5 - 2 - 2 Public Market Modules (Modular Approach)

(1) Philippine Public Market Modules

The modular approach which was produced by the former Department of Interior and Local Government in 1989 is still currently being used. An explanatory set of drawings is published by the Department of Interior and Local Government (See Appendix A-30).
Under the modular approach there are three types of markets, and the type is determined by the population of the region, and the floor area of the market is determined from the site conditions.

1) Urban public market: population over 300,000
2) Rural public market: population under 290,000
3) Satellite public market: population over 5,000

(2) Standards for calculating floor area

The floor area for stalls in the above listed three types of markets has been basically decided as follows. When the market is designed the floor area calculations are performed by adding the corridors and toilets to the number of basic modular units. The average floor space which is used in the calculations is listed by stall type in the table below:

a) Urban Public Market

Dimensions(m)	Floor area (m^2)	Sections
1.20 x 2.40	2.88	Fish, Meat, Dried fish
2.40 x 2.40	5.76	Fruits, Vegetables, etc.
2.40 x 3.60	8.64	Dry Goods, Sari Sari
2.40 x 4.80	11.52	General merchandise, Cereals and processed foods, Foot wear (Sari-Sari)
3.60 x 4.80	17.28	Restaurant (Carinderia), Groceries

b) Rural Public Market

Dimensions(m)	Floor area (m^2)	Stall type
1.20 x 2.40	2.88	Fish, Meat, Poultry, Duck, Dried fish

2.40 x 2.40	5.76	Fruits, Vegetables, etc. Dry goods, General merchandise, Cereals and processed foods, Foot wear, Groceries (Sari-Sari)
3.60 x 2.40	8.64	Restaurant (Carinderia)

(3) Standards for the number of stalls in a city public market, stall floor area by stall type and building dimensions

The basic grid for the city public market is 14.4m x 14.4m = 297.36 m^2, with 7.2m clearance between columns. The project is designed by combining blocks equivalent to one unit of this grid. The maximum height of the building is 7.2m, and the basic number of stalls which can tenant a grid is as follows:

Stall type		Criteria for the number of stalls
A)	Wet corner	40
B)	Semi-wet corner	40
C)	General merchandise	10 - 20
D)	Clothing	8 - 10
E)	Misc	20 - 40
	Total	118 - 150

The following dimensions are the floor areas by industry type used by the above listed stalls:

Sections	Dimension (m)
Fish	1.2 x 2.4
Meat, Poultry,	1.2 x 2.4
Fruits, Vegetables	2.4 x 2.4
Dry goods, Food groceries (Sari-Sari)	2.4 x 3.6 or 2.4 x 4.8
General merchandise	2.4 x 4.8
Cereals	2.4 x 3.6 or 2.4 x 4.8
Footwear	2.4 x 4.8
Groceries	3.6 x 4.8
Restaurant (Carinderia)	3.6 x 4.8
Dried fish	1.2 x 2.4
Misc.	2.4 x 2.4

(4) Standards for the number of stalls in a regional public market, stall floor area by stall type and building dimensions

The basic grid for the regional public market is 9.6m x 9.6m = 92.16 m^2, with 4.8m clearance between columns. The project is designed by combining blocks equivalent to one unit of this grid. The maximum height of the building is 6.3m, and the basic number of stalls which can tenant a grid is as follows:

Stall type	Criteria for the number of stall
A) Wet corner	24
B) Semi-wet corner	16
C) General merchandise	12
D) Clothing	9
E) Misc.	16
Total	77

The following dimensions are the floor areas by industry type used by the above listed stalls:

Sections	Dimension (m)
Fish	1.2 x 2.4
Meat, Poultry,	1.2 x 2.4
Fruits, Vegetables	2.4 x 2.4
Dry goods, Food groceries (Sari-Sari)	2.4 x 2.4
General merchandise	2.4 x 2.4
Cereals	2.4 x 2.4
Footwear	2.4 x 2.4
Groceries	3.6 x 2.4
Restaurant (Carinderia)	3.6 x 3.6
Dried fish	1.2 x 2.4
Misc.	2.4 x 2.4

(5) Standards for the number of stalls in a satellite public market, stall floor area by stall type and building dimensions

The satellite market is a smaller scale public market than the city and regional public markets previously described. The basic grid for this

satellite market is 6.0m x 6.0m = 36 m^2, with 4.8m clearance between columns. The maximum height of the building is 3.6m, and the basic number of stores which can tenant a grid is as follows:

Stall type	Criteria for the number of stall
A) Wet corner	6
B) Semi-wet corner	4
C) General merchandise	4
D) Clothing	2
Total	16

The following dimensions are the floor areas by industry type used by the above listed stalls:

Sections	Dimension (m)
Fish	1.2 x 1.2
Meat, Poultry,	1.2 x 1.2
Fruits, Vegetables	1.2 x 1.2

The number of stalls listed above is multiplied by the floor area for the relevant industry type, and the floor area of the market place is derived by adding 42-48% of the figure which was calculated for the stall floor space as customer corridors.

(6) Sample floor area calculation

Satellite Public Market

Floor space area per stall	1.2 x 1.2 = 1.44m^2
Floor space area for all stalls	16 x 1.44 = 23.04m^2 = 24.0m^2
Floor space area for customer corridors	24 x 50% = 12m^2
Satellite public market floor space area (stalls and customer corridors only)	24 + 12 = 36m^2

(7) Other facilities

In addition to the previously described stall floor area, the facilities which this module requires have the following specifications:

1)	Administration office	10m2/person
2)	Customer toilets	3.6m2/50 sales people (calculated as two sales people/stall)
3)	Carpark	Over 30% of the overall sales area
4)	Machine room (pumps and generators)	Minimum 16m2

(8) Design Specifications (See Appendix A - 30)

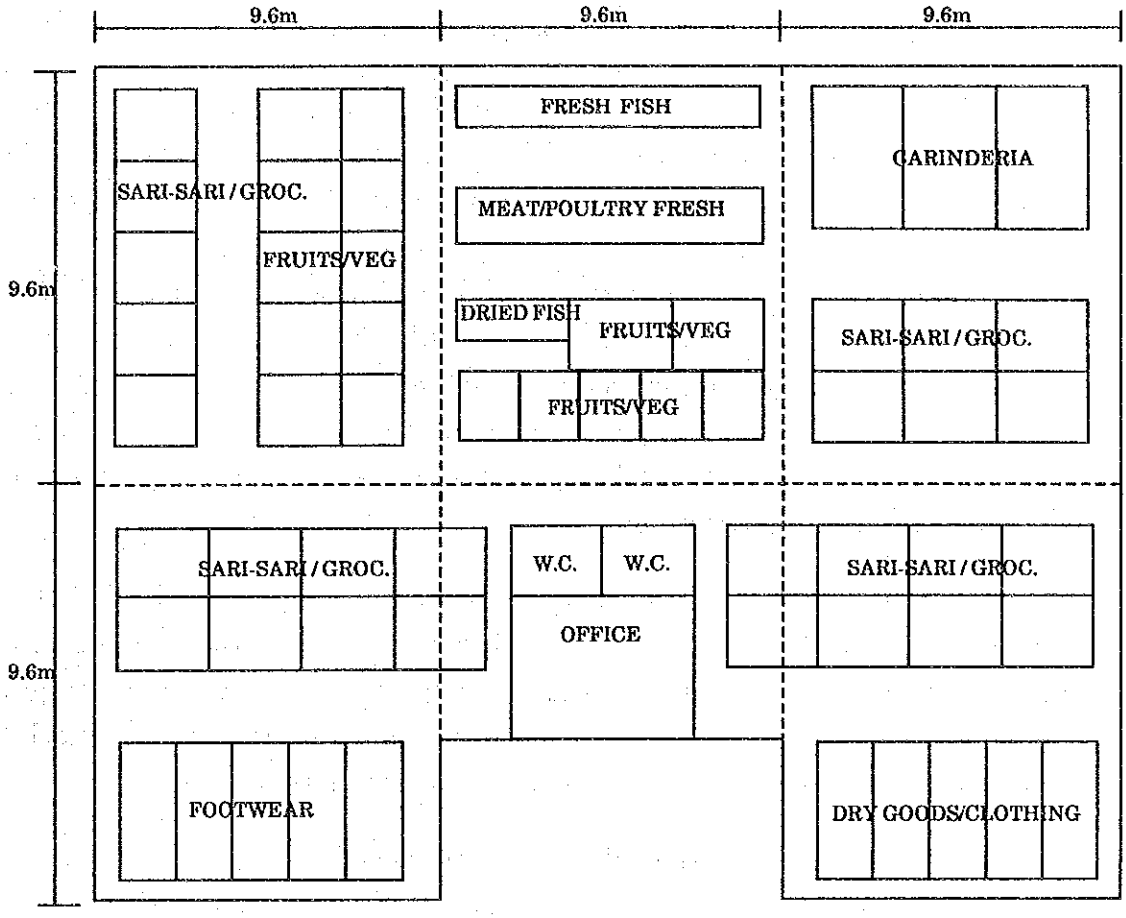
The public market design specifications have the following categories:

1)	Construction specifications	Column, Roof construction, Strength of all materials used
2)	Facilities specifications	Water supply, Drainage, Fire prevention, Toilet facilities, Electricity (add 30-50% of the existing electric consumption volume for future expansion capacity)

(9) Standard Stall Module and Market Design Drawing

There are standard stall module and market design drawings such as the example layout of a regional public market depicted in Fig. 5-2-1 below. There are also standard design drawings of each type of market in Appendix A-30.

Fig. 5-2-1: A 5.5 Module Regional Public Market



5 - 3 Basic Plan

5 - 3 - 1 Module Definitions

(1) Ideas Relating to Defined elements and basis of the module

From the details in Chapter 4 the following basic units, dimensions, configurations and so forth will be regulated and abstracted. These basic figures reference the requests and policy of the Government of the Republic of the Philippines (chiefly, the "Modular Approach" Guide to Local Government Units for the Restoration of Public Market Places), and define the dimensions and configuration of stalls which becomes the basic unit of measure for the market construction. Furthermore, the most appropriate architectural module dimensions are abstracted from an economical, technical, structural and functional viewpoint based upon the number of stalls which was pre-determined.

However, the method of regulation and abstraction is widely applicable as it produces a single dimension result based on a uniform viewpoint, a uniform procedure, uniform elements and a uniform foundation, but when implementing the project it is necessary to take into account the special characteristics (site environment, etc.) of each individual market.

A comprehensive study of the defined elements and basis of the module, was undertaken, and ideas relating to the module wer formulated as fillows. The unit of measures which were defined by the Philippines government in the "Modular Approach" will be used as the stall module dimensions. However, the building configuration does not adhere to the "Modular Approach".

1) Defined elements and basis of the stall module

(1) Distribution base	- Manufacturing, Transportation, Management, Maintenance, Structure, Size
(2) Sales, customer base	- Planning, Classifications, Proportions, Structure, Consumer trends
(3) Overall social and economic base	- Future development trends

(4)	Overall technical and information base	- Future development trends
(5)	Construction base	- Future development trends - "Modular Approach" - Details of the request

2) Ideas Relating to the Use of Modules in the Project

The structural element of the store module of a public market is 1.2m. Furthermore, the type of market has been divided into three types (city, regional or satellite) depending upon the population of the region, but the scale of market facilities and type of market is automatically decided by the number of store units, which is the basic structural element of the market, and the capacity and usage of the market. Thus, there is no particular reason why the above detailed three types of markets need to be used, and the scale of the stores and the store module should be flexible. The markets which are the subject of this project are the Central Markets of large areas extending into other provinces or to other islands, so if the size population of the served by the market as a distribution base for products and the scale of the market is strictly sorted, the markets are classified in the urban market category.

(2) Definition of Module Dimensions

1) Unit of measure for stalls

As the result of studies carried out as per (1) above, the unit of measure will be defined as being 1.2m and 12m (multiples of 1.2).

2) Unit of measure for construction

As the result of studies carried out as per (1) above, the unit of measure will be defined as being 1.2m, 2.4m, 12m and 14.4m (multiples of 1.2).

(3) Structural elements and units of measure for the markets

As the result of studies carried out as per (1) above, the units of measure for each category of stall are summarized in table 5-3-1 below. These dimensions do not adhere to the three types of market place (city, regional and satellite) which were established by the Ministry of Interior and Local Government and detailed in the "Modular Approach" report, but are units of

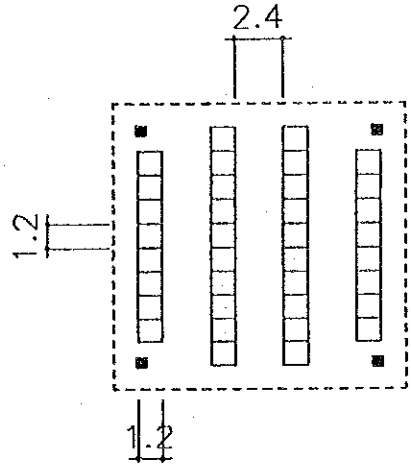
measure which can be jointly used in the construction modules for all market places.

Table 5-3-1 Stall Category and Unit of Measure

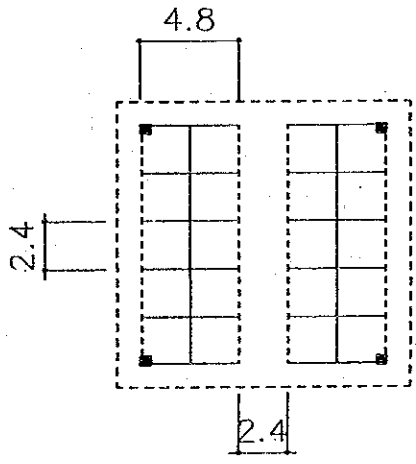
	Structural Element	Unit of Measure (m)
1)	Fish	1.2 x 2.4
2)	Meat/Poultry	1.2 x 2.4
3)	Fruits, Vegetables	2.4 x 2.4
4)	Dry goods, Food groceries(Sari-Sari)	2.4 x 2.4 to 2.4 x 4.8
5)	General merchandise	2.4 x 2.4 to 2.4 x 4.8
6)	Cereals	2.4 x 2.4 to 2.4 x 4.8
7)	Footwear	2.4 x 2.4 to 2.4 x 4.8
8)	Clothing	2.4 x 2.4 to 2.4 x 4.8
9)	Restaurant (Carinderia)	3.6 x 4.8
10)	Disposal of goods, Auctions	Appropriate for store size
11)	Auxiliary facilities, Equipment	Appropriate for store size
	(1) Toilets, Clean water outlet	(3.6m2/50 sales people)
	(2) Administration office	(10m2/person)
	(3) Machinery equipment room	(minimum 16m2)
	(4) Water outlet	(Appropriate size)
	(5) Ice house, Cold storage	(Appropriate size)
	(6) Rubbish treatment facility	(Appropriate size)
12)	Miscellaneous	Appropriate for store size
	(1) Carpark	(Over 30% of the total sales floor area)

(4) Standard plot plan drawing for the stalls: Fig.5-3-1

1) Fish 2) Meat



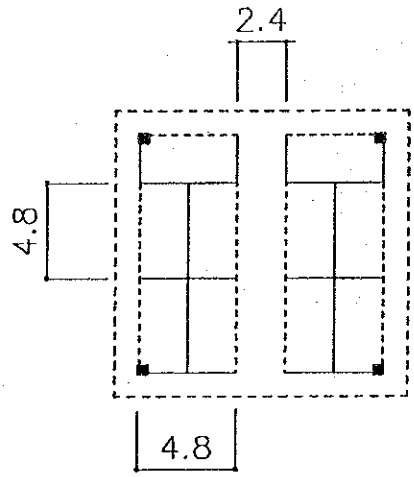
3) Vegetables, Fruit

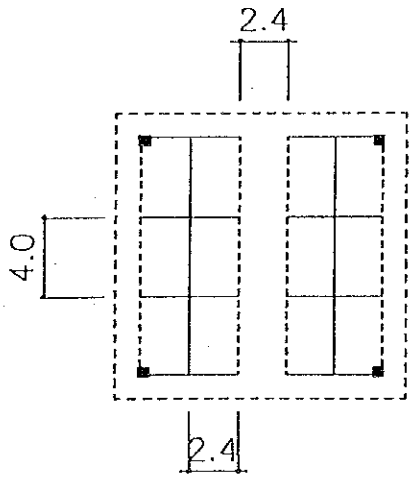


4) Dry goods, Food groceries

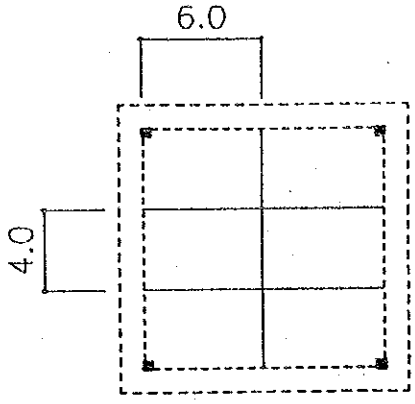
5) General merchandise

6) Cereals 7) Footwear 8) Clothing



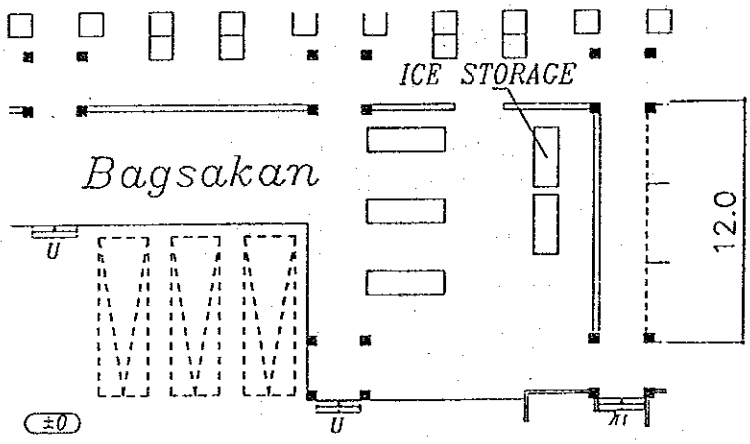


9) Restaurant (Carindelia)

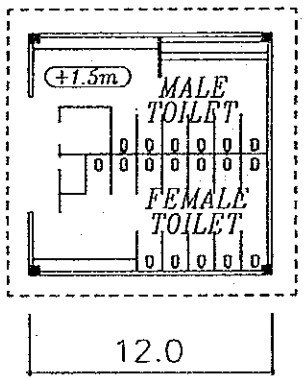


10) Disposal of goods, Auctions

11) (5) Ice house, Cold storage



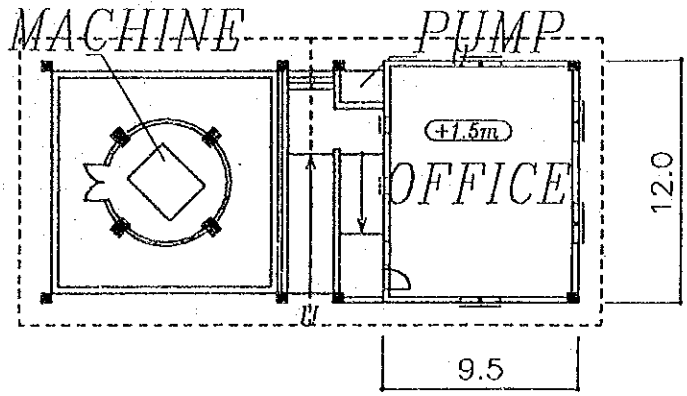
11) (1) Toilets, Clean water outlet



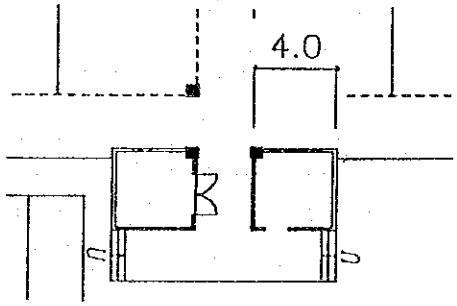
11) (2) Administration office

(3) Machinery equipment room

(4) Water outlet

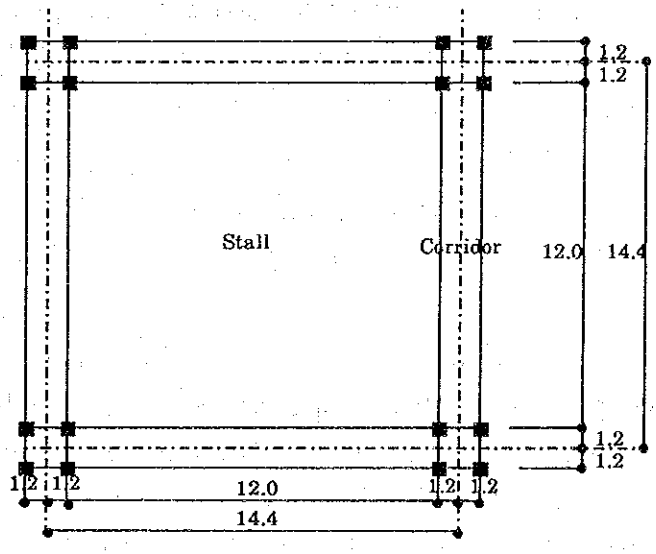


11) (6) Rubbish treatment facilities



(5) Standard floor plan dimensions for the building: Fig. 5-3-2

With reference to the structural element used for stores and auxiliary facilities, the standard dimensions for the building floor plan will be defined as follows:



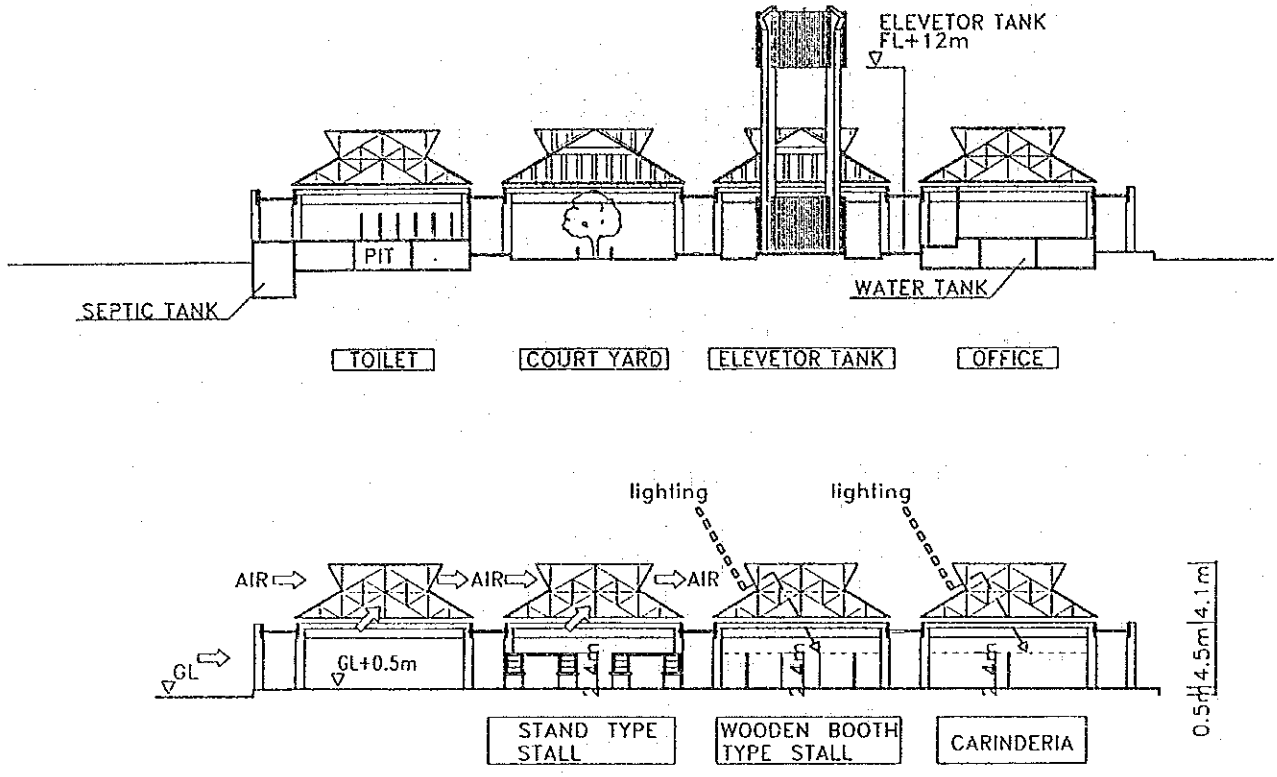
The area of 1 unit is
14.4m x 14.4= 207.36m^2

(1) Sales area: Set to 12.0m x 12.0m (building span 12.0m x 12.0m)

(2) Corridor area:An section of the sales are 2.4m wide will be allocated (the joint section of the building is 2.4m wide)

(3) Reinforced concrete construction columns and beams, with a wooden trust framework and sheet iron roofing.

