2-2 MINUTA DE LA REUNION AL FINALIZAR ESTUDIOS

2-2 現地作業終了時の協議議事録

MINUTES OF MEETING
AT THE END OF

THE FIRST YEAR'S FIELD WORK
FOR
TOPOGRAPHIC MAPPING OF SAN JOSE METROPOLITAN AREA
IN

THE REPUBLIC OF COSTA RICA

PROJECT BETWEEN
NATIONAL GEOGRAPHIC INSTITUTE OF COSTA RICA
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

MAY 09, 1989
San José, Costa Rica

MR. FERNANDO M. RUDIN
DIRECTOR GENERAL
INSTITUTO GEOGRAFICO NACIONAL

MR. MASAO SATO
DEPUTY LEADER
JICA STUDY TEAM

MINUTES OF MEETING AT THE END
OF THE FIRST YEAR'S FIELD WORK IN COSTA RICA

On the ending work of the first phase (1st. year) on taking aerial photography for the preparation of the topographic mapping of San José Metropolitan Area in Costa Rica, the JICA Study Team and the IGN's members have discussed different subjects in relation to the Project and attached outline of Progress Report.

The following items have been agreed and requested by IGN and JICA Study Team.

JOINT ACCORD:

(1) Just the day of signing these minutes, 83% of aerial photography of the first year's activities according to the programmed schedule, have been taken.

(2) JICA Study Team and IGN have been agreed to continue the discussion of map symbols and its application proposed by JICA Study Team, for the final accord.

(3) Remaining 17% of aerial photograph shall be taken in second field work by JICA.

REQUEST OF JICA STUDY TEAM TO IGN:

(1) To collaborate in the arrangements for airfreight's handling of equipment and materials for the second year's field work.

(2) To prepare the permits, data and materials requested for the activities of the second year's field work.

REQUEST OF IGN TO JICA STUDY TEAM:

(1) The JICA Study Team will notify as soon as possible the initial date of activities for second year's field work to IGN.

LIST OF ATTENDANTS

1. Government of Republic of Costa Rica
   National Geographic Institute (IGN)

Mr. Fernando M. Rudin	Director General - IGN
Mr. Claudio Vieto	Deputy Director - IGN
Mr. Carlos L. Elizondo	Geographer-General Coordinator
Mr. Eduardo Bedoya	Advisor - Coordinator
Mr. Victor Guerrero	Surveyor - Coordinator

2. JICA Study Team

Mr. Masao Sato	Deputy Leader

3. Embassy of Japan

Mr. Yasusada Oue	Second Secretary

ATTACHMENT

OUTLINE OF PROGRESS REPORT
OF
THE FIRST YEAR'S FIELD WORK
FOR
THE TOPOGRAPHIC MAPPING OF SAN JOSE METROPOLITAN AREA
IN
THE REPUBLIC OF COSTA RICA

JICA STUDY TEAM
OF
THE TOPOGRAPHIC MAPPING
OF
SAN JOSE METROPOLITAN AREA IN THE REPUBLIC OF COSTA RICA
JAPAN INTERNATIONAL COOPERATION AGENCY

MAY 09, 1989
SAN JOSE, COSTA RICA

1. INTRODUCTION

Project of the topographic mapping of San José Metropolitan Area was started in 16th March, 1989, in three year term Study, as a technical cooperation program of JICA.

In compliance with the Scope of Work agreed upon between IGN and JICA on the 20th October, 1988, the JICA Study Team, composed of 4 members, was dispatched on the 13th March, 1989, for 62 days to execute the first year's field work.

Meantime Costa Rican counterparts from IGN joined the work from time to time.

In accomplishing the first year's field work, the outline of the progress of the work is reported.

2. OBJETIVE OF THE STUDY

The objetive of the Study is to prepare 1:10.000 topographic map covering an area of approximately 1.600 sq. km, and 1:10.000 land use map covering an area of approximately 800 sq. km of San José Metropolitan Area in Costa Rica.

Main items of Study are as follows:

(1) Aerial photography	approx. 1.600 sq.km, 1:20.000 scale
(2) Topographic map (1:10,000)	approx. 1.600 sq.km, 79 sheets
(3) Land use map (1:10,000)	approx. 800 sq.km, ~~88~~ 40 sheets

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(2) Topographic map (1:10.000)	approx. 1.600 sq.km,	79 sheets
(3) Land use map (1:10,000)	approx. 800 sq.km,	~~48~~ 40 sheets

3. AERIAL PHOTOGRAPHY

Volume of executed first year's field work are as follows;

Aerial photography	number of strips		23 strips
	number of rolls		7 rolls
	number of photos	approx.	1.500 photos
Photo processing	developing	approx.	1.500 photos
	paper contact print	approx.	1,500 photos
Checking	accepted photos	approx.	500 photos (83%)
	index map		Lump sum

4. REMAINING WORK

Due to unfavorable weather conditions, 17% of aérial photography has been remained. (see ANNEX 1).

Due to processing of large number of photograph, partial enlargement photo processing for control points has been remained.

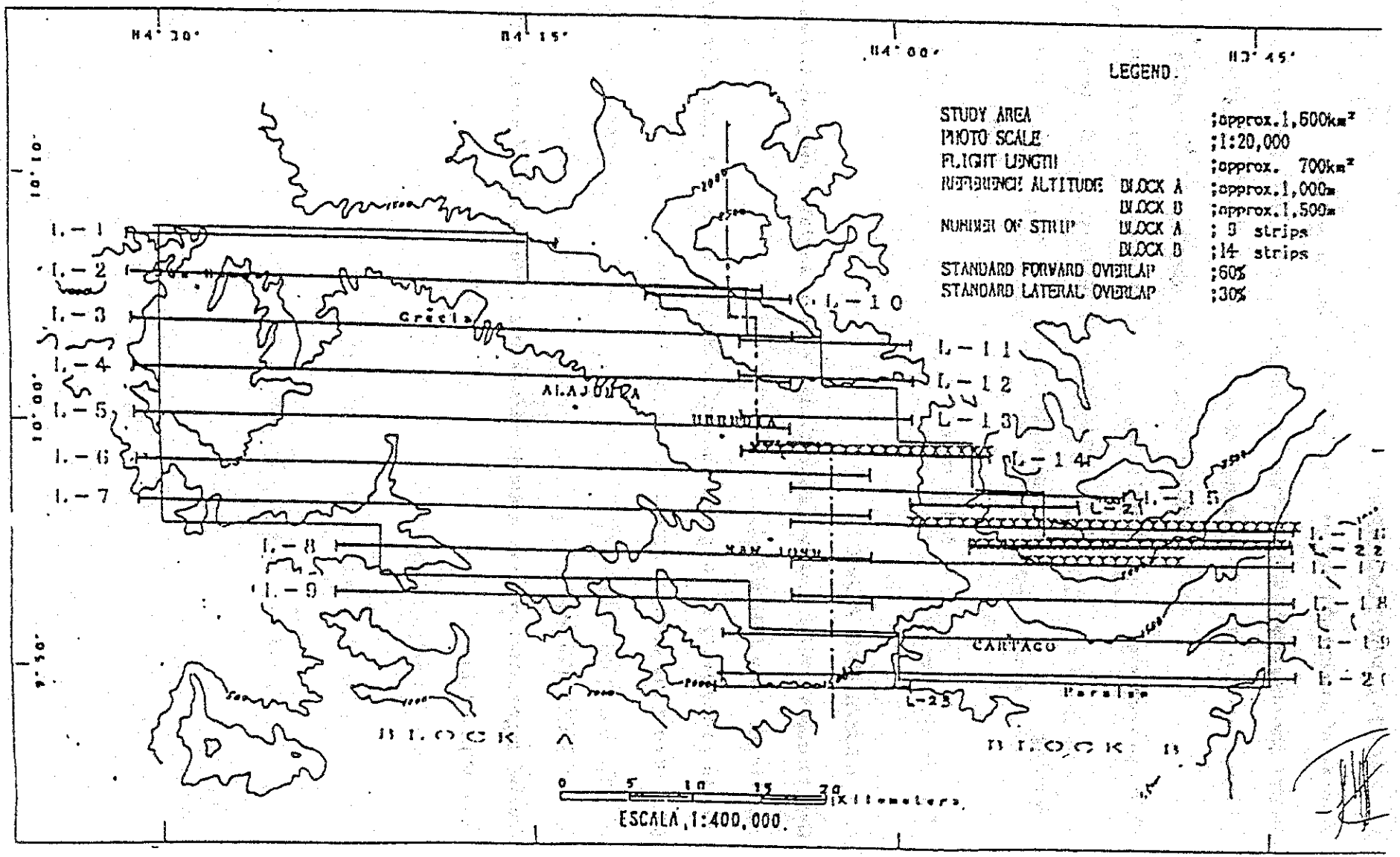
5. OTHER ITEMS

Aerial signalization were done for ~~XXX~~ 33 points in the planned area by IGN. (see ANNEX 2)

