資料5　参考資料

5－1　Minutes of Discussion March 13, 1996

5－2　Minutes of Discussion June 6, 1996

5－3　収集資料リスト

5－4　ボーリング柱状図

5－5　「フィ」国側負担金額算定基礎

資料5－1

MINUTES OF DISCUSSIONS
ON
THE BASIC DESIGN STUDY
ON THE PROJECT FOR
REHABILITATION OF THE ANGAT AFTERBAY REGULATOR DAM
IN
THE REPUBLIC OF THE PHILIPPINES

Based on the results of the Preliminary Study, the Japan International Cooperation Agency (JICA) decided to conduct a Basic Design Study on the Project for Rehabilitation of the Angat Afterbay Regulator Dam (hereinafter referred to as "the Project"), and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to the Republic of the Philippines the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Shoshiro HORIGOME, Development Specialist, Institute of International Cooperation, JICA, and is scheduled to stay in the country from March 7 to April 5, 1996.

The Team held a series of discussions with concerned officials of the Government of the Philippines and conducted field surveys at the study area.

In the course of discussions and field surveys, both parties have confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study report.

Manila, March 13, 1996

Mr. SHOSHIRO HORIGOME
Leader,
Basic Design Study Team,
JICA

Dr. RODOLFO C. UNDAN
Administrator,
National Irrigation
Administration,
Philippines

ATTACHMENT

1. Objective

The objective of the Project is to stable the diversion of required irrigation water for the project area by rehabilitation of the Angat Afterbay Regulator Dam.

2. Project Site

The project site is located at Bustos and San Rafael, both Municipalities in the Province of Bulacan. (See ANNEX-I)

3. Responsible and Executing Organization

Responsible and executing organization for the Project is the National Irrigation Administration (hereinafter referred to as "NIA").

4. Items requested by the Government of the Philippines

After discussions with the Team, the following items were finally requested by the Government of the Philippines.

(1) Replacement of the existing sector gates
6 gates (H=2.5m, L=79m)

(2) Rehabilitation of the sluice gates and lifting mechanisms
2 gates on the left bank (H=5.5m, W=4.5m)
1 gate on the right bank (H=5.5m, W=6.0m)

(3) Rehabilitation of the intake gates and lifting mechanisms
12 intake gates on the left bank, 10 intake gates on the right bank

(4) Rehabilitation of the downstream apron

(5) Rehabilitation of the river bank protection

(6) Additional bank protection on the right bank downstream of the existing dam

(7) Improvement of communication facilities

However, the final components and construction method of the Project will be decided after further studies.

5. Japan's Grant Aid System

(1) The Government of the Philippines has understood the system of Japan's Grant Aid on ANNEX-II as explained by the Team.

(2) Government of the Philippines will take the necessary measures described in ANNEX-III for the smooth implementation of the Project, on condition that the Grant Aid Assistance by the Japanese Government is extended to the Project.

6. Schedule of the Study

(1) The consultants will proceed to further studies in the Philippines until April 5,1996.

(2) JICA will prepare a Draft Basic Design Report and dispatch a mission in order to explain its contents around May 1996.

(3) In case that the contents of the draft basic design report are accepted in principle, JICA will complete the basic design study report and send it to the Government of the Philippines around July 1996.

7. Summary of Discussions

(1) NIA strongly requested the earlier implementation of the Project, explaining the critical condition of the existing dam. The Team agreed the necessity of early rehabilitation of the dam and promised to convey the present situation to the Government of Japan.

(2) The Team explained that two dry seasons would be necessary to complete whole construction work for the Project. Also the Team explained that the irrigation water supply should be stopped or reduced during the construction period and rice cultivation in the project area should be affected during the construction period due to the absence or the lack of the irrigation water. And the Team requested NIA to explain the effect of the construction work and to conclude agreement with farmers regarding the implementation of the Project.

On this matter, NIA answered that NIA has already started the necessary procedure, such as explanation to both of the municipal officials and farmers in the project area about the Project including the effect to rice cultivation.

(3) NIA explained that if irrigation water supply stopped completely, the loss of rice production become approximately 480 million pesos in each dry season. And NIA showed an idea of the construction method which can avoid interrupting of irrigation water supply and requested the Team to examine the idea.

The Team recognized the importance of securing irrigation water and stated that it should be considered to minimize the adverse effects on rice cultivation, however, final construction method should be decided after further studies based on the useful information obtained from NIA.