(6) Standard cross section : Fig. 5-3-3



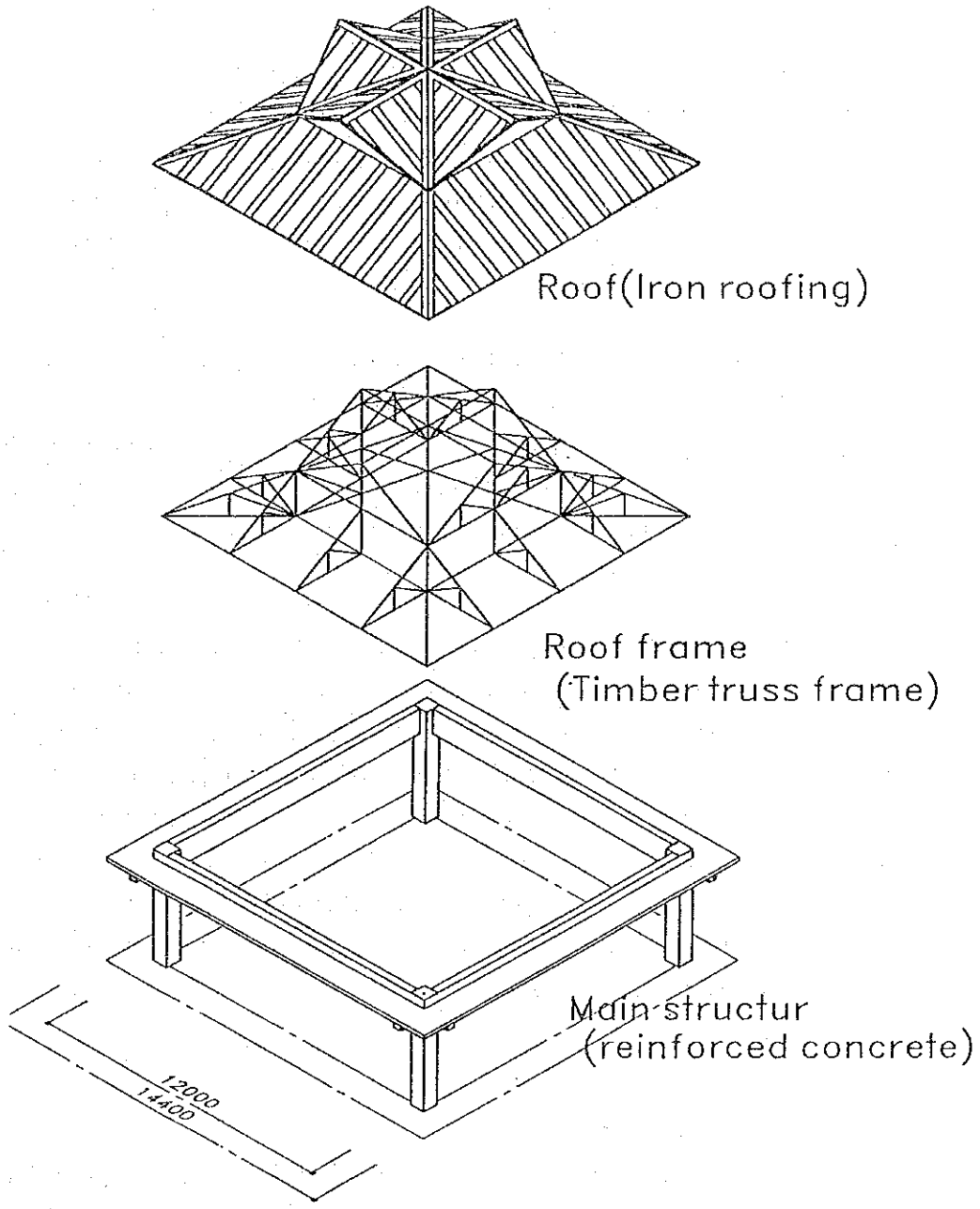
① The floor level of the sales area will be set to GL + 0.5m. This will allow an adequate drainage gradient and will also avoid flooding.

② The floor level of the administration office will be set to the floor level of the sales area + 1.0m (GL + 1.5m), and the water inlet tank will be located underneath. The building will be constructed so that in the case when the market water pump stops (due to a power outage) it will be possible to directly draw water from a tap built into the pit.

③ The floor level of the toilet facilities will be set to the floor level of the sales area + 1.0m (GL + 1.5m), and a piping pit will be located underneath. This will allow an adequate drainage gradient and will also avoid bad drainage.

④ The 14.4m grid will be set as the construction unit of measure, and standardized lighting, ventilation and rain water drainage will be provided for in each block. At the same time as establishing a uniform indoor environment, by using standardized construction materials it will be possible to efficiently mass produce buildings of uniform quality by using standardized construction methods.

(7) Building structural configuration: Fig. 5-3-4



The 14.4m by 14.4m grid will be set as the unit of measure, and the project will consist of an assembly of these units. Furthermore, the construction will be reinforced concrete columns and beams, with a timber truss frame work and sheet iron roofing, and except for the foundations and flooring planks the all the buildings will be of uniform specifications.

(8) Market building structural plan

1) General

There are three types of structures being utilized in the existing buildings; timber construction, reinforced-concrete columns with timber truss construction, and reinforced concrete columns with steel truss construction. These different types of construction are used according to the scale of the building and plot of land.

A typical stall module, which is also the typical structural module, are displayed in the guide lines for public market place restoration. However, there ends up being a great number of columns in this module, and there are many restrictions imposed on the floor plan, so a wide span structural module will be defined (See 4-3-1, (4)).

In this project the concept of utilizing steel structure work to attempt to realize the wide span module and to reduce the construction period could be adopted, but steel corrodes and there are problems with transportation, etc. on Mindanao Island. Thus, taking into consideration the local conditions, the building construction will be reinforced concrete fabric based on the conventional construction method with the roof made from timber truss construction. The roof will be aluminized iron sheet roofing. This material is extremely superior to other materials for maintenance and heat insulation capabilities, but it is still difficult to source locally.

2) Structural plan

① Basic concepts

The constructio materials used will take into sufficient consideration preventing harmful cracks or warping of beams and floor vibration damage from occurring when the building is put into use the materials will also ensure that the building also does not lack durability to withstand earthquakes and storms, and the economic viability of the building including the ability to implement construction locally and to be able to undertake building maintenance and operation.

② Structural design standards

These will basically conform to Philippine calculation standards

③ Construction method and materials to be used

The construction methods generally used for local construction are reinforced-concrete, timber and reinforced concrete block construction. A variety of quality can be seen in domestically produced major construction materials such as timber, cement, steel and so forth, so it will be necessary to pay attention when utilizing these materials.

- Concrete:
  - Cement
    The quality will be confirmed by performing concrete compression tests, etc.
  - Aggregate
    Procurement will be done locally, and use materials which do not contain salinity.
- Steel: Structural design will conform to Philippine calculation standards, but materials will be used after the quality and accuracy has been confirmed.
- Timber: Insect resistant, corrosion resistant treated timber will be used.
- Concrete blocks:
  These will be produced locally. Construction-use grade concrete will be used.

④ The ground and foundation construction

The ground strength and soil type for each of the project sites (3 market places and 1 slaughter house) are listed in table 5-3-2 below.

As the roof is light and the structure is not high, the planned building will be constructed directly on the foundations. The soil at the Car Car site is soft and weak, there is a fear that subsidence will occur to a greater or lesser degree due to various reasons such as seepage of subterranean water, so the

configuration of the building will need to take into account maintaining the overall balance. In order to achieve this balance, the constructed floor slab will provide rigidity for the floor surface.

Depending upon the location there are places containing ground fill soil and places with differing ground levels, so suitable plate loading tests will be formed before the construction begins, and the soil bearing capacity will be ascertained.

Table 5 - 3 - 2 Soil and soil bearing capacity of each site

			Soil	Permissible soil bearing capacity
1.	Danao	Market	light brown plastic clay	5,688
2.	Oroquieta	Market	dark gray organic clayey silts	5,500
3.	Sapang Daraga	Market	raddish brown semi plastic clay	8,000
		Slaughter house	"	9,000

⑤ Design load

(a) Dead load (G)

The loads of the strucuture, finishing materials, and equipment will be individually calculated. The unit weights of the main structural materials will be as follows:

- Concrete 2.3 ton/m3
- Reinforced concrete 2.4 ton/m3
- Mortar 2.0 ton/m3
- Concrete block (19cm x 19cm x 39cm) 2.3 ton/m3
- Timber (Oregon pine, etc) 0.42 (Specific gravity)

(b) Loading capacity (P: kg/m2)

The calculation standards basically conform with the Philippine construction standards, but the roof will be a non-

pedistrian area, so be loaded only at the time of construction and inspection.

	Slab, sub-beams	Columns, beams, foundations	Earthquakes
Roof	60	60	40
Market, slaughter house	300	180	80

(c) Wind load (W)

The Philippines is frequently struck by typhoons, the same as Japan, so the same loading calculations that are used in Japan will be utilized.

$W = Cq$ C: Wind force coefficient

q: Speed pressure (kg/m^2)

$q = 60\sqrt{h}$

h: height (m)

(d) Earthquake load (K)

The Philippines are similar to Japan in that it is located in a siesmically active region. According to scientific chronological tables several earthquakes registering more than 6.0 on the Richter scale occurred in 1990. As with the wind load, the same calculations that are used in Japan for earthquake loadings will be utilized.

$Q1 = C1 \times W1$ Q1: Earthquake layer shearing strength

C1: Earthquake layer shearing strength coefficient of 1 level

W1: Building load of 1 level and higher

$C1 = Z \times Rt \times A1 \times Co$

Z: Regional coefficient = 1.0

Rt: Vibration characteristic coefficient = 1.0

A1: Earthquake layer shearing strength spread coefficient

C0: Standard shearing strength coefficient = 0.2

(e) Combination of loads

Design load for long-term use (permanent)

Dead load (G) + Loading capacity (P)

Design load for short-term use (for strong winds and earthquakes). Whichever is the greater of:

(G) + (P) + Wind load (W)

(G) + (P) + Earthquake load (K)

⑥ Admissible stress of main structure materials (kg/m^2)

Material	Standard	Permissible long-term			Permissible short-term		
		Stress level Compract-ion	Traction strength	Shearing strength	Stress level Compract-ion		Shearing strength
Concrete	Fc180	60	–	6	120	–	9
Steel	SD30	2,000	2,000	2,000	3,000	3,000	3,000

Salt contained in concrete aggregates will be washed off to prevent salt-air damage, so that the total salt content of the concrete will be kept below 0.3kg/m^3.

(9) Auxiliary facilities and finishing work

For all markets the volume and pressure of the water supply is insufficient, and the lack of water is the cause of unhygienic conditions, so an elevated reservoir tank and reservoir tank will be installed. The sales stalls in the wet section will be constructed from concrete with tiled facings which can be washed down with water. Furthermore, the floor will be installed 30-45cm above ground level, and the floor finish will be mortar with trowel, so that it can be washed. A drainage pit will be installed in the market place in a way that it can be kept clean. The partitions between the restaurants will be constructed from concrete blocks as water and fire will be used, and the partitions for other stalls will be constructed from timber, taking in account for future relocations and resizing, etc. The sloping ramps will be installed in the main corridors, toilets and the administration office corridors for handicapped people and so that goods can be transported.

The height of the slaughter house hanger rail will be as per the specifications in the "Slaughter House" engineering guidelines. Metal parts

will be installed in areas close to the sea, so sufficient rust prevention painting will be performed.

(10) Toilet facilities

The design for toilet facility will be as per the specifications detailed in the Department of Local and Interior Governments "Modular Approach" for public markets. In order to ensure an adequate drainage gradient the toilets will be installed at a height +1.0m above the sales area floor. Toilets for handicap use and sloping ramps will also be installed.

(11) Rubbish areas

The rubbish area will be partitioned off by a wall 1.8m high, and a water tap will be installed so that the area can be washed out. The rubbish area will also be constructed and positioned in an area so that rubbish collection vehicles can draw up along side.

(12) Electrical facilities

In this project, electricity will be drawn from the electrical power supply, and electricity will be distributed from power distribution boards located in administration office or in other suitable locations. The general sales area will be illuminated at 150Lx and the toilets above 50Lx. The area above the corridors will be used as a rack for wiring and piping, and power will be supplied systematically and reliably.

(13) Water supply facilities

City water supply is being supplied to the one-story building so a direct connection pipe will be possible, but the water pressure and volume is inadequate so reservoir and elevated water tanks will be installed. Water will be supplied systematically and reliably to each store using the piping rack installed in the ceiling above the corridor area. This method is also effective for maintenance, management and future expansion, relocation and so forth.

(14) Drainage facilities

The drainage facilities within the market will be as accessible and as easy to clean as possible, and covers will be installed in the customer flow areas. Rain water and drainage water from within the market will be drawn off

through a drainage gutter close to the site, and sewage will be discharged after it has been treated by the sewage system.

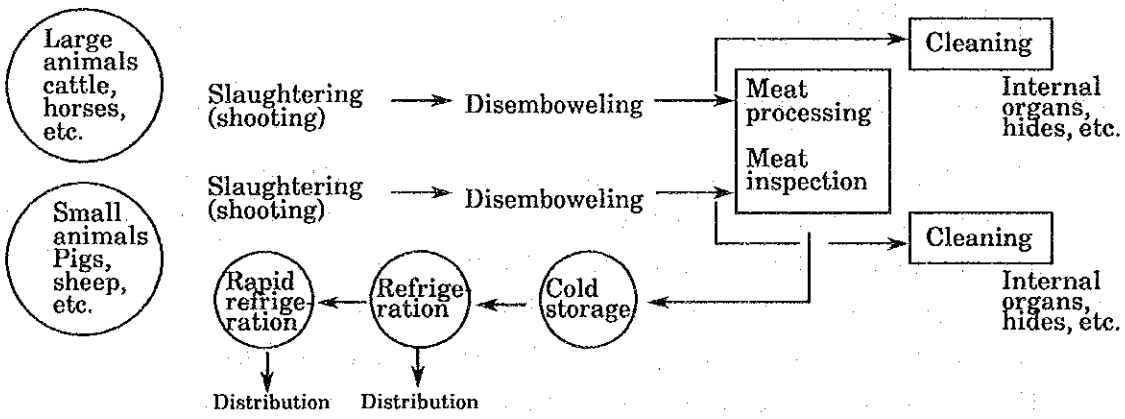
(15) Slaughter house

The engineering guide lines for slaughter houses in the Philippines was produced by the National Meat Inspection Commission, the National Accident Prevention Committee and the Immigration Regulation Committee in September 1987.
The engineering guidelines detailing the methodology for selecting sites and application forms accompanied by drawing scales, points to pay attention to when designing, specifications, facilities designs, construction designs, finish tables, animal holding pen facilities, overall guidelines, details about opening the building, necessary equipment and machinery, etc. As the conditionals are legally defined in a detailed manner, the design is basically in accordance with these guide lines. (See Fig. 5-3-6)

Furthermore, there are also additional drawings attached of an annex type facility.

1) Slaughter house plan

Generally speaking, meat processing in Japan is undertaken as per the following flow diagram:



The scale of the facilities is determined by the number of head processed per day, but generally speaking it is possible for the treatment process workers to manual process up to about 50 head per day. This project falls within the range of what can be processed manually.

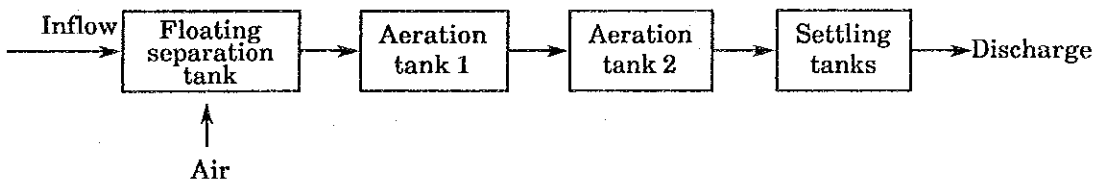
The size of the meat inspection area is closely related to the Philippines food hygiene regulations, and it is necessary to receive approval from the Ministry of Agriculture, National Meat Inspection Commission which is the competent authority. (For reference, in Japan meat inspection is immediately performed after the meat processing, so a large space is not required.) Furthermore, a space of 3.0m per head between hangers is generally adequate for larger animals and 1.0m to 1.2m per head for smaller animals.

An area for the storage of internal organs and hides will be required in an auxiliary room. After items apart from meat, such as internal organs and hides, have been processed, they are washed with hot water and stored in salt to prevent rotting until the hide processing contractor, etc can come and collect them. Furthermore, the blood which is produced during the course of the treatment process can be used in cosmetics, fertilizers, etc., also sold in the market so a storage space is also required in the same manner until the contractor can come and collect the products.

2) Drainage treatment facilities

In Japan during the course of the treatment process 3.5m^3 of water is used for each large animal and 1.2 - 1.3m^3 for each smaller animal, and facilities to treat the water will be required. The method of treatment is different as the water quality is not the same as household waste water, and the discharge water quality is ensured by a somewhat complicated chemical processing.

The following outlines the treatment flow used in Japan:



The waste water is adulterated with large volumes of fat particles and solid matter, so after the separation of solid and liquid by using a pressure floating system as a pre-processing, it will be possible to process the waste water to BOD 20ppm using the activated sludge method. This is the ideal processing method which is suitable from the point of view of the environmental protection.

But, if one takes into consideration Philippines design standards inforce and the situation in similar facilities as well as the project sites, biological processing will be more appropriate for this Project. Accordingly, the facilities will be designed in accordancewith Philippines standards; that will pose very few problems at the current stage.

Fig. 5 - 3 - 5 Longitudinal Section of Bio-Gas Plant

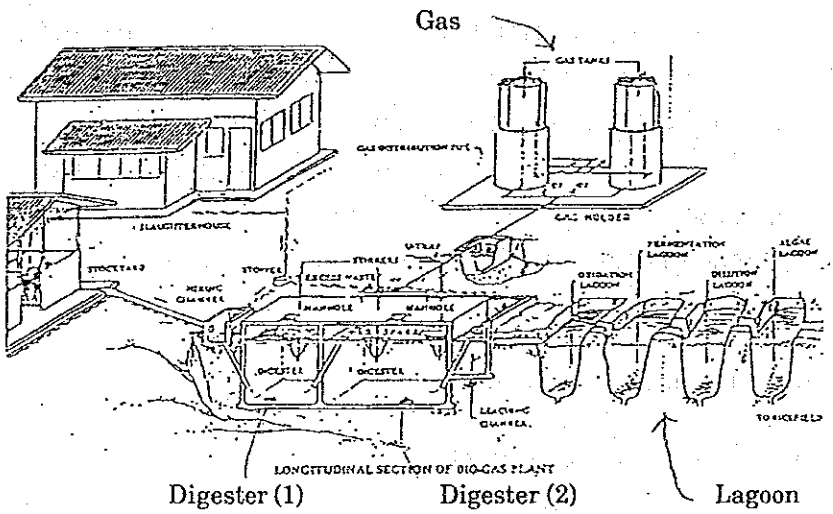
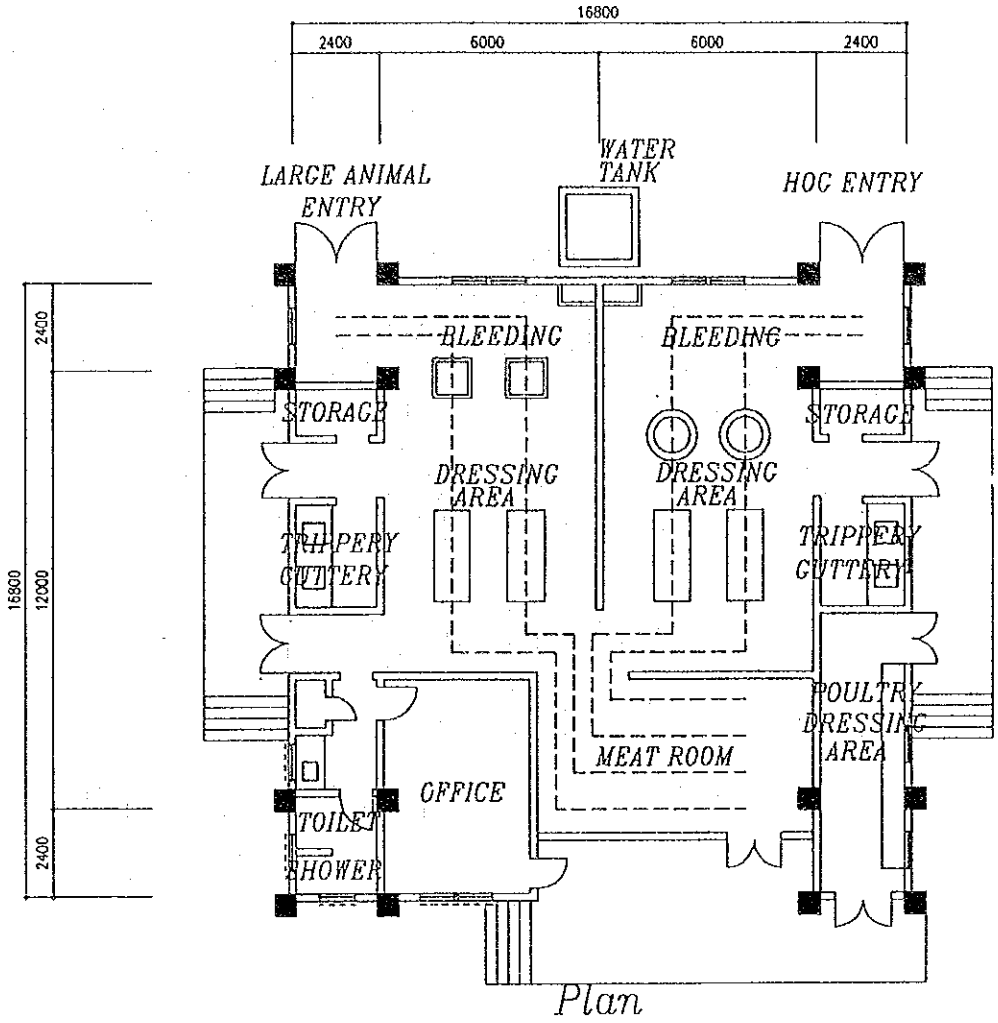


Fig 5 - 3 - 6 Standard Plan of a Slaughter House

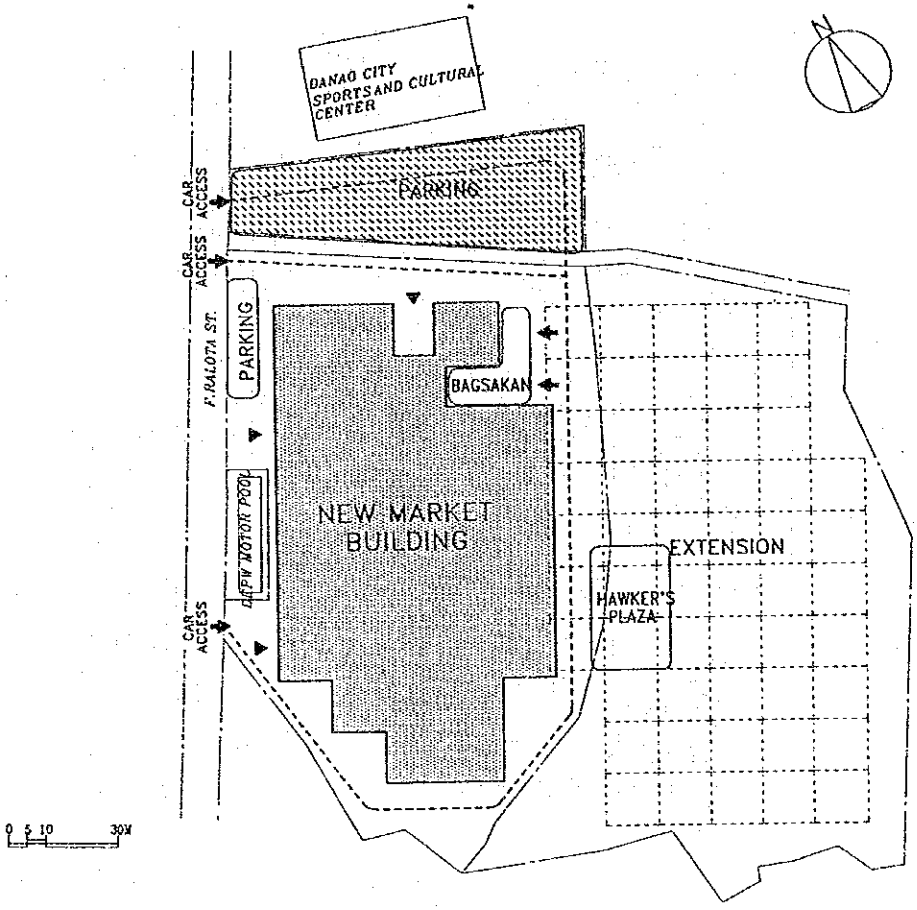


5 - 3 - 2 Construction Plans for Each Market

1. Danao Market

(1) Site Usage Plan

Fig. 5 - 3 - 7



① The site can be approached from two directions and both sides will be used. The intersection of the path of flow of administration, customers and vehicles will be noted so not to obstruct the overall functionality of the market place.

