10. DELIVERY POINT:

All finished products and materials to be completed by the CONTRACTOR and required under this contract, and all records, drawings and other technical data used by the CONTRACTOR's expense to the BCGS, Manila, Attn.: IECA Representative.

JOINT MEMORANDUM COVERING THE TOPOGRAPHIC MAPPING PROJECT OF THE CAGAYAN VALLEY UNDER THE TECHNICAL COOPERATION BETWEEN BCGS AND JICA

In response to the request of the Government of the Republic of the Philippines, the Government of Japan despatched a preliminary survey team to the Philippines from January to March, 1978.

As a result of the discussions, the Bureau of Coast and Geodetic Survey and the preliminary survey team from Japan International Cooperation Agency hereby mutually agree that the topographic mapping project of the Cagayan Valley shall be carried out based on the Draft of the Scope of Work which is attached hereto.

The following small particulars related to the implementation of the project, which are not mentioned in the Draft of the Scope of Work, are mutually agreed upon by both parties:

I. General

1. The Bureau of Coast and Geodetic Survey, Department of National Defense, hereinafter referred to as BCGS, the central agency responsible for the national mapping program in the Republic of the Philippines, hereinafter referred to as R.P. shall act as counterpart to the Japanese survey teams and also as coordinating body to other concerned governmental & non-governmental organizations of R.P. for the smooth implemen-

tation of the project.

2. The members of the Japanese survey teams who will work in the Philippines on this project possess official passports issued by the government of Japan.

3. To ensure the safety of the survey teams while working in dangerous or critical areas, the BCGS shall arrange with proper authorities for necessary security detail.

4. The cost of establishment of additional geodetic control points using JMR Doppler Survey sets, and the recovery and/or re-establishment of 1st order leveling bench marks, including the salary and incidental expenses of counterparts shall be charged to the account of the BCGS.

5. Aside from the two (2) trainees provided in Item No. II-2 below, JICA shall accept several technical men of the BCGS as trainees on special subjects like aerial triangulation, stereo plotting and map compilation.

6. All maps produced under this project shall bear at the lower margin the following:

THIS MAP WAS PRODUCED UNDER A JOINT UNDERTAKING BETWEEN THE GOVERNMENT OF THE REPUBLIC OF THE PHILIPPINES AND THE GOVERNMENT OF JAPAN.

II. Security

1. The Government of Japan shall take all necessary measures to avoid leakage of confidential information obtained in the implementation of this project.

2. To ensure the safety and security of RP aerial photographs and other by-products while under precessing in Japan, two security personnel shall be sent to Japan as JICA trainees, with expenses provided by JICA at standard JICA rates.

3. The trainees chosen by the R.P. as security officers as provided in Item 2 above should preferably possess basic knowledge of photogrammetry.

4. During periods when the aerial photographs and other by-products are not being used by the contractor of Japan the safekeeping of materials will be worked out between the two (2) agencies.

5. Aerial photography and photo-processing of the project are subject to the security regulations of the R.P.

6. The Government of Japan shall furnish to R.P. the bio data of Japanese personnel who shall be working in the Philippines for this project before the start of the operations.

7. The R.P. shall issue proper ID cards or credentials to Japanese personnel who shall be working in R.P. for this project.

8. The Government of Japan shall submit to the R.P. the bio-data of key personnel in each stage of work who shall be working in Japan for this project.

III. Aerial Photography

1. The aerial photography of this project in the Philippines shall be performed by a Philipoine surveying company under the supervision of Japanese contractor within the budget allocation for the aerial photography.

IV. Technical Details

1. Technical details worked out between BCGS and JICA shall be a part of this Joint Memorandum.

Manila, March 8, 1978

ANTONIO P. VENTURA, Capt., BCGS
Director
Bureau of Coast & Geodetic Survey
Department of National Defense

TAKESHI HIRAI
Leader
Preliminary Survey Team of Japan International Cooperation Agency (JICA)

TECHNICAL DETAILS

I. SPECIFICATIONS

Major specifications of this project are:

i) Ground control point survey:
Specifications for 2nd order control point survey in the Technical Manual of Overseas Surveying of JICA (hereinafter referred to as TM of JICA),

ii) Levelling survey for minor height control point:
Specifications for 3rd order levelling survey in TM of JICA.

iii) Monument: Subject to the specification of BCGS.

iv) Mapping:
B class mapping specifications for planimetry;
A class mapping specifications for height

v) Reference Ellipsoid: Clarke Spheroid of 1866

vi) Vertical Datum: Mean Sea Level (Manila Tidal Station)
Horizontal Datum: Luzon Datum

vii) Projection: Universal Transverse Mercator for 1:25,000 Topo Map; Philippine Plane Coordinate System for 1:10,000 Ortho-Photo Map

viii) Contour Lines: 10-meter contour intervals (5-meter supplementary contour and 2.5 meter auxiliary contour will be added in case it is needed.)

ix) Format: 7-1/2' x 7-1/2' for Topographic Map;
5000 m x 5000 m for Orthophoto Map

II. ACCURACY (Standard deviation)

Accuracy of above-mentioned surveys shall be:

i) Horizontal control survey

$$\frac{\sqrt{\Delta x^2 + \Delta y^2}}{S} = \frac{1}{75{,}000}$$

ii) Vertical Control Survey

$10^{mm} \sqrt{S}$ S: distance in km

iii) Mapping

Planimetry: $\pm 1^{mm}$ on the map

height $\frac{\Delta h}{3}$, Δh: contour interval

contour $\frac{\Delta h}{2}$

III. WORK TO BE CARRIED OUT BY BCGS:

1. BCGS will establish Doppler Stations in the project area. (See attached drawing). Positioning and signalization of the station will be done prior to the aerial photographic work. Results of this survey will be submitted to the Japanese Survey Team not later than March 31, 1979.

2. BCGS will recover or re-establish 1st order levelling within the project area.

IV. MODIFICATION OF THE TECHNICAL DETAILS

During the execution of the Project, changes may be made in the Technical details by mutual agreement as found necessary by both parties.

