4 PROJECT EVALUATION AND RECOMMENDATION

4.1 Project Effect

The direction of economic reconstruction taken by the Government of Cambodia can be identified through such conferences as the Conference on National Programme to Rehabilitate and Develop Cambodia held in Tokyo in 1994 and the International Road Network Conference under the Economic Cooperation Programme for the Greater Mekong Subregion, 1994. It is considered that the implementation of this Project would substantially promote the economic reconstruction of Cambodia.

The traffic volume, economic internal rate of return and beneficiary population in the case this Project is implemented, are estimated as follows:

(1) *Traffic*

The traffic volume on the Project Bridge is forecast at 610, 2,300 and 6,220 PCU per day in 2001, 2011 and 2021 respectively. Annual traffic growth after the opening of the bridge is expected to be about 12%. This high rate of traffic growth is attributed to the great regional development effect brought about by the Project.

(2) Economic Internal Rate of Return

The benefits produced by the Project consist of Travel Time Cost Saving and Vehicle Operation Cost Saving. The benefit from the Project is estimated at US$1.6 million, US$8.2 million and US$23.4 million for 2002, 2021 and 2021 respectively. Economic Internal Rate of Return of the Project calculated based on these benefits is about 11.2 percent, which justifies the viability of the Project under Japan's Grant Aid Scheme.

Table 4.1 Benefits from the Project

	2002	2011	2021
Time Cost Saving	0.9	5.4	17.2
Vehicle Operation Cost Saving	0.7	2.8	6.2
Total Benefit	1.6	8.2	23.4

(3) Beneficiary Population

The total beneficiary population calculated based on the present population is approximately 2.0 million as detailed below:

Kompong Cham Region	1.5 million
Kratie Region (sum of Stung Treng, Mondul Kiri, Ratang Kiri districts)	0.5 million
Total	2.0 million

In addition to this direct beneficiary population, many people are expected to use the bridge on a casual basis. If these people are taken into account in the calculation, the total beneficiary population would exceed 10 million, which is approximately equivalent to the total population of Cambodia.

As mentioned above, the Mekong Bridge planned to be constructed near Kompong Cham city is expected to not only induce improvement of traffic accessibility due to shortening traffic time between Kompong Cham city and province on the east side of the Mekong River, but also bring other several effects. Namely, agricultural productivity and market-oriented economy in the eastern area of the Mekong River will be promoted. Further, a corridor linking the south to the north of Cambodia will be established thanks to the elimination of bottle neck of traffic crossing the Mekong River by ferry facility.

This Project will enhance Basic Human Needs (BHN) for residents around Kompong Cham province, and at the same time, exert an important influence on the Cambodian economy as a whole. In addition, it is considered that this Project will enable to strengthen accessibility among Cambodia, western Vietnam and Laos as an international trunk road, comprising Asian Highway linking center parts of the Indochinese Peninsula from the south to the north. For these reasons, it is judged that this Project has an extremely important significance .

4.2 Recommendation

As this Project is expected to contribute to the improvement of BHN of not only residents around the bridge area but also of the Cambodian as a whole as described in 4.1, it is considered that the implementation of this Project is of primordial importance.

However, there exist some issues relating to the implemention of the Project. One of them is the land acquisition and relocation at the stage of construction of the approach roads on the west and east sides of the Mekong River. This matter is to be undertaken by the Cambodian Government. Therefore, the Cambodian Government should negotiate with the residents concerned and prepare the required fund from its own budget. This is an essential condition to be solved completely before commencement of construction works so that they can completed within the stipulated period. Another issue is the relocation of the existing ferry facility. This should be undertaken by the Cambodian Government as well.

It is requested that the budget required for the above items be provided by the Cambodian Government in the fiscal year that begins in January 1997. In addition, these items should be completed prior to the signing of the Exchange of Note for Construction Works, in accordance with the terms and conditions set forth therein.

In the case these items are not terminated within the required period, it is considered that smooth implementation of the Project becomes definitely difficult.

APPENDICES

CONTENTS OF APPENDICES

Appendices 1.	Member List of the Survey Team
Appendices 2.	Survey Schedule
Appendices 3.	List of Party Concerned in the Recipient Country
Appendices 4.	Minutes of Discussion
Appendices 5.	Cost Estimation Borne by the Recipient Country
Appendices 6.	Drawings

Appendices 1 Member List of the Survey Team

(1)	Team Leader	Kenji MATSUMOTO	JAPAN INTERNATIONAL COOPERATION AGENCY Deputy Director Coordination and Appraisal Division Grant and Project Study Department
(2)	Leader of Consultant/ Designer of Bridge and Road	Hisashi OHSHIMA	NIPPON KOEI CO., LTD.
(3)	Designer of Bridge	Kazumasa TADA	"
(4)	Construction Planner	Munenori YAMAZAKI	"
(5)	Cost Estimator	Toshio ICHIKAWA	"

Appendices 2 Survey Schedule

The First Survey: 4 Aug ~ 21 Aug, 1996

Order of Day	Date	A Day of Week	Transfer of Study Members	Stay	Contents of Survey
1	4 Aug.	Sun	Matsumoto, Ohshima, Tada and Ichikawa's arrival at Bangkok	Bangkok	Meeting
2	5 Aug.	Mon	Matsumoto, Ohshima, Tada and Ichikawa's arrival at Phnom Penh	Phnom Penh	Courtesy Call to Embassy of Japan and JICA Office at Phnom Penh
3	6 Aug.	Tue		Kompong Cham	Meeting with Government Officials Survey to Site
4	7 Aug.	Wed		Phnom Penh	Survey to Site
5	8 Aug.	Thu	Yamazaki's arrival at Bangkok	"	Meeting with Government Officials
6	9 Aug.	Fri	Matsumoto's return to Japan Ichikawa and Yamazaki's arrival at Phnom Penh	"	Signing to Minutes of Discussion, Report to Embassy of Japan and JICA at Phnom Penh
7	10 Aug.	Sat		"	Site Survey by Consultant Team
8	11 Aug.	Sun		"	Meeting within Study Team
9	12 Aug.	Mon		"	Meeting with Mr. Chankosal
10	13 Aug.	Tue		"	Survey
11	14 Aug.	Wed		"	Survey, Meeting with Mr. Chankosal
12	15 Aug.	Thu		"	Survey
13	16 Aug.	Fri		"	Signing to Memorandum with MPWT's Officials. Report to Embassy of Japan and JICA at Phnom Penh
14	17 Aug.	Sat		"	Site Survey
15	18 Aug.	Sun	Ohshima, Tada, Ichikawa's arrival at Bangkok	Bangkok	Transfer
16	19 Aug.	Tue		"	Market Research at Bangkok
17	20 Aug.	Wed		"	"
18	21 Aug.	Thu	Ohshima, Ichikawa and Yamazaki's arrival at Narita		

The Second Survey : 6 Oct ~ 13 Oct, 1996

Order of Day	Date	A Day of Week	Transfer of Study Members	Stay	Contents of Survey
1	6 Oct.	Sun	Matsumoto, Ohshima, Tada and Ichikawa's arrival at Bangkok	Bangkok	Meeting
2	7 Oct.	Mon	Matsumoto, Ohshima, Tada and Ichikawa's arrival at Phnom Penh	Phnom Penh	Site Survey along R6, 7 and Kompong Cham by Helicopter to observe the damage by flooding Courtesy Call and Explanation to Embassy of Japan and JICA at Phnom Penh
3	8 Oct.	Tue		"	Courtesy Call to Director of Ministry of Foreign Affairs and Minister of MPWT Meeting with Mr. Chankosal
4	9 Oct.	Wed		"	Discussion about Draft Final Report wit Government Officials, Signing of Minutes of Discussion, Report of Embassy of Japan
5	10 Oct.	Thu		"	Site Survey to Kompong Cham with high speed boat Report to JICA Office
6	11 Oct.	Fri	Matsumoto's return to Japan	"	Meeting within Study Team
7	12 Oct.	Sat	Ohshima, Tada and Ichikawa's Departure at Phnom Penh	Bangkok	Transfer
8	13 Oct.	Sun	Arrival to Narita		

Appendices 3 List of Party Concerned in the Recipient Country

(1) Ministry of Public Works and Transport

H.E. Mr. Ing Kieth	Minister
H.E. Mr. Tram Iv Tek	Secretary of State
H.E. Mr. Chin Kim Sreng	Undersecretary of State
H.E. Mr. Meas Keth Caimirane	Undersecretary of State
Mr. Tan Hay Sien	Director, Department of Infrastructure
Mr. Chum Sokun	Director, Department of Planning
Mr. Tauch Chan Kosal	Director, Department of Major Construction (DMC)
Mr. Yit Bunna	Director, Department of Research Center
Mr. He Lim Seng	Director, Bridge Company
Mr. Akira Kaneko	JICA Expert, Senior Advisor to the Minister
Mr. Kazuo Murai	JICA Expert, RCC

(2) Council of Minister

Mr. Sok Savan	Vice-Director of Communication, Transport and Post Bureau

(3) Council for Development of Cambodia

Mrs. Chhin Rem	Deputy Director, Cambodian Rehabiolitation and Development Board

(4) Ministry of Economy and Finance

Ms. Pith Nimul	Deputy Director, Investment Office

(5) Ministry of foreign Affairs

Mr. Kem Mongkul	Director, Department of International Cooperation

(6) Kompong Cham Province

H.E. Mr. Hun Ming	Governor
Mr. Lay Sokha	Deputy Governor

(7) Embassy of Japan

Shohei Naito	Ambassador of Japan

Shigemitsu Tsukamoto	First Secretary
Atsushi Yonezawa	Attache

(8) JICA Cambodia Office

Hiroyuki Arai	*Resident Representative*
Yoichi Yamagiwa	Assistant Resident Representative
Hiroshi Enomoto	"

Appendices 4 Minutes of Discussion

Minutes of Discussions
on
the Basic Design Study
on
the Project for Construction of the Mekong River Bridge
in
The Kingdom of Cambodia

In response to a request from the Government of the Kingdom of Cambodia, the Government of Japan has decided to conduct a Basic Design Study on the Project for Construction of the Mekong River Bridge (hereinafter referred to as "the Project"), and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to the Kingdom of Cambodia a Basic Study Team headed by Mr.Kenji MATSUMOTO, Deputy Director, Coordination & Appraisal Division, Grant Aid Project Study Department, JICA, which is scheduled to stay in the country from August 5 to 20, 1996

The team held a series of discussions with the concerned officials of the Government of the Kingdom of Cambodia and conducted a field survey at the study area.

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

The team will proceed to further works and prepare the Draft Basic Design.

Phnom Penh, August 8, 1996.

Mr. Kenji MATSUMOTO
Leader
Basic Design Study Team
JICA

H.E. Mr. Tram Iv Tek
Secretary Of State For
H.E. Mr. Ing Kieth
Ministry Of Public Works
and Transport

ATTACHMENT

1. OBJECTIVE

The objective of the project is to construct a bridge over the Mekong River at Kompong Cham in order to facilitate efficient road transport to the missing section of NR7 where river cross is being ensured by ferry boat service. It is expected that the Project will contribute to socio-economic development not only the Project area, but also in Indochina as a whole because NR7 is international road leading to Laos and Vietnam.

2. PROJECT IMPLEMENTING AGENCY

The Project implementation agency is the Ministry of Public Works and Transport

3. PROJECT SITE

The proposed site of the Project is shown in Annex-1.

4. MAJOR ITEMS REQUESTED BY THE CAMBODIAN SIDE

As a result of the series of discussions, the items listed in Annex-2 are requested by the Cambodian side.

However, the contents of the Project will be decided after further study.

5. ITEMS CONFIRMED BY THE CAMBODIAN SIDE AND JAPANESE SIDE

For the execution of the Basic Design Study, several items are confirmed by the both sides, which are listed in Annex-3.

6. JAPAN'S GRANT AID PROGRAMME

The Cambodian side has understood the system of Japan's Grant Aid Programme explained in Annex-4.

7. NECESSARY MEASURES TO BE TAKEN BY THE CAMBODIAN SIDE

The Cambodian side will take necessary measures described in Annex-5 for smooth implementation of the Project on condition that the Grant Aid by the Government of Japan is extended to the Project.

8. PROJECT ORGANIZATION OF THE CAMBODIAN SIDE

The operational organization while construction works is implemented, and the operational principle of maintenance works for completed facility are confirmed to be established by Cambodian side as shown in Annex-6.

9. SCHEDULE AND PROCEDURE FOR THE LAND ACQUISITION & COMPENSATION AS WELL RELOCATION OF EXISTING FERRY FACILITY

The Schedule and Procedure for the land acquisition and compensation as well relocation of existing ferry facility are proposed by the Cambodian side which are shown in Annex-7.