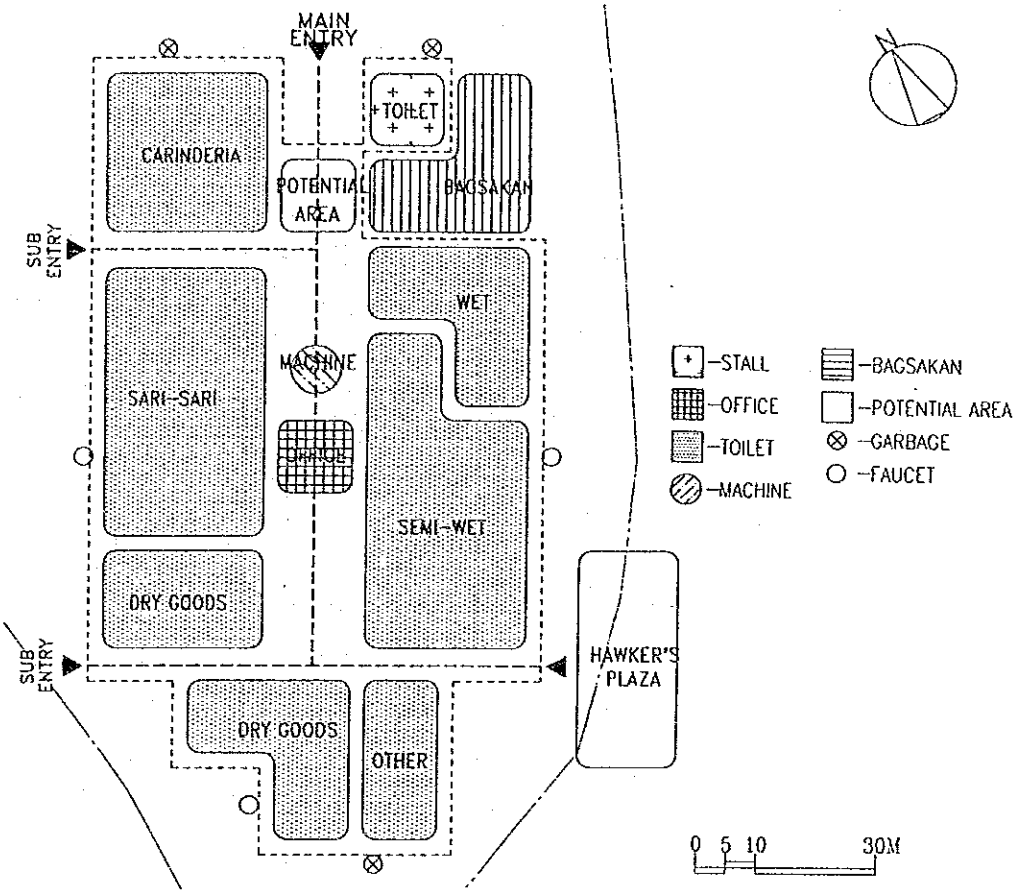
② The floor level of the sales area will be set to GL + 0.5m in order to ensure an adequate drainage gradient.
The floor level of the toilet facilities will also be set to the floor level of the sales area + 1.0m (GL + 1.5m) for sewage processing and drainage. The drainage pipes will be installed to run along the site boundaries, so that there can be suitable the drainage gradient which is not obstructed by other facilities.

③ The heavy construction equipment yard which faces the road in front of the market, obstructs the main entrance to the market, so the main approach is from the car park facing the river. Furthermore, this approach will also be suitable for the future planned expansion (to be used for road side stalls for the moment) at the back of the facility.

(2) Building Plan

1) Floor planning (Store zoning plan, Floor plan)

Fig. 5 - 3 - 8



① Clearly defined indoor path of flow and zoning

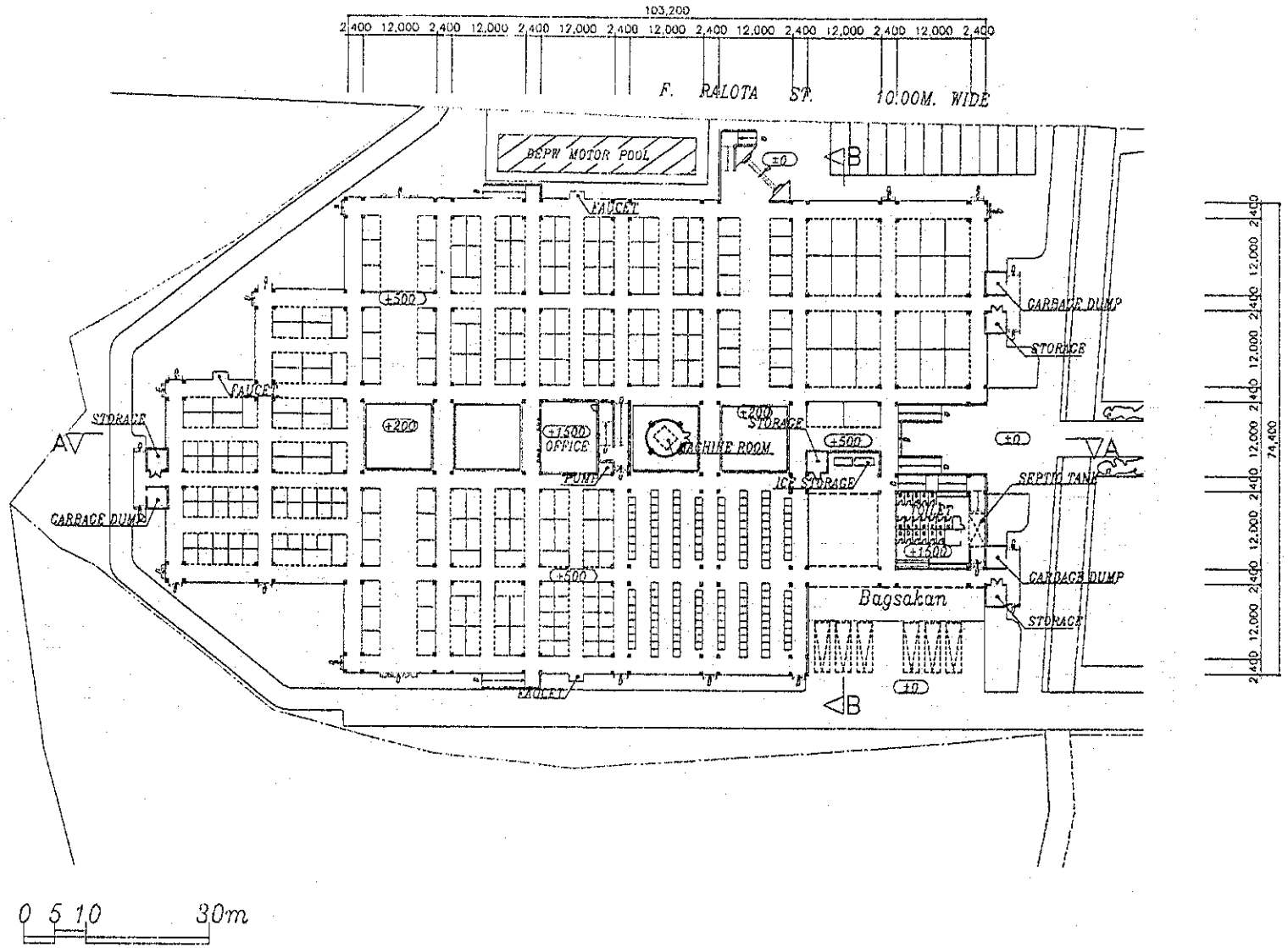
② Maintain the environment in the central section of the building (ventilation, lighting, hygiene, etc)

③ Zoning which is logical and easy to administer.

④ The floor level of the toilets will be set to a height of GL + 1.5m to ensure an adequate drainage gradient

⑤ The floor level of the administration office will be set to a height of GL + 1.5m (sales floor level + 1.0m) so that an incoming water supply tank and pump room can be installed under the office floor, and so that market can be easily observed from the office.

⑥ Overhead water supply tank and an incoming water supply tank will be installed in the center of the building so that a gravity-driven water supply system can be installed


193.200
2,400 12,000 2,400 12,000 2,400 12,000 2,400 12,000 2,400 12,000 2,400 12,000 2,400 12,000 2,400
F. RALOTA ST. 10.00M. WIDE
DEPW MOTOR POOL
±0
B
FAUCET
±500
GARBAGE DUMP
STORAGE
FAUCET
A
STORAGE
±200
±1500
OFFICE
MACHINE ROOM
±200
STORAGE
±500
±0
A
PUMP
ICE STORAGE
SEPTIC TANK
GARBAGE DUMP
±1500
±500
Bagsakan
GARBAGE DUMP
STORAGE
FAUCET
B
±0
74.400
0 5 10 30m

2) Facilities Plan

① Electrical facilities

- The electrical Power Supply will be drawn from a 13.2kv AC line which runs along the road in front of the market, and this will be connected to the transformers.
- Base lighting fixtures will be installed within the compound and these will provide illumination over 100ℓx.
- Small meters will be installed in each block or for each tenant, and the individual power consumption for each user will be calculated.
- An announcement broadcast system will be installed in the building.
- Emergency alarm systems will be installed in each block.
- A lightning road will be installed on top of the overhead water supply tank.

② Water supply facilities

City water will be supplied from the road running in front of the market. Water will be supplied to necessary locations by a gravity feed system after passing through a 100m^2 inlet tank and a 20m^3 over head water tank

③ Waste water facilities (refer to 5-3-1 Module Definitions)

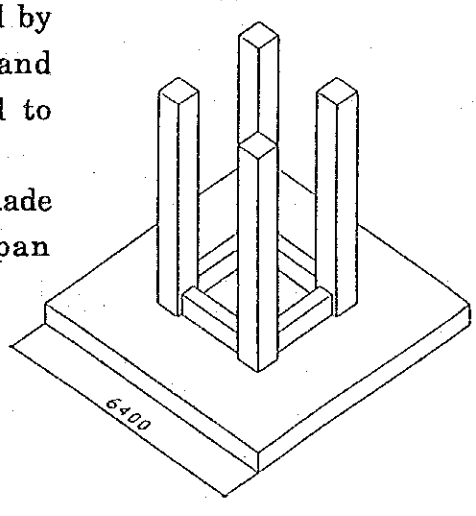
Sewage will be processed in decomposition tanks as shown in the "Modular Approach", and the waste water will then be discharged into the public sewage system runing along the road in front of the market.

3) Cross section, structural and building materials plan

① Configuration of the Foundations.

Each column will be supported by an independant foundation, and sub-beams will only be used to connect the short span (2.4m).

② An independant foundation is made by joining the four short span colums.



4) Floor area table – Table 5 - 3 - 3

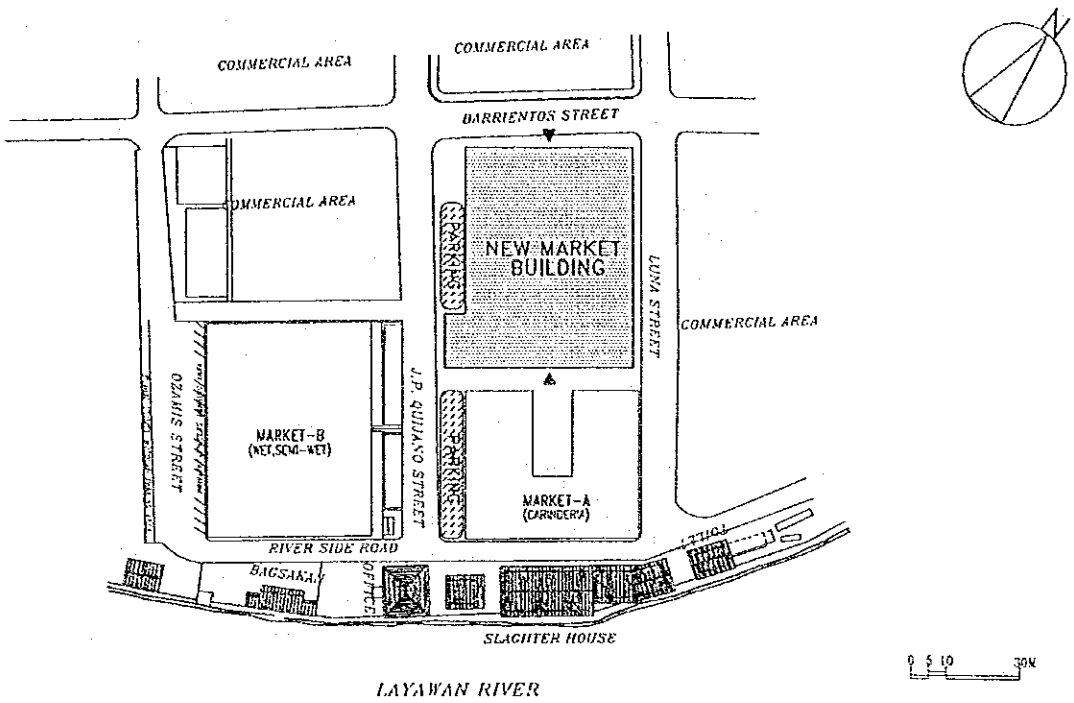
Name : Danao Market
Building Location : Danao City
Site Area : 17,503.75m²
Building Area : 7,829.91m²

				Planned floor area (m²)	Basis for Estimation			
			Sales Counter		Unit to be utilized	Esti-mated No. of stores	Plann-ed No of stores	Comments
Indoor Section	Sales Section	WET Section	Fish	236.16	1.2m×2.4m 2.88m²	103	82	as for the Modular Approach
			Meat	74.88	1.2m×2.4m 2.88m²	33	26	"
		SEMI-WET Section	Cereals	506.88	2.4m×4.8m 11.52m²	57	44	"
			Vegetables/ Fruits	126.72	2.4m×2.4m 5.76m²	28	22	"
			Dried fish	103.68	1.2m×2.4m 2.88m²	34	36	"
		GEN-MERCH Section	Clothing Footwear	541.44	2.4m×4.8m 11.52m²	59	47	"
			Groceries, Food stuffs, daily goods	729.60	2.4m×4.0m 9.6m²	99	76	"
		Cafeteria		576.00	4.0m×6.0m 24.0m²	78	24	"
		Other		253.44	2.4m×2.4m 5.76m²	60	44	"
		Total		3,148.80		500	401	
	Administrative and Common Areas	Administration Office		114.00	10m²/person	Staff 15×10m²=150m²		
		Potential Area		72.00	0.30m²/store	0.3×401stores=120.3m²		
		Ice house Area		57.60				
		Toilets		144.00	Standard unit 12m×12m	Because of limitation of drain grade 1 location 1 unit		
		Equipment machinery room		10.00		Pump1.5m×0.7.m×2+Inspection corridor 0.6m		
		Storage		12.96	0.13m²/store	0.13×401stores=52.13m²(+Outdoor 51.84m²)		
		Corridors		4,270.55	Corridor Width 2.4m	so that carts can pass by each other		
	Building Area TOTAL			7,829.91				
Ancillary Facilities	Unloading dock, Auction area			464.75	Sales counter area 10%	Modular approach estimate area 7415m²/10=741.5m²		
	Equipment machinery Room			38.47		Transformers 3m×5m+Inspection corridor 1.2m		
	Rubbish collection Area			38.88	0.064m²/store	0.064×401stores=25.66m²		
	Storage			38.88	0.13m²/store	0.13×401stores=52.13m²(+ Indoor 51.84m²)		
	Water outlet			8.64	1location/10units	35units/10=3.5 3 locations(1 location 2.88m²)		
	Corridors (Stairs, slope etc.)			220.99				
	TOTAL			810.61				
Slaughter House				—	—			

2. Oroquieta Market

(1) Site Usage Plan

Fig. 5 - 3 - 9



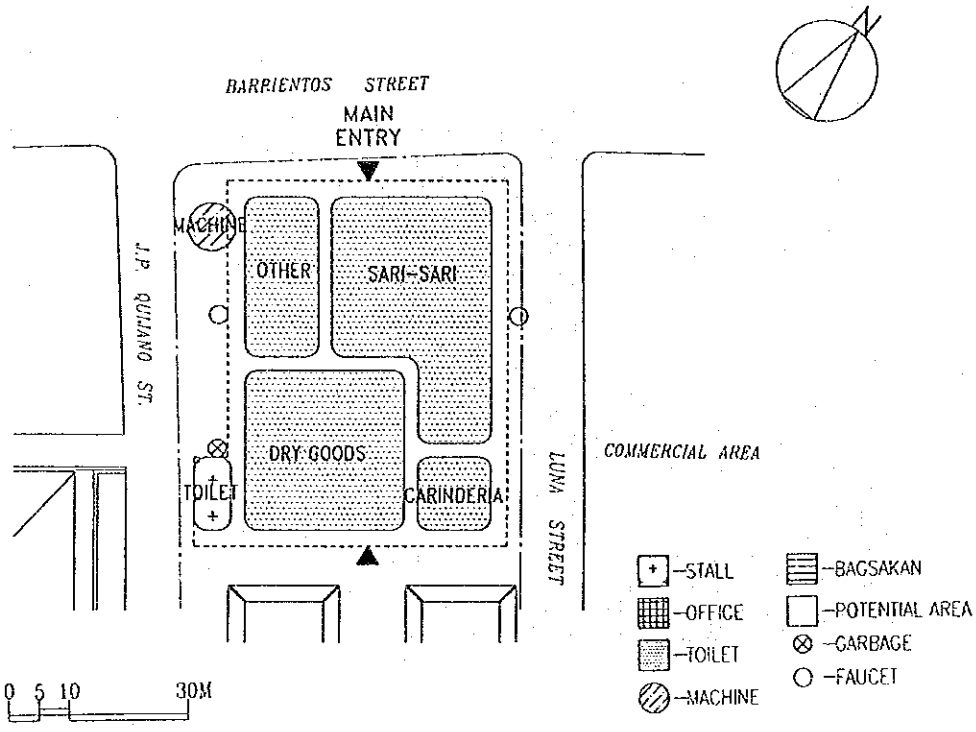
① The market consists of 4 blocks; Market A, Market B, the Project market and area along side the river containing the hawker's area, toilets and the slaughter house related facilities.

② It was planned to demolish the slaughter house and relocate it to an alternative site, and use the site for road side stalls, but an alternative site for the slaughter house to relocate to could not be prepared so it was removed from the project (the slaughter house will be left in its existing state.)

(2) Building Plan

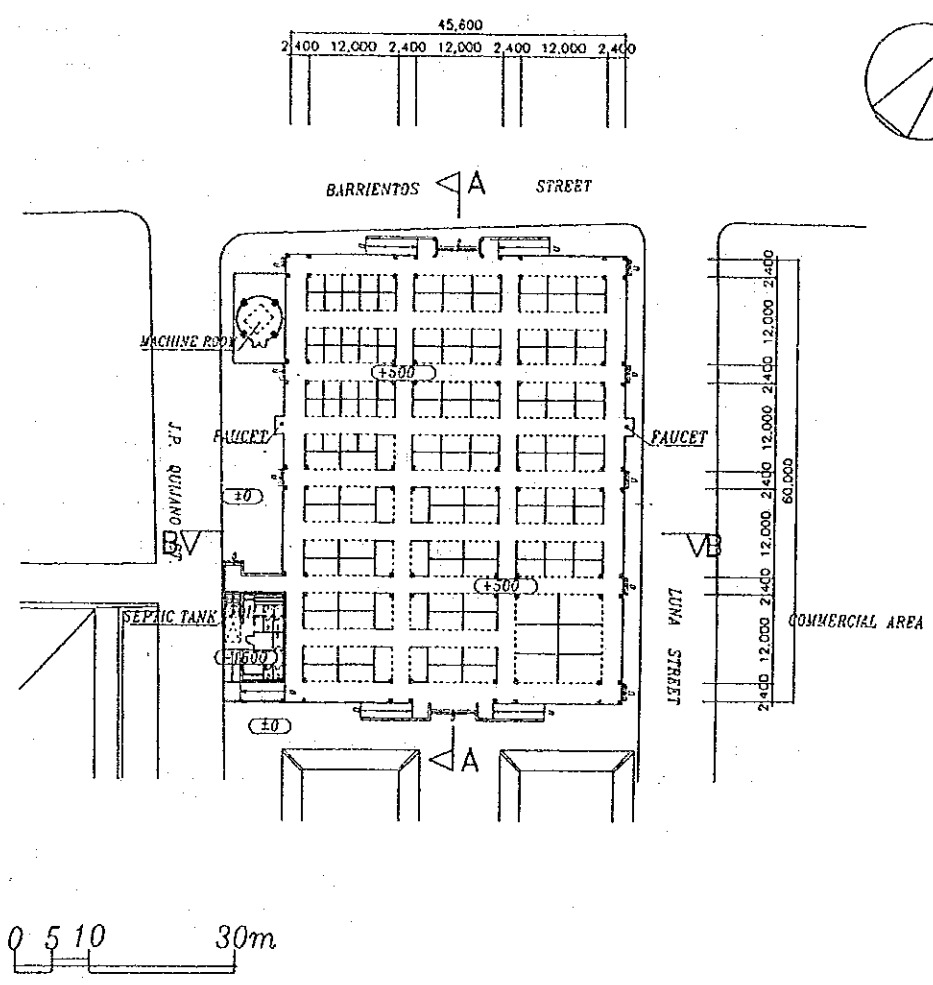
1) Floor planning (Zoning plan, Floor plan)

Fig. 5 - 3 - 10



① Basically the same specifications as Lapu-Lapu and Danao Markets

② As the slaughter house can not be relocated, the plans for the road side stalls will be removed, and the stalls will be left as it.


45,600
2,400 12,000 2,400 12,000 2,400 12,000 2,400
BARRIENTOS STREET
A
MACHINE ROOM
+500
FAUCET
FAUCET
J.P. QUIANO ST.
±0
B
V
SEPTIC TANK
+600
+500
±0
A
V
B
LUNA STREET
COMMERCIAL AREA
2,400 12,000 2,400 12,000 2,400 12,000 2,400 12,000 2,400
60,000
0 5 10 30m

2) Facilities Plan

① Electrical facilities

- The electrical Power Supply will be drawn from a 13.2kv AC line which runs along the road in front of the market, and this will be connected to the transformers.
- Base lighting fixtures will be installed within the compound and these will provide illumination over 100ℓx.
- Small meters will be installed in each block or for each tenant, and the individual power consumption for each user will be calculated.
- An announcement broadcast system will be installed in the building.
- Emergency alarm systems will be installed in each block.
- A lightning road will be installed on top of the overhead water supply tank.

② Water supply facilities

City water will be supplied from the road running in front of the market. Water will be supplied to necessary locations by a gravity feed system after passing through a 100m^2 inlet tank and a 20m^3 over head water tank

③ Waste water facilities (refer to 5-3-1 Module Definitions)

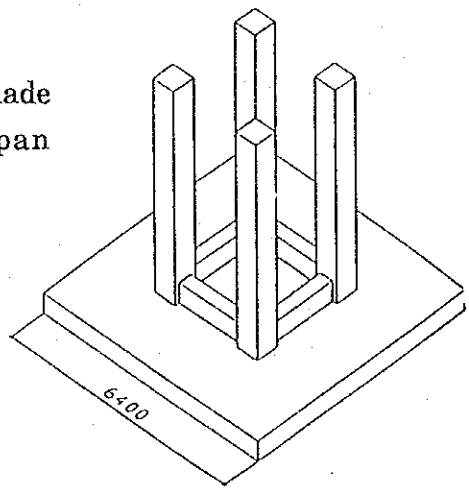
Sewage will be processed in decomposition tanks as shown in the "Modular Approach", and the waste water will then be discharged into the public sewage system runing along the road in front of the market.

3) Cross section, structural and building materials plan

① Configuration of the Foundations.

Each column will be supported by an independant foundation, and sub-beams will only be used to connect the short span (2.4m).

② An independant foundation is made by joining the four short span colums.



4) Floor area table — Table 5 - 3 - 4

Name : Oroquieta Market
Building Location : Oroquieta City
Site Area : 3,965.50m²
Building Area : 2,916.02m²

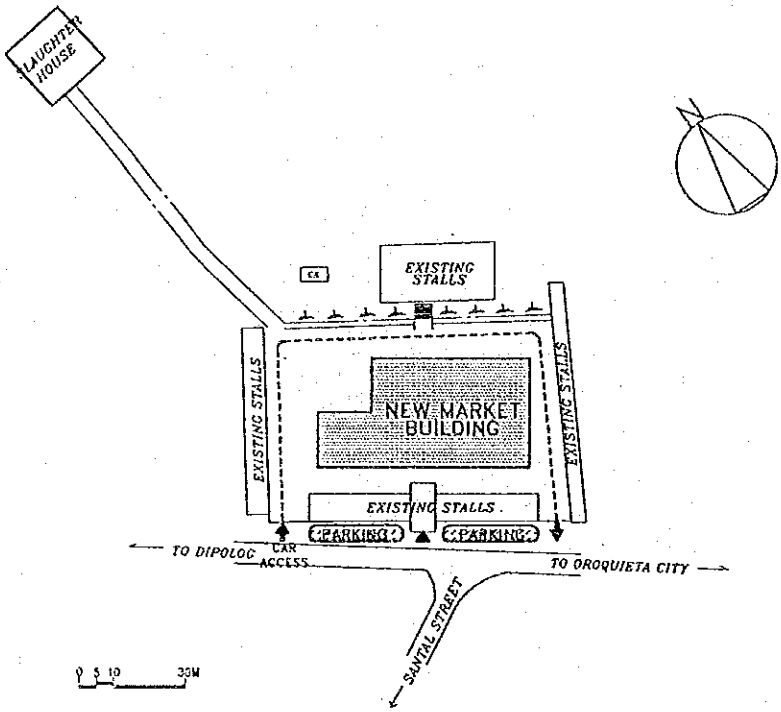
				Planned floor area (m²)	Basis for Estimation			
			Sales Counter		Unit to be utilized	Estimated No. of stores	Planned No of stores	Comments
Indoor Section	Sales Section	WET Section	Fish	–	1.2m×2.4m 2.88m²	–	–	–
			Meat	–	1.2m×2.4m 2.88m²	–	–	–
		SEMI-WET Section	Cereals	–	2.4m×4.8m 11.52m²	–	–	–
			Vegetables/ Fruits	–	2.4m×2.4m 5.76m²	–	–	–
			Dried fish	–	1.2m×2.4m 2.88m²	–	–	–
		GEN-MERCH Section	Clothing Footwear	495.36	2.4m×4.8m 11.52m²	60	43	as for the Modular Approach
			Groceries, Food stuffs, daily goods	576.00	2.4m×4.0m 9.6m²	40	60	"
		Cafeteria		144.00	4.0m×6.0m 24.0m²	45	6	"
		Other		195.84	2.4m×2.4m 5.76m²	25	34	"
		Total		1,411.20		170	143	
	Administrative and Common Areas	Administration Office		–	–	–		
		Potential Area		–	–	–		
		Ice house Area		–	–	–		
		Toilets		68.04	Standard unit 12m×12m	Building will be shrunk because of the site condition		
		Equipment machinery room		–	–	–		
		Storage		–	–	–		
		Corridors		1,436.78	Corridor width 2.4m	so that carts can pass by each other		
	Building Area TOTAL			2,916.02				
Ancillary Facilities	Unloading dock, Auction area			–	–	No necessary		
	Equipment machinery Room			49.6		Transformers + Pump		
	Rubbish collection Area			12.96	0.064m²/store	0.064×143 stores = 9.2m²		
	Storage			22.4	0.13m²/store	0.13×143 stores = 18.59m²		
	Water outlet			5.76	1location/10units	12 Units + 10 = 1.2 2 locations (1location 2.88m²)		
	Corridors (Stairs, slope etc.)			103.76				
	TOTAL			194.48				

Slaughter House	285.61m²	as per the slaughter house guide lines

3. Sapang Dalaga Market

(1) Site and Layout Plan

Fig. 5 - 3 - 11



① The site can be approached from two directions and both sides will be used. The intersection of the path of flow of administration, customers and vehicles will be noted so not to obstruct the overall functionality of the market place.

