

4. 調査スケジュール(案)

[illegible]

※ M/M のスケジュールと比べ、測定の現地捕促作業と材料調査の期間を延長している。

Work in Papua New Guinea

Work in Japan

付 録

1. コンタクトミッション

1-1 Minutes of Meeting

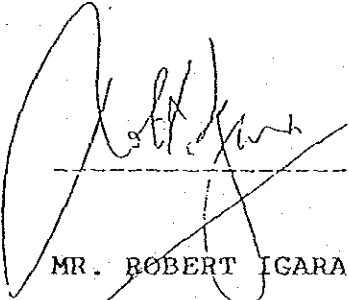
1-2 対 処 方 針

1 - 1 Minutes of Meeting

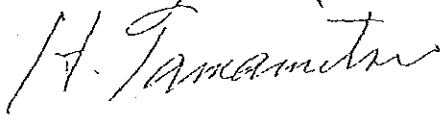
MINUTES OF MEETING
FOR
THE DETAILED DESIGN
ON
ROAD CONSTRUCTION PROJECT
IN
BEREINA - MALALAU
BETWEEN
OFFICIALS OF THE GOVERNMENT OF PAPUA NEW GUINEA
AND
THE JAPAN INTERNATIONAL COOPERATION AGENCY

PORT MORESBY

16TH April, 1987



MR. ROBERT IGARA
First Assistant Secretary
Foreign Aid Management Division
DEPARTMENT OF FINANCE AND PLANNING
on behalf of
THE GOVERNMENT OF
PAPUA NEW GUINEA



MR. HIROAKI TAMAMITSU
LEADER OF THE CONTACT
MISSION,
on behalf of
THE JAPAN INTERNATIONAL
COOPERATION AGENCY

MINUTES OF MEETING

The Japanese Contact Mission (hereinafter referred to as "the Mission") sent by the Japan International Cooperation Agency, headed by Mr H. Tamamitsu, visited Papua New Guinea from April 8 to April 17, 1987 for the purpose of discussion for the Study of the Detailed Design for the proposed Bereina-Malalaua Road (hereinafter referred to as "the Study").

The Mission had a series of discussions with representatives from the Department of Finance and Planning (hereinafter referred to as "DOFP") and other departments concerned, and carried out a field survey in the study area.

Through these discussions, both sides have confirmed the Terms of Reference for the Study requested by the Government of Papua New Guinea as is attached in Annex 1.

The main items of mutual understanding in addition to the Terms of Reference are attached in Annex 2.

Attendance lists of both sides are attached in Annex 3.

ANNEX 1

TERMS OF REFERENCE

FOR

THE DETAILED DESIGN

ON

ROAD CONSTRUCTION PROJECT

IN

BEREINA - MALALAU

DISCUSSED AND CONFIRMED

BETWEEN

DEPARTMENT OF WORKS AS THE EXECUTING AGENCY
ON BEHALF OF THE GOVERNMENT OF PAPUA NEW GUINEA

AND

THE

CONTACT MISSION
ON BEHALF OF THE JAPAN INTERNATIONAL COOPERATION AGENCY

I. OBJECTIVE OF THE STUDY

The objective of the Study is to prepare the detailed design and tender documents for the construction of the proposed BEREINA-MALALAUUA Road Project (hereinafter referred to as "the Project").

II. STUDY ORGANIZATION

1. A Steering Group will be organized under the Chairmanship of the Secretary of DOFP or his delegate and will be responsible for the overall administration and coordination of the progress of the Study. The Departments of Transport, Works, Lands and other relevant agencies will participate in the Steering Group.
2. DOW will be the Executing Agency for the technical coordination of the study and be responsible for the results of the execution of the project on the basis of the detailed design submitted and tender documents prepared by the Japan International Cooperation Agency (hereinafter referred to as "JICA").

III. STUDY AREA

The study area, as shown in the attached Map (Attachment 1) includes the proposed road of approximately 80 km connecting Bereina in Central Province and Malalaua in Gulf Province, which constitutes part of the Trans Island Highway.

IV. SCOPE OF THE STUDY

In order to cover the objective, the Study shall cover the following items.:

1. Review of the existing studies in relation with the Project with special reference to engineering and financial aspects.

2. Engineering Study -

(1) Topographical Study

- a) Control point survey 18 points
- b) Leveling from tidal observation point 50 km (3 routes)
- c) Tidal observation 3 points
- d) Photo signal 18 points
- e) Aerial photography 1/5000 (100 km)
- f) Mapping

- . Topographical map 1/1000
- . Cross section drawing 1/1000 (interval 50 m)

- . Bridge site topographical map 1/500

g) River channel cross section survey at bridge sites.

(2) Route Study

Determination of the center line on map.

(3) Soil and geological survey.

- a) Boring for soil test at bridge sites
(two 2) bores for each of (seven 7) bridge sites.

(4) Material survey

- a) Reconnaissance for borrow pits, quarries and other material sources
- b) Test of material samples

(5) Determination of the construction method including site access and procurement method.

(6) Hydraulic analysis

- a) Review of the flood study
- b) Study on the behaviour of flood water in the swamp area.

(7) Preparation of Engineering Report

3. Detailed design

(1) Preparation of drawings

- a) Bridge construction
- b) Bridge superstructure
- c) Embankment and pavement
- d) Drainage works
- e) Other facilities

(2) Preparation of Cost estimate

(3) Preparation of Draft Implementation Programme

(4) Preparation of Tender Documents

(5) Recommendations

V. SCHEDULE OF THE STUDY

The study will be completed within Twenty seven (27) months after the submission of the Inception Report.

The detail will be dependant upon further discussion.

IV. REPORTS

JICA will prepare and submit the following reports in English to the government of Papua New Guinea.

1. Inception Report

Thirty (30) copies at the beginning of field survey.

2. Monthly Progress Report

Ten (10) copies in the course of the Study period.

3. Interim Report

Thirty (30) copies.

4. Draft Final Report

Thirty (30) copies.

5. Final Report

Fifty (50) copies after receiving written comments on the Draft Final Report from the Government of Papua New Guinea.

The comments made by the authorities concerned of Papua New Guinea shall be submitted to JICA within four (4) weeks after explanation of the Draft Final Report.