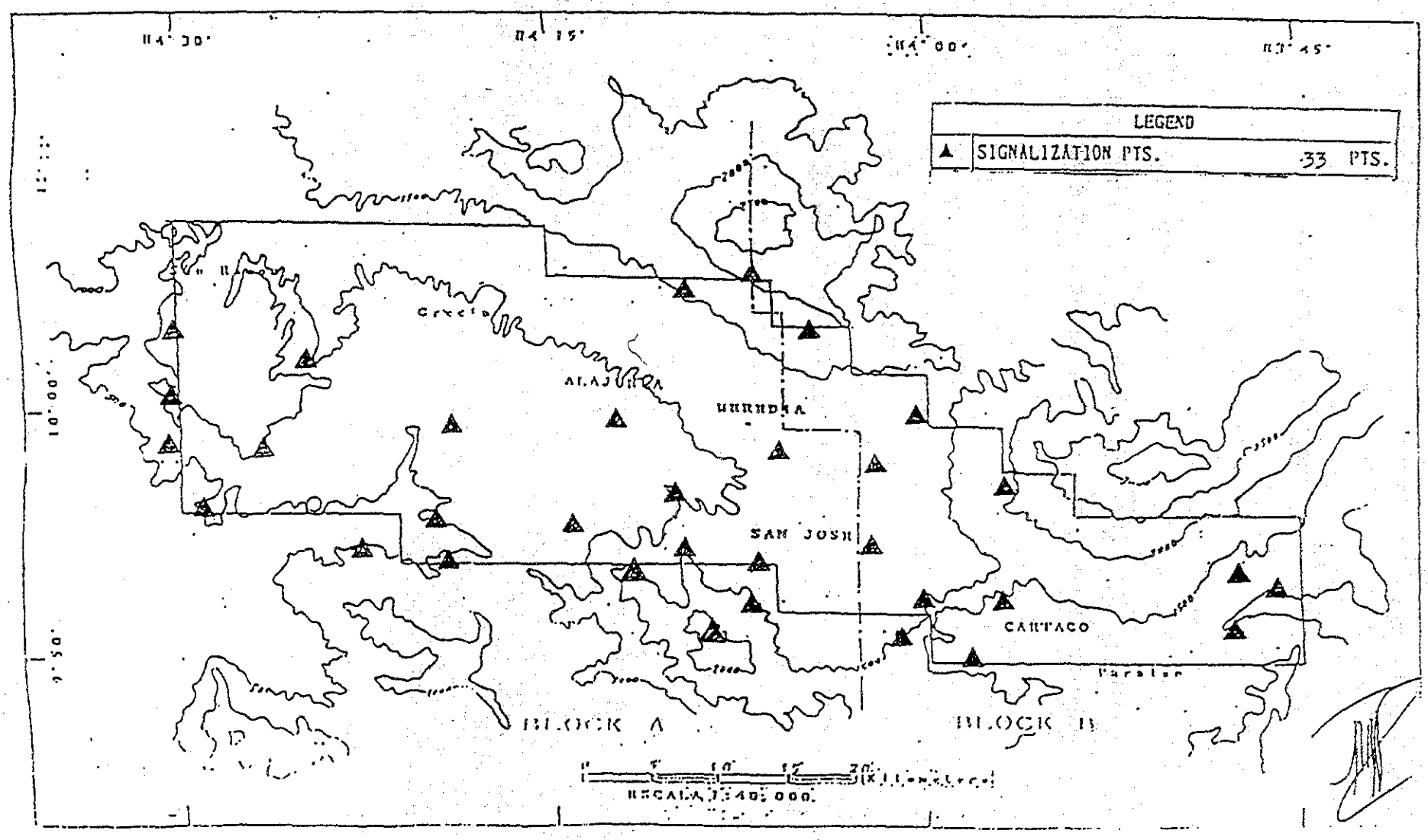
INDEX MAP FOR RESULT OF PHOTOGRAPHY

ANNEX I

REFLIGHT xxxxxxxxxxx



INDEX MAP FOR AERIAL SIGNALS



CONTRACT AGREEMENT

RE: CONTRACT FOR AERIAL PHOTOGRAPHIC FLIGHT OF TOPOGRAPHIC MAPPING PROJECT OF SAN JOSE METROPOLITAN AREA

SAN JOSE, COSTA RICA MARCH 14 TH, 1989

JOSE ANGEL GUERRA L.
GERENTE
TAXI AEREO CENTROAMERICANO,S.A.
(SERVICIO NACIONAL DE
HELICOPTEROS LTDA).

MASAO SATO
DEPUTY LEADER
JICA STUDY TEAM

CONTRACT FOR AERIAL PHOTOGRAPHIC FLIGHT

OF

TOPOGRAPHIC MAPPING PROJECT

OF

SAN JOSE METROPOLITAN AREA

This contract is made and entered upon on this 14th day of the month of March of the year 1989, between INTERNATIONAL ENGINEERING CONSULTANTS ASSOCIATION (JAPAN), a corporate judicial person - established in accordance with the laws of Japan with its principal office at No. 3-23, Kojimachi 5- Chome, Chiyoda-Ku, Tokyo, Japan - (hereinafter referred to as "IECA"), as the representative oft the consortium for the topographic mapping project of the San Jose Me - tropolitan Area (hereinafter referred to as "PROJECT"); and TAXI AEREO CENTROAMERICANO S.A., COMPANY established in accordance with the laws of Costa Rica with its principal office at P.O.BOX 3941 - 1000, San José, Costa Rica (hereinafter referred to as "TACSA").

IECA and TACSA are sometimes referred to together herein as the PARTIES.

WHEREAS: JAPAN INTERNATIONAL COOPERATION AGENCY (hereinafter re - ferred to as "JICA") and NATIONAL GEOGRAPHICAL INSTITUTE MINISTRY OF PUBLIC WORKS AND TRANSPORTS (hereinafter referred to as "IGN") of the Republic of Costa Rica have agreed upon to perform the - aerial photography of an area of approximately 1600 sq Km. over - San Jose Metropolitan Area of the Republic of Costa Rica, as a part of PROJECT in accordance with the scope of work signed on 20 th October, 1988, and WHEREAS, JICA entrusted the work to the consortium of IECA and ASIA AIR SURVEY CO.,LTD., for the project (hereinafter referred to as "CONSORTIUM") with IECA acting as the representative

/ and WHEREAS ...

CONSORTIUM desires to subcontract the operation of air craft for the aerial photography (hereinafter referred to as "WORK") to - TACSA whereas, TACSA is willing to do the work.

Now, therefore, the PARTIES hereby agree as follows:

ARTICLE 1: WORK

TACSA shall perform the taking of aerial photographs of 1:20,000 scale. The area to be covered is 1.600 Km^2, and the flight plan is shown in Exhibit A of Appendix 1 & 2 of the specifications A.

ARTICLE 2: SPECIFICATIONS

WORK shall be performed in accordance with the attached Specifications, Exhibit A, which is considered to be an integral part of - this contract.

ARTICLE 3: PREPARATION FOR THE WORK

TACSA shall provide all the necesarry skilled and well-trained personnel and material for the work. CONSORTIUM will be responsible for supplying TACSA with the flight plan prepared on an available map at the scale of 1:200,000 on which the area to be covered and the planned flight courses are shown in Appendix 1.

ARTICLE 4: COMMENCEMENT OF THE WORK

TACSA shall make the aircraft, crew and necessary equipment ready for flights at the Pavas Airport (or at another suitable airport), unless hindered by a force majeure, after the receipt of the ins - tructions for commencement from the CONSORTIUM and shall commence the work as soon as possible.

ARTICLE 5: WORK PERIOD

TACSA shall complete all of the aerial photography work within 43 days after the receipt of the instructions from CONSORTIUM for the commencement of the work.

ARTICLE 6: REPRESENTATIVE OF CONSORTIUM ON SITE

CONSORTIUM will send its personnel to Costa Rica as its representative during the period of the aerial photography contract in order to coordinate the aerial photography work. The representative will have the following rights and obligations:

1.- Instruction for the flights
2.- Inspection of the progress and the final results of the aerial photography
3.- Instruction for the re-flight when the results do not meet the Specifications.

ARTICLE 7: INSPECTION OF RESULTS

When each roll of film is photographed and photoprocessing by IGN is completed, TACSA shall inmediately give a notice of completion and one (1) set of check prints and preliminary flight index to CONSORTIUM'S representative in Costa Rica for his or her inspection and approval. If and when such results are not accepted by CONSORTIUM'S representative because of nonconformity with the Specifications TACSA shall perform re-flights and submit the results to CONSORTIUM for its approval.

ARTICLE 8: REPORTING

TACSA shall submit a written weekly report of the work as well as flight records inEnglish to CONSORTIUM (or CONSORTIUM'S representative). The flight record form (Shown in Appendix 3) shall be provided by CONSORTIUM.

ARTICLE 9: LIABILITY

CONSORTIUM shall be exempted from or kept harmless against any claim, damage, loss and/or accident incurred on or arisen on third parties in connection with any activity of TACSA during the period of the Work.

ARTICLE 10. INSURANCE

TACSA shall be held liable for injuries to third parties resulting from TACSA's negligence. TACSA shall be responsible for holding negotiations with injured parties and implementing all necessary steps which ensure the settlement of the matter.

ARTICLE 11: CONTRACT PRICE

The contract is "Standby" basis contract and the unit prices are as follows:

1.- Aerial photography charge	:	US$	per hour
2.- Standby charge	:	US$	per day

ARTICLE 12: OTHER COSTS

Landing, parking, fuel, and any other feets concerning the work, shall be borne by TACSA.

ARTICLE 13: PAYMENT CONDITIONS

Payment shall be made as follows:
TACSA shall report the job done including the flight record and the standby charges to CONSORTIUM'S representatives. After finishing

the check of the report , CONSORTIUM'S representative will issue the letter of approval every (14) days. After receiving the letter of approval, TACSA can issue a bill to CONSORTIUM'S representative. The payment will be made to TACSA's designated bank by TT remittance. The payment rates are as r stipulated in Article 11.

ARTICLE 14: FORCE MAJEURE

A) Any failure of TACSA to carry out any of its obligations under this contract shall not be deemed a breach of the contract, if such failure is caused by a force majeure or reasons beyond TACSA'S reasonable control. For the purpose of this contract, force majeure shall include wars, insurrections, civil disturbances, blockages, embargos, strikes, other labour conflicts, riots, earthquakes, epidemics, storms, floods, explosions, fire, lightning, order or directions of any goverment or instrumentality or sub-division thereof, acts of God or the public enemy, and any other cause (whether or not the kind hereinabove described) over which TACSA has no reasonable control and which is of such a nature as to make timely compliance with its obligations under this contract impossible.

B) In this event, TACSA shall notify CONSORTIUM thereof in writing, stating the cause, and TACSA and CONSORTIUM shall do everthing, reasonably within their power, to remove such cause, provided however that neither party shall be obligated to resolve or terminate any disagreement with third parties, including labour disputes, except under conditions acceptable to it or pursuant to the final decision of any arbitral, judicial or statutory agency having jurisdiction to finally resolve the disagreement.

C) If TACSA is by force majeure rendered unable, wholly or in part,

to perform its obligations and to meet its responsabilities under this contract, then TACSA shall be suspended to the extent of its inability to perform the obligations as long as such inability continues.

ARTICLE 15: RESPONSABILITY

The captain of a TACSA aircraft for taking aerial photographs shall have the final responsibility for the safety of the aircraft and its crew. He is also responsible for making the flight for taking aerial photographs while observing all of the regulations related to the operation of the aircraft.

ARTICLE 16: PROPERTY

All the materials, survey results and information that will be obtained by and furnished to TACSA under this contract shall remain the property of CONSORTIUM and will be transferred to the Costa Rican Government by JICA and TACSA shall not disclose them to others in whole or in part for any purpose.

ARTICLE 17: REPLACEMENT OF CREW AND MATERIAL

TACSA Shall provide replacement for its aircraft, or any other pieces of equipment, when such equipment is rendered unusable for any reason. TACSA shall also provide replacement for the flight crew (pilot), if for any reason, they are not able to carry out their assigned work. Costs for such replacement shall be borne by TACSA.

ARTICLE 18: ASSIGNMENT AND/OR SUBCONTRACT

Without written consent of CONSORTIUM, TACSA shall not assign part -

or all of this contract to a third party or subcontract any por - tion of the work.

ARTICLE 19: TERMINATION OF CONTRACT

CONSORTIUM has the right to terminate this contract without ma - king any payment in the following cases:

A) Except as provided in Article 14, Force Majeure, if TACSA does not mobilize the aircraft after the instruction by CON - SORTIUM or fails to commence, the WORK for a certain period - without justified reasons.

