

THE GOVERNMENT OF PAPUA NEW GUINEA

THE DETAILED DESIGN
ON
ROAD CONSTRUCTION PROJECT
IN
BEREINA - MALALAU

TENDER DOCUMENTS

(Prequalification)

JANUARY 1990

JAPAN INTERNATIONAL COOPERATION AGENCY

BEREINA TO MALALAU ROAD CONSTRUCTION PROJECT TENDER DOCUMENTS (Prequalification) JAN 1990

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DEPARTMENT OF WORKS

TRANS-ISLAND HIGHWAY

BEREINA TO MALALUA ROAD CONSTRUCTION PROJECT

CENTRAL/GULF PROVINCES

PREQUALIFICATION DOCUMENTS

FOR

LOT I : BEREINA TO MIARU RIVER SECTION

CONTRACT NO. SC 120-33-814/A

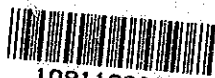
CH 0+000 TO CH 33+500

LOT II : MIARU RIVER TO MALALUA SECTION

CONTRACT NO. SC 120-33-814/B

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TRANS-ISLAND HIGHWAY
BEREINA TO MALALAU ROAD CONSTRUCTION PROJECT
CENTRAL/GULF PROVINCES

PREQUALIFICATION DOCUMENTS

TABLE OF CONTENTS

PART I	GENERAL INFORMATION FOR PROSPECTIVE TENDERERS	I-1
PART II	INSTRUCTIONS AND GENERAL CONDITIONS	II-1
PART III	LIST OF FORMS	III-1
	FORM NO. 1 LETTER OF INTENT TO PARTICIPATE IN THE TENDERING	III-2
	FORM NO. 2 STATEMENT OF APPLICANT	III-5
	FORM NO. 3 FINANCIAL STATUS OF APPLICANT	III-7
	FORM NO. 4 EXPERIENCE RECORD OF APPLICANT	III-9
	FORM NO. 5 DETAILED PROJECT EXPERIENCE	III-11
	FORM NO. 6 SIMILAR TYPE PROJECT	III-16
	FORM NO. 7 SPECIAL EXPERIENCE FOR THE CONSTRUCTION WORKS	III-19
	FORM NO. 8 SUPERVISORY PERSONNEL	III-20
	FORM NO. 9 LIST OF MAJOR PLANT AND EQUIPMENT	III-22
	FORM NO. 10 STATUS OF CONTRACT IN PROGRESS	III-24
	FORM NO. 11 STATEMENT OF ELIGIBILITY	III-25
	FORM NO. 12 LIST OF PREQUALIFICATION FORMS TO BE FILLED IN BY THE APPLICANT	III-26
APPENDIX A	LIST OF ELIGIBLE SOURCE COUNTRIES	A-1
APPENDIX B	PROJECT DESCRIPTION	B-1
ATTACHED DRAWINGS		

ADVERTISEMENT/ANNOUNCEMENT OF PREQUALIFICATION

The Papua New Guinea Department of Works intends to prequalify tenderers for the Bereina to Malalaua Road Construction Project, which is to be awarded by international competitive tendering.

The Project is in two (2) contract lots comprising the Bereina to Miaru River section of 33.5km (Lot I) and the Miaru River to Malalaua section of 47.1km (Lot II). The foreign currency component of each contract will be financed from a Loan of Overseas Economic Cooperation Fund (OECF) of Japan.

Prequalification will be carried out on the basis of applications from prospective general contractors originating in OECF eligible source countries. Applicants who satisfy all of the following conditions will be considered for prequalification:

- (a) that a majority of the subscribed shares shall be held by nationals of the eligible source countries;
- (b) that a majority of the full-time directors shall be nationals of the eligible source countries; and
- (c) that the applicant shall be incorporated and registered in the eligible source countries.

Prequalification Documents can be obtained on application to and on written request accompanied by a bank certified cheque or a bank draft payable to the Department of Works, in the amount equivalent to K100:

The Chairman
Works, Supply and Tenders Board
P.O. Box 1142
Boroko
Papua New Guinea

Telex : 22200
Facsimile: 241400

during normal working hours.

Prequalification applications should be hand delivered or sent by registered mail in a sealed envelope to the abovementioned address not later than Wednesday.....19....., 10:00 hour of Papua New Guinea Standard Time. The outside of the envelope should show the name of the applicant and his address.

PART I

GENERAL INFORMATION FOR PROSPECTIVE TENDERERS

- 1.01 The Papua New Guinea Department of Works (hereinafter referred to as "DOW") hereby invites experienced and reputable contractors to prequalify for the Bereina to Malalaua Road Construction Project. Prospective contractors are required to submit details of their qualifications for consideration by the DOW.
- 1.02 The DOW has applied for a loan from the Overseas Economic Cooperation Fund of Japan (hereinafter referred to as "OECF") and intends to apply the proceeds of the loan to eligible payments for the Project. Participation in the prequalification exercise is opened only to contractors of eligible source countries of the OECF. The eligible source countries are as listed in Appendix A.
- 1.03 The following words, expressions and abbreviations shall have the meaning hereby assigned to them, except where the context otherwise requires:

"The Employer"	The Independent State of Papua New Guinea.
"DOW"	The Employer's Representative is the Secretary of the Department of Works (PNG) and referred to in this document as DOW.
"Works"	All permanent and temporary works in connection with the Bereina to Malalaua Road Construction Project.
"Applicant"	Companies and firms, who wish to be qualified for the tendering, alone or as a sponsor company in case of the tender presented as parts of a joint venture or a consortium for the road construction works of the Project.
"Tender"	Tender for the Bereina to Malalaua Road Construction Project.
"Tenderer"	An applicant qualified by the DOW.
"Tender Documents"	Documents for tender.
"Fund"	Overseas Economic Cooperation Fund, Japan.

- 1.04 The 80.6 kilometres long Bereina to Malalaua Road is located along the coast of Central Province and Gulf Province, and forms part of the 575 kilometre Trans-Island Highway which will link Port Moresby to Lae.

The project description and other relevant information are given in Appendix B.

This prequalification is only valid for two (2) contract lots comprising the Bereina to Malalaua Road Construction Project:

Lot I : Bereina to Miaru River Section, 33.5km

Lot II : Miaru River to Malalaua Section, 47.1km

- 1.05 The Lot I and Lot II contracts will be awarded under separate contracts. Contractors may apply for prequalification for either Lot I or Lot II, or both Lots. Where contractors apply for both Lots, the prequalification evaluation will be carried out individually for each Lot.
- 1.06 As the Fund will assist in the financing of the Project, procurement of materials should be in accordance with the Fund's Guidelines for Procurement.
- 1.07 The invitation to tender for Lot I or Lot II, or both Lots, will be sent only to those contractors who have prequalified.
- 1.08 The Contracts for the Works will be a Unit Price Remeasurement Contract with a Priced Bill of Quantities subject to price escalation as specified in the Tender Documents, and awarded on the basis of International Competitive Tendering.
- 1.09 Tenderers will indicate the tender price in Papua New Guinea Kina. However payments to the contractor will be made in Japanese Yen or United States Dollars for the foreign currency portion and in Papua New Guinea Kina for the local currency portion. Tenderers will be required to indicate the percentage of the Contract Price to be paid in foreign currency and the currency (Yen or US dollars). Advance payment of not more than ten (10) percent of the Contract Price will be made after the award of the Contract.
- 1.10 The Works are to be completed within the following time for completion.
- Lot I : 36 calendar months
- Lot II : 48 calendar months

- 1.11 Tenderers will be required to furnish a tender security in an amount of K200,000 for the Lot I and of K300,000 for the Lot II. Contractor will be required to furnish a bank guarantee for performance in an amount not less than ten (10) percent of the Contract Price.
- 1.12 Applicants who wish to be prequalified for tendering are requested to submit to the DOW the complete prequalification forms.
- 1.13 The DOW will first examine and evaluate the Prequalification Documents and will verify their compliance with the requirements of the Prequalification Documents. The applications for prequalification will be assessed in terms of the applicants' technical and financial tender capacities.
- 1.14 Based on the results of the prequalification, the DOW will select the applicants to whom the tendering will be opened but will not accept any claim regarding either procedure or the results of the prequalification. The decision of the DOW in regard to acceptance or non-acceptance of contractors for prequalification will be final.
- 1.15 The Independent State of Papua New Guinea will notify contractors who have successfully prequalified to tender for the Works. Reasons for rejection of applicants for prequalification will not be given.
- 1.16 All Prequalification Documents and information received by the DOW from the applicants will be considered strictly confidential. The documents will not be returned both in the event of rejection or acceptance of the applicants.
- 1.17 All expenses relating to prequalification shall be borne by the applicants, and in no case will be reimbursed.
- 1.18 The next section of this booklet contains instructions to and forms to be filled out by applicants.

PART II

INSTRUCTIONS AND GENERAL CONDITIONS

2.01 The Prequalification Documents can be obtained from the following office from19..... during normal working hours:

The Chairman
Works, Supply and Tenders Board
P. O. Box 1142
Boroko
Papua New Guinea

2.02 The sequence dates for carrying out this prequalification have been programmed as follows:

- Start of prequalification with :
the issue of prequalification
questionnaire.
- Last date for applicant to :
request clarification.
- Last date for the DOW to :
issue amendment to the
prequalification questionnaire.
- Closing date for receipt of :
Prequalification Documents by
the DOW from the applicants.

Notwithstanding any provisions contained in this chapter, the DOW reserves its right to make any changes in the aforesaid time schedule.

2.03 The attached forms are to be completed by applicants. Tender Documents will only be issued to tenderers who have been prequalified by the DOW.

2.04 The applicants, who intend to present the tenders alone or parts of a joint venture or consortium, shall be from the eligible source countries only, whose names are given in Appendix A, and shall be nationals of eligible source countries or juridical persons (companies and firms) incorporated and registered in the eligible source countries and controlled by nationals of the eligible source countries. Such companies shall satisfy all of the following conditions:

- (a) A majority of the subscribed shares shall be held by nationals of the eligible source countries;

(b) A majority of full-time directors shall be nationals of the eligible source countries.

(c) Such companies shall be incorporated and registered in the eligible source countries.

The above shall be certified for source, origin and eligibility in accordance with the attached form.

2.05 If it is intended to apply as a part of a joint venture or consortium, all members of joint venture or consortium should submit separate and complete prequalification forms, clearly indicating who will be the sponsor company and the expected participation or share of the other members of the joint venture, together with details of agreements, supported by documentary proof, and identification of prime responsibility.

No joint venture or consortium will be prequalified to tender, if the Works are split between the members, without a sponsor company accepting full responsibility for the overall supervision and execution of the Works.

2.06 All financial data entered on the forms should be quoted in Papua New Guinea Kina.

2.07 All information in the application should be filled in ink or typed and in English. Information in any other language should be accompanied by a translation into English. Failure to comply with this may cause the applicant to be disqualified. Erasures or other changes should be noted over the initials of the person signing the application.

2.08 Prequalification Documents should be submitted in one (1) original and one (1) copy, each being with the prequalification forms duly filled in and supplemented by all the information required. Each copy of the abovementioned documents should be respectively marked "Original" and "Copy". In case of discrepancy between the copy and the original, the original will prevail. The Prequalification Documents and the required attachments should be enclosed in a sealed envelope carrying outside the name and address of the applicant, and clearly marked:

"PREQUALIFICATION DOCUMENTS FOR THE WORKS LOT I (or LOT II, or LOT I AND LOT II as the case may be) FOR THE BEREINA TO MALALAU ROAD CONSTRUCTION PROJECT"

The "Original" and one copy of the Prequalification Documents should be hand carried or sent by registered mail to the following address:

The Chairman
Works, Supply and Tenders Board
P. O. Box 1142
Boroko
Papua New Guinea

before 10:00 hours Papua New Guinea Standard Time
on Wednesday..... 19

If the Prequalification Documents are sent by mail and arrive late, the DOW will not be responsible for no receipt of the Prequalification Documents regardless of the reasons for the delay or loss in the mail.

2.09 The prequalification of the applicants will be made by the DOW: on the basis of the experience and capability of the applicants to carry out construction works of the size and nature of those required for this Project; on the basis of financial and operational capacity; and on the availability of experienced personnel and adequate plant and equipment. Past performance and fulfillment of contractual obligations and present commitments will also be considered.

For the purpose of examination as mentioned above, the following basic criteria will apply:

- (1) Experience : The applicant, who has in the last ten (10) years satisfactorily carried out highway and bridge works of the same nature, similar or larger than the Works in the quantity as given in Appendix B Project Description, will be deemed to have sufficient experience.

The applicant should also have experience of construction of other civil works during the last ten (10) years.

For this purpose the applicant is recommended to explain his experience as detailed as possible in accordance with the FORM NO.4, NO.5, NO.6 and NO.7.

In addition to the above information, the applicant should provide details of his current work load describing its project, client, contract value, work description, construction period, etc., in accordance with the FORM NO. 10.

- (2) Personnel : The Contractor should provide bio-data to illustrate that he can provide the following key supervisory personnel.

- Lot I :
- Site agent well experienced in highway and bridge works.
 - Engineer/Supervisor experienced in steel bridge construction.
 - Engineer/Supervisor experienced in subgrade/pavement works.

- Lot II :
- Site agent well experienced in highway and Bridge works.
 - Engineer/Supervisor experienced in earthworks on soft ground in swamp areas.
 - Engineer/Supervisor experienced in steel bridge construction.
 - Engineer/Supervisor experienced in subgrade/pavement works.

All key staff must be capable of communicating in English.

Any applicant who does not propose to provide personnel with adequate experience as stated above will not be prequalified.

- (3) Plant and Equipment: The applicant shall clearly indicate the list of plant and equipment including size, capacity and number which he currently has available for the undertaking the project. The detailed list of plant and equipment shall be indicated in the attached form.
- (4) Financial Condition : The financial capacity of the applicant will be judged from the financial statements submitted, as well as form letters from banks regarding credit.

If the applicant's financial situation is not sound, or work commitments are beyond the limit of the applicant's financial resources, the applicant will be disqualified from tendering.

- (5) Past Performance : Past performance will also receive due consideration in qualifying the applicants. The applicant's past failure to complete any civil engineering construction works will be taken into account in the prequalification exercise.

2.10 The applicants should complete the prequalification forms provided herein and attach to the forms, certificate(s) and letter(s) as noted therein. In addition thereto, FORM NO.1, NO.2 and NO.3 shall be accompanied by certificate(s)

prepared by a competent authority verifying the legal status of the applicant and notarized documents indicating the person with name, nationality and domicile who will sign for the applicant verifying his legal representation. Further, the following documents shall be attached to the forms:

- (1) Letter of reference from bank confirming that the applicant has fulfilled his financial obligations and the bank will give its financial support if the applicant is awarded the Contract(s).
- (2) Documents issued and signed by a bank or credit agency demonstrating the maximum credit.
- (3) References and letters of recommendation in connection with projects.

2.11 Any additional matters that the applicant wishes to submit to demonstrate his ability and/or to support previous working record, should be attached as supplementary information.

2.12 Amendment may be issued by the DOW for the purpose of amending the Prequalification Documents. Each amendment to be issued will be distributed to all applicants, who should acknowledge receipt of each amendment by signing and returning the receipt form distributed with the amendment. All amendment issued will become part of the Prequalification Documents.

2.13 Questions on the Prequalification Documents which arise during preparation should be forwarded in writing to the DOW.

PART III
LIST OF FORMS

FORM NO.	DESCRIPTION	NO. OF SHEETS
1.	LETTER OF INTENT TO APPLY FOR PREQUALIFICATION IN THE TENDERING	3
2.	STATEMENT OF APPLICANT	2
3.	FINANCIAL STATUS OF APPLICANT	2
4.	EXPERIENCE RECORD OF APPLICANT	2
5.	DETAILED PROJECT EXPERIENCE	5
6.	SIMILAR TYPE PROJECT	3
7.	SPECIAL EXPERIENCE FOR THE CONSTRUCTION WORKS	1
8.	SUPERVISORY PERSONNEL	2
9.	LIST OF MAJOR PLANT AND EQUIPMENT	2
10.	STATUS OF CONTRACT IN PROGRESS	1
11.	STATEMENT OF ELIGIBILITY	1
12.	LIST OF PREQUALIFICATION FORMS TO BE FILLED IN BY THE APPLICANT	1

Note : Applicants who intend to participate in the tendering in the form of a consortium or a joint venture, are requested to duly fill in each of the forms by each of the members.

FORM NO. 1

LETTER OF INTENT TO APPLY FOR PREQUALIFICATION
IN THE TENDERING

The Chairman
Works, Supply and Tenders Board
P.O. Box 1142
Boroko
Papua New Guinea

BEREINA TO MALALAU ROAD CONSTRUCTION PROJECT

Dear Sir,

In accordance with the Prequalification Questionnaire, the undersigned Representative:

.....
(Full Name and Title)

is legally authorised to act in name and on the account of the Applicant.

Company and Firm:
.....
(Name and Address of Applicant)

Joint Venture :

* Composed of:

- (a)
- (b)
- (c)
- (d)
- (e)

by means of certified power of attorney:

.....
.....
(Place and Date of the Power of Attorney)

attached to these documents, hereby apply for prequalification for tendering to the Works /1 of the Bereina to Malalau Road Construction Project.

By this letter, the undersigned Representative, acting in the name on account of the Applicant declares:

- (1) To guarantee the truthfulness and exactness of all the statements and answers made in the Prequalification Questionnaire and in the attached documents.
- (2) To authorise the Employer or his delegate to effect any investigation to prove the truthfulness of the statements and documents submitted and to obtain clarification and information on the technical and financial conditions of the Applicant.
- (3) To accept unconditionally the dates and period fixed or to be fixed by the Employer for the Prequalification and Tendering, renouncing consequently to ask for extension.
- (4) To accept unconditionally the procedure adopted for the tendering, the documents of the same and to renounce consequently to any claim.
- (5) To have the widest authority to execute agreements and to effect all necessary formalities for the tender, including the signature of the contract, by virtue of the power of attorney granted.
- (6) To give the Employer the full right without giving any justifications:
 - (a) To disqualify any Applicant who does not meet the requirements indicated in the Prequalification Documents or does not submit the required documentation or is not acceptable to the Employer for reasons in his opinion to be substantial.
 - (b) Not to accept any claim regarding either procedure or the results of the Prequalification.
- (7) To certify that the following amendment issued by the Employer have been received:

Amendment No. date 19

Amendment No. date 19
- (8) To indicate the address which is his legal domicile and to which the Employer may direct correspondence in regard to the effects of his application:

(Mail, Cable, Telex Address and Telephone Number)

.....
.....

(9) Name and position of person who may be contacted for further information if required.

(a) Technical
(b) Financial

..... (Place and Date) (The Representative)

Note : * Delete the part not applicable

/1 Insert the words Lot I or Lot II, or Lot I and Lot II, whichever is appropriate.

FORM NO. 2

STATEMENT OF APPLICANT

1. Name of applicant :
(Company and Firm) :
2. Home office address :
.....
3. Type of organization :
(i.e. General Civil
Engineering Contractor) :
4. Place, date of :
establishment and :
years organized :
(Place)
.....
(Day) (Month) (Year)
.....(Years)
5. Local office address (if any), cable, phone:
.....
.....
6. Nominal capital (Kina) :
7. Exchange rate adopted : 1 Kina = (original)
for the equivalent in 1 Kina = (US\$)
Kina
8. Name and positions of principal officers in home
office:
.....
.....
9. Name and positions of principal officers in local office
(if any):
.....
.....

10. Name and address of associate company and firm, or agent in Papua New Guinea (if any):

.....
.....

11. Name and address of joint venture partner for highway work in Papua New Guinea (if any):

.....
.....

12. Sponsoring member of joint venture (if any):

.....

13. Personnel

13.1 Number of Staff :

Technical :

Administrative :

13.2 Number of graduate/chartered engineers

(a) World :

(b) South East Asia :

(c) Papua New Guinea :

13.3 Number of supervisory personnel

(a) World :

(b) South East Asia :

(c) Papua New Guinea :

13.4 Number of graduate/chartered engineers available for assignment in Papua New Guinea :

13.5 Number of supervisory personnel available for assignment in Papua New Guinea :

..... (Place and Date) (The Representative)

FORM NO. 3

FINANCIAL STATUS OF APPLICANT

The following is information and data showing the Applicant's financial statements for the last two years with certification by registered auditors or competent authorities. (Exchange rate adopted for the equivalent in Kina shall be indicated for each year.)

1. Total assets :
2. Current assets :
3. Liquid assets :
4. Total liabilities :
5. Current liabilities :
6. Share capital and Reserve :
7. Current credit resources :
8. Net worth :
9. Amount of balance :
10. Date of balance :
(Day) (Month) (Year)
11. Rates of exchange used in preparing submission : 1 Kina =
1 Kina =
12. Bank references and address :
.....
.....
13. Bonding capacity : (list names of institutes and bondable amounts)

Institutes	Amount in Kina
.....
.....
.....

14. Value of Contract for which company would tender (k)
(if no limit leave blank) :

Maximum Minimum

.....
(Place and Date)

.....
(The Representative)

FORM NO. 4

EXPERIENCE RECORD OF APPLICANT

1. Business experience of the Applicant as a contractor under present name : (years) 19... to 19...
2. Years of highway experience
 - (a) World : (years) 19... to 19...
 - (b) South East Asia : (years) 19... to 19...
 - (c) Papua New Guinea : (years) 19... to 19...
3. Years of civil work experience
 - (a) World : (years) 19... to 19...
 - (b) South East Asia : (years) 19... to 19...
 - (c) Papua New Guinea : (years) 19... to 19...
4. Value of highway and bridge projects awarded in last ten (10) years (Kina)
 - (a) World :
 - (b) South East Asia :
 - (c) Papua New Guinea :
5. Largest annual rate of highway construction (Kina) with year
 - (a) World :
 - (b) South East Asia :
 - (c) Papua New Guinea :
6. Value of largest highway project completed singly (Kina)
 - (a) World :
 - (b) South East Asia :
 - (c) Papua New Guinea :

7. Value of largest highway project completed in joint venture (Kina)
- (a) World :
 - (b) South East Asia :
 - (c) Papua New Guinea :
8. Value of largest highway project involved with as a subcontractor and value of subcontract completed
- (a) World :
 - (b) South East Asia :
 - (c) Papua New Guinea :
9. Annual construction value of current projects (Kina)
- | | Highways | Civil Works |
|------------------------|----------|-------------|
| (a) World : | | |
| (b) South East Asia : | | |
| (c) Papua New Guinea : | | |
10. Value of civil works (excluding highway and bridge) awarded in last ten (10) years (Kina)
- (a) World :
 - (b) South East Asia :
 - (c) Papua New Guinea :
12. Particulars of any failure to complete contracts.

.....
 (Place and Date)

.....
 (The Representative)

FORM NO. 5

DETAILED PROJECT EXPERIENCE

Highway and bridge works and other civil works successfully completed by the Applicant in last ten (10) years. Attach the form copied from this page to declare as many as necessary.

The detailed project experience in the FORM NO. 5 shall be described according to the following four (4) items:

1. Highway and Bridge Works - Papua New Guinea and South East Asia.
2. Highway and Bridge Works - World Wide excluding Papua New Guinea and South East Asia.
3. Other Civil Works - Papua New Guinea and South East Asia.
4. Other Civil Works - World Wide excluding Papua New Guinea and South East Asia.

FORM NO. 5-1

DETAILED PROJECT EXPERIENCE

1. Highway and bridge works - Papua New Guinea and South-East Asia (last ten (10) years)

- (a) Name of project :
- (b) Contract role, main or sub-contractor :
- (c) Client :
- (d) Contract value (Kina) :
- (e) Commencement date :
- (f) Actual or estimated completion date :
- (g) Percentage of participation of company in project :
- (h) Percentage complete :
- (i) Name and address of Engineer (Consultant) in charge of the supervision of construction :
- (j) Name of financier(s) :
- (k) Litigation :
- (l) Brief description of project :

.....
(Place and Date)

.....
(The Representative)

FORM NO. 5-2

DETAILED PROJECT EXPERIENCE

2. Highway and bridge works - world wide excluding Papua New Guinea and South-East Asia (last ten (10) years)

- (a) Name of project :
- (b) Contract role, main or sub-contractor :
- (c) Client :
- (d) Contract value (Kina) :
- (e) Commencement date :
- (f) Actual or estimated completion date :
- (g) Percentage of participation of company in project :
- (h) Percentage complete :
- (i) Name and address of Engineer (Consultant) in charge of the supervision of construction :
- (j) Name of financier(s) :
- (k) Litigation :
- (l) Brief description of project :

.....
(Place and Date)

.....
(The Representative)

FORM NO. 5-3

DETAILED PROJECT EXPERIENCE

3. Other civil works - Papua New Guinea and South-East Asia
(last ten (10) years)

- (a) Name of project :
- (b) Contract role, main :
or sub-contractor
- (c) Client :
- (d) Contract value :
(Kina)
- (e) Commencement date :
- (f) Actual or estimated :
completion date
- (g) Percentage of :
participation of
company in project
- (h) Percentage complete :
- (i) Name and address of :
Engineer (Consultant)
in charge of the
supervision of con-
struction
- (j) Name of financier(s) :
- (k) Litigation :
- (l) Brief description of :
project

.....
(Place and Date)

.....
(The Representative)

FORM NO. 5-4

DETAIL PROJECT EXPERIENCE

4. Other civil works - world wide excluding Papua New Guinea and South East Asia (last ten (10) years)

- (a) Name of project :
- (b) Contract role, main or sub-contract :
- (c) Client :
- (d) Contract value (Kina) :
- (e) Commencement date :
- (f) Actual or estimated completion date :
- (g) Percentage of participation of company in project :
- (h) Percentage complete :
- (i) Name and address of Engineer (Consultant) in charge of the supervision of construction :
- (j) Name of financier(s) :
- (k) Litigation :
- (l) Brief description of project :

..... (Place and Date) (The Representative)

FORM NO. 6

SIMILAR TYPE PROJECT

Give full information of construction experience in highway and bridge works successfully completed by the Applicant as a main contractor but not as a sub-contractor in last ten (10) years. Use as many copies as necessary.

1. Name of project :
2. Features of roadway and pavement (new or improvement, length, width, grade, number of major drainage structures, excavation and embankment volume, etc.) :
.....
.....
.....
3. Geological conditions, as detailed as possible :
.....
.....
.....
4. Earthworks (method of excavation and embankment, major equipment used, etc) :
.....
.....
.....
5. Pavement (type, design, volumes and kinds of material of subbase, base and surface courses, major equipment and plant used, etc) :
.....
.....
.....

6. Bridges (types of concrete bridges and steel bridges, number of sites, span and width, pile foundation or expanding footing substructure, maximum height of scaffolding required, major equipment and plant used, etc) :

.....
.....
.....

7. Piling work (type of piles, i.e., steel pile, concrete pile, in-situ concrete pile, etc, total length, diameter, method of piling, major equipment and plant used, etc) :

.....
.....
.....

8. Concrete work (concrete volume placed, method of concreting, major equipment and plant used, etc) :

.....
.....
.....

9. Contract value for construction of highway and bridge projects (Kina) :

.....

10. Construction period (from month/year to month/ year) :

.....

11. Actual construction record, indicate time span (calendar basis) for each earthworks, pavement, bridge and other major concrete structures :

.....
.....
.....

12. Reason for delay, if any :

.....
.....
.....

.....
(Place and Date)

.....
(The Representative)

FORM NO. 7

SPECIAL EXPERIENCE FOR THE CONSTRUCTION WORKS

Give the following information of construction experience in last ten (10) years. Use as many copies as necessary.

1. Earthworks (including road and other civil works) on soft ground, swamp area, embankment in the water, etc

- (a) Name of project :
- (b) Work description :
- (c) Geological conditions :
- (d) Countermeasure of earthworks :

2. Cast-in-situ Bored Piling founded on rock formation

- (a) Name of project :
- (b) Work description :
- (c) Geological conditions :

.....
(Place and Date)

.....
(The Representative)

Note: In case the Applicant wishes to be prequalified for tendering Lot I only, this Form should be deleted and initialled by the Applicant.

FORM NO. 8

SUPERVISORY PERSONNEL

The following is detailed information regarding key engineering personnel and other key supervisory personnel, majority of whom are expected to be full-time field staff for the Works in the event of the contract being awarded. (Fill in a form for each person.)

- 1. Name :
- 2. Date of birth :
- 3. Nationality :
- 4. Education and degrees :
- 5. Present position :
- 6. Years of experience
 - with the company :
 - in construction :
- 7. Positions held since graduation :
.....
.....
- 8. Membership of professional institutions (with date of qualification) :
- 9. Experience of particular project
 - Highway :
 - Civil Works :
 - Other :

This should cover the past experience. Use as many pages as necessary.

The experience of a particular project shall be described under the following items:

- (a) Name of project :
- (b) Name and address of Client :
.....
- (c) Name and address of Engineer :
.....
- (d) Feature of project :
- (e) Contract value :
- (f) Position :
- (g) Assignment period :

.....
(Place and Date)

.....
(The Representative)

FORM NO. 9

LIST OF MAJOR PLANT AND EQUIPMENT

1. Various items of plant and equipment and size or capacity which the Contractor currently has available for the undertaking the Project.

Equipment	Size or Capacity	Number
Rock crushing plant		
Concrete batching plant		
Cement stabilization plant		
Portable concrete mixers		
Bitumen spray trucks		
Motor graders		
Bulldozers		
Dump trucks		
Water trucks		
Tractor shovels		
Front end loaders		
Steel wheel rollers		
Vibrating rollers		
Sheepsfoot rollers		
Rubber tired rollers		
Aggregate spreader		
Stabilizer		
Compressors		
Water pumps		
Hydraulic excavators		
Pile driving machine		
Other (specify)		

2. Detailed plant and equipment list which the contractor currently has available to undertake the project. (Use as many copies as necessary.)

Detailed Plant and Equipment List

Classifi- cation	Type	Capa- city	Age and De- preciated Value	Condi- tion	Loca- tion	Availability and owner- ship Status (Wholley or Partly Owned, Hire Purchase, Rentals or Proposed)
---------------------	------	---------------	-----------------------------------	----------------	---------------	---

.....
(Place and Date)

.....
(The Representative)

FORM NO. 10

STATUS OF CONTRACT IN PROGRESS

Give full information about all of your uncompleted works on current contract in progress whether prime or sub-contracts. Use as many copies as necessary.

