

4-2-2. Building Plan

1. Planning of Each Building and Size of Each Room

In deciding the size of various rooms, attention should be paid on the number of persons put into each room.

Decision of room sizes are based on the Philippines' request and the general standards used in Japan. These are shown below :

- Office space
 - Line personnel : 6-8 m²/person
 - Supporting Personnel : 4-5 m²/person
- Conference space
 - for large Conference : 2.0 m²/person
 - for small Conference : 2.5 m²/person
- Training space
 - classroom : 1.5-1.8 m²/person
 - seminar room : 1.8-2.3 m²/person
- Meeting space
 - with table : 1.3-1.5 m²/person
 - without table : 0.8-0.9 m²/person
- Canteen space
 - 1.2-1.5 m²/seat
- Dormitory space
 - 6.8-8.0 m²/person

The number of staff and the layout of various machineries and equipment are the factors to determine adequate size of the experiment room, examination, research, and attached rooms.

The following are the size of various rooms for each building.

(1) Training and Research Building

Division . Room	Floor Area (m ²)	Remarks
● Exec. Director's Office		
Director Rm.	40	including working & reception area
Deputy Director Rm.	22	ditto
Senior Staff Rm.	32	4 senior staff (8m ² /person)
Secretary Rm.	28	
Lecturers' Rm.	38	used for visiting lecturers when in training.
Small Conf. Rm.	60	for conference of senior staff and above (24 persons x one room)
Large Conf. Rm.	70	for overall Center conference (35 persons x one room)
Data Control Rm.	40	for data processing with personal computers
● Administrative Div.		
Administrative Office	60	office for the general management of the Center (9 staff members)
Main Staff Rm.	9	
● Training & Public Information Div.		
Training & Public Information Rm.	184	office for training, public information, audio-visual education sections (22 staff members)
Printing Rm.	26	printing educational tools and publications

Division . Room	Floor Area (m ²)	Remarks
A/V Studio Rm.	50	making and editing of audio-visual educational tools, including attached studio and control room
Editing and Control Rm.	20	
Library	120	open-stack style for 12 thousand books, including reading space (150 books/m ² , 2.0 m ² /person)
Large Classroom	184	according to the number of trainees plan one room for 120 persons
Small Classroom	180 (90x2)	according to the number of trainees plan two rooms for 50 persons
Seminar Rm.	135 (45x3)	according to the number of trainees plan three rooms for 20 or fewer persons
Locker Rm.	60	locker for 72 persons (0.5 m ² /locker, 4 shower booths (4.0 m ² /booth)
Shower Rm.	30	3 shower booths (4.0m ² /booth)
Training Lab.	140	experiment laboratory for about 30 trainees (3.0-4.0 m ² /person)
Equipment Rm.-1	25	equipment (mainly scales for balance) room for training
Equipment Rm.-2	27	equipment (mainly gaschromatography, atomic absorption photometer) room for training
● Health Control Div.		
Medical Examination Office	90	office for diagnostic staffs (11 staffs)
Diagnostic Rm.	60	2 diagnostic booths, including training space for diagnostic (36 m ² : 18 m ² /booth for training (24 m ² : 2 m ² / person x 12 persons)
Measuring Rm.	22	
EKG Rm.	22	
Audio Inspect Rm.	22	
X-ray Rm.	23	taking chest X-ray

Division . Room	Floor Area (m ²)	Remarks
Control and Viewing Rm.	30	juxtapose an attached room, storage and maintenance room for X-ray films of the above.
Dark Rm.	24	development and processing of X-ray films
Staff Rm.	20	5 examination staff members
Bleeding Rm.	14	
Treatment Rm.	18	specimen processing after taking blood and urine
Reagent Stg.	10	maintenance room of various reagents concerning specimen examination
Staff Rm.	27	6 examination staff members (4.5 m ² / person)
Diagnostic Lab.	100	biochemistry related experiment and research room such as bloods & urine
Preparation Rm.	25	
● Safety Control Div.		
Safety Control Office	120	office for safety control division staff members (15 staff)
Safety Control Training Workshop	130	workshop mainly for practice and training. various safety devices are set.
Safety Control Test Rm.	100	4 rooms for examining safety helmet, safety shoes, safety belt, etc.
Staff Rm.	40	6 examination staff members
Equipment Stg.	20	storage room for practice, training, and examination equipment
● Environment Control Div.		
Environment Control Office	150	office for environment control division staff excluding those of examination (18 people)
Working Environment Measurement Lab.	130	analysis and experiment laboratory of various working environment measurement
Equipment Rm.-1	15	equipment room attached to laboratory (scale for balance, etc.)

Division . Room	Floor Area (m ²)	Remarks
Equipment Rm.-2	15	equipment room attached to laboratory (gaschroma-tography, atomic absorption photometer, spectrometer)
X-ray Diffractometer	26	analysis room that utilizes X-ray diffractometer
Reagent Stg.	11	storage room for various reagents for experiments
Water Treat Rm.	12	chemical disposal of discharged water from experiment and research
Staff Rm.	40	7 examination staffs (4.0 m ² / person)
Local Exhaust Vent. Experiment Rm.	80	practice of environment improvement by using local exhaust ventilation devices
Mask Fitness and Gas Mask Test Rm. (Respirator Test Rm.)	120	examination and certification of dust-proof masks and gas masks, etc.
Environment Equipment Stg.	14	storage for equipment that are used for measurements outside the Center
● Otehrs		
Storage	149	
Machine Rm.	20	
Hall, Corridor, WC, etc.	2,445	
Total	5,734 m ²	

(2) Auditorium

Division . Room	Floor Area (m ²)	Remarks
Auditorium	408	300 persons with table and/or 500 persons with chair only (1.2m ² /person)
Stage	44	
Foyer	92	lobby attached to the above
Storage	64	storage of chairs and tables
Corridor, WC, etc.	295	
Canteen	221	about 150 seats - 2 turns (1.47 m ² /seat)
Kitchen	64	about 30% of the size of canteen
Elec., Machine Rm.	96	including room for generator
Total	1,295 m ²	

(3) Dormitory

Division . Room	Floor Area (m ²)	Remarks
Office	10	room for 2 staffs
Bed Rm.	520 26m ² x20rm	80 persons: i.e. about half of the average number of trainees, 50 are considered to use. (6.5 m ² /person, 4 persons/room)
Study Rm.	110	about 60 - 70% of dormitory residents 50 seats, 2.2 m ² /seat)
Lounge	125	
Laundry, Shower, WC	258 86m ² x3rm	about 3-5% of the dormitory in area
Ent. Hall, Corridor, Stair, etc.	651	
Total	1,674 m ²	

(1) ~ (3) Grand Total 8,725 m²

(4) Other outdoor facilities

Car Garage 286 m²
Guard House 16 m²

2. Planning of Horizontal Plane

The Center's facilities are grouped into three blocks. Planning of horizontal plane of building is made taking various relations into account.

- The axis of each building should be planned on the East-West axis in order to avoid afternoon sun light. If it is difficult to avoid rooms that face west, however, measures such as louver would be made.

- **For Training and Research Building**

This building is a central facility of this Center that covers wide-range of activities such as training, public information, survey and research, and, thus, will have many users.

Each division will be connected with corridor, thereby enhancing mutual functionality. The diagnostic section will be on the first floor because many outside users are expected. The Training Division will be grouped on the 2nd and 3rd floors. The Safety Control Division will be on the 1st floor as a workshop because its training requires use of heavy machine tools. Examination and research rooms of the Health Control and Environment Control Divisions will be attached to a training and experiment room and test room to make facilities convenient. The office of each division is run independently, and placed in the North block.

- **Auditorium**

Various meetings and events related to occupational safety and health will be conducted as part of the activities. It will be so planned that many unspecified persons can use it.

The facility itself will be planned to be a multi-purpose hall, the capacity of which is 300 - 500 persons; seats will not be fixed, but made movable. A canteen will be juxtaposed for all the Center users to provide access to the Dormitory.

- **Dormitory**

This will be an independent building for the convenience of its management. The capacity is expected to be about 80, which is about half of all the trainees. It is anticipated that a few trainees from nearby will not need housing.

Basically four trainees will be accommodated in each room. A study room and lounge, etc. will be juxtaposed.

3. Planning of Building Section

Emphasis has been put on the functional and economical factors, scenic view provision, etc. in planning the facilities cross section.

- Number of Stories

If a high-rise building is built an elevator would be needed and the costs of building construction and facility maintenance would be high. Taking into consideration the building area and outdoor facilities that can fit into the site area, which is 2 hectare (about 20,000 m²), 3-story buildings would be ideal in terms of man's move in plane section and cross section. Therefore, the Training and Research Building and Dormitory are planned to be 3-story buildings. However, the Auditorium and Canteen will be one story buildings because functionally they need large spaces.

- Indoor Environment

Natural ventilation will be fully utilized for indoor environment planning. The structure of each room, therefore, will be planned so that natural wind can easily get through: windows in the outside wall and transom in the corridor side will be placed. In order to avoid the direct transmission of outdoor sunlight heat to the indoor, a louver and lattice will be placed forming a good appearance, in the south and west side of the building.

- Height of Each Story

Story heights of the building have been decided in view of the height of ceilings, size of structural beams, and thickness of finishing materials. The height of the Training and Research Building and Dormitory is, from the nature of the typical room, set as follows :

	<u>1st story</u>	<u>2nd and 3rd story</u>
Ceiling	3.00 m	2.70 m
Beam	0.70 m	0.70 m
Finishing Materials	0.10 m	0.10 m
Height of Story	3.80 m	3.50 m

As for the Auditorium and Canteen, the height is set at 3.6 meters to level the eaves appropriately.

4. Structural Planning

Fundamentally, structural plans emphasize adopting a frame system which fits the local construction condition and provides firm and economical construction. Therefore, the most frequently used method will be utilized as much as possible in selecting structural design method, expected external forces, materials, and construction method.

1). Structural Design

The Philippine's National Structural Code for Buildings will basically be used for structural design. In addition, Japan's design standards will be utilized for detailed parts. The following external forces that affect buildings are taken into consideration :

- Dead Load

All the weights of structural materials, finishing materials and equipment attached to the building are calculated.

- Live Load

The following figures are adopted according to the National Structural Code for Buildings for live load of each room :

<u>Room</u>	<u>Live load :</u> <u>Pa (kg/m²)</u>
Office	2,400 (245)
Research Room	2,900 (296)
Experiment Room	2,900 (296)
Class Room	2,900 (296)
Auditorium	4,800 (490)
Bed Room	1,900 (194)

- Wind Pressure

Conforming to the Structural Code for Buildings in which, metropolitan Manila is in the strong wind designation II, the following figures are used for wind speed and wind pressure according to the building height.

<u>Height of building</u> (feet)	<u>Wind velocity</u> (km/hour)	<u>Wind pressure</u> (kg/m ²)
0~30	175	150
30~100	175	200

● **Seismic Force**

The Philippines belongs to the circum-pacific seismic belt and is reported to experience by earthquakes a few times a year. Accordingly seismic resistant design is required for the design of building structure.

According to the National Structural Code for Buildings, design seismic force is calculated by the following formula :

$$V = Z \times I \times K \times C \times S \times W$$

where,

V = Design seismic force

Z = Numerical coefficient for seismic zone

I = Occupancy importance factor

K = Numerical coefficient for building structure type

C = Numerical coefficient for vibration period

S = Numerical coefficient for site-structure resonance

W = Total dead load

2). **Structural System**

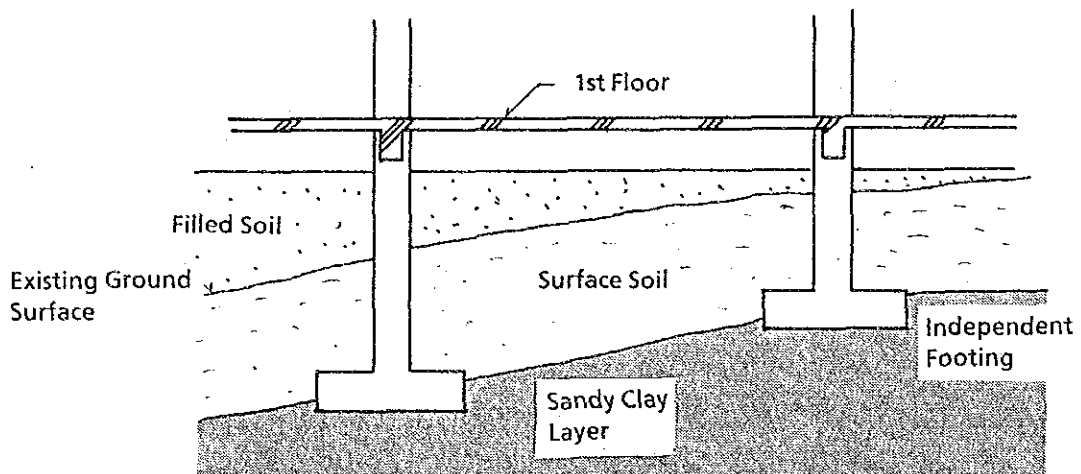
Since shape and size of the Research and Training Building, Auditorium, and Dormitory are different, correspondingly required expansion joints are provided among these three buildings to prevent concrete crack. Columns for each building are placed at the interval of 4.0 meters in the longitudinal direction, thereby simplifying the structure. The local construction method is used in principle. The following are the general planned construction for each building.

Building	Number of Story	Type of Construction
Research and Public Information Building	3	Reinforced concrete construction
Auditorium	1	Ditto. Prestressed concrete construction for roof girder
Dormitory	3	Reinforced concrete construction

3). Building Foundation

As mentioned in Chap. 3, there exists a tight and concreted sandy clay layer at the depth of 1.5 m from the ground surface. Therefore, the basic method to support the planned buildings is an independent foundation which is laid on the sandy clay layer.

Fig. 4-2-3. Building Supporting System



5. Mechanical and Plumbing System

1). Air-conditioning and Ventilation Plan

Consideration has been given to provide facilities with low running cost and easy maintenance as well as comfortable conditions.

Referring to the annual weather data in Manila, the following outdoor conditions are determined using the average of highest daily temperatures in May, and the average absolute humidity. For the conditions that will provide maximum indoor comfort (using the corresponding outdoor temperature) are :

Outdoor conditions	temperature 33.9°C, humidity 60%
Indoor conditions	temperature 26°C, humidity 50~60%

- Air-conditioning

Air-conditioning service is furnished in the following rooms :

(1) rooms to be used by executive personnel

Directors' office, deputy director's office, senior staffs' room, secretary and reception area, lecturers' room, small conference room, large conference room, other office rooms

(2) rooms which demand air-conditioning to maintain functions of the equipment

Data control room, experiment machineries and equipment room, reagent stg., Diagnostic Lab., X-ray Diffractometer.

(3) rooms in which natural ventilation is not available

Editing & control room

Large classroom, library, X-ray room, Control & viewing room, Auditorium

Air-conditioning system of each room is independently designed to enable each room to operate only as individually needed.

- Ventilation System

Natural ventilation by itself will be utilized in each room if possible. Mechanical ventilation will be used for the kitchen, dark room and other rooms which need to remove exhaust air.

2). Plumbing and Sanitary Plan

- Source of water supply

A main water supply pipe (city water) of 600φ is below North Avenue, adjacent to the site. Its water quality is satisfactory and, therefore, will be used for the Center.

Calculation of water supply

One day's trainee	70persons x 100 ℓ/person.day = 7,000 ℓ/day
Trainee (stay)	80persons x 250 ℓ/person.day = 20,000 ℓ/day
Staff	140persons x 120 ℓ/person.day = 16,800 ℓ/day
Sub-total	43,800 ℓ/day → 50 m ³ /day
Persons who use Auditorium	500persons x 30 ℓ/person.day = 15,000 ℓ/day

Total	58,800 ℓ/day → 60 m ³ /day
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Table 4-2-1. Physical and Chemical Characteristics of City Water

	City Water	Standards by WHO	Remarks
1) PH	7.08	7.0~8.5	OK
2) Turbidity	3.10	5	OK
3) Acidity (mg/ℓ)	4.63	-	No indiation in WHO
4) Free CO2 (mg/ℓ)	4.11	-	"
5) Alkalinity (mg/ℓ)	67.98	-	"
6) Bicarbonate	70.71	-	"
7) Hardness (mg/ℓ)	63.20	100~500	OK
8) Chlorides	7.80	Not more than 200	OK
9) Iron	0.07	Not more than 0.3	OK
10) Residual Chlorine (mg/ℓ)	0.57	0.05~0.1	Much but acceptable

Data : Metro Manila Water Works System

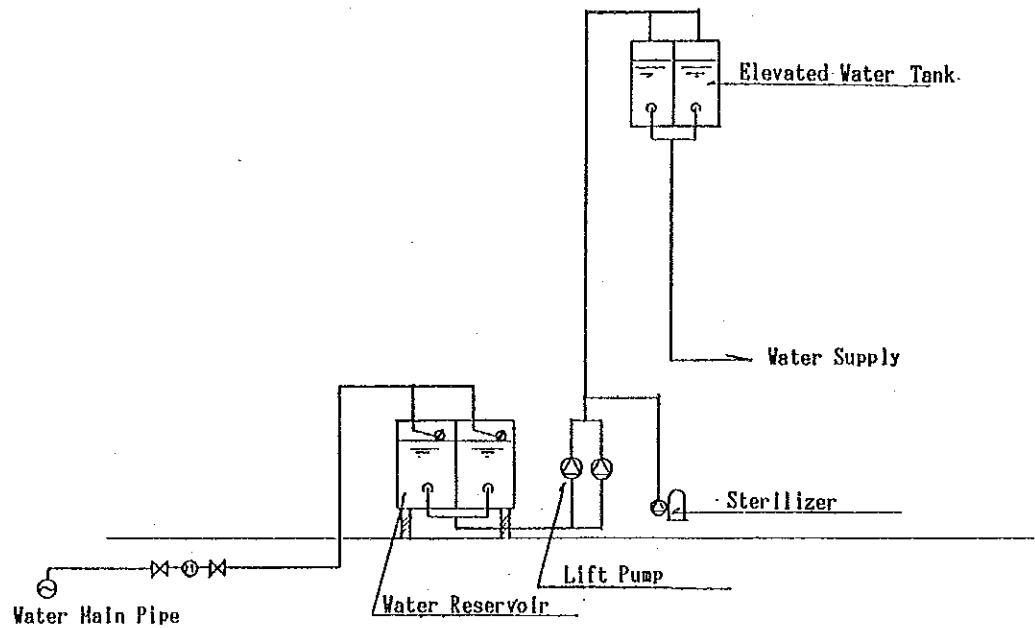
- Water supply

A water reservoir tank of 50 m³, which is about 80% of daily water consumption will be constructed. By using water lifting pumps, the water will be pumped up into an elevated water tank, from which it will be supplied by the force of gravity.

- Hot water supply

An instanteneous water heating device using gas will be installed to furnish hot water in the kitchen, some shower rooms in the training and research building, and pantry in the dormitory.

Fig. 4-2-4. Water Supply Diagram



- Drainage

The drainage from the Center is grouped into three categories : sewage and general drainage, drainage from examination and experiment, and rain water. They are treated in such a way that they will comply with the Philippine's drainage standard as shown in Table 4-2-5.

Sewage and general drainage :

This drainage from various places is sent to a sewage treatment plant (contact aeration method). After treatment, it is discharged to the main drainage pipe.

Drainage from examination and experiment :

Undiluted solutions of various drugs are sent to waste solution disposal devices and processed. Wash water of various equipment and the drainage from the undiluted solution disposal devices will be sent to the neutralization plant, and then drained to the sewage treatment plant.

Rain water drainage :

Rain water from the roof of each building is to be drained to a nearby side ditch. It will then be sent with discharge from the sewage disposal facilities to Tague Creek, which is located south of the site, through the main drainage pipe along Science road.

Fig. 4-2-5. Wasted Water Treatment Diagram

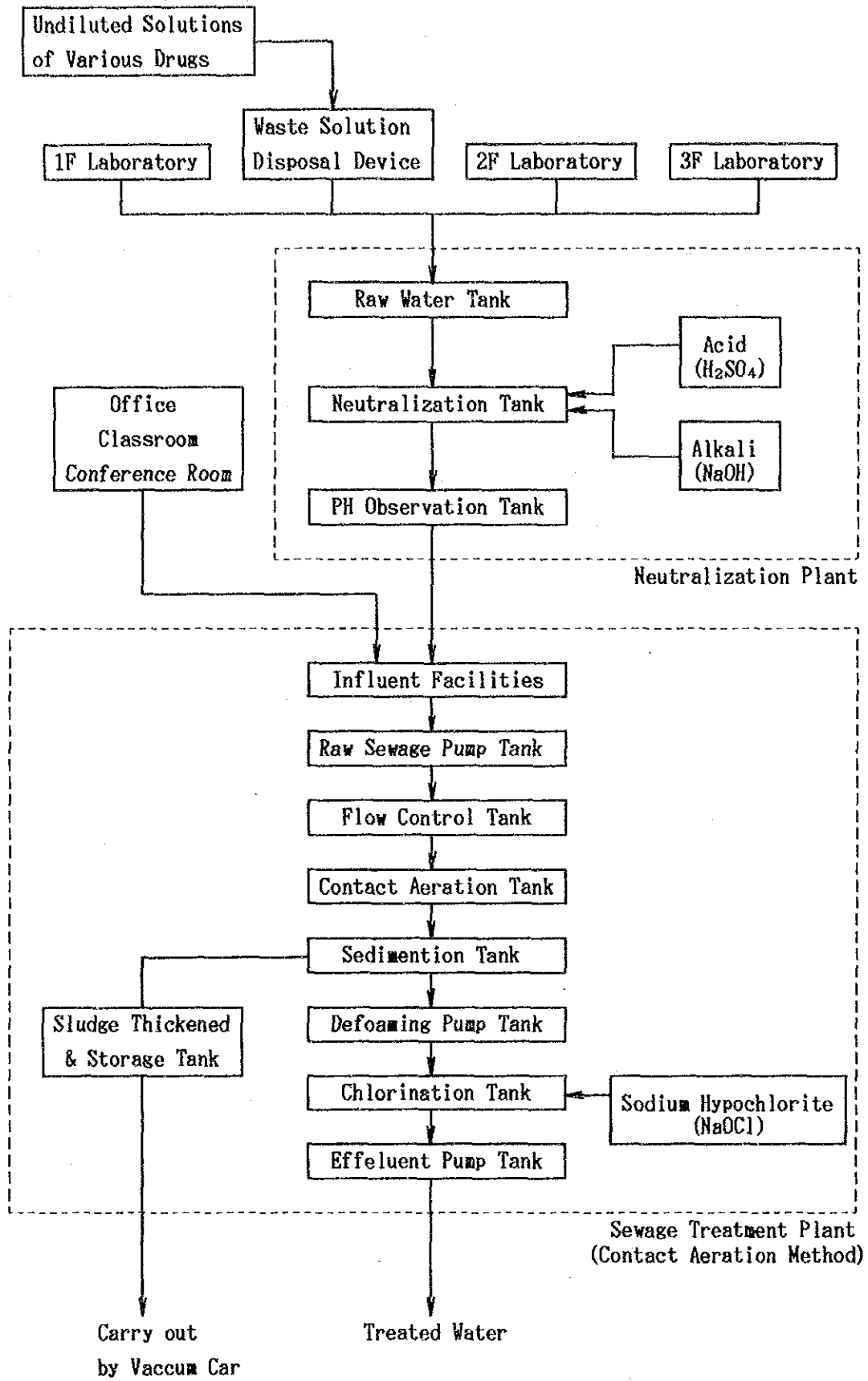


Table 4-2-2. Wasted Water Treatment Criteria

PARAMETER	PHILIPPINE *1 STANDARD CLASS C	JAPANESE STANDARD
1. Color	60	-
2. Temperature (°C)	30	-
3. Dissolved Oxygen	5	5
4. BOD (mg/l)	20	20
5. Total Dissolved Solids (mg/l)	1,000	-
6. Total Solids (mg/l)	2,000	-
7. PH	6.5~8.5	5.8~8.6
8. Coliform (/10cc)	5,000	Not more than 3,000
9. Phenolic Substance (mg/l)	0.02	-
10. Arsenic (mg/l)	0.05	0.05
11. Barium (mg/l)	0.05	-
12. Cadmium (mg/l)	0.01	0.01
13. Chrome (mg/l)	0.10	0.05
14. Copper (mg/l)	0.02	-
15. Cyanide (/10cc)	0.05	No appearance

*1. Source : Official Gazette of National Pollution Control Commission

- Gas service
LPG will be provided for the kitchen, experiment rooms, and other rooms which need hot water.
- Plumbing for special gas
Plumbing of pressed air, hydrogen, nitrogen, acetylene, argon, helium, dinitrogen monoxide for the use in the experiment laboratory will be provided.