B) Except as provided in Article 14, FORCE MAJEURE, if TACSA sus pends the work for more than one week or if it is judged by the CONSORTIUM that a suspension of the work by TACSA, will - cause serious problems for the smooth implementation of the aerial photography work, regardless the lenght of such sus - pension.

C) If the Work is not fully performed by TACSA in accordance with this contract and specifications and no rectification is done without justified reason.

CONSORTIUM may terminate this contract when they judge it necessary, by giving TACSA a written notice that will be delivered at least fi ve (5) days before the date of termination

ARTICLE 20: ARBITRATION

All disputes arising in connection with this contract shall be fi - nally decided under the Rules of Conciliation and Artitration of

the International Chamber of Commerce by one or more arbitrators appointed in accordance with the rules.

ARTICLE 21: CHANGES IN THE WORK PROGRAM

CONSORTIUM has the right to change the contents of the WORK at any time, if necessary, subject to agrement with TACSA.

ARTICLE 22: EFFECTIVE DATE OF THIS CONTRACT

This contract shall become effective on the date when the contract is duly executed and signed by both PARTIES.

ARTICLE 23: FAIRNESS, DOUBT, OR ITEMS NOT SPECIFIED

In entering into this contract, the PARTIES recognize that it is impractical to make provision for every contingency that may arise in the course of the WORK. Accordingly, the PARTIES hereby confirm it to be their intention that this contract shall operate between them with fairness. Any doubt in connection with this contract, or any item not specified in this contract, shall be determined amicably by mutual agreement of the PARTIES.

IN WITNESS THEREOF, the PARTIES have executed this contract by their duly authorized representatives as of the date first written above.

INTERNATIONAL ENGINEERING
CONSULTANTS ASSOCIATION
(IECA)

TAXI AEREO CENTROAMERICANO, S.A.
VUELOS NACIONALES INTERNACIONALES
AEROPUERTO INTERNACIONAL
TOBIAS BOLAÑOS

INTERNATIONAL ENGINEERING
CONSULTANTS ASSOCIATION
NEW KOJIMACHI BLDGS, No.3-23
KOJIMACHI 5-CHOME,
CHIYODA-Ku, TOKYO,
JAPAN

TAXI AEREO CENTROAMERICANO, S.A.

APARTADO No. 3941
SAN JOSE, COSTA RICA.

1) AIRCRAFT

The survey aircraft to be used in the performance of the contract work should be equipped with all the essential navigational and photographic instruments. It must have the requisite photographic cruising speed and operating range, a high rate of climb, good stability while in flight, good field of view for visual navigation, and a service ceiling at full load equal to or higher than the highest altitude required for the project. The design of the aircraft shall be such that there should be an unobstructed field of view for the total image area of the camera, shielded from exhaust gasses, oil, and turbulence of airflow caused by propellers.

2) AERIAL CAMERA

The aerial camera to be used shall be RMK-A 15/23, which belongs to IGN.

3) FLIGHT PLAN

The flight plan is as presented in Appendix 1 and 2 of this specification. The flight plan in Appendix 1 was prepared at a scale of 1:200,000. A 1:50,000-scale flight plan will be prepared by CONSORTIUM after the contract with TACSA is made. If necessary the flight plan can be modified under the supervision of CONSORTIUM.

4) PHOTO SCALE AND ALTITUDE

Scale for the aerial photography shall be 1:20,000. The area of the aerial photography is divided into two blocks, Block A, and - Block B. The flying altitude for Block A is approximately 4,000 m. The flying altitude for Block B is approximately 4,500 meter and the datum is 1,500 meter.

5) STEREOSCOPIC COVERAGE

Aerial photography shall be undertaken so asto provide complete stereographic coverage of the area specified in Article 2.Abo - ve.

6) OVERLAP

The area shall be covered with straight strips of photograms. Standard forward overlap of photographs shall be 60% and the standard lateral overlap shall be 30%. The lateral overlap shall not be less than 10% on the area to be mapped. In the event of considerable variations in datum (reference level), x reasonable increase in the specified overlap shall be accepted.

7) CRAB, TIP, AND TILT

Crab shall not exceed 10 degrees. Tip and tilt shall not exceed 5 degrees.

8) FIRST AND LAST EXPOSURE OF A STRIP

The center of the first and the last photograph of a flight course shall fall outside the boundary of aerial photography.

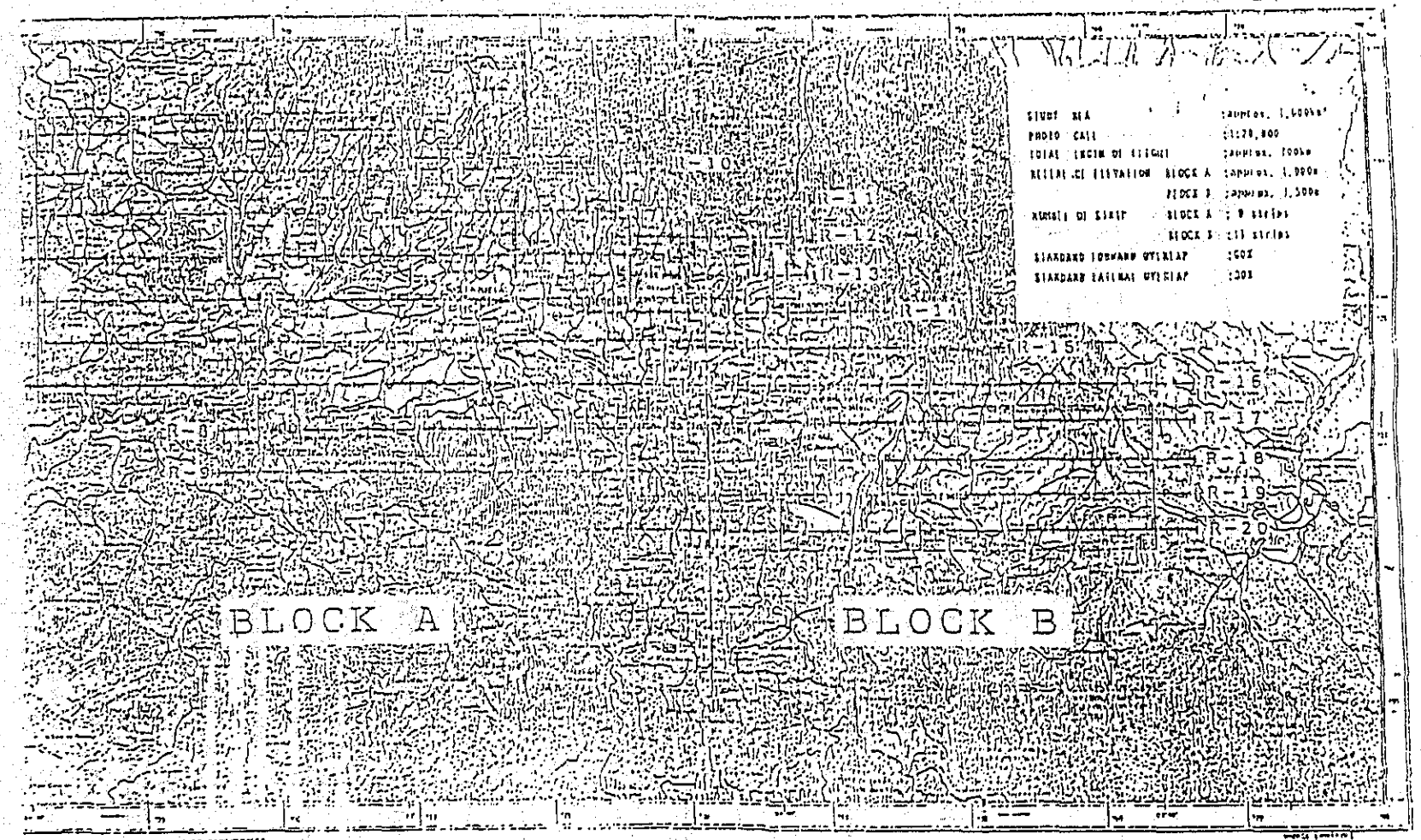
9) BREAKS IN STRIPS

Where breaks in a flight strip are necessary, there shall be an overlap of at least two stereoscopic models. Any segment of a flight strip resulting from necessary breaks shall consist of more than eight (8) exposures.

10) CLOUD COVERAGE

Reasonal effort shall be made to obtain cloud free photography free of clouds , cloud shadows, and smoke as much as possible. Photography shall not be attempted when smoke, haze, or any other conditions would impair the quality of the photographic image. When water surface is extensive in the area to be photographed, the solar altitude shall be such that sun's relection does not appear in the photographic image.

FLIGHT PLAN GRAN AREA METROPOLITANA



GRAN AREA METROPOLITANA, COSTA RICA

FLIGHT PLAN 1:20,000 F=15.0cm

Run No.	Distance of Each Run (Km)	Number of Exposure	Flight Height(m)a.m.s.l	Reference Elevation(m)a.m.s.l
R 1	30.8	18	↑	↑
R 2	47.6	27		
R 3	47.6	27		
R 4	47.6	27		
R 5	53.2	28	4,000	1,000
R 6	53.2	28		
R 7	53.2	28		
R 8	39.0	22		
R 9	39.0	22	↓	↓
R10	12.4	9	↑	↑
R11	16.2	12		
R12	16.2	12		
R13	16.2	12		
R14	22.0	16		
R15	25.0	18	4,500	1,500
R16	36.2	27		
R17	38.2	27		
R18	38.2	27		
R19	44.0	25		
R20	34.0	19	↓	↓
Total	711.2	431		

METEOROLOGY AND FLIGHT RECORD

NAME OF PROJECT:
NAME OF AIRCRAFT:
AIRCRAFT ID.No.:

PILOT:
MECHANIC:
NAVIGATOR:
CAMERA OP.:

DATE	METEOROLOGY RECORD				FLIGHT RECORD			WORKING DESCRIPTION
	WEATER	WIND DIR.	WIND FORCE	CLOUDINESS	TAKE OFF	LANDING	FLIGHT TIME	OR SUPPLEMENTARY NOTE
1989								
/1989								
/1989								
/1989								
/1989								
/1989								
1989								

SIGNATURE

SPECIFICATIONS B

SPECIFICATIONS FOR AERIAL PHOTOGRAPHY FOR THE TOPOGRAPHIC MAPPING OF SAN JOSE METROPOLITAN AREA IN THE REPUBLIC OF COSTA RICA

1) GENERAL

Aerial photography shall be carried out by IGN under the supervision of the CONSORTIUM according to the technical specifications stipulated below. Aircraft operation for this work will be subcontracted out to TACSA.

2) AREA

Aerial photography shall cover the area shown in Appendix 1. The area is divided into two adjacent blocks and their total coverage is approximately 1,600 sq.Km.

3) PERSONNEL AND EQUIPMENT

3.1 Aircrew

(1) The aircrew consists of a pilot, a navigator and a camera operater.

(2) The pilot shall be a member of TACSA. The navigator and the camera operater shall be members of IGN.