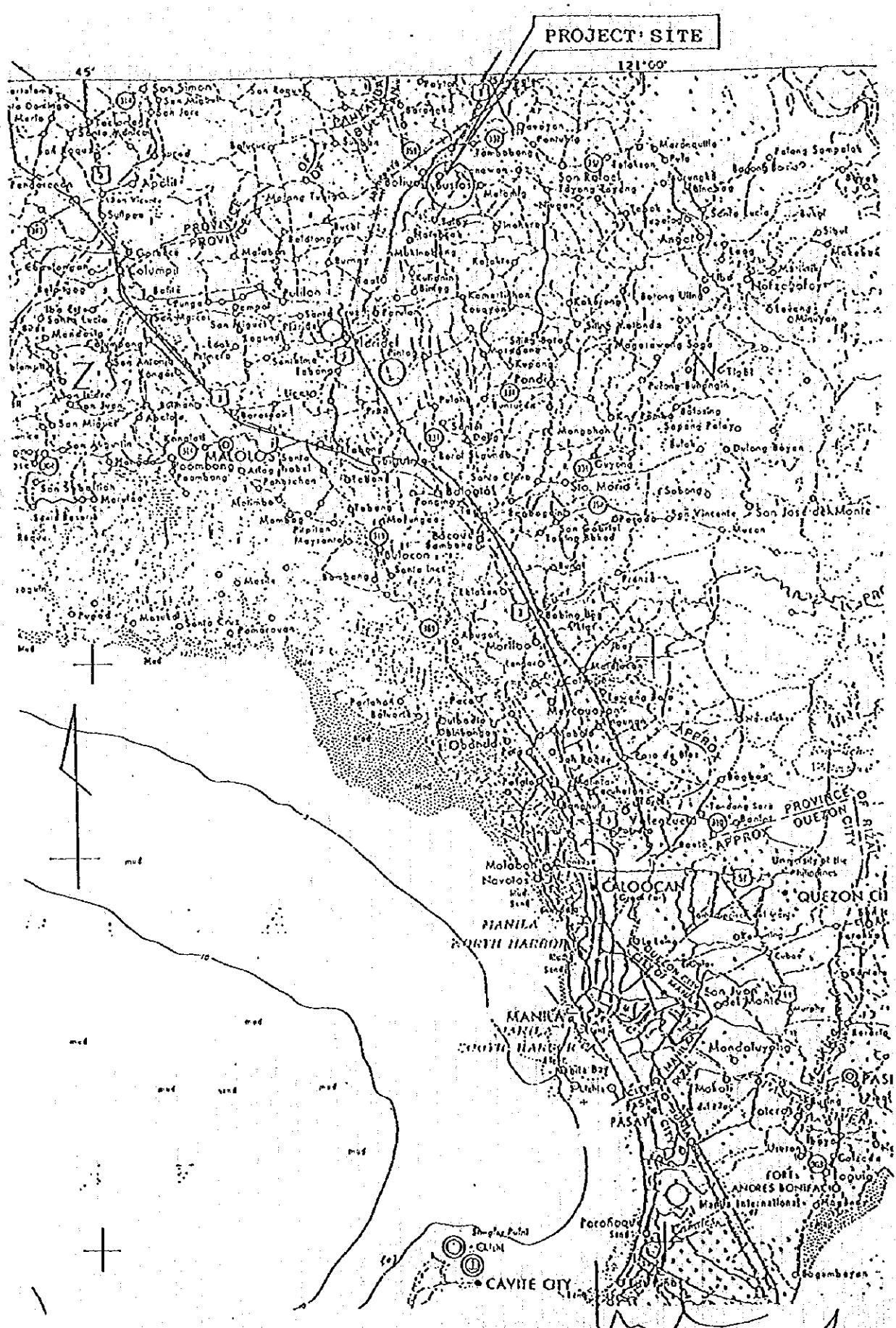
(4) The Team explained that the cost and the period of construction will be greatly affected by the construction method of coffer dam in front of the existing dam. And the Team requested NIA to drain water to investigate the sedimentation in the dam.

NIA answered that it is difficult to drain water except May, showing water consumption data.