10. FURTHER SCHEDULE OF THE STUDY

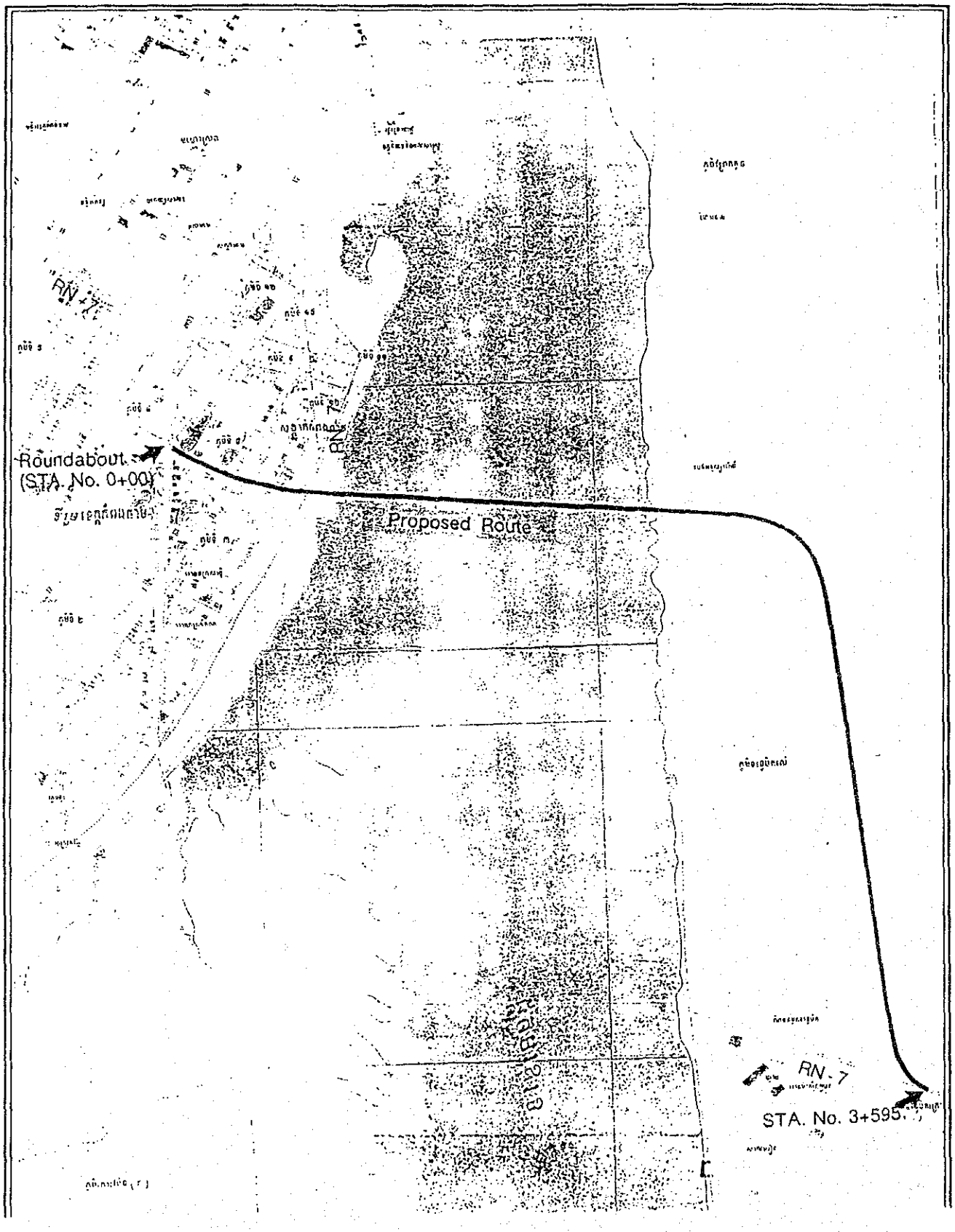
1) The team will proceed with further studies in the Kingdom of Cambodia until August 18, 1996.

2) JICA will prepare a Draft Basic Design and dispatch a team in October 1996 in order to explain and to confirm the contents of the Draft Basic Design.

3) In case that the Draft Basic Design is accepted by the Cambodian side, JICA will complete the Basic Design Report and send it to the Cambodian side by February 1997.

Annex-1 Proposed Site

Proposed site is shown below.



Annex-2 Major Items Requested by the Cambodian Side

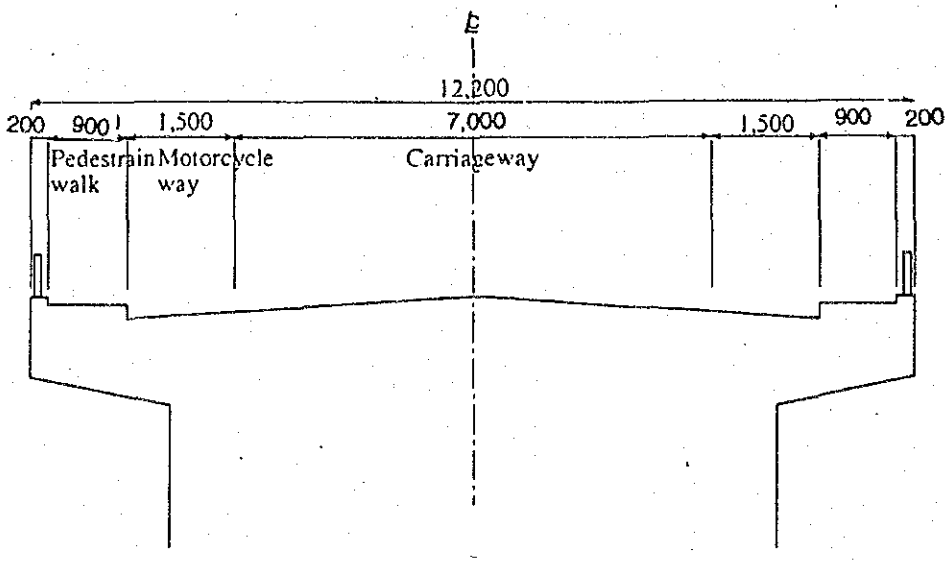
Cambodian side requested the Mekong River Bridge at Kompong Cham would be constructed through Japan's Grant Aid as described followings:

1.	Main Bridge	:	Prestressed Concrete Continuous Box Girder	
			(80 + 7@120 + 80 = 1,000 m)	
2.	Approach Bridge	:	Prestressed Concrete I-Girder	
			Kompong Cham (West Bank) side	5@40 = 200 m
			East Bank Side	4@40 = 160 m
3.	Approach Road	:	Kompong Cham (West Bank) side	257 m
			East Bank side	1,981 m

Annex-3 Items Confirmed by the Cambodian Side and Japanese Side

For the execution of the Basic Design Study, following items are confirmed by the both sides.

1. Cross Section of the Bridge



2. Reflection of geological survey executed at the stage of F/S to the Basic Design

Results of geological survey, that were 3 points geological survey in the water, is to be reflected to the Basic Design Study. As magnitude of score will be judged smaller compared with the design result of Feasibility Study in the wake of detailed investigation for river condition around project area, number of piles will be reduced.

3. Applied bridge specification

Bridge design criteria will be applied Japan Bridge Specification as shown in Minutes of Meeting signed at 4th April, 1995.

4. Complementary items for bridge design

Bridge design in Basic Design will be proceeded based on the principal adopted by Feasibility Study except stipulated matter n this section. Type of bridge, division of span and detail design procedure will be applied that c Feasibility Study.

(1) Access step facility betw en pedestrian walk on bridge and existing road

Step facilities will be provided for the pedestrian walk on the bridge to ease the access between bridge and existing road.

(2) To apply the life load considering actual traffic condition

The life loads are composed of traffic load and crowd load, and these two loads could not simultaneously put on more than 1,000 m bridge. So simultaneous loading for traffic load and crowd load will not be adopted for design of main girder.

Annex-4 Japan's Grant Aid Scheme

1. Grant Aid Procedures

1) Japan's Aid Program is executed through the following procedures.

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

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

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

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

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

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

2. Basic Design Study

1) Contents of the Study

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

a) Confirmation of the background, objectives, and benefits of the requested project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.

b) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.

c) Confirmation of items agreed on by both parties concerning the basic concept of the Project.

d) Preparation of a basic design of the Project.

e) Estimation of costs of the Project.

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

The Government of Japan requests the Government of the recipient country to take whether measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consultant firm(s). JICA selects (a) firms (s) based on proposals submitted by interested firms. The Firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA.

The consulting firm(s) used for the Study is (are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency and also to avoid any undue delay in implementation should the selection process be repeated.

3. Japan's Grant Aid Scheme

1) What is Grant Aid

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

2) Exchange of Notes (E/N)

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

3) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed.

However in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Government.

4) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of the third country.

However the prime contractors, namely, consulting, contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons or Japanese nationality.)

5) Necessity of "Verification"

The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan.

This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

6) Undertaking required of the Government of the Recipient Country

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

(1) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.

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

(3) To secure buildings prior to the procurement in case the installation of the equipment.

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

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

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

7) "Proper Use"

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

8) "Re-export"

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

9) Banking Arrangements(B/A)

a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

b) The payments will be made when payment requests are presented by the Bank of the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.

Annex-5 Necessary Measures to be taken by the Cambodian Side

Following necessary measures should be taken by the Cambodian side on condition that the Grant Aid by the Government of Japan is extended to the Project:

1. To provide data and information necessary for the Project.

2. To secure the land for the execution of the Project, such as land for road alignment, bridge construction, working areas, storage yard, etc.

3. To bear commissions to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement, namely the advising commission of the "Authorization to Pay" and payment commission.

4. To ensure prompt unloading, tax exemption, customs clearance at the port of disembarkation in the Kingdom of Cambodia and prompt international transportation therein of the materials and equipment for the Project purchased under the Grant Aid.

5. To exempt Japanese juridical and physical nationals engaged in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in the Kingdom of Cambodia with respect to the supply of the Products and services under the verified contracts.

6.. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the Kingdom of Cambodia and stay therein for the performance of their work.

7. To provide necessary permissions, licenses and other authorizations for implementing the Project, if necessary.

8. To maintain and use properly and effectively the facilities constructed under the Project.

9. To bear all the expenses other than those to be borne by the Japan's Grant Aid within the scope of the Project.

10. To coordinate and solve any issues related to the project which may be raised from third parties or inhabitants in the Project area during implementation of the Project.

11. Cambodia side will under take the removal of mines and unexploded ordances within above mentioned land prior to the signing of the Exchange of Note for Construction.

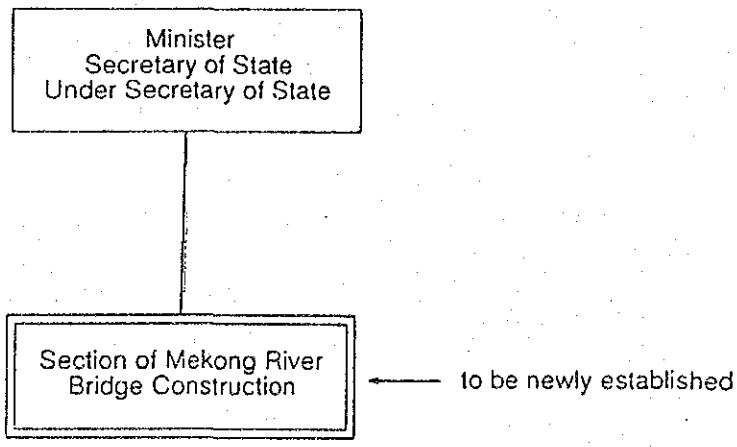
Annex-6 Project Organization of the Cambodian Side

1. The operational organization of Cambodian Side is to be established as shown following chart while the construction works of this Project is implemented.

   This newly established organization is to deal with any kinds of matters to be born by Cambodian side for the smooth implementation of construction works supervised by Japanese consultant and constructed by Japanese contractor.

   Proposed organization chart

   Ministry of Public Works and Transport

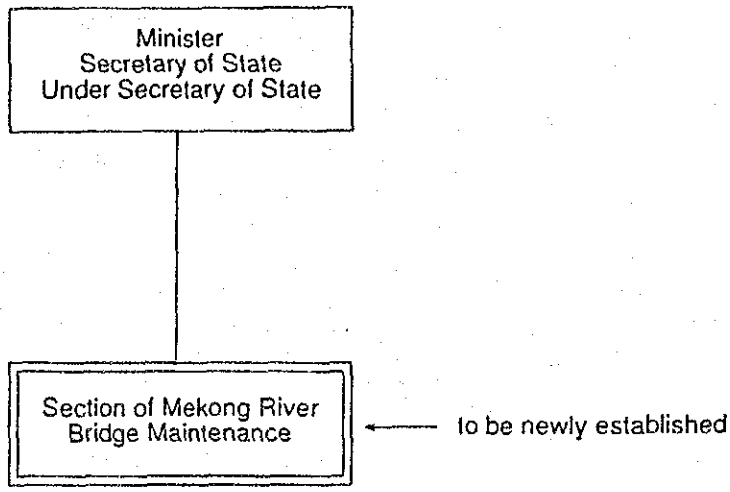


2. The organization of maintenance unit and its contents of works are confirmed as follows:

   The Ministry of Public Works and Transport is to establish the maintenance unit for maintenance works on the Mekong River Bridge at the Kompong Cham when this bridge is completed.

   Proposed organization chart

   Ministry of Public Works and Transport



This newly established maintenance unit is to be in charge of every maintenance works concerning the Mekong River Bridge including approach road such as works listed below.

Maintenance works to be operated by maintenance unit.

1) Daily base works

   a) Cleaning on the bridge deck

   b) Cleaning on the pavement of approach road.

2) Quarter month base works (or twice a year interval)

   following portion are to be inspected;

   expansion joint, bridge shoe, drain system on the bridge, lighting post, hand rail, slope protection on the approach road, slab on the bridge, pavement on the bridge and road, and score protection around piers

The amounts to be estimated for above mentioned works in approximately 1,500 US$ per year.

3) Maintenance works to be operated by ten years interval

   following works to be expected;

   bridge and approach road overlays, and periodical bank protection

The estimated amounts on these works are approximately 200,000 US$.

Annex-7 Schedule and Procedure for the Land Acquisition & Compensation as well relocation of existing ferry facility

The Cambodian side proposed the following schedule and procedure for the land acquisition & compensation.

1. The Cambodian side had organized a committee under chairmanship of Governor of Kompong Cham.

2. This committee is to deal with consultation with resident who may be influenced by this Project, and negotiate with these resident over the price of land acquisition and compensation along with relocation of resident in order to secure necessary land to be used for this project including temporary camp and plant yard.

3. The amounts for land acquisition and compensation will be reported to the Government of Cambodia, then the Government of Cambodia will provide the committee with this correspond amounts.