3.2 Aircraft

The survey aircraft to be used in the performance of the contract work should be equipped with all the essential navigational and photographic instruments. It must have the requisite photographic cruising speed and operating range, a high rate of climb, good stability while in flight, good field of view for visual navigation and a service ceiling at full load equal to or higher than the highest altitude required for the project. The design of the aircraft shall besuch that there should be an unobstructed field of view for the total image area of the camera, shielded from exhaust gasses, oil and turbulance of airflow caused by propellers.

3.3 Aerial Camera

(1) The camera to be used shall be RMK-A 15-23 which belongs to IGN. The camera shall be of high metric quality and comply with the following conditions:

a) It shall record on each exposure, the instrument panel of the camera which includes an exposure counter, serial number of the camera, and a clock set to local time.

b) The fiducial marks of the camera shall produce sharply defined registration of each mark on each negative film.

(2) A valid calibration certificate of the camera shall be submitted to the CONSORTIUM. The certificate shall be considered as valid for a period of three years from the date of calibration. A calibration certificate should include:

a) The manufacturer's serial number of the camera and the serial number of the lens.

b) The radial distortions of the image, with reference to the principal point as origin.

c) The calibrated focal lenght at which these distor - tions apply.

d) The name of the organization which calibrated the camera and the date of calibration.

3) FILTERS

Only optical filters provided by the lens manufacturer or those which comply with the same optical specifications shall be used.

3.4 Photo Processing

(1) Photo laboratory of IGN shall be used for photo processing.

(2) All the exposed films shall be processed by IGN personnel.

4) RE-FLIGHT

Re-flight shall be required if any photograph exposed does not comply with any part of the specifications or with any other written instruction of the CONSORTIUM.

5) FLIGHT PLAN

The flight plan has been prepared on a topographic map of - the area at the scale of 1:200,00 and is attached as - Appendix 1.
The flight plan shows the lines to be flown and the requi - red coverage beyond the boundaries of the area to be mapped. A 1:50,000-scale flight plan will be prepared by CONSORTIUM after the contract with TACSA is made. If necessary the - flight plan can be modified under the supervision of CONSOR TIUM.

6) PHOTO SCALE AND ALTITUDE

The aerial photography shall be taken at average scale of 1:20,000 for the whole area consisting of Block A and - Block B. Flying altitude for each lines are shown on the -

list of flight lines in Appendix 2. The flying altitude for Block A is approximately 4,000 m above mean sea level while its datum is 1,000 m. The flying altitude for Block B is approximately 4,500 m above mean sea level while its datum is 1,500 m.

7) AERIAL FILM

The type of aerial film to be used shall be KODAK PLUS-X Aerographic Film 2402 to be supplied by the CONSORTIUM.

8) FLYING REQUIREMENTS

(1) The photography should be carried out so as to provide complete stereoscopic coverage of the mapping area.

(2) The area should be covered with straight strips of photographs of which standard forward overlap shall be 60%.

(3) Standard lateral overlap shall be 30%. The lateral overlap should not be less than 10 percent on the area to be mapped. In the event of considerable variations in reference level, a reasonable increase in the overlaps shall be accepted.

(4) Crab should not exceed 10 degrees.

(5) Tip and tilt should not exceed 5 degrees.

(6) The center of the first and the last photograph of a flight course should fall outside the boundary of aerial photography.

(7) Where breaks in a flight strip are necessary each segment shall be overlapped with neighbouring segment ontthe same strip for at least two stereoscopic models. Any segment of a flight strip made by breaks should consists of more than eight (8) exposures.

(8) Reasonable effort should be made to obtain cloud free photographs. Maximum five percent of cloud coverage in single, photograph may be considered as tolerable. In no case, however, should clouds fall in control points and principal points.

9) CONDITIONS OF PHOTOGRAPHIC FLYING

Photography shall be free of all cloud, cloud's shadow and smoke. Photography shall not be attempted when smoke, haze or any other condition would impair the quality of the photographic image. When water surfaces are extensive in the area being photographed the solar altitude should be such that the sun's reflection does not appear in the photographs.

10) NEGATIVE EXPOSURE

(1) With due consideration of available shutter speeds and lighting conditions, all exposures shall be made with a lens aperture requiring an exposure time which produces minimal-image movement. In no case should image movement exceed 20 microns measured on negative film.

(2) The exposure shall produce negatives which results in most of the image being on the approximately straight portion of the characteristic curve of the emulsion.

(3) On each roll of film at least 1.5 meter before the first and after the last exposure shall not be used.

(4) Exposure of photography should be adjusted so that clear image can be obtained even in shadow areas caused bt topographic relief.

11) REPORTING

Details of aerial photography shall be reported to the CONSORTIUM in the forms of the following two types of records.

(1) Meteology and flight record.

To be used to record meteorology and flight conditions of each day.

(2) Aerial Photography log

To be used to record data concerning aerial photography (as for the sample please refer to Appendix A)

12) SUPPLY AND MATERIAL

CONSORTIUM shall supply photographic materials and processing chemicals required for the WORK. All material supplied become the property of IGN.

13) FILM PROCESSING

All exposed film shall be processed as soon as possible after exposure at the laboratory of IGN. Special care shall be taken to ensure proper development, fixing and washing of film during the processing procedures.

Processing method shall be rewind spool system and the following chemical are used:

-Developer :	KODAK DK-50
-FIXER :	KODAK rapid fixer or equivalent.

All negative film shall be free from light streaks, static marks, scratches, stains and the blemishes which might interfere with their intended use. Drying of the film shall be carried out without affecting its dimensional stability.

14) INITIAL PRINTS

In order to make preliminary inspection of the results, all the negatives of developed film inmediately shall be made a complete set of paper prints.

15) INSPECTION OF PHOTOGRAPHS

Inspection shall be carried out in three stages as follows:

(1) Initial prints shall be inspected to check to see if they comply with the following three items of specifications.

- For ard overlap
- Side overlap
- Camera tilt

For the record of the inspection "Preliminary Quality Check Sheet" in Appendix B shall be used.

(2) Each film shall be checked for its photographic image quality. "Quality check of Aerial Photograph" (Appendix C) will be used to record the inspection results. Items to be inspected are-

follows:

- Date of processing
- Method of development
- Developer used and dilution
- Time and temperature of development
- Length of film processed
- Manufacturer of film
- Type of film
- Emulsion number
- General check of quality
- Other items

(3) Each photograph shall be checked according to the article of specifications. For the record of the inspection - "Check list of aerial photograph sheet" in Appendix D shall be used.
Re-Flight is required if any of the inspected photograph does not comply with any part of the specifications or with any other written instructions of the CONSORTIUM.

16) FILM ANNOTATION
Each roll of ilm shall be identified by a film number. Both ends of a roll of film shall not be exposed and shall be used as leaders and spaces for film annotation. Contents of the annotation will be as follows:

- Name of project
- Name of area
- Film No.
- Data of photography
- Flying height
- Camera/lens

- Scale
- Run No./Compiled No.

17) NEGATIVE ANNOTATIONS

Data and information about the photography will be annotated in the marginal area of accepted negative film sheets. Data and information to be annotated are as follows:

- Name of Project
- Scale of photography
- Date of photography

A modification of negative annotations shall be made under the supervision of the CONSORTIUM.

18) PAPER PRINT

One set of contact prints of annotated and approved negative film shall be made. Special care shall be exercised to ensure the proper development and the through fixing of contact prints. Prints shall be uniformed in density. Further, all prints shall be clean and free from stains, blemishes, uneven spots, light fog, and finger prints and shall be thoroughly washed to completely eliminate the hypo or any other chemicals which impair their permanency.

19) FLIGHT INDEX

A photo coverage index of the project should be prepared using 1:200, 000 scale reproducible flight plan sheet to check overlaps and placement of flight strips against the approved flight plan.

AERIAL PHOTOGRAPHY LOG

NAME OF PROJECT:

DATE OF PHOTOGRAPHY: | AIRCRAFT ID NO.:

DEPATURE TIME h. m TEM. ℃ QNH: | PILOT:

ARRIVAL TIME h. m TEM. ℃ QNH: | NAVIGATOR:

OUTSIDE AIR TEMP. ft ℃ | CAMERA OP.:

PLANNING FLYING HEIGHT: ft | AVERAGE PHOTO SCALE:

INDICATED FLYING HEIGHT: ft | TYPE OF PHOTOGRAPHY:

CAMERA	FILM
CAMERA TYPE : SERIAL NO.:	TYPE:
CALIBRATED F.L.: SERIAL NO.:	EMULSION NO.: EXPIRY DATE:

RUN NO.	FLT. DIR.	DRIFT ANGLE	TIME START	TIME FINISH	FILTER TYPE	SHUTTER SPEED	APER-TURE	COUNTER NO. START	COUNTER NO. FINISH	REMARKS

FILM NO.	RUN NO.	MAGAZINE NO.

ROUGH SKETCH

METEOROLOGY CONDITION

CLOUD:

VISIBILITY:

TURBULENCE:

PRELIMINARY QUALITY CHECK

Date Flown :				Photo Scale(Approx.):
Camera :		Focal Length=		Film No.:
Run No.	Photo Number From—To	Number of Photographs	Result of Check	Remarks
	—		OK	
			NG	
	—		OK	
			NG	
	—		OK	
			NG	
	—		OK	
			NG	
	—		OK	
			NG	
	—		OK	
			NG	
	—		OK	
			NG	
	—		OK	
			NG	
	—		OK	
			NG	
	—		OK	
			NG	
	—		OK	
			NG	
	—		OK	
			NG	
	—		OK	
			NG	
	—		OK	
			NG	
	—		OK	
			NG	

QUALITY CHECK OF AERIAL PHOTOGRAPH

Project Name:		Area Name:	
Date of Photography		Film Number:	
Aerial Camera		Film	
Camera	Type:	Manufacturer:	
	Serial No.:	Type:	
Lens	Type:	Emulsion Number:	
	Serial No.:	Length:	m
	Focal Length: mm	Processing	
Filter	Type: mm	Date:	
	Serial No.:	Method of Development	
Serial No. of Magazine		Equipment:	
Exposure		Developer:	
Lens Aperture	1/	Temperature:	°C
Shutter Speed:	1/ sec	Time:	

Run	Counter Number	Run	Counter Number	Run	Counter Number	Run	Counter Number
	~		~		~		~
	~		~		~		~
	~		~		~		~
	~		~		~		~
	~		~		~		~

Development	Under Normal Over
Exposure	Under Normal Over
Gradient	Low Normal High
Fiducial Marks	
Counter Number	
Clock	
Altimeter	
Vibration	
Dust	
Scratches	
Haze	
Smoke	
Clouds	
Cloud Shadows	
Leader	

(4) Undermentioned final results for Phase I work were handed from the JICA Study Team to the IGN and the IGN agreed to store them in the Office of IGN.

