3-3-2 Organization and Personnel Management

(1) Organizational Structure

The organizational structure of the PFC, FCPC and F/L are proposed as presented in FIG. 3-4, 3-5 and 3-6. PFC personnel are all technical staff other than administrative staff, and 16 engineers will be stationed at 5 laboratories (Entomology, Phytopathology, Weed control, Biological and Vertebrate labos).

The FCPC are divided into 5 sections including general affairs, four of which include technical staff. Two sections are responsible for laboratories while the other two cover data analysis and operation and maintenance, and pest control support.

Where a multipurpose laboratory (Vertebrate control or Biological control) is included in the F/L, three laboratory rooms will be installed and technical staff will total 20 people, including the Director and Section Chief. Experimental paddy field work will be carried out by part-time workers.

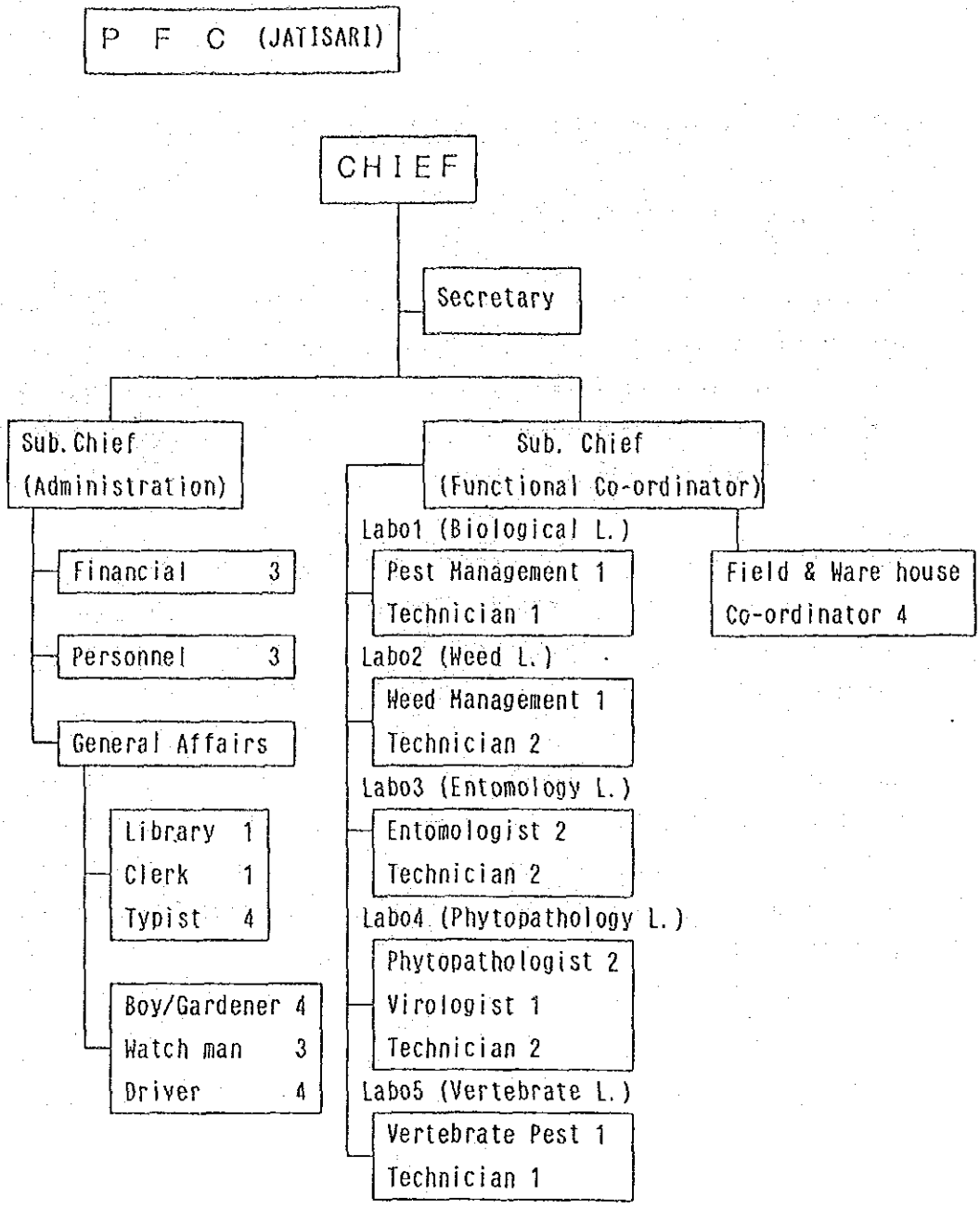

P F C (JATISARI)
CHIEF
Secretary
Sub.Chief
(Administration)
Financial 3
Personnel 3
General Affairs
Library 1
Clerk 1
Typist 4
Boy/Gardener 4
Watch man 3
Driver 4
Sub. Chief
(Functional Co-ordinator)
Field & Ware house
Co-ordinator 4
Labo1 (Biological L.)
Pest Management 1
Technician 1
Labo2 (Weed L.)
Weed Management 1
Technician 2
Labo3 (Entomology L.)
Entomologist 2
Technician 2
Labo4 (Phytopathology L.)
Phytopathologist 2
Virologist 1
Technician 2
Labo5 (Vertebrate L.)
Vertebrate Pest 1
Technician 1

FIG. 3-4

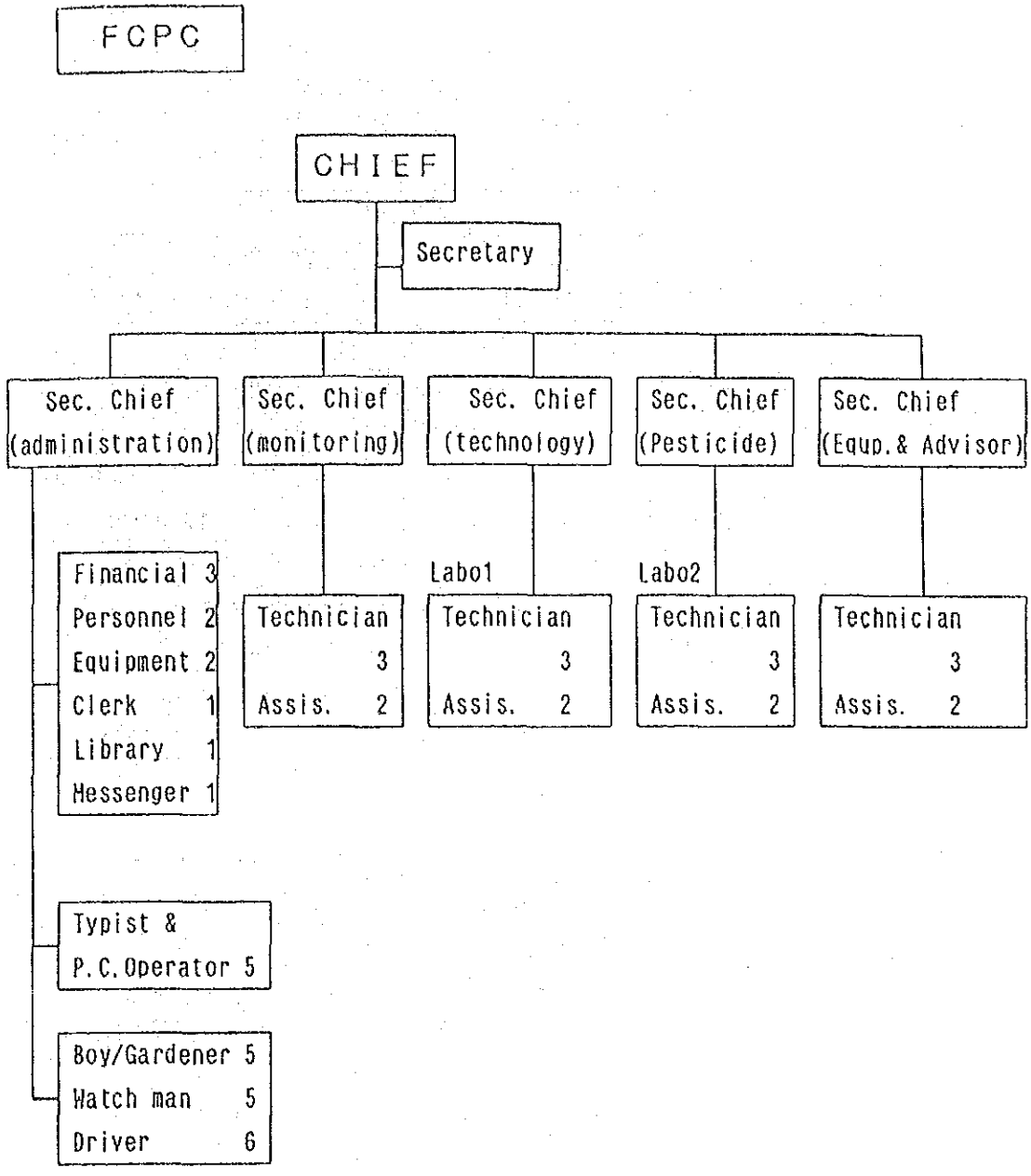

FCPC
CHIEF
Secretary
Sec. Chief (administration)
Sec. Chief (monitoring)
Sec. Chief (technology)
Sec. Chief (Pesticide)
Sec. Chief (Equp.& Advisor)
Financial 3
Personnel 2
Equipment 2
Clerk 1
Library 1
Messenger 1
Technician 3
Assis. 2
Labo1
Technician 3
Assis. 2
Labo2
Technician 3
Assis. 2
Technician 3
Assis. 2
Typist & P.C.Operator 5
Boy/Gardener 5
Watch man 5
Driver 6

FIG. 3-5

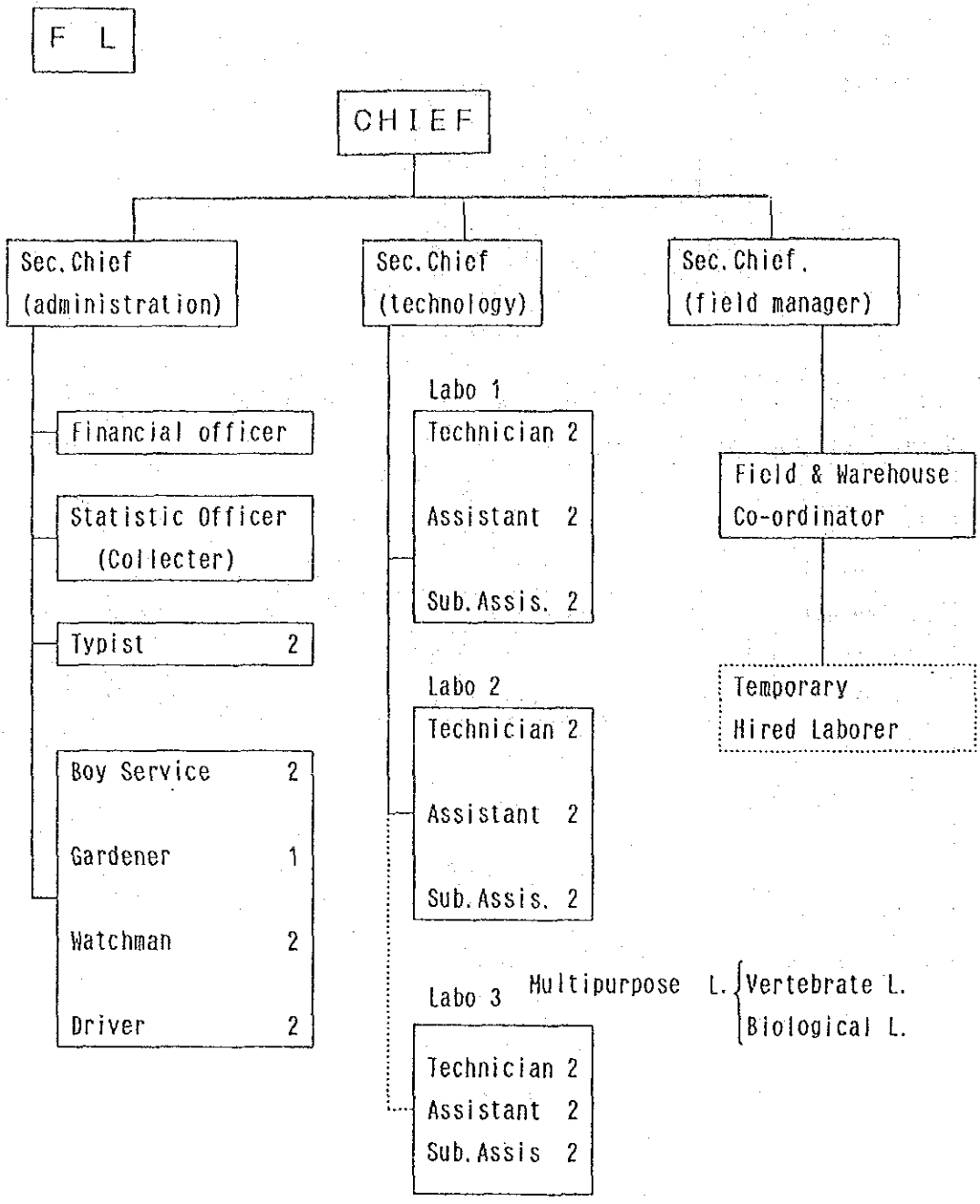

F L
CHIEF
Sec. Chief (administration)
Sec. Chief (technology)
Sec. Chief, (field manager)
Financial officer
Statistic Officer (Collecter)
Typist 2
Boy Service 2
Gardener 1
Watchman 2
Driver 2
Labo 1
Technician 2
Assistant 2
Sub. Assis. 2
Labo 2
Technician 2
Assistant 2
Sub. Assis. 2
Labo 3
Technician 2
Assistant 2
Sub. Assis 2
Multipurpose L.
Vertebrate L.
Biological L.
Field & Warehouse Co-ordinator
Temporary Hired Laborer

FIG. 3-6

(2) Personnel Management Plan

Personnel requirement for each facility is as listed below.

1) PFC Jatisari

Position	Number
Chief	1 (university graduate)
Secretary	1
Sub-Chief (technology)	1 (university graduate)
Sub-Chief (administrative)	1 - do. -
Technician	8 - do. -
Assistant	8
Field Coordinator	4
Office Worker	13
Part-time Worker	11
Total	48 (of which 12 are university graduates)

One expert technician will be employed for each field including pest control, weed control, virology and field rat control, and two experts each will be employed for entomology and phytopathology, to manage the five laboratories as shown in FIG 3-4. Each expert will be a university graduate and will have 1 to 2 assistants.

The experimental paddy field and net house will be used jointly by each laboratory in consultation with the Field Coordinator. The latter will be responsible for farm operation and maintenance. Office workers include four typists and, in some cases, a computer operator may also be required for data input.

2) FCPC

Position	Number
Chief	1 (university graduate)
Secretary	1
Section Chief(administration)	1 (university graduate)
Section Chief(monitoring)	1 - do. -
- do. - (technology)	1 - do. -
- do. - (pesticide)	1 - do. -
- do. - (equipment & training)	1 - do. -
Technician(3 for each of the 4 technical sections)	12 (academy graduates)
Assistant (2 for each of the 4 technical sections)	8 (vocational school graduates)
Office Worker	15
Part-time Worker	16
Total	58 (including 6 university graduates)

Office workers include 4 typists and 1 computer operator. Full data input will be undertaken once a week on a computer for statistical analysis. Data analysis will mainly be conducted by the monitoring section.

The technology and pesticide sections will use the labo and net house under joint management. When use of the experimental paddy field is required to test technology, joint experiments will be conducted at the associate laboratory.

The equipment and training section will be equipped with a workshop and will be responsible for inspection and maintenance of F/L and Pest Brigade equipment. Accordingly, technicians in this section will be experts in equipment analysis and overhaul.

3) F/L

Position	Number
Chief	1 (university graduate)
Sec-Chief (technology)	1 (academy graduate)
Sec-Chief (farm manager)	1 - do. -
Sec-Chief (administration)	1 - do. -
Technician	4 - do. -
Assistant	4 - do. -
Sub-Assistant	4
Field Coordinator	1 (academy graduate)
Office Worker	4
Part-time Worker	7
Total	28

F/L at which a biological control or field rat control laboratory is to be constructed will have two extra technicians, assistants and sub-assistants for a total staff of 34 (FIG 3-6).

The two laboratories, one for pest control and the other for disease control, will have six staff members each. (In the case of multipurpose lab, there will be 3 labs). Technicians will use the experimental paddy field and net house jointly and operation and maintenance of the same will be conducted by the Field Coordinator. The statistician will collect data from O/U, disseminate data to FCPC and compile local data, and should also exchange information with technicians.

Farm work at the experimental field will be carried out by temporary farm workers and technicians should participate in field work to familiarize themselves with paddy farming. A spirit of understanding and cooperation should therefore be promoted between the Farm manager and the Technology Sec-Chief.

(4) Number of Involved Personnels

Existing, proposed, and required personnels are tabulated in the following table. Newly appointed officials by the academic qualification are 33 of Univ. Graduates, 188 of Academy Graduates, 124 of High School (including agricultural vocational school) Graduates, and 248 of others, respectively.

Out of 33 Univ. Graduates, 15 are to be appointed as FL head. Majority of them will be expected to transfer from Extension Office or Research Institute in MOA.

Pest observers educated in the appropriate university for one year are qualified as the Academy Graduate, and 20-30 Pest observers graduated from the vocational school have educated every year to be accommodated from the above-mentioned diploma course.

Employees qualified as High School Graduates and others can be easily appointed because of plentiful applicants. It is very important to employ qualified personnel to strengthen function of the DFCP net-work system.

Annual budget for these additional personnel expenses is roughly estimated for RP. 535,500,000 as follows:

	Average		
	Monthly Salary	Yearly Salary x persons	
Univ. Graduates	Rp.125,000	1,500,000 x 33 =	49,500,000
Academy Graduates	Rp.100,000	1,200,000 x 188 =	225,600,000
High school graduates	Rp. 75,000	900,000 x 124 =	111,600,000
Others	Rp. 50,000	600,000 x 248 =	148,800,000
Total		593	Rp.535,500,000

Education / Organization	Existing					Proposed				
	Univ.	Acade-my	High School	Others	Total	Univ.	Acade-my	High School	Others	Total
DFCP	20	25	82	25	152	20	25	82	25	152
PFC	10	-	-	15	25	11	10	20	7	48
FCPC (Bandung)	2	2	18	13	35	6	12	26	14	58
(Semarang)	5	-	10	10	25	6	12	26	14	58
(Surabaya)	9	2	28	10	49	6	12	26	14	58
(Denpasar)	4	-	10	14	28	6	12	26	14	58
FL (Java total)	5	2	21	35	63	31	118	85	242	476
(Bali)	-	-	-	-	-	2	18	10	32	62
Total	55	31	169	122	377	88	219	301	362	970

Education Organization	University	Academy	High School	Others	Total
PFC	1	10	12	-	23
FCPC	4	44	38	9	95
FL	28	134	74	239	475
Total	33	188	124	248	593

New personnel Appointment to the projected facilities are scheduled by DFCP as follows:

Education	Univ. & Academy								High School				Others		Total	
Source	Extension Office		New Graduates		Diploma Graduates		Academy New Graduates		Pest Observer		New Graduates		Others		Extra or Part time Worker			
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1. PFC Jatisari	2	4	2	6	-	-	2	2	-	2	2	6	-	-	5	5	13	23
2. FCPC Bandung	-	-	2	4	-	-	-	-	-	2	1	2	2	5	9	10	14	23
3. FCPC Semarang	-	-	2	4	2	2	-	3	-	-	1	3	2	6	13	15	20	33
4. FCPC Surabaya	-	-	1	4	-	-	1	2	-	-	-	-	1	3	3	3	9	15
5. FCPC Denpasar	-	-	2	5	-	-	-	-	-	-	2	4	2	6	14	15	20	30
6. FL Serang	1	1	2	7	1	1	1	1	-	3	1	4	2	4	5	7	13	28
7. FL Cianjur	1	1	3	8	1	1	1	2	-	5	2	5	3	5	5	7	16	34
8. FL Tasikmalaya	1	1	2	7	1	1	1	1	-	3	1	4	2	4	5	7	13	28
9. FL Indramayu	1	1	3	8	1	1	1	2	-	5	2	5	3	5	5	7	16	34
10. FL Pati	1	1	2	7	1	1	1	1	-	3	1	4	2	4	5	7	13	28
11. FL Sukoharjo	1	1	2	7	1	1	1	1	-	3	1	4	2	4	5	7	13	28
12. FL Temanggung	1	1	3	8	1	1	1	2	-	5	2	5	3	5	5	7	16	34
13. FL Banyumas	1	1	3	8	1	1	1	2	-	5	2	5	3	5	5	7	16	34
14. FL Bantul	1	1	2	7	1	1	1	1	-	3	1	4	2	4	5	7	13	28
15. FL Pasruan	1	1	3	8	1	1	1	2	-	5	2	5	3	5	5	7	16	34
16. FL Madiun	1	1	2	7	1	1	1	1	-	3	1	4	2	4	5	7	13	28
17. FL Mojokerto	1	1	3	8	1	1	1	2	-	5	2	5	3	5	5	7	16	34
18. FL Pamekasan	1	1	2	7	1	1	1	1	-	3	1	4	2	4	5	7	13	28
19. FL FL Gianjang	1	1	3	8	1	1	1	2	-	5	2	5	3	5	5	7	16	34
20. FL Buleleng	1	1	2	7	1	1	1	1	-	3	1	4	2	4	5	7	13	28

A: Budgeted in 1986 and scheduled in 1987
B: Total Number of increased staff
Source: DFCP

(5) Staff Training Program

Education and training program in PFC is proposed as follows.

1) Training Components

To train mainly for routine field works and laboratory practices.

