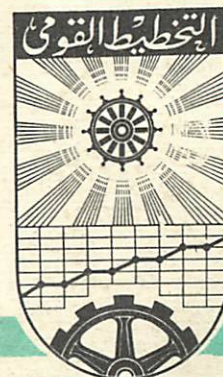


# ARAB REPUBLIC OF EGYPT

## THE INSTITUTE OF NATIONAL PLANNING



Memo No. (1392)

FEASIBILITY APPRAISAL OF DAMIETTA PORT  
PROJECT  
A Case Study On Financial Profitability  
Analysis

By:

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1. INTRODUCTION

As a result of the congestion problem in the Egyptian ports and the identified need for additional port capacities, the Ministry of Development and New Communities on behalf of the Egyptian Government, has requested in April 1977 the services of a foreign consultant\* to carry out a master plan for the establishment of a new port facility at Damietta. In July 1979 a five volume study was submitted and subsequently approved by the Government.

Upon investigating possible investment policies, the Government was seeking answers to several queries. Chief among these was the question on the profitability of the project and consequently whether it would be attractive for foreign investors if the project is implemented and the port is operated on concessional terms. This report was prepared to serve this end. Although it might have had little impact on the final decision concerning this project, yet it is presented here as an appropriate case on appraisal of the financial profitability aspects of port projects.

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\* Frederic R. Harris.

## 2. BACKGROUND

### 2.1. Project Idea

In 1977, the Consultant, upon a request from the Ministry of Housing & Reconstruction, carried-out a study to forecast the size of the Egyptian foreign trade in the period from the year 1980 through 2000 and allocate such trade to the Egyptian ports. One of the main recommendations of this study was to establish a new port including a container trans-shipment facility to serve the international trade on the Mediterranean Sea somewhere near the entrance of the Suez Canal. Damietta was suggested as a possible location for the proposed new port.

### 2.2 Demand Projections

In this previous study which focused only on dry cargo and excluded liquid cargoes, commodities have been classified into 4 main groups namely; containerizable, neobulk, special handling, and dry bulk commodities. Cargo allocations to the individual ports were decided upon through some sort of an idealized procedure wherein a zoning system has been adopted for both Egypt as well as the outer world. Origin-destination matrices were then established for both imports and exports. A non-constrained least-cost algorithm was applied to find-out the optimum route for each commodity under consideration and consequently the allocation of these commodities to the various ports of Egypt including the proposed new port at Damietta.

The above procedure have resulted in delineating the service area for each port. A service area for a particular port is defined as the group of domestic zones which are best served by this port for a certain group of homogeneous commodities. Damietta port service areas are shown in Figures 2.3 & 2.4<sup>1/</sup>

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<sup>1/</sup> Tables and figures of the consultant study referred to in this report retain their original numbering and are reproduced in Appendix (B) for easy reference.



Detailed throughputs (imports & exports) of the port are given in table (3.1). Total throughputs are estimated to be 5,591,010 and 16,460,350 metric tons in 1985 & 2000 respectively.

On the other hand, transshipment cargoes, are projected for 1985 and 2000 in three different variants; high, medium and low as shown in table (3.2). Transshipment cargo using the port are recommended to have a preferential treatment upon transiting the Suez Canal. Imports-exports as well as transshipment forecasts up till the year 2000 are assumed to follow approximately a straight line pattern(!). These lines are extrapolated till the year 2010 to obtain further forecasts for the years 2005 & 2010 as shown in table (3.3) & Fig (3.3) .

### 2.3. Projected Traffic

In the early stages of port operations, container traffic is expected to be in medium-size ships, 1600 DWT, carrying on the average 2000 tons per voyage. Container ship traffic is expected to increase gradually. By the year 2000, 40000 DWT ships with an average load of 10.000 tons per voyage are expected. For other cargo, traffic is estimated as given by the following table:-

	<u>Early Years of Port Oper.</u>		<u>Year 2000</u>	
	<u>Ships DWT</u>	<u>Load/voyage (tons)</u>	<u>Ships DWT</u>	<u>Local/voyage (tons) -</u>
Break Bulk Cargo	10,000-15,000	500	up to 20,000	1,000-1580
Neobulk Cargo	12,000-16,000	5000-10,000	up to 20,000	-
Special Cargo	8,000-10,000	-	up to 20,000	-
Dry Bulk Cargo	up to 70,000	25,000	up to 100,000	40,000-50,000