Report for Phase I	10 copies
Original negative film	3 rolls
Quality control and accuracy record for aerial photography	1 set
Flight index map	1 set

(5) The IGN agreed that several copies of printed topographic maps and land use maps would be kept in Japan (JICA Head Office), so that the maps can be used in appraising future projects which would be requested from the Government of Costa Rica to the Government of Japan.

(6) The IGN expressed its concern about the process of map checking included in the activity of drafting (Phase III), that will be achieved with participation of costarrican technicians.

LIST OF ATTENDANTS

1. Government of Republic of Costa Rica
National Geographic Institute (IGN)

Mr. Fernando M. Rudin	General Director-IGN
Mr. Claudio Vieto	Deputy Director-IGN
Mr. Carlos L. Elizondo	Project General Coordinator
Mr. Eduardo Bedoya	Advisor-Mapping Coordinator
Mr. Victor Guerrero	Surveyor-Technical Coordinator
Mr. Ramiro Sosa	Aerial Photography Manager
Mr. Eduardo Castro	Field Identification Assistant
Mr. Manuel A. Mena	Control Survey Assistant

2. JICA Study Team

Mr. Eiji Inoue	Leader
Mr. Masao Sato	Deputy Leader
Mr. Mitsuo Yoshida	Mapping Planner
Mr. Shinichi Sato	Control Survey Manager
Mr. Nobuo Shimizu	Field Identification Manager
Mr. Masao Morita	Aerial Photography Manager

3. JICA Advisory Team

Mr. Kenji Chujo	Technical Advisor Geographical Survey Institute (GSI)
Mr. Shinichi Mori	Advisor-JICA

4. Embassy of Japan

Mr. Yasusada Oue	Second Secretary

2-3 MINUTA DE LA REUNION AL INICIAR ESTUDIOS

2 − 3 現地作業開始時の協議議事録

MINUTES OF MEETING
ON
PLAN OF OPERATION
FOR
TOPOGRAPHIC MAPPING OF SAN JOSE METROPOLITAN AREA
IN
THE REPUBLIC OF COSTA RICA

PROJECT BETWEEN
NATIONAL GEOGRAPHIC INSTITUTE OF COSTA RICA
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

JULY 05, 1989
San José, Costa Rica

ING. FERNANDO M. RUDIN
Director General
Instituto Geográfico Nacional

井上英二
DR. EIJI INOUE
Leader
JICA Study Team

On the basis of Scope of Work agreed between the IGN and JICA on October 20, 1988, the Japanese Study Team organized by JICA and headed by Dr. Eiji Inoue visited the Republic of Costa Rica on June 26, 1989 to carry out the Phase II work for the study of topographic mapping of San José Metropolitan Area.

Prior to the commencement of Phase II work, a series of meetings were held from 27th June to 5th July and the following items have been discussed, confirmed and agreed by the IGN and JICA Study Team.

(1) The Plan of Operation for Phase II study prepared by JICA Study Team was in principle agreed by the IGN.

(2) According to the Minutes of Meeting signed on October 20, 1988, processing of aerial photographs will be executed in the Republic of Costa Rica by using the IGN's photo processing facilities. However, considering the work schedule of aerial triangulation and field survey works of Phase II and the capacity of the IGN's photo processing laboratory, both parties agreed to execute part of photo processing work in Japan.

(3) The IGN made strong request topographic maps printed in 5 (five) colours instead of 4 (four), and the JICA Study Team took note of this request.

2-4 MINUTA DE LA REUNION AL FINALIZAR ESTUDIOS

2－4　現地作業終了時の協議議事録

MINUTES OF MEETING

AT THE END OF

THE SECOND YEAR'S FIELD WORK

FOR

TOPOGRAPHIC MAPPING OF SAN JOSE METROPOLITAN AREA

IN

THE REPUBLIC OF COSTA RICA

PROJECT BETWEEN

NATIONAL GEOGRAPHIC INSTITUTE OF COSTA RICA

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

NOVEMBER 30, 1989
San Jose, Costa Rica

MR. FERNANDO M. RUDIN
General Director
National Geographic Institute

MR. MASAO SATO
For: Leader of
JICA STUDY TEAM

MINUTES OF MEETING

AT THE END OF THE SECOND YEAR'S FIELD WORK

FOR TOPOGRAPHIC MAPPING OF SAN JOSE METROPOLITAN AREA

IN THE REPUBLIC OF COSTA RICA

On the ending activities of the second year's field work for the preparation of the Topographic Mapping of San José Metropolitan Area in Costa Rica (hereinafter called the "Project"), the members of the National Geographic Institute (IGN) and the JICA Study Team (the "Team") have discussed various subjects in relation to the Project.

The following items have been confirmed and agreed by the IGN and the Team.

1) JOINT ACCORD

(1) The field works have been realized according to "Plan of Operation" for the Project (Phase II), agreed and signed between the IGN and the Team on July 05, 1989. The schedule and volume of second year's field work is done in attached ANNEX -1.

(2) The technical and administrative staffs of the Project have fully organized with members of the IGN and the Team, taking into consideration the activities of all experts in the second year's field work (ANNEX -2).

(3) The IGN and the Team have discussed and agreed the map symbology and its application rule for the topographic and land use maps.

2) REQUEST FROM THE IGN TO THE TEAM

(1) The Team will set up the period on the third year's work for checking editted-sheets and final colour surprints by the IGN, and method of transportation of those materials to/from Costa Rica.

(2) The Team will notify the schedule and initial data of activities on "Field Completion", which will be executed in the third year's work of the Project, to the IGN immediately after they have decided.

Concerning the above mentioned items, the Team will take note and inform to the JICA Head Office. In case of acceptance by the JICA Head Office, the Team will indicate the method of execution in Plan of Operation of the third year's work of the Project. Detailed method of the execution will be discussed at the beginning of the third year's field work between the JICA Head Office and the Team.

3) REQUEST FROM THE TEAM TO THE IGN

The IGN will prepare the permits, data and materials required for the activities of the third year's field work prior to the arrival of the Team to Costa Rica for the smooth implementation of the field work.

4) RESPONSE TO THE IGN'S REQUEST

In response to the IGN's request (mentioned Article No.(3) on the Minutes of Meeting on Plan of Operation for Topographic Mapping of San Jose Metropolitan Area in the Republic of Costa Rica), which had already been taken note by the JICA Head Office, about five (5) colours instead of four (4) colours of topographic map printing, the JICA Head Office has confirmed and agreed.

5) LIST OF ATTENDANTS

(1) National Geographic Institute (IGN), Republic of Costa Rica

Mr. Fernando M. Rudin	General Director - IGN
Mr. Claudio Vieto	Deputy Director - IGN
Mr. Carlos L. Elizondo	Geographer-General Coordinator
Mr. Eduardo Bedoya	Advisor-Mapping Coordinator
Mr. Victor Guerrero	Surveyor-Technical Coordinator
Mr. Edgar Cedeño	Geographer-Field Assistant

(2) JICA Study Team

Mr. Masao Sato	Deputy Leader
Mr. Mitsuo Yoshida	Mapping Planner
Mr. Eiichi Hayakawa	Chief Engineer
Mr. Izumi Kobayashi	Staff

(3) JICA Advisory Team

Mr. Kiyoji Ishiwata	Director, Topographic Div., Topographic Dept., Geographical Survey Institute, Ministry of Construction
Mr. Shigenari Koga	Staff, Training Div., Nagoya International Training Center, JICA

(4) Embassy of Japan

Mr. Makoto Ito	First Secretary, Embassy of Japan

SCHEDULE AND VOLUME

OF

THE SECOND YEAR'S FIELD WORK

ITEM OF WORK	VOLUME	SCHEDULE - 1989
1. Aerial Photography	272 Km^2	Jun.24-Aug.9
2. Geodetic survey for new control points	16 points	Jun.25-Aug.27
3. Pricking (16 new control points, 34 existing triangulation points and 39 bench marks)	89 points	Jul.9-Aug.27
4. Field identification for topographic map	1,600 Km^2	Jul.2-Sep.15
5. Field identification for land use map	800 Km^2	Sep.30-Dec.29
6. Preliminary meeting for field identification of land use map		Jul.9-Jul.28

IGN'S COUNTERPART

MEMBER'S LIST AND THEIR ASSIGMENT

General Director
Fernando M. Rudin

Deputy Director
Claudio Vieto

General Coordinator
Carlos L. Elizondo

Administrative Support

Ramon Selva
Francisco Arroyo
Victor Rivas
Marta Martinez
Maritza Rivera (IAGS)
Claudio Calderon
Flor Barquero
Rosaura Vargas
+
10 drivers

Technical - Administrative Coordinators

Eduardo Bedoya
Victor H. Guerrero

Technical Support

Humberto Hernandez
Sergio Benach
Anabelle Araya
Olga Segura
Jose Rojas
Eduardo Vindas
Walter Barrantes
Hernan Cantillano
Olman Fernandez

Aerial Photography

Ramiro Sosa
Carlos Sanchez
Kenneth Azofeifa
Gustavo Vargas
Carlos Ortiz
Luis Montero
Rodrigo Quiros

Ground Control point survey

Luis Sanchez
Claudio Mora
Luis Vargas
Hernan Angulo
Manuel Mena
Frank Muñoz
Marcos Cordero
William Valverde

Pricking
Ramiro Sosa

Field Identification

Eduardo Castro
Edgar Cedeño
Christian Ash
Hector Chavarria
Max Lobo
Fernando Mesen
Carlos Ugalde
Willy Mora
Carlos Alvarado

JICA STUDY TEAM
MEMBER'S LIST AND THEIR ASSIGNMENT

- **Leader**: Eiji Inoue
  - **Deputy Leader**: Masao Sato
  - **Mapping Planner**: Mitsuo Yoshida

Aerial photography
- **Manager**: Masao Morita

Ground Control point survey
- **Chief Engineer**: Shinichi Sato
- Youich Takahashi
- Hideo Furusawa
- Mutumi Shimamura
- Yoshihiko Sagae
- Kiyoyuki Niwa
- Noboru Yamaura

Field Identification (topographic map)
- **Chief Engineer**: Nobuo Shimizu
- Yoshiaki Ohtoku
- Hiromi Ogawa
- Noriaki Tokuda
- Tokuji Morita
- Takakazu Tonegawa
- Shuichi Onda
- Toru Kimura
- Eiichi Hayakawa
- **Pricking**: Toshiaki Inada
- Nobuyoshi Sanuki

Field Identification (Land use map)
- **Chief Engineer**: Eiichi Hayakawa
- Izumi Kobayashi
- Shigeki Sano
- Chosei Shimizu
- Noboru Yamaura
- **Preliminary meeting**: Izumi Kobayashi

2–5 MINUTA DE LA REUNION AL INICIAR ESTUDIOS

2－5　現地作業開始時の協議議事録

MINUTES OF MEETING
ON
PLAN OF OPERATION
FOR
TOPOGRAPHIC MAPPING OF SAN JOSE METROPOLITAN AREA
IN
THE REPUBLIC OF COSTA RICA

PROJECT BETWEEN
NATIONAL GEOGRAPHIC INSTITUTE OF COSTA RICA
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

JUL. 20, 1990
San José, Costa Rica

ING. FERNANDO M. RUDIN
Director General
Instituto Geográfico Nacional

Mr. MASAO SATO
Deputy Leader
JICA Study Team
sign for Leader
Dr. EIJI INOUE

On the basis of Scope of Work agreed between the IGN and JICA on October 20,1988,the Japanese Study Team organized by JICA and headed by Mr. Masao Sato arrived at the Republic of Costa Rica on July 18,1990 to carry out the Phase III work for the study of topographic mapping of San José Metropolitan Area.