Item	Unit	Trainee Staff
a.	Pest Monitoring and Surveillance	18 Units
a-1.	Theory of pest monitoring and surveillance	(2) FL, FCPC
a-2.	Pest insect monitoring and surveillance techniques	(2) FL
a-3.	Disease monitoring and surveillance techniques	(2) FL
a-4.	Pest population dynamics	(4) FL, FCPC
a-5.	Sampling method and data analysis	(4) FL, FCPC
a-6.	Instruction method to pest observers	(4) FL, FCPC
b.	Pest Forecasting	22 Units
b-1.	Theory of pest forecasting	(2) FL, FCPC
b-2.	Forecasting net-work system	(2) FL, FCPC
b-3.	Farming system pest forecasting	(2) FL, FCPC
b-4.	Rice varieties pest forecasting	(2) FL, FCPC
b-5.	Climatic condition pest forecasting	(2) FL, FCPC
b-6.	Fertirization pest forecasting	(2) FL, FCPC
b-7.	Chemical control pest forecasting	(2) FL, FCPC
b-8.	Statistical pest forecasting	(4) FL, FCPC
b-9.	Pest forecasting by means of computer	(6) FCPC
c.	Pest Control	18 Units
c-1.	Theory of pest control	(2) FL, FCPC
c-2.	Organizational structure of crop production	(2) FL
c-3.	Pesticide regulation and safety use	(4) FL, FCPC
c-4.	Effective chemical control	(4) FL, FCPC
c-5.	Integrated pest control	(2) FL, FCPC
c-6.	Natural enemy and its effective use	(2) FL, FCPC
c-7.	Field rats control	(2) FL, FCPC

Item	Unit	Trainee Staff
d.	Extension and Institutional Cooperation	12 Units
d-1.	Institutional cooperation	(2), FL, FCPC
d-2.	Extension service and pest control brigade	(2) FL, FCPC
d-3.	Cooperation with research institute	(2) FL, FCPC
d-4.	Information dissemination	(2) FL, FCPC
d-5.	Practical extension of pest forecasting and control techniques	(4) FL, FCPC

Total Items: 27

Total Units: 66

(Six hours/day makes 0.5 unit.
Eleven units per month in maximum)

Capacity of Course: FL staff course (7 trainees x 2)

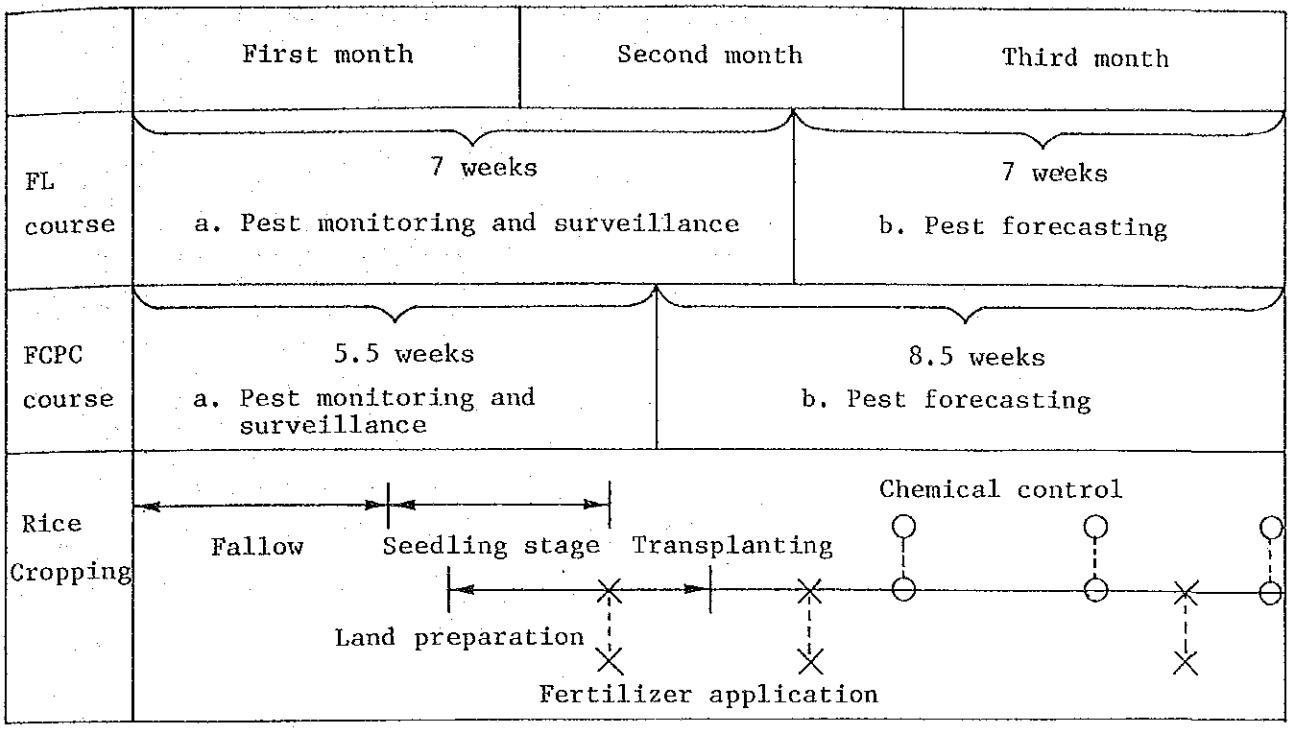
FCPC staff course (8 trainnes)

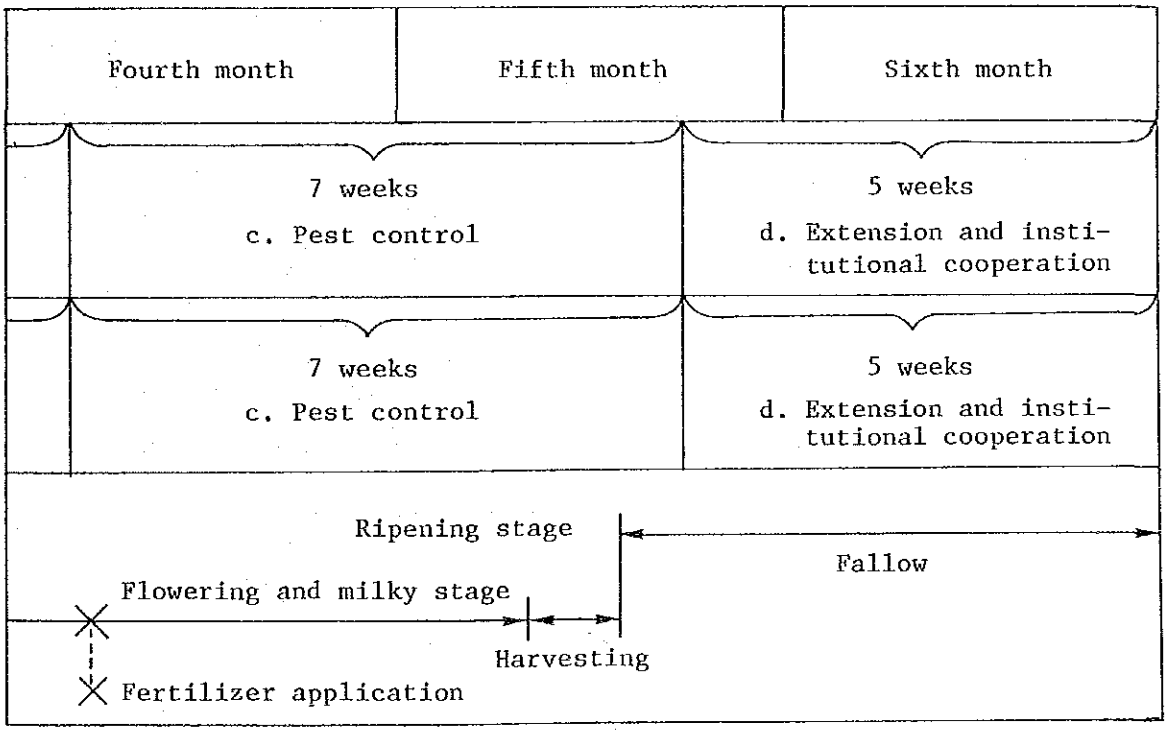
2) Curriculum

WEEKLY SCHEDULE

Course \ Items	a.	b.	c.	d.	Total
FL Course					
Units	18	18	18	12	66 Units
Weeks	7	7	7	5	26 Weeks
FCPC Course					
Units	14	22	18	12	66 Units
Weeks	5.5	8.5	7	5	26 Weeks

MONTHLY SCHEDULE





In each course, field training programs should be rescheduled taking into consideration rice growing condition both in wet and dry season.

3) Instructures Required

Organisation	Functional Post	Responsible Items
DFCP	Directorate	a-1, b-1
DFCP	Pest forecasting sectionchief	a-1, a-4
PFC	Chief	a-4
PFC	Fanctional Coordinator	b-8
PFC	Administration chief	b-2, c-2
PFC	Pest management expert	b-9, c-6
PFC	Weed management expert	b-4, b-5, b-6
PFC	Entomologist	a-2, a-5
PFC	Entomologist	a-5
PFC	Phytopathologiest	a-3, a-5
PFC	Phytopathologist	a-6
PFC	Virologist	b-4, b-5, b-7
PFC	Vertebrate pest expert	b-3, c-7
PFC	Field coordinator	b-3, b-6
DFCP	Administrative Head	a-6, c-2
DFCP	Pest control section chief	b-7, c-1
DFCP	Disease and weed control section chief	c-4
DFCP	Pesticide section chief	c-3, c-4
DFCP	Pesticide laboratory chief	c-3
DFCP	Computer room chief	b-8, b-9
Sub-total	20 Instructors	

SUPPORTING INSTRUCTOR

Organisation	Functional Post	Responsible Items
Bogor Agricultural University	Pest & Disease Expert	d-3, d-4
Agricultural Reserarch Center, Bogor	Pest & Disease Expert	d-3, d-5
Rice Research Institute, Sukamandi	Pest & Disease, Rice Variety and Rice Cropping Expert	c-5, d-3, d-4
Agricultural Information Center		d-1
Agricultural Extension Service (MOA)		d-1
Agricultural Statistics Expert (MOA)		a-5
FCPC Chief		d-2, d-5
Others (International Organization or Foreign Expert)		b-7, b-9
Sub-total	24 Instructors	

4) Curriculum Cordination Committee

Curriculum Cordination Committee consists of five members; Directorate and pest forecasting section chief of DFCP, Chief and two subchief of PFC.

The committee is headed by DFCP Directorate, and is responsible for organization and implementation of the training program. Technical assistances of experts of ATA-162 are expected to be received in due course.

For the first year program (1987), special considerations would to commence this program because lack of PFC experts is in the way.

Guideline and manuals for the training should be prepared by DFCP as required.

3-3-3 Proposed Functions of Each Facility

The proposed functions for the DFCP, PFC, FCPC, F/L, O/U, etc. were determined in accordance with the two objectives delineated in 3.3.1 under Basic Concept of Facility Functions; namely, strengthening of pest monitoring technology and development of forecasting and control technology. In order to achieve these aims, improvement of support systems and the integrated relationship of internal and external organizations covering both technical and administrative aspects of crop protection is necessary, and the following four items are proposed for establishment of an integrated administrative network:

- improvement of transportation and communication methods
- strengthening of the monitoring and patrol system
- improvement of education and training
- strengthening of cooperation with other agencies

The proposed functions for the DFCP, PFC, FCPC, F/L and O/U are outlined below. Details are presented in TABLE 3-7 divided according to technical and administrative functions.

(1) DFCP (including PFC) Functions

- supervision and instruction, analysis and survey of pest forecasting and control at the national level
- identification of designated pest or disease (national and provincial levels)
- establishment of basic observation and forecasting technology for designated pest or disease
- management of staff mobilization, budget, and planning for FCPC and F/L as well as supervision and patrol
- training and instruction of FCPC and F/L staff in improved technology, etc.

(2) FCPC Functions

- data collection and analysis at provincial and district levels

- information exchange on pests and disease and instruction in control methods for agricultural support systems within the province
- establishment of practical forecasting and control methods at the provincial level
- supervision and instruction of O/U and F/L within the province
- advice and information exchange concerning forecasting and control activities with the Provincial Agricultural Extension Office
- support or maintenance, inspection, provision and distribution of equipment for provincial Rice Pest Brigades
- development of technology for field rat control methods and integrated pest management methods suitable for conditions within the province

(3) F/L Functions

- observation and experiments concerning forecasting and control
- data analysis at the district level and information exchange with the District Extension Office
- supervision and instruction of Pest Observers
- surveys and technological development for integrated pest management methods (including biologioal control agents) and field rat control, at specific F/L facilities only

TABLE 3-7 Proposed Functions and Activities of Each Facilities

Function & Activity / Organization	Technical Function			Integrated Administrative Network		
	Pest Surveillance and Monitoring Technology	Pest Forecasting and Control Technology	Transportation and Communication	Monitoring and Patrol System	Education and Training System	Cooperation with Other Agencies
DFCP-PFC	1. Programming the personal computer for data input and ordering FCPC to input the data. 2. Analyzing data with the office computer (NEC100) 3. Improving technology with ATA-162, etc. 4. Identifying designated pests at the national and provincial levels.	1. Pest forecasting by the office computer at the national level. 2. Development of technology at the national level through the provincial level. 3. Arrange executive programs in each FCPC & F/L.	1. Data weekly submission of FCPC to DFCP/PFC. 2. Data arrangement by province, F/L area and District with personal computer. 3. Patrol for pest outbreak (urgently required). Installation of dial telephone, facsimile and mobile laboratory for the above.	1. Obtaining computerized data from FCPC. 2. Requesting original data if necessary. 3. Patrol of FCPC by PFC in order to instruct and check FCPC management of F/L once a year or more.	1. Training of technical staff for F/L and FCPC. (six months course for 20 persons with 6 instructors). 2. Training in computer technology for FCPC staff. 3. Holding FCPC meetings twice a year.	Ministry of Agriculture 1. National Pesticide Commission. 2. National Plant Protection Committee. 3. Pest Bridge (by plane). 4. Agency for Agricultural Education, Training and Extension. 5. Agency for Agricultural Research and Development. 6. Press, Radio & TV station (mass communication)
FCPC	1. Input of OU data into the personal computer and report to DFCP-PFC, F/L and other related agencies. 2. Instruction and supervise experiments at F/Ls. 3. Planning a field study in cooperation with F/L. 4. Identifying designated pest at the provincial & District levels.	1. Pest forecasting by personal computer in provincial level. 2. Development of technology at the provincial level on the basis of F/L experiments and report. 3. Coordination and supervision F/L executive programs.	1. Immediate notification of pest outbreak in F/L area to FCPC.	1. Review of F/L data and original O/U Data. 2. Discussion of data analysis with F/L. 3. Patrol of F/L by FCPC in order to instruct and to check F/L management of O/U twice a year or more.	1. Holding weekly meetings. 2. Holding extra F/L meetings if necessary. 3. Holding O/U coordinator (District Representatives) meeting once a month.	1. Maintenance of Brigade equipment. 2. Arrangement of necessary 3. Advising other agencies - BLPP (Agricultural training center) - BIP (Agricultural Information center) - BPS (Central Bureau of statistics) - DPP (Provincial office of Agricultural Extension) 4. Cooperation with Univ.
F/L	1. Enumeration and analysis of O/U data. 2. Formulation of a regional map on pest prevalence, rice varieties, cropping calendar, etc. 3. Preparation of pest samples. 4. Testing of pest rearing.	1. Mapping of designated pests in each district. 2. Field experiments on forecasting and control at the order of FCPC. 3. Specific study on vertebrate or natural enemies in A-type F/L.	Wireless communication (SSB)	1. Weekly submission of data report to F/L and FCPC by O/U. 2. Monitoring of farm operation in observation field. 3. Patrol of O/U by F/L in order to instruct and to check O/U activities more than twice a crop season.	1. Holding O/U meeting every Saturday for technical instruction. 2. Instruction in specific technology for A type F/L. 3. Holding O/U coordinator meeting every two weeks.	1. Support of Pest Brigade. 2. Advising of the District office of Agricultural Extension. 3. Exchange of pest informations with KUD every District. 4. Cooperation with Universities. 5. Study of seed production farm.
O/U	1. Weekly reporting of data at the order of the F/L. 2. Obtaining farm data such as variety, other crops, fertilizer, agro-chemical, etc. from PPM. 3. Reporting of farm data to the F/L.	1. Where the signs of pest outbreak are evident, sending samples to the F/L immediately.	1. Pest surveillance in allocated area. 2. Weekly F/L meetings. 3. Support service and pest control in allocated area. (Motorcycles required for communication between F/L and O/U.)		1. 30 days training in BLPP. 2. 90 Days special course at BLPP. 3. Provide opportunities for attending University diploma course.	1. Cooperation and advising BPP and Agricultural Officer in Kecamaten on pest forecasting and control. 2. Exchange of information with PPM (Extension Officer) and PPL (Extension Worker)

3-3-4 Outline of Facilities

Each facility to be constructed under this project is as per the following.

1) Pest Forecasting Center (PFC)

(a) Main building (Reinforced concrete (RC) structure, one two-story building) approx. 1,392 m^2
(accommodates facilities of Jatisari FL, too)

Main building consists of Head office, Administration office, Chief Admini. office, Functional Coordinator RM, Laboratories, Seminer RM, Expert office, Library, operation RM, Technical Stuff RM, Lecture RM, etc.

(b) Dormitory (RC structure, one three-story building) approx. 980 m^2

(c) Net house (aluminium frame, three net houses), approx. 264 m^2 in total

(d) Storage -cum-garage (RC structure, one single-story building approx. 200 m^2

(e) Drying floor (without roof) approx. 425 m^2

2) Food Crop Protection Centers (FCPC)

(a) Bandung FCPC

a) Main building (RC structure, one single-story building) approx. 527 m^2

Main building consists of Head office, Technical Stuff RM, Laboratory, Liabrary, Meeting RM, etc.

b) Strorage (RC structure, one single-story building) approx. 60 m^2

c) Net house (aluminium frame structure, two net houses) approx. 100 m^2 in total

d) Workshop (steel frame structure, one single-story building) approx. 50 m^2

(b) Semarang FCPC

a) Main building (RC structure, one single-story, building) approx. 522 m^2

Main building consists of Head office, Technical staff RM, Laboratory, Meeting RM, Library, etc.

b) Storage (RC structure, one single-story, building) approx. 60 m^2

c) Net house (aluminium frame structure, two net houses) approx. 100 m^2 in total

d) Workshop (steel frame structure, one single story building) approx. 50 m^2

(c) Surabaya FCPC

a) Main building (RC structure, one single-story building) approx. 661 m^2

Main building consists of Head office, Admini. office, Chief Admini. RM, Technical staff RM, Laboratory, Workshop, Library, etc.

b) Storage (RC structure, one single-story building) approx. 60 m^2

c) Net house (aluminium frame structure, two net houses) approx. 100 m^2 in total

d) Workshop (steel frame structure, one single story building) approx. 50 m^2

(d) Denpasar FCPC

a) Main building (RC structure, one single-story building) approx. 661 m^2

Main building consists of Head office, Admini. office, Chief Admini. RM, Technical staff RM, Laboratory, Workshop, Library, etc.

3) Field Laboratories (FL)

(a) Main building

Of FLs at altogether 15 locations, namely four locations in West Java, five locations in Central Java, four locations in East Java and two locations in Bali, the main buildings are classified into Type A and Type B. (Type A is the FL which is accompanied with either a vertebrate laboratory or a biological laboratory.)

Type A: 7 Units

CIANJUR
INDRAMAYU
BANYUMAS
TEMANGGUNG
PASURUAN
MOJOKERTO
GIANJAR

Type B: 8 Units

SERANG
TASIKAMALAYA
PATI
SUKOHARJO
BANTUL
PAMEKASAN
MADIUN
BULELENG

a) Type A

RC structure, single-story; one building/site
approx. 412 m^2 per unit

b) Type B

RC structure, single-story; one building/site
approx. 340 m^2 perunit

(b) Net house (common to every FL)

Aluminium frame structure, single-story; two net houses/site
Total approx. 100 m^2 (per FL)

(c) Storage (common to every FL)

RC structure, single-story, one building/site
approx. 50 m^2 (per FL)

(d) Drying floor (common to every FL)

Concrete floor without roof approx. 120 m^2 (per FL)

3-3-5 Equipment Outline

	Application	Main Equipment
1. Laboratory Equipment		
(1) Insect pest lab.	For experiments on test insects collected to grasp insect physiology and ecology.	Insect trap, suction sampler, knapsack spray, oven, microsyringe, refrigerator desicator, monocular microscope, stereo microscope, hydrometer, analytic balance, clemical balance, thermometer, psychrometer, glassware, water still, rearing box, miniature thresher, gas chromatograph.
(2) Phytopathology lab.	For experiments on rice phytopathology and varietal resistance, and patho-gene experiments such as causal factors and rice disease identification.	Autoclave, incubator, dissection microscope, freezer, oven, blender, dissection instrument, hot plate, loupe, knapsack sprayer, counter, thermometer, recording hygrometer, glassware, laminar flow hood, sterilization canister, fermentation canister, fermentation canister, inoculator.
(3) Weed lab.	For tests on ecology and weed physiology.	Specimen making eq. binocular micro-scope, sprayer.
(4) Vertebrate lab.	For experiments in which harmful animals such as field rats are captured and raised to clarify physiology and ecology.	Dissection set, steel rule, freezer, balances binocular micro-scope.

	Application	Main Equipment
(5) Biological lab. (Pest management)	For tests in which natural control agents for pests or insects are collected and raised to determine physiology and ecology and also for tests to clarify chemical resistance.	Autoclave, incubator, dissection microscope, freezer, refrigerator, oven, blender, dissecting kits, hot plate, magnifying glass, filter paper, bunsen burners, knapsack sprayers, hand counter, thermometer, recording thermo-hygrometer, glassware, parafilm, rearing boxes, laminar flow hood, sterilization canister, fermentation canister.
2. Meteorological Equipment	For daily meteorological observations which will be used to clearly identify climatic conditions linked to pest or insect outbreaks.	Sunshine duration recorder, theremometer, counter anemometer, recording rain gauge, piche evaporimeter, thermometer, evaporimeter hook gauge, still well, recording thermohygrograph, evaporation pan A, Max. min. thermometer, instrument shelter.
3. Training & Extensional Equipment	For information distribution and training in extension and dissemination of control technology and new or improved techniques for outbreak forecasting.	OHP, projectors, screen, video recorder, TV receiver, white board, video movie camera, type writer, photocopier, stencil machine set, library equipment, monocular microscope, binocular microscope, dissection set, suction sampler, hand counter, magnifying glass, Easy chair.

	Application	Main Equipment
4. Data Consolidation Equipment	For analysis and categorization of data collected from appropriate observatory stations.	Calculator (large), programmable calculator, personal computer.
5. Vehicles	For transport of pest observers and equipment, farming materials for the experimental paddy field, for sampling, field tests and supervision/instruction.	Mobile laboratory, pick-up truck, motorcycle.
6. Communication Equipment	For rapid transfer of data and documents among the DFCP, PFC, and FCPC; used in place of a telephone.	Facsimilli, SSB-radio.
7. Farm Equipment	For farm operation of the PFC and F/L experimental paddy field.	Power tiller 7Hp, trailer, thresher, winnower.