DRAWING FOR ITEM III-1 OF MEMORANDUM

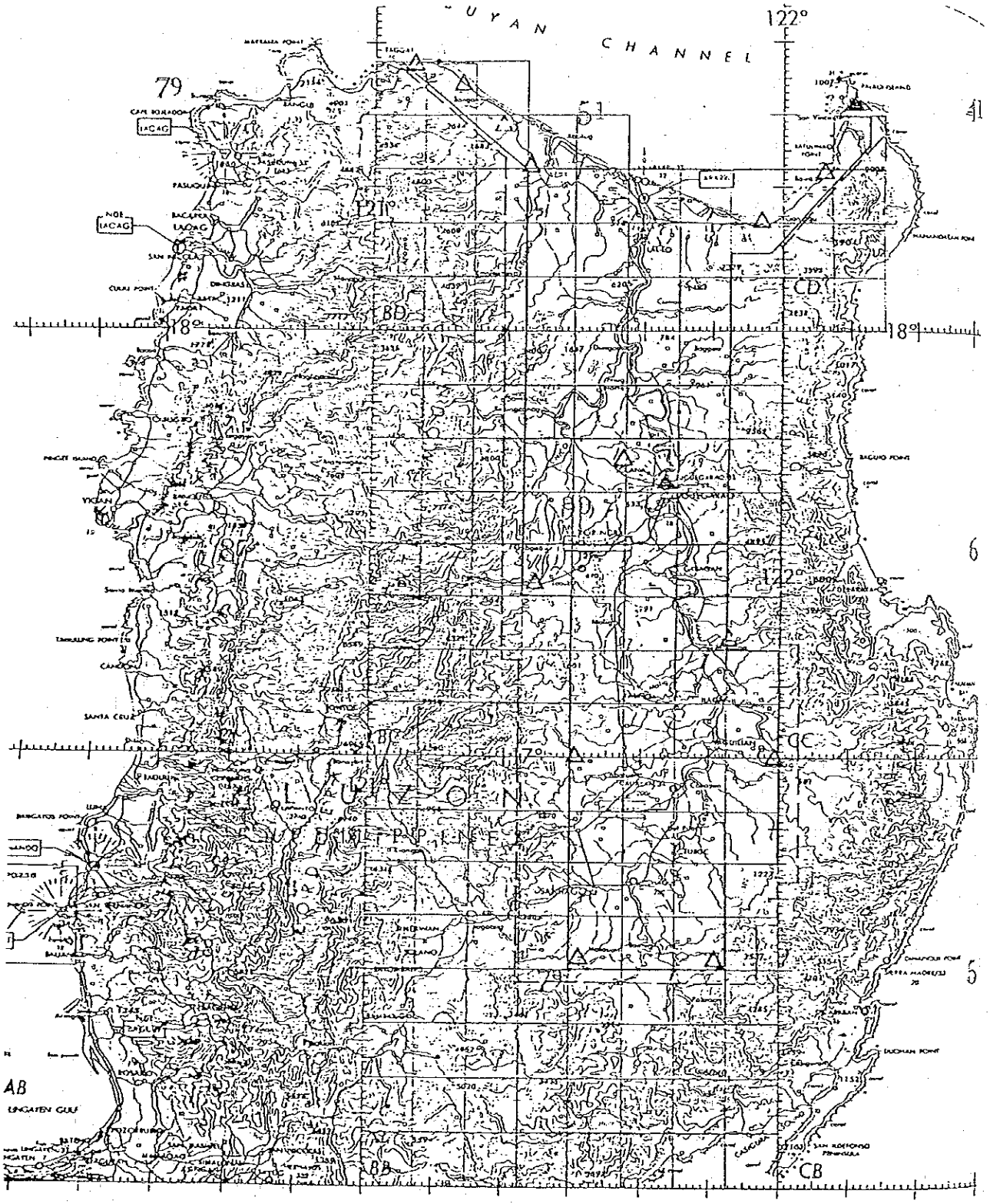
N

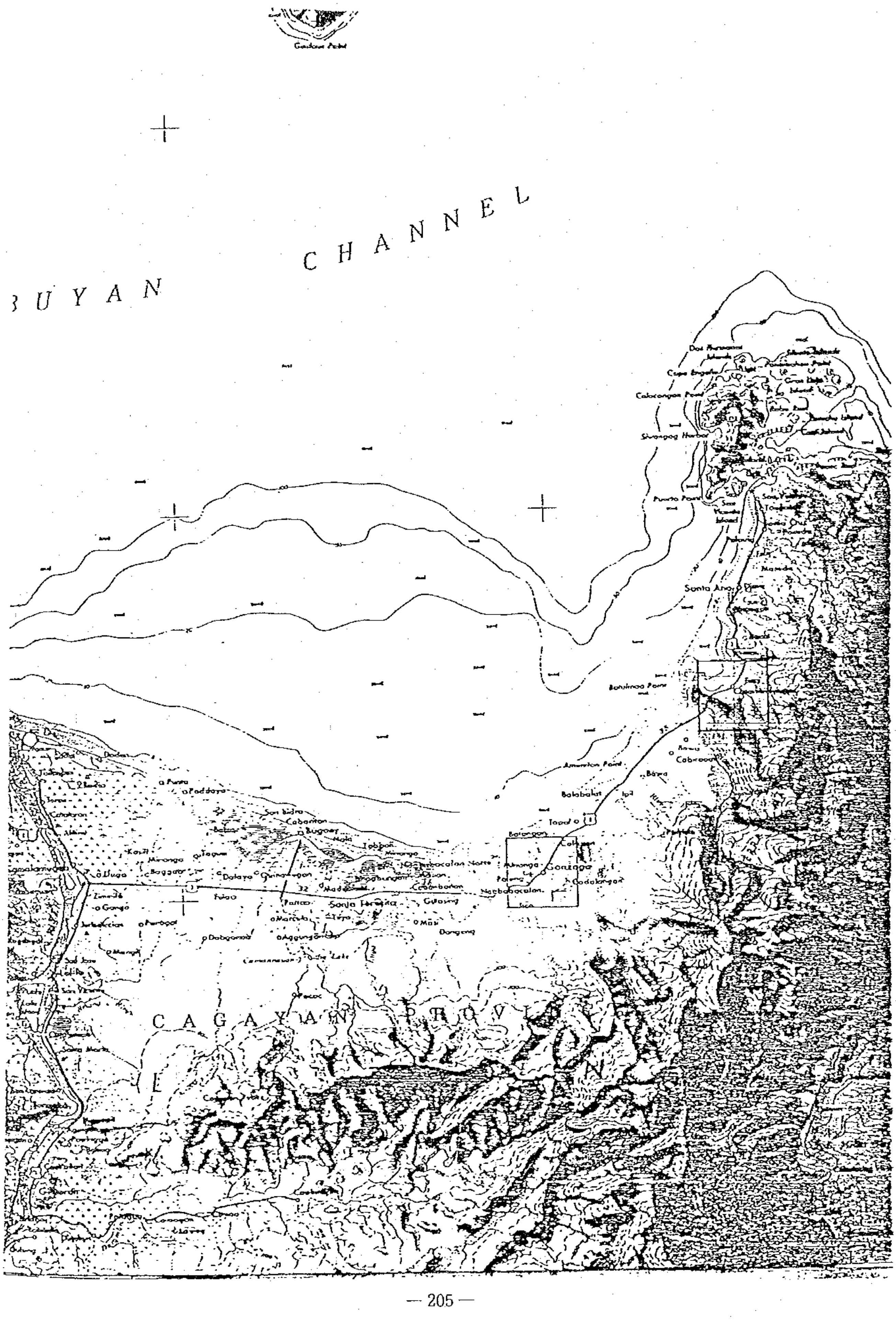
1:25,000 TOPOGRAPHIC MAPPING COVERAGE

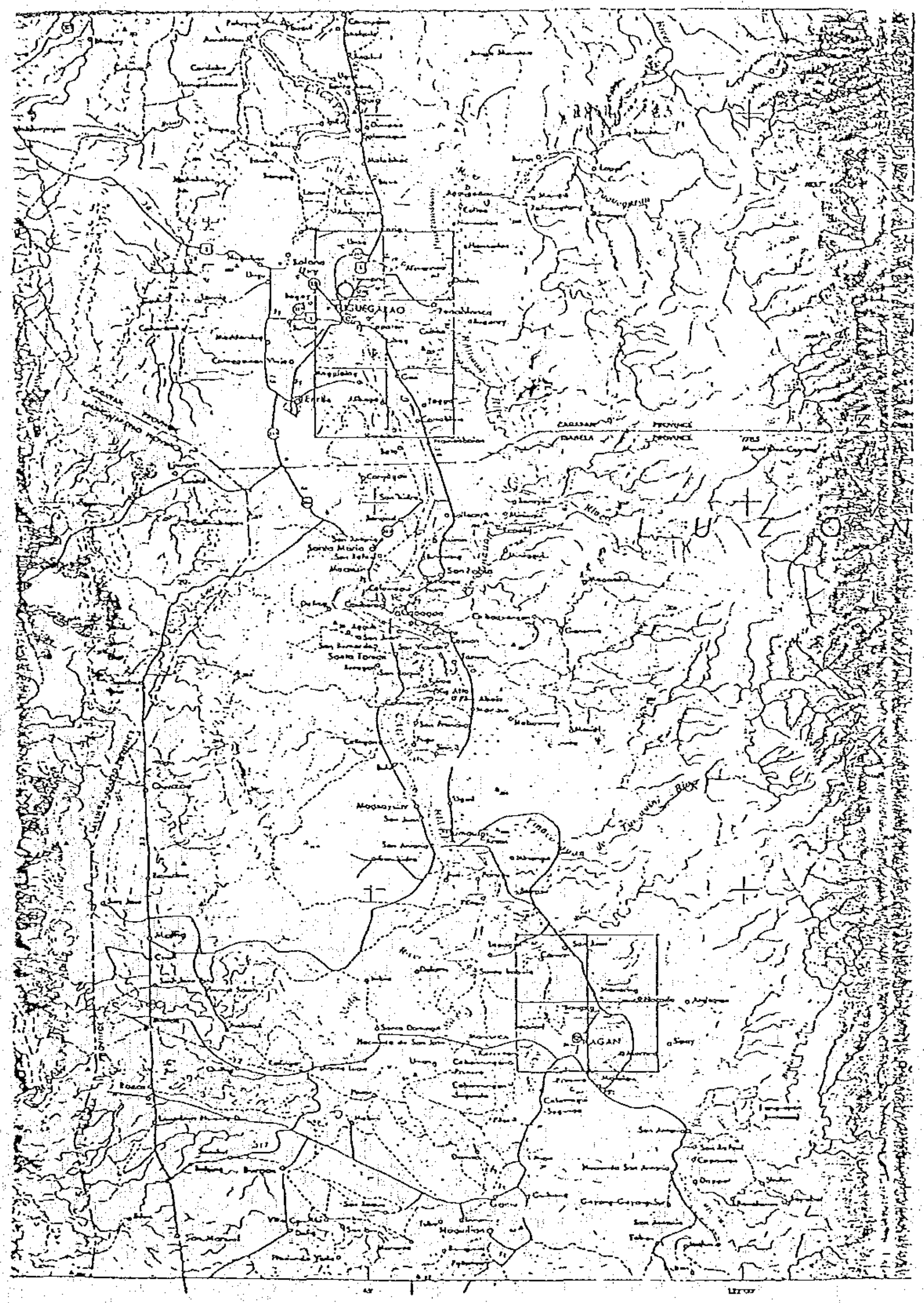
1:30,000 PHOTOGRAPHIC COVERAGE

▲ EXISTING DOPPLER STATION

△ DOPPLER STATION TO BE ESTABLISHED




BUYAN CHANNEL
CAGAYAN PROVI
Santa Ana
Gonzaga
Santa Teresita
Cape Engaño
Palaui
Dos Hermanos Islands



SCOPE OF WORK
FOR
TOPOGRAPHIC MAPPING PROJECT OF THE CAGAYAN VALLEY,
THE REPUBLIC OF THE PHILIPPINES

I. Introduction

In response to the request of the Government of the Republic of the Philippines, the Government of Japan despatched a survey team to the Philippines in January, 1978 for the purpose of the preliminary study of a mapping project (hereinafter to be referred to as "The Project") to prepare topographic maps and orthophotomaps of the Cagayan Valley, northern part of Luzon Island of the Philippines, which are prerequisite for the planning of various development projects in this area.

Based on the report of the above survey team, the Government of Japan decided to undertake the Project in accordance with laws and regulations in force in Japan with regard to the technical assistance programs. The Japan International Cooperation Agency (hereinafter to be referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, will carry out the works necessary for the Project.

II. Working Plan

The Project will be composed of the following works:

Aerial photography (1/30,000) covering the area approximately 15,000Km^2;

Topographic mapping (1/25,000, contoured) covering the area of approximately 11,000Km^2; and orthophotomap production (1/10,000) covering the area of approximately 300Km^2 (See Appendix I).

The entire work shall be carried out under a 4 year program starting from the year of 1978 and shall consist of the following phases:

Phase 1. Aerial Photography.

Phase 2. Ground Control Point Survey (Satellite Geodesy, Triangulation, Traversing, and Leveling) and Field Identification.

Phase 3. Aerial Triangulation, Stereo-plotting and Field Completion.

Phase 4. Orthophotomap Production.

Phase 5. Colour Separation Drafting and Printing.

Phase 1. Aerial Photography

1-1 Aerial photographs shall be taken at the scale of approximately 1/30,000 to cover the Project area with a wide angle precision camera.

Phase 2. Ground Control Point Survey (Satellite Geodesy, Triangulation, Traversing, and Leveling) and Field Identification.

2-1 Satellite Geodesy

Additional primary geodetic controls shall be established by the method of artificial satellite Doppler system.

2-2 Triangulation and Traversing

Minor horizontal control points, necessary for aerial triangulation and mapping work, shall be established by triangulation or traversing.

Accuracy of observations and monumentation of control points shall conform to the specifications established by both parties.

Aerial signals shall be established prior to the aerial photography, whenever possible.

2-3 Levelling

Levelling shall be carried out to obtain vertical controls necessary for aerial triangulation and mapping work. The levelling consists of the 1st order and minor order levellings starting from the existing 1st or 2nd order bench marks. Accuracy of observations and monumentation of bench marks shall conform to the specifications established by both parties.

2-4 Field Identification

The topographic information related to land classification, vegetations, etc. shall be verified in the field using the aerial photographs. Style sheet and symbols shall be those adopted by the Bureau of Coast and Geodetic Survey (hereinafter referred to as BCGS).

Administrative boundaries and geographical names which should be expressed on the maps, shall be identified in the field and shall be shown on the aerial photographs by the staffs of BCGS.

Phase 3. Aerial Triangulation, Stereo-plotting and Field Completion.

3-1 Aerial Triangulation

Aerial Triangulation shall be carried out by an analytical method using stereo-comparators and electronic computer. Adjustment shall be carried out by a block adjustment method.

3-2 Stereo-plotting

The plotting shall be carried out using stereo-plotting instruments at the scale of 1/25,000 with 10-meter contour intervals. The sheet line shall be 7'.5 x 7'.5 .

3-3 Field Completion

Topographic features, vegetation, etc. which cannot be plotted shall be supplemented on the compiled sheet in the field. Administrative boundaries and geographical names shall be verified and supplemented, if necessary, on the paper copy of the compiled sheet by the Government of the Republic of the Philippines.

Phase 4. Orthophotomap Production

4-1 Orthophotomaps shall be produced using orthoprojectors at the scale of 1:10,000. The sheet line shall be 5Km x 5Km in the terrain.

Phase 5. Colour Separation Drafting and Printing.

5-1 Colour Separation Drafting.

Based on the compiled sheet, scribing shall be carried out on the stable polyester base for each of the five colour separation plate. Style sheet and symbols shall be those adopted in BCGS.

5-2 Printing

Plate-making shall be carried out using 1/25,000 scribed negatives, and printing shall be carried out by the offset method.

III. Time Schedule

The whole work will be conducted in accordance with the time schedule. (See Appendix II)

IV. Report and Final Results

The report will be presented to the Government of the Republic of the Philippines by JICA every fiscal year (from April to March). The materials mentioned in Appendix III will be submitted to the Government of the Republic of the Philippines by JICA after having completed the whole work and they shall belong to the Government of the Republic of the Philippines.

It shall be mentioned on the printed maps to the effect that the maps are the result of the cooperation between the Government of the Republic of the Philippines and the Government of Japan.

V. Contribution to the Mapping Project

A. Japanese Contribution

JICA will contribute to the Project by:

(a) Despatch of a Japanese survey team to carry out the project.

(b) Preparation of necessary survey equipment and instruments as listed in Appendix IV and any other

necessary equipment and materials for the Project.

(c) Training of the Philippine counterparts.

B. Philippine Contribution

The Government of the Republic of the Philippines is to contribute to the Project by providing the Japanese survey team with the following conveniences, facilities and services for the smooth and effective implementation of the work:

(a) To establish additional primary geodetic control points by JMR Doppler Survey Sets.

(b) To exempt from custom duties, taxes and charges of any kind with respect to the equipment including vehicles, machinary, materials, personal effects and medical supplies necessary for the performance of the duties of the members of the survey team.

(c) To supply available data and information related to the Project.

(d) To arrange for smooth transfer of data and materials including aerial photo films to Japan and to the Philippines for the purpose of executing the Project.

(e) To arrange suitable office spaces with appurtenant facilities, storage facilities and garage in the Project area and one office room in BCGS in Manila.

(f) To secure flight permission for aerial photography related to the Project.

(g) To recommend local aerial survey enterprises related to aerial photography.

(h) To secure permission for the use of communication facilities including tranceiver and electromagnetic wave distance measuring instruments.

(i) To secure permission of entry into private properties and the restricted areas and felling of trees when necessary.

(j) To secure the necessary arrangements for the safety of the survey team.

(k) To arrange for the hiring labourers as needed.

(l) To arrange for the availability of medical facilities when needed.

(m) To arrange for no restrictions on funds introduced into the Philippines from external sources by the members of the survey team for the purpose of the Project.

Bank account opened in the Philippines by the survey team members shall remain at their exclusive disposal, and balance on such accounts shall be freely transferable into Japan in any other convertible currency.

(n) To provide assigned counterparts of the Government of the Republic of the Philippines consisting of a project coordinator and technical men.

(o) To provide credentials to the members of the survey team for the execution of their activities.

