

Appendices

- 1. Member List of the Study Team**
- 2. Study Schedule**
- 3. List of Parties Concerned in the Redcipient Country**
- 4. Minutes of Discussions**
- 5. Drawings**
- 6. Design Data**

Appendix 1
Member List
of the Study Team

Appendix 1 Member List of the Study Team

1-1 Primary Study in Palau (from October 30, 2003 to November 28, 2003)

- 1 Leader : Noriaki NISHIMIYA
Civil Engineer and Director of Third Project Management Division Grant Aid Management Department, Japan International Cooperation Agency (JICA)
- 2 Chief Consultant /Road & Traffic Planner : Koki KANEDA
Nippon Koei Co., Ltd. and Oriental Consultants Co., Ltd. (NK)
- 3 Road Designer : Eiichi YOKOTA
Nippon Koei Co., Ltd. and Oriental Consultants Co., Ltd. (NK)
- 4 Marine Structure Designer : Fujio SAIGUSA
Nippon Koei Co., Ltd. and Oriental Consultants Co., Ltd. (NK)
- 5 Natural Condition Surveyor I (Topography / Geology) : Masataka FUJIKUMA
Nippon Koei Co., Ltd. and Oriental Consultants Co., Ltd. (OC)
- 6 Natural Condition Surveyor II (Marine/Hydrological) : Shubun ENDO
Nippon Koei Co., Ltd. and Oriental Consultants Co., Ltd. (NK)
- 7 Social and Environmental Analyst : Shigeru SAI
Nippon Koei Co., Ltd. and Oriental Consultants Co., Ltd. (OC)
- 8 Road Facility Planner : Hideo TSUTA
Nippon Koei Co., Ltd. and Oriental Consultants Co., Ltd. (NK)
- 9 Construction & Procurement Planner/ Cost Estimator : Takayasu NAGAI
Nippon Koei Co., Ltd. and Oriental Consultants Co., Ltd. (NK)
- 10 Bridge Mend Planner : Shinichiro WATANABE
Nippon Koei Co., Ltd. and Oriental Consultants Co., Ltd. (NK)

1-2 Discussion on Draft Report in Palau (from February 26, 2004 to March 6, 2004)

- 1 Leader : Kyosuke TAKAOKA
Japan International Cooperation Agency (JICA) Palau Office
- 2 Project Coordinator : Kotaro NISHIGATA
Officer, Third Project Management Division, Grant Aid Management Department,
Japan International Cooperation Agency (JICA)
- 3 Chief Consultant /Road & Traffic Planner : Koki KANEDA
Nippon Koei Co., Ltd. and Oriental Consultants Co., Ltd. (NK)
- 4 Road Designer : Eiichi YOKOTA
Nippon Koei Co., Ltd. and Oriental Consultants Co., Ltd. (NK)
- 5 Social and Environmental Analyst : Shigeru SAI
Nippon Koei Co., Ltd. and Oriental Consultants Co., Ltd. (OC)

Appendix 2

Study Schedule

Appendix 2 Study Schedule

2-1 Primary Study in Palau

No.	Date	Day	Study Team Schedule	Stay	Activities
1	10/30	Thu	Kaneda, Yokota, Nagai arrive at Koror	Koror	Movement
2	10/31	Fri		Koror	Courtesy Call on JICA and MORD, Site survey, Preparation of Topo survey
3	11/1	Sat	Nishimiya arrive at Koror	Koror	Site survey
4	11/2	Sun		Koror	Site survey (Minato Bashi Bridge)
5	11/3	Mon	Fujikuma, Sai arrive at Koror	Koror	Courtesy Call on the Embassy of Japan, JICA, Office of the President and Koror State
6	11/4	Tue		Koror	Site survey, Data Collection
7	11/5	Wed	Endo, Tsuta, Watanabe arrive at Koror	Koror	Meeting with Office of the President, Signing of M/D
8	11/6	Thu	Nishimiya arrive at Tokyo	Koror	Site survey, Data Collection
9	11/7	Fri		Koror	Meeting with Office of the President and MORD
10	11/8	Sat		Koror	Data analysis
11	11/9	Sun		Koror	Data analysis
12	11/10	Mon		Koror	Meeting with Koror State, Data collection of Electric and Telecommunication
13	11/11	Tue	Watanabe arrive at Tokyo	Koror	Meeting with Bureau of Water Resource, Capital Improvement Program and Bureau of Public Works
14	11/12	Wed		Koror	Site survey, Data Collection
15	11/13	Thu	Saigusa arrive at Koror	Koror	Meeting with Office of the President, Inner Meeting
16	11/14	Fri		Koror	Traffic counting survey, Inner meeting
17	11/15	Sat		Koror	Data analysis
18	11/16	Sun		Koror	Data analysis
19	11/17	Mon		Koror	Site survey of pavement equipment and road in Peleliu
20	11/18	Tue	Yokota arrive at Tokyo	Koror	Data collection of Traffic Accident, Meeting with Office of the President
21	11/19	Wed	Endo arrive at Tokyo	Koror	Site survey in Babeldaob, Data collection
22	11/20	Thu		Koror	Data collection, Calvert condition survey
23	11/21	Fri		Koror	Site survey of drainage network in Malakal Island Road, Meeting with Koror State Governor
24	11/22	Sat	Saigusa, Fujikuma, Sai arrive at Tokyo (Saigusa, Fujikuma), Osaka (Sai)	Koror	Data analysis
25	11/23	Sun		Koror	Data analysis
26	11/24	Mon	Tsuta arrive at Tokyo	Koror	Joint survey with CIP on drainage of Malakal Island Road, Meeting with MORD
27	11/25	Tue		Koror	Traffic accident data collection in Bureau of Public Safety
28	11/26	Wed		Koror	Courtesy Call on MORD, Office of the President, Capital Improvement Program and Bureau of Public Works
29	11/27	Thu		Koror	Site survey on a Quarry
30	11/28	Fri	Kaneda, Nagai arrive at Tokyo	Tokyo	Movement

2-2 Discussion on Draft Report in Palau

No.	Date		Study Team Schedule	Stay	Activities
1	2/26	Thu	Kaneda, Yokota, Sai arrive at Koror	Koror	Movement
2	2/27	Fri		Koror	Courtesy Call on JICA and MORD, Site survey
3	2/28	Sat	Nishigata arrive at Koror	Koror	Site survey
4	2/29	Sun		Koror	Site survey
5	3/1	Mon		Koror	Courtesy Call on the Embassy of Japan, JICA, Office of the President
6	3/2	Tue		Koror	Meeting with MORD
7	3/3	Wed		Koror	Meeting with MORD, Signing of M/D
8	3/4	Thu		Koror	Site survey
9	3/5	Fri	Nishigata arrive at Tokyo	Koror	Data analysis
10	3/6	Sat	Kaneda, Yokota, Sai arrive at Tokyo(Kaneda, Yokota, Osaka(Sai))	Tokyo	Movement

Appendix 3
List of Parties Concerned
in the Recipient Country

Appendix 3 List of Parties Concerned in the Recipient Country

3-1 Primary Study in Palau

from October 30, 2003 to November 28, 2003

Embassy of Japan in Palau

Mr. Kiyoshi Suwa Charged' Affaires ad interim

Palau Office, Japan International Cooperation Agency (JICA)

Mr. Kyosuke Takaoka Resident Representative
Mr. Kenji Aizono Project Formulation Advisor

Office of the President

Mr. Remengesau President
Mr. Kione J. Isechal Engineer (Highway & Bridge)
Mr. Donald Haruo President Special Economic Adviser & Japan
Palau Raison Officer
Mr. Yukio Tanaka Economic Advisor (JICA Advisor)

Ministry of Resources and Development

Mr. Fritz Koshiha Minister

Bureau of Land & Survey, Ministry of Resources and Development

Mr. W. Marcil Director

Palau Automated Land And Resource Information System

Ms. Kelly L. Raleigh Program Manager
Ms. Nobuko Murai GIS Analyst (JOCV)

Bureau of Public Works, Ministry of Resources and Development

Mr. Masasinge Arurang Director

Capital Improvement Program

Mr. Richard Mangham Manager

State of Koror

Mr. John C. Gibbons Governor

Bureau of Public Safety

Mr. Hazime Telei Director

National Weather Service, National Oceanic & Atomospheric Administration

Ms. Maria Ngemaes Meteorologist

Environmental Quality Protection Board

Mr. John Kintaro

3-2 Discussion on Draft Report in Palau

from February 26, 2004 to March 6, 2004

Embassy of Japan in Palau

Mr. Kiyoshi Suwa Charged' Affaires ad interim

Palau Office, Japan International Cooperation Agency (JICA)

Mr. Kyosuke Takaoka Resident Representative
Mr. Kenji Aizono Project Formulation Advisor

Office of the President

Mr. Remengesau President
Mr. Kione J. Isechal Engineer (Highway & Bridge)
Mr. Donald Haruo President Special Economic Adviser & Japan
Palau Raison Officer
Mr. Yukio Tanaka Economic Advisor (JICA Advisor)

Ministry of Resources and Development

Mr. Fritz Koshiha Minister

Capital Improvement Program

Mr. Richard Mangham Manager

State of Koror

Mr. John C. Gibbons Governor

Appendix 4

Minutes of Discussions

Appendix 4.1 Minutes of Discussion (November 5, 2003)
Appendix 4.2 Minutes of Discussion (March 3, 2004)

Minutes of Discussions
on the Basic Design Study
on the Project for Improvement of Interisland Access Road
in the Republic of Palau

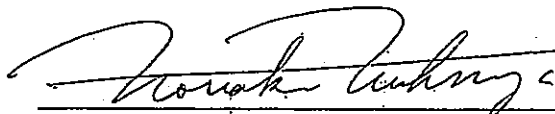
Based on the result of the Preparatory Study which was held on April 2003, the Government of Japan decided to conduct a Basic Design Study on the Project for Improvement of Interisland Access Road (hereinafter referred to as "the Project"), and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to the Republic of Palau (hereinafter referred to as "Palau") the Basic Design Study Team (hereinafter referred to as "the Team"), headed by Mr. Noriaki Nishimiya, Director, Third Project Management Division, Grant Aid Management Department, JICA, and was scheduled to stay in the country from October 31 to November 28, 2003.

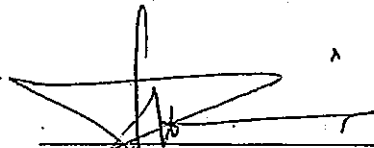
The Team held discussions with the officials concerned of the Government of Palau and conducted a field survey in the study area.

In the course of the discussions and the field survey, both sides confirmed the main items described in the attached sheets.

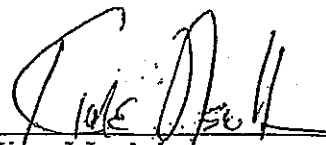
Koror, November 5, 2003



Noriaki Nishimiya
Leader
Basic Design Study Team
Japan International Cooperation Agency



Fritz Kushiba
Minister
Ministry of Resources and Development
Republic of Palau



Kione J. Isechal
National Highway Engineer
Office of the President
Republic of Palau

ATTACHMENT

1. Objective of the Project

The objective of the Project is to improve the Koror island-Babeldaob island Causeway, the Koror island-Malakal island Causeway, the Koror island-Arakhsang island Causeway and the Trunk Road in Malakal island.

2. Project Site

The Project site is as shown in Annex-1.

3. Responsible and Implementing Organizations

The responsible and implementing Ministry is the Ministry of Resources and Development.

The organization chart of the responsible and implementing Ministry is shown in Annex-2.

4. Items Requested by the Government of Palau

4-1. As the result of discussions, requested components were confirmed as below:

- 1) Improvement of the Koror island-Babeldaob island Causeway,
- 2) Improvement of the Koror island-Malakal island Causeway,
- 3) Improvement of the Koror island-Arakhsang island Causeway, and
- 4) Improvement of the Trunk Road in Malakal island.

JICA will assess the appropriateness of the request and will report to the Government of Japan.

4-2. The Government of Palau stressed the necessity and importance of the Koror Island Trunk Road

Improvement, and strongly requested that the Project components should include this improvement.

The Government of Palau also requested that the Basic Design Study this time should cover the Koror Island Trunk Road Improvement by expanding the study team personnel to undertake extra work required for this improvement. In addition, the Palau Government stressed the needs of appropriate maintenance equipment to be included in the Project. The team will transmit the requests to the Japanese Government with comments from the engineering viewpoint.

5. Japan's Grant Aid Scheme

The Palauan side understands the Japan's Grant Aid scheme explained by the Team, as described in Annex-3.

6. Further Schedule of the Study

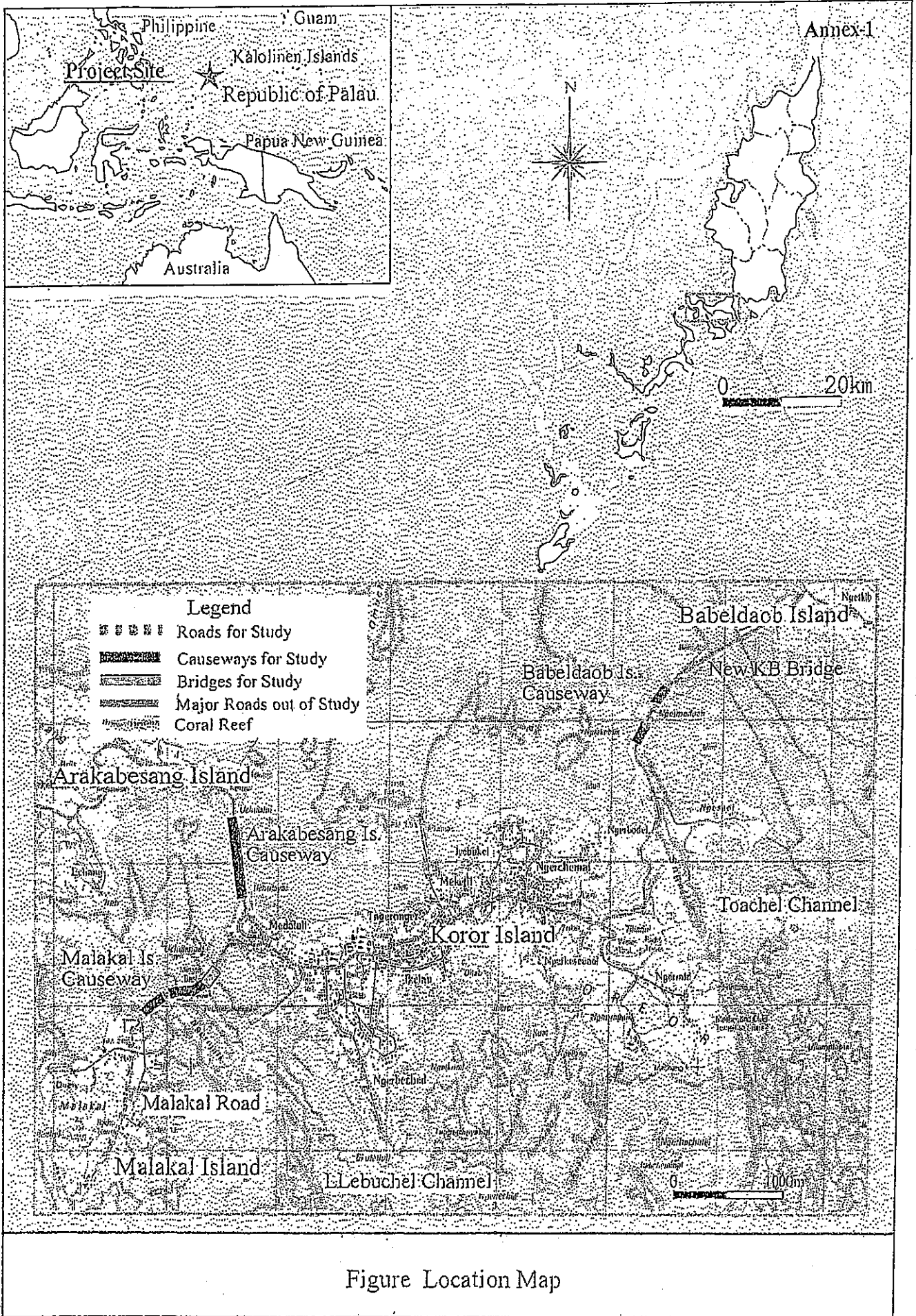
- 6-1. The consultant members of the Team will proceed with further studies in Palau until November 28, 2003.
- 6-2. JICA will prepare the Draft Basic Design Study Report in English and dispatch a mission to Palau in order to explain its contents in early February 2004.
- 6-3. In case the contents of the Report are accepted in principle by the Government of Palau, JICA will complete the Final Report and send it to the Palauan side by the end of April 2004.

7. Other Relevant Issues

- 7-1. The Palauan side will take necessary measures, as shown in Annex-4, for smooth implementation of the Project, as a condition for the Japan's Grant Aid to be implemented.
- 7-2. In the case the relocation of existing utilities (power and communication lines, water lines, etc.) is necessary, it shall be principally carried out by the Palauan side.
- 7-3. The procedures, necessary for the EIA (Environmental Impact Assessment) approval of the Project, shall be implemented by the Palauan side by the end of April 2004. In the process of EIA, the Government of Palau shall make full explanation to the stakeholders about environmental impacts by the Project.
- 7-4. The team explained the Japanese Government's policy that EIA is one of the most important preconditions for the Japanese Government to decide to proceed this project. The Palau side agreed that, without the EIA, there is no succeeding process of the Project.
- 7-5. JICA may conduct the monitoring the EIA procedures by the Palauan side continuously in order to confirm the progress with the cooperation of Palauan side.

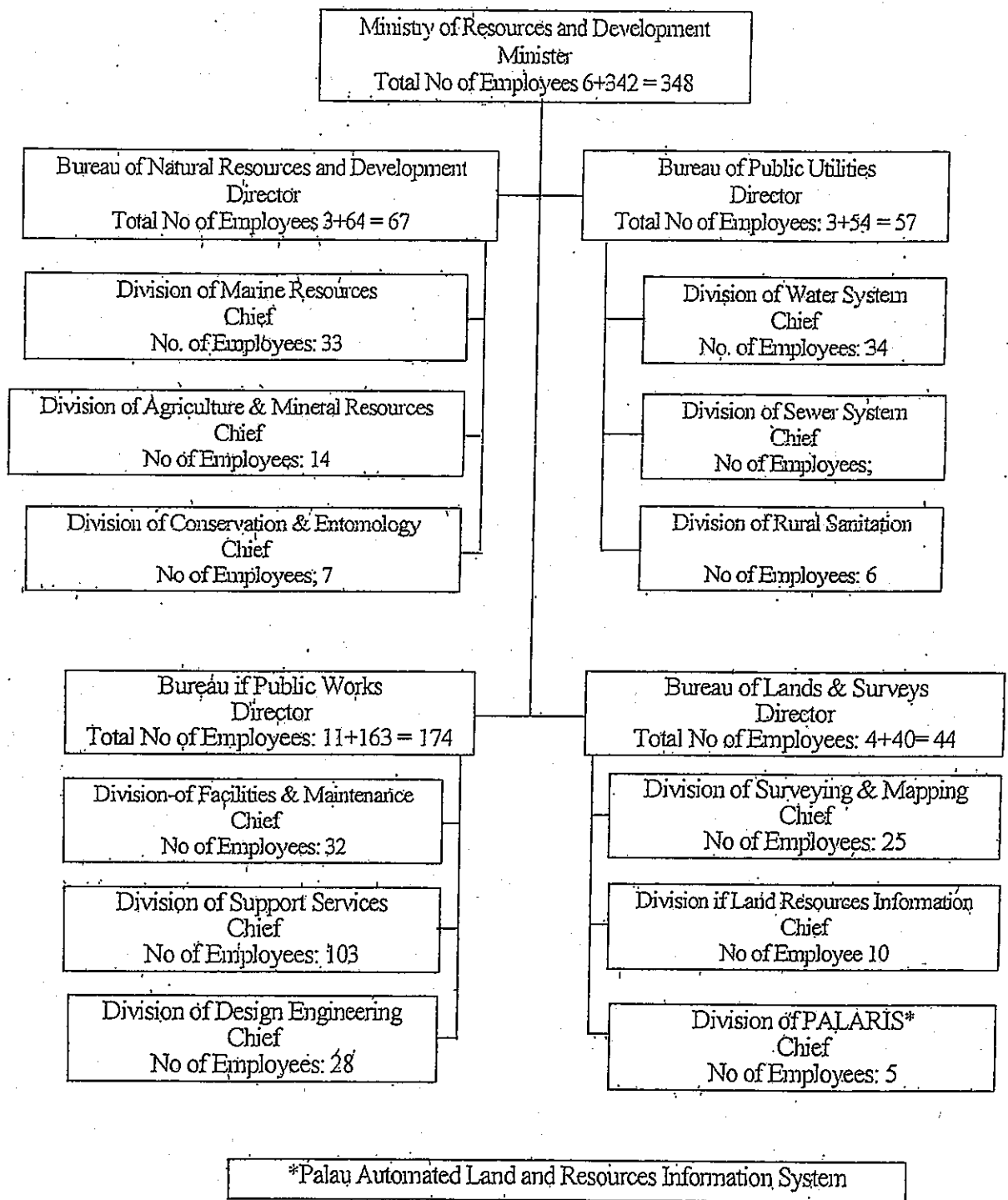
8. Scope of the Study

- 8-1. The team will separate the section described in Item 4 to smaller sections as shown on the Annex-5, and study the priority of them for the decision of project scale by the Japanese Government.
- 8-2. The width of traffic lanes and total width of the project roads shall be decided through the discussion between Palau side and the Team considering the existing road conditions and the future unification as the Palau standards.
- 8-3. Project includes the strengthening of road-bed or dike of causeway, improvement of the damaged pavement and provision of safety facilities. The relocation or improvement of underground utilities will be studied by the team, and the actual works shall be conducted by Palau side principally.



