

It is judged that the Project, as apparent from the foregoing effects which can be anticipated by its implementation, will greatly contribute to fisheries development in Grenada.

5-2 Financial Evaluation

The profitability of facilities and equipment will be examined in order to forecast whether the Project can be smoothly operated or not.

1. Fishermen's Center

The overall operating conditions of various activities must be financially evaluated for each Fishermen's Center. Detailed data are attached at the end of this report for study.

Operating expenses (per each Fishermen's Center)			
Electric power consumption	Block ice making machine	EC\$	286.32
	Plate ice making machine	EC\$	365.76
	Cold storage	EC\$	841.92
	General lighting	EC\$	50.00
Total electric charges		EC\$	1,544.00
Fuel costs	(for 4 inboard engine fishing boats)	EC\$	38,545.92
	Insulated truck	EC\$	6,486.48
Total fuel oil cost		EC\$	45,032.40
Fishing gear costs (annual wear and tear of 4 boats)		EC\$	48,230.48
Water charges		EC\$	0.00
Cost of bait (for 4 inboard engine fishing boats)		EC\$	86,352.00
Ice cost (for 4 inboard engine fishing boats)		EC\$	37,329.60
Maintenance expenses	Block ice making machine	EC\$	4,131.86
	Plate ice making machine	EC\$	3,889.20
	Cold storage	EC\$	7,045.87
	4 inboard engine fishing boats	EC\$	29,967.12
	Insulated truck	EC\$	1,752.00
Total maintenance exp.		EC\$	46,786.05

Depreciation charges 1)	Block ice making machine	EC\$ 35,985.28
	Plate ice making machine	EC\$ 28,892.00
	Cold storage	EC\$ 59,792.00
	Insulated truck	EC\$ 7,008.00
	Fishing boats	EC\$233,600.00
2) Lease fees on 4 small fishing boats		EC\$233,600.00
Total depreciation charges		EC\$598,877.26
Personnel expenses	Project Manager	EC\$ 0.00
	Staff (EC\$500/month x 2 x 12 mo.)	EC\$ 12,000.00
	Temporary staff (EC\$20/day x 3 x 180 days)	EC\$ 10,800.00
	Fishing boat crew (EC\$700 x 4 x 12 months)	EC\$ 33,600.00
Total personnel expenses		EC\$ 56,400.00
Total operating expenses		EC\$920,551.87
Revenues		
Sale of Ice	Block ice making machine	EC\$ 65,326.80
	Plate ice making machine	EC\$130,653.60
Rental of cold storage		EC\$ 88,797.60
Sale of fish caught		EC\$660,000.00
Consigned transport fees		EC\$ 36,000.00
Weighing charge, EC\$0.03/lb x 2,064,000 lbs.		EC\$ 61,920.00
Rent for use of fishermen's lockers, EC\$60/year x 60 ea.		EC\$ 1,200.00
Total revenues		EC\$1,043,898.50
Annual Profit		EC\$ 123,346.13

If each Fishermen's Center operates its facilities, including distribution facilities, four fishing boats, jetty, insulated truck, etc. according to the methods shown in the operating plan, it can expect to earn a profit even after allowing for depreciation. The earnings will be accumulated as an internal reserve according to the method prescribed in the Society Ordinance and effectively utilized to reinforce the activities of the fishermen's cooperatives and also for fisheries development programs. The following may be pointed out in the foregoing financial analysis.

1. It is conjectured that electric charges, water charges, fuel prices and other public charges in Grenada were not set as a result of any economic study but established at lower levels in consideration of socio-economic conditions. The Ministry of Works, Grenada Electricity Service, etc. are planning to install meters and other apparatus to measure the actual consumption in answer to the call for future economic development. Accordingly, when a rate tarriff system is developed, it will be necessary to reexamine the operating plan.

2. The largest revenues will come from sales of catches by the small fishing boats. As already indicated, fish prices slightly on the high side have been officially established by the government. While this is favorable for the fishermen and for operating fishing boats, it is expensive for consumers and as a result is hampering the growth of consumption and holding back the incentive for fishermen to engage in fishing activities. Therefore, the operating plan will have to be reexamined according to progress of the Government's program for shifting to a free market system for fish sales.

2. Economic comparison of fishing boats (equipped with outboard engine) with and without insulated fish boxes

Current outboard engine fishing boats do not have insulated fish boxes or other facilities for retaining the freshness of catches so they are compelled to sail out twice a day during the peak fishing season of six months. If fish boxes manufactured by the insulated fish box manufacturing machine included in the Project were reinforced with wood and installed on fishing boats now in use, the following effects could be expected.

1. Operating time can be extended and fish catches increased.

2. Reduction in the ratio of sailing time to fishing time. Particularly when compared to two round trip made in one day, a big improvement in the economics of fishery can be expected.

	Without cooled fish boxes	With cooled fish boxes
1. No. of operating days	100 days	100 days
2. Distance to fishing ground	15 n. miles	15 n. miles
3. Outboard engine hp.	50 hp.	50 hp.
4. Ship's speed	20 knots	20 knots
5. Fishing time/day	AM6:00-PM3:00 Sailing time 2 hrs. Fishing time 7 hrs.	AM6:00-PM6:00 Sailing time 2 hrs. Fishing time 10 hrs.
6. Fuel consumption	25 1/hr. when sailing 5 1/hr. when fishing	25 1/hr. when sailing 12 1/hr. when fishing
7. Unit price of fuel	EC\$1.56/l	EC\$1.56/l
8. No. of times voyages of twice a day in a year	12 times, fishing 5 more hours/time	0
9. Catchability coefficient	10 lbs/hr	10 lbs/hr
10. Catch/day	70 lbs	120 lbs
11. Catch/year	$70 \times 10 + 50 \times 12$ = 7,600 lbs. (3.42 tons)	120×100 = 12,000 lbs (5.4 tons)
12. Operating expense	EC\$14,664.00	EC\$18,210.00
Fuel charges	Sailing time: $2 \times 112 = 224$ hrs. Operating time: $7 \times 100 + 5 \times 12 = 760$ hrs. $224 \times 251/\text{hr} + 760 \times 5\text{L}/\text{hr}$ = 9,400L $9,400\text{L} \times \text{EC}\$1.56/\text{L}$ = EC\$14,664.00	Sailing time: $2 \times 100 = 200$ hrs. Operating time: $10 \times 100 = 1,000$ hrs. $200 \times 251/\text{hr} + 1,000 \times 5\text{L}/\text{hr}$ = 10,000L $10,000\text{L} \times \text{EC}\$1.56/\text{L}$ = EC\$15,600.00 EC\$55x2=EC\$110
Cost of insulated fish boxes	0	
Cost of ice	0	250lbs/voyage $250 \times \text{EC}\$0.1 \times 100\text{days}$ = EC\$2,500
Fishing revenue	$7,600\text{lbs} \times \text{EC}\2.5 = EC\$19,000.00	$12,000\text{lbs} \times \text{EC}\2.5 = EC\$30,000.00
Annual Profit	EC\$ 4,336.00	EC\$11,790.00
Monthly Profit	EC\$ 361.33	EC\$ 982.50

CHAPTER 6
CONCLUSIONS AND RECOMMENDATIONS

CHAPTER 6 CONCLUSIONS AND RECOMMENDATIONS

6-1 Conclusions

As shown in the Project Evaluation, the Coastal Fisheries Development Project of Grenada is expected to create significant benefits and bestow favorable effects on coastal fisheries development. It is also apparent that development of the huge fisheries resources that are known to exist in the offshore areas of Grenada is quite significant and should have a major influence on the economic development of Grenada. Smooth implementation of the Project, which aims at development of fisheries resources and will serve as a start in fostering the fisheries industry which has great latent potential in assuming a position in the economic activities of Grenada, is important. It is therefore judged appropriate for the Government of Japan to extend its grant aid cooperation for implementation of this project at an early date.

6-2 Recommendations

The following matters are especially recommended in order to smoothly implement the Project.

- 1) Although the Project is of a scale that can be adequately operated by existing personnel of the Ministry of Education, Culture and Fisheries, it is important to be particularly careful about selecting the right persons to be in charge. The selection of personnel to be dispatched to the Fishermen's Centers is particularly important as the success or failure of future coastal fisheries development will depend on their competence.
- 2) Adequate preparations are necessary to carry out the portion of work to be undertaken by the Government of Grenada at its own cost and also to secure the necessary budget and make arrangements for the acquisition of land and construction permits, the execution of ground levelling and other work necessary for supplying electricity

and water, and for obtaining tax exemptions, etc. which are necessary for implementation of the Project. The work must be executed in conformity with the progress of work executed by the Japanese side.

Recommended are following improvements in particular became clear while investigating the condition of fishing in Grenada as they are deeply relevant to operation of the Project as well as to future fisheries development.