VI. Modification of the Scope of Work

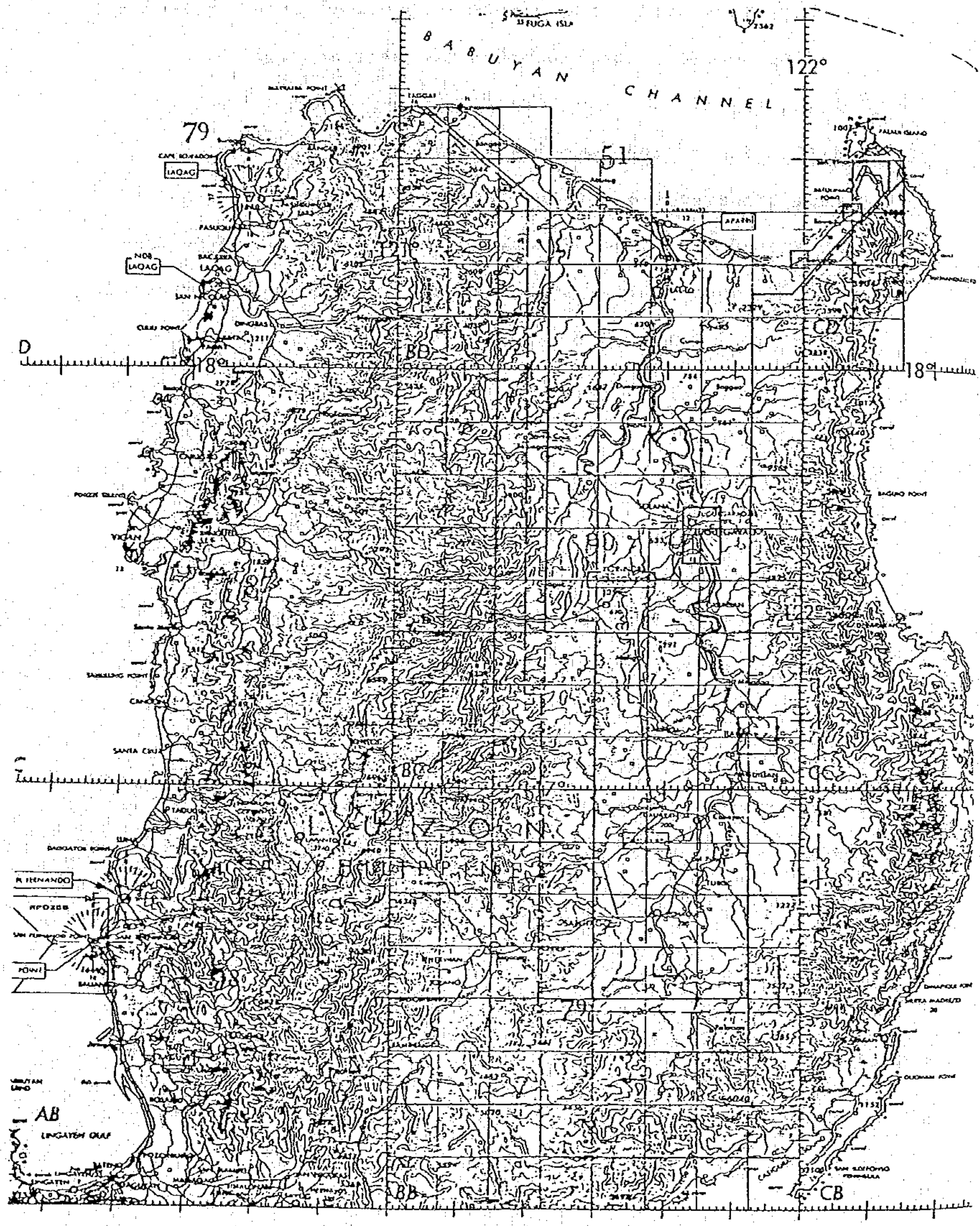
During the execution of the Project, changes can be made in the text of the scope of work by mutual agreement considred useful by both parties facilitating the work to be performed.

APPENDIX I

1:25,000 TOPOGRAPHIC MAPPING COVERAGE

1:30,000 PHOTOGRAPHIC COVERAGE

1:10,000 ORTHOPHOTOMAP COVERAGE



APPENDIX II

TIME SCHEDULE

	1st year												2nd year												3rd year												4th year											
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Signalization									—																																							
Geodetic Control Survey									—	—																																						
Aerial Photography									—	—			—																																			
Levelling																					—	—																										
Field Identification																						—																										
Aerial Triangulation																									—	—																						
Ortho-photo Mapping																										—	—	—																				
Stereo Plotting & Compilation																										—	—	—	—																			
Field Completion																																		—	—													
Colour Separation Drafting																																								—	—	—						
Printing																																											—	—	—			

Above mentioned schedules are subject to alteration.

APPENDIX III

Final results

I. Aerial photography

1. Original negatives
2. Contact paper prints (one each)
3. Photo index sheets

II. Geodetic Control survey

1. Horizontal control results
2. Vertical control results
3. Computation sheets
4. Field notes
5. Description of points

III. Topographic mapping

1. Aerial triangulation results
2. Color separation scribed sheets
3. 1/25000 Topographic maps (each 1000 copies)
4. Pricked photos
5. Original manuscripts
6. Dia positives

IV. Orthophoto mapping

1. Original ortho-photo negatives
2. Contour overlay
3. Final ortho-photo positives prints 1/10000 (two sets)
4. An offset printing plate for each sheet

APPENDIX IV

List of equipment to be used for field survey by the Japanese Survey Team

1. Theodolites
2. Electro magnetic distance measuring equipment
3. Electro optic distance measuring equipment
4. Short wave transmitter receivers
5. Tranceivers
6. Heliotropes
7. Signal lamps
8. Precision levels with staves
9. Auto levels with staves
10. Electronic calculators
11. Vehicles including trucks
12. Camping materials including food staff
13. Materials and components of observation towers
14. Generators
15. Small instruments, office equipment and consumables

Note: Above mentioned equipment are subject to alteration.

Republic of the Philippines
Ministry of National Defense
BUREAU OF COAST AND GEODETIC SURVEY
M a n i l a

MINUTES OF THE MEETINGS ON CAGAYAN VALLEY TOPOGRAPHIC MAPPING PROJECT

Date : 15, 16, 23 & 26, May 1980

Place : Bureau of Coast and Geodetic Survey
Ministry of National Defense, Manila

Attended By :

Antonio P. Ventura, Commodore, BCGS - Director
Oliver F. Castro, Capt., BCGS - Asst. Director
Mr. Mario C. Manansala
Claudio S. Ramos, Ens., BCGS
Mr. Ponciano C. Ciceron
Basilio D. Apostol, Lt., BCGS

JICA SURVEY TEAM

Mr. Shirai - Geographical Survey Institute
Mr. Kimura - JICA
Mr. Shino - Survey Team Leader
Mr. Nagashima - Deputy Survey Leader
Mr. Miyashita - Staff, Survey Team
Mr. Harada - Staff, Survey Team

BACKGROUND :

- JICA Survey Team explained its 2nd year activities for the establishment of geodetic controls which had been conducted in the region from January to May 1980.

- BCGS explained its work in the establishment of JMR controls and 1st order levelling.

- JICA Survey Team also briefed the work plan for the 3rd year program which is expected to start from December 1980.

- The following matters were discussed and confirmed by both parties.

I. The Second Year Work (Geodetic Control)

1. Work carried out by BCGS :

a. 1st order levelling has been run in the project area along Highway No. 3 & 5 totaling 457.1 km. length. A copy of the results have been handed over to the JICA survey team in January 1980.

b. JMR observations were conducted on thirteen (13) stations; The precise processing results on six (6) points have been submitted to the JICA survey team and the results on four (4) points are to be submitted around July 1980.

c. The BCGS sent three (3) officers as counterparts to coordinate activities with JICA in the project area.

2. Work carried out by JICA (ANNEX " A ") :

- During the period from January to May 1980, JICA Survey Team had accomplished the following :

a. Established forty - five (45) geodetic control stations,
b. Tied four (4) stations to BCGS JMR stations,
c. Pricked forty - five (45) geodetic controls and thirteen (13) JMR stations.

3. Outline of the results of the preliminary computation by JICA, Annex " B ". These results have been found to be within limits of Geodetic Control Specification and therefore, it can also be concluded that the results of the final computation will also be within limits.

4. Treatment of the azimuth of the net and discrepancy with existing triangulation and JMR geodetic control :

- Considering that the net established by the JICA survey team is rigid, the following alternatives have been considered to connect the net to BCGS existing geodetic control points.

a. JMR # 5 (GAMMA) is assumed fixed and the azimuth will be determined by azimuth observations at Stations Nos. 2, 15 & 36.

b. The JICA net will be connected to triangulation stations No. 9 ($CHICC_2$), MASIP 1_2 & JMR No. 5 (GAMMA) and adjusted by least square method.

c. The JICA net will be connected to JMR Station Nos. 8, 9 (GON) & 16 (CAG) and then adjusted by least square method.

- Both parties (BCGS & JICA) agreed to adapt alternative " b " and the results will be compared to the results using alternative " a " and " c " for evaluation.

Note : The Station JMR No. 5 has been occupied by the JICA Survey Team, but no JMR observations had been made at this station.

5. Submission of Annual Report on the progress of the work by JICA to BCGS.

- Annual report on the progress of the work by JICA, including the final results of the computations and other data, will be submitted to BCGS by the end of September 1980.

II. The Third Year Work (Minor Vertical Controls and Field Identification)

1. Outline of the Work :

a. JICA will undertake establishment of auxilliary vertical controls and field identification,

b. BCGS will gather data on administrative boundaries, highway or road classification, and geographic names.

2. Submission of Map Symbols and detailed specifications to JICA by BCGS.

- Because of the importance of symbols in field identification, discussions on the specification for the 1/25,000 maps, particularly in symbolization, have been made. Draft of the specification has been submitted to the JICA Survey Team. (ANNEX " C ") A final revision on the specification will be submitted on July 1980.

3. Enlargement of aerial photo for use in the field identification and pricking for vertical controls.

- Uncontrolled mosaic is most suitable tool for field identification and placing geographic names, administrative boundaries, and road classification. BCGS agreed to send aerial negatives to Japan through diplomatic channels for the production of such uncontrolled mosaic, enlargement and the diapositives.

- Two (2) security officers (one from BCGS and one from J - 2) will accompany the film negatives and stay in Japan during the duration of the production of the mosaics. JICA will accept the security officers as trainees under the Colombo Plan.

4. Field Identification and Establishment of Vertical Control Points by JICA.

- Area to be covered :

  Auxilliary Vertical Control : App. 1,000 km.
  Field Identification : App. 11,000 K_m^2.

- In remote or inaccessible areas establishment of auxilliary vertical controls maybe indirect method.

- First - order benchmarks will be pricked for purposes of placing them on the map, and photo control points will be pricked for aerial triangulation purposes.

5. BCGS will send counterparts to the project area to act as liaison officers.

6. BCGS will take the necessary measures to ensure the safety of the JICA survey team.

7. BCGS and JICA agreed that less completeness of field identification in remote and hardly accessible area will be tolerated.

III. Other Items :

1. Availability of JICA Vehicles :

- Relating to the 3rd year work, BCGS requested JICA Manila Office to make some kind of arrangement on the availability of JICA'S Land Cruiser Station Wagon (2 Vehicles) to be used for the prelinary survey (data collection of administrative boundaries and geographical names) until the arrival of JICA Survey Team.

- In connection with the request, discussions were made and BCGS proposed the following conditions :

1. The Vehicles shall solely be used for the Project,
2. All the expenses related to maintenance and operation shall be borne by BCGS,
3. In case of accident, BCGS shall promptly inform all the details to the JICA Manila Office and follow its directions,
4. BCGS shall, when necessary, bear the Minimum Charge for repairs, as the JICA Vehicles are all insured,
5. BCGS shall prepare Log Book for maintenance and operation of each vehicle.

- Availability of the vehicles will be realized as soon as JICA Headquarter's approval.

2. A copy of the format of the 1:25,000 topographic map ANNEX " D "; and a copy of the work flow diagram ANNEX " E " for the production of the 1:25,000 maps were furnished to the JICA survey team.

APPROVED :

Antonio P. Ventura

ANTONIO P. VENTURA, Commodore, PCGS
Director

Kenichi Shirai

MR. KENICHI SHIRAI
Geographical Survey Institute

Date : 27 May 1980

Republic of the Philippines
MINISTRY OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY
421 Barraca St., San Nicolas, Manila

MINUTES OF THE MEETING OF THE CAGAYAN VALLEY TOPOGRAPHIC MAPPING PROJECT

Date : 14, 15 and 20 April 1981

Place : Map Production Center Conference Room Bureau of Coast and Geodetic Survey Ministry of National Defense

Attended By :

BCGS	Embassy of Japan and JICA
Captain Oliver F. Castro	Mr. Tamio Shimogami
Commander Mamerto S. Gler	Mr. Akira Yaguchi, Geographical Survey Institute
Commander Ceferino R. Pascual	Mr. Manabu Aiba, JICA Head Office
Lieut. Rodrigo R. Pascua	Mr. Mikio Nakamura, Deputy Resident Representative, JICA Manila Office
Mr. Robert G. Matheson	Mr. Shigehiho, Shino, JICA Survey Team Leader
Mr. Byrne Goodrick	Mr. Toshimasa Nagashima, JICA Deputy Survey Team Leader
Mr. Lzet M. Serdar	Mr. Chuji Misawa, JICA Chief Surveyor

The following matters were discussed and confirmed by both parties :

I. The Third Year Work (Phase III)

1. Work done by JICA Survey Team with the help of the five counterparts from BCGS

The third year work done by JICS Survey Team consisted

3. The copy of the final result, description of geodetic control point; and description of photo pricking have been submitted by the Team.

II. The 3rd Year Work :

1. The detailed work scheme has been explained by the Team as per Appendix I.

2. Photographic materials, prepared for the purpose of field identification of topographic features and for use in aerial triangulation have been delivered to BCGS, but the latter (diapositives) has been delivered to the Embassy of the Philippines in Japan for safe-keeping, as per attached Appendix II.

III. Particular items on the 3rd Year Work :

1. Manual of guideline for Field Identification indicating the criteria and work standard based on the map symbols adopted by BCGS has been discussed and final manual of guidelines was prepared as per attached Appendix III.

2. Some recommendations regarding some refinements on cartographic expression will be made by the Team and BCGS will appreciate to receive such recommendation at the next occasion.

3. Sheet Title and Numbering of 1:25,000 Scale Topographic Maps: Sheet Index of topographic maps of the project area showing title and number, have been handed to the Team as per attached Appendix IV.

4. Some very small excess area will be expected in the north west end of the project area somewhere between Centinela Point and Data Point. If the area extends over the outer neat line of the regular map sheet, one irregular map sheet will be produced.

5. Proceding into critical area :
The decision to enter some critical areas will be according to the judgement of each field survey party.