3-3-6 Technical Cooperation

As aforementioned, a five-year period of the Technical Cooperation for the first stage of the Technical Cooperation Program (ATA 162) has been completed and the final stage is now being implemented over a 2-year period. Specialists in insecticides, rice gall midge control, and rice borer control have completed their assignments and returned home, while long-term specialists in Tungro disease control and brown planthopper control as well as short-term specialists in computer operation and pesticide are presently fullfilling their assignments. In addition, 4 trainees have been dispatched to Japan to partcipate in a training program.

Technical cooperation for the additional 2 year period covers research in the following 7 items:

1. Brown planthopper
2. Green rice leafhopper and Tungro virus disease
3. Pesticides
4. Introduction of computer systems
5. Major rice pests and diseases
6. Major pests and diseases for secondary crops
7. Field rat damage

Results of research to date have revealed that outbreaks of brown planthopper can be prevented by application of growth regulators in the fourth to eight week after transplantation of paddy while the Sadang paddy variety which was supposedly resistant to brown planthopper is not resistant resulting in outbreaks in Yogjarkarta province. Research also resulted in forecasts of the amount of Tungro outbreaks in Bali.

With regards to promotion of newly developed forecasting technology, i) nine forecasting paddies were established throughout the nation and biotype outbreaks were monitored during the Pest Observer training program; ii) demonstration paddies (1,000ha) were established in major infected areas for practical application and instruction in forecasting technology; and, iii) special studies for forecasting at the national level (1984: Tungro, 1985: Tungro, brown planthopper and rice gall midge) were begun.

Due to lack of research facilities, experts for ATA 162 were distributed among the DFCP, Jatisari F/L, Bogor Institute of Agriculture, FCPC and Pesticide Laboratories. Lack of a central base for concentrated research is considered to have hindered research activities.

In the case of brown planthoppers, research has concentrated on integrated management policies which include not just pesticided but also cultivation of different varieties, and population genetics on bio-type research. In addition, forecasting technology for Tungro has been established with the cooperation of FCPC such as those in Bali and North Sumatra.

The DFCP is extremely positive towards next stage of technical cooperation for the on-going ATA 162 and continued cooperation in research, overseas training programs, and technical instruction after completion of PFC, FCPC, F/L and other Project facilities in 4 provinces in Java and Bali is recommended.

3-3-7 Project Sites

(1) Locations

Facilities to be constructed under the project are one (1) Pest Forecasting Center - PFC, four (4) Food Crop Protection Centers - FCPC, and sixteen (16) Field Laboratories - FL.

PFC is to be constructed in Jatisari of West Java Province. FCPCs are to be constructed in Bandung of West Java Province, in Semarang of Central Java Province, in Surabaya of East Java Province and in Denpasar of Bali Province. FLs are to be constructed in various locations in the three Java provinces and in Bali Province.

(2) Existing Conditions

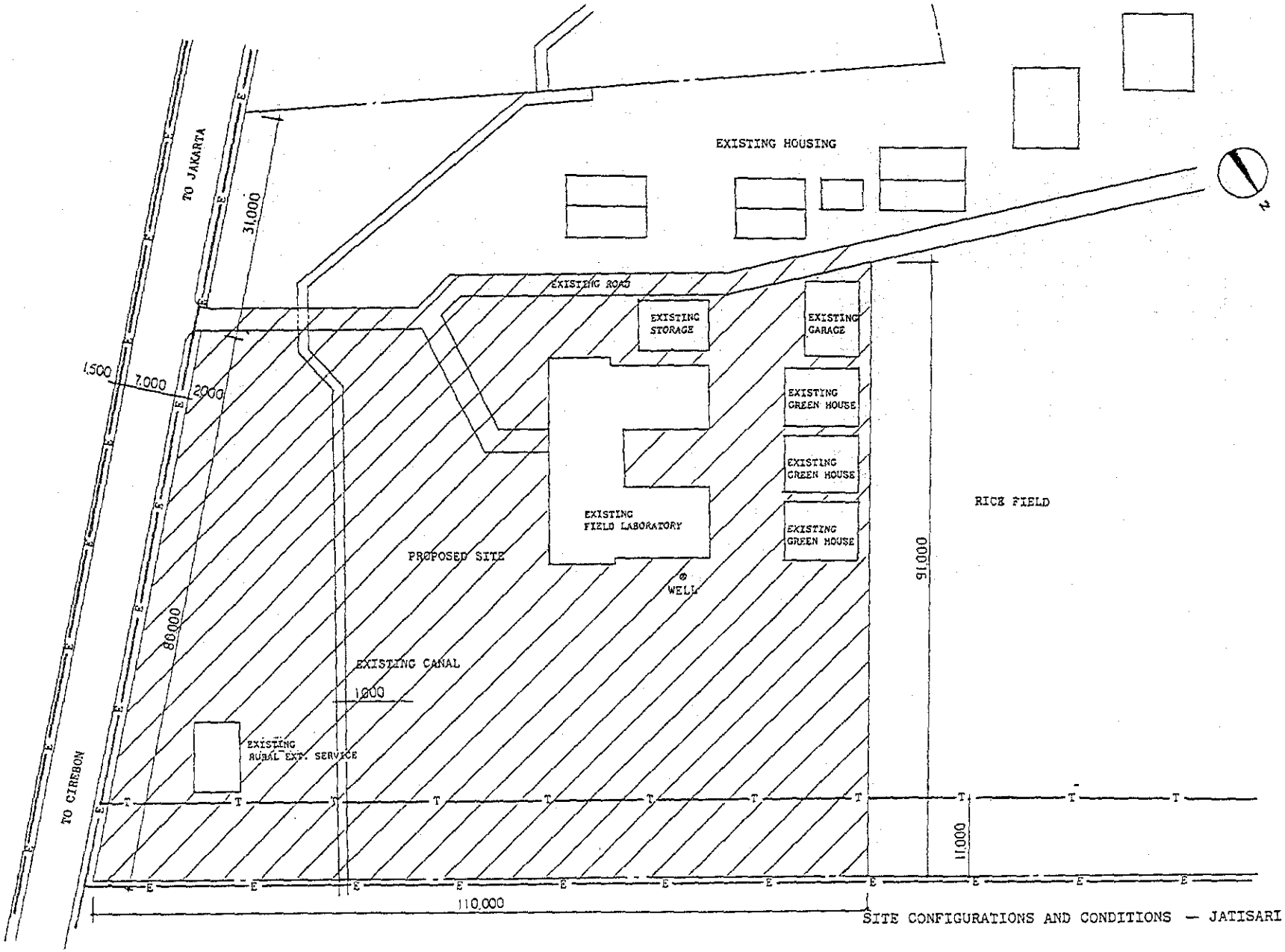
Existing conditions of proposed construction sites are as described below:

1) Pest Forecasting Center (PFC)

(a) Existing Conditions of the Construction Site

Construction site proposed for this Center is located in Jatisari, about 80 km east of Jakarta. The site faces 7 m wide arterial road that connects Jakarta and Cirebon.

Within this proposed construction site is an existing FL built in 1976 consisting of a single-story main building of wood construction, 363 m^2 in floor area, with appurtenant facilities, such as net houses, a storage, staff houses and an experimental paddy field of about 3 hectares.



SITE CONFIGURATIONS AND CONDITIONS — JATISARI

Paddy field of approximately 3 hectares located on the north side of existing experimental paddy field and on the back of existing FL has been secured as the proposed site of PFC facilities and an experimental paddy field for activities of the PFC.

Existing telephone line leading to a drug manufacturing plant located on the northwestern side of the site is wired at about 11 m inside of the northern border of this paddy field.

Main building of the existing FL is located about 50 m from the front road, between which runs a water channel irrigating surrounding paddy fields. A single-story wood building, which is an agricultural institution of the Provincial Government (Rural Extension Center), borders on the north of the existing FL.

Since proposed construction site secured for PFC this time is located behind the existing FL, as stated before, access from the front road to the site can be made only between the existing buildings. Thus sufficient road width in the compound is not available. This road, because of its narrow width, is inadequate for use as an access.

Proposed construction site is presently a paddy field and is about one meter lower than the ground level on which the existing buildings stand nearby and, therefore, requires earth filling. Existing FL buildings were constructed about 10 years ago and are already considerably deteriorated.

In view of the foregoing conditions of the proposed construction site, the location of existing FL facilities, which poses no difficulty in approach and avoids paddy field, is considered best for the PFC facilities.

Layout of facilities will therefore be planned on the basis of demolishing existing FL.

(b) Related Infrastructure

a) Electric power

No difficulty is foreseen in power supply to facilities of this project, as an aerial power transmission line exists along the road on the east side of this site. The transmission voltages are 110V and 220V, and frequency 50Hz.

b) Telephone

An aerial telephone line exists in the paddy field on the north of this site, however, this telephone line cannot be used for the project as it is only a one-circuit cable connected to Tekanpek located at about 10 km from Jatisari. Though a 600 circuit switchboard attended by operators is installed in Cikampek, it is incapable of direct dialing service to other regions. For direct dialing telephone service, it will be necessary to install a line from Purwakarta which is about 29 km from Jatisari.

(c) Water supply

No city water supply is available.

Water to the existing buildings is supplied by pumping up to an elevated water tank from a well, about 25 m deep, located at the side of the existing FL.

Water for irrigation is supplied from another well, about 60 m deep, located on the side of the experimental paddy field of the FL.

Facilities to be constructed under this project are to be serviced from the wells for water supply, but a decision as to whether new wells must be drilled or not or whether water can be piped from the existing 25 m and 60 m deep wells will depend on the layout of the proposed facilities.

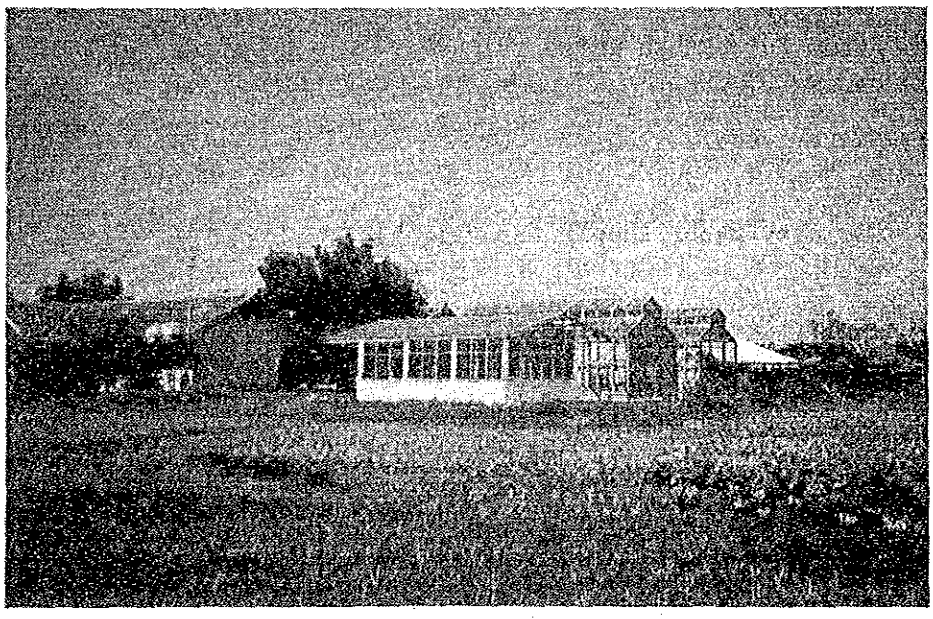
(d) Drainage

No sewer line is existing.

Sewage must be disposed underground through seepage sumps after being treated in septic tanks. Rainwater is to be discharged into existing water channels near the buildings.

(e) Gas

As no city gas supply is available, a propane gas supply system is to be adopted.



(2) Food Crop Protection Centers (FCPC)

1) Bandung FCPC, West Java

(a) Existing conditions of the proposed construction site

The site on which this Center is to be constructed is located in the suburbs of Bandung, about 180 km from Jakarta. The site faces a 7 m wide road on its north and is surrounded by paddy fields on other three sides. Existing within the site is a single-story FCPC building of about 210 m^2 and a single-story Seed Certificate Center (SCC) building. The site is divided into east and west portions by a private road that runs between these two buildings. Ownership of the site is clear and poses no difficulty in land acquisition.

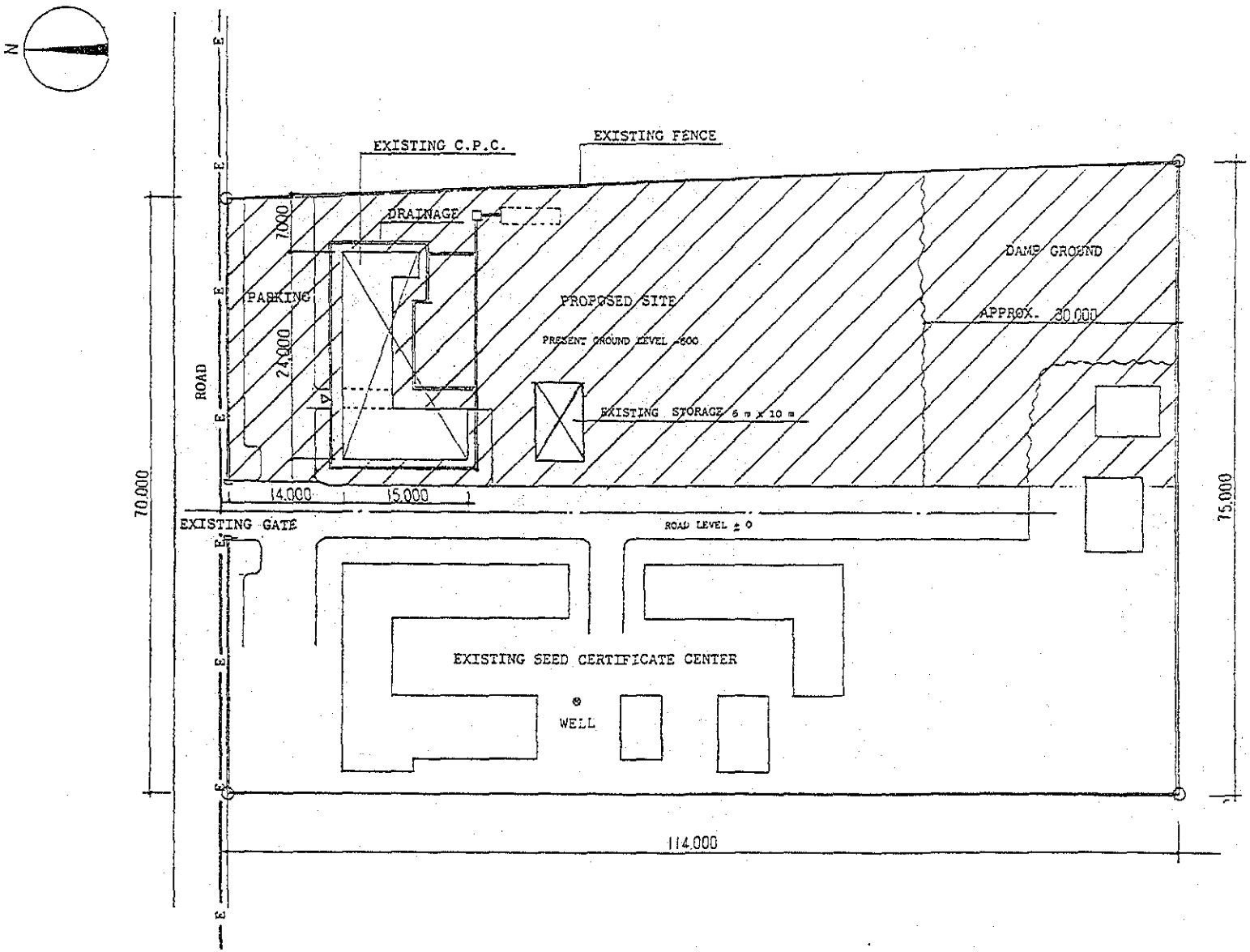
The site which has been secured for this project is located on the south of the existing FCPC and is currently a marsh. The ground level is about 60 cm lower than the ground where the existing FCPC stands and, therefore, requires earth filling.

A single-story warehouse constructed in 1984 which stands on the southern side of the existing FCPC constitutes an obstacle to the planning of this project.

(b) Related Infrastructures

a) Electric power

At present, existing FCPC receives power supply through adjacent SCC, but as there is an aerial transmission line along the front road, new power supply from this transmission line is possible. Supply voltage is 220V at a frequency of 50Hz.



SITE CONFIGURATIONS AND CONDITIONS — BANDUNG

b) Telephone

No telephone line exists near the site. A wireless telephone system is installed at SCC and used by FCPC whenever telephone communication is necessary.

c) Water supply

Water is also supplied from adjoining SCC and a water source must be secured for the facilities of this project. Since there is no city water supply facility, a well must be provided for this project.

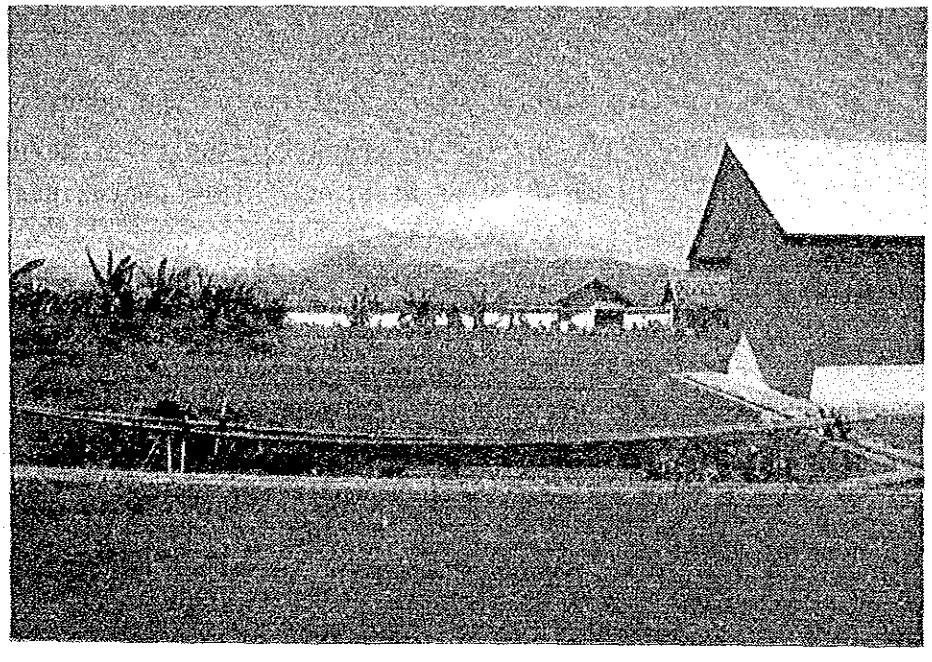
d) Drainage

No sewer pipe is existing. Sewage must be disposed through seepage sumps after being treated in septic tanks.

Rain water is to be collected into the open drainage channels around buildings and discharged to neighboring paddy fields.

e) Gas

As there is no city gas supply, the propane gas supply system is to be adopted.



2) Semarang FCPC, Central Java

(a) Existing conditions of the proposed construction site

Semarang, the construction site of this Center, is located about 500 km from Jakarta which takes about one hour by air.

Existing building within the site is a single-story FCPC with floor area of about 210 m^2. The space on its west and south has been secured for this project.

The terrain of this site is a flat grassland at present and will not require earth filling for site preparation.

(b) Related infrastructure

a) Electric power

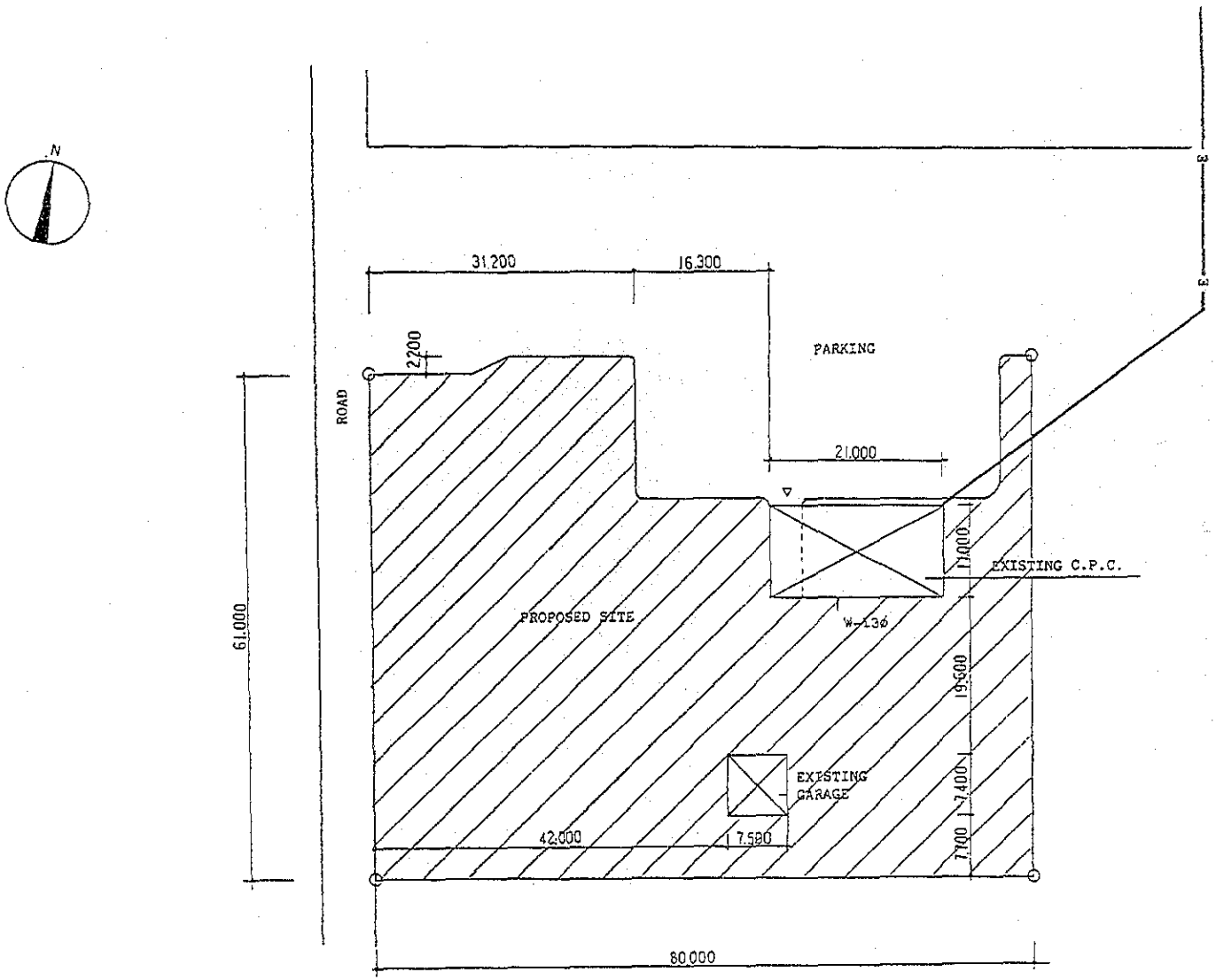
Currently, electric power is serviced to the existing FCPC from the north side of the building. No problem is foreseen in supplying power to the extended portion. Supply voltage is 220V, frequency 50Hz.

b) Telephone

No telephone line exists in the vicinity of the construction site. The FCPC staff must use the telephone of the Price Information System Center in the City of Semarang. This Center has three telephone circuits of automatic dialing.

c) Water supply

An 80 mm diameter city water supply line exists about 100 m from the west side of the building, from which water is supplied to existing FCPC through a 13 mm diameter pipe. Water supply capacity however is small. The neighboring Radio Center has its own well.