Improvement in the distribution system of fisheries products

As already indicated, a primary characteristic of the distribution system of Grenada is that sales are based on official guarantee prices determined by the Government. While fishing was performed on a small scale, the price structure administered by the Government played an important role in stabilizing fish prices and in ensuring a market. However, it is possible that as the huge fisheries resources of the coastal and offshore waters are developed and Grenada fosters the fisheries industry, which has latent potential for assuming an important role in the country's economy, the official price system will begin to reveal many contradictions. For fishermen, the official prices are a double-edged sword; while they can expect stable producer prices, they cannot expect their sales volume to increase during the peak fishing season. What is more, a slight decrease in fish consumption prevails due to the current price of fish, which has stabilized at a high level, and inhabitants now seem to prefer cheaper, imported chicken wings. Accordingly, although the current per capita annual consumption of fish is about 25kg, it is unlikely that it can be doubled. Also, when the difference between the producer's price and consumer's price is only EC\$0.50, it is impossible to expect private enterprises to specialize in the marketing of fisheries products. It only allows small scale fish vendors (private individuals) to intervene. If, however, the production costs of fishermen were reduced by making fishing activities more economical, as planned under the Project, and a gradual transition were to be effected toward the free market system which permits price changes according to the fishing season, the fishermen would be able to secure a

market throughout the year and those who go out fishing only 100 days or less during the year due to limited market outlets would be able to dedicate themselves to fishing as an occupation and become full-time fishermen in the true sense. This is proven in the case of the fishermen on Carriacou Island who have no other occupation than fishery and who are assured of market outlets for their fish. For consumers, on the other hand, even though fish prices might fluctuate according to the fishing season, they can expect prices to become lower through legitimate competition among private enterprises, which can distribute much larger quantities of fish compared to vendors. However, as a sudden shift from the official price system to the free market system might cause confusion, it is recommended that it be implemented gradually and that private fisheries product processing and distribution enterprises be promoted as quickly as possible.

Promotion of activities of fishermen's cooperatives

One of the major objectives of the Project is to promote the activities of fishermen's cooperatives through improvement of the fishing environment centered around the development of Fishermen's Centers. However, although the fishermen command a high level of technique in the use of current fishing methods, they have not yet established themselves as full-time fishermen in the true sense or become fully cognizant of fishing as an occupation. The distortion in the distribution system described previously is largely responsible for this situation. Despite the fact that the position of fishermen is guaranteed under the Fisheries Act, it is actually not guaranteed at all. In such circumstances, the enforcement of measures which protect the members as well as promote the fishermen's cooperatives similar to the coastal fishing rights of Japan which belong to fishermen's cooperatives and which permit only members of cooperatives to engage in fishing, would be effective. In a country like Grenada where it is difficult for Government support to reach individual fisherman, fisheries would be more efficiently administered by fostering and protecting the fishermen's cooperatives as the nuclei of fisheries promotion. Accordingly, it is recommended that effective measures for the promotion of fishermen's cooperatives be drafted and enforced in implementing the Project.

ANNEX I MINUTES OF DISCUSSIONS

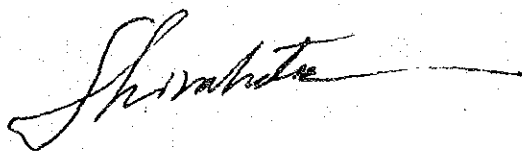
MINUTES OF DISCUSSIONS
ON
THE COASTAL FISHERIES DEVELOPMENT PROJECT
IN
GRENADA

In response to the request of the Government of Grenada, the Government of Japan decided to conduct a basic design study on the Coastal Fisheries Development Project, and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Grenada the Study Team headed by Dr. Soichiro SHIRAHATA, Fisheries Expert, Overseas Fishery Cooperation Foundation, from 11th December, 1988 to 4th January, 1989.

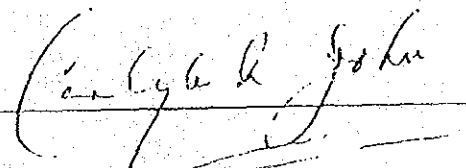
The team had a series of discussions on the Project with the officials concerned of the Government of Grenada headed by Mr. Carlyle John, Permanent Secretary, Ministry Education Culture & Fisheries and conducted a field survey in Grenada.

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

20th December, 1988



Dr. Soichiro SHIRAHATA
Leader of the Mission
JICA



Mr. Carlyle John
Permanent Secretary
Ministry of
Education, Culture
and Fisheries

ATTACHMENT

1. Title of the Project

The title of the Project is "The Coastal Fisheries Development Project".

2. Objective of the Project

The main objectives of the Project are to promote coastal fisheries through expansion of fishing area by modernized fishing boats, which will contribute to upgrading the socio-economic condition of artisanal fishermen, and to ensure a stable supply of fish. In order to promote coastal fisheries by artisanal fishermen, supporting infrastructure such as loading, unloading and marketing facilities along the coastal area have to be consolidated.

3. Executing Agency

The Ministry of Education, Culture and Fisheries is responsible for the administration and implementation of the Project as well as the management and maintenance of the equipment and facilities provided under the Project.

4. Request of the Grenada Government

The contents of the Project required by the Government of Grenada are listed in Annex 1. The Team will convey the request of the Grenada Government to the Japanese Government and the latter will take the necessary measures to cooperate by providing the items listed in Annex 1 within the scope of the Japan's Grant Aid Programme.

5. Project Site

The sites of the Project are located at Gouyave, Grenville, Victoria, Sauteurs and Melville Street as shown in Annex II.

6. Undertaking of the Government of Grenada

The Government of Grenada will take necessary measures listed in Annex III on condition that the Grant Aid of the Government of Japan would be extended to the Project.

7. Understanding of Japan's Grant Aid System

The Grenada side has understood Japan's Grant Aid System explained by the Team, which included the principle use of Japanese firm for consultancy services and for supply of the equipment and construction of facilities.

8. Technical Assistance

The Japanese side acknowledges that some form of future technical assistance would be necessary to further support the fisheries sector in Grenada in areas such as fishing technology and marketing.

9. Final Report

Ten copies of the final reports (in English) on the Project will be submitted to the Government of Grenada by the end of April 1989.