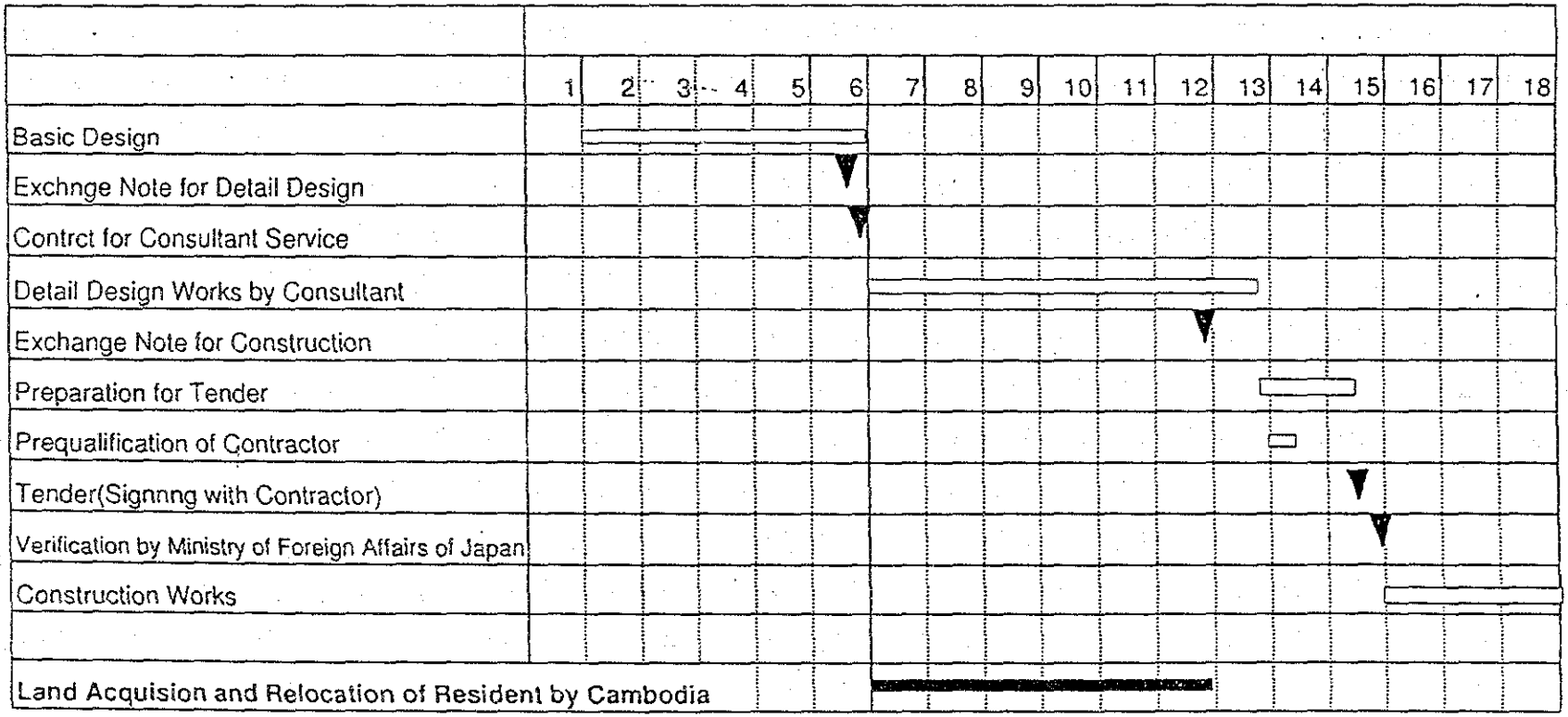
4. The committee will supervise relocation of resident and distribute this allocated amounts from the Government of Cambodia to the influenced resident.

5. The committee will also supervise the clearance of required land and houses obstructing the construction works. The Government of Cambodia shall complete above mentioned required land acquisition and compensation, prior to the signing of Exchange of Note for Construction Works

6. If this Project is extended to the Japan's Grant Aid, attached schedule is tentatively expected to be carried out. According to this tentative schedule, the Cambodian side is to prepare necessary budget for land acquisition, and compensation on this Project to be born by the Government of Cambodia from the next fiscal year that begins with January, 1997.

7. Relocation of existing ferry facility is also carried out by the Government of Cambodia in line with same procedures and schedule as above mentioned items for land acquisition.

Expected tentative schedule on the condition that this Project is extended to Japanese Grant Aid



PARTICIPANTS LIST

CAMBODIAN SIDE

Ministry Of Public Works and Transport

H.E. Mr. Tram Iv Tek	Secretary of State
H.E. Mr. Chin Kim Sreng	Undersecretary of State
H.E. Mr. Meas Keth Caimirane	Undersecretary of State
Mr. Tan Hay Sien	Director, Department of Infrastructure
Mr. Chum Sokun	Director, Department of Planning
Mr. Tauch Chan Kosal	Director, Department of Major Construction (DMC)
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Council of Minister

Mr. Sok Savan	Vice- Director of Communication, Transport and Post Buraeu

Council for Development of Cambodia

Mrs. Chhin Rem	Deputy Director, Cambodian Rehabilitation and Development Board

Ministry of Economy and Finance

Ms. Pith Nimul	Deputy Director, Investment Office

Ministry of Foreign Affairs

Mr. Kem Mongkul	Director, Department of Internation Cooperation

JAPANESE SIDE

Basic Design Study Team

Mr. Kenji Matsumoto	Leader (JICA Headquarters)
Mr. Hisashi OHSHIMA	Chief Consultant. Road & Bridge Planner (Nippon Koei Co., Ltd.)
Mr.Kazumasa TADA	Designer of Bridge (Nippon Koei Co., Ltd.)

Embasy of Japan in Cambodia

Mr. Atsushi Yonezawa	Attache

Japan International Cooperation Agency, Cambodia Office

Mr. Hiroshi ENOMOTO	Assistant Resident Representative

Appendices 2 Cost Estimation Borne by the Recipient Country

Project cost to be undertaken by Cambodian Side is Estimated as follow:

Items	Cost (US$)
Acquisition of Land and Compensation Cost including Cost for Relocation of Residences	1,222,270
Relocation of Existing Ferry Facility	41,070
Removal of Mines of Preparation of Construction Yard	8,000

Minutes of Discussions
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in
The Kingdom of Cambodia

In August 1996, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team on the Project for Construction of the Mekong River Bridge (hereinafter referred to as "the Project") to the Kingdom of Cambodia (hereinafter referred to as "Cambodia"). After the assessment of the data and information obtained through the study, JICA has prepared the Draft Basic Design on the Project.

In order to explain and consult the government of Cambodia on the components of the Draft Basic Design, JICA sent to Cambodia a Study Team headed by Mr. Kenji Matsumoto, Deputy Director, Coordination and Appraisal Division, Grant Aid Project Study Department, JICA, which is scheduled to stay in the country from October 7 to 12, 1996.

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

Phnom Penh, October 9, 1996

Mr. Kenji MATSUMOTO
Leader
D / B/D Explanation Team
JICA

H.E. Mr. Ing Kieth
Deputy Prime Minister
Minister of Public Works and
Transport

ATTACHMENT

1. OBJECTIVE

The objective of the project is to construct a bridge over the Mekong River at Kompong Cham in order to facilitate efficient road transport to the missing section of NR7 where river crossing is being ensured by ferry boat service. It is expected that the Project will contribute to socio-economic development not only the Project area, but also in Indochina as a whole because NR7 is international road leading to Laos and Vietnam.

2. PROJECT IMPLEMENTING AGENCY

The project implementation agency is the Ministry of Public Works and Transport.

3. PROJECT SITE

The proposed site of the Project is shown in Annex-1.

4. DRAFT DESIGN

The Cambodian side has in principal agreed to the components of the Draft Basic Design proposed by the Team.

It is noted, however, that the Cambodian side requested to strengthen a road body at the east side of Mekong River for flooding on the condition that designed road has same configuration and formation. The Japanese side promised to convey the request to the Government of Japan and JICA.

5. JAPAN'S GRANT AID PROGRAMME

The Cambodia side has understood the system of Japan's Grant Aid Programme as described in the Minutes of Discussion signed on August 8, 1996.

6. NECESSARY MEASURES TO BE TAKEN BY THE CAMBODIA SIDE

The Cambodia side will take necessary measures as described in the Minutes of Discussion signed on August 8, 1996 for smooth implementation of the Project on condition that the Grant Aid by the Government of Japan is extended to the Project.

7. PROJECT ORGANIZATION OF THE CAMBODIAN SIDE

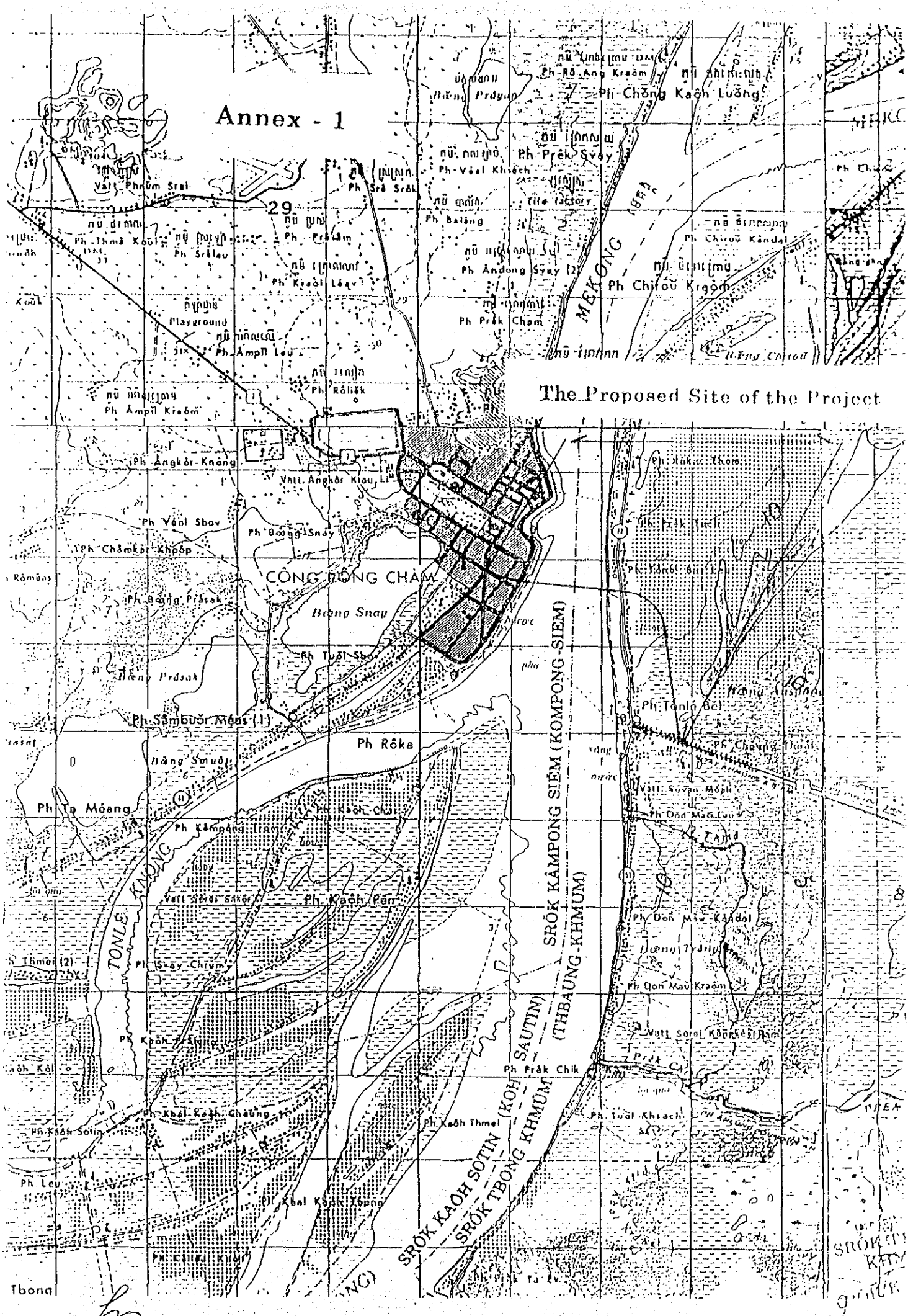
Both sides confirmed that the organization of the maintenance unit and its contents which were confirmed in the Minutes of Discussion signed on August 8, 1996 will be established and managed properly.

8. SCHEDULE AND PROCEDURE FOR THE LAND ACQUISITION & COMPENSATION

The Schedule and Procedure for the land acquisition and compensation were proposed by the Cambodian side in the Minutes of Discussion signed on August 8 1996. Both side confirmed present status and on-going procedure as shown in Annex-2. Both sides further confirmed that all the procedure for the land acquisition shall be completed as proposed schedule.

9. FURTHER SCHEDULE OF THE STUDY

JICA will complete the Basic Design Report and forward it to the Cambodian side by February 1997.


Annex - 1
The Proposed Site of the Project
CÔNG RÔNG CHÀM
Bàng Snay
Bàng Prasak
Ph Sambuor Méas (1)
Ph Rôka
Ph Ta Méang
Ph Kaôh Pên
TONLE KHONG
SRÔK KÂMPONG SIÊM (KOMPONG-SIEM)
SRÔK KAOH SOTIN (KOH SAUTIN)
SRÔK TBONG KHMUM (THBAUNG-KHMUM)
MEKONG
Ph Chông Kaôh Luông
Ph Prêk Svay
Ph Chrôu Kândal
Ph Chrôu Kroam
Ph Ângkôr Knâng
Ph Vâal Sbov
Ph Bàng Prasak
Ph Kaôh Thmei
Ph Kaôh Sotin
Ph Leu
Tbong

Annex - 2

1 HE Ing Kiet, Deputy Prime Minister and Minister of Public Works and Transport, sent a official letter to HRH. Samdech Krom Preah Norodom Ranariddh, First Prime Minister, and HE. Samdech Hun Sen, Second Prime Minister Aug. 12, 1996, to release budget approximately $1,222,270 USD to the Governor of Kompong Cham Province for compensation to those resident owners who are influenced with bridge construction.

2 Ministry of Public Works and Transport has requested a budget for land acquisition and compensation in1997 FY.

3 The Provincial Governor of Kompong Cham instructed those resident not to rehabilitate their houses, otherwise they are not allocated for their compensation.