② The floor level of the sales area will be set to GL + 0.5m in order to ensure an adequate drainage gradient.
The floor level of the toilet facilities will also be set to the floor level of the sales area + 1.0m (GL + 1.5m) for sewage processing and drainage. The drainage pipes will be installed to run along the site boundaries, so that there can be suitable the drainage gradient which is not obstructed by other facilities.

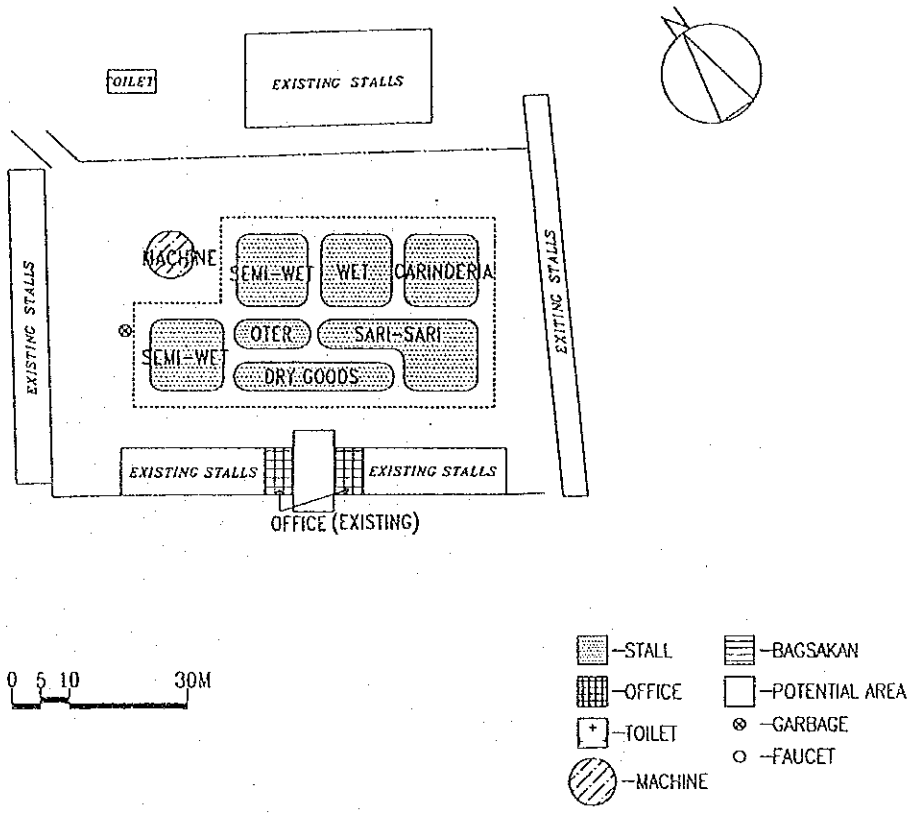
③ A section of the existing building will be repaired so it will not be possible to secure car parking.

④ The slaughter house is located 100m away from the main market building on a suitable site.

(2) Building Plan

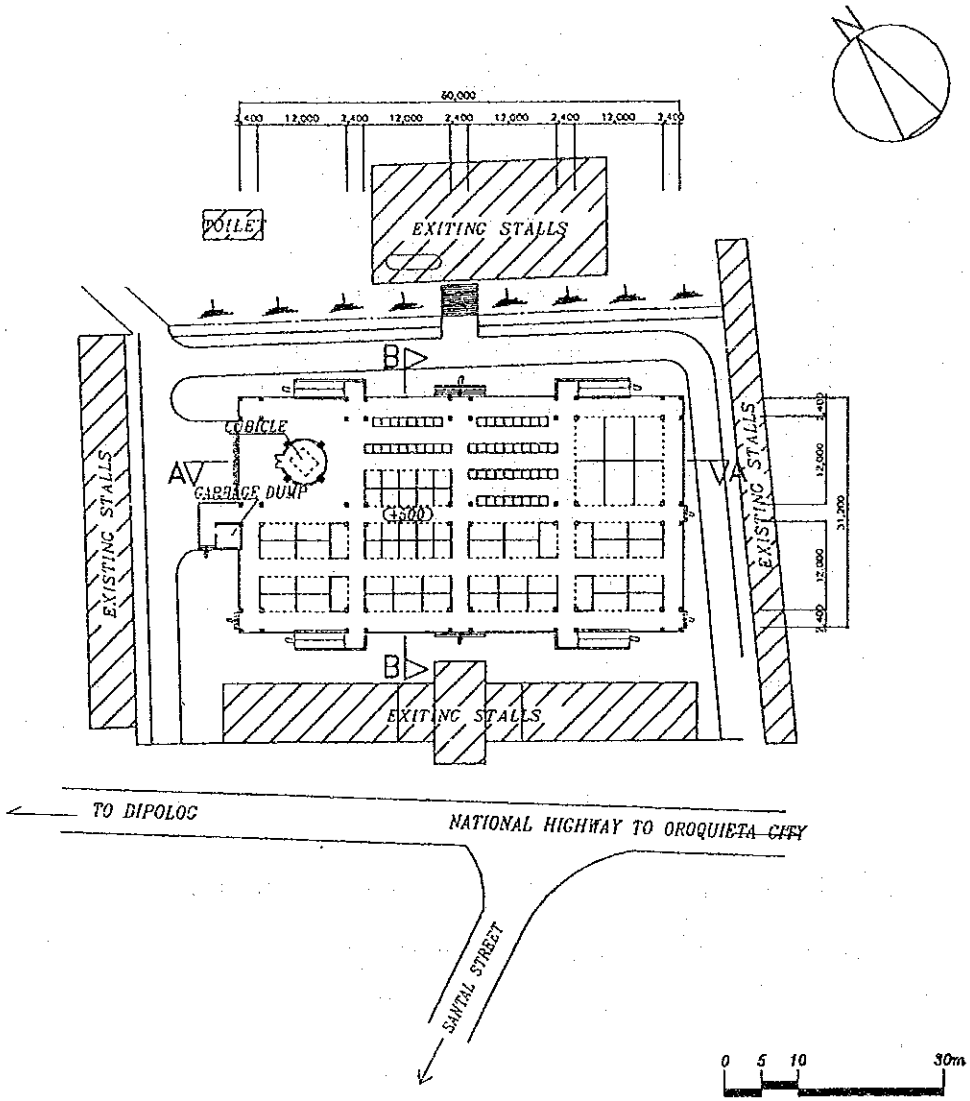
1) Floor planning (Zoning plan, Floor plan)

Fig. 5 - 3 - 12



① Basically the same specifications as the Lapu-Lapu Market.

② A section of the existing building will be repaired, so it will not be possible to secure adequate areas for unloading docks, toilets, storage, etc.


60,000
2,400
12,000
2,400
12,000
2,400
12,000
2,400
12,000
2,400
TOILET
EXITING STALLS
B
COBICLE
AV
GARBAGE DUMP
(4500)
VA
EXISTING STALLS
EXISTING STALLS
2,400
12,000
12,000
2,400
31,200
B
EXITING STALLS
TO DIPOLOG
NATIONAL HIGHWAY TO OROQUIETA CITY
SANTAL STREET
0
5
10
30m

2) Facilities Plan

① Electrical facilities

- The electrical Power Supply will be drawn from a 13.2kv AC line which runs along the road in front of the market, and this will be connected to the transformers.
- Base lighting fixtures will be installed within the compound and these will provide illumination over 100ℓx.
- Small meters will be installed in each block or for each tenant, and the individual power consumption for each user will be calculated.
- An announcement broadcast system will be installed in the building.
- Emergency alarm systems will be installed in each block.
- A lightning road will be installed on top of the overhead water supply tank.

② Water Supply Facilities

City water will be suppllied from the road running in front of the market. Water will be supplied to necessary locations by a gravity feed system after passing through a 100m^3 inlet tank and 20m^3 over head tank. However, the water supply from the main pipe is intermittant, and the water supply capacity can not be ensured, so it is planned to dig well within the site and also to supply ground water from the well.

③ Waste Water Facilities

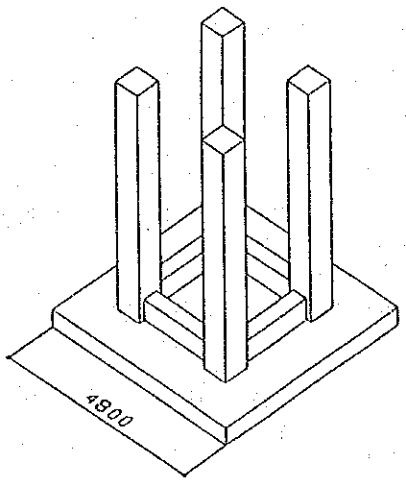
There are already toilets in the existing facilities so sewage pipes will not be required for the construction work. Various waste waters will be discharged into the river which runs along the back of the site.

3) Cross section, structural and building materials plan

① Configuration of the Foundations.

Each column will be supported by an independant foundation, and sub-beams will only be used to connect the short span (2.4m).

② An independant foundation is made by joining the four short span colums.



4) Floor area table – Table 5 - 3 - 5

Name : Sapan Dalaga Market
Building Location : Sapan Dalaga Town
Site Area : 5,508.94m²
Building Area : 1,848.96m²

				Planned floor area (m²)	Basis for Estimation			
			Sales Counter		Unit to be utilized	Esti-mated No. of stores	Plann-ed No of stores	Comments
Indoor Section	Sales Section	WET Section	Fish	95.04	1.2m×2.4m 2.88m²	23	33	as for the Modular Approach
			Meat	28.80	1.2m×2.4m 2.88m²	7	10	"
		SEMI-WET Section	Cereals	115.20	2.4m×4.8m 11.52m²	12	10	"
			Vegetables/ Fruits	57.60	2.4m×2.4m 5.76m²	7	10	"
			Dried fish	31.68	1.2m×2.4m 2.88m²	8	11	"
		GEN-MERCH Section	Clothing Footwear	172.80	2.4m×4.8m 11.52m²	16	15	"
			Groceries, Food stuffs, daily goods	115.20	2.4m×4.0m 9.6m²	19	12	"
		Cafeteria		144.00	4.0m×6.0m 24.0m²	2	6	"
		Other		57.60	2.4m×2.4m 5.76m²	11 (51)	10	(see Table 4 - 2 - 7)
		Total		817.92		105 (145)	117	
	Administrative and Common Areas	Administration Office		–		Existing		
		Potential Area		–		Existing		
		Ice house Area		–		–		
		Toilets		–		Existing		
		Equipment machinery room		5.76		Distribution board 1m×3m + inspection corridor 1.2m		
		Storage		–		–		
		Corridors		1,025.28	Corridor width 2.4m	so that carts can pass by each other		
	Building Area TOTAL			1,848.96				
Ancillary Facilities	Unloading dock, Auction area			–				
	Equipment machinery Room			19.23		Pump 1.5m×0.7m×2 + Inspection corridor 0.6m		
	Rubbish collection Area			12.96	0.064m²/store	0.064×117 stores=7.5m²(including Existing)		
	Storage			19.23	0.13m²/store	0.13×117 stores=15.21m²		
	Water outlet			2.88	1location/10 unit	5 units+10=0.5 1 locatoin (1 location 2.88m²)		
	Corridors (Stairs, slope etc.)			137.18				
	TOTAL			191.48				

Slaughter House	285.61m²	as per the slaughter house guide lines

4. Floor Area for Each Market

					① Danao (m^2)	② Oroquieta (m^2)	③ Sapang Dalaga (m^2)
Market	Indoor Section	Sales Section		Sales Counter			
			WET Section	Fish	236.16	–	95.04
				Meat	74.88	–	28.80
			SEMI-WET Section	Cereals	506.88	–	115.20
				Vegetables/ Fruits	126.72	–	57.60
				Dried fish	103.68	–	31.68
			GEN-MERCH Section	Clothing Footweat	541.44	495.36	172.80
				Groceries, Food stuffs, daily goods	729.60	576.00	115.20
			Cafeteria		576.00	144.00	144.00
			Other		253.44	195.84	57.60
			Total		3,148.80	1,411.20	817.92
		Administrative and Common Areas	Administration Office		114.00	–	–
			Potential Area		72.00	–	–
			Ice house Area		57.60	–	–
			Toilets		144.00	68.04	–
			Equipment machinery room		10.00	–	5.76
			Storage		12.96	–	–
			Corridors		4,270.55	1,436.78	1,025.28
		Building Area TOTAL			7,829.91	2,916.02	1,848.96
	Ancillary Facilities	Unloading dock, Auction area			464.75	–	–
		Equipment machinery Room			38.47	49.6	19.23
		Rubbish collection Area			38.88	12.96	12.96
		Storage			38.88	22.4	19.23
		Water outlet			8.64	5.76	2.88
		Corridors (Stairs, ramps etc.)			220.99	103.76	137.18
		TOTAL			810.61	194.48	191.48
Slaughter House					—	—	③ 285.61

5 - 3 - 3 Design Conditions of the Market Places and Details/Surface of the Project

Table 5 – 3 – 7

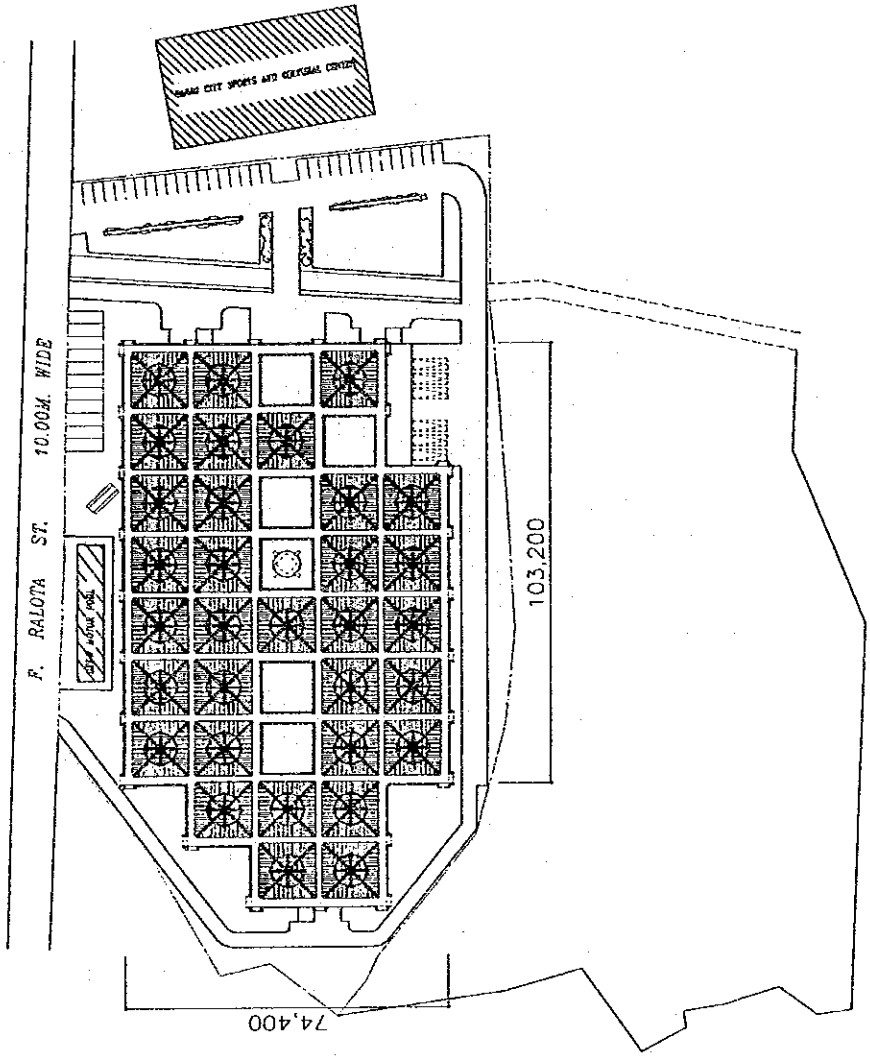
Market Studied	Site Conditions and design conditions of the existing	Details of the Request	Building area
① Danao Market Cebu Province, Danao City Population: 73,358 people (1990)	Existing Market Site Site: Located in business district in the center of the town Site area: Approx.1 ha Number of stalls: 300 stalls (+ 600 temporary stalls) Condition of the facilities: Typhoon damage to the roofs of the surrounding buildings can be seen. Furthermore, two stores within the market collapsed and hav been left as such. The slaughter house is located away from the road. • After the market has been relocated it is intended to redevelop the site as a commercial area or as a park, but concrete plans are lacking. The redevelopment plans will be decided before the end of July. New Site Location: Located about 300~400m away from the existing market, between the city hall and a gymnasium Site area: 3.6 ha Condition of the site: • The topography of the site is such that there are low areas which will require ground filling. It has been decided to carry borrow soil from the city suburbs. Work is in progress to grade the site and to remove obstructions from the site. The empty lot besides the gymnasium is being secured as the car park site. Relocation of the slaughter house completed. An agreement has been signed with the market retailers. • The water supply will be provided by gravity driven water supply system. • It is possible to discharge various drainage waters into a small stream which flows through the site. • There is a rubbish dump at the rear of the site, and an alternative site has been located about 2km away.	1) Construction of a new market place and stalls 401stores 2) Site, Ancillary facilities Administration office Toilets Rubbish collection areas Car park Paving within the compound Bagsakan Space for hawkers Elevated preservoir tank 3) Ice house • External area 9,000 m²	7,829.91m²
		Total	7,829.91m²
② Oroquieta Market Misamis Occidental Province, Oroquieta City Population: 54,600 people (1990)	Site: Along side the Layawan River in the center of the city Site area: 1.8 ha Number of stores: Market A: Carinderia 40 stalls Market B: 376 stalls (raw fish, groceries, clothing) Barracks: 104 stalls Hawkers stalls: about 100 stalls Condition of the facilities: • There are 8 buildings consisting of Building A and B, the administration office, slaughter house, the agricultural products markets, the fish market, public toilets, and the fire station. • Both buildings A and B are dilapidated and did not suffer typhoon damage • The barracks are unhygienic as there is no flow paving nor drainage facilities • Slaughter house (dilapidated and it is instructed to relocate it)	1) Reconstruction of the existing market place, temporary site for the 143 barracks stores. 2) Site, Ancillary facilities Rubbish collection areas Car park and public bus terminal Space for hawkers Bagsakan • External area 950 m²	2,916.02m²
		Total	2,916.02m²

Market Studied	Site Conditions	Details of the Request	Building area
③ Sapang Daraga Market Misamis Occidental Province, Sapang Daraga Town Population: 21,900 people (1990)	Site: Facing a national road (8m wide) in the center of the town Site area: Approx. 0.5 ha Number of stalls: 90 stalls + hawkers stalls Condition of the facilities: • The site is divided into two levels, with 8 market buildings on the upper level, and the fish market on the lower level. • The main roof of the market is horribly dilapidated and dangerous. • Inadequate water supply and drainage facilities	1) Reconstruction of the market place Reconstruct in the temporary site created by removing the central two buildings and the auxiliary barracks 2) Site, Ancillary facilities Well Pump shed Elevated reservoir tank Rubbish collection areas Car park Space for hawkers	1,848.96m²
	New Slaughter House Site Condition of the site: Land owned by the city, flat site with no buildings or residents.	3) Slaughter house • External area 2,460 m² Total	285.61m² 2,134.57m²
Building Area	Grand total		12,880.50m²
External area		Approximately	12,410.00m²

5 - 3 - 4 Equipment Plan

There are no equipment apart from the ancillary facilities related to the building.

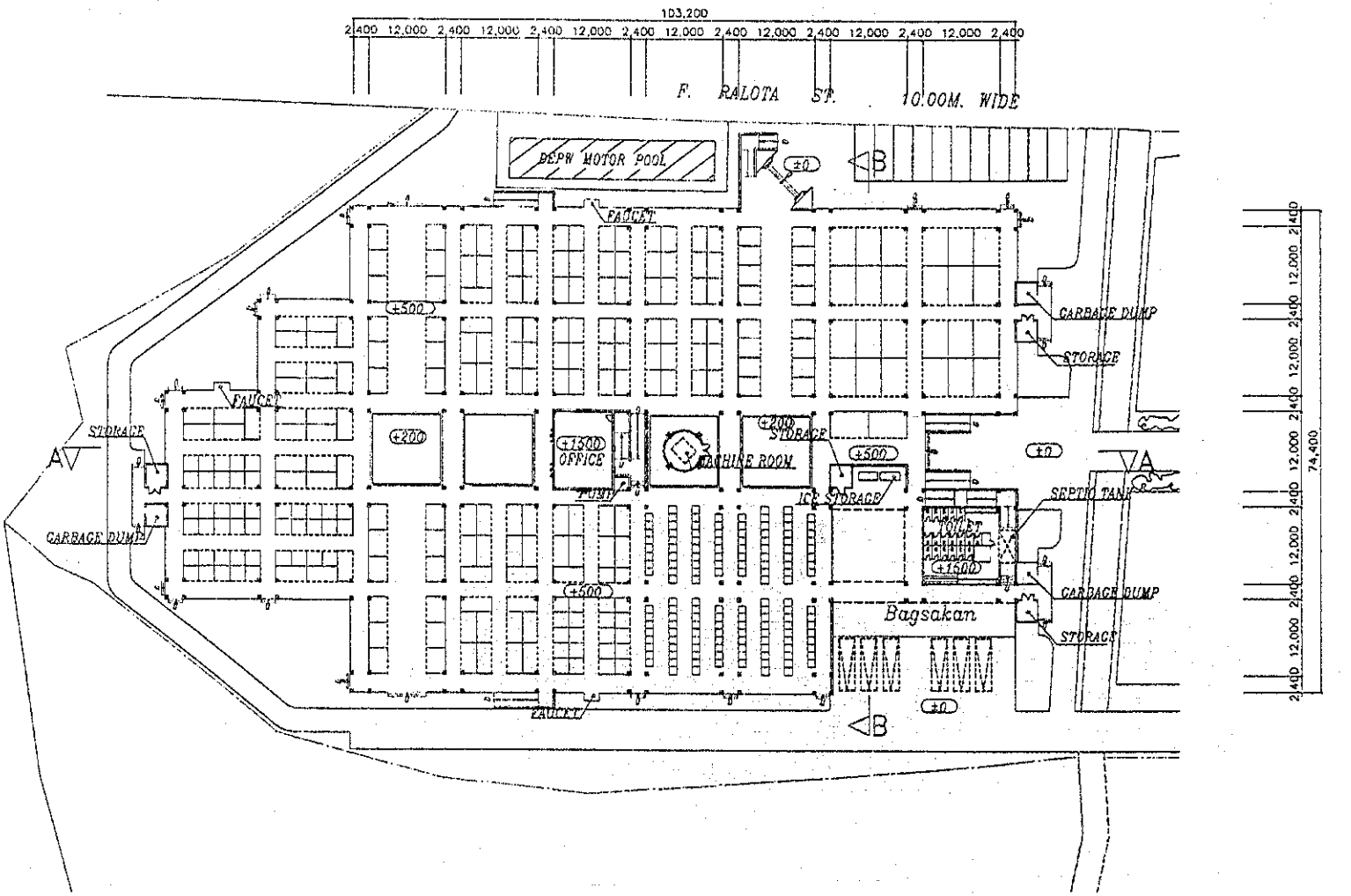
5 - 3 - 5 Basic Design Drawings



Site plan

DANAO MARKET

0 5 10 30m



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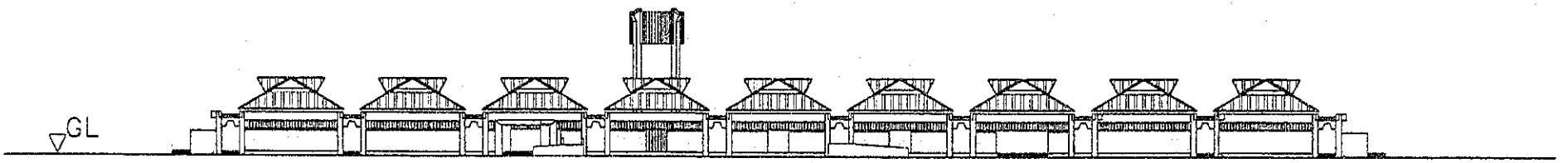
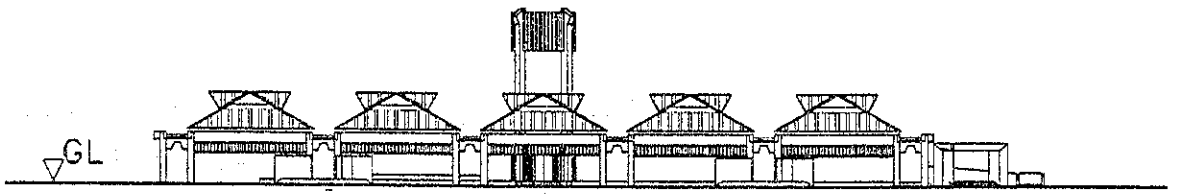
DANAO MARKET