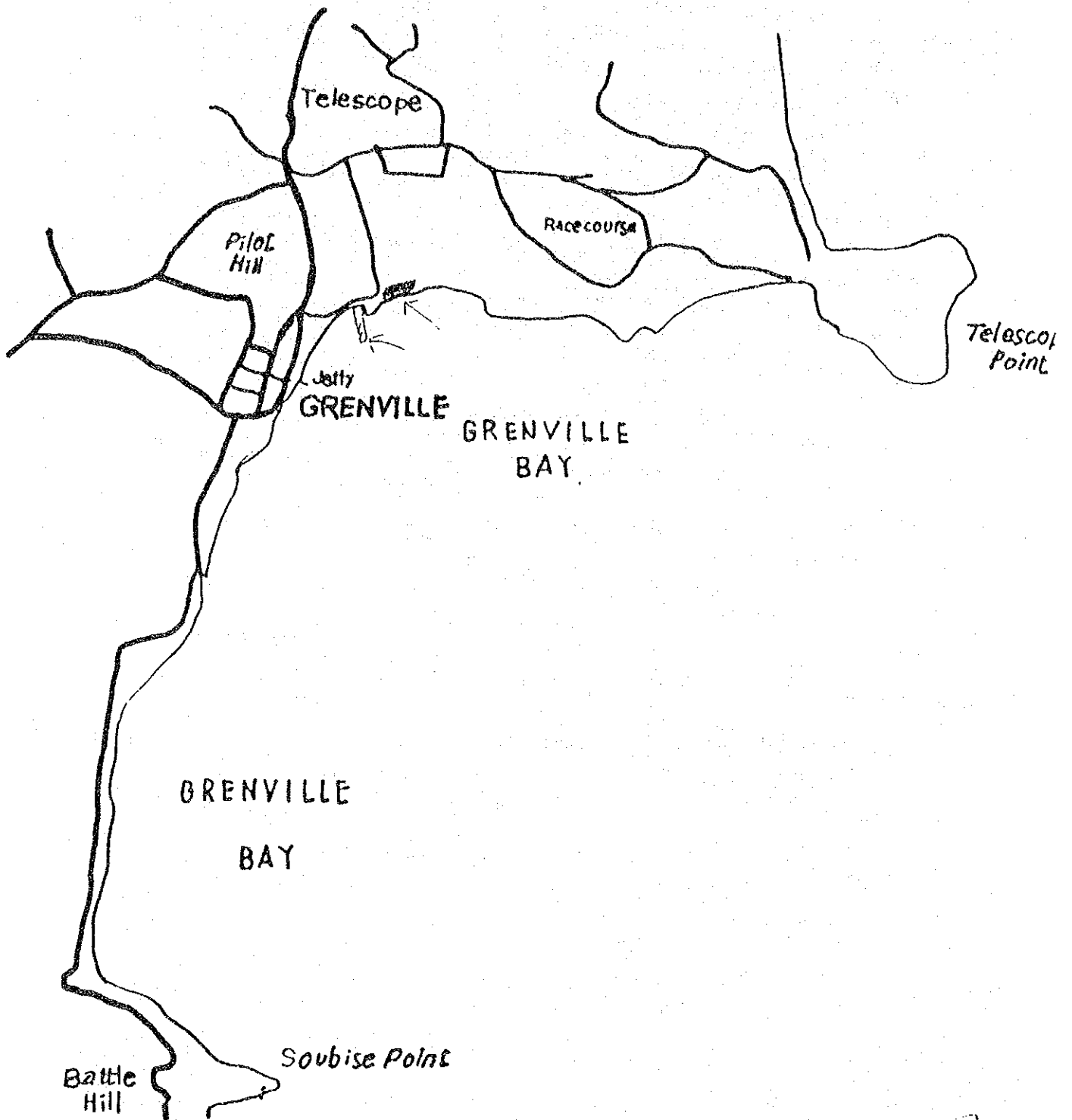
ANNEX I

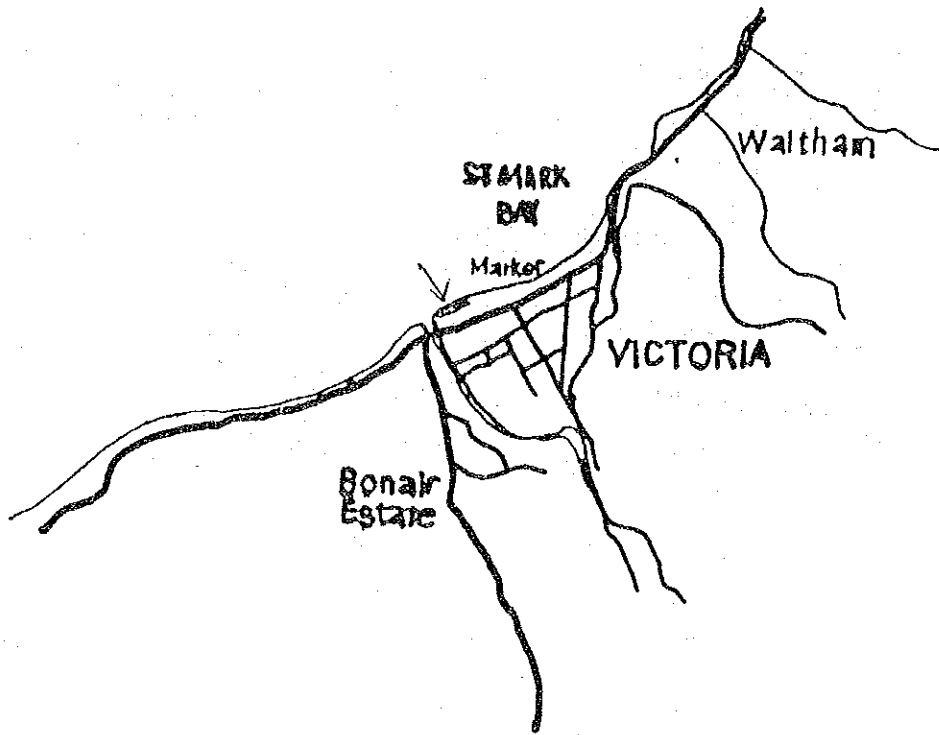
Request of the Government of Grenada

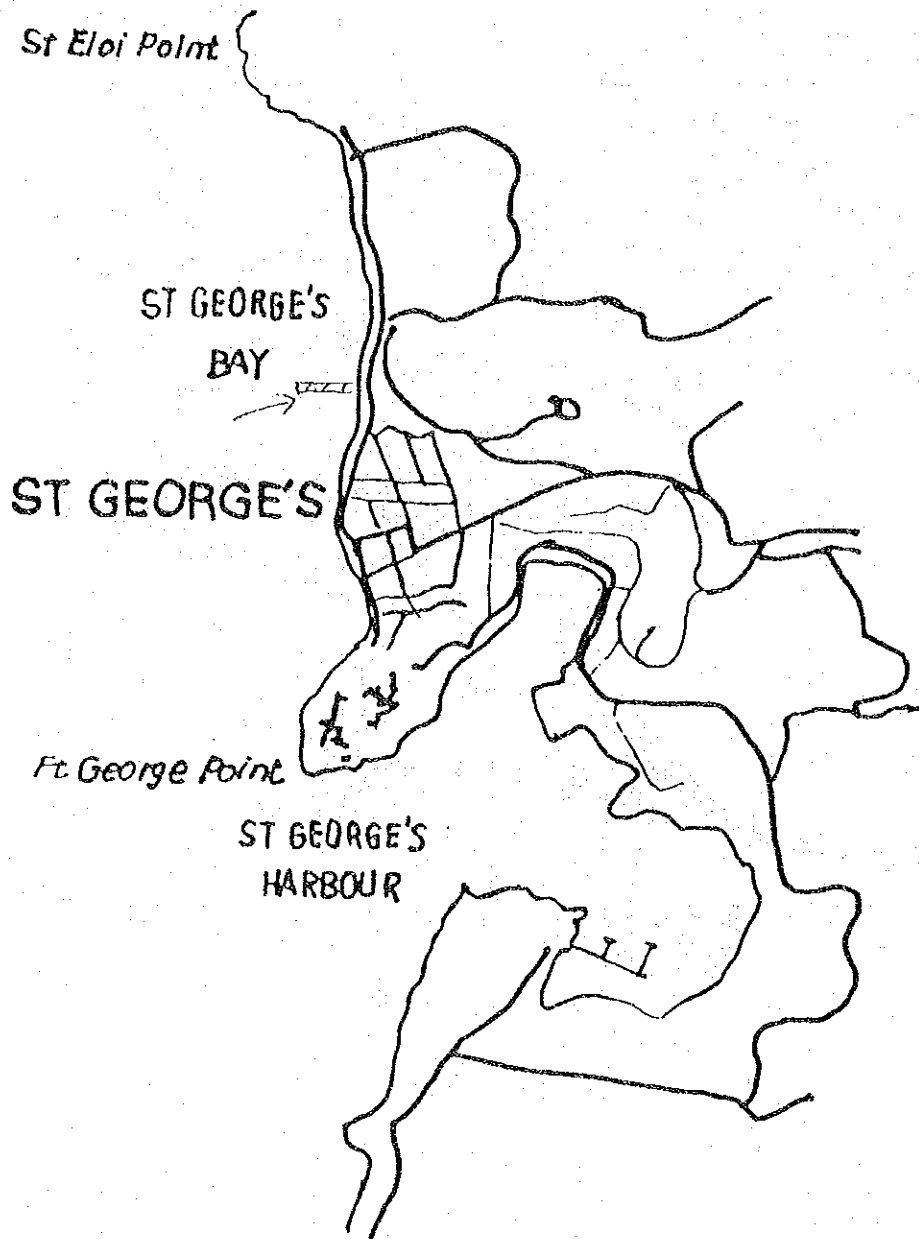
- (a) Loading and Unloading facilities
 - (i) Gouyave
 - (ii) Grenville
 - (iii) Victoria
 - (iv) Melville Street
- (b) Modernized fishing vessel and fishing gear
- (c) Fishermen's Centre
 - (i) Gouyave
 - (ii) Grenville
- (d) Equipment for maintenance
- (e) Equipment for local marketing
- (f) Fishermen's lockers at Sauteurs
- (g) Provision of water supply system at Calliste.

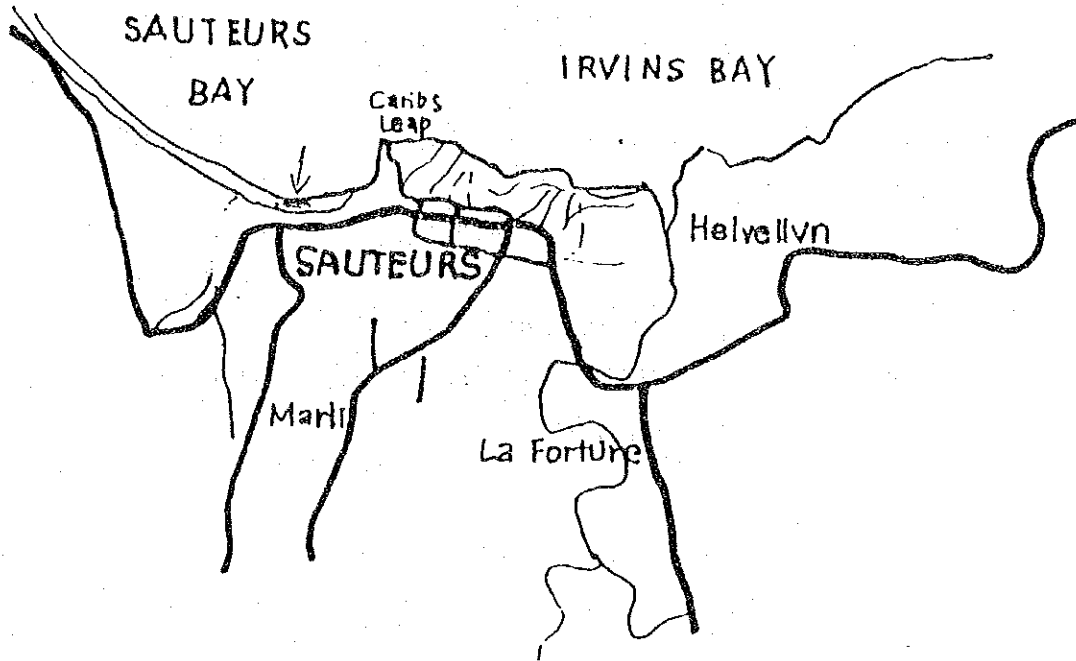
ANNEX II

Maps of sites









ANNEX III

The following measures are required to be undertaken by the Government of Grenada at its own cost.