VII. UNDERTAKING OF THE GOVERNMENT OF PAPUA NEW GUINEA

1. To facilitate smooth conduct of the Study, the Government of Papua New Guinea shall take necessary measures:
 - (1) to secure the safety of the Study Team;
 - (2) to permit the members of the Japanese Study Team to enter, leave and sojourn in Papua New Guinea for the duration of their assignment therein, and exempt them from alien registration requirement (and consular fees);
 - (3) to exempt the members of the Japanese Study Team from taxes, duties and other charges on equipment, machinery and other materials brought into Papua New Guinea for the implementation of the Study;
 - (4) to exempt the members of the Japanese Study team from income tax and other charges of any kind imposed on or in connection with any emolument or allowance paid to the members of the Japanese Study Team for their services in connection with the implementation of the Study;
 - (5) to provide necessary facilities to the Japanese study Team for remittance as well as utilization of the funds introduced into Papua New Guinea from Japan in connection with the implementation of the Study;
 - (6) to secure permission for entry into private properties or restricted areas for the conduct of the Study;

- (7) to secure permission for the Japanese Study Team to take all data and documents (including photographs) to Japan, as necessary for analysis during the implementation of the Study;
 - (8) to provide medical services as needed. Its expenses will be chargeable on the members of the Japanese Study Team.
- 2. The Government of Papua New Guinea shall bear claims, if any arises against the members of the Japanese Study Team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or wilful misconduct on the part of the members of the Japanese Study Team.
 - 3. DOW shall act as counterpart agency to the Japanese Study Team under the coordination of the Steering Group for the smooth implementation of the Study.
 - 4. The Government of PNG through DOW as the Executing Agency shall, at its own expense, provide the Japanese Study Team with the following, in cooperation with other organizations concerned:
 - (1) available data and information related to the Study;
 - (2) counterpart personnel;
 - (3) suitable office space with necessary equipment in Port Moresby and Project sites;
 - (4) credentials or identification cards.

VIII. UNDERTAKING OF JICA

For the implementation of the Study, the JICA shall take the following measures :

1. to dispatch, at its own expense, the Study Team to Papua New Guinea;
2. to pursue technology transfer to the Papua New Guinean counterpart personnel in the course of the Study;
3. to provide equipment and machinery for the implementation of the Study, which will remain the property of JICA unless otherwise agreed upon.

IX. MUTUAL CONSULTATION

JICA and DOW shall consult with each other in respect of any matter that is not agreed upon in this document and which may arise from or in connection with the Study.

ANNEX 2

1. The specifications for the road will be in accordance with the Dept. of Works Road Design Manual, April 1985 Part 2: Rural Roads Table 2 (i) and 2 (ii).
2. Both sides agreed that the Study shall be commenced as early as possible.
3. The PNG side will be responsible for the surveys for land acquisition as well as land ownership related with the Project. Any issue arising in connection with the land acquisition should be solved by the relevant organizations of the PNG Government. The right of way on the sites necessary for Topographical, Soil and Geological surveys should be secured by the PNG side well in advance of the actual commencement of the surveys.
4. The Japanese side pointed out the necessity of the provision for a headquarter office in DOW HQ in Port Moresby and a site office, together with accommodation in Bereina.
5. It is agreed that the PNG counterpart personnel will accompany the Study Team and the PNG side will secure permission for the use of wireless communications equipment during the field surveys.
6. The Japanese side will inform the PNG side as soon as possible of the numbers, capabilities and fields of necessary PNG counterpart personnel for the Study.
7. In order to accumulate the data of the flood situation, the PNG side will set up three staff gauges at the proposed bridge sites on the Lakekamu, Tauri and Miaru Rivers.

ANNEX 3

PARTICIPANT LIST

REPRESENTATIVES OF THE GOVERNMENT OF PAPUA NEW GUINEA

A. TEMU	Secretary	Dept. of Works
M. SHARP	FAS, Operations	"
M. JAMES	Exec. Eng. roads	"
R. JONES	Principal Eng. Roads & Bridges	"
W. MARAHARI	Exec. Eng. Bridges	"
K. McCONNELL	Principal Survey	"
A. SMALLER	Principal Eng. (Des. Ser)	"
H. PARAKEI	FAS, Policy & Planning	Dept. of Transport
F. MIRO	FAS, Development Cooperation Division	Dept. of Foreign Affairs
G. DUSAVA	AS, Mutual Assistance Branch	"
S. ABAL	Mutual Assistance Branch	"
R. NAKOT	Mutual Assistance Branch	"
R. IGARA	FAS, Foreign Aid Management Division	Dept. of Finance and Planning
F. WILLIAME (Ms)	AS, Bilateral Programmes Branch, Foreign Aid Management Division	"
G. PARU	Senior Programmes Officer Foreign Aid Management Division	"

MEMBER LIST OF CONTACT MISSION

FOR

DETAILED DESIGN OF BEREINA-MALALAU ROAD

<u>Assignment</u>	<u>Name</u>	<u>Status</u>
Leader	Mr Hiroaki Tamamitsu	Executive Director, Japan International Cooperation Agency.
Member Cooperation Policy	Mr Takao Shibata	Deputy Director, Development Cooperation Division, Economic Cooperation Bureau, Ministry of Foreign Affairs
Member Road and Bridge	Mr Yorio Murakami	Executive Director, Technology Research Center for National Land Development
Member Survey	Mr Kenji Chujo	Technical Management Survey Guidance Division, Planning Department, Geographical Survey Institute, Ministry of Construction

Member
Hydraulics

Mr Hiroaki Sato

Director, Design
Division, Miyagase
Dam Work Office,
Ministry of
Construction

Member
Soil and Geology

Mr Takao Nishio

Deputy Director,
Geological Survey
Division,
FUKKEN Co. Ltd.

Member
Economics

Mr Yoichi Suzuki

Specialist,
Development Planning,
Institute for
International
Cooperation, Japan
International
Cooperation Agency

Member
Coordination

Mr Takeshi Nakano

Deputy Head,
First Development
Survey Division,
Social Development
Cooperation
Department, Japan