6. Electrical System

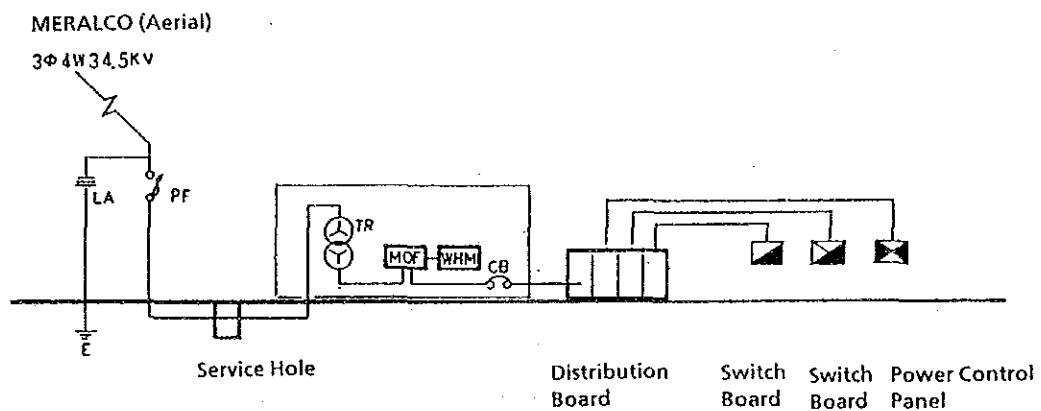
1). Power Receiving Facility and Substation

Power will be fed from the existing power line of 3-phase, 4-wire, 34.5 kv, 60 Hz to the power receiving terminal in the site, through the air. Subsequently, it will be fed to a transformer in the substation through an underground power line. The Japanese side is responsible for the work from the secondary transformer and is to alter it to 3 ϕ 3W 220V. The power would then be supplied for :

- lighting and outlets
- power for air-conditioning and pumps
- for devices for audiovisual, experiment and training
- for medical equipment and machineries such as X-ray

The total capacity is estimated about 500 KVA.

Fig. 4-2-6. Power Supply Diagram



2) Main Power Circuit

Power will be fed to each distribution board and power board at 3 ϕ 3W 220V, from the Substation.

The voltage classification is as follows :

- lighting and outlets 1 ϕ 2W 220V
- power source 3 ϕ 3W 220V
- machineries and equipment 3 ϕ 3W 220V, 1 ϕ 2W 220V

3) Power Generating Facilities

In order to deal with power failure that occurs 2-4 times a month, an in-house power generator of diesel engine will be installed. This generator feeds power at 3 ϕ 3W 60KVA to water supply pump, refrigerator and medical equipment such as blood analysis device and incubator that need to operate all the time in case of power stoppage.

Capacity of the generator is planned in accordance with the following factors :

Water supply pump	5 KW
Refrigerator	15 KW
Blood analyzer, incubator, etc.	25 KW
Experiment and measuring apparatus	25 KW
Lighting for security	10 KW
Total	80 KW

Efficiency rate of generator 85%

$$80 \text{ KW} \div 0.85 = 94.1 \text{ KVA} \rightarrow 100 \text{ KVA}$$

4) Lighting Distribution Fixtures

Distribution lines are provided for lighting equipment, switches, and outlets, that are on the secondary side of the distribution board. The lighting fixture has a switch at each small block. The lighting fixture capable of being turned off selectively at certain time intervals will be installed at the corridors. As for the distribution method, both the piping and cable distribution systems will be used.

5) Lighting Apparatus

Fluorescent lamps will be cost efficient, and incandescent lamps will be used if functionally deemed necessary.

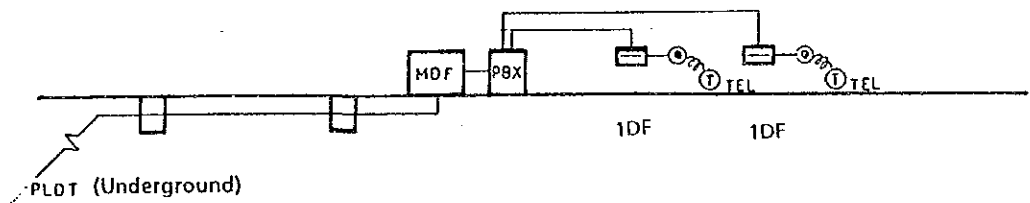
The illuminance of lighting is as follows :

- Administration office and conference room 350 LX - 400 LX
- Training room, research room 300 LX - 350 LX
- Corridor, lobby 100 LX - 150 LX
- Dining room 200 LX
- Diagnostic room 500 LX

6) Main Telephone Line

The existing telephone line extends to the MDF board inside the building. Telephone conduits are needed to the MDF and those facilities beyond the MDF. Japanese side is responsible for this provision. The telephone conduit pipe from the MDF board to the IDF board and each telephone outlet will be metal.

Fig. 4-2-7. Telephone Wiring Diagram



- 7) Telephone Exchange Facility
Automatic telephone exchange equipment with 4 lines, (two of which are for public use in the training and research building, and dormitory) will be installed in addition to about 40 extension phones.
- 8) Public Address System
An amplifier will be installed in the administration office, for paging and background music. In the exhibition area, an independent, multipurpose broadcasting facility will be installed to provide various usages.
- 9) TV Broadcasting Receiving System
A TV antenna for reception area will be installed on the roof, and TV outlets will be installed in main rooms in the building.
- 10) Fire Alarm System
A fire alarm system will be installed to sound the emergency bell which can be activated either automatically by heat or manually.
- 11) External Lighting Facilities
External lights will be provided for the security on the premise. Underground cables will be used as conduit and the lights should be automatically switched on and off.
- 12) Lightning Rod Facilities
A lightning rod will be installed on the roof for building and personal protection against possible occurrences of lightning.

7. Construction Material Planning

● External Finishing Material

For the external walls terrazzo washing is recommended because it will create a clean appearance which is appropriate for the Center since it is to promote occupational safety and health. Besides, the terrazzo washing suits local climate and the taste of the local people. For the subdued atmosphere that the Center is to create in its role in promoting research and training, tile roofing is recommended. Aluminium sash is recommended for the windows in preference to the frequently used steel sash because of its durability (Aluminium sashes are gaining popularity in the Philippines).

● Internal Finishing Materials

Considering the role that each room is to play, the rooms are classified into eight types to select the material for their internal finish.

Group A These are to be used by the staff for the different jobs and are, to be given the finish used in general office rooms. This group will include the administrative office, maintenance staff room, environment control room, public information room (for training), physical check up room, safety control room, and dormitory office.

Group B Rooms belonging to this group are intended for large numbers of persons. Accordingly, they are required to be durable and also to be safe.

The group includes small classroom, seminar room, training lab., equipment rooms, measuring room, medical examination room, X-ray room, control and viewing ECG room, dark room, bleeding room, reagent room, preparation room, mask fitness and gas mask test room, local exhaust vent. experiment room, bed rooms, etc.

Group C The senior staff rooms will have a better finish than general office rooms. These will include the director's room, deputy director's room, senior staff room, lecturers' room, conference rooms, etc.

- Group D Rooms of Group D will be designed to absorb noise and prevent reverberation.
The group will include the A/V studio, auditorium, large classroom, library, study rooms, etc.
- Group E Rooms belonging to this group will accommodate heavy machinery such as machine tools and will be particularly durable.
The safety control training workshop, safety control test room, water treatment room, etc. are in this category.
- Group F This will include public space and must withstand frequent uses in addition to facilitating maintenance. Canteen, foyer, etc., will come under this category.
- Group G These will involve frequent use of water and must be made of materials easy for cleaning.
Laundry, rest room, shower rooms, kitchens, etc. are included in this category.
- Group H Highly durable equipment rooms will belong to this category. The possibility of becoming sources of excessive noise will be carefully considered.
The machine room and electric room are in this group.

Typical materials classified in each group are listed in the following table :

Table 4-2-3 Finishing Materials

Group Name	Floor	Wall	Ceiling	Remarks
Group A	PVC sheet	Painting	Rockwool board	
Group B	PVC sheet	Painting	Mortar paint finish or asbestos board paint finish	In case water is used upper floor.
Group C	Parquet floor or carpet	Vinyl leather	Rockwool board	Carpet floor for conference room
Group D	Parquet floor or carpet	Painting	Rockwool board	Parquet floor for auditorium only. Particle board for wall of audi. and editing room only.
Group E	Hardners	Painting	Mortar paint finish	
Group F	Terazzo tiles	Painting	Rockwool board	
Group G	Mosaic tiles	Tiles	Asbestos board paint finish	
Group H	Harders	Glass wool mat	Glass wool mat	

4-2-3. Equipment Planning

The factors involved in choosing proper equipment are :

1) Proper Type and Grade of Equipment

The trainees' level of understanding, the content of curriculum and the staff's ability to use equipment should be balanced. Reference to existing local facilities similar to the Center will provide adequate information.

2) Coordination for Effective Operation and Technical Cooperation

To determine the member and layout of training equipment, basic group for training is classified as follows : health control division; 15 persons/class, safety control division; 10 persons/class, environment control division; 15 - 30 persons/class. Type and number of equipment should fit the activity of the expected technical cooperation as well as the implementation system for training and research and the content of curriculum.

3) Consideration for Maintenance, Management and Follow-up

Many kinds of equipment are used continuously for a long period of time, among which there are sophisticated ones. In choosing them, emphasis should be placed on local follow-up services such as operation and maintenance. It should be easy to acquire spare parts and expendables. The equipment used in this Center are generally grouped into the following :

- (1) training and public information division
- (2) health control division
- (3) safety control division
- (4) environment control division

LIST OF EQUIPMENT

■ Exec. Director Div.

Section	Room Name	Description	Q'ty
Data Control Sec.	Data Control Rm.	Personal Computer	4

■ Training & Public Information Div.

Section	Room Name	Description	Q'ty
· A.V Education sec.	A.V Studio & Editing Rm.	· Portable Video Camera System w/Portable Lighting Set	1 lot
		· Video Editing & Audio System	1 lot
		· Video Copier	1 lot
		· Blank Tape, etc.	1 lot
		· Instant Slide Processor	1 lot
		· Overhead Projector Film Making Kit	1 lot
· Public Information Sec.	Printing Rm.	· Typewriter	2
		· Lighting Table	1
		· Stencil Cutting Machine	1
		· Offset Plate Making Machine	1
		· Stencil duplicating Machine	1
		· Offset printing Machine	1
		· Book-binding Machine	1
		· Collating Machine	1
		· Folding Machine	1
		· Scuffing Machine	1
		· Stapling Machine	1
		· Paper Cutting Machine	1
		· Paper Drilling Machine	1
		· Plain Paper Copier	2
		· Blue Copier	1
		· Working Table	1
		· Shelf	2
Other Exhibition Area	Other Exhibition Area	· Camera w/Accessories	1
		· Safety Helmet	1 lot
		· Semimanufactured Safety Helmet	1
		· Safety Shoes	1 lot
		· Safety Belt	1 lot
		· Safety Glove	1 lot
		· Safety Goggle & Face Shield	1 lot
		· Personal Protective Equipment for Electricians	1 lot
		· Welding Working Safety Equipment	1 lot
		· Organic Solvent Handling Safety Equipment	1 lot
		· Fire Fighting Equipment	1 lot
		· Show Case for Display	1 lot

Section	Rm. Name	Description	Q'ty
· Training Sec.	Large Class Rm. Small Class Rm. Seminar Rm.	· Video Projector System	1 lot
		· Video Cassette w/Monitor TV	1
		· Public Address System	1 lot
		· 16mm Film Projector	3
		· Slide Projector	4
		· Overhead Projector	3
	Training Lab. Equipment Rm. 1.2	· Draft Chamber	2
		· Laboratory Table w/chair	1 lot
		· Side Table w/sink	1 lot
		· Center Table	1 lot
		· Cabinet	2
		· Dust Proof Mask	1 lot
		· Gas Mask	1 lot
		· Hose Mask	1 lot
		· Supplied Air Respirator	1 lot
		· Artificial Respiration Doll	1 lot
		· Gas Cylinder for Atomic Absorption Spectrophotometer (Ar, C ₂ H ₂ , N ₂ O)	1 lot
		· Gas Cylinder for Gas Chromatograph (H ₂ , N ₂ , He)	1 lot
		(Digital Dust Indicator)	(10)
		(Detector Tube w/Pump)	(10)
		(Sound Level Meter w/Recorder)	(10)
		(Hot Wire Anemometer)	(10)
		(Smoke Tester)	(10)
		(Low Volume Air Sampler)	(10)
		(Luxmeter)	(10)
		(Oxygen Monitor)	(10)
	(CO Monitor)	(10)	
(H ₂ S Monitor)	(10)		
(Combustible Gas Monitor)	(10)		
(Phase Contrast Microscope)	(1)		
(Electronic Balance w/desk)	(2)		
(Analytical Balance w/desk)	(1)		
(Gas Chromatograph)	(2)		
(Atomic Absorption Spectrophotometer)	(2)		
(Spectrophotometer)	(2)		

Remark: Indication of Parenthesis are shown as reference for the future.

■ Health Control Div.

Section	Rm. Name	Description	Q'ty
· Medical Examination Sec.	Diagnostic Rm.	· Stethoscope	5
		· Neurological Diagnostic Set	2
		· Sphygmomanometer	4
		· Computarized Spirometer	1
		· Portable Spirometer	3
		· Outscope Ophthalmoscope Set	2
		· Negatoroscope	2
		· Examining Bed	2
		· Dr. Desk w/chair	2
		· Cabinet	1 lot
	· Side Table w/sink	1 lot	
	Measurement Rm.	· Height Scale	4
		· Weight Scale	4
		· Digital Flicker Volume Tester	1
		· Function Tester Set	2
		· Cabinet	1 lot
		· Side Table w/sink	1 lot
	ECG Rm.	· Table w/chair	1 lot
		· Electrocardiograph	1
		· Examining Bed	1
· Dr. Desk w/chair		1	
· Cabinet		1 lot	
Audio Inspection Rm.	· Side Table w/sink	1 lot	
	· Audio Inspection Box	1 lot	
	· Audio Meter w/Box	2	
	· Tuning Fork Set	2	
	· Cabinet	1	
	· Inspection Table	1	
	· Side Table w/sink	1 lot	
· Dr. Desk w/chair	1		
X-ray Rm.	· Chest X-ray Machine	1 lot	
	· Controller	1 lot	
Viewing Rm.	· Negatoroscope	1	
	· Pass Box	1	
	· Table w/chair	1 lot	
Dark Rm.	· Auto X-ray Film Processor	1	
	· Side Table w/sink	1 lot	
STG.	· Film Keeping Shelf	4	
	· Roll Film Cabinet	6	
· Diagnostic Lab. Sec.	Other Bleeding Rm.	· Chest X-ray Car	2 car
		· Sphygmomanometer	1 lot
	· Syringe	1 lot	
	· Instrument Cabinet	1 lot	
	· Work Table w/chair, Examining Bed	1 lot	

Section	Rm. Name	Description	Q'ty
· Diagnostic Lab. Sec.	Treatment Rm.	· Auto Clave · Boiling Sterilizer · Center Table · Side Table w/sink · Cabinet	1 2 1 1 lot 1 lot
	Preparation Rm.	· Ultrasonic Cleaner · Ultrasonic Pippet Washer · Water Purifier (Auto Still) · Incubator · Refrigerator · Freezer · Chemical Cabinet · Side Table w/sink	1 2 1 1 1 1 2 1 lot
	Reagent STG.	· Chemical Cabinet · Probe Cabinet · Refrigerator	3 2 1
	Diagnostic Lab.	· Lab. Table · Centrifuge (Micro Tube Type) · Auto Blood Gas Analyzer · Auto Blood Chemistry Analyzer · Spectro Photometer · Gas Chromatograph w/Data Processor · Microscope (Trinocular Type) w/Disk · Fluorescent Microscope · PH Meter · Electronic Balance (top loading) · Hemotology Analyzer · Water Bath Constant Temperature · Kjeldahl Digesting Apparatus · Draft Chamber · Atomic Absorption Spectrophotometer · Liquid Chromatograph w/Data Processor · Specific Gravity Apparatus (Urine) · Densitometer · Electrophoreses Apparatus · Photomicrographic Apparatus · Side Table w/sink · Freezer · Hot Plate · Electric Drying Oven · Maffule Furnace · Other Utencil Equipment · Chemical Reagents	2 2 1 1 1 1 2 1 2 1 1 2 2 1 1 1 2 1 1 1 1 lot 1 2 2 1 1 lot 1 lot

■ Safety Control Div.

Section	Rm. Name	Description	Q'ty
<ul style="list-style-type: none"> · Safety Test Sec. · Safety Research & Survey Sec. 	Safety Control Work Shop	<ul style="list-style-type: none"> · Helmet Testing Apparatus · Safety Shoes Apparatus · Safety Belt Testing Apparatus · Withstand Voltage Tester · Grinding Wheel Testing Machine · Multi-purpose Load Testing Machine (Universal Testing Machine) · Boiler Test Equipment w/cut Model · Model Safety Equipments for Press Machine and Shear · ARC Welding Machine w/Safety Device · Gas Torch Cylinder, etc. · Safety Equipment for Welding Work · Safety Device with Wood Working Machine · Explosion Protected Electrical Apparatus · Model Scaffolding Equipment · Safety Device with Grinding Machine 	<ul style="list-style-type: none"> 1 lot 1 lot 1 lot 1 lot 1 lot 1 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot
	Equipment Rm.	<ul style="list-style-type: none"> · Live Line Detector · Combustible Gas Alarm Equipment · Earth Leakage Breaker · Display of Principle of Earth Leakage Breaker · Double Insulation Electric Tool · Display of Principle of the Safety Device with A.C. ARC welding Machine · Sample Electric Cables, etc. · Publications on Occupational Safety · Circuit Tester · Insulation Resistance Tester · Combustible Gas Monitor · Oxygen Meter · Sample Wire Ropes, Chains, etc. · Tools, etc. 	<ul style="list-style-type: none"> 1 set 1 1 1 lot 1 lot 1 lot 1 lot 1 lot 1 1 2 3 1 lot 1 lot

■ Environment Control Div.

Section	Rm. Name	Description	Q'ty
· Working Environment Sec. · Industrial Hygiene Sec.	Local Exhaust Ventilation Experiment Apparatus Rm.	· Local Exhaust Ventilation Experiment Apparatus w/assembly · Inspection Tester · Manometer · Hot Wire Anemometer	1 lot 1 lot 5 5
	Respirator Test Lab.	· Dust Removing Efficiency · Ex-Valve Dynamical Leakage · Gas Mask Tightness Test App. · Ex-Valve Gas Tightness Test App. · Canister Air Tightness Test App. · Gas Removing Efficiency Test App. · Rubber Material Tester · Pressure Drop Test App. · Visual Field Test App. · Dead Space Test App. · Tension Test Equipment · Constant High Temperature · Constant & Humidity Temperature Oven · Chemical Resistance Test Equipment · Other Utencil Equipments · Smoke Removing Efficiency Test App. · Chemical Reagents	1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot 1 lot
	X-ray Diffractometer Rm.	· X-ray Diffractometer w/ Accessories · Siever and Shaker · Test Sample Stand Rotary (Oscillatory Sample Holder) · Side Table w/sink · Center Table	1 1 1 1 lot 1
	Reagent Rm.	· Probe Cabinet · Cabinet	3 2
	Water Treatment Rm.	· Waste-Water Treatment Apparatus for Lab. · Side Table w/sink	1 1 lot
	Working Environment Equipment Stg.	· Digital Dust Indicator · Balance Dust Indicator · Low Volume Air Sampler · High Volume Air Sampler · Rotameter (Flow Calibration) · Personal Dust Sampler · Assman Psychrometer · Sound Level Meter w/Recorder · Luxmeter · Hot Wire Anemometer · Oxygen Monitor · Detector Tube w/Pump · Globe Thermometer	10 5 10 5 2 5 10 10 10 10 10 10 10 5

Section	Rm. Name	Description	Q'ty		
· Working Environment Sec.		· H ₂ S Meter	10		
		· CO Monitor	10		
· Industrial Hygiene Sec.		· Combustible Gas Monitor	10		
		· Octave Band Filter	10		
		· Gas Sample Collecting Bag	100		
		· Mini Pump for Gas Sample Collecting Bag	20		
		· Dustproof Mask	10		
		· Gas Mask	10		
		· Hose Mask	5		
		· Smoke Tester	10		
		· Gas Meter	2		
		· Dust Sampler	5		
		· Cascade Impactor w/pump	2		
		Working Env. Measurement Lab.		· Rotary Evaporator	2
				· Data Logging System	1
				· Water Bath	1
				· Electric Muffle Furnace	1
				· Platinum Crucible	6
				· Electric Thermostat Drying Oven	2
· Hot Plate	2				
· Auto Transformer	3				
· Electric Heater	2				
· Draft Chamber	4				
· Lab. Table w/Chair	3				
· Lab. Wagon	2				
· Refrigerator	1				
· Freezer	1				
· Chemical Cabinet	4				
· Ultrasonic Cleaner	2				
· Water Still	2				
· Ultrasonic Pippet Washer	2				
· Mercury Monitor	2				
· Heated Gas Sampler	5				
· Gas-tight Syringe	10				
· Bubbler	50				
· Minipump for Bubbler	10				
· PH Meter	1				
· Impinger	50				
· Minipump for Impinger	10				
· Flowmeter for Impinger	10				
· Midget Impinger	50				
· Mini Pump for Midget Impinger	10				
· Asate Mortar & Pestle	5				
· Filter Holder	5				
· Pump for Filter Holder	2				
· Soxhlet Extractor Apparatus	2				
· Centrifuge	1				
· Other Utencil Equipments	1 lot				
· Side Table w/sink	1 lot				