Name of Project, Country, Client	Contract Value (Kina)	Construction Period	Prime or Sub-Contract	Work Description
----------------------------------	-----------------------	---------------------	-----------------------	------------------

TOTAL

.....
(Place and Date)

.....
(The Representative)

FORM NO. 11

STATEMENT OF ELIGIBILITY

(In case a joint venture or consortium is formed, all member companies shall duly fill in this form.)

I (We) hereby certify :

That my (our) company is an eligible contractor, as
..... percent (%) of the shares are held by
nationals of (eligible source
country), and percent (%) of the directors
are nationals of (eligible
source country).

.....
(Place and Date)

.....
(The Representative)

FORM NO. 12

LIST OF PREQUALIFICATION FORMS TO BE
FILLED IN BY THE APPLICANT

Indicate the number of sheets duly filled in by the Applicant for each No.

Form No.	Number of Sheets Prepared by the Applicant	Remarks
FORM NO. 1		
FORM NO. 2		
FORM NO. 3		
FORM NO. 4		
FORM NO. 5		
FORM NO. 6		
FORM NO. 7		
FORM NO. 8		
FORM NO. 9		
FORM NO. 10		
FORM NO. 11		
FORM NO. 12		

.....
(Place and Date)

.....
(The Representative)

APPENDIX A

LIST OF ELIGIBLE SOURCE COUNTRIES

APPENDIX A

LIST OF ELIGIBLE SOURCE COUNTRIES

1. JAPAN

2. ASIA

Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, United Arab Emirates, Abu Dhabi, Yemen, Yemen Dem., Afganistan, Bangladesh, Bhutan, Burma, India, Maldives, Nepal, Pakistan, Sri Lanka, Brunei, Kampuchea, Hong Kong, Indonesia, Rep. of Korea, Laos, Macao, Malaysia, Philippines, Singapore, Thailand, Taiwan, Socialist Republic of Vietnam, People's Republic of China, Timor.

3. AFRICA

Algeria, Egypt, Libya, Morocco, Tunisia, Angola, Benin, Botswana, Burundi, Cameroon, Cape Verde, Central African Rep., Chad, Comoros, Congo, Equatorial Guinea, Guinea-Bissau, Ivory Coast, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mayotte, Mozambique, Niger, Nigeria, Reunion, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, Djibouti, St Helena, Sudan, Swaziland, Tanzania, Togo, Uganda, Upper Volta, Zaire, Zambia, Zimbabwe, Ethiopia, Gabon, Gambia, Ghana, Guinea.

4. AMERICA

Canada, United State of America, Bahama, Barbados, Belize, Bermuda, Costa Rica, Cuba, Dominican Republic, El Salvador, Guadeloupe, Guatemala, Haiti, Honduras, Jamaica, Martinique, Mexico, Netherlands Antilles, Nicaragua, Panama, St Pierre and Miquelon, Trinidad and Tobago, West Indies, Anguilla, Antigua, Cayman Islands, Dominica, Grenada, Montserrat, St Kitts-Nevis, St. Lucia, St. Vincent, Turka and Caicos Islands, Virgin Islands (Br.), Argentina, Bolivia, Brazil, Chile, Colombia, Equador, Falkland Islands, Guyana, Guiana (Fr.), Paraguay, Peru, Surinam, Uruguay, Venezuela.

5. EUROPE

Austria, Belgium, Denmark, Finland, France, Federal Republic of Germany, Italy, Netherlands, Norway, Sweden, Switzerland, United Kingdom, Cyprus, Gibraltar, Greece, Malta, Portugal, Turkey, Yugoslavia, Spain, Ireland, Iceland, Luxembourg.

6. OCEANIA

Australia, New Zealand, Cook Islands, Fiji, Kiribati, French Polynesia, Nauru, New Caledonia, Niue Island, Pacific Islands (US), Papua New Guinea, Solomon Islands, Tokelau Islands, Tonga, Tuvalu, Wallis and Futuna, Western Samoa, Vanuatu.

APPENDIX B
PROJECT DESCRIPTION

APPENDIX B

PROJECT DESCRIPTION

B.1 General

The Bereina to Malalaua Project involves the construction of 80.6 kilometres of road along the coast of Central and Gulf Provinces, and forms part of the 575km Trans-Island Highway which will link Port Moresby, the Capital of Papua New Guinea, to Lae, the second largest city of the country.

The road section of 170km from Port Moresby to Bereina is already open to the public. The end point of Malalaua is connected by the existing road to Port Kerema which is located 70km away from Malalaua.

The project will be divided into the following two (2) contract lots:

Lot I : Bereina to Miaru River Section (33.5km)
Central/Gulf Provinces.

Lot II : Miaru River to Malalaua Section (47.1km)
Gulf Province.

B.2 Bereina to Miaru River Section (Lot I)

The Bereina to Miaru River section is to be 33.5km long from CH 0+000 to CH 33+500. The proposed alignment generally traverses hilly terrain of the Inapi Ridge. This section is located over both the Central Province and the Gulf Province. The beginning point is located at Bereina and the end point is at Kwaba School near the Miaru River.

The earthworks are generally made by cutting and filling. No fill borrow pits are considered. Typical cross section of cut and fill is shown in the attached Drawings. The pavement comprises of lower subbase, cement treated upper subbase, crushed stone base course and double bituminous surface treatment. The road width is 6.5m of two carriage-way and the shoulder of 1m wide is provided at both sides. There are two subbase borrow pits and one quarry site for the base course. The covering aggregate is supplied from the river deposit located at the upstream of the Angabanga River.

There are three bridges along the road alignment. These bridges are simple composite girder types with two lane and single span of 17, 20 and 20 metres respectively. Foundation piles are friction type steel pipe piles. Main

girder sections are universal beam sections. The river protection works at the bridge section are made by gabions and reno mattresses.

The drainage pipe transversing the road embankment are 900mm to 2100mm dia. corrugated steel pipes.

The Bereina to Miaru River Section (Lot I) and the material sources are shown in the Attached Drawings.

The preliminary estimated quantities of major work items for Lot I are summarized as follows:

(a)	Clearing and grubbing		136	ha
(b)	Earthworks	Excavation	829,000	cu.m.
		Embankment	742,000	cu.m.
(c)	Pavement	Lower subbase	44,900	cu.m.
		Upper subbase	30,800	cu.m.
		Base course	44,900	cu.m.
		Bituminous surface treatment (DBST)	220,000	sq.m.
(d)	Drainage	CSP culverts	2,900	m
(e)	Bridge No.1 Taiena Bridge	Steel pipe pile 500mm dia.	150	m
		Formwork	320	sq.m.
		Steel reinforcement	21	ton
		Concrete	140	cu.m.
		Structural steel	23	ton
		Gabions and reno mattresses	52	cu.m.
(g)	Bridge No.2 Agobino Bridge	Steel pipe pile 500mm dia.	130	m
		Formwork	340	sq.m.
		Steel reinforcement	22	ton
		Concrete	87	cu.m.
		Structural steel	33	ton
		Gabions and reno mattresses	70	cu.m.
(h)	Bridge No.3 Ungongo Bridge	Steel pipe pile 500mm dia.	200	m
		Formwork	360	sq.m.
		Steel reinforcement	25	ton
		Concrete	160	cu.m.
		Structural steel	33	ton
		Gabions and reno mattresses	84	cu.m.

B.3 Miaru River to Malalaua Section (Lot II)

The Miaru River to Malalaua section is to be 47.1km long from CH 33+500 to CH 80.596. The proposed alignment traverses hilly terrains such as Apanaipi Ridge, Palippala Hills and Ilabara Hills, and soft ground areas and swamp areas. About 20 percent of the alignment is situated in the swamp area. The beginning point of CH 33+500 is located at the left side about 300m away from the Miaru River and the end point is at Malalaua.

On the hilly terrains, the earthworks are made cutting and filling, and borrow for the part of alignment. The earthworks in the swamp area and on soft ground area are generally made by embankment of borrow material. There are seven fill borrow pits and one stock pile. The soft ground sections including swamp area sections require filling countermeasures, i.e., clearing and grubbing in the swamp area, geotextile fabric, sand mat filling, sand bags and field observation of settlement, etc. There are three sand borrow pits which are located at Ilabara Hill and seashore. Typical cross section of cut and fill is shown in the Attached Drawings. The cross section for soft ground is also shown in the Attached Drawings.

The pavement comprises lower subbase, cement treated upper subbase, cement treated base course and double bituminous surface treatment. The road width is 6.5m of two carriage-way and the shoulder of 1m wide is provided at both sides. One subbase borrow pit and one base borrow pit are provided near Malalaua. The covering aggregate is supplied from the river deposit located at the upstream of Tauri River.

There are six bridges with single lane along the road alignment, of which four are simple composite girder bridges of 234m in total while two are continuous composite girder bridges of 240m in total. The simple composite girder bridges comprise two spans and three spans respectively. The continuous composite girder bridges comprise three spans each. Foundation piles are friction type steel pipe piles for four bridges while for the other two bridges are cast-in-situ bored piles. Main girder sections are built up plate girder sections for three bridges and the remaining universal beam sections. The river protection works at the bridge section are made by gabions and reno mattresses.

The drainage pipes transversing road embankment are 900 to 2100mm dia. corrugated steel pipes.

The Miaru River to Malalaua section (Lot II) and the material sources are shown in the Attached Drawings.

The preliminary estimated quantities of major works for Lot II are summarized as follows:

(a)	Clearing and grubbing	Dry land area	159	ha
		Swamp area	27	ha
		Borrow pits	16	ha
(b)	Earth Works	Excavation	261,000	cu.m.
		Embankment (inc. borrow)	592,000	cu.m.
		Borrow	353,000	cu.m.
		Sand mat and sand fill	172,000	cu.m.
		Geotextile fabric	366,000	sq.m.
		Reno mattresses	1,300	cu.m.
(c)	Pavement	Lower subbase	61,600	cu.m.
		Upper subbase	42,400	cu.m.
		Base course	60,900	cu.m.
		Bituminous surface treatment (DBST)	316,000	sq.m.
(d)	Drainage	CSP culverts	3,830	m
		subsoil drain	5,600	m.
(e)	Bridge No.4 Miaru Bridge	Steel pipe pile 600 and 800mm dia.	340	m
		Formwork	760	sq.m.
		Steel reinforcement	44	ton
		Concrete	251	cu.m.
		Structural steel	98	ton
		Gabions and reno mattresses	430	cu.m.
(f)	Bridge No.5 Kapuri Bridge	Steel pipe pile 500 and 800mm dia.	340	m
		Formwork	580	sq.m.
		Steel reinforcement	37	ton
		Concrete	200	cu.m.
		Structural steel	57	ton
(g)	Bridge No.6 Lakekamu Bridge	Cast-in-situ bored pile 800 and 1000 mm dia	320	m
		Formwork	930	sq.m.
		Steel reinforcement	79	ton
		Concrete	350	cu.m.
		Structural steel	119	ton
(h)	Bridge No.7 Tauri Bridge	Cast-in-situ bored pile 800 and 1000 mm dia	310	m
		Formwork	780	sq.m.
		Steel reinforcement	79	ton
		Concrete	350	cu.m.
		Structural steel	119	ton

(i)	Bridge No.8 Makara Bridge	Steel pipe pile 500 and 800 mm dia. Formwork Steel reinforcement Concrete Structural steel	360 m. 410 sq.m. 24 ton 150 cu.m. 38 ton
(j)	Bridge No.9 Sappaharo Bridge	Steel pipe piles 500 and 800mm dia. Formwork Steel reinforcement Concrete Structural steel	420 m 450 sq.m. 23 ton 140 cu.m. 38 ton

B.4 General Information

(1) Climate

The climate over the project area is tropical and monsoonal only for two seasons, the wet and the dry, regulated by northwest and southeast airstreams, respectively. The wet season normally extends from December to April. Annual rainfall varies between 1200mm and 1600mm except Port of Kerema (3612mm). Mean monthly temperature is 26°C varying from 36.8°C maximum to 10.4°C minimum.

(2) Access by Roads

The Hiritano Highway runs about 170km from Port Moresby to Bereina and is available for the access of the Work Lot I. Another access road of about 42km connects the section between Bereina and Apanaipi through Iokea for the end point of Lot I. This route is also available for the access of Work Lot II.

The end point of Lot II, Malalaua, is connected by the existing road about 42km from Port of Kerema to Malalaua. Port of Kerema is very important for the transportation of the Work Lot II.

(3) Access by Waterways

The waterway from Port Moresby to Port of Kerema is one of the most reliable ways to the Lot II work site. 50 tonne cargo ships are available throughout the year between both ports. Other barge type ships are also available for sea transportation along the coast. No unloading/loading equipment is at Port of Kerema. In the Lot II work site, there are many river waterways such as Miaru River, Lese Estuary, Kapuri River, Lakekamu River and Tauri River. According to the river conditions and water depth, the Lakekamu River and the Lese Estuary are good river transportation routes from the sea.

(4) Access by Airways

Airfields are located at Bereina, Iokea, Lese Oalai, Terapo Mission, Malalaua and Kerema in the project area. A daily regular flight is scheduled by Talair. However, this flight does not operate because of lack of passengers due to the opening of the Hiritano Highway in 1985. Access by helicopter is the most convenient way into the project area.

(5) Availability of Materials

Portland cement is not produced in Papua New Guinea and is normally distributed through local importing agencies in bagged form. There are no bulk storage facilities.

Reinforcing steel and structural steel are not produced in Papua New Guinea but local merchants hold reasonable stocks of common structural steel sections and reinforcing steel.

Bitumen for road surfacing is not produced in Papua New Guinea but is imported by major oil companies in barrel form.

Concrete and nestable corrugated metal pipe culverts are manufactured in Lae. Multiple and other metal pipe products are usually imported from Australia or Japan through local importing agencies.

Local timber is readily available, Papua New Guinea being a major exporter, but processed timber products are frequently imported.

(6) Availability of Construction Equipment

Most leading construction equipment manufacturers have agents in Papua New Guinea. The equipment items such as bulldozers, shovels, graders, dump trucks, etc. are available ex stock, and spare parts are generally available in the major centres of Port Moresby and Lae.

(7) Availability of Labour

Skilled labour for use on major highway projects is scarce and the contractors will be required to undertake certain training commitments in terms of the Employment (Training and Regulation) Act.

It is the Government's policy to increase employment for Papua New Guineans by regulating the employment of expatriates in jobs which Papua New Guineans can do, or could be trained to do, within a reasonable time. Expatriates are now prohibited from employment in some occupations and their employment is restricted in a number of other jobs. The Act, at the discretion of the Minister

for Labour, provides for exemption in special circumstances and it is the Government's policy to facilitate the entry of essential expatriate employment projects in the country.

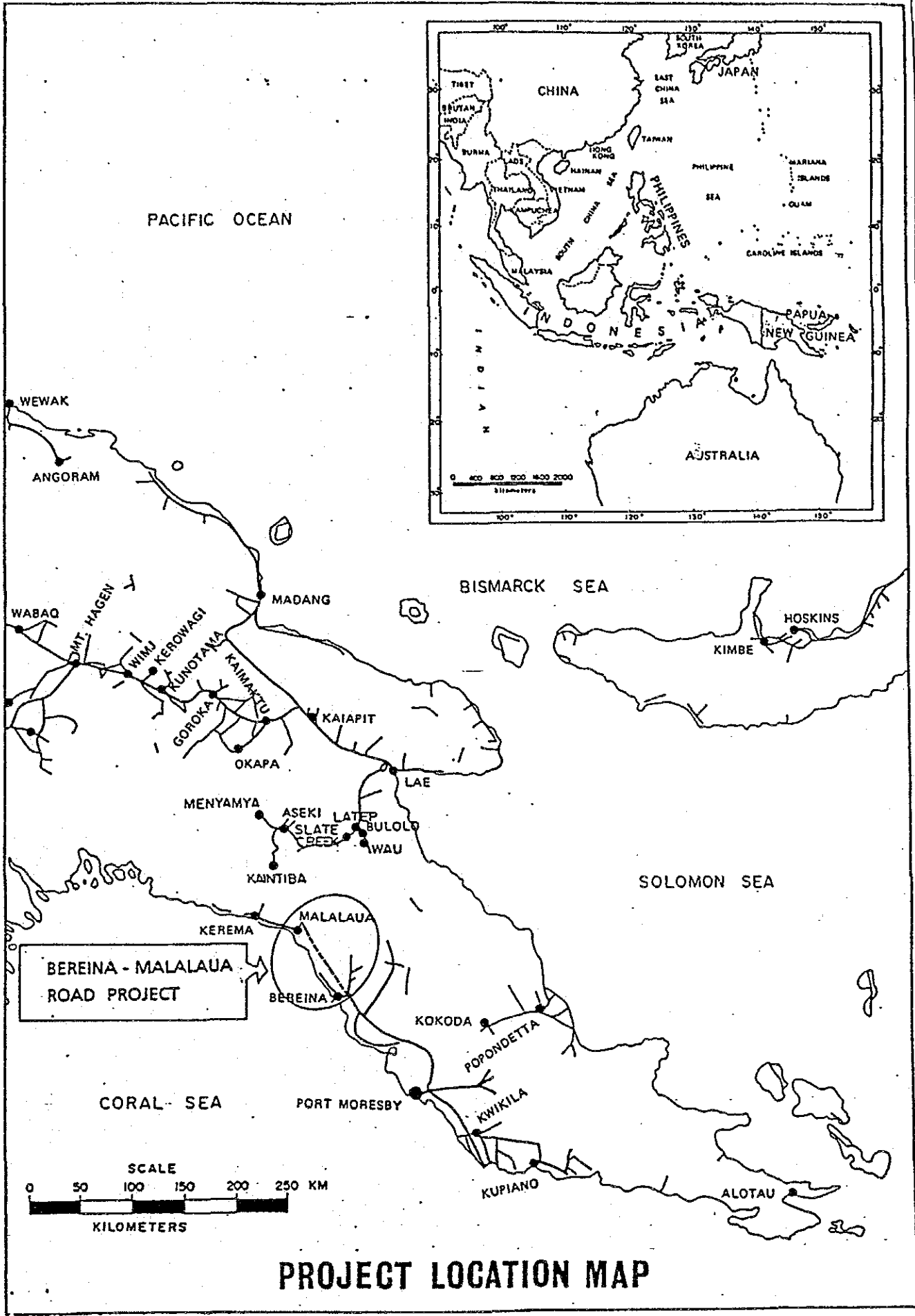
(8) Legal

Contractors intending to apply to prequalify are advised to familiarise themselves with the requirements of the Employment Act as well as other statutes governing company activities, taxation, overseas remittances and the like.

The projects will be let under the Conditions of Contract for Civil Engineering Construction, Department of Works, 1st Edition, April 1988 and will be governed by the laws of Papua New Guinea.

ATTACHED DRAWINGS

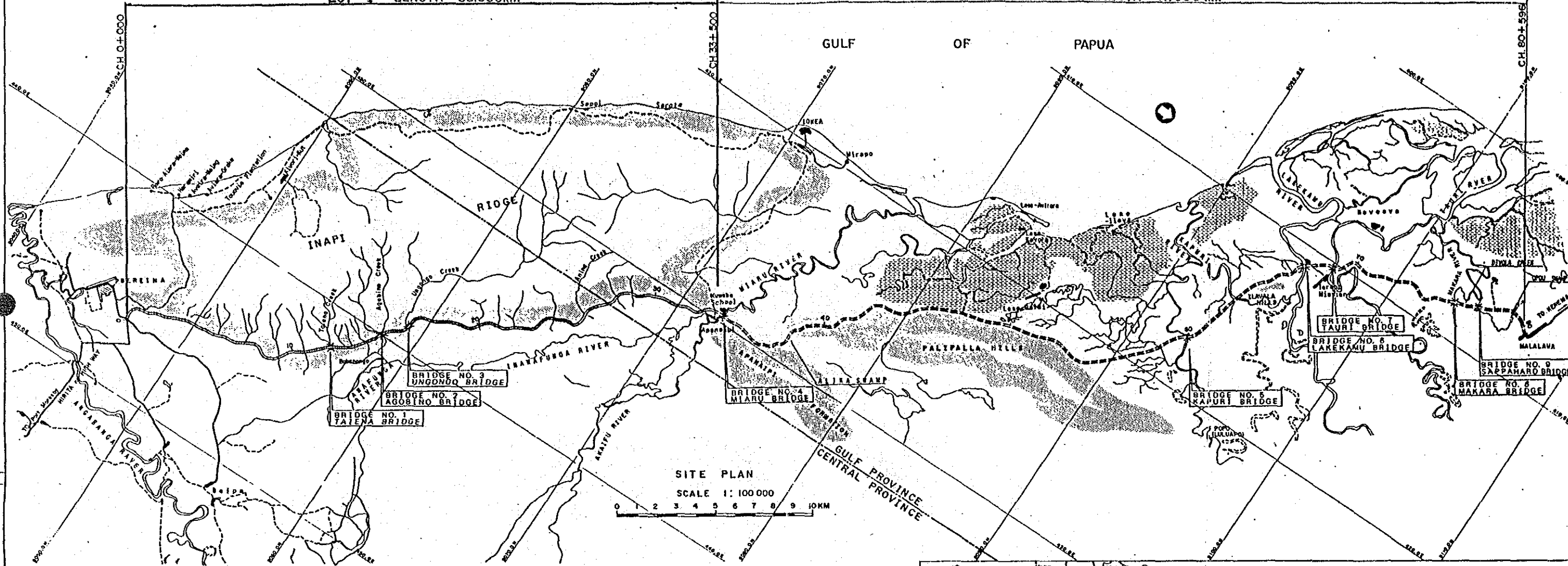
LOT I : BEREINA TO MIARU RIVER SECTION
CONTRACT NO. SC 120-33-814/A
CH 0+000 TO CH 33+500

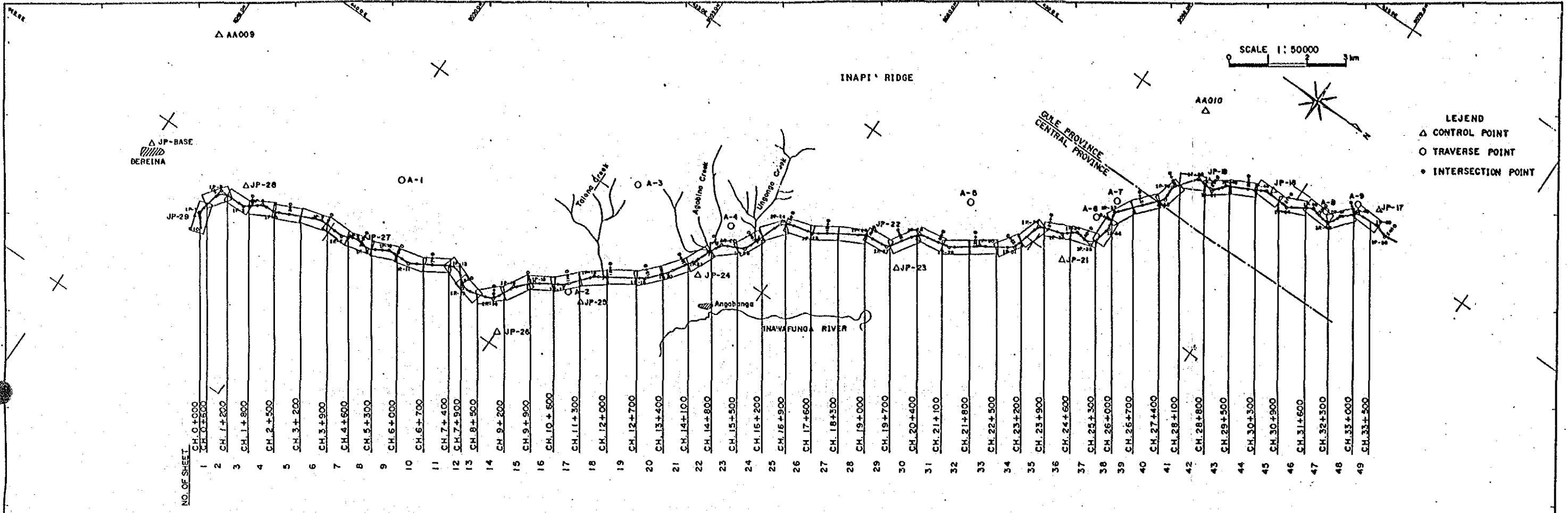


PROJECT LOCATION MAP

LOT-I LENGTH = 33.500km

LOT-I LENGTH = 47.096 km





COORDINATES & ELEVATION OF CONTROL POINTS
(Transformed to A. G. D. System)

STATION	NORTHING	EASTING	ELEVATION	REMARKS
JP-17	9071897.393	429240.295	5.112	***O
JP-18	9069394.365	430442.978	18.073	
JP-19	9067896.129	431113.438	47.795	
JP-21	9065841.444	434989.175	19.488	O
JP-22	9061453.144	437122.316	30.114	O
JP-23	9062522.864	437544.593	28.733	
JP-24	9058333.379	440554.353	22.541	
JP-25	9058365.873	442814.345	12.341	O
JP-26	9055013.440	444604.084	17.838	O
JP-27	9050877.342	444748.253	28.614	O
JP-28	9047567.514	445245.856	41.351	O
JP-29	9046989.289	446595.673	8.627	O
BESE	9045004.587	445676.212	8.312	***O
AA-009	9044837.418	442458.547	121.370	***O

COORDINATES OF NEW TRAVERSE POINTS

STATION	NORTHING	EASTING	ELEVATION
A-1	9050815.884	442882.622	154.42
A-2	9855931.394	442767.349	45.39
A-3	9055856.118	439568.683	107.18
A-4	9058385.378	439019.171	56.58
A-5	9063102.219	435133.874	75.65
A-6	9066000.789	433568.238	83.62
A-7	9066211.702	433932.223	54.00
A-8	9070789.102	430088.531	55.81
A-9	9071342.888	429486.907	40.81

COORDINATES OF INTERSECTION POINTS

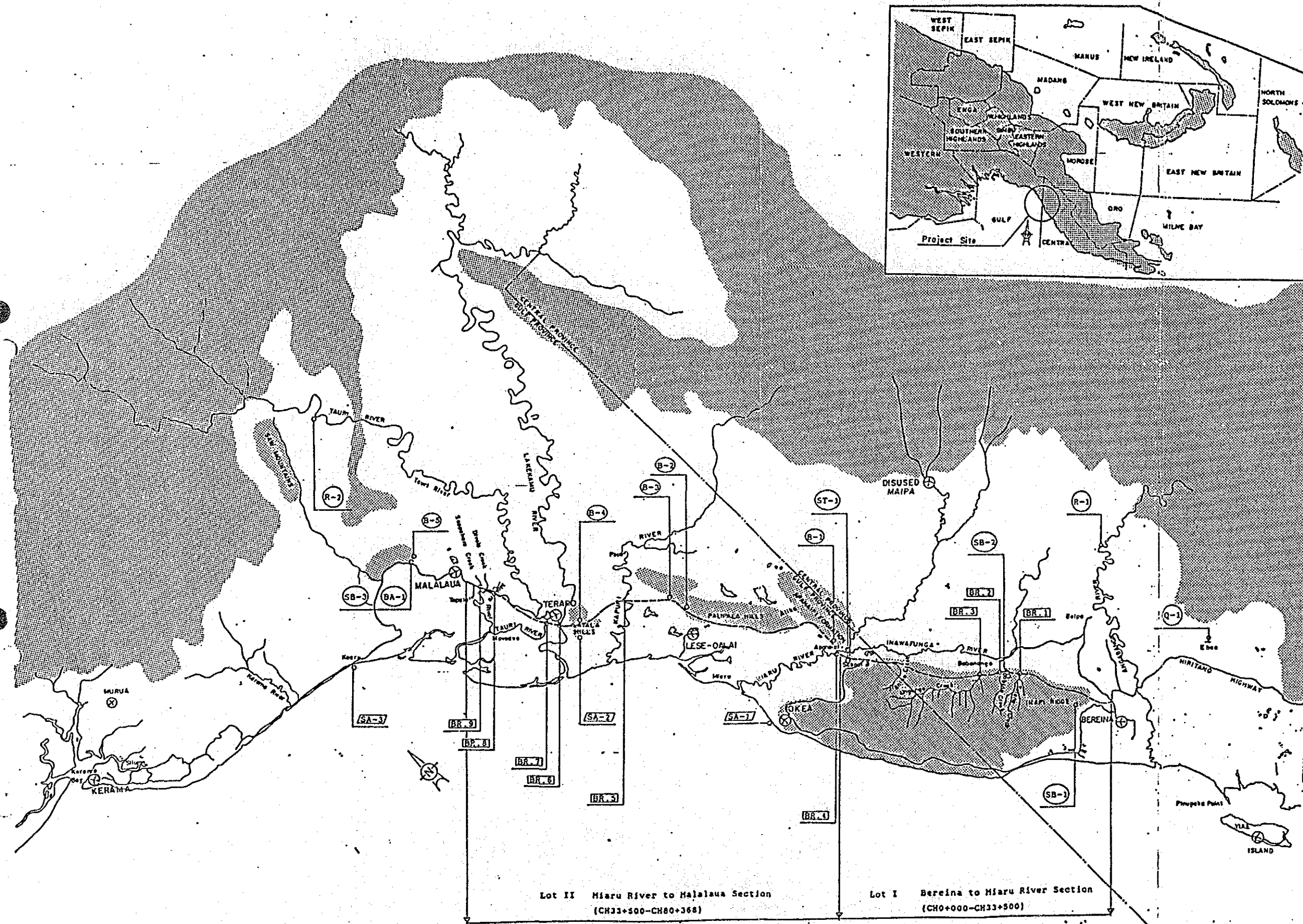
IMO	NORTHING	EASTING	BEARING	DISTANCE
BP	9047200.000	446772.000	231 29 03	403.867
1	9046948.500	446456.000	251 34 00	765.547
2	9047102.000	445706.000	359 17 11	682.553
3	9047784.500	445697.500	321 48 5	504.536
4	9048181.000	445385.500	358 27 5	387.743
5	9048568.000	445361.500	334 48 19	1198.862
6	9049651.000	444852.000	5 25 55	654.941
7	9050303.000	444914.000	337 13 49	412.117
8	9050683.000	444754.500	3 21 59	391.676
9	9051704.000	444777.500	329 54 43	538.588
10	9051540.000	444507.500	359 11 47	606.060
11	9052146.000	444499.000	329 13 42	1304.683
12	9053267.000	443831.500	46 20 55	570.793
13	9053661.000	444244.500	345 29 9	813.978
14	9054449.000	444040.500	295 9 38	829.195
15	9054716.500	443471.000	312 58 20	529.601
16	9055077.500	443083.500	328 27 18	782.148
17	9055718.500	442690.000	311 45 10	817.866
18	9056263.000	442080.000	372 27 37	1250.289
19	9057317.000	441407.500	311 25 48	607.523
20	9057719.000	440952.000	302 19 51	783.457
21	9058138.000	440290.000	294 3 5	785.188
22	9058458.000	439573.000	336 21 18	605.886
23	9059013.000	439330.000	289 21 32	1215.738
24	9059416.000	438183.000	348 9 5	813.330