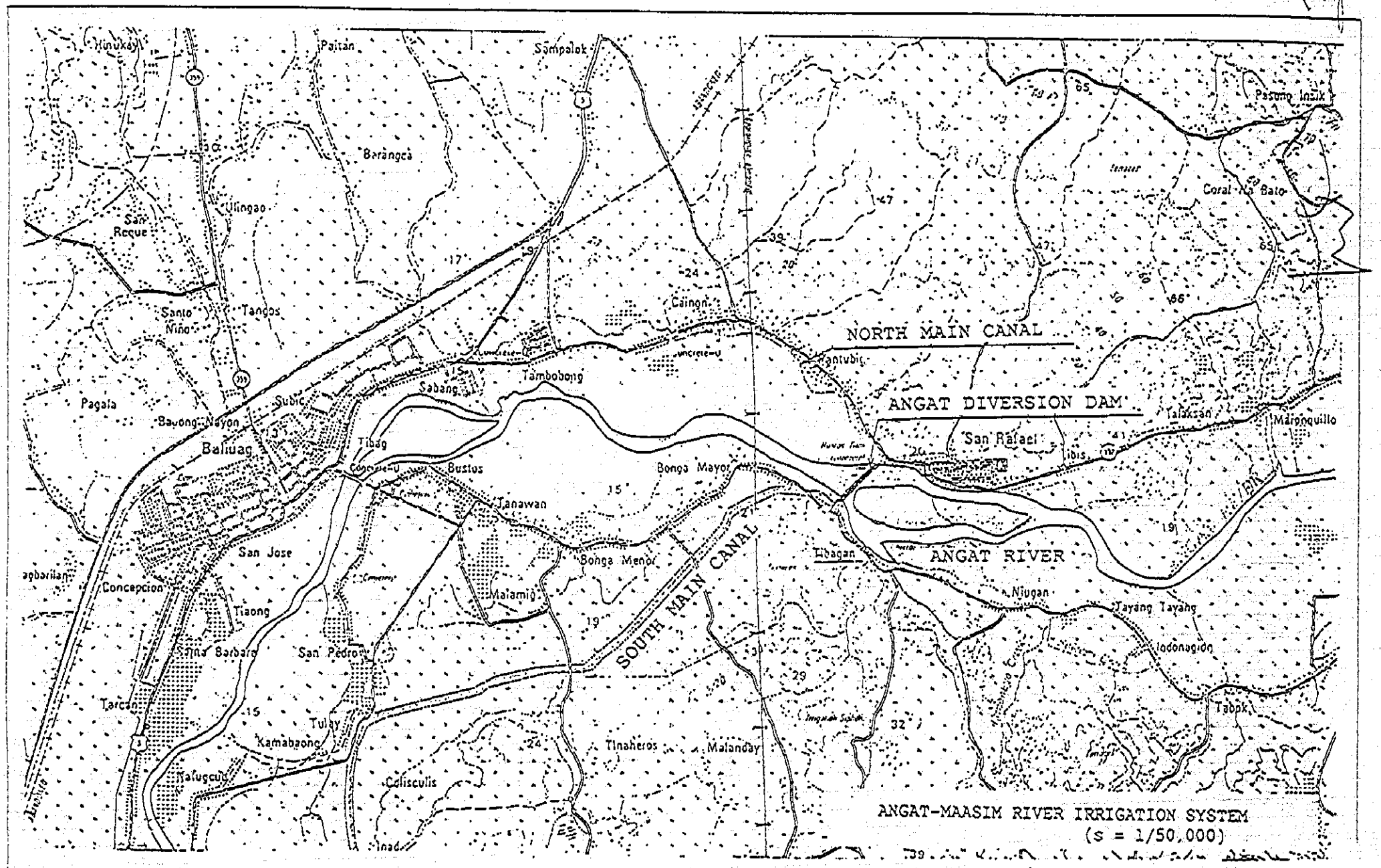
(5) Both parties confirmed the necessity of improvement of communication facilities between the Angat afterbay regulator dam and the Angat multipurpose dam.

(6) NIA explained that the Project would not affect fisheries within the project area.

ANNEX-I



LOCATION MAP OF ANOAT DIVERSION DAM
(s = 1/250,000)



ANGAT-MAASIM RIVER IRRIGATION SYSTEM
(s = 1/50,000)

ANNEX-II.

Japan's Grant Aid Scheme

1. Grant Aid Procedures

1) Japan's Grant 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 Governments of Japan and the 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 results 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 (hereafter referred to as "the Study"), conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Japanese Government. The contents of the Study are 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 guidelines of Japan's Grant Aid Scheme.

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

2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consultant firm(s). JICA select (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 Governments 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 Governments.

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 a third country.

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

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) Undertakings required of the Government of the Recipient Country

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

(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 Japaneses 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 should 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 to the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.

ANNEX-III

NECESSARY MEASURES TO BE TAKEN BY THE GOVERNMENT OF THE PHILIPPINES IN CASE JAPAN'S GRANT AID IS EXTENDED.