Ground Floor Plan



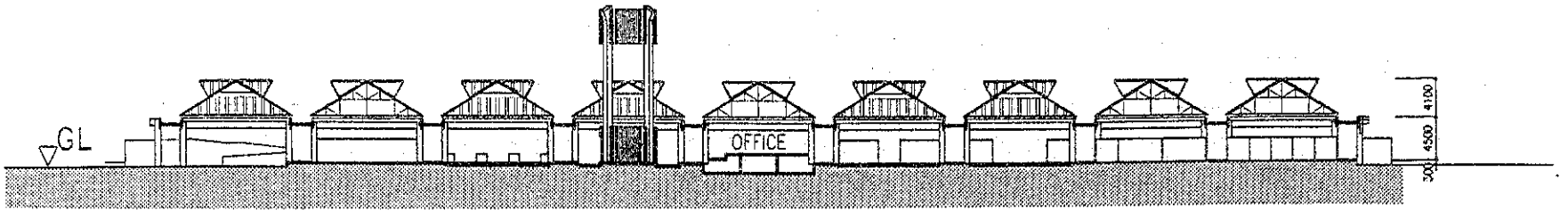
North–West elevation



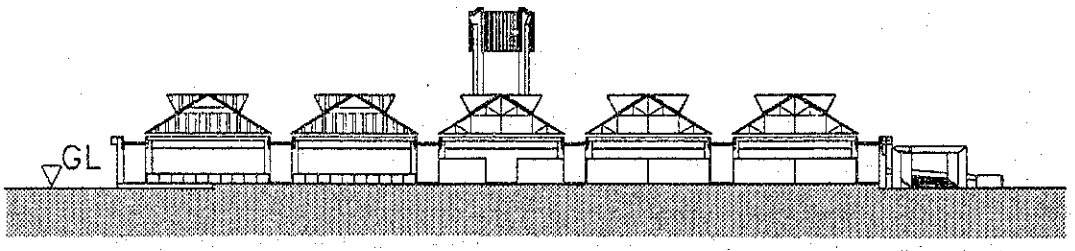
North–East elevation

0 5 10 30m

DANAO MARKET Elevation



A–A section

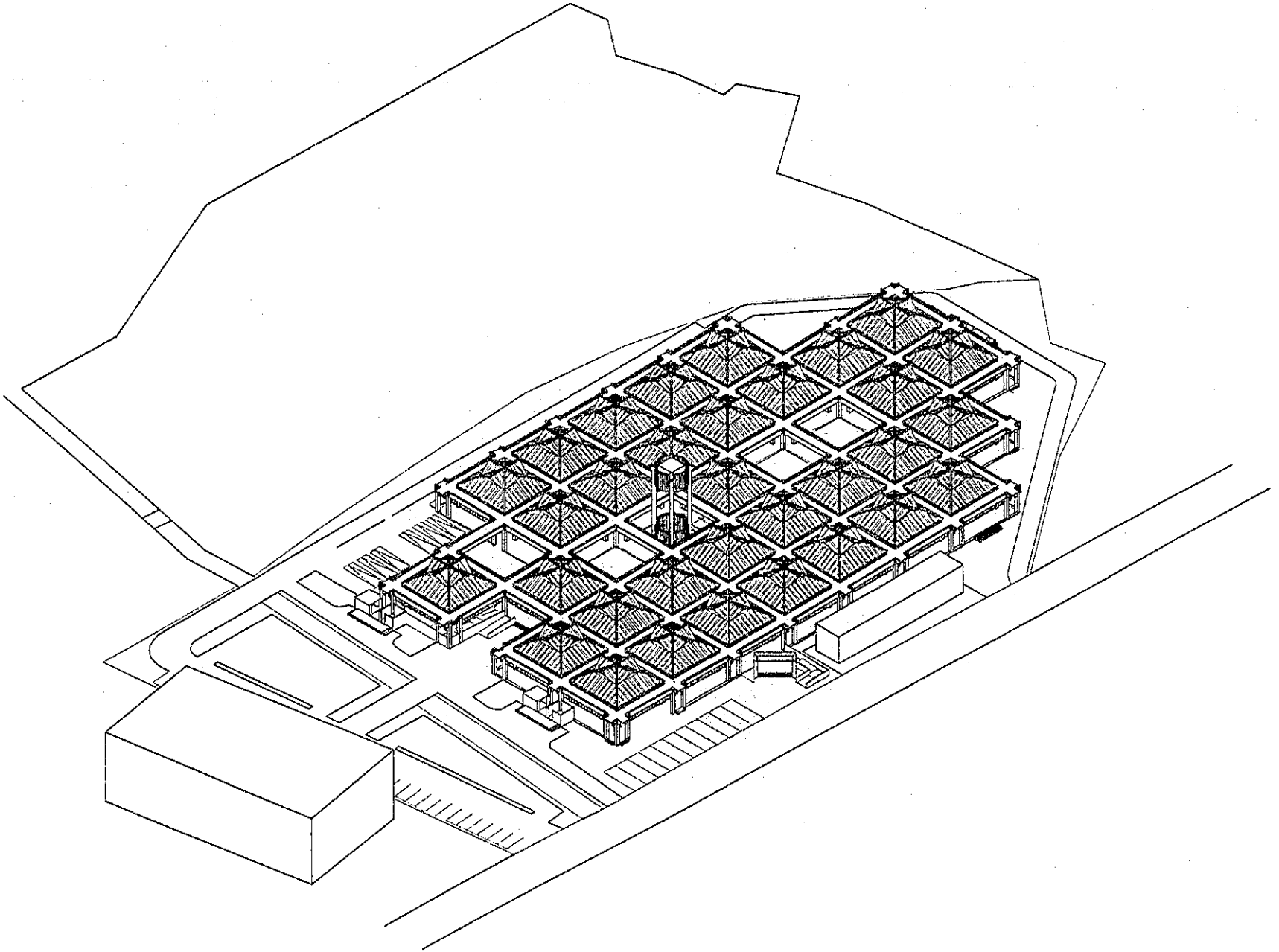


B–B section

0 5 10 30m

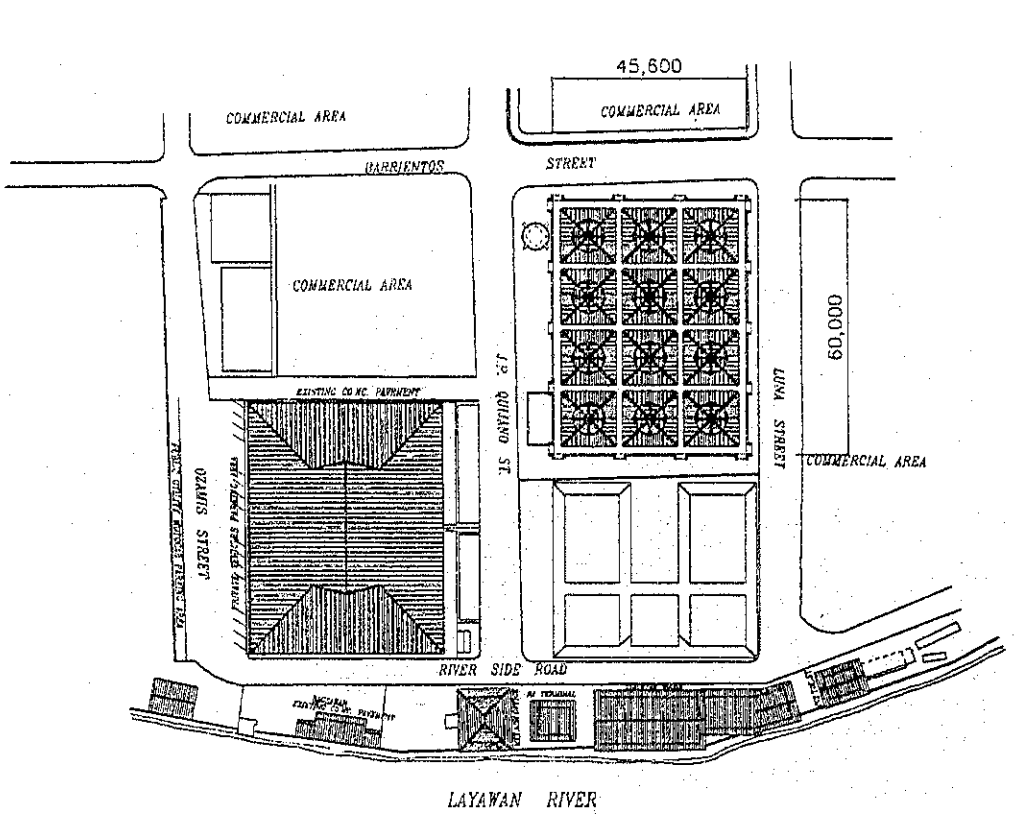
DANAO MARKET

Section



DANAO MARKET

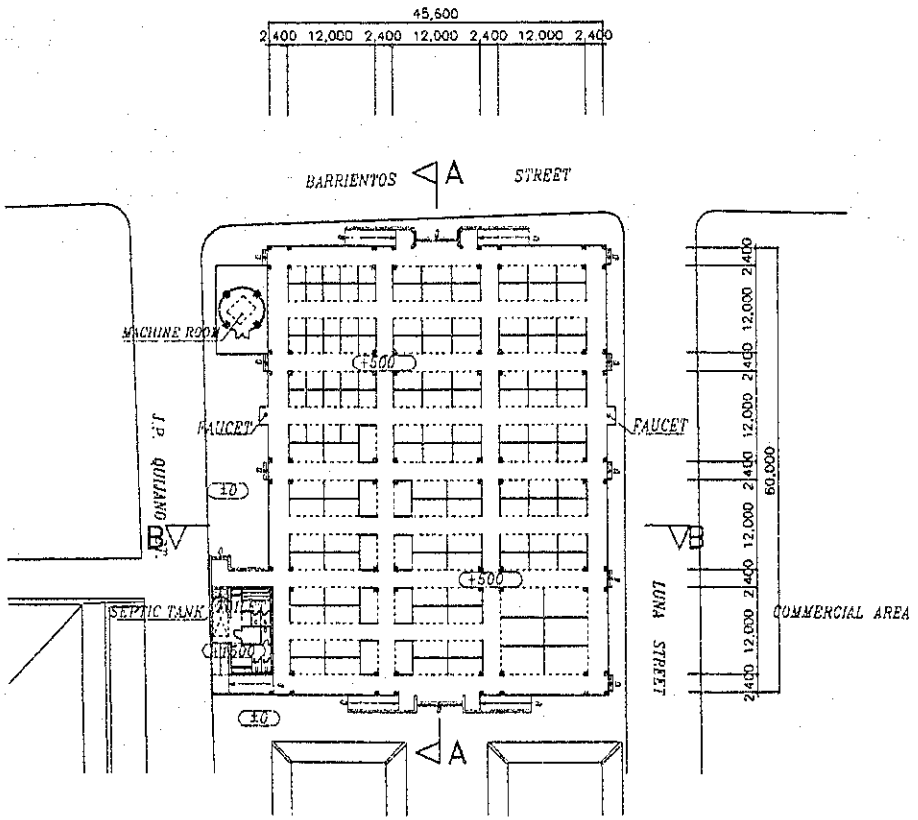
Isometric View



0 5 10 30M

OROQUIETA MARKET

Site plan



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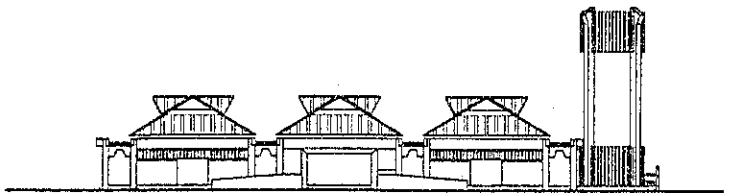
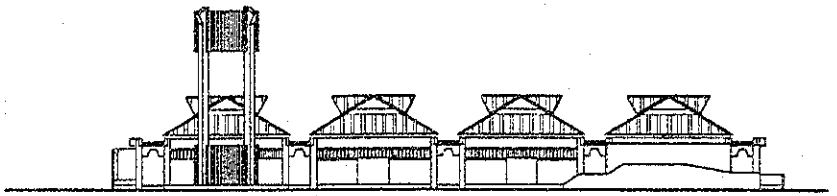
OROQUIETA MARKET

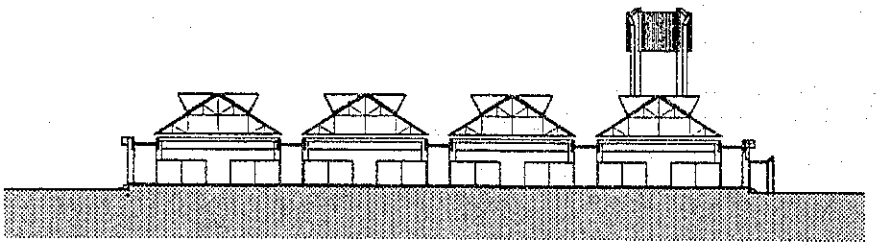
Ground Floor Plan



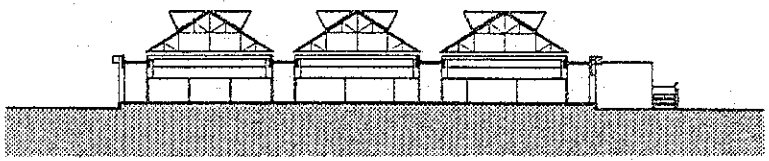
West elevation



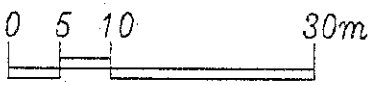
South elevation



A—A section

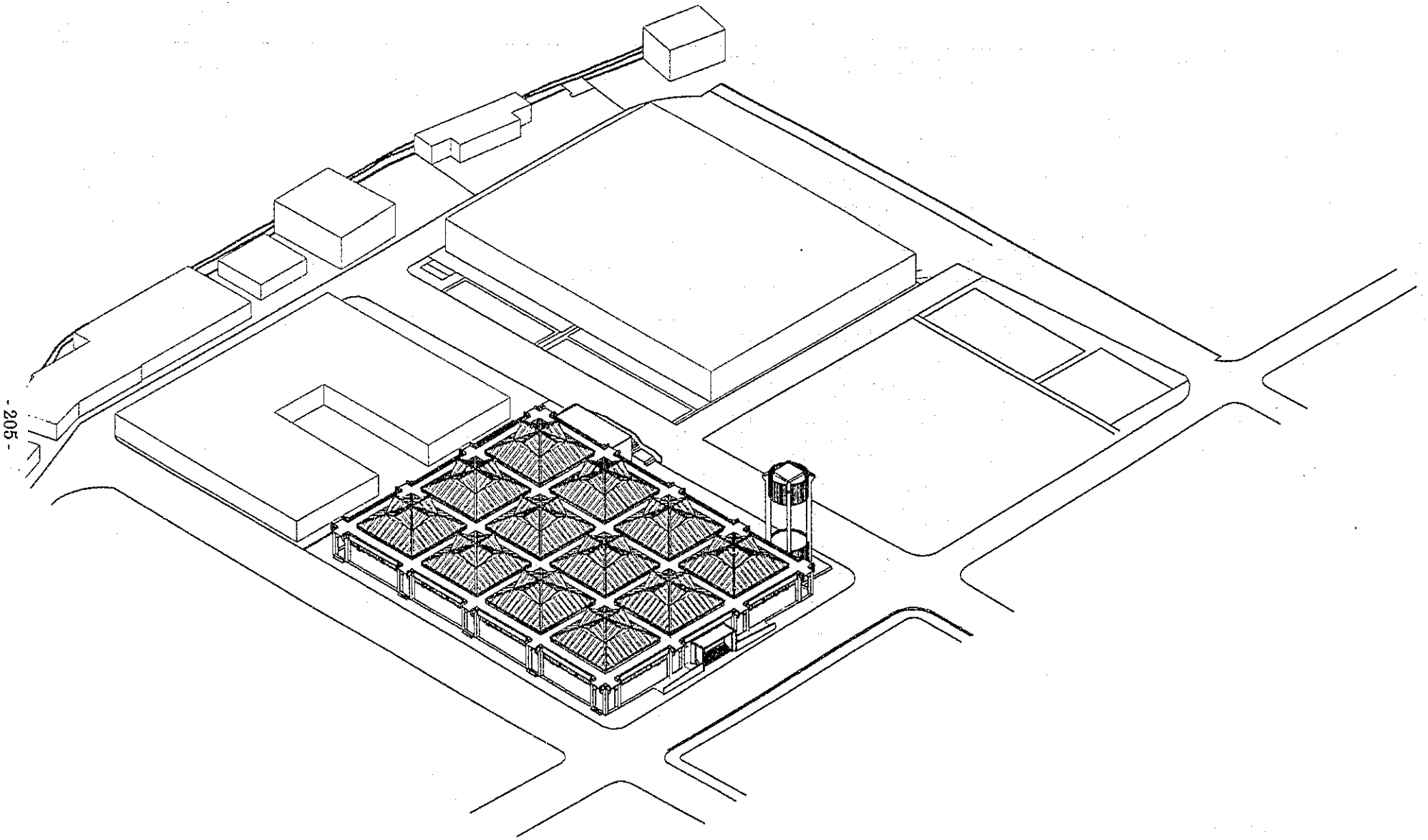


B—B section

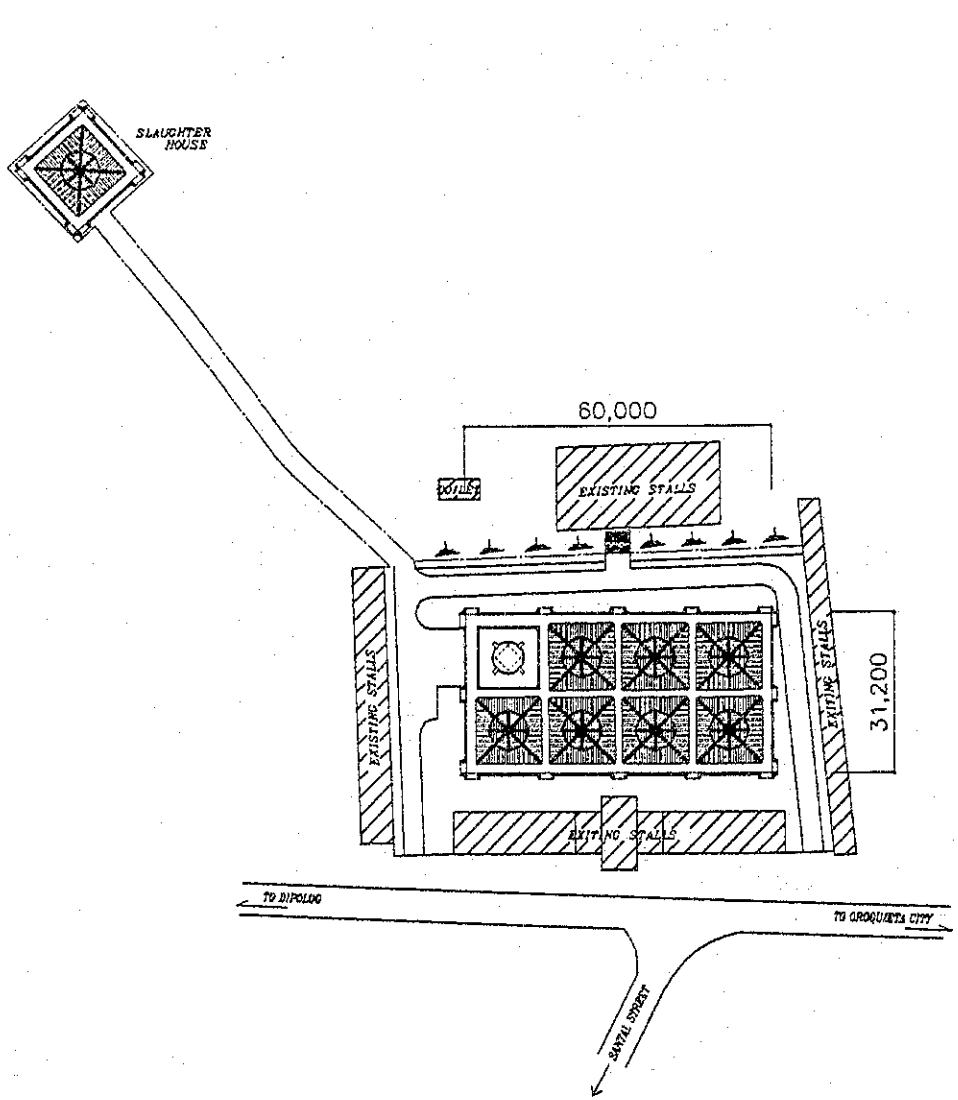


OROQUIETA MARKET

Elevation · Section

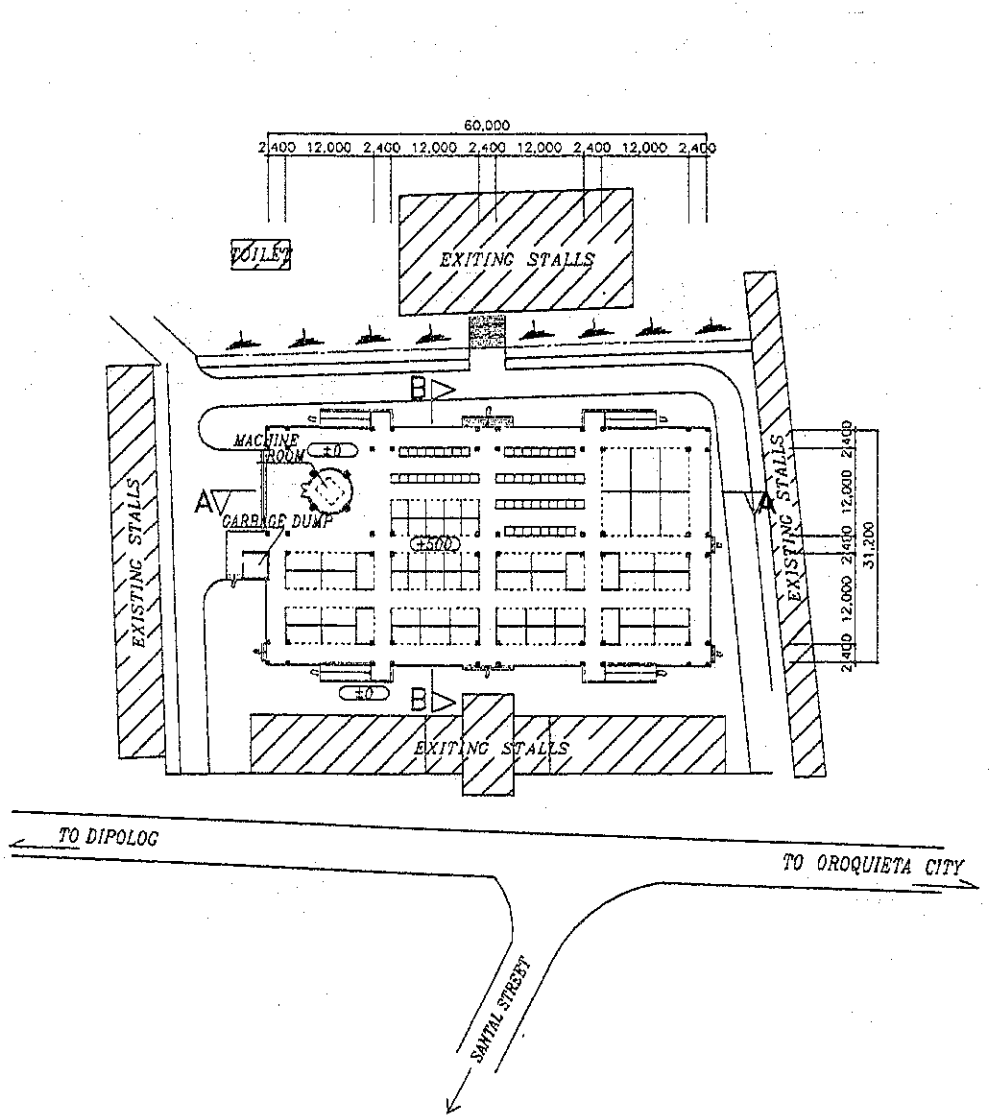


OROQUIETA MARKET Isometric View



0 5 10 30m

SAPANG-DALAGA MARKET Site plan



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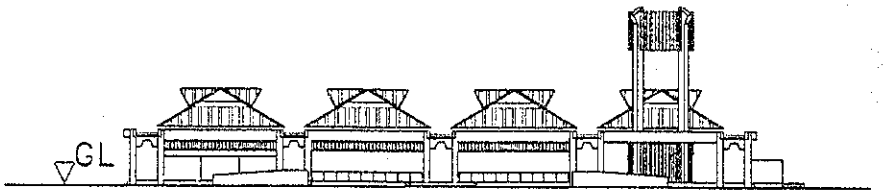
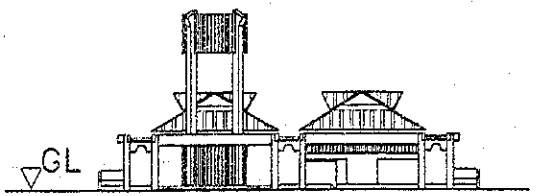
SAPANG-DALAGA MARKET

