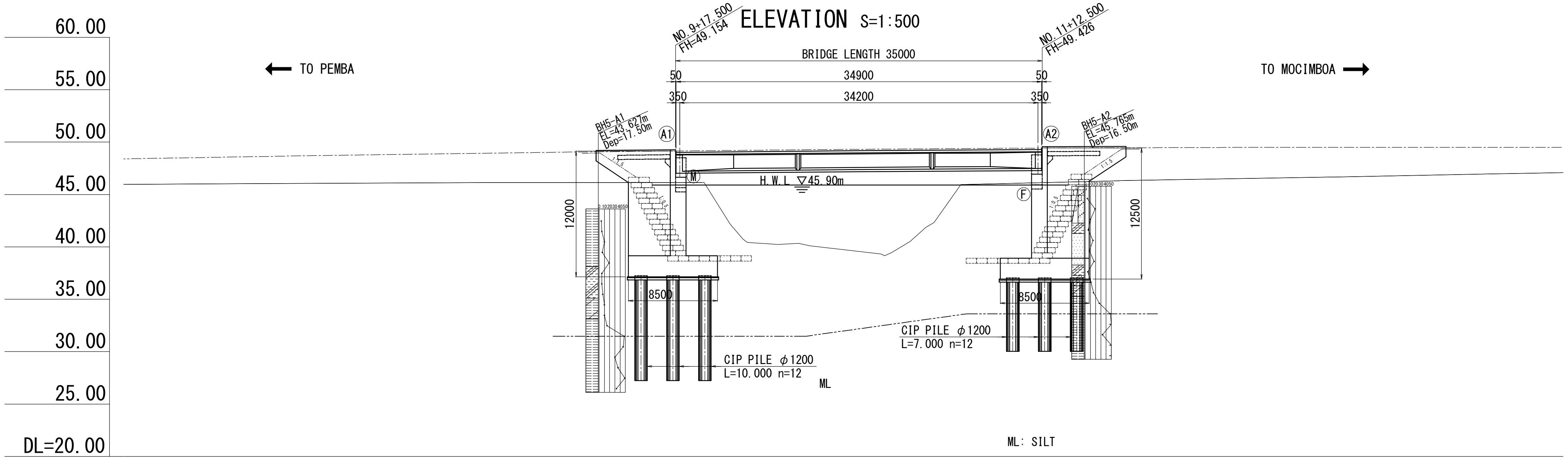
			GENERAL VIEW OF MESSALO 3	AS SHOWN		

GENERAL VIEW OF MAPUEDE

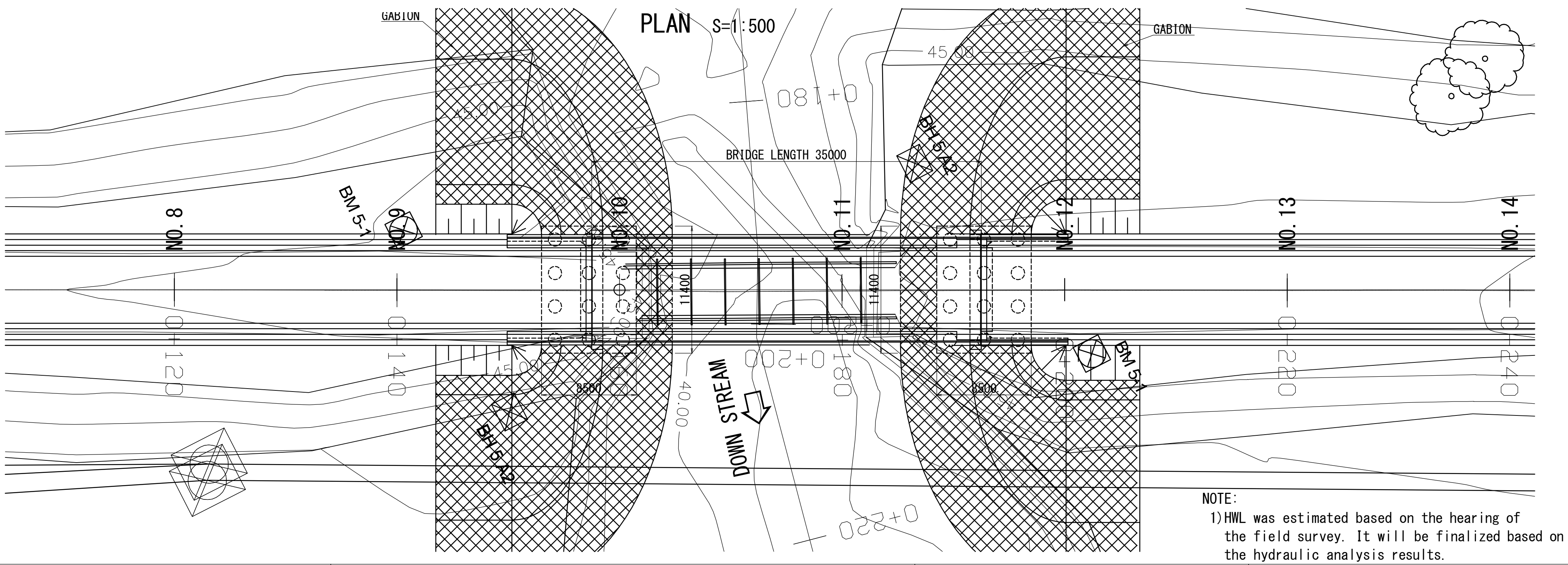
ELEVATION S=1:500



GRADIENT: i=2.200% L=197.000m — VCL=180m — 49.880 — VCR=6700m — i=0.500% L=160.000m