COORDINATES OF INTERSECTION POINTS

IMO	NORTHING	EASTING	BEARING	DISTANCE
25	9030212.000	438016.000	328 15 53	1337.465
26	9031349.500	437312.500	354 12 12	626.715
27	9031975.000	437249.000	304 19 5	898.391
28	9032481.500	436507.000	348 17 1	656.853
29	9033820.500	436333.000	232 2 52	765.201
30	9033932.000	435873.000	328 23 10	666.954
31	9034672.000	435417.500	283 25 57	828.889
32	9034864.500	434811.500	342 8 30	644.030
33	9035477.500	434414.000	319 39 46	400.132
34	9035782.500	434155.000	7 30 7	490.196
35	9036266.500	434219.000	282 9 55	624.013
36	9036400.000	433609.000	257 59 9	448.786
37	9036307.000	433172.000	311 44 41	1369.755
38	9037219.000	432150.000	264 11 1	350.303
39	9037183.500	431801.500	308 40 38	767.262
40	9037663.000	431202.500	12 39 23	438.146
41	9038090.500	431298.500	304 39 2	405.404
42	9038321.000	430965.000	333 9 50	1040.007
43	9039249.000	430495.500	5 19 45	635.246
44	9039681.500	430554.500	329 9 28	686.596
45	9039471.000	430202.500	12 1 25	535.242
46	9039994.500	430314.000	298 42 24	361.573
47	90391157.000	429991.000	313 29 25	483.122
48	90391489.500	429640.500	358 29 25	626.217
49	90392115.500	429624.000	16 27 7	310.722
50	90392413.500	429712.000	350 25 37	935.021

NOTES: *** Direct Levelling
 *** Control Point
 O Monumented Point

SURVEY JICA		DESIGN JAPAN INTERNATIONAL CO-OPERATION AGENCY		DRAWN K. E.		RECOMMENDED		SCALES 0 1 2 3 4 km 1 : 50000		CENTRAL / GULF PROVINCES	
VERTICAL DATUM MEAN SEA LEVEL		HORIZONTAL DATUM		CHECKED A. Magala		DESIGNED A. Magala		APPROVED 20.10.63		TRANS-ISLAND HIGHWAY HERERINA-MALALAUUA SECTION	
SURVEY BOOK NOS		25 Sep. 1989		EXECUTIVE ENGINEER		SECRETARY		SHEET 3 OF 281		PROJECT No. S.C. 120-33-814/A	
AMENDMENTS		BY APP'D DATE		DRAWING No. A1/ 87762		DEPARTMENT OF WORKS		PAPUA NEW GUINEA		DRAWING No. A1/ 87762	

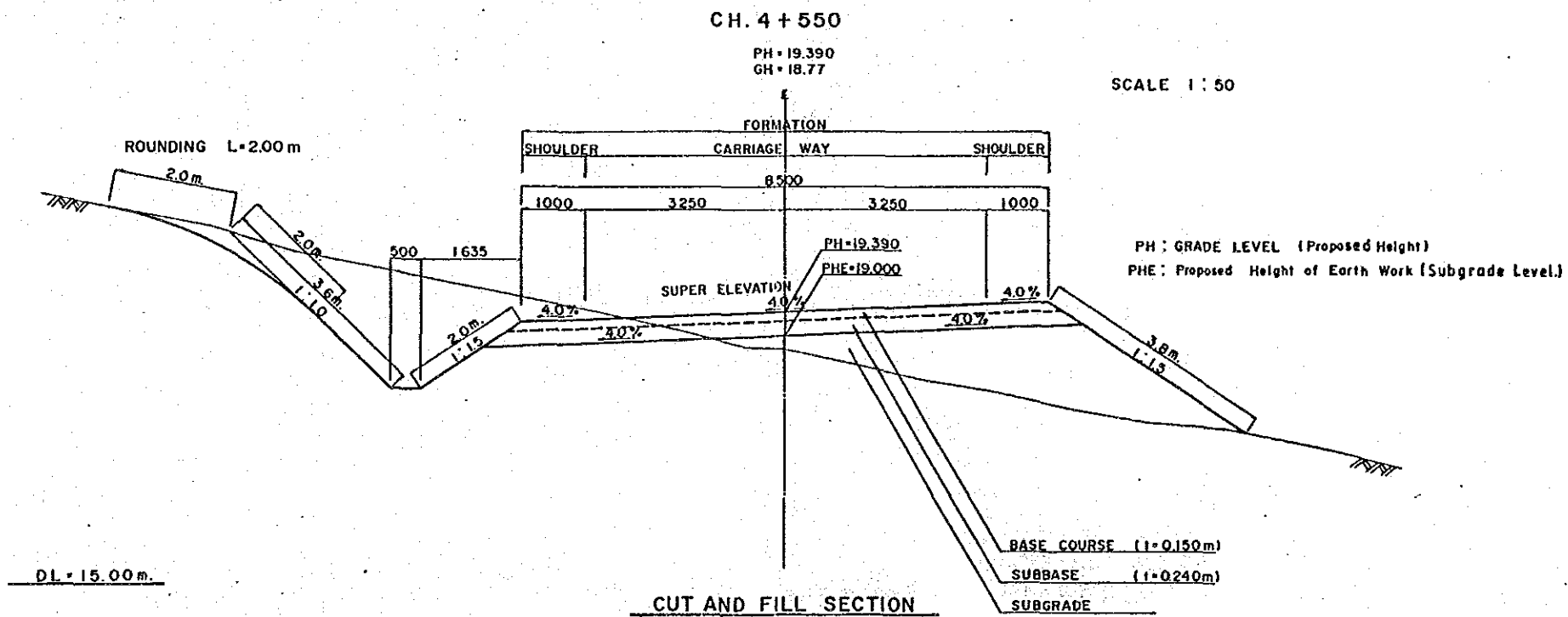
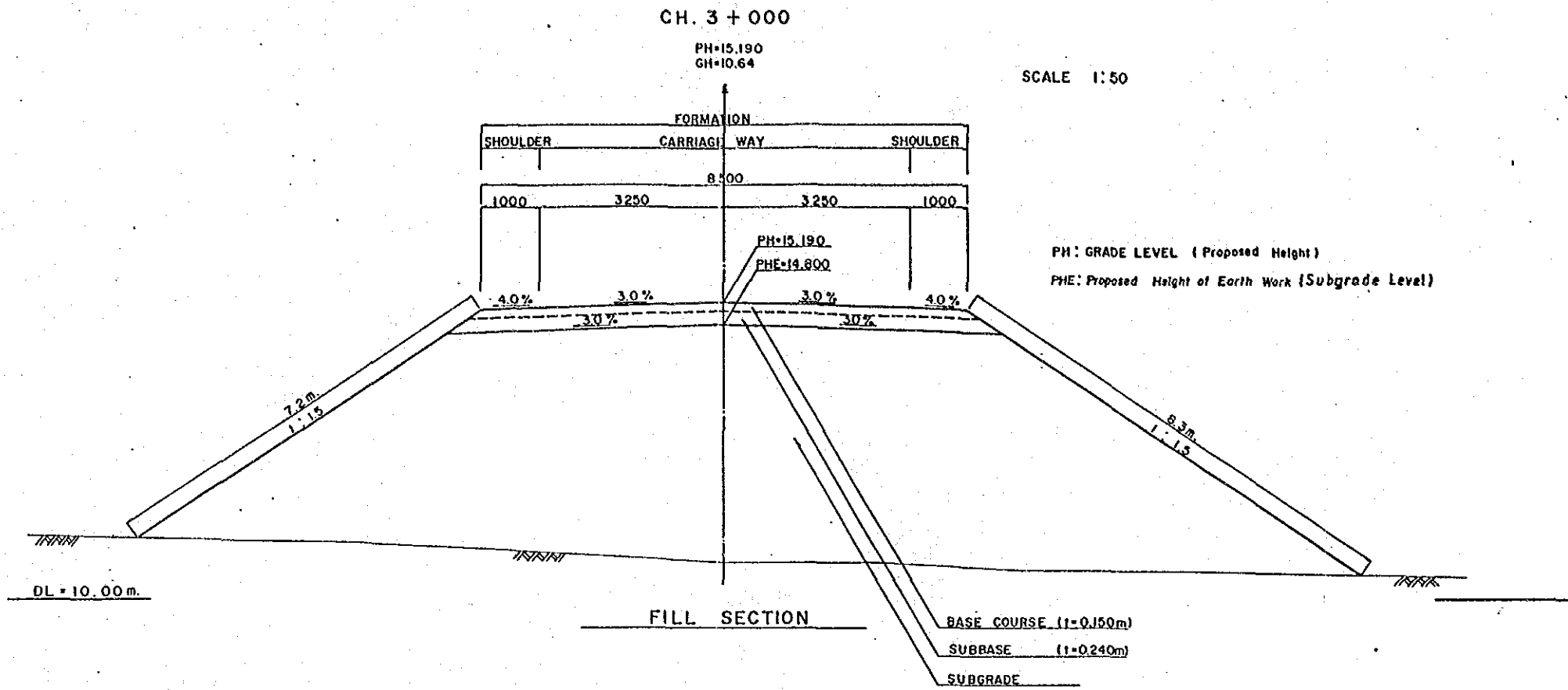


- Abbreviations:
- BR-1 Talena Bridge
 - BR-2 Agobino Bridge
 - BR-3 Ungongo Bridge
 - BR-4 Miaru Bridge
 - BR-5 Kapuri Bridge
 - BR-6 Lakekau Bridge
 - BR-7 Tauri Bridge
 - BR-8 Makara Bridge
 - BR-9 Sappaharo Bridge

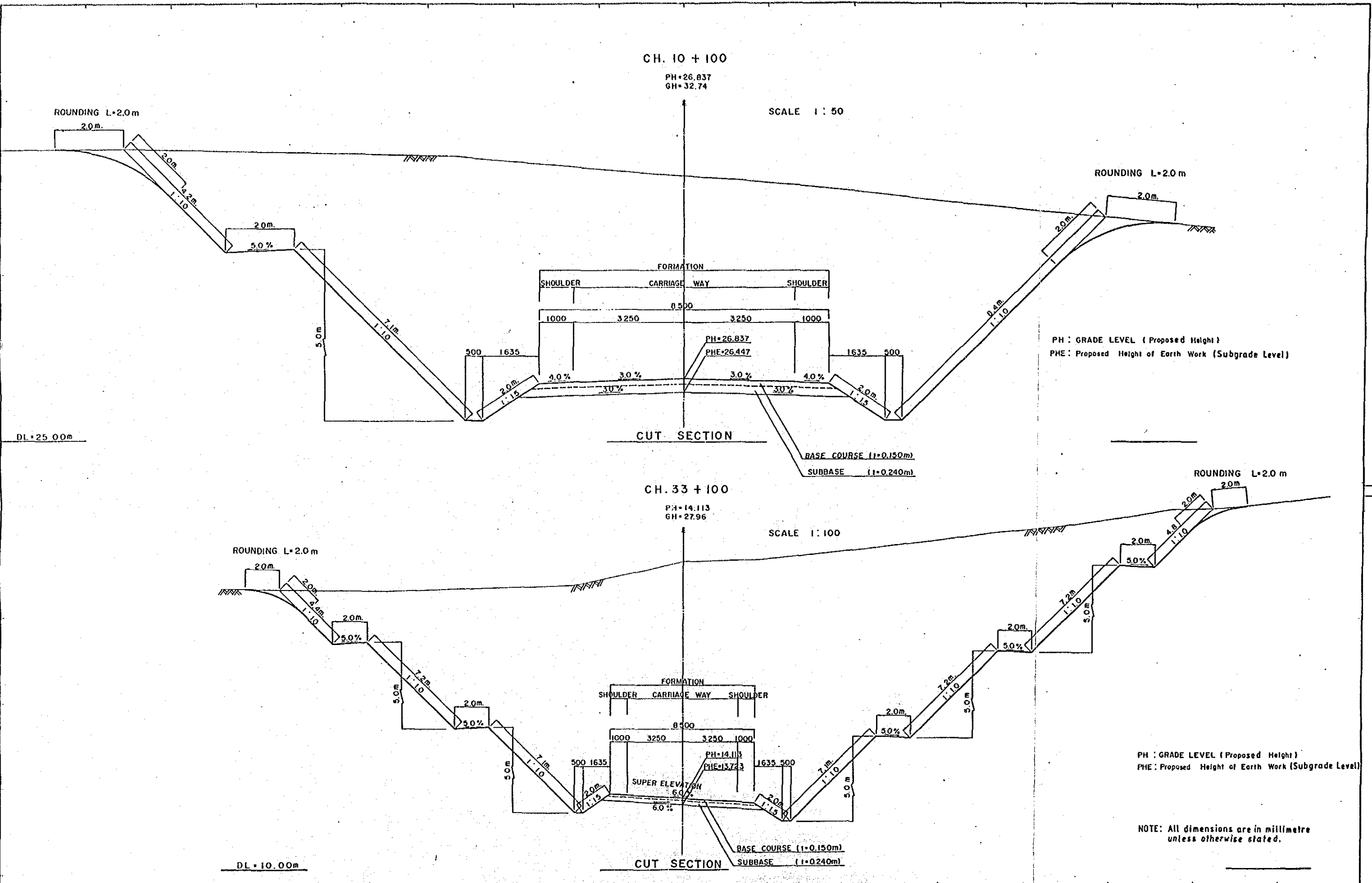
 - B-1 Borrow Pit No.1
 - B-2 Borrow Pit No.2
 - B-3 Borrow Pit No.3
 - B-4 Borrow Pit No.4
 - B-5 Borrow Pit No.5
 - ST-1 Stockpile No.1

 - SB-1 Subbase Borrow Pit No.1 (Bersina)
 - SB-2 Subbase Borrow Pit No.2 (Babanongo)
 - SB-3 Subbase Borrow Pit No.3 (Malalaua)
 - BA-1 Base Borrow Pit No.1 (Malalaua)
 - Q-1 Quarry Site No.1 (Eboa Quarry)
 - R-1 River Deposit No.1 (Angabanban River)
 - R-2 River Deposit No.2 (Tauri River)
 - SA-1 Sand Borrow Pit No.1 (Iokea)
 - SA-2 Sand Borrow Pit No.2 (Ilavala Hill)
 - SA-3 Sand Borrow Pit No.3 (Korru)

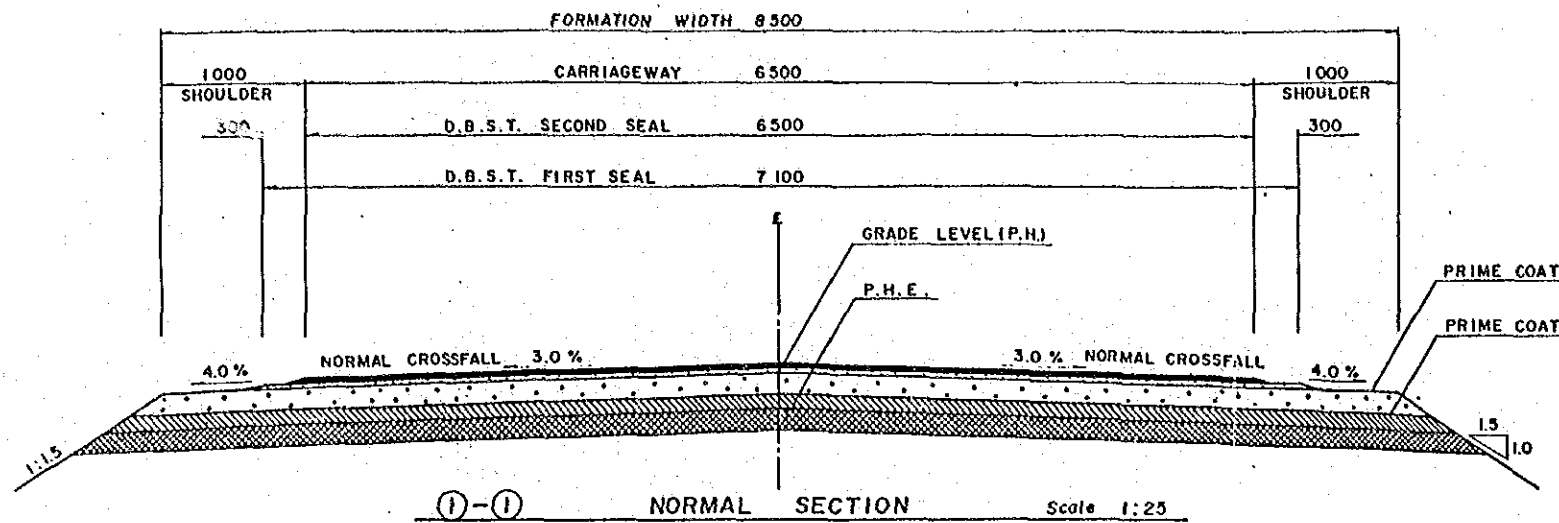
Fig. PROJECT LOCATION & MATERIAL SITE



	JICA	DESIGN JAPAN INTERNATIONAL CO-OPERATION AGENCY	DRAWN K.E.	RECOMMENDED <i>[Signature]</i>	SCALES AS SHOWN	CENTRAL / GULF PROVINCES
	Date	Principal	CHECKED <i>[Signature]</i>	PRINCIPAL ENGINEER <i>[Signature]</i>	PROJECT No. S.C. 120-33-814/A	TRANS-ISLAND HIGHWAY HERIENA-MALALAUHA SECTION
	VERTICAL DATUM MEAN SEA LEVEL	Date	DESIGNED A. Magallo	APPROVED 20.10.83 <i>[Signature]</i>	SHEET 4 OF 281	TYPICAL CROSS SECTION (FILL & CUT AND FILL SECTION)
	HORIZONTAL DATUM	Date	CHECKED P. Kawakami	EXECUTIVE ENGINEER <i>[Signature]</i>	PROJECT No. S.C. 120-33-814/A	CH. 3+000, CH. 4 + 550
REV.	AMENDMENTS	BY	APP'D	DATE	SHEET 4 OF 281	PAPUA NEW GUINEA DEPARTMENT OF WORKS
					DRAWING No. A1/ 87763	I-5



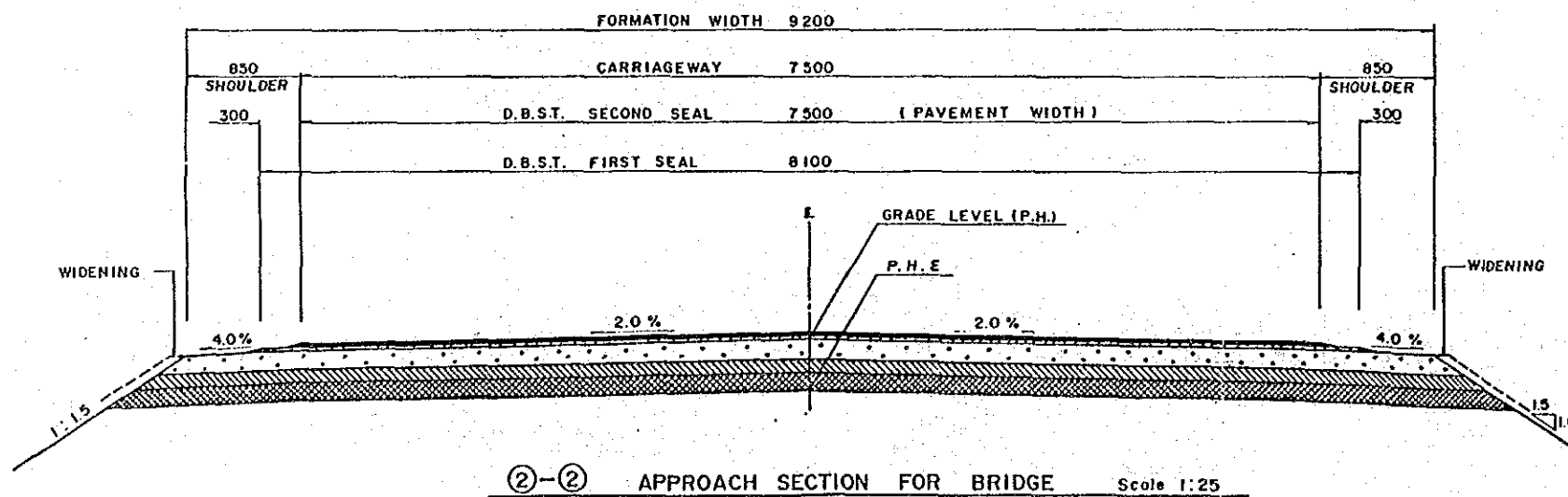
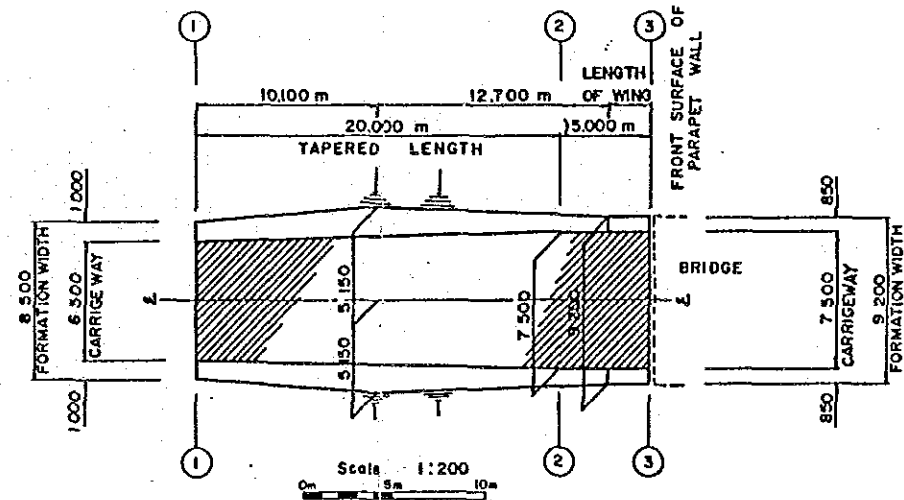
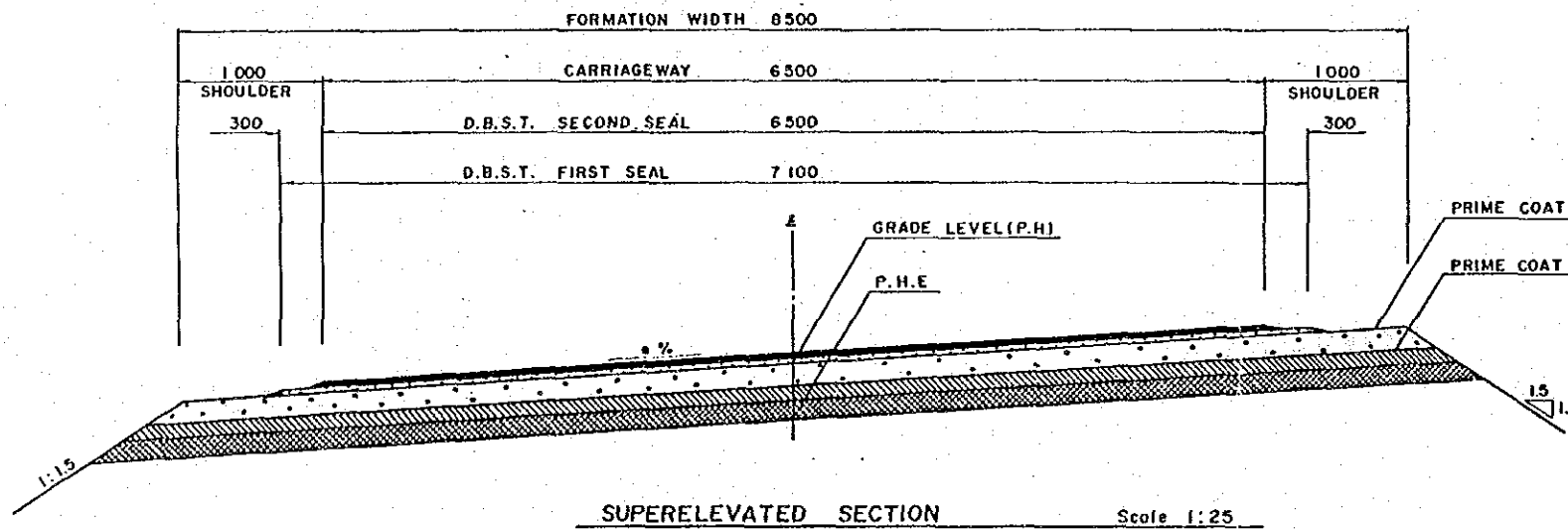
REV.		AMENDMENTS		BY	APP'D	DATE	SURVEY		DESIGN		DRAWN		RECOMMENDED		SCALES		CENTRAL / GULF PROVINCES	
							JICA		JAPAN INTERNATIONAL CO-OPERATION AGENCY		K.E.		PROJECT ENGINEER		AS SHOWN		TRANS-ISLAND HIGHWAY BEREINA-MALALAU SECTION	
							Date		Date		C. E.		PRINCIPAL ENGINEER		PROJECT No.		DRAWING No.	
							MEAN SEA LEVEL		Date		A. Magalo		APPROVED		S.C. 120-33-814/A		A1/ 87764	
							HORIZONTAL DATUM		Date		2. Kawakawa		SECRETARY		SHEET 5 OF 281		DEPARTMENT OF WORKS	
							SURVEY BOOK NOS.		Date		25 Sep. 1989		SECRETARY		PROJECT No.		DRAWING No.	
									Date		25 Sep. 1989		SECRETARY		S.C. 120-33-814/A		A1/ 87764	



CH.0+000 TO CH.33+500

- D.B.S.T.**
- DOUBLE BITUMINOUS SECOND SEAL
Cover aggregate : 9.5mm · 100-135 m³/m²
Bitumen 170 : 0.6-1.0 l/m²
 - SURFACE TREATMENT FIRST SEAL
Cover aggregate : 19mm · 65-85 m³/m²
Bitumen 170 : 1.25-1.65 l/m²
 - PRIME COAT with Cutback Bitumen : 0.4-0.8 l/m²
 - 150mm COMPACTED BASE COURSE (CRUSHED STONE)
 - PRIME COAT with Cutback Bitumen : 0.4-0.8 l/m²
 - 100mm COMPACTED SUBBASE (CEMENT TREATED SANDY GRAVEL)
 - 140mm COMPACTED SUBBASE (SANDY GRAVEL)

NOTE: ALL DIMENSIONS ARE IN MILLIMETRES.

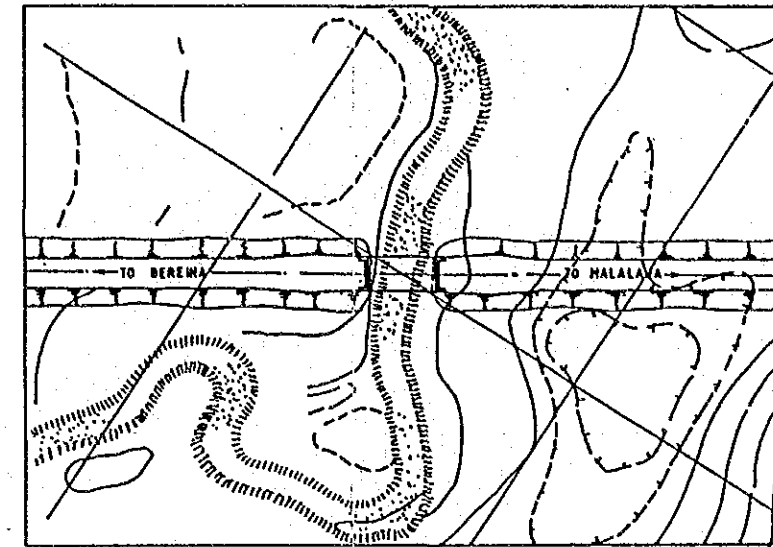
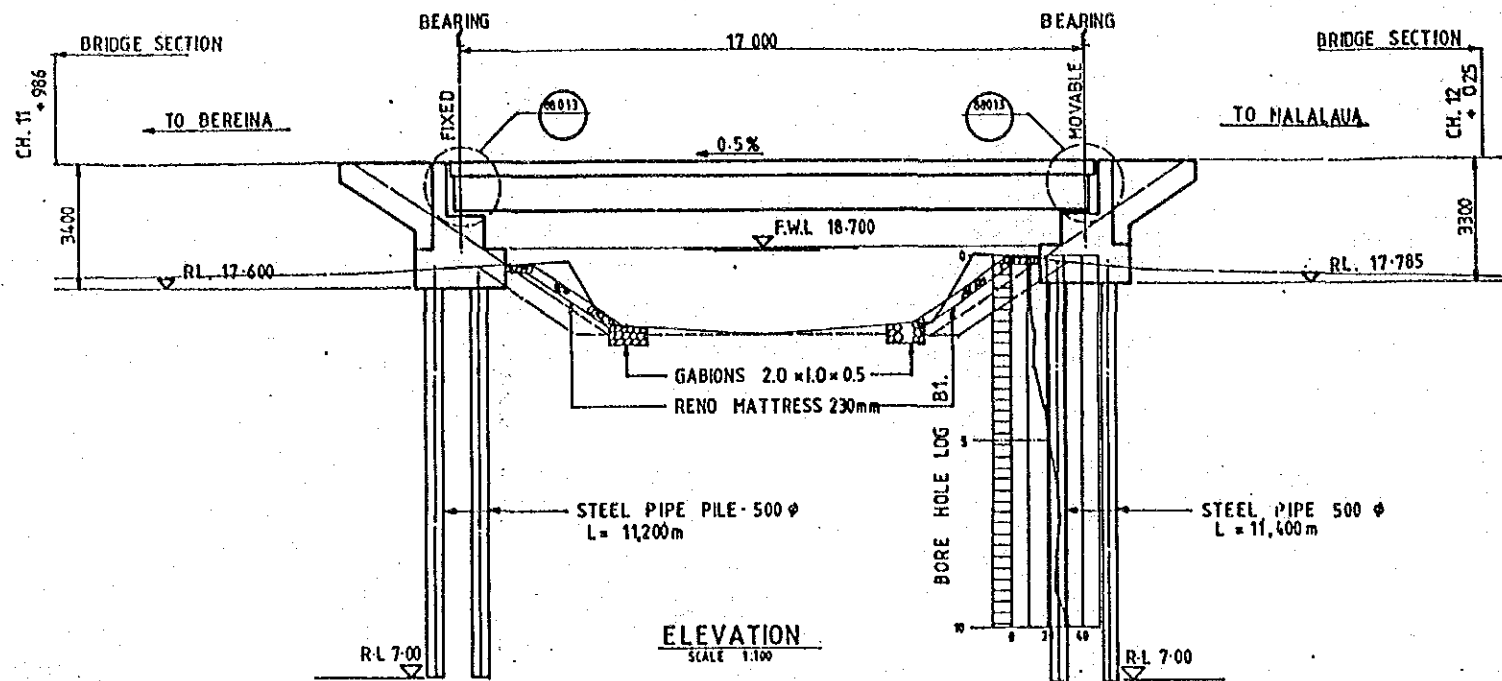


LOCATION OF APPROACH SECTION FOR BRIDGE

①	②	③	NAME OF BRIDGE	③	②	①
CH.11 +971	+991	+996.400	TAIENA Br.	CH.12 +014.600	+020	+040
CH.14 +697	+717	+722.900	AGOBINO Br.	CH.14 +744.100	+750	+770
CH.16 +083	+103	+108.861	UNGONGO Br.	CH.16 +130.139	+136	+156

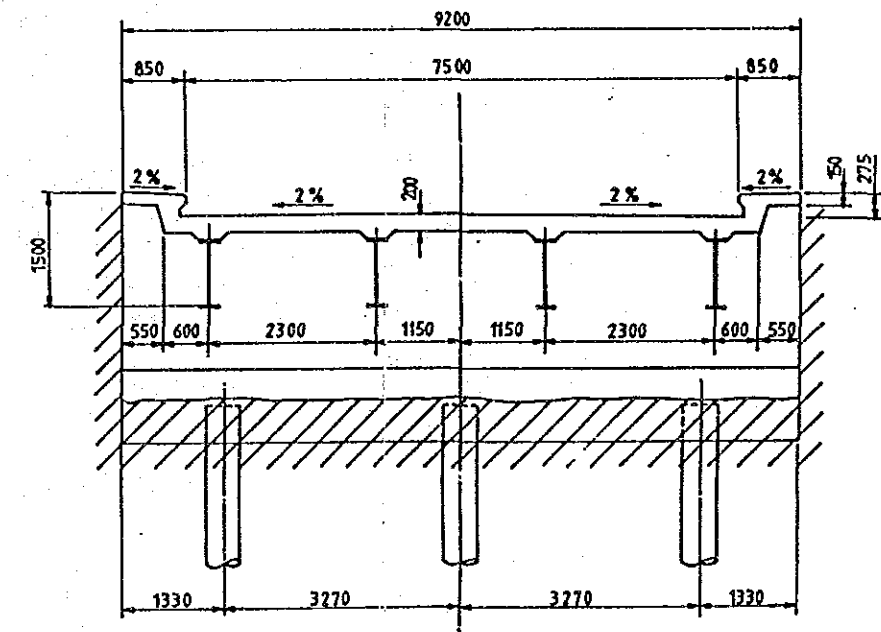
NOTES: ③ & ③' are located front surface of parapet wall.
UNGONGO Br. is skewed.