Mr K. Nakano

Director, PNG JICA
Office

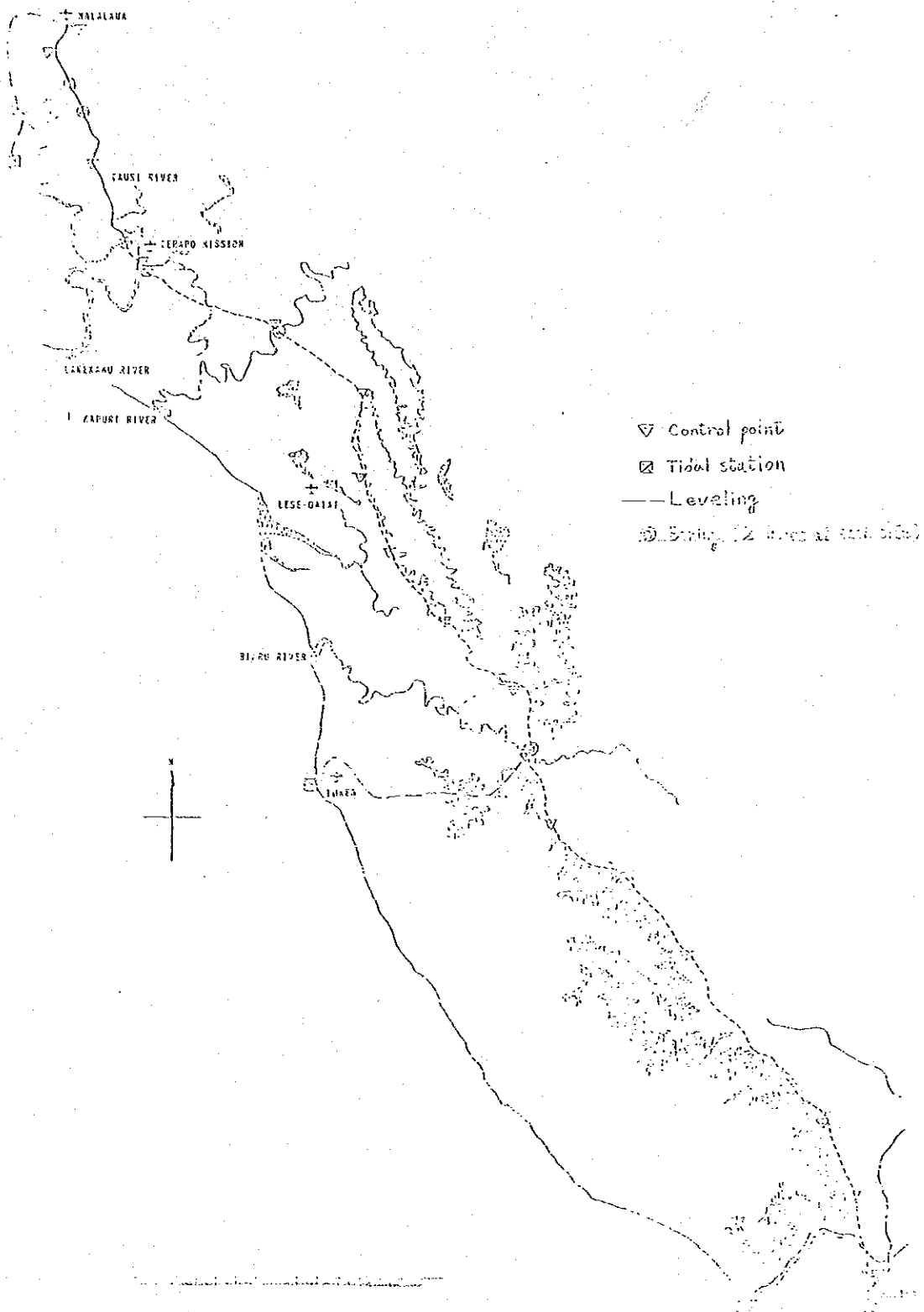
Mr Obata

Third Secretary,
Embassy of Japan

Mr Watanabe

Third Secretary,
Embassy of Japan

ATTACHMENT I.



1-2 对 处 方 针

項	目	対 処 方 針	備 考
1	要請内容の確認について	本件 Mission から S/W の Sample を PNG 側に提示し S/W に記されるべき主要項目について相互に確認合意した内容を M/M に記すこととする。 (本件 Mission から PNG 側に対し T/R の提出は求めない。)	
2	本格調査の目的と範囲について	日本側としては Detailed Design 調査と Tender Documents の作成及び implementation Program の Draft の作成までを考えるが、PNG 側に確認する。	
3	PNG 側の実施機関の確認について	これまでの情報では Dept of Transports (DOT) になるものと考えられる。必要に応じて Dept of Works (DOW) 等関係機関の参画を得て Steering Committee の設置を求めることとする。	
4	瑕疵担保責任の免除について	"The Government of Papua New Guinea will be responsible for the execution of the Project on the basis of the detailed design submitted by JICA and reviewed and agreed to by the relevant Agency-(ies) in Papua New Guinea" の文言を今回 M/M 及び S/W の中に明記して確認する。 既に口上書による確認はあるも、実施機関の間での確認として行うこととする。	10, Feb 87 PNG 発 大使館宛口上書により 確認済。 左は同口上書中の文言。
5	調査対象地域について	ペレインナーマラウア間の約 80 km。M/M の中では文言で確認するとともに必要に応じて M/M に地図を添付することとする。	

項 目	対 処 方 針	備 考
6 本格調査の調査項目について	<p>本格調査の目的と範囲により決定することとするが、とりあえず次の構成とする。</p> <ol style="list-style-type: none"> 1. 技術面及び財務面（費用面）を中心に関連調査の Review を行う。 2. 技術調査（路線、測量、土質、材料、工法、水文、環境等） 3. 詳細設計 <ol style="list-style-type: none"> (1) 設計図書の作成 (2) 複線図書の作成 (3) 事業実施計画（案）の作成 4. 入札図書の作成 	<p>社会経済分析は必要最小限とする。</p> <p>(DOW DOT) PNG 側は入札は PNG 政府の権限であり、入札図書は自分で作成するとしている。</p>
7 本格調査の期間について	<p>PNG 側他現地関係者の意見を参考に協議する。</p> <p>当方として、少くとも起码 2 回を含む調査が必要との方針で対応する。</p>	
8 本格調査のための PNG 側実施事項 (Undertaking) について	<p>標準事項を基本とするも本件の特殊性に配慮 1 つつ協議する。</p> <p>（特に）</p> <ol style="list-style-type: none"> 1. 調査用員の安全の確保 2. 現地踏査の許可 3. 資料の提供（コンカル関係を含む） 4. C/P の提供 5. 本部及びプロジェクト現場事務所の設置提供 6. 政府関係機関保有の機材の提供等 	
9 各分野の調査方針及び内容について (1) 道筋／橋梁分野	<ol style="list-style-type: none"> (1) ① Road Plan Document (1981 年) による路線を基本に中心線を設定する。 ② Bailey 橋 (Truss 橋上部構) 及び鋼カルバート (コルゲート) の採用。 ③ 渡河地点については、地質土質の再調査の結果に基づき決定する。 	

項	目	対 処 方 針	備 考
(2) 水文分野		<p>DOT DOW他関係者と工事計画、工費側面、工期等につきこれまでの事例も含め、協議調査する。</p> <p>(2) ① 設計対象確率年については、PNG側と協議する。 ② 水位観測施設の設置及び早期観測開始をPNG側に要請する。 水文関係機関と、観測体制、観測箇所、既存データを含み協議、調査する。</p>	
(3) 測量分野		(2) National Mapping BeureauとDWSのSurvey Sectionを中心に資料収集と事務聴取等調査する。	
(4) 土質分野		<p>(4) DOT DOW他関係機関と次の項目について調査する。</p> <p>① 地質図及びボーリングデータ（本件計画区間） ② 軟弱地盤の例、研究文献、土質試験結果等 ③ ボーリング会社、土質試験所の訪問及び聞き取り。 ④ 機材搬入方法等の検討。他</p>	
(5) 経済・社会分野		<p>(5) ① Road Plan Document (1981年)の工費概算の調査。 ② これまでの道路工事等事例の調査。 ③ 道路計画地域の土地所有権及び土地利用状況の調査。 ④ 環境調査に関する規制及び事例の調査。他 （環境調査についてはその内容及び範囲を制限して対応する。）</p>	