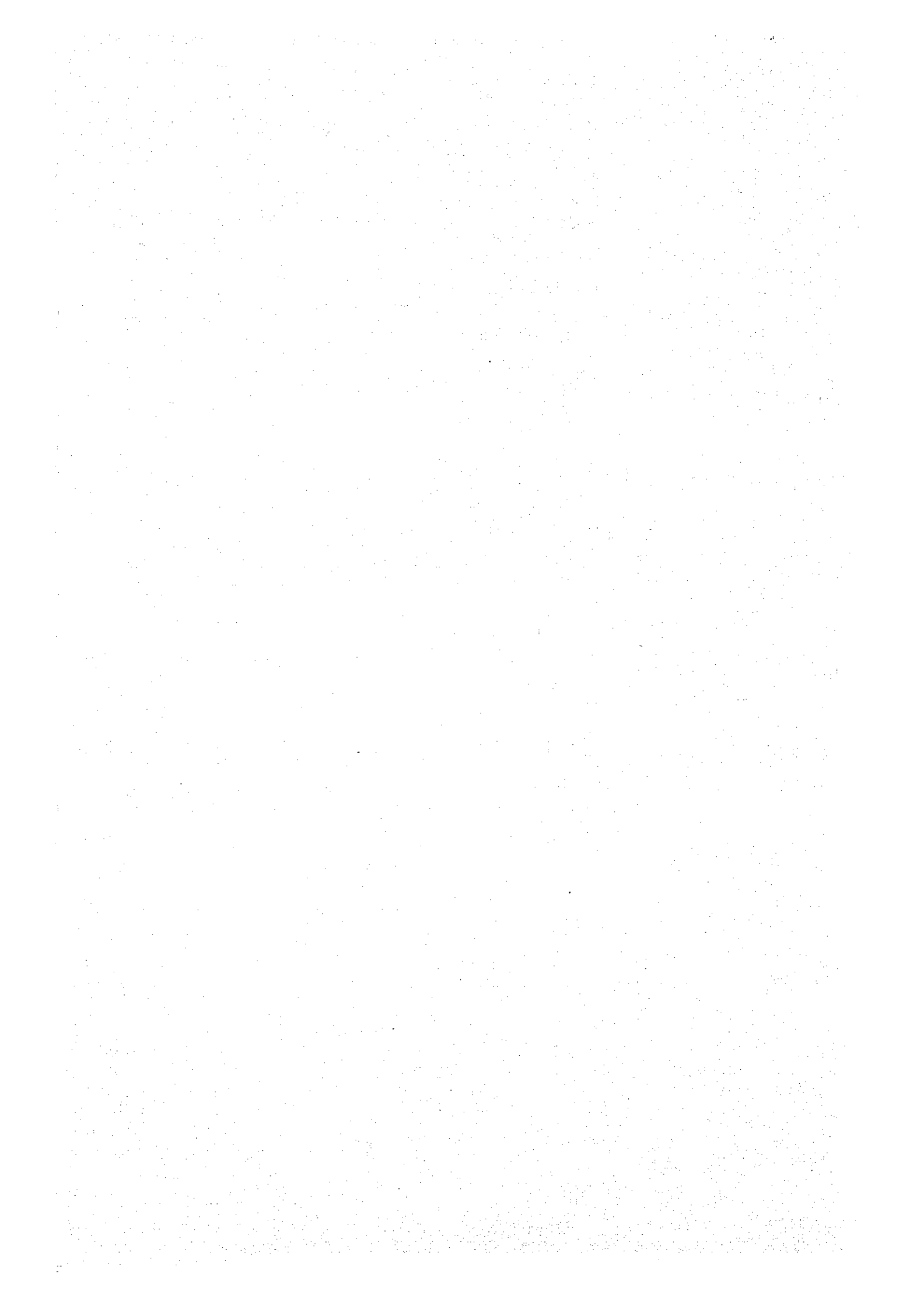
Section	Rm. Name	Description	Q'ty
<ul style="list-style-type: none"> · Working Environment Sec. · Industrial Hygiene Sec. 	Equipment Rm.-1	· Direct Reading Balance w/Balance Desk	1
		· Phase Contrast Microscope	1
		· Analytical Balance w/desk	1
		· Side Table w/sink	1
	Equipment Rm.-2	· Gas Chromatograph w/Recorder	1
		· Spectro Photometer w/Recorder	1
		· Atomic Absorption Spectrophotometer w/Recorder	1
		· Photomicrographic Apparatus	2
		· Center Table w/Chair	1
		· Side Table w/sink	1
		· Gas Cylinder for Gas Chromatograph (H ₂ , N ₂ , He)	1 lot
		· Gas Cylinder for Atomic Absorption Spectrophotometer (Ar, C ₂ H ₂ , N ₂ O)	1 lot
		· Air Compressor	2

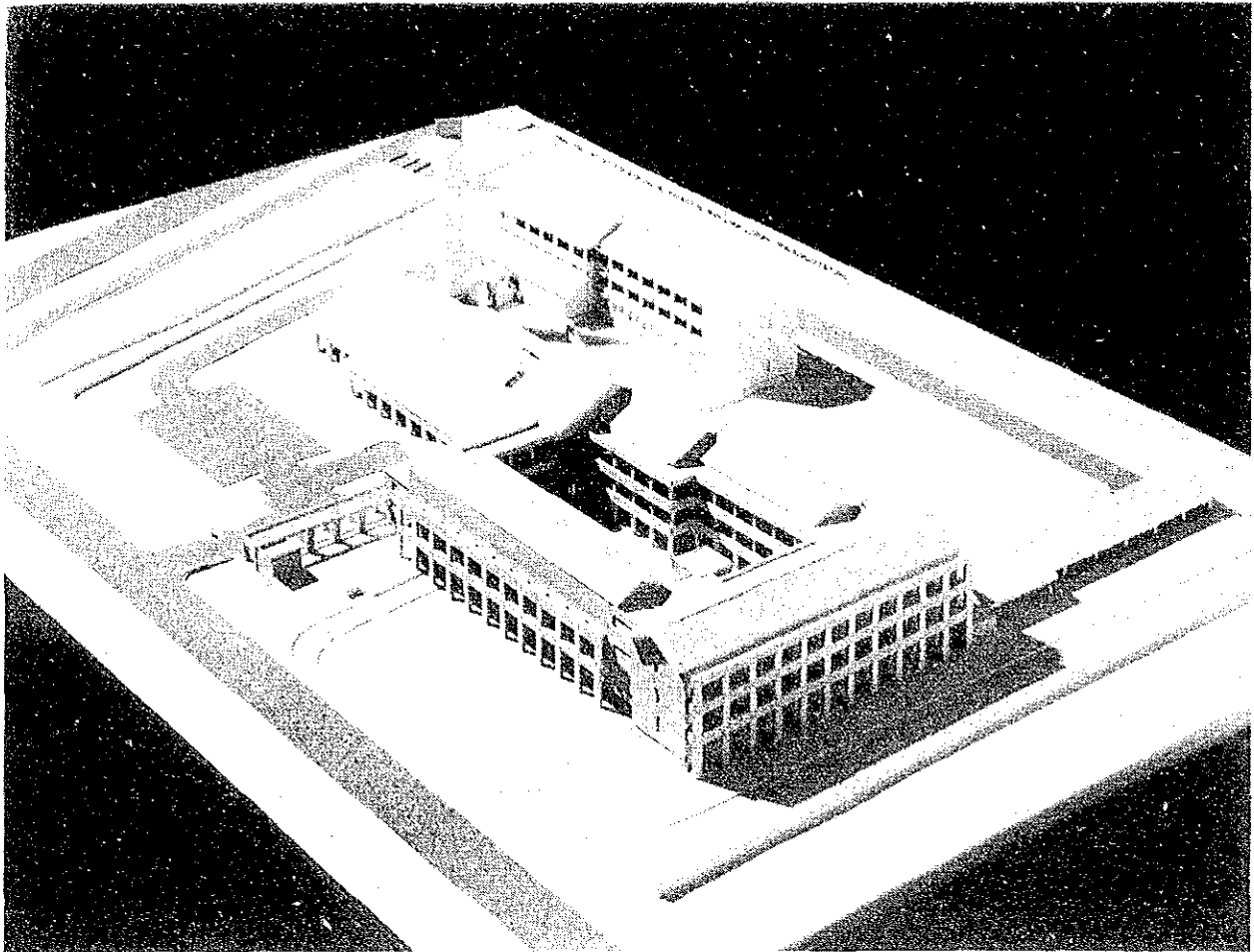
■ Common Div.

	Description	Q'ty
Common	· Minibus (Micro bus)	1
	· Automobile (Station Wagon Type)	3

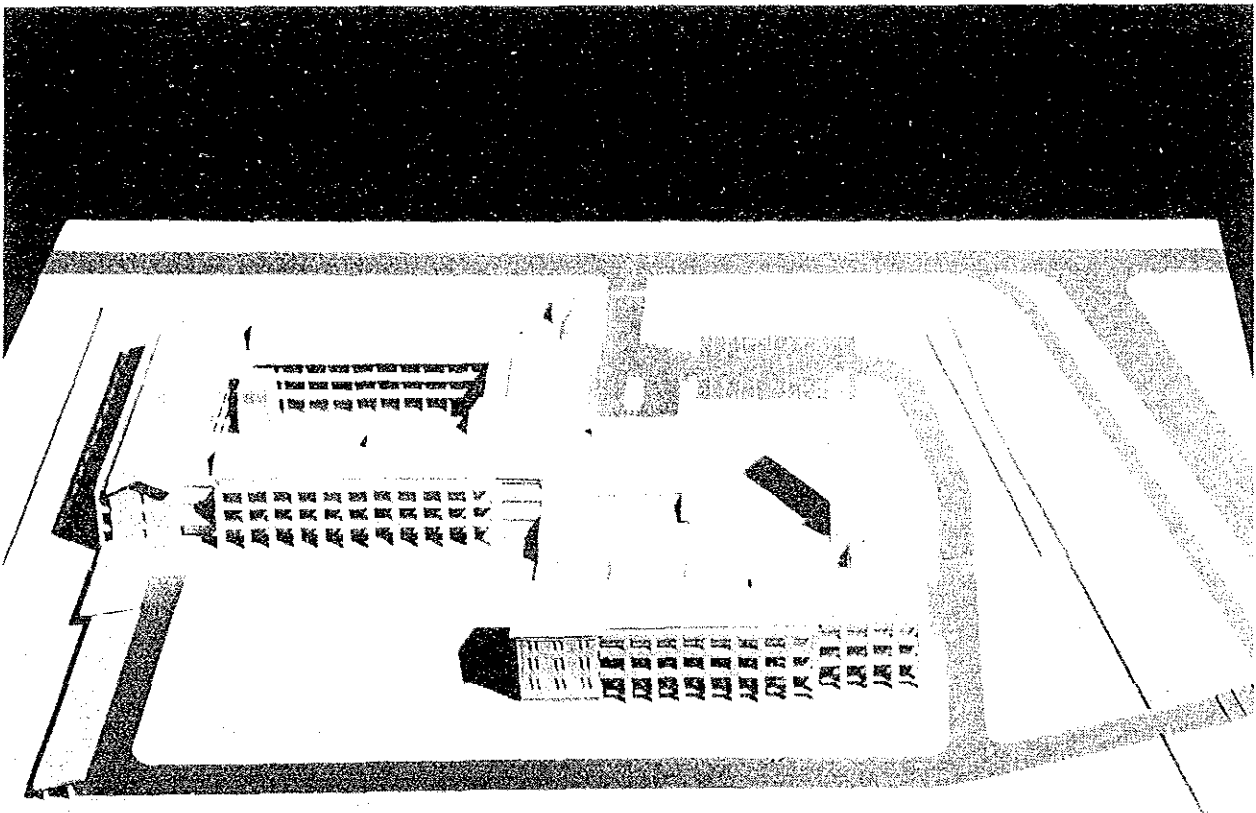
4-2-4. Basic Design Drawings

- 1) Site Plan
- 2) 1st Floor Plan
- 3) 2nd Floor Plan
- 4) 3rd Floor Plan
- 5) Roof Plan
- 6) Elevation
- 7) Elevation and Section
- 8) Water Supply Line
- 9) Drainage Line
- 10) Electrical and Telephone System
- 11) Equipment Layout No. 1
- 12) " No. 2
- 13) " No. 3
- 14) " No. 4
- 15) " No. 5
- 16) " No. 6



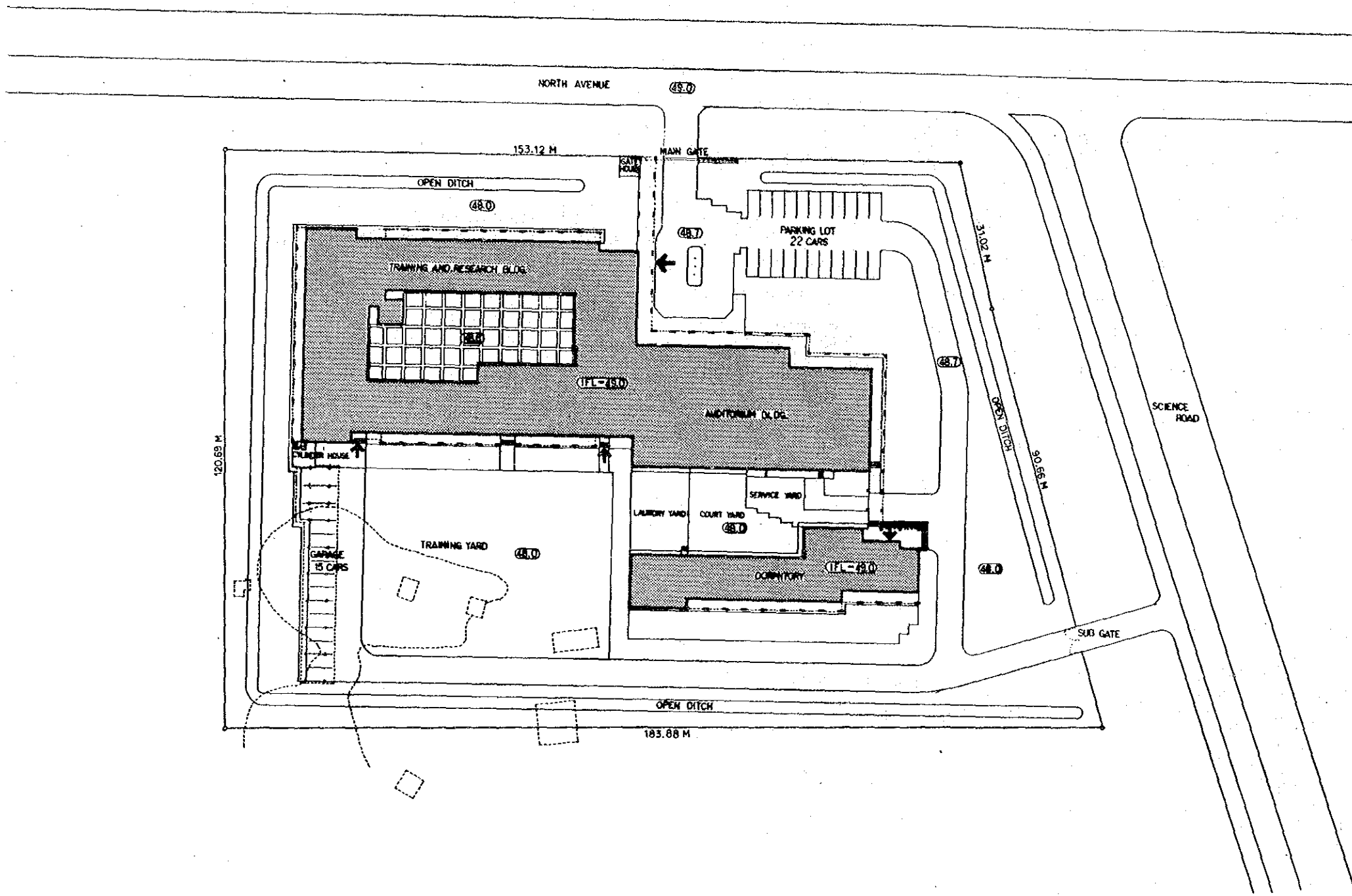


BIRD'S-EYE VIEW FROM THE NORTHWEST SIDE



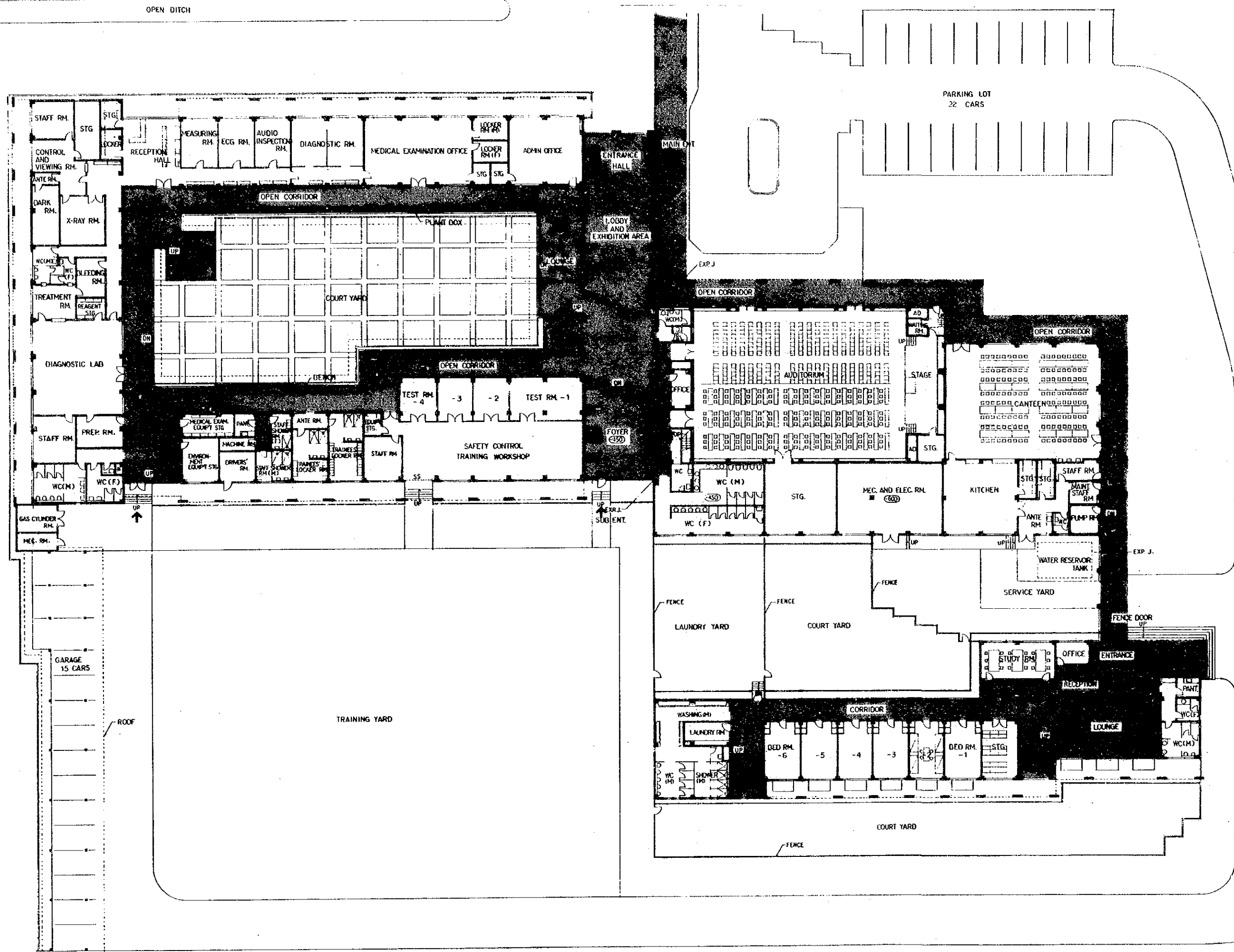
THE OCCUPATIONAL SAFETY AND HEALTH CENTER IN THE REPUBLIC OF THE PHILIPPINES

BIRD'S-EYE VIEW FROM THE SOUTH SIDE



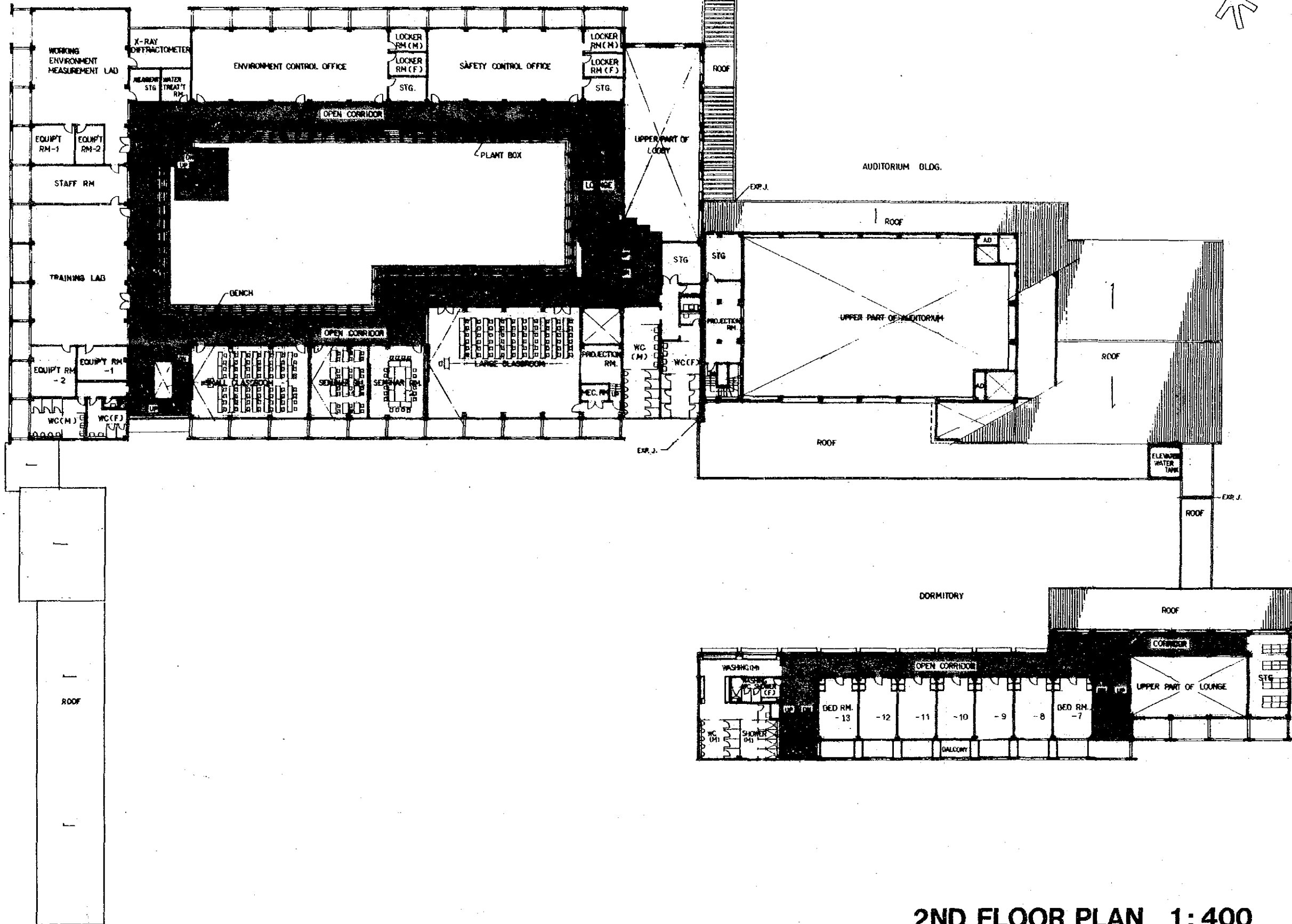
SITE PLAN 1:1,000

1



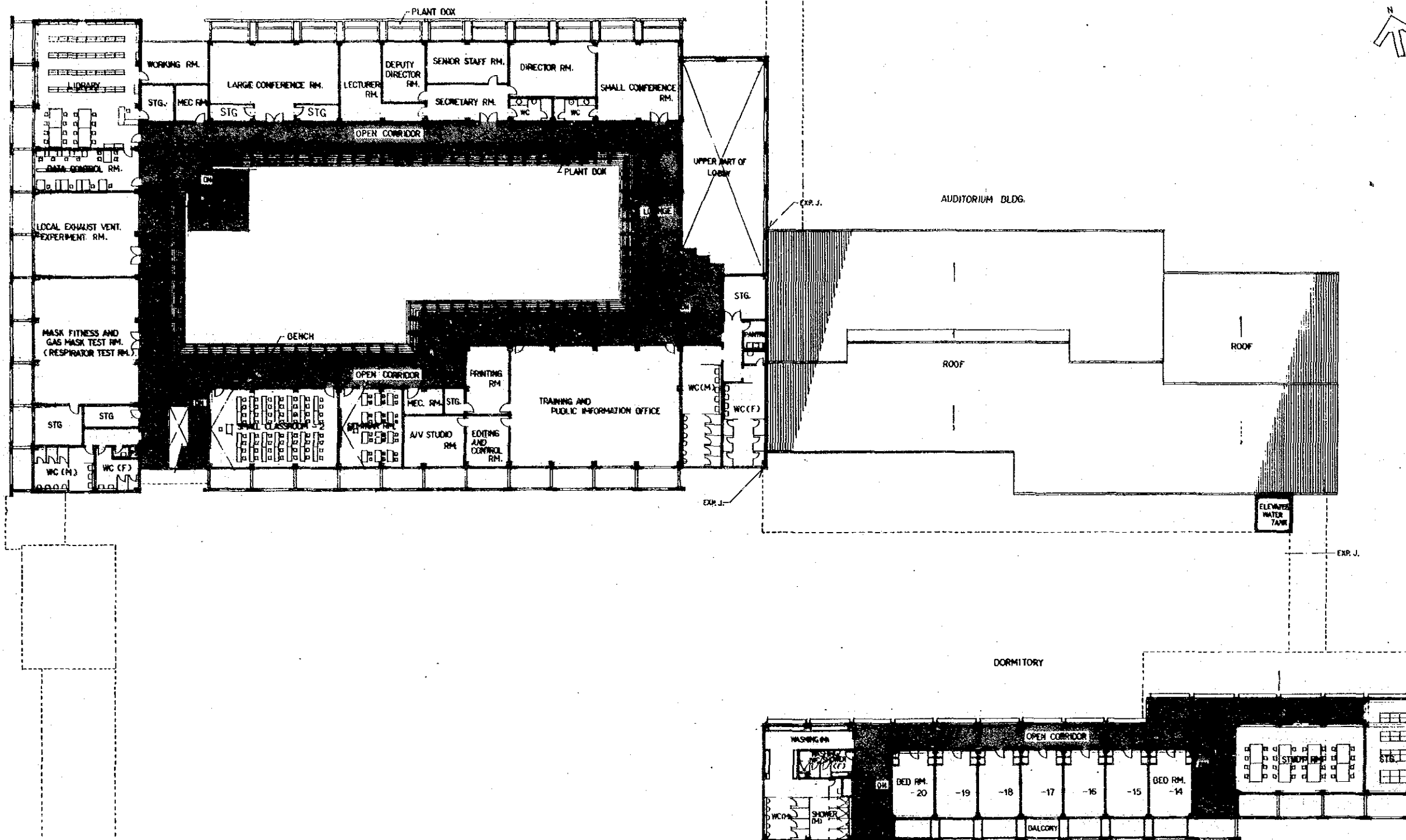
1ST FLOOR PLAN 1:400

TRAINING AND RESEARCH BLDG.