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

2. To provide a proper access road to the Project site, if necessary;

3. To undertake incidental outdoor works, such as gardening, fencing, exterior lighting and other incidental facilities in and around the Project site, if necessary;

4. To construct and/or installation of road, drainage and utilities such as electricity, water supply, telephone system to the Project site;

5. To bear two kinds of commissions to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement (B/A) namely,
   - the advising commission of the "Authorization to Pay (A/P)" and
   - the payment commission;

6. To ensure prompt unloading, tax exemption, and customs clearance at the port of disembarkation in the Philippines and prompt internal transportation therein of the materials and equipment for the Project purchased under the Grant Aid;

7. To exempt Japanese nationals or a staff from a third country engaged in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in the Philippines with respect to the supply of the products and services under the verified contracts;

8. To accord Japanese nationals or a staff from a third country whose services may be required in connection with supply of the products and services under the verified contracts, such facilities as may be necessary for their entry into the Philippines and stay therein for the performance of their work;

9. To provide necessary permissions, licenses, and other authorization for implementing the Project, if necessary;

10. To assign appropriate budget and staff members for proper and effective operation and maintenance of the facilities constructed under the Project;

11. To maintain and use properly and effectively the facilities constructed and the equipment provided under the Project;

12. To bear all the expenses other than those to be borne by the Grant Aid within the scope of the Project.

資料５－２

MINUTES OF DISCUSSIONS ON THE BASIC DESIGN STUDY ON THE PROJECT FOR REHABILITATION OF THE ANGAT AFTERBAY REGULATOR DAM IN THE REPUBLIC OF THE PHILIPPINES (EXPLANATION ON THE DRAFT BASIC DESIGN)

In March 1996, the Japan International Cooperation Agency (JICA) dispatched the Basic Design Study Team on the Project for Rehabilitation of the Angat Afterbay Regulator Dam (hereinafter referred to as "the Project") to the Republic of the Philippines. 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 with the concerned officials of the Government of the Philippines on the components of the Draft Basic Design, JICA sent to the Republic of the Philippines a Study Team (hereinafter referred to as "the Team") headed by Mr. SHOSHIRO HORIGOME, Development Specialist, Institute for International Cooperation, which is scheduled to stay in the country from May 27 to June 7, 1996.

As a result of the discussions held between the Team and the concerned officials of the Government of the Philippines, both have confirmed the main items described on the attached sheets.

Manila, June 6, 1996

Mr. SHOSHIRO HORIGOME
Leader
Draft Basic Design
Explanation Team,
JICA

Dr. RODOLFO C. UNDAN
Administrator,
National Irrigation
Administration
Philippines

ATTACHMENT

1. Components of the Basic Design

The Government of the Philippines has agreed and accepted in principle the components of the Draft Basic Design proposed by the Team.

2. Japan's Grant Aid System

(1) The Government of the Philippines has understood the system of Japan's Grant Aid on ANNEX-I as explained by the Team.

(2) The Government of the Philippines will take the necessary measures described in ANNEX-II for the smooth implementation of the Project, on condition that the Grant Aid Assistance by the Japanese Government is extended to the Project.

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items, and send it to the Government of the Philippines by July 1996.

4. Summary of the Discussions

(1) NIA agreed the scope of the Project as follows:

- Replacement of existing sector gates: 6 gates (79.0m x 2.5m)
- Rehabilitation of the sluice gates and lifting mechanisms:
  - the left-bank sluiceway 2 gates (4.6m x 4.5m)
  - the right-bank sluiceway 1 gate (6.1m x 4.5m)
- Rehabilitation of the intake gates and lifting mechanisms:
  - the left-bank intake 12 gates
  - the right-bank intake 10 gates
- Rehabilitation of the river bed protection at downstream apron.
- Additional bank protection on the right bank downstream of the existing dam.

(2) NIA is satisfied of the following concept of construction method which was explained by the Team.

- The intake water level will be kept same as the ordinary irrigation supply condition during the construction period.
- For the replacement of intake gates and sluice gates, there will be no irrigation diversion requirement for two months (April and May).

(3) The Team confirmed the following matters:

a) Implementation of this Project had been agreed between NIA and farmer beneficiaries of AMRIS.

b) To cope with two dry months non-irrigation period for each year, NIA has a plan to modify the cropping calendar.

c) NIA strongly reiterated the earlier implementation of the Project, explaining the critical condition of the existing dam.

d) Organization for implementation of the Project was established, as attached ANNEX III.

e) The Team explained necessary cost for operation and maintenance for the Project. NIA agreed and promised the personnel and budget arrangement.

f) The Team requested that NIA should ask NEDA for earlier approval of this Project so that an Exchange of Notes could be effected as soon as possible. NIA agreed.

ANNEX-I

JAPAN'S GRANT AID SCHEME

1. GRANT AID PROCEDURES

1) Japan's Grant 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 Governments of Japan and the 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 results 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 (hereafter referred to as "the Study"), conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Japanese Government. The contents of the Study are 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 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 guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be quaranteed 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 select (a) firms 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 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 provides a recipient country non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, ets.) 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 Governments 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 is 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 Governments.

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 a third country.

However the prime contractors, namely, consulting constructing and procurement firms, are limited to "Japanese national". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of 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) Undertakings required of the Government of the Recipient Country

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

(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 is 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 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 should 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 designed authority under the Verified Contracts.