- (1) To secure, clear, level and reclaim the project sites, including the demolition of existing buildings where needed prior to the commencement of construction works.
- (2) To provide facilities for distribution of electricity, telephone, water supply, drainage and sewerage up to the site where needed.
- (3) To construct the gate and fence in and around the site where needed.
- (4) To provide general furniture required for administrative purpose.
- (5) To ensure tax exemption and Custom clearance at the port of disembarkation in Grenada and to facilitate the prompt unloading of the product and materials provided under the Grant Aid Programme of the Government of Japan.
- (6) To exempt Japanese nationals engaged in the project from customs duties, internal taxes and other fiscal levies which may be imposed in Grenada with respect to the supply of the product and services under the verified contracts.
- (7) To provide visas, entry permits and work permits to Japanese nationals whose services are required in connection with the supply of the products and services under the verified contract; as may be necessary for their entry into Grenada and stay therein for the performance of their work.

- (8) To take the following measures when equipment provided by the project are sold or leased to fishermen:
- (i) deposit the amount to be obtained by such sale or lease into a separate and distinct account for the project;
 - (ii) to utilize the above mentioned fund for the purpose of fisheries development and maintenance of equipment provided by the project;
 - (iii) report, upon the request of the Government of Japan, a statement on the use of funds derived from the project.
- (9) To maintain and use properly and effectively the facilities and equipment provided under the project for the execution of the project.
- (10) To bear all the expenses other than those to be borne by the project including operation and maintenance costs for the facilities and equipment.

ANNEX II MEMBERS OF STUDY TEAM

ANNEX II MEMBERS OF STUDY TEAM

Team Leader	Soichiro SHIROHATA	Fisheries Expert, Overseas Fisheries Cooperation Foundation
Fish Marketing Expert	Fumio FUJII	Office for Overseas Fishery Cooperation, International Affairs Division, Oceanic Fisheries Department, Fisheries Agency, Ministry of Agriculture, Forestry and Fisheries
Project Coordinator	Tamio TOMIZAWA	Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs
Fishery Deve- lopment Planner	Yasuhisa KATO	Overseas Agro-Fisheries Consultants Co., Ltd.
Architect	Masato ARAYA	Overseas Agro-Fisheries Consultants Co., Ltd.
Civil Engineer	Yoshiaki TAHIRA	Overseas Agro-Fisheries Consultants Co., Ltd.
Cost Estimates	Kenji OKAMURA	Overseas Agro-Fisheries Consultants Co., Ltd.
Fishing Boat/ Gear Expert	Kazunori TANAKA	Overseas Agro-Fisheries Consultants Co., Ltd.

ANNEX III ITINERARY OF STUDY TOUR

ANNEX III ITINERARY OF STUDY TOUR

- 11 Dec. (Sun) Departed from Tokyo, stayed overnight in New York
- 12 (Mon) Arrived in Grenada via Miami (four members), via Barbados (three members), met by the Ministries of Foreign Affairs and Education, Culture and Fisheries.
- 13 (Tue) Visited the Secretariat of Ministry of Foreign Affairs. Joint meeting with Ministries of Foreign Affairs, Finance and Education, Culture and Fisheries (explanation of the Japanese Grant Aid system, confirmation of the survey schedule). Visited National College.
- 14 (Wed) Meeting with Ministry of Education, Culture and Fisheries on inception report. Visited the Director-General of Ministry of Finance. Site investigation at Grenville and visit to the Fishermen's Cooperative.
- 15 (Thu) Visited the Minister of Education, Culture and Fisheries. Site investigations at Calliste, Melville Street and Gouyave.
- 16 (Fri) Site investigations at Victoria and Sauteurs.
- 17 (Sat) Meeting of study team, analysis of data.
- 18 (Sun) Meeting of study team, analysis of data.
- 19 (Mon) Joint meeting with Ministries of Foreign Affairs and Education, Culture and Fisheries on the project draft and the minutes.
- 20 (Tue) Joint meeting with Ministries of Foreign Affairs and Education, Culture and Fisheries on the project draft and the minutes of discussions. Signed and exchanged Minutes of Discussions.
- 21 (Wed) Government officials of the study team left Grenada for Trinidad and Tobago (courtesy call to the Embassy of Japan). The other members discussed with the Ministry of Education, Culture and Fisheries.
- 22 (Thu) Government officials stayed in Trinidad and Tobago. The other members investigated the project sites; Gouyave, Victoria and Grenville.
- 23 (Fri) Government officials departed from Trinidad and Tobago, stayed overnight in New York. The other members discussed with the Artisanal Fisheries Development Project and visited a surveying company.

- 24 (Sat) Site investigation at Gouyave.
- 25 (Sun) Government official members arrived in Tokyo. Data analysis, meeting of the team.
- 26 (Mon) Discussion with the Ministry of Education, Culture and Fisheries.
- 27 (Tue) Discussion with the local surveying company.
- 28 (Wed) Discussion with the surveying company, Ministry of Education, Culture and Fisheries. Site investigation at Grenville. Discussion with Ministries of Public Works, Department of Land Development Planning (Ministry of Health), and Artisanal Fisheries Development Project.
- 29 (Thu) Visited the Central Garage (a government owned company responsible for management of construction machinery). Discussion with the Ministry of Education, Culture and Fisheries, Artisanal Fisheries Development Project, Land Planning Department of Ministry of Health. Visited a local construction company and a harbor tally office.
- 30 (Fri) Discussion with the Ministry of Education, Culture and Fisheries, the surveying company and the Artisanal Fisheries Development Project. Visited a local transportation company. Site investigation for the building to house the insulated fish box manufacturing plant at Calliste.
- 31 (Sat) Site investigation at Melville Street, St. George's harbor. Visited a stone quarry and an asphalt cement company.
- 1 Jan. (Sun) Meeting within the team, Data analysis.
- 2 (Mon) Departed from Grenada, stayed overnight New York.
- 3 (Tue) Overnight aboard aircraft.
- 4 (Wed) Arrived in Tokyo.

**ANNEX IV
LIST OF PERSONNEL MET DURING
THE STUDY TOUR**

ANNEX IV LIST OF PERSONNEL MET DURING THE STUDY TOUR

Ministry of Education, Culture and Fisheries

Minister	George McGuire
Vice Minister	Benet Andrew
Secretary	Carlyle A. John
Chief Fisheries Officer	James Findley
Project Manager, AFDP	Raymond Streele
Planning Officer	Crispin Frederuk
Extension Officer	Roland Baldeo

Ministry of Foreign Affairs

Secretary	Denneth M. Modeste
Protocol Officer	Alice M. Thomas
"	Carol Harford

Ministry of Finance

Director General	Lauriston Wilson
Acting Director of Budget and Planning Economic Department	Richard Duncan Kennedy Roberts

National University

Dean, Dept. of Science and Art	Val Francis
Chief, Instruction Dept.	Wellington Fridan

Ministry of Public Works

Chief Engineer Physical Planning Unit	Fletcher
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Grenada Electric Service Ltd. Bowen

Ministry of Health

Chief, Environment Unit Land Development	C. Edward Frederick
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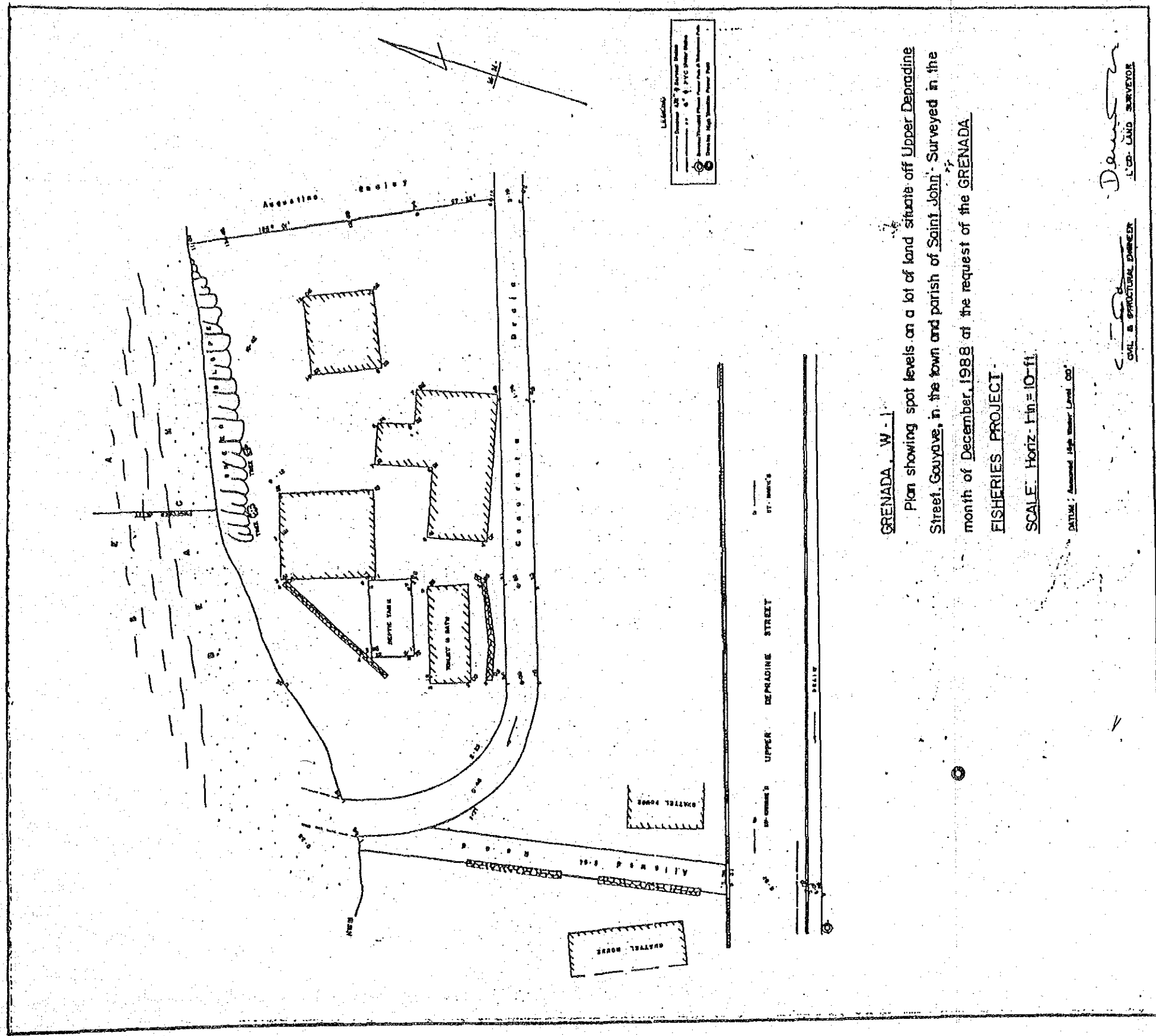
Central Garage