6. Inaccessibility of some areas for field identification

and levelling may result in less completeness of final map compilation. As agreed under paragraph II-7 on the Minutes dated May 27, 1980, such areas will be indicated on the reliability diagram of the finished map.

7. Counterparts for the field surveying: BCGS has agreed to assign to the Team five (5) counterparts, one of which will be designated as chief liasion officer for the group.

8. Field Identification by BCGS :
BCGS will deploy one survey field edit party headed by one commissioned officer to gather the following field data :
   a. Geographic Names
   b. Administrative bounderies
   c. Road Classification

9. For proper coordination periodic meetings will be held in the field between the Team, BCGS counterparts and BCGS field edit survey team. In case there should arise any problem regarding the field work implementation including application of the Manual of Guidelines.
The Team and BCGS counterparts shall exercise their best efforts to obtain a joint solution on the spot in order to facilitate progress of the field work.

10. Letter of Introduction :
For smooth implementation of the fieldwork and also to ensure the safety of the Team, the Director of BCGS furnished the Team Letters of Introduction to the following :
   a. The Commanding General Northeast Command
   b. Regional Director, Region II Local Government and Community Development
   c. The Provincial Governors of the different provinces comprising the project area

IV. The 4th Year Work :

1. Tentative work scheme during the 4th year of the proj-

ect will be discussed when the work of this phase (3rd year work) will be terminated (1981 April).

2. Availability of Diapositives in Japan :
BCGS has agreed that for preparatory work in aerial triangulation which will be undertaken even before starting the next phase of the work, the diapositives at present deposited in the Philippine Embassy in Japan are available for use whenever there are security officers stationed in Japan even for other projects.

3. Training Program :
The following Training Program will be expected and final confirmation will be transmitted through JICA Manila Office after approval of its Headquarters :

Aerial Triangulation May-July 1981 (3 months)
Stereoplotting and Map Compilation,
Aug.-Oct. 1981 (3 months)
Nov. 1981-Jan. 1982 (3 months)

Two trainess including one security officer will be accommodated for each of the above-mentioned training program.

APPROVED :

ANTONIO P. VENTURA, Commodore, BCGS
Director

TAKETSUNE HOSONO
Technical Adviser JICA

Date : 26 Dec. 1980

APPENDIX I

TOPOGRAPHIC MAPPING PROJECT FOR
CAGAYAN VALLEY
DETAIL WORK SCHEME (THE THIRD YEAR)

1. Work quantities:

a)	Levelling	
	Direct levelling	460Km (Duplicate line)
		340Km (Single line)
	Indirect levelling	80Km
	Oversea levelling	12 Stations (2 Stations/1 point)
	Monumentation	20 Stations
b)	Field identification	11,200Km^2
c)	Pricking	475Km (Existing 1st order B.M.)
		100 Points
d)	Photo processing	
	Uncontroled Photo-mosaics	6 sets
	Contact prints	2,701 pieces
	Diapositive contact films	1 set (1,240 pcs)
	Diapositive contact films for ortho-photos	1 set (66 pcs)
	2 times Enlargement photographs	1 set (82 pcs)

2. Work duration in the Philippines

From December 1st, 1980 to April 20th 1981 (141 days)

3. Major instruments to be used;

Name	Type	Quantity
Distance measuring instruments	HEWLETT PACKARD	1 set
Theodolite	WILD T2	3 sets
Level	Automatic level	6 sets

I. Field identification

a) Preparation

Preparation of field identification will be done by mosaic photographs and reference data.

b) Execution

Field identification will be executed as following.

i) Confirmation of preparation

ii) Data gathering

iii) Investigation and supplemental identification of unidentified matters

c) Completion

Completion of field identification will be confirmed on a photo-mosaic for plotting and compilation. At the same time, an over-lay can be used depending on the condition of result.

II. Pricking

First-order bench-marks will be pricked on the 2 times enlargement photographs for aerial triangulation, plotting and compilation. New bench-marks and vertical picture points will be pricked on the contact prints, and the latter will be on every 10Km, in the routes.

III. Photo processing

Before starting the levelling and field identification, photo processing will be done in Japan.

	ITEM	QUANTITY	
i)	Uncontroled mosaics	6 sets	34 pcs/1 set
ii)	Contact prints	2 sets	1,240 pcs + 1,461 pcs
iii)	Diapositives	1 set	1,240 pcs
iv)	Diapositives for ortho-photo	1 set	66 pcs
v)	2 times enlargement photographs	1 set	82 pcs

IV. Final products

1. Levelling

i) Field notes 1 set

ii) Computation sheets 1 set

iii)	Data list of B.M.	1 set
iv)	Description of B.M.	1 set
v)	Net of levelling (Scale 1:250,000)	1 set
vi)	Records and source materials	1 set

2. Field identification

i)	Photo-mosaic	1 set
ii)	Records and source materials	1 set

3. Photo-processing

i)	Diapositives	1 set
ii)	Records and source materials	1 set

4. Brief plan of work:

I. Levelling

a) Levelling net:

Most of levelling routes will be located along the primary road in the project area.

i) Direct levelling (Duplicate line)

Duplicate level lines will be closed with the 1st order B.M. and another.

Duplicate levelling will be performed also on open level line.

ii) Direct levelling (Single line)

Single level lines will be closed with the 1st order B.M. and new B.M.

iii) Indirect levelling

Indirect levelling will be executed on a wide open area where is difficult to proceed the direct levelling.

b) Monumentation

30 by 30cm Square and 50cm length concrete monument will be used as standard, and be established on junction of routes. Mark is the top center of the metal rod which is flushed to the concrete surface with the inscription of square, point number and B.C.G.S. (as per attached figure)

c) Observation

i) Direct levelling

Direct levelling observation will be done by automatic level. Standard distance of temporal station in duplicate levelling is 2Km. Tolerance is 10mm $\sqrt{S}$.

ii) Indirect levelling

Vertical angle observation will be done by simultaneous observation with 4 sets. Tolerance of altitude constance is 10 seconds. Distance is measured by Hewlett Packard 3808A with 1 set, 4 readings. Tolerance of each reading is 35 mm.

iii) Oversea levelling

Vertical observation will be done by WILD T2 with 2 sets. Tolerance of an altitude constance is 10 seconds. Distance is measured by Hewlett Packard with 2 sets.

d) Description of bench-mark

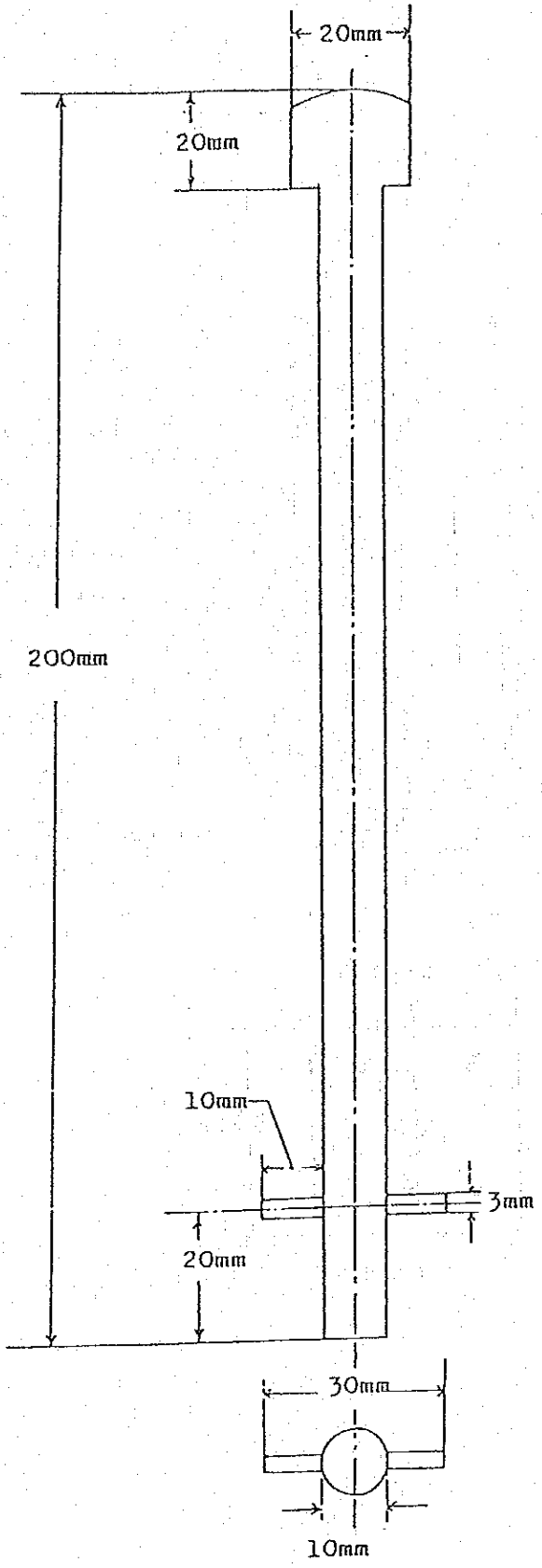
The description is made in the field and append a photograph of the bench-mark.

e) Computation

Preliminary computation is done in the philippines and final computation and adjustment is done by Electronic Computer in Japan.

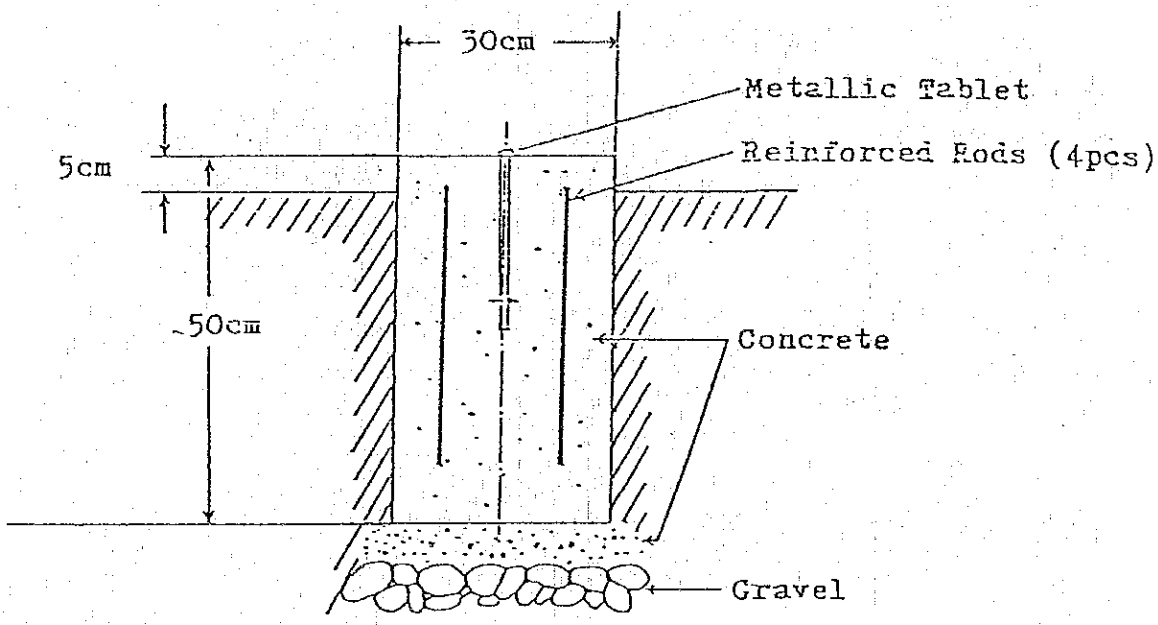
METALLIC TABLET

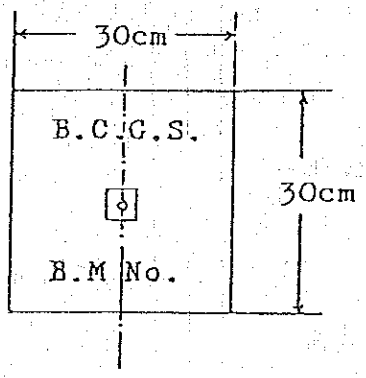
Scale 1/1



BENCH MARK

Scale 1/10





APPENDIX II

ITEMS, DELIVERED TO B.C.G.S.

1. Uncontroled Photo-Mosaics
   - 3 sets for Japanese Survey Team
   - 2 sets for Field Party of B.C.G.S.
   - 1 set for B.C.G.S.