Prior to the commencement of Phase III work, a series of meetings were held from 19th July to 20th July and following items were discussed,confirmed and agreed by the IGN and JICA Study Team.

(1)The Plan of Operation for Phase III work for the Study prepared by JICA Study Team was agreed by the IGN.

(2)Concerning the data and information to be provided by the IGN for the subsequent cartographic work,they shall be handed to the JICA Study Team from the IGN before the departure of the Study Team from Costa Rica.

LIST OF ATTENDANTS

1.Government of Republic of Costa Rica
National Geographic Institute(IGN)

Mr. Fernando M. Rudin	General Director -IGN
Mr. Claudio Vieto	Deputy Director -IGN
Mr. Carlos L. Elizondo	Project General Coodinator
Mr. Max Lobo	Technical Coordinator
Mr. Eduardo Castro	Field Completion Assistant
Mr. Edgar Cedeno	Field Completion Assistant

2.JICA Study Team

Mr. Masao Sato	Deputy Leader
Mr. Mitsuo Yoshida	Mapping Planner
Mr. Nobuo Shimizu	Field Completion Manager
Mr. Eiichi Hayakawa	Field Completion Manager

2-6 MINUTA DE LA REUNION AL FINALIZAR ESTUDIOS
2 － 6 現地作業終了時の協議議事録

MINUTES OF MEETING
AT THE END OF
THE THIRD YEAR'S FIELD WORK
FOR
TOPOGRAPHIC MAPPING OF SAN JOSE METROPOLITAN AREA
IN
THE REPUBLIC OF COSTA RICA

PROJECT BETWEEN
NATIONAL GEOGRAPHIC INSTITUTE OF COSTA RICA
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

SEPTEMBER 10, 1990
SAN JOSE, COSTA RICA

ING. FERNANDO M. RUDIN
GENERAL DIRECTOR
NATIONAL GEOGRAPHIC INSTITUTE

井上英二
DR. EIJI INOUE
LEADER
JICA STUDY TEAM

MINUTES OF MEETING AT THE END OF THE THIRD YEAR'S FIELD WORK FOR TOPOGRAPHIC MAPPING OF SAN JOSE METROPOLITAN AREA IN THE REPUBLIC OF COSTA RICA

On the ending activities of the third year's field works for "Topographic Mapping of San Jose Metropolitan Area in Costa Rica" (hereinafter called "the Project"), the members of the National Geographic Institute (the IGN) and the JICA Study Team (the Team) have discussed various subjects in relation to the Project.
The following items have been confirmed and agreed by the IGN and the Team.

1. JOINT ACCORD

(1) The field works have been executed according to "Plan of Operation" for the Project (Phase III) which was agreed and signed between the IGN and the Team on 20th July 1990.
The schedule and volumes of the third year's field works have been done as shown in attached ANNEX-1.

(2) The technical and administrative staff of the Project have been composed of members of the IGN and the Team, taking into consideration of smooth implementation of all expert activities in the third year's field works (ANNEX-2).

(3) The IGN and the Team have discussed the amendment of map symbol and its application rule for the topographic and land use maps, which was already agreed between both parties in the second year's works, and agreed to amend as shown in attached ANNEX-3.

(4) The Team explained the procedure of cartographic work and printing for topographic maps and land use maps which will be executed in the third and fourth year's works in attached ANNEX-4.

(5) After several discussion, the IGN and the Team have agreed on the final marginal information design for

topographic map, land use map and on the modified marginal information sheets with signature. The modified special note for marginal information is attached in ANNEX-5.

(6) The IGN checked and authorized the results of field completion of topographic maps and land use maps as the final edition for scribing.

(7) The Team explained the modification of schedule for printing work from the third year's works to the fourth year's works as mentioned on the Plan of Operation (Phase III) and the IGN agreed to this modification of schedule.

2. REQUEST FROM THE IGN TO THE TEAM

(1) The IGN submited the plan for seminar which will be held on the next year organized by the IGN in San Jose, Costa Rica and requested the team to convey the plan for seminar to the head office of Japan International Cooperation Agency (JICA). The outline of seminar is attached in ANNEX-6.

3. REQUEST FROM THE TEAM TO THE IGN

(1) The Team requested to allow the attachment of one sheet of topographic map and land use map in every final reports of the Project which will be prepared on the fourth year's works to the IGN and the IGN agreed to it.

(2) The Team explained the IGN to dispose of the PS aluminum plates, which will be used for printing, after the completion of printing work in Japan and the IGN agreed to it.

4. LIST OF ATTENDANTS

(1) Attendants of Meeting

a. The IGN

Mr. Fernando M. Rudín	General Director-IGN
Mr. Claudio Vieto	Deputy Director-IGN
Mr. Carlos L. Elizondo	Project General Coordinator
Mr. Hernán Cantillano	Mapping Manager
Mr. Max A. Lobo	Field Completion Coordinator
Mr. Edgar Cedeño	Field Completion Assistant
Mr. Eduardo Castro	Field Completion Assistant
Mrs. Grace Vargas	Mapping Survey Assistant

b. The Team

Mr. Eiji Inoue	Leader
Mr. Masao Sato	Deputy Leader
Mr. Mitsuo Yoshida	Mapping Planner
Mr. Sadao Watanabe	Cartographic Engineer
Mr. Eiichi Hayakawa	Field Completion Manager
Mr. Nobuo Shimizu	Field Completion Manager

c. The Advisory Team

Mr. Kakeru Yamamoto	Technical Advisor Geographical Survey Inst., (GSI)
Mr. Yoshio Saito	Advisor-JICA Hachioji International Training Center

d. Embassy of Japan

Mr. Yasusada Oue	Second Secretary

THE SCHEDULE AND VOLUMES OF THIRD YEAR'S WORKS

Item of work	Volume	Schedule
1. Explanation meeting of Plan of Operation and preparation of field work		7/19 - 7/24
2. Field completion (for topographic map)	1,600 km2	7/25 - 9/10
3. Field completion (for land use map)	800 km2	7/25 - 9/10
4. Preliminary meeting (for cartography and printing)		7/25 - 8/10
5. Meeting for summarizing of third year's work		9/7 - 9/10

MEMBER'S LIST AND THEIR ASSIGNMENT

The IGN

General Director
Fernando M. Rudín

Deputy Director
Claudio Vieto

General Coordinator
Carlos L. Elizondo

Administrative Support
Francisco Arroyo
Víctor Rivas
Elías Porras
Marta Martínez
Claudio Calderón
Flor Barquero
Alberto Vosman

Field Completion Coordinator
Max A. Lobo

Field Completion Assistants
Edgar Cedeño
Eduardo Castro

Field Completion Counterpart
Fernando Mesén
Humberto Hernández
Hector Chavarría
Anabelle Araya
Willy Mora

Mapping Survey Assistants
Hernán Cantillano
Grace Vargas
Eduardo Vindas
Giovanni Ocontirillo
Olga Segura
Sandra Vargas
Vilma Salazar
Alexandra Ocampo
Sergio Benach

Drivers
Ricardo Granados
Luis Valverde
Edgar Hernández
Olger Villegas
Luis Chaves
Helberth Mora

The Team

Leader
Eiji Inoue

Deputy Leader
Masao Sato

Scribing and Printing Engineer
Sadao Watanabe

Mapping Planner
Mitsuo Yoshida

Field Completion Chief Engineer(Topo.)
Nobuo Shimizu

Field Completion Team
Hiromi Ogawa
Takakazu Tonegawa
Tokuji Morita
Toru Watanabe
Syuichi Onda
Noriaki Tokuda

Field Completion Chief Engineer(Land)
Eiichi Hayakawa

Field Completion Team
Izumi Kobayashi
Shigeki Sano
Noboru Yamaura

Interpreter
Yoshio Kaeriyama

3　その他の資料

3 Otras Informaciones

3 － 1 製図・印刷に関わる協議確認項目 (MEMORANDUM)

3- 1 ITEMS CONFIRMADAS PARA TRAZADO Y IMPRESION(MEMORIAS)

ITEMS TO BE DISCUSSED AND CONFIRMED FOR CARTOGRAPHY AND PRINTING

31,JUL.,1990

1.Group and representative of each stage

2.Tentative working schedule of cartography and printing

3.Method of cartography

4.Sheet of marginal information and its style

5.Concerning about annotation rule

6.Concerning about map symbol and its application rule(DRAFT)

7.Detailed discussion (items to be reconfirmed)

8.Concerning about printing

9.The others

MEMORANDUM

MEMORANDUM OF MEETING 1

Date of meeting : 19th July 1990
20th July 1990
23th July 1990
24th July 1990
26th July 1990

JICA Study team explained the Plan of Operation for 3rd year's work to IGN and following items were discussed and confirmed.

1. IGN agreed basically the Plan of Operation which were explained by JICA Study Team. However, IGN will submit the official comments for Plan of Operation of 3rd year's work on 27th July 1990 after the discussion between the IGN.

2. Detailed technical matters concerning 3rd years's work will be discussed after 2nd JICA Study Team arrives to Costa Rica.

3. JICA Study Team explained the final products to be delivered to IGN. Especially, original plates of printing will not be included in the final products due to the reason of different specifications of printing machine which will be used in Japan and IGN's printing machine. The size of negative edition for printing will be discussed after 2nd JICA study Team arrives to Costa Rica and the information of available dimension of printing plate of IGN's present printing machine will be informed to JICA study Team later.

4. JICA Study Team requested to IGN to assign two persons for trainees in Japan instead of one person for 3rd year's work and IGN agreed it.

5.Final inspection of scribing will be executed by trainees from IGN and JICA Study Team in Japan. The items to be checked by both parties were agreed as follows;
a.Trainees from IGN will check the spelling, symbols and its position on the maps.
b.JICA Study Team will check the topographic features on the maps.

6. IGN agreed the JICA mark on the top of map and adjacent index map which were proposed from JICA Study Team.

7.Concerning the simbols in administrative index map, IGN requested to use official code number of Canton and agreed by JICA Study Team.

8. The salary of Government officials incleased 10-13% comparing with last year. Therefore, IGN requested to JICA Study Team to consider this situation and JICA Study Team agreed it.