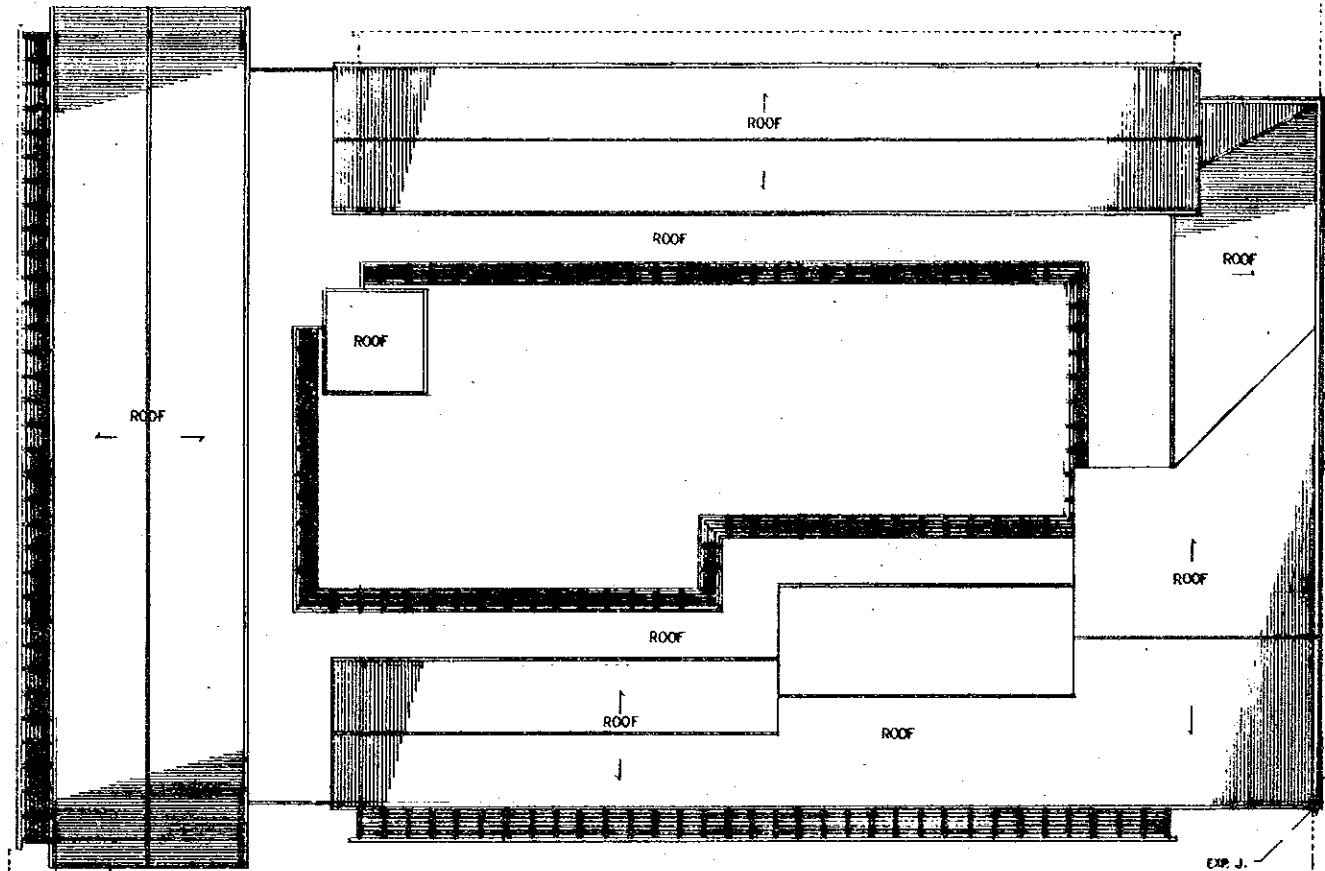
2ND FLOOR PLAN 1:400

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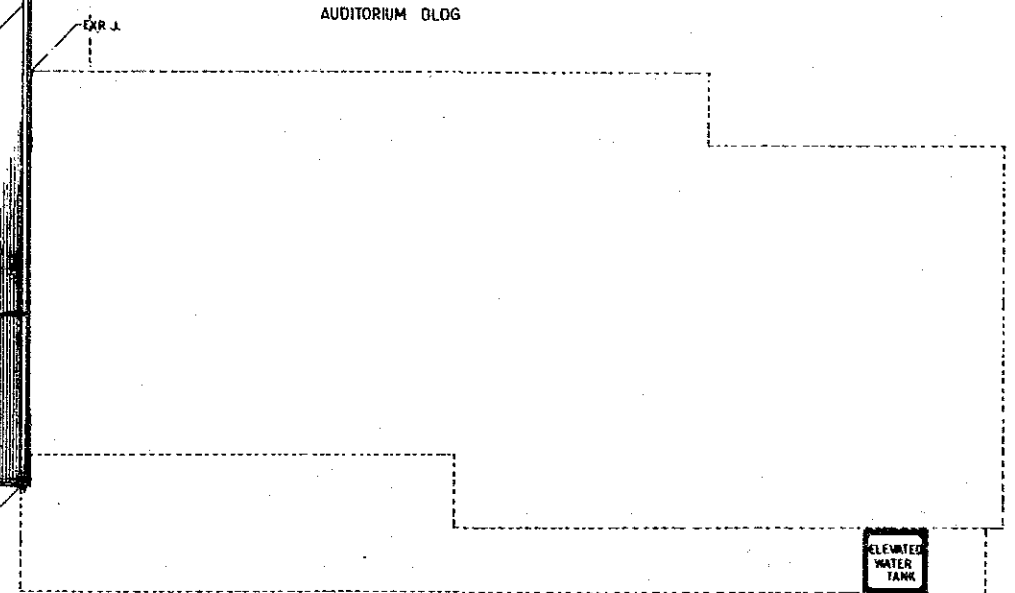


3RD FLOOR PLAN 1:400

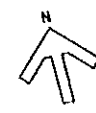
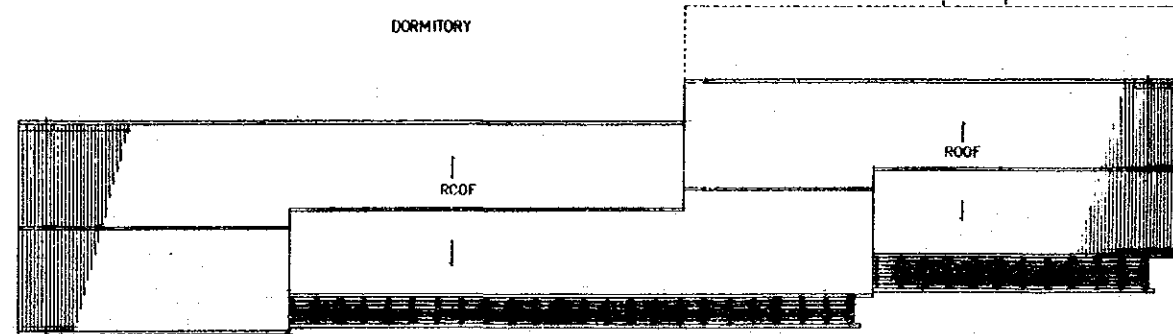
TRAINING AND RESEARCH BLDG.