2. Contact Prints
   - 1 set (1,461 pcs) for B.C.G.S.
   - 1 set (1,240 pcs) for Japanese Team

3. Diapositive contact films
   - 1 set (1,240 pcs) stored in the Embassy of the Philippines in Japan

4. Diapositive contact films for Ortho-Photo
   - 1 set (66 pcs) stored in the Embassy of the Philippines in Japan

5. Two times enlargement photographs
   - 1 set (88 pcs) for Japanese Survey Team

Republic of the Philippines
MINISTRY OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY
421 Barraca St., San Nicolas, Manila

MINUTES OF THE MEETINGS, CAGAYAN VALLEY TOPOGRAPHIC MAPPING PROJECT

Date : 9, 10, 11, 15, 23 & 26 December 1980

Place : Bureau of Coast and Geodetic Survey, Ministry of National Defense, Manila

Attended By :

Commodore Antonio P. Venture	Mr. Taketsune Hosono, GSI
Commander Mamerto S. Gler	Mr. Hiroshi Kimura, JICA
Commander Ceferino R. Pascual	Mr. Shigehiko Shino, Survey Team Leader
Mr. Mario C. Manansala	
Mr. Conrado Santos	Mr. Toshimasa Nagashima, Deputy Survey Team Leader
Mr. Ponciano Ciceron	
Lieut. Pascua	Mr. Chuji Misawa, Chief Surveyor
Lieut. De Luna	Mr. Takashi Hamada, Survey Coordinator
Ens. Claudio Ramos	

BACKGROUND :

I. The 2nd Year Work :

1. JICA submitted to BCGS copies of the Report on the activities during the 2nd year of the project.

2. Presentation of the result of precise horizontal control net adjustment were made by JICA Survey Team (hereinafter called the Team) and comparison between values obtained from JMR observations using precise ephemeris data and these from JICA data are also shown.

Both parties have agreed in adopting the alternative under item "b" of the report in the adjustment on the result to be used as the basic horizontal control for this project.

of levelling, field identification, pricking, and photo processing. Concerning the first three items, the work has been carried out in the project area during the period December 1980 to April 1981. The photo processing was carried out in Japan in November 1980. Detailed description of the work is as follows:

a) Levelling

In order to supply sufficient number of vertical control points for the whole mapping project, some 800 kilometers of level lines was run along the primary routes in the project area. These comprised some 460 kilometers direct levelling by duplicate line (F & B running), some 340 km. direct levelling by single running, and some 80 km. trigonometric levelling. River crossing levelling was done at six sites. Twenty (20) Bench marks were monumented, those mainly on junctions of levelling routes.

The closure of each level net was calculated, and all were within the tolerance according to the previously agreed standards. The elevations of some horizontal control points included in the levelling nets, calculated in the third year work will be adopted instead of the elevations calculated by trigonometric levelling during the second year work.

b) Field Identification

Field identification has been carried out according to the "Manual of Guidelines for Field Identification" for the whole project area of some 11,200 square kilometers. (Appendix III of the minutes dated December 26, 1980).

There were some critical and/or inaccessible areas during the field operation. It was agreed that under such conditions, the information to be incorporated on the maps affected shall depend on the information that could be derived from the

corresponding aerial photographs of the area by photo interpretation.

c) Pricking

Some one hundred vertical control points and all the first order bench marks along some 460 kilometers length route have been pricked on the aerial photographs for use during the aerial triangulation and plotting stages.

d) Photo Processing

Photo processing to produce the following photographic materials necessary for the later stages of the project and in accordance with the minutes of the meeting between BCGS & JICA dated 26 December 1980, was done.

i)	Uncontrolled mosaics	6 sets
ii)	Contact prints	2 sets
iii)	Diapositive films	1 set
iv)	Diapositive films for orthophotography	1 set
v)	Two times enlargement photographs	1 set

2. Work done by BCGS Field Party :

During the period from February through April 1981, BCGS Field Party has carried out the following field work over the whole project area according to the "Manual of Guidelines for Field Identification".

a) Delineation of administrative boundaries.

b) Gathering of geographic names.

c) Road classification.

Due to lack of reliable information on the administrative boundaries in some areas, it was agreed that in the maps affected, the boundary as delineated by the field party shall contain the annotation "Approximate Boundary".

BCGS acknowledged and thanked JICA Survey Team for the logistical support extended to BCGS Field Party, particularly in providing additional transport just so

the fieldwork could be completed in accordance with the time table.

II. The Fourth Year Work (Phase IV)

1. Outline of the Work :

a. During the calendar year 1981, the following items of work will be carried out in Japan.

i) Aerial Triangulation

ii) Map compilation

iii) Orthophoto production

b. During the period from January through March 1982 supplementary field verification will be carried out in the project area.

2. Aerial Triangulation :

Aerial Triangulation will be carried out in the mapping area. The total mapping area will be divided into six blocks and each block will be adjusted separately. The number of flight lines of one block is approximately 2 to 12 while that of models of one block is approximately 30 to 300.

Procedure and accuracy specifications will be according to the "Technical Manual of Overseas Surveying of JICA".

Measurements will be done using stereo-comparators, and further processing will be done analytically with electronic computers. Main specifications are as follows :

i) Inner orientation (transformation from comparator system to photo system) the residuals at the fiducial marks $\leq$ 0.03 mm.

ii) Relative orientation :
The residual y-parallax $\leq$ 0.03 mm (in photo scale)

iii) Model connection :
The discrepancy at the pass points in adjacent models $\leq$ 0.5‰ of flying height in both plan and

height.

iv) Adjustment :

Method for :

1) Plan - The polynomial adjustment using a second order conformal transformation.

2) Height - The polynomial adjustment using a second order polynomial.

v) Accuracy :

The residuals at ground control points $\leq$ 0.8‰ of flying heights/the discrepancy at tie points $\leq$ 0.8‰ of flying height.

Accuracy - the residuals at ground control points $\leq$0.8‰ of flying height/the discrepancy at tie points $\leq$ 0.8‰ of flying height both plan and height.

3. Map Compilation

The plotting shall be carried out using stereo-plotting instruments at the scale of 1/25,000 with 10 meter contour interval. The detailed compilation will be done with help of the field identification results.

Bathimetric contour will be compiled using the data which will be provided by BCGS.

The number of sheets will be 71 or 72, the size of each sheet is 7'.5 x 7'.5.

Procedure and accuracy specifications will be according to the "Technical Manual of Overseas Surveying of JICA".

Main specifications are as follows :

i) plotting instruments : autograph A-8, Topocart B, or equivalent.

ii) relative orientation : residual y-parallax at six standard orientation points $\leq$ 0.02 mm in photo scale.

iii) absolute orientation : residual error at control points

Plan - $\leq$ 0.5 mm

Height - $\leq$ 1/4 x 10 m

iv) plotting accuracy

Plan 1 mm on the map

spot heights $\frac{10m}{3}$

Contour $\frac{10m}{2}$

In connection with the work in map compilation, BCGS commented that it appears that the original specification for maps at scale 1:25,000 has some minor deficiencies which may not warrant a satisfactory depiction of topographic features in the produced line maps. And considering the printing and cartographic capabilities of BCGS as well as the large number of topographic maps it has to produce to comply with its responsibilities, the ammendments of the present specification should be aimed to simplify the cartographic and printing work.

JICA Survey Team presented the recommended map symbols list which came from the cartographic consideration, and also presented samples of GSI symbol sheets as a reference. And the team pointed out the necessity of additional symbols. Such as weirs, land use boundaries etc. as a result of field identification surveys.

Finally it was agreed that BCGS would complete new map specifications considering the above mentioned situation. JICA recommendations and the "Manual of Guidelines for Field Identification". The new specifications must be completed and delivered to Japan by July 1981. (Refer to IV).

4. Orthophoto map Production

Orthophotomaps of the following areas will be produced using orthophoto instruments at the scale of 1:10,000, with annotation of geographical names as well as public

facilities, the selection of which will be the same as that of the 1:25,000 topographic maps, and with 5m contour.

i)	Tuguegarao, Cagayan	6 sheets
ii)	Port Irene, Sta. Ana, Cagayan	1 sheet
iii)	Gonzaga, Cagayan	1 sheet
iv)	Ilagan, Isabela	4 sheets

The sheet size will be 5 km x 5 km based on the Philippine Plane Coordinate System. The instrument to be used will be TOPOCART-ORTHO.

In line with the recent policy by BCGS in adopting the UTM on her topographic maps at Scale 1:10,000 and smaller and the adoption of a coordinated numbering system of topographic map coverage of the entire country from Scale 1:1,000,000 to scale 1:10,000, the following amendments in the production of orthophoto-maps in the project area was requested :

a) Using the UTM system instead of the PTM system (Philippine Transverse Mercator).

b) Map coverage of three minutes by three minutes or approximately 5.3 km. by 5.4 km. rather than the original proposal of 5 km. by 5 km.

JICA Survey Team stated that the alteration of the coordinate system to be based on and the change of the map coverage will be difficult and unrecommendable at this stage of the project because of the following reasons :

a) The number of necessary models for one orthophoto-map sheet will be increased, so the quality of the map will deteriorate considerably and the necessary work quantity will increase.

b) Additional computation work to convert PTM coordinate data to UTM coordinate data.

c) The orthophotomaps planned to be produced in this project are only 12 sheets and they are rather isolated from other project areas of orthophotomaps

productions planned in the near future. However grid ticks indication of longitude and latitude will be added on the sheet line.

JICA Survey Team promised that the request of BCGS will be transmitted to the Technical Advisory Committee of JICA.

5. Training in Japan

On-the-job training of Philippine counterparts in Japan will be in three shifts, of three months duration for each shift as follows :

a) Aerial Triangulation May - July 1981
b) Map Compilation (plotting) Aug. - Oct. 1981
c) Map compilation (editting) Nov. 1981 - Jan. 1982

Two trainees (Security Officers) will be accomodated for each shift of the above-mentioned program and they will come from the following agencies :

a) One Officer - J-2, AFP
b) One Officer - BCGS

The list of trainees for the first shift was handed over to JICA Survey Team.

The training will be done in accordance with the normal procedure under the Colombo Plan Technical Cooperation Scheme.

6. Supplementary Field Verification

Supplementary Field Verification will be conducted by JICA Survey Team with BCGS counterparts and BCGS field party. The map manuscript derived from the maps compilation will be used in undertaking the fieldwork.

Main items of verification will be as follows:

a) Sample checking of the planimetry and the elevation.

c) Verification of details which have been identified in the third year of the project.

c) Updating the planimetric details: Special attention will be made on the on-going infrastructure projects, such as high tension transmission lines and NIA (National Irrigation Administration), irrigation projects.

III. The Fifth Year Work

Tentative work scheme during the fifth year of the project will be discussed when the Fourth Year work will be terminated.

IV. Necessary material for later stages

BCGS will provide JICA Survey Team the following materials necessary in later stages of the project. They should arrive in Japan not later than July 1981 (except h & i).

a) Map Symbol Specifications for scale 1:25,000 topographic map.

b) Sample printed map sheet.

c) Master reproduction material of the marginal information format for scale 1:25,000 topographic map.

d) BCGS Seal (This will be incorporated in c).

e) Stick Up's Sample.

f) Photo setting type (Japanese photo setting type should be used).

g) Bathimetric data.

h) Master reproduction material of the marginal information format for Scale 1:10,000 orthophoto maps (to be brought along by the first shift of trainees).

i) Printing Press to be used by BCGS.

The specifications of the Roland Offset Printing Press (RZP 1-2 C, printing plate size 740 mm (circumference) x 925 mm (axis) which BCGS is intending to use in printing the Scale 1:25,000 topographic map series of

the country.

V. Final Delivery of orthophotomaps to BCGS

JICA will delivery the following final results of orthophotomaps production to BCGS by March, 1982.

a) Original orthophoto negatives
b) Contour overlays
c) Final orthophoto positive prints of Scale 1:10,000 (two sets)
d) Offset printing plates (film)

BCGS requested additional twenty positive diazo copies of each sheet, with which it will compliment various organizations related to this project such as the Governors of the Provinces of Cagayan and Isabela, the Mayors of Tuguegarao, Gonzaga, Santa Ana, and Ilagan, Ministry of Public Works, Ministry of Local and Community Development and etc.

VI. Others

1. The photographic materials which have been used in the field, such as mosaic photographs, contact prints, and etc. have been delivered to the Embassy of Philippines in Tokyo through the diplomatic channel, and they will be eventually handed over to JICA Survey Team in Japan.

2. Concerning JICA Land Cruiser station wagons :

a. Availability of JICA Vehicles

Relating to the 4th year work, BCGS requested JICA Manila Office to make some kind of arrangement in the availability of JICA's Survey Team vehicles.

In connection with the request, discussions were made and BCGS proposed the following conditions :

1) The Vehicles shall solely be used for the Project,
2) All the expenses related to maintenance and operation shall be borne by BCGS,
3) In case of accident, BCGS shall promptly inform all the details to the JICA Manila Office

and follow its directions,

4) BCGS shall, when necessary, bear the Minimum Charge for repairs, as the JICA Vehicles are all insured,

5) BCGS shall prepare Log Book for maintenance and operation of each vehicle.

Availability of the vehicles will be realized as soon as JICA Headquarter's approval.

