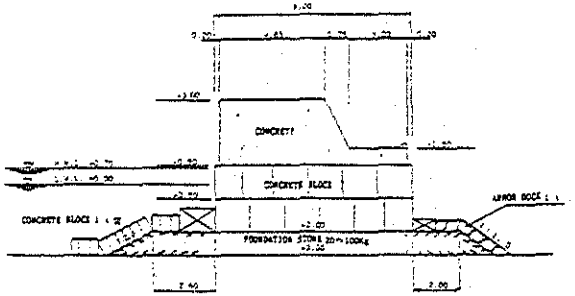
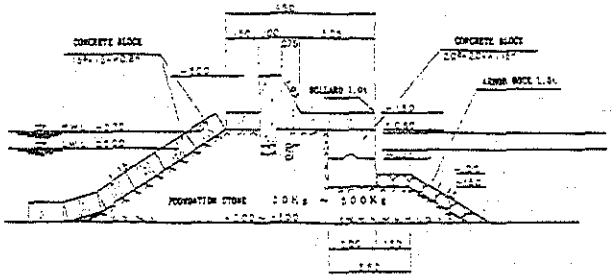
Table 4-3-3 COMPRISON TABLE FOR PROPOSED STRUCTURE OF NORTH BREAKWATER (LAY-By WHARF 60m)

ITEMS \ STRUCTURE			CONCRETE BLOCK TYPE	RUBBLE MOUND TYPE
OUTLINE OF STRUCTURE				
FEATURE	MERIT		EASY IN QUALITY CONTROL OF CONCRETE EASY IN MANUFACTURING FACILITIES AND RATHER EASY IN REPAIRS	RATHER SIMPLE IN WORKING SCHEDULE NOT REQUIRED HEAVY CONSTRUCTION EQUIPMENT POSSIBLE TO BULLDOZE RUBBLE STONE FROM LAND
	DEMERIT		REQUIRED HEAVY MARINE PLANT REQUIRED LARGE PLANT YARD	REQIURED TO STOCKPILE STONE
APPROX. QUANTITY	CONCRETE (m^3)	BLOCK	1,908 m^3	1,062 m^3
		INSITU Concrete	831 m^3	363 m^3
		TOTAL	2,740 m^3	1,425 m^3
	STONE (m^3)	FOUNDATION STONE	565 m^3	2,438 m^3
		ARMOR ROCK	117 m^3	175 m^3
		TOTAL	NIL	32 m^3
			682 m^3	2,645 m^3
	OTHERS	STEEL		
		BOLLARD	13 NOS	13 NOS
ROUGH EWSTIMATE COST ONLY DIRECT COST (MILLION)			¥ 145.0 MILLION	¥ 85.0 MILLION
CONSTRUCTION PERIOD (MONTH)			5 MONTH	4 MONTH
EVARUATION			×	○

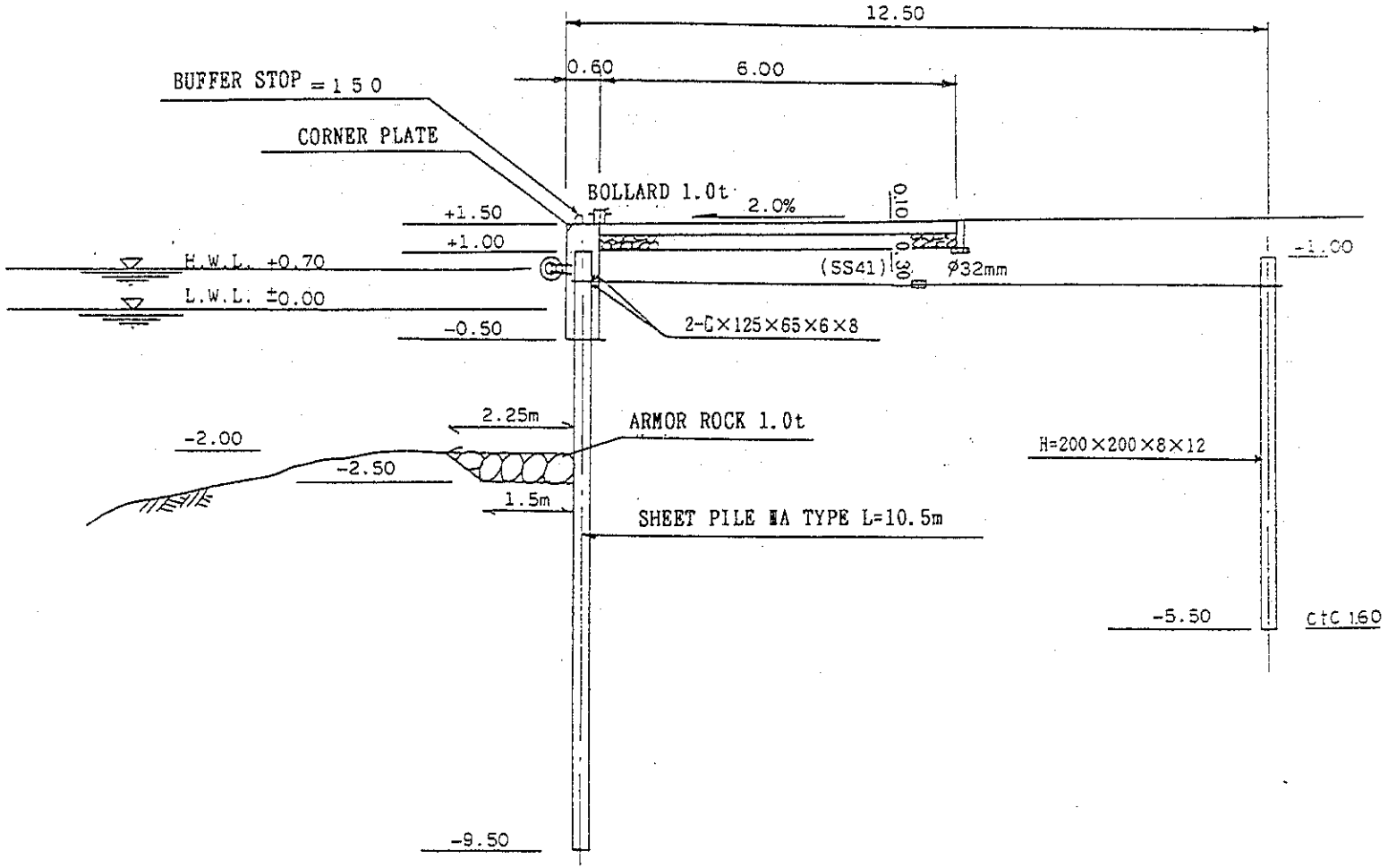


Fig. 4-3-2 Typical Cross Section of Wharf

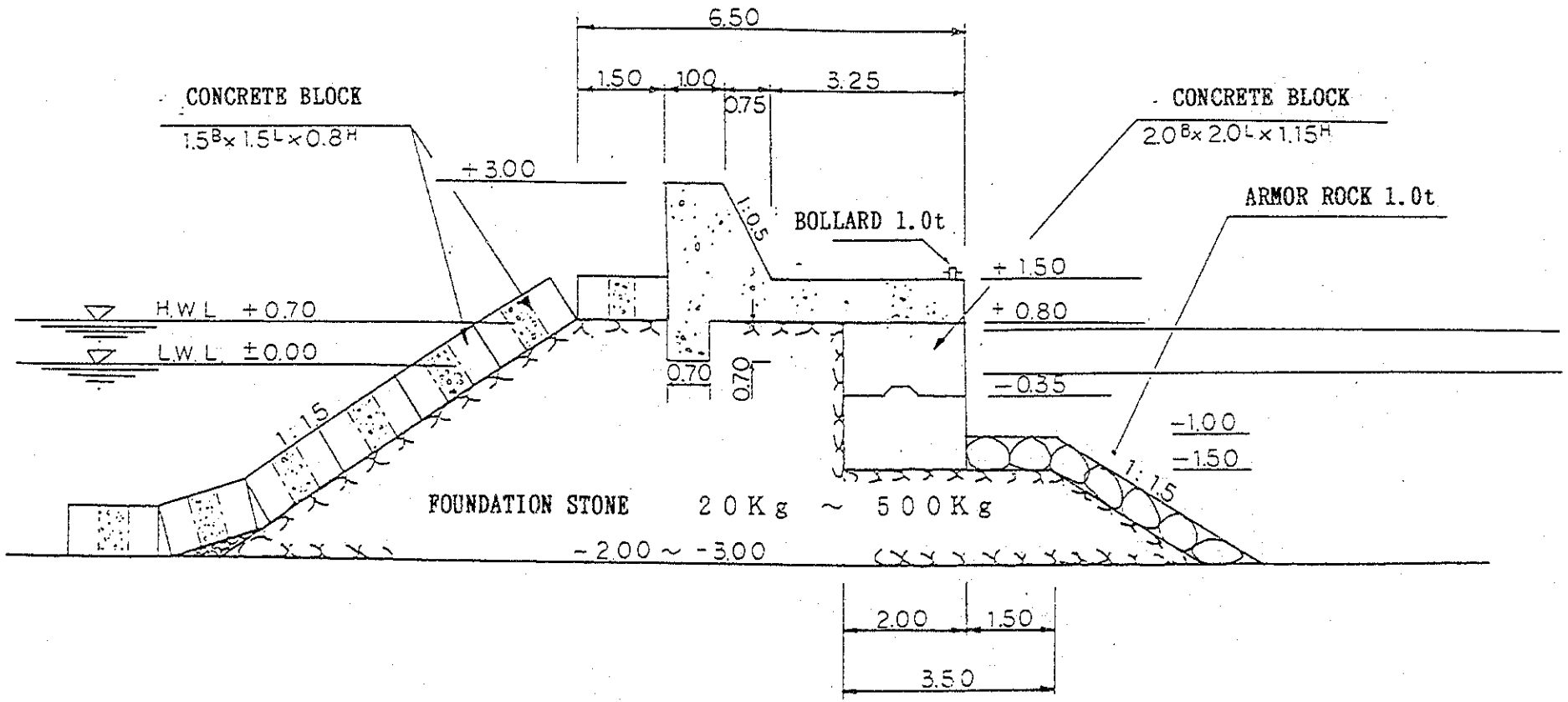


Fig. 4-3-3 Typical Cross Section of North Breakwater (Section B-B)

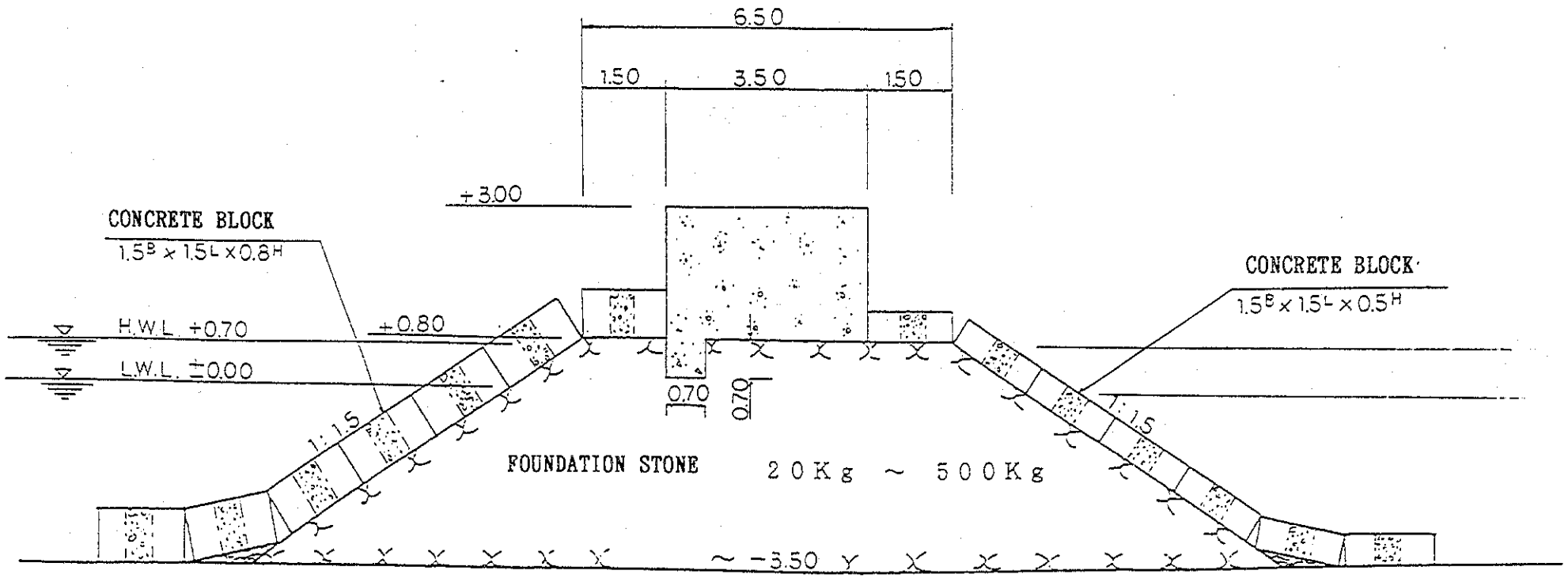


Fig. 4-3-4 Typical Cross Section of North Breakwater (Section A-A)

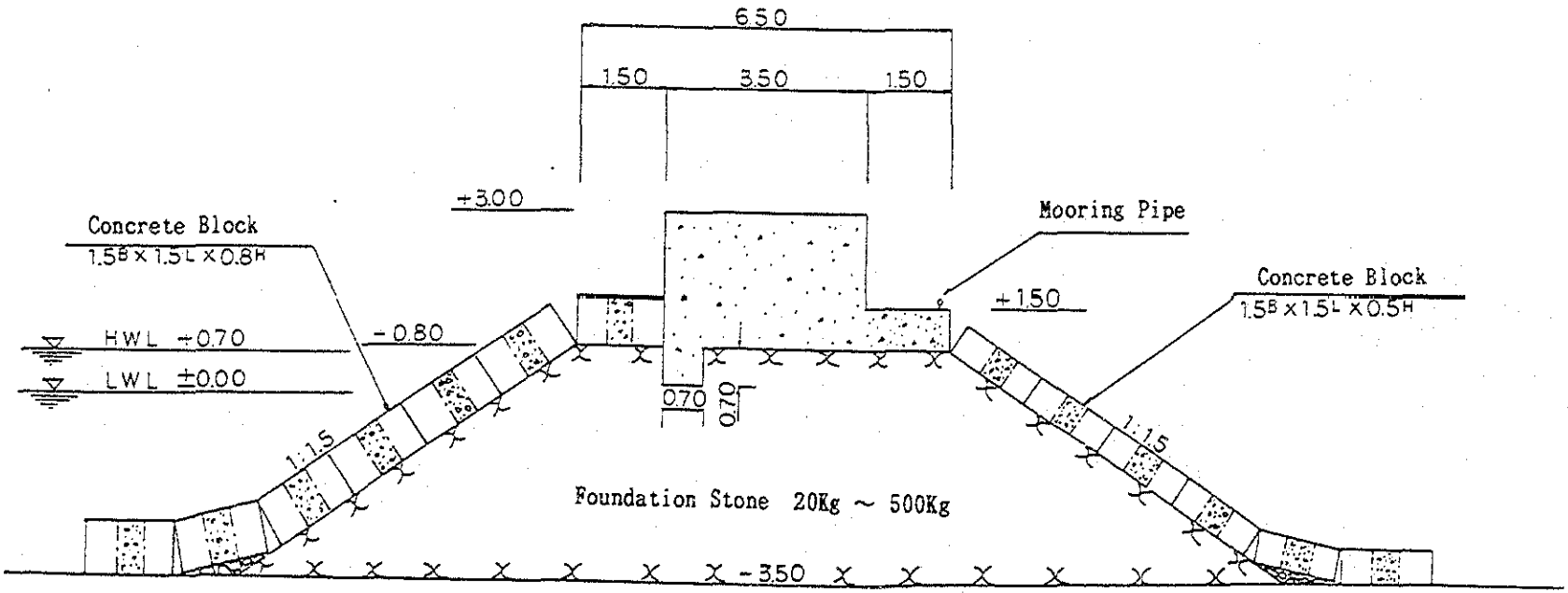


Fig. 4-3-5 Typical Cross Section of North Breakwater (Section A'-A')