SURVEY JICA		DESIGN JAPAN INTERNATIONAL CO-OPERATION AGENCY		DRAWN K.E.		RECOMMENDED AS SHOWN		CENTRAL / GULF PROVINCES					
VERTICAL DATUM MEAN SEA LEVEL		JAPAN INTERNATIONAL CO-OPERATION AGENCY		CHECKED A. Magara		PROJECT ENGINEER K. K. K.		TRANS-ISLAND HIGHWAY BEREINA-MALALAUJA SECTION					
HORIZONTAL DATUM		JICA		DESIGNED A. Magara		APPROVED 29.11.89		TYPICAL PAVEMENT SECTION FOR ROAD					
SURVEY BOOK NO.8		25 Sep. 1989		CHECKED K. K. K.		EXECUTIVE ENGINEER		CH. 0+000 TO CH.33+500					
AMENDMENTS		BY APP'D DATE		BY APP'D DATE		SECRETARY		SHEET 6 OF 281		PROJECT No. S.C.120-33-814/A		DRAWING No. A1/ 87765	
								DEPARTMENT OF WORKS		PAPUA NEW GUINEA		87765	



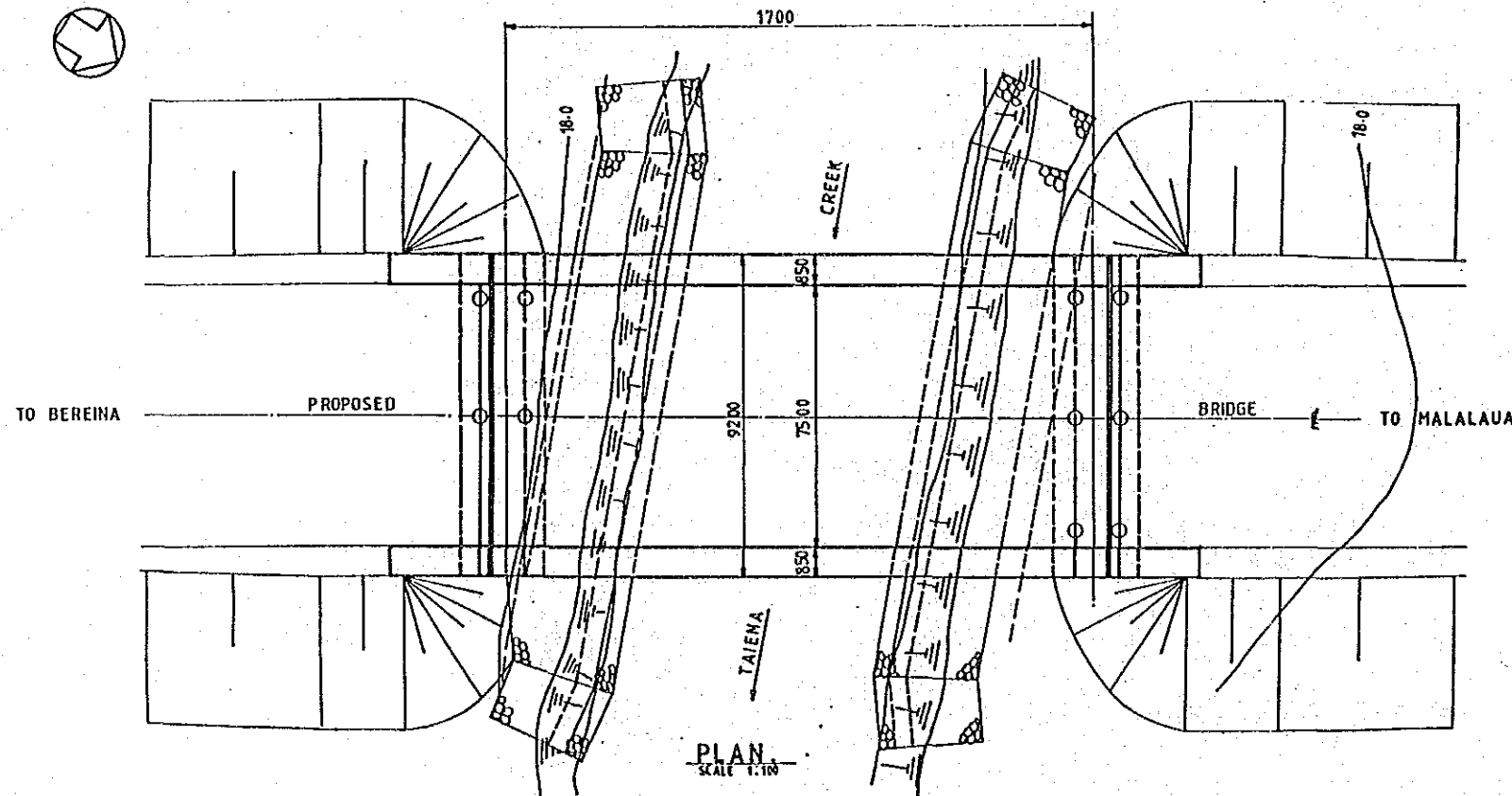
DATUM RL. 0-00m	
GRADE LEVELS	+20.982 +20.985 +21.028 +21.070 +21.073
SURFACE LEVELS	+18.10 +17.80
CHAINAGES	CH. 11 + 986 CH. 11 + 997.0 CH. 12 + 55 CH. 12 + 14.0 CH. 12 + 14.6

LOCALITY PLAN.
SCALE: 1:1000



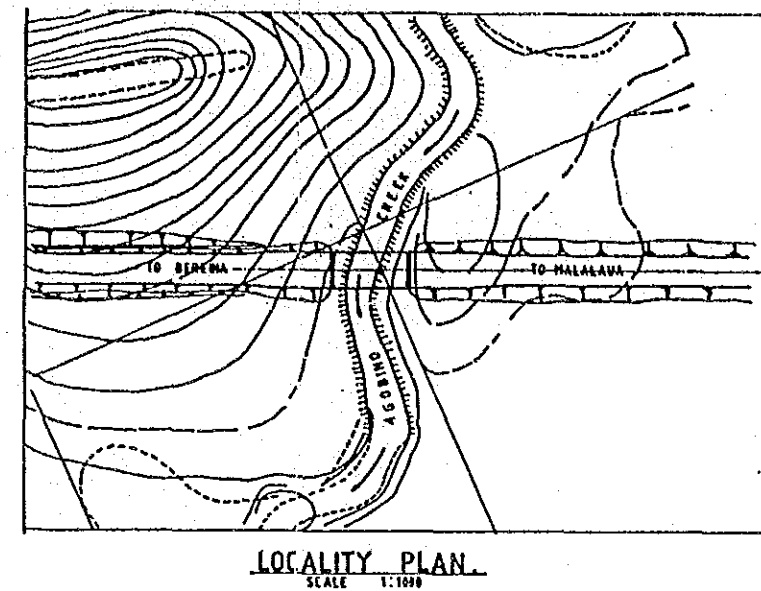
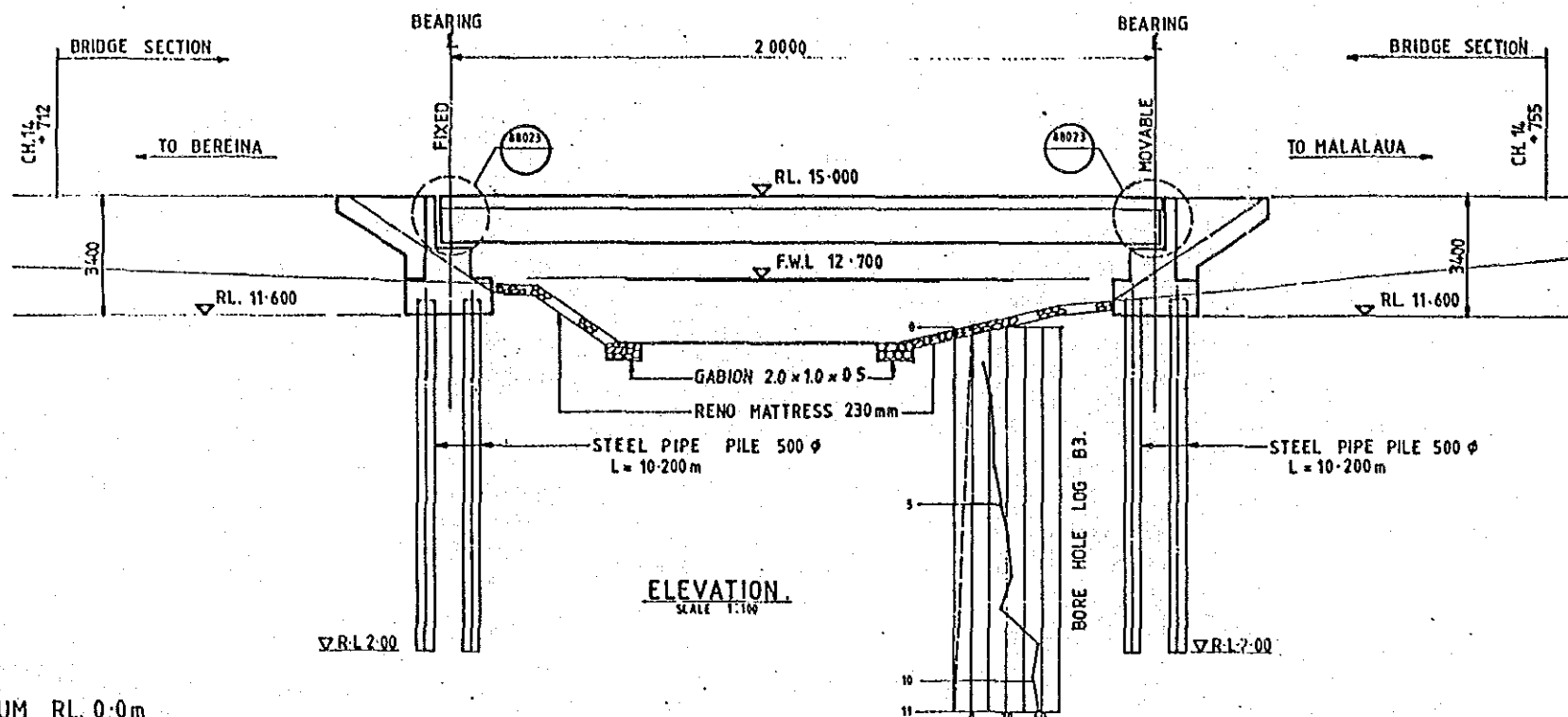
TYPICAL CROSS SECTION.
SCALE: 1:150

- NOTES:
1. ROAD ALIGNMENT DESIGN AND DETAILS BY OTHERS.
 2. GRADE LEVELS ARE AT BRIDGE CENTRELINE.



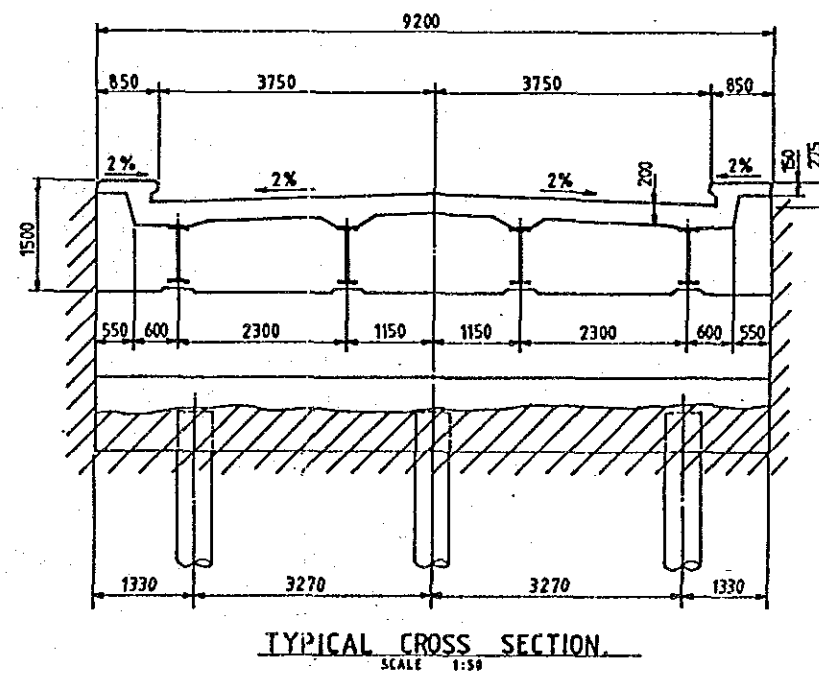
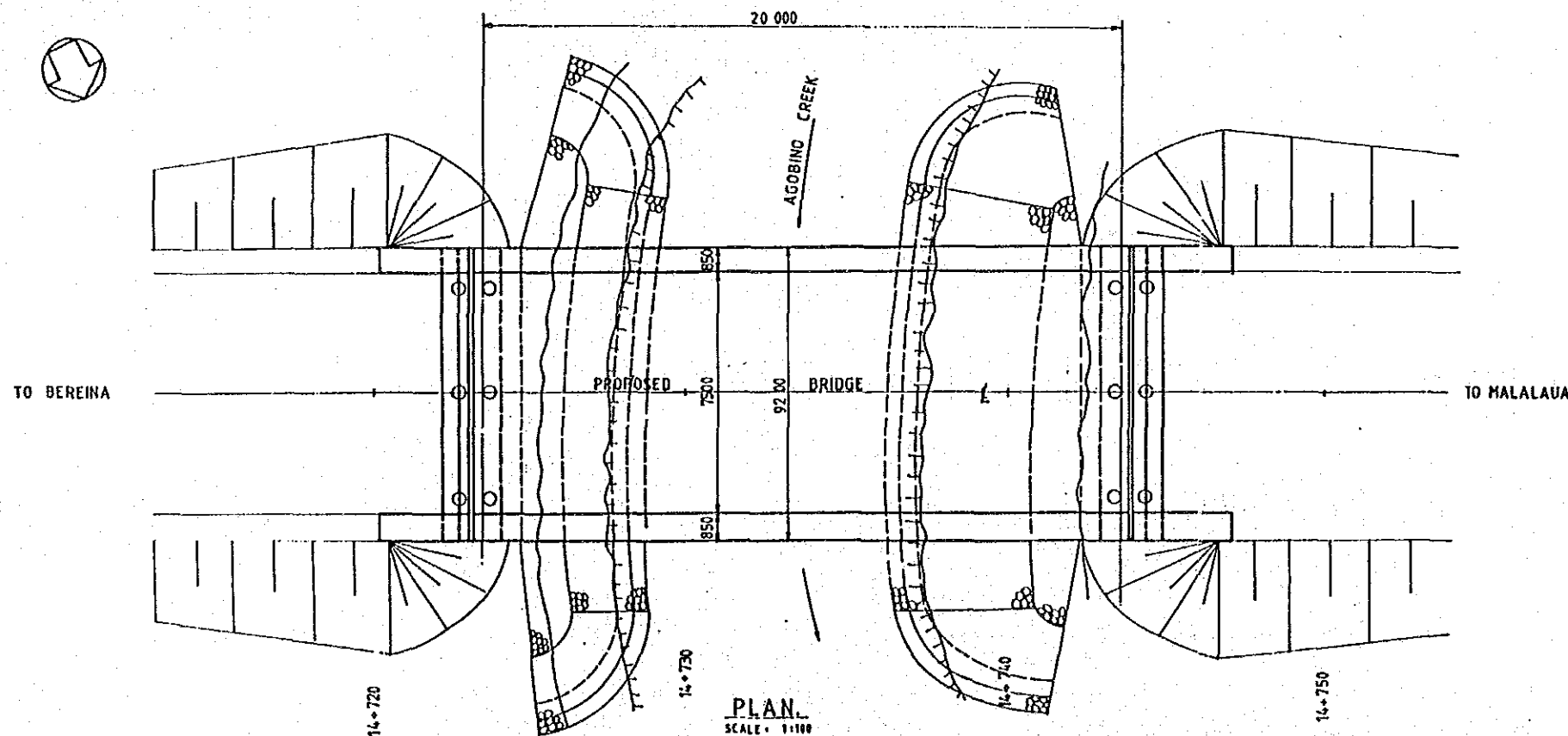
PLAN
SCALE 1:100

SURVEY JICA		DESIGN JAPAN INTERNATIONAL CO-OPERATION AGENCY		DRAWN J.B. MEGGIO M.S.		RECOMMENDED F. J. J. J.		SCALES		CENTRAL / GULF PROVINCES	
VERTICAL DATUM MEAN SEA LEVEL.		J. J. J. J.		CHECKED D. D. D. D.		PROJECT ENGINEER		PROJECT No.		TRANS-ISLAND HIGHWAY BEREINA-MALALAWA SECTION	
HORIZONTAL DATUM		25 Sep. 1988		DESIGNED J. J. J. J.		APPROVED F. J. J. J.		SHEET 253 OF 281		BRIDGE No.1 - TAIENA BRIDGE	
SURVEY BOOK No. 8		Principal		CHECKED D. D. D. D.		EXECUTIVE ENGINEER		PROJECT No.		GENERAL ARRANGEMENT.	
REV.	AMENDMENTS	BY	APP'D	DATE	Principal		SECRETARY		PAPUA NEW GUINEA DEPARTMENT OF WORKS		DRAWING No. A1 88011



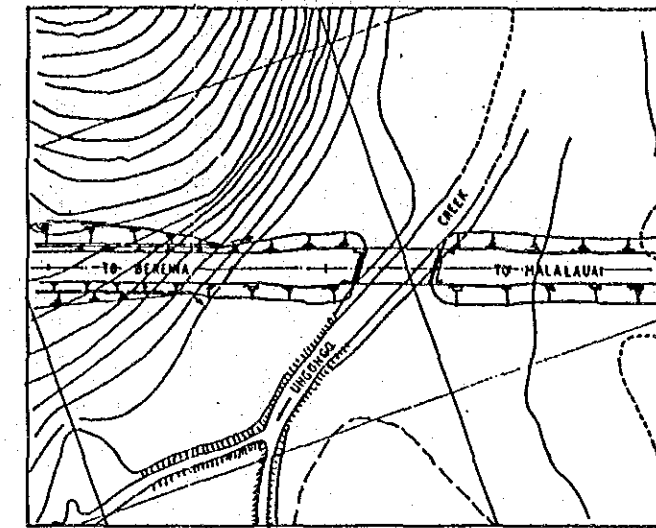
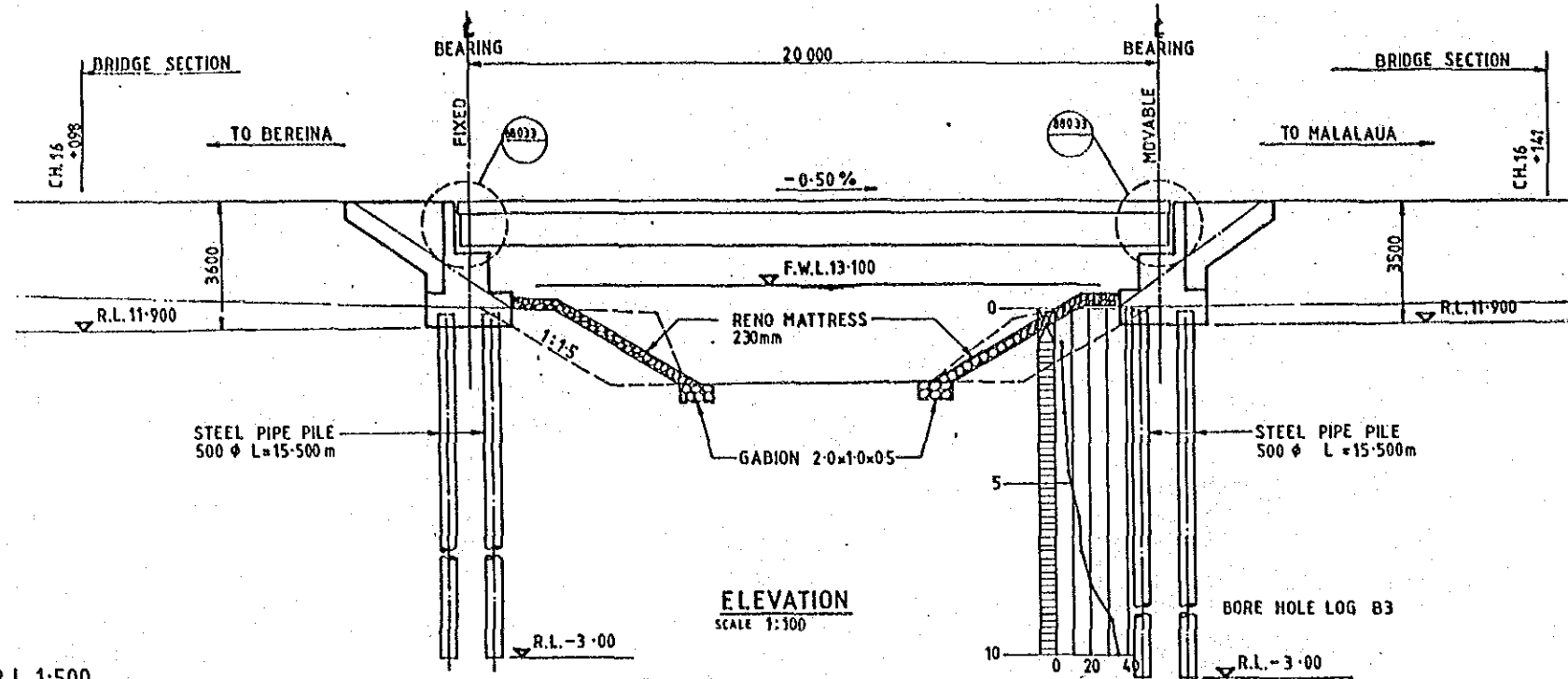
DATUM RL. 0-0m

GRADE LEVELS	CH. 14+712	CH. 14+755
SURFACE LEVELS	15.000	15.000
CHAINAGE	14+712	14+755

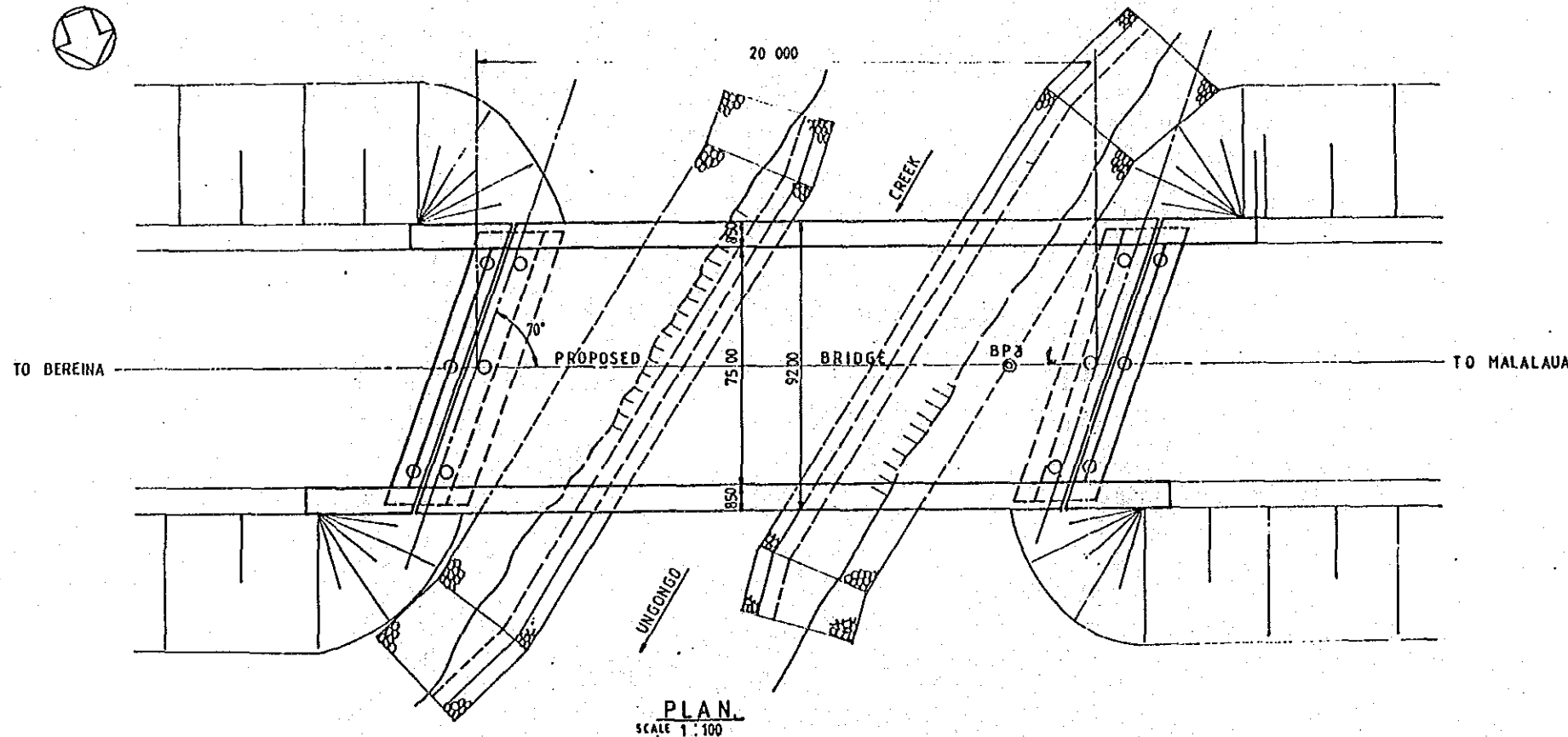
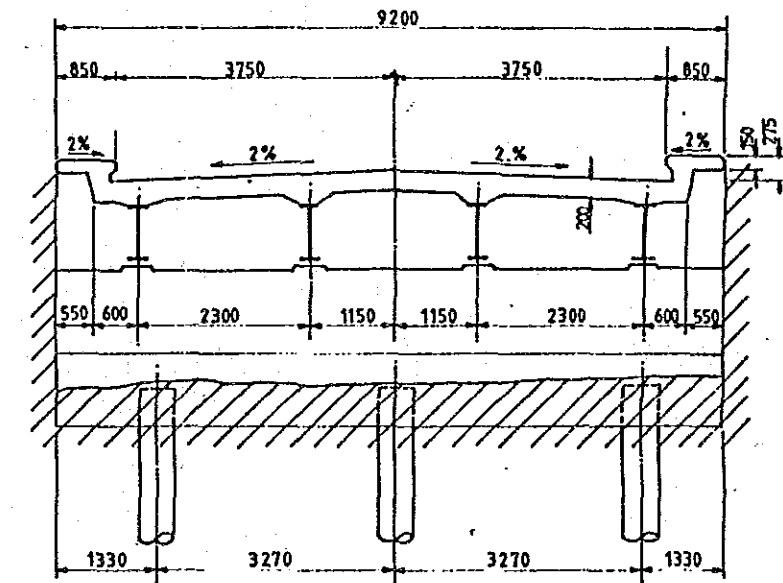


- NOTES:
- ROAD ALIGNMENT DESIGN AND DETAILS BY OTHERS
 - GRADE LEVELS ARE AT BRIDGE CENTRELINE.