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

ANNEX-II

NECESSARY MEASURES TO BE TAKEN BY THE GOVERNMENT OF THE PHILIPPINES IN CASE JAPAN'S GRANT AID IS EXTENDED.

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

2. To provide a proper access road to the Project site, if necessary;

3. To undertake incidental outdoor works, such as gardening, fencing, exterior lighting and other incidental facilities in and around the Project site, if necessary;

4. To construct and/or installation of road, drainage and utilities such as electricity, water supply, telephone system to the Project site;

5. To bear two kinds of commissions to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement (B/A) namely,
   - the advising commission of the "Authorization to Pay (A/P)" and
   - the payment commission;

6. To ensure prompt unloading, tax exemption, and customs clearance at the port of disembarkation in the Philippines and prompt internal transportation therein of the materials and equipment for the Project purchased under the Grant Aid;

7. To exempt Japanese nationals or a staff from a third country engaged in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in the Philippines with respect to the supply of the products and services under the verified contracts;

8. To accord Japanese nationals or a staff from a third country whose services may be required in connection with supply of the products and services under the verified contracts, such facilities as may be necessary for their entry into the Philippines and stay therein for the performance of their work;

9. To provide necessary permissions, licenses, and other authorization for implementing the Project, if necessary;

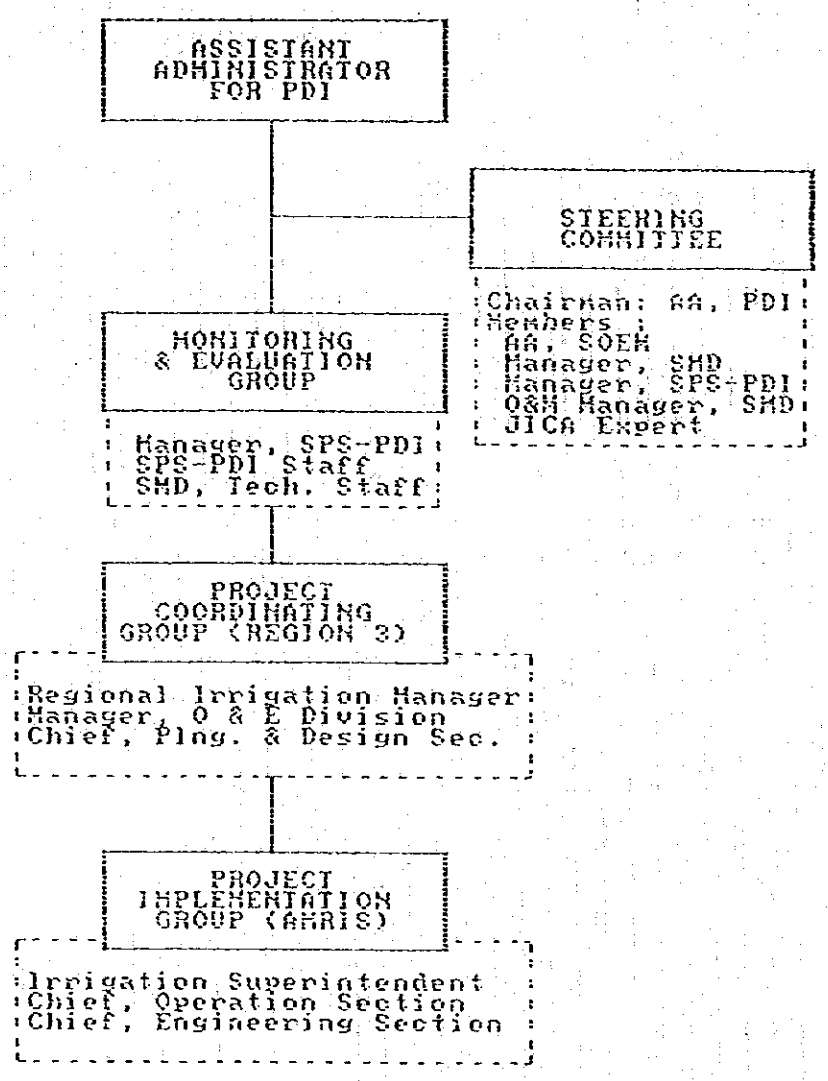
10. To assign appropriate budget and staff members for proper and effective operation and maintenance of the facilities constructed under the Project;

11. To maintain and use properly and effectively the facilities constructed and the equipment provided under the Project;

12. To bear all the expenses other than those to be borne by the Grant Aid within the scope of the Project.

ANNEX-III

PROPOSED ORGANIZATIONAL CHART OF THE PROJECT FOR THE REHABILITATION OF THE ANGAT AFTERBAY REGULATOR DAM



Approved:

RODOLFO C. UNDAN
Administrator

資料５－３　収集資料リスト

番号	資料の名称	形態	版型	頁数	オリジナル コピーの別	部数	収集先名称又は発行機関
1	アンガット計画特別維持管理マニュアル　No.1	書籍	A4		コピー	1	NIA
2	〃　No.2	〃	〃		〃	1	〃
3	〃　No.3	〃	〃		〃	1	〃
4	NIA 水路工設計基準	〃	〃		〃	1	〃
5	地区別地震解析研究論文	〃	〃		〃	1	Philippine Institute of Volcanology and Seismology
6	1995,1996年 AMRIS作付け図	図面	A1	2	〃	1	NIA
7	No.3事務所（NIA）組織図	〃	A4	1	〃	1	〃
8	NIA、AMRIS組織図	〃	A3	1	〃	1	〃
9	かんがい運営年間ネットワーク図	〃	A2	1	〃	1	〃
10	ブストス頭首工一般図	〃	A0	1	〃	1	〃
11	Construction Materials	パンフレット	A4	17	〃	1	Construction Industry Authority

資料５－４（１）ボーリング柱状図（BH-01）
資料５－４（２）ボーリング柱状図（BH-02）
資料５－４（３）ボーリング柱状図（BH-03）
資料５－４（４）ボーリング柱状図（BH-04）
資料５－４（５）ボーリング柱状図（BH-05）
資料５－４（６）ボーリング柱状図（BH-06）

資料５－４（１）ボーリング柱状図(BH-01)

FINAL BORING LOG

BORE HOLE NO. : BH 1
DATE STARTED : 21 March 1996
DATE COMPLETED : 22 March 1996
DRILLER : Louel Gatchalian

DRILLING METHOD : Wash Boring
SAMPLER TYPE : Split Spoon
WT. OF HAMMER : 63.6 kgs
HEIGHT OF FALL : 76.0 cm

WATER LEVEL	DATE
W/Casings 0.90m	3.22.96
W/O Casing - level with concrete slab	3.23.96

DEPTH	GRAPH USCS	LITHOLOGY	CONSISTENCY	PL NMC LL (10 20 30 40 50 60 70)	PLASTIC INDEX(P.I.)	O N-VALUE (SPT) SAMPLES RECOVERED (20 40 60 80 100)	N-Value
		<WATER LEVEL> level with concrete slab					
0.0	SLAB	(0.00 - 0.97m)CONCRETE SLAB, light gray, poorly sorted (dam apron)	CORING		C-1	C.R.= 100%	
1.0	GW	GRAVEL, with sand, dark gray with brown color			SPT1 NP 17/12/24	S.R.= 77%	36
2.0		SAND, with gravel, dark gray	D		SPT2 NP 21/25/23	S.R.= 66%	48
3.0	SP	... poorly sorted, rounded fragments, wet	E		SPT3 NP 24/21/25	S.R.= 66%	46
4.0	SW		N		SPT4 NP 20/21/24	S.R.= 66%	45
5.0	SP		S		SPT5 NP 19/22/23	S.R.= 66%	45
6.0	SW		E		SPT6 NP 21/23/25	S.R.= 77%	48
7.0	SP				SPT7 NP 18/21/24	S.R.= 66%	45
8.0	SW				SPT8 NP 22/32/33	S.R.= 66%	45
		END OF BORING AT 8.22 M					

MEGA PHILIPPINES, INC.
GEOTECHNICAL INVESTIGATION
MICROPILING & SOIL NAILING
HYDROGEOLOGICAL STUDIES
TEL Nos. 921-8824 / 924-3457

PROJECT : GEOTECHNICAL INVESTIGATION
LOCATION : ANGAT, BUSTOS BULACAN
CLIENT : JICA STUDY TEAM

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REF. No. JICA <BS>
JOB No. 103

資料５－４（２）ボーリング柱状図(BH-02)

FINAL BORING LOG

BORE HOLE NO. : BH 2
DATE STARTED : 18 March 1996
DATE COMPLETED : 19 March 1996
DRILLER : Louel Gatchalian

DRILLING METHOD : Wash Boring
SAMPLER TYPE : Split Spoon
WT. OF HAMMER : 63.6 kgs
HEIGHT OF FALL : 76.0 cm

WATER LEVEL	DATE
W/Casings 0.87m	3.19.96
W/O Casing - level with concrete slab	3.20.96