9. JICA Study Team aubmited organization
plan of personnels and vehicles for field survey work and IGN explained the IGN's staffing for field work. Furthermore, IGN will assign the additional staffs for checking of annotation.

10. Concerning map symbols and application rules in the stage of scribing, IGN requested to modify the several

items to JICA Study Team and JICA Study Team agreed to discussed detailed items of modification after 2nd JICA study Team arrives at Costa Rica.

11. JICA Study Team and IGN introduced each other members of JICA Survey Team and counterparts and drivers from IGN each other. The explanation meeting of field completion method was agreed to held on 30th July 1990 by both parties.

MEMORANDUM OF MEETING 2

31,JUL,1990LIST OF ATTENDANTS

IGN	JST
Miss Grace Vargas	Mr. Masao Sato
Mr. Hernan Cantillano	Mr. Mitsuo Yoshida
Mr. Claudio Vieto	Mr. Sadao Watanabe
Mr. Sergio Benach	Mr. Noriaki Tokuda
Mr. Carlos Elizondo	Mr. Nobuo Shimizu
	Translater
	Mr. Yoshio Kaeriyama

1.Group and representative of each stage

General coodinator	Mr. Nobuo Shimizu
Leader for control of cartography and printing	Mr. Sadao Watanabe
Assistant of leader	Mr. Noriaki Tokuda
	Mr. Takakazu Tonegawa
Control of Annotation	Mr. Syuichi Onda
Scribing engineer	15 person
Printing engineer	5 person

JST will co-operate with IGN staffs who will come to Japan for inspection of scribed sheets.
Concerning about printing in Phase 4,IGN staff will come to Japan for inspection and signature on final test printing.

2.Tentative working schedule of cartography and printing

Tentative schedule had explaned by using attached table in Plan of Operation.

Cartography	Start from August,1990 to March,1991 for topographic map(contour line) Start from September,1990 to March, 1991
Inspecion by Japanese third party	Start from January,1990 to March,1991
Inspection by IGN in Japan	Start from January,1990 to March,1991

JICA head office is considering start to printing on April.

3.Method of cartography

JST had explaned the flowchart of cartography of topographic map and land use map.

Material K&E co.,ltd scribing base and masking base

JST had agreed the change of colour dendity of road.
JST had agreed materials which are used for cartography and printing except P/S plate.
Printing paper shall be used as attached table for

characteristic paper.

4.Sheet of marginal information and its style

IGN had agreed in principle but some items shall be discussed in IGN.

The tytle of 'USO DE LA TIERRA' shall be shown on the right upper corner but in the case of topographic mapping,the tytle of 'MAPA TOPOGRAFICO'shall not be shown.

JST had requested to IGN about presentation of the date and place of printing on the left lower corner.

5.Concerning about annotation rule

The classification of administrative name had requested by JST as follows;

ORDER OF ADMINISTRATIVE NAME

		memo;
Cabecera of PROVINCIA	18B	Cabecera=Capital
Cabecera of CANTON	16B	
Cabecera of DISTRITO	14B	
CASERIO,POBLADO	12B	
BARRIO,URBANIZACION	10B	
Finca,Hacienda	10b	

The type of inhabitable name had suspended until the end of this week.
IGN will hand to JST list of annotation.

The following items had changed and confirmed between JST and IGN.

AUTOPISTA,FERROCARRIL	E08-24	8kyu
CARRETERA	E08-22	7kyu

RIO,QUEBRADA
The size of annotation depend on its length and volume of water and list of annotation size shall be handed to JST.
CERRO
If the area is wide or long situation,16kyu shall be added.

NAME FOR SPECIAL LIMITATION	E16-24	10b
THE OTHERS	E08-22	

In tabel for annotation rule ,it had changed 'C' to 'c'.

6.Concerning about map symbol and its application rule

TOPOGRAPHIC MAP

PAGE	NO.	
1	5	The value of spot height shall be adopted inclined type.
2	1	INDEX C. 0.2mm
		INTERMEDIATE C. 0.1mm
		SUPPLEMENT. C. 0.1mm

3 9 Name shall be adopted one name.
IGN will inform later.
3 12 Inside of 'Tajo' shall be tinted 10% screen.
4 1 Line weight of road marker 0.2mm
2 Marker of tertial road
Size of its marker shall be designed by JST.
Marker shall be symbolized at the starting position and ending position on the map ,and if possible it shall be shown in the center.
Marker shall always be set on the upper side.
Red screen shall be tinted 40% density.
4 6
7 Line weight of single line 0.25mm
5 15
6 4 Railway station Black screen 50%
7 2 Prominent building DITTO
7 6 Independent building house Black dot screen 10%
7 7 Establo,Granja Black dot screen 10%
8 8 Hospital and health center 0.2mm for closs part
9 16 Public market and prominent store
M size 2.0mm
10 19 Library
10 21 Red cross Black colour
12 8 Bus station
12 9 Airport, Airfield solid line
If the building symbol locate in a house,background of symbol shall be opecced.
13 16 Recreation center
17 Sport center Green screen 20%
18 Zoological garden
13 19 Experimental field Green screen 40%
14 25 Rubbish dump Brown screen 10%
17 16
Pool shall be printed in legend,annotation shall not be expressed on a map in principle. Outline of pool shall be shown by black line and tinted by blue inside.
18 17 Deposition for water
18 Sewerage plant Outline black colour
19 Water treatment and filtering plant
19 22
Size of vegetation symbol shall be applied as sample printing.
20 14 Transitional urban area Symbol shall not use

MEMORANDUM OF MEETING 3

Date of meeting;1 Aug 1990

List of attendants

IGN

Miss. Grace Vargas
Miss. Sandra Vargas
Mr. Sergio Benarch
Mr. Alberto Vosman Roldan
Mr. Carlos Elizondo

JST

Mr. Masao Sato
Mr. Mitsuo Yoshida
Mr. Sadao Watanabe
Mr. Izumi Kobayashi
Mr. Noriaki Tokuda
Mr. Nobuo Shimizu

Translator

Mr. Yoshio Kaeriyama

1.Request from IGN to JST

IGN requested to change concerning about opec of background. On 31th'meeting,JST had agreed that if the building symbol locate in a house,background of symbol shall be oppeced. But IGN requested to use violet colour of symbol instead of opec method.

JST replied that we cannot judge for using violet colour by ourselves. Concerning about addition of colour,we must take note to JICA head office.

IGN requested to JST for new idea to get a clear presentation in such a case unless addition of colour.

Two types of solution are shown by JST.

1.Symbol shall be used more dense blue colour.
(for both topographic map and land use map)

2.Screen of background house shall be tinted pale in colour.

IGN and JST postponed to get result until next Friday morning after detailed discussion each other.

2.Questionarie from JST

JST asked about presentation of 'salon Comunal'.

IGN answered as follows;

Application rule are symbolized more than 1.5mm x 1.5mm on the map as independent house.

Symbol ; Ⓢ 2mm

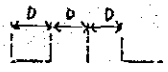
Its symbol is add to 'MAP SYMBOL AND ITS APPLICATION RULE'

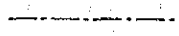
at page 10 ,as no.24.

JST suggested about no use of industry symbol for Establo,Granja.
IGN replied that it shall be plotted as application rule because of involving to factory in official document ,distinction and classification from land use map.
Data and information which shall be plotted on a map will be handed to JST from IGN authority.

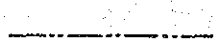
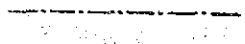
3.Explanation of map symbol and its application rule for land use map
JST explaned to IGN about map symbol and its application rule by using sample print,IGN agreed in principle.

4.Detailed discussion(items to be discussed)
JST asked method of presentation of administrative boundary.
IGN answered as follows;
In principle,IGN promised to hand administrative boundary maps to JST.
Boundary shall be intermittent in case of road and river,the other case shall be continuas line.

Intermittent; 

Continuas; 

Boundary of Provincia and Canton shall be shown as follows;

Provincia; 
Canton; 

IGN promised to present high accurate compiled map at full responsability.

n.b. Name of Province and Canton Shall not be shown on the map.

IGN requested to JST two blue copy (one is Dermina ,the other is paper print),JST answered to ready on next Friday.

Spot height; 1256.2 → 1256.2

Direction of flag symbol of church,school,mosque
Regulation of direction is,in principle,shall not be shown in road,in case of densed area,it can be shown in oblique direction from its corner.

Annotation of road shall be set in principle inner of road.
In case of Autopista,it shall be annotated upper side of it.

5.Concerning about printing
JST introduced printing machine for using in this project.

Specification of material

Cartographic material;		22inch x 32inch
final print	;	75cm x 54cm
		(29.6inch x 21.3inch)

IGN and JST discussed the posibility of production in IGN.
Its no problem about size for making plate but the distance,type of register holes are different.
JST promised to bring Japanese type register pin,and therefore IGN can punch new register holes by IGN.

JST introduced material of final print paper by using characteristic table,IGN agreed for using introduced paper.

6.The others
a)JST request confirmation of Plan of Operation as soon as possible.
IGN agreed to sign on next Friday.
b)JST and IGN agreed contract condition of guide and driver,overtime fee,time control,in case of imergency.
c)JST request the type,model,year of IGN's car.

NEXT MEETING SHALL BE HELD ON NEXT FRIDAY.

MEMORANDUM OF MEETING 4

Date of meeting; 3,Aug.,1990

List of attendants

IGN

Miss. Grace Vargas
Miss. Sandra Vargas
Mr. Hernan Cantellano
Mr. Carlos Elizondo

JST

Mr. Masao Sato
Mr. Mitsuo Yoshida
Mr. Sadao Watanabe
Mr. Noriaki Tokuda
Mr. Nobuo Shimizu

Translator

Mr. Yoshio Kaeriyama

1.Question from JST to IGN
Application of prominent building

Prominent building including public and govermental building(school,church,library,etc.)which are annotated or symbolized,shall be applied.Warehouse,pump house,etc.,are not including. Minimum size shall be adopted less than 1.5mm x1.5mm on the map. Data shall be prepared by IGN.

Concerning about data of wells and tanques which had been handed on September,1990 by IGN

In the case wells and tanques cannot find in the field,IGN confirmed that wells and tanque shall be plotted on a map which are identified in a field.

2.Suspended items
Method of presentation of building symbol and colour on final map

Symbol;blue(CF8473J)
Using strong line weight when it is in dense housing area.
Type of annotation;E08-22
Screen of water;10%

3.Screen of housing area

Independent housing area;10%

Generalized housing area;30%
Prominent building ;50%

4.Size of cartographic material

22inch x 31inch

5.Request from IGN

IGN requested blue building symbol and river edition shall be separeted in cartography,JST agreed.

6.Request and reconfirmation to IGN from JST

Request of check for marginal information including spelling edition no. of each map,presentation of layout,annotation of 'PRINTING IN JAPAN'' in spanish,magnetic declination

IGN will deliver to JST marginal information data on next Tuesday.