REV.	AMENDMENTS	BY	APP'D	DATE	SURVEY	DESIGN	DRAWN	RECOMMENDED	SCALES	CENTRAL / GULF PROVINCES TRANS-ISLAND HIGHWAY BEREINA-MALALAVA SECTION BRIDGE No. 2 - AGOBINO BRIDGE GENERAL ARRANGEMENT.	PAPUA NEW GUINEA DEPARTMENT OF WORKS	DRAWING No. A1 88021
					JICA	JAPAN INTERNATIONAL CO-OPERATION AGENCY	J. B. MAGGIO M.S.	Principal Engineer				
					VERTICAL DATUM MEAN SEA LEVEL.	J. Haluwa Principal	Checked of Dei	Approved 1. 11. 89				
					HORIZONTAL DATUM	25 Sep. 1988	Checked of Dei	Executive Engineer				



DATUM R.L. 1.500	
GRADE LEVELS	15.506, 15.509, 15.453, 15.400, 15.400, 15.400
SURFACE LEVELS	12.10, 12.05, 12.05, 12.05
CHAINAGE	CH. 16 +088, CH. 16 +095, CH. 16 +195, CH. 16 +200, CH. 16 +200, CH. 16 +200



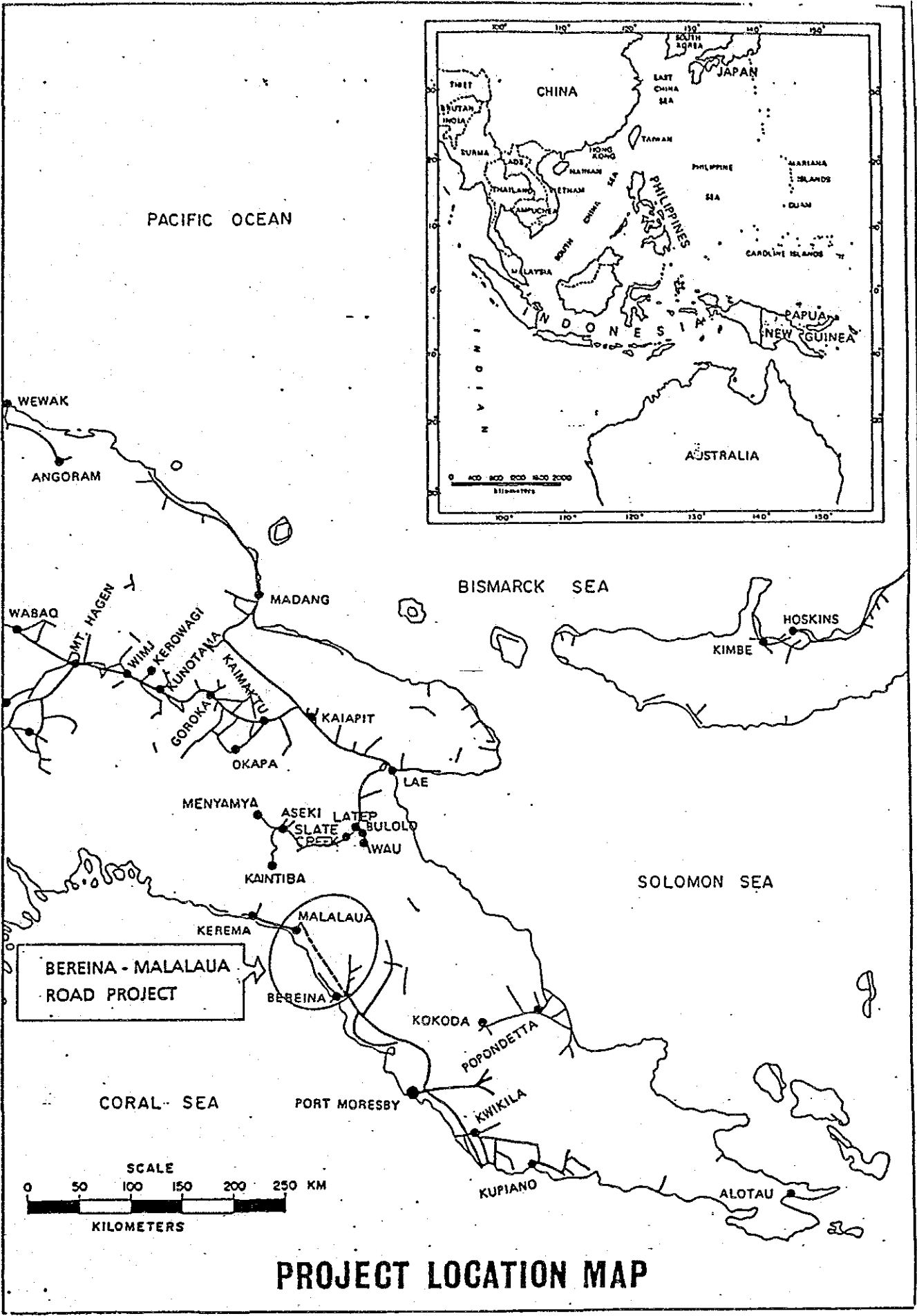
- NOTES:
1. ROAD ALIGNMENT DESIGN AND DETAILS BY OTHERS.
 2. GRADE LEVELS ARE AT BRIDGE CENTRELINE.

SURVEY JICA Date		DESIGN JAPAN INTERNATIONAL CO-OPERATION AGENCY Principal: J. H. Smith Date: 25 Sep. 1989		DRAWN J.M.M.S. CHECKED: Y. Bai		RECOMMENDED PROJECT ENGINEER: [Signature] PRINCIPAL ENGINEER: [Signature]		SCALES [Scale bar]		CENTRAL GULF PROVINCES TRANS-ISLAND HIGHWAY BEREINA-MALALAU SECTION BRIDGE No.3 - UNGONGO BRIDGE GENERAL ARRANGEMENT	
VERTICAL DATUM MEAN SEA LEVEL		HORIZONTAL DATUM		DESIGNED [Signature] CHECKED: Y. Bai		APPROVED I. N. 89 EXECUTIVE ENGINEER: [Signature] SECRETARY: [Signature]		PROJECT No. S.C. 120-33-814/A		PAPUA NEW GUINEA DEPARTMENT OF WORKS DRAWING No. A1 88031	
REV.	AMENDMENTS	BY	APP'D	DATE	SHEET 273 OF 281						

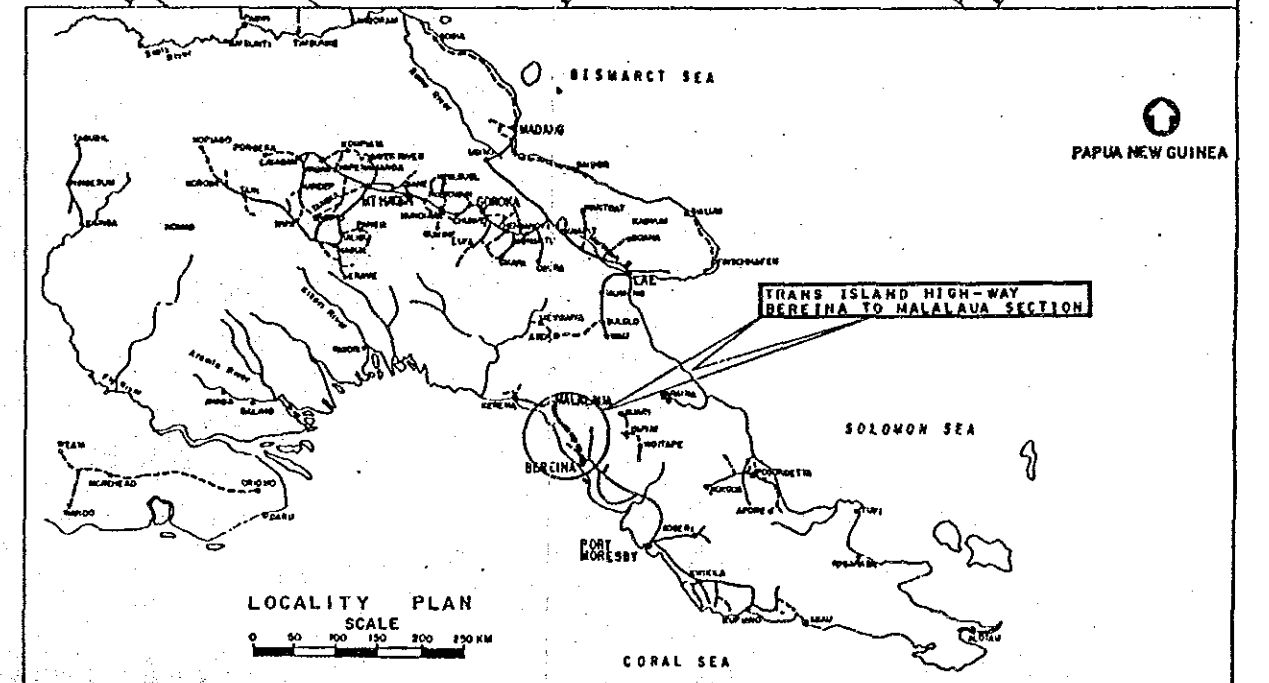
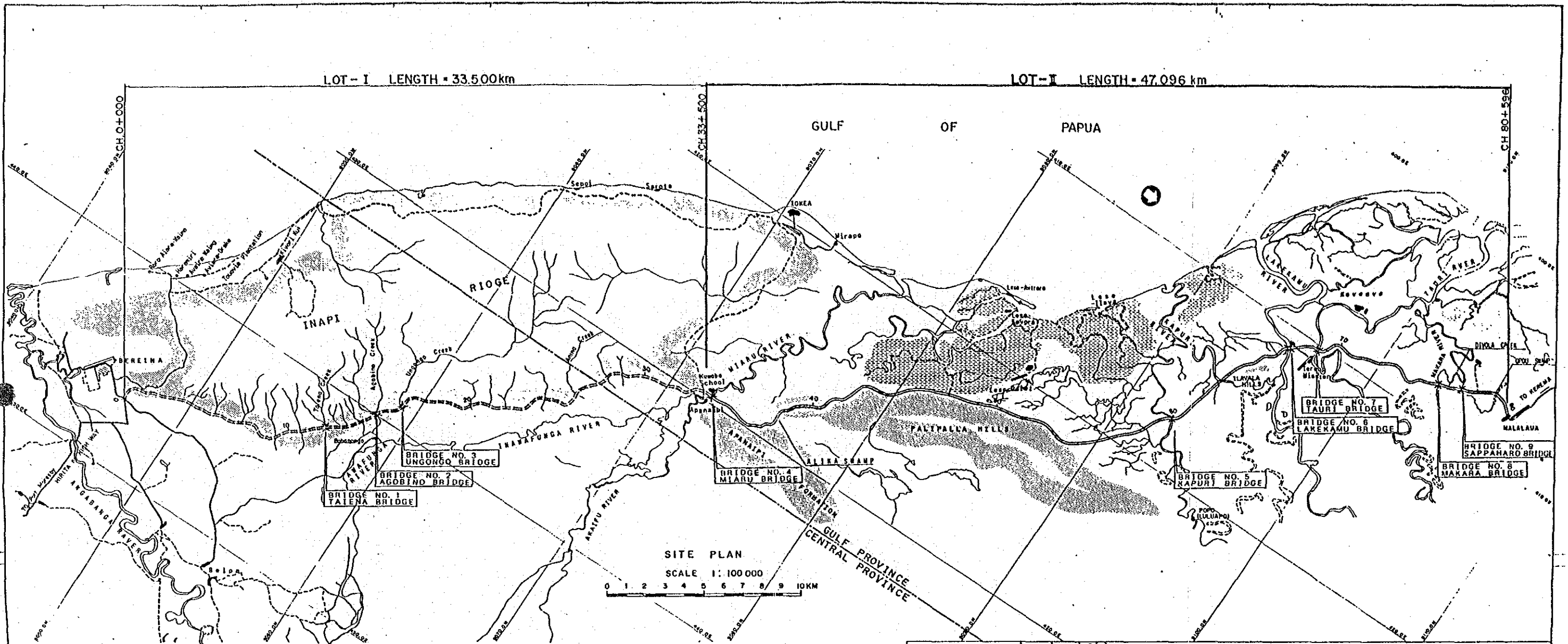
LOT II

:

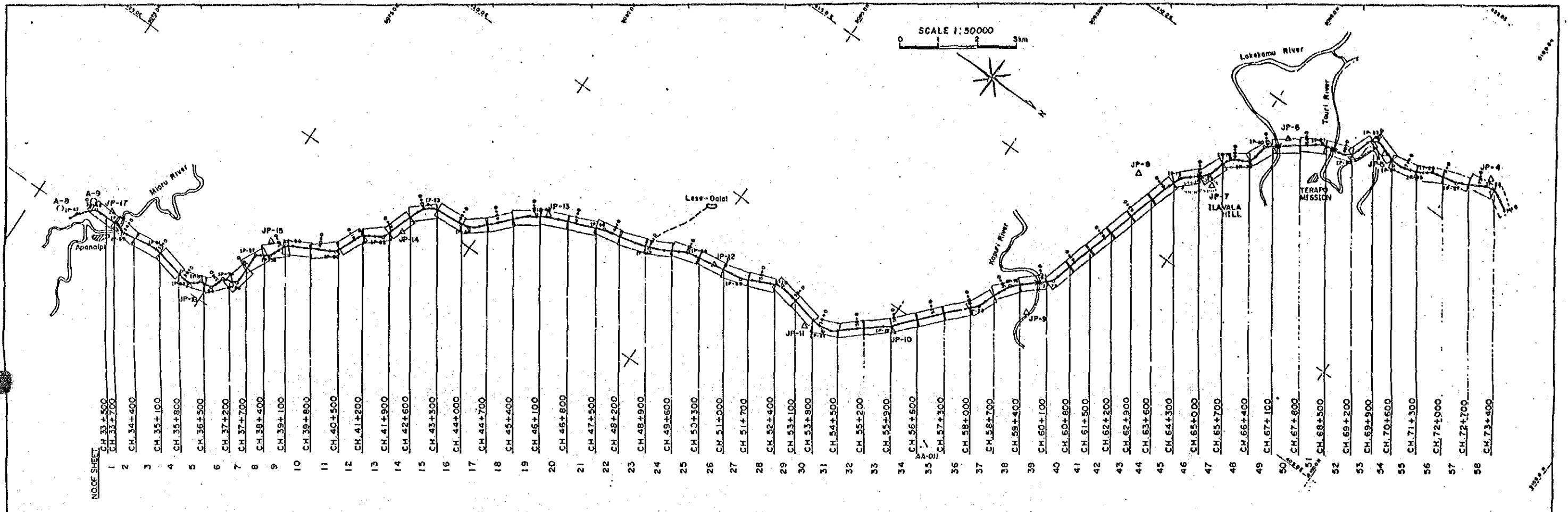
MIARU RIVER TO MALALAU SECTION
CONTRACT NO. SC 120-33-814/B
CH 33+500 TO CH 80+596



PROJECT LOCATION MAP



REV	AMENDMENTS	BY	APPD	DATE	SURVEY	DESIGN	DRAWN	RECOMMENDED	SCALES	CENTRAL / GULF PROVINCES TRANS-ISLAND HIGHWAY BEREINA-MALALAU SECTION SITE AND LOCALITY PLAN	PAPUA NEW GUINEA DEPARTMENT OF WORKS	DRAWING No. AI 88051
					JICA	JAPAN INTERNATIONAL COOPERATION AGENCY	K.E.	<i>[Signature]</i>				
					VERTICAL DATUM MEAN SEA LEVEL		CHECKED <i>[Signature]</i>	PROJECT ENGINEER	APPROVED <i>[Signature]</i>	SHEET 1 OF 303	PROJECT No. S.C. 120-33-814/B	REV
					HORIZONTAL DATUM		DESIGNED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	SECRETARY			
					SURVEY BOOK NO. 8	Principal <i>[Signature]</i>	Checked <i>[Signature]</i>	EXECUTIVE ENGINEER	25 Sep. 1983 Date			



COORDINATES & ELEVATION OF CONTROL POINTS
(Transformed to A. G. D. System)

STATION	NORTHING m	EASTING m	ELEVATION m	REMARKS
JP-01	9107203.223	407615.143	3.829	○
JP-02	9106073.793	406638.694	4.087	○
JP-03	9103050.449	408727.530	2.097	○
JP-04	9100644.219	408533.637	1.116	○
JP-05	9098070.701	409583.260	1.079	○
JP-06	9095809.432	410735.873	2.404	○
JP-07	9094811.330	412826.050	49.113	○
JP-08	9093091.069	413604.391	1.893	○
JP-09	9092782.001	418195.882	1.054	✕ ○
JP-10	9090197.294	420485.271	1.349	○
JP-11	9088222.307	421753.653	89.121	○
JP-12	9085402.348	421815.133	3.485	○
JP-13	9081255.114	423215.145	4.687	○
JP-14	9078370.690	425686.865	30.461	○
JP-15	9075743.627	427705.989	63.836	○
JP-16	9074610.627	429832.957	8.893	✕ ○
JP-17	9071897.393	429420.205	5.112	✕ ○
JP-18	9069394.365	430442.978	18.073	○
BESE	9045004.587	445676.212	9.312	✕ ○
AA-009	9044837.418	442456.547	121.370	✕ ○

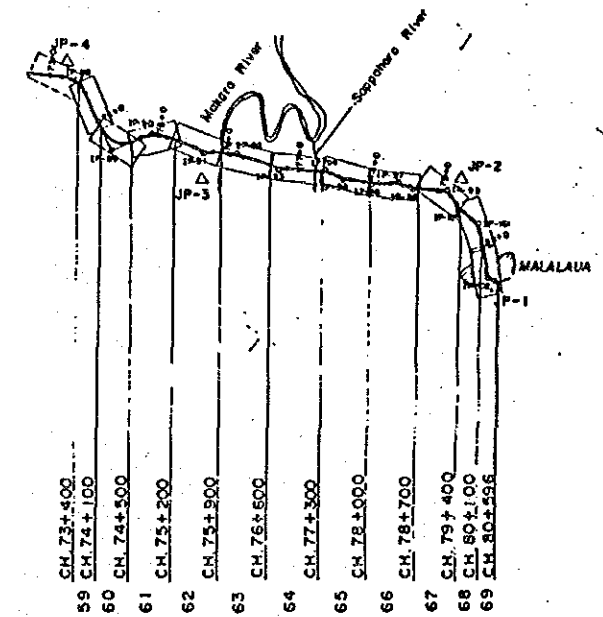
NOTES: ✕ ... Via JP-17
 ✕ ✕ ... Direct Leveling
 ✕ ✕ ✕ ... Control Point
 ○ ... Monumented Point

COORDINATES OF INTERSECTION POINTS

INO.	NORTHING m	EASTING m	BEARING	DISTANCE m
46	9070994.500	430314.000	296 42 24	381.573
47	9071157.000	429991.000	313 29 25	483.122
48	9071489.500	429640.500	358 29 25	826.217
49	9072115.500	428624.000	16 27 7	310.722
50	9072413.500	429712.000	350 25 37	953.021
51	9073335.500	429556.500	14 0 9	1239.842
52	9074538.500	429858.500	317 32 51	334.085
53	9074785.000	428631.000	352 38 20	316.105
54	9075098.500	429590.500	287 22 59	353.128
55	9075204.000	429253.500	341 51 52	383.034
56	9075549.000	429140.500	270 59 44	829.135
57	9075584.500	428248.500	330 28 52	377.503
58	9075893.000	428062.500	290 30 28	485.253
59	9076863.000	427608.000	332 54 4	1296.305
60	9077217.000	427017.500	294 20 6	829.525
61	9077558.000	426263.500	333 27 38	497.972
62	9078003.500	426041.000	290 6 24	1425.371
63	9078493.500	424702.500	354 41 25	1215.716
64	9079704.000	424590.000	315 16 37	1755.060
65	9080915.000	423355.000	338 11 11	1749.250
66	9082575.000	422705.000	348 18 52	1268.000
67	9083807.000	422405.000	332 20 12	980.025
68	9084675.000	421950.000	350 35 13	1525.541
69	9086180.000	421700.500	335 1 37	1102.584
70	9087179.500	421235.000	12 58 42	1582.936
71	9088722.000	421590.500	320 22 11	1756.738
72	9090075.000	420470.000	312 55 39	2287.573
73	9091633.000	418795.000	293 29 59	986.847

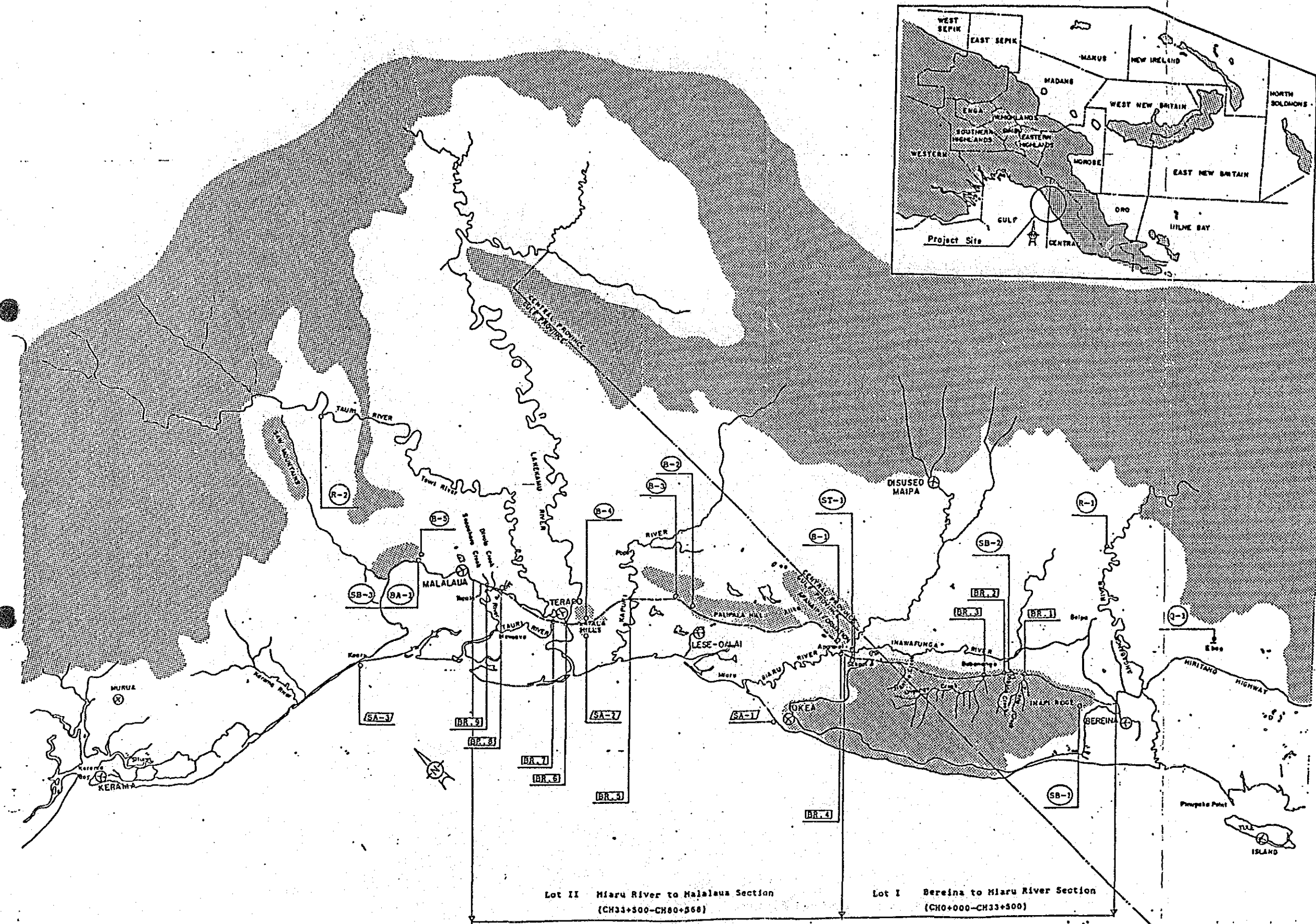
COORDINATES OF INTERSECTION POINTS

INO.	NORTHING m	EASTING m	BEARING	DISTANCE m
74	9092026.500	417890.000	318 52 29	1114.849
75	9092866.500	417157.000	186 15 41	4210.440
76	9094045.500	413115.000	320 0 41	801.387
77	9094659.500	412600.000	285 31 19	678.236
78	9094841.000	411946.500	338 52 19	545.146
79	9095349.500	411750.000	277 24 50	585.730
80	9095422.500	411189.000	323 7 7	1482.100
81	9096608.000	410299.500	350 17 55	768.490
82	9097365.500	410170.000	287 10 31	899.095
83	9097631.000	409311.000	20 7 22	928.690
84	9098503.000	409830.500	337 45 52	624.976
85	9099081.500	409394.000	324 24 41	326.482
86	9099347.000	409204.000	347 38 29	765.145
87	9100006.500	409059.500	331 4 32	983.138
88	9100867.000	408584.000	28 51 2	1104.802
89	9101834.500	409117.000	301 18 20	821.263
90	9102157.000	408586.000	344 40 26	743.439
91	9102874.000	408389.500	330 27 14	447.148
92	9103263.000	408169.000	343 59 20	598.206
93	9103838.000	408004.000	328 54 31	654.526
94	9104398.500	407866.000	345 18 21	271.417
95	9104861.000	407587.000	335 50 18	401.976
96	9105028.000	407433.000	324 5 49	355.551
97	9105318.000	407224.500	339 54 27	245.970
98	9105547.000	407140.000	331 53 20	480.708
99	9105971.000	406813.500	17 41 18	291.270
100	9106248.500	407002.000	5 46 11	338.231
101	9106585.000	407036.000	43 29 54	634.139
102	9107107.083	407531.412	353 19 09	153.982
EP	9107260.000	407613.500		



LEGEND
 △ CONTROL POINT
 ○ TRAVERSE POINT
 • INTERSECTION POINT

SURVEY JICA		DESIGN JAPAN INTERNATIONAL CO-OPERATION AGENCY		DRAWN K.E.		RECOMMENDED M. K. K.		SCALES 0 1 2 3 4 km 1 : 50 000		CENTRAL / GULF PROVINCES TRANS-ISLAND HIGHWAY BEREINA-MALALAU SECTION	
VERTICAL DATUM MEAN SEA LEVEL		HORIZONTAL DATUM		CHECKED A. M. P.		PROJECT ENGINEER K. K.		APPROVED M. K. K.		PLANS LAYOUT, COORDINATES OF CONTROL POINTS AND INTERSECTION POINTS	
SURVEY BOOK NO. 8		Date 25 Sep. 1989		CHECKED K. K.		EX. CUTIVE ENGINEER K. K.		SECRETARY M. K. K.		DRAWING No. A1/ 88052	
AMENDMENTS		BY		APP'D		DATE		SHEET 3 OF 303		PROJECT No. S.C. 120-33-814/B	



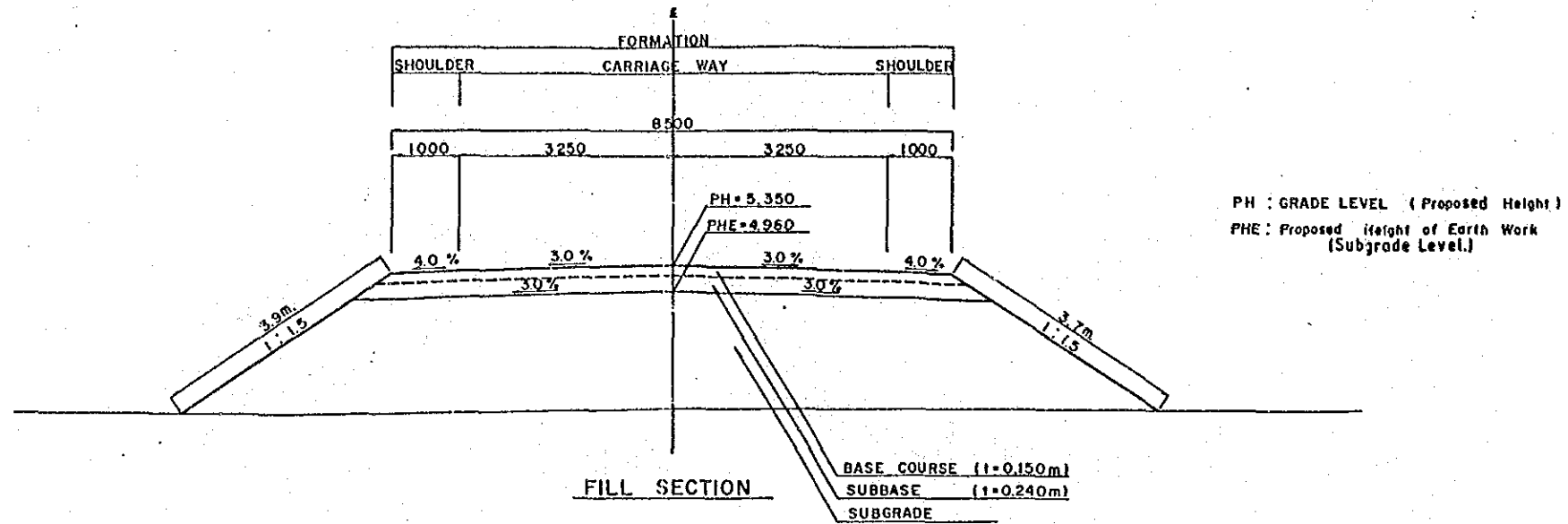
- Abbreviations:
- BR-1 Tadena Bridge
 - BR-2 Agobino Bridge
 - BR-3 Ungongo Bridge
 - BR-4 Miaru Bridge
 - BR-5 Kapuri Bridge
 - BR-6 Lakekahu Bridge
 - BR-7 Tauri Bridge
 - BR-8 Hskara Bridge
 - BR-9 Sappaharo Bridge
-
- B-1 Borrow Pit No.1
 - B-2 Borrow Pit No.2
 - B-3 Borrow Pit No.3
 - B-4 Borrow Pit No.4
 - B-5 Borrow Pit No.5
 - ST-1 Stockpile No.1
 - SB-1 Subbase Borrow Pit No.1 (Bereina)
 - SB-2 Subbase Borrow Pit No.2 (Babanongo)
 - SB-3 Subbase Borrow Pit No.3 (Malalaua)
 - BA-1 Base Borrow Pit No.1 (Malalaua)
 - Q-1 Quarry Site No.1 (Eboa Quarry)
 - R-1 River Deposit No.1 (Angabanban River)
 - R-2 River Deposit No.2 (Tauri River)
 - SA-1 Sand Borrow Pit No.1 (Iokea)
 - SA-2 Sand Borrow Pit No.2 (Ilavala Hill)
 - SA-3 Sand Borrow Pit No.3 (Korau)

Fig. PROJECT LOCATION & MATERIAL SITE

CH. 34 + 500

PH = 5.350
GH = 3.17

SCALE 1:50

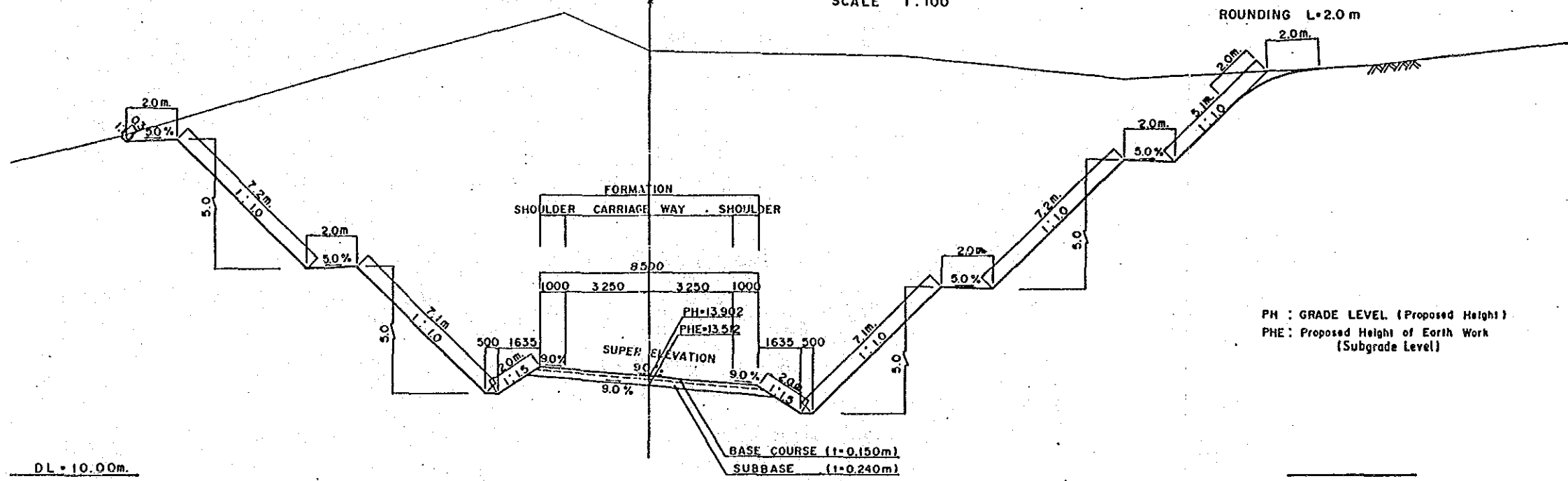


DL = 2.00m.