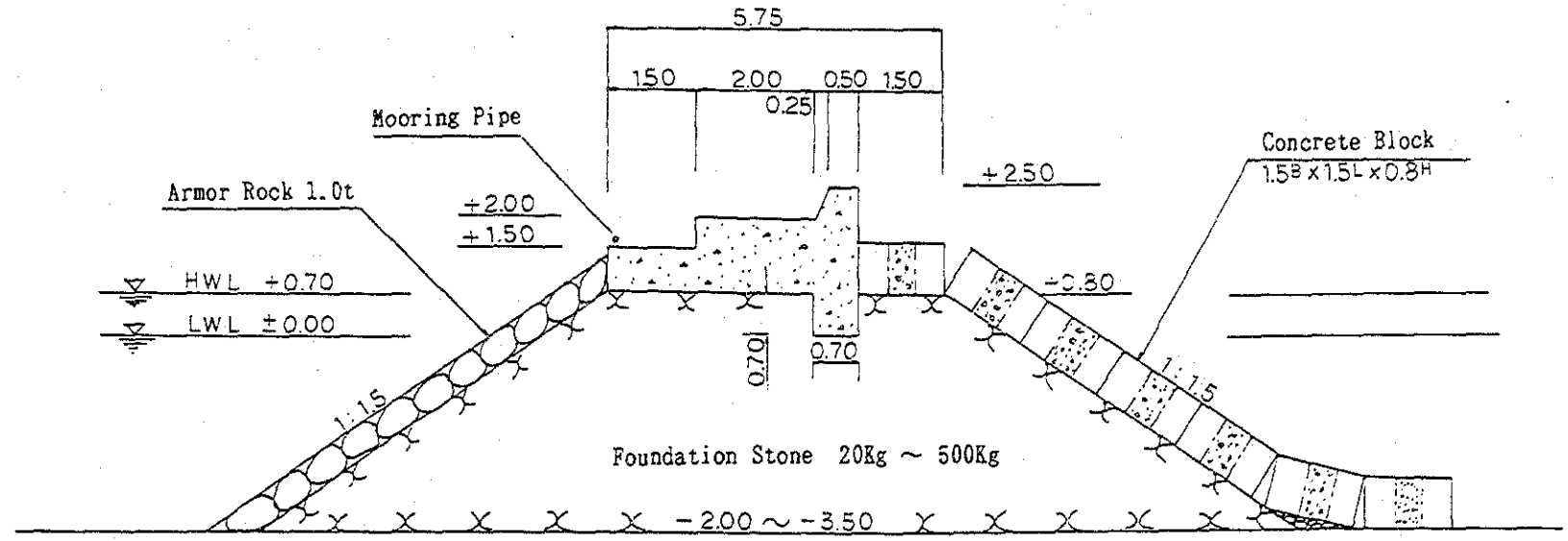
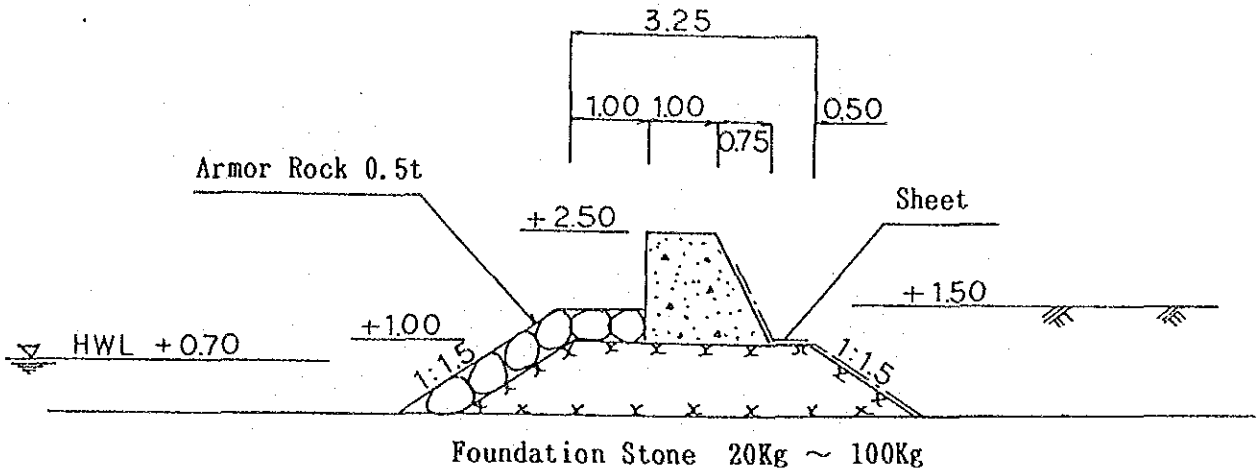


Fig. 4-3-6 Typical Cross Section of South Breakwater (Section C-C)

(North)



(South)