SITE CONFIGURATIONS AND CONDITIONS - SEMARANG

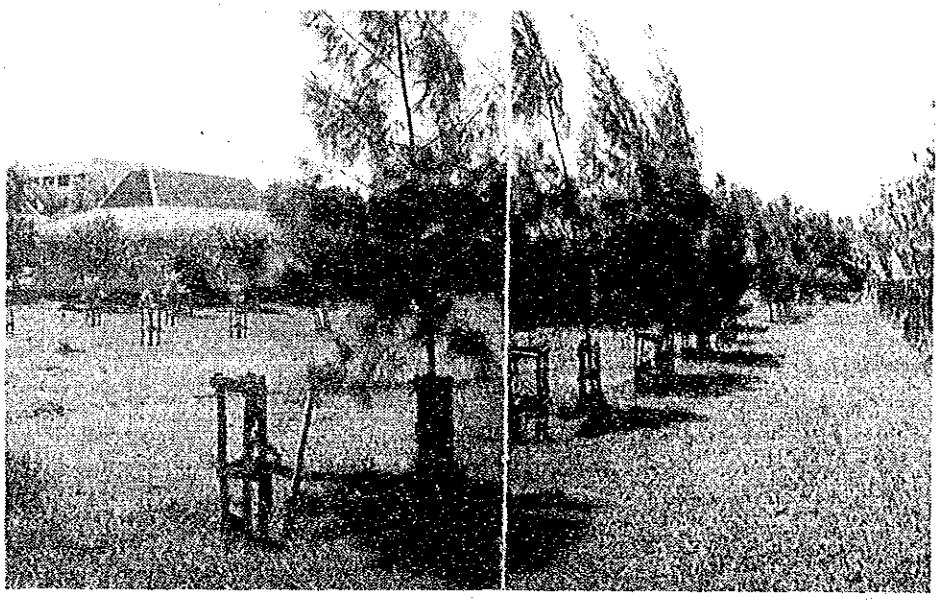
Boring of a well is necessary for water supply to the buildings of this project.

d) Drainage

No sewer line is existing. Sewage must be disposed underground through seepage sumps after treatment in septic tanks.

e) Gas

As no city gas supply is available, a propane gas supply system shall be adopted.



3) Surabaya FCPC, East Java

(a) Existing conditions of the proposed construction site

Surabaya, construction site of this Center, is located about 800 km from Jakarta, which takes about one and a half hours by air.

Around the proposed construction site of FCPC, a new Pesticide Laboratory has been built according to the Master Plan prepared by the Indonesian authority. The site secured for FCPC is on the north side of this Pesticide Laboratory.

The terrain of this site is a flat grassland at present and will not require earth filling.

(b) Related infrastructure

a) Electric power

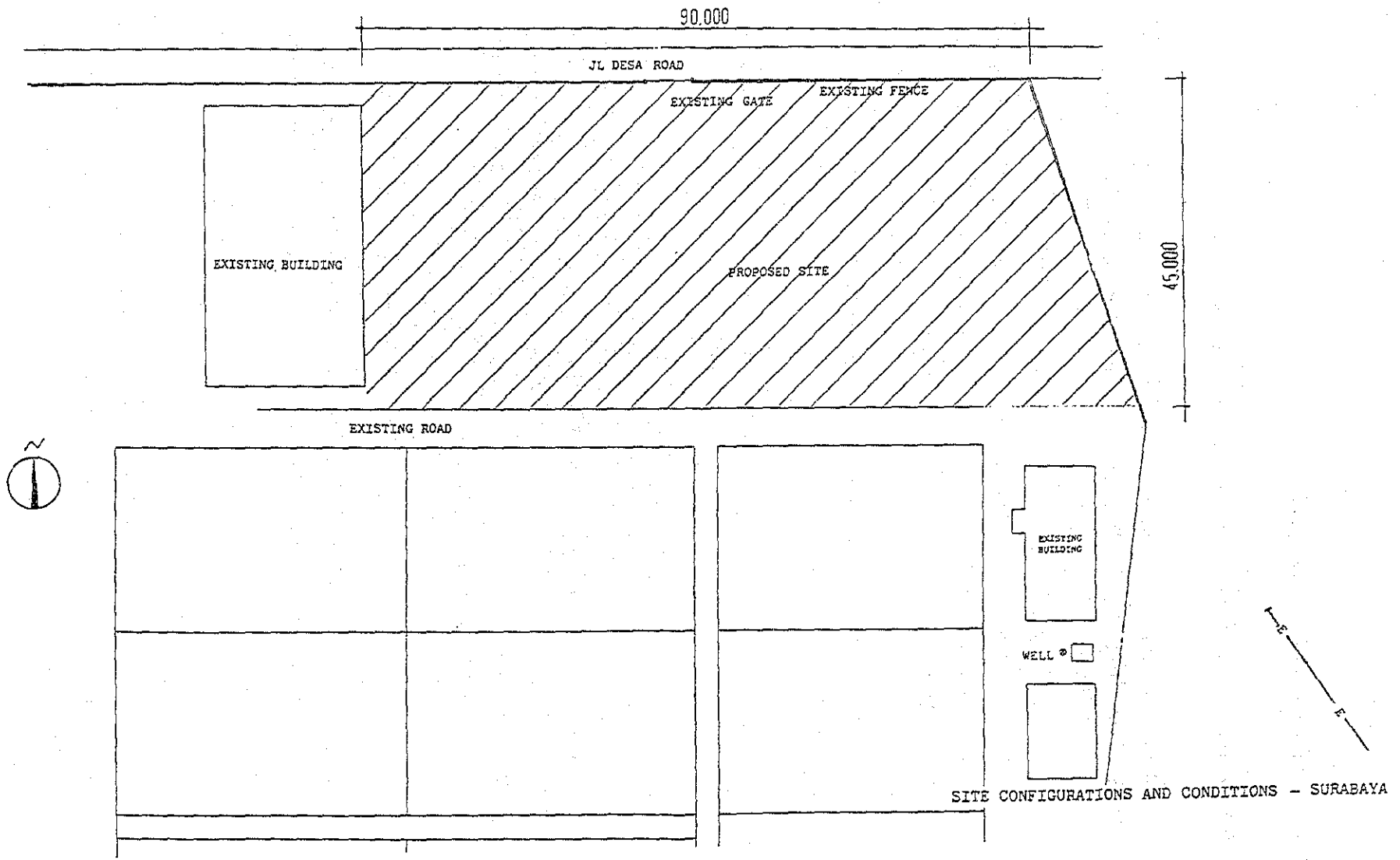
A transmission line exists about 200 m west of the site from which a service line is to be led into the newly constructed pesticide laboratory within this year. No difficulty is therefore foreseen in power supply to facilities of this project. Supply voltage is 220V and the frequency, 50Hz.

b) Telephone

No telephone cable has been installed yet, but it is said that a service wire is scheduled to be drawn in from a place about 2 km away.

c) Water supply

A 6 m deep well is installed in the existing pesticide laboratory, but as it is inadequate to supply water to facilities of this project, another well of comparable size is considered necessary.



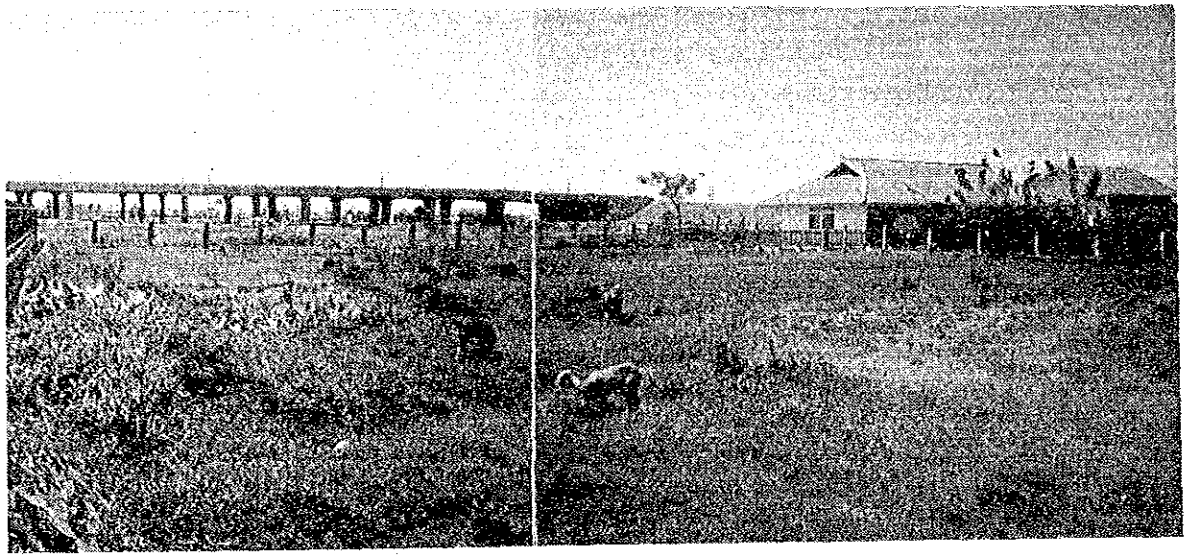
SITE CONFIGURATIONS AND CONDITIONS – SURABAYA

d) Drainage

No underground sewer pipe has been installed yet. Waste water shall be allowed to seep into the ground through seepage sumps after treated in septic tanks, and rain water shall be discharged into nearby water channels.

e) Gas

As no city gas supply is available, individual propane gas supply system shall be adopted.



4) Denpasar FCPC, Bali Island

(a) Existing conditions of the proposed construction site

Denpasar, where this Center is to be constructed, is the central city of Bali Island, about 1,200 km or at a flying distance of about an hour and 45 minutes from Jakarta.

The proposed construction site for FCPC has been secured on the west side of the Department of Agriculture's Bali Provincial Office.

The site at present is a flat grassland with small thickets of banana trees. The ground is high enough and will not require earth filling.

(b) Related infrastructure

a) Electric power

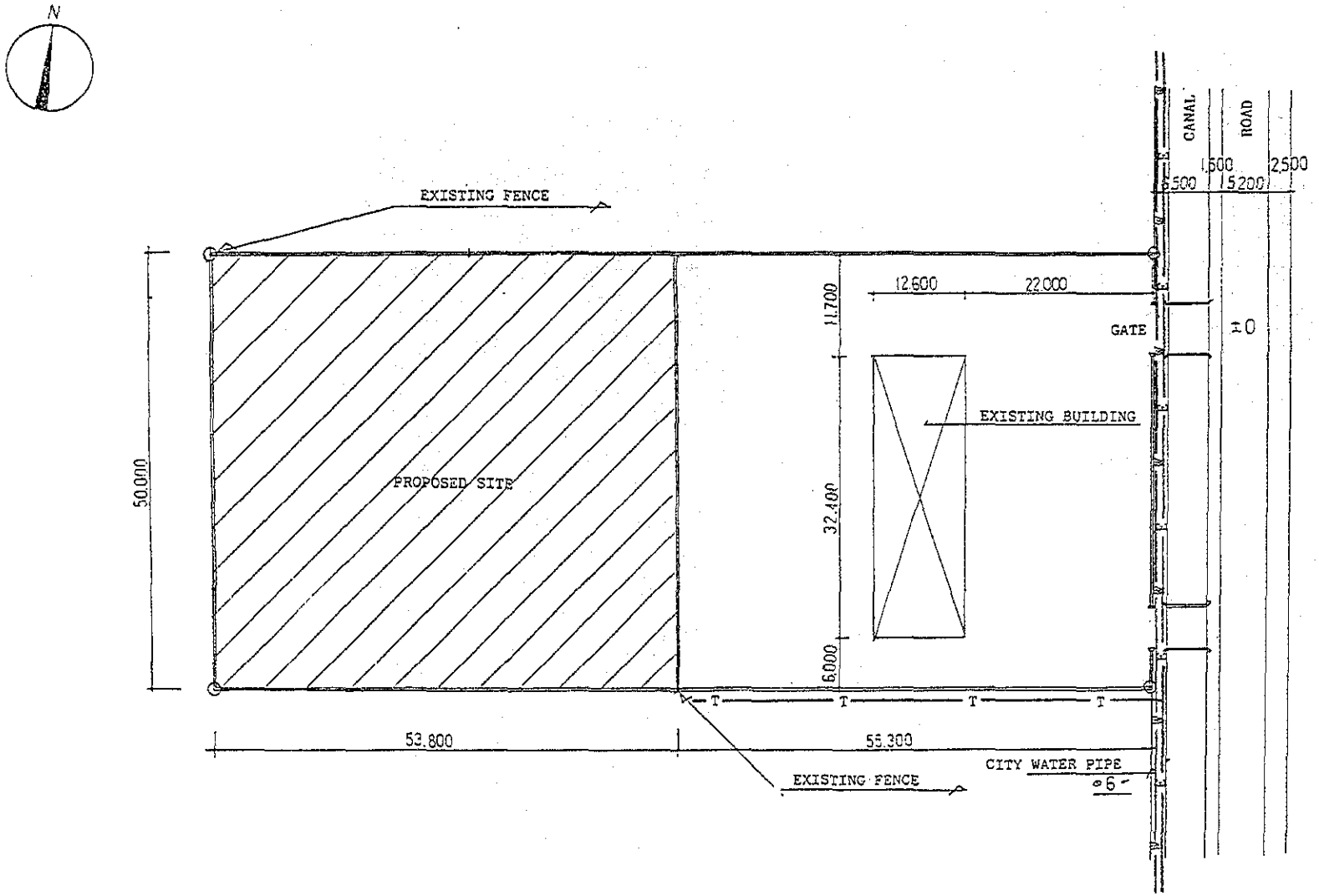
An aerial transmission line exists along the front road on the east side of the Department of Agriculture's local office in Bali Province. No difficulty is therefore foreseen in power supply to the facilities of this project. Supply voltage is 220V with the frequency of 50Hz.

b) Telephone

An aerial telephone cable is wired on the south side of the construction site. No difficulty is therefore foreseen in leading in telephone lines.

c) Water supply

An underground pipe of 6 inch diameter laid beneath the front road on the east side of the Department of Agriculture's local office in Bali Province is of sufficient capacity to supply water to the site.



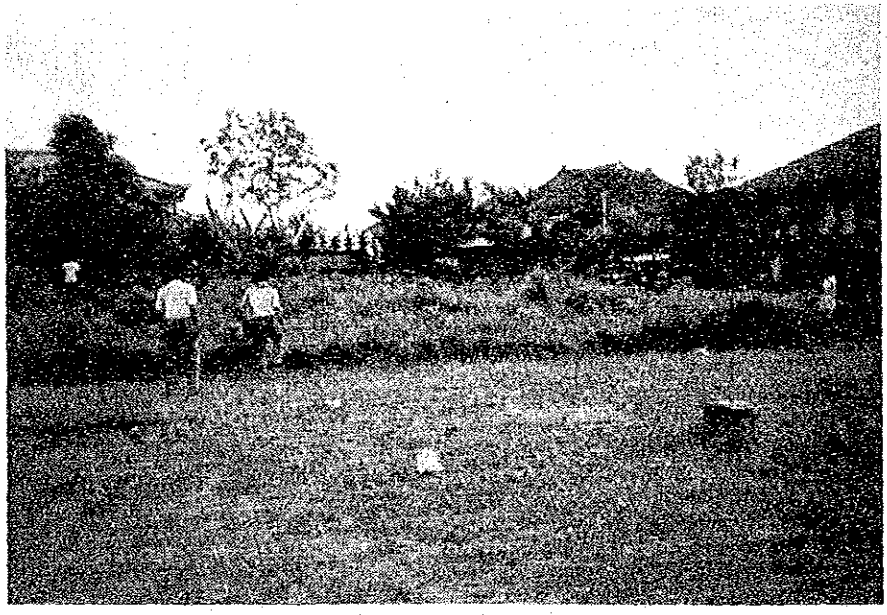
SITE CONFIGURATIONS AND CONDITIONS - DENPASAR

d) Drainage

No underground sewer pipe is provided. Waste water shall be allowed to seep into the ground via seepage sumps after treated in septic tanks. Rain water shall be discharged into nearby water channels.

e) Gas

As no city gas supply is available, individual propane gas supply system shall be adopted.



(3) Field Laboratories (FL)

Field laboratories under this project are scheduled to be constructed at altogether 16 locations, namely, five locations in West Java (including FL in Jatisari), five locations in Central Java, four locations in East Java and two locations in Bali.

The locations proposed for construction of FLs are shown below.

Legend: District/KABUPATEM

1) West Java (JAWA BRAT)

Jatisari/KARAWANG
Kasemen/SERANG
Singajaya/INDRAMAYU
Pojongpicung/CIANJUR
Cilembang/TASIKMALAYA

2) Central Java (JAWA TENGAH)

Winong II/PATI
Palur/SUKOHARJO
Kedu/TEMANGGUNG
Tajum/BANYUMAS
Pandak/BANTUL

3) East Java (JAWA TIMUR)

Pandaan/PASURUAN
Jabon/MOJOKERTO
Pamekasan/PAMEKASAN
Pilankencen/MADIUN

4) Bali (BALI)

Celuk/GIANYAR
Seririt/BULELENG

Of the foregoing FLs at 16 locations, the following seven FLs shall be especially provided with laboratory rooms for studying either natural enemies or field rat.

West Java Province:

Cianjur FL	(Natural enemies)
Indramayu FL	(Field rat)

Central Java Province:

Temangguig FL	(Natural enemies)
Banyumas FL	(Field rat)

Best Java Province:

Mojokerto FL	(Natural enemies)
Malang FL	(Field rat)

Bali Province:

Gianyar FL	(Natural enemies)

Among the FLs, the one closest to each FCPC shall be the associate laboratory. The distance between each FCPC and its respective associate laboratory is as follows.

Associate laboratory of West Java FCPC	Cianjur FL	55 kms
Associate laboratory of Central Java FCPC	Temangguig FL	50 kms
Associate laboratory of East Java FCPC	Mojokerto FL	55 kms
Associate laboratory of Bali FCPC	Gianyar FL	25 kms

At the construction sites of following FLs, bridge construction on the access road, removal of obstacles, and/or filling are necessary.

(a) Bridge Construction

Serang FL
Indramayu FL
Cianjur FL

Sukoharjo FL
Temanggung FL
Mojokerto FL
Pamekasan FL

(b) Removal of Obstacles

Serang FL (storage)
Tasikmalaya FL (tennis court, residence)
Pati FL (residence, remaining foundation)
Banyumas FL (storage, garage)
Bantul FL (trees, roots)
Pasuruan FL (trees, roots)

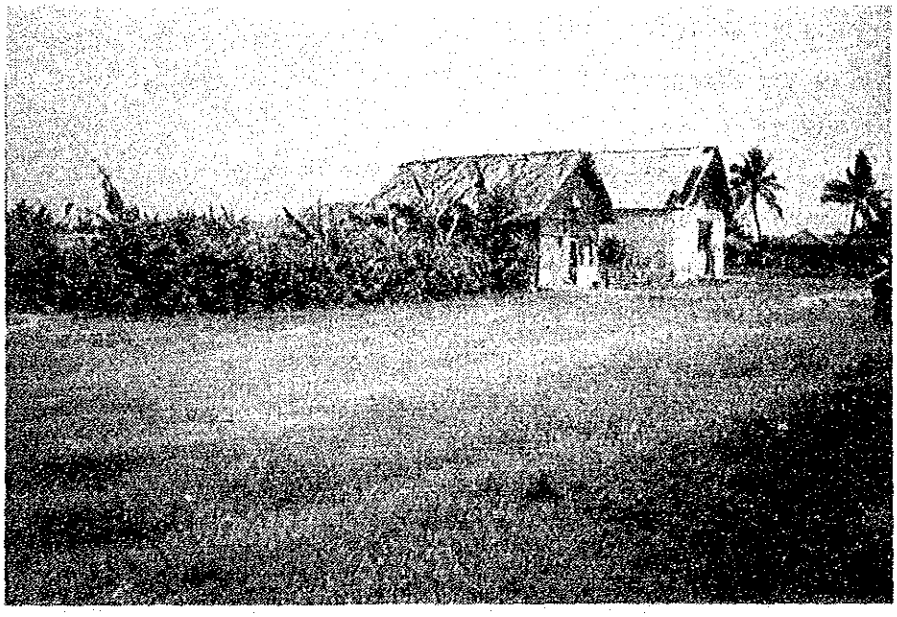
(c) Filling (1 m filling for every FL)

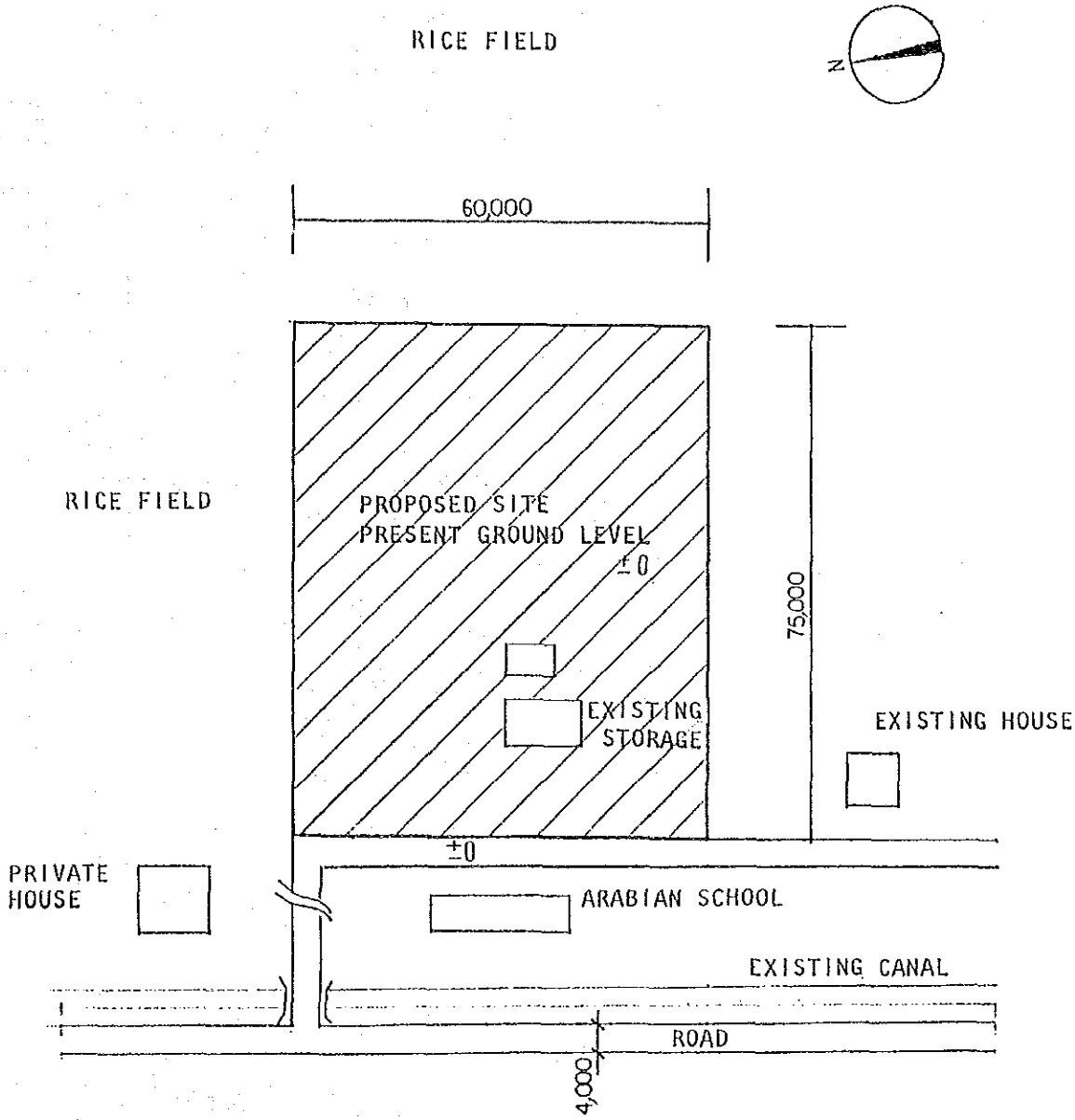
Indramayu FL
Cianjur FL
Tasikmalaya FL
Sukoharjo FL
Temanggung FL
Bantul FL
Mojokerto FL
Pamekasan FL
Buleleng FL
Gianyar FL

Existing conditions of project sites are shown below along with site maps.