PARTICIPANTS LIST

CAMBODIAN SIDE

Ministry of Public Works and Transport

H.E. Mr. Ing Kieth	Deputy Prime Minister Minister of Public Works and Transport
H.E. Mr. Chin Kim Sreng	Undersecretary of State
H.E. Mr.Trao Thai Sieng	Advisor to the Minister
Mr. Tauch Chan Kosal	Director, Department of Major construction (DMC)
Mr. He Lim Seng	Director, Bridge Construction Company
Mr. Akira KANEKO	JICA Expert, Senior Advisor to the Minister
Mr. Kazuo MURAKAMI	JICA Expert, RCC

Ministry of Economy and Finance

Ms. Pith Nimul	Deputy Director, Investment Office

Ministry of Foreign Affairs

Mr. Kem Mongkul	Director, Department of International Cooperation

JAPANESE SIDE

Basic Design Study Team

Mr. Kenji MATSUMOTO	Leader (JICA Headquarters)
Mr. Hisashi OHSHIMA	Chief Consultant, Road & Bridge Planner (Nippon Koei Co., Ltd.)
Mr. Kazumasa TADA	Designer of Bridge (Nippon Koei Co., Ltd.)
Mr. Toshio ICHIKAWA	Cost Estimator (Nippon Koei Co., Ltd.

Japan International Cooperation Agency, Cambodia Office

Mr. Hiroshi ENOMOTO	Assistant Resident Representative

Memorandum
on
the Basic Design Study
on
the Project for Construction of the Mekong River Bridge
in
The Kingdom of Cambodia

Both Japanese side and Cambodian side confirmed following items for the execution of Basic Design Study.

Phnom Penh, August 15, 1996.

Mr. Hisaki OHSHIMA
Chief of Consultant Member
Basic Design Study Team
JICA

H.E. Mr. Tram Iv Tek
Secretary of State For
H.E. Mr. Ing Kieth
Ministry of Public Works
and Transport

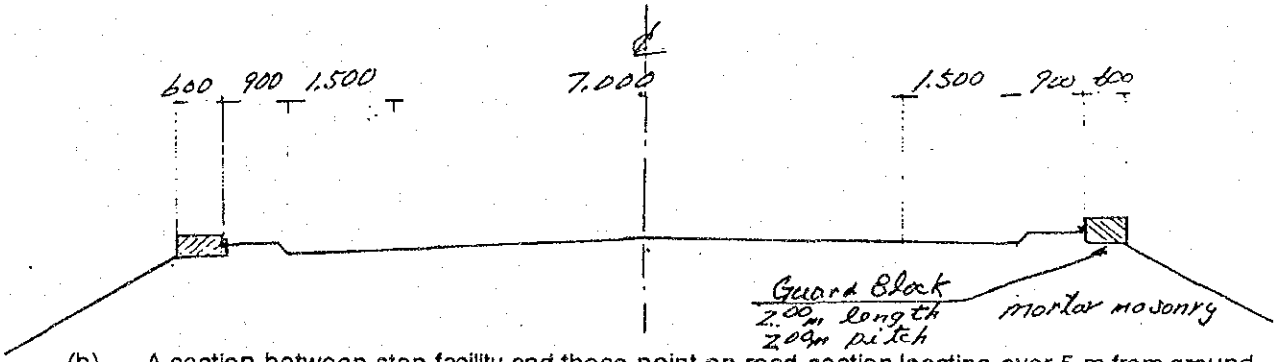
1 In accordance with revised cross section on bridge, cross section on road concerning this Project is subject to change as follows

(1) Kompong Cham city side

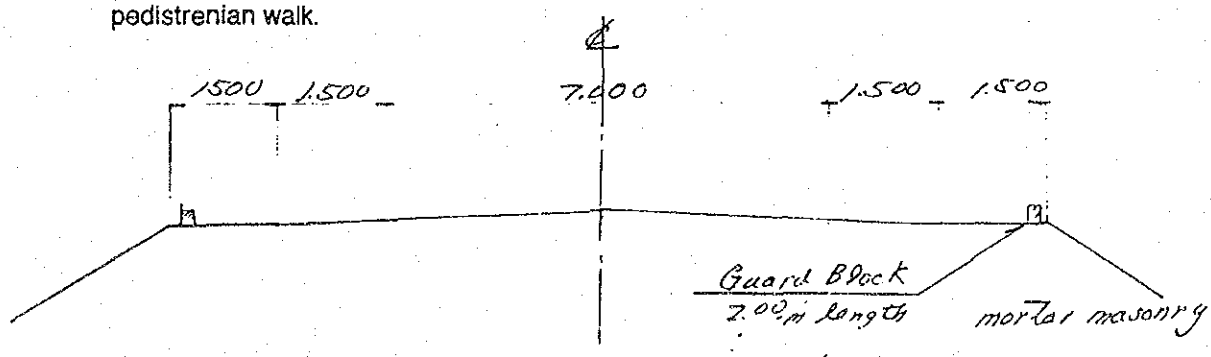
A cross section from origin of this Project to beginning point of the approach bridge is same as revised bridge cross section.

(2) East bank side of Mekong River

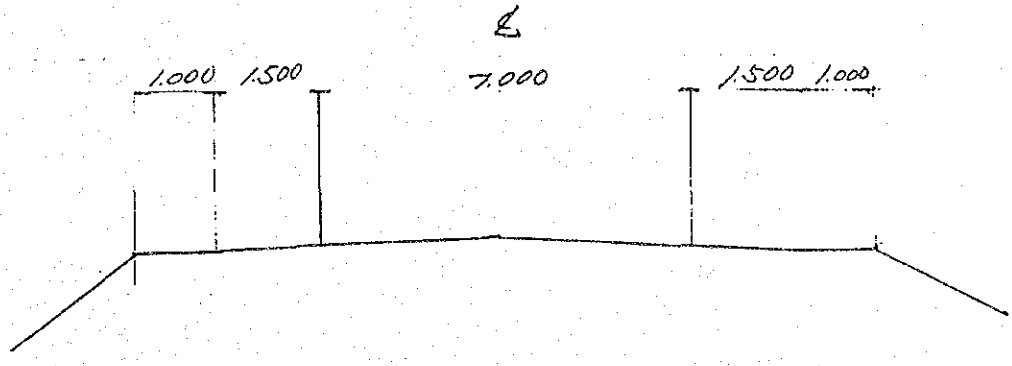
(a) A section between the ending point of approach bridge and the point to be installed with step facility accessing to existing road is same as revised cross section on bridge.



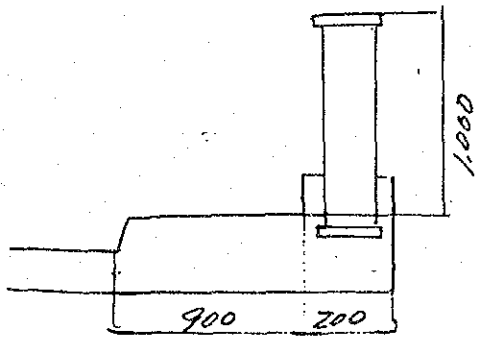
(b) A section between step facility and those point on road section locating over 5 m from ground level is to be designed with protection shoulder of which width is 1.5m, not planning pedistrenian walk.



(c) A section locating less than 5 m from ground level is to be designed as follow in which width of shoulder is reduced to 1.0m without guard block.



2 Following revised cross section on bridge, width of curb and type of hand rail is subject to change as follow



hand rail
galvanized steel

3 The width of the right of way and required range for land acquisition will be modified because of revised cross section on bridge and this confirmed cross section on road. This modified drawings to be used for land acquisition is to be submitted to Cambodian side by the Study Team, targeting its time of submission on next February after signing of Exchange of Note for Detail Design.

Appendices 5 Cost Estimation Borne by the Recipient Country

Project cost to be undertaken by Cambodian Side is Estimated as follow:

Items	Cost (US$)
Acquisition of Land and Compensation Cost including Cost for Relocation of Residences	1,222,270
Relocation of Existing Ferry Facility	41,070
Removal of Mines of Preparation of Construction Yard	8,000

Appendices 6 Drawings

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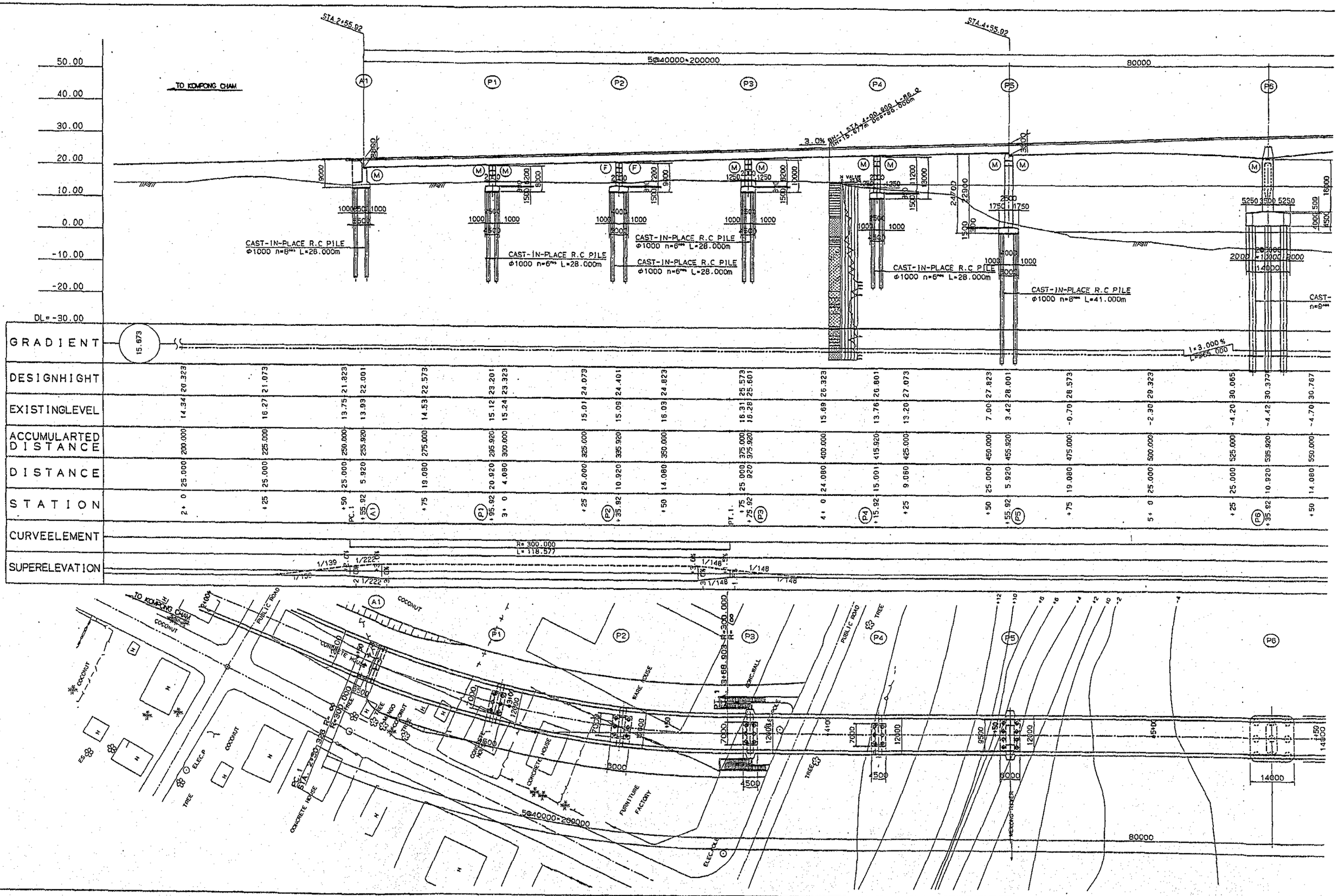
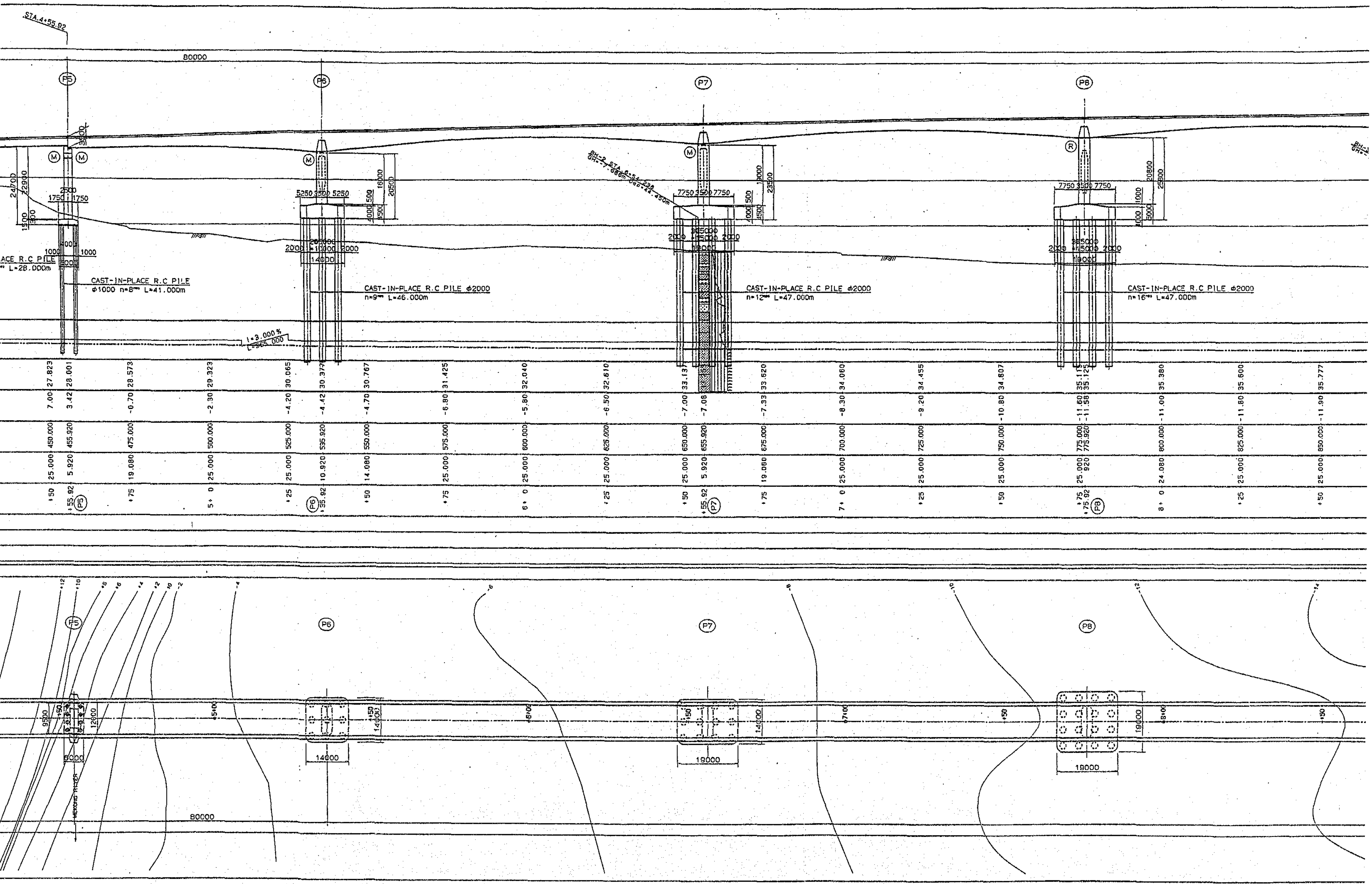
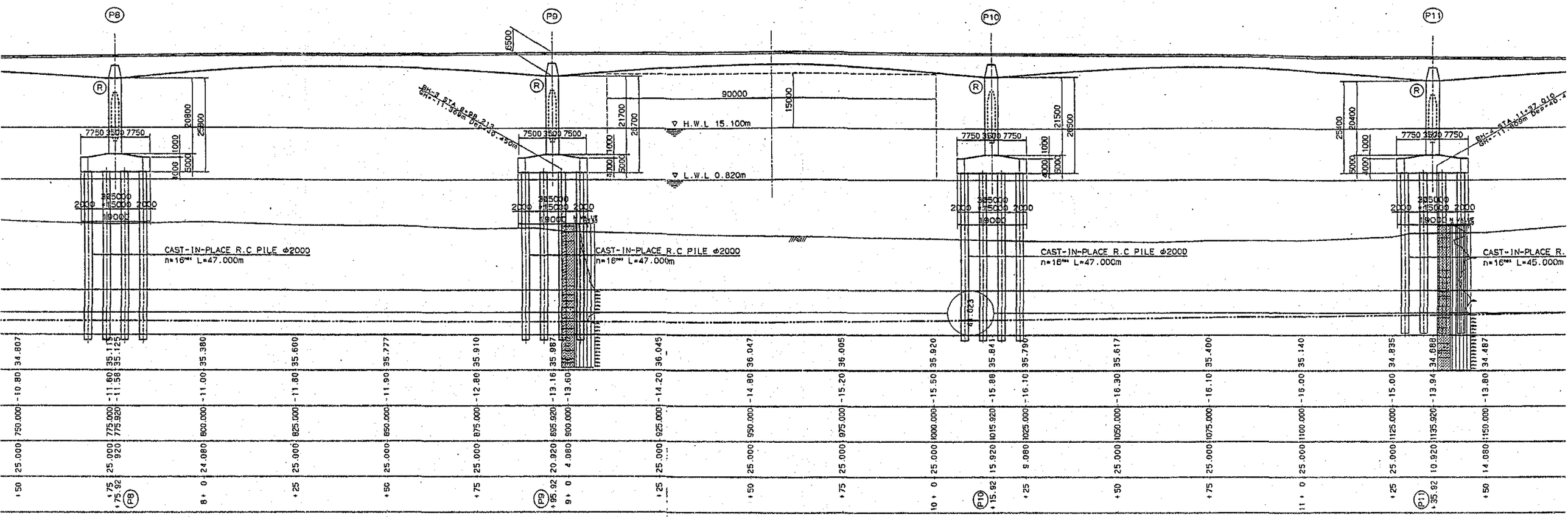