Handwritten signature

The Organization Charts of the Ministry of Resources and Development



Handwritten initials/signature

JAPAN'S GRANT AID

The Grant Aid Scheme provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles 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

Japan's Grant Aid Scheme is executed through the following procedures.

Application	(Request made by the recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by the Cabinet)
Determination of Implementation	(The Note exchanged between the Governments of Japan and recipient country)

Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study) using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Scheme, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes (E/N) signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

(1) Contents of the study

The aim of the Basic Design Study (hereafter referred to as "the Study") conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.

- Confirmation of items agreed on by both parties concerning the basic concept of the Project.
- Preparation of a basic design of the Project.
- Estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of the Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure 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 in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA. The consultant firm(s) used for the Study is(are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

3. Japan's Grant Aid Scheme

(1) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

(2) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed. However, in case of delays in delivery, installation or construction due to unforeseen factors such as national disaster, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

(3) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When the two Governments 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, consulting, constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

(4) Necessity of "Verification"

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

(5) Undertakings required of 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 the following:

a) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the Project,

b) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,

c) To secure buildings prior to the procurement in case the installation of the equipment,

d) To ensure all the expenses and prompt excursion for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid,

e) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts,

f) To accord Japanese nationals, whose services may be required in connection with the supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

(6) "Proper Use"

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

(7) "Re-export"

The products purchased under the Grant Aid should not be 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 in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan 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 the Government of Japan 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 to the Bank.

(end)

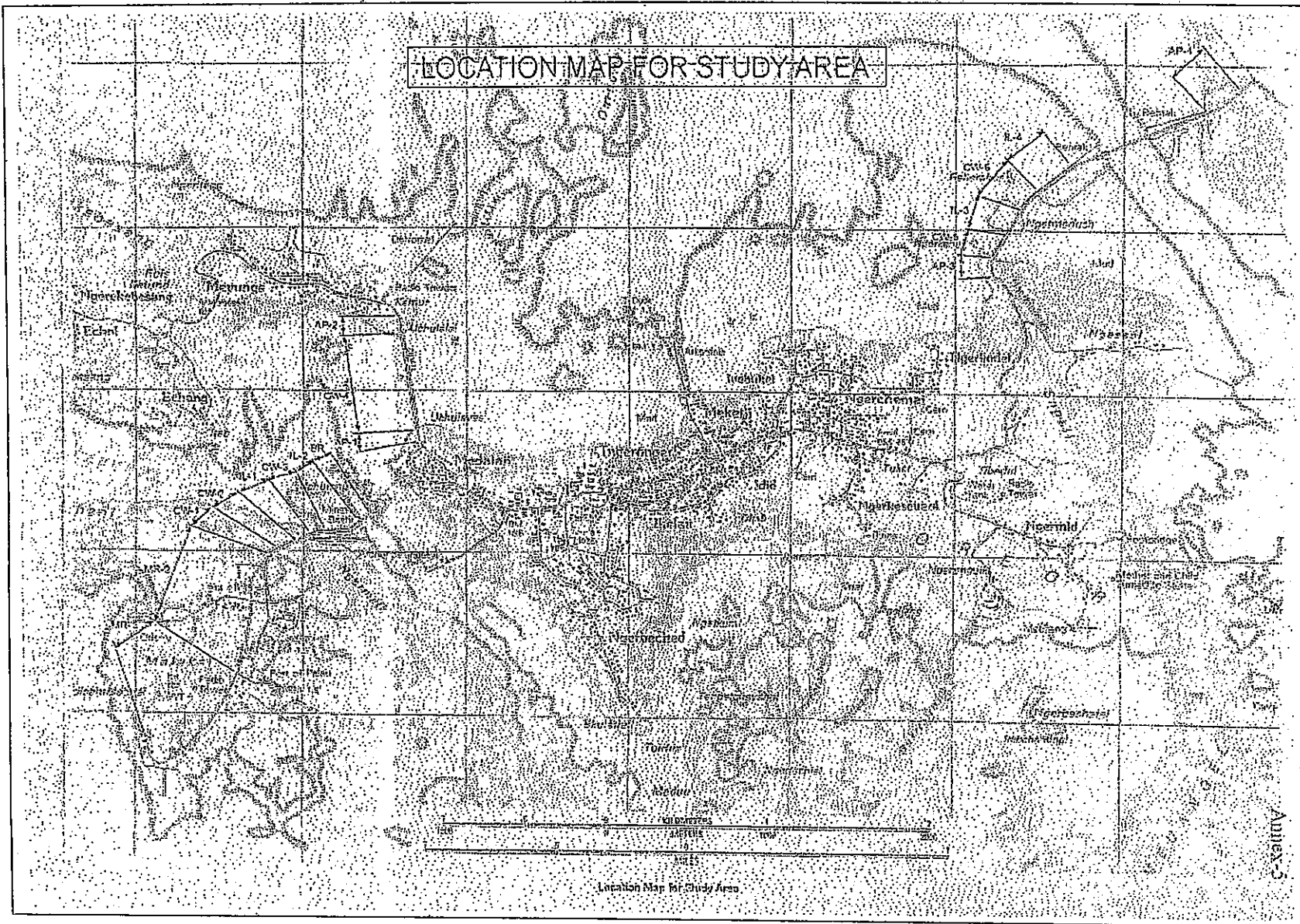
HTD
KIT

Major Undertaking to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure land		0
2	To clear, level and reclaim the site when needed		0
3	To construct gates and fences in and around the site		0
4	To construct the parking lot	0	
5	To construct roads	1) Within the site	0
		2) Outside the site	0
6	To provide facilities for the distribution of electricity	1) The distributing line to the site	0
		2) The drop wiring and internal wiring within the site	0
		3) The main circuit breaker and transformer	0
7	To bear the following commission to the Japanese bank for the banking services based upon the B/A	1) Advising commission of A/P	0
		2) Payment commission	0
8	To ensure unloading and customs clearance at port of disembarkation in recipient country	1) Marine (Air) transportation of the products from Japan to the recipient country	0
		2) Tax exemption and custom clearance of the products at the port of disembarkation	0
		3) Internal transportation from the port of disembarkation to the project site	0
9	To accord Japanese nationals 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 Palau and stay therein for the performance of their works.		0
10	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the Palau with respect to the supply of the products and services under the verified contracts.		0
11	To maintain and use properly and effectively the facilities constructed and equipment provided under the Japan's Grant.		0
12	To bear all the expenses, other than those to be borne by the Japan's Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment.		0

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

Handwritten signature/initials



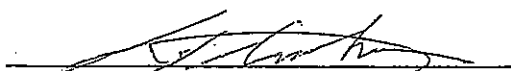
Minutes of Discussions
on the Basic Design Study
on the Project for Improvement of Interisland Access Road
in the Republic of Palau
(Explanation of Draft Final Report)

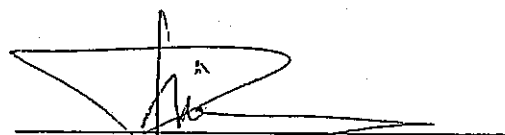
In November 2003, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team on the Project for Improvement of Interisland Access Road in the Republic of Palau (hereinafter referred to as "the Project") to the Republic of Palau (hereinafter referred to as "Palau"), and through discussions, field survey, and technical examination of the results in Japan, JICA prepared a draft final report of the study.

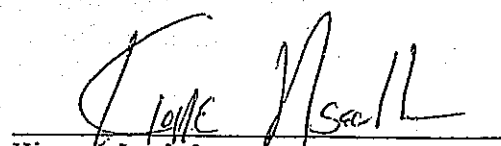
In order to explain and to consult with officials concerned of the Government of Palau on the components of the draft final report, JICA sent to Palau the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Kyosuke Takaoka, Resident Representative of JICA Palau Office, from February 27 to March 5, 2004.

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

Koror, March 3, 2004


Kyosuke Takaoka
Leader
Basic Design Explanation Team
Japan International Cooperation Agency


Fritz Koshiya
Minister
Ministry of Resources and Development
Republic of Palau


Kione J. Isechal
National Highway Engineer
Office of the President
Republic of Palau

(COT)

ATTACHMENT

1. Components of the Draft Final Report

The Palauan side agreed and accepted in principle the components of the draft final report the Team explained.

2. Japan's Grant Aid Scheme

The Palauan side understands the Japan's Grant Aid scheme and the necessary measures to be taken by the Government of Palau as explained by the Team and described in Annex-3 and Annex-4 of the Minutes of Discussions signed by both sides on November 5, 2003.

3. Schedule of the Study

JICA will complete the final report and send it to the Government of Palau by the end of April, 2004.

4. Scope of the Study

The Team showed the final scope of the study as follows, and the Palauan side agreed.

- 1) Ailai causeway widening and improvement (0.73km),
- 2) Meyungs causeway widening and improvement (0.67km),
- 3) Malakal causeway widening and improvement (0.51km),
- 4) Malakal road widening and improvement (1.63km), and
- 5) Repair of Minato Bashi Bridge (0.075km).

5. Environmental Clearance

- 5-1. The Palauan side shall obtain the EQPB (Environmental Quality Protection Board) Permit Approval by the end of April 2004 referring to Annex 1, "Work Schedule for EQPB Permit".
- 5-2. The Palauan side promised to inform the JICA Palau Office the above EQPB Permit Approval when obtained.

6. Other Relevant Issues

- 6-1. The Team explained the reason of the Project title change from "the Project for Improvement of Metropolitan Road" to "the Project for Improvement of Interisland Access Road", and the Palauan side accepted.
- 6-2. The Palauan side agreed to get the concurrence of necessary land acquisition from owner/occupiers by the end of April 2004.
- 6-3. The Palauan side shall carry out relocation of existing communication lines.
- 6-4. The Palauan side will secure the necessary budget and personnel for implementation of the Project and for maintenance of the road and its facilities.
- 6-5. The Team explained the difference of the Project length of 3.52km in the Draft Final Report and the Project study length of 4.34km in the Inception Report, and the Palauan side accepted.
- 6-6. The Team explained the design policies comparing with the request from the Palauan side (as Annex 2, "ROP's Comments"), and the Palauan side accepted.

KJF BT

Work Schedule for EQPB Permit

Activities	Responsibility	March				April			
		1st	2nd	3rd	4th	1st	2nd	3rd	4th
<Preparation of EA>									
Contract with the Consultant	MRD	●	●						
Study for EA	EA Consultant		●	●	●				
Preparation and Submittal of Draft EA Report	EA Consultant				●	●			
<Preparation of Necessary Drawings>	MRD		●	●	●				
<Preparation of ESCP>	MRD			●	●	●	●		
<Obtaining of HPO Permit>	MRD			●	●	●	●		
<Consultation with EQPB>	MRD / Consultant	●	●	●	●	●	●	●	●
<Preparation and Submittal of Final EA Report>	EA Consultant						●	●	
<Examination by the EQPB Board>	EQPB							●	●
<Board Decision on Permit Approval>	The Board								▲

EQPB: Environmental Quality Protection Board
 MRD: Ministry of Resources & Development
 EA: Environmental Assessment

ESCP: Erosion and Sedimentation Control Plan
 HPO: Historical Preservation Office

2011 EJT ET



Republic of Palau
Office of the President

Tommy E. Remengesau, Jr.
President

PO Box 6051, Palau, PW 96940
tel (680) 488-2403/2828, fax (680) 488-2424/1662
email-IN:rop.presidenti@palaunet.com

February 16, 2004

Mr. Kyosuke Takaoka
Resident Representative
JICA Palau Office
P.O. Box 6047
Koror, Republic of Palau 96940

Re: Comments on Project Outline and Basic Design Concepts for Metropolitan (Koror/Airai) Road Improvement Project

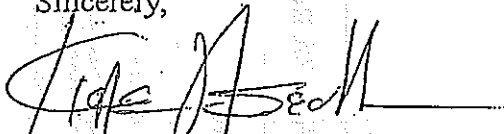
Mr. Takaoka

In response to your letter, dated February 6, 2004, I am forwarding a copy of the Republic of Palau's collective comments for the subject matter. The comments take into account important local considerations and proven industry standards which will greatly improve the functionality and safety of the causeway portions of the National Roads in Koror.

We thank you for allowing us the opportunity to review and comment on this important project for the Republic and we look forward to meet with the Basic Design Team in the latter of this month.

Your continued cooperation and assistance will be greatly appreciated.

Sincerely,


Kione J. Isechal
National Highway Engineer

Attachment:

Cc: Minister Koshiha
Mr. Donald Haruo

F J K T a

ROP's Comments on the Project Outline
and
Design Concept
for
The Project for Improvement of the Inter-Island Access Road

1. Project Title. Government of Japan re-named the project as indicated above, which gives the impression that when the project is completed, the intent of the Republic as reflected in the 2002 Grant Application has been fully achieved.

To recognize the fact that the project scope that is being entertained by JICA is only a portion of the 2002 Grant Application of ROP and to convey the clear intent of the Republic to re-habilitate and reconstruct the entire national road in Koror and Airai, the name of the project should be re-worded as follows:

PHASE I
of
THE METROPOLITAN (KOROR and AIRAI) ROAD
IMPROVEMENT PROJECT

This name is consistent with the 2002 Grant Application for the road project that was submitted to the Government of Japan and the priority list reflected in the Minutes of Discussion on Preparatory Study Team that was agreed with JICA on April 3, 2003.

2. 1-1-2 Outline of Project. In November of 2003, the Basic Design Team indicated in the Inception Report that the total length of road (conventional & causeway) studied was 4.34 kilometer. In the Draft Outline of the Project, only 3.52 kilometers of roadway will be addressed in the Draft of the Basic Design Report.

It appears that every stages of this project, the Team of Engineers commissioned to Palau to study and collect information of the project, have managed to scale-down the project and there appears to be no end to these effort to reduce the scope of project

ROP insist that the total linear length of 4.34 kilometer of road as reflected in the November Inception Report and agreed, remain as the total road length to be addressed in the Final Basic Design Report.

Table of Urgency and Priority. Route 8, short section of Malakal Causeway that was recently repaired under Utor Project is not included in the proposed project. The repair project undertaken in 2002, only the left side (looking ahead on stations) of the causeway was reconstructed and or repaired.

Right side of the causeway is in poor condition and lacking the required width and roadside barrier and; therefore, shall be included under the proposed project, to bring it up to the same standards as the final typical section for causeways.

3. 2-1 Basic Design Concept of the Project.

Causeway. Reinforced concrete retaining wall that is being considered for the right side of Malakal Causeway , between Long Island Park and Minato Bridge is a cause of concern to the ROP for the following reasons:

- Based on local experience, steel reinforced concrete retaining wall is not durable, especially when submerged in saltwater environment. Saltwater intrusion into concrete structures corrode reinforcement which leads to premature spalling of concrete. Such failure is quite common in Palau and can be observed in the buttress wall that was constructed adjacent to Meyuns Causeway, less than 10 years ago.
- The bold appearance of a massive concrete Retaining Wall is not aesthetically pleasing in a park environment. The proposed retaining wall is located directly across from the Long Island Park and the sight of a 10 feet high and 600 feet long (approximately) concrete structure is not compatible structure in a park setting.
- Uniformity and consistency of roadway features and type of construction selected for the entire project, simplifies construction procedures and future maintenance.
- Rock revetment is environmentally friendly and can be easily constructed. Rock revetment provides more and better habitat for sea creatures as well as allows for optimum use of abundant and readily available local materials such as rocks and dredge coral. From local experience and specifically for this site where seawater is present at all times, rock revetment is much more constructible than concrete retaining wall. Bear in mind that industry acceptable underwater concreting methodology is not available in Palau and therefore quality of workmanship and the final product is questionable.

For consistency, durability, aesthetics and other benefits, ROP views rock revetment as the preferred type of construction than the concrete retaining wall and further request JICA to consider this option.

Median: Palau requested 1.6 meter wide area to be provided in the middle of the road to separate two opposing lanes. For the time being, only rumble bars will be provided to separate on-coming traffic that will as serve deterrence for overtaking (passing) motorists. In the future if there is an increase trend in head-on type accidents, concrete median barriers will have to be installed to separate opposing traffic.

BT KAT n

To provide a 1.6 meter wide paved area at the median now, will ensure that there will be ample space at the roadway centerline for proper installation of concrete median barrier in the future.

Design Speed. Since the causeways are existing facilities, use of 85th percentile speed that will be determined using radar gun is much more appropriate for the situation than the pre-determined design speed of 30 mph.

Water Supply and Sewer System. On the Meyuns Causeway, the sewer line may be the type of material intended for direct burial or encased in concrete raceway, while the waterline is not. If the waterline is encased or directly buried as proposed by the JICA, we are concerned with the premature corrosion on steel pipes that will eventually lead to pipeline leakage. Just 2 years ago, due to extensive corrosion on the subject waterline, it required repair which involved removal of rust on affected areas of the pipe and applying anti-corrosion paints on the entire length of the pipeline. Similarly, a ductile iron sewer pipe that was installed underneath the existing sidewalk, 15 years ago, had to be replaced last year due to excessive corrosion and numerous leaks. The replacement sewer line had to be re-located to the present location, away from high-moisture environment and to a dryer and open location where it can be easily inspected and maintained.

Both pipelines should remain exposed from the top, for ease of inspection and maintenance purposes, and therefore, the causeway widening and new sidewalk should be constructed beyond the outside perimeter of the existing pipelines.

Roadside Drainage on the Causeways. Raised sidewalk on the causeways as proposed and the nearly flat roadway grade will cause water ponding or flooding on the causeway road surface during heavy rain periods. In addition, heavy rains that occur after working hours normally causes accumulation of debris on and around the proposed drop inlets which restrict run-offs flow and contributes to severe roadway flooding.

Palau's proposed solution is to construct sidewalks to match with the edge of pavement top elevation and provided with the same cross slope as the roadway. This will allow road run-offs to freely sheet flows over the causeway to the sea.

Sidewalk. To improve safety and avoid interference of pedestrian with the vehicular flow, Palau sees the great need for providing dedicated pathways or sidewalks on all causeways. Contrary to what is shown in the typical causeway cross sections, sidewalk on one side of the causeways will be sufficient.

- Malakal Causeway will be constructed on the left side only to connect with the existing sidewalks on the recently repaired section of the Malakal Causeway and Malakal Bridge.
- Meyuns Causeway will be constructed on the right side, west of the existing pipe installation.
- Airai Causeway will be constructed on the left side to be consistent with the existing sidewalk on K-B Bridge.

Barrier. Palau will only allow pre-cast Jersey Type Barrier to be installed as roadside barrier on the causeways as previously discussed with the Basic Design Team. Jersey type barrier meets the safety requirements and is nearly maintenance free as well as matches with the existing barriers that were recently installed on Malakal and Airai causeways. In addition, opening underneath the barriers will allow road runoffs to sheet flow to the sea and therefore no water flooding on the road surface. Intermittent raised concrete curbs as proposed by JICA do not provide effective roadside barriers, especially when over 4 feet of water is present as the causeways. Too many sharp corners on intermittent raised curbs pose danger or unsafe conditions to motor cyclists and bikers. These type of curbs have contributed to traffic accident fatalities in the past and since then the Republic do not allow their installation along the side of public roads. Intermittent curbs do not match with existing Jersey Barriers on Malakal and Airai causeways and it gives non-uniform and un-pleasing appearance of the roadway.