SITE CONFIGURATIONS AND CONDITIONS - FIELD LABORATORY

LOCATION	Kasemen/SERANG
CONDITIONS OF SITE	Grassy Plain Land
OWNERSHIP OF SITE	Province
AREA OF SITE	
FOR BUILDING	4,500 m^2
FOR RICE FIELD	25,000 m^2
PRESENT GROUND HEIGHT	Same level of access road
EARTHFILLING	Not necessary
INFRASTRUCTURE	
ELECTRIC POWER	Supply will be started within 1985
WATER SUPPLY	Well boring required (70.0 m deep)
TELEPHONE	Not available
EXISTING BUILDING	Storage
OBSTRUCTIONS	Dismantle existing storage



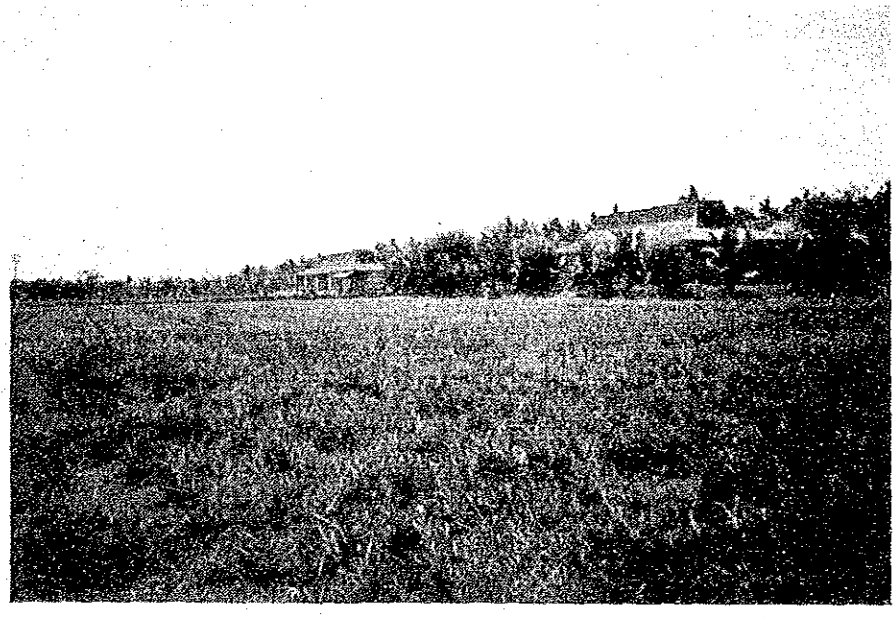


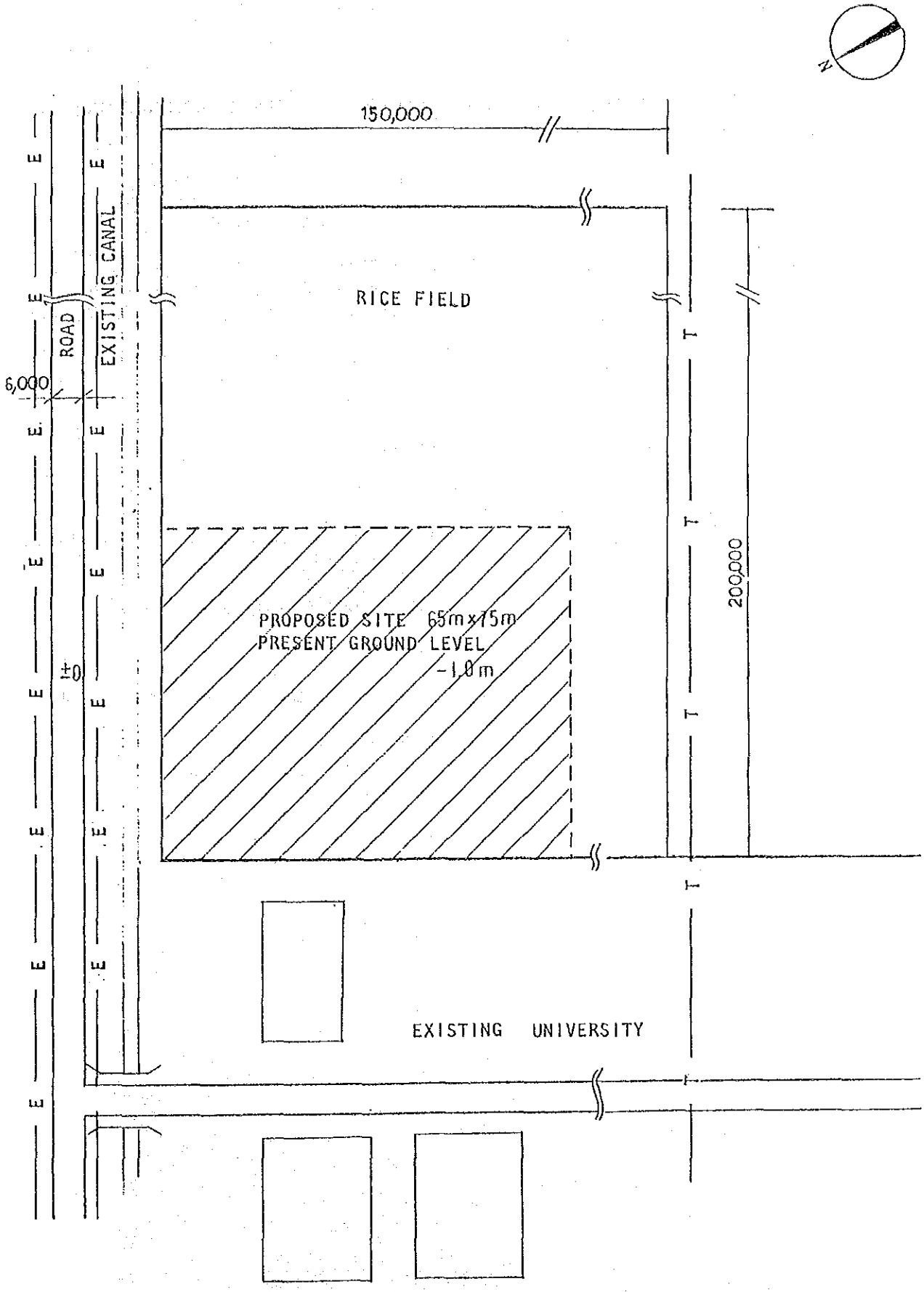
FIELD LABORATORY - Kasemen/SERANG

SITE CONFIGURATIONS AND CONDITIONS

SITE CONFIGURATIONS AND CONDITIONS - FIELD LABORATORY

LOCATION	Singajaya/INDRAMAYU
CONDITIONS OF SITE	Rice Field
OWNERSHIP OF SITE	University Wiralodra
AREA OF SITE	
FOR BUILDING	5,000 m^2
FOR RICE FIELD	25,000 m^2
PRESENT GROUND HEIGHT	About 1.0 m lower than the heights of access road
EARTHFILLING	Required 1.0 m deep (5,000 m^3)
INFRASTRUCTURE	
ELECTRIC POWER	Available 1 phase - 220V 50Hz
WATER SUPPLY	Well boring required
TELEPHONE	Available
EXISTING BUILDING	None
OBSTRUCTIONS	None



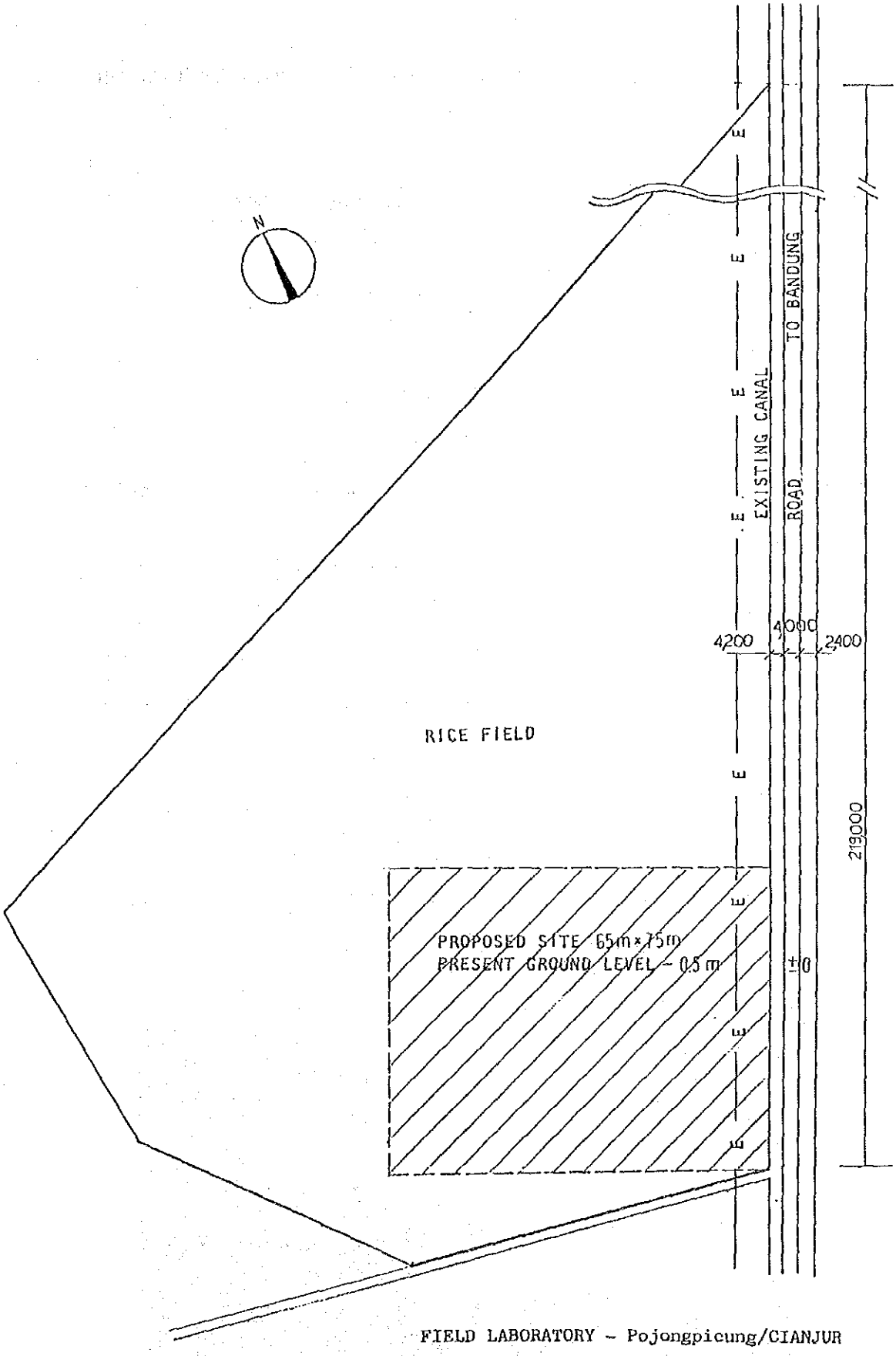


FIELD LABORATORY - Singajaya/INDRAMAYU

SITE CONFIGURATIONS AND CONDITIONS

SITE CONFIGURATIONS AND CONDITIONS - FIELD LABORATORY

LOCATION	Pojongpicung/CIANJUR
CONDITIONS OF SITE	Rice Field (Practical Field of Junior High School)
OWNERSHIP OF SITE	Province
AREA OF SITE	
FOR BUILDING	5,000 m^2
FOR RICE FIELD	25,000 m^2
PRESENT GROUND HEIGHT	About 0.5 m lower than the heights of access road
EARTHFILLING	Required 1.0 m deep (5,000 m^3)
INFRASTRUCTURE	
ELECTRIC POWER	Supply will be started within 1985
WATER SUPPLY	Well boring required
TELEPHONE	Not available
EXISTING BUILDING	None
OBSTRUCTIONS	None

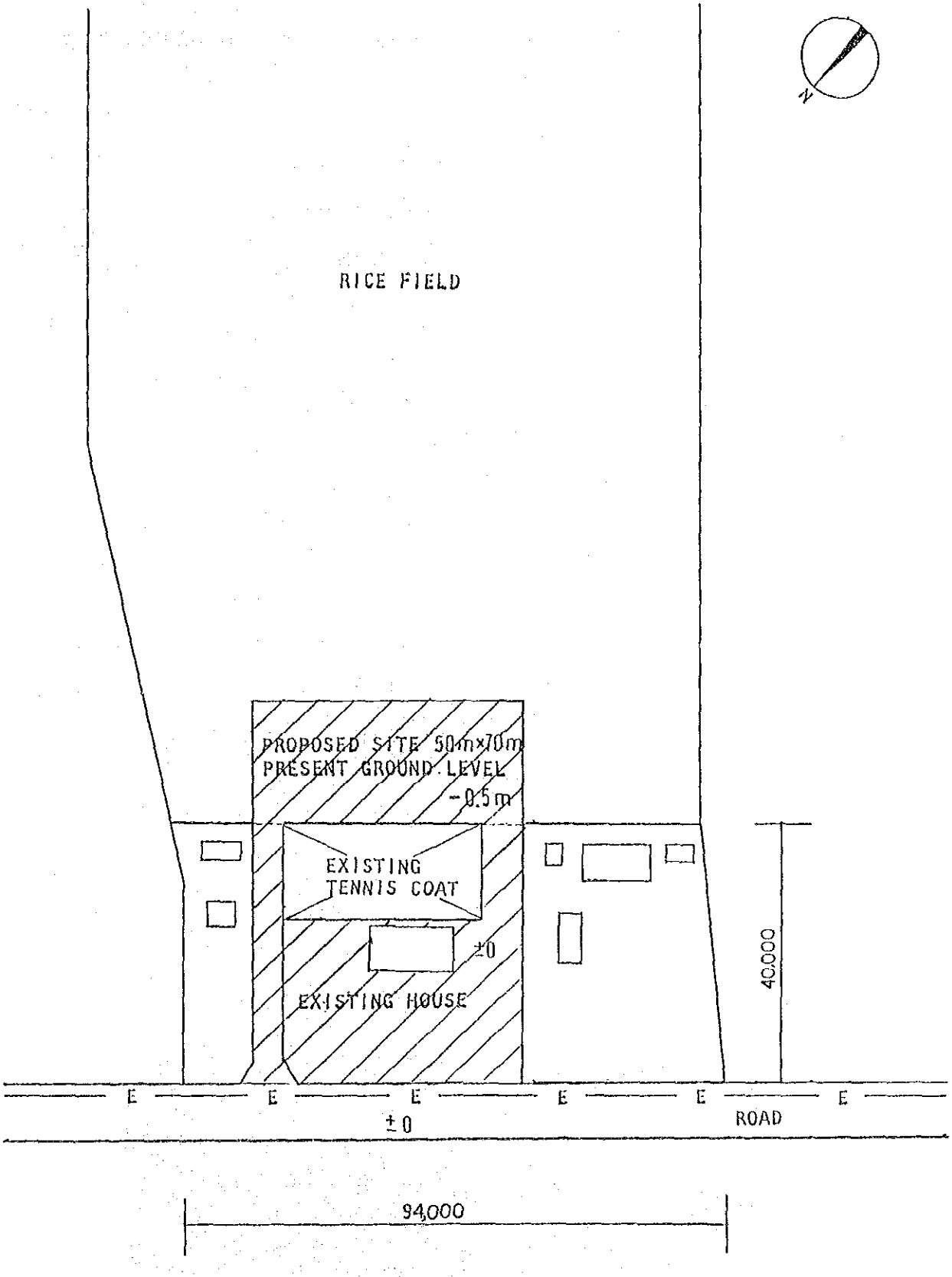


FIELD LABORATORY - Pojongpicung/CIANJUR

SITE CONFIGURATIONS AND CONDITIONS

SITE CONFIGURATIONS AND CONDITIONS - FIELD LABORATORY

LOCATION	Cilembang/TASIKMALAYA
CONDITIONS OF SITE	Rice Field
OWNERSHIP OF SITE	Province
AREA OF SITE	
FOR BUILDING	3,500 m^2
FOR RICE FIELD	40,000 m^2
PRESENT GROUND HEIGHT	About 0.5 m lower than the heights of access road
EARTHFILLING	Required 1.0 m deep (1,000 m^3)
INFRASTRUCTURE	
ELECTRIC POWER	Available 1 phase - 220V 50Hz
WATER SUPPLY	Well boring required (10.0 m deep)
TELEPHONE	Not available
EXISTING BUILDING	Existing Tennis Coat Existing House
OBSTRUCTIONS	Dismantle the above facilities