DEPTH	GRAPH	USCS	LITHOLOGY	CONSISTENCY	PL NMC LL (10 20 30 40 50 60 70)	PLASTIC INDEX(P.I.)	O N-VALUE (SPT) SAMPLES RECOVERED (20 40 60 80 100)	N-Value
			<WATER LEVEL> level with concrete slab					
0.0		SLAB	(0.00 - 0.31m)CONCRETE SLAB, light gray, poorly sorted (dam apron)	CORING		C-1	C.R.= 100%	
1.0		GW	GRAVEL, dark gray with brown color	MEDIUM DENSE		SPT1 NP 10/11/13	S.R.= 66%	24
				DENSE		SPT2 NP 15/23/27	S.R.= 88%	50
2.0						SPT3 NP 23/29/34	S.R.= 66%	63
3.0			... poorly sorted, rounded fragments, wet	VERY DENSE		SPT4 NP 31/33/35	S.R.= 66%	68
4.0						SPT5 NP 32/37/36	S.R.= 66%	73
5.0		GP		CORING		C-2	C.R.= 32%	
			END OF BORING AT 5.31 M					

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GEOTECHNICAL INVESTIGATION
MICROPILING o SOIL NAILING
HYDROGEOLOGICAL STUDIES
TEL Nos. 921-6324 / 924-3457

PROJECT : GEOTECHNICAL INVESTIGATION
LOCATION : ANGAT, BUSTOS BULACAN
CLIENT : JICA STUDY TEAM

PAGE No. 1 BH2
REF. No. JICA <BB>
JOB No. 103

資料５－４（３）ボーリング柱状図(BH-03)

FINAL BORING LOG

BORE HOLE NO. : BH 3
DATE STARTED : 19 March 1996
DATE COMPLETED : 20 March 1996
DRILLER : Louel Galchalian

DRILLING METHOD : Wash Boring
SAMPLER TYPE : Split Spoon
WT. OF HAMMER : 63.6 kgs
HEIGHT OF FALL : 76.0 cm

WATER LEVEL	DATE
W/Casings 0.93m	3.20.96
W/O Casing 0.20m	3.21.96

DEPTH	GRAPH	USCS	LITHOLOGY	CONSISTENCY	PL NMC LL (10 20 30 40 50 60 70)	PLASTIC INDEX(P.I.)	O N-VALUE (SPT) SAMPLES RECOVERED (20 40 60 80 100)	N-Value
			<WATER LEVEL 0.20M> above concrete slab					
0.0		SLAB	(0.00 - 0.52m)CONCRETE SLAB, light gray, poorly sorted (dam apron)	CORING		C-1	C.R.= 100%	
1.0			GRAVEL, with sand, dark gray			SPT1 NP 11/14/13	S.R.= 66%	27
2.0						SPT2 NP 15/23/29	S.R.= 66%	52
3.0		GW		VERY DENSE		SPT3 NP 19/26/31	S.R.= 55%	57
4.0						SPT4 NP 22/33/36	S.R.= 66%	69
						SPT5 NP 24/37/39	S.R.= 66%	76
5.0		SP				SPT6 NP 60/0	S.R.= 0%	60/0
				CORING		C-2	C.R.= 55%	
			END OF BORING AT 5.52M					

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TEL Nos. 921-8324 / 921-3157

PROJECT : GEOTECHNICAL INVESTIGATION
LOCATION : ANGAT, BUSTOS BULACAN
CLIENT : JICA STUDY TEAM

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REF. No. JICA <BB>
JOB No. 103

資料５－４（４） ボーリング柱状図(BH-04)

FINAL BORING LOG

BORE HOLE NO. : BH 4
DATE STARTED : 22 March 1996
DATE COMPLETED : 23 March 1996
DRILLER : Louel Gatchalian

DRILLING METHOD : Wash Boring
SAMPLER TYPE : Split Spoon
WT. OF HAMMER : 63.6 kgs
HEIGHT OF FALL : 76.0 cm

WATER LEVEL	DATE
W/Casings 0.95m	3.23.96
W/O Casing 0.15m	3.24.96

DEPTH	GRAPH USCS	LITHOLOGY	CONSISTENCY	PL NMC LL (10 20 30 40 50 60 70)	PLASTIC INDEX(P.I.)	O N-VALUE (SPT) SAMPLES RECOVERED (20 40 60 80 100)	N-Value
0.0	SLAB	<WATER LEVEL 0.15M> above concrete slab (0.00 - 0.97m)CONCRETE SLAB, light gray, poorly sorted (dam apron)	CORING		C-1	C.R.= 100%	
1.0	SW	SAND, coarsed grain, with some pebbles, poorly sorted, wet	DENSE		SPT1 NP 24/23/11	S.R.= 77%	34
2.0					SPT2 NP 15/20/14	S.R.= 65%	34
3.0	SP				SPT3 NP 14/18/20	S.R.= 66%	38
4.0	GW	GRAVEL, coarsed grain, light gray, with brownish silt, pebbles, wet			SPT4 NP 31/44/35	S.R.= 77%	79
5.0	SP		VERY		SPT5 NP 26/28/31	S.R.= 66%	59
6.0	SM	Silty SAND, coarsed grain, poorly sorted	DENSE		SPT6 NP 29/31/33	S.R.= 66%	64
7.0	SW				SPT7 NP 26/32/34	S.R.= 77%	66
8.0	SP				SPT8 NP 30/37/39	S.R.= 77%	76
		END OF BORING AT 8.42 M					