Pedestrian Railing. Railing should be 38 inches or 100 cm high from the surface of sidewalk as in buildings and any elevated structures. Pedestrian will trip-over the 40 cm high concrete wall and nothing will prevent a stumbling pedestrian from going over the causeway. Pedestrian railing need not be continuous wall as proposed by JICA. Ocean waves over topping the causeways and ocean sprays are not severe problems that require mitigation. However, a properly designed and constructed pedestrian facility is very important as it ensures pedestrian safety. Pedestrian railings can be constructed of concrete posts at 3 meters spacing with triple horizontal railing for economy purposes.

Road Lighting Proper illumination intensity on the roadway provides quick, accurate and comfortable visual perception of conditions and roadway features that require additional driver alertness. Thus the level of safety of the facility will be greatly increased.

It is imperative to increase lighting intensity to the level required by repairing and or replacing the existing light fixtures and installing additional illumination poles in between the existing light poles, but on the opposite side of the causeway. To contain cost of annual maintenance to minimum, designer should consider incorporating solar-powered street lights as we have indicated in the Grant Application.

The need to have safe road supercedes the environmental considerations of the sea shore areas of the causeways. Since an Environmental Assessment is going to be undertaken for the project, this matter can be further studied and if necessary, appropriate mitigations will be incorporated in the final design to minimize any impact. However, the "unknown" environmental impacts at this time, should not be used as reasons for not addressing lighting deficiency of the causeways. Safety of the causeway from lighting aspect is too critical and to not do anything to address the problem would be irresponsible.

Existing Causeway Embankment. During the Basic Design Team visit to Palau, the team excavated test pits in the causeway embankment and obtained material samples at various levels. From casual observation, the materials obtained appears to be silty clay with very high moisture content. It is believed that the poor condition of the causeway pavement is due to the type and the existing condition of the causeway fill material.

The Basic Design Report should discuss this element of the existing causeway construction, laboratory tests performed on the samples and what methodology to be employed to strengthen or improve carrying capacity of the existing material supporting

the causeway structural pavement. Does the present condition of the causeway fill material dictates what type of materials will constitute the new causeway pavement? Asphalt or Portland Concrete Cement.

Road Maintenance Equipment. Palau requested for specialized road maintenance to improve and strengthen our road maintenance program. This was included in the project grant application and reflected in the April 3, 2003 Minutes of Discussion on Preparatory Study Team.

Effective and efficient maintenance program is important and the final report should address this matter.

Use of Local Aggregate for Pavement. Previous tests performed on the local aggregate indicate that the local aggregate, in general, does not meet the standard tests for Abrasion and Soundness. The final report should discuss this matter and determine if importation of aggregate is necessary.

K. K. K. K.

Appendix 5

Drawings

REPUBLIC OF PALAU
MINISTRY OF RESOURCES AND DEVELOPMENT

THE BASIC DESIGN STUDY ON THE PROJECT
FOR
IMPROVEMENT OF INTERISLAND ACCESS ROAD

DRAWINGS

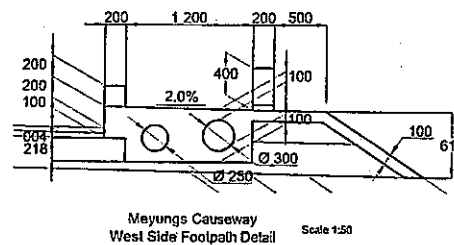
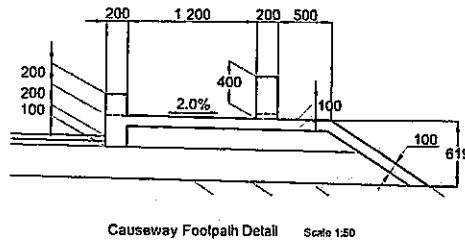
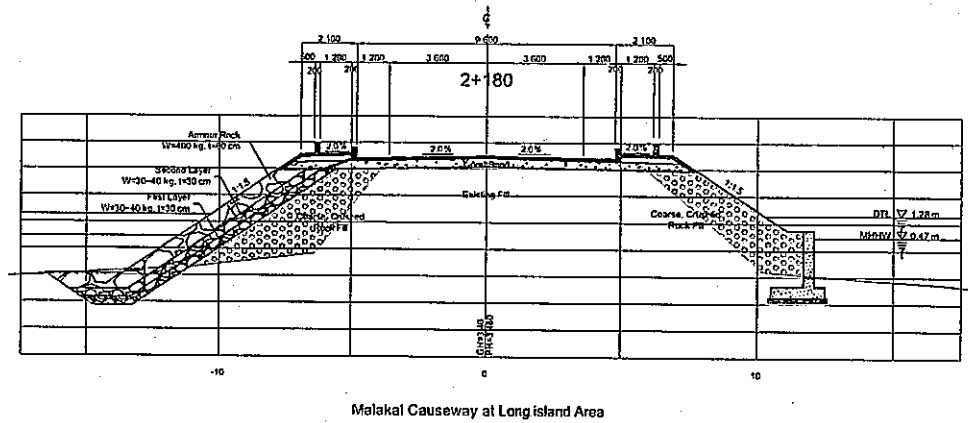
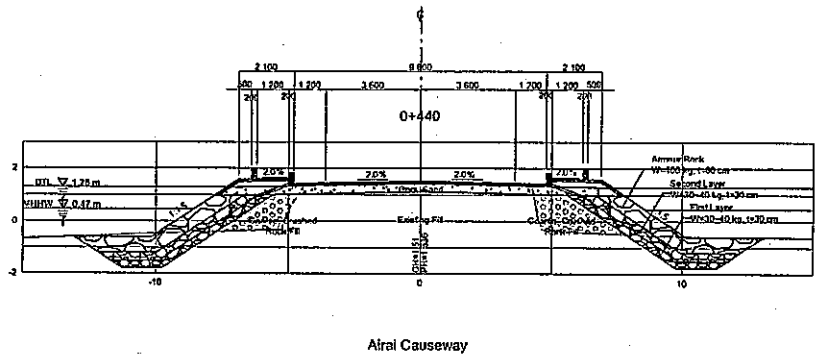
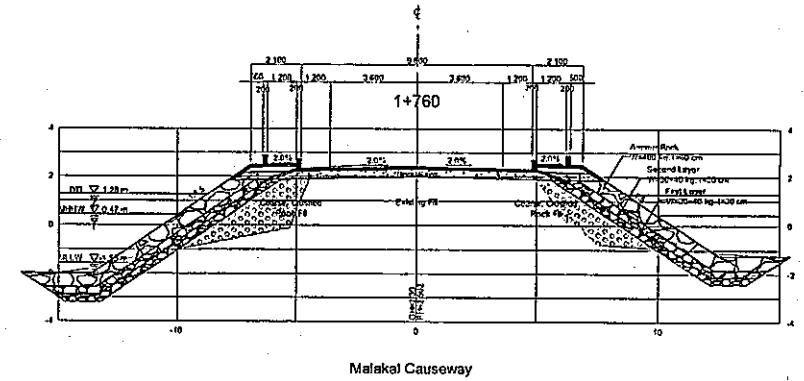
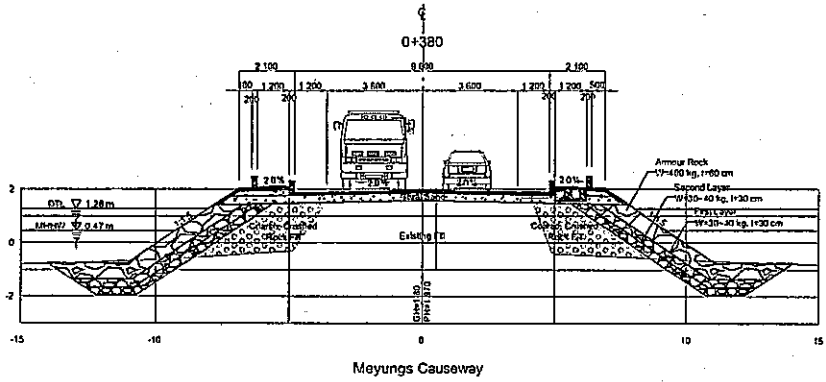
MARCH 2004



JAPAN INTERNATIONAL COOPERATION AGENCY

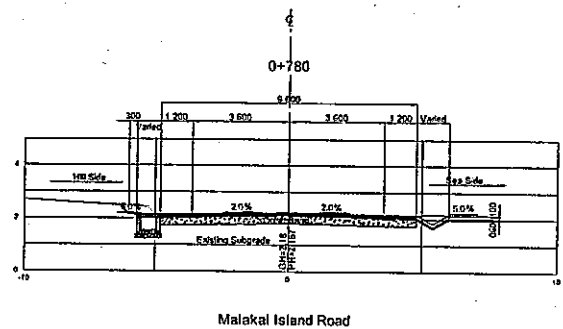
DRAWINGS LIST

Sheet No.	Drawing Title	Sheet No.	Drawing Title
RD-01	Typical Cross Sections	CB-01	General View of Repairing & Widening, Culverts on Malakal Causeway (1/2)
RD-02	Meyungs Causeway, Plan and Profile	CB-02	General View of Repairing & Widening, Culverts on Malakal Causeway (2/2)
RD-03	Malakal Island Road and Malakal Causeway, Plan and Profile (1/4)	CB-03	General View of Repairing & Widening, Culverts on Meyungs Causeway (1/2)
RD-04	Malakal Island Road and Malakal Causeway, Plan and Profile (2/4)	CB-04	General View of Repairing & Widening, Culverts on Meyungs Causeway (2/2)
RD-05	Malakal Island Road and Malakal Causeway, Plan and Profile (3/4)	CB-05	General View of Repairing & Widening, Culverts on Meyungs Causeway No. 3 (1/2)
RD-06	Malakal Island Road and Malakal Causeway, Plan and Profile (4/4)	CB-06	General View of Repairing & Widening, Culverts on Meyungs Causeway No. 3 (2/2)
RD-07	Airai Causeway, Plan and Profile (1/2)	CB-07	General View of New Culverts on Meyungs Causeway New 1 & New-2
RD-08	Airai Causeway, Plan and Profile (2/2)	CB-08	Reference: Construction Sequence of Repairing & Widening, Culverts on Malakal Causeway
RD-09	Malakal Island Road, Land Slide Treatment	CB-09	Reference: Construction Sequence of Repairing & Widening, Culverts on Meyungs Causeway
BR-01	General View of Repairing, Minato Bridge on Malakal Causeway		
BR-02	Detail of Repairing, Pile-Bent Portion of P2, Minato Bridge on Malakal Causeway		
BR-03	Detail of Repairing, Steel Pipe Piles of Piers (P1 & P2), Minato Bridge on Malakal Causeway		
BR-04	Detail of Repairing, Retaining Walls, Minato Bridge on Malakal Causeway		
BR-05	Detail of Repairing, Relocation of Guard Railing & Widening of Footpath, Minato Bridge on Malakal Causeway		

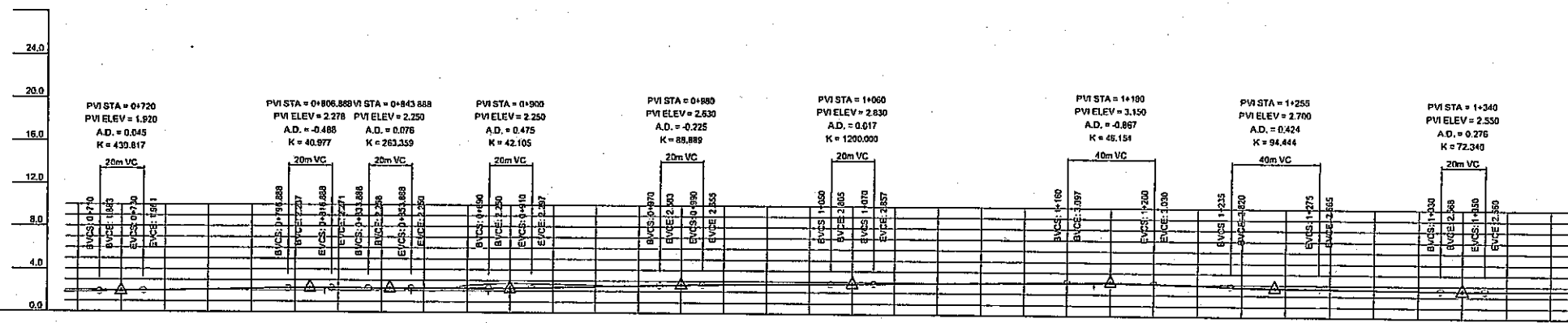
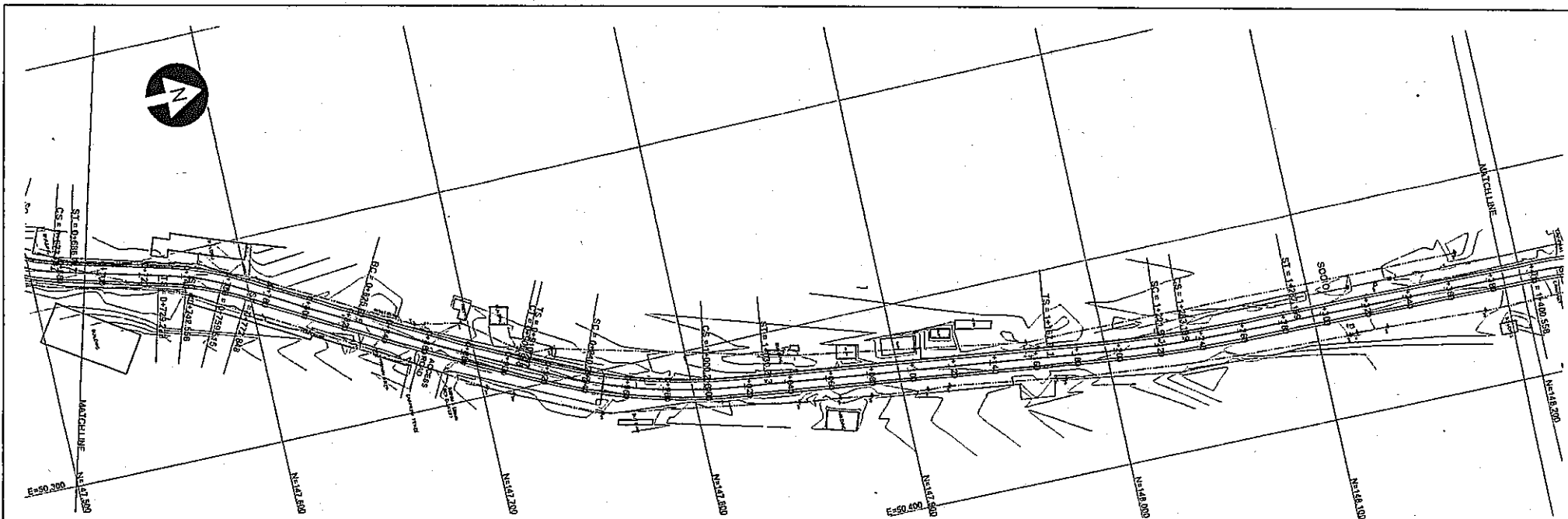


- NOTES:
1. The same Typical Cross Section is proposed for Malakal and Atrai Causeway.
 2. To save the living coral area, inverted-T type retaining wall is applied to the south side of Malakal Causeway slope at Long Island Park Area.
 3. Right (west) side footpath of Meyungs Causeway is intended to protect the existing water main and sewer pipe.
 4. All utility pipes along or embedded beneath the project road/causeways are not required for relocation, except telecommunication lines.
 5. Malakal Island Road will be provided U-ditch at hill side and V-ditch at sea side.

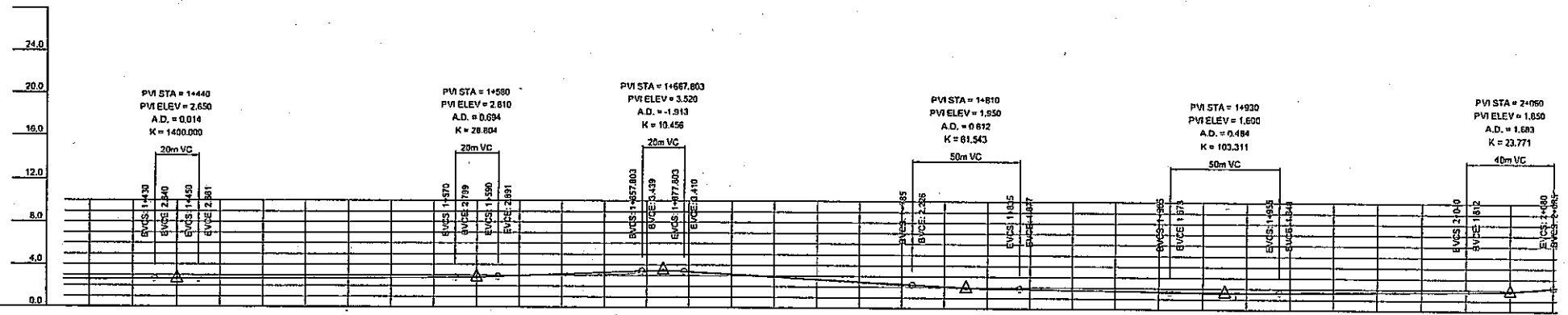
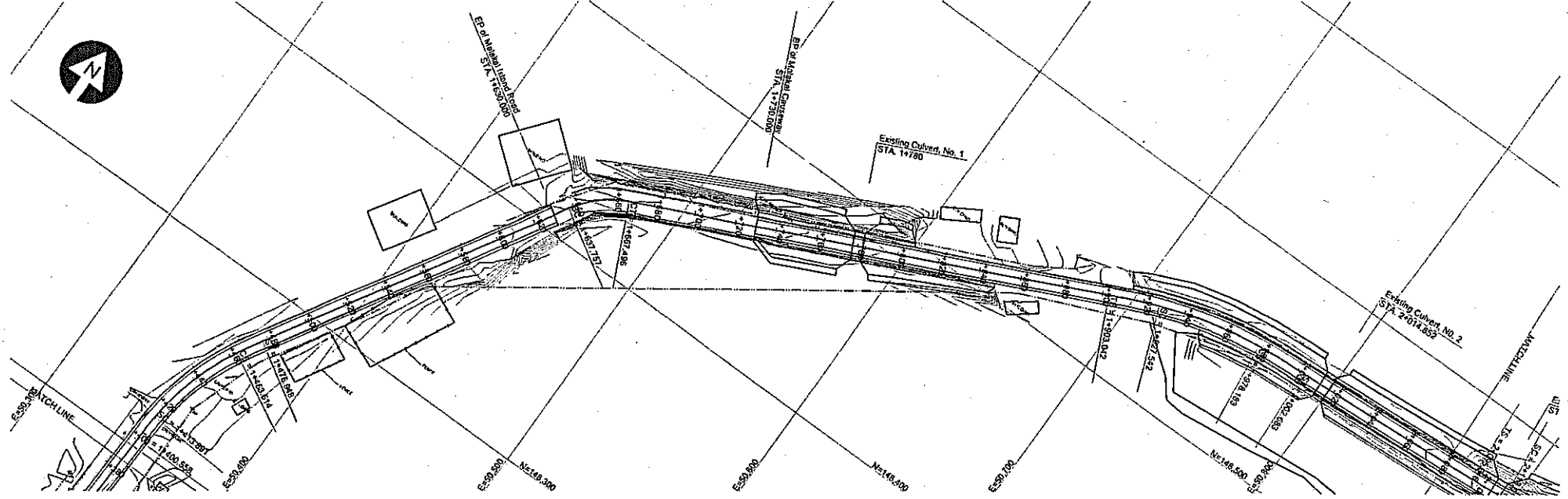
6. Malakal Island Road in hilly area may not have 1.2 m shoulder both side due to terrain conditions.
7. DTL: Design Tide Level, H=1.28 m, in 50 years return period.
8. MHHW: Mean Higher High Water, H=0.47 m.
9. MLLW: Mean Lower Low Water, H=-1.55 m.
10. Mean Sea Level (MSL) is H=0.00 m.
11. Footpath height is 20 cm higher than the road surface. Installation of 1 m length and 20 cm height curb is proposed at every 3 m for pedestrian safety.