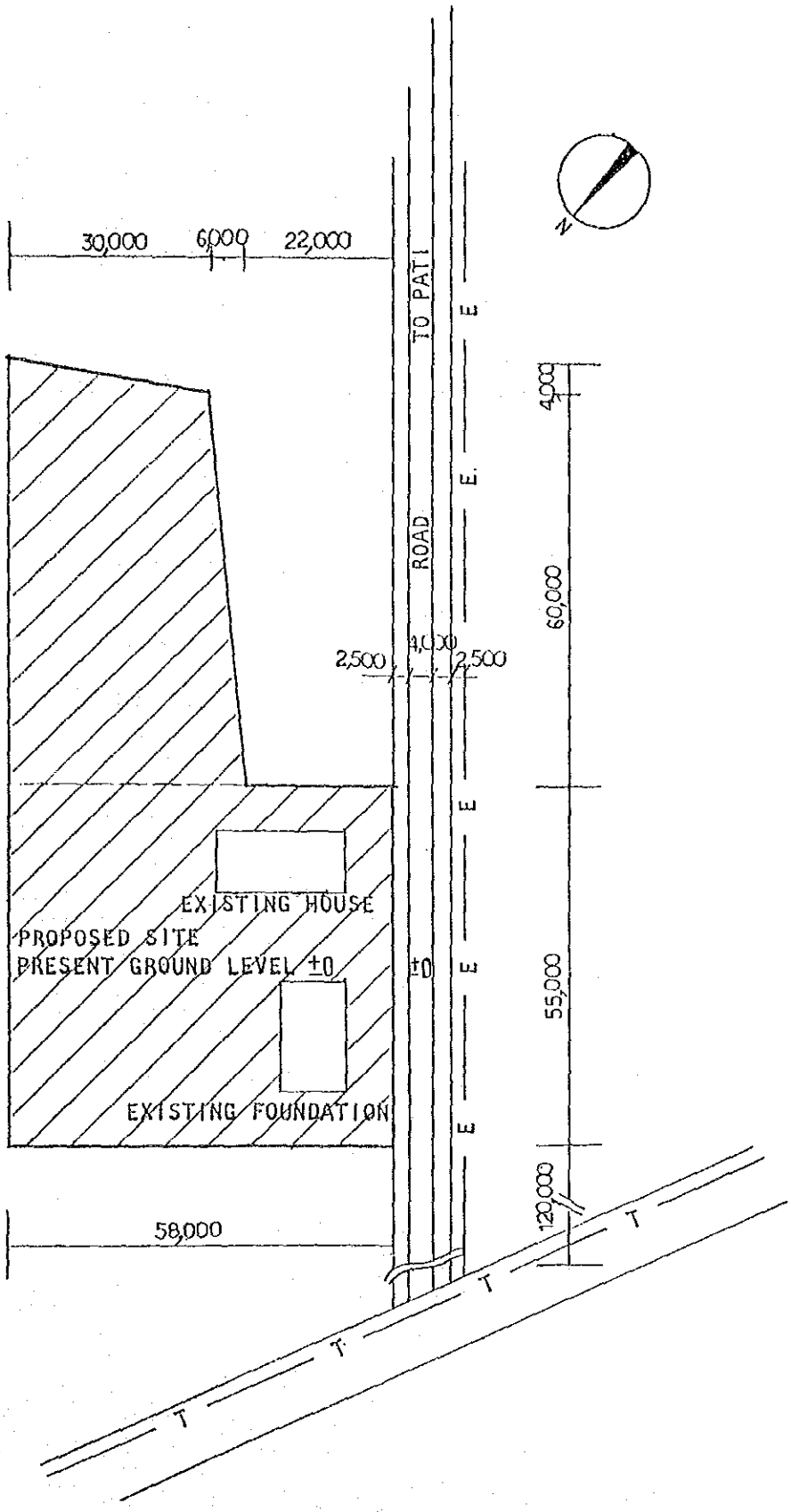


FIELD LABORATORY - Cilembang/TASIKMALAYA

SITE CONFIGURATIONS AND CONDITIONS

SITE CONFIGURATIONS AND CONDITIONS - FIELD LABORATORY

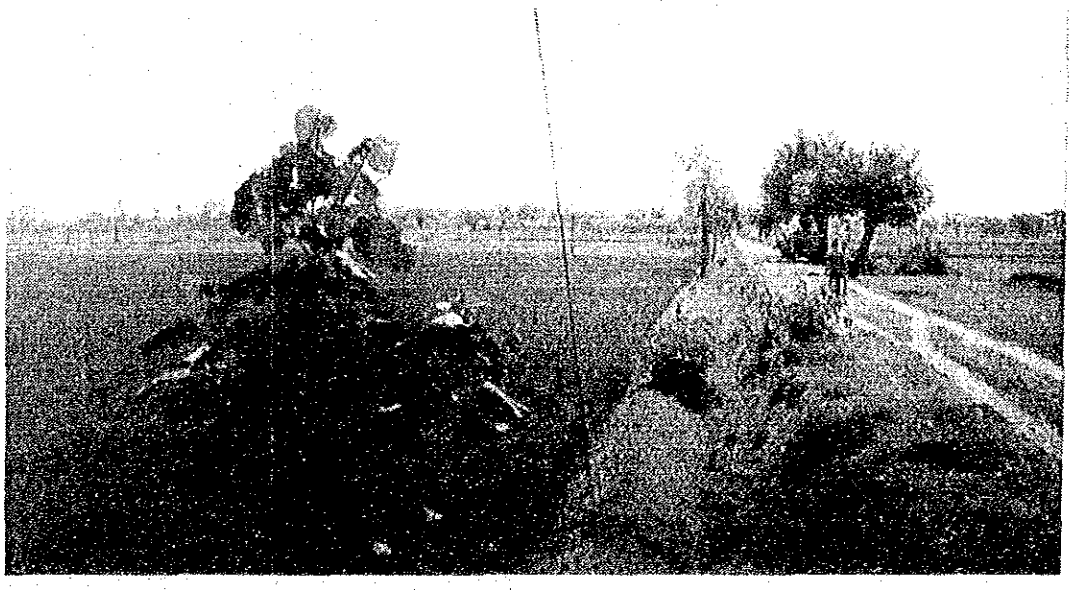
LOCATION	Winong II/PATI
CONDITIONS OF SITE	Grassy Plain Land
OWNERSHIP OF SITE	Disa Winong
AREA OF SITE	
FOR BUILDING	4,900 m^2
FOR RICE FIELD	67,000 m^2
PRESENT GROUND HEIGHT	Same level of access road
EARTHFILLING	Not necessary
INFRASTRUCTURE	
ELECTRIC POWER	Supply will be started within 1985
WATER SUPPLY	Well boring required (12.0 m deep)
TELEPHONE	Available
EXISTING BUILDING	RC Single Story Building Existing Foundation of Building
OBSTRUCTIONS	Dismantle the above facilities

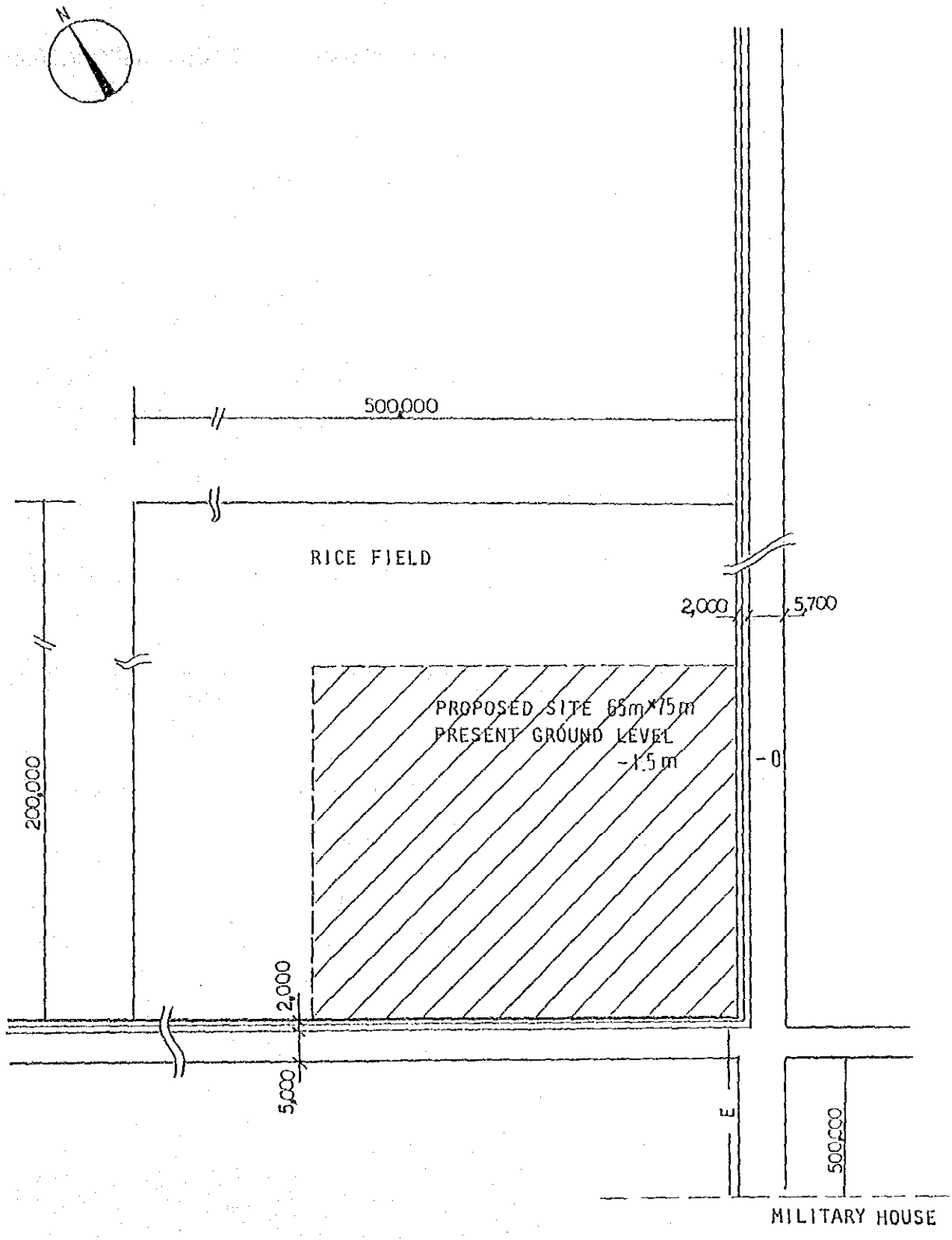


FIELD LABORATORY - Winong II/PATI
SITE CONFIGURATIONS AND CONDITIONS

SITE CONFIGURATIONS AND CONDITIONS - FIELD LABORATORY

LOCATION	Palur/SUKOHARJO
CONDITIONS OF SITE	Rice Field
OWNERSHIP OF SITE	Province
AREA OF SITE	
FOR BUILDING	5,000 m^2
FOR RICE FIELD	95,000 m^2
PRESENT GROUND HEIGHT	About 1.5 m lower than the heights of access road
EARTHFILLING	Required 1.0 m deep (5,000 m^3)
INFRASTRUCTURE	
ELECTRIC POWER	Available 1 phase - 220V 50Hz
WATER SUPPLY	Well boring required
TELEPHONE	Available (for from 500 m)
EXISTING BUILDING	None
OBSTRUCTIONS	None



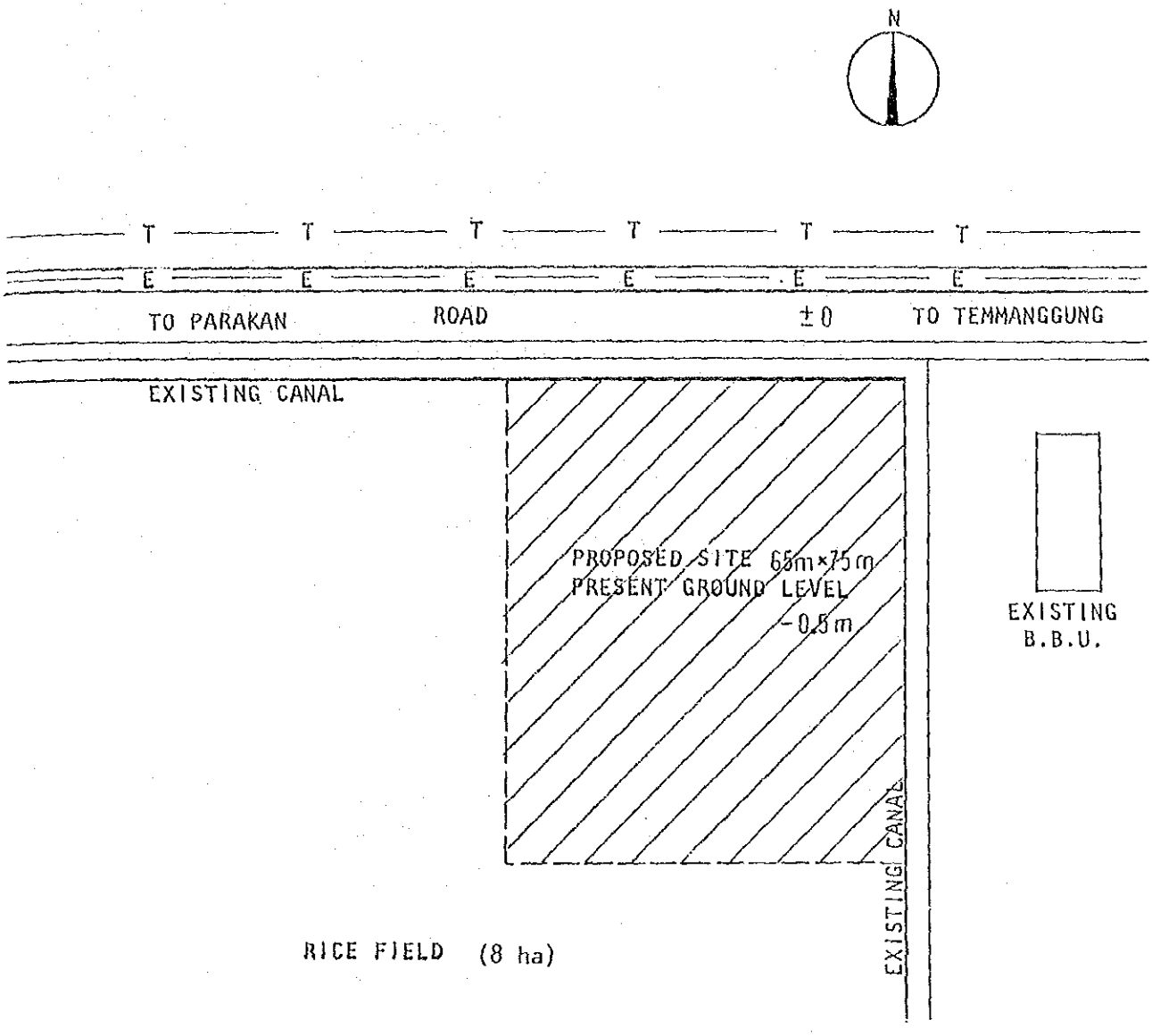


FIELD LABORATORY - Palur/SUKOHARJO

SITE CONFIGURATIONS AND CONDITIONS

SITE CONFIGURATIONS AND CONDITIONS - FIELD LABORATORY

LOCATION	Kedu/TEMANGGUNG
CONDITIONS OF SITE	Rice Field
OWNERSHIP OF SITE	Province
AREA OF SITE	
FOR BUILDING	5,000 m^2
FOR RICE FIELD	25,000 m^2
PRESENT GROUND HEIGHT	About 0.5 m lower than the hights of access road
EARTHFILLING	Required 1.0 m deep (5,000 m^3)
INFRASTRUCTURE	
ELECTRIC POWER	Available 3 phase - 380V 50Hz 1 phase - 220V 50Hz
WATER SUPPLY	Well boring required
TELEPHONE	Available
EXISTING BUILDING	None
OBSTRUCTIONS	None

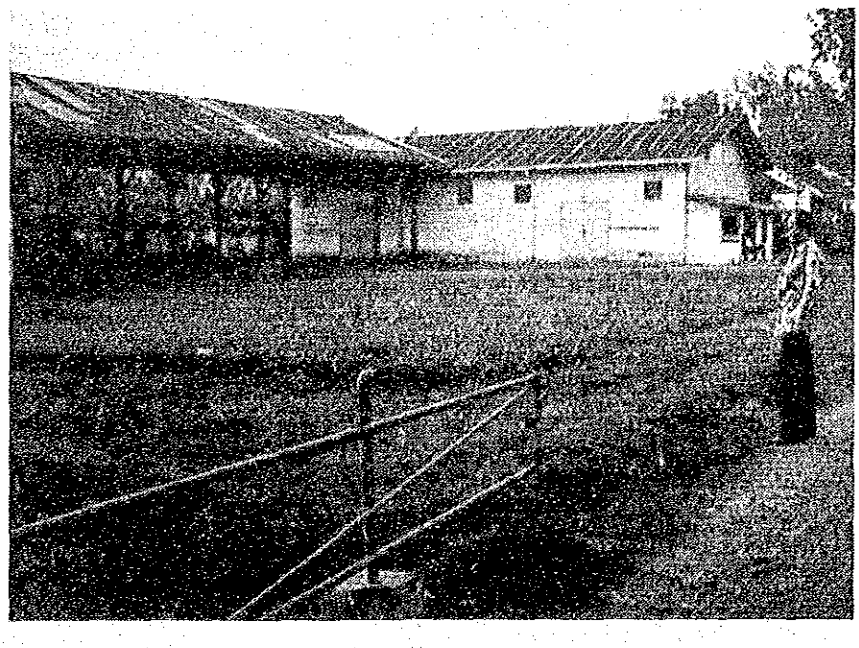


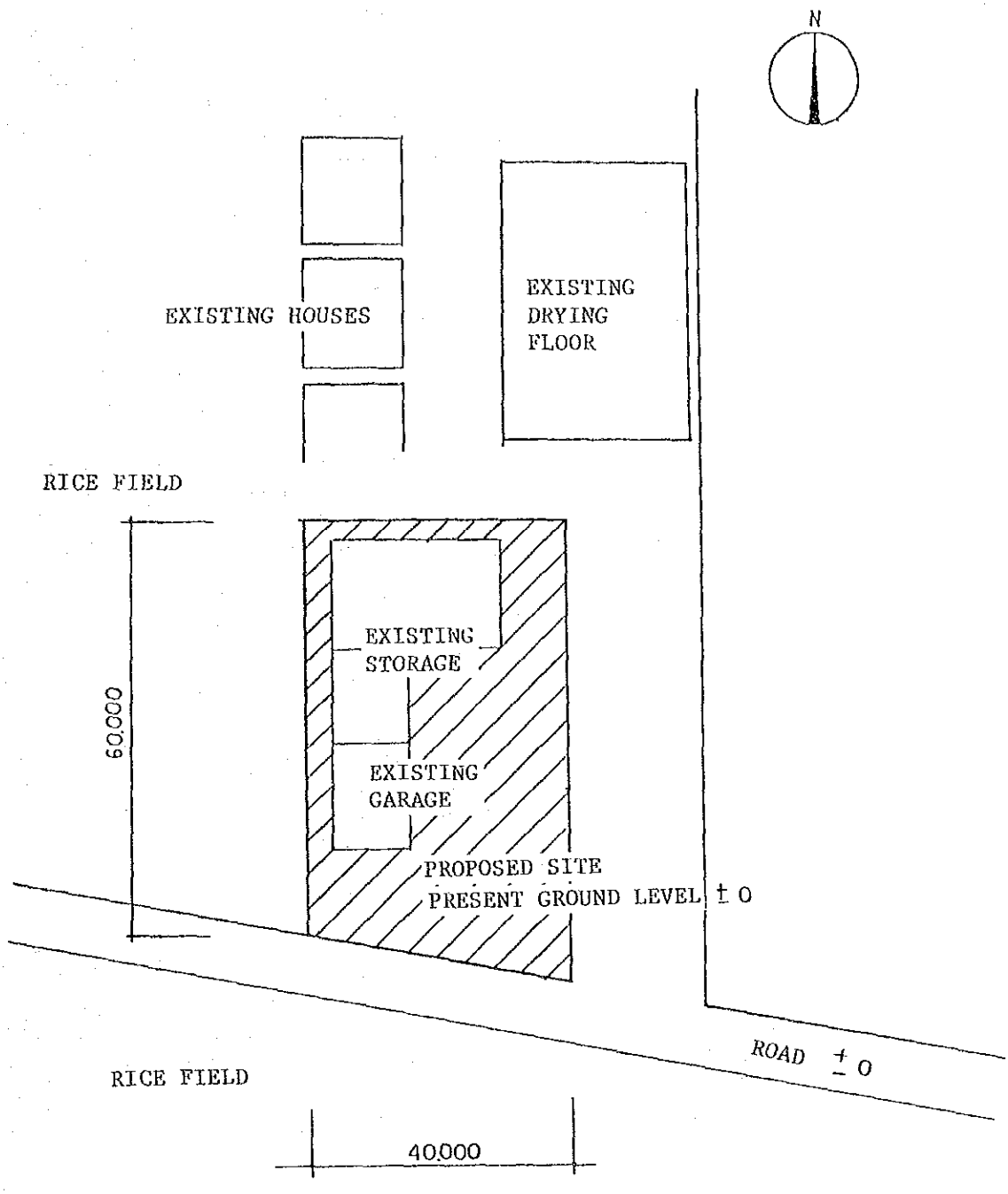
FIELD LABORATORY - Kedu/TEMANGGUNG

SITE CONFIGURATIONS AND CONDITIONS

SITE CONFIGURATIONS AND CONDITIONS - FIELD LABORATORY

LOCATION	Tajum/BANYUMAS
CONDITIONS OF SITE	Dry Field
OWNERSHIP OF SITE	Province
AREA OF SITE	
FOR BUILDING	2,500 m^2
FOR RICE FIELD	25,000 m^2
PRESENT GROUND HEIGHT	Same level of access road
EARTHFILLING	Not necessary
INFRASTRUCTURE	
ELECTRIC POWER	Available 1 Phase - 220 V 50Hz
WATER SUPPLY	Well boring required
TELEPHONE	Available
EXISTING BUILDING	Existing Storages Existing Garage
OBSTRUCTIONS	Dismantle the above facilities