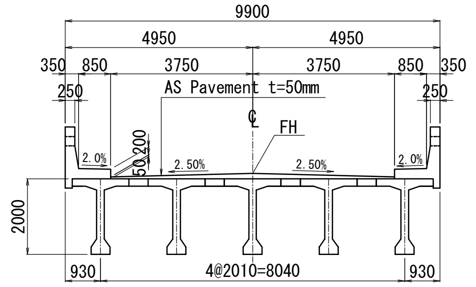
PROPOSED HEIGHT	48.595	48.660	48.942	48.950	49.154	49.180	49.272	49.350	49.381	49.426	49.459	49.460	49.510	49.511	49.510	49.500
GRAND LEVEL	46.03	46.05	46.14	46.14	46.14	46.14	46.06	45.98	45.94	46.13	46.31	46.31	46.65	46.66	46.93	47.05
DISTANCE	155.985	160.000	179.382	180.000	197.500	200.000	210.000	220.000	224.749	237.249	257.081	240.000	260.000	260.438	274.065	280.000
CHAINAGE	+15.985	NO.8	+19.382	NO.9	A1 +17.500	NO.10	+10.000	NO.11	+ 4.749	A2 +12.500	+19.832	NO.12	NO.13	+ 0.438	+14.065	NO.14

PLAN S=1:500

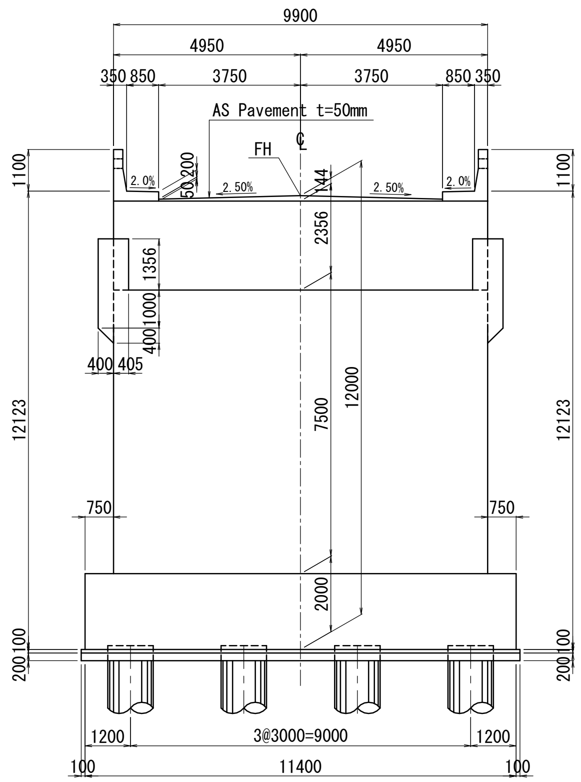


NOTE:
1) HWL was estimated based on the hearing of the field survey. It will be finalized based on the hydraulic analysis results.

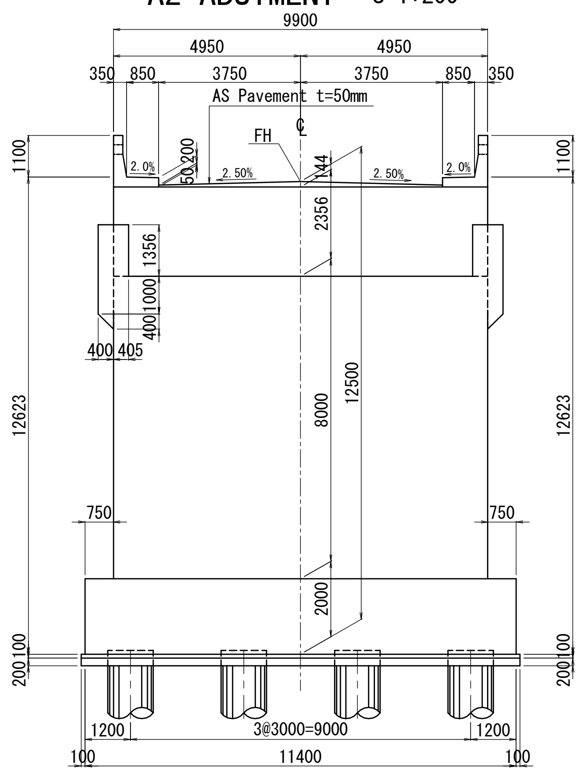
GIRDER SECTION S=1:200



A1 ABUTMENT S=1:200



A2 ABUTMENT S=1:200



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