APPROVED :

ANTONIO P. VENTURA, Commodore,
BCGS Director

MR. AKIRA YAGUCHI
Geographical Survey Institute

Date : 20 Apr 81

REPUBLIC OF THE PHILIPPINES
MINISTRY OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY
421 Barraca St., San Nicolas, Manila

MINUTES OF THE MEETING ON THE CAGAYAN VALLEY TOPOGRAPHIC MAPPING PROJECT

Dates: 7 and 8 September 1981

Place: Map Production Center Conference Room
Bureau of Coast & Geodetic Survey
Ministry of National Defense

Attended by:

B C G S		Embassy of Japan and JICA
Commo.	A. P. Ventura	Messrs. T. Shimogami, First Secretary, Embassy of Japan
Capt.	C. R. Pascual	
Lieut.	J. G. Isada	
	R. R. Pascua	S. Shino, JICA Team Leader
	R. J. Meris	
Messrs.	G. C. Angeles	A. Yaguchi, Geographical Survey Institute
	P. C. Ciceron	
	I. M. Serdar	
	B. E. Goodrick	H. Murayama, JICA Member
	K. M. Kulatunga	

Commo. A. P. Ventura, Director, BCGS, presided over the meeting. Before the meeting proceeded, the JICA mission presented the Annual Report on the Topographic Mapping Project for Cagayan Valley (3rd Year) to the Director. The following items were discussed and agreed upon:

I. Report on Present Progress Status

The JICA mission advised the progress status as follows:

a. Aerial Triangulation

Block adjustment has already been completed, subject to acceptance by JICA. JICA originally intended to adjust with 6 blocks, but after measurement, found that it can be processed with 5 blocks instead, with 200 to 300 models per block.

Tel. No. 47-96-11 to 14 Telex No. RCA 722-7373 CGS PH

b. Stereoplotting

6 sheets out of 72 sheets have been plotted.

c. Editing

One sheet has been compiled already, the TABUK area. JICA decided this to be the pilot sheet since it is the administrative center of Kalinga-Apayao, including typical topography features.

d. Orthophoto

The scanning stage is still in progress.

The JICA mission showed the TABUK Sheet and one orthophoto model for the purpose of process explanation.

II. Matters Concering Topographic Maps Scale 1:25,000

1. The following materials have been furnished to JICA by BCGS:

   a. Map Symbol Specification (Annex I - 5 copies)

   b. Master reproduction material of the marginal information format (2 sheets)

   c. BCGS Seal (contained in item b above)

   d. Stick-up samples (pattern screens -- 15 sheets)

   e. Photo typeset sample (Jap. Morisawa -- 8 sheets)

   f. Bathymetric Data (33 sheets)

   g. Corrected list of sheet names and sheet numbers and index (Annex II)

2. The materials that the JICA mission expect to receive no later than the middle of October, which should be hand-carried by Lieut. R. Feir:

   a. Colour separated master reproduction materials of the marginal information format

   b. Sample printed map sheet

   c. Part of stick-up samples (P1, P9, P13, P18)

   d. Magnetic Declination data

3. The new map symbol specification (Annex I) was discussed, and some corrections on omissions and discrepancies were made.

   Also, some alterations were proposed. So, it was agreed that this problem will be resolved at the next meeting (Annex III).

4. Concerning the new map symbol specifications, the following agreements were made:

   a. In case of conflicts, the previous agreement on standards and specifications on topographic mapping, 1:25,000 scale, will be adhered to. However, the new specification will be followed for the finished product.

   b. It was agreed that a statement on map accuracy will be omitted from printed maps in the project area.

   c. The BCGS will determine the classification of geographic names according to importance, and JICA will amend as recommended. The BCGS will classify geographical names by end of February.

   d. Barangay boundaries will not be put in this map series.

   e. It was agreed that roads not already classified as National or Provincial Highways may be designated as barangay roads.

5. Work flow on Cartography has been presented. A sample of specification of map paper were submitted for evaluation. The BCGS will advise JICA as to acceptability of the map paper next meeting.

6. If the difference between the field classification and photo interpretation on instrument concerning road surface arises, JICA will give priority to the latter.

III. Matters Concerning Orthophoto Maps Scale 1:10,000

1. The following materials have been transferred to JICA from BCGS:

   a. Master reproduction material of the marginal information format (standard for UTM system), and

   b. List of proposed sheet names and sheet numbers and index diagrams (Annex IV).

2. Final agreement of projection

In order to avoid extra effort on the part of JICA, BCGS agreed to treat the Cagayan Valley OPMS as non-standard, adopting the PTM projection, but will not allocate PTM numbers. However, the following information should be included:

Part of Philippine National OPM Series
1:10,000 Sheets _____, etc.

3. The geographical names on the topo map 1:25,000 series will be adopted to the orthophoto map 1:10,000 series, but if lettering is not appropriate, JICA will use their discretion.

IV. Other Matters

1. Security Officer

JICA requested BCGS to process the papers for the next security officer much earlier than before. He suggested the following schedule for the next batch of trainees (security officers):

2nd batch -- 15 October to 23 December 1981
(should arrive 12 October at the latest)

3rd batch -- 11 January to 30 April 1982 (nominations should reach the Embassy of Japan by end of November)

It was further requested that J2 be informed of the above schedule.

2. In addition to the pilot sheet of TABUK, survey team will provide BCGS some dyeline copies of plotted manuscripts in advance, as soon as ready, for use of BCGS in preparation for their field completion and editing.

3. The JICA survey team completion party work shall be confined only to editing or completion of portion of the sheets where there are on-going infrastructure projects not existing before at the time when the photographs were taken, and will also do a sampling check in any specific area in the region.

The JICA survey team will arrive on 4 January 1982, and they request that the following be provided by BCGS:

a. Provision for security and safety of the JICA mission,

b. Drivers, maximum of 10, and

c. Liaison officers/BCGS counterpart field completion party (3)

Instructions to counterpart, field completion party, shall include field editing of the map sheets as follows:

a. Geographical names,

b. Administrative boundaries, and

c. Road classification.

4. Official Presentation of Orthophoto Maps by the Japanese Government to the Philippine Government

Shall be tentatively held on January 1982. Preliminary discussion has been held between the representative of the Embassy of Japan and the JICA mission on one hand and the representative of the Ministry of National Defense and the representative of the BCGS on the other hand. Specific details will be discussed later on between the said parties.

APPROVED:

ANTONIO P. VENTURA, Commo. (Ret.), BCGS
Director

AKIRA YAGUCHI
Geographical Survey Institute

10th September, 1981
Date

TOPOGRAPHIC MAPS FOR CAGAYAN VALLEY MAPPING PROJECT

Scale 1:25,000

	Sheet No.	Name of Sheet
1.	3238 - III C	CLAVERIA
2.	3238 - III B	SANCHEZ MIRA
3.	3238 - II C	BALINGUIT
4.	3237 - IV A	MASI
5.	3237 - I D	PAMPLONA
6.	3237 - I A	ABULUG
7.	3337 - IV D	BALLESTEROS
8.	3437 - IV D	BATULINAO POINT
9.	3437 - IV A	SANTA ANA
10.	3237 - I B	SANTA MARCELA
11.	3337 - IV C	BANGAG
12.	3337 - IV B	APARRI
13.	3337 - I C	BUGUEY
14.	3337 - I.B	GONZAGA
15.	3437 - IV C	IPIL
16.	3437 - IV B	MOUNT TAPHA
17.	3237 - II A	FLORA
18.	3337 - III D	ALLACAPAN
19.	3337 - III A	LAL-LO
20.	3337 - II D	PACAC
21.	3337 - II A	DONGENG
22.	3437 - III D	MOUNT CAGUA
23.	3237 - II B	SICALAO
24.	3337 - III C	LASAM
25.	3337 - III B	GATTARAN
26.	3337 - II C	CAPISAYAN
27.	3236 - I A	LUGIRAO
28.	3336 - IV D	SANTA FELICITAS
29.	3336 - IV A	ALCALA
30.	3336 - I D	BACGAO
31.	3236 - I B	GADDANGAO
32.	3336 - IV C	TABANG
33.	3336 - IV B	AMULUNG
34.	3336 - I C	JUNGLE MOUNTAIN
35.	3236 - II A	TUAO
36.	3336 - III D	GADU
37.	3336 - III A	SOLANA
38.	3336 - II D	CALLAO
39.	3236 - II B	CAMCAMALOG
40.	3336 - III C	CABARITAN
41.	3336 - III B	TUGUECARAO
42.	3336 - II C	TAGGA
43.	3235 - I A	TABUK
44.	3335 - IV D	SANCHEZ
45.	3335 - IV A	DALAG

46.	3335 - I D	CABAGAN
47.	3335 - IV C	BARUCBUC
48.	3335 - IV B	ANEG
49.	3335 - I C	TUMAUINI
50.	3335 - III D	MALLIG
51.	3335 - III A	HOLY FRIDAY
52.	3335 - II D	MANCURAM
53.	3335 - II A	ILAGAN
54.	3335 - III C	CALLANG
55.	3335 - III B	BURGOS
56.	3335 - II C	NAGUILIAN
57.	3335 - II B	YEBAN
58.	3334 - IV D	MARASAT GRANDE
59.	3334 - IV A	CABATUAN
60.	3334 - I D	CAUAYAN
61.	3334 - I A	SAN MARIANO
62.	3334 - IV C	RAMON
63.	3334 - IV B	ALICIA
64.	3334 - I C	SINALUGAN
65.	3334 - I B	MADALAN RIVER
66.	3334 - III D	SANTIAGO
67.	3334 - III A	ECHAGUE
68.	3334 - II D	MACALAUAT
69.	3334 - III C	CABARROGUIS
70.	3334 - III B	JONES
71.	3334 - II C	LINOMUT
72.	3238 - III A	PATA POINT

Republic of the Philippines
Ministry of National Defense
BUREAU OF COAST AND GEODETIC SURVEY
M a n i l a

TOPOGRAPHIC MAPS FOR CAGAYAN VALLEY MAPPING PROJECT
SCALE 1:25,000

MAGNETIC DECLINATION

SHEET NO.			MAGNETIC DECLINATION FOR 1980
3238	–	III A	1° 30' W
3437	–	IV D	
3437	–	IV A	
3238	–	II C	1° 25' W
3238	–	III B	
3238	–	III C	
3237	–	I A	
3237	–	I B	
3237	–	I D	
3237	–	II A	
3237	–	IV A	
3337	–	I B	
3337	–	I C	
3337	–	II A	
3337	–	II D	
3337	–	III A	
3337	–	III D	
3337	–	IV B	
3337	–	IV C	
3337	–	IV D	
3437	–	III D	
3437	–	IV B	
3437	–	IV C	
3237	–	II B	3337 IIC
3337	–	III B	1° 20' W
3337	–	III C	
3236	–	I A	
3336	–	I C	
3336	–	I D	
3336	–	IV A	
3336	–	IV B	
3336	–	IV C	
3336	–	IV D	

SHEET NO.			MAGNETIC DECLINATION FOR 1980
3236	–	I B	1° 15' W
3236	–	IIA	
3236	–	II B	
3336	–	II C	
3336	–	II D	
3336	–	III A	
3336	–	III B	
3336	–	III C	
3336	–	III D	
3335	–	I D	
3335	–	IV A	
3335	–	IV D	
3235	–	I A	1° 10' W
3235	–	I C	
3235	–	II A	
3235	–	II B	
3235	–	II C	
3235	–	II D	
3235	–	III A	
3235	–	III B	
3235	–	III D	
3235	–	IV B	
3235	–	IV C	
3334	–	IA	
3335	–	III C	1° 05' W
3334	–	I B	
3334	–	I C	
3334	–	I D	
3334	–	II D	
3334	–	III A	
3334	–	IV A	
3334	–	IV B	
3334	–	IV C	
3334	–	IV D	
3334	–	II C	1° 00' W
3334	–	IIIB	
3334	–	III C	
3334	–	III D	

NOTE : FOR ALL SHEETS THE ANNUAL VARIATION IS 3' W

ANNEX III

AMENDMENTS OF MAP SYMBOL SPECIFICATION

1. Road Symbols (2.2 and 2.3)

JICA is of the opinion that the National and Provincial Highway symbols should be tinner than specified.
On 2.5 -- Trail, likewise, JICA thinks this to be too heavy and recommends the line to be less than 0.2 mm.
JICA recommended tht Gravel nd Erth should be a single classification. BCGS would consider the recommendtions at the time of test printing.

2. Section 4, Page 3 (4.8 and 4.9)

Route Markers -- should be drawn at the size in the Specifications Manual. The 10 mm has been erroneously indicated. To be corrected. Variation for 2-digit names is allowed.

3. Section 5, Page 1 -- Built-Up Areas

There is no symbol for this, BCGS will include in the specification.

4. Section 5, Page 5

Symbols for :

Provincial Capitol -- should be PG (Provincial Government)
Municipal Building -- change to MH (Municipal Hall)
School -- to be symbolized by a flag or pernnant
Ruins -- to be symbolized by a broken line
Hospital -- should be H only
Chimney
Radio Mast — Describe as necessary
Tower

It should be noted that above changes should also appear in the Legend.

5. Section 6, Pages 3 and 4

Spot Elevation -- should be brown instead of black.
Boundary Line, Airport -- outline of runway should be included in a thin line (0.1 mm).

6. Section 7, Page 1 (7.6.2)

Amend. Should be Municipal or City instead of Provincial or City.
Clarification : City should be equivalent to municipality NOT province. Specs to be amended.

7. Section 8, Page 7

Contour interval (topograph), should be as follows for 1:25,000:

Depth Contour -- 20 m.
Index Contour -- 100 m.

It should be noted that the following should be:

For Land -- 10 m.
For Sea -- 20 m.

Scale will be amended to correct interval.

8. Section 9, Page 3

Cliff -- Amendment for black to brown, 0.5 instead of 0.6 mm. For further study by BCGS.