AUDITORIUM BLDG

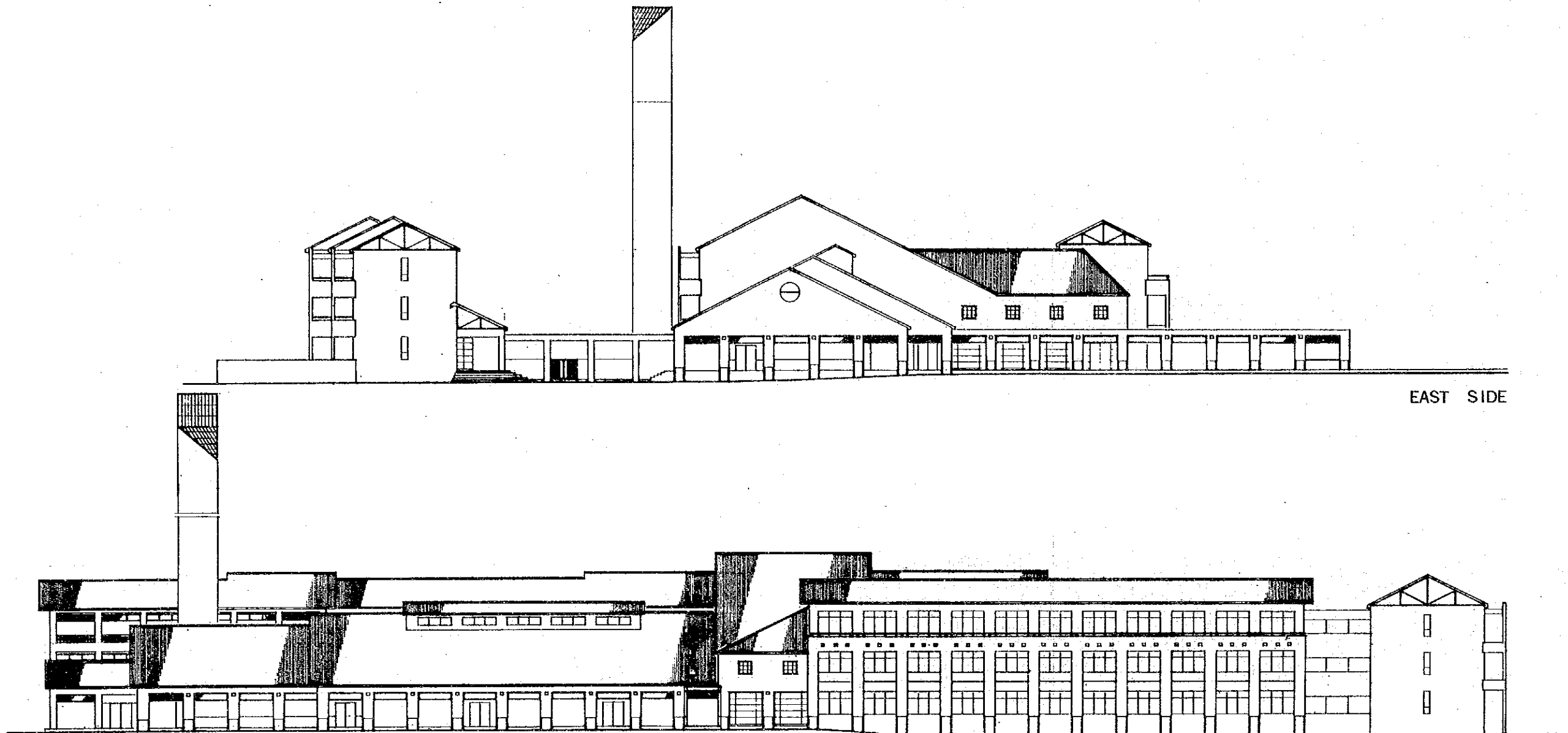


DORMITORY



ROOF PLAN 1:400

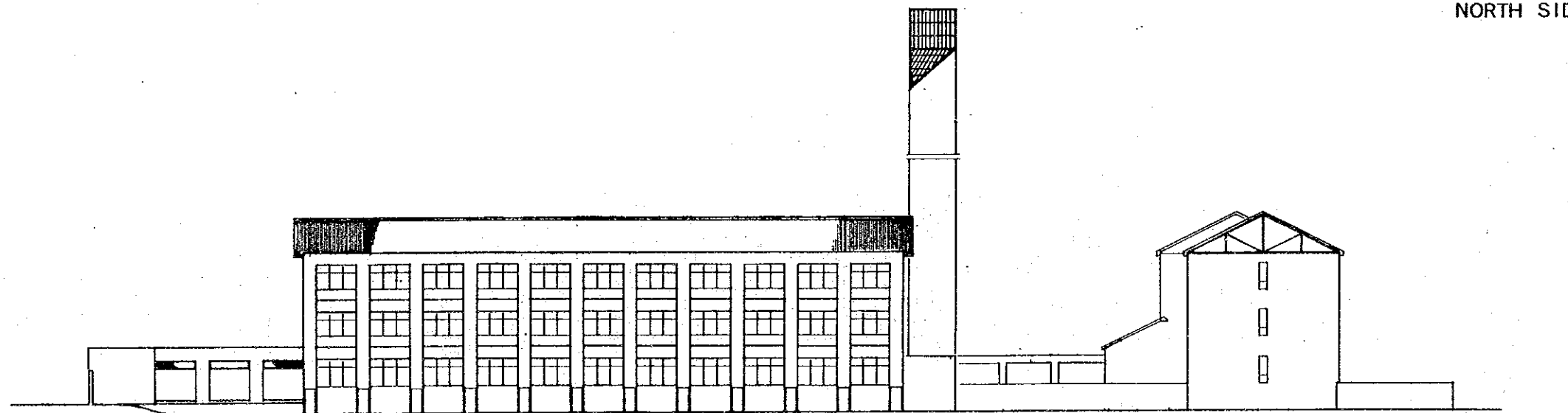
5



EAST SIDE



NORTH SIDE



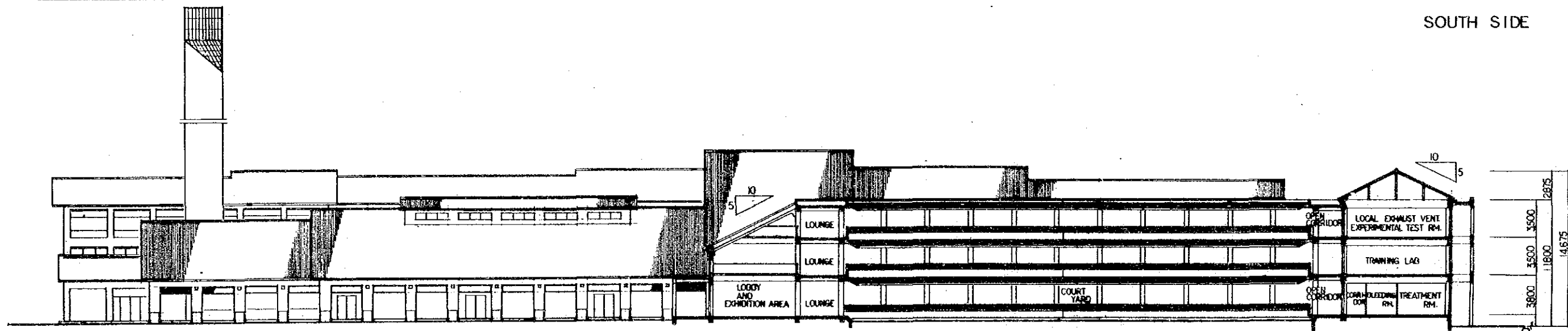
WEST SIDE

ELEVATION 1:400

6

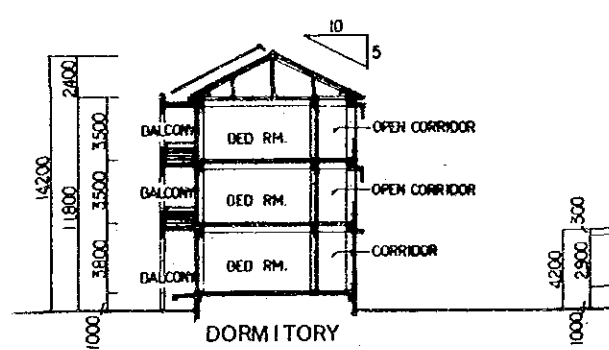


SOUTH SIDE

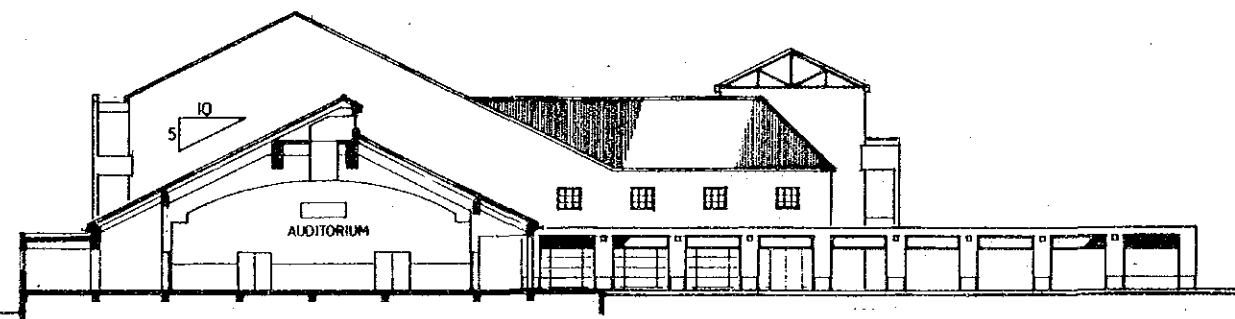


TRAINING AND RESEARCH BLDG

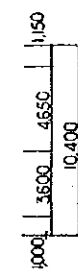
SECTION-1



DORMITORY

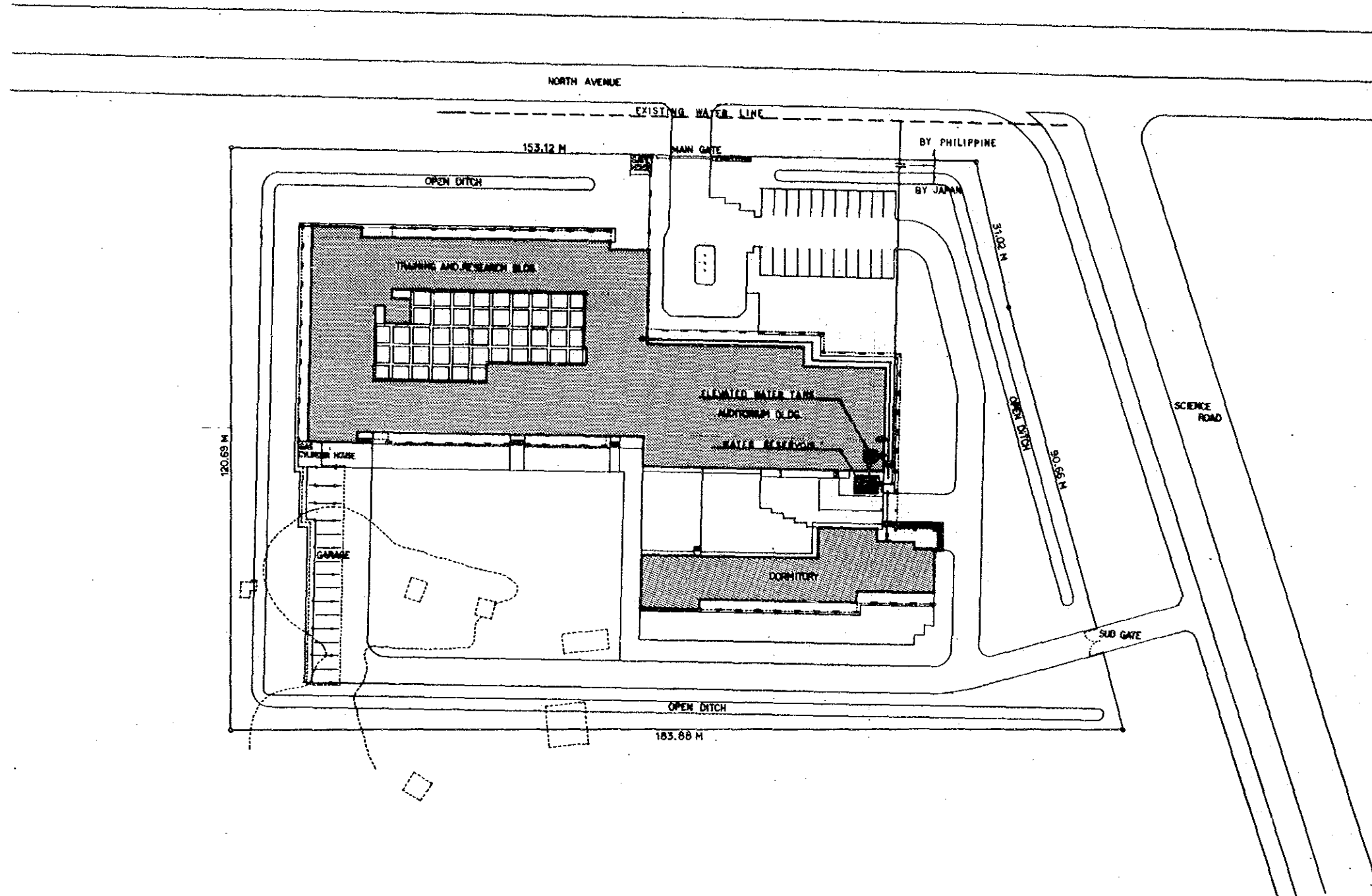


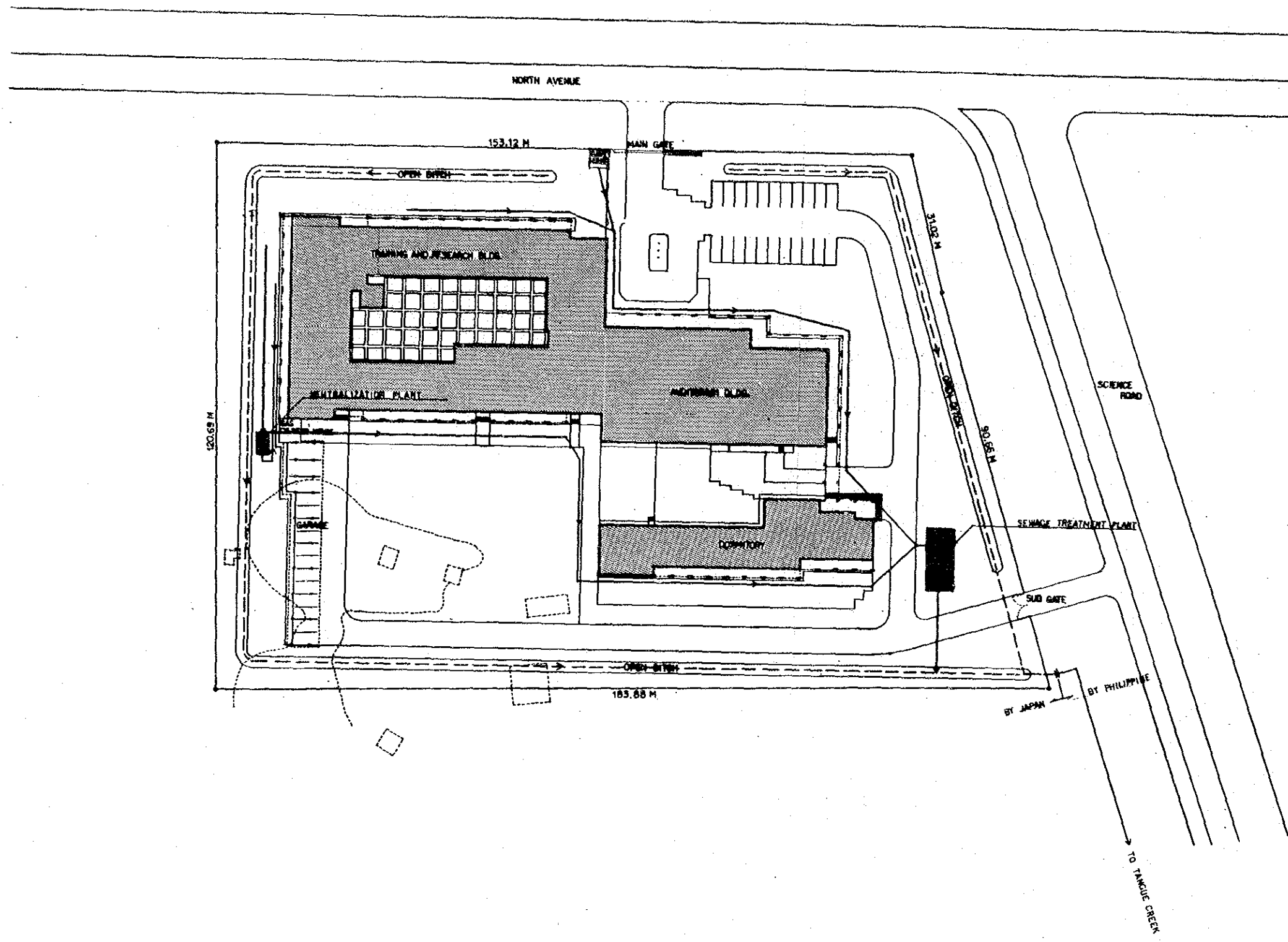
AUDITORIUM BLDG



SECTION-2

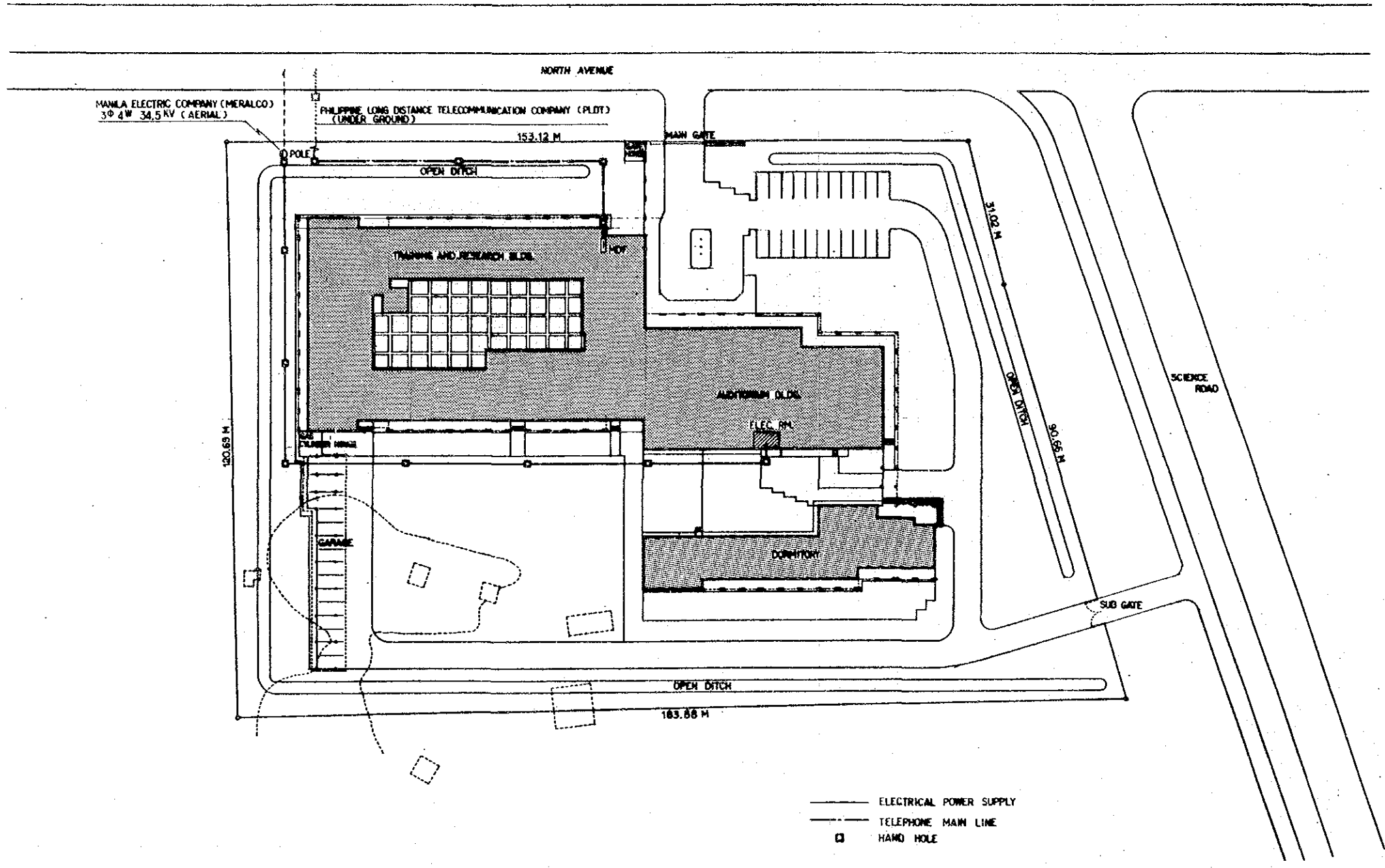
ELEVATION AND SECTION 1:400

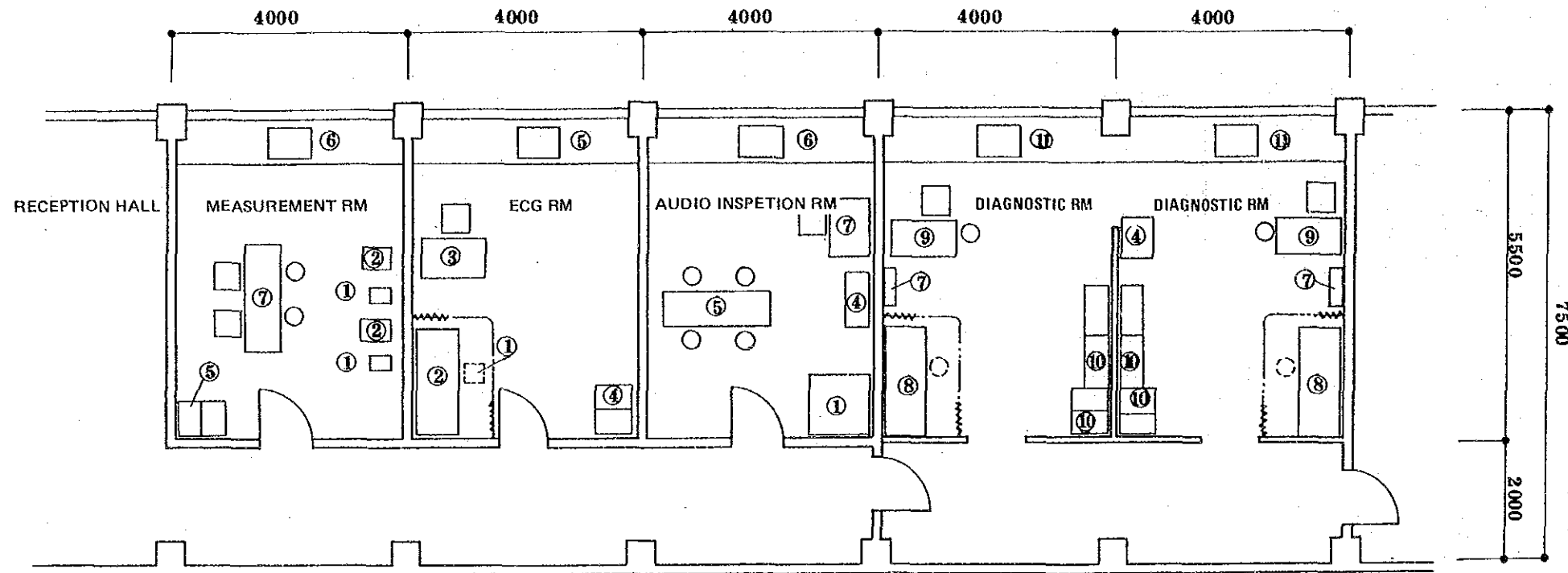




DRAINAGE LINE 1:1,000

9





HEALTH CONTROL DIV. No.1

Measurement Rm

No.	Equipment	Q'ty
①	Height Scale	4
②	Weight Scale	4
3	Digital Flicker Volume Tester	1
4	Function Tester Set	2
⑤	Cabinet	1 lot
⑥	Side Table w/Sink	1 lot
⑦	Table w/Chair	1 lot

ECG Rm

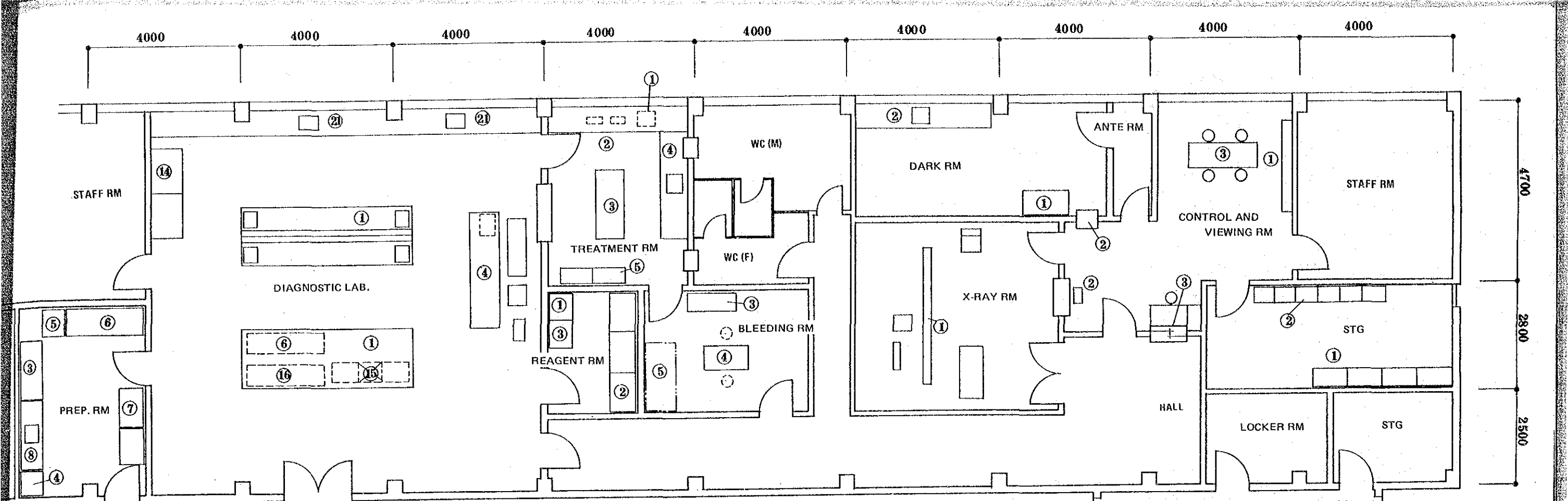
No.	Equipment	Q'ty
①	Electrocardiograph	1
②	Examining Bed	1
③	Dr. Desk w/Chair	1
④	Cabinet	1 lot
⑤	Side Table w/Sink	1 lot

Audio Inspection Rm

No.	Equipment	Q'ty
①	Audio Inspection Box	1 lot
2	Audio Meter w/Box	2
3	Tuning Fork Set	2
④	Cabinet	1 lot
⑤	Inspection Table	1
⑥	Side Table w/Sink	1 lot
⑦	Dr. Desk w/Chair	1

Diagnostic Rm

No.	Equipment	Q'ty
1	Stethoscope	5
2	Neurological Diagnostic Set	2
3	Sphygmomanometer	4
④	Computerized Spirometer	1
5	Portable Spirometer	3
6	Outscope Ophthalmoscope Set	2
⑦	Negatoscope	2
⑧	Examining Bed	2
⑨	Dr. Desk w/Chair	2
⑩	Cabinet	1 lot
⑪	Side Table w/Sink	1 lot



HEALTH CONTROL DIV. No.2

Preparation Rm

No.	Equipment	Q'ty
1	Ultrasonic Cleaner	1
2	Ultrasonic Pipette Washer	2
③	Water Purifier	1
④	Incubator	1
⑤	Refrigerator	1
⑥	Freezer	1
⑦	Chemical Cabinet	2
⑧	Side Table w/Sink	1 lot

Diagnostic Lab.

No.	Equipment	Q'ty
①	Lab. Table	2
2	Centrifuge (Multi Tube Type)	2
3	Auto Blood Gas Analyzer	1
④	Auto Blood Chemistry Analyzer	1
5	Spectro Photometer	1
⑥	Gas Chromatograph w/Data Processor	1

No.	Equipment	Q'ty
7	Microscope (Trinocular Type) w/Disk	2
8	Fluorescent Microscope	1
9	PH Meter	2
10	Electronic Balance (Top Loading)	1
11	Hematology Analyzer	1
12	Water Bath Constant Temperature	1
13	Kjeldahl Digesting Apparatus	2
⑭	Draft Chamber	2
⑮	Atomic Absorption Spectrophotometer	1
⑯	Liquid Chromatograph w/Data Processor	1
17	Specific Gravity Apparatus (Urine)	2
18	Densitometer	1
19	Electrophoreses Apparatus	1
20	Photomicrographic Apparatus	1

No.	Equipment	Q'ty
⑰	Side Table w/Sink	1 lot
22	Freezer	1
23	Hot Plate	2
24	Electric Drying Oven	2
25	Muffle Furnace	1
26	Other Utensil Equipment	1 lot
27	Chemical Reagents	1 lot

Treatment Rm

No.	Equipment	Q'ty
①	Auto Clave	1
②	Boiling Sterilizer	2
③	Centre Table	1
④	Side Table w/Sink	1 lot
⑤	Cabinet	1 lot

Bleeding Rm

No.	Equipment	Q'ty
1	Sphygmomanometer	1 lot
2	Syringe	1 lot
③	Instrument Cabinet	1 lot
④	Work Table w/Chair	1 lot
⑤	Examining Bed	1

Reagent Rm

No.	Equipment	Q'ty
①	Chemical Cabinet	3
②	Probe Cabinet	2
③	Refrigerator	1

X-ray Rm

No.	Equipment	Q'ty
①	Chest X-ray Machine	1 lot
②	Controller	1 lot

Dark Rm

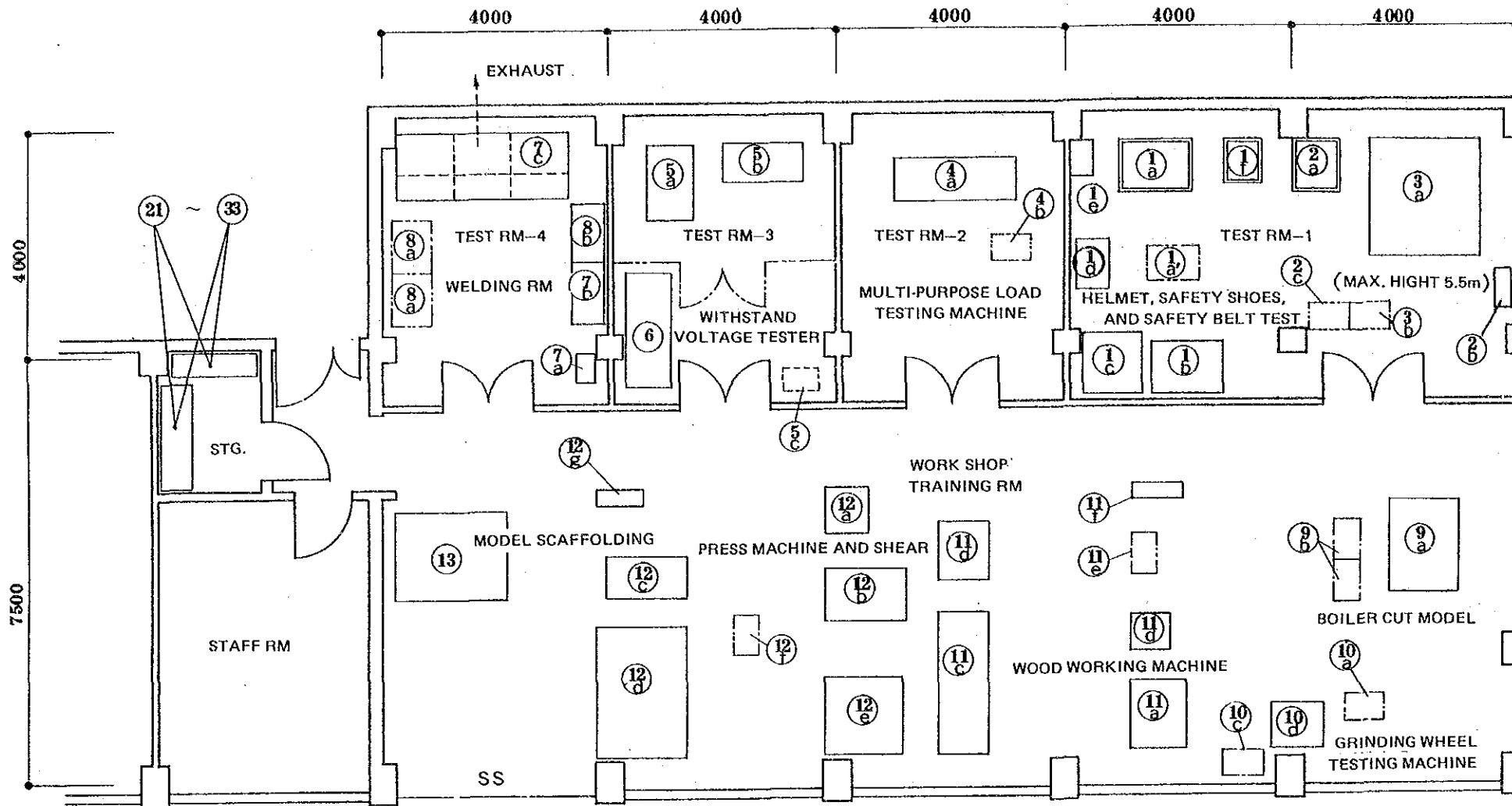
No.	Equipment	Q'ty
①	Auto X-ray Processor	1
②	Side Table w/Sink	1 lot

Viewing Rm

No.	Equipment	Q'ty
①	Negatroscope	1
②	Pass Box	1
③	Table w/Chair	1 lot

STG.