CH. 37 + 125

PH = 13.902
GH = 26.67

SCALE 1:100

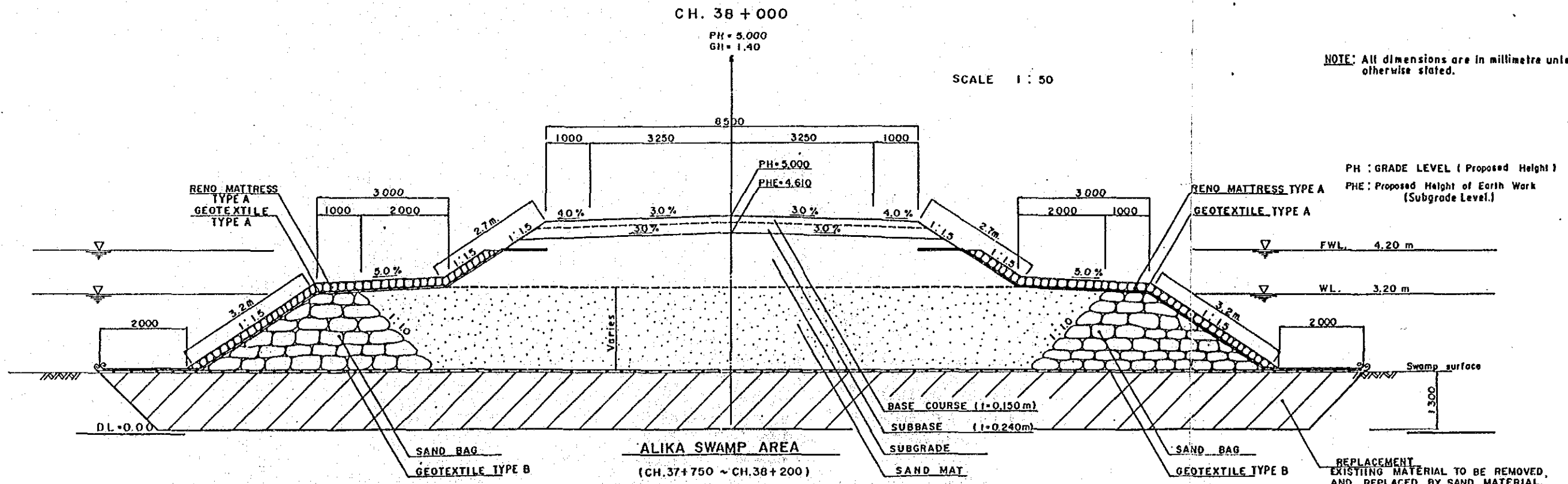
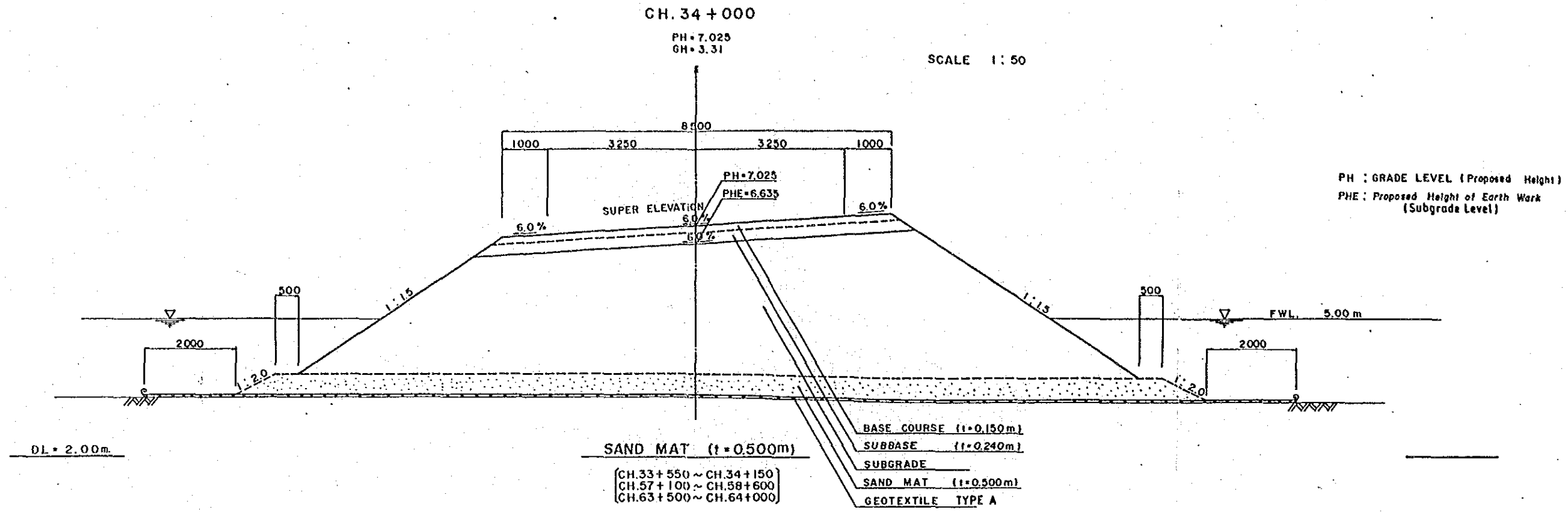


DL = 10.00m.

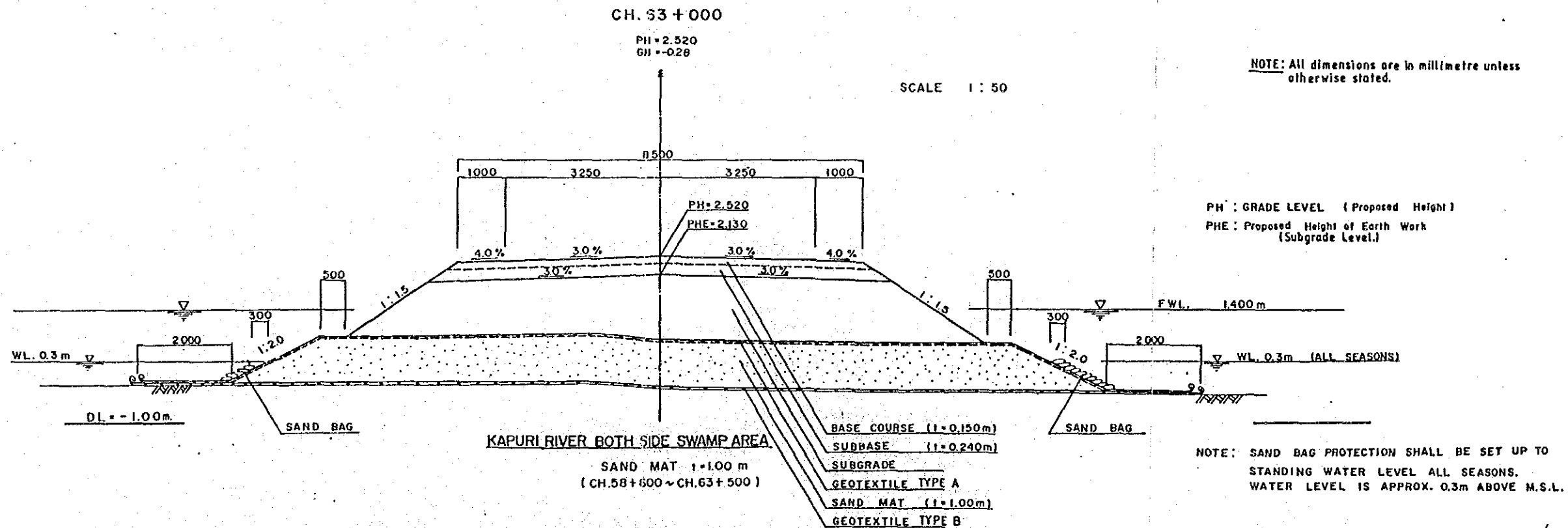
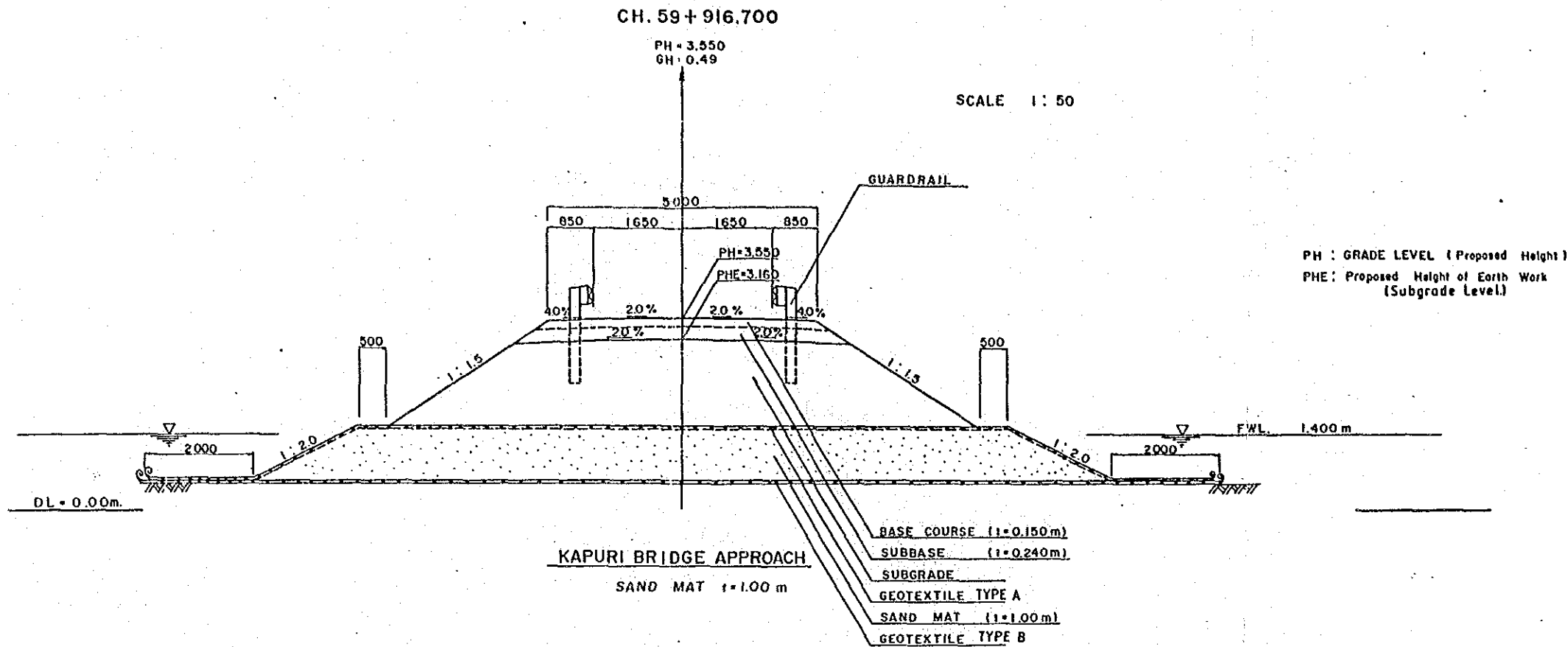
CUT SECTION

NOTE: All dimensions are in millimetre unless otherwise stated.

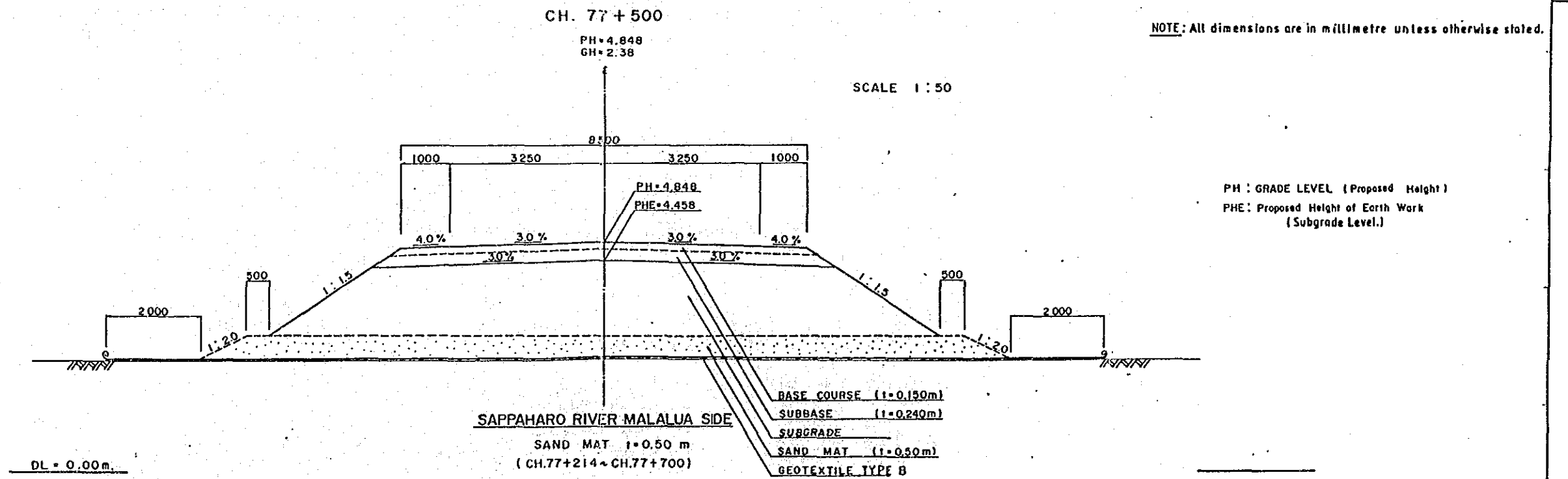
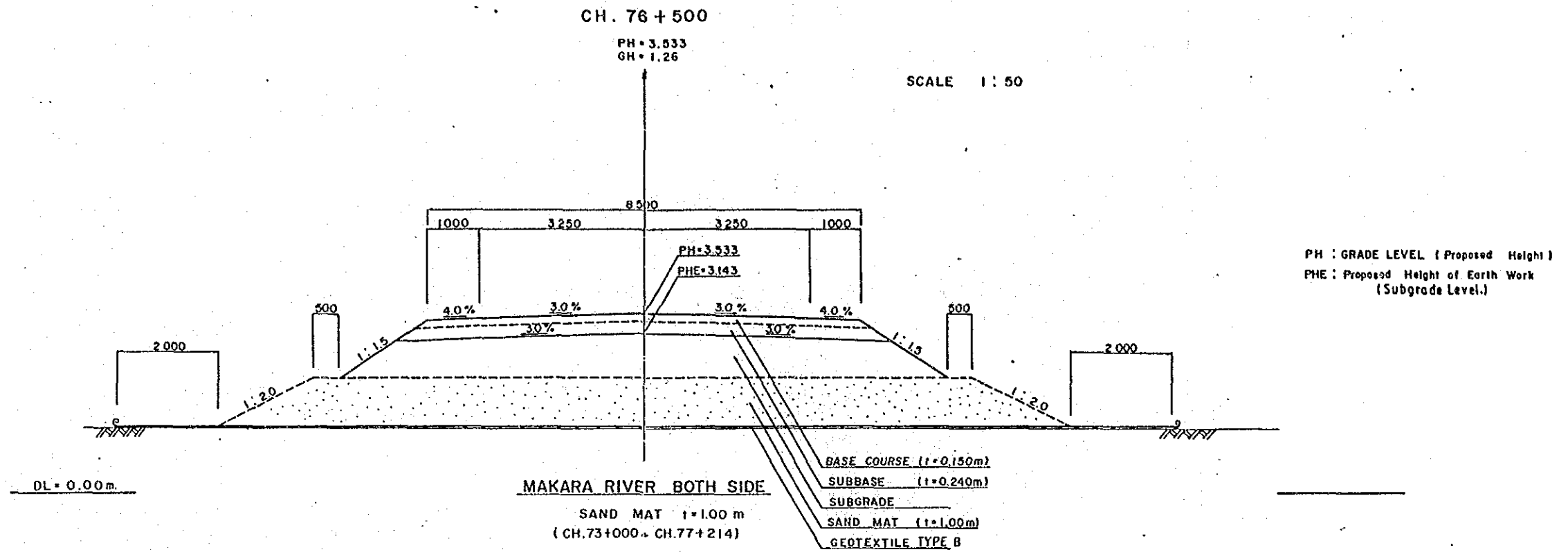
SURVEY		DESIGN		DRAWN		RECOMMENDED		SCALES		CENTRAL / GULF PROVINCES		
JICA		JAPAN INTERNATIONAL CO-OPERATION AGENCY		K.E.		M. Magg		AS SHOWN		TRANS-ISLAND HIGHWAY BEREINA-MALALAUUA SECTION		
Date		Date		PROJECT ENGINEER		PRINCIPAL ENGINEER		PROJECT No.		CH. 34 + 500, CH 37 + 125		
VERTICAL DATUM		MEAN SEA LEVEL		DESIGNED		APPROVED		S.C. 120-33-814/B		PAPUA NEW GUINEA DEPARTMENT OF WORKS		
HORIZONTAL DATUM		Date		CHECKED		SECRETARY		SHEET 4 OF 303		DRAWING No. A1/ 88053		
SURVEY BOOK NOS		Date		EXECUTIVE ENGINEER		SECRETARY		PROJECT No.		DRAWING No.		
AMENDMENTS		Date		EXECUTIVE ENGINEER		SECRETARY		PROJECT No.		DRAWING No.		



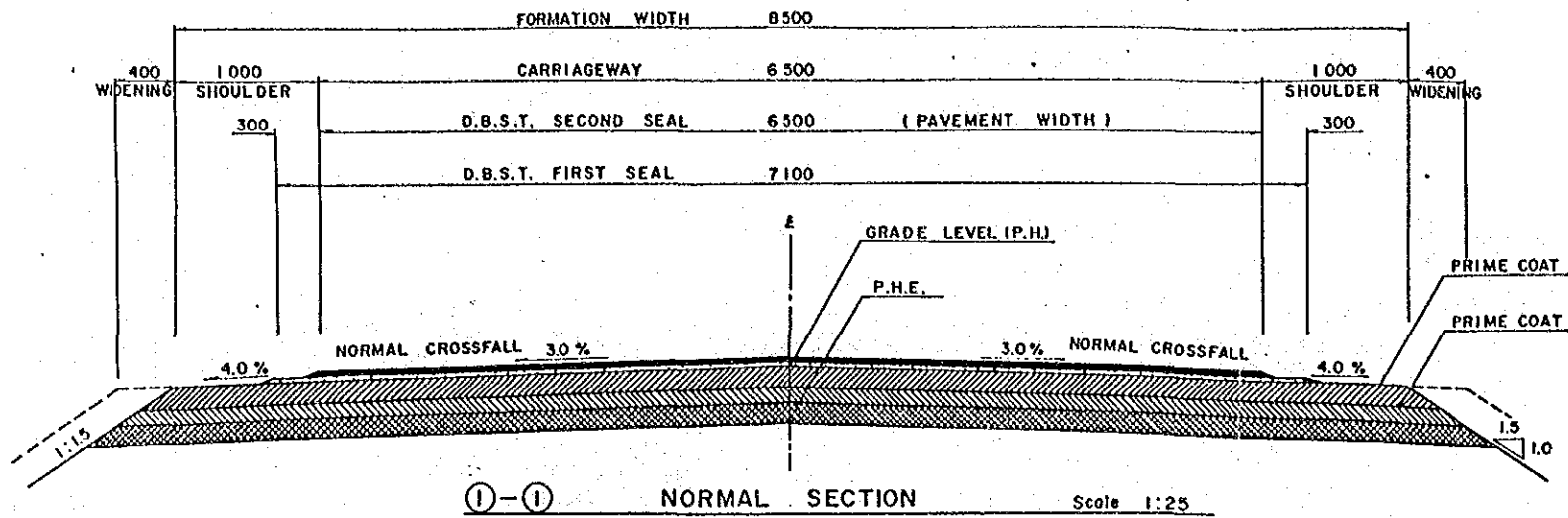
SURVEY JICA		DESIGN JAPAN INTERNATIONAL CO-OPERATION AGENCY		DRAWN K.E.		RECOMMENDED <i>[Signature]</i>		SCALES AS SHOWN		CENTRAL / GULF PROVINCES	
		Date		<i>[Signature]</i> PROJECT ENGINEER		<i>[Signature]</i> PRINCIPAL ENGINEER		PROJECT No. S.C.120-33-814/B		TRANS-ISLAND HIGHWAY BERKINA-MAIALAUA SECTION	
		VERTICAL DATUM MEAN SEA LEVEL		<i>[Signature]</i> DESIGNED		<i>[Signature]</i> APPROVED		SHEET 5 OF 303		TYPICAL CROSS SECTION (SANDMAT 1=0500 ^m , ALIKA SWAMP)	
		HORIZONTAL DATUM		<i>[Signature]</i> CHECKED		<i>[Signature]</i> SECRETARY		DATE 25 Sep. 1988		CH. 34 + 000, CH. 38 + 000	
AMENDMENTS		BY APP'D DATE		SURVEY BOOK NO.S		EXECUTIVE ENGINEER		PAPUA NEW GUINEA		DEPARTMENT OF WORKS	
										DRAWING No. A1/ 88054	



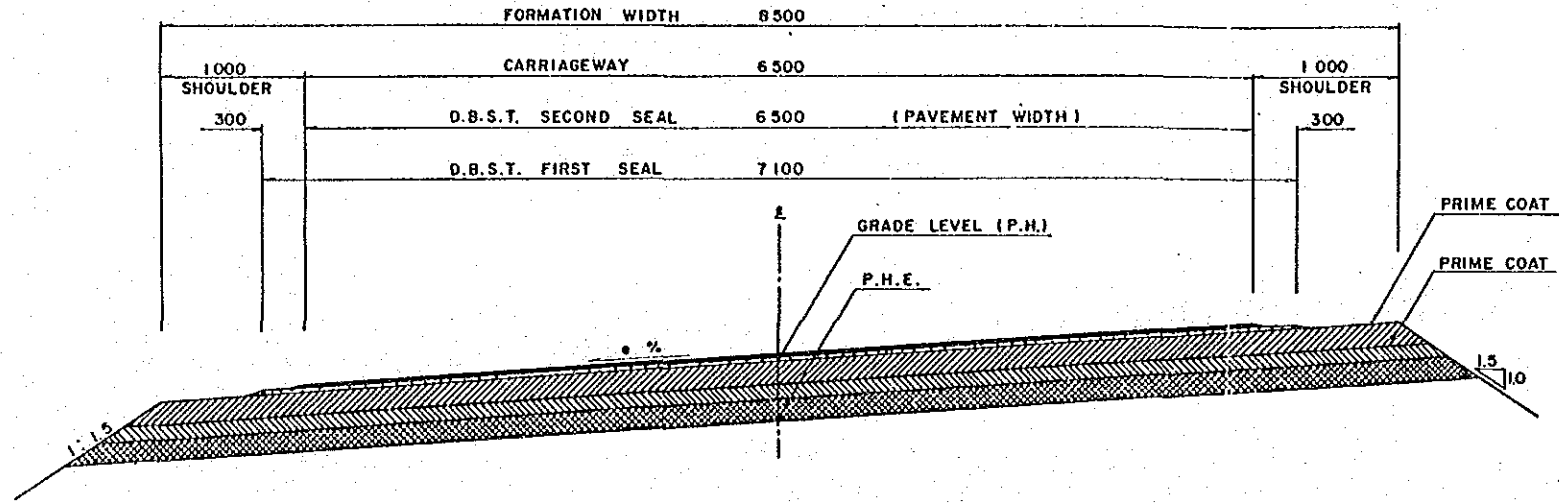
SURVEY JICA		DESIGN JAPAN INTERNATIONAL CO-OPERATION AGENCY		DRAWN K.E.		RECOMMENDED Principal Engineer		SCALES AS SHOWN		CENTRAL / GULF PROVINCES	
VERTICAL DATUM MEAN SEA LEVEL.		JAPAN INTERNATIONAL CO-OPERATION AGENCY		CHECKED A. Mizuki		PROJECT ENGINEER K. K. K.		APPROVED 28.10.19		TRANS-ISLAND HIGHWAY BEREINA-MALALAU SECTION	
HORIZONTAL DATUM		JICA		DESIGNED A. Mizuki		EXECUTIVE ENGINEER M. W.		SECRETARY T. S.		TYPICAL CROSS SECTION (SAND MAT t=1.00m)	
SURVEY BOOK NO.		28 Sep. 1989		CHECKED T. Kawakami		EXECUTIVE ENGINEER		PROJECT No. S.C.120-33-814/B		CH.59+914.675, CH.63+000	
REV.	AMENDMENTS	BY	APP'D	DATE	PAPUA NEW GUINEA DEPARTMENT OF WORKS		DRAWING No. A1/ 88055		SHEET 6 OF 303		11



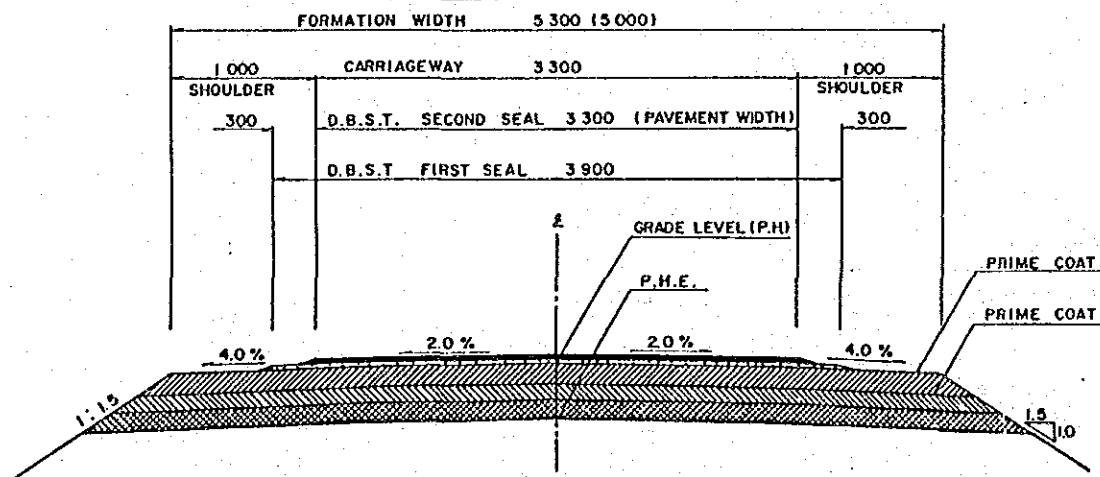
SURVEY		DESIGN		DRAWN		RECOMMENDED		SCALES		CENTRAL / GULF PROVINCES			
JICA		JAPAN INTERNATIONAL CO-OPERATION AGENCY		K. E.		M. Mays		AS SHOWN		TRANS-ISLAND HIGHWAY BEREINA-MALALAU SECTION			
Date				C. S. P.		28.10.88				TYPICAL CROSS SECTION (SAND MAT 1 = 1.00m, 1 = 0.500m)			
VERTICAL DATUM				A. M. J.		J. L.				CH 76 + 500, CH 77 + 500			
MEAN SEA LEVEL				P. K.		S. C.				PAPUA NEW GUINEA		DRAWING No.	
HORIZONTAL DATUM				28 Sep. 1988		S. C. 120-33-814/B				DEPARTMENT OF WORKS		A1/ 88056	
SURVEY BOOK N.O.				Date		SECRETARY							
AMENDMENTS		BY		APP'D		DATE							



①-① NORMAL SECTION Scale 1:25



②-② SUPERELEVATED SECTION Scale 1:25

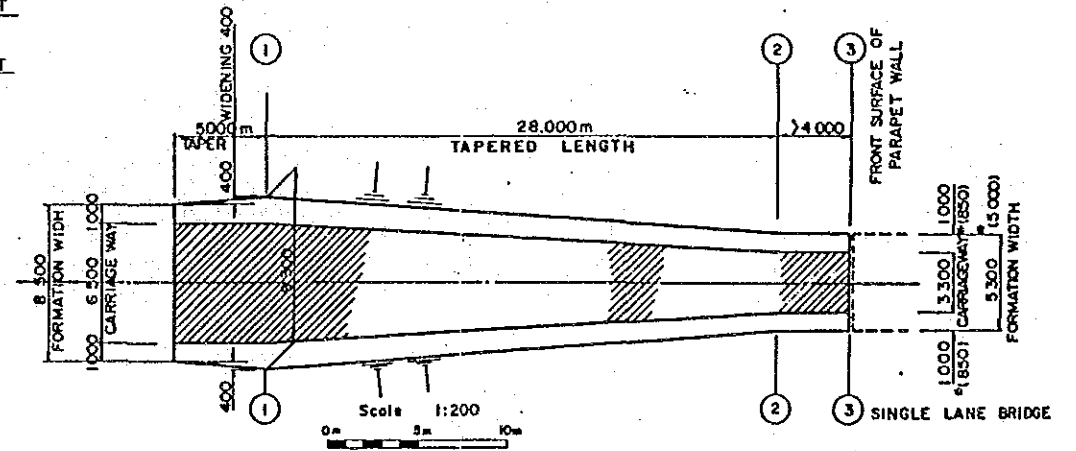


②-② APPROACH SECTION FOR SINGLE LANE BRIDGE Scale 1:25

CH.33+500 TO CH.80+596

- D.B.S.T.**
- { DOUBLE BITUMINOUS } ... SECOND SEAL Cover aggregate : 9.5mm 100-135 m³/m²
Bitumen 170 0.6-1.0 l/m²
 - { SURFACE TREATMENT } ... FIRST SEAL Cover aggregate : 19mm 65-85 m³/m²
Bitumen 170 1.25-1.65 l/m²
 - PRIME COAT with Cutback bitumen : 0.4~0.8 l/m²
 - 150mm COMPACTED BASE COURSE (CEMENT TREATED SANDY GRAVEL)
PRIME COAT with Cutback bitumen : 0.4~0.8 l/m²
 - 100mm COMPACTED SUBBASE (CEMENT TREATED SANDY GRAVEL)
 - 140mm COMPACTED SUBBASE (SANDY GRAVEL)

NOTE: ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.