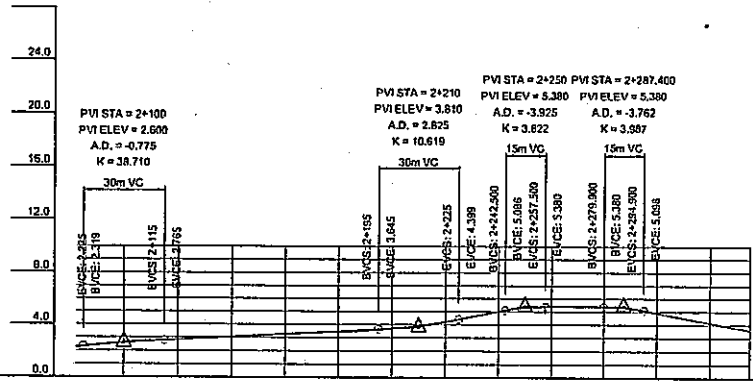
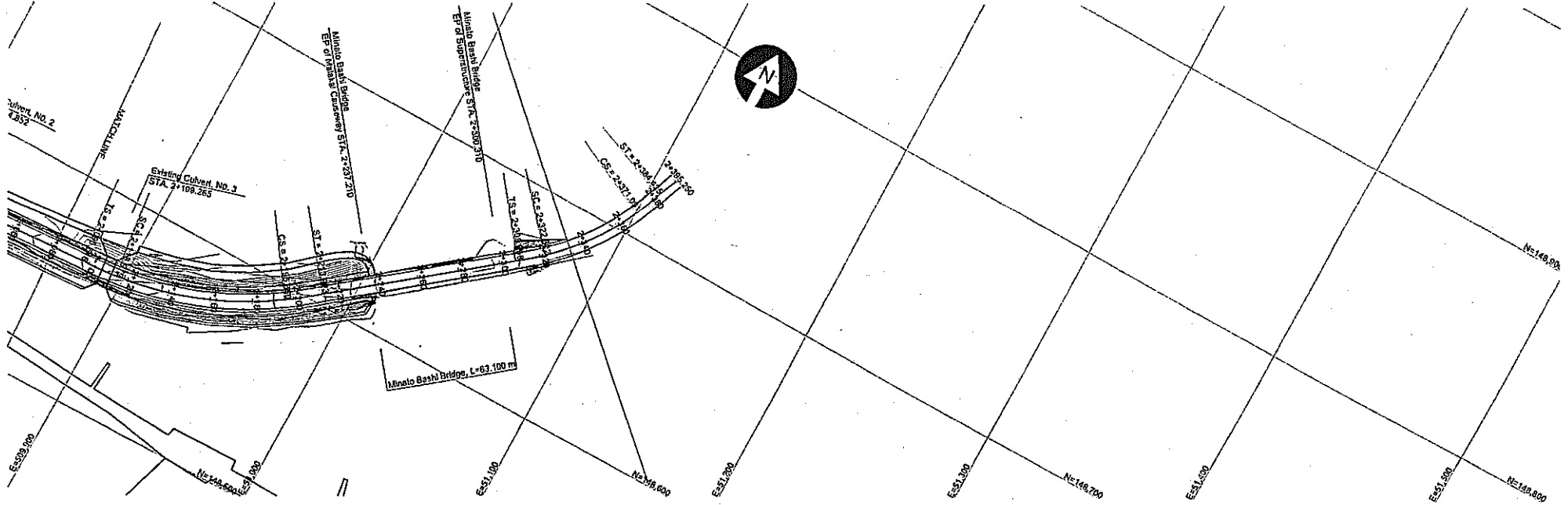
REPUBLIC OF PALAU MINISTRY OF RESOURCES AND DEVELOPMENT	THE BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT OF INTERISLAND ACCESS ROAD	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE	SCALE	DATE	SHEET NO.
			Typical Cross Sections	1:200	MARCH 2004	RD-01



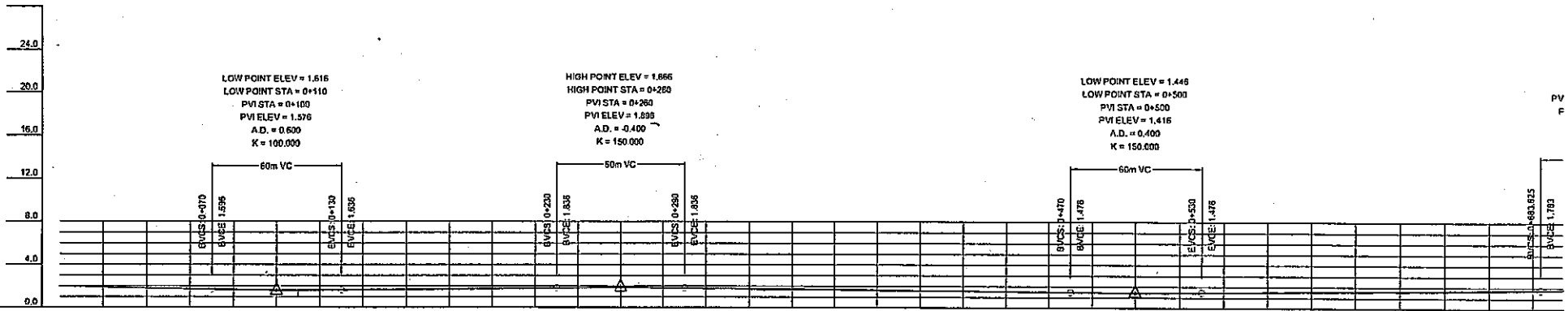
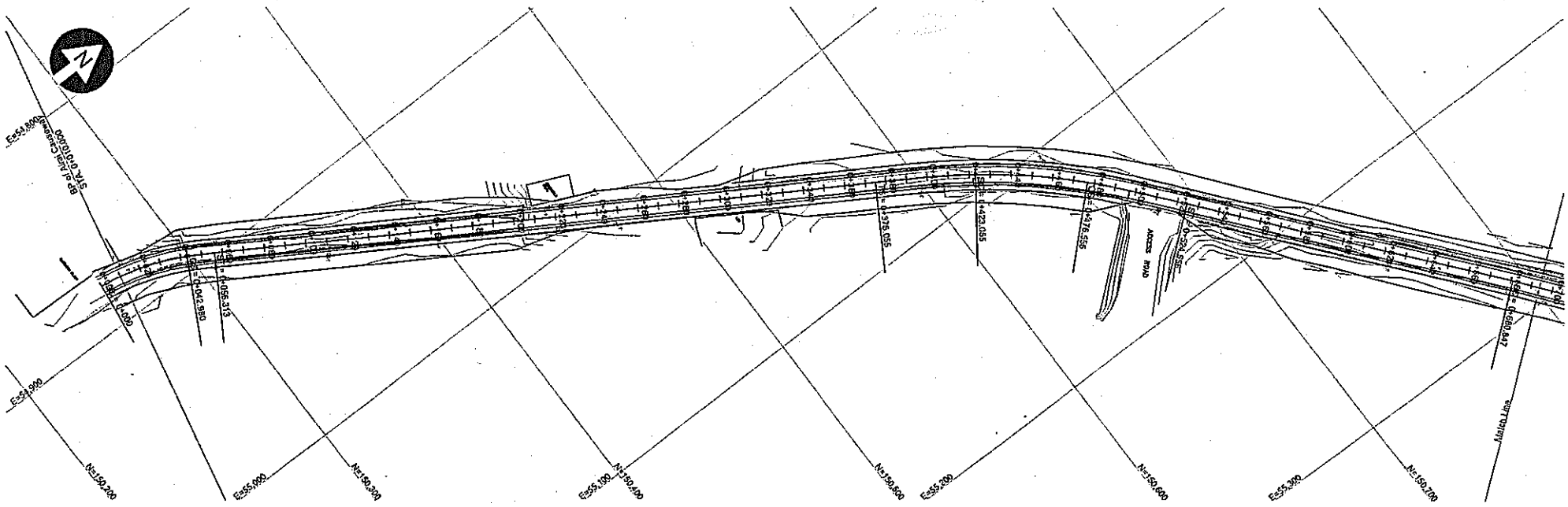
GRADE	0.367%	1.920	0.412%	2.278	0.076%	2.250	0.000%	2.250	0.475%	2.530	0.250%	2.930	0.267%	3.150	0.600%	2.700	0.176%	2.550	0.100%																									
PROPOSED HEIGHT	1.847	1.883	1.921	1.961	2.002	2.065	2.167	2.278	2.376	2.454	2.529	2.599	3.043	3.097	3.167	3.030	2.910	2.920	2.781	2.685	2.570	2.590																						
GROUND HEIGHT	1.605	1.630	1.912	1.961	1.992	2.088	2.180	2.262	2.376	2.444	2.524	2.559	2.803	3.118	3.127	3.050	2.853	2.715	2.588	2.522	2.578	2.578																						
STATION	0+694.001	0+700.000	0+720.000	0+730.000	0+740.000	0+760.000	0+780.000	0+806.888	0+818.888	0+830.000	0+840.000	0+860.000	0+880.000	0+900.000	0+920.000	0+940.000	0+960.000	0+970.000	0+980.000	0+990.000	1+000.000	1+020.000	1+040.000	1+050.000	1+070.000	1+080.000	1+100.000	1+120.000	1+140.000	1+160.000	1+180.000	1+200.000	1+220.000	1+235.000	1+240.000	1+250.000	1+260.000	1+275.000	1+300.000	1+320.000	1+330.000	1+340.000	1+350.000	1+360.000
CURVE ELEMENT	R=50		A=10 R=120 L=13.333		R=0		R=1500 L=41.064		R=0		A=20 R=20 L=3.092		R=270 L=59.916		A=50 R=50 L=3.092		R=0		A=100 R=100 L=11.284		R=500 L=12.400		A=180 R=180 L=3.092		R=0		A=180 R=180 L=3.092		R=0		A=180 R=180 L=3.092		R=0		A=180 R=180 L=3.092		R=0							



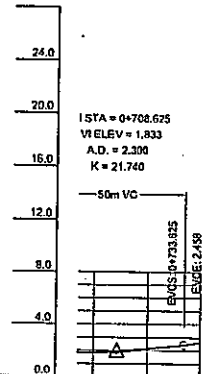
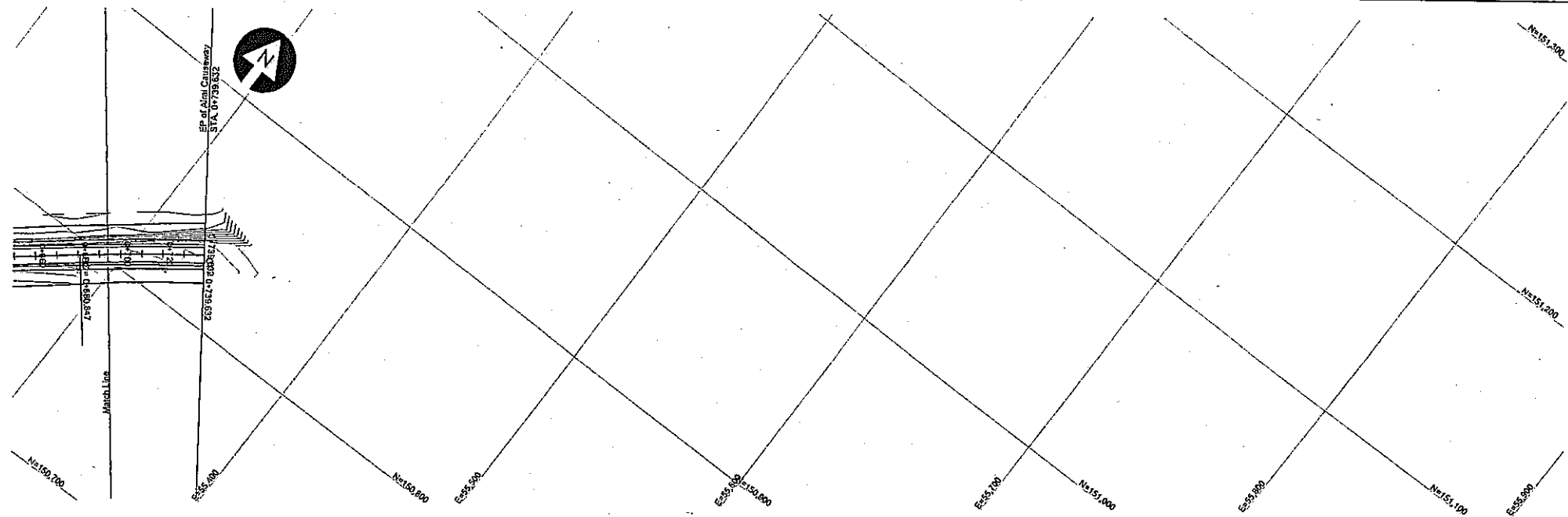
GRADE	0.100%		2.850		0.114%		2.810		0.809%		3.520		-1.104%		1.950		-0.292%		1.600		0.192%		1.850																									
PROPOSED HEIGHT	2.510	2.510	2.530	2.540	2.550	2.581	2.673	2.696	2.719	2.741	2.764	2.787	2.789	2.827	2.891	2.872	3.133	3.285	3.355	3.435	3.165	2.944	2.723	2.502	2.281	2.228	2.079	1.827	1.593	1.877	1.863	1.604	1.746	1.688	1.673	1.640	1.620	1.648	1.558	1.598	1.725	1.773	1.773	1.810	1.812	1.934	2.325	
GROUND HEIGHT	2.539	2.593	2.613	2.649	2.681	2.692	2.701	2.700	2.713	2.716	2.732	2.804	2.804	2.891	2.636	2.334	2.655	3.357	3.340	3.085	2.853	2.620	2.387	2.154	1.922	1.627	1.521	1.421	1.364	1.545	1.573	1.531	1.719	1.773	1.773	1.810	1.805	2.172	2.172	1.905	1.812	1.812	1.934	2.325				
STATION	1+380.000	1+400.000	1+420.000	1+430.000	1+440.000	1+450.000	1+460.000	1+480.000	1+500.000	1+520.000	1+540.000	1+560.000	1+570.000	1+580.000	1+590.000	1+600.000	1+620.000	1+640.000	1+667.803	1+687.803	1+700.000	1+720.000	1+740.000	1+760.000	1+780.000	1+800.000	1+820.000	1+840.000	1+860.000	1+880.000	1+900.000	1+905.000	1+920.000	1+940.000	1+955.000	1+960.000	1+980.000	2+000.000	2+020.000	2+040.000	2+060.000	2+080.000						
CURVE ELEMENT	R=60, A=0.000, L=13.359, L=13.333		R=120.000, A=0.000, L=49.723, L=13.333		R=0, L=160.809		R=50.000, L=29.719		R=0, L=233.546		R=0, L=24.500		R=200.000, L=50.841		R=70.000, L=24.500		R=0, L=92.963																															



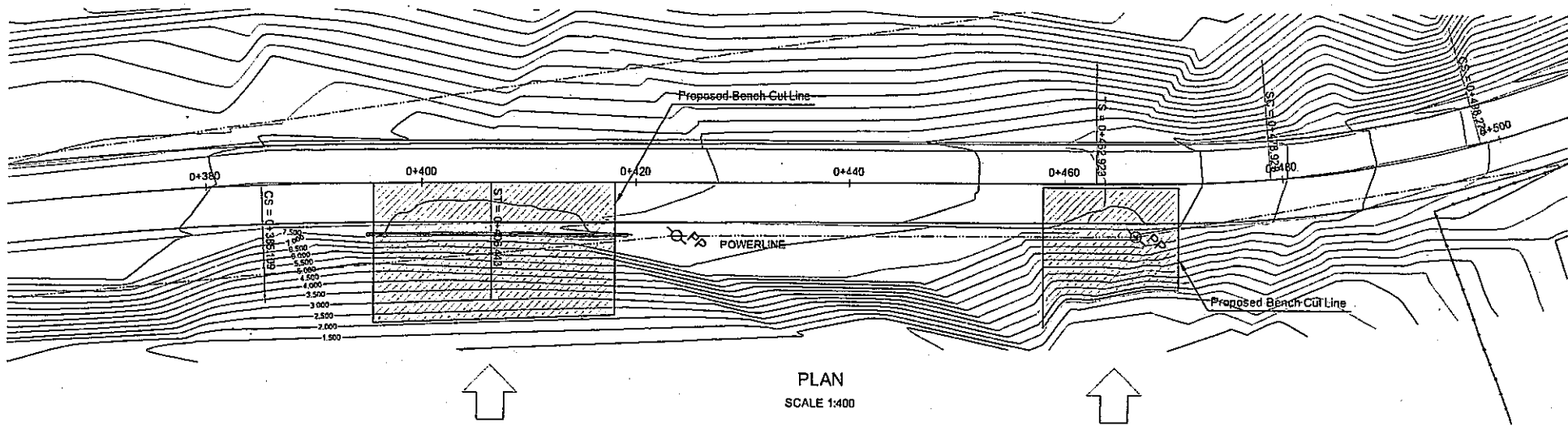
GRADE	1.875% \curvearrowright 2.800 \curvearrowright 1.100% \curvearrowright 3.810 \curvearrowright 3.925% \curvearrowright 5.380 \curvearrowright 0.000% \curvearrowright 5.380 \curvearrowright 3.762%																	
PROPOSED HEIGHT	2.319	2.571	2.765	2.920	3.040	3.260	3.480	3.645	3.712	4.214	4.399	5.086	5.380	5.380	5.099	4.906	4.154	3.590
GROUND HEIGHT	2.208	2.582	2.851	3.035	3.289	3.404	3.658	4.169	5.040	5.418	5.400	4.904	4.100	4.100	4.100	4.100	4.100	3.590
STATION	2+082.000	2+100.000	2+115.000	2+120.000	2+140.000	2+160.000	2+180.000	2+195.000	2+200.000	2+220.000	2+225.000	2+249.000	2+250.000	2+269.000	2+284.900	2+300.000	2+320.000	2+334.981
CURVE ELEMENT	R=0, L=55.000		R=165.000		R=55.000		R=0		R=0		R=40.000		R=120.000					
	L=52.963 L=52.037		L=161.671		L=16.355		L=0		L=0		L=40.000 L=40.000		L=120.000 L=120.000					



GRADE	-0.400%										0.200%										-0.200%										0.200%										1.833												
PROPOSED HEIGHT	1.976	1.896	1.916	1.736	1.696	1.691	1.821	1.821	1.821	1.638	1.656	1.696	1.726	1.776	1.816	1.836	1.853	1.865	1.865	1.853	1.836	1.816	1.776	1.726	1.696	1.656	1.616	1.576	1.536	1.496	1.478	1.460	1.448	1.460	1.476	1.496	1.516	1.536	1.556	1.576	1.596	1.616	1.636	1.656	1.676	1.696	1.716	1.736	1.756	1.776	1.796	1.816	1.833
GROUND HEIGHT	1.976	1.972	1.765	1.681	1.696	1.697	1.592	1.557	1.588	1.629	1.646	1.669	1.689	1.734	1.734	1.836	1.853	1.865	1.865	1.836	1.816	1.776	1.726	1.696	1.656	1.616	1.576	1.536	1.496	1.478	1.460	1.448	1.460	1.476	1.496	1.516	1.536	1.556	1.576	1.596	1.616	1.636	1.656	1.676	1.696	1.716	1.736	1.756	1.776	1.796	1.816	1.833	
STATION	0+000.000	0+020.000	0+040.000	0+060.000	0+070.000	0+080.000	0+100.000	0+120.000	0+130.000	0+140.000	0+160.000	0+180.000	0+200.000	0+220.000	0+230.000	0+240.000	0+250.000	0+260.000	0+270.000	0+280.000	0+290.000	0+300.000	0+320.000	0+340.000	0+360.000	0+380.000	0+400.000	0+420.000	0+440.000	0+460.000	0+470.000	0+480.000	0+500.000	0+520.000	0+530.000	0+540.000	0+560.000	0+580.000	0+600.000	0+620.000	0+640.000	0+660.000	0+680.000	0+700.000	0+720.000	0+740.000	0+760.000	0+780.000	0+800.000	0+820.000	0+831.225		
CURVE ELEMENT	R=120.000 L=42.360		A=0.000 L=13.333		R=00 L=318.741		R=00 L=48.000		R=300.000 L=53.501		A=120.000 L=48.000		R=1000.000 L=158.292		R=00 L=158.292		R=1000.000 L=58.786																																				



GRADE			
PROPOSED HEIGHT	1.878	2.181	2.509
GROUND HEIGHT	1.827	2.113	2.609
STATION	0+594.000 0+708.000	0+720.000	0+733.625 0+738.832
CURVE ELEMENT			