2 事前調査

2-1 Scope of Work

2-2 Minutes of Meeting

2-3 対処方針

2-4 Scope of Work (Draft)

2 - 1 S c o p e o f W o r k

SCOPE OF WORK
FOR
THE DETAILED DESIGN
ON
ROAD CONSTRUCTION PROJECT
IN
BEREINA-MALALAU
AGREED UPON BETWEEN
OFFICIALS OF THE GOVERNMENT OF PAPUA NEW GUINEA
AND
OFFICIALS OF THE JAPAN INTERNATIONAL COOPERATION AGENCY

PORT MORESBY

24 TH June, 1987



MR ROBERT ICARA

FIRST ASSISTANT SECRETARY

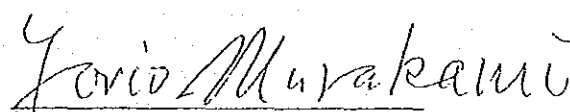
FOREIGN AID MANAGEMENT DIVISION

DEPARTMENT OF FINANCE AND PLANNING

on behalf of

THE GOVERNMENT OF

PAPUA NEW GUINEA



MR YORIO MURAKAMI

LEADER OF THE PRELIMINARY

STUDY TEAM

on behalf of

THE JAPAN INTERNATIONAL

COOPERATION AGENCY

I. INTRODUCTION

In response to the request of the Government of Papua New Guinea, the Government of Japan decided to implement the Detailed Design on Road Construction project in Bereina-Malalaua (hereinafter referred to as "the Study"), in accordance with the relevant laws and regulations in force in Japan.

The Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programmes of the Government of Japan, will undertake the Study in close cooperation with the authorities of the Government of Papua New Guinea.

The present document sets forth the Scope of Work for the Study.

II. OBJECTIVE OF THE STUDY

The objective of the study is to prepare the detailed design and tender documents for the construction of the proposed BEREINA-MALALAUA Road Project.

III. STUDY ORGANIZATION

1. A Steering Group will be organized under the Chairmanship of the Secretary of the Department of Finance and Planning (hereinafter referred to as DOFP) or his delegate and will be responsible on the PNG side for the overall administration and co-ordination of the progress of the Study. The Departments of Transport, Works, Lands, Provincial Affairs and other relevant agencies will participate in the Steering Group.
2. Department of Works (hereinafter referred to as DOW) will be the Executing Agency for the technical co-ordination of the study on the PNG side and be responsible for the results of the execution of the project on the basis of the detailed design submitted and tender documents prepared by JICA.

IV. STUDY AREA

The study area, as shown in the attached Map (Attachment 1) includes the proposed road of approximately 80km connecting Bereina in Central Province and Malalaua in Gulf Province, which constitutes part of the Trans Island Highway.

V. SCOPE OF THE STUDY

In order to cover the objective, the Study shall cover the following items:

1. Review of the existing studies in relation with the Project with special reference to engineering and financial aspects.

2. Engineering Study will consist of the following:-

(1) Topographical Study will be carried out to the Survey Standard shown in Annex I

- a) Control point survey 18 points
- b) Leveling from tidal observation point 50 km (3 routes)
- c) Tidal observation 3 points
- d) Photo Signal 18 points
- e) Aerial Photography 1/5000 (100 km)
- f) Mapping
 - Topographical map 1/1000
 - Cross section drawing 1/1000 (interval 50 m)
 - Bridge site topographical map 1/500

g) River channel cross section survey at bridge sites.

(2) Route Study

- a) Determination of the center line on map.

(3) Geotechnical Investigation

- a) Boring for soil test at bridge sites will consist of at least (two 2) bores for each of (seven 7) bridge sites.

(4) Material Investigation

- a) Reconnaissance for borrow pits, quarries and other material sources
- b) Test of material samples

(5) Recommendation of the construction method including site access and procurement method.

(6) Hydraulic analysis

- a) Review of the existing flood study
- b) Study on the behaviour of flood water in the swamp area

(7) Preparation of Engineering report

3. Detailed design will be carried out to the Design Standards shown in Annex I and include the following:-

(1) Preparation of drawings

- a) Bridge substructure
- b) Bridge superstructure
- c) Embankment and pavement
- d) Drainage works
- e) Other facilities

(2) Preparation of cost estimate

(3) Preparation of draft implementation programme

4. Preparation of Tender Documents will be in accordance with the guidelines for procurement of the OECF as per July 9, 1985 Exchange of Notes.

5. Recommendations

VI. SCHEDULE OF THE STUDY

The study will be completed within Twenty seven (27) months after the submission of the Inception Report.

The whole work will be conducted in accordance with the attached schedule (Attachment 2).

VII. REPORTS

JICA will prepare and submit the following reports in English to the Government of Papua New Guinea.

1. Inception Report

Thirty (30) copies at the beginning of field survey.

2. Monthly Progress Report

Ten (10) copies during the period of work in Papua New Guinea.

3. Interim Report 1

Thirty (30) copies within 9 months after the beginning of the study.

4. - Interim Report 2

Thirty (30) copies within 18 months after the beginning of the study.

5. Interim Report 3

Thirty (30) copies within 22 months after the beginning of the study.

6. Draft Final Report

Thirty (30) copies within 24 months after the beginning of the study.

7. Final Report

Fifty (50) copies within 2 months after receiving written comments on the Draft Final Report from the Government of Papua New Guinea.

The comments made by the authorities concerned of Papua New Guinea shall be submitted to JICA within four (4) weeks after explanation of the Draft Final Report.

VIII. UNDERTAKING OF THE GOVERNMENT OF PAPUA NEW GUINEA

1. To facilitate smooth conduct of the Study, the Government of Papua New Guinea shall take necessary measures:
 - (1) To secure the safety of the study Team
 - (2) To permit the members of the Japanese Study Team to enter, leave and sojourn in Papua New Guinea for the duration of their assignment therein, and exempt them from alien registration requirement, consular fees and engineer registration requirement.
 - (3) To exempt the members of the Japanese Study Team from taxes, duties and other charges on equipment, machinery and other materials brought into Papua New Guinea for the implementation of the Study.
 - (4) To exempt the members of the Japanese Study Team from income tax and other charges of any kind imposed on or in connection with any emolument or allowance paid to the members of the Japanese Study Team for their services in connection with the implementation of the Study.
 - (5) To provide necessary facilities to the Japanese Study Team for the remittance as well as utilization of the funds introduced into Papua New Guinea from Japan in connection with the implementation of the Study.
 - (6) To secure permission for entry into private properties or restricted areas for the conduct of the Study.
 - (7) To secure permission for the Japanese Study Team to take all data and documents (including photographs) to Japan, as necessary for analysis during the implementation of the Study. A copy of all such data will also be kept in PNG.
 - (8) The Government of Papua New Guinea will secure permission for the use of wireless communications equipment during the field surveys.
 - (9) To provide medical services as needed. Its expenses will be chargeable on the members of the Japanese Study Team.
2. The PNG side will be responsible for the surveys for land acquisition as well as land ownership related with the Project. Any issue arising in connection with the land acquisition should be solved by the relevant organizations of the PNG Government. The right of way on the sites necessary for Topographical, Soil and Geological surveys should be secured by the PNG side well in advance of the actual commencement of the surveys.