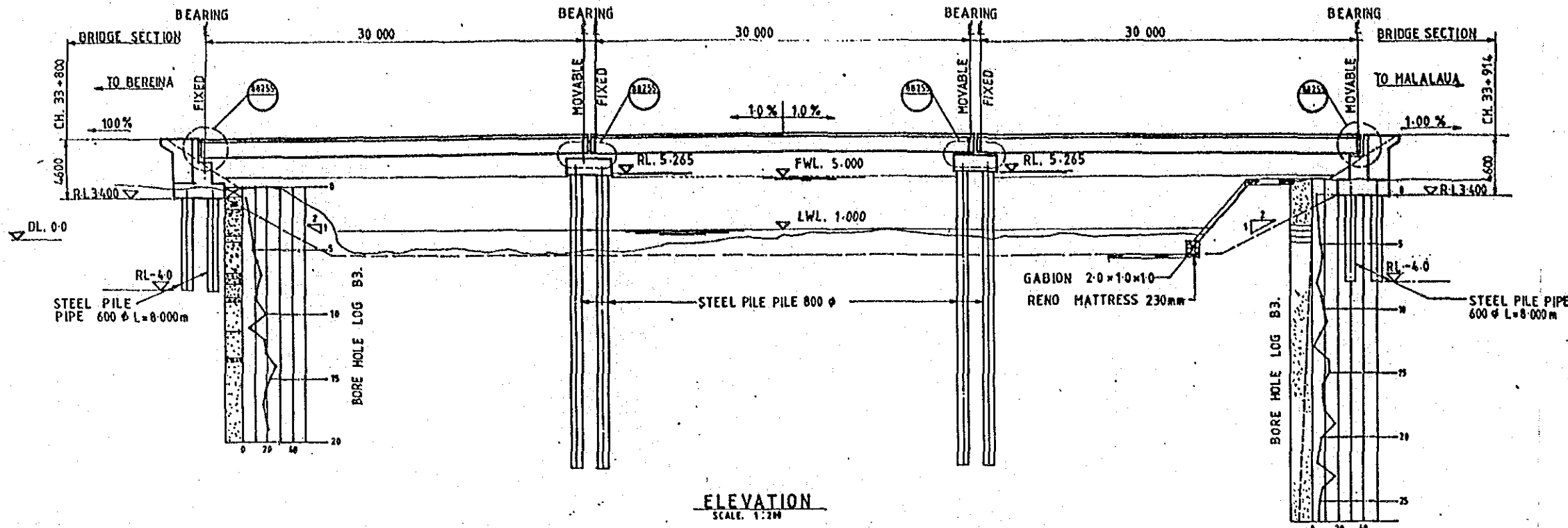
LOCATION OF APPROACH SECTION FOR SINGLE LANE BRIDGE

①	②	③	NAME OF BRIDGE	③'	②'	①'
CH.33 +778	+806	+810.250	MIARU Br.	CH.33 +903.750	+908	+936
CH.59 +887	+915	+919.400	KAPURI Br.	CH.59 +987.400	+992	CH.60 +020
CH.67 +144	+172	+176.200	LAKEKAMU Br.	CH.67 +297.800	+302	+330
CH.68 +645	+673	+677.200	TAURI Br.	CH.68 +798.800	+803	+831
CH.75 +879	+907	+911.800	HAKARA Br.	CH.75 +954.150	+959	+987
CH.77 +182	+210	+214.100	SIPPAHARO Br.	CH.77 +256.450	+261	+289

NOTES: ③③' are located front surface of parapet wall.

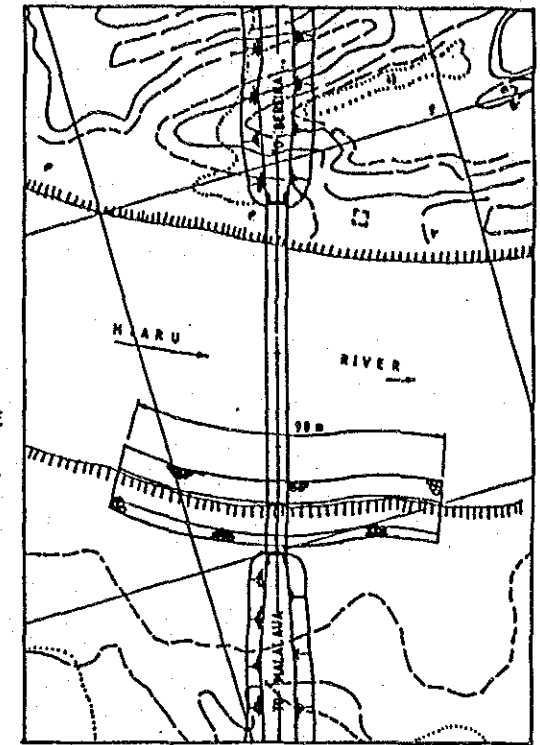
① 5000 Formation width between ② and ③

SURVEY JICA Date VERTICAL DATUM MEAN SEA LEVEL HORIZONTAL DATUM				DESIGN JAPAN INTERNATIONAL CO-OPERATION AGENCY Principal 20 Sep. 1988 Date				DRAWN K.E. Checked Designed Checked				RECOMMENDED PROJECT ENGINEER APPROVED PRINCIPAL ENGINEER EXECUTIVE ENGINEER				SCALES AS SHOWN PROJECT No. S.C.120-33-814/B				CENTRAL / GULF PROVINCES TRANS-ISLAND HIGHWAY BEREINA-MALALAUUA SECTION TYPICAL PAVEMENT SECTION FOR ROAD CH.33+500 TO CH.80+596 PAPUA NEW GUINEA DEPARTMENT OF WORKS DRAWING No. AI/ 88057			
REV.	AMENDMENTS	BY	APP'D	DATE									SHEET 8 OF 303										

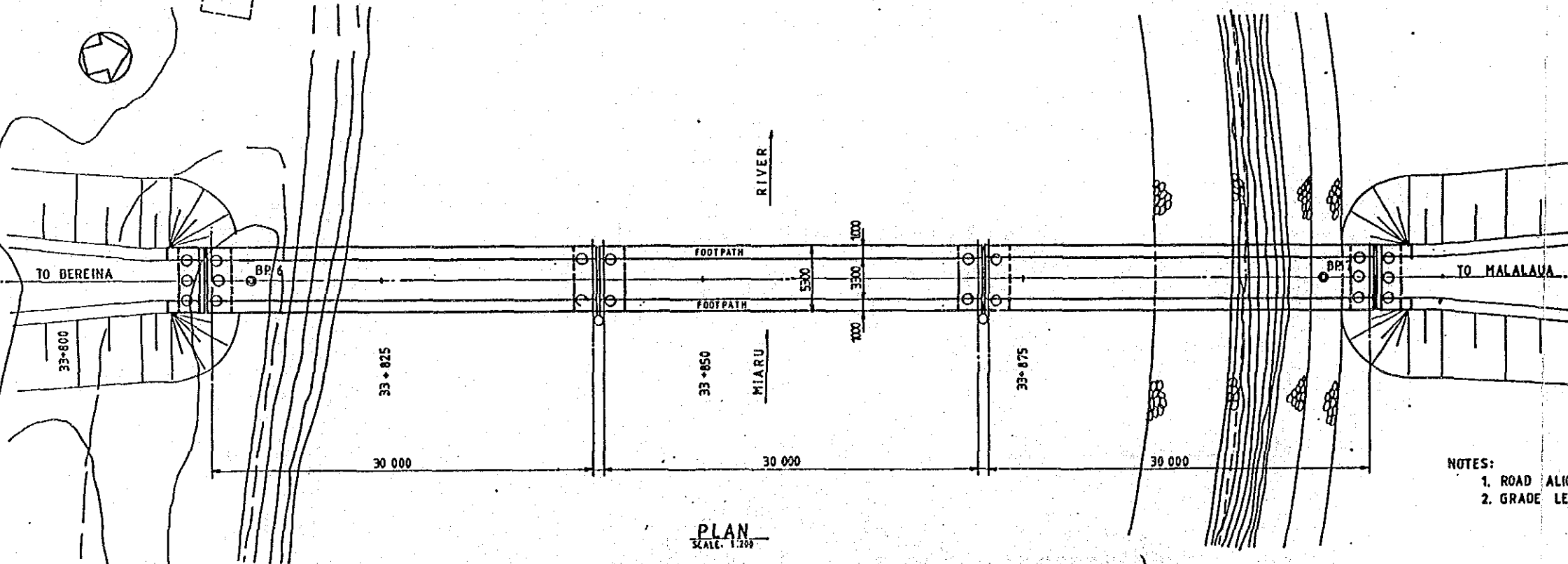


ELEVATION
SCALE: 1:200

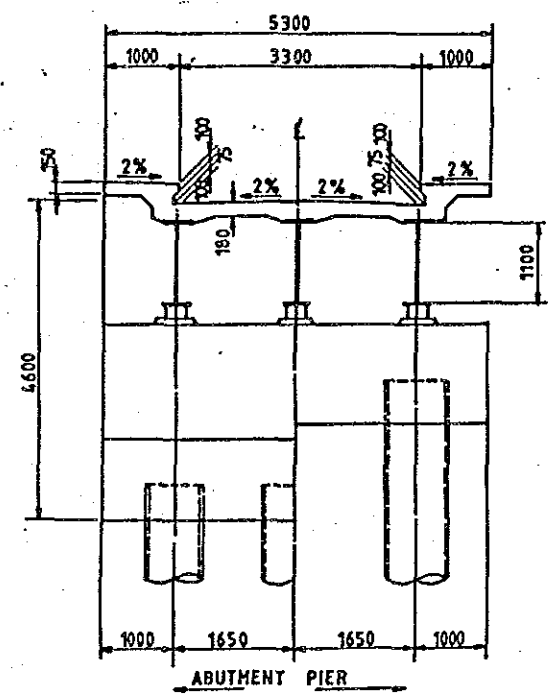
GRADE LEVELS	7.986 7.992	8.108	8.179 8.183	8.205	8.183 8.175	8.100	7.992 7.986
SURFACE LEVELS	4.36			0.66			4.75
CHAINAGES	CH. 33 + 810.25 CH. 33 + 810.85	CH. 33 + 825.85	CH. 33 + 840.85 CH. 33 + 842.0	CH. 33 + 857.0	CH. 33 + 872.4 CH. 33 + 873.5	CH. 33 + 888.5	CH. 33 + 903.75 CH. 33 + 903.75



LOCALITY PLAN.
SCALE: 1:1000



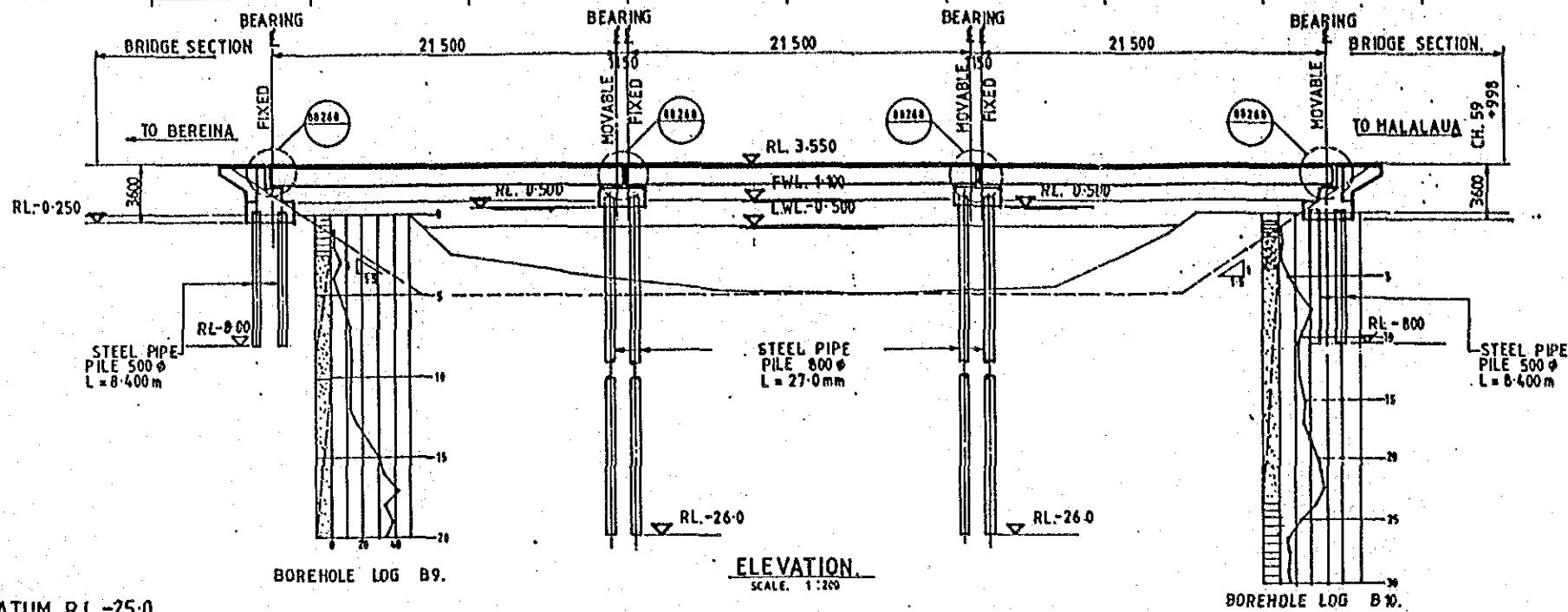
PLAN
SCALE: 1:200



TYPICAL CROSS SECTION.
SCALE: 1:30

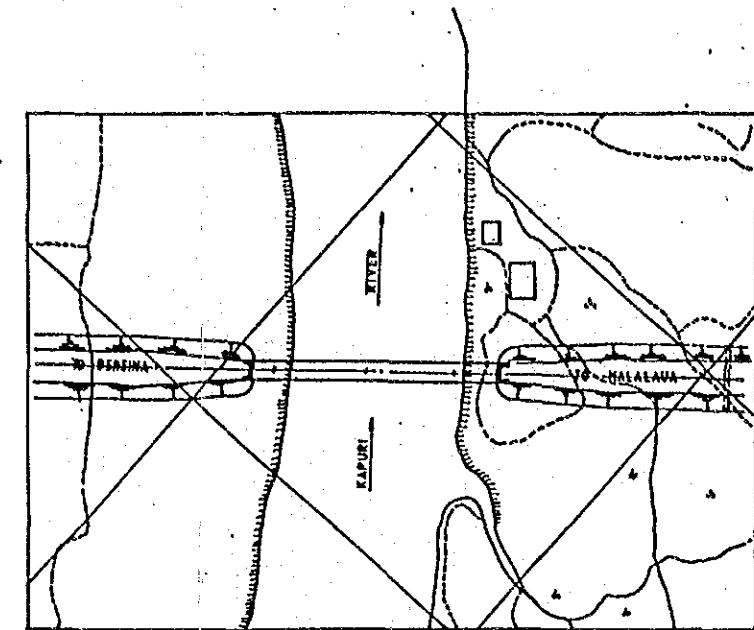
- NOTES:
1. ROAD ALIGNMENT DESIGN AND DETAILS BY OTHERS.
2. GRADE LEVELS ARE AT BRIDGE CENTRELINE.

REV.	AMENDMENTS		BY	APP'D	DATE	SURVEY	DESIGN	DRAWN	CHECKED	RECOMMENDED	APPROVED	SCALES	CENTRAL / GULF PROVINCE TRANS-ISLAND HIGHWAY BEREINA-MALALAU SECTION BRIDGE No. 4 - MIARU BRIDGE GENERAL ARRANGEMENT.	
						JICA	JAPAN INTERNATIONAL CO-OPERATION AGENCY	M.S				1:11.00	PAPUA NEW GUINEA DEPARTMENT OF WORKS	
						VERTICAL DATUM MEAN SEA LEVEL.							DRAWING No. At 80250	
						HORIZONTAL DATUM							PROJECT No. S.C. 120-33-814/II	
					SURVEY BOOK No.	28 Sep. 1988						SHEET 216 OF 303		

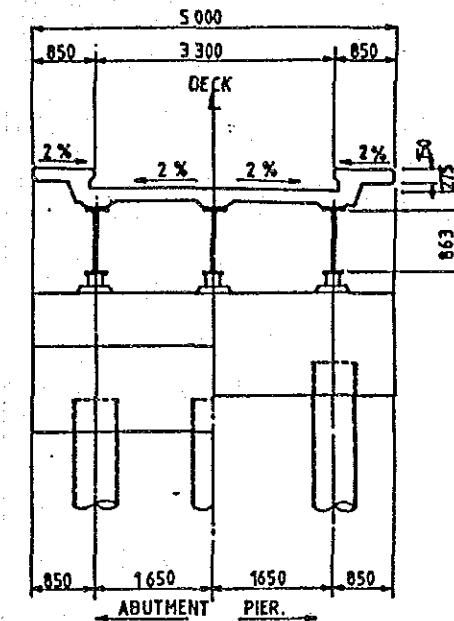
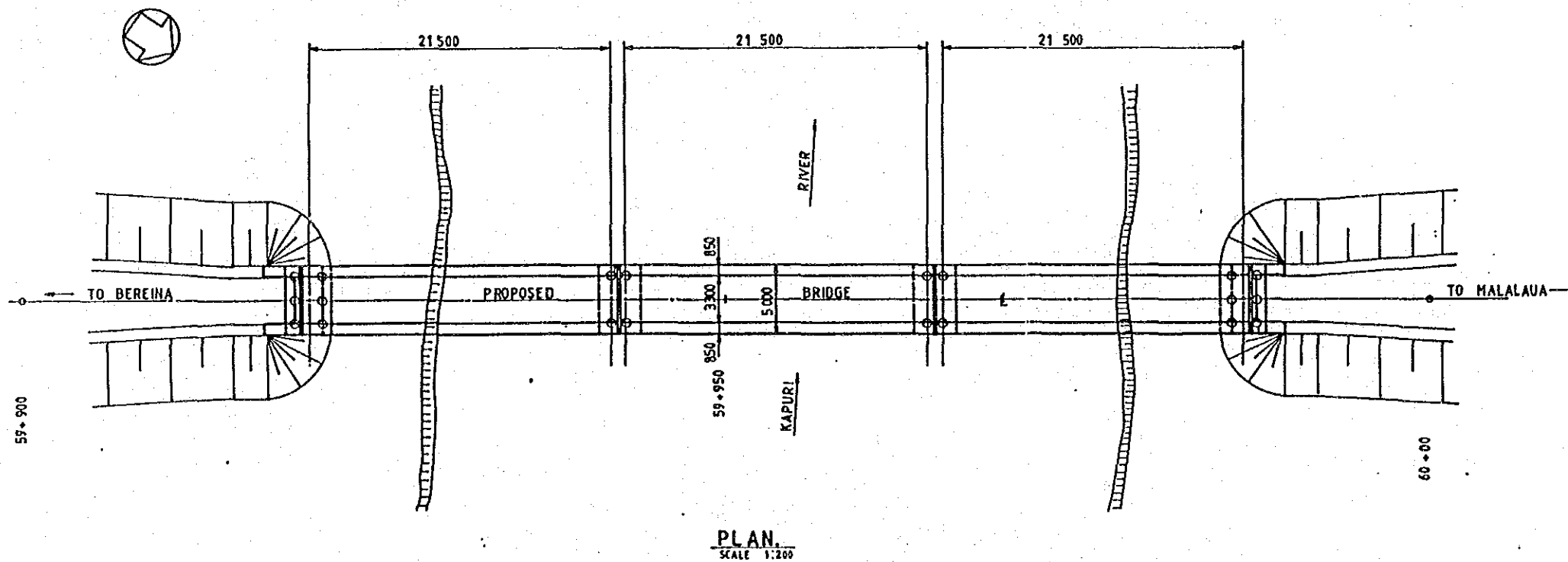


DATUM R.L. -25.0

	1	2	3	4	5	6	7	8
GRADE LEVELS	3.550	3.550	3.550	3.550	3.550	3.550	3.550	3.550
SURFACE LEVELS	0.49							0.47
CHAINAGE	CH 59 +920.0 CH 59 +920.0	CH 59 +930.0 CH 59 +930.0	CH 59 +940.0 CH 59 +940.0	CH 59 +950.0 CH 59 +950.0	CH 59 +960.0 CH 59 +960.0	CH 59 +970.0 CH 59 +970.0	CH 59 +980.0 CH 59 +980.0	CH 59 +990.0 CH 59 +990.0



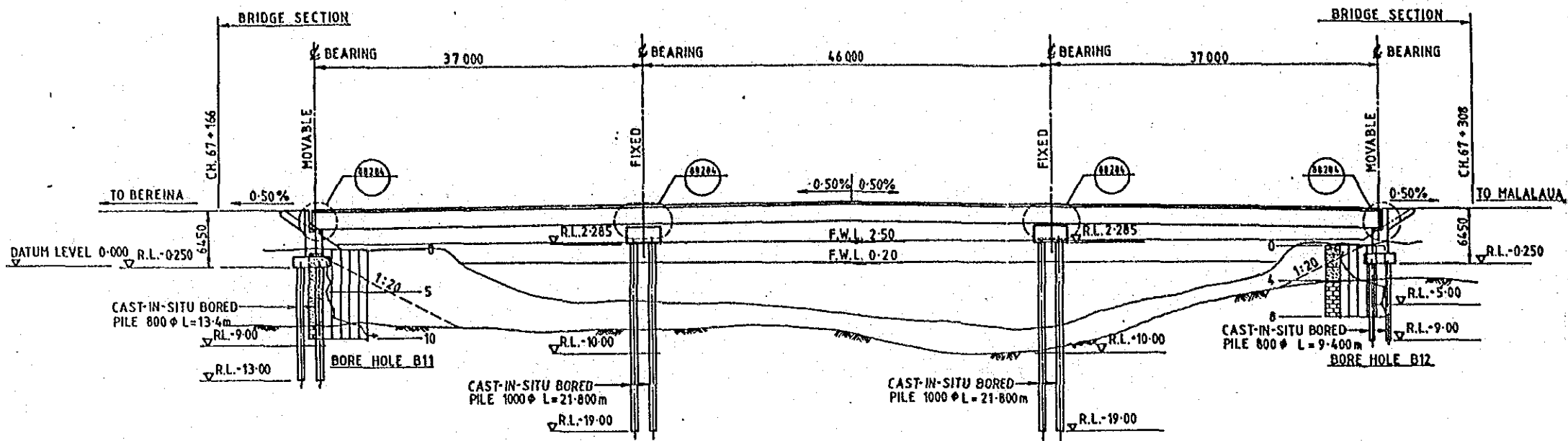
LOCALITY PLAN.
SCALE 1:1000



TYPICAL CROSS SECTION.
SCALE 1:50

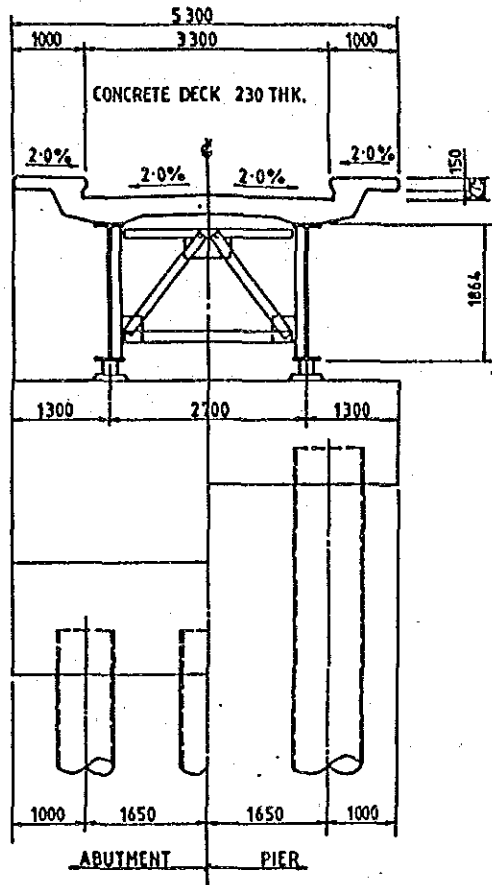
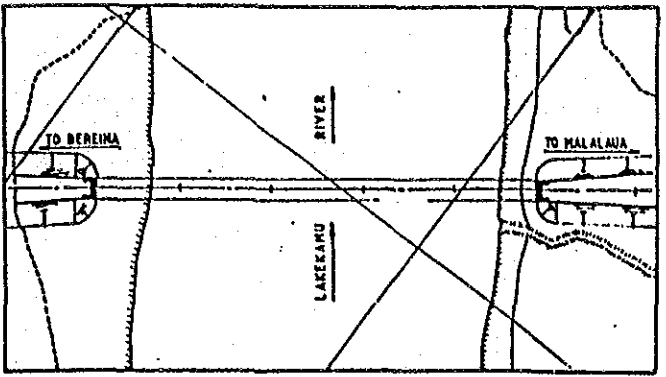
- NOTES:
1. ROAD ALIGNMENT DESIGN AND DETAILS BY OTHERS
 2. GRADE LEVELS ARE AT BRIDGE CENTRELINE.

REV.	AMENDMENTS	BY	APP'D	DATE	SURVEY	DESIGN	DRAWN	RECOMMENDED	SCALES	CENTRAL / GULF PROVINCES TRANS-ISLAND HIGHWAY BEREINA-MALALAU SECTION BRIDGE No. 5 - KAPURI BRIDGE GENERAL ARRANGEMENT	PAPUA NEW GUINEA DEPARTMENT OF WORKS	DRAWING No. A1 88263
					JICA	JAPAN INTERNATIONAL CO-OPERATION AGENCY	M.S.					
					VERTICAL DATUM MEAN SEA LEVEL.		CHECKED of Dai	PROJECT ENGINEER 1/1/79	APPROVED 1. 11. 79			
					HORIZONTAL DATUM		DESIGNED of Dai	EXECUTIVE ENGINEER 1/1/79	SECRETARY 1. 11. 79			
					SURVEY BOOK No. 8		CHECKED of Dai					
					28 Sep. 1988							



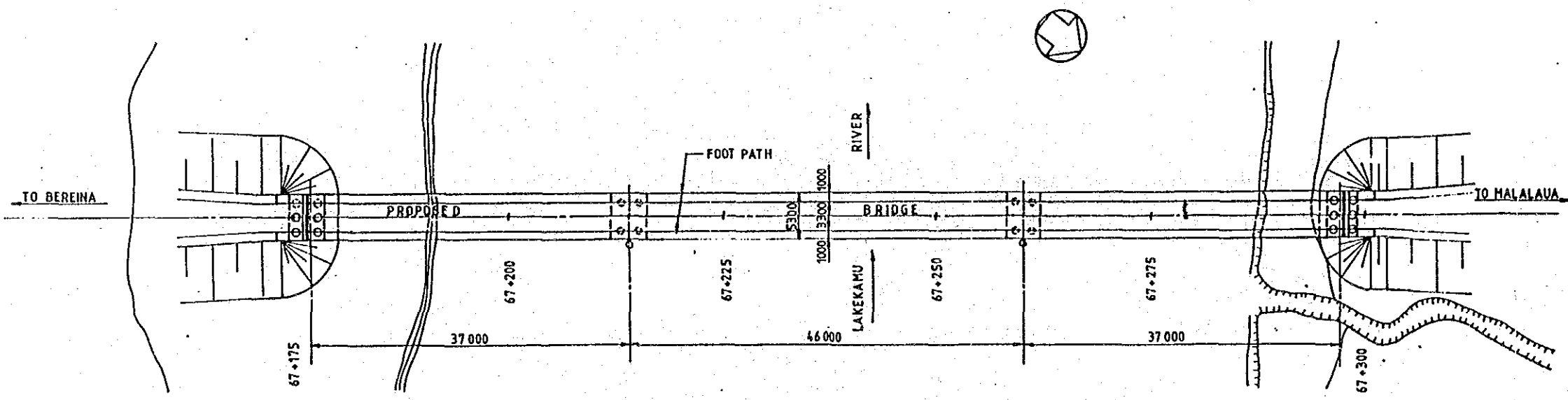
ELEVATION
SCALE 1:300

GRADE LEVELS	6.203	6.280	6.329	6.351	6.329	6.280	6.203
SURFACE LEVELS	1.41						2.06
CHAINAGE	67+175	67+200	67+225	67+250	67+275	67+300	



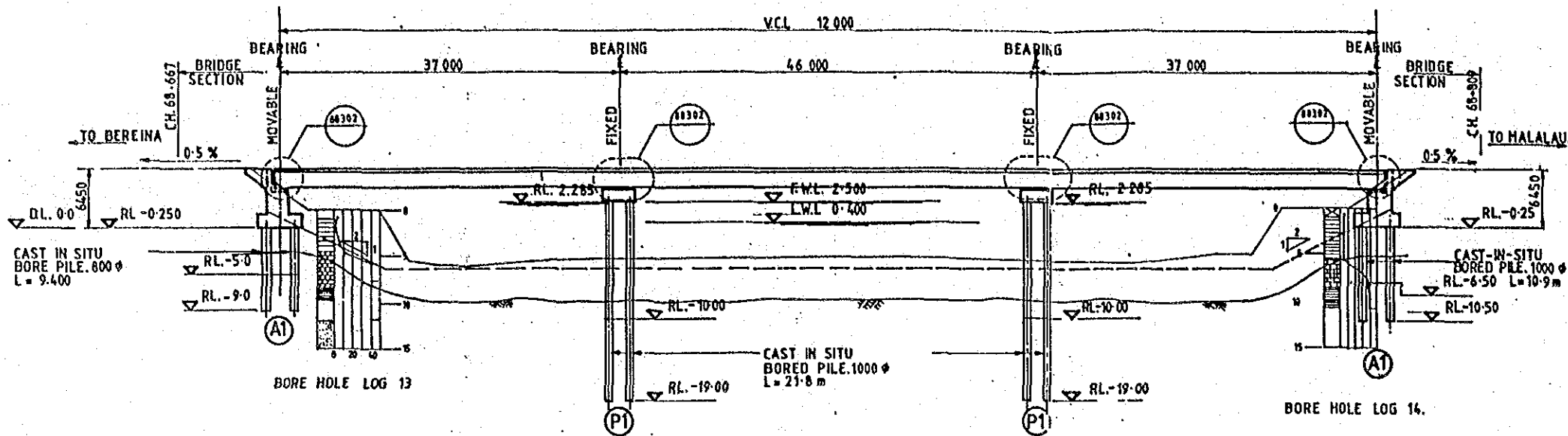
TYPICAL CROSS SECTION
SCALE 1:50

- NOTES:**
- ROAD ALIGNMENT DESIGN AND DETAILS BY OTHERS.
 - GRADE LEVELS ARE AT BRIDGE CENTRELINE.