Kirtom

Embassy of Japan, Port of Spain

Ambassador	Mituo Iijima
Second Secretary	Seiji Yamada

ANNEX V LAND SURVEY MAPS



GRENADA, W.I.

Plan showing spot levels on a lot of land situated off Upper Depradine Street, Gouyave, in the town and parish of Saint John, surveyed in the month of December, 1988 at the request of the GRENADA

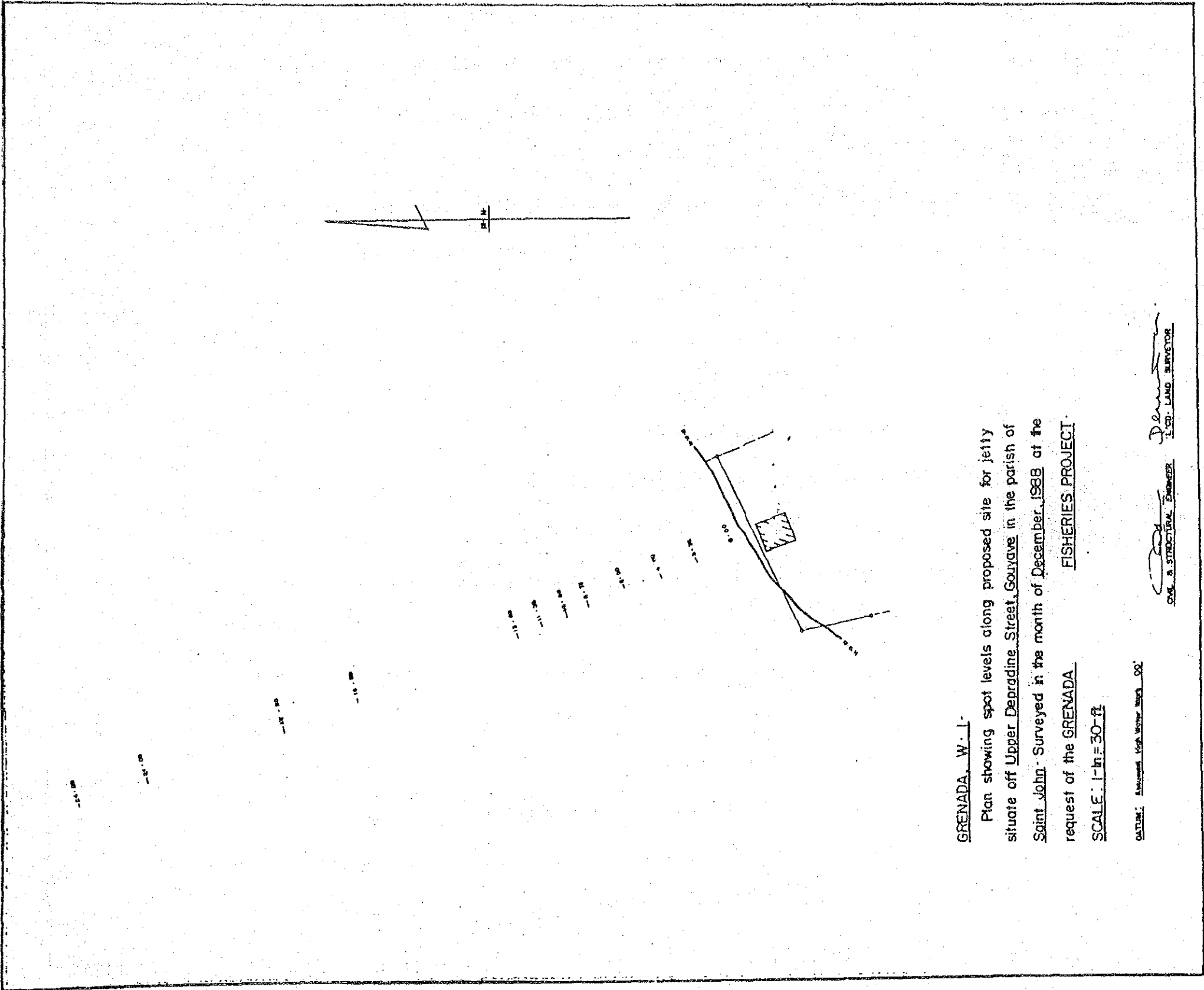
FISHERIES PROJECT

SCALE: Horiz. 1 in = 10 ft.

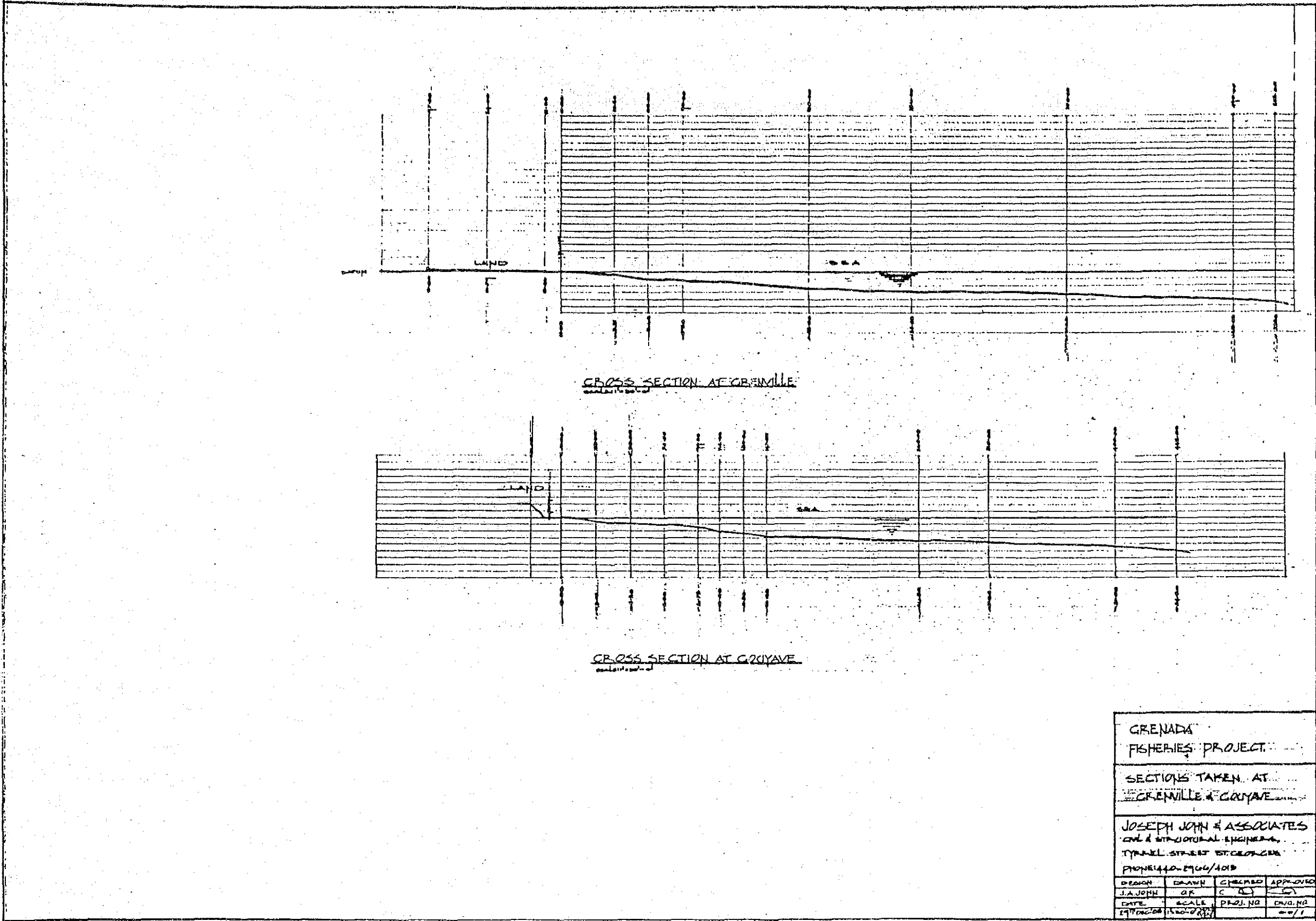
DATUM: Assumed High Water Level 00'