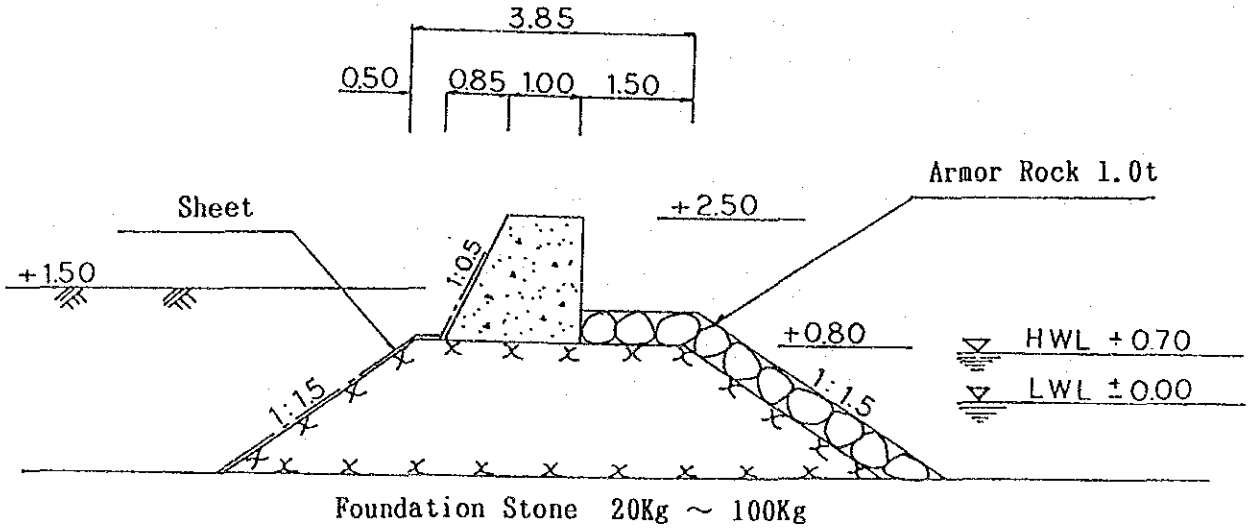


Fig. 4-3-7 Typical Cross Section of Revetment

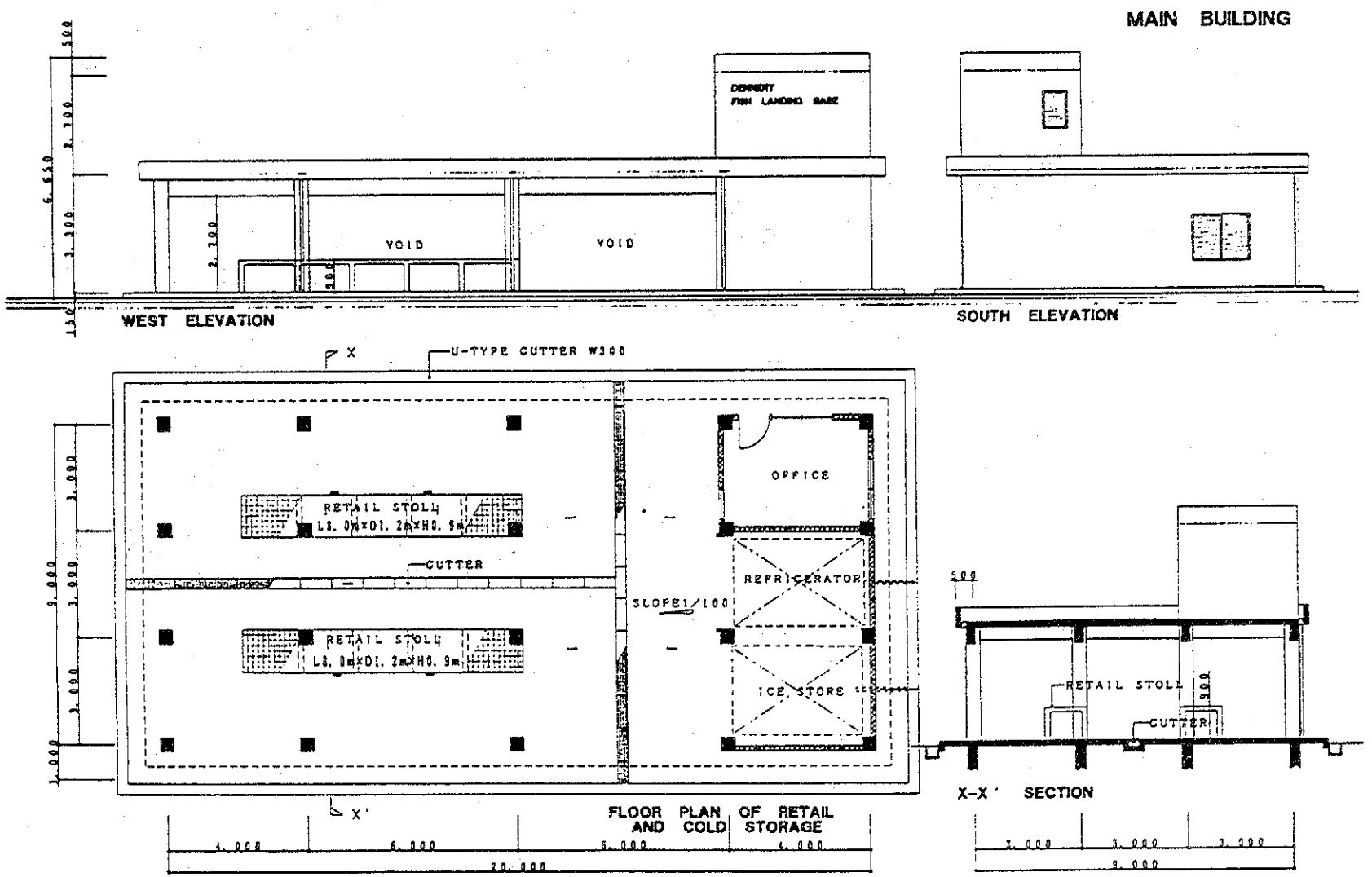


Fig. 4-3-8 Main Building

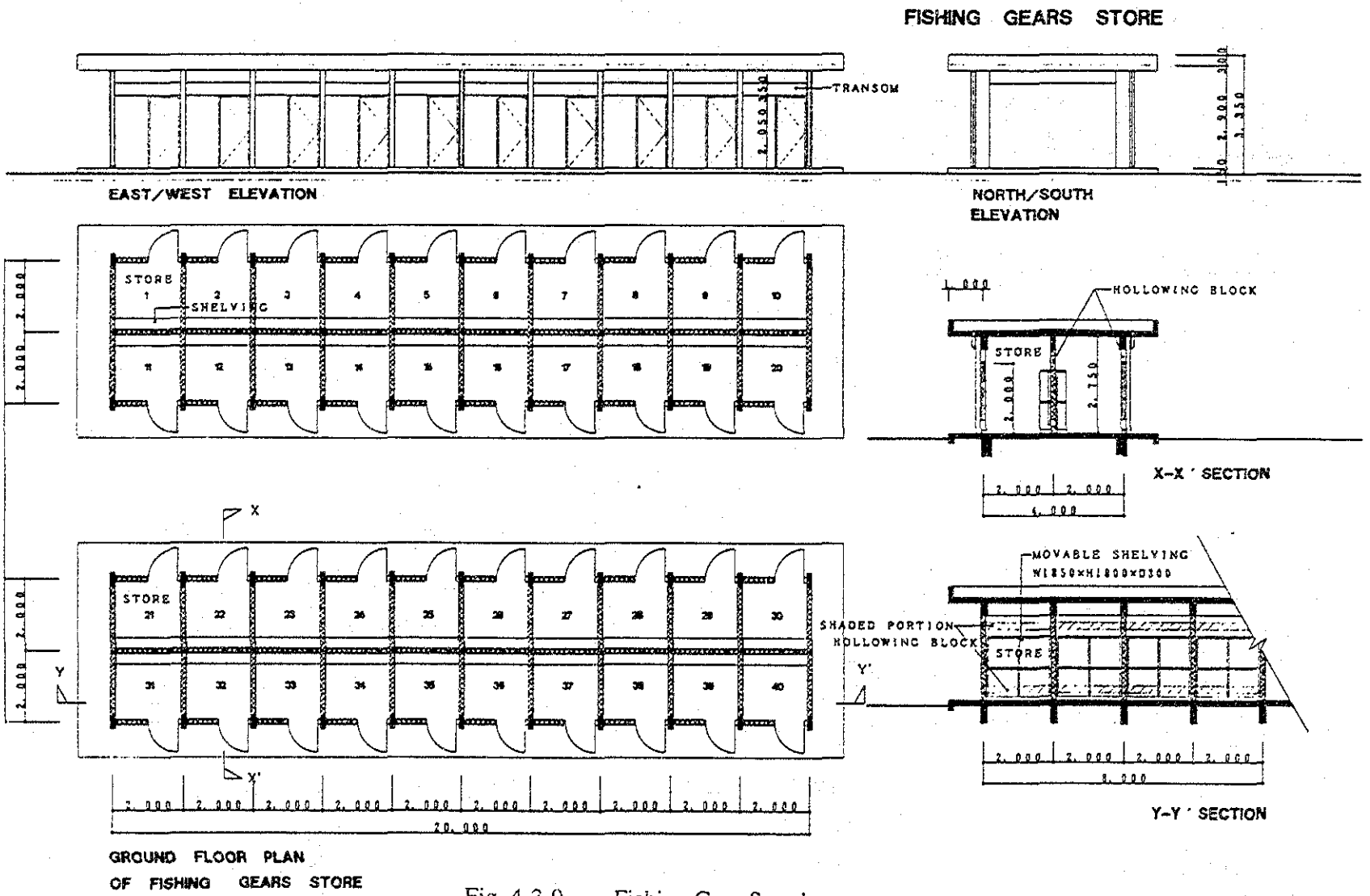


Fig. 4-3-9 Fishing Gear Storehouse

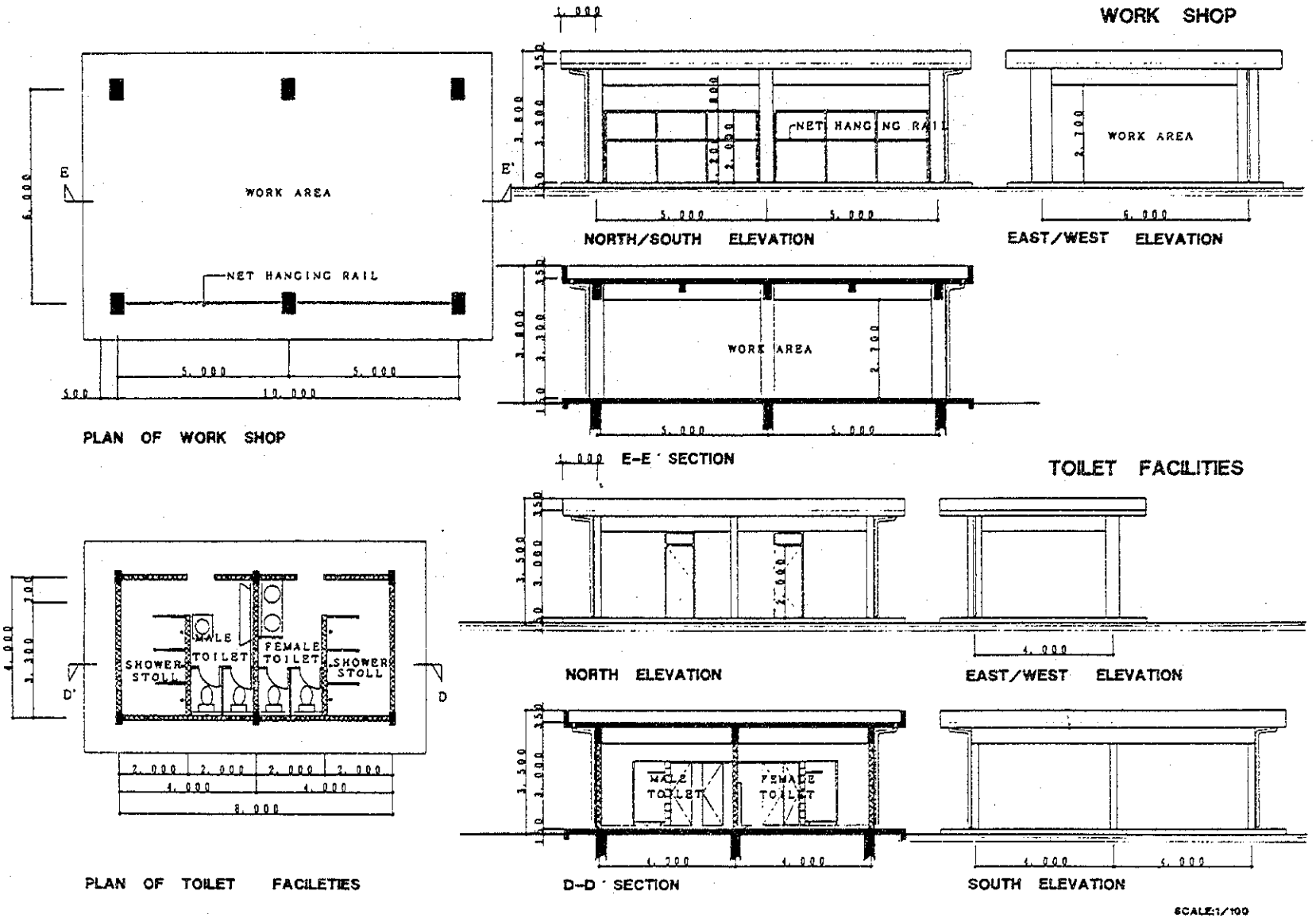


Fig. 4-3-10 Toilets and Workshop

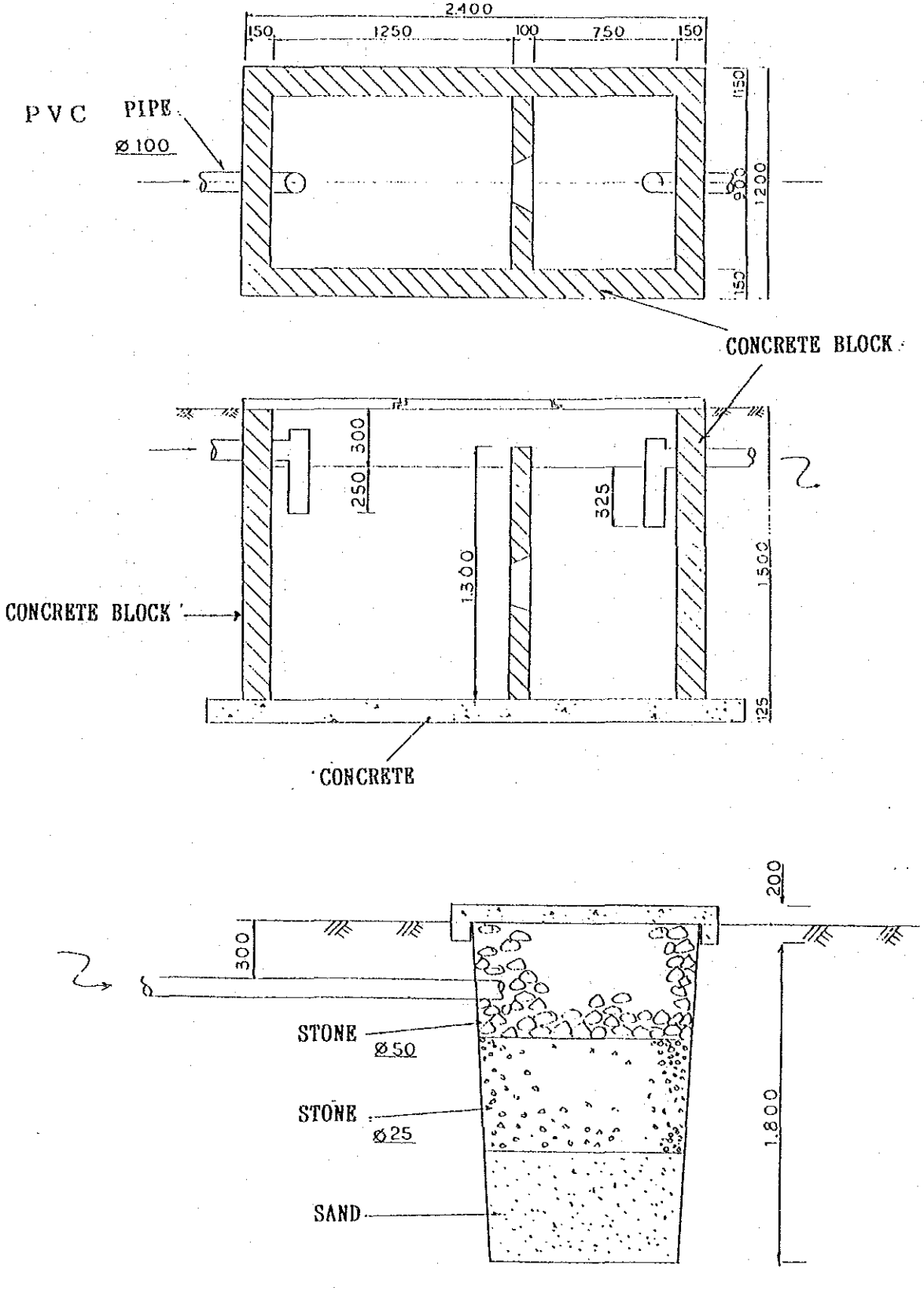


Fig. 4-3-11 Septic Tank

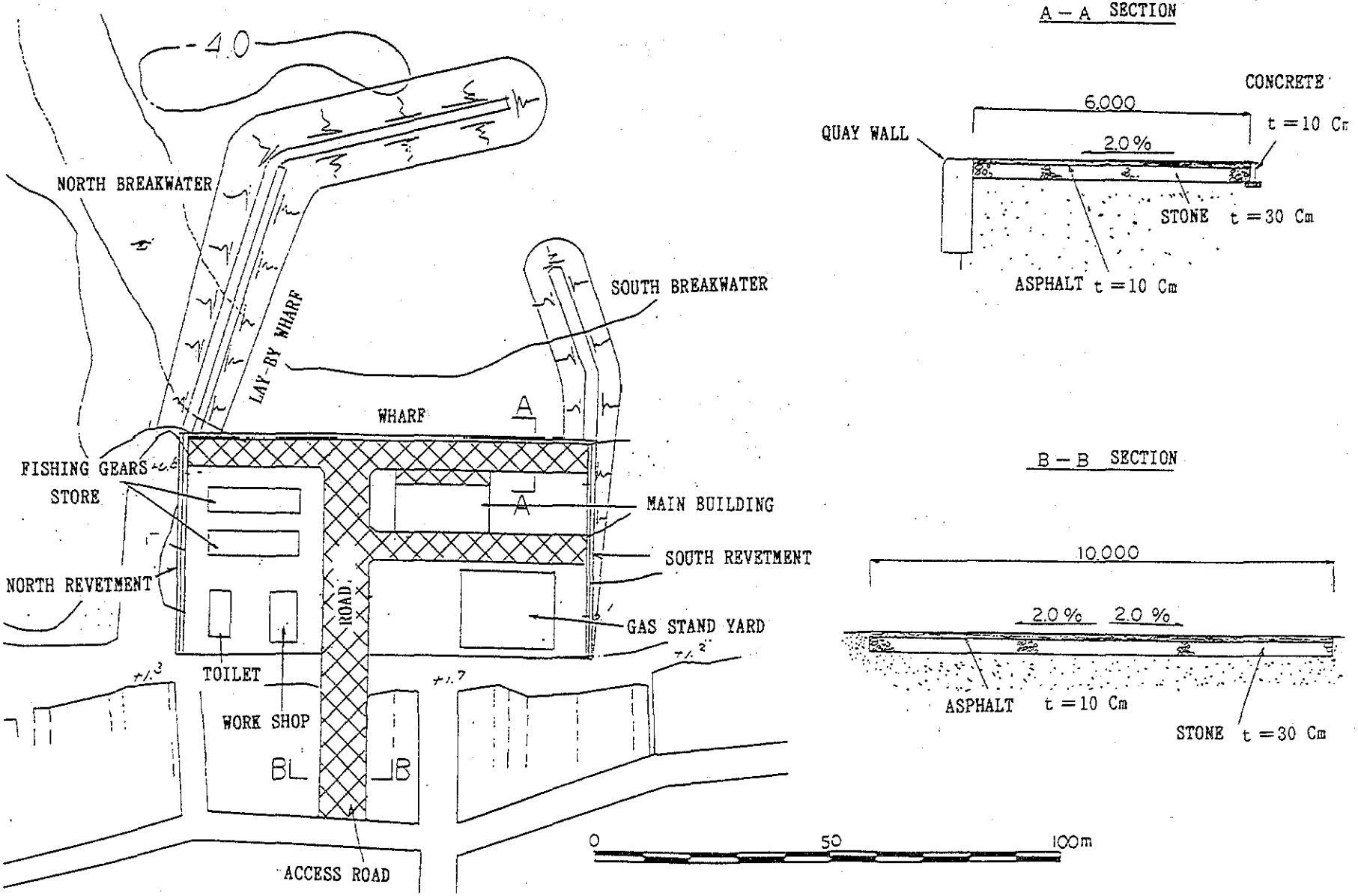


Fig. 4-3-12 Paving Plan

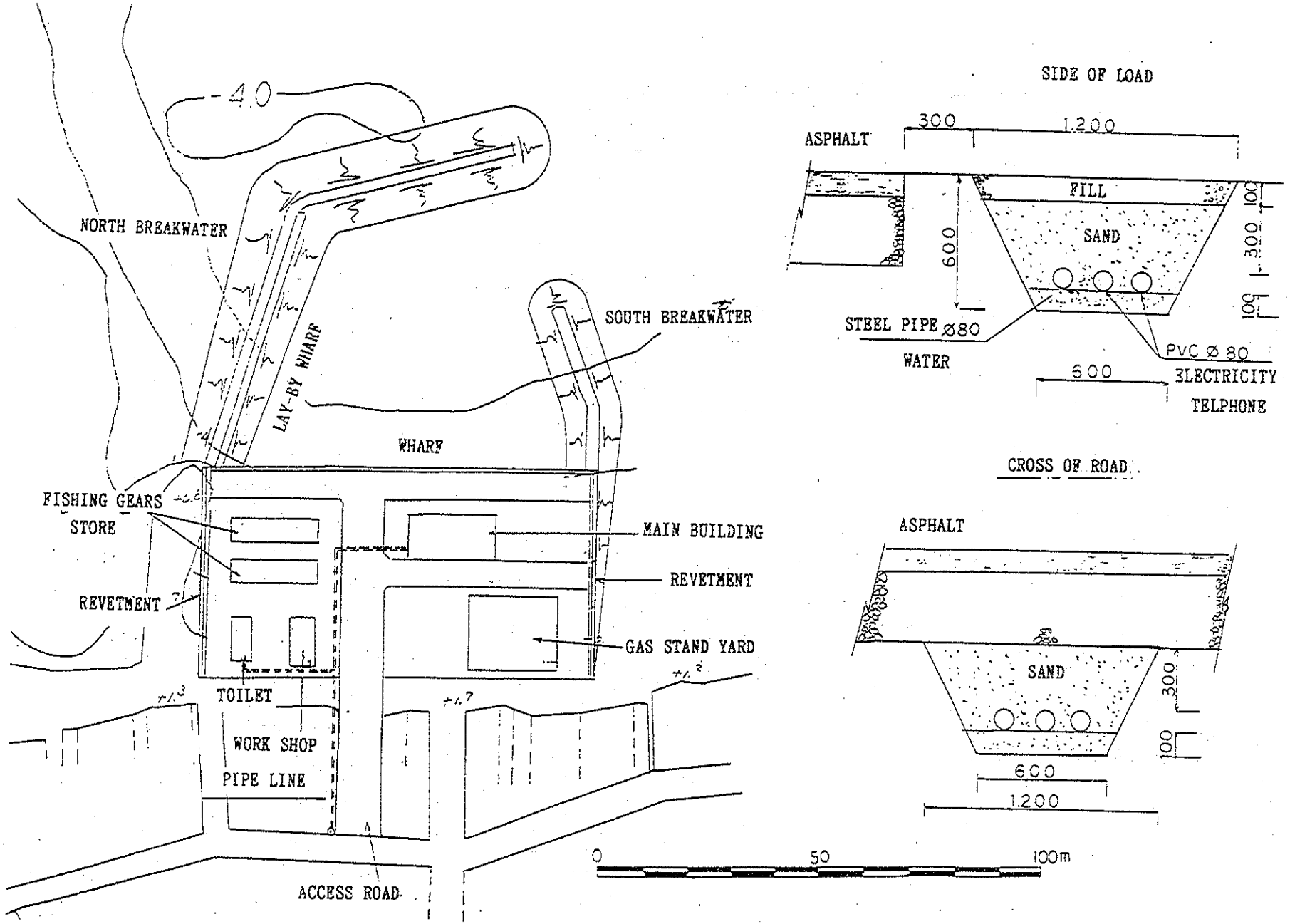


Fig. 4-3-13 Utilities Plan

4.4 Implementation Plan

4.4.1 Construction Condition

(1) Construction Situation:

a. Materials:

The materials produced in St. Lucia are aggregates for road construction, concrete aggregates, and concrete block for building constriction. All other construction supplies are imported and the costs are high. The only materials in stock are materials for domestic building supplies. Source of imports are Trinidad, U.S.A., Canada, U.K. and Japan, portland cement is from Trinidad & Tobago, structural and reinforcing are from Trinidad & Tobago, Europe and Japan. Large quantities of aggregate cannot be obtained and are imported from Trinidad & Tobago and Canada.

b. Construction Equipment:

Construction equipment that can be obtained are backhoe, truck mounted shovel, bulldozer, dump truck and those equipments related with road construction. The equipment for the airport and ports construction at Viuex Fort are imported on the basis of the project including the necessary spare parts. It is not possible to obtain barge mounted cranes and large hoists with capabilities in excess of 40 tons.

c. Source of Labor:

The local construction contractors have experience in concrete block manufacture, earthwork, cast-in-place concrete work for work on land, but do not have enough experience with marine related construction.

(2) Construction Policy:

In view of the above situation in St. Lucia, minor construction work is performed by local contractors, but major construction projects in order to meet the construction schedule and on account of the superannuated local equipment, are performed by foreign contractors using imported materials and equipment. For this reason, all materials and equipment except for locally available stones, sand and lumber will be imported, and it is planned to hire foreign skilled workers and import the

construction equipment. Local contractors capable of performing the work will be hired.

The Dennery area faces the Atlantic Ocean and is exposed to the rough waves of the open sea. Especially between September and February of the following year it will be planned to keep the marine related work to a minimum when the seas are rough, and to plan to complete the work within the scheduled period. Also, the construction work at Dennery coast will be planned to least affect the fishing boats and the fishing operations.

4.4.2 Implementation Method

The share of the construction works to be performed by each country will be generally as follows.

(1) The Share of Works of the Japanese Side:

1. Infrastructure and Related Facilities at Dennery Fish Landing-Base:

   a. Construction of breakwaters (North breakwater 110 m, South breakwater 40 m).

   b. Construction of wharf (depth -2.0 m, length 70 m).

   c. Construction of Revetment (length of north Revetment 45 m, south side 45 m).

   d. Land reclamation (extent of reclamation 90 m x 45 m).

   e. Construction of Main Building (Bldg. Area 180 m^2; ice making capacity 2 ton, ice storage 2 ton, refrigerated storage, fish processing room, retail fish stands, office space).

   f. Construction of Workshop (Bldg. Area 60 m^2).

   g. Construction of Fishing Gear Storage (for 40 Boats, 4 m x 20 m x 2 Bldgs.).

   h. Construction of Toilet Facilities (Bldg. Area 4 m x 8 m).

   i. Pavement Works.

   j. Providing of Water Supply, Electric Power, and Telephones.

k. Other related works.

2. Supply 18 FRP Fishing Boats, Martinique Type.

3. Supply Fishing Gear (see attached Reference Data 5).

4. Supply Vehicles:

   a. Refrigerated Transport (2 ton): 1 Each.

   b. Pickup Truck (Double Cab): 1 Each.

(2) Items to be Furnished from St. Lucia Side:

1. Provide space for a Temporary Work Yard; secure land property for Access Road, and obtain necessary permits for borrow pit for land reclamation.

2. Obtain necessary import permits for materials and equipment to be imported into St. Lucia.

3. Obtain the necessary licenses and permits to perform the construction work, together with the application forms and pay for the fees therefore, and all fees for the bank payment and receipts.

4. Pay taxes assessed on local construction supplies.

5. To pay taxes levied on contract documents, and on personnel entering St. Lucia from Japan to consummate contractual matters, and exemption of other financial levies.

6. To extend necessary assistance to personnel entering St. Lucia to perform contractual matters and accommodations.

7. To pay for expenses required for the project but not covered by the Grant Aid funds provided by the Government of Japan.

4.4.3 Construction and Supervisory Plan

(1) Order of Construction:

The necessary items shall be processed for procurement immediately after commencement of the work, and the construction of the Temporary Construction Yard started. In parallel with the yard construction, preparations shall be started for earth fill and borrow and the stone quarry for the waste stone required for the breakwaters.