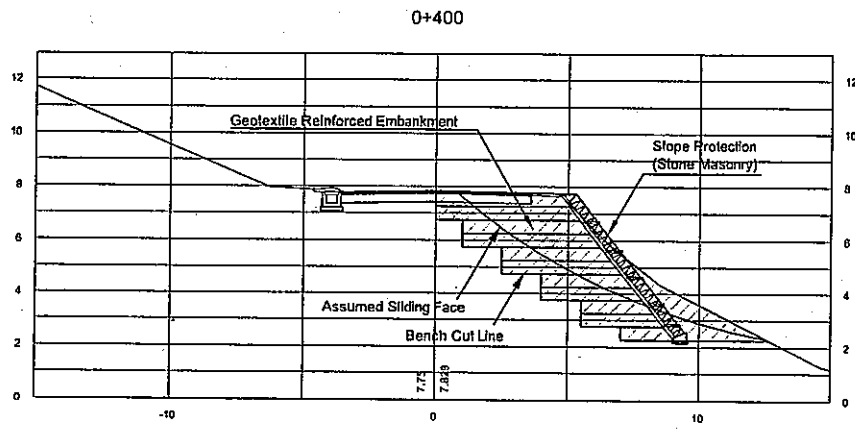


PLAN
SCALE 1:400

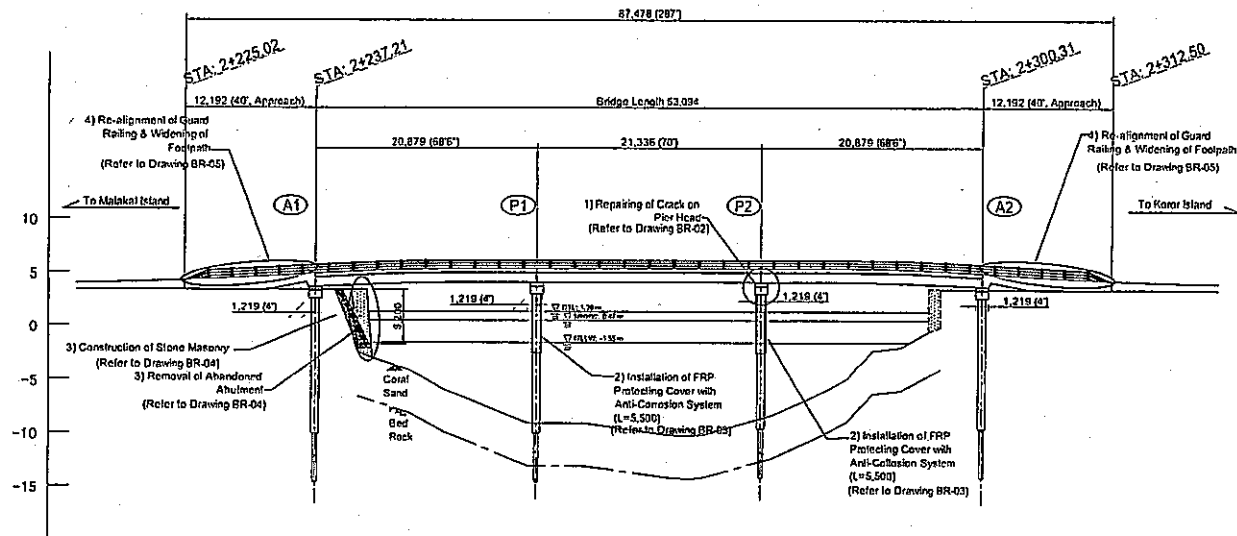
Land Slide Site 1: Approximately from STA. 0+395 to STA. 0+415

Land Slide Site 2: Approximately from STA. 0+458 to STA. 0+468

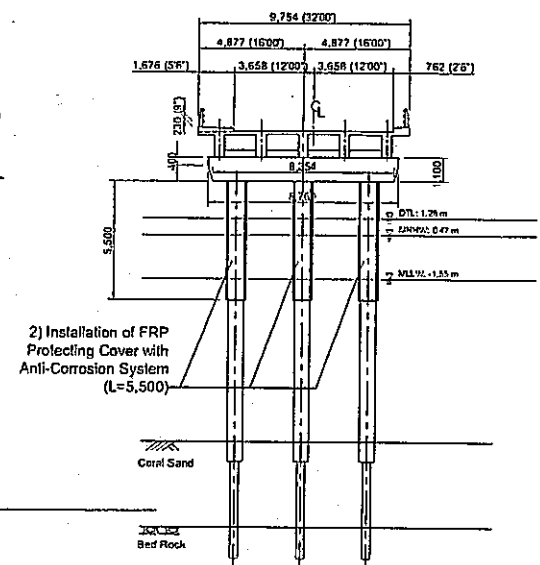
Typical Cross Section for Land Slide Treatment SCALE 1:200



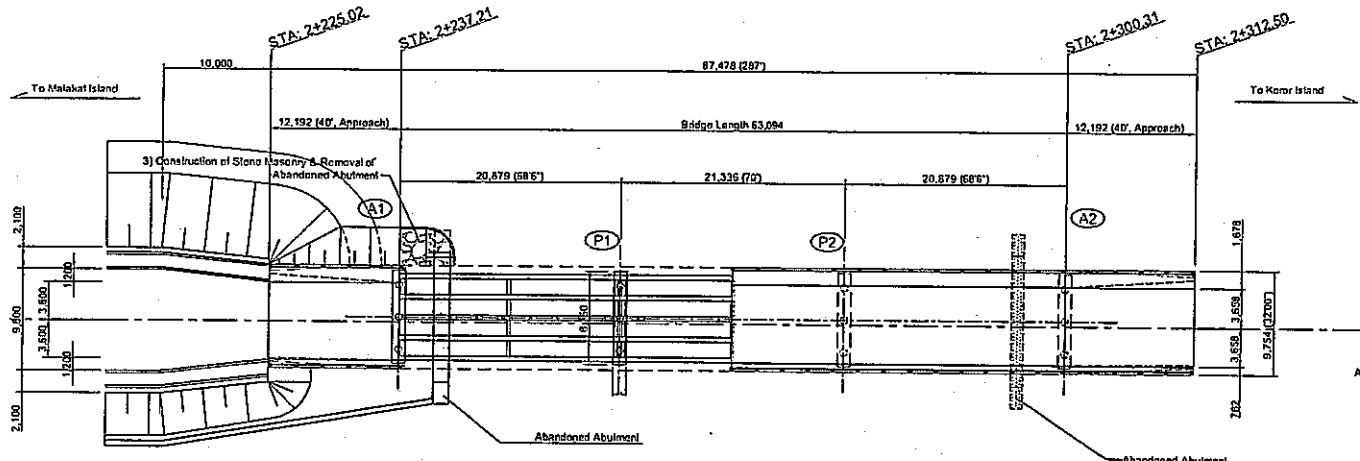
- Note:
- Trace of Land Slide was observed in two locations of Malakal Island Road. Length of Site 1 is approximately 20 m from STA. 0+395 to STA. 0+415, and Site 2 is approximately 10 m from STA. 0+458 to STA. 0+468.
 - Countermeasures against this land slide would be as follows:
 - Excavate possible land slide area by bench cuts, down to beneath the assumed sliding face between original ground and existing fill material.
 - Conduct geotextile reinforced embankment with selected fill material, which is laid down around every 20 cm with compaction.
 - Provide slope protection of stone masonry.
 - Conduct pavement works.
 - In order to finalize the appropriate countermeasures, it is proposed to carry out the further investigation by the Geotechnical Expert in the early time of detailed design stage.



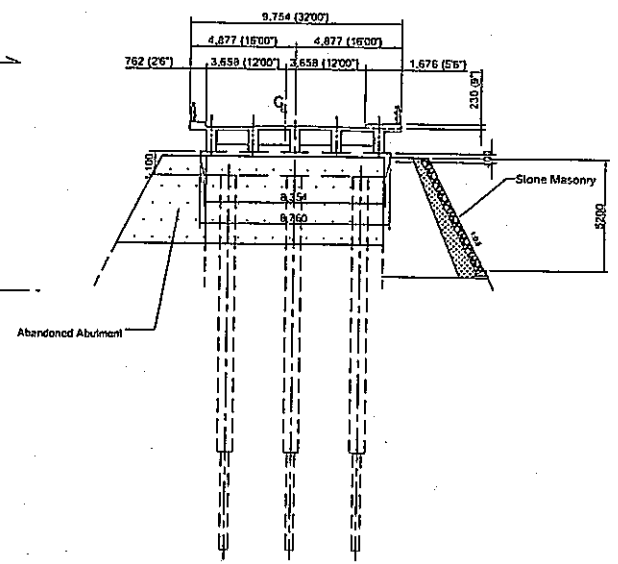
Profile (Scale 1:500)



Cross Section at P1 (Scale 1:250)



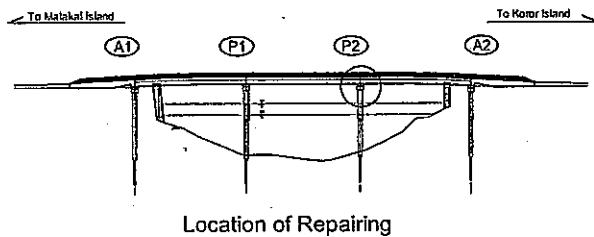
Plan (Scale 1:500)



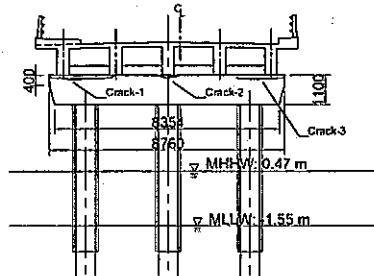
Cross Section at A1 (Scale 1:250)

Notes: Riverbed Level, Bearing Stratum, Pile Lengths were assumed based on the collected data & site survey. Bridge Features were reproduced based on the collected drawings & site survey.

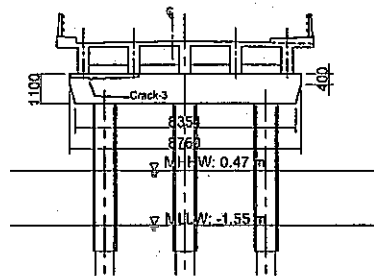
REPUBLIC OF PALAU MINISTRY OF RESOURCES AND DEVELOPMENT	THE BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT OF INTERISLAND ACCESS ROAD	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE	SCALE	DATE	SHEET NO.
			GENERAL VIEW OF REPAIRING, MINATO BRIDGE ON MALAKAL CAUSEWAY		MARCH 2004	BR-01



Location of Repairing



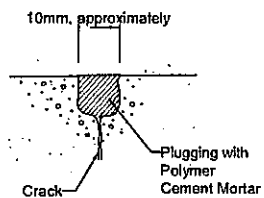
Observed Condition of Cracks, Malakal Side (Scale 1:200)



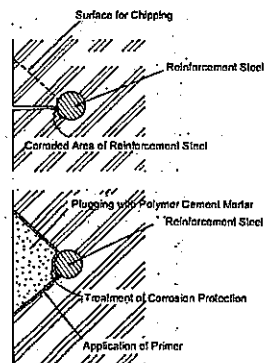
Observed Condition of Cracks, Koror Side (Scale 1:200)

Notes: Crack Width: 2mm, approximately for whole length
The locations & lengths of Cracks were assumed based on the site survey.

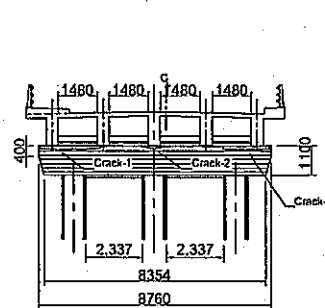
Crack Length: Crack-1: 2,500 mm
Crack-2: 940 mm
Crack-3: 5,700 mm



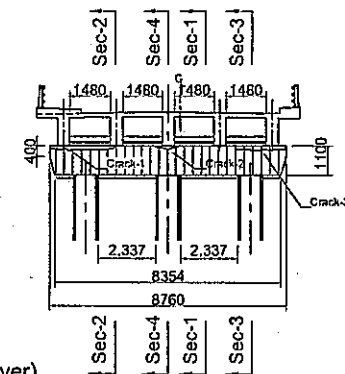
Plugging of Crack, without Corroded Reinforcement Steel (Non-Scale)



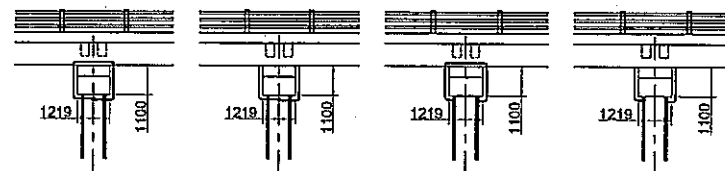
Plugging of Crack, with Corroded Reinforcement Steel (Non-Scale)



Front Elevation of Pile-Bent Arrangement of Carbon Fiber Sheet (1st Layer) (Scale 1:200)

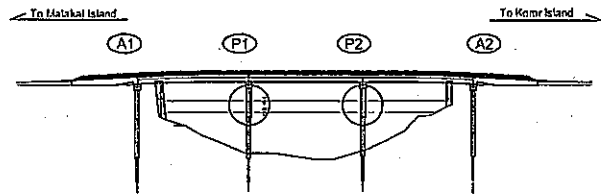


Front Elevation of Pile-Bent Arrangement of Carbon Fiber Sheet (2nd Layer) (Scale 1:200)

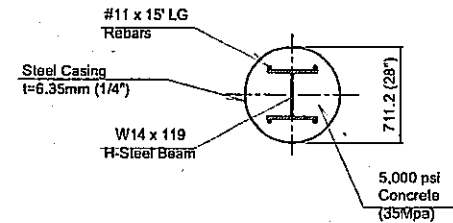


Sideview of Pile-Bent, Arrangement of Carbon Fiber Sheet (2nd Layer) (Scale 1:200)

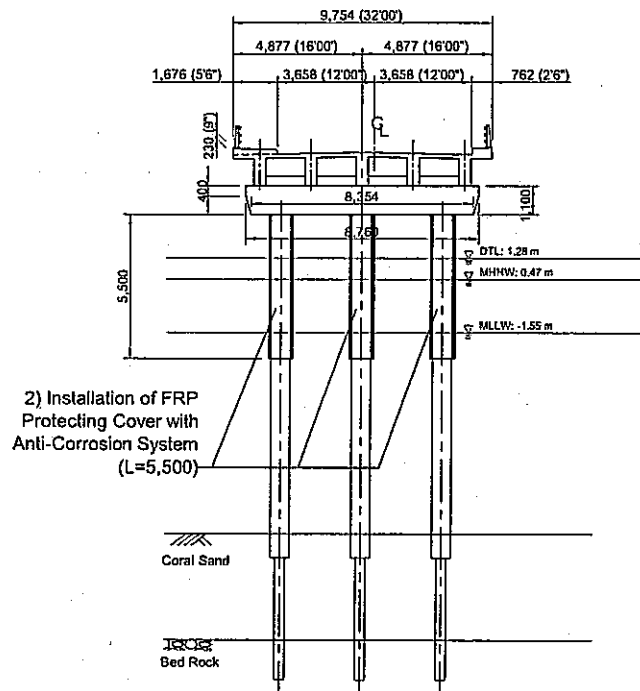
Notes: 1st Layer of Carbon Fiber Sheet shall be installed horizontally on Pile-Bent Surface.
2nd Layer of Carbon Fiber Sheet shall be installed on Pile-Bent Surface in the direction as shown on figures.



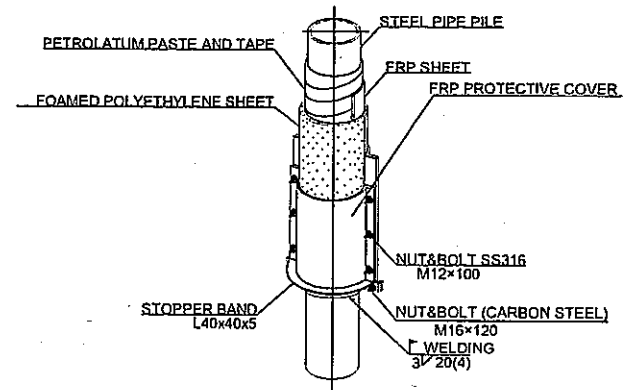
Location of Repairing



Cross Section of Existing Pile (Scale 1:40)

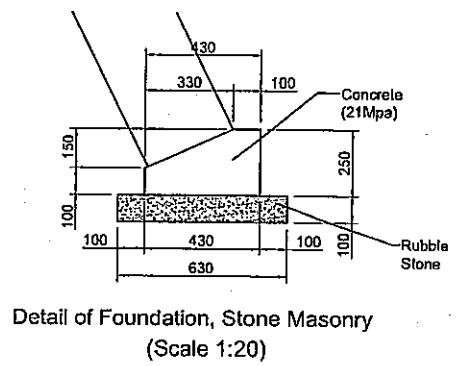
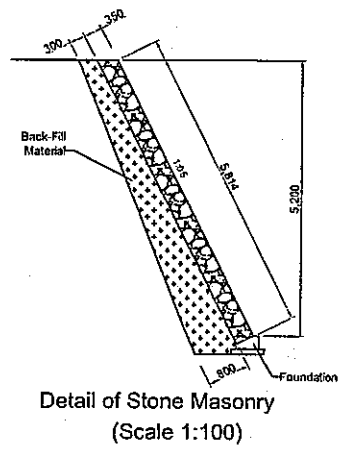
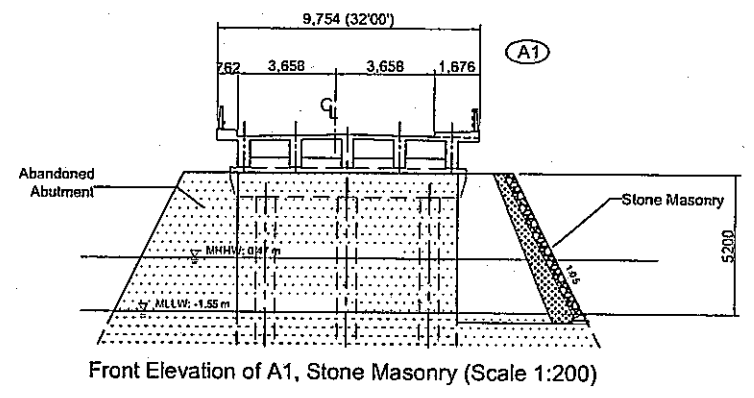
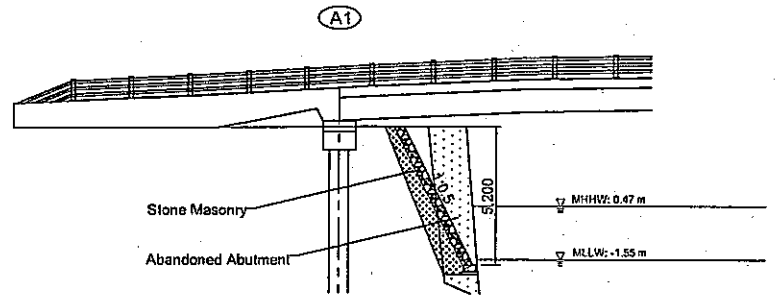
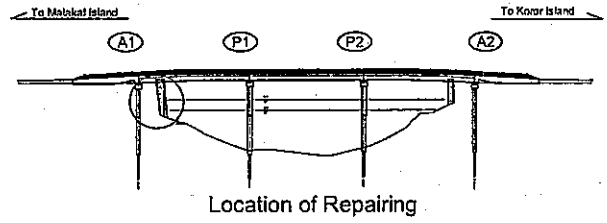


Front Elevation of Piers (Scale 1:200)