Davis
 CIVIL & STRUCTURAL ENGINEER
 L.C.C. - LAND SURVEYOR

1. Land survey map at proposed site in Gouyave

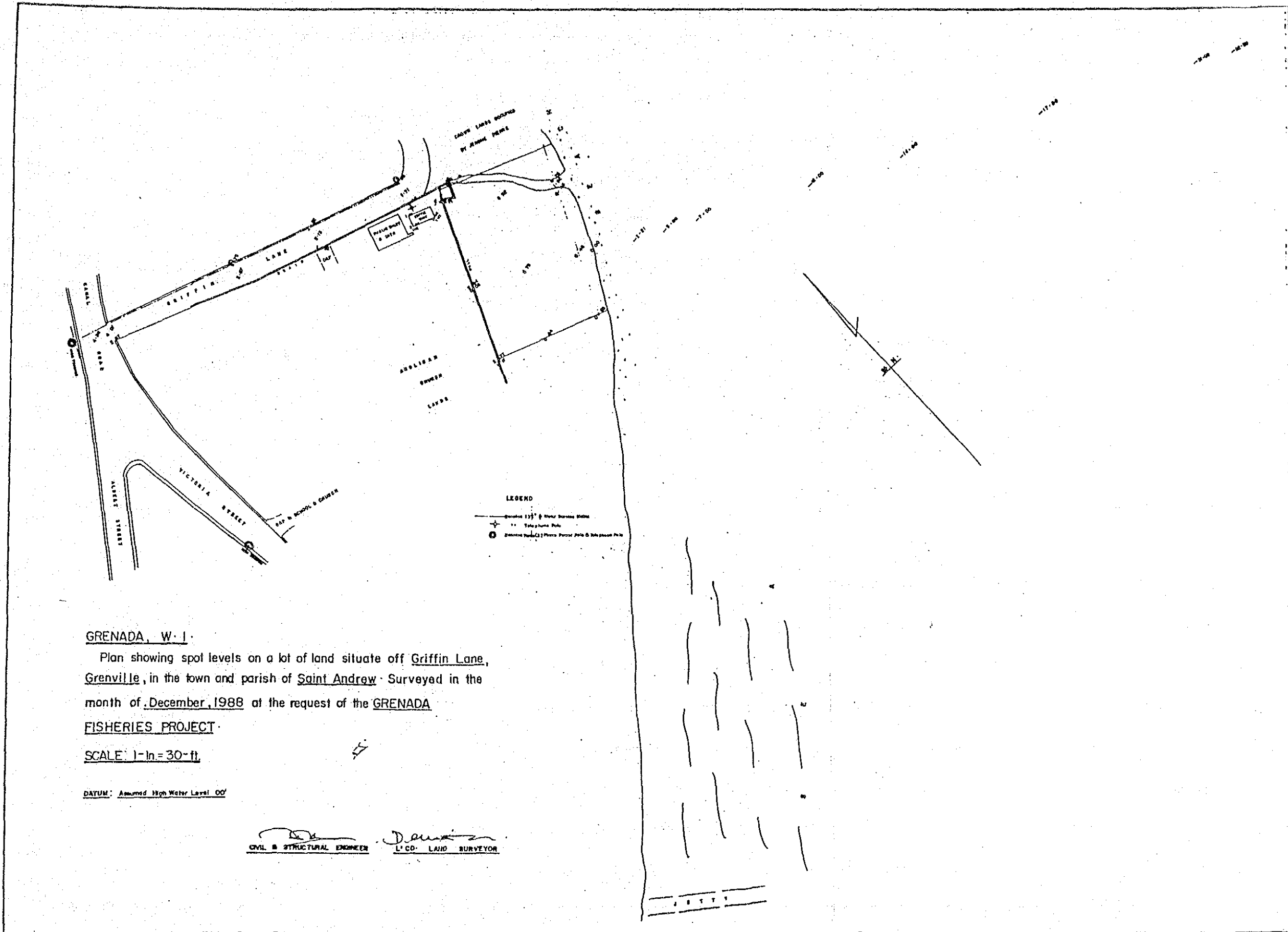


2. Sounding survey map at proposed site in Gouyave

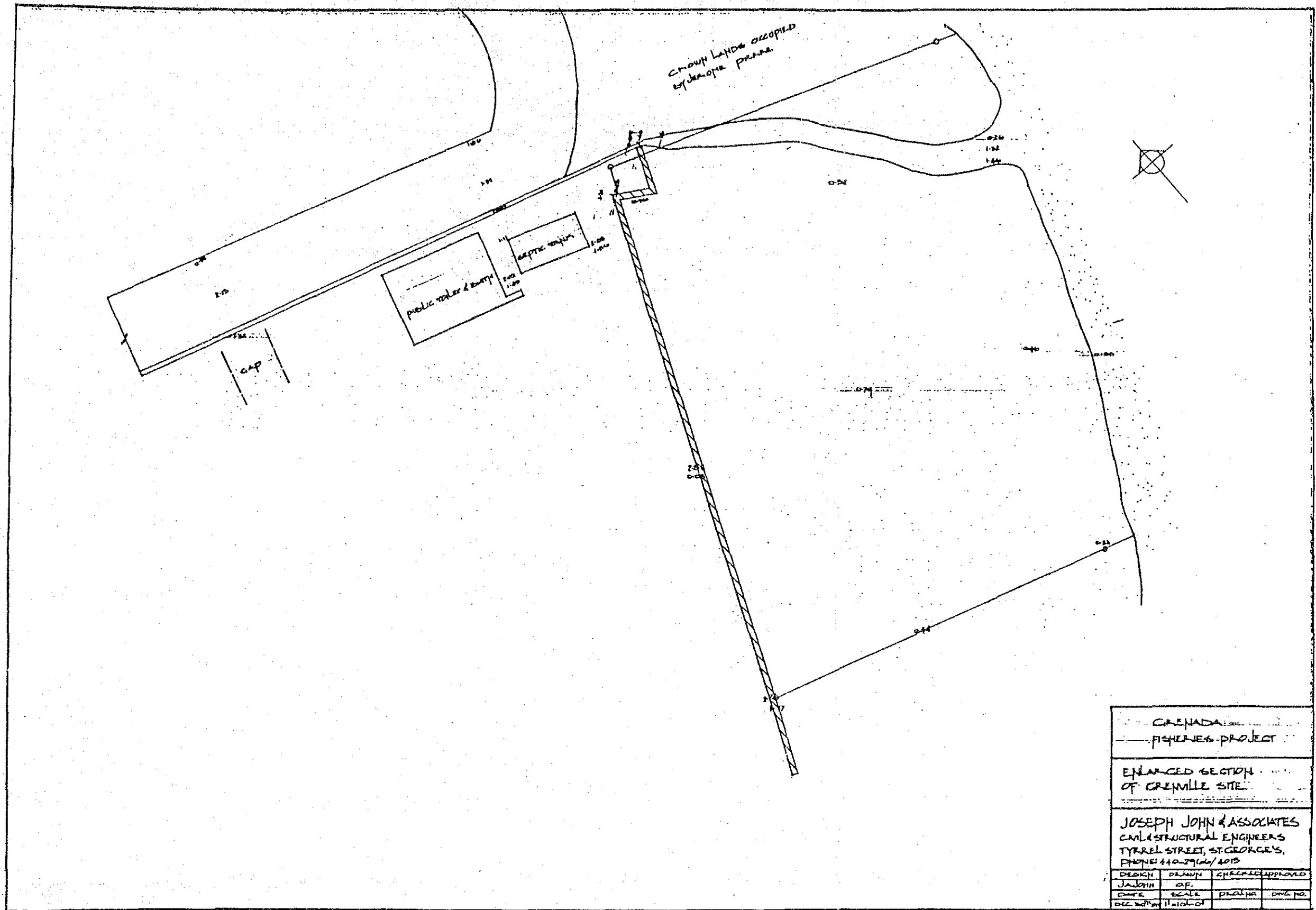


GRENADA			
FISHERIES PROJECT			
SECTIONS TAKEN AT			
GRENVILLE & GOUYAVE			
JOSEPH JOHN & ASSOCIATES			
CIVIL & STRUCTURAL ENGINEERS			
TYNNEL STREET ST. GEORGE			
PHONE 440-2906/4018			
DESIGN	DRAWN	CHECKED	APPROVED
J.A. JOHN	J.F.	C. J.	J.F.
DATE	SCALE	PROJ. NO.	DWG. NO.
17/02/08	1:500	001	001