3. The Government of Papua New Guinea shall bear claims, if any arises against the members of the Japanese Study Team resulting from, occurring in the the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or wilful misconduct on the part of the members of the Japanese Study Team.
4. DOV shall act as counterpart agency to the Japanese Study Team under the co-ordination of the Steering Group for the smooth implementation of the Study.
5. The Government of PNG through DOV as the Executing Agency shall, at its own expense, provide the Japanese Study Team with the following, in co-operation with other organizations concerned:
 - (1) available data and information related to the Study
 - (2) counterpart personnel
 - (3) suitable office space with necessary office equipment in Port Moresby and Project sites.
 - (4) credentials or identification cards.

IX. UNDERTAKINGS OF JICA

For the implementation of the Study, JICA shall take the following measures:

1. to dispatch at its own expense, the Study Team to Papua New Guinea
2. to pursue technology transfer to the Papua New Guinean counterpart personnel in the course of the Study
3. to provide equipment and machinery for the implementation of the Study, which will remain the property of JICA unless otherwise agreed upon.

X. MUTUAL CONSULTATION

JICA and DOV shall consult with each other in respect of any matter that is not agreed upon in this document and which may arise from or in connection with the Study.



TENTATIVE STUDY SCHEDULE

IC/R : INCEPTION REPORT.
IL/R : INTERIM REPORT.
UF/R : DRAFT FINAL REPORT.
F/R : FINAL REPORT.

ANNEX 1

TRANS ISLAND HIGHWAY

Bereina to Malalaua

SURVEY STANDARDS

- Survey standards to be adopted are based on the Technical Manual of Overseas Surveying of JICA.

ACCURACY (Standard Deviation)

- . Ground Control Point Survey 1/25000
- . Leveling 60mm square root s (s: distance in km)
- . Planimetry ± 1 mm on the map
- . Spot height 2/3 Delta h (Delta h: main contour interval)
- . Contour 1/1 Delta h

DESIGN STANDARDS

Ref to Article V Paraagraph 3 of the Scope of Work for the detailed design on Road construction Project.

Design standards to be adopted are based on the current issue (April 1985) of the Rural Road Design Manual, and are as follows:

Min. Horizontal radius	155m (sealed)
Overall width of formation	7.5m
width of pavement	6.5m
Design speed	70 k.p.h.
General max. gradient	6 %
Absolute max. gradient	8 %

Bridge design standard is to be generally in accordance with NAASRA Design Specification (1976 and amendments). The live loading is to be

T44 for Substructure

T33 for Superstructure

Date Source

These are to include:

DOW 'Road Design Manual' 1985

PMG 'Flood Estimation Manual'

DOW 'Manual for the Design of Drainage Structure for Rural Roads'

DOW 'Specification for Road and Bridge Works' November 1978 with later amendments.

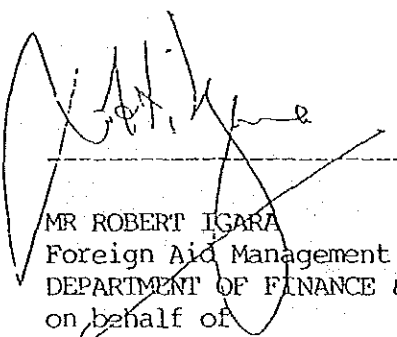
Plans and aerial photography of the area

Department of Minerals and Energy, Geological Survey 1:250,000 mapping.

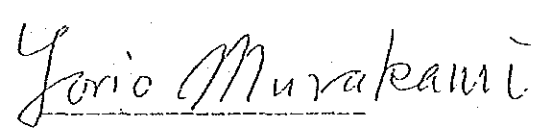
2 - 2 Minutes of Meeting

MINUTES OF MEETING
FOR
THE DETAILED DESIGN
ON
ROAD CONSTRUCTION PROJECT
IN
BEREINA - MALALAU
BETWEEN
OFFICIALS OF THE GOVERNMENT OF PAPUA NEW GUINEA
AND
OFFICIALS OF THE JAPAN INTERNATIONAL CO-OPERATION AGENCY

PORT MORESBY
24 JUNE 1987



MR ROBERT IGARA
Foreign Aid Management Division
DEPARTMENT OF FINANCE & PLANNING
on behalf of
THE GOVERNMENT OF PAPUA NEW GUINEA



MR YORIO MURAKAMI
Leader of the
Preliminary Study
Team
on behalf of
THE JAPAN INTERNATIONAL
COOPERATION AGENCY

MINUTES OF MEETING

The Japanese Preliminary Study Team (hereinafter referred to as "the Mission") sent by the Japan International Co-operation Agency, headed by Mr Y. Murakami, visited Papua New Guinea from June 18 to June 24, 1987 for the purpose of discussion for the Study of the Detailed Design for the proposed Bereina - Malalaua Road (hereinafter referred to as "the Study").

The Mission had a series of discussions with representatives from the Department of Finance and Planning (hereinafter referred to as "DOFP" and other departments concerned. A list of the participants appear in Attachment I.

Through these discussions, both sides have completed the scope of work for the detailed design on road construction project Bereina - Malalaua.

Through discussions, both sides worked out attached documents which will be submitted for approval by respective higher authorities.