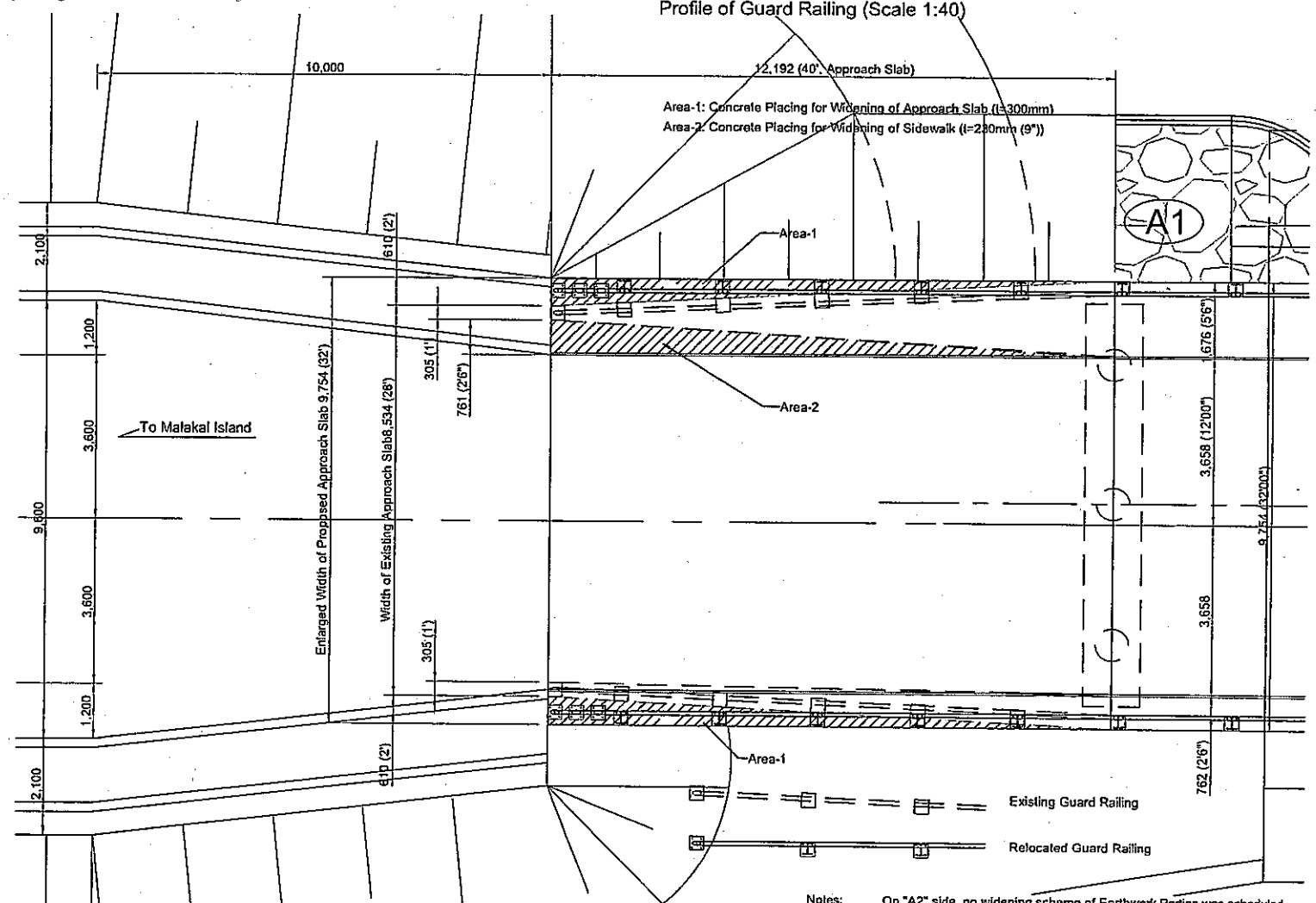
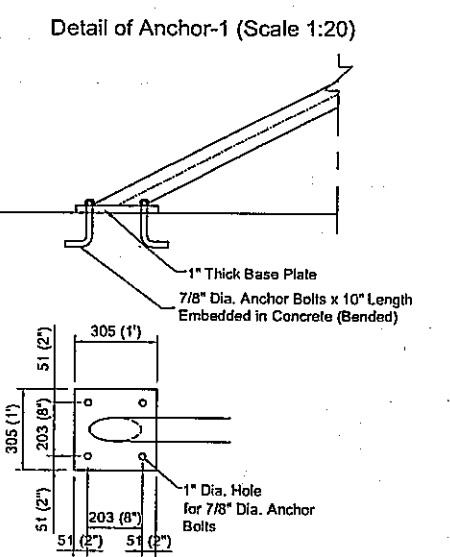
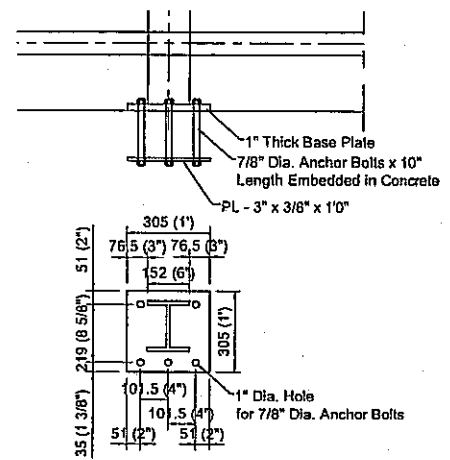
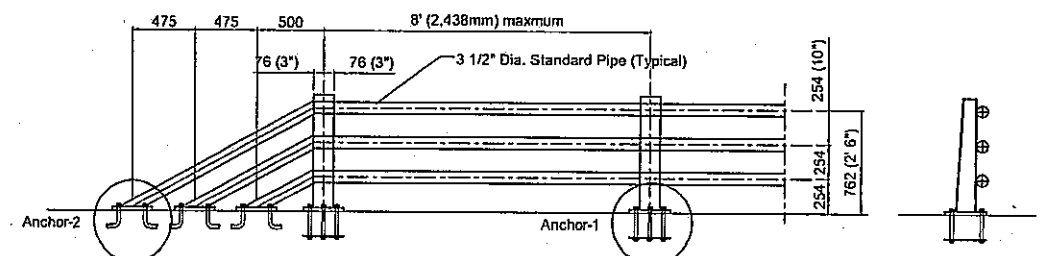
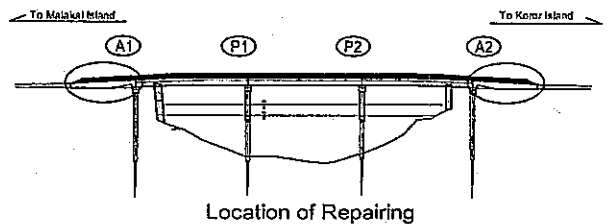


General View of FRP Covering & Anti-Collosion System (Non-Scale)

REPUBLIC OF PALAU MINISTRY OF RESOURCES AND DEVELOPMENT	THE BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT OF INTERISLAND ACCESS ROAD	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE	SCALE	DATE	SHEET NO.
			DETAIL OF REPAIRING, STEEL PIPE PILES OF PIERS (P1 & P2), MINATO BRIDGE ON MALAKAL CAUSEWAY		MARCH 2004	BR-03

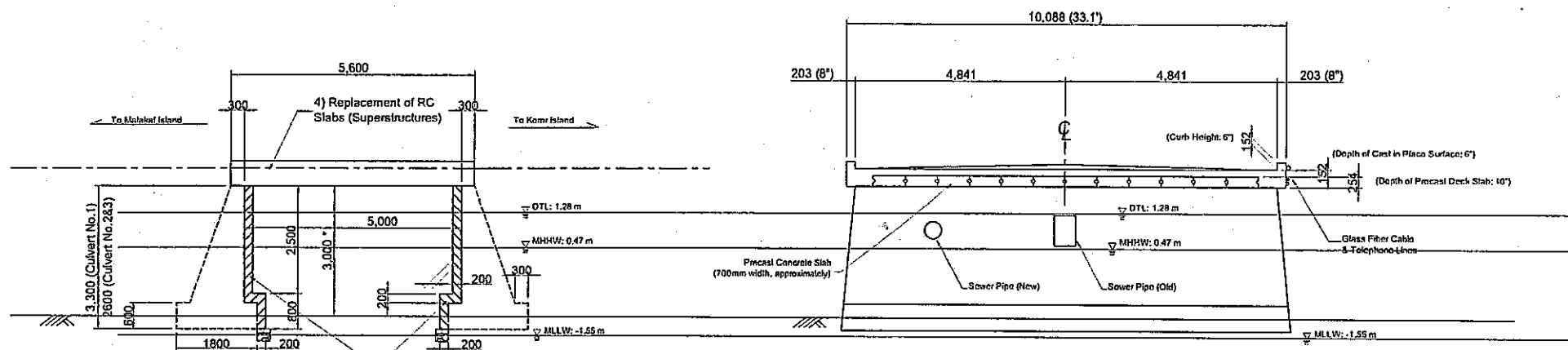


REPUBLIC OF PALAU MINISTRY OF RESOURCES AND DEVELOPMENT	THE BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT OF INTERISLAND ACCESS ROAD	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE	SCALE	DATE	SHEET NO.
			DETAIL OF REPAIRING, RETAINING WALLS, MINATO BRIDGE ON MALAKAL CAUSEWAY		MARCH 2004	BR-04

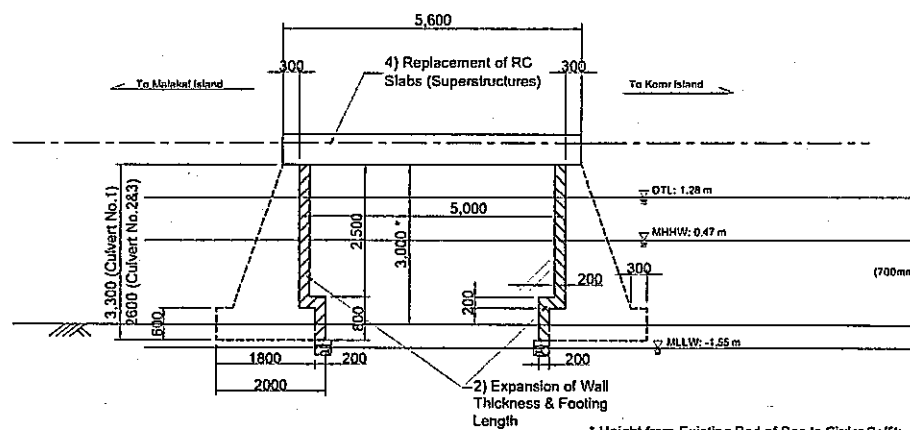


Notes: On "A2" side, no widening scheme of Earthwork Portion was scheduled, but the schemes for Guard Railing Relocation & Approach Slab Widening are same as "A1" side as shown on "Plan".

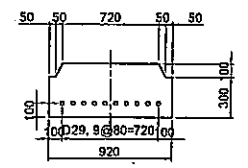
REPUBLIC OF PALAU MINISTRY OF RESOURCES AND DEVELOPMENT	THE BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT OF INTERISLAND ACCESS ROAD	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE	SCALE	DATE	SHEET NO.
			DETAIL OF REPAIRING, RELOCATION OF GUARD RAILING & WIDENING OF FOOTPATH, MINATO BRIDGE ON MALAKAL CAUSEWAY		MARCH 2004	BR-05



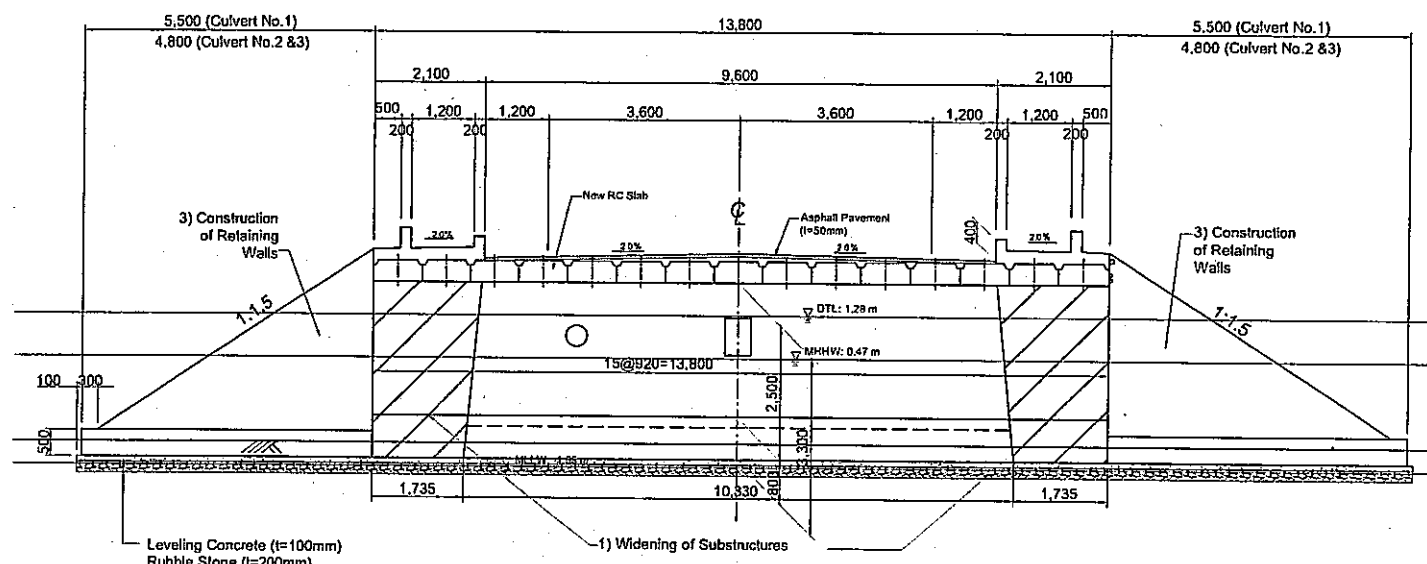
Cross Section - Existing (Scale 1:100)



Profile (Scale 1:100)

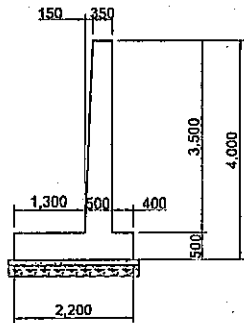


Cross Section of Slab (Scale 1:40)

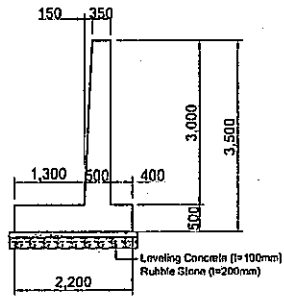


Cross Section - Proposed (Scale 1:100)

Notes: Dimensions of Existing Culverts were assumed based on the collected data & site survey.

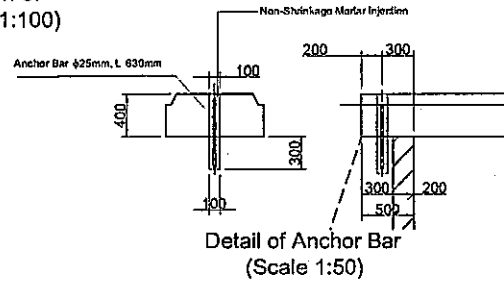


For Culvert No.1

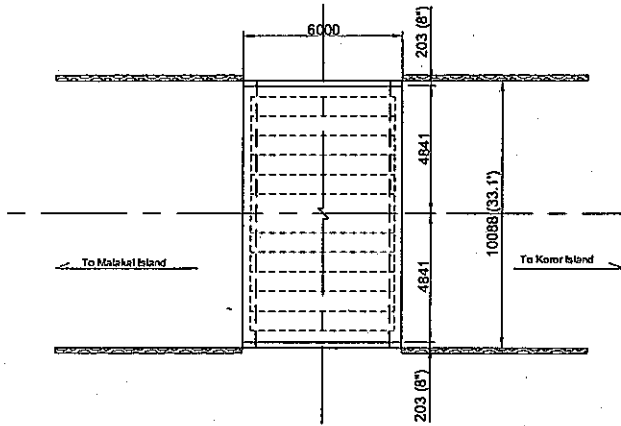


For Culvert No.2&3

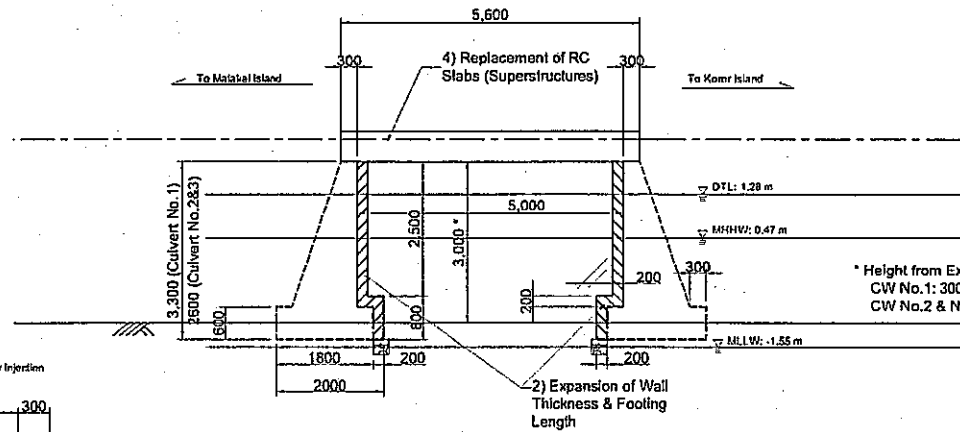
Typical Cross Section of Retaining Wall (Scale 1:100)



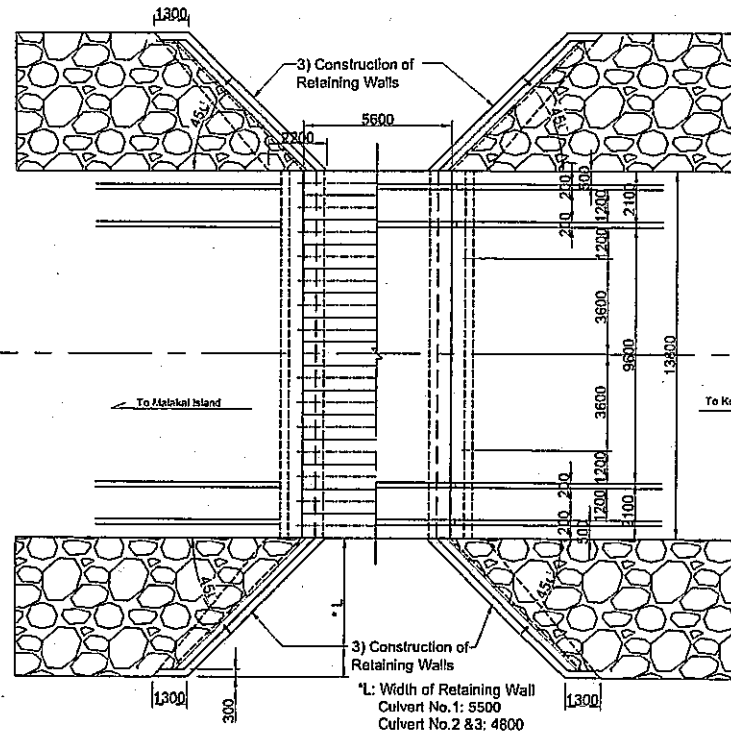
Detail of Anchor Bar (Scale 1:50)



Plan - Existing (Scale 1:200)



Profile (Scale 1:100)



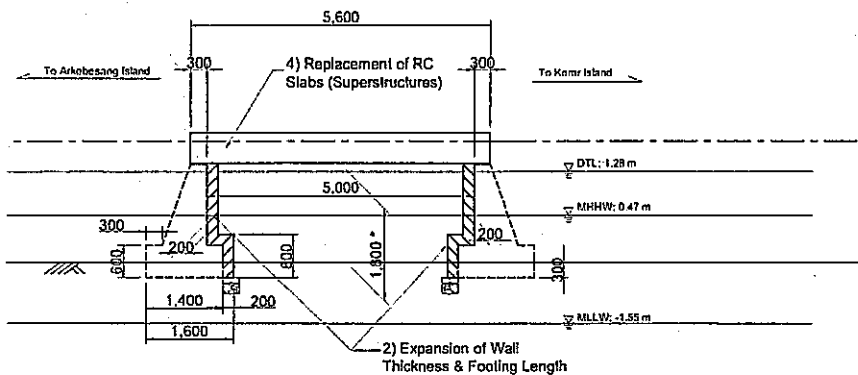
Plan - Proposed (Scale 1:200)

Finishing Grade:
 CW No.1: 2.29 (STA: 1+770)
 CW No.2: 1.83 (STA: 2+050)
 CW No.3: 2.30 (STA: 2+115)

* Height from Existing Bed of Sea to Girder Soffit:
 CW No.1: 3000
 CW No.2 & No.3: 2500

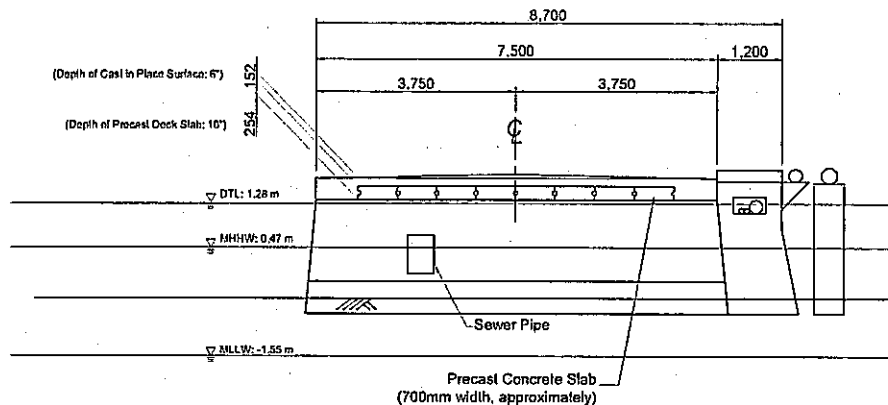
Notes: Dimensions of Existing Culverts were assumed based on the collected data & site survey.