No.	Equipment	Q'ty
①	Film Keeping Shelf	4
②	Roll File Cabinet	6



Work Shop, Training Rm

No.	Equipment	Q'ty
⑨	BOILER TEST EQUIPMENT w/CUT MODEL	1 lot
a	Boiler Cut Model	1 set
b	Maintenance Tools & Rack	2 sets
⑩	GRINDING WHEEL TESTING MACHINE	1 lot
a	Test Meter & Table	1 set
b	Grinder	1 set
c	Compressor	1 set
10'	SAFETY DEVICE WITH A GRINDING MACHINE	1 lot
⑪	SAFETY DEVICE WITH A WOOD WORKING MACHINE	1 lot
a	Circular Saw	1 set
b	Band Scroll Saw	1 set
c	Hand Feed Planer	1 set
d	Chamfering Machine	1 set
e	Maintenance Tools & Rack	1 set
f	Safety Device, Tools & Rack	1 set
⑫	MODEL SAFETY EQUIPMENT FOR PRESS MACHINE & SHEAR	1 lot
a	Crank Press	1 set
b	Friction Press	1 set
c	Hydraulic Press	1 set
d	Shearing Machine	1 set
e	Press Brake	1 set
f	Maintenance Tools & Rack	1 set
g	Safety Tools & Rack	1 set
⑬	MODEL SCAFFOLDING EQUIPMENT	1 lot

Test Rm-1

No.	Equipment	Q'ty
①	HELMET TESTING APPARATUS	1 lot
a	Impact Tester	1 set
a'	Table	1 set
b	High Temperature Oven	1 set
c	Humidity Temperature Oven	1 set
d	Water Tank	1 set
e	Dummy Head	1 set
f	Penetration Tester	1 set
②	SAFETY SHOES APPARATUS	1 lot
a	Impact Tester	1 set
b	Tension Tester	1 set
c	Table	1 set
③	SAFETY BELT TESTING APPARATUS	1 lot
a	Impact Tester	1 set
b	Table for Meter	1 set

Test Rm-2

No.	Equipment	Q'ty
④	MULTI-PURPOSE LOAD TESTING MACHINE (UNIVERSAL TESTING MACHINE)	1 lot
a	Testing Machine	1 set
b	Table	1 set

Test Rm-3

No.	Equipment	Q'ty
⑤	WITHSTAND VOLTAGE TESTER	1 lot
a	Main Port of Tester	1 set
b	Water Tank for Testing	1 set
c	Table	1 set
⑥	EXPRESION PROTECTED ELECTRICAL APPARATUS	1 lot

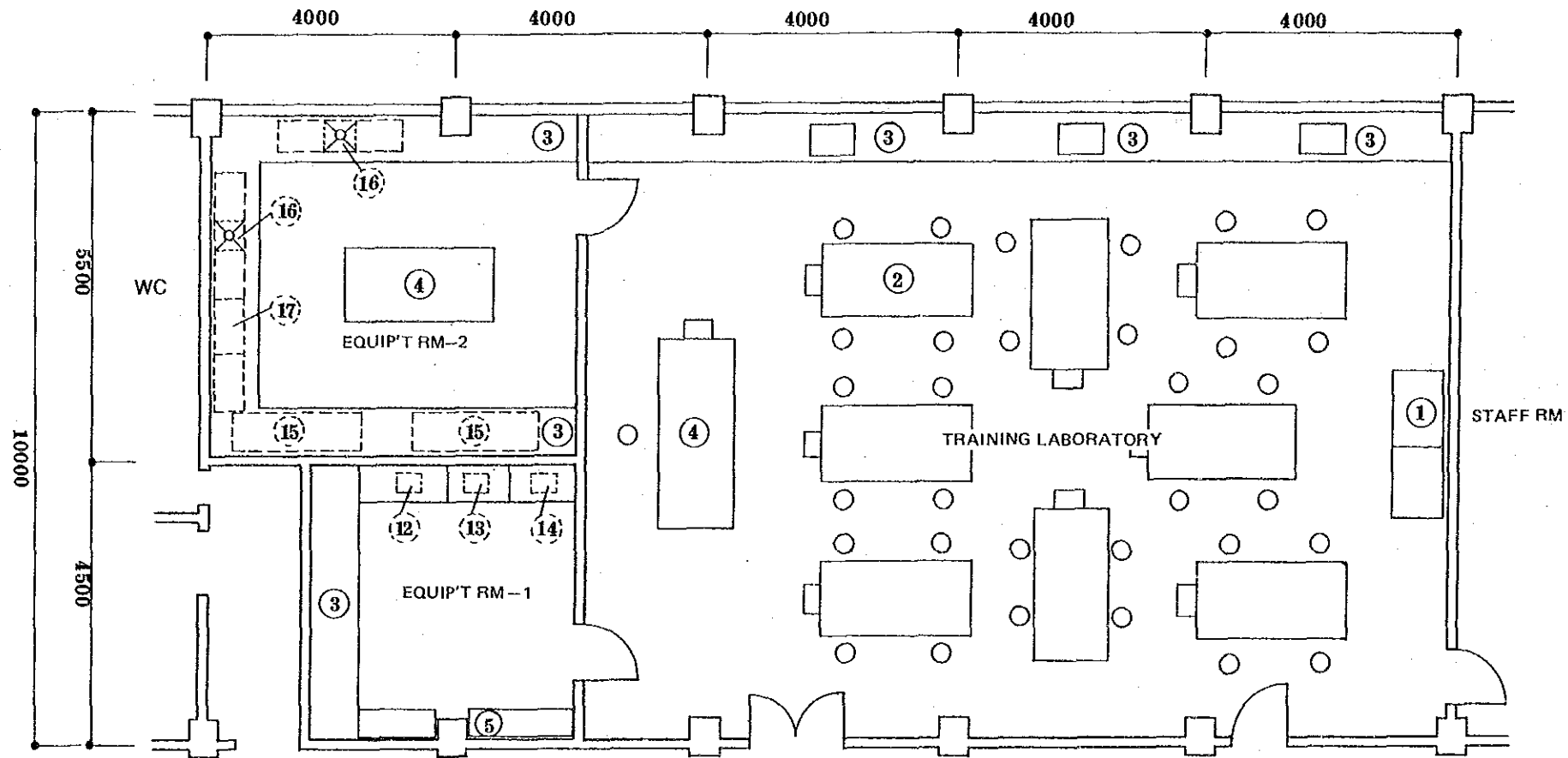
Test Rm-4

No.	Equipment	Q'ty
⑦	ARC WELDING MACHINE w/Safety Device	1 lot
a	Arc Welding Machine	1 set
b	Tools & Materials for Welding, Rack	1 set
c	Welding Hood	1 set
7'	SAFETY EQUIPMENT FOR WELDING WORK	1 lot
a	Safety equipment	1 set
b	Rack for Safety Equipment	1 set
⑧	GAS TORCH CYLINDER, etc.	1 lot
a	Carrying Cart	2 sets
b	Rack for Tools Acetylene Welding Device	1 set
c	Welding Hood (Common use with 7-c)	1 set

SAFETY CONTROL DIV.

STG.

No.	Equipment	Q'ty
⑳	LIVE LINE DETECTOR	1 lot
㉑	SAMPLE WIRE ROPES, CHAINS, etc.	1 lot
㉒	COMBUSTIBLE GAS ALARM EQUIPMENT	1 lot
㉓	EARTH LEAKAGE BREAKER	1 lot
㉔	DISPLAY FOR PRINCIPLE OF EARTH LEAKAGE BREAKER	1 lot
㉕	DOUBLE INSULATION ELECTRIC TOOL	1 lot
㉖	DISPLAY OF PRINCIPLE OF THE SAFETY DEVICE WITH AN A.C. ARC WELDING MACHINE	1 lot
㉗	SAMPLE ELECTRIC CABLE etc.	1 lot
㉘	CIRCUIT TESTER	1 lot
㉙	INSULATION RESISTANCE TESTER	1 lot
㉚	COMBUSTIBLE GAS MONITOR	2 sets
㉛	OXYGEN METER	3 sets
㉜	TOOLS, etc.	1 lot



TRAINING AND PUBLIC INFORMATION DIV.

■ Following list are shown as reference for the future at Training Lab., Equipment Rm. 1 & 2.

(Training Lab.)

Training Lab. Equipment Rm-1, 2

No.	Equipment	Q'ty
①	Draft Chamber	2
②	Laboratory Table w/Chair	1 lot
③	Side Table w/Sink	1 lot
④	Center Table	1 lot
⑤	Cabinet	2
6	Dust Proof Mask	1 lot
7	Gas Mask	1 lot
8	Hose Mask	1 lot
9	Supplied Air Respirator	1 lot
10	Artificial Respiration Doll	1 lot

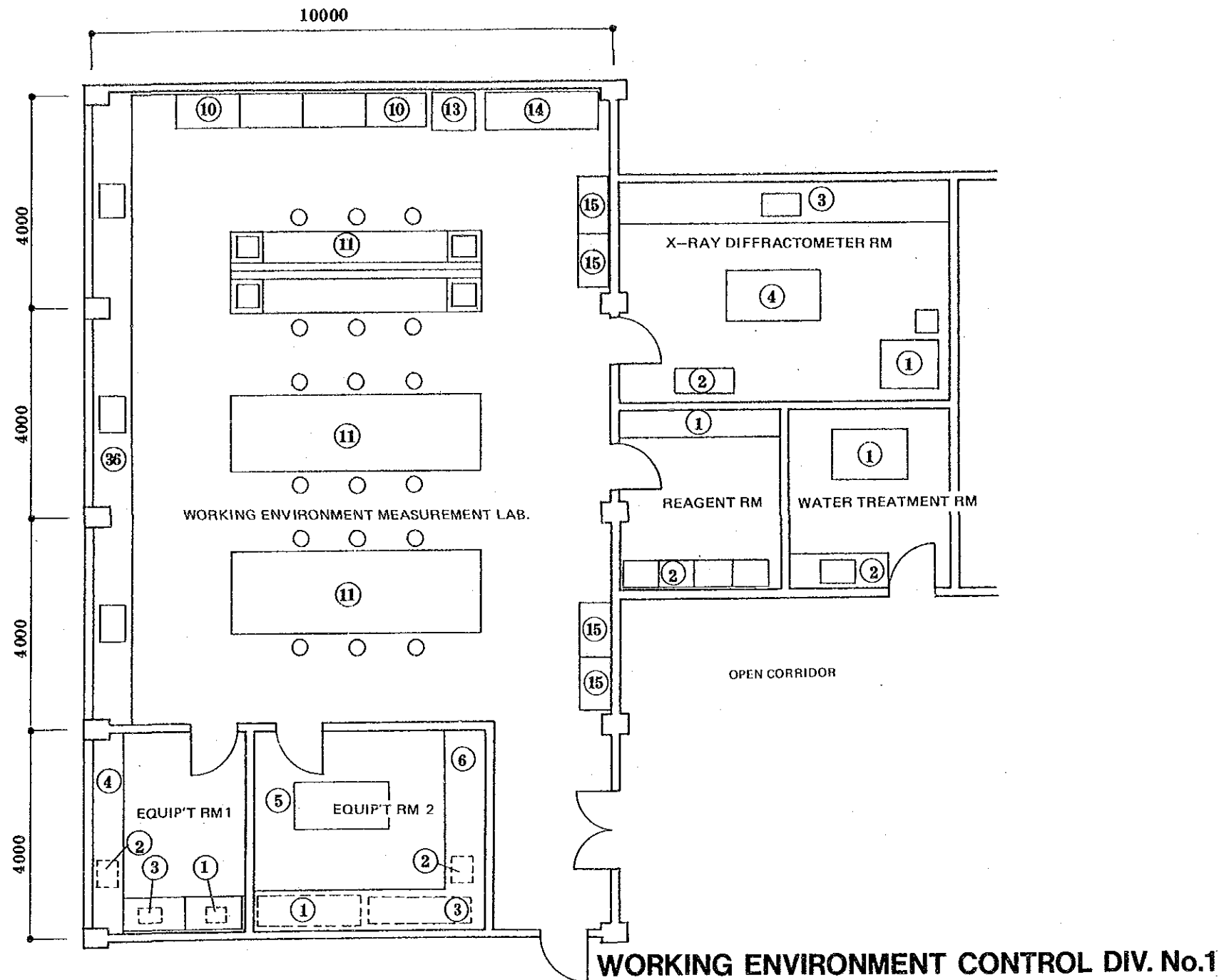
No.	Equipment	Q'ty
1	Digital Dust Indicator	(10)
2	Detector Tube w/Pump	(10)
3	Sound Level Meter w/Recorder	(10)
4	Hot Wire Anemometer	(10)
5	Smoke-Tester	(10)
6	Low Volume Air Sampler	(10)
7	Luxmeter	(10)
8	Oxygen Monitor	(10)
9	CO Monitor	(10)
10	H ₂ s Monitor	(10)
11	Combustible Gas Monitor	(10)

(Equipment Rm. 1)

No.	Equipment	Q'ty
⑫	Phase Contrast Microscope	(1)
⑬	Electronic Balance w/Desk	(2)
⑭	Analytical Balance w/Desk	(1)

(Equipment Rm. 2)

No.	Equipment	Q'ty
⑮	Gas Chromatograph	(2)
⑯	Atomic Absorption Spectrophotometer	(2)
⑰	Spectrophotometer	(2)



Working Env. Measurement Lab.

No.	Equipment	Q'ty
1	Rotary Evaporator	2
2	Data Logging System	1
3	Water Bath	1
4	Electric Muffle Furnace	1
5	Platinum Crucible	6
6	Electric Thermostat Drying Oven	2
7	Hot Plate	2
8	Auto Transformer	3
9	Electric Heater	2
10	Draft Chamber	4
11	Lab. Table w/Chair	3
12	Lab. Wagon	2
13	Refrigerator	1
14	Freezer	1
15	Chemical Cabinet	4
16	Ultrasonic Pippet Washer	2
17	Water Still	2
18	Ultrasonic Pippet Washer	2
19	Mercury Monitor	2
20	Heated Gas Sampler	5
21	Gas-tight Syringe	10
22	Bubbler	50
23	Minipump for Bubbler	10
24	PH Meter	1
25	Impinger	50
26	Minipump for Impinger	10
27	Flowmeter for Impinger	10
28	Midget Impinger	50
29	Minipump for Midget Impinger	10
30	Asate Motor & Paste	5
31	Filter Holder	5
32	Pump for Filter Holder	2
33	Soxhlet Extractor Apparatus	2
34	Centrifuge	1
35	Other Utensil Equipment	1 lot
36	Side Table w/Sink	1 lot

Reagent Rm

No.	Equipment	Q'ty
1	Probe Cabinet	3
2	Cabinet	2

Water Treatment Rm,

No.	Equipment	Q'ty
1	Waste-Water Treatment Apparatus for Lab.	1
2	Side Table w/Sink	1 lot

Equipment Rm. 1

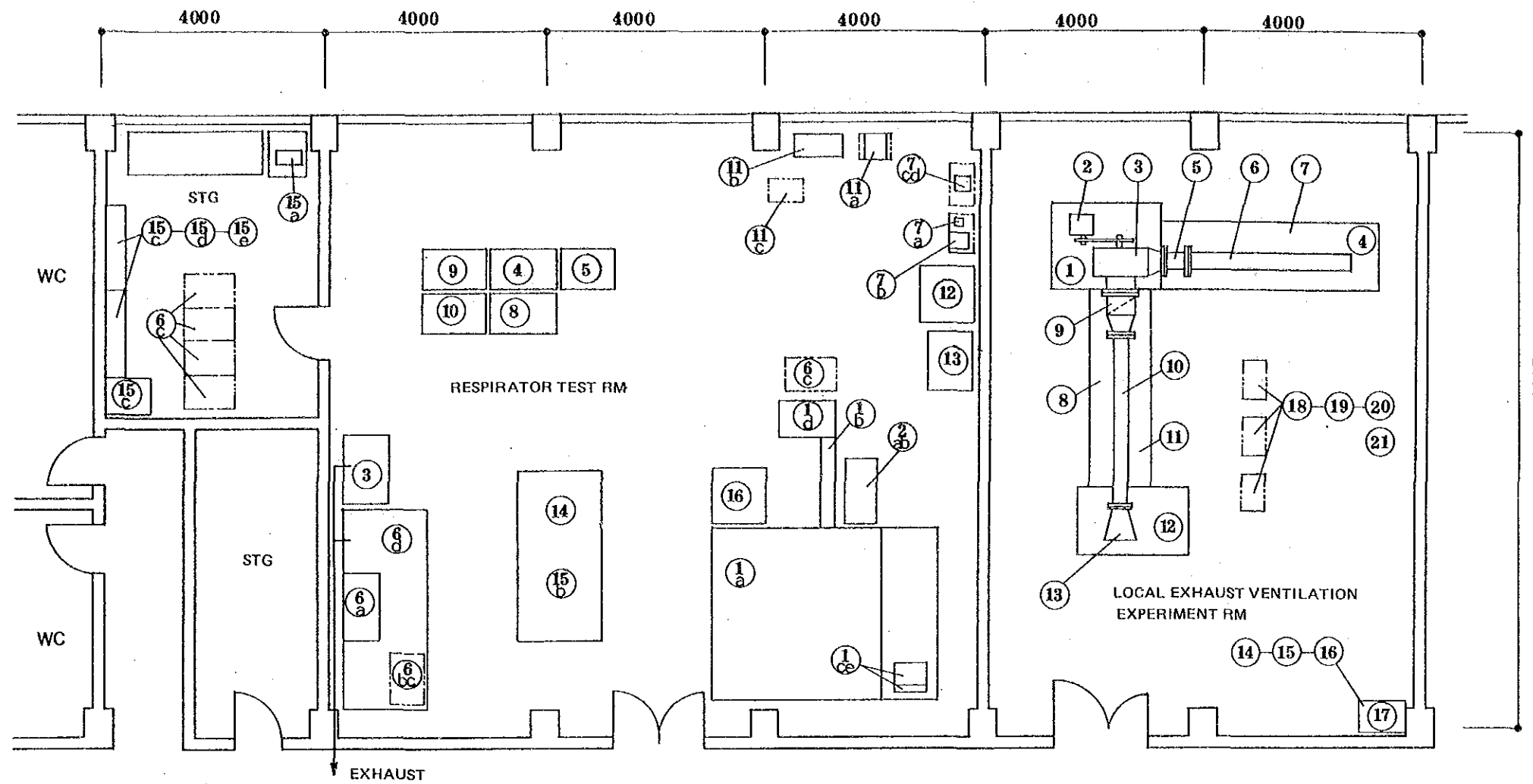
No.	Equipment	Q'ty
1	Direct Reading Balance w/Balance Desk	1
2	Phase Contrast Microscope	1
3	Analytical Balance w/Desk	1
4	Side Table w/Sink	1

Equipment Rm. 2

No.	Equipment	Q'ty
1	Gas Chromatograph w/Recorder	1
2	Spectrophotometer w/Recorder	1
3	Atomic Absorption Spectrophotometer w/Recorder	1
4	Photomicrographic Apparatus	2
5	Center Table w/Chair	1
6	Side Table w/Sink	1

X-ray Diffractometer Rm

No.	Equipment	Q'ty
1	X-ray Diffractometer w/Accessories	1
2	Siever and Shaker	1
3	Side Table w/Sink	1 lot
4	Center Table	1
5	Test Sample Stand Rotary (Oscillator Sample Holder)	1



WORKING ENVIRONMENT CONTROL DIV. No.2

Respirator Test Rm

No.	Equipment	Q'ty
①	DUST REMOVING EFFICIENCY TEST APPARATUS	1 lot
a	Dust Chamber	1 set
b	Dust Separator	1 set
c	Dust Feeder	1 set
d	Clean Air Unit	1 set
e	Detector	1 set
②	EX-VALVE DYNAMICAL LEAKAGE TEST APPARATUS	1 lot
a	Breathing Simulator	1 set
b	Dummy (Mask), Stand	1 set
③	GAS TIGHTNESS TEST APPARATUS	1 lot
④	EX-VALVE GAS TIGHTNESS TEST APPARATUS	1 lot
⑤	CANISTER AIR TIGHTNESS TEST APPARATUS	1 lot

No.	Equipment	Q'ty
⑥	GAS REMOVING EFFICIENCY TEST APPARATUS	1 lot
a	Main Apparatus	1 set
b	Gas Analyzer	1 set
c	Table for Above	6 pcs
d	Hood	1 set
⑦	RUBBER MATERIAL TESTER	1 lot
a	Gravity Meter	1 set
b	Hardness Tester	1 set
c	Tester for Permanent Strain	1 set
d	Table for Above	1 set
⑧	PRESSURE DROP TEST APPARATUS	1 lot
⑨	VISUAL FIELD TEST APPARATUS	1 lot
⑩	DEAD SPACE TEST APPARATUS	1 lot

No.	Equipment	Q'ty
⑪	TENSION TEST EQUIPMENT	1 lot
a	Dumbell Press, Cutter & Table	1 set
b	Tension Tester	1 set
c	Table for Above	1 set
⑫	CONSTANT HIGH TEMPERATURE OVEN	1 lot
⑬	CONSTANT & HUMIDITY TEMPERATURE OVEN	1 lot
⑭	CHEMICAL RESISTANCE TEST EQUIPMENT	1 lot
⑮	OTHER UTENCIL EQUIPMENT	1 lot
a	Chemical Balance, Table	1 set
b	Center Table	1 set
c	Cabinet	1 set
1)	Cabinet	2 pcs
2)	Bottle Cabinet	1 pc
d	Glass Instrument	1 set
e	Tools	1 set
⑯	SMOKE REMOVING EFFICIENCY TEST APPARATUS (Smoke Generator)	1 lot

Local Exhaust Ventilation Experiment Rm ;

No.	Equipment	Q'ty
	Model Equipment	1 lot
①	Fun Table	1 set
②	Motor	1 set
③	Turbofan	1 set
④	Exhaust Duct Table	1 set
⑤	Connecting Duct	1 set
⑥	Exhaust Duct	1 set
⑦	Flexible Exhaust Duct	1 set
⑧	Inhalation Duct Table	1 set
⑨	Connecting Duct w/Damper	1 set
⑩	Circle Type Inhalation Duct	1 set
⑪	Square Type Inhalation Duct	1 set
⑫	Hood Table	1 set
⑬	Circle Type Hood	1 set
⑭	Rectangle Type Hood	1 set
⑮	Circle Type Duct	1 set
⑯	Square Type Duct	1 set
⑰	Cabinet for Accessory	1 set
⑱	Practice Table & Chair	1 set
⑲	Manometer	5 sets
⑳	Hot Wire Anemometer	5 sets
㉑	Inspection Tester & Tools	1 lot

4-3. Construction Execution Plan

4-3-1. Construction Condition and Execution Policy

The construction method that fits the local construction conditions is basically adopted in order to build the facilities of the Center efficiently and smoothly. Therefore, particular attention is paid to the following conditions as the construction execution policies of the Center.

1) State of Construction

- Since the construction site is in Metropolitan Manila, capable contractors and veteran workers are locally available.
- Carpenters, plasterers, and re-bar rod workers, etc. are regarded as craftsmen and are grouped under a foreman. Most of the non-specialized labors are hired on a casual basis.
- There are few factory manufactured products. Usually, materials are brought into the construction site and they are processed and assembled there.
- Qualifications system for veteran workers has not been established as in Japan.

2) Construction Execution Policies

- There should be made a practical and realistic construction schedule.
- Avoid entanglement between the works by the Philippine side and those of the Japanese side. The starting and finishing period of the two sides are important.
- Japanese staff and craftsmen should be dispatched to the construction site with proper number, timing, and period of stay in accordance with the progress of work.
- Construction methods that the local workers are familiar and popular should be used as much as possible.
- Local construction materials should be procured as much as possible and Japanese products should be minimised.
- Job should be simplified by dividing each construction item into elements.

4-3-2. Scope of Works

The responsibilities of both countries regarding the scope of the construction works are as follows :

1) Works to be undertaken by the Government of Japan

(1) Facilities

- Training and research building
Including facilities for training and public information, health control, safety control, environment control, general administration, etc.
- Auditoriums, including canteen
- Dormitory
- Other outdoor facilities, including car garage and guard house

(2) Equipment for the activity of

- Training and public information
- Health control
- Safety control
- Environment control
- Others

(3) Infrastructural works

- Water supply facility (within the boundary of the premise)
- Power substation facilities (on the premise)
- Telephone exchange facilities

(4) External works

- Parking area and road within the premise
- Drainage and sewage disposal facilities
- External lighting

(5) Supplementary works related to the project

- Transportation of the equipment and construction materials from Japan to the Philippines.
- Inland transportation of the equipment and materials from the unloading port to the proposed project site.

2). Works to be executed by the Government of the Philippines

(1) Construction site and external work

- Acquisition of the site of the Center.
- Execution of clearing, filling, leveling and reclamation of the ground.
- Construction of the fence along the southern boundary of the site.
- Landscaping and tree planting.

(2) Infrastructural work

- Connecting power line and city water supply line to the facilities on the site.
- Connecting the telephone trunk line to the main distribution frame/panel (MDF) of the building.
- Installing drainage pipe (for storm, sewer and others) from the site to Tanguue Creek along the Science Road.

(3) General furniture, equipment, and miscellaneous items which are not included in the provision by the Japanese side.

(4) Arrangement and payment of expenses to bear the following

- Expenses incurred to make banking arrangements
- Expenses incurred in connecting the incoming power, water and telephone lines.
- Expenses incurred in arranging the tax and duty exemption procedures.
- To take prompt arrangements in regard to customs clearance and inland transportation.
- To take necessary exemption procedures in regard to the duties, domestic taxes, and other surcharges and levies imposed on the Japanese involved in the project in the Philippines (based on the verified contract).
- To provide the necessary conveniences for the Japanese in regard to their entry into and stay in the Philippines to accomplish of their duties.
- To place the staff required for the management and implementation of this project according to the placement plan.

4-3-3. Construction Supervision Plan

In accordance with the grant aid assistance policy of the Government of Japan, and using the basic design, the consultant shall organize a project execution team. They will oversee the project implementing period with regard to the detailed design and supervisory works.