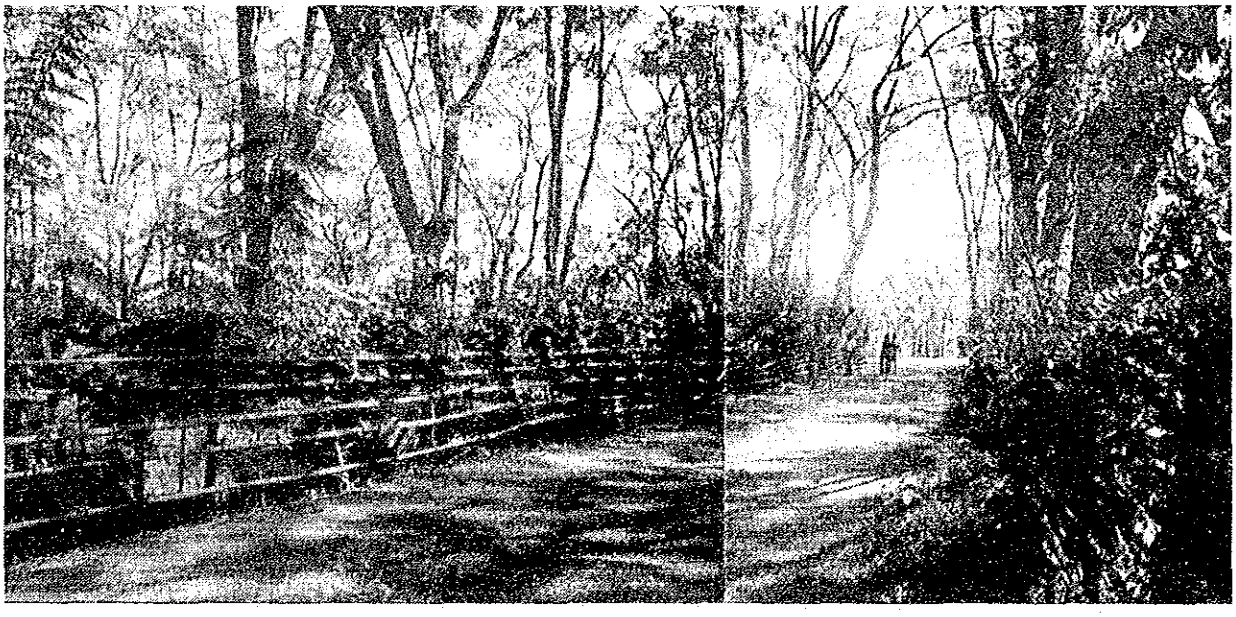


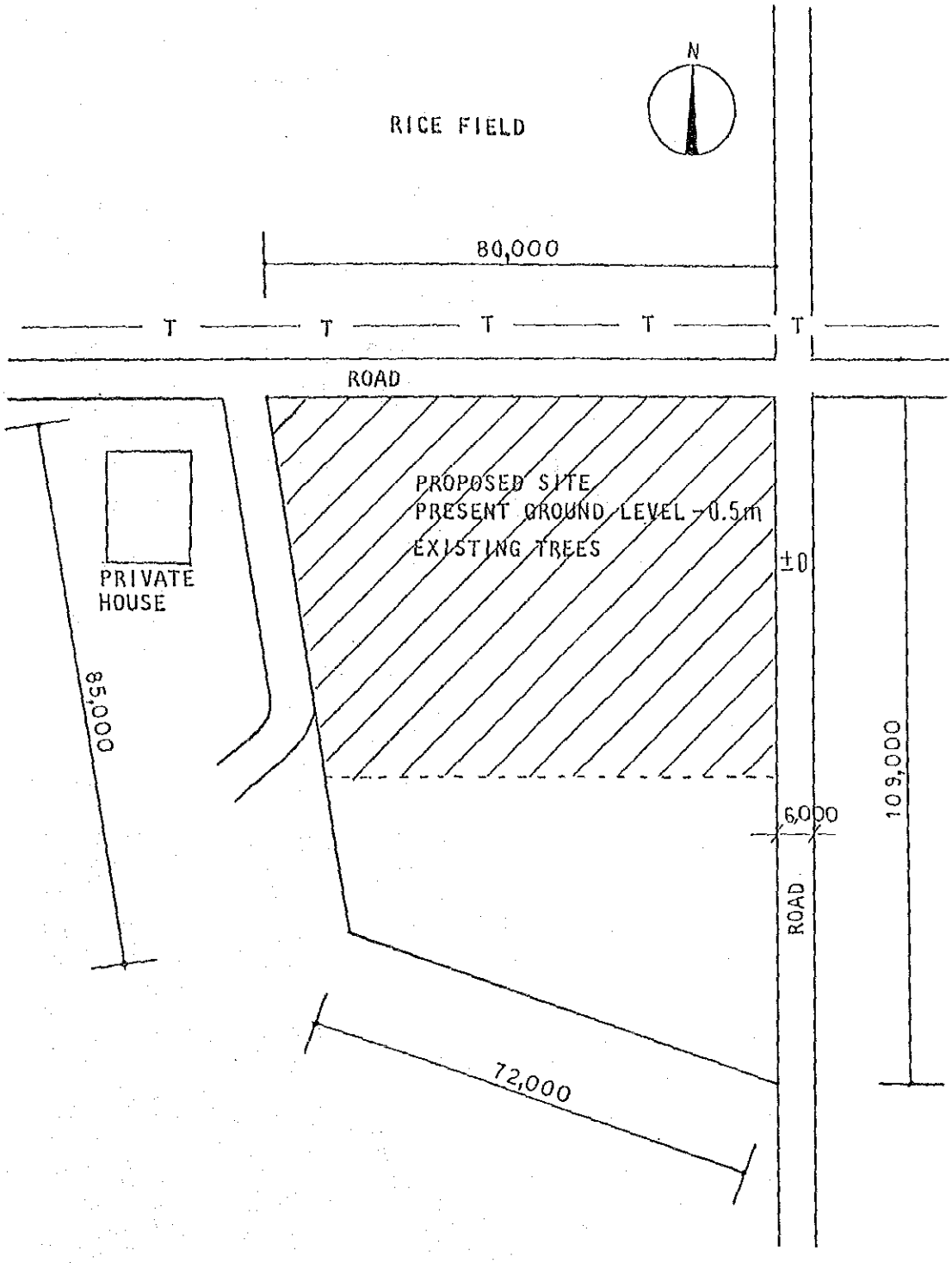
FIELD LABORATORY – Tajum/BANYUMAS

SITE CONFIGURATIONS AND CONDITIONS

SITE CONFIGURATIONS AND CONDITIONS - FIELD LABORATORY

LOCATION	Pandak/BANTUL
CONDITIONS OF SITE	Forest
OWNERSHIP OF SITE	Province
AREA OF SITE	
FOR BUILDING	7,700 m^2
FOR RICE FIELD	20,000 m^2
PRESENT GROUND HEIGHT	About 0.5 m lower than the heights of access road
EARTHFILLING	Required 0.5 m deep (3,900 m^3)
INFRASTRUCTURE	
ELECTRIC POWER	Available (far from 1.6 km)
WATER SUPPLY	Well boring required
TELEPHONE	Available
EXISTING BUILDING	None
OBSTRUCTIONS	Remove existing trees and roots



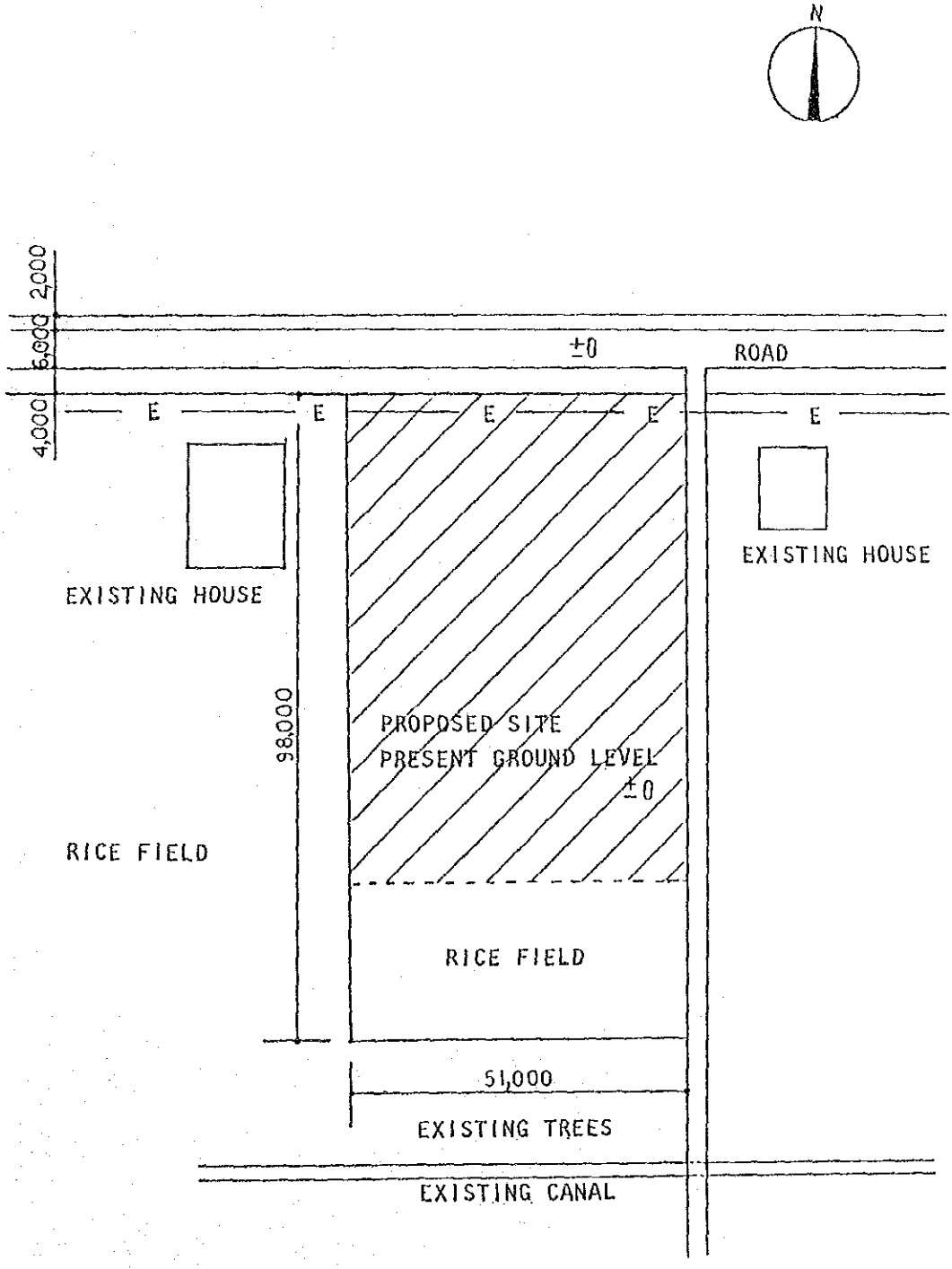


FIELD LABORATORY - Pandak/BANTUL

SITE CONFIGURATIONS AND CONDITIONS

SITE CONFIGURATIONS AND CONDITIONS - FIELD LABORATORY

LOCATION	Pandaan/PASURUAN
CONDITIONS OF SITE	Forest
OWNERSHIP OF SITE	Province
AREA OF SITE	
FOR BUILDING	5,000 m^2
FOR RICE FIELD	25,000 m^2
PRESENT GROUND HEIGHT	Same level of access road
EARTHFILLING	Not necessary
INFRASTRUCTURE	
ELECTRIC POWER	Available
WATER SUPPLY	Well boring required (20.0 m deep)
TELEPHONE	Available
EXISTING BUILDING	None
OBSTRUCTIONS	Remove existing trees and roots

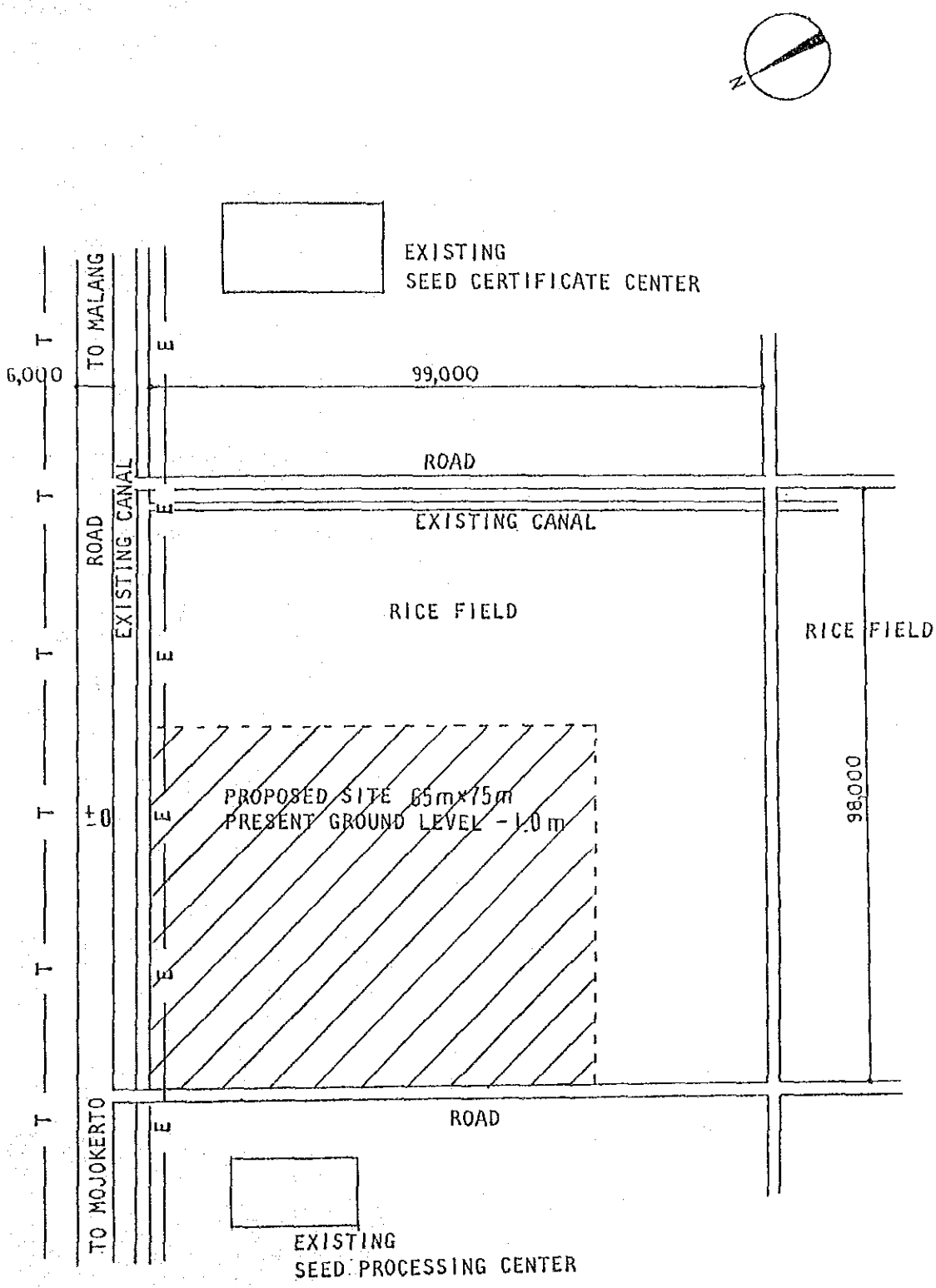


FIELD LABORATORY - Pandaan/PASURUAN

SITE CONFIGURATION AND CONDITIONS

SITE CONFIGURATIONS AND CONDITIONS - FIELD LABORATORY

LOCATION	Jabon/MOJOKERTO
CONDITIONS OF SITE	Rice Field
OWNERSHIP OF SITE	Province
AREA OF SITE	
FOR BUILDING	5,000 m^2
FOR RICE FIELD	14,500 m^2
PRESENT GROUND HEIGHT	About 1.0 m lower than the hights of access road
EARTHFILLING	Required 1.0 m deep (5,000 m^3)
INFRASTRUCTURE	
ELECTRIC POWER	Available 1 phase - 220V 50Hz
WATER SUPPLY	Well boring required (4.0 m deep)
TELEPHONE	Available
EXISTING BUILDING	None
OBSTRUCTIONS	None
OTHERS	Access bridge required

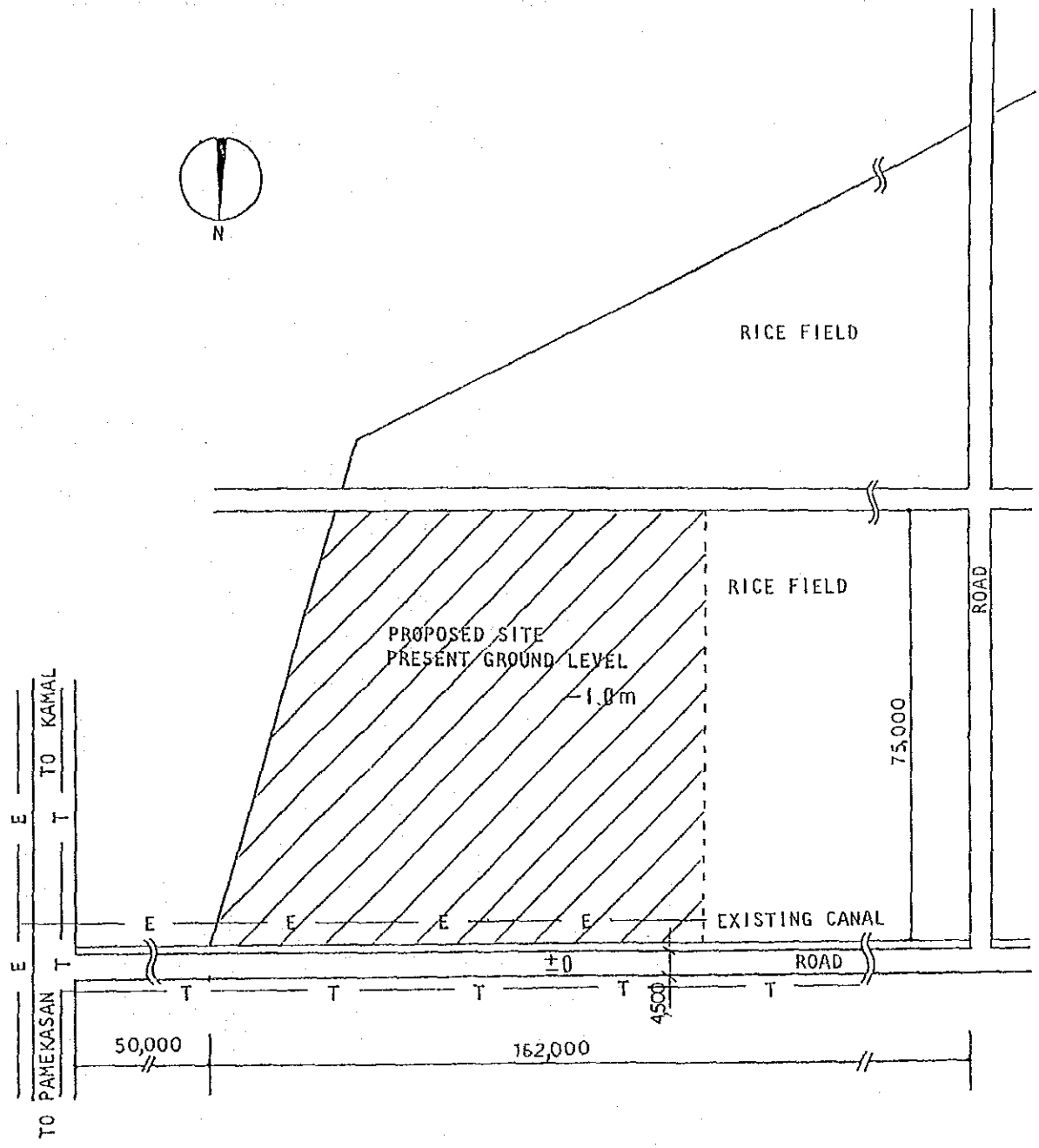


FIELD LABORATORY - Jabon/MOJOKERTO

SITE CONFIGURATIONS AND CONDITIONS

SITE CONFIGURATIONS AND CONDITIONS - FIELD LABORATORY

LOCATION	Pamekasan/PAMEKASAN
CONDITIONS OF SITE	Rice Field
OWNERSHIP OF SITE	Province
AREA OF SITE	
FOR BUILDING	5,000 m^2
FOR RICE FIELD	19,000 m^2
PRESENT GROUND HEIGHT	About 1.0 m lower than the heights of access road
EARTHFILLING	Required 1.0 m deep (5,000 m^3)
INFRASTRUCTURE	
ELECTRIC POWER	Available 1 phase - 220V 50 Hz
WATER SUPPLY	Wel boring required (50.0 m deep)
TELEPHONE	Available
EXISTING BUILDING	None
OBSTRUCTIONS	None

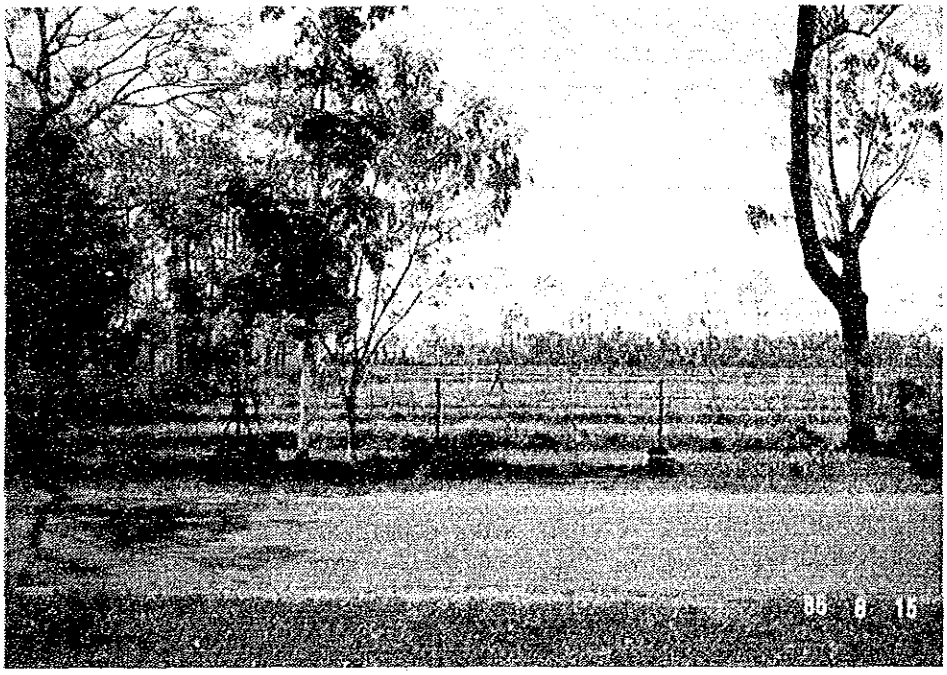


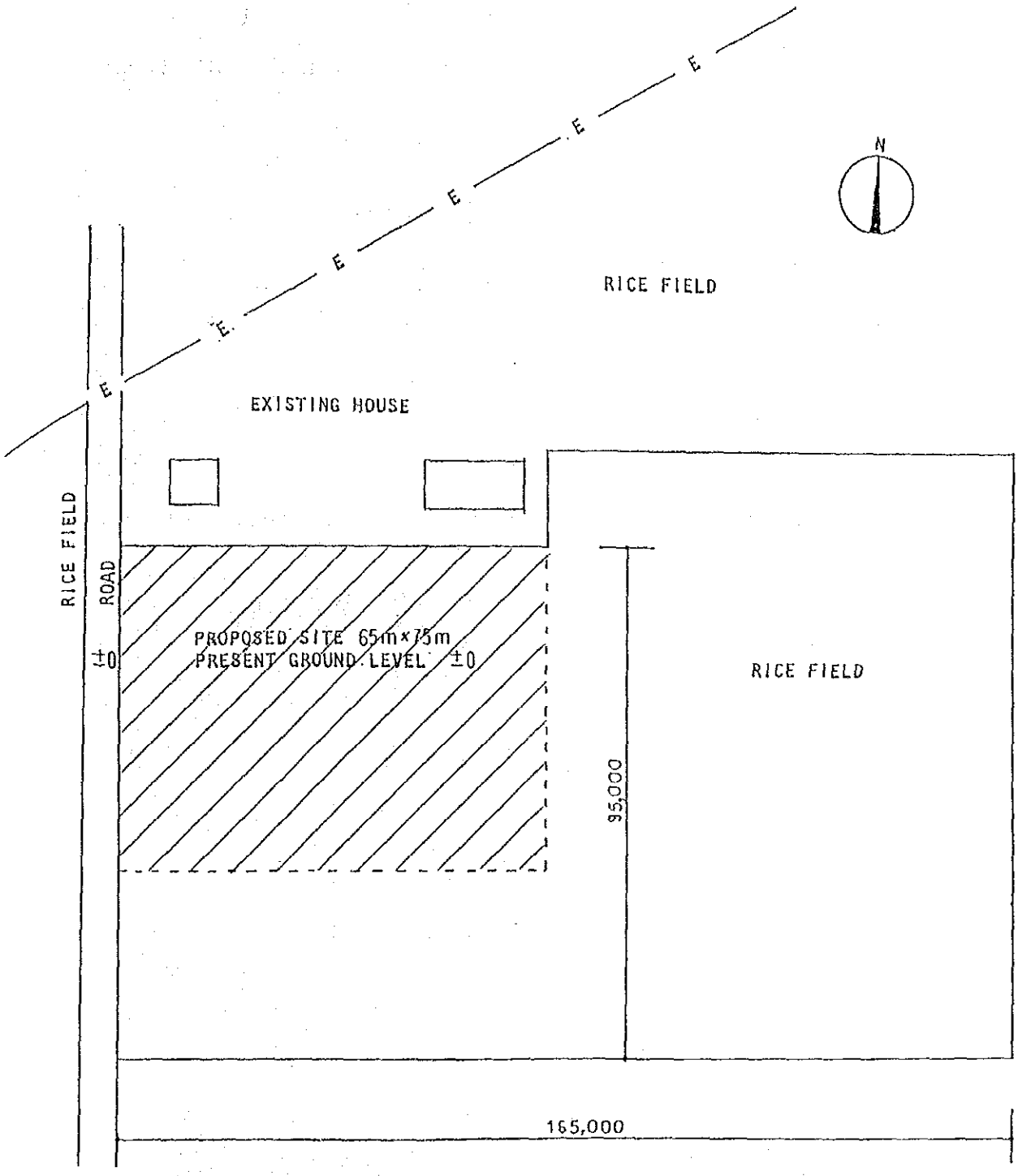
FIELD LABORATORY - Pamekasan/PAMEKASAN

SITE CONFIGURATIONS AND CONDITIONS

SITE CONFIGURATIONS AND CONDITIONS - FIELD LABORATORY

LOCATION	Pilangkenceng/MADIUN
CONDITIONS OF SITE	Dry Field
OWNERSHIP OF SITE	Province
AREA OF SITE	
FOR BUILDING	5,000 m^2
FOR RICE FIELD	11,000 m^2
PRESENT GROUND HEIGHT	Same level of access road
EARTHFILLING	Not necessary
INFRASTRUCTURE	
ELECTRIC POWER	Available (for from 4 km)
WATER SUPPLY	Well boring required
TELEPHONE	Not available
EXISTING BUILDING	None
OBSTRUCTIONS	None