REPUBLIC OF PALAU MINISTRY OF RESOURCES AND DEVELOPMENT	THE BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT OF INTERISLAND ACCESS ROAD	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE	SCALE	DATE	SHEET NO.
			GENERAL VIEW OF REPAIRING & WIDENING, CULVERTS ON MALAKAL CAUSEWAY (2/2)		MARCH 2004	CB-02

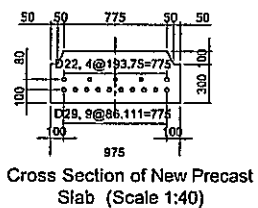


Height from Existing Bed of Sea to Girder Soffit:
CW No.1 & No.2: 1.8m

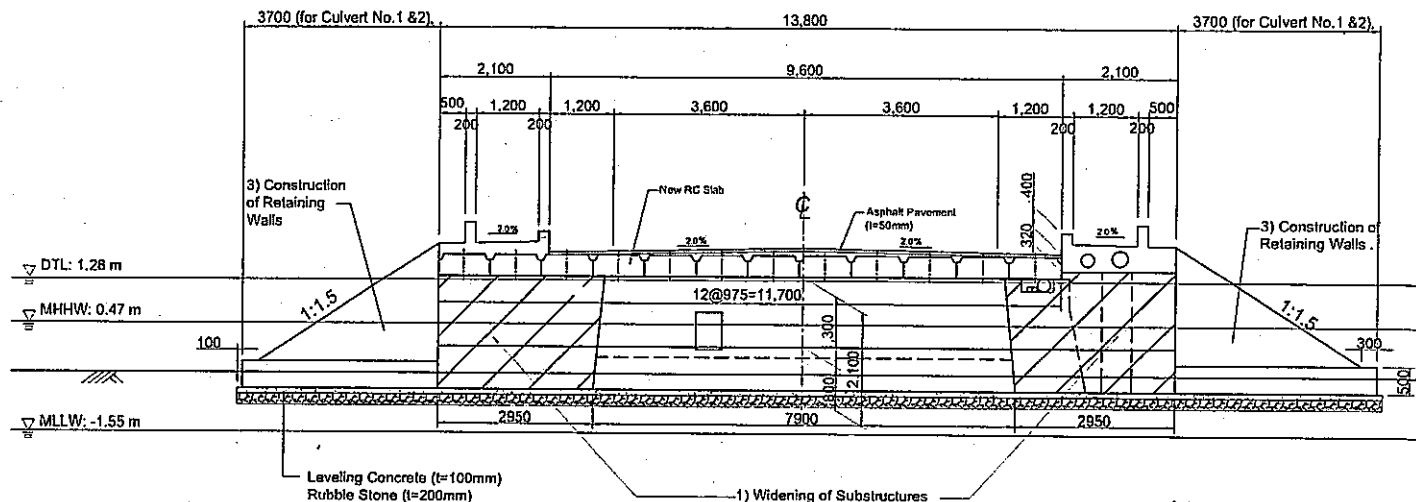
Profile at Centerline (Scale 1:100)



Cross Section - Existing (Scale 1:100)



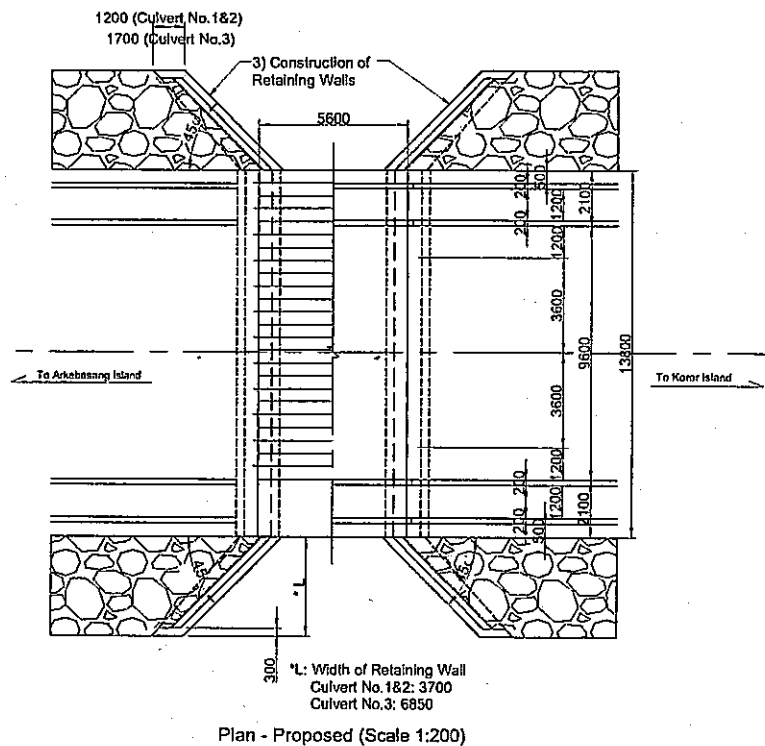
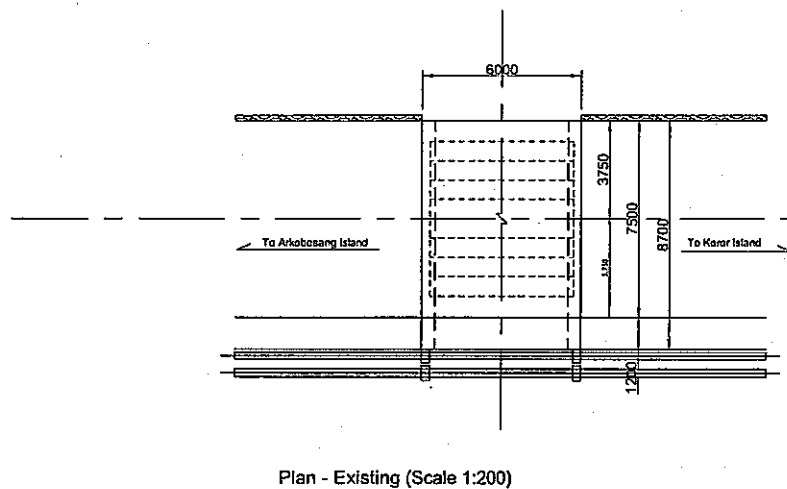
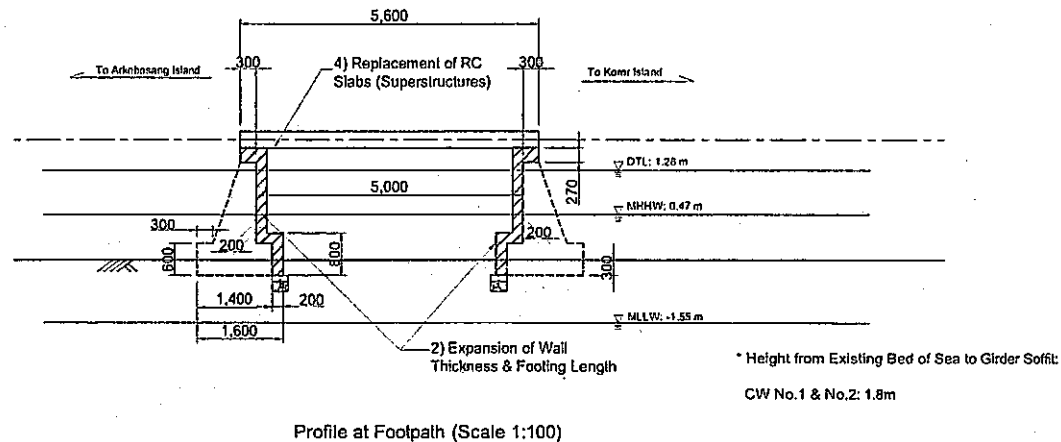
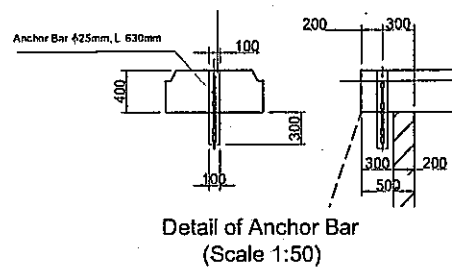
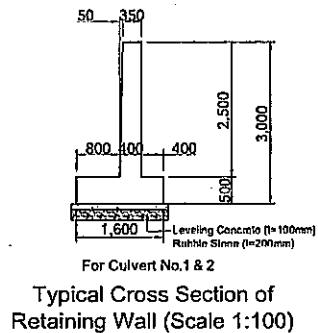
Cross Section of New Precast Slab (Scale 1:40)



Cross Section - Proposed (Scale 1:100)

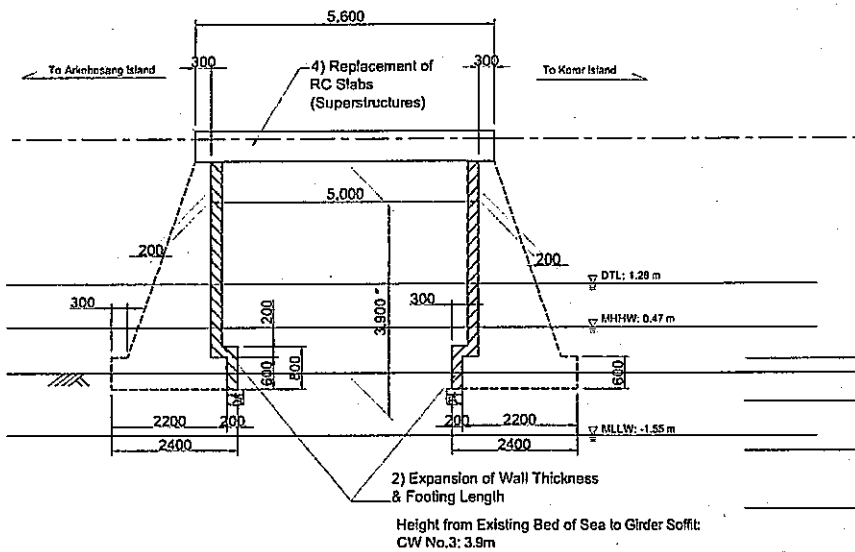
Notes: Dimensions of Existing Culverts were assumed based on the collected data & site survey.

REPUBLIC OF PALAU MINISTRY OF RESOURCES AND DEVELOPMENT	THE BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT OF INTERISLAND ACCESS ROAD	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE	SCALE	DATE	SHEET NO.
			GENERAL VIEW OF REPAIRING & WIDENING, CULVERTS ON MEYUNGS CAUSEWAY (1/2)		MARCH 2004	CB-03

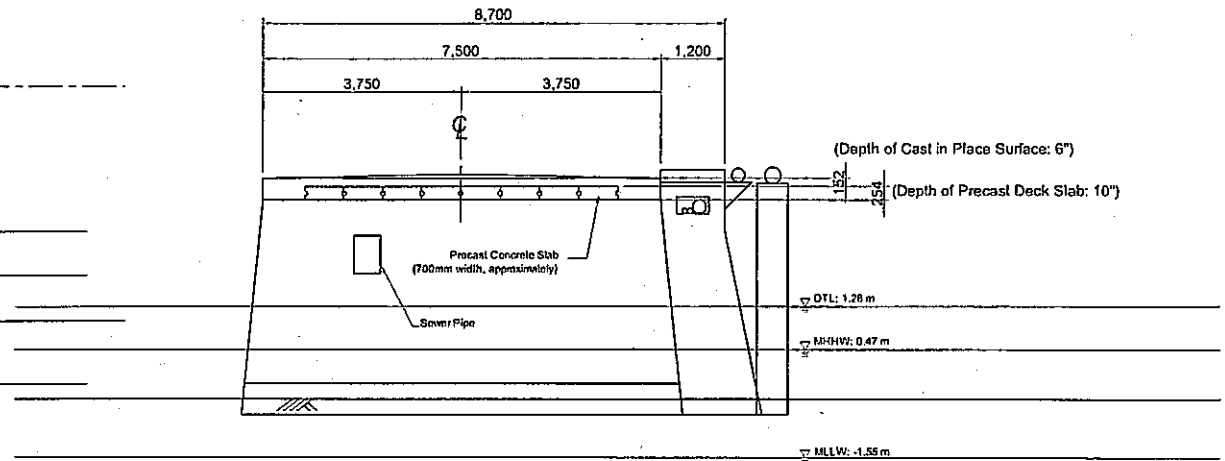


Notes: Dimensions of Existing Culverts were assumed based on the collected data & site survey.

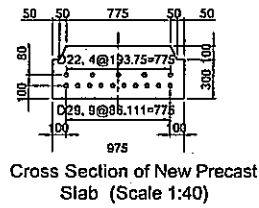
REPUBLIC OF PALAU MINISTRY OF RESOURCES AND DEVELOPMENT	THE BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT OF INTERISLAND ACCESS ROAD	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE	SCALE	DATE	SHEET NO.
			GENERAL VIEW OF REPAIRING & WIDENING, CULVERTS ON MEYUNGS CAUSEWAY (2/2)		MARCH 2004	CB-04



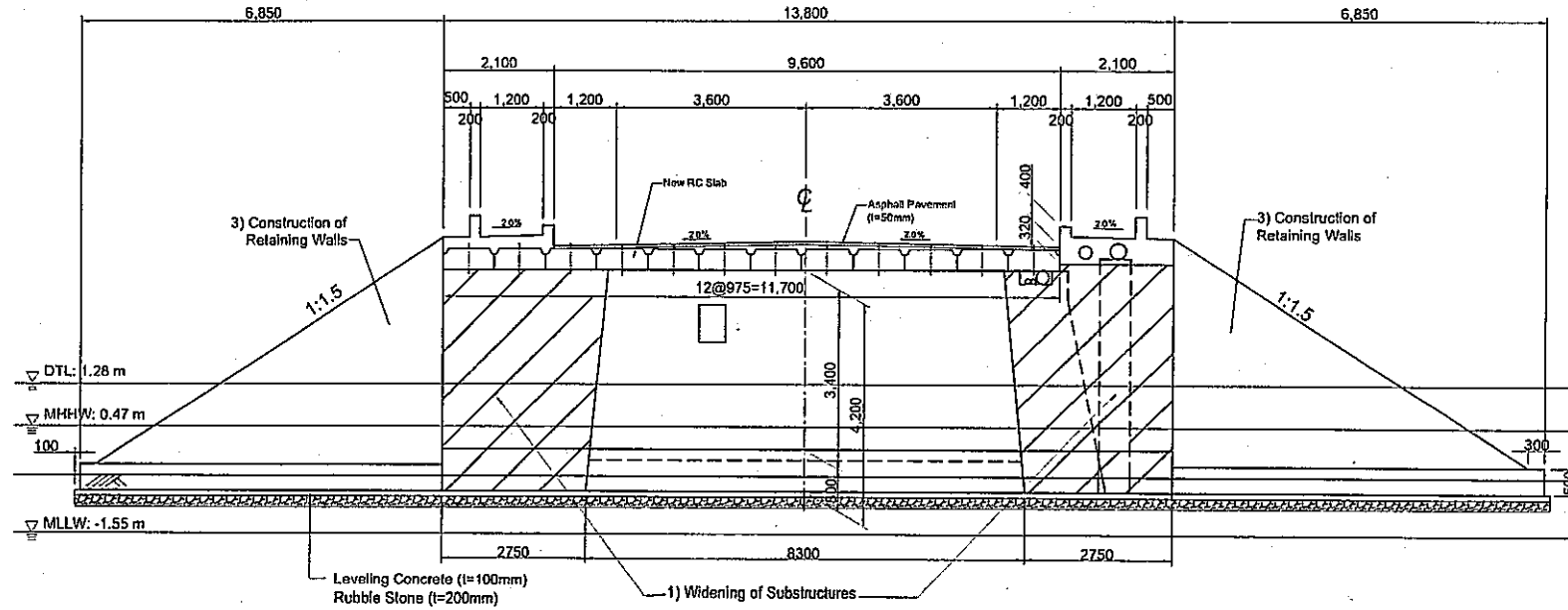
Profile at Centerline (Scale 1:100)



Cross Section - Existing (Scale 1:100)



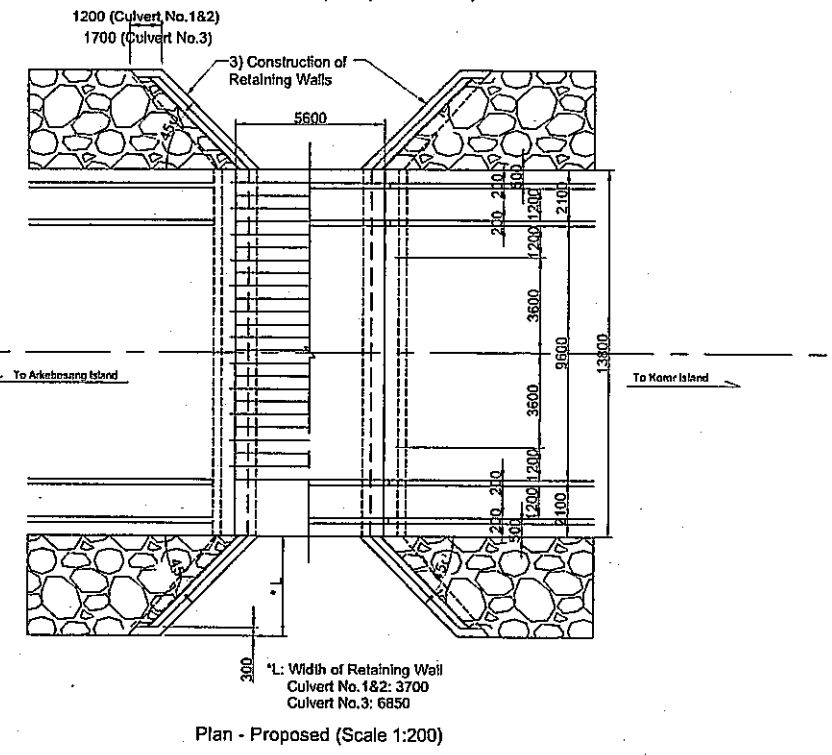
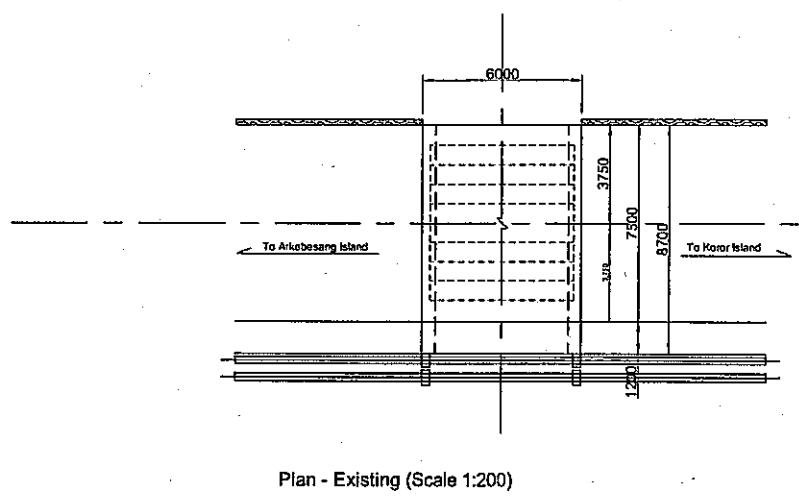
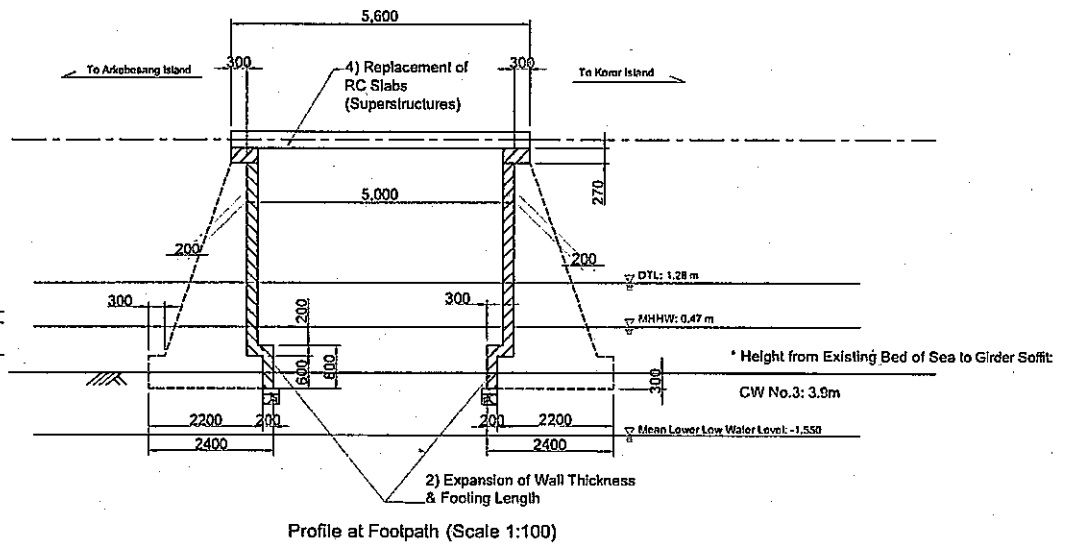
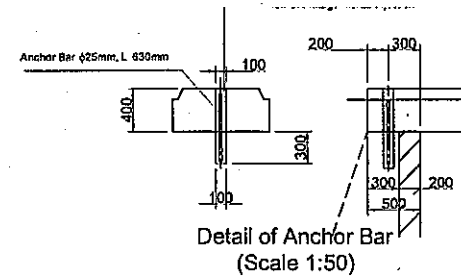
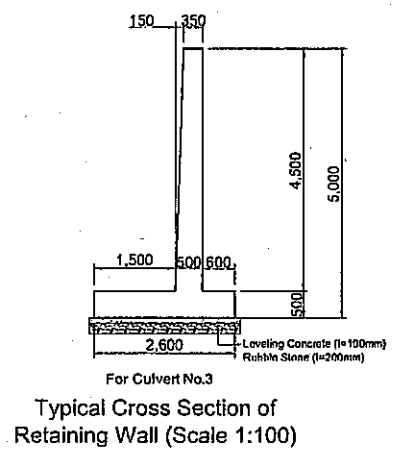
Cross Section of New Precast Slab (Scale 1:40)