## 2.4. Port Configuration

In order to outline the main configurations of the intended part, 5 alternatives, (Fig 6.1 through 6.5) , have been considered. A weighted point rating system has been applied to select the best alternative against several criteria (table 6.1)- . Eventually, the final configuration of the port became as outlined in figure (6.11) . One immediate observation on such layout is the limited space for future expansion. A detailed listing of the part component as stated in the master plan is given on pages 6.22; 6.24 and 6.25 . These components are briefly reviewed hereafter:

(1) Navigational Components:

Which include a 300 meter wide, two way entrance channel, a 4.5 sq. km offshore anchorage, a 800 meter turning area, a barge basin, a fishing boats channel, and a marine services harbor.

- (2) Coastal Protection and a Breakwaters.

(3) Berthing system

Container, RO/RO - General Cargo - Neobulk - special Handling - Grain & Cement.

(4) Port Buildings

Sheds - Warehouses - Container repair station - Ralroad station - Mech Maintenance - Customs - Adminstration ..etc.

(5) Grain & Cement Silos.

(6) Power and utilities.

(7) Port supporting facilities.

Fire station - First aid - Mosque - Roads - Entrances  
Parking areas - .. etc.

(8) An Industrial Area.

## 2.5. Berth Requirements

In order to find out the number of berths required for each cargo handling group, berth productivity figures have been decided upon by means of the consultant's "in-house" simulation model. The model assumes a Poisson arrival pattern and a negative exponential service time. Although no adequate details are given, this model seems to be a standard queuing-simulation model. The productivity figures derived from such a model are as follows:

Container berth	6750	tons/day.
General Cargo	600	tons/day.
Neobulk	1200	tons/day.
Special Handling	2000	tons/day.
Grain	1000	tons/hour.

The number of hours and/or shifts per day are not quiet clear. However, the decided upon berth requirements are shown in tables 4.2 & 4.3 for the years 1985 & 2000 respectively. In addition, one berth for the navy is also included in the plan. Berth-related facilities are given in table (4.4) .

## 2.6. Location and Site Selection:

The selected location of the new port at Damietta has been one of the findings of the consultant's previous study "Development policy for the Ports of Egypt". Such a port is estimated to introduce a saving of almost L.E. 10 million in 1985 over the next least-cost foreign trade allocation on the Egyptian ports\*. Therefore the second study has focused on determining the exact site of the new port. Several field survey tests have been conducted to locate the

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\* It is not clear whether the savings induced by another alternative location outside the Suez Canal area; has been tested or not.

required site. One of the major draw-backs, however, of this area is the erosion phenomenon of the shore-line. Coast erosion in the next 200 years is estimated and reproduced in figure 5.22 . This explains to a certain extent the relatively long inland entrance channel of the port.

## 2.7. Construction Schedule

Port construction is suggested to be carried out in 3 phases as follows:

### Phase I:

Ends by 1985 when port operations can be partially started. This phase comprises dredging of the entrance channel, turning area and harbour basin in addition to the construction of the breakwaters, 12 berths, and some administrative buildings.

### Phase II:

Extends from 1985 till the end of 1986 during which 9 additional berths are constructed.

### Phase III:

Extends from 1989 till the end of 1996. Construction works in the respective phases are shown in Figures (8.7) through (8.9) . A bar-chart of the whole schedule is given in Fig. (8.1) .

## 2.8. Project Capital Investment Costs:

Project investment costs amounts to U.S.\$ 484.710 million and L.E. 75.586 million. total costs are made-up of the following items:

### (1) Construction costs:

Which in-turn are classified into:

- Port superstructure
- Port infrastructure
- Miscellaneous
- 20% contingency

### (2) Land

### (3) Equipment



Construction quantities and costs by item and construction phase are shown in table (8.1) . Land value contour map is given in Fig. (5.2) . Equipment list and estimated costs are shown in table (9.1) . Year by year distributions of the above 3 cost items in local and foreign currencies are shown in tables (11.10) & (11.11) for phase I and Phase II respectively.