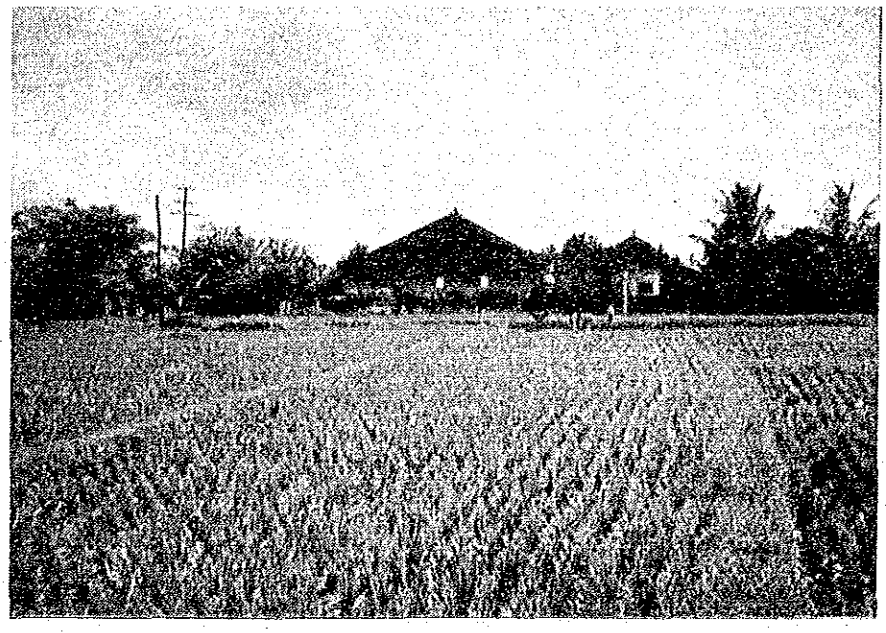


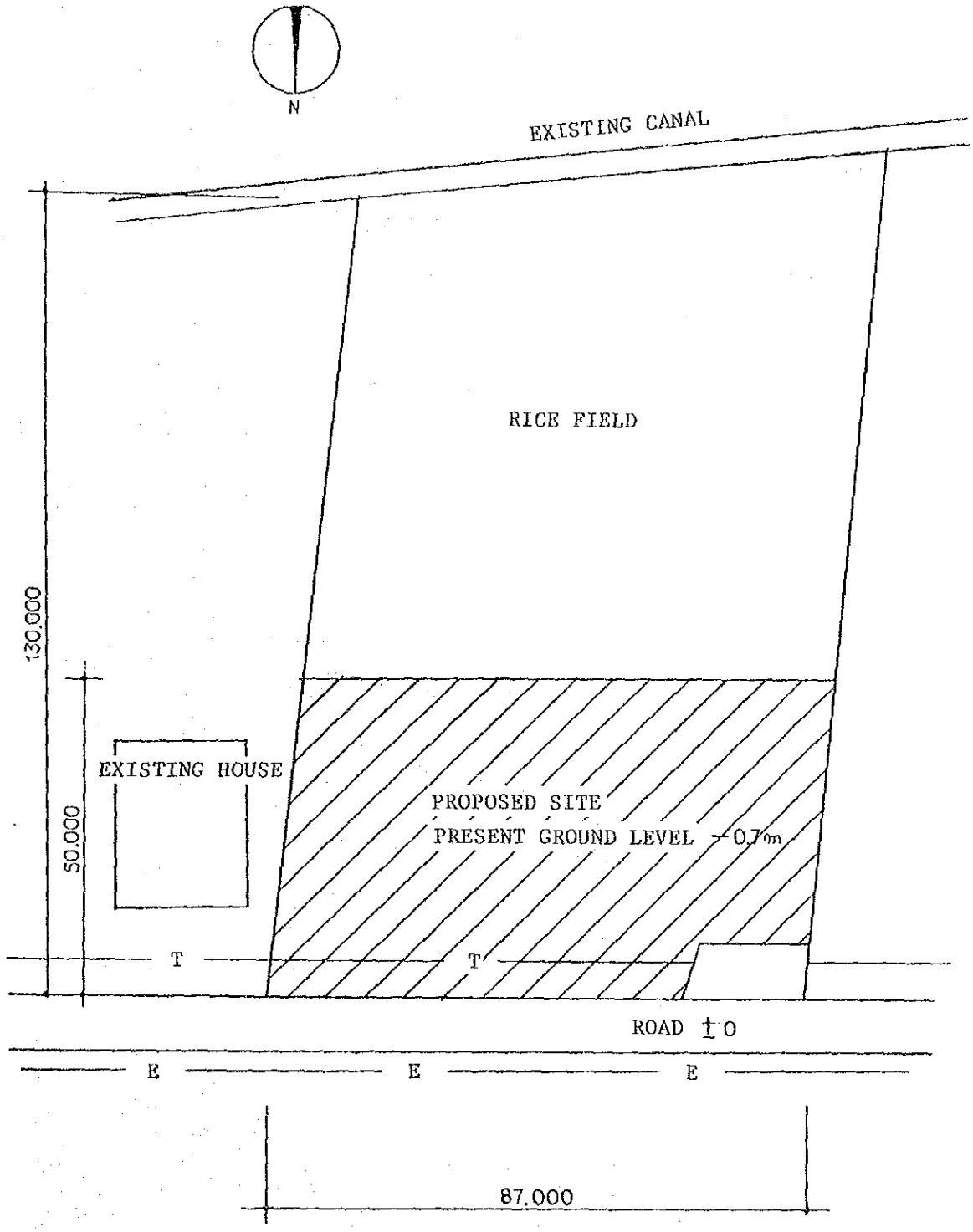
FIELD LABORATORY - Pilangkenceng/MADIUN

SITE CONFIGURATIONS AND CONDITIONS

SITE CONFIGURATIONS AND CONDITIONS - FIELD LABORATORY

LOCATION	Celuk/GIANYAR
CONDITIONS OF SITE	Rice Field
OWNERSHIP OF SITE	Province
AREA OF SITE	
FOR BUILDING	3,000 m^2
FOR RICE FIELD	9,440 m^2
PRESENT GROUND HEIGHT	About 0.7 m lower than the heights of access road
EARTHFILLING	Required 1.0 m deep (3,000 m^2)
INFRASTRUCTURE	
ELECTRIC POWER	Available 1 Phase - 220 V 50Hz
WATER SUPPLY	Well boring required (25 m deep)
TELEPHONE	Available
EXISTING BUILDING	None
OBSTRUCTIONS	None



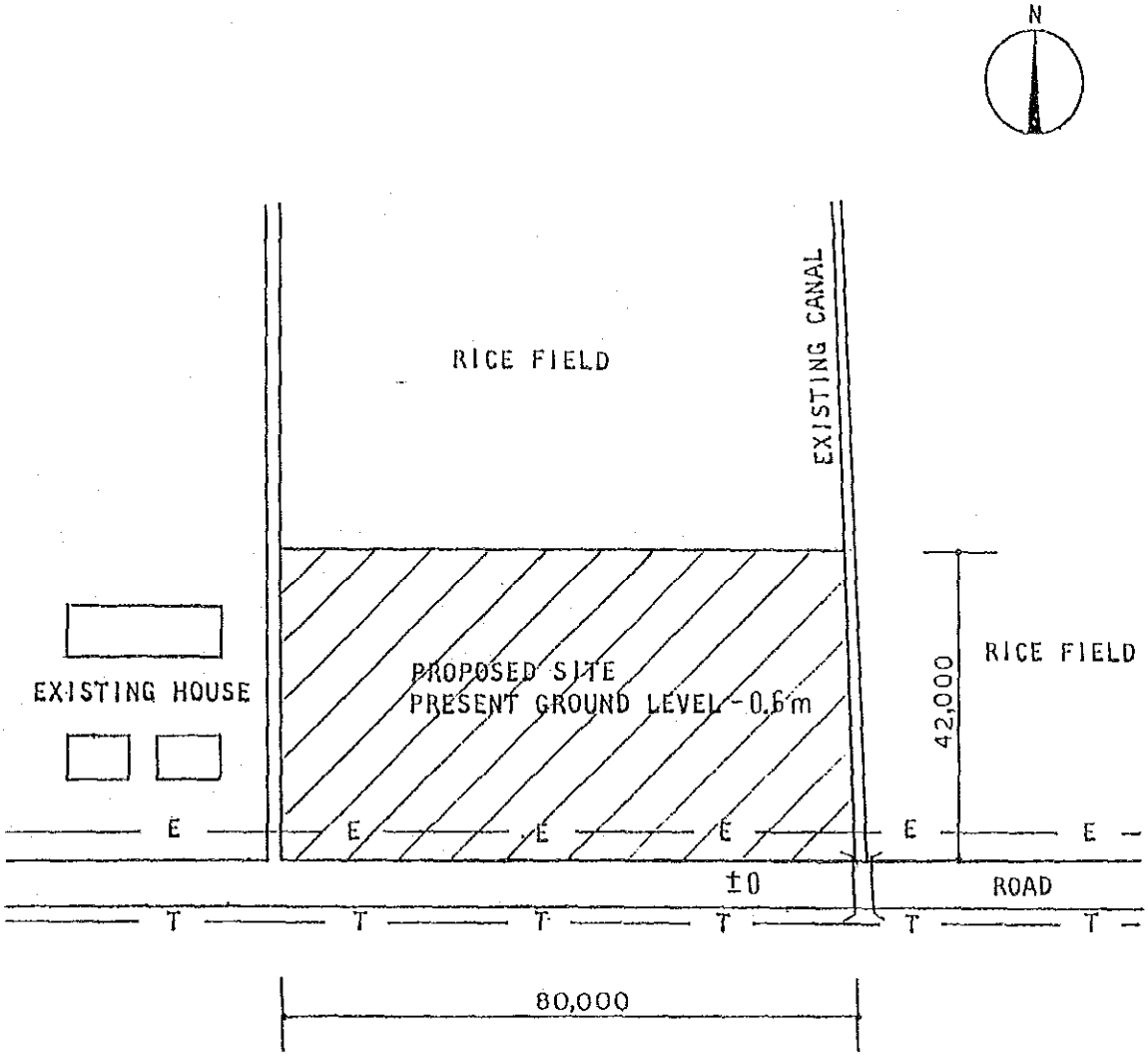


FIELD LABORATORY — Celuk/GIANYAR

SITE CONFIGURATIONS AND CONDITIONS

SITE CONFIGURATIONS AND CONDITIONS - FIELD LABORATORY

LOCATION	Seririt/BULELENG
CONDITIONS OF SITE	Rice Field
OWNERSHIP OF SITE	Province
AREA OF SITE	
FOR BUILDING	3,300 m^2
FOR RICE FIELD	25,000 m^2
PRESENT GROUND HEIGHT	About 0.6 m lower than the heights of access road
EARTHFILLING	Required 1.0 m deep (3,300 m^3)
INFRASTRUCTURE	
ELECTRIC POWER	Present voltage (1 phase - 110V) Will be changed to (1 phase - 220V)
WATER SUPPLY	Well boring required
TELEPHONE	Available
EXISTING BUILDING	None
OBSTRUCTIONS	None



FIELD LABORATORY - Seririt/BULELENG

SITE CONFIGURATIONS AND CONDITIONS

CHAPTER 4. BASIC DESIGN

CHAPTER 4. BASIC DESIGN

4-1 BASIC DESIGN OF FACILITIES

4-1-1 Design Principles

(1) Almost all of the facilities under this project are to be constructed in rural villages. Emphasis will therefore be placed on the regional characteristics of each locality, and adequate consideration will be given to harmonizing the facilities with the local atmosphere.

(2) Particularly since the FCPC in Denpasar on Bali Island is to be constructed in a part of the government office quarters, its exterior walls, etc. shall be decorated with ornaments unique to Bali so that it harmonizes with the other government buildings.

(3) The facilities shall be planned upon acquiring a full grasp of the climate, natural features and building situations on the islands of Java and Bali. They shall be planned to be inexpensive and economical to maintain, operate and administer with due regard to energy saving.

(4) Each of the facilities under this project will have its own experiment and research facilities which are closely relevant to actual rice cropping. Each of these facilities should be designed as a single-story building as much as possible.

(5) FL buildings at 15 locations (excluding the FL in Jatisari) shall, in view of their experimental and research functions and the size of the personnel that they are to accommodate, be designed in two prototypes suited to any of the sites.

(6) Locally produced materials and familiar working methods shall be adopted for the construction of each facility to the maximum extent possible to reduce the construction cost and shorten the construction period. Also, local labour shall be employed and a certain level of finishing work shall be secured.

(7) Quality of finishing work of each facility shall be comparable to other similar facilities in Indonesia.

(8) Each facility shall be planned to be as simple, bright and comfortable as possible by taking advantage of the natural conditions of each proposed construction site.

(9) On the basis of the foregoing paragraphs, the design (shape, color) of each of the facilities shall be determined according to the following.

* The pitch of roof shall be made steep (sloped at 7/10 as compared to 4/10 which is the general pitch of tiled roof in Japan).

* The roof materials shall be locally produced roof tile. The color shall be reddish orange, or gray.

* The eaves shall be extended to a depth of 2.0 m - 2.5 m.

* As the exterior walls (bricks masonry base coated with cement plaster), and concrete columns are to be finished of different materials, columns must be designed as independent columns.

* Exterior walls of buildings other than Bali FCPC shall be of whitish color.

4-1-2 Review of Design Conditions

(1) Natural Conditions

1) There are heavy rainfalls during the rainy season. The amount of rainfall during this season which accounts for about seven months of the year is shown below.

Jakarta	2,300 mm
Bandung	2,400 mm
Semarang	1,600 mm
Surabaya	1,600 mm
Denpasar	1,300 mm

The following are the results of study on design conditions which have taken the above rainfalls into account.

(a) The pitch of roof of each building shall be about 35°(7/10) to allow rain to quickly drain from the roof.

(b) The height of the ground floor shall be raised by 600 mm. above ground level to prevent flooding of floor.

(c) The capacities of eave gutters and drain pipes shall be made large enough to cope with heavy rainfall.

2) An earthquake zone runs through Java Island and Bali Island and numerous earthquakes have been recorded in the past. In view of this, the following considerations shall be made.

The seismic factor according to the structural design standard of Indonesia is approximately one-tenth that of Japan, but under this project, the seismic factor of 1/2K = 0.1 in Japan shall be adopted.

(2) Environment of Construction Sites

1) Construction sites are paddy fields now or were paddy fields in the past. In view of this, the following considerations shall be made.

(a) For soft and weak ground, pile driving or ground improvement shall be carried out.

(b) Differences in height between the front roads and the ground level of site, shall be coped with by land filling of about 1 m.

2) As the construction sites are scattered in rural areas, the following considerations shall be incorporated in the building design and others.

(a) As PFC is a two story building (with a three story dormitory) and serves as a National Center, exterior walls of buildings shall be of a symbolic design.

(b) The building design of FCPCs and FLs shall match the general surrounding buildings.

(c) The Bali style architectural design (such as reliefs engraved on the exterior walls) shall be adopted for the building of FCPC in Bali Province to match the surrounding atmosphere.

(3) Building Methods and Building Materials

1) The building design shall be such that allows the adoption of general construction method prevalent in Indonesia.

(a) Buildings shall be of the reinforced concrete rigid frame structure.

(b) The base of roof shall be wood roof truss.

(c) Countermeasures shall be taken to exterminate termites underneath slab floor of the ground floor and around the ground of buildings.

(d) The foundation of buildings which are not planned to be of pile foundation shall be of rubble concrete independent footing down to the bearing stratum.

2) Building materials produced in Indonesia shall be used as much as possible.

(a) Particularly the design of FL buildings shall be stereotyped to permit placement of large orders for building materials in order to reduce the construction costs and shorten the construction period.

(b) Building materials to be used shall be determined upon close review of Indonesia's import restriction clauses.

(c) Materials which can be easily maintained with readily procurable spare parts, shall be adopted.

4-1-3 Basic Design of Facilities

(1) Site Planning

1) Pest Forecasting Center (PFC)

As stated in Chapter 3, 3-3-3 "Project Sites", the site earmarked for its construction is at present a paddy field where a private road wide enough for construction work or for future use cannot be secured. Since the buildings of the existing FL are considerably old, it was decided that the facilities of the existing FL shall be dismantled and that the main building and dormitory shall be located on that vacated land where the ground conditions are relatively good.

The existing guest houses, staff houses and mosque located on the south side of the site, however, will not be dismantled but will continue to be used.

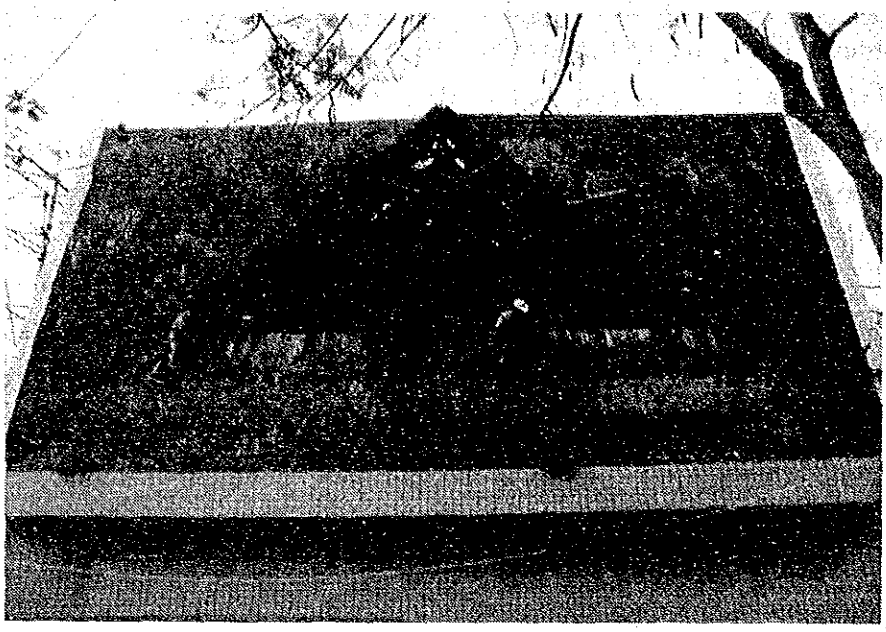
The construction site which will become available by the dismantling of existing facilities faces the arterial road which runs between Jakarta and Cirebon and is about 75 m wide and 90 m deep, covering an area of about 6,750 m^2.

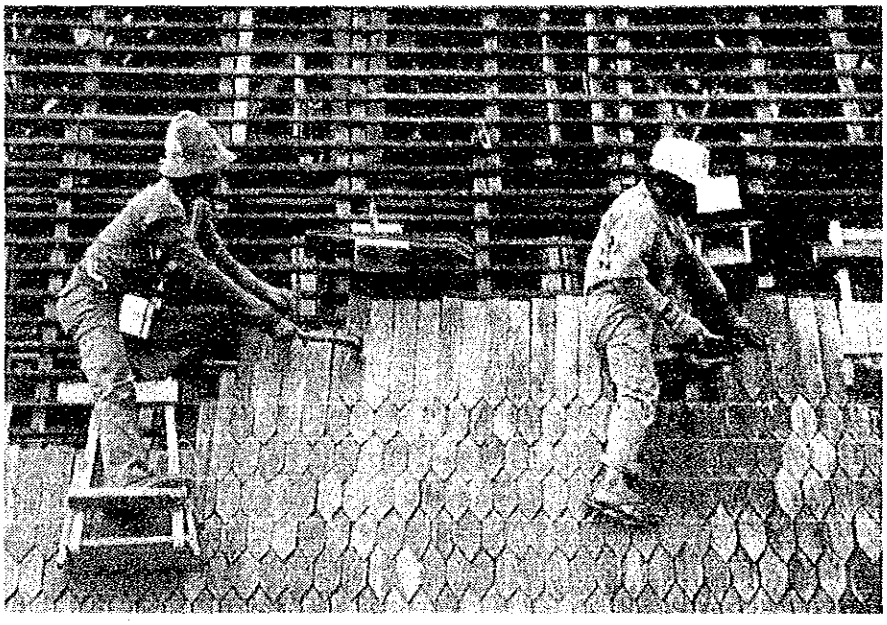
The main building of PFC will be placed approximately at the center of the aforestated site with a yard and a parking area arranged in the front along the road, and the dormitory in the back.

Such appurtenant facilities as a net house and a storage will be provided on the south of the main building. Accordingly, the experiment and research functions shall be approached from the south side of the main building (on the left side from the front road), and the dormitory from the north side of the main building (on the right side from the front road), to separate traffic lines.

Behind these facilities (on the west side) is the experimental paddy field, of which 0.5 hectare lying close to the facilities will be filled as the Indonesian portion of work at its own expense to construct a drying floor of 648 m^2 (36 m x 18 m), storages and a garage.

An open canal exists approximately 25 m inside of the road. This canal shall be relocated closer to the road as the Indonesian portion of work at its own expense since its present location overlaps with the proposed location of the main building to be constructed.





ROOFING WORK