With the completion of the yard, fabrication of the precast concrete block work for the breakwater shall be started. The land reclamation work shall be started by making use of the existing stone jetty.

The breakwater shall be started next to establish a calm water area in the bay. After the sacrificial stone foundation work is completed, the precast concrete blocks shall be installed, and the concrete work shall be cast to complete the breakwater.

After the calm water area has been established, and the land reclamation work has progressed to some degree, and the steel sheet piling work can be performed from the land side, the sheet piling work shall be commenced. After the supporting wales and tie-rods have been installed and the sheet piling has stabilized, the coping concrete work shall be started.

With the progress of the land reclamation work, the revetment works shall be advanced to protect the reclamation works. After the revetment works and land reclamation work has been completed, the works for construction of the Main Building, Fishing Gear Storehouse, Toilet Facilities, and Workshop shall be commenced.

Commensurate with the progress of the building construction works, the water supply, electricity, and asphalt pavement work shall be started. During the finishing stage, the FRP Fishing Boats, Fishing Gear and Vehicles shall be transported from Japan and related countries, and the completed works shall be handed over to the Government of St. Lucia.

A description of the main items are given as follows:

(2) Temporary Work Yard:

There is a space of 20 to 25 m between the proposed project and the road where there are many dwellings, and there is no space available for a temporary work yard. Also, between the shore road and the main road there are some more dwellings. A school, office, an experiment laboratory, and work yards, and there is no open space that can be used for a temporary work yard.

The only space suitable for a temporary work yard is an abandoned earth borrow pit site near the main road which could be used for a temporary work yard. Although it is approximately 2 km away from the project site, water is available and is adjacent to the main road, and is suitable to haul in the materials and equipment from other areas. It is proposed to use this site for the temporary work yard with a size of 7,000 m^2 which will provide enough space for an office, warehouse for materials and equipment, a concrete plant, and space for a concrete block manufacture and storage (see Fig. 4-4-1).

The perimeter of the yard will be provided with a temporary security fencing, and a watchman will be assigned at night for security.

(3) Land Reclamation:

It is prohibited by the Government to take sand from the beaches. Many of the borrow pits are operated by contractors, and are located close to the main roads. The site proposed for the temporary work yard was used for a borrow pit and it can also be used as a borrow pit for this project. It is proposed to obtain the soils for the land reclamation and transported to the fill site. A backhoe and bulldozer will be assigned at the pit. Another bulldozer will be assigned at the reclamation site to strike off the dumped earth fill materials. It will also perform finish grading and then compacted to the required density.

The earth fill work will be performed to just short of the line of the sheet piling works, and the final earth operation will be performed after the sheet piling, supporting walers, and tie-rods have been installed.

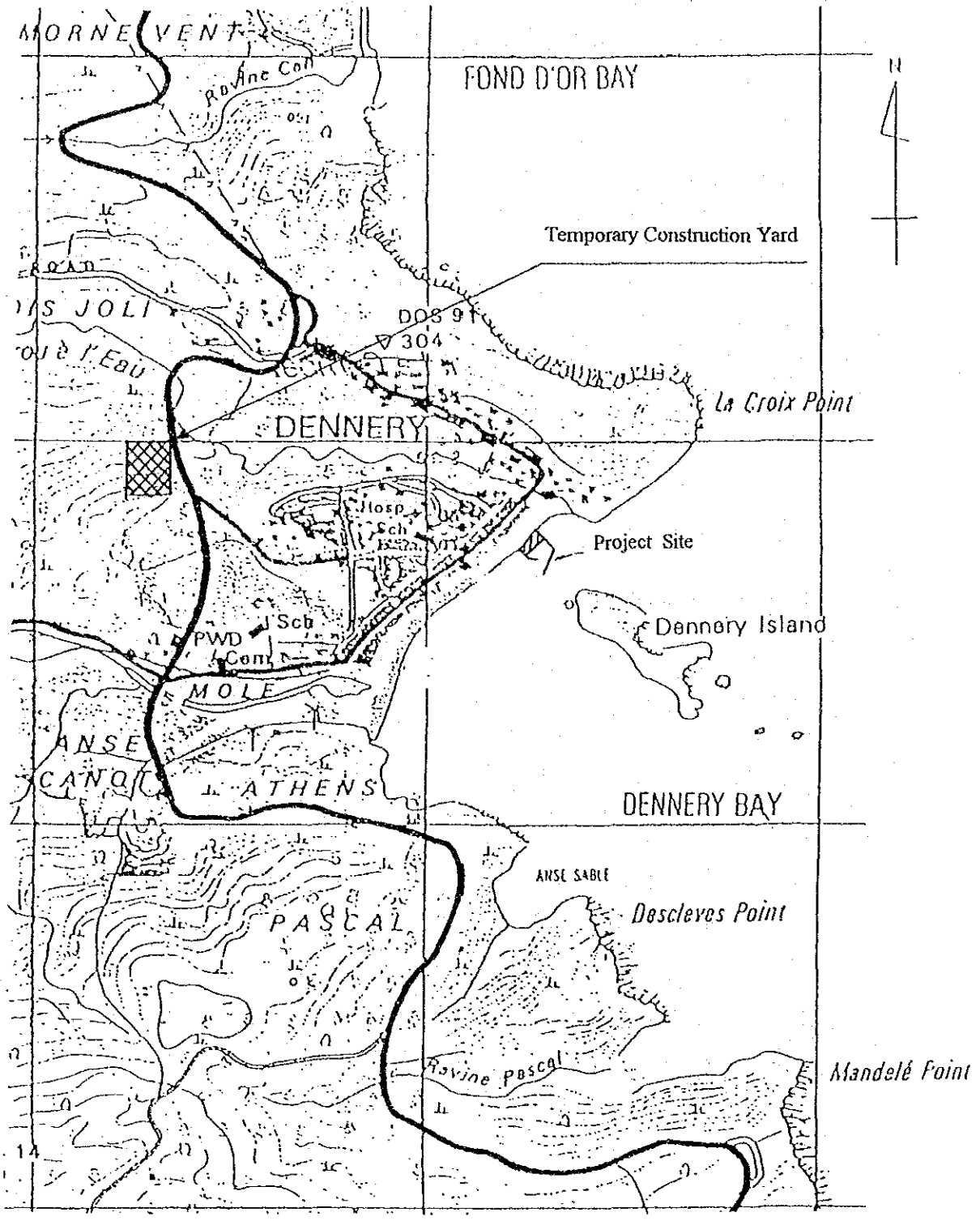
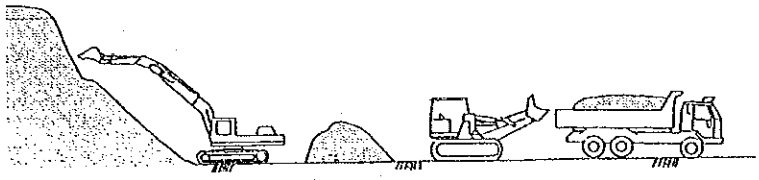


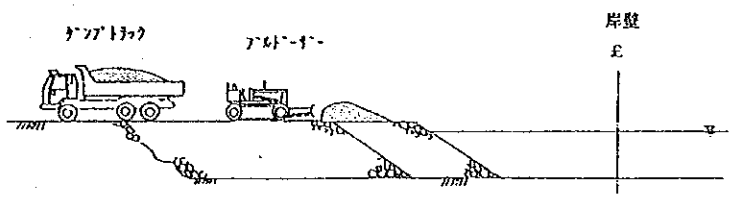
Fig. 4-4-1 LOCATION OF TEMPORARY CONSTRUCTION YARD

0 100 500 m

The construction equipment for this operation will be as follows:

Backhoe	(0.7 m^3)	1 each
Shovel Loader	(2.4 m^3)	1 each
Dump Truck	(11 ton)	5 each
Bulldozer	(D 60)	1 each
Road Roller	(10 ton)	1 each.





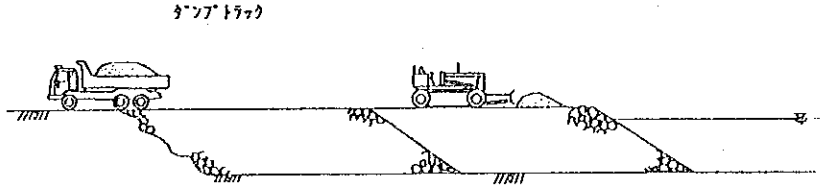
(4) Reclamation Work:

a. Casting of Sacrificial Foundation Stones:

The stone for this operation will be obtained from a stone quarry approximately 15 km south of Dennery. The stone will be pushed out from the existing jetty with a bulldozer. Hauling of the stone from the quarry site will be by the dump trucks. After being pushed out by the bulldozer, the trim work for the slopes will be performed with the backhoe. The underwater trim work will be performed by divers. Other trim work on land will be performed by common laborers.

The equipment for this operation will be as follows:

Backhoe	(0.7 m^3)	1 each
Shovel Loader	(2.4 m^3)	1 each
Bulldozer	(D 60)	1 each
Dump Truck	(11 ton)	5 each



b. Manufacture of Precast Concrete Blocks and Placement:

The precast concrete blocks will be manufactured at the Temporary Work Yard. Blocks will be manufactured by placing concrete by mixer trucks into the casting forms.

After curing, the concrete blocks will be placed into storage within the yard. The concrete blocks will be hoisted on to semi-trailer trucks and hauled to the site.

The concrete blocks will be guided in placing for the underwater works by divers, hoisted into place with the crawler cranes mounted on barge.

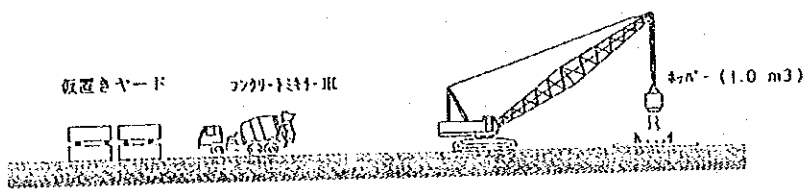
The equipment for this operation will be as follows:

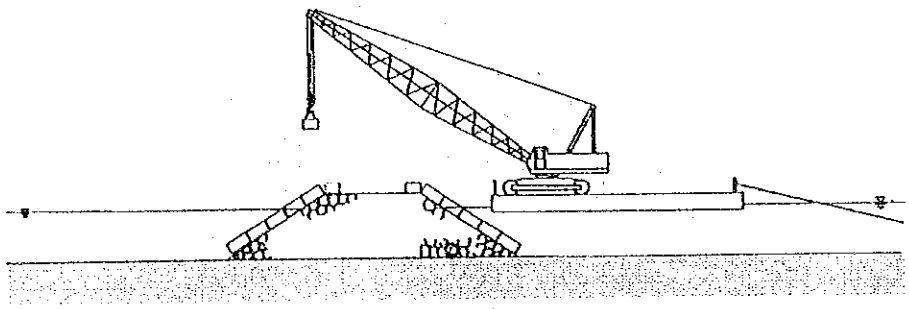
Concrete Block Manufacture:

Crawler Crane	(45 ton)	2 each
Truck Crane	(15 ~ 20 ton)	1 each
Concrete Mixer Truck	(4.5 m^3)	2 each
Dump Truck	(4.0 ton)	1 each
Concrete Bucket	(1.0m^3)	3 each

Concrete Block Installation:

Crawler Crane	(40 ton)	2 each
Semi-Trailer Truck	(15 ton)	2 each
Barge	(600 ton)	1 each
Tug Boat	(600 ps)	1 each
Working Boat	(25 ps)	1 each



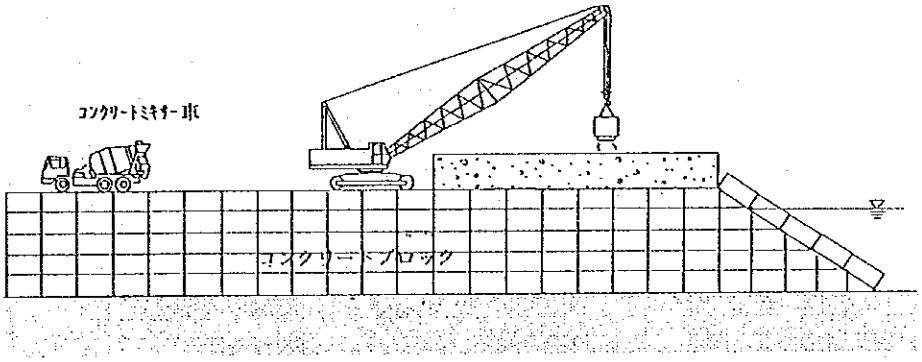


c. Placing Upper Concrete:

After placing the concrete blocks, the upper cast-in-place concrete will be placed. The concrete forms will be fabricated on land and fixed into place, the concrete will be placed into the forms using the crawler crane and concrete buckets. After curing, the concrete forms will be removed.

The equipment for this operation will be as follows:

Crawler Crane	(45 ton)	1 each
Concrete Mixer Truck	(4.5 m^3)	2 each
Concrete Bucket	(1.0 m^3)	3 each



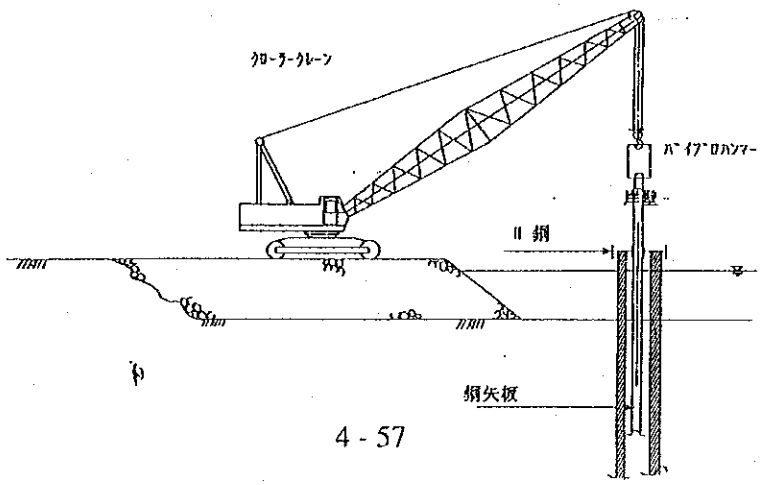
(3) Wharf Construction:

a. Driving of Sheet Piling:

The sheet piling shall be driven by a vibro-hammer hoisted by a crawler crane. H-beams shall be driven in front of the sheet piling and used as supports.

The equipment for this operation will be as follows:

Crawler Crane	(45 ton)	1 each
Crawler Crane	(10 ton)	1 each
Vibro-Hammer	(4,000 E)	1 each

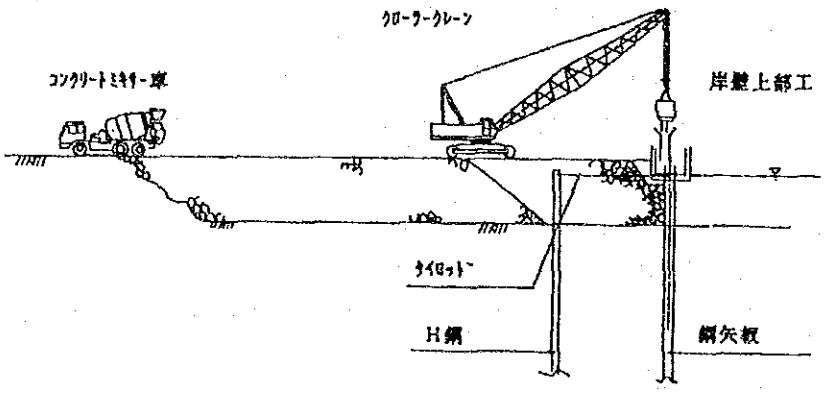


b. Placing of Coping Concrete:

After the sheet piling has been driven, supporting walers and tie-rods shall be installed. Earth fill shall be placed behind the sheet piling pushed out from the land side. The reinforcing steel and forms shall be placed in position and the concrete placed. The concrete for the coping shall be transported by mixer trucks charged at the batch plant at the Temporary Work Yard, and the concrete shall be placed into the forms using a hopper and hoisted by the crawler crane. Underwater concrete shall be placed using a tremie duct to keep the concrete from separating.