- Appendix 1 Draft Study Schedule
- Appendix 2 Counterpart Personnel and Training
- Appendix 3 Office Space
- Appendix 4 Equipment List
- Appendix 5 Survey and Land Matters
- Appendix 6 Preparation of Tender Documents and Survey

Attachment I

ATTENDANCE LIST1. GOVERNMENT OF PAPUA NEW GUINEA

R. IGARA	FAS, Foreign Aid Management Division	Dept. of Finance & Planning
F. WILLIAME (Ms)	AS, Bilateral Program Branch Foreign Aid Management Div.	Dept. of Finance & Planning
G. PARU	Senior Programs Officer Foreign Aid Management Div.	Dept. of Finance & Planning
M. SHARP	FAS, Operations	Dept. of Works
M. KALAN	AS, Technical	Dept. of Works
K.J. McCONNEL	Principal Surveyor	Dept. of Works
A.E. SMALLER	Principal Engineer Design Services	Dept. of Works
F.R. JONES	Principal Engineer Roads and Bridges	Dept. of Works
R. PHELPS	Special Project Engineer	Dept. of Works
M. JAMES	Executive Engineer Roads	Dept. of Works
W. MOREHARI	Executive Engineer Bridges	Dept. of Works
A. PATILE	a/FAS, Policy and Planning	Dept. of Transport

K.J. AMOAKO	a/Chief Planning Officer	Dept. of Transport
W. BATES	Senior Project Officer	Dept. of Provincial Affairs
B. KUA	Senior Project Officer	Dept. of Provincial Affairs
M. DAY	AS, (Southern)	Dept. of Lands
P. ENGLISH	Super-International of Mapping	Dept. of Lands
D. BARSBY	Chief Geodetic Surveyor	Dept. of Lands
R. NAKOT	Mutual Assistance Branch	Dept. of Foreign Affairs

2. JAPANESE PRELIMINARY STUDY TEAM

Mr Yorio Murakami	Executive Director	Leader, Road
	Technology Research Center for National Land Development	
Mr Kenji Chujo	Technical Management Officer	Member, Survey
	Geographical Survey Institute, Ministry of Construction	
Mr Koji Mori	First Development Survey	Member,
	Division Social Development	Coordination
	Cooperation Department, Japan International Cooperation Agenc.	
Mr A. Watanabe	Japanese Embassy	
Mr K. Nakano	Director, JICA Office, PNG.	

Ref. to Article VI of the scope of Works for the detailed design on Road Construction Project: Trans-Island Highway - Berene to Matlaava.

DRAFT STUDY SCHEDULE (Item)

	1987												1988												1989											
	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	
1. Review of the existing studies.																																				
2. Engineering Study																																				
(1) Topographical study																																				
(2) Route study																																				
(3) Soil and geological survey																																				
(4) Material survey																																				
(5) Construction method																																				
(6) Hydraulic analysis																																				
3. Detailed Design.																																				
(1) Preparation of drawings																																				
a) Bridge substructure.																																				
b) Bridge superstructure.																																				
c) Embankment and pavement																																				
d) Drainage																																				
e) Other facilities																																				
(2) Preparation of cost estimate																																				
(3) Preparation of draft implementation programme.																																				
4. Preparation of Tender Documents																																				
5. Recommendation																																				
Report Presentation																																				
OFFICE (Headquarters (Port Moresby))																																				
Field Office (Berene Matlaava)																																				

100% Work in Force New Guinea

Appendix 2

COUNTERPART PERSONNEL AND TRAINING

With reference to Article VIII Para. 5 (2) and article IX Para. 2 the Detailed Design of Road Construction Project from Bereina to Malalaua, it is understood that the Government of PNG will provide counterpart staff to assist the project team and to receive training generally in accordance with the Schedule below.

1. Geotechnical Investigation

The team will require the assistance of one National Engineer to assist in field work. This engineer will have approximately five years general engineering experience and will be available from June until August 1988. A further engineer will be required to assist in laboratory work. This engineer also with five years general experience will be required from June until September 1988.

2. Bridge Design

Training opportunities exist in PNG for (2) National Engineers to be involved in substructure and superstructure design. These opportunities will be available from mid August until November 1988. Consideration will be given by JICA to a period of further training in Japan for one or both of the bridge engineers.

3. Highway Design

A training opportunity exists for one National Engineer to participate in highway design in Japan from June until August 1988.

4. Survey

The team will require the assistance of 3 National Surveyors for the initial survey stage. They will have approximately five years post graduate experience. A training opportunity exists for a surveyor to be trained in plotting techniques in Japan.

5. Counterpart Co-ordinator

The PNG Government will appoint a counterpart co-ordinator to liaise with the JICA Study Team for the duration of the study.

Appendix 3

OFFICE SPACE

With reference to Article VIII Para. 5 (3) of the Scope of Work for the Detailed Design of Road Construction Project from Bereina to Malalaua, it is understood that the Government of PNG will provide a office (about 100 m²) in 1st Floor of E Block of DOW Headquarter;

and a field office room in Bereina and Malalaua, respectively.

EQUIPMENT LIST

PNG Government requested the Preliminary Study Team to convey to JICA its wish that the following equipment be donated to PNG Government at the conclusion of the study:

(a) Soil Testing Equipment for Laboratory

- 2 complete sets of sieves (coarse and fine)
- 2 No. hydrometers
- 2 No vacuum pumps
- 2 complete sets of casagrand's L.L Machine
- 6 Kits of determination of Ph (Colorimetric Method).
- 1 Triaxial machine complete with accessories for measuring effective stress.
- 2 consolidation test apparatus complete with weights
- 1 Sample extruder 50mmØ
- 50 Moisture content tins with lids

(b) 3 Tidal Gauges

Appendix 5

SURVEY AND LAND MATTERS

With reference to Article V Para. 2(1)(a) of the Scope of Work for the Detailed Design of Road Construction Project from Bereina to Malalaua, it is understood that the Government of PNG will provide the monumentation of the 18 control points. This will consist of Permanent Survey Marks (PSM's), recovery marks, and azimuth marks, at each point.

The PNG Team will draw all plans relating to survey control points and will submit them to the National Mapping Bureau in accordance with the Survey directions as laid down by the PNG Surveyor general.

It is understood that the JICA Study Team will be utilising a helicopter during the establishment of the control points, and that this helicopter will be made available to the PNG team to assist in the monumentation.

With reference to Article V Para. 2(i)(b)&(c) it is understood that the PNG team will place PSM's in the vicinity of each of the 3 Tidal observation points, and will transfer mean sea level (MSL) as observed, to each of the PSM's.

The PNG team will place Bench Marks (MB's) along each of the 3 route to be levelled from the Tidal observation points to the Control Points referred to above. The JICA Study Team will level through these BMS which will be at approximately 5km intervals.

APPENDIX 6

PREPARATION OF TENDER DOCUMENTS AND SURVEY

PNG Government officials expressed the view that the survey results proposed in the agreement on Scope of Works for the detailed design should be checked on the ground during the study to ensure that quantities determined for Bills of Quantities were of an acceptable standard.