Cross Section - Proposed (Scale 1:100)

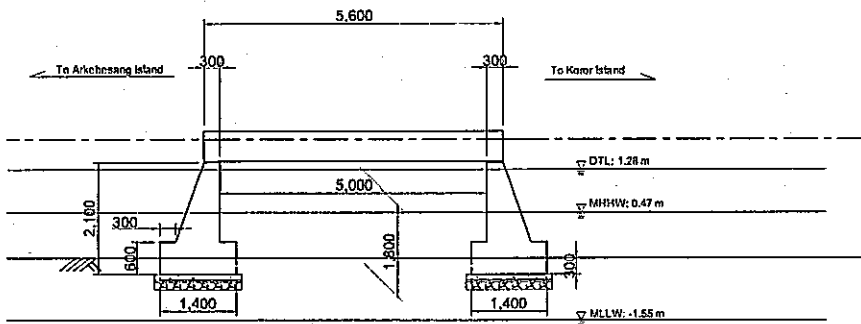
Notes: Dimensions of Existing Culverts were assumed based on the collected data & site survey.

REPUBLIC OF PALAU MINISTRY OF RESOURCES AND DEVELOPMENT	THE BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT OF INTERISLAND ACCESS ROAD	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE	SCALE	DATE	SHEET NO.
			GENERAL VIEW OF REPAIRING & WIDENING, CULVERTS ON MEYUNGS CAUSEWAY No.3 (1/2)		MARCH 2004	C8-05



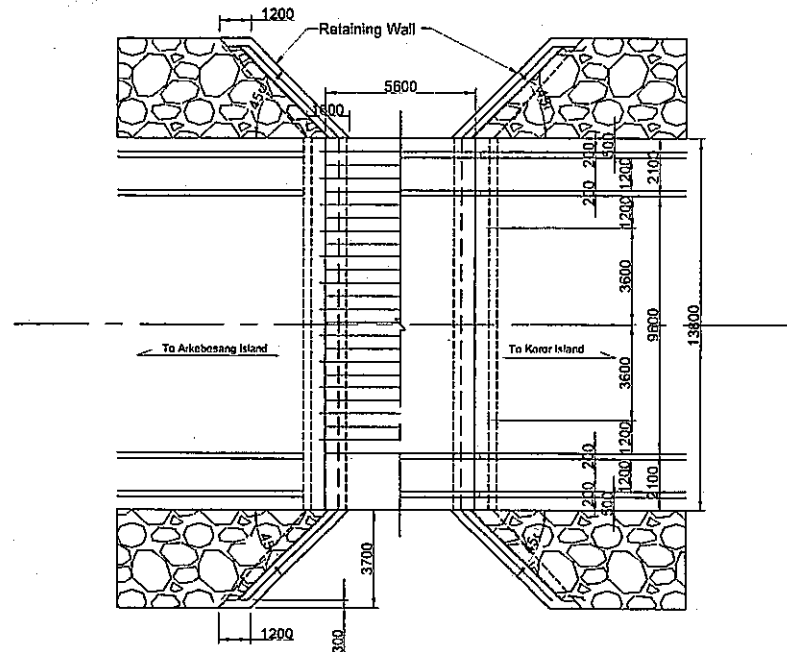
Notes: Dimensions of Existing Culverts were assumed based on the collected data & site survey.

REPUBLIC OF PALAU MINISTRY OF RESOURCES AND DEVELOPMENT	THE BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT OF INTERISLAND ACCESS ROAD	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE	SCALE	DATE	SHEET NO.
			GENERAL VIEW OF REPAIRING & WIDENING, CULVERTS ON MEYUNGS CAUSEWAY No.3 (2/2)		MARCH 2004	CB-06

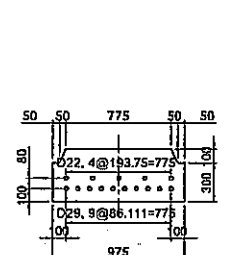


Height from Existing Bed of Sea to Gilder Soffit:
CW New-1 & New-2: 1.8m

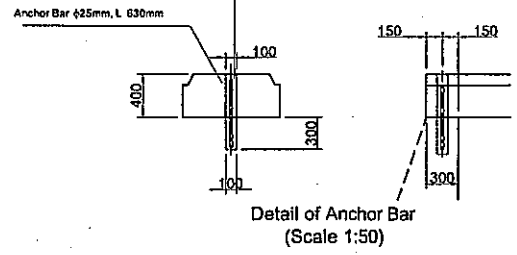
Profile at Centerline (Scale 1:100)



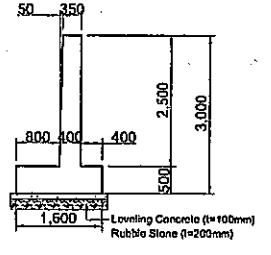
Plan (Scale 1:200)



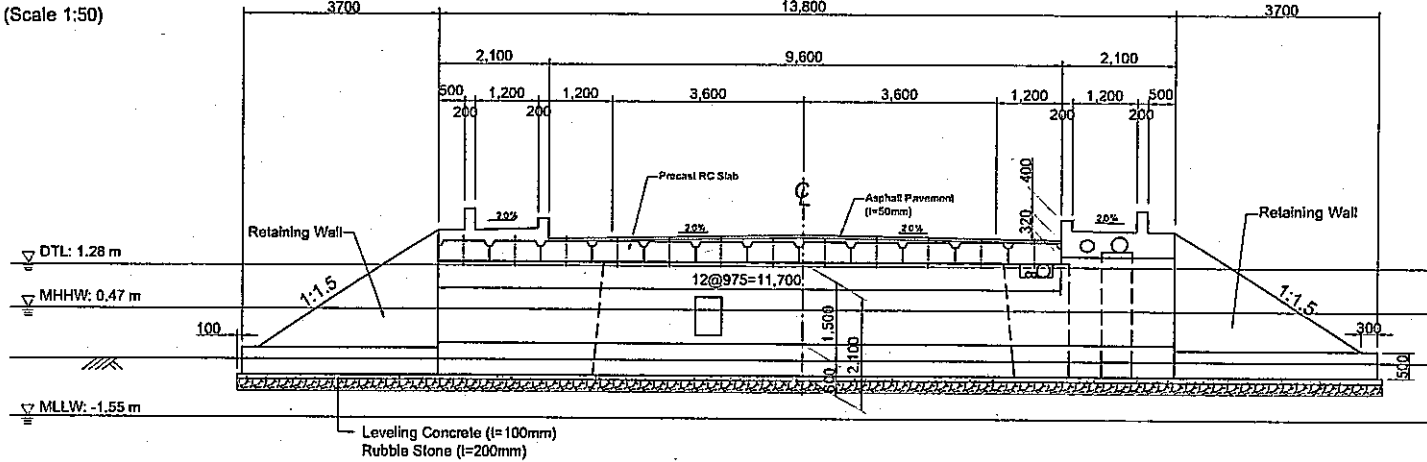
Cross Section of Precast Slab (Scale 1:40)



Detail of Anchor Bar (Scale 1:50)

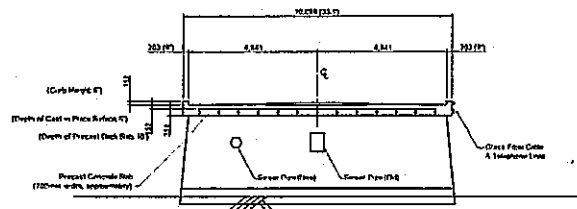


Typical Cross Section of Retaining Wall (Scale 1:100)

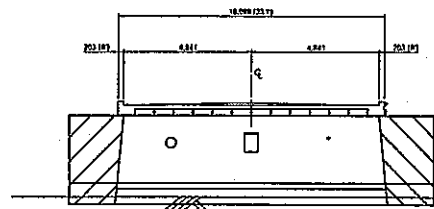


Cross Section (Scale 1:100)

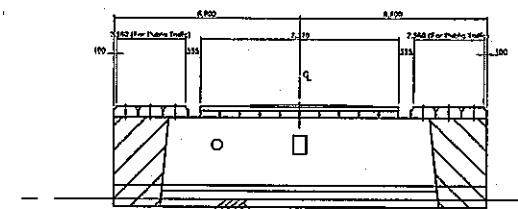
REPUBLIC OF PALAU MINISTRY OF RESOURCES AND DEVELOPMENT	THE BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT OF INTERISLAND ACCESS ROAD	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE	SCALE	DATE	SHEET NO.
			GENERAL VIEW OF NEW CULVERTS ON MEYUNGS CAUSEWAY New-1 & New-2		MARCH 2004	CB-07



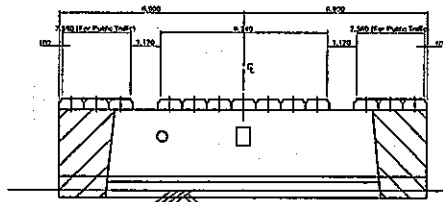
1. Existing Condition



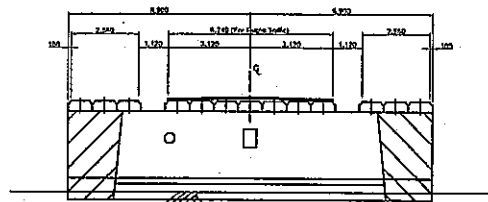
2. Widening of Both Side of Abutment Wall



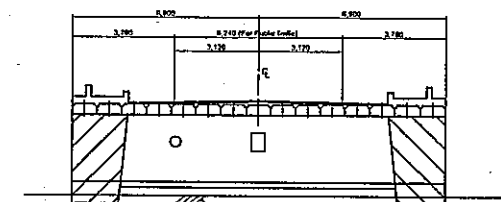
3. Removal of Existing RC Slabs & Installation of New RC Slabs at Both Edges, and Relocation of Lanes for Public Traffic



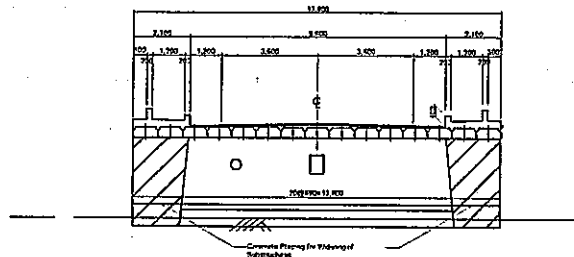
4. Removal of Existing RC Slabs & Installation of New RC Slabs at Middle Portion



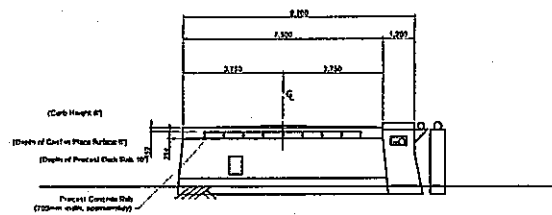
5. Surface Works on New RC Slabs at Middle Portion, and Relocation of Lanes for Public Traffic



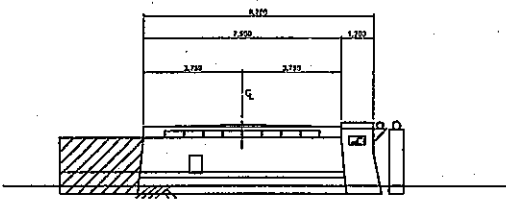
6. Installation of New RC Slabs, and Surface Works on RC Slabs on Both Sides



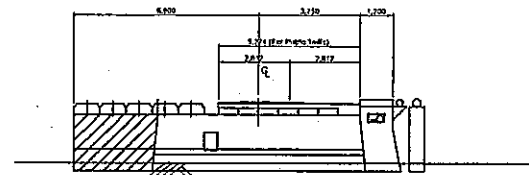
7. Completion of Construction



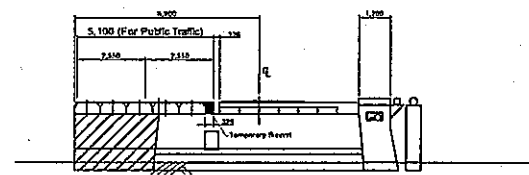
1. Existing Condition



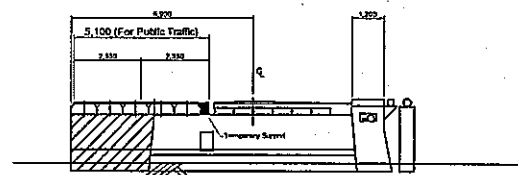
2. Widening of Left Side of Abutment Wall



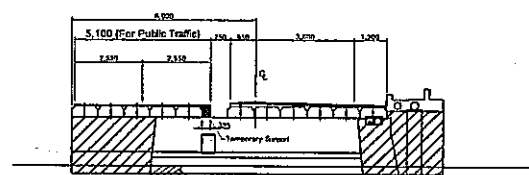
3. Removal of Existing RC Slabs & Installation of New RC Slabs at Left Side



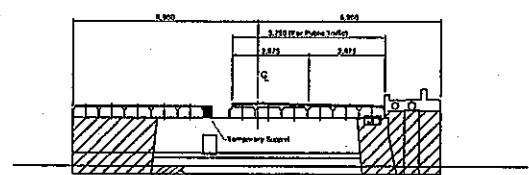
4. Installation of Temporary Pavement on New RC Slabs at Left Side



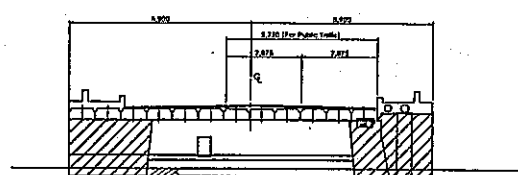
5. Widening of Right Side of Abutment Wall



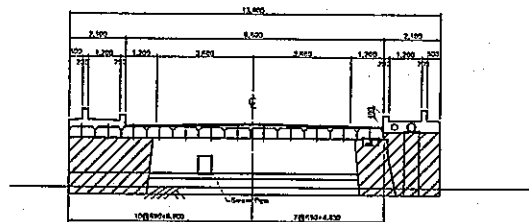
6. Removal of Existing RC Slabs, Installation of New RC Slabs & Permanent Pavement at Right Side



7. Relocation of Lanes for Public Traffic

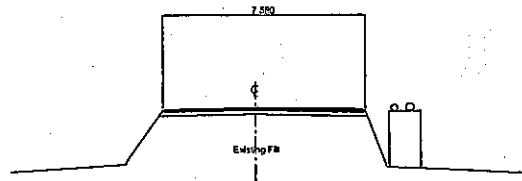


8. Installation of Permanent Pavement at Left Side

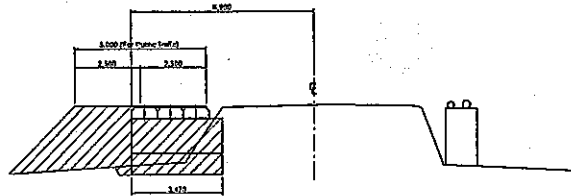


9. Completion of Construction

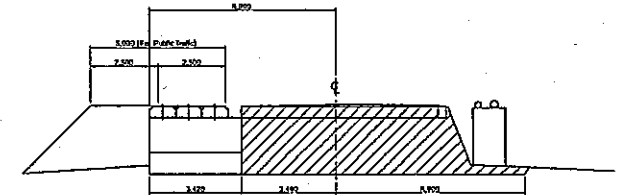
REPUBLIC OF PALAU MINISTRY OF RESOURCES AND DEVELOPMENT	THE BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT OF INTERISLAND ACCESS ROAD	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE	SCALE	DATE	SHEET NO.
			REFERENCE, CONSTRUCTION SEQUENCE OF REPAIRING & WIDENING, CULVERTS ON MEYUNGS CAUSEWAY (1/2)		MARCH 2004	CB-09



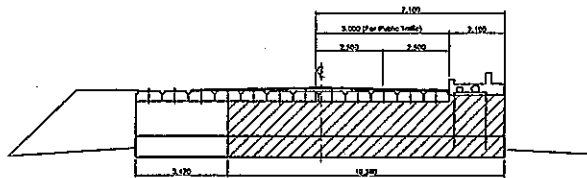
1. Existing Condition



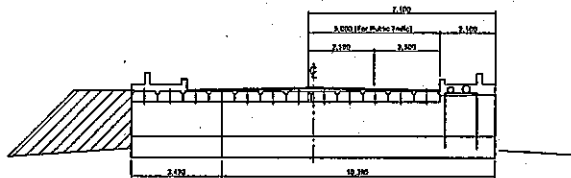
2. Excavation & Construction of Abutment Wall at Left Side, Installation of RC Slabs at Left Side, Temporary Filling at Left Side of Abutment Wall, and Relocation of Lanes for Public Traffic



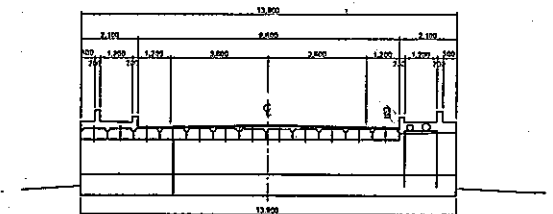
3. Excavation for Abutment at Right Side



4. Construction of Abutment, Installation of RC Slabs at Right Side, Surface Works on RC Slabs, and Relocation of Lanes for Public Traffic



5. Installation of Footpath at Left Side, Removal of Temporary Filling at Left Side of Abutment



6. Completion of Construction

<p>REPUBLIC OF PALAU MINISTRY OF RESOURCES AND DEVELOPMENT</p>	<p>THE BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT OF INTERISLAND ACCESS ROAD</p>	<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	<p>TITLE REFERENCE, CONSTRUCTION SEQUENCE OF REPAIRING & WIDENING, CULVERTS ON MEYUNGS CAUSEWAY(2/2)</p>	<p>SCALE</p>	<p>DATE MARCH 2004</p>	<p>SHEET NO. CB-10</p>
--	---	---	--	--------------	--------------------------------	----------------------------