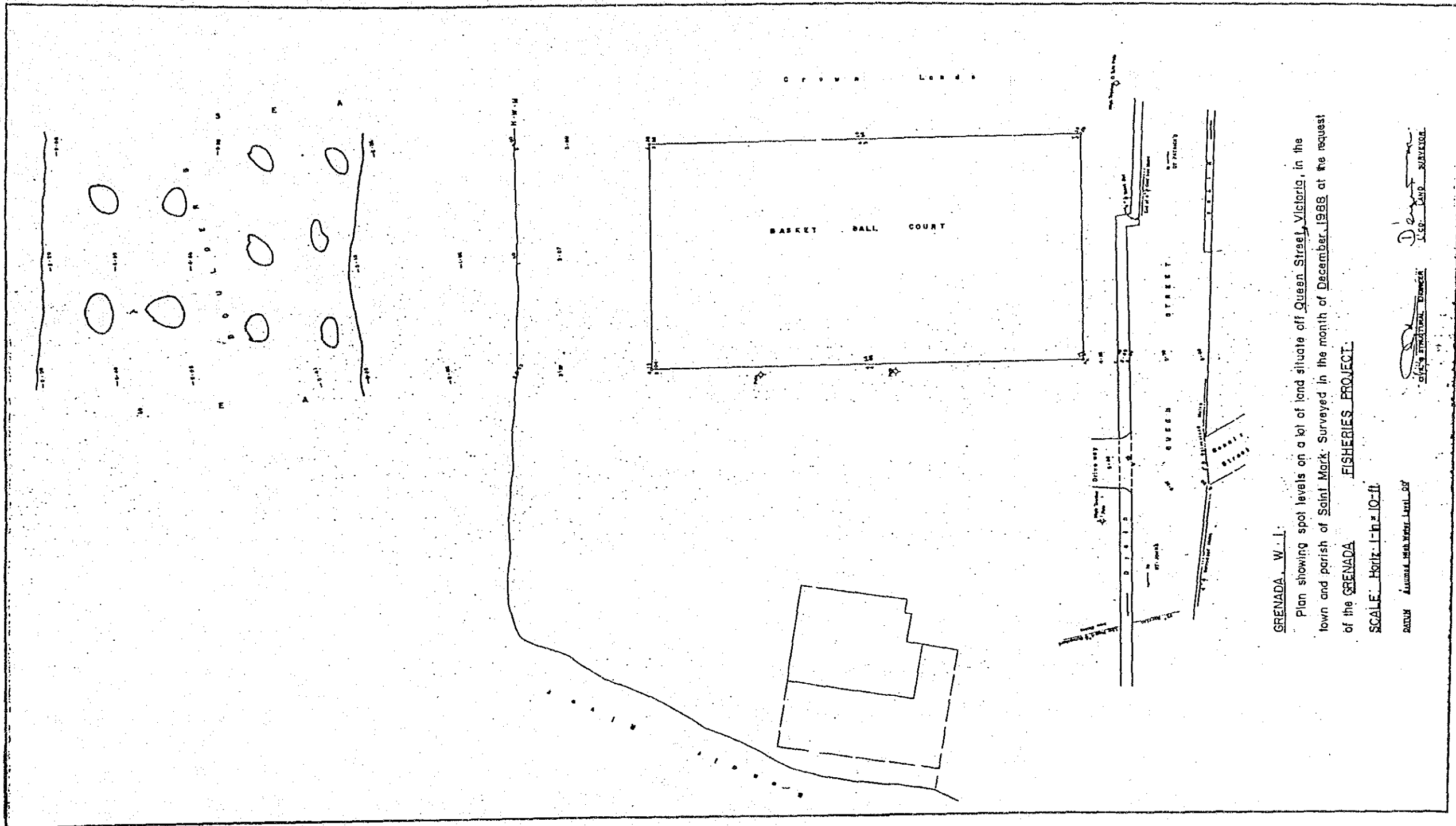
3. Sounding survey charts at Gouyave and Grenville



4. Land survey map at proposed site in Grenville (1)



5. Land survey map at proposed site in Grenville (2)



6. Land and sounding survey map at proposed site in Victoria

**ANNEX VI
FINANCIAL EVALUATION ON OPERATION
OF EQUIPMENT**

ANNEX VI FINANCIAL EVALUATION ON OPERATION OF EQUIPMENT

1. Financial Evaluation of Block Ice Making Machine

Forecast Annual Operating Balance of Block Ice Making Machine

- Operating expenses

A. Power	EC\$	286.32
B. Water		0.00
C. Maintenance		4,131.86
D. Depreciation		35,985.28

Total operating expenses EC\$ 40,403.46

- Revenues

A. Revenue from sale of ice EC\$ 65,326.80

- Annual profit EC\$ 24,923.34

Details of operating expenses and revenues are as follows.

Operating expenses			
A. Power consumption charges:	Condenser	7.5 kW	1 set
	Agitator	0.75kW	1 set
	Ice crusher	1.5 kW	1 set
	Fan for condenser	0.1 kW	1 set
	Lighting	0.1 kW	5 sets
Total nominal power consumption/ Total number of electric appliances		9.95kW	9 sets
EC\$0.44/month x 9 (No. of electric appliances)		=	EC\$ 3.96
EC\$2.00/month x 0.95kW (Nominal power consumption)		=	EC\$ 19.90
Total monthly electric charges			EC\$ 23.86
Total annual electric charges			EC\$286.32
B. Water charges: Free			
C. Maintenance expenses:			
a. EC\$ 17,777.78 x 5% =			EC\$ 888.89
b. EC\$162,148.60 x 2% =			EC\$3,242.97
Total maintenance expenses			EC\$4,131,86
D. Depreciation: Durable life of 5 years			
EC\$179,926.38 ÷ 5 =			EC\$35,985.28

Revenues	
A. Revenue from sale of ice:	
Daily production volume ;	1,000kg/day * 2,222 lbs/day
No. of operating days ;	240 days/year
Annual production volume;	2,222 lbs x 240 days = 533,280 lbs
Mode of selling;	Total volume sold for fisheries during the peak fishing season (6 months) (selling price at EC\$0.1/lb), while during the poor fishing season (6 months), 30% of production volume sold for household consumption selling price at EC\$0.25/lb).
Sales to fishermen ;	533,280 x 0.85 x EC\$0.1 = EC\$45,328.80
Sales to households;	533,280 x 0.15 x EC\$0.25 = EC\$19,998.00
Annual sales	EC\$65,326.80

2. Financial Evaluation of Plate Ice Making Machine

Forecast Annual Operating Balance of Plate Ice Making Machine

- Operating expenses

A. Power	EC\$	365.76
B. Water		0.00
C. Maintenance		3,889.20
D. Depreciation		28,892.00

Total operating expenses EC\$ 33,146.96

- Revenues

A. Revenue from sale of ice EC\$130,653.60

- Annual profit EC\$ 97,506.64

Details of operating expenses and revenues are as follows.

Operating Expenses	
A. Power consumption charges:	
Condenser	11.0 kW 1 set
Ice crusher	1.5 kW 1 set
Fan for condenser	0.6 kW 1 set
Lighting	0.16kW 6 sets
Total nominal power consumption/	13.26kW
Total number of electric appliances	9 sets
EC\$0.44/month x 9 (No. of electric appliances)	= EC\$ 3.96
EC\$2.00/month x 13.26kW (Nominal power consumption)	= EC\$ 26.52
Total monthly electric charges	EC\$ 30.08
Total annual electric charges	EC\$365.76
B. Water charges: Free	
C. Maintenance expenses:	
a. EC\$ 33,333.33 x 5% =	EC\$ 1,666.67
b. EC\$111,126.67 x 2% =	EC\$ 2,222.53
Total maintenance expenses	EC\$ 3,889.20
D. Depreciation: Durable life 5 years	
EC\$144,460 ÷ 5 =	EC\$28,892.00
Revenues	
A. Revenue from sale of ice:	
Daily production volume ;	2,000kg/day = 4,444 lbs/day
No. of operating days ;	240 days/year
Annual production volume;	4,444 lbs x 240 days = 1,066,560 lbs
Mode of selling;	Total volume sold for fisheries during the peak fishing season (6 months) (selling price at EC\$0.1/lb), while during the poor fishing season (6 months), 30% of production volume sold for household consumption (selling price at EC\$0.25/lb).
Sales to fishermen ;	1,066,560 x 0.85 x EC\$0.1 = EC\$90,657.60
Sales to households;	1,066,560 x 0.15 x EC\$0.25 = EC\$39,996.00
Annual sales	EC\$130,653.60

3. Financial Evaluation of Cold Storage

Forecast Annual Operating Balance of Cold Storage

- Operating expenses

A. Power	EC\$ 841.92
B. Water	0.00
C. Maintenance	7,045.87
D. Depreciation	59,792.00

Total operating expenses EC\$ 67,679.79

- Revenues

A. Rental income	EC\$119,998.80
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- Annual profit EC\$ 52,319.01

Details of operating expenses and revenues are as follows.