The equipment used for this operation will be as follows:

Crawler Crane	(45 ton)	1 each
Mixer Truck	(4.5 m^3)	2 each
Concrete Bucket	(1.0 m^3)	3 each



4.4.4 Procurement Plan

(1) Procurement of Materials and Equipment:

The following construction materials and equipment will be procured giving consideration to the local construction situation:

a. Locally Procured Materials:

- Lumber
- Portland Cement
- Sand
- Fine Aggregate for Concrete
- Earth Fill Material for Land Reclamation
- Stone for Sacrificial Stone Materials
- Concrete Block for Building Purposes
- Building Materials
- Gasoline, Diesel Fuel, Oil, Grease.

b. Imported Materials:

- Steel Sheet Piling (Japan)
- H-Beams and Structural Steel (Japan)
- Tie-Rods (Japan)
- Reinforcing Steel (Trinidad & Tobago)
- Synthetic Fiber Fabric (Japan)
- Ice Making Machine, Insulated Cabinet for ice storage and fish storage, (Japan)

(2) Procurement of Construction Equipment:

a. Procurement of Local Construction Equipment:

Description	Specification	Quantity	Type of Work
Road Roller	10 tons	1 each	Land reclamation, pavement.

b. Imported Construction Equipment:

Description	Specification	Quantity	Type of Work	Source
Crawler Crane	45 ton	2 ea.	Breakwater, Wharf	Trinidad
Crawler Crane	10 ton	1 ea.	Wharf	Trinidad
Backhoe	0.7 m^3	2 ea.	Aggregate, Breakwater	Trinidad
Shovel Loader	2.4 m^3	1 ea.	Aggregate	Trinidad
Concrete Plant	20 m^3/h	1 ea.	Conc. Work	Trinidad
Concrete Bucket	1.0 m^3	3 ea.	Conc. Work	Trinidad
Mixer Truck	4.5 m^3	2 ea.	Conc. Transport	Trinidad
Truck	4.0 ton	2 ea.	Mtl. Transport	Trinidad
Vibro-Hammer	4,000 E	1 ea.	Sht Piling	Trinidad
Semi-Trailer	15 ton	2 ea.	Conc. Blk	Trinidad
	D 60	2 ea.	Transport	Trinidad
Truck Crane	10 ~ 20 ton	2 ea.	Transport	Trinidad
Dump Truck	11 ton	5 ea.	Transport	Trinidad
Compressor	7 k	1 ea.	Form Work	Trinidad
Generator	125 KVA	3 ea.	Temporary Work	Trinidad
Welding Machine	300 A	1 ea.	Welding Work	Trinidad

The construction contractor will obtain the final inspection of the Fisheries Bureau and the Consultant prior to hand over of the works. The construction contractor and the Consultant will pass on to the Fisheries Bureau the methods of maintenance of the facilities.

4.4.5 Implementation Schedule

This project will be implemented after the official documents for the Grant Aid have been signed between the Government of Japan and St. Lucia. After the official documents have been signed, the Fisheries Bureau which is the Executing Agency for the Government of St. Lucia, will conclude a contract with a Japanese Consultant for the implementation of the project in accordance with the procedures established by the Government of Japan for Grant Aid projects.

After the consultats contract has been concluded the project will be performed with the following steps for Grant Aids. The main items will be as follows:

(1) The Detailed Design Stage:

The consultant will perform the Detailed Design the infrastructures and related facilities for the Dennery Fishing Port in accordance with the Basic Design Investigation Report, such designs and drawing, the specification, and tender documents, and shall obtain the approval of the Fisheries Bureau of the documents prepared.

(2) Tender Stage:

The Fisheries Bureau will conduct a tender to obtain the services of a construction contractor for the construction of the facility. The tendering will be performed for procurement of a Japan corporation and held in Japan, and the consultant will assist the Fisheries Bureau in performing the following:

1. Public announcement of Tender.
2. Prequalification of contractors.
3. Briefing Tenderer or the Tender Documents and provide answers to Tenderer's queries.
4. Perform the Tenders Opening.
5. Evaluate Tenders received and make recommendation.

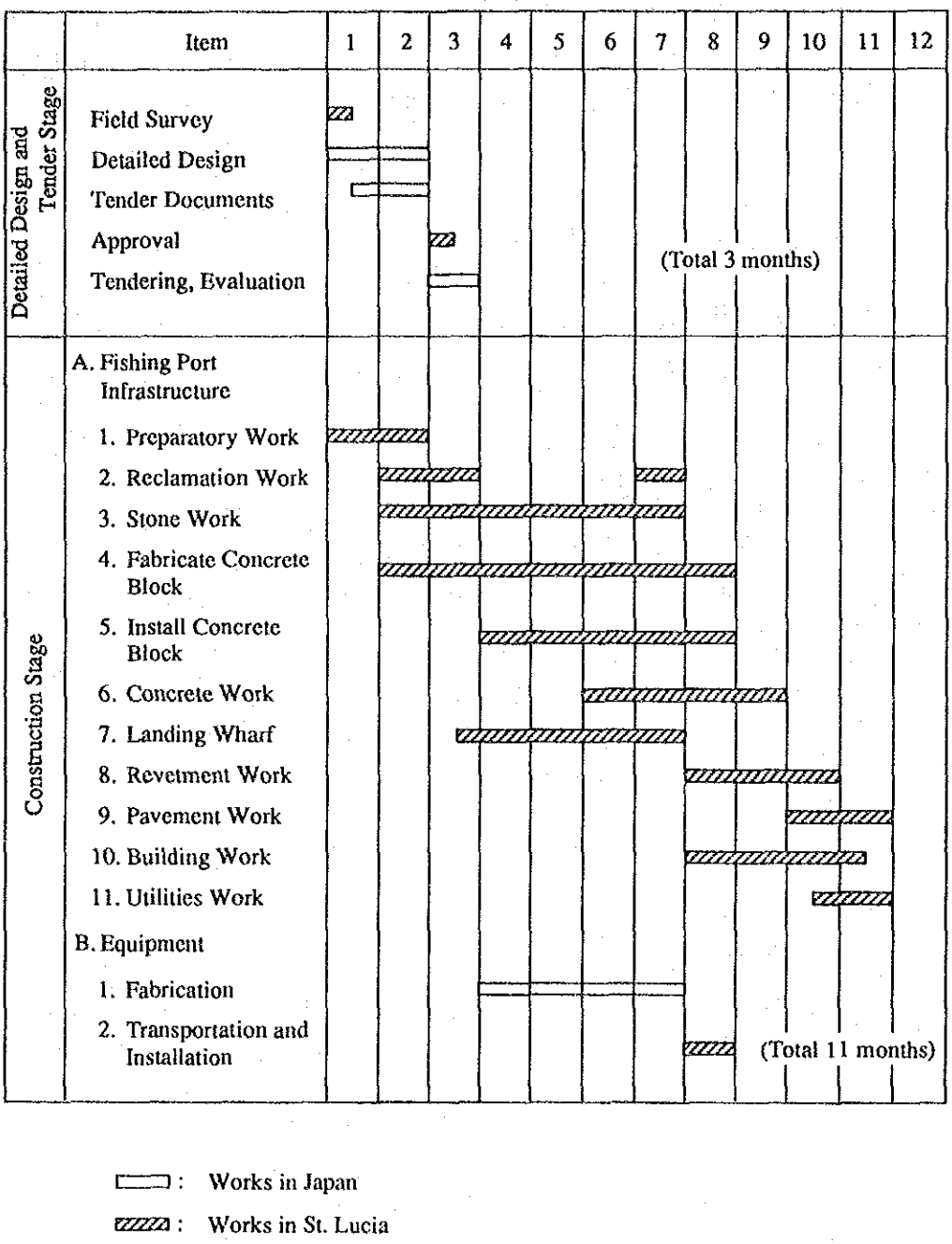
(3) Construction Stage:

The Fisheries Bureau will conclude a contract after the selection. After the contract documents have been signed, they should be approved by the Government of Japan, and the construction works shall be started. The construction work is expected to require 11 months to complete, including the construction mobilization.

Prior to however, the contractor will obtain the fixed inspection of the Fisheries Bureau and the consultant, and obtain their approval. The contractor and the consultant will pass on to the Fisheries Bureau the methods for the operation and the maintenance of the facilities.

The flow of the work starting with the detailed design work and the the construction stage are described in Fig. 4-2-2.

Fig. 4-4-2 Implementation Schedule



4.4.6 Estimated Project Costs

The costs to be borne by the St. Lucia side will be the costs for the procurement of the land for the Access Road, which is estimated to be EC$13,000.

CHAPTER 5

Project Evaluation and Conclusion

CHAPTER 5 PROJECT EVALUATION AND CONCLUSION

5.1 Effects of the Project

The direct and indirect benefits that this project will bring by constructing fishing port infrastructure at Dennery, the furnishing of fishing technique development by supplying of fishing gear and FRP fishing boats, providing refrigerated transport and administrative vehicles are expected to be as follows:

(1) Direct Effects:

1. By constructing a fishing port a quiet water facility will be provided, a safe mooring place will be provided for the FRP boats, and a fish landing wharf will be provided.
2. Dennery will become the base port for the offshore fishing.
3. With the furnishing of the FRP boats, the fishing times at the fishing ground can be extended, resulting in increased catch.
4. With the supply of fishing gear new fishing methods will be introduced, making it possible for larger catch of fish.
5. With the fish landing performed at a pier with ice making capabilities will change the perception of the fishermen to keep the fish fresh, and contribute to the recognition of ice usage.
6. With the supply of the refrigerated transport vehicle, it will be possible to transport fresh fish to the capital city of Castries.
7. With the increased fish catch the income of the fishermen will increase, and improve the quality of life.
8. With the concentration of fish landing at one place, the fish statistics can be collected at one place, and contribute to fewer errors in the statistics.

(2) Indirect Effects:

1. It will lead to development to other industries related with fishing.
2. With the increase in the fish catch the amount of fish imports will decrease, and foreign exchange can be saved.

3. The animal protein contents in the national diet will be increased

5.2 Conclusion and Recommendations

(1) Conclusion

As Dennery Port faces the Atlantic Ocean and is closest to the fish catch area and has the highest catch of all the boats with the intense desire of the people to catch fish. However, it lacks modern fishing port facilities and is missing out on putting out to sea in times of stormy weather.

Their fishing boats are of the traditional wood caribbean canoes and they are limited to a day's catch. For these reasons the income of fishermen are lower than other industries, and they cannot purchase modern fishing gear.

This project proposes to provide modern fishing port facilities which will improve the living standards of the fishermen, invigorate the fishing industry, modernize the fishing industry in St. Lucia, and contribute to the development of new fishing methods, and will have an important impact on the country.

For this reason it is recommended that this project be implemented as a Grant-Aid project by the Government of Japan as soon as possible.

(2) Recommendations:

The following recommendations are proposed to construct a fishing port at Dennery to realize its full effect.

1. At the present time there is development of new fishing methods, training of fishermen by demonstrations under the guidance to JICA Specialists, but it is recommended to perform the necessary education and training for introduction of the new fishing methods to Dennery's fishermen continuously.

2. As mentioned in the Minutes of Discussions on November 26, 1992, the fund which will be obtained by FRP boats under this Project shall be utilized for the purpose of developing fisheries and the maintenance of the equipment provided under the Project.

APPENDICES

Appendix - 1

Members List of Survey Team

Appendix-1 : Member List of Survey Team

(1) For the Basic Design Study on the Project

Name	Title	Present Position
1. Mr. Yukio TUBOTA	Leader	Deputy Director, Fishing Port Construction Division, Fishing Port Department, Fisheries Agency
2. Mr. Hidenao WATANABE	Grant Aid Planner	Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affair
3. Mr. Seiichi KINJOU	Project Coordinator	Second Project Management Division, Grant Aid Project Management Department, JICA
4. Mr. Hiroshi NISHIMAKI	Fishery Development Planner	Pacific Consultnts International
5. Mr. Eiji KAWABATA	Port Civil Engineer	Ditto
6. Mr. Kentaro YOSHIDA	Facility Designer	Ditto
7. Mr. Yoshimitu AKIYAMA	Natural Conditions Surveyor	Ditto

(2) For the explanation of the Basic Design Study Report

Name	Title	Present Position
1. Mr. Yukio TUBOTA	Leader	Deputy Director, Fishing Port Construction Division, Fishing Port Department, Fisheries Agency
2. Mr. Jyuichiro SASAKI	Project Coordinator	Kanagawa International Fisheries Training Center, JICA
3. Mr. Hiroshi NISHIMAKI	Fishery Development Planner	Pacific Consultants International
4. Mr. Kentaro YOSHIDA	Facility Designer	Ditto

Appendix - 2

Survey Schedule

Appendix-2 : Survey Schedule

(1) For the Basic Design Study Team (from August 29 to September 25, 1992)

Date in 1992	Government Officials	Consultants
August 29 (Sat)	Leave Tokyo 12:00→11:35 Arrive New York (JL006)	
August 30 (Sun)	Leave New York 15:50→22:20 Arrive Port of Spain	Leave Tokyo 12:00 →11:35 Arrive New York (JL006, Nishimaki/Yoshida/Akiyama)
August 31 (Mon)	Courtesy call at Japanese Embassy in Trinidad and Tobago Leave Port of Spain 16:00→15:50 Arrive St. Lucia	Leave New York 7:00 →14:05 Arrive St. Lucia (AA677/AA1135, Nishimaki/Yoshida/Akiyama)
September 1 (Tue)	Courtesy call at Ministry of Agriculture Discussion of Inception Report	Courtesy call at Ministry of Agriculture Preparation of site survey
September 2 (Wed)	Site Visit at Dennery and other fishing village	Site visit at Dennery and other fishing village Preparation of site survey Leave Tokyo 12:00 → 11:35 Arrive New York (JL006, Kawabata)
September 3 (Thu)	Site visit at Castries Fish Market Hall and other fishing village Meeting with Fisheries Agency	Site survey by Helicopter Installation of Tide Equipment Leave New York 15:30 → 11:35 Arrive Port of Spain (AA647, Kawabata)
September 4 (Fri)	Signing of Minutes of Discussion	Preparation of current observation Boring Tender at Port of Spain (Kawabata)
September 5 (Sat)	Inner meeting	Preparation of current observation Sampling of sea bed materials Leave Port of Spain 16:00 → 16:50 Arrive St. Lucia (BW424, Kawabata)
September 6 (Sun)	Leave St. Lucia 13:05 → 13:55 Arrive Dominica (LI342)	Installation of current meter Preparation of Boring
September 7 (Mon)		Preparation of Boring Data collection Land use survey at Dennery Topo & Hydro survey
September 8 (Tue)		Supervision of boring work Data collection Current observation Topo & Hydro survey
September 9 (Wed)		Supervision of boring work Data collection Current observation Topo & Hydro survey
September 10 (Thu)		Supervision of boring work Data collection Current observation Topo & Hydro survey Fishermen's survey at Dennery

September 11 (Fri)		Supervision of boring work Data collection Study of Port Scale Topo & Hydro survey
September 12 (Sat)		Supervision of boring work Data collection Site visit on Bannanes & Choiseul Topo & Hydro survey
September 13 (Sun)		Supervision of boring work Inner meeting
September 14 (Mon)	Arrive Tokyo	Supervision of boring work Topo & Hydro survey Data collection Leave St. Lucia 15:15 → 22:11 Arrive New York (AA1150/AA688, Nishimaki/Yoshida)
September 15 (Tue)		Supervision of boring work Leave New York 13:30 (JL005, Nishimaki/Yoshida)
September 16 (Wed)		Supervision of boring work Data collection Arrive Tokyo 16:15 (JL005, Nishimaki/Yoshida)
September 17 (Thu)		Supervision of boring work Data collection and analysis
September 18 (Fri)		Supervision of boring work Data collection and analysis Finish tide observation
September 19 (Sat)		Supervision of boring work Data collection and analysis
September 20 (Sun)		Finish boring work
September 21 (Mon)		Leave St. Lucia 15:13 → 22:13 Arrive New York (AA704/AA688, Akiyama) Leave St. Lucia 14:00 → 14:50 Arrive Port of Spain (BW425, Kawabata)
September 22 (Tue)		Report Japanese Embassy (Kawabata) Leave New York 13:30 (JL005, Akiyama)
September 23 (Wed)		Arrive Tokyo 16:15 (JL005, Akiyama) Leave Port of Spain 7:00 → 14:50 Arrive New York (UAB70, Kawabata)
September 24 (Thu)		Leave New York 13:30 (JL005, Kawabata)
September 25 (Fri)		Arrive Tokyo 16:15 (JL005, Kawabata)

(2) For the explanation of the draft report (from November 15 to November 26, 1992)

Date in 1992	Government Officials	Consultants
November 15 (Sun)	Leave Tokyo 12:00→10:15 Arrive New York (JL006)	Same with Left
November 16 (Mon)	Leave New York 8:00→14:25 Arrive St. Lucia	Do

November 17 (Tue)	Courtesy call at Ministry of Agriculture and Fisheries Discussion of Draft Report	Do
November 18 (Wed)	Discussion of Draft Report with Fisheries and Planning	Do
November 19 (Thu)	Site visit at Dennery Discussion of Draft Report	Do
November 20 (Fri)	Signing of Minutes of Discussion	Do
November 21 (Sat)	Site visit at Bannan and Tapion	Do
November 22 (Sun)	Leave St. Lucia 15:50→16:45 Arrive Port of Spain	Do
November 23 (Mon)	Coutesy call at Japanese Embassy	Do
November 24 (Tue)	Leave Port of Spain 7:45→15:10 Arrive New York	Do
November 25 (Wed)	Leave New York 12:30	Do
November 26 (Thu)	Arrive Tokyo 16:30 by JL005	Do

Appendix - 3

Member List of Concerning Party in the Recipient Country

Appendix-3 : Member List of Concerning Party in the Recipient Country

St. Lucia Side

Name	Position	Remarks
1. IRA D'AUVERGNE	Minister	Ministry of Agriculture, Forestry, Land and Fisheries
2. HORACE D. WALTERS	Chief Fisheries Officer	Ministry of Agriculture, Forestry, Land and Fisheries
3. COSMOS RICHARDSON	Permanent Secretary	Ministry of Agriculture, Forestry, Land and Fisheries
4. VINCENT PETER	Economist	Ministry of Planning, Personnel, Establishment and Training
5. IWAO SHINDO	JICA Expert	Ministry of Agriculture, Forestry, Land and Fisheries
6. LAMON TEGUN	Chief Meteorology Officer	Ministry of Communications, Works & Transport
7. KENNETH DOMINQUE	Forecaster	The Department of Meteorology Hewanorra Airport
8. MARUSIA PHILBERT-JULES	Chief Economist	Ministry of Planning, Personnel, Establishment and Training

Japanese Side

Name	Position	Remarks
1. Mituru EGUCHI	Ambassador	Japanese embassy in Trinidad and Tobago
2. Takashi SUZUKI		Japanese embassy in Trinidad and Tobago
3. Kenichi NAMIMATU		Japanese embassy in Trinidad and Tobago
4. Katumi YANAGIHARA	Office Manager	Daito Kougyo KK

Appendix - 4

Minutes of Discussions

MINUTES OF DISCUSSIONS

BASIC DESIGN STUDY ON THE PROJECT FOR

DENNERY FISH LANDING-BASE CONSTRUCTION IN

SAINT LUCIA

In response to a request from the Government of Saint Lucia, the Government of Japan decided to conduct a Basic Design Study on the Project for Dennery Fish Landing-base Construction (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to St. Lucia a study team, which is headed by Mr. Yukio Tsubota, Deputy Director, Fishing Port Construction Division, Fishing Port Department Fisheries Agency, and is scheduled to stay in the country from August 31 to September 21, 1992.