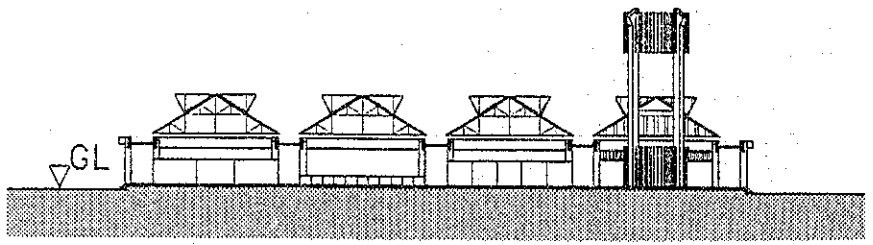
Ground Floor Plan



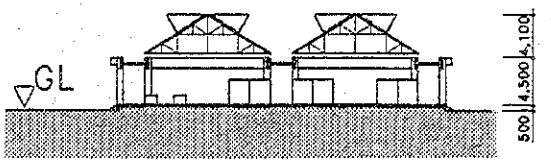
North elevation



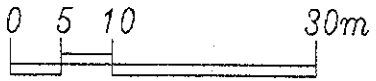
West elevation



A–A section

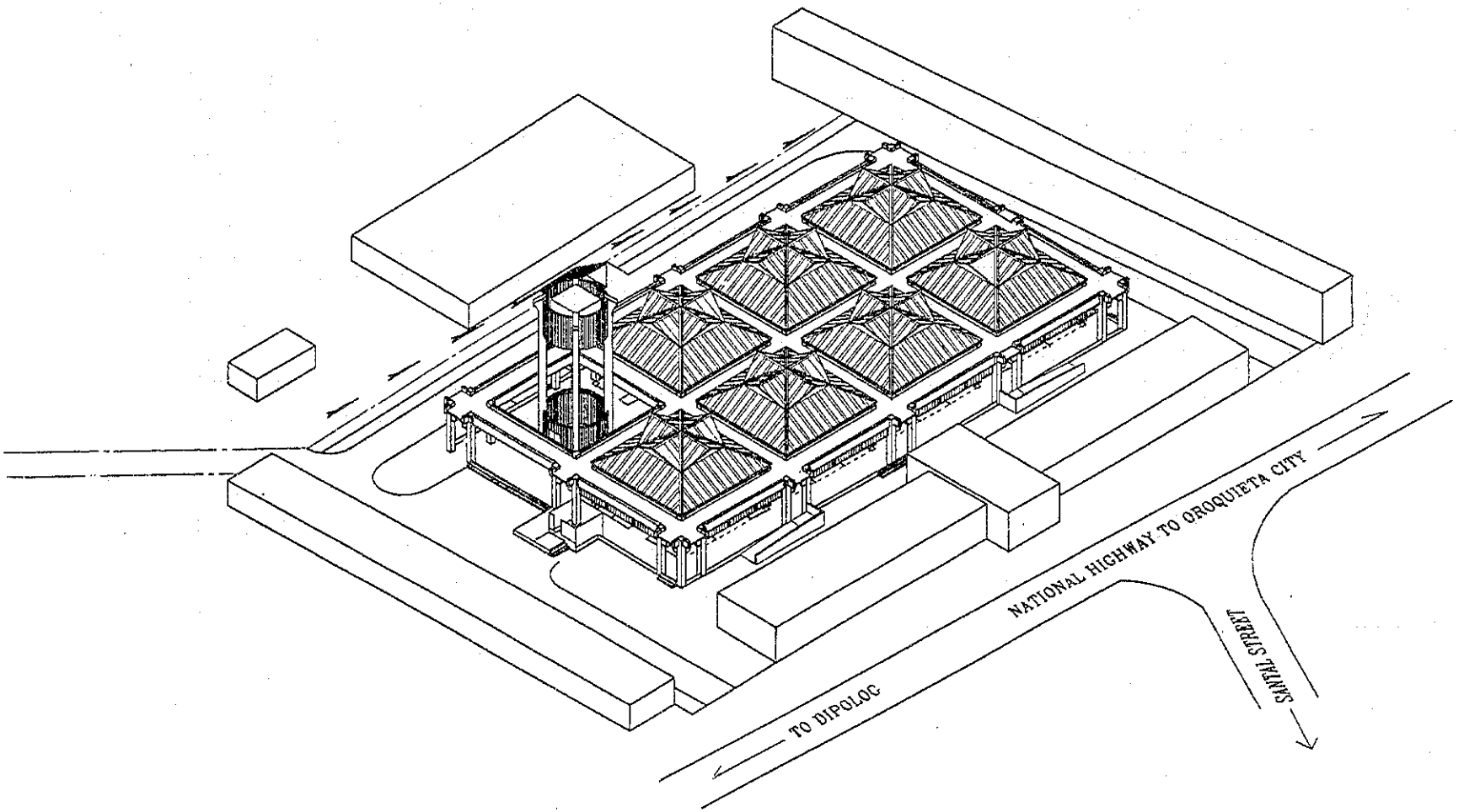


B–B section



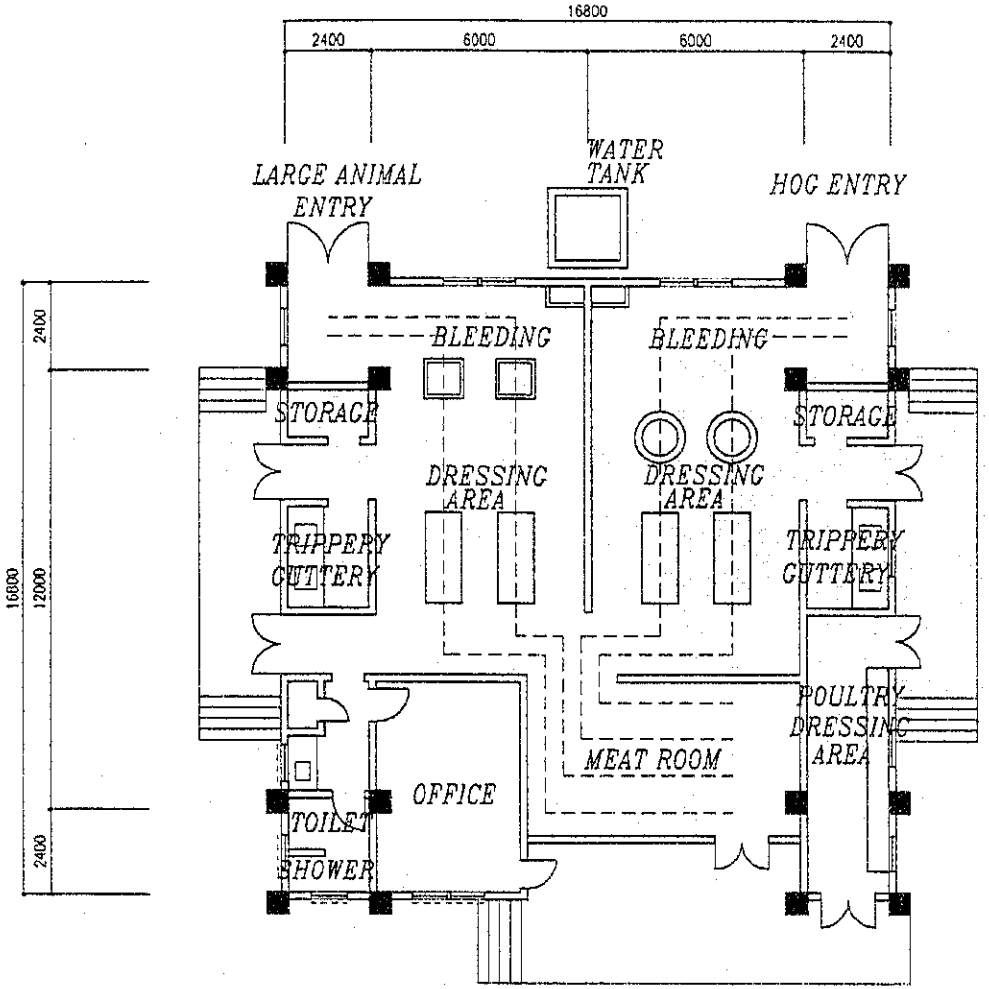
SAPANG–DALAGA MARKET

Elevation · Section

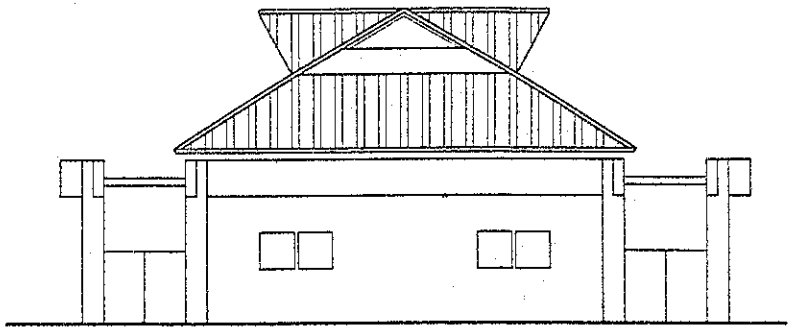


SAPANG-DALAGA MARKET

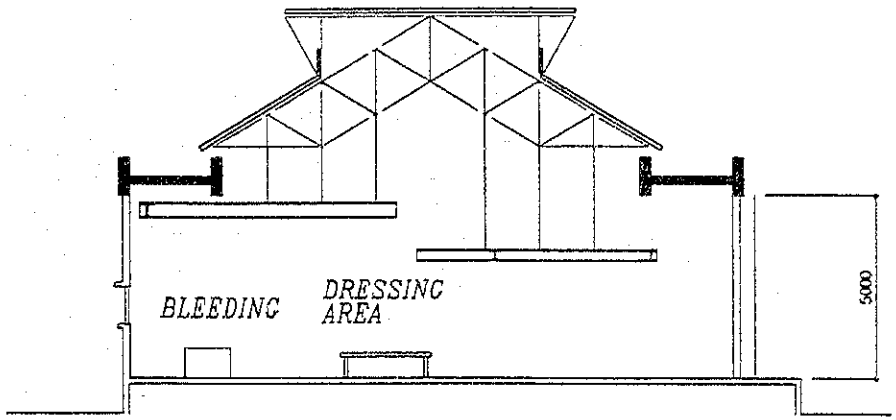
Isometric View



Plan



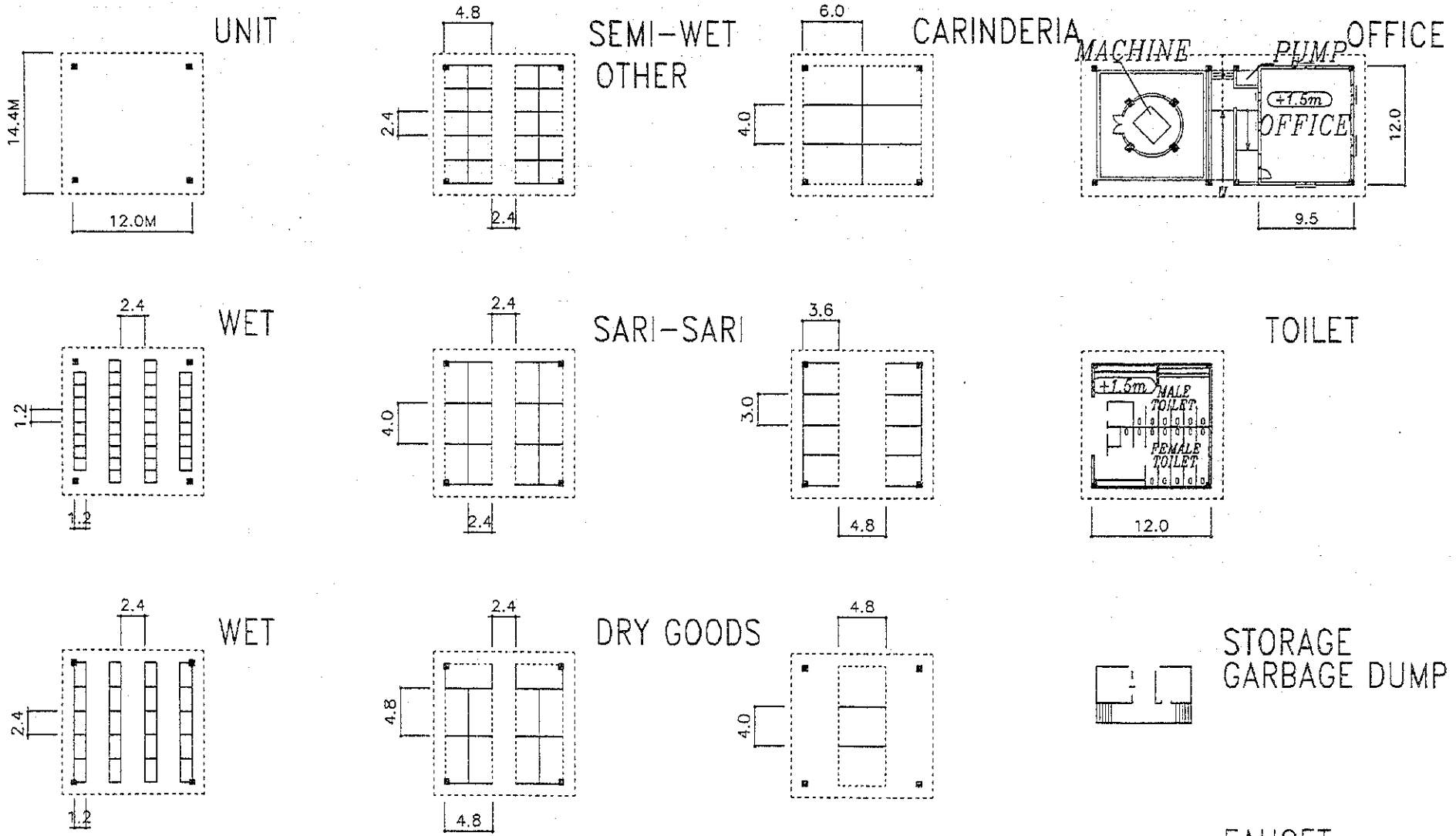
Elevation



Section

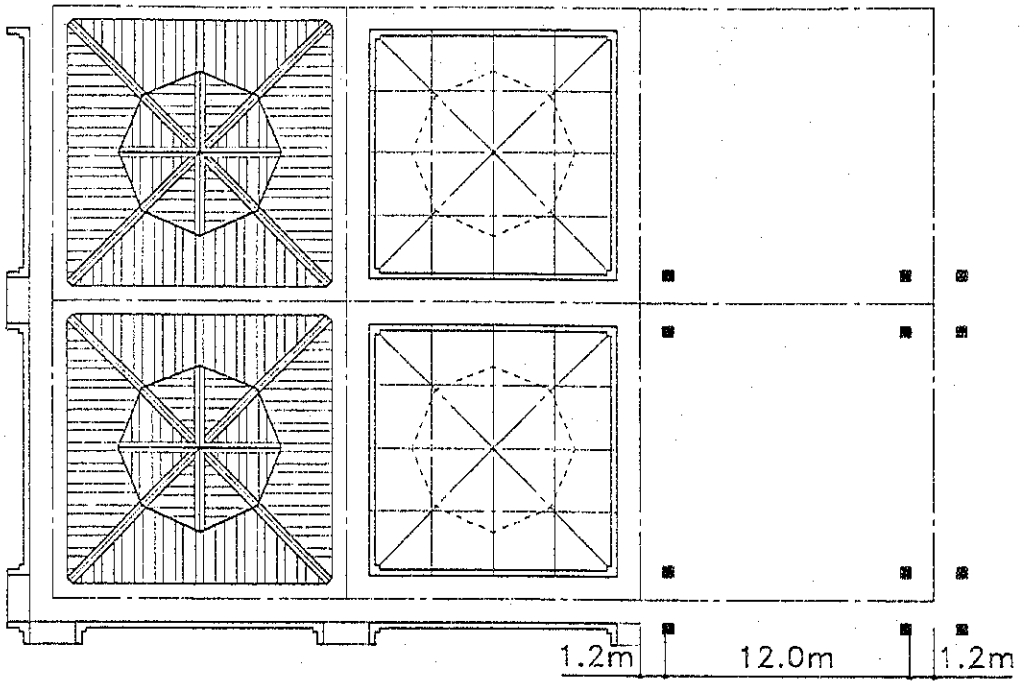
0 2.5 5 10m

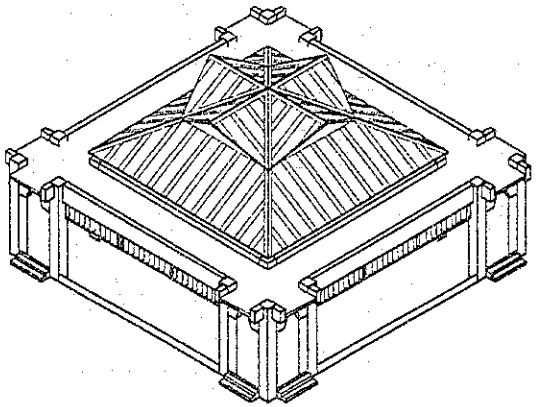
SAPANG-DALAGA SLAUGHTER HOUSE

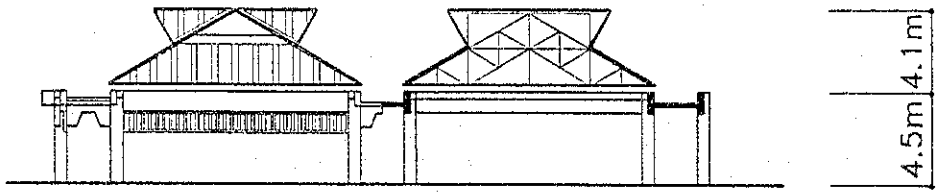


MARKET MODULE

Unit plan



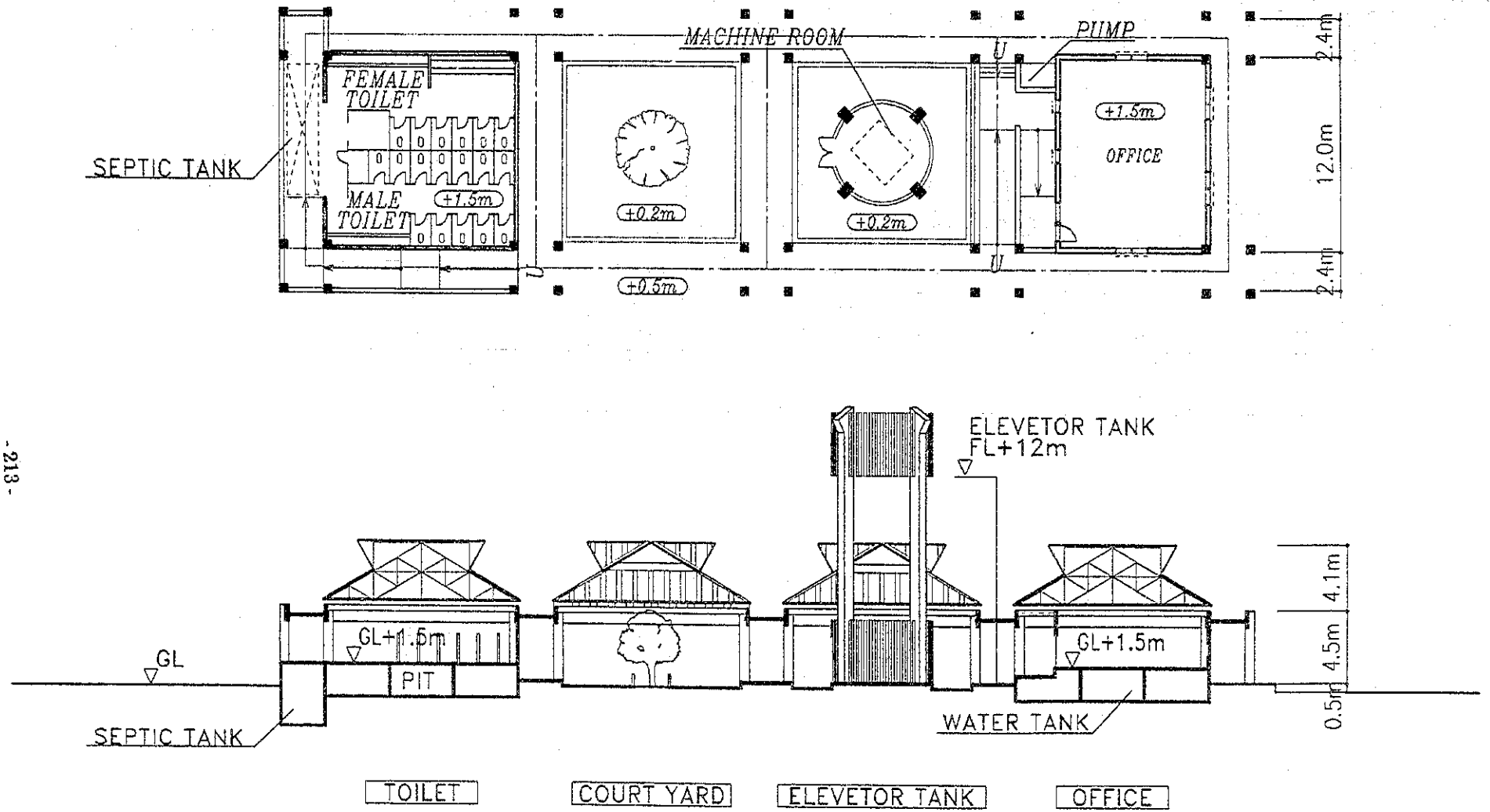




0 5 10 20m

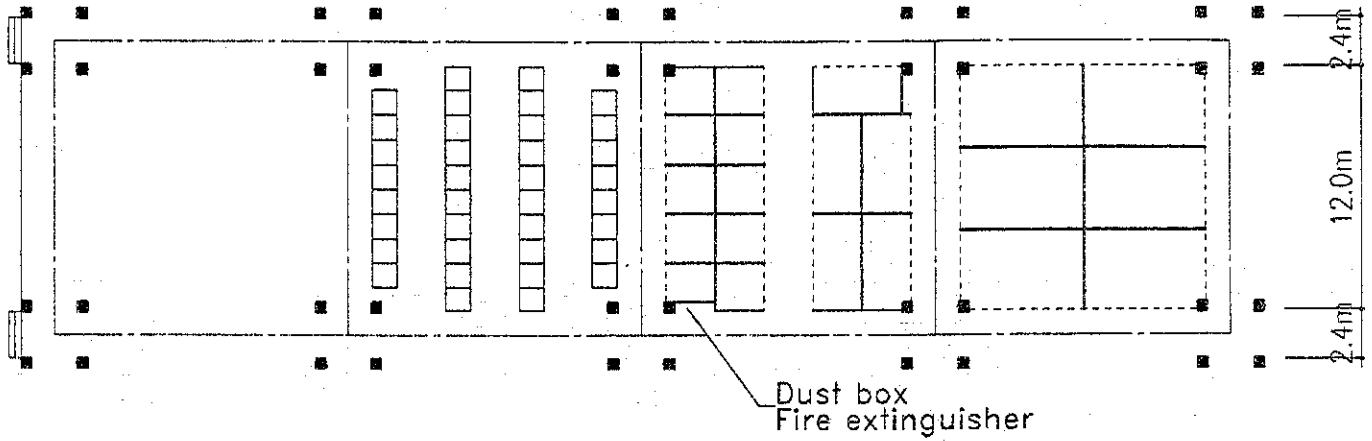
MARKET MODULE

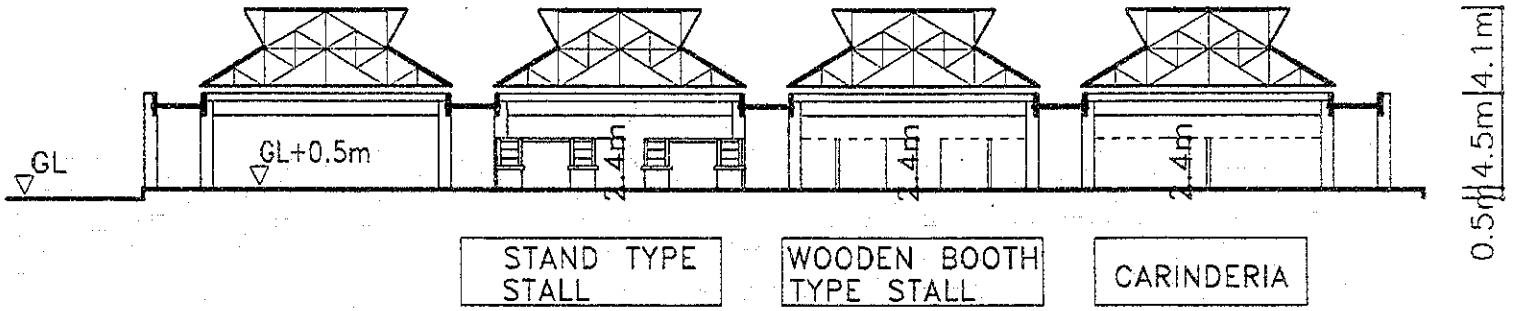
Module drawing

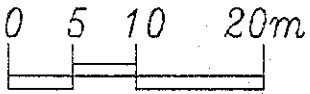


MARKET MODULE

Module plan・section





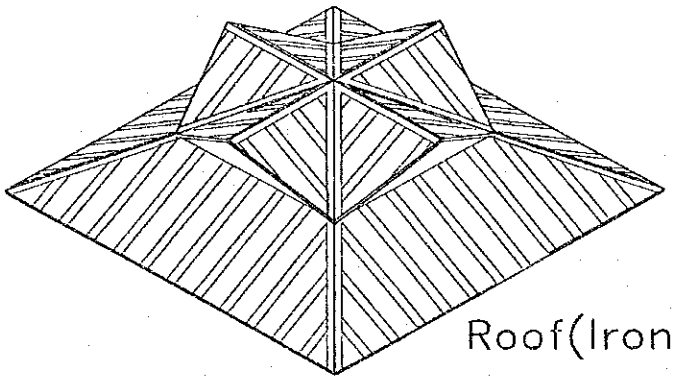


MARKET MODULE

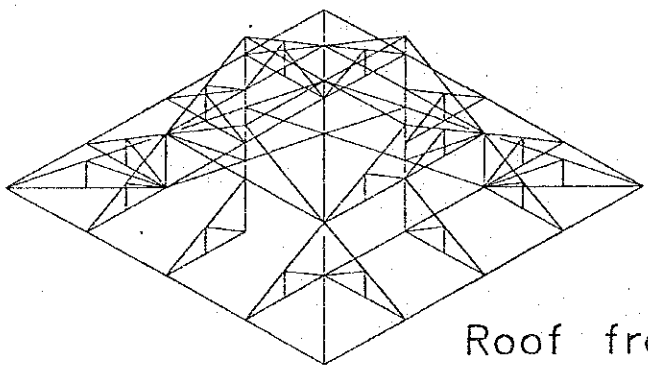
Module plan · section—stall

MARKET MODULE

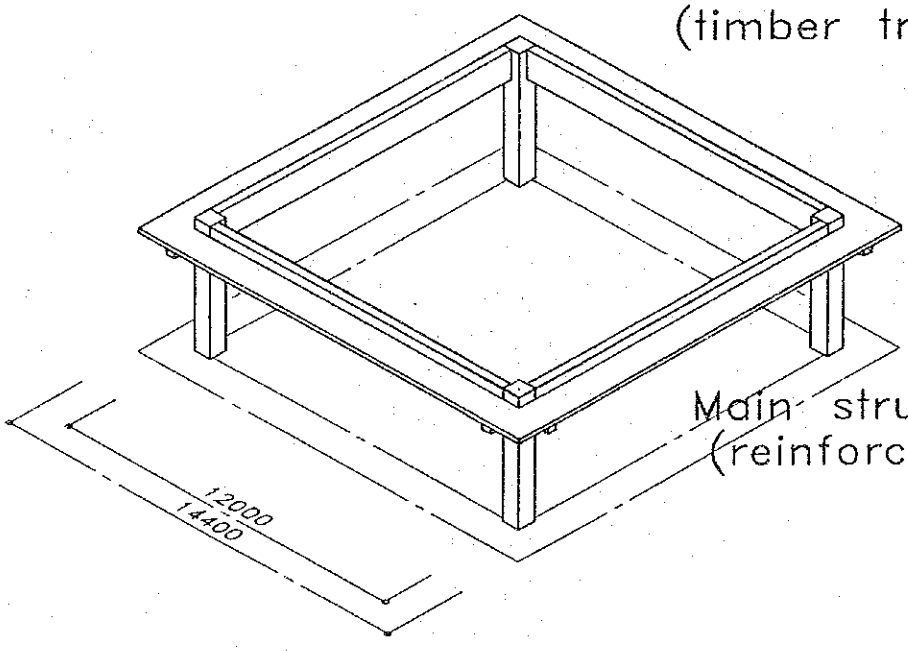
Element Isometric View



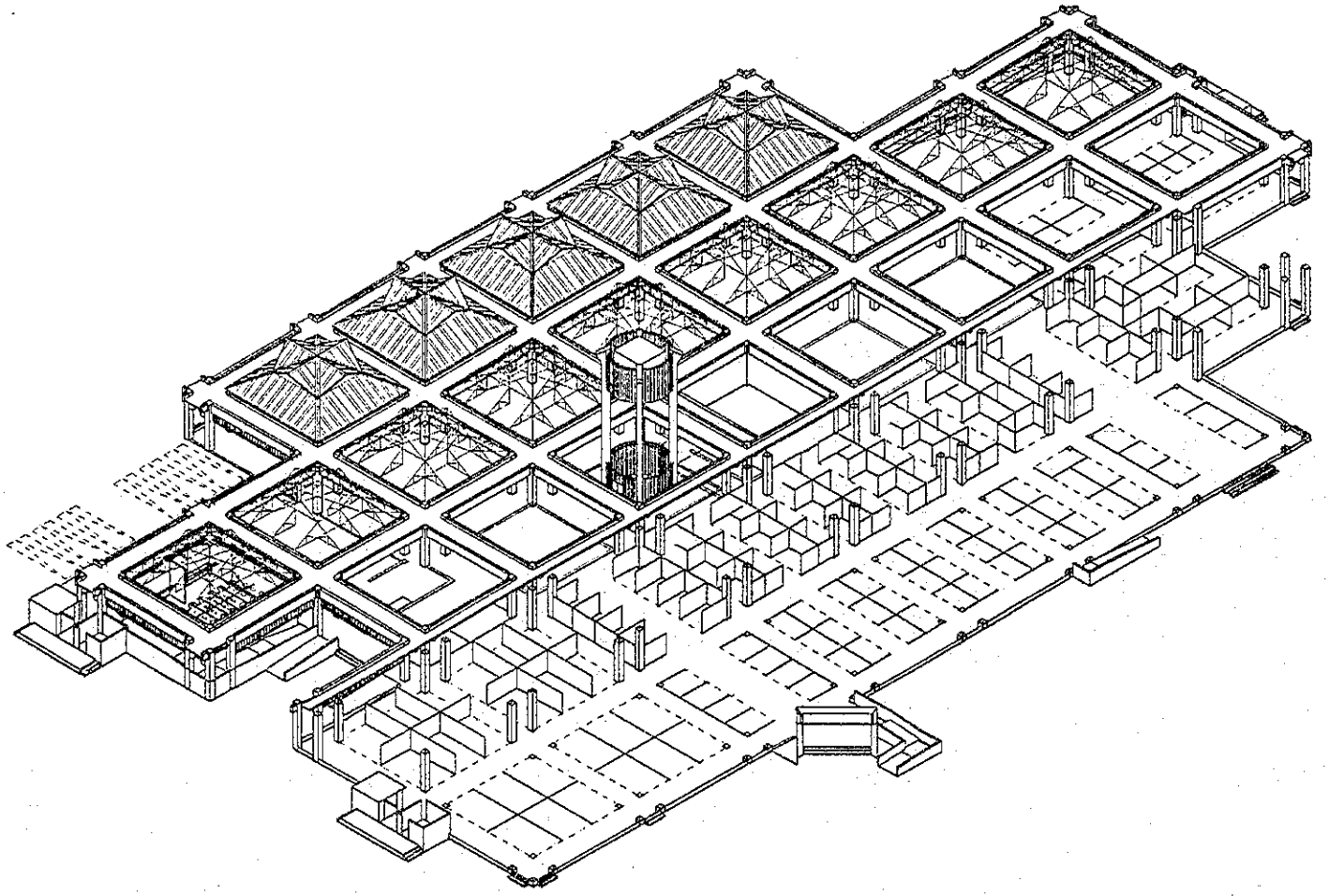
Roof(Iron roofing)



Roof frame
(timber truss frame)

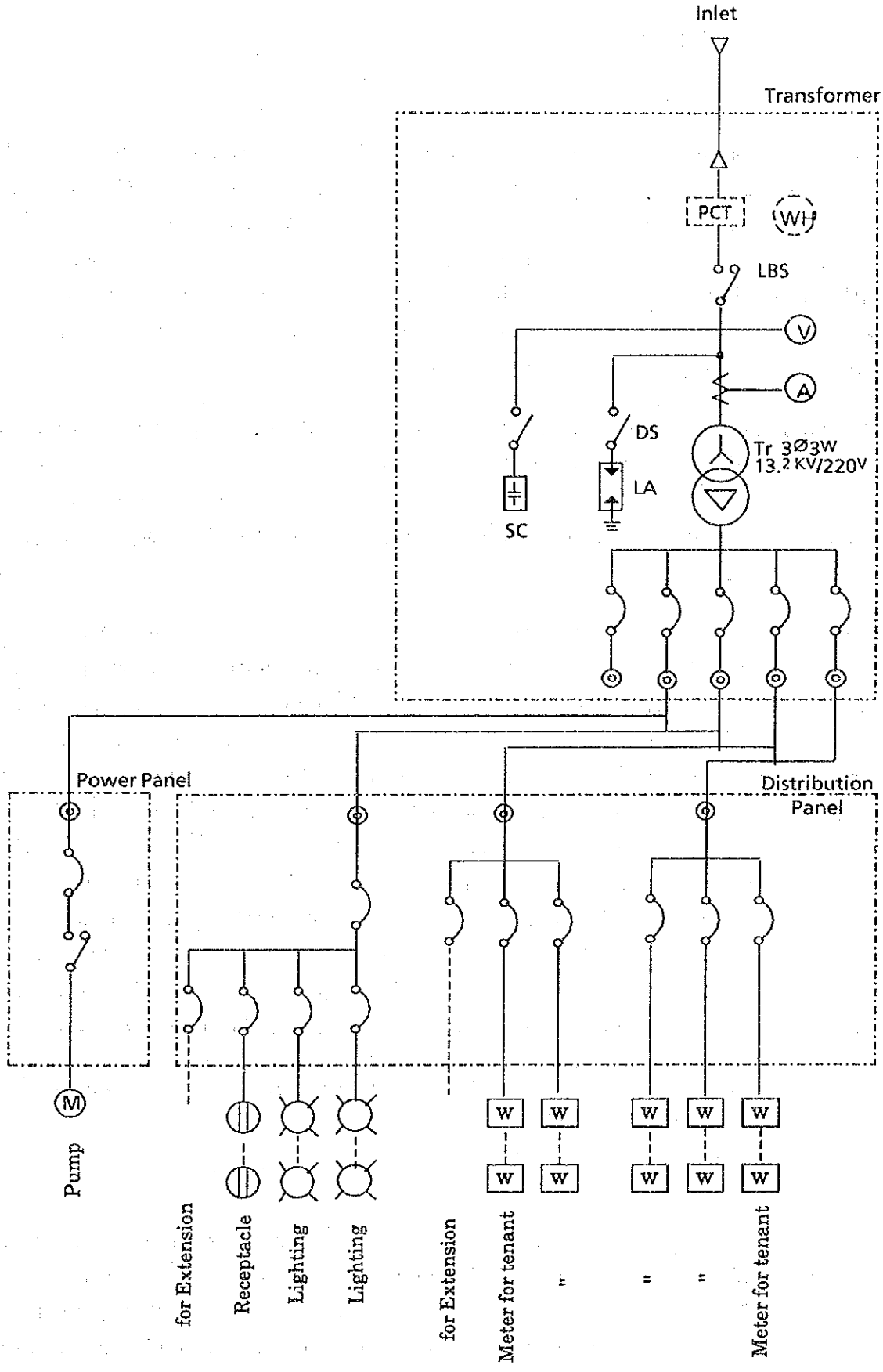


Main structur
(reinforced concrete)



MARKET MODULE Isometric View

ELECTRIC POWER SUPPLY SYSTEM



5 - 4 Construction Plan

5 - 4 - 1 Execution Policy

After the Exchange of Notes has been concluded, the Japanese Consultant and the Government of the Philippines (Department of Interior and Local Government) will sign a consultation contract, in accordance with the Grant Aid policies of the Government of Japan, and undertake detailed studies and coordinate views sufficiently, based upon the opinions outlined in the Basic Design Study, with regard to the preparation of tender documents such as execution plan documents, the bid contracting work and the construction work.

The construction of the facilities will be carried out by a Japanese construction corporation chosen by tendering from companies which have rich experience in overseas construction work, that have the ability to complete the construction work within the planned construction period and which have a understanding the grant aid program.

When selecting the materials and construction methods to be used on the project, the quality and the ability to supply locally manufactured materials, ease of maintenance work after the project is completed, and the technical ability of local workers will be taken into account, and local materials will be used as much as possible as well as utilizing construction methods which are well known locally. At the time the construction work commences notification will be issued through the Department of Interior and Local Government to the Ministry of Public Works, and confirmation will be obtained concerning the construction work, connection of the electrical power supply and water supply, and the discharge of sewage. Coordination with the various related government ministries will be the responsibility of the Local Government Development Office / Public Market Development Program of the Department of Interior and Local Government.

5 - 4 - 2 General Construction Situations and Points to be Considered for Construction Work

(1) Construction Situations

From the distant past the Republic of the Philippines has been in contact with Western culture, and as it trades with various countries and also has one of the highest education rates in the world, it can be thought that the country has a good quality labour force. In this sort of environment, construction technology in the urban areas is at a level which can be

favourably compared to other advanced countries, and it is fair to say that there will be absolutely no problems if economic support and the appropriate administrative guidance are provided.

Furthermore, the main construction methods taken in to account for this project, i.e. reinforced-concrete, brick and timber construction technology are well known general construction methods, even in the regional areas.

There will not be that much degree of difficulty due to the regional nature of the project, so there will also be few construction labour problems. However, there are few sub-contractors in the regional areas which have work experience on the construction of large scale buildings such as this project, so it will be important to maintain the performance and quality of the building, safety during construction, and a sanitary environment by providing appropriate construction management and technical guidance.

(2) Climatic Conditions

The planned areas for this project are in an area which has a tropical climate, high humidity and little temperature difference, at the same time as not having a notable rainy season, so there will be no major problems during construction implementation, baring being struck by typhoons and extraordinary climatic conditions.

(3) Points to be Considered for Construction Work

1) Part of the role of the public market place is to serve as a meeting place for all manner of citizen's groups and numerous market related people, so special attention will need to be paid to safety policies not just within the construction site, but also in the surrounding areas. This is particularly so in cases when restoration work is being performed on an existing market and where facilities apart from those being restored or alternative stores are operating in the surrounding areas.

2) It will be necessary to pay attention to the temporary facilities plans, the construction work plans, safety and sanitary policies, etc. at the Sapang Daraga and Oroquieta markets in Misamis Occidental Province as it will be difficult to supply adequate power, water and heavy construction equipment, and so forth.

3) The building construction for this project, apart from the foundations section, will utilize a uniform module and uniform materials and construction methods at all sites and will take into consideration the prefabrication of building materials as much as possible, at the same time as striving to standardize and maintain the performance and quality of the building.

4) Locally sourced building materials and local workers will be used as much as possible, and the project will take into consideration improving the local construction techniques by providing appropriate guidance, education and administration.

5) In cases where an existing market place is to undergo restoration construction work the site is limited so it will be difficult to provide facilities within the site for temporary offices, steel processing areas, materials storage areas, work areas and so forth, so discussions will be held with the appropriate city authorities before the work commences, and a temporary work plan which does not obstruct the construction work will be implemented.

5 - 4 - 3 Division of Work

In cases of the execution of the work under grant aid form Japan, the division of the scope of work between the Japanese side and the Philippine government side is as follows in Table 5-4-1:

Table 5 – 4 – 1

Japan Side	Republic of the Philippines
1. Construction work Structure, Architectural finishing	1. Construction work Removal of obstructions from within the site