STA.2+55.92
STA.4+55.92
TO KOMPONG CHAM
A1
P1
P2
P3
P4
P5
P6
5@40000=200000
80000
3.0%
CAST-IN-PLACE R.C PILE
Φ1000 n=6ea L=28.000m
CAST-IN-PLACE R.C PILE
Φ1000 n=8ea L=41.000m
50.00
40.00
30.00
20.00
10.00
0.00
-10.00
-20.00
DL=-30.00
GRADIENT
DESIGNHIGHT
EXISTINGLEVEL
ACCUMULARTED DISTANCE
DISTANCE
STATION
CURVEELEMENT
SUPERELEVATION
R=300.000
L=118.577
PUBLIC ROAD
CONCRETE HOUSE
FURNITURE FACTORY
WARE HOUSE
COCONUT
TREE
ELEC.P
MEKONG-RIVER



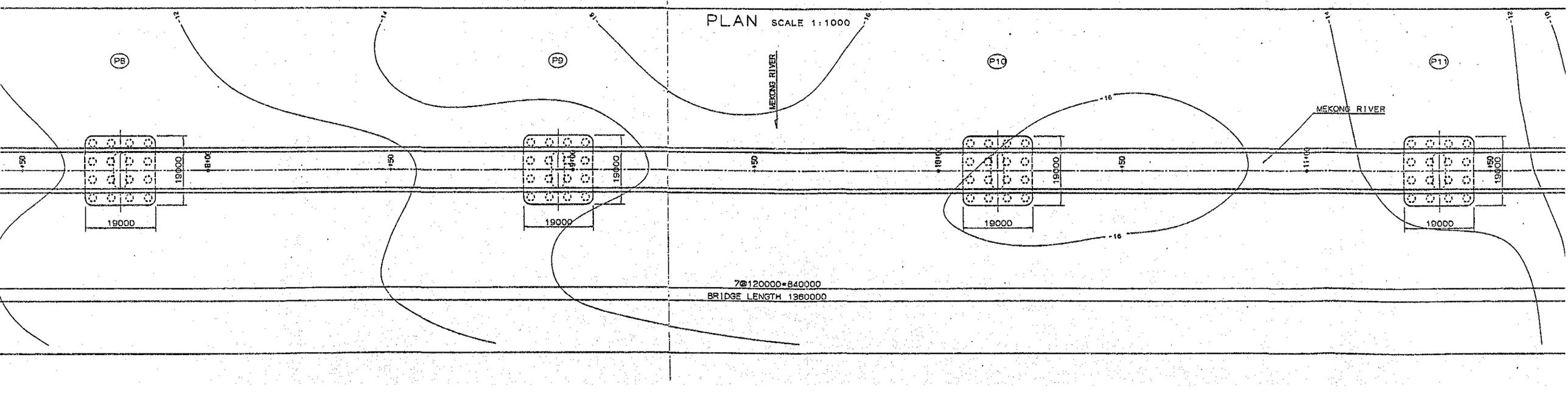
27.823	7.00	450.000	25.000	+50
28.001	3.42	455.920	5.920	+55.92 (P5)
28.573	-0.70	475.000	19.080	+75
29.323	-2.30	500.000	25.000	5+ 0
30.065	-4.20	525.000	25.000	+25
30.377	-4.42	535.920	10.920	(P6) +35.92
30.767	-4.70	550.000	14.080	+50
31.425	-6.80	575.000	25.000	+75
32.040	-5.80	600.000	25.000	6+ 0
32.610	-6.50	625.000	25.000	+25
33.137	-7.00	650.000	25.000	+50
[illegible]	-7.08	655.920	5.920	+55.92 (P7)
33.620	-7.33	675.000	19.080	+75
34.060	-8.30	700.000	25.000	7+ 0
34.455	-9.20	725.000	25.000	+25
34.807	-10.80	750.000	25.000	+50
35.11	-11.60	775.000	25.000	+75
35.125	-11.58	775.920	920	+75.92 (P8)
35.380	-11.00	800.000	24.080	8+ 0
35.600	-11.80	825.000	25.000	+25
35.777	-11.90	850.000	25.000	+50

SIDE ELEVATION SCALE 1:1000

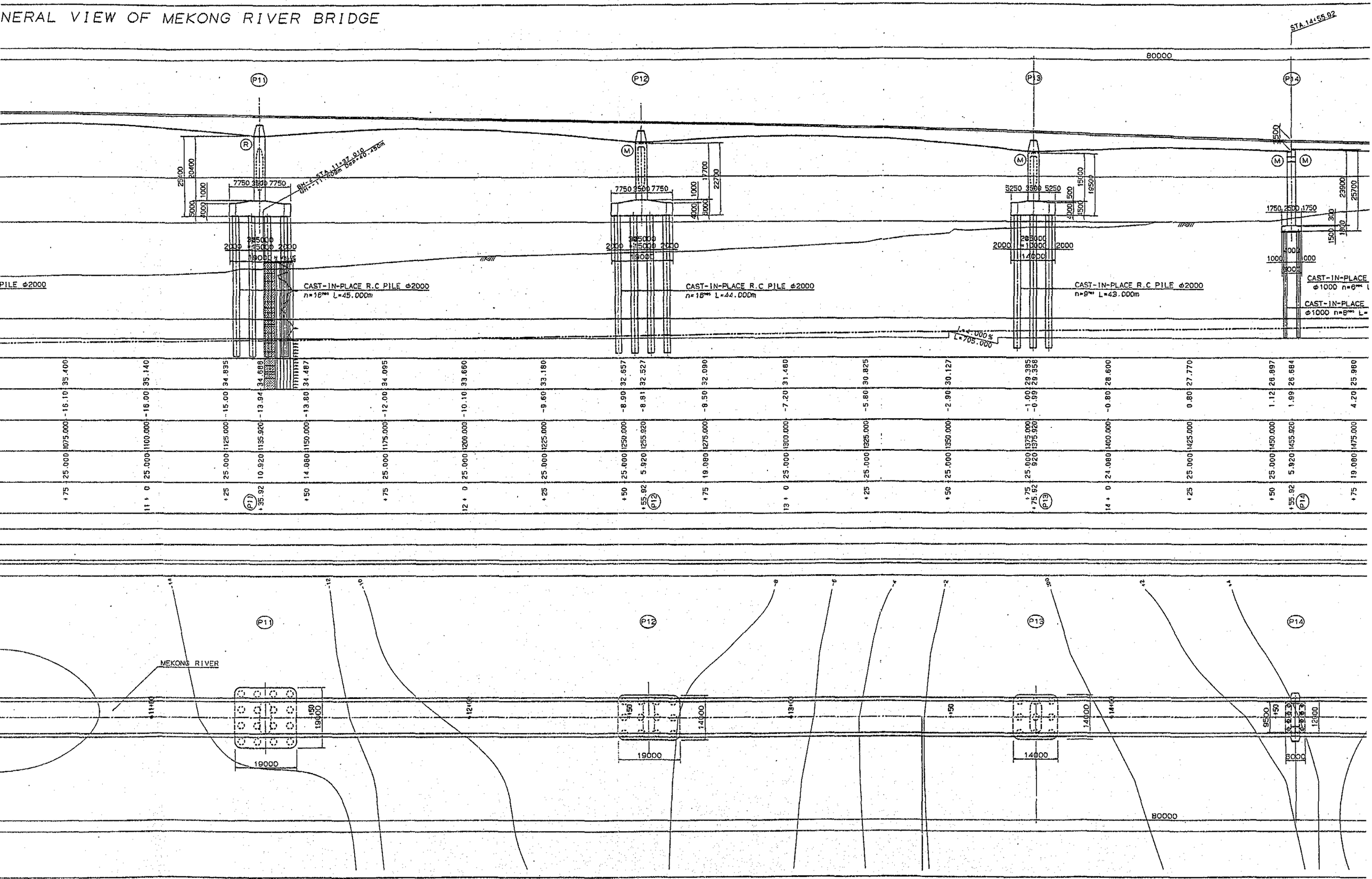
GENERAL VIEW OF MEKONG RIVER BRIDGE



PLAN SCALE 1:1000



NERAL VIEW OF MEKONG RIVER BRIDGE



STA.14+55.92

80000

4@40000=160000

STA.16+15.92

P13 P14 P15 P16 P17 A2

TO PH TONLE BET

BW=5 STA.15+21.300 L=80.0
GH=13.770m DEP=80.000m

5250 3500 5250

CAST-IN-PLACE R.C PILE φ2000
n=9ea L=43.000m

CAST-IN-PLACE R.C PILE
φ1000 n=6ea L=27.000m

CAST-IN-PLACE R.C PILE
φ1000 n=8ea L=34.000m

CAST-IN-PLACE R.C PILE
φ1000 n=6ea L=35.000m

CAST-IN-PLACE R.C PILE
φ1000 n=6ea L=35.000m

CAST-IN-PLACE R.C PILE
φ1000 n=12ea L=35.000m

16.423

	-1.00	-0.80	0.80	1.12	1.99	4.20	5.71	6.00	13.04	13.85	14.17	14.15	14.14	13.95	13.81	13.74	13.42	13.36
	29.385	28.600	27.770	26.897	26.684	25.980	25.179	25.020	24.023	23.586	23.023	22.023	21.936	21.023	20.386	20.023	19.023	18.023
	-0.99																	
	29.350																	
	1375.000	1400.000	1425.000	1450.000	1455.920	1475.000	1495.920	1500.000	1525.000	1535.920	1550.000	1575.000	1575.920	1600.000	1615.920	1625.000	1650.000	1675.000
	1375.920																	
	25.000	24.080	25.000	25.000	5.920	19.080	20.920	4.080	25.000	10.920	14.080	25.000		24.080	15.920	9.080	25.000	25.000
	920											920						
	+75.92	+0	+25	+50	+55.92	+75	+95.92	+0	+25	+35.92	+50	+75.92		+0	+15.92	+25	+50	+75
	P13	14			P14		P15	15		P16		P17		16	A2			