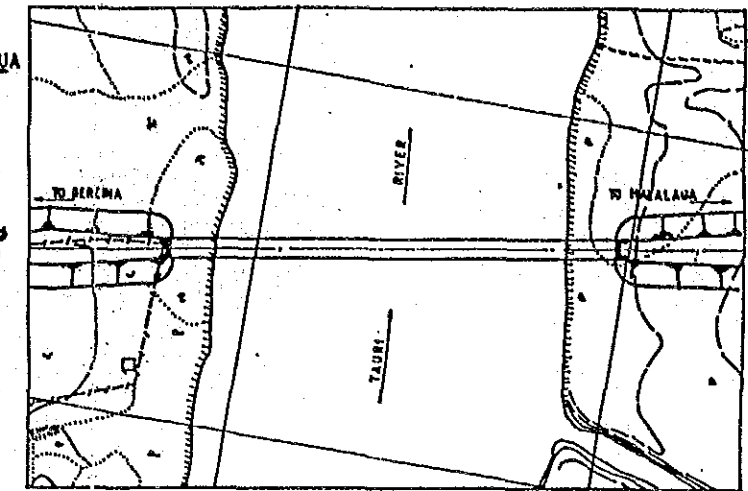


PLAN
SCALE 1:300

REV.	AMENDMENTS	BY	APP'D	DATE	SURVEY	DESIGN	DRAWN	RECOMMENDED	SCALES	PROJECT No. S.C. 120-33-814/E	PAPUA NEW GUINEA DEPARTMENT OF WORKS	DRAWING No. A1-88276
					JICA	JAPAN INTERNATIONAL CO-OPERATION AGENCY	M.S.	PROJECT ENGINEER				
					VERTICAL DATUM MEAN SEA LEVEL.	28 Sep. 1989	4 Dai	1/1/89	1:8.69			
					HORIZONTAL DATUM		J. Kaveland	J. Lewis				
					SURVEY BOOK No. 5		4 Dai	J. Lewis				

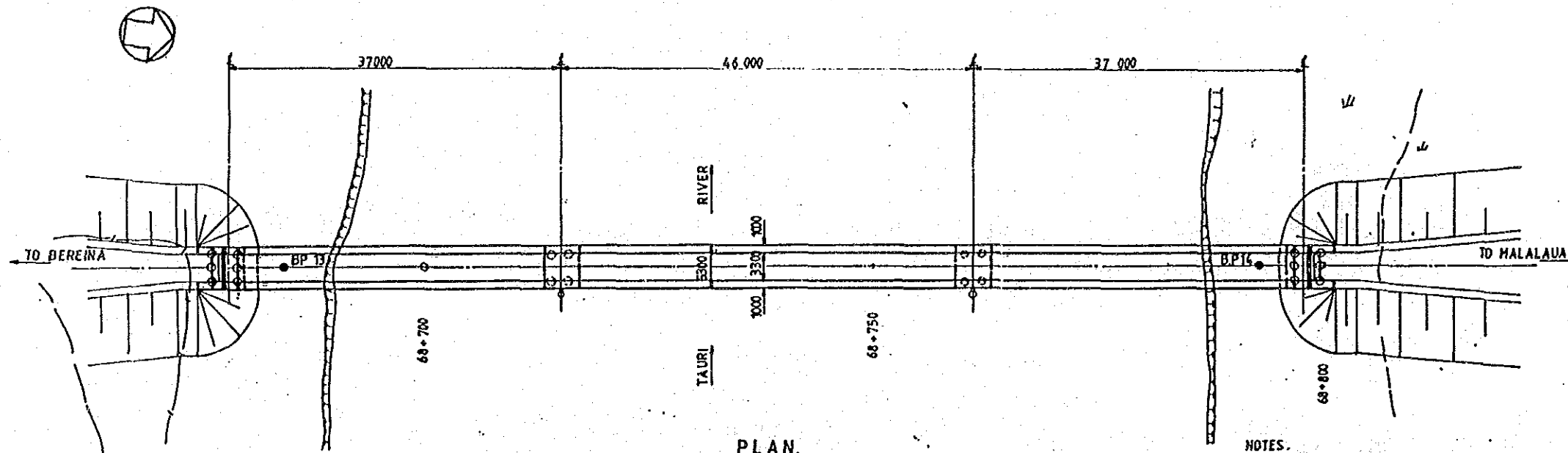


ELEVATION
SCALE 1:300

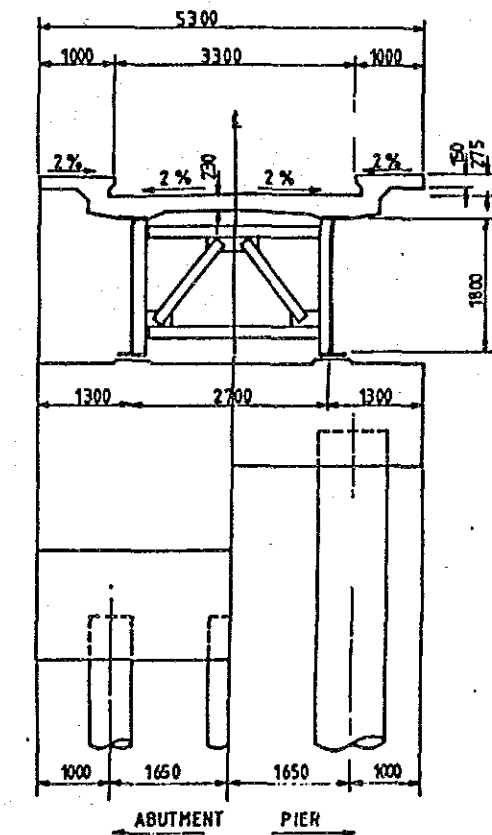


LOCALITY PLAN
SCALE 1:1000

GRADE LEVEL	6.199 6.223	6.277	6.323	6.351	6.323	6.277	6.203 6.199
SURFACE LEVEL	1.74			3.78			1.78
CHAINAGE	CH. 68 +677.2 +678.0	CH. 68 +696.5	CH. 68 +750.0	CH. 68 +736.0	CH. 68 +761.0	CH. 68 +779.5	CH. 68 +798.0 CH. 68 +798.0



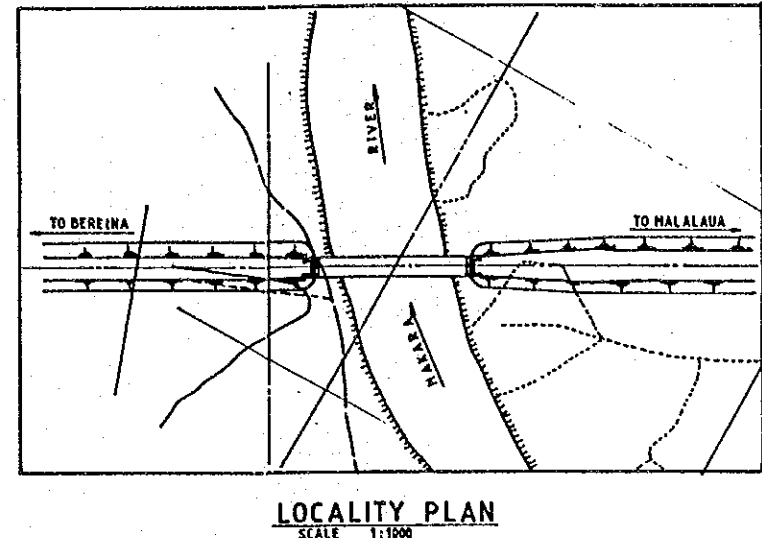
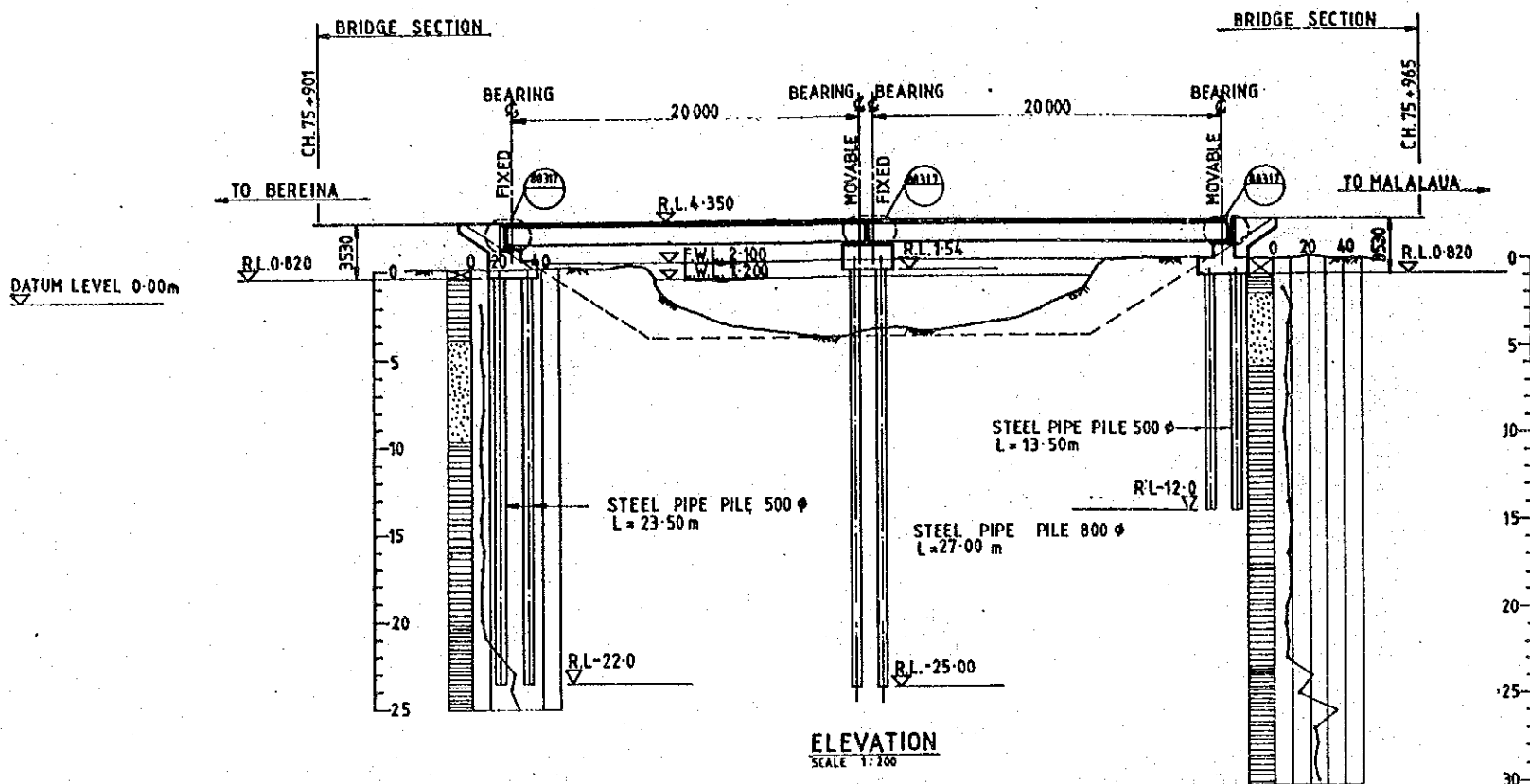
PLAN
SCALE 1:300



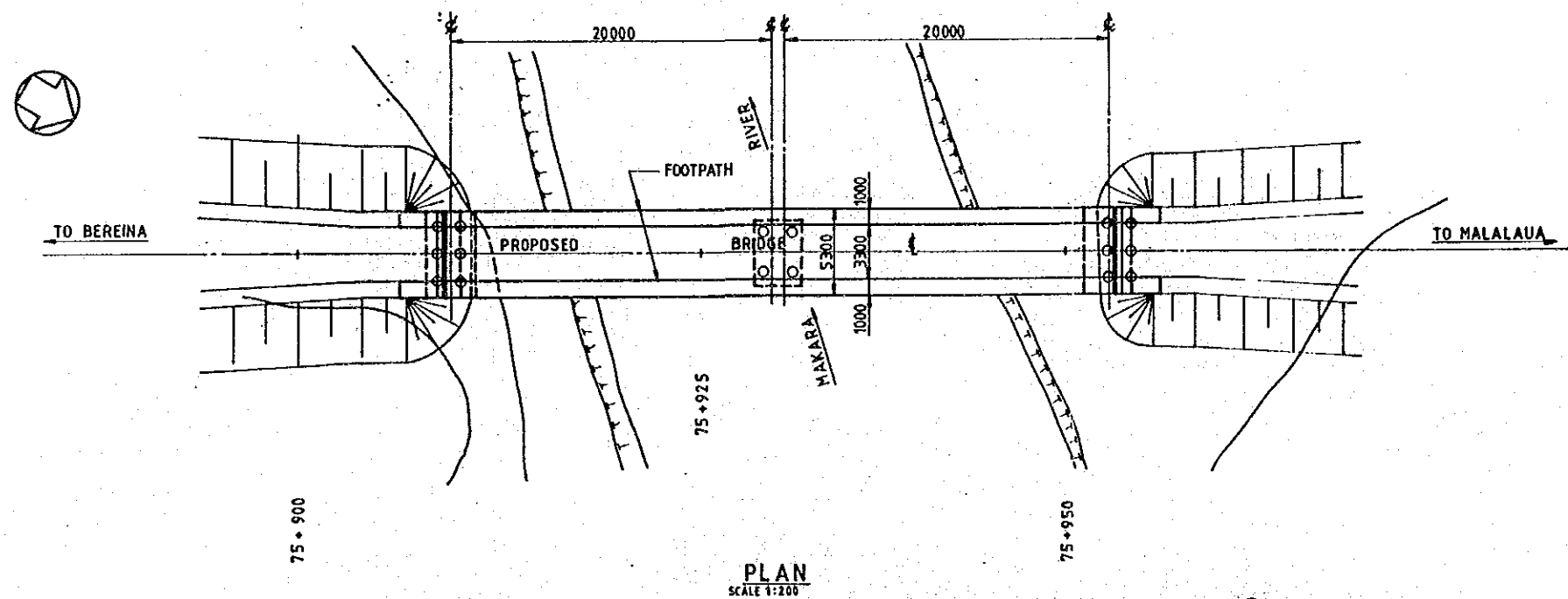
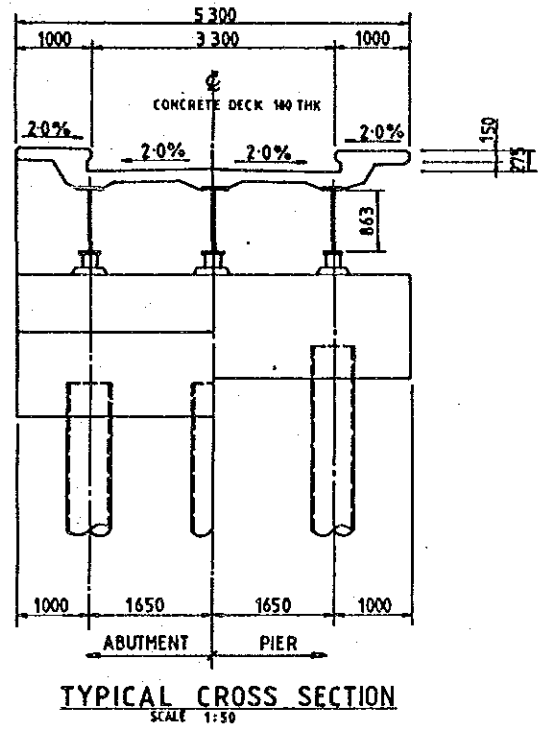
TYPICAL CROSS SECTION
SCALE 1:50

NOTES.
1. ROAD ALIGNMENT DESIGN AND DETAILS BY OTHERS
2. GRADE LEVELS ARE AT BRIDGE CENTRELINE

REV.	AMENDMENTS	BY	APP'D	DATE	SURVEY	DESIGN	DRAWN	RECOMMENDED	SCALES	SHEET 260 OF 303	PROJECT No. S.C.120-33-814/B	DRAWING No. A1 88294
					JICA	JAPAN INTERNATIONAL CO-OPERATION AGENCY	M.S. J.B. MAGGIO					
					VERTICAL DATUM MEAN SEA LEVEL		Checked H. Wai	Checked P. Kawakami	Checked I. B. S.P.			
					HORIZONTAL DATUM		Checked Y. Wai	Checked J. L. ...	Checked I. B. S.P.			
					SURVEY BOOK No. 8							
					28 Sep. 1983							

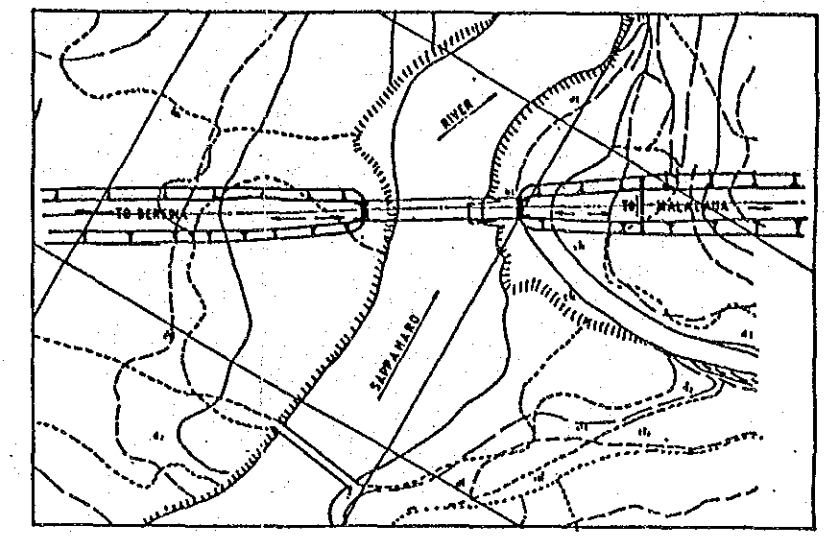
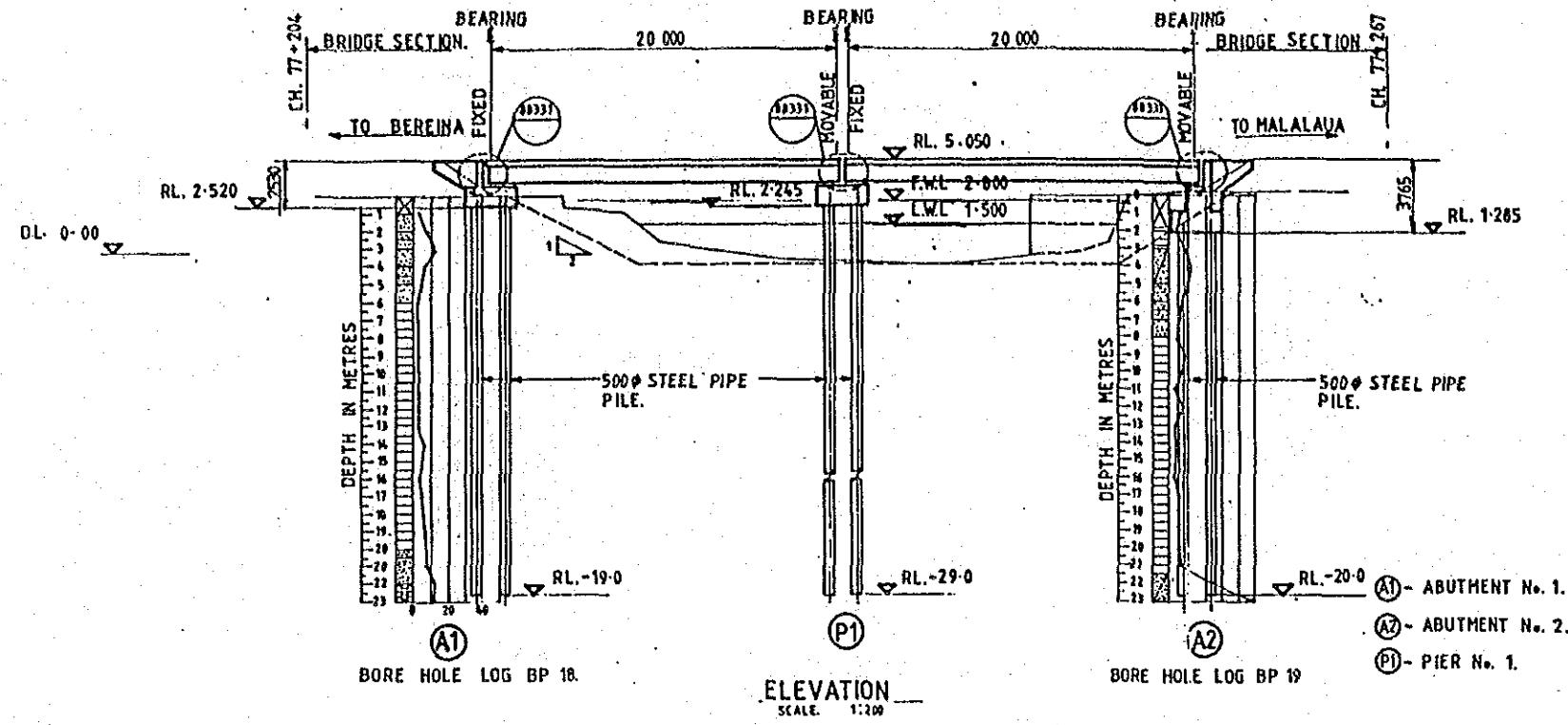


GRADE LEVELS									
SURFACE LEVELS									
CHAINAGE									

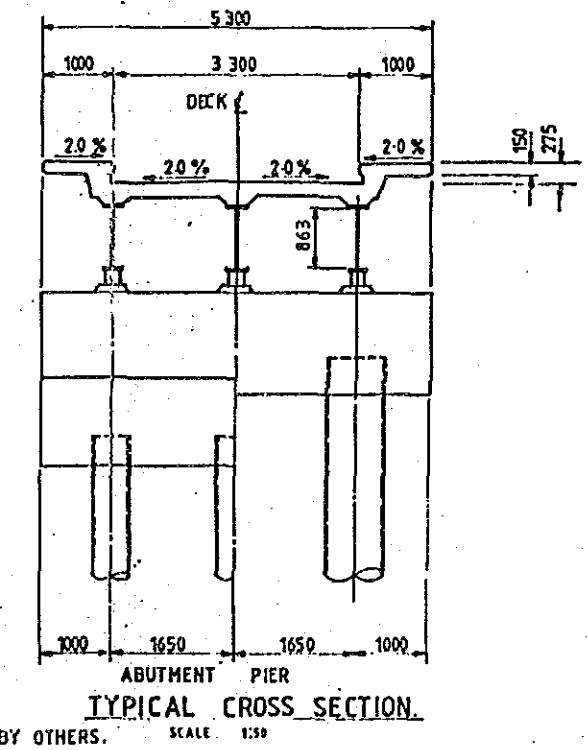
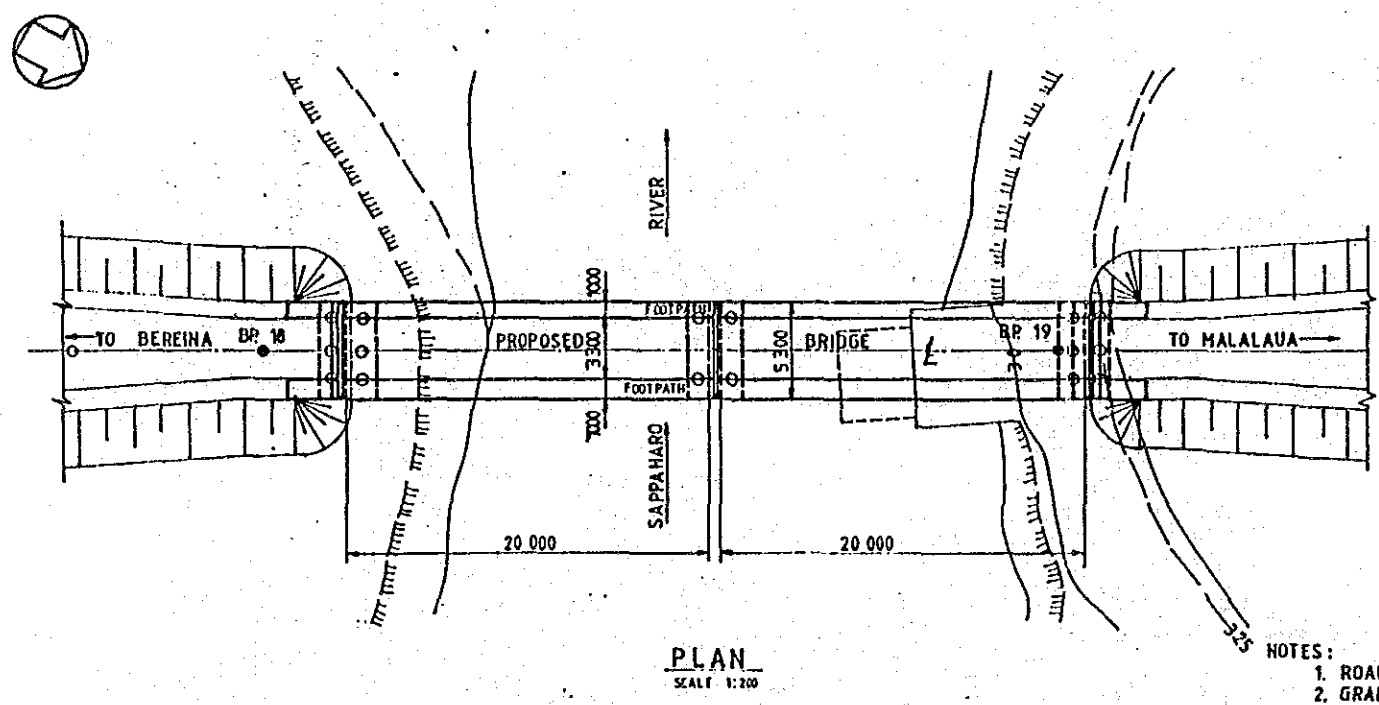


- NOTES:
1. ROAD ALIGNMENT DESIGN AND DETAILS BY OTHERS.
 2. GRADE LEVELS ARE AT BRIDGE CENTRELINE.

SURVEY JICA Date VERTICAL DATUM MEAN SEA LEVEL. HORIZONTAL DATUM		DESIGN JAPAN INTERNATIONAL CO-OPERATION AGENCY J. Mahito 25 Sep. 1983 Date		DRAWN M.S. CHECKED y Dai DESIGNED J. Kawano CHECKED y Dai		RECOMMENDED APPROVED PROJECT ENGINEER PRINCIPAL ENGINEER EXECUTIVE ENGINEER SECRETARY		SCALES 		CENTRAL / GULF PROVINCES TRANS-ISLAND HIGHWAY BEREINA-MALALAU SECTION BRIDGE No 8. — MAKARA BRIDGE GENERAL ARRANGEMENT	
REV.	AMENDMENTS	BY	APP'D	DATE	SURVEY BOOK No. 8	PROJECT No. S.C. 120-33-814/B	PAPER NEW GUINEA DEPARTMENT OF WORKS		DRAWING No. A1 88312		



GRADE LEVELS	5.95	5.95	5.95	5.95	5.95	5.95
SURFACE LEVELS	3.05					3.02
CHAINAGE	CH. 77+204 +204.00	CH. 77+245 +245.00	CH. 77+270 +270.00	CH. 77+285 +285.00	CH. 77+300 +300.00	CH. 77+345 +345.00



NOTES:
 1. ROAD ALIGNMENT DESIGN AND DETAILS BY OTHERS.
 2. GRADE LEVELS ARE AT BRIDGE CENTRE LINE.

SURVEY JICA Date VERTICAL DATUM MEAN SEA LEVEL HORIZONTAL DATUM SURVEY BOOK NO. 8		DESIGN JAPAN INTERNATIONAL CO-OPERATION AGENCY Date 28 Sep. 1988	DRAWN J. B. MAGDO CHECKED dy Dai DESIGNED Z. Kambani CHECKED dy Dai	RECOMMENDED APPROVED 1. 8. 88 EXECUTIVE ENGINEER	PRINCIPAL ENGINEER 1. 8. 88 SECRETARY	SCALES SHEET 291 OF 303 PROJECT No. S.C. 120-33-814/B	CENTRAL / GULF PROVINCES TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION BRIDGE No. 9 - SAPPAHARO BRIDGE GENERAL ARRANGEMENT PAPUA NEW GUINEA DEPARTMENT OF WORKS DRAWING No. A1 88325
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JICA