The team held discussions with the officials concerned of the Government of St. Lucia and conducted a field survey at the study area.

In the course of discussions and field survey, both parties have confirmed the main items described on the attached sheets. The team will proceed to further works and prepare the Basic Design Study report.

Castries, September 4, 1992

Mr. Yukio Tsubota
Leader
Basic Design Study Team
(JICA)

Mr. IRA D'AUVERGNE
Minister
Ministry of Agriculture, Forestry
Lands and Fisheries

ATTACHMENT

1. Objectives

The objective of the Project is to construct a fishing port in Dennery.

2. Project Sites

The Project site is located in the village of Dennery in St. Lucia. Project site map is attached as ANNEX-1.

3. Executing Agency

The Department of Fisheries of Ministry of Agriculture, Forestry, Lands and Fisheries is responsible for the administration and execution of the Project.

4. Items requested by the Government of Saint Lucia

After discussion with the Basic Design team, the following items were finally requested by the St. Lucia side.

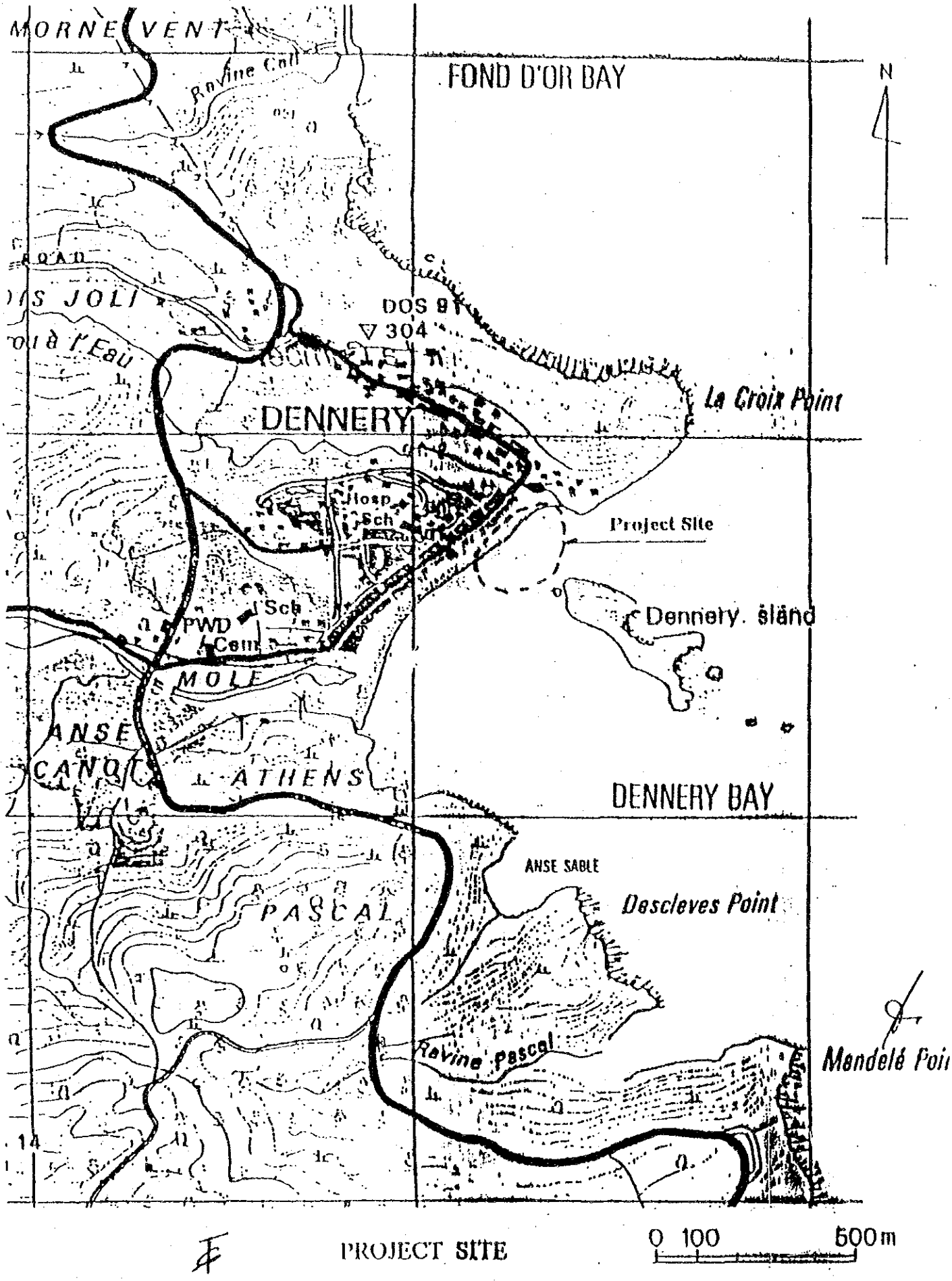
(1) Fishing port and related facilities
(2) Fishing boats (pirogue type) with outboard engine
(3) Fishing gear
(4) Vehicles

The details of the above items will be decided after the further studies in Japan and subject to the confirmation of the management plan of the port facilities.

5. Japan's Grant Aid System

(1) The Government of St. Lucia has understood the system of Japanese Grant Aid explained by the team.

(2) The Government of St. Lucia will take necessary measures, described in Annex II for smooth implementation of the Project, on condition that the Grant Aid Assistance by the Government of Japan is extended to the Project.


MORNE VENT
Ravine Coll
FOND D'OR BAY
N
ROAD
S JOLI
DOS 81
▽ 304
DENNERY
La Croix Point
Project Site
Dennery. sland
PWD
MOLE
ANSE
CANOT
ATHENS
DENNERY BAY
ANSE SABLE
Descleves Point
PASCAL
Ravine Pascal
Mendelé Poi
PROJECT SITE
0 100 500m

ANNEX - II

Necessary measures to be taken by the Government of St. Lucia in case Japan's Grant Aid executed.

1. To secure the site of the Project.
2. To clear, level and reclaim the site prior to commencement of the construction.
3. To construct wall and fences around the Project site.
4. To improve the access road to the Project site.
5. To provide facilities for distribution of electricity, water supply, drainage, sewage and other incidental facilities to the Project site.
6. To bear commissions to the Japanese foreign exchange bank for banking services based upon the Banking Arrangement (B/A).
7. To exempt taxes and take necessary measures for customs clearance of the materials and equipment brought for the Project at port of disembarkation.
8. To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contract such facilities as may be necessary for their work.
9. To maintain and use properly and effectively the facilities constructed and equipment under the verified contracts.
10. To bear all expenses other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment.
11. To coordinate and solve any matters related which may arise with third party and inhabitants living in the Project area during implementation of the Project.

MINUTES OF DISCUSSIONS

BASIC DESIGN STUDY ON THE PROJECT FOR

DENNERY FISH LANDING-BASE CONSTRUCTION IN

SAINT LUCIA

(CONSULTATION ON DRAFT REPORT)

In September 1992, the Japan International Cooperation Agency (JICA) dispatched a Basic Design Study team on the Project for Dennery Fish Landing-base Construction (hereinafter referred to as "the Project") to St. Lucia, and through discussions, field survey, and technical examination of the results in Japan, has prepared the draft report of the study.

In order to explain and to consult the St. Lucia side on the components of the draft report, JICA sent to St. Lucia a study team, which is headed by Mr. Yukio Tsubota, Deputy Director, Fishing Port Construction Division, Fishing Port Department, Fisheries Agency, and is scheduled to stay in the country from November 16 to November 22, 1992.

As a results of discussions, both parties confirmed the main items described on the attached sheets.

Castries, November 20, 1992

Mr. Yukio Tsubota
Leader
Basic Design Study Team
(JICA)

Mr. IRA D'AUVERGNE
Minister
Ministry of Agriculture, Forestry
Lands and Fisheries

ATTACHMENT

1. Components of Draft Report

The Government of St. Lucia has agreed and accepted in principle the components of the Draft Report proposed by the team.

2. Japan's Grant Aid system

(1) The Government of St. Lucia has understood the system of Japanese Grant Aid explained by the team.

(2) The Government of St. Lucia will take necessary measures, described in Annex I, for smooth implementation of the Project on condition that the Grant Aid assistance by the Government of Japan is explained to the Project.

3. Further schedule

The team will make the Final report in accordance with the confirmed items, and send it to the Government of St. Lucia by the middle of January 1993.

ANNEX - I

Necessary measures to be taken by the Government of St. Lucia in case Japan's Grant Aid executed.

1. To secure the site of the Project.
2. To clear, level and reclaim the site prior to commencement of the construction.
3. To construct wall and fences around the Project site.
4. To improve the access road to the Project site.
5. To provide facilities for distribution of electricity, water supply, drainage, sewage and other incidental facilities to the Project site.
6. To bear commissions to the Japanese foreign exchange bank for banking services based upon the Banking Arrangement (B/A).
7. To exempt taxes and take necessary measures for customs clearance of the materials and equipment brought for the Project at port of disembarkation.
8. To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contract such facilities as may be necessary for their work.
9. To maintain and use properly and effectively the facilities constructed and equipment under the Grant.
10. To bear all expenses other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment.
11. To coordinate and solve any matters related which may arise with third party and inhabitants living in the Project area during implementation of the Project.
12. When the equipment provided under the Project mentioned in the draft final report are sold or leased to the fishermen involved in the Project, the Government of St. Lucia shall take necessary measures to ensure that:

(1) The money raised by such a sale or lease is deposited in a special revolving fund in an account of the Government of St. Lucia or of the Fisheries Department.

(2) The above mentioned fund is utilized for the purpose of developing fisheries and the maintenance of the equipment provided under the Japanese Grant Aid Program with authorization of the Government of Japan in advance.

Appendix - 5

List of Fishing Gear

List of Fishing Gear and Training Equipment

1. Fishing Gear

Item	Specification		Quantity
1.1 Tuna Long Line Fishing Gear			
Tuna long line fishing gear	5 hooks/set	complete set	100 sets
Nylon monofilament fishing line	4 m/m dia		10,000 mtrs
Nylon monofilament fishing line	3 m/m dia		10,000 mtrs
Vinylon fishing rope	4 mm x 200 mtrs	Blue color	50 coils
Sekiyama with tar resined	#30/3+9	400 MTR COIL	5 coils
Wire leader	#28/3+9	400 MTR COIL	3 coils
Wire leader	#30/3+9	400 MTR COIL	3 coils
Wire leader	#32/3+9	400 MTR COIL	3 coils
Tuna hook	#36	with ring	1,000 pcs
Tuna hook	#42	with ring	1,000 pcs
Plastic tuna float	ABS 240 mmdia	with net	30 pcs
Plastic tuna float	ABS 240 mmdia	without net	30 pcs
PVC float	400x295x38 mm	Buoyancy 21 kgs	60 pcs
Swivel : Box type	3/0		400 pcs
Swivel : Crane	L/type		400 pcs
Armor spring	2.2 m/m		2,000 pcs
Kanseki spring	Yo-zuri No.3	Sekiyama	4,000 pcs
Aluminium sleeve	Yo-zuri A	Wire leader	2,000 pcs
Aluminium sleeve	Yo-zuri C	Wire leader	2,000 pcs
Portable flash light	6V EA-7	White lense	25 pcs
Portable flash light	6V EA-7	Red lense	25 pcs
Spare bulb	1.5 W		100 pcs
FRP flag Pole with float	6.0 mtr length	Complete set	20 pcs
Sinker	Lead 2 K		40 sets
Branch hanger snap	3.2 x 125		800 pcs
Branch hanger snap with B.L Swivel	2.6 x 100		200 pcs
Scissors (Nawakiri)	Stainless		20 pcs
Wire cutter (Vatotoko)	Stainless		20 pcs
1.2 Bottom Fishing Gear			
Nylon monofilament fishing line	#40		2,000 mtr
Nylon monofilament fishing line	#50		2,000 mtr
Nylon monofilament fishing line	#60		2,000 mtr

Nylon monofilament fishing line	#80		2,000 mtr
Nylon monofilament fishing line	#100		2,000 mtr
Fishing hook : Mutsu type	#23		500 pcs
Fishing hook : Mutsu type	#28		500 pcs
Fishing hook : Iseama type	#20		400 pcs
Fishing hook : Iseama type	#25		400 pcs
Fishing hook : Iseama type	#30		400 pcs
Swivel : 2 way triangle type	3 x 4		500 pcs
Ball bearing : 2-ring	#5		500 pcs
Lead sinkers	Long round type		
Lead sinkers	#30		200 pcs
Lead sinkers	#50		200 pcs
Lead sinkers	Split long type		
Lead sinkers	#5		200 pcs
Lead sinkers	#10		200 pcs
Bait droppers/Kanto type	#100		20 pcs
Double sleeve	#2		100 pcs
Double sleeve	#3		100 pcs
Double sleeve	#4		100 pcs
Plastic collar	#2		100 pcs
Plastic collar	#3		100 pcs
Strings	2 mmdia		1,000 mtr
Double pressers	Hand type		2 pcs
Polypropylene Rope	12 m/m dia x 200 mtr coil		20 coils
Polypropylene Rope	8 m/m dia x 200 mtr coil		20 coils
Polyethylene Cross rope	4 m/m dia x 100 mtr coil		50 coils
Chemical light stick	for bottom fishing 6" length		100 pcs
Braided fishing line	2 mmdia Supter toto type		1,000 mtr

1.3 Trolling Pole and Line

Dabo	P type size #10		20 pcs
Various baits	Octopus #3.5	5 pcs/bag	100 bags
Various baits	Action baits #3.5	5 pcs/bag	100 bags
Various baits	Aurora #2.5	5 pcs/bag	50 bags
Various baits	Aurora #3.0	5 pcs/bag	50 bags
Shabik Jig with Double hook	SS		100 pcs
Shabik Jig with Red eye	S		100 pcs

Various new pearl heads	E-29 Size		100 pcs
Various new pearl heads	E-23 Size		100 pcs
Various new pearl heads	E-15 Size		100 pcs
Lead for squid	#2		100 pcs
Lead for squid	#4		100 pcs
Lead for squid	#6		100 pcs
Jumbo squid	T-58 Mix color		50 bags
Double hook	#1		200 pcs
Double hook	#4		200 pcs
Double hook	L		200 pcs
FRP fishing rod	4.2 mtr long		30 pcs
Plastic Basket	Approx 60 cm x 25 cm with hook holder		50 pcs
Wooden Frame	K type revolving	Size 15	50 pcs
Wooden Frame	K type	Size 15	50 pcs
Float line P.P rope	5 mm dia Left twist 200 mtr coil		5 coils
Landing net	Type 8 T-28		10 pcs
Vinyl bait sheet	Aurora/blue		5 coils
Vinyl bait sheet	Aurora/blue		5 coils
Mylar Skirt/rainbow	#25		50 pcs
Mylar Skirt/rainbow	#28		50 pcs
Mylar Skirt/rainbow	#30		50 pcs