-1.5%

SECTION SCALE

P5 ~ P14

12200
1100 10000
200 900 10000
1500 3500 3500
ASPHALT CONCRETE PAVE t=70mm
2.0% 1.5% 1.5%
270 300 75
3500 3000 250 200 1000 2900 1000
300 300 5400
300
500 30
500 2750 2250 1000
6500

A1 ~ P5
P14 ~ A2

12200
1100 10000
200 900 10000
1500 3500 3500
ASPHALT CONCRETE PAVEMENT t=70mm
REINFORCED CONCRETE
2.0% 1.5% 1.5%
200 75 230 70
2805 2420 2325
1600 3@3000=9000

P13 P14 P15 P16 P17 A2

MANGO TREE, KO TREE, MEAS TREE, PALM TREE, BANANA, TRASEK TREE, JUJACT TREE, DANGREKDAM TREE, BAMBOO, PLANTATION

14000 14000 9500 12000 7000 12000 7000 12000 7000 12000 12200

8000 3000 4500 3000 3000

80000

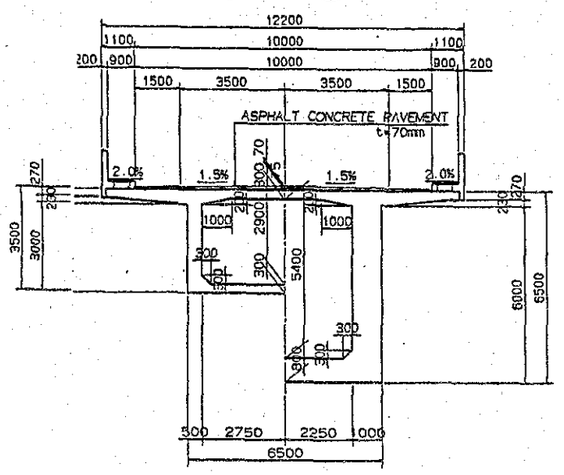
4@40000=160000

TO PH TONLE BET

PC.2
STA.16+98.308 R=
R=300.00

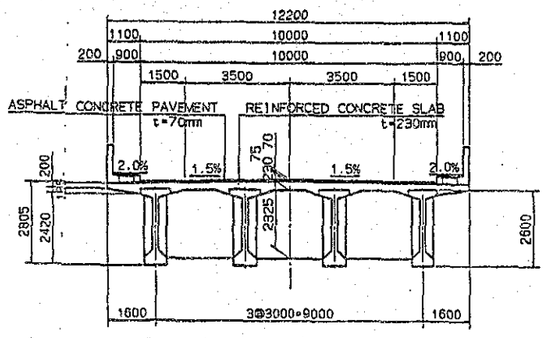
SECTION SCALE 1:200

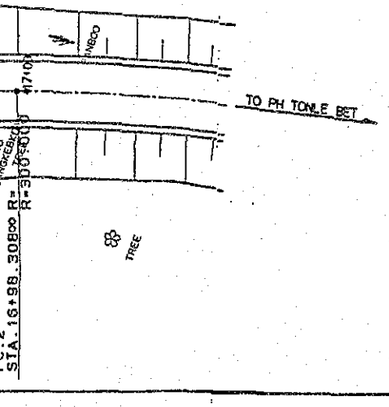
(P5) ~ (P14)



(A1) ~ (P5)

(P14) ~ (A2)





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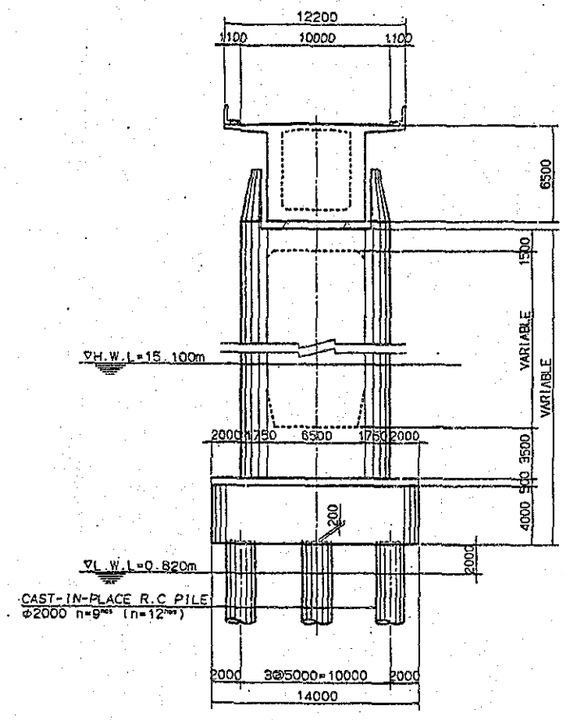
(P6) · (P13)
((P7) · (P12))



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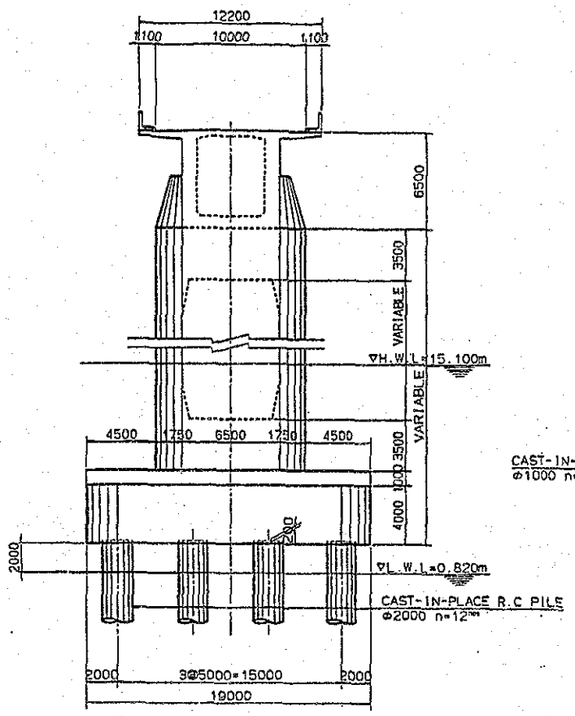

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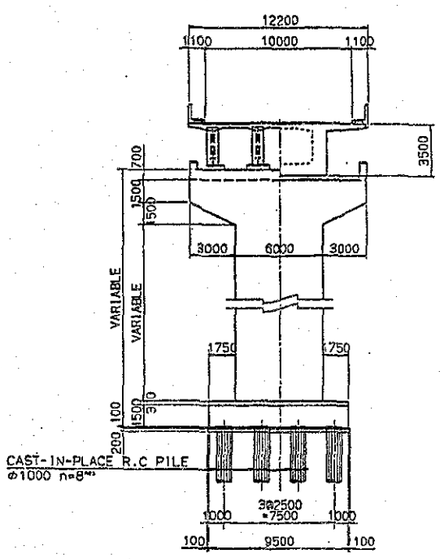
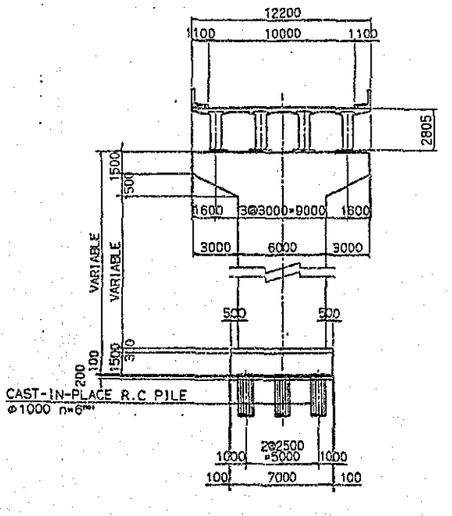


(P1) ~ (P4) . (P15) ~ (P17)



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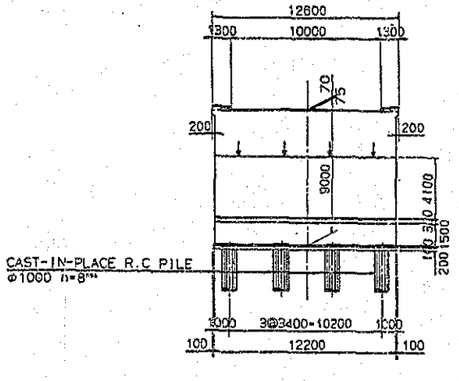

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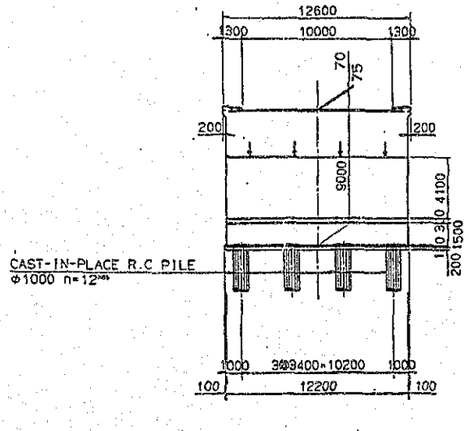
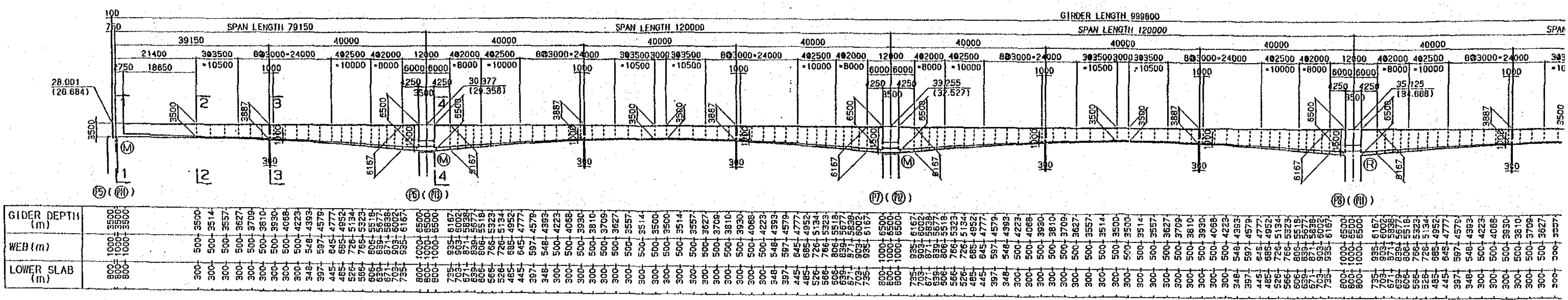


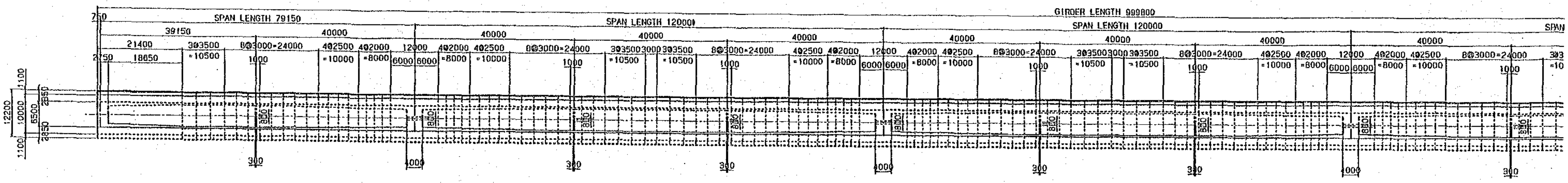
JAPAN INTERNATIONAL COOPERATION AGENCY	BASIC DESIGN STUDY REPORT ON THE PROJECT FOR CONSTRUCTION OF A BRIDGE OVER THE MEKONG RIVER IN THE KINGDOM OF CAMBODIA	GENERAL VIEW	SCALE AS SHOWN	DWG.No. 1