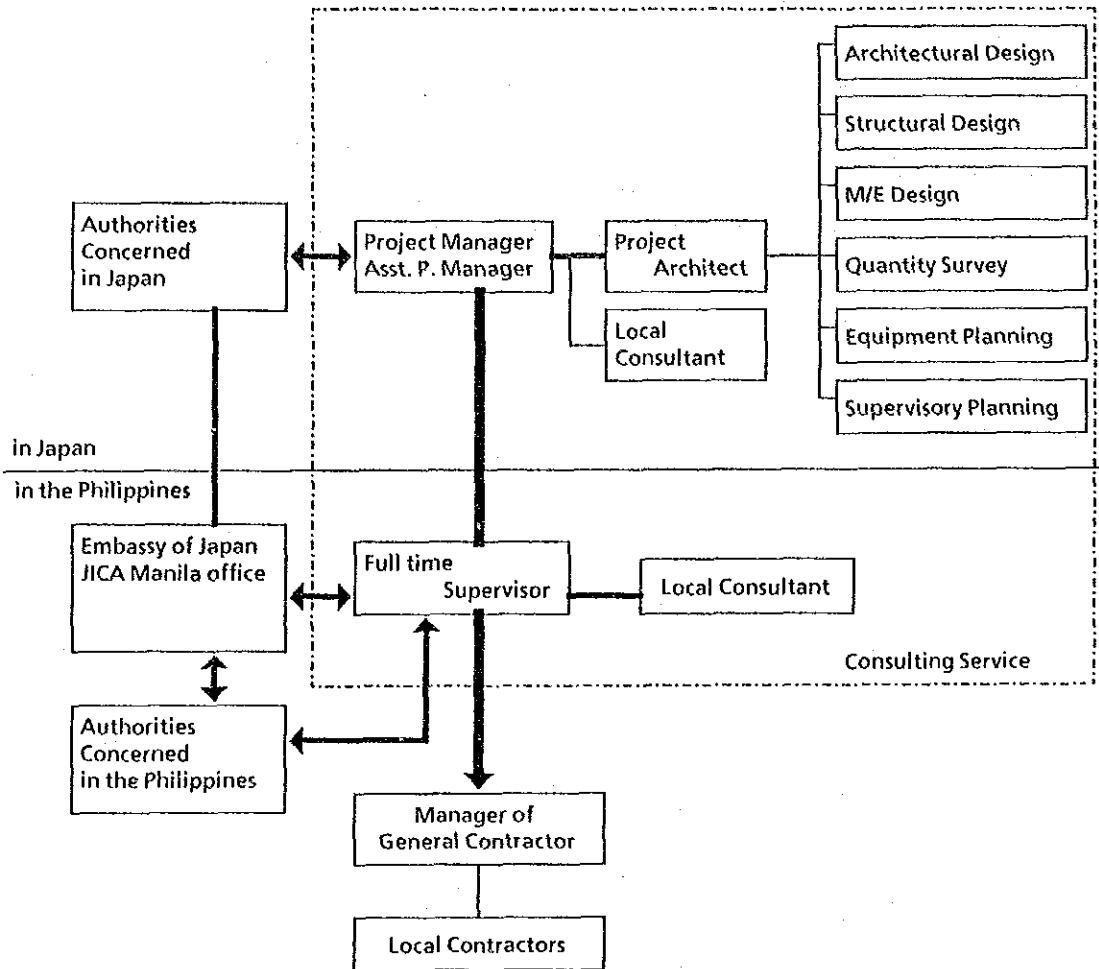
During this process, the consultant shall station a supervisor with proper technical ability at the construction site to communicate with the concerned parties. In addition, the consultant shall dispatch engineers periodically for a short terms for spot inspection, attendance and direction of the construction execution.

1). Principle Policies of the Supervisory Plan

The consultant shall

- attempt the smooth completion of construction of the facilities in accordance with the predetermined construction process while maintaining close communications with the parties concerned of both countries.
- provide proper and prompt instructions and advice to the contractor for the construction of the facilities, strictly in accordance with the design documents.
- adopt the construction method which enables maximum utilization of the locally available materials and equipment.
- adopt the construction methods and techniques currently applied in Japan to provide technical transfer for the Philippines (This will enhance the significance of this grant aid project).
- cooperate with a local consultant for the building permit application and for building facilities in conformity with local conditions.
- give proper guidance and instruction for the administration and maintenance after completing the delivery of the facilities to the concerned party of the Philippines.

Fig. 4-3-1. Supervisory System



2). Details of the Supervisory Work

- (1) Assistance in making construction contract
Selecting contractors, advising the method of contract, preparing the contract documents, studying the construction schedule, and attending the conclusion of the contract.
- (2) Inspections and approvals of the shop drawings and others
Inspecting and approving the shop drawings, the construction materials, and the samples of finished materials and equipment to be submitted, used and installed by the contractor.
- (3) Instruction of the construction work
Examining of the construction plan and process, giving guidance and instruction to the contractors, and reporting the progress of construction work to the owner.
- (4) Approval for payment
Checking and approving the contents of the payment requisition notes submitted by the contractor concerning the interim and final payments.

The consultant shall inform the Government of Japan of the important items such as progress of work, payment process, completion and hand over of the facilities and equipment, etc.

The supervisory service of the consultant shall complete upon the confirmation of the completed facilities in accordance with the contract conditions, attending the hand over ceremony of the contracted items, and receiving an approval from the owner, regarding the works of the consultant.

4-3-4. Procurement of Construction Materials and Facility Equipment

The construction materials as planned in Section 4-2-2 and the equipment as listed in Section 4-2-3 should be acknowledged where procuring is involved.

- Procurement of Locally Available Materials

In principle, local materials, products and equipment will be adopted as much as possible to provide convenience in maintenance and repair. However, procurement of Japanese materials and equipment will be taken into consideration in the event that local procurement is insufficient in quality or quantity.

- Cost

By comparing the costs of local materials and those procured from Japan, cheaper ones should be used. The fact that the imported goods from Japan would be tax-exempted should be taken into account.

Considering the above the materials and equipment to be used in this Center are planned as follows :

Table 4-3-1 Procurement of Materials and Equipment

Work	Materials Equipment	Procured in		Remarks
		the Philippines	Japan	
Structural Work	Sand	○		Easy to procure " F = 210 kg/cm ² Japanese product is cheaper Light gauge steel in the Philippines For non-bearing wall
	Aggregate	○		
	Cement	○		
	Concrete	○		
	Re-bars	○	○	
	Steel	○	○	
	Concrete block	○		
	Brick	○		
Architec- tural Work	Timber	○		Many timbers with good quality Good in water-tightness and air-tightness Marble, granite Japanese product for conc. paint Generally thinner than 6mm
	Steel sash	○	○	
	Alum. sash		○	
	Plaster	○		
	Flour tile	○		
	Roof tile	○		
	Stone	○		
	Paint	○	○	
Glass	○			
Mechanical and Plumbing Work	Cooler		○	Good in quality " " Locally procurable ware
	Pump		○	
	Valve		○	
	Sanitary ware	○		
	Steel pipe		○	
	Conc. pipe	○		
Electrical Work	Transformer		○	Not procurable locally " " Many products being imported from Japan " "
	Telephone exchanger		○	
	Distributing board		○	
	Lighting fixture		○	
	Electrical appliances		○	
	Wire, cable		○	
	Vinyl pipe	○		
Equipment Work	Equipment for Research		○	Local product is very rare " "
	Measurement		○	
	Training		○	

4-4. Project Implementation Schedule

After the Exchange of Notes (E/N) by both governments regarding the grant aid cooperation system by the Government of Japan, the construction of facilities shall be carried out in three stages. They are the preparation of detailed design documents, the conclusion of the contract through the tender, and the execution of the construction work.

The Exchange of Notes shall be done by the Ministry of Labor and Employment (Government of the Philippines).

1. Detailed Design

The construction contract documents shall be prepared using the basic designs. The documents will consist of detailed design drawings, specifications, calculation sheets, and cost estimation, etc. During the detailed design stage, discussion shall be made between the consultant and the relevant party from the Philippines at each of the preliminary, intermediary and final stages. Tender will be held after final approval is given by the Philippine side through the final arrangement mentioned above. The period required for the detailed design is estimated to be four months.

2. Tender

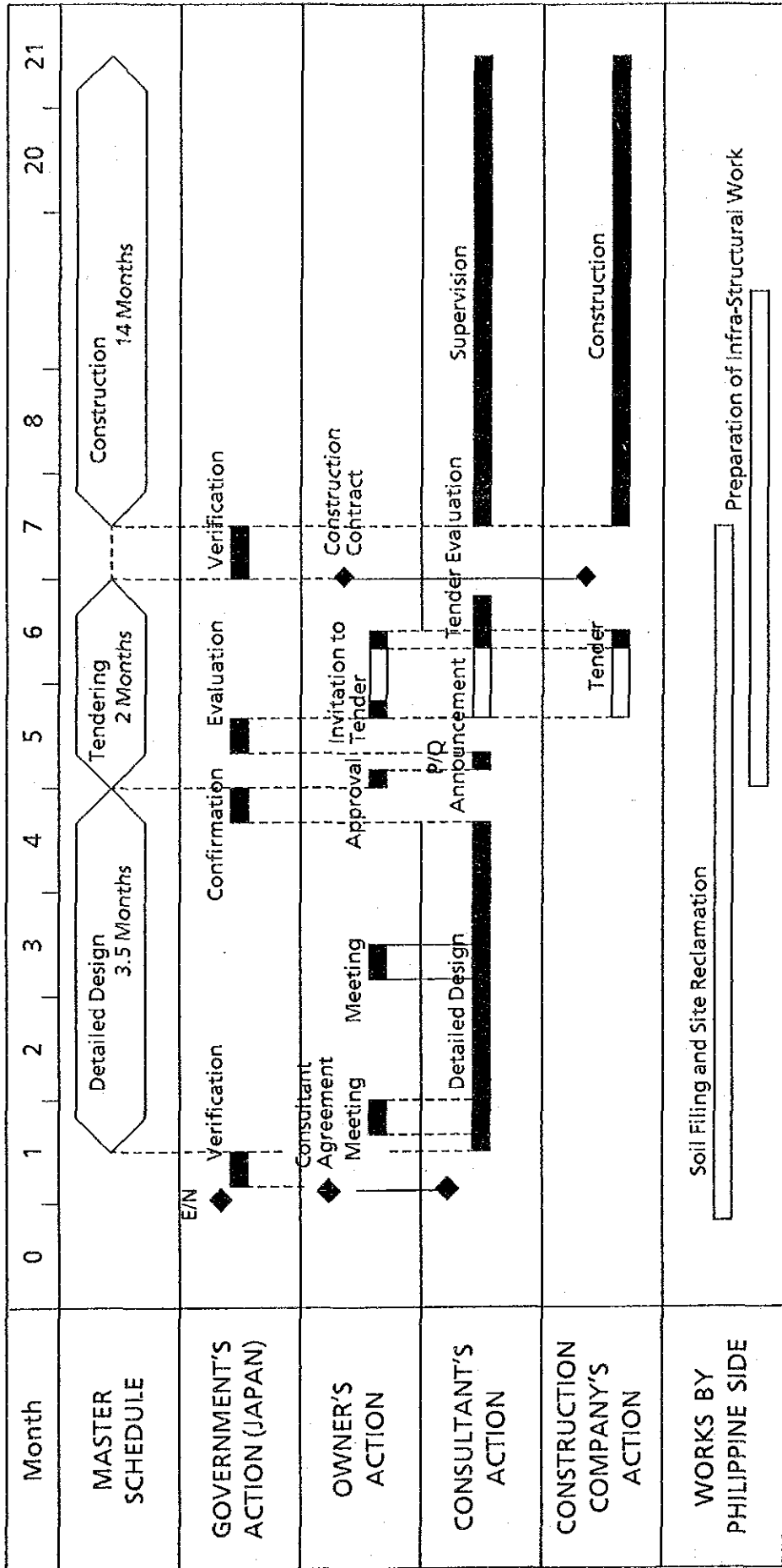
After the completion of the detailed design and the pre-qualification (P/Q) of Japanese general contractors, tender will begin. The project implementation body will evaluate and select participants to the tendering process. Invitation to tender will be done by public announcement. The officers in charge of this project will present themselves at the time of the tender opening.

The tenderer submitting the lowest price in the general competitive tender will draw up a contract with the Ministry of Labor and Employment. The time required for the tendering and contracting is estimated to be two months.

3. Construction

The construction work will commence after the construction contract is signed by the parties concerned and is verified by the Government of Japan.

Fig. 4-4-1. Project Implementation Schedule



With the assumption that procurement of equipment and preliminary work by the Philippine Government progresses smoothly, it is anticipated to take 14 months to construct the Center. The scale and contents of the facilities were evaluated to provide this estimate.

4-5. Cost for Operation, Management and Maintenance

Based on the study and the analysis of the collected data, the expenses required for administration, operation and maintenance of the facilities of this Center are estimated as follows :

1. Personnel		
Governing board	640,000	Pesos
Line personnel (83 personnels)	3,776,500	"
Support personnel (61 personnels)	1,586,000	"
Contractual workers/ consultants	130,000	"
Total	<u>6,132,500</u>	<u>Pesos</u>
2. Facility operation		
Electricity consumption	1,020,000	Pesos
Water consumption	84,000	"
LP gas	125,000	"
Total	<u>1,229,000</u>	<u>Pesos</u>
3. Facility maintenance	150,000	<u>Pesos</u>
4. Equipment maintenance	3,600,000	<u>Pesos</u>
5. Miscellaneous Expenses	555,000	<u>Pesos</u>
1 ~ 5 Total	<u>11,666,500</u>	<u>Pesos</u>

The budget for the operation of this Center is to be financed with the Loading Fund of the State Insurance Fund 12 percent of the State Insurance Fund is appropriated for the Loading Found, and the Center will be allowed to spend up to 4 percent of the Loading Fund. The State Insurance Fund has been growing at the average annual rate of 25.2% from 1980 to 1985. If we conservatively estimate a 10% growth, then the State Insurance Fund in 1986 would be 3 billion 213.8 million Pesos. This means 15.4 million Pesos can be allocated for the Center. In addition to this allotment, a facility rental fee will be collected for the Loading Fund.

Table 4-5-1. State Insurance Fund (x 1000 Pesos)

<u>Year</u>	<u>SSS</u>	<u>GSIS</u>	<u>Total</u>	<u>% Increase</u>
1985	P 2,475,283	P 446,366	P 2,921,649	26.0
1984	1,820,037	498,294	2,318,331	25.4
1983	1,435,025	414,038	1,849,063	20.3
1982	1,141,662	395,469	1,537,131	23.7
1981	889,387	353,591	1,242,988	30.8
1980	680,557	269,610	950,000	-

4-6. Probable Construction Cost for the Philippine Side Work

Construction of the Center consists of the work to be undertaken by the Government of the Philippines and the one to be undertaken by the Government of Japan. Probable construction cost for the Philippine side work as classified in chapter 4 is estimated as follows :

1. Site clearance and soil filling		
11,000 m ³ x 70 P/m ³		= P.770,000
2. Infrastructural work		
Electricity-supply wiring	315,000	
Aerial-25 meter		
Telephone cable laying	129,700	
Piping under road - 25 meter		
Piping within site - 85 meter		
Water supply piping	37,700	
Drainage pipe laying	281,000	
From the site to Tanguue Creek		
Sub-total		= P.763,400
3. Fence work		= P.335,400
Length of fence - 180 meter		
4. Landscaping		= P.648,000
Turfig - 8,500 m ²		
Plantning - 120 trees		
5. Furniture and utensile		= P.644,000
I ~ 5 Total		<u>P. 3,160,800</u>

CHAPTER 5. PROJECT EVALUATION

CHAPTER 5. PROJECT EVALUATION

The project for establishing this Center will be evaluated hereunder.

5-1. Socioeconomic Evaluation

The 6th Economic Development Plan (1983~1987) by the Philippine Government mainly targets a continued economic growth, an equal allocation of development plans, and a large-scale development of manpower resources. In the Philippine economy, agricultural sector has been the main driving force, while the manufacturing sector has lagged behind in the above developments efforts. Industrial growth, hindered by the problems of working conditions and environment, has suffered a series of economic losses due to labor accidents and reduced production efficiency.

According to the survey of the MOLE, the number of labor accidents in the Philippines increased by 1.3 times during the five years from 1979 to 1983 50% of which was brought in the manufacturing industry. Promotion of labor safety and health policies to protect the workers is vitally important. This will enhance productivity and thus economic recovery.

This project, established under such circumstances, should be a significant and effective measure for making contributions to the Philippine society and economy in regard to :

- increased labor productivity and
- protection of workers against labor accidents.

5-2. Evaluation of Administrative System

This Center is constituted by the Executive Director and the Deputy Director as the key function, and by five divisions : Training and Information, Health Control, Safety Control, Environmental Control, and General Affairs Divisions. Further, a Governing Board for decision making on new policies, undertakings, budgets etc. of the Center and a joint committee to technically back up the Center's activities are also anticipated. This system is considered well suited for the purpose and functions of the Center.

A considerable cost saving can be expected in this plan in regard to the maintenance, provided that appropriate management is carried out. Total annual running cost of the Center will be approximately 11,666,500 pesos (of which the manpower cost is estimated at 6,132,500 pesos, running cost of electricity, water, etc. consumption at 1,229,000 pesos, facilities maintenance cost at 150,000 pesos, equipment maintenance cost at 3,600,000 pesos, and miscellaneous expenses at 555,000 pesos). However, it is expected that a loading fund of the state insurance fund will be large enough to cover the above running cost.

The Center will require 83 line staff and 61 support staff, most of whom are to be provided by the MOLE, and new university graduates. Some anxiety exists about the technical capability of this staff. A project-type technical cooperation, in which Japan accepts the staff for training, and sends specialists to the Philippines, will enhance the technical aspect.

CHAPTER 6. CONCLUSION AND PROPOSITION

CHAPTER 6. CONCLUSION AND PROPOSITION

6-1. Conclusion

The 6th Five Year Economic Development Plan (1983~1987) in the Philippines has three main aims : a continuous economic growth, an equal allocation of development projects, and a large-scale development of manpower resources. It is of utmost importance to improve working conditions especially to prevent occupational accidents.

It is expected that this project will make a great contribution not only to the prevention of labor accidents and injuries through reinforced administration on the labor safety and health, but also to the economic and social development of the country through increased productivity and workers' protection.

It has been concluded that the proposed grant aid from Japan with the construction of facilities and supply of necessary equipment will provide great benefit to the Philippines in the above aspects.

6-2. Proposition

Grant Aid and Technical Cooperation from the Government of Japan, along with the following self-supporting efforts by the Philippine Government are required to smoothly construct the facilities of the Center, and to successfully carry out its operation and management.

1. Establishment of Operation System

The Governing Board of the Center will enhance efficient operation of the Center by cooperating and coordinating with other organizations concerning the occupational safety and health.

2. Collecting Staff

Before completion of the Center, it is important to ensure a sufficient number of staff. Since training of administrative staff and private

sector for the occupational safety and health has started only recently, the specialized instructors and the educational materials are lacking. To secure a sufficient number of capable staff, along with preparation of educational materials, appropriate steps must be taken soon.

3. Plan of Activities

The purpose of the Center involves researching the actual situation and the causes of occupational accidents and injuries, and then giving instructions to administrative officials and private enterprises. Prevention of such hazards will be taught through training based on the research results.

4. Cooperation of Relative Organizations

POIMA, OHNAP, UP-IPH, SOPI are conducting training and research activities on occupational safety and health, which is authorized by the MOLE.

Hence, a close cooperation with those organizations is vitally important for promoting the Center's activities.

5. Recruitment of Trainees from Private Enterprises

Due to the type of traffic among the numerous Philippine islands and the social structure which is composed of a large number of small businesses, it would be extremely difficult to recruit trainees for the instruction on labor safety and health. To cope with this problem, the Philippine Government is studying reinforcement of penalty regulations necessary for observation of laws, and improving the abilities of administrative officials. Also, it is hoped that some measures would be taken to lighten the financial burden involved in participating in such training.

6. Construction Work of the Philippine Government

The Philippine Government will undertake as the primary work the site reclamation and infrastructural work in the periphery. Such work will cost, according to the estimate of the basic design study

team, approximately 3,160,800 pesos. This largely exceeds the sum of 271,300 pesos which is the budget allocation in 1986, for BWC. An additional budget is required next year.

The construction work of site reclamation and preparation of infrastructure, which are to be undertaken by the Philippine Government, must be completed at the earliest possible date on the schedule. The same will apply to the customs clearance procedures for importing the necessary equipment and materials from Japan. It will have a great influence on the following process of facility construction.

7. Japanese Technical Cooperation

It is expected that the Government of Japan will provide project-type technical cooperation in parallel with the progress of construction work. It is necessary to formulate an elaborate plan under which Philippine instructors will be sent to Japan at a suitable time for a short-term training. Japanese experts will also be recruited and dispatched to the Philippines at a suitable time to help complete all necessary preparations, such as the formulation of the training program, preparation of textbooks, guidance of instructors before the Center is opened.

In conclusion, in order to attain a most effective result of the projected Center, a combination of three mainstay factors would be essential;

- 1) execution of the Japanese grant aid regarding the hardware aspect,
- 2) Japanese technical cooperation by project system regarding software,
- and 3) a large amount of self-supporting efforts on the part of the Philippines. Without such combination of efforts, it would be difficult for the Center to make a contribution to the prevention of labor hazards, betterment of workers' welfare, or productivity drive in that country through administrative and technical reinforcement of the labor safety and health.

APPENDIX

- 1. Minutes of Discussions on Basic Design Study**
- 2. Minutes of Discussions on Draft Report**
- 3. Members of Study Teams**
- 4. Schedule of Study Teams**
- 5. Cooperative Officials in the Survey**
- 6. Reference Data of Construction Site**
- 7. Collected Data**
- 8. Others**

APPENDIX 1.

**Minutes of Discussions on Basic Design Study
(Signed on April 21, 1986)**

MINUTES OF DISCUSSIONS

ON

THE CONSTRUCTION PROJECT FOR
THE OCCUPATIONAL SAFETY AND HEALTH CENTER
IN
THE REPUBLIC OF THE PHILIPPINES

In response to the request of the Government of The Republic of the Philippines, the Government of Japan decided to conduct a basic design study on the Construction Project for the Occupational Safety and Health Center (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to the Republic of the Philippines the study team headed by Mr. Kiyoshi Suwa, Assistant Director of Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs from April 10th to April 22nd, 1986.

The team had a series of discussions on the Project with the officials concerned of the Government of the Republic of the Philippines and conducted a field survey.

As a result of the study, both parties agreed to recommend to their respective Governments that the major points of understanding reached between them, attached herewith, should be examined towards the realization of the Project.

April 21st, 1986.



MR. KIYOSHI SUWA
Leader, Basic Design Study Team
Japan International Cooperation
Agency



MR. CARMELO C. NORIEL
Deputy Minister
Ministry of Labor and Employment

A T T A C H M E N T

1. The objective of the Project is to provide necessary buildings, facilities and equipment for the establishment of the Occupational Safety and Health Center (hereinafter referred to as "the Center").
2. The proposed site of the Project is located at Diliman, Quezon City, Metro Manila, and is shown in Annexes I and I-A.
3. The executing agencies for the implementation of the Project in the Philippines are the Bureau of Working Conditions and the Employees' Compensation Commission, Ministry of Labor and Employment.
4. The Government of the Philippines agreed that the amount equivalent up to four percent (4%) of the twelve percent (12%) loading fund of the State Insurance Fund should be disbursed each year for the operational expenses of the Center.
5. The Government of the Philippines formally confirmed the following measurement concerning the recruitment of the trainees from the private sector.

The Ministry of Labor and Employment (hereinafter referred to as "MOLE") will strengthen and upgrade the capability of the inspectorate to implement fully the Occupational Safety and Health Standards, including those provisions on the training of safety and health personnel employed by the private sector. While it is the policy of MOLE to secure voluntary compliance with safety and health standards, appropriate administrative and penal sanctions will be imposed on employers who willfully and repeatedly violate occupational safety and health standards.

6. The Team will convey to the Government of Japan the desire of the Government of the Philippines that the Government of Japan takes necessary measures to cooperate in implementing the Project and provides the building and other items listed in Annex II within the scope of Japanese Grant Aid.
7. The Government of the Philippines requested the Team the construction of Convention Hall and an increase of the number of mobile units, considering that the Project is envisioned to be the national center of all technologies on occupational safety and health and that there is urgent need to conduct medical and environmental examinations in the private sector demanding mobility of the Center. The Team, however, replied that the above Philippines' proposal was very hard to accept from the stand point of the main objectives and activities of the Center.