2. Electrical power facilities work Power receiving and transforming station, main power and main line facilities, lighting, outlet facilities, interphone facilities, broadcasting facilities, lightning protection facilities.	2. Grading work Felling of existing vegetation, removal of roots and ground levelling work
3. Water supply, sewage, sanitary and ventilation facilities Water supply facilities, seage and ventilation facilities, sanitary equipment facilities, overhead water supply tanks	3. Exterior Work Landscaping, plantation and general outdoor fencing
4. Exterior Work Roads within the compound, outdoor lighting facilities, car parking, space for road side vendor stalls	4. Connection with all infrastructure Water supply, electrical power, telephone
5. Store partitions	5. Fixtures and furnishings Curtains, general furniture, rubbish tins for individual stores, office equipment
6. Sales counters	6. Miscellaneous Construction plan notification procedures Customs clearance at time of landing and tax exemption
7. Fire extinguishers, rubbish collection bins, signs and notice boards	7. Costs incurred by bank arrangement 8. Costs required for maintenance, operation and administration

5 - 4 - 4 Construction Supervising Plan

After the Exchange of Notes has been concluded, the Japanese Consultant and the Government of the Philippines (Department of Interior and Local Government) will sign a consultation contract, and in accordance with the Basic Design Study policies discuss and coordinate full details of the project execution plan, bidding, contracting, construction work and so forth.

As for the execution plan, the implementation schedule will be studied between persons in charge on Japanese site and the DILG. In order to define the scope of work of each side, and plan a suitable commencement date for the connection of electrical power, etc. It will be necessary to define a detailed construction schedule for liaising with the Ministry representatives regarding the delivery time of

construction materials which are subject to exemption of tax, and so forth. It is important to have a suitable cooperative relationship between the Japanese construction company and a local construction companies, and the Japanese side must clearly define the responsibilities to be borne by the contractor and the sub-contractors. It is necessary to oversee the construction work by establishing a staffing structure and organizationally system to ensure the smooth implementation of the project.

(1) Guideline of the Supervising Plan

1) While maintaining close contact with the Department of Local and Interior Government and other related organizations in both countries, reports will be produced on an as needed basis, and it will be endeavoured to complete the facilities in accordance with the construction schedule.

2) In order to give concrete expression to the objectives of this project prompt guidance and advice will be given to the construction implementation staff, when appropriate.

3) Appropriate guidance and advice will be given to the Republic of the Philippines in order to ensure smooth operation of the facilities after they have been completed.

4) Spot supervision will be undertaken, and appropriate technical specialist will be dispatched as the construction work progresses.

(2) Details of the Construction Work Supervising

1) Assistance relating to work contract
Select the companies implementing the construction work, decide the type of construction contract, production of draft construction contracts, check the detailed breakdown of work and witness the work contracting.

2) Dispatch of supervisor to the site
Dispatch appropriate technical specialist in a timely manner in accordance with the work progress.

3) Inspection and approval of construction drawings
Study the construction drawings, materials, finishing samples and

facilities machinery which has been submitted by the companies implementing the construction work.

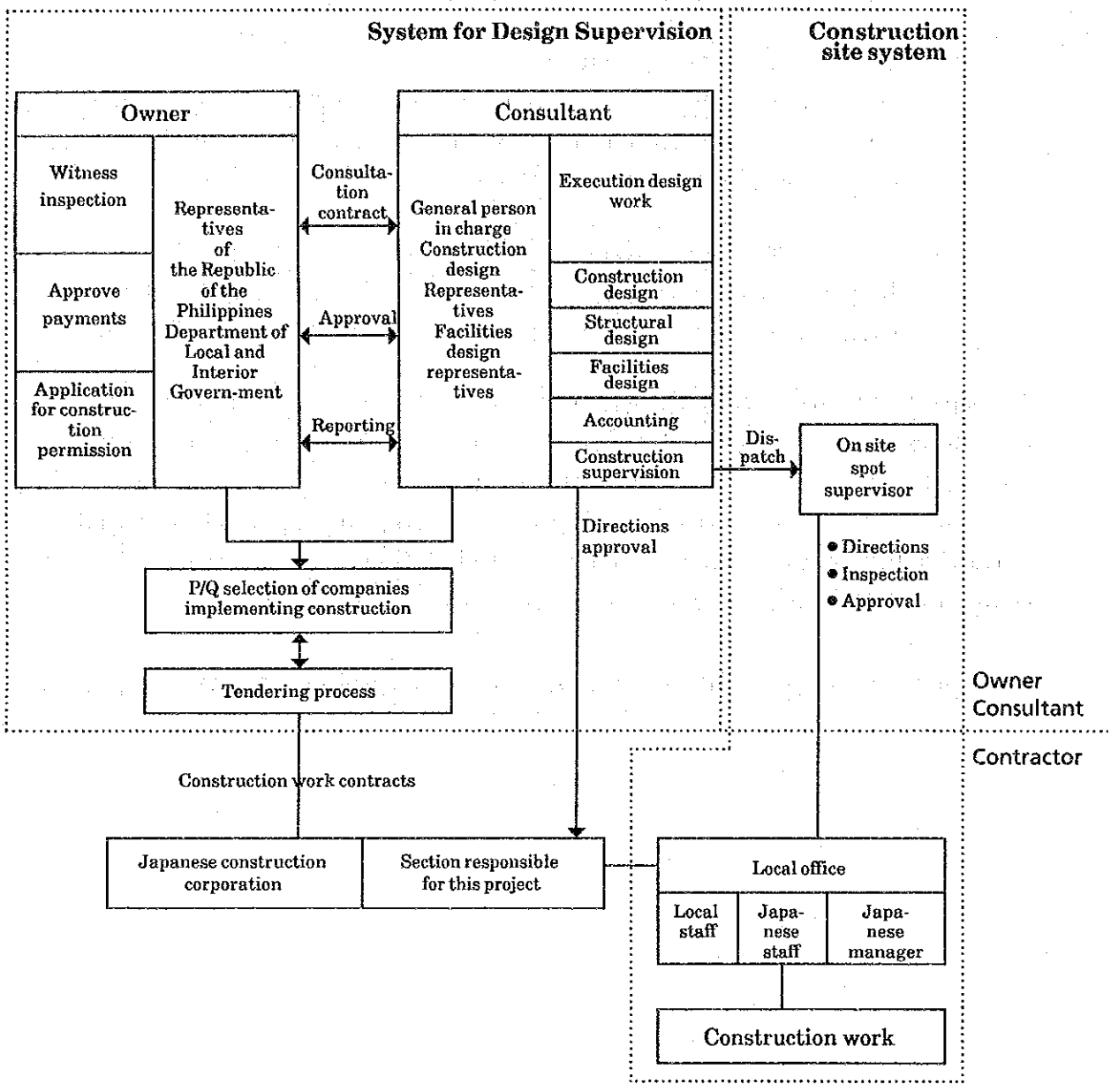
4) Construction work guidance
Inspect the construction plan and construction schedule, provide guidance for the companies implementing the construction and report on the work progress to the Owner.

5) Assistance in payment approval procedures
Inspect the details of invoices etc, for the payment of construction work cost, cooperate with the procedures and check the completion of work.

The Consultant will complete its services after confirming proper execution of the contractual conditions after the completion of work, attending the delivery of the objectives of the Contract, and obtaining the acceptance certificate. The Consultant will also report the work progress during the construction period and details relating to payment procedure and delivery of the work after the completion for authorities concerned of the Government of Japan.

The Construction Work Supervising System for this project is shown in Fig. 5-4-1.

Fig. 5 - 4 - 1 System for Construction Work Supervision



5 - 4 - 5 Equipment and Material Procurement Plan

(1) Construction

1) Construction materials

As a general rule, materials which can be locally procured will be used, but there are doubts about the standards, quality performance and so forth of the steel and roofing sheet iron, etc. so after confirming the local materials, it is possible that these materials will also be imported.

2) Construction Equipment

These buildings will avoid as much as possible the use of special structures, materials and construction methods and will be built using heavy construction equipment locally available.

(2) Electrical facilities

The general rule will be local procurement, but as there are doubts about the quality, performance and so forth of the power distribution panels, light electrical appliances, transformers, etc. these will be mainly imported,but it is also possible that locally produced items will be used if the quality and performance can be confirmed on site.

(3) Mechanical equipment

For the same reasons as the electrical facilities the pumping equipment will be mainly imported.

The procurement source of the major construction materials are shown below in table 5-4-2.

Table 5 - 4 - 2: Procurement plan for construction materials

Material name	Local procure-ment	Japanese procure-ment	Procured from a third nation	Remarks
1. Sand, gravel	●		As a general rule no equipment will be sourced from third nations.	
2. Cement	●			
3. Timber	●	○		Standards, performance and quality checks required.
4. Re-bar	●	○		"
5. Concrete block	●			
6. Tile	●			
7. Wooden fittings	●			
8. Metal fittings	●			
9. Glass	●			
10. Water-proof material	●			
11. Sheating plywood	●			
12. Roof sheet metal	●	○		Standards, performance and quality checks required.
13. Plastic tiles	●			
14. Ceiling board	●			
15. Paint	●	○		
16. Miscellaneous hardware	●			
17. Power distribution board	○	●		Standards, performance and quality checks required.
18. Lighting facilities	●	○		"
19. Telephone equipment	○	●		"
20. Electric cable and duct	○	●		"
21. Wiring equipment	●	○		"
22. Transformer	●	○		"
23. Light electrical appliance	○	●		"
24. PVC pipe	●	○		"
25. Sanitary fixture	●	○		"
26. Over head tank	○	●		"
27. Pump	○	●		"

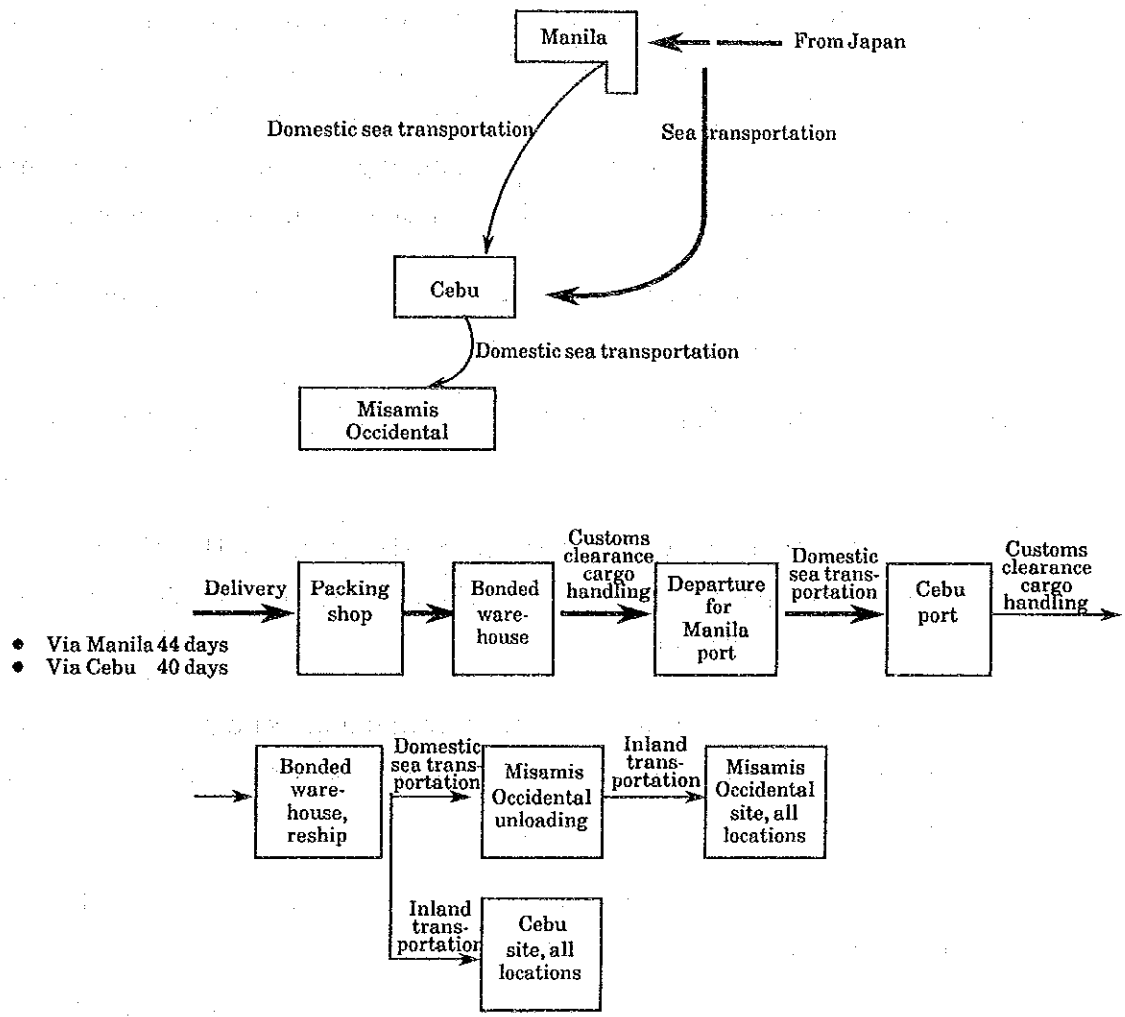
Note: ● General rule

○ will be used after the conditions in the Remarks column have been confirmed.