MAIN BRIDGE SUPERSTRUCTURE

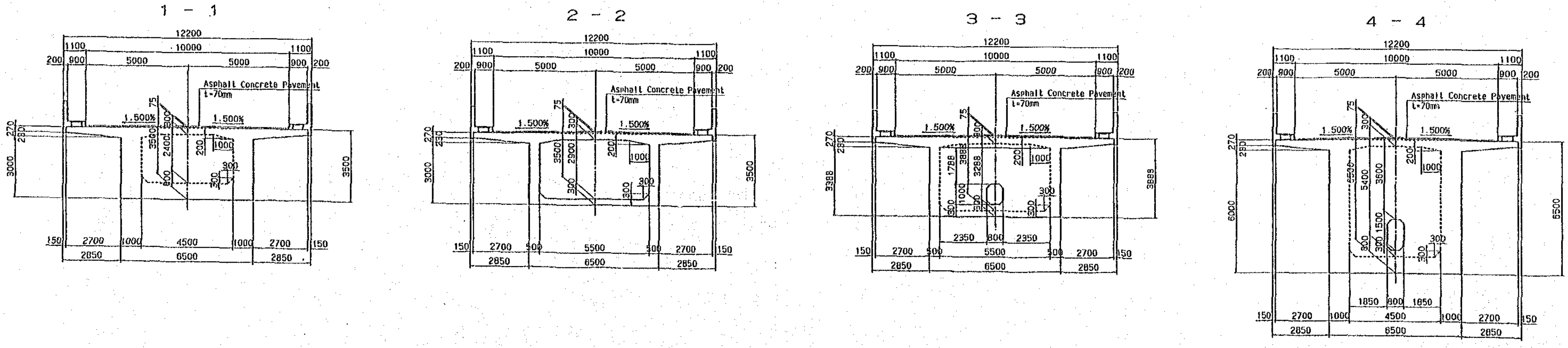
SIDE ELEVATION SCALE 1:1000



PLAN SCALE 1:1000



CROSS SECTION SCALE 1:200

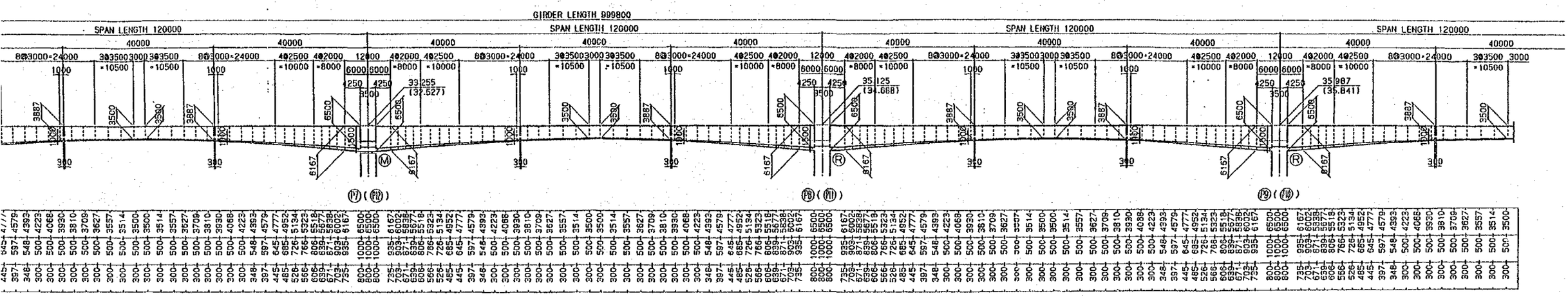


JAPAN INTERNATIONAL COOPERATION AGENCY

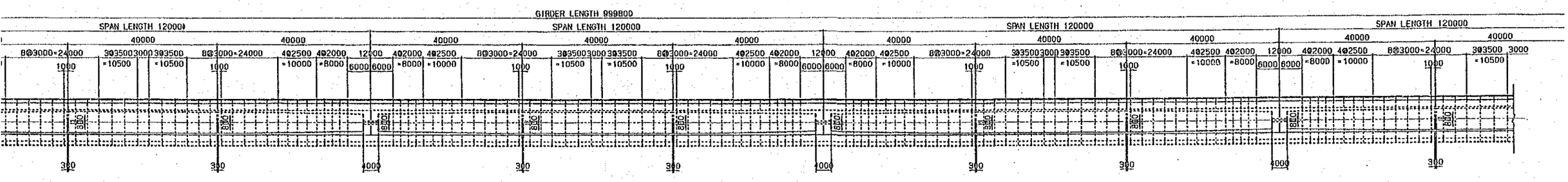
CON

MAIN BRIDGE SUPERSTRUCTURE

SIDE ELEVATION SCALE 1:1000

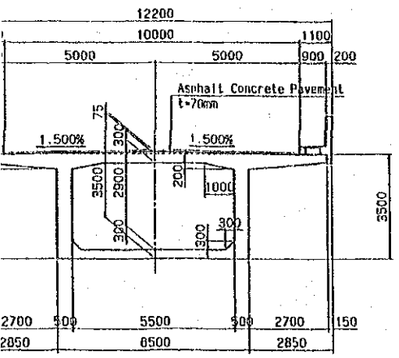


PLAN SCALE 1:1000

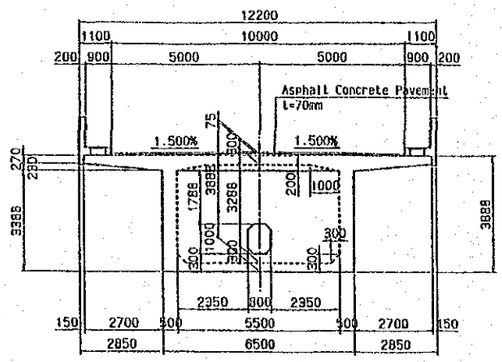


CROSS SECTION SCALE 1:200

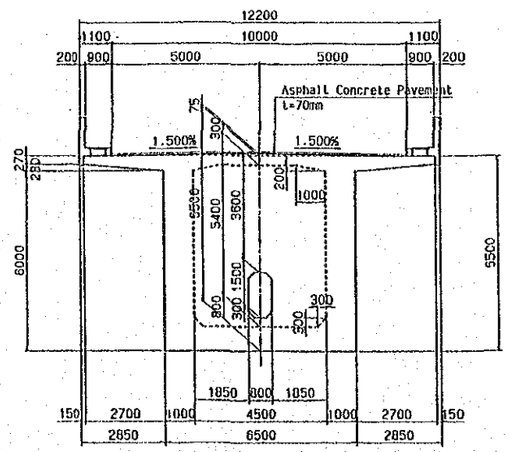
2 - 2



3 - 3



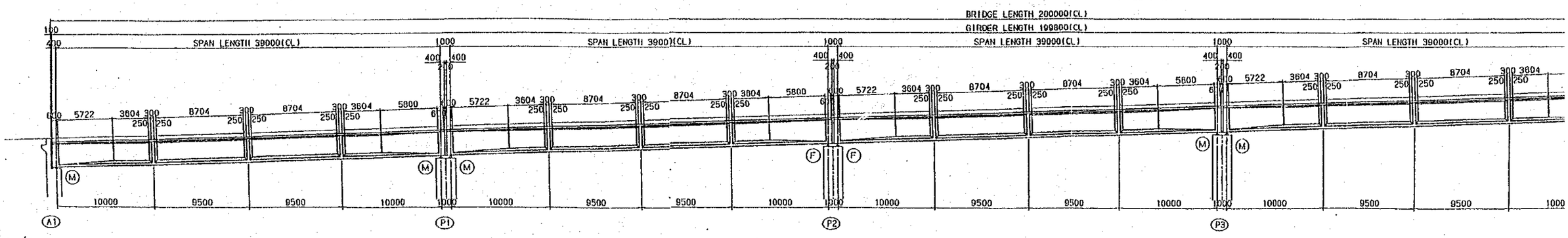
4 - 4



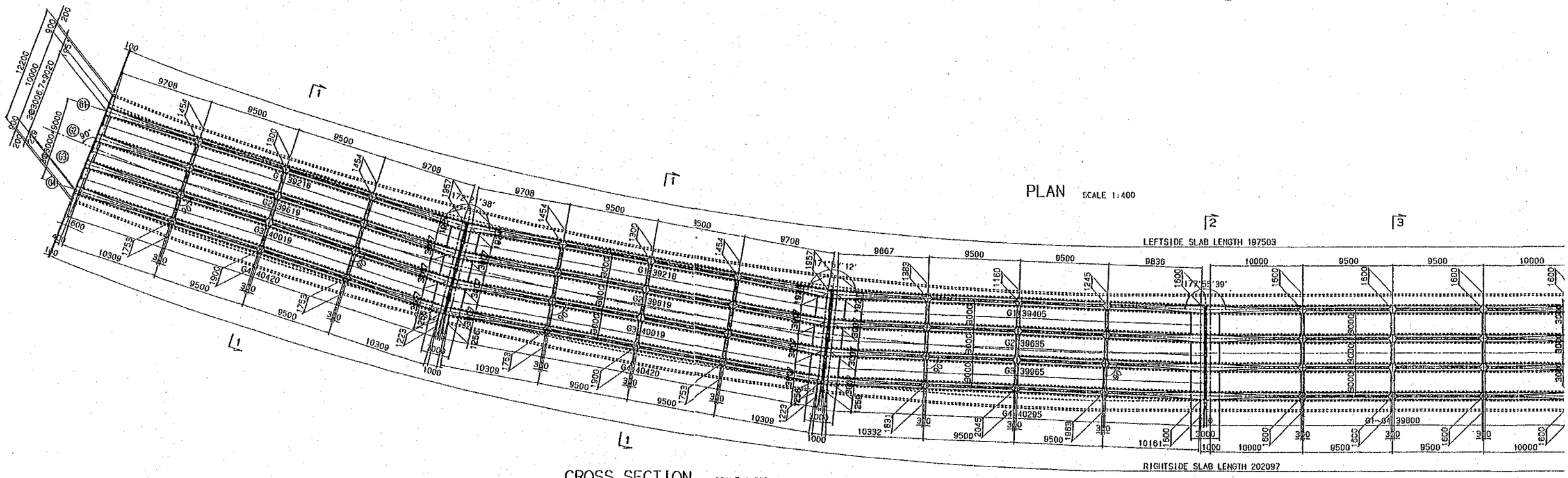
JAPAN INTERNATIONAL COOPERATION AGENCY	BASIC DESIGN STUDY REPORT ON THE PROJECT FOR CONSTRUCTION OF A BRIDGE OVER THE MEKONG RIVER IN THE KINGDOM OF CAMBODIA	MAIN BRIDGE SUPERSTRUCTURE	SCALE AS SHOWN	DWG.No. 2

APPROACH BRIDGE SUPERSTRUCTURE (1)

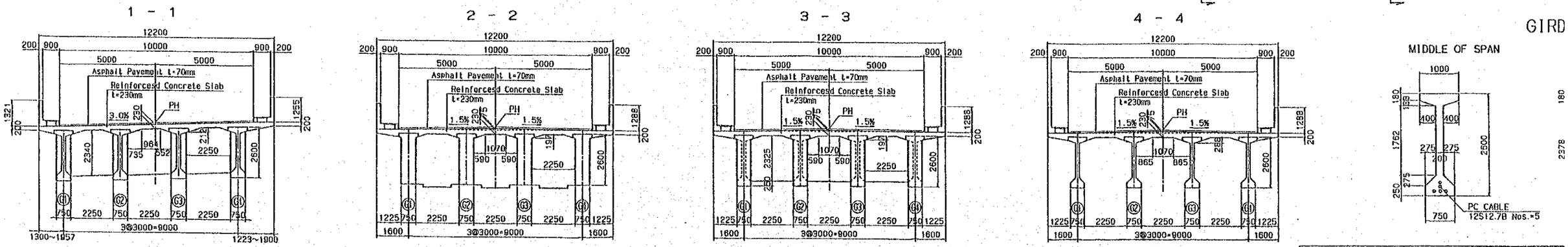
SIDE ELEVATION SCALE 1:400



PLAN SCALE 1:400



CROSS SECTION SCALE 1:200

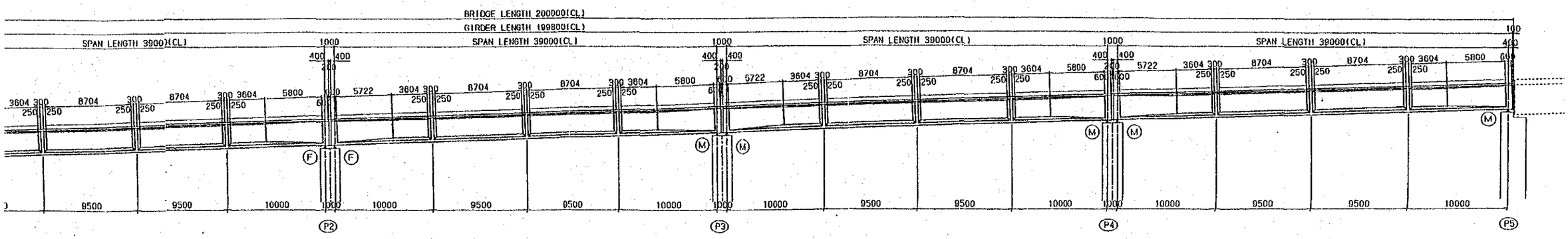


JAPAN INTERNATIONAL COOPERATION AGENCY

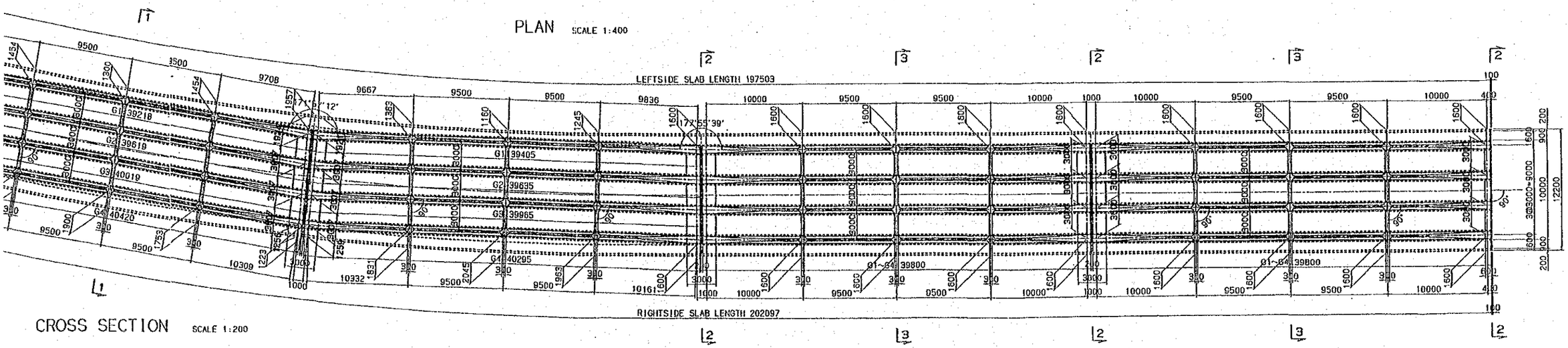
CONSTRU

APPROACH BRIDGE SUPERSTRUCTURE (1)