1.4 Stick held dip net

Stick held dip net complete set	13 m x 16 m	Including float push pole of FRP etc	1 set
Vinylon Minnow net	as spare net	1 mtr x 100 mtrs	4 pcs
Portable generator	100 V 60 Hz, 3.7 kw	Gasoline generator with voltage controller	1 unit
Fishing lighting system	100 V 1 kw	with 30 mtr cable	2 sets
Spare bulb for above	100 V 1 kw	with socket, packing etc	10 sets
Nylon fishing twine	1 kg roll	for repair	10 rolls
Nylon fishing twine	1 kg roll	for repair	10 rolls
Netting needle	100 m/m		40 pcs
Netting needle	140 m/m		40 pcs
Snatch block/stainless	10 m/m	0.3 tons	10 pcs
Snatch block/stainless	12 m/m	0.5 tons	10 pcs
Nylon rope	12 m/m	200 mtr coil	5 coils
Nylon rope	16 m/m	200 mtr coil	5 coils
Sinker	Lead 2 kgs		20 pcs
Sinker	Lead 3 kgs		20 pcs

1.5 Payao Equipment

Complete set Including two drum jointed anchor and 3 drum float with one pole flag set	Anchor rope 400 m			2 units
Spare anchor rope	Polypropylene 22 mmdia			400 mtr
Shackle	for above			20 pcs
Swivel	for above			20 pcs
Course	for above			20 pcs
Wire	12 m/m x 200 mtr coil			1 coil
Wire clip	12 m/m			40 pcs

1.6 Navigation Equipment

Hand Map compass				40 pcs
Binocular	7 x 50			10 pcs
Life jacket	L type			50 pcs
Life jacket	LL type			50 pcs
Hand flare	4 pcs/set			100 pcs
Anchor	10 kgs	Danforth		10 pcs
Anchor	20 kgs	Danforth		10 pcs
G.P.S.	SONY			1 set

1.7 Others

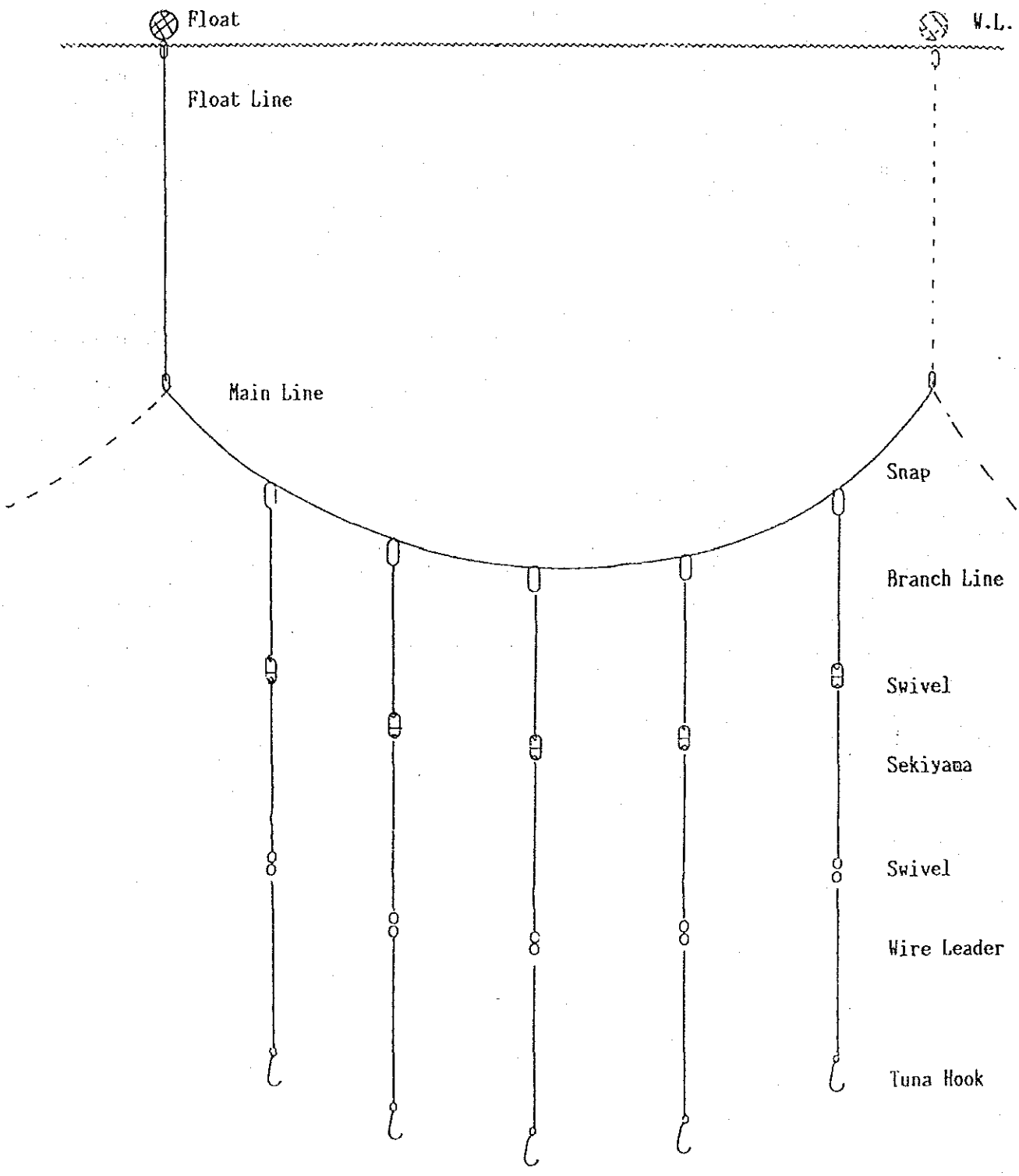
Anti-rust paint	2 k can			5 tins
FRP white paint	2 k can			10 tins
Paint brush	40 m/m			20 tins
Paint brush	60 m/m			20 tins
Gross powder for paste	5 k can			2 tins
Silicon sealant	in tube		Total	10 kgs
Chopped strand mat	450 g/m^2			128 mtr
Roving cloth	588 g/m^2			50 mtr
Polyester resin	5 k can			10 tins
Gelcoat	5 k can			5 tins
Catalyzer	Small can			10 tins
Water pump/portable for ship				2 units
Vinyl hose				40 mtrs
Fish hand hook	40 cm			10 pcs
Fish hand hook	60 cm			10 pcs
Flourescent paint	1 k can	Yellow color		10 tins
Rain coat/Kappa	L			20 pairs
Rain coat/Kappa	LL			20 pairs

Rubber boots/short	28 cm	20 pairs
Rubber boots/short	29 cm	20 pairs
Working gloves	Cotton	20 doz
Shackle/Stainless	50 m/m	20 pcs
Shackle/Stainless	80 m/m	20 pcs
Stainless/swivel	30 m/m	10 pcs
Stainless/swivel	50 m/m	10 pcs
Spike/Stainless	120 m/m	10 pcs
Fish basket/plastic	824 x 574 x 418 mm with handle	20 pcs
Fish basket/plastic	20 kgs type with name printing	80 pcs
Cooler box (Fish box)	145 ltr 753 x 633 x 537 mm	5 pcs
Deck brush	1.5 mtr hand pole length	20 pcs
Hand grinder (Disk grinder)	5" disk grinder 11 20 volt	2 units
Disk sand paper for above	rough	50 sheets
	medium	50 sheets
	fine	50 sheets
Rust hammer		10 pcs

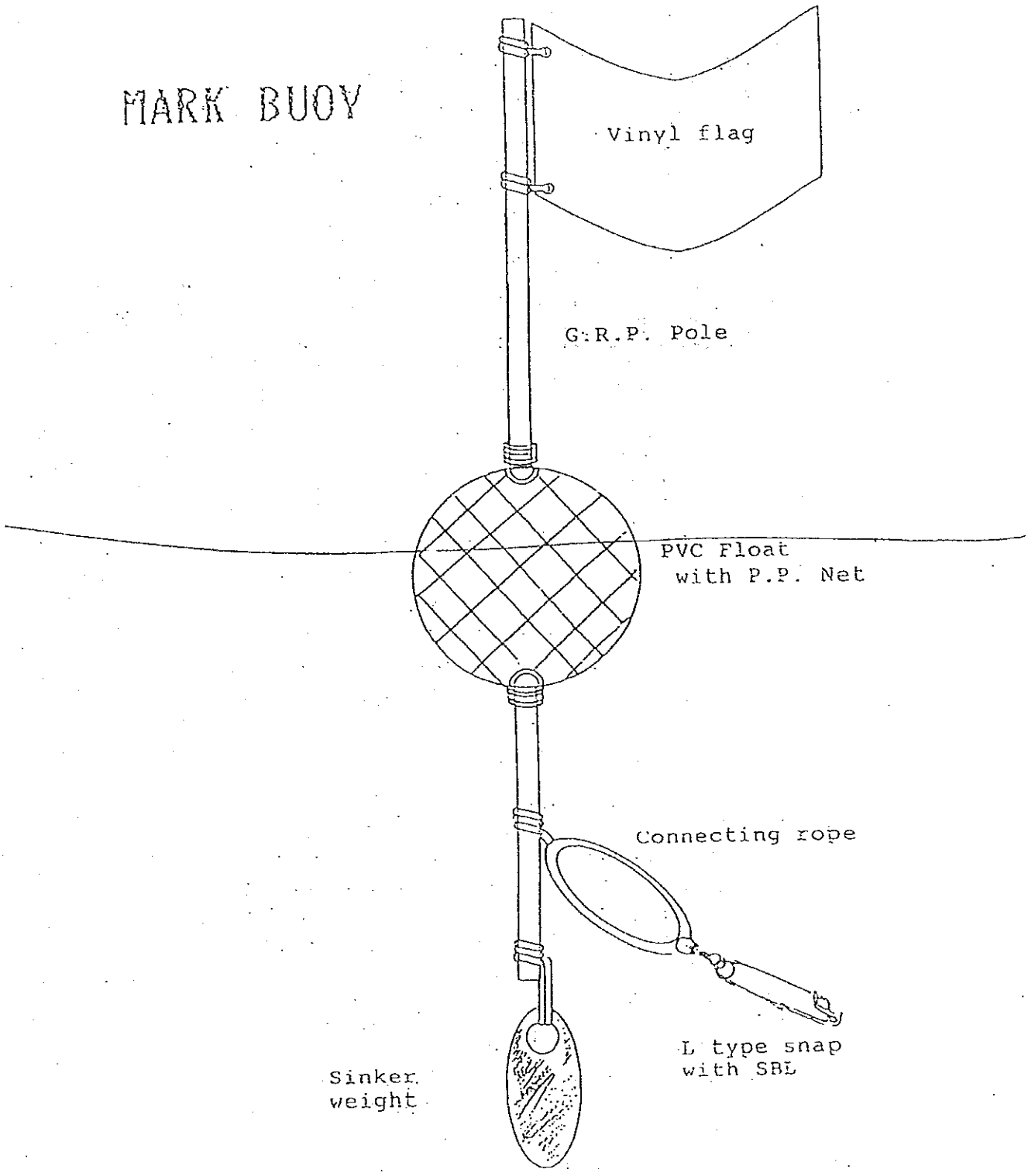
2. Audio Equipment

8 mm Video camera	CCD-TRI	2 units
Underwater housing for above	with lighting system	1 set
TV monitor	19" Multi system	1 unit
Video casette recorder	for 8 mm type	1 unit
Recording tape	for 8 mm 2 hours	20 pcs

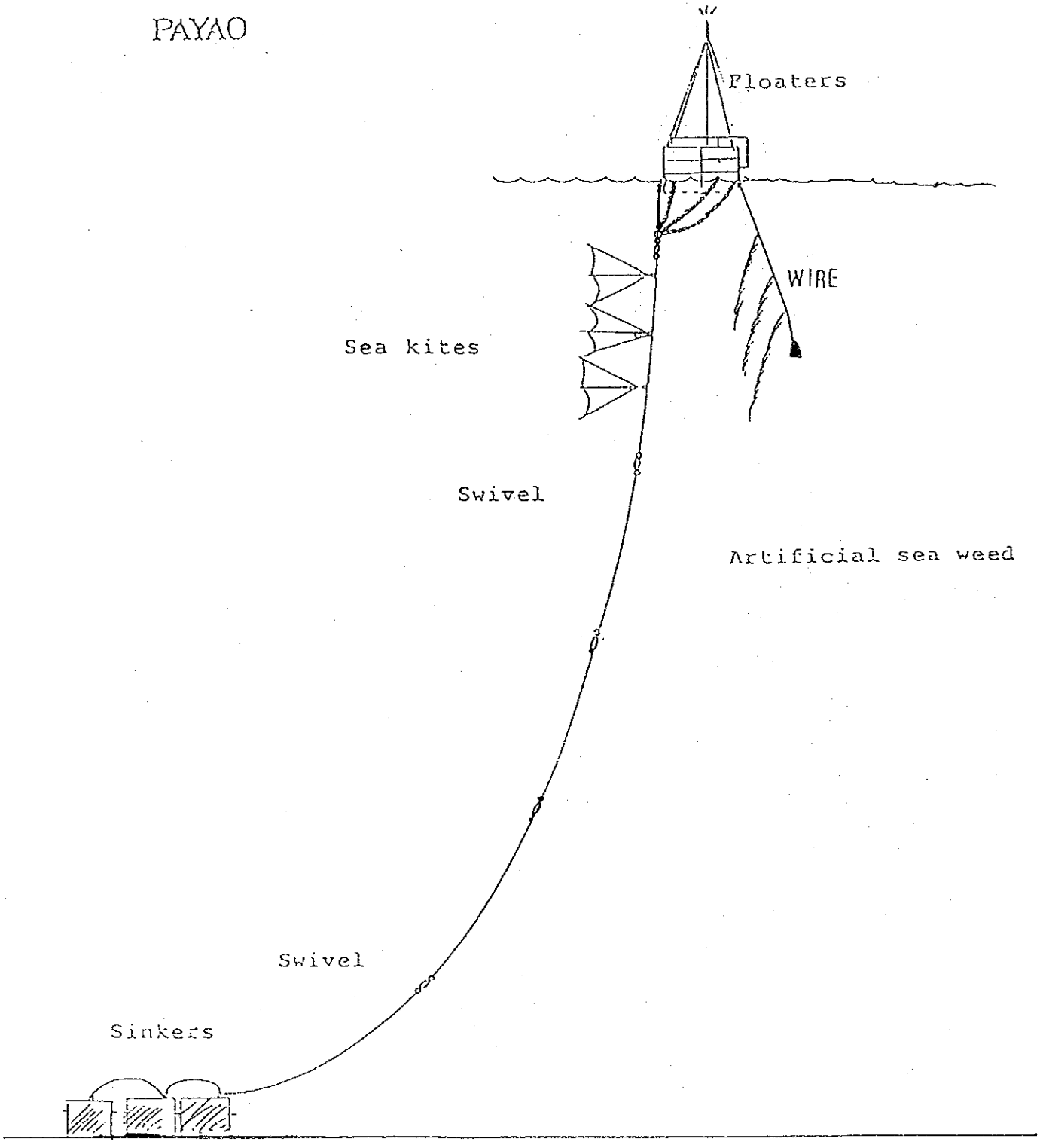
TUNA LONG LINE FISHING GEARS (JAPANESE TYPE)
****