Operating Expenses			
A. Power consumption charges:	Condenser	15.0 kW	2 sets
	Unit cooler	16.24kW	2 sets
	Fan for condenser	0.2 kW	2 sets
	Lighting	0.34kW	9 sets
	Total nominal power consumption/		31.78kW
	total number of electric appliances		15 sets
	EC\$0.44/month x 15 (No. of electric appliances)		= EC\$ 6.60
	EC\$2.00/month x 31.78kW (Nominal power consumption)		= EC\$ 63.56
	Total monthly electric charges		EC\$ 70.16
	Total annual electric charges		EC\$841.92
B. Water charges: Free			
C. Maintenance expenses:			
	a.	EC\$ 35,555.56 x 5% =	EC\$ 1,777.78
	b.	EC\$263,404.44 x 2% =	EC\$ 5,268.09
	Total maintenance expenses		EC\$ 7,045.87
D. Depreciation: Durable life of 5 years			
	EC\$298,960 ÷ 5 = EC\$59,792.00		

Revenues	
A. Rental income:	
Storage capacity	; 7,400kg = 16,444 lbs
No. of operating days;	240 days/year
Operating mode;	100% utilization during the peak fishing season (6 months), 50% utilization during the poor fishing season (6 months)
Annual storage volume;	
	16,444 lbs x 120 days = 1,973,280 lbs
	16,444 lbs x 120 days x 0.5 = 986,640 lbs
	2,959,920 lbs
Rental fee;	EC\$0.03/lb/day
	2,959,920 lbs x 0.03 = EC\$88,879.60

4. Financial Evaluation of Small Inboard Engine Fishing Boat

Forecast Annual Operating Balance of Small Inboard Motor Fishing Boat (per boat)

- Operating expenses

A. Fuel oil	EC\$ 9,636.48
B. Fishing gear	12,057.62
C. Maintenance	7,306.66
D. Fishing bait	21,558.00
E. Ice	9,332.40
F. Manpower	33,600.00
G. Depreciation (rental fee)	58,400.00

Total operating expenses EC\$151,921.16

- Revenues

A. Sale of fish caught	EC\$165,000.00
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- Annual profit EC\$ 13,078.84

Details of operating expenses and revenues are as follows.

Operating Expenses	
A. Fuel oil cost:	
No. of voyages;	24 times during the peak fishing season 18 times during the poor fishing season
Fishing trip duration per time;	2 days preparation period + 3 days operating period (round trip sailing 1 days, fishing 2 days) = 5 days in total
Assumed distance to fishing ground;	Maximum 30 n.miles, cruising speed 8 knots (engine load 85%)
Shifting at fishing ground;	6 hours/day (engine load 50%)
Fuel consumption (gallons) =	engine hp x navigating hours x engine load x fuel consumption rate (175g/hp/hr) + specific gravity (0.85) + (conversion rate into gallons) = 60 x (7.5 (round trip hours) x 0.85 + 12 (fishing ground shifting hours) x 0.5) x 175 + 0.85 + 264.2 = 40.39 gallons/voyage
Fuel cost =	EC\$5.41/gallon
Fuel oil cost	= EC\$40.39 x EC\$5.41/gallon x 1.05 (including lube oil)
	= EC\$229.44
Fuel oil cost (per year) =	EC\$9,636.48
B. Fishing gear cost: Annual wear and tear EC\$12,057.62	
C. Maintenance expenses:	
Engine	EC\$ 48,888.89 x 0.05 = EC\$2,444.44
Hull, etc.	EC\$243,111.11 x 0.02 = EC\$4,862.22
Total maintenance expenses	EC\$7,306.66
D. Bait cost:	
No. of fishhooks x 0.5 lb x 2 days x No. of fishing trips x EC\$1.0/lb (514 ea) =	EC\$21,588.00
E. Ice cost:	
2,222 lbs/trip x 42 trips x EC\$0.1/lb =	EC\$9,332.40
F. Manpower cost:	
EC\$700/month x 4 persons x 12 months =	EC\$33,600.00

G. Depreciation charges:

EC\$292,000.00 ÷ 5 years = EC\$58,400.00

In the case of the inboard engine fishing boats, depreciation charges are applied to payments on the lease to the Ministry of Education, Culture and Fisheries.

Revenues

A. Sale of fish caught:

Catch; Current mean catchability coefficient of long-line fishing is 100 lbs/mile of long-line. The length of long-line used by this boat is 10 miles, and 2 operations per one operating period are considered possible.

During peak fishing season ; 2,000 lbs/trip

During poor fishing season ; 1,000 lbs/trip

Quantity of annual catch;

2,000 lbs/trip x 4 trips x 6 months + 1,000 lbs/trip
x 3 trips x 6 months = 66,000 lbs/year

Fish price; Current official prices of fish ranges between EC\$2.75/lb for high grade fish and EC\$1.00/lb for low grade fish. However, fish species assumed to be caught by the long-line fishing method of this inboard motor fishing boat are mostly large pelagic floating fish in the category of high grade fish. Accordingly, the mean fish price used in the financial evaluation was set at EC\$2.50/lb, which is close to the price of high grade fish.

Sales revenue of annual catch;

66,000 lbs x EC\$2.50/lb = EC\$165,000.00

5. Financial Evaluation of Insulated Car

Forecast Annual Operating Balance of Insulated Car

- Operating Expenses

A. Fuel cost	EC\$ 6,486.48
B. Maintenance	1,752.00
C. Depreciation	7,008.00

Total operating expenses EC\$ 15,246.48

- Revenues

A. Transportation Consignment fee EC\$ 36,000.00

- Annual profit EC\$ 20,753.52

Details of operating expenses and revenues are as follows.

Operating Expenses	
A. Fuel oil cost:	
No. of trips ;	During the peak fishing season, 20 trips {Gouyave-St. George's (about 30km), Grenvill- St. George's (about 30km)}/week; during the poor fishing season, 10 trips/week, total 720 trips/year
Unit price of fuel;	EC\$5.41/gallon (automotive diesel oil) or EC\$1.43/L, lubricating oil; 5% of fuel cost.
Fuel cost;	
	Distance ÷ 10km/L of ADO x No. of trips x unit fuel oil price x 1.05
	60km ÷ 10km/L x 720 trips x EC\$1.43/L x 1.05 = EC\$6,386.48
B. Maintenance expenses: EC\$35,040 x 0.05 = EC\$1,752.00	
C. Depreciation charges: EC\$35,040 ÷ 5 years = EC\$7,008.00	
Revenues	
A. Transportation consignment fee:	
Unit transportation consignment fee;	EC\$ 50/trip
Transportation consignment fee ;	EC\$50 x 720 trips = EC\$36,000.00

6. Financial Evaluation of Insulated Fish Box Manufacturing Plant

Forecast Annual Operating Balance of Insulated Fish Box Manufacturing Plant

- Operating expenses

A. Power	EC\$ 374.40
B. Fuel oil	26,426.40
C. Water	0.00
D. Raw materials	161,920.00
E. Maintenance	20,574.69
F. Manpower	12,000.00
G. Depreciation	114,942.43

Total operating expenses EC\$336,237.12

- Revenues

A. Revenue from sale of fish boxes EC\$352,000.00

- Annual profit EC\$ 15,762.88

Details of operating expenses and revenues are as follows.

Operating Expenses	
A. Power consumption charges:	
Use of electric power;	
Pre-forming machine	1.5kW x 1 set
Blower for feeding material	0.4kW x 1 set
Cooling water pump	3.7kW x 1 set
Air compressor	3.7kW x 1 set
Boiler	0.4kW x 1 set
Lighting	0.4kW x 20 sets
Total	10.1kW x 25 sets
Use charges;	
Basic charge	EC\$0.44 x 25 = EC\$ 11.00
Use charge	EC\$2.0 x 10.1 = EC\$ 20.20
Monthly charges	EC\$ 31.20
Annual charges	EC\$374.40
B. Fuel oil cost:	
Operating days ;	200 days/year
Unit fuel cost ;	EC\$5.41/gallon (diesel oil), or EC\$1.43/L
Lubricating oil;	5% of fuel cost
Fuel cost ;	10L x 8 hrs x EC\$1.43/L x 1.05 (to allow for lube oil) x 220 = EC\$26,426.40

C. Water charge: Free
D. Raw material cost: Unit price of raw material; EC\$1,100/100 kg Quantity manufactured; size of box (50cm x 50cm x 100cm, 5cm thick, volume of foamed quantity ÷ 125,000cm ³) x 32 pcs x 200 days = 800,000,000cm ³ Raw material consumption; Volume of foamed quantity ÷ 50 (foaming rate) x 0.92 (specific gravity) = 800,000,000 ÷ 50 x 0.92 = 14,720kg Raw material cost; 14,720kg x EC\$11/kg = EC\$161,920.00
E. Maintenance expenses: Compressor, etc. EC\$149,425 x 0.05 = EC\$ 7,471.25 Other equipment EC\$655,172 x 0.02 = EC\$13,103.44 <hr/> Total maintenance expenses EC\$20,574.69
F. Manpower expenses: EC\$500/person/month x 2 persons x 12 months = EC\$12,000.00
G. Depreciation charges: EC\$804,597 ÷ 7 years = EC\$114,942.43
Revenues
A. Revenue from sale of insulated fish boxes EC\$55/box x 6,400 boxes = EC\$352,000.00

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