All cost items are expressed in constant prices of 1979. Construction cost items do not include construction management, design and some necessary additional field inspections. Prices of imported equipments are CIF Alexandria. No estimates have been made for container chassis. The assumption is that container liner companies using the terminal will provide them.

#### 2.9. Operating Costs:

It should be noted here that in section 11.6 of the consultant's study, an upper limit on the operating and maintenance costs for the new port at Damietta was arbitrarily fixed as equal to the cost of handling its throughput through the other ports of Egypt in the absence of Damietta port. Based on this concept, an estimate of the operating and maintenance costs of the new port is obtained which includes the costs of operating the transshipment facility as shown in table (11.2). The cost side of the subsequent cost-benefit analysis, table (11.12), however, considered only the operating cost of the transshipment terminal.

In a subsequent section (section 11.10.3) another estimate of the operating costs is given in the proforma operating statement. Operating costs are estimated on a per/ton basis. It is divided into direct operating costs (labour, equip., spare parts, supplies, ...etc) and indirect oper. costs (power, fuel, O.H regular maintenance,...etc). The average operating cost on a per ton basis is estimated to be L.E. 5.21 for direct costs and L.E. 1.07 for indirect costs. The five-year proforma operating statement is given in table (11.4) .However, the cargo throughputs on which this statement is based do not match exactly with the throughputs of table (3.1).

2.10. Benefits:

The benefits considered in the Consultant's study are broadly classified into direct benefits and developmental Benefits.

2.10.1. Direct Benefits:

These include: -

- Transport Cost savings
- Reduced ship waiting time
- Reduced cargo holding Cost
- Income from the transshipment terminal and its related activities.

2.10.1.1. Transport Cost Savings:

are derived from cost differentials taken from the computerized study of commodity flows for the "with" and "without" Damietta cases. The costs are the least-cost transportation path between origins & destinations taking into account the load factor on the various modes. These flows were not constrained by port capacities conditions. Transp. Cost savings in L.E. thousands/year are as follows:

Cargo Handling Group	1985	2000
A	6682	7533
B	924	1959
C	266	794
D	<u>1763</u>	<u>2832</u>
	9635	13118

---

After the year 2000, the consultant estimates that transport cost savings will remain constant in spite of the increasing cargo throughput. (page 11-7). This assumption, however, violates the figures of table (11, 12)

#### 2.10.1.2. Reduction in Ship Waiting Time

The amount of such reduction was obtained using an "in-house" model. The method assumed increases in berth productivity as given by table 11.3. Waiting time savings resulted from such analysis is given in table (11.4). The corresponding cost savings are shown in table (11.5). Figures of this later table are based on the following cost per day in port of a standard "representative" ship for each cargo handling group:

<u>Cargo-Handling</u> <u>Group</u>	<u>Representative</u> <u>Ship</u>	<u>ship in port/day</u>
Containerized	1595 TEU	\$ 14 000
General Cargo	(not given)	8 000
Neobulk	15000 DWT	8 000
Special	15000 DWT	8 000
Drybulk	36000 DWT	7 000
	100000 DWT	10 000

#### 2.10.1.3. Reduction in Cargo Holding Cost

That is the value of the capital tied up in commodities held in the port while waiting service (exports & imports).

These Figures are computed as follows:

if

A = Commodity annual throughput, tons

B = Average vessel waiting time, h/s

C = Average commodity value per ton, L.E.

D = Opportunity cost of capital = 12%

E = Working hours per year = 8760

$$\text{Holding Cost} = \frac{A \times B \times C \times D}{E}$$

2.10.1.4. Transshipment Terminal Revenue & Its Related Activities

Two types of benefits are accounted for:

- (1) Revenue of operating the terminal, table (11.6), and
- (2) Revenue from container maintenance and repair, It is assumed in the first year that 31 containers per day would be repaired at a rate of L.E. 250 per container. The net revenue is assumed to be 30% of the previous results.

2.10.2. Developmental Benefits:

Among 16 developmental benefits, listed by the consultants the following 3 main items were quantified and incorporated in the benefit-cost analysis: -

- (1) Promoting exports of fresh vegetables.
- (2) Creation of fish processing, freezing and packaging industry.
- (3) Creation of a containers manufacturing activity.