2-3 对 处 方 针

パプア・ニューギニア国 横断道路建設計画（ベレイナ、ララウア間）事前調査 対処方針

項	目	対 処 方 針																		
1	S/Wについて ・現地情報によると、最近、PNGでは、Engineeringに携わる人はEngineerとしてregisterする法律が決ったので、この免除が必要。	<p>コンタクトミッションで作成したTORを基本とした別添S/W（案）により相手政府と協議し、必要事項をM/Mに記す。</p> <p>なおS/W（案）には、①左記Engineerの登録免除について、undertakingに記す。 （頁6 VIII 1 (2)）</p> <p>②コンタクトミッションで合意した項目のうち、「用地」と「無線機の使用」についてもundertakingに含める。（頁7の(8)および2）</p>																		
2	事務所設備の要望	<p>本部事務所をポートギレスビーに、現場事務所を可能であれば3ヶ所要望する。</p> <p>事務所の規模、期間については、協議し決定する。</p>																		
3	カウンタパートの要望	<p>現地調査時に下記のカンタパートを要望する。</p> <table border="1"> <thead> <tr> <th>Fields</th><th>Capabilities</th><th>Number</th></tr> </thead> <tbody> <tr> <td>Boring</td><td>Executive Engineer or Principal Engineer</td><td>1</td></tr> <tr> <td>Soil Test</td><td>"</td><td>1</td></tr> <tr> <td>Material Survey</td><td>"</td><td>1</td></tr> <tr> <td>Survey</td><td>"</td><td>3</td></tr> <tr> <td>Hydraulics</td><td>"</td><td>1</td></tr> </tbody> </table> <p>事務所およびカウンタパートの必要時期は別添2のTENTATIVE STUDY SCHEDULEによる。</p>	Fields	Capabilities	Number	Boring	Executive Engineer or Principal Engineer	1	Soil Test	"	1	Material Survey	"	1	Survey	"	3	Hydraulics	"	1
Fields	Capabilities	Number																		
Boring	Executive Engineer or Principal Engineer	1																		
Soil Test	"	1																		
Material Survey	"	1																		
Survey	"	3																		
Hydraulics	"	1																		
4	測量および土質	<p>測量については、PNGの規準、検潮所の設置とその管理について協議する。</p> <p>土質については、DOWの土質試験器の利用が可能か協議する。</p>																		
5	機材の供与について	<p>土質試験器、車輛等について供与の依頼があった場合は、その旨、ミニッツに残す。</p>																		

2 - 4 Scope of Work (Draft)

D r a f t

SCOPE OF WORK
FOR
THE DETAILED DESIGN
ON
ROAD CONSTRUCTION PROJECT
IN
BEREINA-MALALAU
AGREED UPON BETWEEN
OFFICIALS OF THE GOVERNMENT OF PAPUA NEW GUINEA
AND
THE JAPAN INTERNATIONAL COOPERATION AGENCY

PORT MORESBY

TH June, 1987

MR. ROBERT IGARA
FIRST ASSISTANT SECRETARY
FOREIGN AID MANAGEMENT DIVISION
DEPARTMENT OF FINANCE AND PLANNING
on behalf of
THE GOVERNMENT OF
PAPUA NEW GUINEA

MR. YORIO MURAKAMI
LEADER OF THE PRELIMINARY
STUDY TEAM
on behalf of
THE JAPAN INTERNATIONAL
COOPERATION AGENCY

I. INTRODUCTION

In response to the request of the Government of Papua New Guinea, the Government of Japan decided to implement the Detailed Design on Road Construction project in Bereina-Malalaua (hereinafter referred to as "the Study"), in accordance with the relevant laws and regulations in force in Japan.

The Japan International cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programmes of the Government of Japan, will undertake the Study in close cooperation with the authorities of the Government of Papua New Guinea.

The present document sets forth the Scope of Work for the Study.

II. OBJECTIVE OF THE STUDY

The objective of the study is to prepare the detailed design and tender documents for the construction of the proposed BEREINA-MALALAUA Road Project.

III. STUDY ORGANIZATION

1. A Steering Group will be organized under the Chairmanship of the Secretary of Department of Finance and Planning (hereinafter referred to as DOFP) or his delegate and will be responsible for the overall administration and coordination of the progress of the Study. The Departments of Transport, Works, Lands and other relevant agencies will participate in the Steering Group.
2. Department of Works (hereinafter referred to as DOW) will be the Executing Agency for the technical coordination of the study and

be responsible for the results of the execution of the project on the basis of the detailed design submitted and tender documents prepared by JICA.

IV. STUDY AREA

The study area, as shown in the attached Map (Attachment 1) includes the proposed road of approximately 80km connecting Bereina in Central Province and Katalaua in Gulf Province, which constitutes part of the Trans Island Highway.

V. SCOPE OF THE STUDY

In order to cover the objective, the Study shall cover the following items :

1. Review of the existing studies in relation with the Project with special reference to engineering and financial aspects.

2. Engineering Study -

(1) Topographical study

- | | |
|--|------------------|
| a) Control point survey | 18 points |
| b) Leveling from tidal observation point | 50 km (3 routes) |
| c) Tidal observation | 3 points |
| d) Photo Signal | 18 points |
| e) Aerial Photography | 1/5000 (100 km) |

f) Mapping

- Topographical map 1/1000
- Cross section drawing 1/1000 (interval 50 m)
- Bridge site topographical map 1/500

g) River channel cross section survey
at bridge sites.

(2) Route study

Determination of the center line on map.

(3) Soil and geological survey

- a) Boring for soil test at bridge sites
(two 2) bores for each of (seven 7) bridge sites.

(4) Material survey

- a) Reconnaissance for borrow pits, quarries and other
material sources
- b) Test of material samples

(5) Determination of the construction method including site
access and procurement method.

(6) Hydraulic analysis

- a) Review of the flood study

b) Study on the behaviour of flood water in the swamp area

(7) Preparation of engineering report

3. Detailed Design

(1) Preparation of drawings

a) Bridge substructure

b) Bridge superstructure

c) Embankment and pavement

d) Drainage works

e) Other facilities

(2) Preparation of cost estimate

(3) Preparation of draft implementation programme

4. Preparation of Tender Documents

5. Recommendations

VI. SCHEDULE OF THE STUDY

The study will be completed within Twenty seven (27) months after the submission of the Inception Report.

The whole work will be conducted in accordance with the attached schedule (Attachment 2)

VII. REPORTS

JICA will prepare and submit the following reports in English to the Government of Papua New Guinea.

1. Inception Report

Thirty (30) copies at the beginning of field survey.

2. Monthly Progress Report

Ten (10) copies during the period of work in Papua New Guinea.

3. Interim Report 1

Thirty (30) copies within 9 months after the beginning of the study.

4. Interim Report 2

Thirty (30) copies within 18 months after the beginning of the study.

5. Interim Report 3.

Thirty (30) copies within 22 months after the beginning of the study.

6. Draft Final Report

Thirty (30) copies within 24 months after the beginning of the study.

7. Final Report

Fifty (50) copies within 2 months after receiving written

comments on the Draft Final Report from the Government of Papua New Guinea.

The comments made by the authorities concerned of Papua New Guinea shall be submitted to JICA within four (4) weeks after explanation of the Draft Final Report.