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HYDROGEOLOGICAL STUDIES
TEL Nos. 921-8824 / 924-3457

PROJECT : GEOTECHNICAL INVESTIGATION
LOCATION : ANGAT, BUSTOS BULACAN
CLIENT : JICA STUDY TEAM

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資料5－4（5） ボーリング柱状図(BH-05)

FINAL BORING LOG

BORE HOLE NO. : BH 5
DATE STARTED : 20 March 1996
DATE COMPLETED : 21 March 1996
DRILLER : Louel Gatchalian

DRILLING METHOD : Wash Boring
SAMPLER TYPE : Split Spoon
WT. OF HAMMER : 63.6 kgs
HEIGHT OF FALL : 76.0 cm

WATER LEVEL	DATE
W/Casings 1.01m	3.21.96
W/O Casing 0.16m	3.22.96

DEPTH	GRAPH USCS	LITHOLOGY	CONSISTENCY	PL NMC LL (10 20 30 40 50 60 70)	PLASTIC INDEX(P.I.)	O N-VALUE (SPT) SAMPLES RECOVERED (20 40 60 80 100)	N-Value
		<WATER LEVEL 0.16M> above concrete slab					
0.0	SLAB	(0.00 - 0.35m)CONCRETE SLAB, light gray, poorly sorted (dam apron)	CORING		C-1	C.R.= 100%	
1.0	GW	GRAVEL, with sand, dark gray, poorly sorted			SPT1 NP 21/28/31	S.R.= 77%	59
					SPT2 NP 20/28/30	S.R.= 77%	58
2.0	SW						
			VERY		SPT3 NP 26/31/33	S.R.= 66%	64
3.0			DENSE				
	SM	... rounded fragments, coarsed grain, wet			SPT4 NP 38/39/36	S.R.= 66%	75
4.0							
	SW				SPT5 NP 39/36/38	S.R.= 66%	74
5.0					SPT6 NP 60/0		60/0
			CORING		C-2	C.R.= 91%	
		END OF BORING AT 5.22M					

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資料５－４（６）ボーリング柱状図(BH-06)

FINAL BORING LOG

BORE HOLE NO. : BH 6
DATE STARTED : 24 March 1996
DATE COMPLETED : 25 March 1996
DRILLER : Louel Galchallan

DRILLING METHOD : Wash Boring
SAMPLER TYPE : Split Spoon
WT. OF HAMMER : 63.6 kgs
HEIGHT OF FALL : 76.0 cm

WATER LEVEL	DATE
W/Casings 0.98m	3.25.96
W/O Casing 0.22m	3.26.96

DEPTH	GRAPH / USCS	LITHOLOGY	CONSISTENCY	PL NMC LL (10 20 30 40 50 60 70)	PLASTIC INDEX(P.I.)	O N-VALUE (SPT) SAMPLES RECOVERED (20 40 60 80 100)	N-Value
		<WATER LEVEL 0.22M> above concrete slab					
0.0	SLAB	(0.00 - 0.30M) CONCRETE SLAB, light gray, poorly sorted (dam apron)	CORING		C-1	C.R.= 100%	
1.0	GP	GRAVEL, with sand, dark gray, poorly sorted	DENSE		SPT1 NP 15/17/21	S.R.= 66%	38
2.0					SPT2 NP 19/21/23	S.R.= 66%	44
3.0	SP				SPT3 NP 18/22/24	S.R.= 88%	46
4.0		... rounded fragments, coarsed grain, very wet			SPT4 NP 23/24/26	S.R.= 77%	50
5.0	SW		V.DENSE		SPT5 NP 25/31/38	S.R.= 100%	69
			CORING		C-2	C.R.= 27%	
		END OF BORING AT 5.30M					

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PROJECT : GEOTECHNICAL INVESTIGATION
LOCATION : ANGAT, BUSTOS BULACAN
CLIENT : JICA STUDY TEAM

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資料５－５　「フィ」国側負担金額算定基礎

（１）電力引込線　200万ペソ

500KVA　トランス１基≒ 70万ペソ

50KVA　トランス１基≒ 30万ペソ

引込線　500m ≒ 100万ペソ　（１m当り2,000ペソ）

計　200万ペソ

（２）銀行手数料　80万ペソ

日本側負担事業費≒ 16億

手数料算定係数；0.2%

手数料　16億×0.002＝ 320万円

320万円×1/4 ＝ 80万ペソ

JICA