SIDE ELEVATION SCALE 1:400

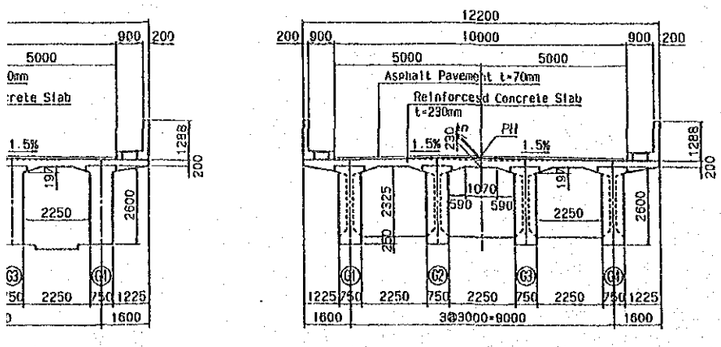


PLAN SCALE 1:400

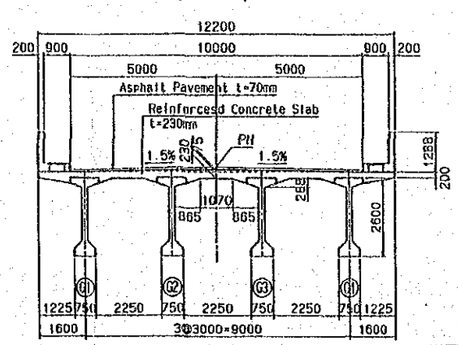


CROSS SECTION SCALE 1:200

3 - 3

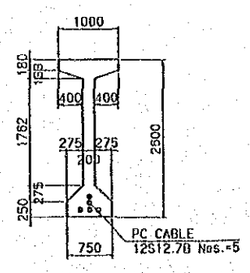


4 - 4

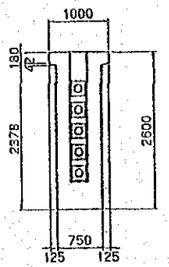


GIRDER SECTION SCALE 1:100

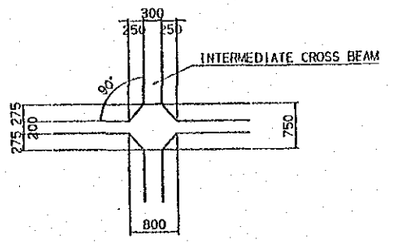
MIDDLE OF SPAN



GIRDER END



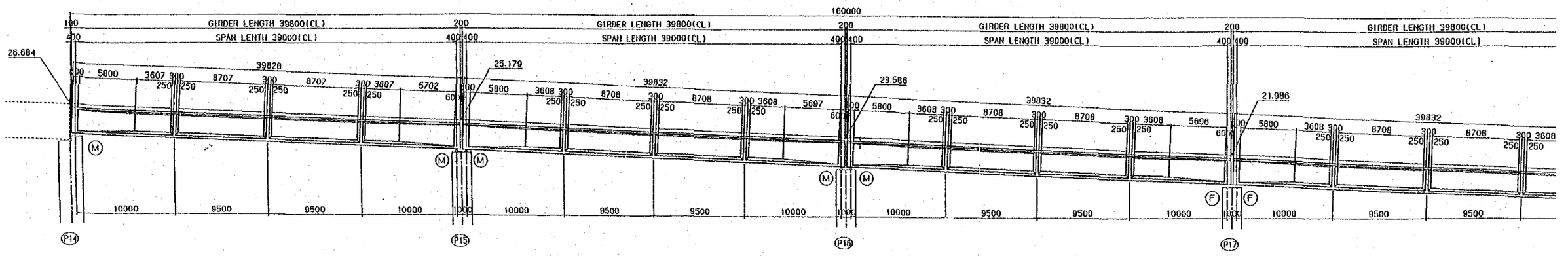
DIAPHRAGM



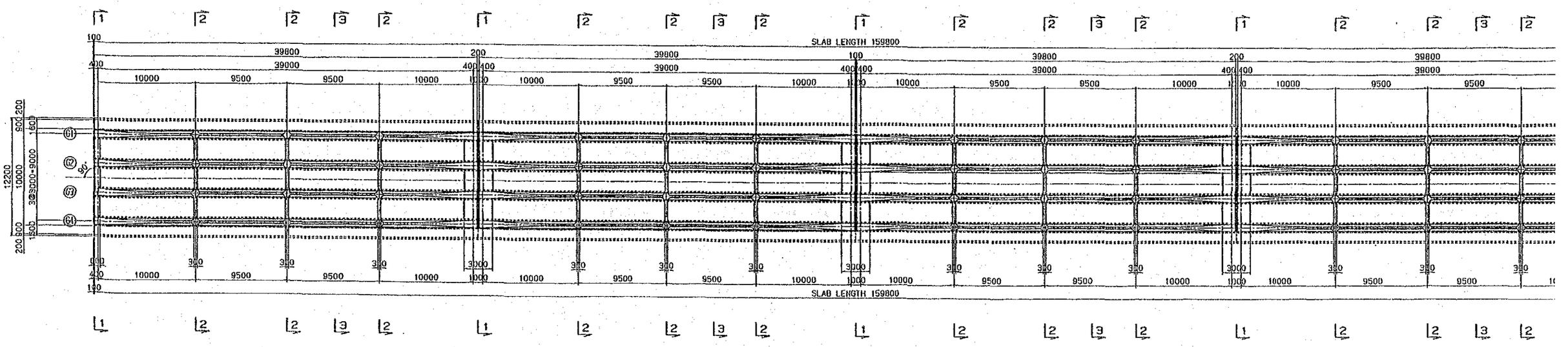
JAPAN INTERNATIONAL COOPERATION AGENCY	BASIC DESIGN STUDY REPORT ON THE PROJECT FOR CONSTRUCTION OF A BRIDGE OVER THE MEKONG RIVER IN THE KINGDOM OF CAMBODIA	APPROACH BRIDGE SUPERSTRUCTURE (1)	SCALE AS SHOWN	DWG.No. 3

APPROACH BRIDGE SUPERSTRUCTURE (2)

SIDE ELEVATION SCALE 1:400

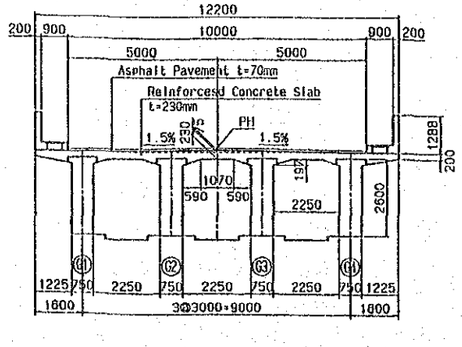


PLAN SCALE 1:400

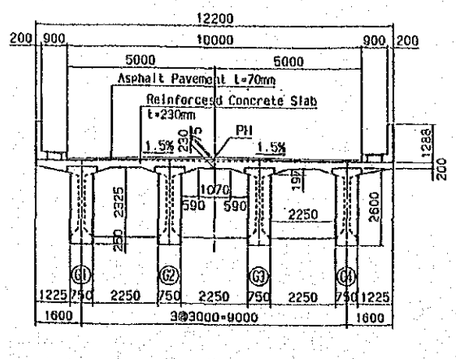


CROSS SECTION SCALE 1:200

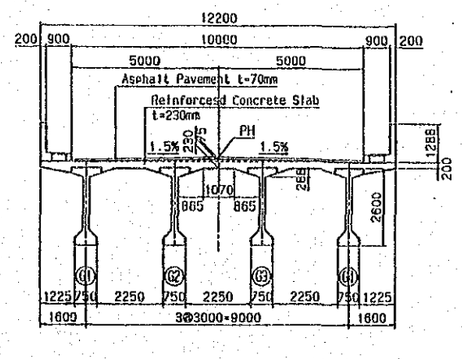
1 - 1



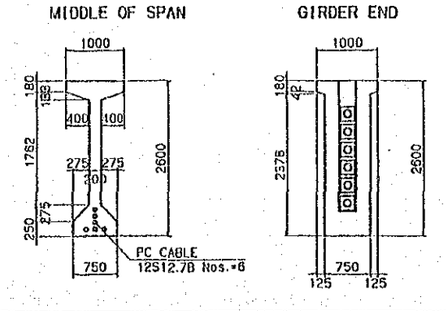
2 - 2



3 - 3



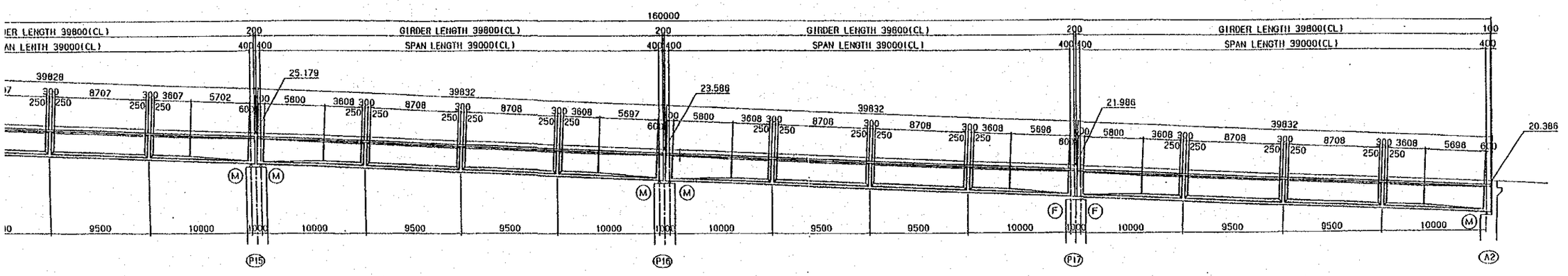
GIRDER SECTION SCALE 1:1



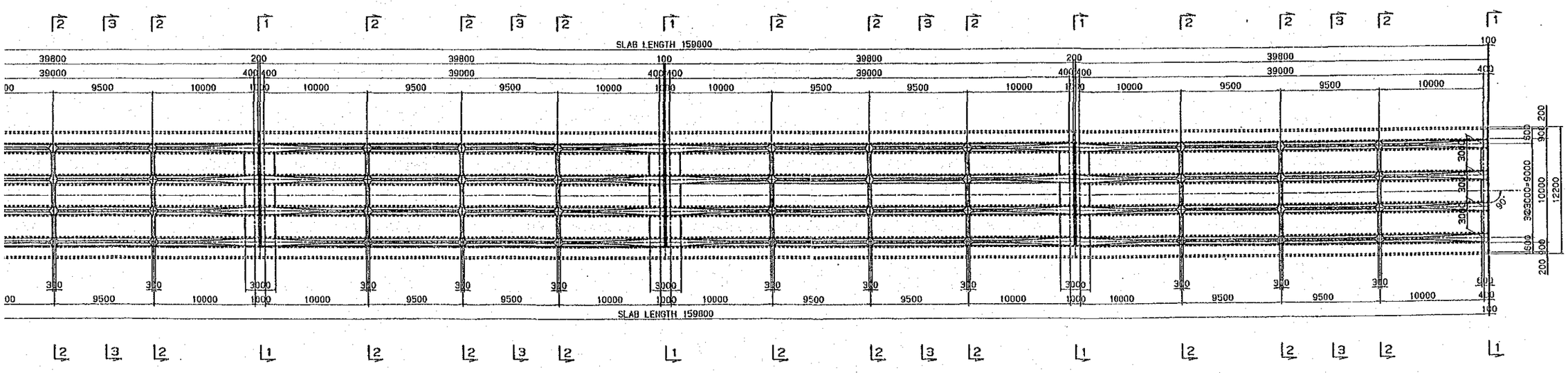
JAPAN INTERNATIONAL COOPERATION AGENCY	BASIC DESIGN STUDY REPORT ON THE PROJECT FOR CONSTRUCTION OF A BRIDGE OVER THE MEKONG RIVER IN THE KINGDOM OF CAMBODIA	APPRO SUPE

APPROACH BRIDGE SUPERSTRUCTURE (2)

SIDE ELEVATION SCALE 1:400

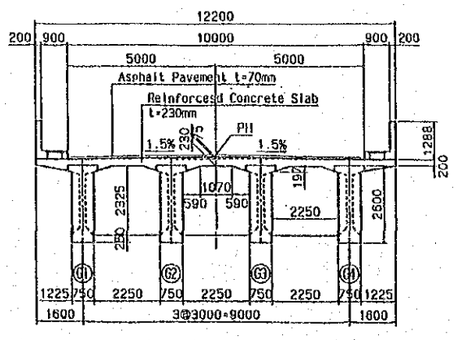


PLAN SCALE 1:400

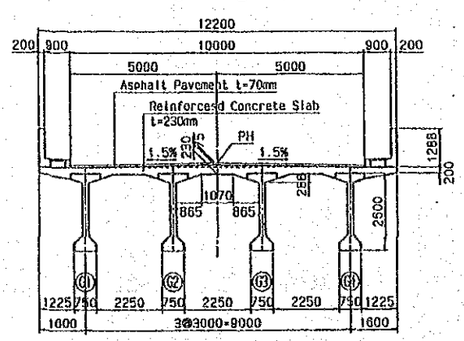


CROSS SECTION SCALE 1:200

2 - 2

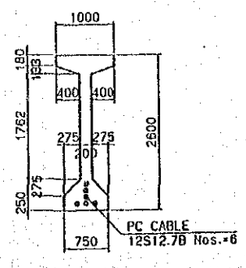


3 - 3

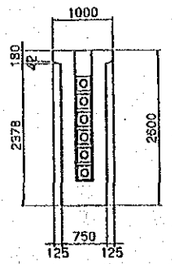


GIRDER SECTION SCALE 1:100

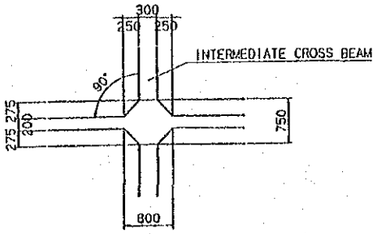
MIDDLE OF SPAN



GIRDER END



DIAPHRAGM



JAPAN INTERNATIONAL COOPERATION AGENCY	BASIC DESIGN STUDY REPORT ON THE PROJECT FOR CONSTRUCTION OF A BRIDGE OVER THE MEKONG RIVER IN THE KINGDOM OF CAMBODIA	APPROACH BRIDGE SUPERSTRUCTURE (2)	SCALE AS SHOWN	DWG.No. 4