Reconfirmation of type of administrative name;
E16-24
Reconfirmation of type and size of destination name;
E08-22 Capital letter
7kyu

7.Presentation M/M about colour design is as follows;

Concerning about colour design of final print,JST and IGN had series of discussion of it by using sample print of topographic map and land use map. IGN agreed and confirmed ,in principle,but there are some small change of colour cause by mixing of ink,temparature,humidity during printing.

8.Colour design of topographic map

IGN request to change the colour design of No.3 and No.4 of map symbol and its application rule of land use map the reason why No.3 and No.4 are similar on a map.

No.3

Red screen; 60% ---------- 40%

Next items are pending until next Tuesday.

1)

If the screen of items will be located in generalized housing area ,the tone of items are different presentation on a map,therefore colour design on legend shall be modified for distinction.

2)No.21 is too dark on a map, it shall be change of colour design into more light.

3)No.15 and No.26 are similar colour,therefore it shall be modified.

NEXT MEETING WILL BE HELD ON NEXT TUESDAY.

MEMORANDUM OF MEETING 5

Date of meeting; 7,Aug.,1990

List of attendants

IGN

Miss Grace Vargas
Mr. Hernan Cantellano
Mr. Carlos Elizonzo

JST

Mr. Masao Sato
Mr. Mitsuo Yoshida
Mr. Sadao Watanabe
Mr. Noriaki Tokuda
Mr. Takakazu Tonegawa
Mr. Nobuo Shimizu

Translator

Mr. Yoshio Kaeriyama

1.Pending items

Colour of Hortalizas y Granos(No.15)and Charral(No.26)shall keep the orignal colour.

Colour of 'Explotacion Agropecuaria Confinada(No.21)' changed as follows;

Yellow = 40%
Blue = 20%
Red = 80%

Colour separation on legend

JST request which items shall be separeted in colour chart.
IGN wanted pending for considering relation between topographic map and land use map until 8th,Aug.

2.Marginal information

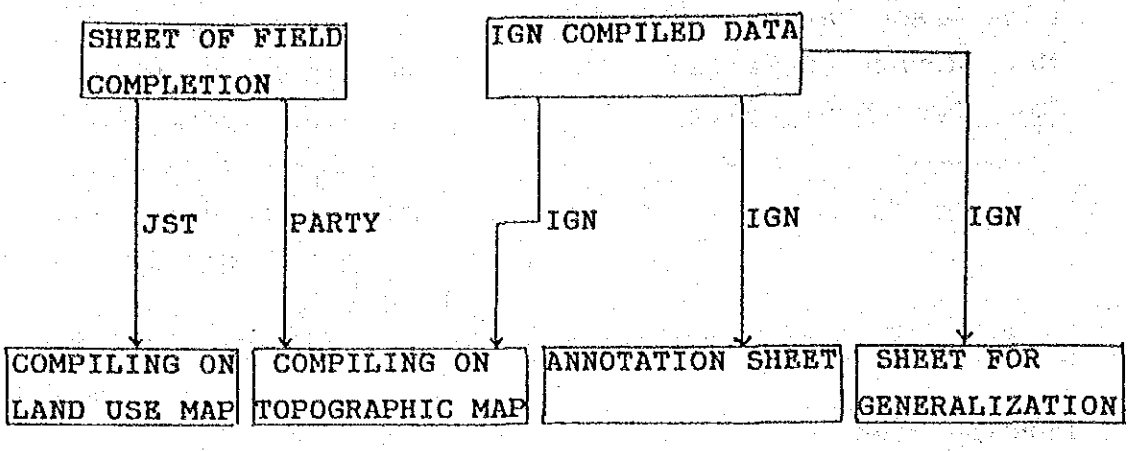
After discussion,JST request to indicate modified items on marginal information sheet to IGN.
IGN promised modified marginal information sheet shall be handed to JST on 8th,Aug.

3.Request to explanation to IGN counterpart by IGN

JST request to explane method of field completion to each IGN counterpart by IGN. Because the work shall be done in same condition and idea of each counterpart.
IGN promised to make a meeting in 8th,Aug.

4.Compiling method about field completion

JST proposed the compiling method about field completion to IGN. IGN agreed it,and the method is as follws;



MEMORANDUM OF MEETING 6

Date of meeting; 8,Aug.,1990

List of attendants

IGN

Miss Grace Vargas

Mr. Hernan Cantellano

Mr. Carlos Elizondo

JST

Mr. Masao Sato

Mr. Mitsuo Yoshida

Mr. Sadao Watanabe

Mr. Noriaki Tokuda

Mr. Nobuo Shimizu

Translator

Mr. Yoshio Kaeriyama

1.Pending items

After a series of discussion for cartographic and printing items,modified map symbol and its application rule including annotation rule for topograhic map and land use map were confirmed and agreed by JST and the IGN.

Marginal information for topographic map and land use map

After several discussion about final marginal information design for topographic map and land use map, modified marginal information sheets with signature were confirmed and agreed by JST and the IGN.

Colour separation on legend for land use map

IGN requested 8 items to be presentated into 2 separations of colour chart on legend for land use map,JST confirmed and agreed.

2.JST received the following information from the IGN,and Mr watanabe brought back them to Japan for cartography.

Modified marginal information sheet	
Topographic map	1sheet
Land use map	1sheet
Mark of IGN	1sheet
Modified map symbol and its application rule	
Topographic map	1set
Land use map	1set

3 － 2 注記規定表 3- 2 TABLA DE REGLAMENTO DE ANOTACIONES

PROJECT GAM/IGN-JICA

Table of annotation rule (DRAFT)

Items		Sample of presentation	Size (KYU)	Type	Arrangemnt simbol on name overlay
Inhabitable place name	Distrito				
Population	(more than 10000)		16	E16-24	16.B
	(5000 to 10000)		14	DITTO	14.B
	(3000 to 5000)		13	DITTO	13.B
	(Less than 3000)		12	DITTO	12.B
	Poblados		11	E16-24	11.B
	(If Poblados are located in Distrito whose population are less than 3000,it shall be adopted following size and type.)		10	E16-24	10.B
	Barrios		10	E16-24	10.B
Administrative name	Canton	CANTON SAN JOSE CANTON ALAJUELA (Display from administrative data)	16	E01-24 EU01-24 (Both are available)	16.A
	Province (Display along provincial border)	PROVINCIA DE SAN JOSE (Display from administrative data)	14	DITTO	14.A
Road name	High way	AUTOPISTA GENERAL CAÑAS (Diaplay from the map 1:50,000)	8	E08-25 EU08-25 (Both are available)	8.E
	National way and the others (Destination)	CALLE RIBERA (Diaplay from the map 1:50,000)	8	DITTO	8.E
Railway name	Railway	FERROCARRIL DE COSTA RICA (Using only this name)	8	DITTO	8.E
Building name, Small object name and Area name	Building	Iglesia San José Centro de recreación (Use from name list)	9	E08-22 EU08-22 (Both are available)	9.C
	Small object	Silo,Agua (Use from the name list)	9	DITTO	9.C
	Area	Campo de golf Cancha de futbol (Use from the name list)	9	DITTO	9.C
River	1.Double line river	RIO VIRILLA RIO REVENTAZON RIO GRANDE (Only these 3 rivers are available from 1:50,000 map)	16	E30-25 EU30-25 (Both are available)	16.D A

ATTENTION OF ANNOTATION OF RIVER

Double line river;
In principle,all annotation shall be shown in capitals, with no accent.

Single line river;
In principle,it shall be shown with capital letter and small letter.

Geografical name	Small letter Mountain Hill (Holizontal and oblique presentation)	Montana Tibás Alto Tibás Loma Tibás Cerro Tibás (Display from 1:50,000 map)	10	E08-25 EU08-25 (Both are available)	10.e
	Middle letter Mountain Hill (DITTO)	Cerro Piedra Cerro de Escazú Cerro Chompipe (DITTO)	12	DITTO	12.e
	Big letter Mountain Hill (DITTO)	Cerro Palomas Cerro de la Carpintera MONTES DEL AGUACATE (DITTO)	14 16	DITTO DITTO (Depend on its area)	14.e 16.e
The others	Name for special limitation	Finca Pionos Villa Marta Hda.Santa Inés (Hacienda) (Display from 1:50,000 map)	10	E16-24	10.b
	Channel	Canal (Display from 1:50,000 map and data of field clasification,etc.)	9	E08-22 EU08-22 (Both are available)	9.c
	Wel	Pozo (DITTO)	9	DITTO	9.c Ⓐ
	Swimming pool	Piscina, (DITTO)	9	DITTO	9.c Ⓐ
	Deposit for water	Deposito (DITTO)	9	DITTO	9.c Ⓐ
	Resavoir	Embalse (DITTO)	9	DITTO	9.c Ⓐ
	Lake	Lago (DITTO)	9	DITTO	9.c Ⓐ
	Hewn stone	Tajo (DITTO)	9	DITTO	9.c
	Name for public area	Cementerio de Boqueron	9	DITTO	9.c

PROYECTO GAM/IGN-JICA

REGLAMENTO DE ANOTACIONES

1) CENTROS DE POBLACION : E16-24

a) CABECERA DE PROVINCIA : 18B
b) CABECERA DE CANTON : 16B
c) CABECERA DE DISTRITO : 14B
d) CASERIO, POBLADO : 12B
e) BARRIO, URBANIZACION : 10B
f) Finca, Hacienda : 10b

2) AREAS DELIMITADAS

a) Plaza, Parque, Cementerio, Club, Centro, etc :E08-22=9C
b) ZONA PROTECTORA :E16-24=14B
c) ZONA INDUSTRIAL :E16-24=14B

3) RED VIAL (Carreteras/Ferrocarril)

a) AUTOPISTA/FERROCARRIL :E08-24=8A
b) CALLE/AVENIDA, etc. :E08-22=7C
c) DESTINO VIAL :E08-22=7C

4) EDIFICIOS/INFRAESTRUCTURA :E08-22

a) Edificios prominentes :9c
b) Infraestructura/general (instalaciones públicas) :9c

5) CARACTERISTICAS OROGRAFICAS : E08-25

a) EXTENSA : 16E
b) GRANDE : 14E
c) Mediana : 12e
d) Pequeña : 10e

6) RED HIDROGRAFICA

a) RED DE DRENAJE : E30-25

-Orden 7° - RIOS : 18D(A)
(RIO GRANDE DE TARCOLES)
-Orden 6° - RIOS : 18D(A)
(RIO GRANDE, RIO VIRILLA)
-Orden 5° - RIOS : 16D(A)
-Orden 4° - RIOS : 14D(A)
-Orden 3° - Ríos/Queb. : 14d(A)
-Orden 2° - Queb./Ríos : 12d(A)
-Orden 1° - Quebradas : 10d(A)

b) Infraestructura hídrica : E08-22=9c
(Canal, Acequia, Pozo, etc)