5 - 4 - 6 Inland Transportation Plan

(1) Transportation routes and the number of days required for transportation

Fig. 5-4-2 Transportation routes and the number of days required for transportation



(2) Packing types

As a general rule normal construction materials are shipped in containers in order to ensure the reliability and safety of volumes and quality.

5 - 5 Project Execution Plan

5 - 5 - 1 Project Execution System

(1) Project Executive System

The Department of Internal and Local government is the main organizer of this project on the side of the Republic of the Philipines, and the Japanese consultant and construction corporation will become the contract parties. The Government of the Republic of the Philippines will undertake the procedures relating to the Notes to be exchanged between both governments and arrangement with the bank as well as procedure for tax exemption.

The following are the services to be carried out by Republic of the Philippines side relating to this project.

After the E/N with the Government of Japan, Republic of the Philippines side will:

1) Sign a design supervising service contract with the Consultant (Japanese company) and have the Consultant prepare the execution plan and tender documents.

2) Carry out bid after announcement in newspapers and prequalification based on the tender documents and select contractor (Japanese company).

3) Sign a contract with the selected contractor and obtain approval of the Government of Japan.

4) Execute and control the work items within the scope of Republic of the Philippines side prior to the starting of the construction work.

5) Issue certificates of each inspection conforming to the contract after the starting of the construction work.

6) Issue the certificate of completion.

7) Carry out bank related services regarding payments.

Without proper systematization to carry out these services in smooth and assured manner, it will be difficult to complete the project in accordance with the conditions of Grand Aid programe.

(2) Consultant

The services will be carried out by Japanese Consultant. The services will consist of the following.

1) Execution design services
Preparation of tender documents such as execution plan documents, specifications, etc.

2) Bid contracting services
Prequalification of bidders, bid services, attendance to contract signing

3) Supervising of construction work

(3) Contractor

The services will be carried out by Japanese contractor. Consequently, the priority must be given to the conformity with this system and the delivery schedule, especially, must be observed.

5 - 5 - 2 General Project Schedule

In the case of execution of this project under the Grant Aid from the Government of Japan, the following processes will generally be observed inccordance with the aid system:

1) Conclusion of the Exchange of Notes (E/N) between the two governments

2) Conclusion of the consultation contract

- Execution design services: preparation of detailed drawings, specifications, structural calculation sheets and cost estimation.

3) Approval of the execution design drawings from the Republic of the Philippines side

4) Construction work tendering

- Public announcement in the newspapers
- Prequalification of bidders
- Bid
- Signing construction work contract

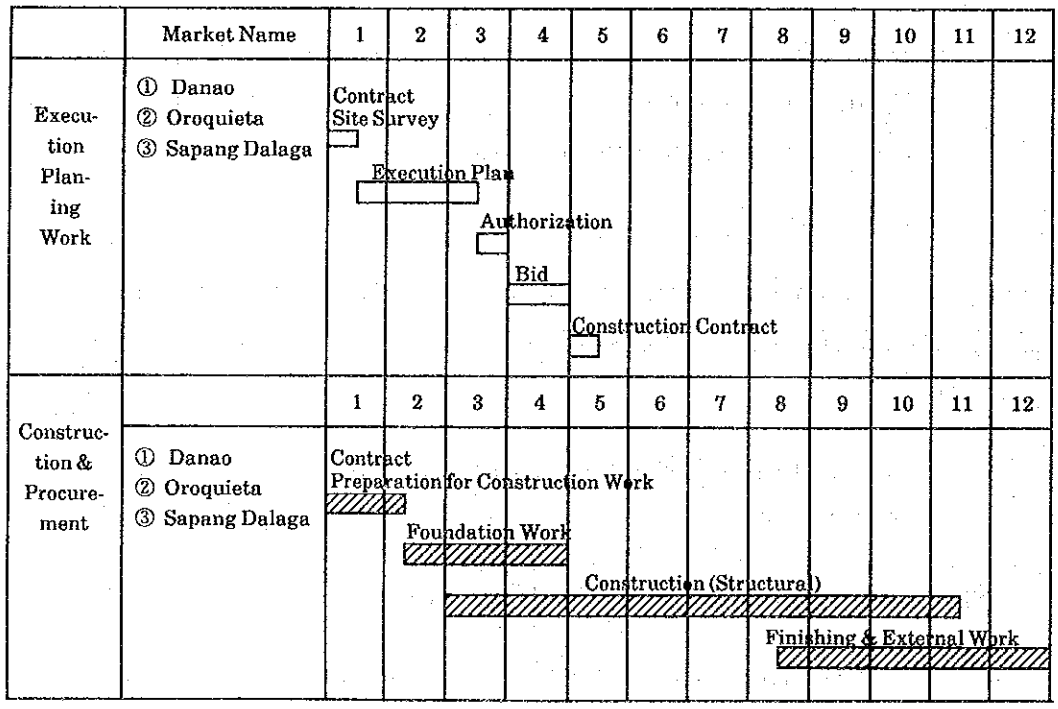
5) Commencement of construction work

- Construction work will commence after the construction work contract has been signed and approval has been received from the Government of Japan.

The Construction period required by the Japanese side for work after the consultation contract has been signed are shown as follows in Table 5-5-1, General Project Schedule.

Project Schedule

Table 5 - 5 - 1 Project Schedule



5 - 5 - 3 Estimated Project Cost

In accordance with the construction Plan and the execution plan, shown below are the division of the scope of work between the Japan side and Republic of Philippines side and the total estimated cost for execution of project on Philippinnes side.

(1) Division of Work

The work to be carried out by the Japan side involves certain items which should be relalized by Republic of the Philippines side. The following Table 5-5-2 shows the division of work related to this Project. Among the works to be undertaken by Republic of Philippines side, site preparation work must be completed prior to the starting of the work to be carried out by the Japanese side.

Table 5 - 5 - 2 Division Work

Government of Japan	Government of the Republic of the Philippines ※
Construction work Building 1) Market place ① Partitions between stalls, sales counters ② Administration office ③ Public toilets ④ Rubbish collection areas ⑤ Miscellaneous, storage, loading docks, etc 2) Slaughter house ① The slaughter house ② Waste water treatment facilities ③ Hoists and rail equipment Infrastructure 1) Water supply facilities (including incoming water supply and overhead water tank) 2) Drainage facilities (storm water and sewage) (however, limited to within the site) 3) Sub-Station (including transfomers) External work 1) Street lighting 2) Paving (however, limited to within the site) 3) Roads within the compound, car parking, space for road side stalls, partitions between markets	Construction work Site acquisition 1) Construction site 2) Site for temporary office and site for construction work use Removal of obstructions 1) Removal of existing buildings etc. which will hinder construction work being carried out by the Japan side. Infrastructure 1) Water supply connection (up to the site boundary) 2) Electrical power supply connection (up to the transfomer room) Landscaping, plantation Fixings and appliances (furniture, curtaines, etc)

In addition to the items listed in the table above, the Republic of the Philippines will also undertake the following procedural work and bear the various costs incurred doing so.

1) Bank arrangement
2) Import taxes levied on imported construction materials and exemption of local taxes
3) Exemption from duties, taxes and other fees levied domestically in the Republic of the Philippines on Japanese staff working on the execution of this project, on a contractual basis
4) Provide all necessary conveniences to the above mentioned Japanese staff for their entry, exit and residence in the Republic of the Philippines in order to execute the project
5) Legal procedures required in the Republic of the Philippines relating to this project

(2) Estimated Project Cost

In case of the execution of the project with grant aid from Japan the total estimated cost on Republic of the Philippines side is approximately ₱4,520,000.-.

- Land preparation ₱3,700,000.-
- Connection with all infrastructure ₱520,000.-
- Fixings and appliances ₱300,000.-

Cost estimation - May 1992 (The end of field survey)

CHAPTER 6 EFFECTS AND CONCLUSION OF THE PROJECT

CHAPTER 6 EFFECTS AND CONCLUSION OF THE PROJECT

6 - 1 Effects of the Execution of the Project

The Republic of the Philippines is promoting a policy (The Republic of the Philippines, Regional Government Development Plan) which aims to improve the lifestyles of the local citizens and strengthen the economic base of the regional governments, while supporting the technical and economic independence of the regional governments. This policy secures resources and technical skills for the regional authorities and encourages regional economic development at the heart of the government bodies by attempting to strengthen and stabilize the regional economies. This policy disperses administration and economic development, which was centralized in the past, to the regions. This widely contributes to the lifestyles of the nations people as it aims to develop and improve a uniform social economic foundation over the entire of the Republic of the Philippines.

This project will give priority to the restoration of public market places, which directly effect the lifestyles of local citizens and the regional economy, especially those that are located in areas which were damaged by the powerful typhoon Ruping which struck in December 1990, and which have been designated as important areas in the "Regional Government Development Plan". In the Philippines public market places (especially those in the regions) are vital facilities which are inseparable from the lifestyles of the local citizens as over 70% of the goods required by the citizens for daily living are distributed through the public markets. Public markets are also one of the principal facilities sustaining the economy of the regional government.

The operating system for these Public Markets has been improved and been in operation. Furthermore, the income of the markets after restoration will double based upon conservative estimates, it will be possible to maintain and manage the market without any problems.

Therefore, this project will directly contribute to the stabilization and improvement of the citizen's lifestyles, at the same time as assisting the independence of the regional government. A wide range of beneficial effects are expected from this project which supports the policies of the Government of the Philippines.

The direct effects of the execution of this project are shown in Table 6 - 1 - 1.

Table 6 - 1 - 1: Direct Effects of the Execution of this Project

Existing conditions and problem points	Measures to be taken under this plan	Effects of this project and the level of improvement
1. Danao Market ① Extremely dangerous and unhygienic due to typhoon damage and dilapidation. ② Both inside and outside the market are extremely congested due to a section of the building being unusable as it is dangerous, in addition to the site being small. ③ There is no car parking, which obstructs traffic due to vehicles being parking on the road. ④ The market can not cope with users requests as there is no scope for improvement of the facilities. ⑤ The site is below the road level, so it is unhygienic due to inadequate drainage. ⑥ Number of existing stalls: 370 (The number of stalls requested has been revised from 350 to 500. The reason that the number of existing stalls is less is that a section of the building is unusable due to typhoon damage and dilapidation.)	Relocate and newly construct the market on a new site, with adequate car parking facilities, space for road side stalls, and provide ancillary facilities, etc. Furthermore, construct and position the building so that it can easily cope with future expansion, etc.	401 stores will be able to tenant the new market. Furthermore, the plot adjoining the new site, which is about the same area as the new site, has been secured as a site for future expansion, and a section of this site can used for road side stalls and temporary stores. The car parking space has also been secured on the adjoining site facing the river, and this will relieve the existing congesting and problem of vehicles parking on the road. The market environment and the drainage hygiene facilities will be greatly improved.
2. Oroquieta Market ① The Barracks section, which has been damage by fires and typhoons in recent years, is in a dangerous condition and is extremely unhygienic as the floor is not paved and the drainage is inadequate. ② The low ceiling, narrow corridors and lack of lighting hinders operation of the stores. ③ The slaughter house alongside the Layawan River is extremely dilapidated and unhygienic, in addition to not meeting Philippines standards, so a relocation recommendation has been received from the government.	The market consists of 4 blocks, and there is little urgency for the emergency restoration of two of the buildings, so this project will be limited to the restoration of the Barracks section and the construction of the slaughter house. (The original request included the restoration of all 4 blocks and the slaughter house, and the total number of stores requested was over 520, but the restoration was limited so only 170 stores will be provided.)	The site is limited and there is no space for expansion, so 143 stores will be able to tenant the 170 stores requested. Furthermore, the toilets, incoming water supply tank, over head water tank and some space for car parking will be provided, and the market environment and the drainage hygiene facilities will be greatly improved.

Existing conditions and problem points	Measures to be taken under this plan	Effects of this project and the level of improvement
3. Sapang Dalaga Market ① There is a danger that the main market place building, which is located in the center of the site, could collapse as the result of typhoon damage and dilapidation. ② The entire market site in this ravine town is terraced, and the fish and meat market, and toilet buildings are located on the lower level. ④ There is no slaughter house so it will need to be newly constructed. ⑤ Number of existing stores: 95 (The main market place building is in an extremely dilapidated and dangerous condition, so there are many road side stalls operating.)	The main market place building, which is in danger of collapsing will be reconstructed. Due to planned power outages the state of the water supply is extremely bad, so a well and hand operated pump will be installed. Furthermore, a new slaughter house will be constructed.	It will be necessary to construct a building with structural uniformity as the location for the building to be reconstructed is limited and the ground is not very good. 117 stores will be able to tenant the new market as opposed to the 105 stores requested. As there are currently a large number of road side stalls operating due to the current conditions of the facilities and the environment, the demand for stores will increase once the building environment has been restored, so the number of stores is greater than the request in order to avoid problems. Furthermore, Sanitary conditions will be greatly improved by the construction a new slaughter house.

6 - 2 Conclusion

This project will not just be limited to the restoration of the public market facilities as described above in 6 – 1 Effects of the Execution of the Project, but it will also greatly contribute to regional advancement. This project has a large number of beneficial effects and it has been determined that this project is appropriate to be implemented using grant aid.

Furthermore, if the following points can be improved this project will be able to be implemented even more smoothly and effectively, so we strongly requested that they be resolved:

1. Strengthening the administrative and management systems
2. Improvements to the infrastructure facilities surrounding the sites
3. Thorough cleaning
4. Traffic control
5. Strengthening and preparing facility maintenance and management systems

In addition, even without altering the existing rental fee ratios it will be possible to easily pay for the maintenance and management costs for the markets which will be better than current conditions. At the same time it will also be possible to ensure funds for the ongoing preservation and improvement of the facilities, which was hardly done at all in the past, and it is hoped that this will lead to independent development of maintenance and management by the city authorities.

At last, as the result of this study, there is a strong need to improve the Lapu Lapu Market, CarCar Market and Toledo Markets, but no prospect for site preparation (land acquisition, too soft and weak of soil condition for a building site, etc.) of these markets has been reached.

APPENDIX

A－1－1 MEMBERS OF THE FIELD SURVEY TEAM

• Satoshi MACHIDA	Leader Deputy Director Second Basic Design Study Division Grant Aid Study & Design Department Japan International Cooperation Agency
• Naohiro WATARI	Grant Aid Planner Researcher, Grant Aid Division Economic Cooperation Bureau Ministry of Foreign Affairs
• Yukimasa SANO	Project Manager (Architectural Planner (1)) Ishimoto Architectural & Engineering Firm, Inc.
• Saburo SEKIGUCHI	Architectural Planner (2) Ishimoto Architectural & Engineering Firm, Inc.
• Makoto YAMADA	Expert for Public Market Design (Overseas Merchandise Inspection Co., Ltd.) Ishimoto Architectural & Engineering Firm, Inc.
• Yoshihisa OMURA	Utility Engineer Ishimoto Architectural & Engineering Firm, Inc.
• Koji FUKUCHI	Marketing Expert (Overseas Merchandise Inspection Co., Ltd.) Ishimoto Architectural & Engineering Firm, Inc.
• Makoto HARADA	Expert for Construction Management (Overseas Project Management, Inc.) Ishimoto Architectural & Engineering Firm, Inc.
• Takeshi HAGIWARA	Architectural Planner (support)

A－1－2 MEMBERS OF THE DRAFT MISSION (SEPT. 10 ~ SEPT. 18, 1992)

• Koichi MIYOSHI	Leader Director Second Basic Design Study Division Grant Aid Study & Design Department Japan International Cooperation Agency
• Yukimasa SANO	Project Manager (Architectural Planner) Ishimoto Architectural & Engineering Firm, Inc.
• Koji FUKUCHI	Marketing Expert (Overseas Merchandise Inspection Co., Ltd.) Ishimoto Architectural & Engineering Firm, Inc.
• Yoshihisa OMURA	Utility Engineer Ishimoto Architectural & Engineering Firm, Inc.

COOPERATOR

• Takuya IKEDA	First Secretary Embassy of Japan
• Satoshi MACHIDA	Japan International Cooperation Agency (JICA) Philippine Office
• Kenji MATSUMOTO	JICA, Philippine Office

A – 2 – 1 MEMBERS OF THE FIELD SURVEY TEAM SPOT INVESTIGATION ITINERARY

◎	Machida / Watari	Leaders
Ⓐ	Sano	Architectural Planner
Ⓑ	Sekiguchi	Architectural Planner
Ⓒ	Yamada	Public Market Reconstruction
Ⓓ	Omura	Utility Engineer
Ⓔ / Ⓔ'	Fukuchi / (Hagiwara)	Distribution marketing (Assistant Architectural Planner)
Ⓕ	Harada	Construction Management

Legend: Travel; Stay in Manila; Stay in Cebu; Stay in Misamis Occ.

※ In the day number column indicates a local holiday

Day Number	Month/ Date Day	◎	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ Ⓔ'	Ⓕ	DETAILS OF WORK	
1	3/16 (Mon)								Depart Narita 10:00 → Arrive Manila 13:25 Preparatory meetings with the Department of Interior and Local Government (DILG). Study planning, preparations.	
									ⒶⒹⒻ Surveying and Boring Study planning Ⓒ Gather economic/marketing related documents Ⓓ Gather legal/regulatory/technical related documents	ⒶⒹ Confirm the pending questions which were raised at the time of the basic design study
2	3/17 (Tue)								Preparatory meetings with the JICA and DILG offices, greetings at the Japanese Embassy, meetings within the group.	
									As above.	
3	3/18 (Wed)								Discussions with DILG	
									As above.	
4	3/19 (Thu)								Depart Manila → Arrive Cebu, Consultation and site studies in Lapu-Lapu.	
5	3/20 (Fri)								Cebu, Site Study meetings, Consultation and site study in Carcar and Danao	
6	3/21 (Sat)								Cebu, Site Study meetings, Consultation and site study in Toledo	
7 ※	3/22 (Sun)								Internal consultations	Ⓔ Depart Narita 14:55→ Arrive Cebu 18:55
									Research and arrangement of study facts	

◎	Machida / Watari	Leaders	
Ⓐ	Sano	Architectural Planner	
Ⓑ	Sekiguchi	Architectural Planner	
Ⓒ	Yamada	Public Market Reconstruction	
Ⓓ	Omura	Utility Engineer	
Ⓔ / Ⓔ'	Fukuchi / (Hagiwara)	Distribution marketing (Assistnt Architectural Planner)	
Ⓕ	Harada	Construction Management	

Legend: Travel; Stay in Manila; Stay in Cebu; Stay in Misamis Occ.

※ In the day number column indicates a local holiday

Day Number	Month/ Date Day	DETAILS OF WORK	
8	3/23 (Mon)	◎ⒶⒸⒹ Depart Cebu → Arrive Misamis Occ.	ⒷⒺⒻ remain in Cebu, Site Study meetings, Lapu-Lapu
		① Oroquieta Site Study meetings (same as the Cebu studies)	Ⓔ primarily conducts marketing research ⒹⒻ primarily conduct research on transportation, distribution, port, materials, labor, construction machinery, work laws, costs, etc. (the amount of research will be decided on site)
9	3/24 (Tue)		As above, Car-Car
		② Sapang Dalaga Site Study meetings As above	As above
10	3/25 (Wed)	◎ⒶⒸⒹ Depart Misamis Occ. → Arrive Manila	As above, Danao
		Research and arrangement of study facts Internal Discussion	As above
11	3/26 (Thu)	◎ⒶⒸⒹ	As above, Toledo
		Consultations with DILG Prepare a draft of the minutes	As above
12	3/27 (Fri)	Signing of the minutes at the DILG office	As above, in Cebu
		Inform the minutes to JICA	Collect general information for construction
13	3/28 (Sat)	ⒶⒸⒹ Depart Manila → Arrive Cebu (unite the entire group)	As above in Cebu
		Internal meeting	As above
14 ※	3/29 (Sun)		Ⓔ' Depart Narita 14:55 → Arrive Cebu 18:55
		Meetings within the group	
15	3/30 (Mon)	All members partake in preliminary Site Study meetings and planning	
		Meetings for all study details and all future study plans	

◎	Machida / Watari	Leaders
Ⓐ	Sano	Architectural Planner
Ⓑ	Sekiguchi	Architectural Planner
Ⓒ	Yamada	Public Market Reconstruction
Ⓓ	Omura	Utility Engineer
Ⓔ / Ⓔ'	Fukuchi / (Hagiwara)	Distribution marketing (Assistant Architectural Planner)
Ⓕ	Harada	Construction Management

Legend: Travel; Stay in Manila; Stay in Cebu; Stay in Misamis Occ.

※ In the day number column indicates a local holiday

Day Number	Month/ Date Day	DETAILS OF WORK	
16	3/31 (Tue)	ⒶⒸⒹ Cebu Site Studies (the order of site studies will be decided on site), Toledo	ⒷⒺⒺ'Ⓕ Depart Cebu → Arrive Misamis(the order of site studies will be decided on site), Oroquieta
		Ⓐ strengthen the research of ⒷⒻ, land usage, location planning Ⓓ do the same as Ⓐ Ⓒ strengthen the research of Ⓔ, scale planning	Ⓘ Misamis Site Studies (Same as the Cebu studies) Ⓔ' produce a physical plan
17	4/1 (Wed)	ⒶⒸⒹ Cebu, Site Studies, Danao	ⒷⒺⒺ'Ⓕ Misamis, Site Studies, Oroquieta
		As above	As above
18	4/2 (Thu)	As above, Lapu-Lapu	As above, Oroquieta
		As above	As above
19	4/3 (Fri)	As above, Car-Car	As above, Sapang Dalaga
		As above	As above
20	4/4 (Sat)	ⒶⒸⒹ Depart Cebu → Arrive Misamis, As above, Oroquieta	As above, Sapang Dalaga
		As above	As above
21 ※	4/5 (Sun)	As above, Oroquieta	As above, Sapang Dalaga
		As above	
		Depart Ozamis → Arrive Cebu	Depart Dipolog → Arrive Cebu
22	4/6 (Mon)	Internal meetings, All members study the physical plan for each sites	
23	4/7 (Tue)	As above	
		As above	

◎	Machida / Watari	Leaders	Legend: Travel
Ⓐ	Sano	Architectural Planner	Stay in Manila
Ⓑ	Sekiguchi	Architectural Planner	Stay in Cebu
Ⓒ	Yamada	Public Market Reconstruction	Stay in Misamis Occ.
Ⓓ	Omura	Utility Engineer	
Ⓔ / Ⓔ'	Fukuchi / (Hagiwara)	Distribution marketing (Assistant Architectural Planner)	※ In the day number column indicates a local holiday
Ⓕ	Harada	Construction Management	

Day Number	Month/ Date Day	DETAILS OF WORK
24	4/8 (Wed)	All members, depart Cebu → Arrive Manila　　Misamis, Site Studies Contract the Boring Test of the Sites. All members study the physical plans.
25 ※	4/9 (Thu)	All members,. Meeting with DILG As above
26	4/10 (Fri)	As above Arrange all of the studies, meetings and research of all of the sites Reconfirm the study facts Determine the scale of work, Arrangement of the production of a physical plan
27	4/11 (Sat)	As above As above
28 ※	4/12 (Sun)	(As above) (As above)
29	4/13 (Mon)	Meeting with DILG Primarily about the scale of facilities, details and physical plan
30	4/14 (Tue)	Meeting with DILG, Inform JICA and Embassy of Japan Receive supplementary explanations relating to DILG requests Request supplementary documents Reconfirm the future work schedule
31	4/15 (Wed)	Depart Manila → Arrive Narita

※ From 3/29(Sunday) until 4/15 (Wednesday) Mr. Hagiwara (Ishimoto Architectural and Engineering Firm, Inc. Architectural Planning) is strengthening on site research