9. Section 11, Page 7

Geographical Names -- the point and size of name will depend upon the size of town or municipality.
It should be noted that the Regional Boundary is also the Provincial Boundary -- hence, it will appear like this : Regional Boundary and Region No. first, followed by the Provincial Boundary name.

MINUTES OF THE MEETING ON THE CAGAYAN VALLEY TOPOGRAPHIC MAPPING PROJECT

Dates : 8 - 21 January 1982
place : Map Production Center Conference Room
Bureau of Coast and Geodetic Survey
Ministry of National Defense

ATTENDED BY :

B C G S

Commodore Antonio P. Ventura
Captain Mamerto S. Gler
Lcdr. Renato B. Feir
Lcdr. Rodrigo R. Pascua
Lt. Jose Galo Isada, Jr.
Lt. Basilio D. Apostol

EMBASSY OF JAPAN

Mr. Tamio Shimogami - First Secretary

J I C A

Mr. Akira Yaguchi - Geographical Survey Institute
Mr. Shigehiko Shino - Team Leader
Mr. Toshimasa Nagashima - Deputy Team Leader
Mr. Chuji Misawa - Chief Surveyor
Mr. Yoshihiro Kuriyama - Chief Cartographer
Mr. Fuminori Nofuku - Coordinator

The following matters pertaining to the Cagayan Valley Topographic Mapping Project were discussed and confirmed by both parties :

1. Report on present progress status of mapping project :

The JICA mission advised the progress status of the 4th stage of the mapping project as follows :

1.1 Orthophoto :

The preparation of orthophoto maps at scale 1:10,000 for Gonzaga, Casambalangan, Ilagan and Tuguegarao have been completed. The following products/ by products of orthophotomaps production were left under the custody of BCGS.

39 Pcs.	-	Orthophoto Negative Films
12 Pcs.	-	Mosaic Positive Films
12 Pcs.	-	Original Contour overlay sheets
12 Pcs.	-	Negative Films for Photographs
12 Pcs.	-	Original Marginal Borders
12 Pcs.	-	Negative Films, Marginal Border
12 Pcs.	-	Positive Films, Printing

12 Pcs. - Negative Films, Printing
12 Pcs. - Positive Films, Diazo Copy
180 Pcs. - Orthophoto Diazo Copies (15 sets of 12 sheets/set)
84 Pcs. - Orthophoto (7 sets of 12 sheets/set)

1.2 Stereoplotting :

Plotting for the 72 map sheets covering the whole project area have been completed.

1.3 Editing :

Editing of the 72 map sheets have been completed. Bathymetric data furnished by BCGS was likewise incorporated in the sheets. Diazo copies of the compilation sheets were prepared for use in the field verification and completion work.

1.4 Sample Map Sheet :

A colored sample map sheet in the project area using BCGS specifications was prepared and presented to BCGS for comments.

2. Turn-over of Orthophoto Maps :

It was agreed that the Ambassador of Japan, in behalf of the Government of Japan, will officially turn over the orthophoto maps to the Minister of National Defense in behalf of the Philippine Government. The final date will be arranged by the BCGS and the Embassy of Japan, preferrably on the last week of February 1982.

3. Outline of field completion survey :

3.1 Field survey by the JICA Team :

a) The JICA survey team shall confine their field completion on areas where there are on-going infrastructure projects not existing during the time of photography.

b) Random check of elevation and planimetry.

c) Confirm topography.

d) Delineate high tension power transmission lines and NIA projects.

e) Delineation of vegetation limits on uncultivated areas will be upgraded.

All the above fieldwork will be limited on areas near highways.

3.2 Field Survey by the BCGS Team :

a) Collate and check data on administrative boundaries.

b) Collate and check geographical names and other nomenclatures like names of large bridges, creeks and rivers and prominent schools and government buildings etc. Place names shall be annotated on the field completion sheets and corresponding letter sizes shall also be indicated, depending on their importance.

c) Gather information on road classifications and their respective names.

d) Act as coordinator/liason officers of the combined BCGS/JICA survey parties, with local officials.

4. Administrative matters concerning field survey :

4.1 BCGS shall deploy four (4) commissioned officers and four (4) enlisted personnel as counterpart on the 4th stage of the project. Travel and miscellaneous expenses by these personnel shall be provided by BCGS.

4.2 Eight (8) BCGS drivers shall be provided the JICA survey teams. Allowances for these personnel shall be borne by the JICA Team.

4.3 JICA team leader requested that instructions on safety shall be dessiminated and emphasized to the BCGS drivers. Likewise good public relations and courtesy must always be exercised by both BCGS and JICA team members with the local people, in order not to create unnecessary problems.

4.4 JICA team leader requested that BCGS prepare letters to different Government officials in the region, informing them of the presence of the BCGS - JICA survey teams, and requesting these officials for whatever assistance they can provide the fieldmen.

4.5 JICA agreed to provide vehicles for use of the BCGS counterpart.

4.6 Field annotation sheets of BCGS will be checked and submitted to the JICA Team. These will be authoritative and no changes and/or alterations will be accepted once scribing started.

5. Cartographic Matters :

JICA Survey Team prepared and submitted a colored sample map sheet and a table of specifications for study by the BCGS and JICA mission. The following were agreed upon :

5.1 The table of symbol specifications was studied. Corrections and/or alterations were made. The corrected symbol specification will be adhered to by JICA as per Annex I.

5.2 The types and sizes of letters to be used in the topographic maps were discussed. It was agreed that the equivalent of the Morisawa type set will be utilized by JICA. Corresponding letter types and sizes were then selected and compiled in a table form as per Annex II.

5.3 The 120 lines/inch type of screen was agreed as a substitute with the 133 lines/inch screen for use in all screen work.

5.4 Marginal Information :

a) Region No., Province and Municipality at the upper left hand corner shall correspond with the name of the sheet.

b) Add the term " DEPTH CONTOUR INTERVAL 20 METERS " below the graphic scale.

c) The footnote at the bottom left hand corner will be checked. The information for MAP ACCURACY will be deleted and instead information to the effect that boundary information is not authoritative will be indicated.

d) The Index to Adjoining Sheet will carry the title and the map number of the particular sheet and all others will have the map number only. BCGS provided the map numbers for areas adjoining the project areas. Names that are too long and composed of two or more words will be indicated on two lines.

e) Shoreline at the Locality Diagram should be shown in Black.

f) Angles of the magnetic declination should be shown smaller than that in sample map sheet. Values of the magnetic declination be expressed to the nearest 5 minutes reckoned from true north and the direction E or W be indicated. Values of convergence of the meridians should be expressed in minutes and nearest seconds. Both values shall be indicated with 2 digit numbers, except the degrees part.

g) Delete Project Registration Number, e.g. BCGS 81-06 at lower right hand corner.

h) BCGS provided a format as per Annex III, indicating positions, letter types and sizes of marginal information.

i) Symbol for lighthouse shall be included in the legend.

j) BCGS provided sample legend based on corrected map symbols and specifications.

k) Edition number shall be : EDITION 1 1983.

5.5 Additional Information on Symbols :

a) Letters of regions, provinces and municipalities along the borders will be reduced to size 9, so with the term " ALIGNMENT APPROXIMATE ". The term maybe omitted on very short boundary lines or where the space is congested.

b) Name of municipalities shall only be placed at the town proper and not on their administrative areas.

c) Large buildings and bridges are to be annotated if space permits.

d) Symbols of buildings that are adjacent to road system shall retain their position, but the symbolization like flag, cross etc. can be rotated.

e) Road Names - Roads will be indicated by route markers. However all unnumbered roads or highways shall be annotated according to administrative classification such as "National Highway", "Provincial Road". In case the road is of significant importance whether numbered or unnumbered, the name of the road shall be annotated.

f) Contour values - shall be indicated on map sheet following the "UP SLOPE" rule.

g) Fruit trees - will be generalized and annotations be omitted if not photo identified.

h) Tree rows - Only those remarkable as landmark will be shown.

i) Siphon - Dash line will be adopted as symbol, and on large projects these will be annotated.

j) Coral Reef - adopt symbol for reef.

k) Ferry - Annotation should only be used on large crossing where vehicles, people and cargoes can be carried over.

l) Breakwater which cannot be plotted to scale will be omitted.

m) Annotations for permanent or man-made features like post office, government buildings, hospitals, towers and the like shall be vertical. Annotations for running features shall be slanting.

n) Eliminate names and numbers of control stations, but height information shall be indicated if available.

o) Bridges less than 20 meters shall be symbolized as culverts.

p) Tower - All structures like chimney, radio mast and the like shall all be annotated "Tower".

5.6 Additional Information :

a) Depth curves checked and confirmed by BCGS will be provided to JICA.

b) Bench marks not recovered during the third phase of the survey shall not be included on the map.

6. Other Matters :

6.1 BCGS informed the JICA mission that Lt. Macaraeg of BCGS and Major Marannon of J-2 have already completed their papers regarding training/security work in Japan. Papers were already submitted to JICA Manila and waiting for approval of the JAPANESE GOVERNMENT. BCGS and J-2 will help facilitate travel papers for security officers once approval be received.

6.2 BCGS requested the JICA mission that trainees on Cartography and Map Reproduction shall be considered on the next phase of the project.

6.3 BCGS requested also JICA to admit responsible BCGS officer to Japan to inspect mapping materials before reproduction commence.

6.4 BCGS reiterated request for the donation of the JICA vehicles used in the CAGAYAN VALLEY TOPOGRAPHIC MAPPING PROJECT to the BCGS. Letter request was already forwarded to JICA Manila.

ANTONIO P. VENTURA, Commodore, BCGS (Ret.)
Director

AKIRA YAGUCHI
Geographical Survey Institute

Bureau of Coast and Geodetic Survey

21 Jan 87
Date

Republic of the Philippines
Ministry of National Defense
BUREAU OF COAST AND GEODETIC SURVEY
M a n i l a

MINUTES OF THE MEETING ON THE CAGAYAN VALLEY TOPOGRAPHIC MAPPING PROJECT

D a t e s : 24 February - 3 March 1982

P l a c e : Map Production Center Conference Room
Bureau of Coast and Geodetic Survey
Ministry of National Defense

ATTENDED BY :

B C G S	J I C A
Commodore Antonio P. Ventura	Mr. Ryo Saita - Geographical Survey Institute
Capt. Mamerto S. Gler	Mr. Shigehiko Shino - Team Leader
Lcdr. Renato B. Feir	Mr. Toshimasa Nagashima - Deputy Team Leader
Lcdr. Rodrigo R. Pascua	Mr. Haruo Wada - Coordinator
Lt. Basilio D. Apostol	Mr. Atsushi Okuizumi - Coordinator
Lt. (jg) John C. Muyargas	Mr. Isamu Saito - Staff Member

The following matters regarding the 4th stage of the Cagayan Valley Topographic Mapping Project were discussed and confirmed by both parties.

1. Accomplishment during the 4th stage :

1.1 Field survey by the JICA Team :

a. All work stipulated on paragraph 3.1 on the minutes of the meeting on 8-21 January 1982, were accomplished.

b. All municipal halls and some other government buildings were photo-identified and verified.

c. Measured lengths of bridges that were annotated and which are more than forty (40) meters.

NOTE :

1. Field verification at the vicinity of the Chico Diversion Dam at Tabuk, Kalinga-Apayao was not undertaken due to the deteriorating peace and order condition in the area.

2. Random check of elevation were undertaken on the following map sheets: SAMPAGUITA: TALLAG: BURGOS: AND SAN MATEO.

Random check of planimeteric details were made on the following map sheets: APARRI: RIZAL: SANTIAGO and NAGUILIAN (Appendix 3).

Results of random check both in elevation and planimetry were all within the tolerance limits.

1.2 Field survey by the BCGS :

All fieldwork agreed on paragraph 3.2 of the minutes of the meeting on 8-21 January 1982, were undertaken.

2. Problems encountered :

2.1 Annotations :

a. Roads will be annotated following two (2) criteria :

i) Names are significant

ii) Space in the map sheet permits annotation and will not congest the area.

Positioning of route markers shall be oriented to the grid north.

b. Bridges will be annotated following the two (2) criteria for road annotation mentioned above.

c. BCGS survey teams verified titles of map sheets and found out that some were misspelled and others were no longer applicable. It was then decided that titles in error will be changed. Appendix I carries the new map titles.

d. Provincial capitols and other similar government facilities will be annotated with complete name if space permits.

2.2 Cartographic Matters :

a. Symbol for slope will be eliminated.

b. Symbol for built up areas will utilize screen D 120-45-20 instead of LT-22. This will have RED color.

c. Symbol for intermittent and indefinite streams will follow BCGS specifications except the gap which will be 1.0 instead of 0.5.

d. BCGS request JICA for following :

i) Complete set of the 120 lines per inch screens used in the proejct.

ii) Reproducible of master border.

iii) A complete tabulation of all symbols and specifications used in the project. (ANNEX I of the minutes of the meeting on 8-21 January 1982).

e. Any symbol/specification that will be used in the project but were not taken up by BCGS and JICA, will be resolve by the latter with prior notification of the former.

f. Sheet arrangement on the Index to adjoining sheet having odd number of sheets will be left at the discretion of JICA.

g. Swampy areas at the vicinity of Buguey will be symbolized at the descretion of JICA.