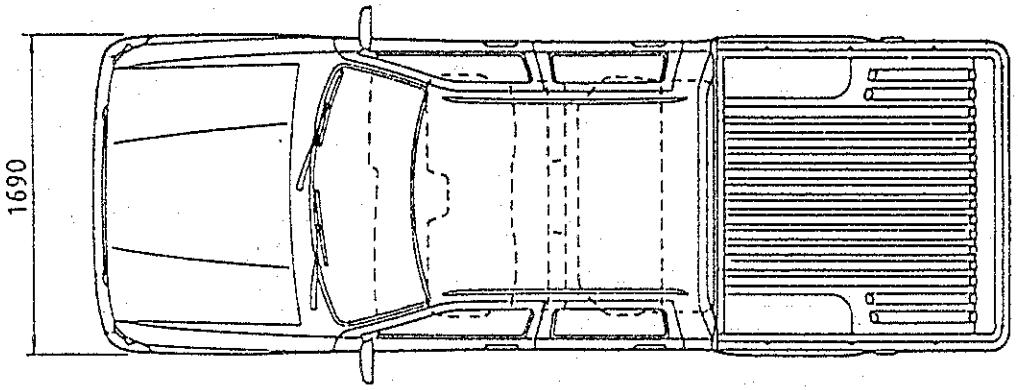


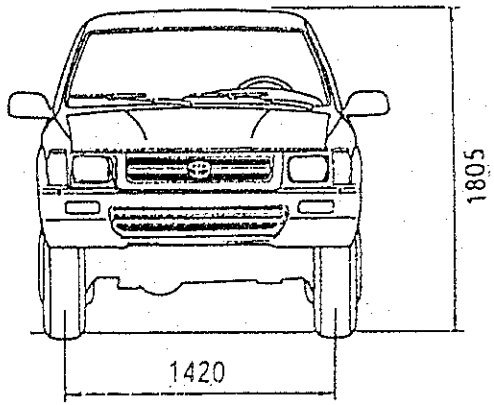
MARK BUOY

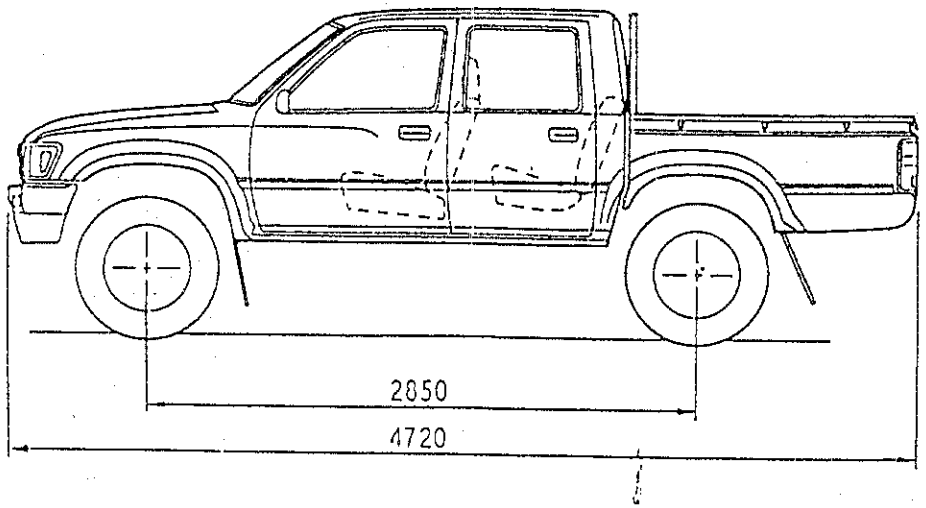

Vinyl flag
G.R.P. Pole
PVC Float
with P.P. Net
Connecting rope
L type snap
with SBL
Sinker
weight

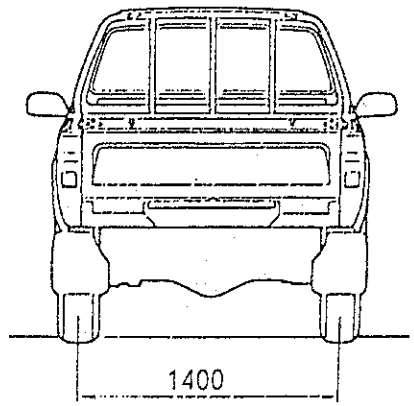
PAYAO


Floaters
WIRE
Sea kites
Swivel
Artificial sea weed
Swivel
Sinkers

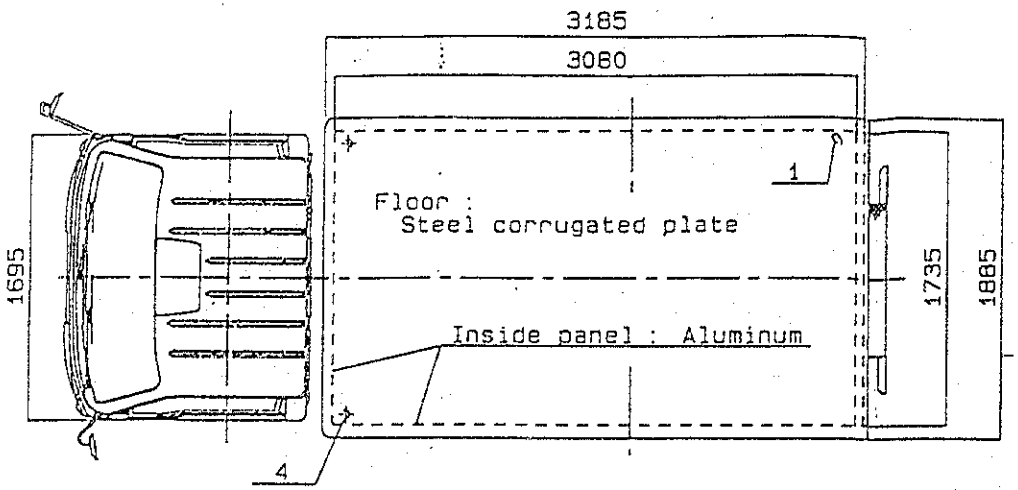


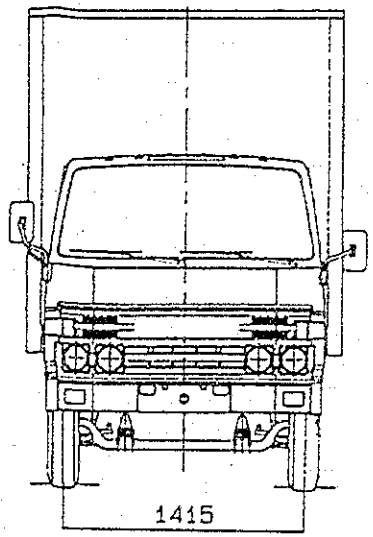




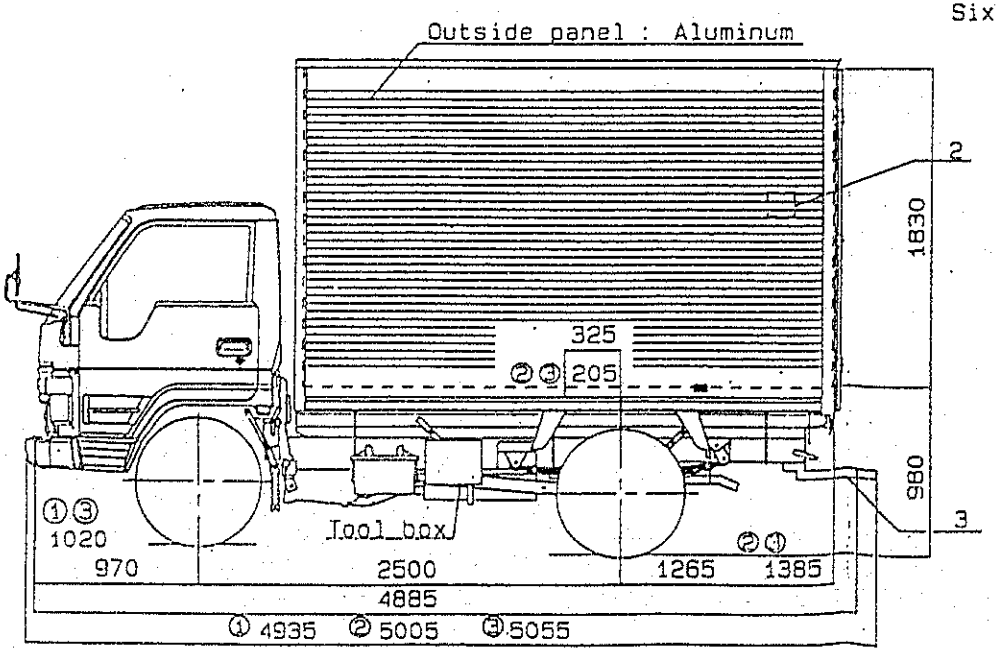


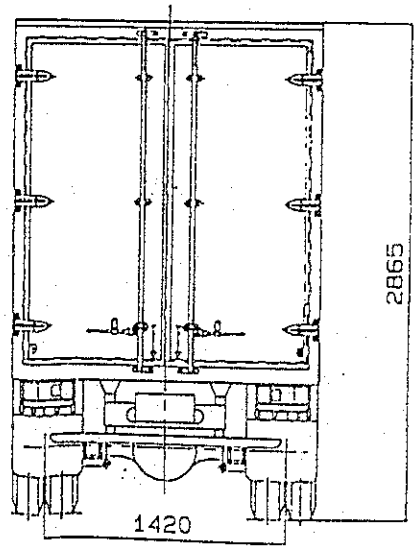
	HILUX 4WD, DOUBLE CAB
AUG., 1991	MODEL: YN106$^{R}_{L}$-PRMRS LN106$^{R}_{L}$-PRMRS
	MOTOR CORPORATION





Heat insulator thickness :
Six faces = 50mm





Optional
① Raised bumper
② Pre-cleaner + Snorkel air cleaner
③ Raised bumper + Pre-cleaner + Snorkel air cleaner

Right hand drive vehicle is also available.

	E	Special purpose vehicle's name change		May '89	
	D	Chassis spec. change		Jul. '88	
	C	Chassis spec. change		Aug. '87	
	ISS	REVISION RECORD	NO.	DATE	DR.

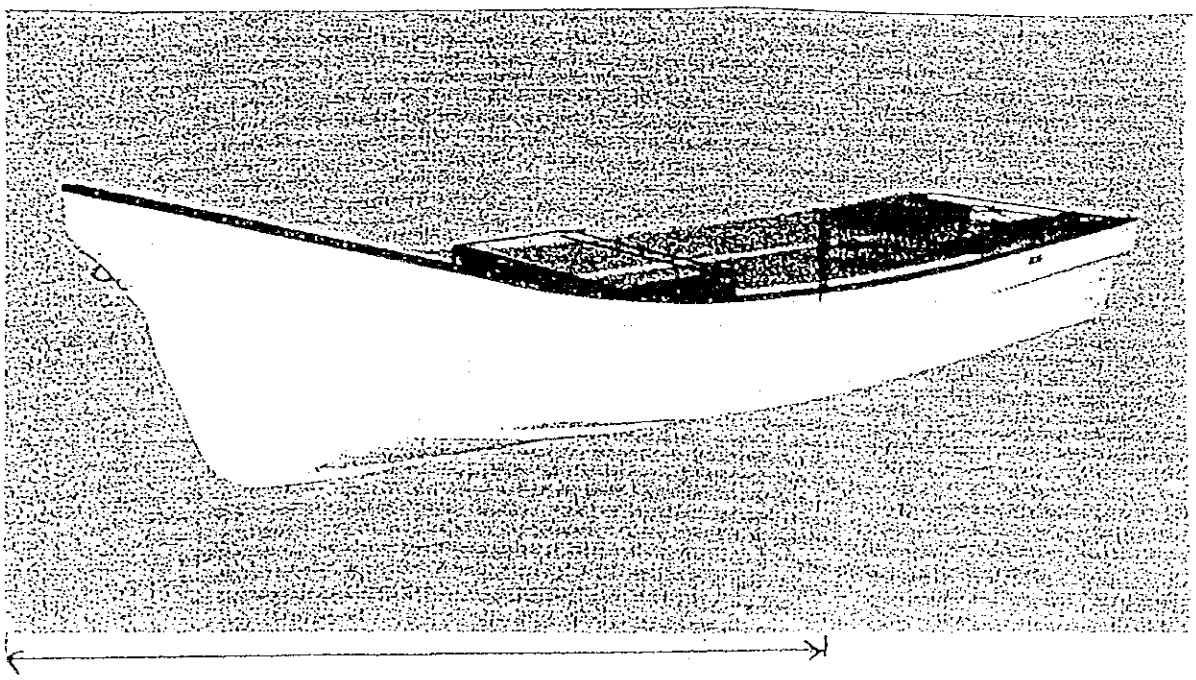
DYNA INSULATED PANEL VAN	CHASSIS MODEL YU62L-MDBT3 BU60A (L) -MDBT3
DWG.NO. FTCU B011	
SCALE FREE DATE Aug. 1987	BODY CO., LTD.

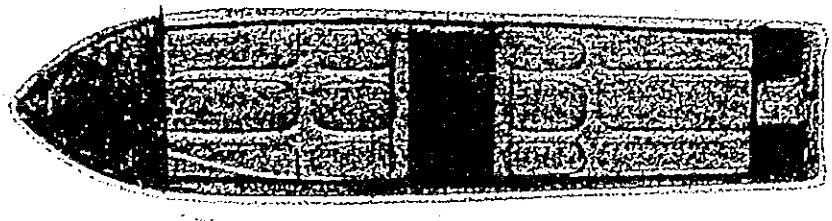
25 Feet Martinique type Canoe fishing boat

Material	G.R.P
Model	Insinkable canoe type
Length overall	7.60 m (25 Feet)
Beam	1.87 m
Depth	0.75 m

Outboard engine operation type

with water depression board
with Ice box (Renovable) Approx 1 cu.m
with Sail pole fitting hole





Appendix - 6

Handling of the Increased FRP Fishing Boats

Appendix - 6 HANDLING OF THE INCREASED FRP FISHING BOATS

1. Description of the Request:

During the investigation conducted for the Basic Design in September 1992, the number of fishing boats at Dennery was 32 of which 2 were of the FRP type. The study for the project facilities was prepared on the total of 41 fishing boats (20 FRP and 21 wood canoes), of which 18 FRP fishing boats would be provided by the project and the 2 existing FRP fishing boats were included.

When Dennery Port was visited in November 1992 to submit and explain the Draft Report for the project, the number of FRP fishing boats had increased to 9 boats, and the total number of fishing boats registered was 39 including the wood canoes. This fact gives an indication of the expectation of the local fishermen for construction of the Dennery Fishing Port facilities project, and they had purchased the new fishing boats at their own volition, and there could be future increases of FRP fishing boats by the time the new fishing port facilities are completed.

A request was made by the local government at the time of the submission of the Draft Report to moor the additional fishing boats at Dennery Port. This requires that bollards would have to be provided for all the fishing boats on the inside of the breakwater.

2. Estimate of the Number of Fishing Boats Utilizing the Fishing Port:

In taking into consideration the changes in the number of fishing boats at Dennery Port, the number of fishing boats using the Dennery Fishing Port facilities will be as follows, assuming an increase of 5 FRP fishing boats, the total number of fishing boats using the Dennery Port facilities will be 62 boats.

30 wood canoes + 32 FRP boats (9 + 18 + 5) = 62 boats.

It was originally planned to replace some of the wood canoes with FRP boats, and if the numbers to be replaced were assumed to be one-half of the increase in the FRP boats, the total number would be 10 boats, which gives a total count of 52 boats to be registered at Dennery Port.

20 canoes + 32 FRP boats = 52 boats.

3. The Required Lengths for the Lay-by Wharf

If the mooring method was made lengthwise similar to the present plans, and a 50 % spare length was allowed, the total length of the Lay-by Wharf would be 96 m.

Required Lay-by Wharf: 2.0 m x 1.5 x 32 boats = 96 m.

4. Measures to Cope with the Increased FRP Fishing Boats:

There are three alternate methods proposed to cope with the increase in the FRP Fishing Boats as follows:

1. Construct a new Lay-by Wharf behind the Breakwater to make up for the lack of mooring space.
2. Reduce the mooring space by 50 %.
3. Make no change to the cross section of the breakwater but to increase the number of bollards on the top concrete within the allotted funds.

Plan 1 would require a change in the configuration of the cross section with a resulting increase in the construction costs which will make it difficult to implement due to budgetary constraints. Plans 2 and 3 will require only a small increase in the construction costs and would be possible to implement. Plan 2 will be used to calculate the number of additional mooring spaces.

The present Lay-by wharf length assumes accommodating 20 FRP fishing boats, and a length of 60 m for the North Breakwater is planned. The length of the Lay-by wharf has included an allowance of 50 %, which is allowed for Japanese ports, and if this allowance is disregarded, it will be possible to moor 30 fishing boats.

Maximum Mooring of Fishing Boats: 60 m ÷ 2.0 m = 30 boats.

According to this calculation, there will 2 fishing boats that will not be able to moor, however, if they could be allowed to moor at the landing wharf on the condition that they will put out to sea early in the morning, and the fishing port management were to act flexibly, this matter could be resolved locally.

For this reason, the measures to cope with the increased in the number of FRP fishing boats are as follows:

- To install 30 mooring bollards on 60m's Lay-by wharf.

- Provide mooring bollards at the end of the North Breakwater and on the dock surface top of the South Breakwater. The end 20 m of the North Breakwater near the port entrance will have to be kept open and not have any bollards installed in order to keep the navigation route within the port open.
- Allow FRP fishing boats to moor at the night on the condition that they will put out to sea early in the morning.