VIII. UNDERTAKING OF THE GOVERNMENT OF PAPUA NEW GUINEA

1. To facilitate smooth conduct of the Study, the Government of Papua New Guinea shall take necessary measures:

- (1) To secure the safety of the study Team
- (2) To permit the members of the Japanese Study Team to enter, leave and sojourn in Papua New Guinea for the duration of their assignment therein, and exempt them from alien registration requirement, consular fees and engineer registration requirement
- (3) To exempt the members of the Japanese Study Team from taxes, duties and other charges on equipment, machinery and other materials brought into Papua New Guinea for the implementation of the Study
- (4) To exempt the members of the Japanese Study Team from income tax and other charges of any kind imposed on or in connection with any emolument or allowance paid to the members of the Japanese Study Team for their services in connection with the implementation of the Study

- (5) To provide necessary facilities to the Japanese Study Team for the remittance as well as utilization of the funds introduced into Papua New Guinea from Japan in connection with the implementation of the Study
- (6) To secure permission for entry into private properties or restricted areas for the conduct of the Study
- (7) To secure permission for the Japanese Study Team to take all data and documents (including photographs) to Japan, as necessary for analysis during the implementation of the Study
- (8) The Government of Papua New Guinea shall secure permission for the use of wireless communications equipment during the field surveys.
- (9) To provide medical services as needed. Its expenses will be chargeable on the members of the Japanese Study Team

2. . The Government of Papua New Guinea shall be responsible for the surveys for land acquisition as well as land ownership related with the Project. Any issue arising in connection with the land acquisition should be solved by the relevant organizations of the Government of Papua New Guinea. The right of way on the sites necessary for Topographical, Soil and Geological surveys should be secured by The Government of Papua New Guinea well in advance of the actual commencement of the surveys.

3. The Government of Papua New Guinea shall bear claims, if any arises against the members of the Japanese Study Team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study,

except when such claims arise from gross negligence or wilful misconduct on the part of the members of the Japanese Study Team.

4. DOW shall act as counterpart agency to the Japanese Study Team under the coordination of the Steering Group for the smooth implementation of the Study.

5. The Government of Papua New Guinea through DOW as the Executing Agency shall, at its own expense, provide the Japanese Study Team with the following, in cooperation with other organizations concerned;

- (1) available data and information related to the Study
- (2) counterpart personnel
- (3) suitable office space with necessary equipment in Port Moresby and Project sites
- (4) credentials or identification cards

IX. UNDERTAKINGS OF JICA

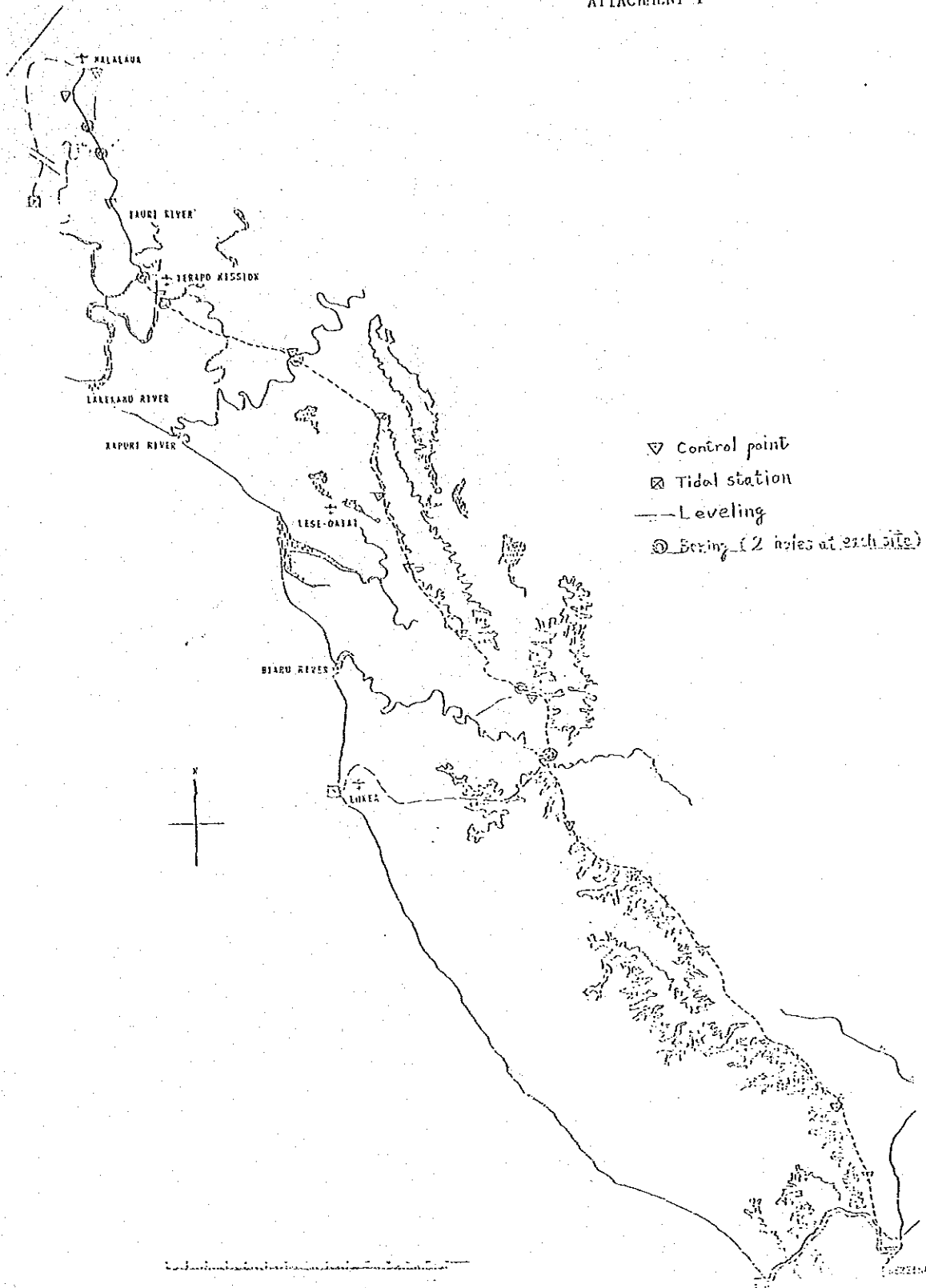
For the implementation of the Study, JICA shall take the following measures:

1. to dispatch, at its own expense, the Study Team to Papua New Guinea
2. to pursue technology transfer to the Papua New Guinean counterpart personnel in the course of the Study
3. to provide equipment and machinery for the implementation of the Study, which will remain the property of JICA unless otherwise agreed upon

X. MUTUAL CONSULTATION

JICA and DOW shall consult with each other in respect of any matter that is not agreed upon in this document and which may arise from or in connection with the Study.

ATTACHMENT I



TENTATIVE STUDY SCHEDULE

IC/R : INCEPTION REPORT.
 IT/R : INTERIM REPORT.
 DF/R : DRAFT FINAL REPORT.
 F/R : FINAL REPORT.