3. Schedules - Activities for Fiscal Year 1982 :

3.1 May - December 1982 - Cartographic Compilation

December 1982 - January 1983 Reproduction

February 1983 - Transport of maps/records including all by products to the Philippines.

March 1983 - Turn-over of maps to the Philippine Government.

3.2 Training - - -

a. May - August 1982 - 2 trainees for Cartography

b. September - December 1982 - 2 trainees for Cartography and Reproduction

c. December - 1 Senior trainee for Reproduction and Management in map production.

BCGS reiterates request for trainees in cartography and reproduction on the above schedules. Likewise BCGS reiterates request for the Director or his authorized representative to inspect map reproducibles before the start of printing.

4. Miscellaneous :

4.1 Comments on the turn-over ceremonies of the orthophoto maps under this project. Attached herewith is the program of activities during the turn-over ceremony of the orthophoto maps (Appendix 2).
High official of the Ministry of National Defense and local government officials including the Vice Governor of Cagayan and the Mayor of Tuguegarao, Cagayan attended the ceremony. Philippine officials express their appreciation, to the Japanese government for the mapping assistance extended to the country.

4.2 Plans for the turn-over of the Topographic maps.
JICA suggested that if possible the President will receive the topographic maps in behalf of the Republic of the Philippines but official plans for this ceremony will be made on the next visit of the JICA Team Leader.

BCGS suggested that ranking officer of Geographical Survey Institute be likewise be present at the ceremony.

4.3 Proposal of a Japanese expert on mapping and charting.

The JICA mission thru Mr. Ryo Saita of the Geographical Survey Institute of Japan offered to BCGS the services of a Japanese expert in surveying and mapping to assist BCGS on different phases of mapping. The expert can assist on Project Identification, Technology Transfer and also on particular phases of mapping like data acquisition and computerization. BCGS was receptive of this proposal and promised to follow this matter with the Japan Embassy. BCGS would appreciate very much if Japan can assist this agency both on bathymetric and topographic mapping. BCGS suggested the possibility for JICA to extend the Cagayan Valley Mapping towards the western part of Luzon or the island of Palawan. JICA promise to look into this matter.

BCGS request the possiblity of acquiring Satellite Imageries of the Philippines from the Japan receiving station and the JICA mission will look into the possibility of this request.

4.4 Review of Over-all Training at Japan.

The JICA mission thru Mr. Haruo Wada informed BCGS that Japan is open for trainees from the Philippines, both on individual and group training. BCGS emphasized that training on surveying and mapping is very much needed and would appreciate if this will be extended to BCGS personnel.

4.5 Awarding of certificates to the JICA survey team.

The Director of the Bureau of Coast and Geodetic Survey awarded a plaque of appreciation to the JICA Team Leader and Certificates of Appreciation to the Team members for their diligence and untiring effort in making possible the production of a large scale map coverage of Cagayan Valley needed for the socio-economic development of the region.

ANTONIO P. VENTURA
Commodore, BCGS (Ret.)
Director
Bureau of Coast and Geodetic Survey

RYO SAITA
Geographical Survey Institute

3 March 1982
D a t e

No.

TOPOGRAPHIC MAPS FOR CAGAYAN VALLEY MAPPING PROJECT. Scale 1:25,000

SHEET No.	NAME OF SHEET	CORRECTED NAME OF SHEET	TOWN	PROVINCE
1. 3238 – III A	PATA POINT		CLAVERIA	CAGAYAN
2. 3238 – III C	CLAVERIA		CLAVERIA	– do –
3. 3238 – III B	SANCHEZ MIRA		SANCHEZ MIRA	– do –
4. 3238 – II C	BALINGUIT	BALINGIT	PAMPLONA	– do –
5. 3237 – IV A	MASI	KITTAG	SANCHEZ MIRA	– do –
6. 3237 – I D	PAMPLONA		PAMPLONA	– do –
7. 3237 – I A	ABULUG		ABULUG	– do –
8. 3337 – IV D	BALLESTEROS		BALLESTEROS	– do –
9. 3437 – IV D	BATULINAO POINT	PORT IRENE	STA. ANA	– do –
10. 3437 – IV A	STA. ANA		STA. ANA	– do –
11. 3237 – I B	STA. MARGELA		STA. MARGELA	KALINGA-APAYAO
12. 3337 – IV C	BANGAG		APARRI	CAGAYAN
13. 3337 – IV B	APARRI		APARRI	– do –
14. 3337 – I C	BUGUEY		BUGUEY	– do –
15. 3337 – I B	GONZAGA		GONZAGA	– do –
16. 3437 – IV C	IPIL		GONZAGA	– do –
17. 3437 – IV B	MOUNT TAPHA		STA. ANA	– do –
18. 3237 – II A	FLORA		FLORA	KALINGA-APAYAO
19. 3337 – III D	ALLACAPAN		ALLACAPAN	CAGAYAN
20. 3337 – III A	LAL-LO		LAL-LO	– do –
21. 3337 – II D	PACAC	TABBAC	BUGUEY	– do –
22. 3337 – II A	DONGENG	STA. TERESITA	STA. TERESITA	– do –
23. 3437 – III D	MOUNT CAGUA	STA. CLARA	GONZAGA	– do –
24. 3237 – II B	SICALAO		LASAM	– do –
25. 3337 – III C	LASAM		LASAM	– do –
26. 3337 – III B	GATTARAN		GATTARAN	– do –
27. 3337 – II C	CAPISAYAN	CAPISSAYAN	GATTARAN	– do –
28. 3236 – I A	LUGIRAO	CULONG	STO. NIÑO	– do –
29. 3336 – IV D	STA. FELICITAS	STO. NIÑO	STO. NIÑO	– do –
30. 3336 – IV A	ALCALA		ALCALA	– do –
31. 3336 – I D	BAGGAO		BAGGAO	– do –
32. 3236 – I B	GADDANGAO	PIAT	PIAT	– do –

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TOPOGRAPHIC MAPS FOR CAGAYAN VALLEY MAPPING PROJECT Scale 1:25 000 No. _____

SHEET NO.	NAME OF SHEET	CORRECTED NAME OF SHEET	TOWN	PROVINCE
33. 3336 - IV C	TABANG		STO. NIÑO	CAGAYAN
34. 3336 - IV B	AMULUNG		AMULUNG	-do-
35. 3336 - I C	JUNGLE MOUNTAIN		PEÑA BLANCA	-do-
36. 3336 - II A	TUAO		TUAO	-do-
37. 3336 - III D	GADU	SAMPAGUITA	SOLANA	-do-
38. 3336 - III A	SOLANA		SOLANA	-do-
39. 3336 - II D	CALLAO	PEÑABLANCA	PEÑABLANCA	-do-
40. 3336 - II B	CAMCAMALOG	CAMALOG	PINUKPUK	KALINGA-APAYAO
41. 3336 - III C	CABARITAN	RIZAL	RIZAL	-do-
42. 3336 - III B	TUGUEGARAO		TUGUEGARAO	CAGAYAN
43. 3336 - II C	TAGGA	TAGGA-DADDA	TUGUEGARAO	-do-
44. 3335 - I A	TABUK		TABUK	KALINGA-APAYAO
45. 3335 - IV D	SANCHEZ	NAMBARAN	TABUK	-do-
46. 3335 - IV A	DALAG	TALLAG	CABAGAN	ISABELA
47. 3335 - I D	CABAGAN		CABAGAN	-do-
48. 3335 - IV C	BARUCBUC	QUEZON	QUEZON	-do-
49. 3335 - IV B	ANEG	BARUMBUNG	STO. TOMAS	-do-
50. 3335 - I C	TUMAUINI		TUMAUINI	-do-
51. 3335 - III D	MALLIG		MALLIG	-do-
52. 3335 - III A	HOLY FRIDAY		MALLIG	-do-
53. 3335 - II D	MANGURAM	MANGCURAM	ILAGAN	-do-
54. 3335 - II A	ILAGAN		ILAGAN	-do-
55. 3335 - III C	CALLANG	ROXAS	ROXAS	-do-
56. 3335 - III B	BURGOS		BURGOS	-do-
57. 3335 - II C	NAGUILIAN		NAGUILIAN	-do-
58. 3335 - II B	YEBAN	SAN ANTONIO	ILAGAN	-do-
59. 3334 - IV D	MARASAT GRANDE	SAN MATEO	SAN MATEO	-do-
60. 3334 - IV A	CABATUAN		CABATUAN	-do-
61. 3334 - I D	CAUAYAN		CAUAYAN	-do-
62. 3334 - I A	SAN MARIANO	BENITO SOLIVEN	BENITO SOLIVEN	-do-
63. 3334 - IV C	RAMON		RAMON	-do-
64. 3334 - IV B	ALICIA		ALICIA	-do-

No. _____

TOPOGRAPHIC MAPS FOR CAGAYAN VALLEY MAPPING PROJECT Scale 1:25,000

SHEET No.	NAME OF SHEET	CORRECTED NAME OF SHEET	TOWN	PROVINCE
65. 3334 - I c	SINALUGAN	LAPPAL	CAUAYAN	ISABELA
66. 3334 - I B	MADALAN RIVER	VILLA CONCEPCION	CAUAYAN	- do -
67. 3334 - III D	SANTIAGO		SANTIAGO	- do -
68. 3334 - III A	ECHAGUE		ECHAGUE	- do -
69. 3334 - II D	MACALAUAT	SAN GUILLERMO	SAN GUILLERMO	- do -
70. 3334 - III C	CABARROGUIS		CABARROGUIS	- do -
71. 3334 - III B	JONES		JONES	- do -
72. 3334 - II C	LINOMUT	LINOMOT	JONES	- do -

P R O G R A M

MINISTRY OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
THE JAPANESE EMBASSY

PRESENTATION CEREMONY
OF ORTHO-PHOTO MAPS TO BE HELD
ON 1000 HRS. 24 FEBRUARY 1982 AT
MONO HALL OF FLAGS
Camp Aguinaldo, Quezon City

TURN OVER OF THE ORTHO-PHOTO MAPS OF THE BCGS - JICA
MAPPING PROJECT IN CAGAYAN BY JAPANESE GOVERNMENT
TO THE PHILIPPINE GOVERNMENT

1.	NATIONAL ANTHEMS -	PHILIPPINES AND JAPAN
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COCKTAIL FOLLOWS

THE BRIEF STATEMENT BY
JICA-IECA REPRESENTATIVE MR. S. SHINO
(CAGAYAN VALLEY MAPPING TEAM LEADER)

H.Exc. Juan Ponce Enrile, Minister of National Defence, Hon. Hideo Tanaka, The Embassador of JAPAN, Distinguished Guests and My Colleagues from BCGS and My Team, it is my honor and pleasure to deliver a statement on this occasion for the Turn-Over of the Ortho-Photo Maps to the Government of the Philippines.

Since I have been involved in this project from the phase of contact and feasibility study mission in 1978 as a JICA Delegate, and as Team Leader for the Project Execution from 1979; allow me to give brief explanation on the Project.

This project has been excuted on 1979 as a part of Technical Cooperation by the Japanese Government, in responce to the request made by the Philippine Government, which fulfill the need of your government to accerelate National Mapping Program and development of the country.

The area, is ranging from Claveria as North-West and San Vicente as North East end and Cabarroguis as South end, and is covering Cagayan River Basin of Provinces of Cagayan, Isabera, Kalinga-Apayao, Quirino, Ifugao and part of Mountain Province, for Topographic Map of 1/25,000 and also project includes Ortho-Photo Maps of 1/10,000 for Ilagan, Tuguegarao, Gonzaga and Port Irene.

We are now in the end of 4th year stage and we will complete cartographic and reproduction work in the beginning of 1983. And final products, 1/25,000 five color print map of 72 sheets covering 11,500km^2 will be turned over to your government in March 1983.

Ortho-Photo Maps, which are now going to be turned over your Excellency by our Ambassador, are not aerial photo mosaic. Ortho-Photo Map is orthogonaly projected aerial photographs, which are eliminated all distortions of terrain relief due to the central projected image through aerial camera lens system, and as accurate as large scale line map but includes much more detailes and informations, and further includes elevation informations, and further includes elevation information i.e. contour line and spot height.

Therefore, this 1/10,000 Ortho-Photo Map can be used as Town Planning Map for urban and community development and also as Engineering Map for various infrastructure planning.

We will turn over to BCGS Original Ortho-Photo, which is now on display to the guests, and also some 20 extra copies for immidiate use for various agencies concerned. Delivery items include, also positive transparencies, ready for Off-Set Printing for publication by my Counter Part BCGS. I do hope the publication come out by BCGS very soon.

In this oportunity, I want to emphasize to the Guests that the Geodetic Controls, Topo-Map including Ortho-Photo and Hydrographic Chart are the BASIC SOCIAL CAPITAL and the Basic Tools for the development of the country and peoples. This is my philosophy.

Basides technical matters, we have completed all field works in Cagayan River Basin and have used 6 Land Cruisers, 1 Hard Top and 1 Truck as our legs. Allow me to announce that JICA will donate all vehicles to our counter part BCGS. All vehicles, which are now line-uped in front of this building, are kept very good condition by my staff mechanic.