As the Government of the Philippines requested strongly the realization of the above proposal in spite of the Team's negative reply, the Team has agreed to convey the desire of the Government of the Philippines to the Government of Japan.

8. The Government of the Philippines has understood the Grant Aid system of the Government of Japan explained by the Team, including a principle that a Japanese consultant firm and a Japanese general contractor should be used for the implementation of the Project.

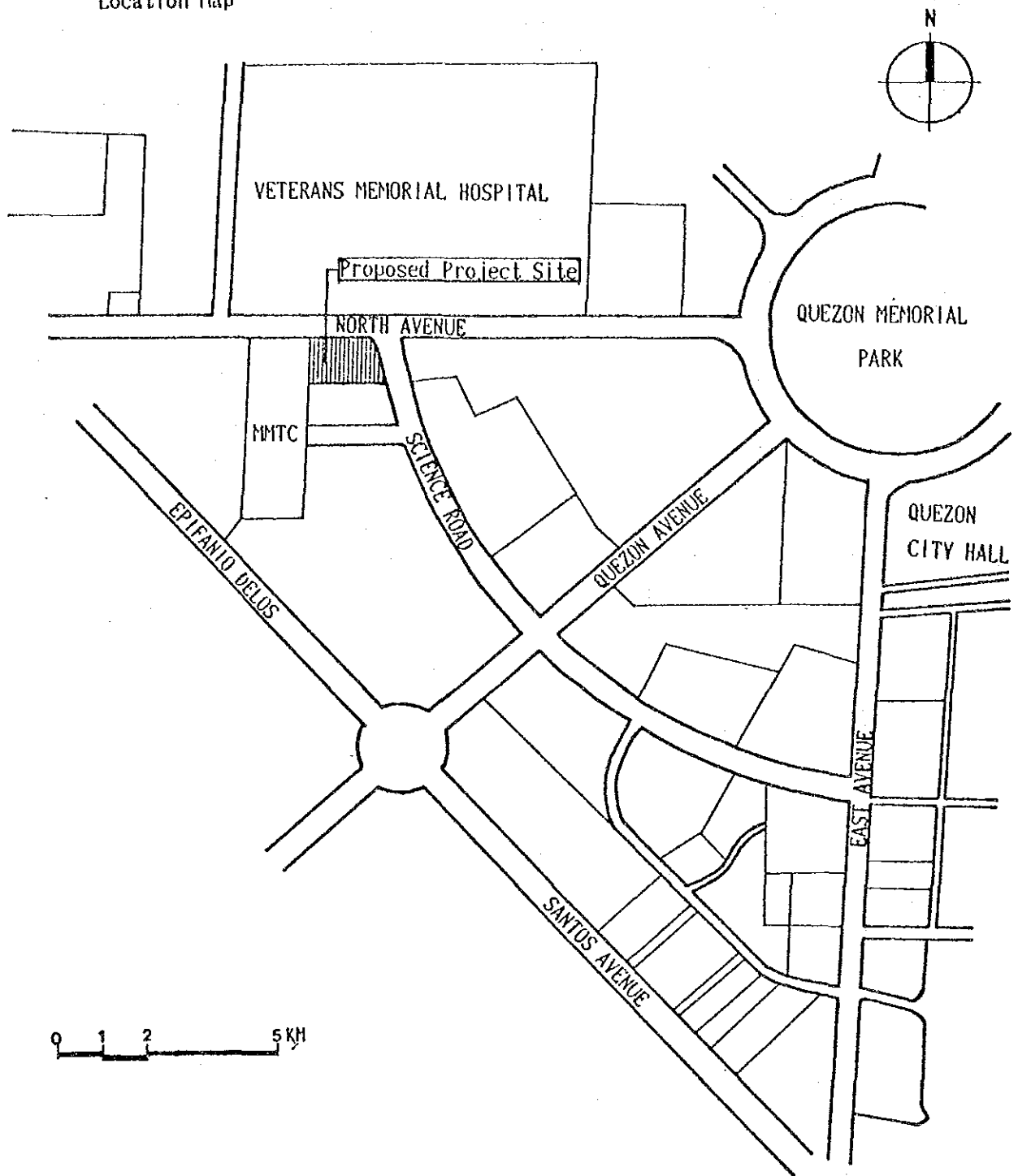


9. The Government of the Philippines will take necessary measures as listed in Annex III on condition that Grant Aid by the Government of Japan is extended to the Project.
10. The Team will convey to the Government of Japan the annual training schedule (Annexes IV and IV-A) proposed by the Government of the Philippines.

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[Signature]

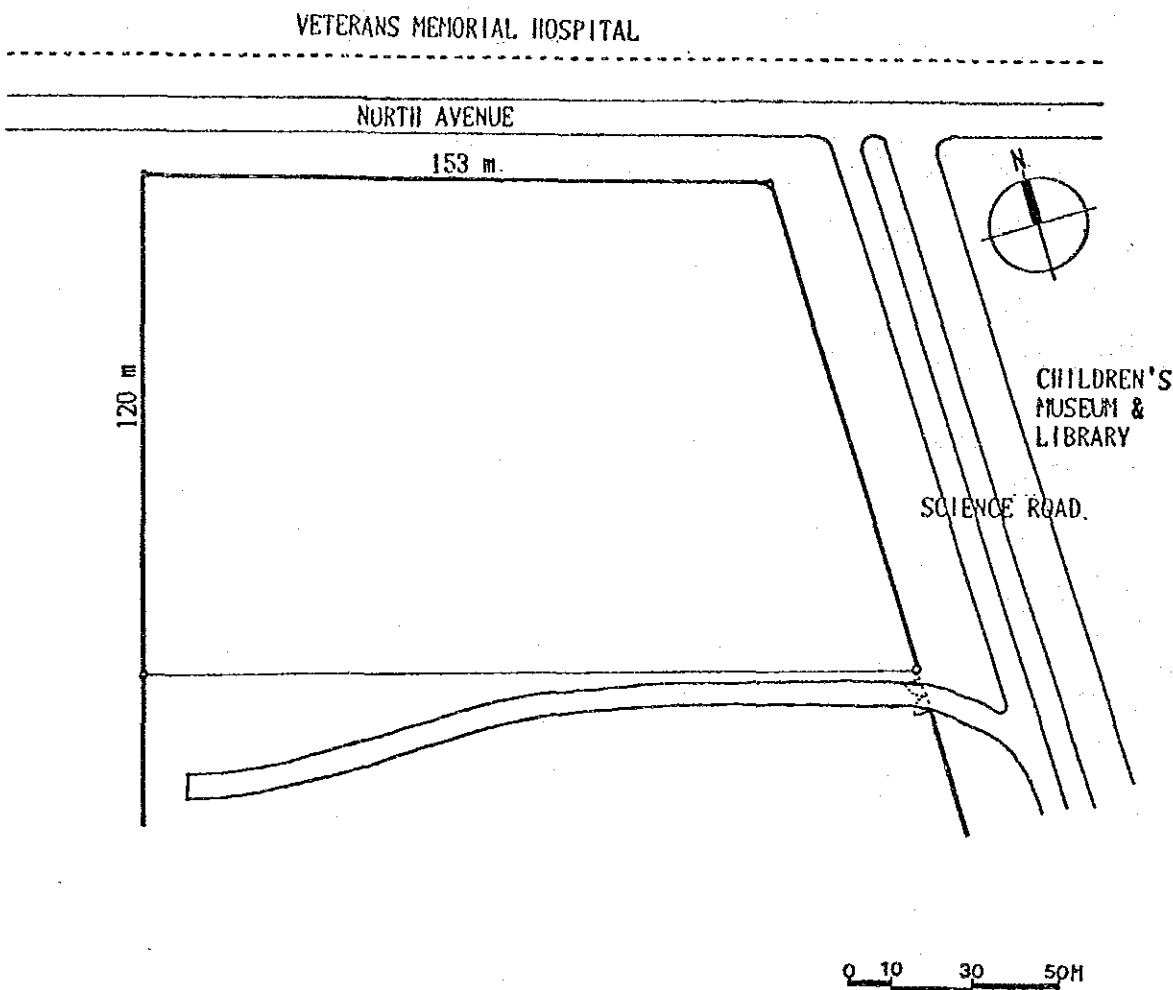
Location Map



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Project Site Map



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Annex II

I Facilities

- a. Office space
- b. Conference room
- c. Laboratory
- d. Audiovisual editing room
- e. Printing room
- f. Library
- g. Data Processing room
- h. Exhibition area
- i. Training room
- j. Dormitory
- k. Canteen
- l. Others

2 Equipment

- a. Equipment for training and public information
- b. Equipment for health control
- c. Equipment for safety control
- d. Equipment for environmental control
- e. Others



Annex III

Following arrangements are required to be taken by the Government of the Philippines.

1. To secure a lot of land necessary for the construction of facilities and to clear, fill and level the site as needed before the start of the construction.
2. To provide necessary data and information for basic design.
3. To provide facilities for distribution of electricity, telephone, water supply, drainage and other incidental facilities leading and up to the proposed project site.
4. To ensure prompt unloading, tax exemption, customs clearance at ports of disembarkation in the Philippines, and prompt internal transportation therein of the products purchased under the grant.
5. To maintain and use properly and effectively the facilities constructed and equipment purchased under the grant.
6. To undertake incidental facilities and civil works such as general furnitures, gardening, fencing, gates and exterior lighting, if needed.
7. To bear the following commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement.
 - . Advising commission of Authorization to Pay
 - . Payment commission
8. To exempt Japanese nationals engaged on the Project from customs duties, internal tax and other fiscal levies which may be imposed in the Philippines with respect to the supply of the products and the services under the verified contracts.

TENTATIVE TRAINING SCHEDULE OF OSHC
 1. Training Courses for Administrative Personnel/Staff of (MOLE, ECC, SSS, GSIS)

Course Name	Capacity (Number)	Period	Frequency (Per Year)	Philippine Side Plan
				1st Yr. 2nd Yr. 3rd Yr. 4th Yr. 5th Yr.
Training for newly hired LASWOS	10	1 month	once	'35/2 '25/1 '25/1 '30/1 '30/1
Training for experienced LASWOS who are technical officers	20	1 month	once	'Prep. '34/5 '35/2 '25/1 '30/1
Training for safety engineers with more than three years experience-five separate courses				
a. Mechanic & electric course	10	2-3 weeks	once	'Prep. '10/1 '10/1 '10/1 '10/1
b. Boiler course	10	2-3 weeks	once	" " " " " "
c. Elevator course	10	2-3 weeks	once	" " " " " "
d. Construction course	10	2-3 weeks	once	" " " " " "
e. Chemical course	10	2-3 weeks	once	" " " " " "
Training for industrial hygienists in the field of occupational health control	5	2-3 weeks	once	'Prep. 5/1 5/1 5/1 5/1
Trainers' training course	10	2-3 weeks	once	'10/1 '10/1 '10/1 '10/1 '10/1
Training for industrial hygienists in the field of working environment control	5	2-3 weeks	once	'Prep. 5/1 5/1 5/1 5/1
Occupational diseases classification course	15	2-3 weeks	twice	'Prep. '15/2 '15/2 '15/2 '15/2
Disability evaluation course	15	2-3 weeks	once	'Prep. '15/1 '15/1 '15/1 '15/1

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II. Training Courses for Personnel of Private Industries

Annex - IV - A

Course Name	Capacity (Number)	Period	Frequency (Per Year)	Philippine Side Plan				
				1st yr.	2nd yr.	3rd yr.	4th yr.	5th yr.
Course for safety committee members	100	1 week	6 times	Prep.	50/4	50/4	100/6	
Course for executives of establishments	50	1 day	4 times	Prep.	50/2	50/2	50/4	50/4
Course for physicians to be employed by establishments	50	1 month	4 times	"	"	50/4	50/4	50/4
Refresher training for physicians employed by establishments	100	1 day	2 times	"	"	100/2	100/2	100/2
Safety man's course								
a. Manufacturing course	50	2-3 weeks	6 times	"	"	50/4	50/4	50/6
b. Construction course	50	2-3 weeks	6 times	"	"	20/4	20/4	20/6
c. Mining course	50	2-3 weeks	6 times	"	"	Prep.	20/4	20/6
d. Agriculture course	50	2-3 weeks	6 times	"	"	"	20/4	20/6
Working environment measurement course	15	2-3 weeks	twice	"	"	15/2	15/2	15/2
Working environment improvement course	30	2-3 weeks	once	"	"	15/1	15/1	30/1
Industrial nurse's course								
a. Course for industrial nurses to be employed by establishments	50	2-3 weeks	4 times	"	"	50/4	50/4	50/4
b. Refresher training for industrial nurses employed by establishments	100	1 day	twice	"	"	100/2	100/2	100/2
Accredited doctors course	50	3 days	4 times	"	"	50/4	50/4	50/4
Industrial dentist course	50	1 week	4 times	50/4	50/4	50/4	50/4	50/4
Industrial dentist refresher course	100	1 day	2 times	100/2	100/2	100/2	100/2	100/2
First Aider course	50	3 days	6 times	50/6	50/6	50/6	50/6	50/6

APPENDIX 2.

**Minutes of Discussions on Basic Design Study Draft Report
(Signed on July 22, 1986)**

Minutes of Discussions
on
The Construction Project
for
The Occupational Safety and Health Center
in
The Republic of the Philippines

In response to the request of the Government of the Republic of the Philippines for Grant Assistance for the Construction Project of the Occupational Safety and Health Center (hereinafter referred to as "the Project"), the Government of Japan decided to conduct a basic design study on the Project and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to the Republic of the Philippines the study team from April 10th to April 29th, 1986.

As a result of the study, JICA prepared a draft report and dispatched a mission, headed by Mr. Ryota Ono, 2nd Basic Design Study Division, Grant Aid Planning and Survey Department, JICA, to explain and discuss it from July 17th to July 24th, 1986.

Both parties had a series of discussions on the Report and, after clarifying its contents, agreed to recommend to their respective Governments that the major points of understanding reached between them, attached herewith, should be examined towards the realization of the Project.

July 22, 1986

小野良太

MR. RYOTA ONO
Leader-Draft Report Team
of Basic Design Study
Japan International Cooperation
Agency

C. Noriel

MR. CARMELO C. NORIEL
Deputy Minister
Ministry of Labor and Employment

Major Points of Understanding:

1. The Philippine side principally agreed to the basic design proposed in the Draft Final Report.
2. The Final Reports (10 copies in English) on the Project will be submitted to the Republic of the Philippines in October.
3. The Philippine side understood the system of Japan's Grant Aid Program and confirmed the measures to be taken by the Philippine side towards the realization of the Project.

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APPENDIX 3. Members of Study Teams

APPENDIX 3. Members of Study Teams

■ Basic Design Study Team (from April 10 to April 29, 1986)

<u>Name</u>	<u>Position</u>
Mr. Kiyoshi SUWA	Team Leader Assistant Director Grant Aid Division Economic Cooperation Bureau Ministry of Foreign Affairs
Mr. Makoto ITOH	Chief Expert Official in Industrial Safety Safety Division Industrial Safety and Health Dept. Labor Standard Bureau Ministry of Labor
Mr. Ryota ONO	Project Coordinator Second Basic Design Study Division Grant Aid Planning and Survey Dept. Japan International Cooperation Agency
Mr. Ryoji HIRANO	Architectural Planner Kume Architects-Engineers
Mr. Makoto NAGADOMI	Architectural Designer Kume Architects-Engineers
Mr. Mikio KURISHIRO	Mechanical Planner Kume Architects-Engineers
Mr. Takao MIYAZAKI	Equipment Planner Kume Architects-Engineers
Mr. Takeshi HAMAJIMA	Construction Planner Kume Architects-Engineers

■ Draft Report Confirmation Team (from July 17 to July 24, 1986)

<u>Name</u>	<u>Position</u>
Mr. Ryota ONO	Team Leader Second Basic Design Study Division Grant Aid Planning and Survey Dept. Japan International Cooperation Agency
Mr. Ryoji HIRANO	Architectural Planner Kume Architects-Engineers
Mr. Mikio KURISHIRO	Mechanical Planner Kume Architects-Engineers
Mr. Takao MIYAZAKI	Equipment Planner Kume Architects-Engineers

APPENDIX 4. Schedule of Study Teams

APPENDIX 4. Schedule of Study Teams

■ Schedule of Basic Design Study (April 10 ~ April 29, 1986)

No.	Month / date	Day	Time	Action
1	Apr./ 10	Thu.	10:00 → 13:15 16:00~16:30 16:30~17:00	Narita to Manila by PR431 Meeting at JICA Manila Office Courtesy Call on Embassy of Japann
2	11	Fri.	10:00~11:00 11:00~12:00 14:00~14:45 15:30~18:00	Meeting with MOLE at BWC Courtesy Call on Deputy Minister of MOLE Courtesy Call on Minister of MOLE Meeting with BWC and ECC
3	12	Sat.	10:00~12:00 14:00~17:00	Survey on Site Review of data
4	13	Sun.	9:00~17:00	Observation of similar facility in Manila (Team Leader arrived at Manila by JL741)
5	14	Mon.	9:30~19:00	Meeting with BWC and ECC
6	15	Tue.	8:30~9:30 10:15~14:00 15:00~17:00	Team meeting. Observation of MERALCO Meeting at SOPI
7	16	Wed.	8:00~10:00 10:30~17:30 18:30~19:30	Team meeting Meeting with BWC and ECC 15:00~16:00 Meeting at TUCP 16:45~17:30 Meeting at KMU Meeting with ECOP
8	17	Thu.	8:00~12:00 13:30~18:30	Team meeting Meeting with BWC and ECC
9	18	Fri.	8:00~12:00 13:30~18:30	Team meeting Discussion on Draft Minutes with BWC
10	19	Sat.	9:00~13:00 14:00~18:00	Team meeting Observation of Site and similar facilities
11	20	Sun.	10:00~15:00 17:00~19:00	Observation of similar facilities in Manila Team meeting

No.	Month / Date	Day	Time	Action
12	21	Mon.	9:00~12:00 14:00~14:45 16:00~16:30 16:30~17:00	Discussion on draft minutes Signing of Minutes at MOLE Survey Report to JICA Manila Office Survey Report to Embassy of Japan
13	22	Tue.	9:30~10:00 10:30~11:30 13:00~14:30 17:00~19:00	Meeting with BWC and ECC Studying electricity condition at MERALCO Studying telephone condition at PLDT Studying construction cost at MPWH (Messers Suwa, Itoh, Ono returned Japan by NW004)
14	23	Wed.	9:30~10:00 10:30~12:00 13:30~17:30 14:00~16:00	Meeting with BWC and ECC Observation of UP-IPH Meeting on equipment with BWC and ECC Studying water condition at MWSS
15	24	Thu.	8:30~9:30 10:00~11:30 14:00~15:00 15:30~16:30	Meeting on construction cost with Data Bank Confirmation of site survey map at RCG consultant Studying drainage system at MPWH Quezon City Confirmation of Drainage route
16	25	Fri.	9:45~10:30 10:30~11:30 14:00~15:30	Meeting on construction cost with Data Bank Meeting on scope of works with BWC and ECC Observation of Tropical Medical Research Institute
17	26	Sat.	9:00~15:00 16:00~19:00	Observation of similar facilities in Manila Review of Data
18	27	Sun	10:00~13:00 14:00~16:00	Review of data Collection of Data in Manila
19	28	Mon.	10:00~10:30 10:30~11:00 11:30~14:00 14:30~15:00 16:00~16:45	Observation of Philippine Normal College Observation of Philippine Technical Institute Meeting with BWC and ECC Collection of construction data at MPWH Survey report to JICA Manila Office
20	29	Tue.	9:30~10:00 10:00~11:00 14:45 → 19:40	Confirmation of drainage route at Quezon City Office Confirmation of drainage route at MPWH Quezon City Manila to Japan by JL1742

■ Schedule of Draft Report Confirmation (July 17 ~ July 24, 1986)

No.	Month / date	Day	Time	Action
1	July/ 17	Thu.	10:00 → 13:10 15:30~17:00 17:00~17:30	Narita to Manila by JL741 Meeting at JICA Manila Office Courtesy Call on Embassy of Japan
2	18	Fri.	10:00~16:00 16:30~18:00	Discussion on Draft Report with BWC and ECC Team Meeting
3	19	Sat.	10:00~12:00 14:00~17:00	Preparation of data Confirmation of Site
4	20	Sun.	10:00~12:00	Preparation of documents Mr. Ono arrived Manila by UA 053
5	21	Mon.	9:30~11:00 14:00~18:00	Team Meeting Discussion on Draft Report with BWC and ECC
6	22	Tue.	9:30~11:30 13:00~15:00 16:30~18:00	Discussion on Draft Minutes with BWC and ECC Preparation of Minutes Signing of Minutes at MOLE
7	23	Wed.	10:00~11:00 10:30~17:30 13:30~15:00 16:00~17:00	Report of study to JICA Manila Office Mr. Ono left Manila Meeting at MOLE Meeting with local consultant
8	24	Thu.	9:30~11:00 11:30~12:00 14:25 → 19:30	Meeting with Japanese expert Meeting with Data Bank Manila to Narita by JL 742

APPENDIX 5. Cooperative Officials in the Survey

APPENDIX 5. Cooperative Officials in the Survey

○ Philippine Authorities Concerned

Ministry of Labor and Employment (MOLE)

- Augusto S. Sanchez Minister
- Carmelo C. Noriel Deputy Minister
- Augusto G. Sanchez Director, Bureau of Working Conditions (BWC)
- Nieves R. Confessor Chief, International Labor Affairs Service
- Manuel Wilson Estrada Chief, Labor Standards Research Division, BWC
- Gregoria C. Santos Chief, Occupational Health & Safety Division, BWC
- Emilia Anaya Chief, Inspection Standards Section, BWC
- Agnes Ramos Chief, Occupational Diseases & Toxicology Research Section, BWC
- Mauricio R. Corares Chief, Inspection Standards Division, BWC
- Felixberto L. Querijero Chief, Standards & Tests Section, Occupational Health & Safety Division, BWC
- Eduardo E. Dela Cruz Mechanical Engineer, Occupational Health & Safety Division, BWC
- Cesar M. Dumayag Civil Engineer, Occupational Health & Safety Division, BWC

Employees' Compensation Commission (ECC)

- Jorge B. Contreras Executive Director
- Antonio Rosales Officer-in-Charge
- Caridad De Quiros Deputy Executive Director
- Natividad Chipongian Chief, Medical Division
- Benevito A. Fontanilla Staff, Labor Standards Research Division

Employer's Confederation of the Philippines (ECOP)

- Jorge B. Contreras Executive Director
- Aurelio Periquet, Jr. Honorary Chairman
- Paoul M. Inocentes President
- Benildo G. Hernandez Vice President

Philippine Occupational and Industrial Medical Association (POIMA)

- Antonio Racho President
- Benito R. Reverente, Jr Ex-President

Safety Organization of Philippines (SOPI)

- Oscar O. Yu President
- Col. Jose Eduorte Treasurer
- Sonia A. Santiago Executive Secretary

Trade Union Council of the Philippiens (TUCP)

- Democritd T. Mendoza President
- Avelino V. Valerio Vice President
- Cedric R. Dagtas Asst. General Secretary
- Catalino Doronio Int'l Affairs Officer

Kilusang Mayo Uno (KMU)

- Romy Custerero Political Personel
- Maristeh C. Presto R.N. Coordinator, Health & Workers' Program

○ Japanese Officials concerned in the Philippines

- The Embassy of Japan

- Mr. Takashi KOEZUKA First Secretary
- Mr. Moriaki NAGAE First Secretary
- Mr. Yoshitaka MOTODA First Secretary

- JICA Manila Office

- Mr. Moriya MIYAMOTO Resident Representative
- Mr. Takeho SAKATA Resident Deputy Representative
- Touichi IWATA Resident Officer

- JICA Expert

- Mr. Yuichi ICHIKAWA Advisor, BWC, MOLE