Promotion of exports of fresh vegetables is stated to be linked with a system of inland ports and upgrading of technology. On the other hand the issue of whether the port will induce an increased vegetable production or merely divert certain amount from the local market to exportation is not clear in the analysis. The price level assumed for vegetable products 510 LE/ton. Net revenues are assumed to be 0.25 of this price. Due to the cost of an inland port system, only 40% of the net revenue was considered as a benefit due to the project. Table 11.7 gives the estimated amount of such benefits.

Benefits from the creation of fish processing industry are computed in a way similar to the computations of vegetables exportation. The assumptions used are:

L.E. 550/ton	Sales price of frozen Fishes
25%	net revenue of the activity
60%	of the above product is attributed to the port.

Fishing benefit stream is shown in table (11.6)

likewise, the benefits of the container manufacturing activity (table 11.9) is computed in a similar way based on the following assumptions.

L.E. 4250	1979 price of a dry cargo container
L.E. 6375	1979 price of a refregirated container
30%	of the net revenue is a port benefit.

## 2.11. Port Revenues

The cost-Benefit analysis did not account for the total port revenue. Revenue of the transshipment terminal only were considered. However in the financial proforma of table (11.14) an estimate of revenue for the period 1985-1989 is given. Based on estimates per ton, operating, capital, and depreciation costs are given. A probable rate that exceeds the break-even point is then suggested and consequently the total revenue is computed. Again the basis for estimating the cargo throughputs in this table is not clear.

## 2.12. Structure of Finance:

The study proposed a financing structure to be secured official concessionary aids, private commercial banks, and export promoting agencies in the developed countries. The proposed

loan sizes, terms, and repayments are illustrated on table (9) of this report.

### 2.13. Port Operation

Upon operation, an organization structure as that shown in figure (10.11) is suggested. The port outhority is in charge of almost all port functions.

3. APPROACH

The approach adopted in this report to fulfil its objectives as outlined in the introduction is based on conducting comprehensive financial analyses <sup>n</sup> the way described later in this section.

Proper perspective . In the consultant's study, except for the short term "Financial proforma" given in table (11.14) for the years 1985-1989 no other financial analyses were conducted. It is customary that financial analyses preceed economic ones. The financial analysis intended in this report would incorporate:

1. Reestimate of the project financial investment cost .
2. Project current costs projections.
3. Financing plan and schedule of loan repayment .
4. Proforma income statement .
5. Proforma funds flow statement .
6. Proforma balance sheet.

Based on the results of the previous items, the analysis might proceed to carry-out financial cost-benefit analysis, internal rate of return and ratio analysis and eventually sensitivity and break-even analysis.

In view of the above procedure, it would be possible to assess the profitability of the project or the incentives it offers to investors if they carry it out on concessional terms. Moreover, other indicators could be worked out regarding the project credit-worthiness and efficiency.



4. WORKING ASSUMPTIONS

In course of developing this report the following working assumptions are made:

1. In view of the fact that the port master planning study\* is already accepted by the Government , the data and information base provided by this study is consequently taken as the sole data base for this report. This assumption will facilitate cross-referencing and comparison between any other reports referring to the same study.
2. Along with the above assumption, all cost items and estimates of the consultant's study have also been taken as given without any amendments.
3. Construction starting date is assumed to be 1981 .

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\* Specifically volumes 1 & 2.

5. FINANCIAL ANALYSIS

Tables 1 through 7, show the results of the projected financial statements. The project cost estimates of table (2) took into account in addition to the consultant cost estimates the following missing items.

1. Equipment transport cost from Alex. to sit. (5% of equip. cost).
2. Project design expenses (2% of total fixed assess) and,
3. Training of personnel (2% of total fixed assess) .

The financing plan proposed by the consultant is taken as given. This Plan shows a difference between total project financial costs and proposed loan capital of L.E 70.223. million. This balance is assumed to be an equity capital . Since the financing Plan suggests that repayment of the initial construction loans start after construction is completed, a 5-year allowance period is therefore understood.

The depreciation expenses for equipment and construction are calculated as shown in table (5). Straight line depreciation is assumed. The depreciation periods assumed are as follows:

Construction	40 years
Cargo handling equipment	25 years
Marine and other equipment	15 years

In the projected income statement, table (6), operating costs were calculated from traffic projections and unit cost figures of the consultant (pp 11-35). These unit costs are divided into direct and indirect costs that includ also replacement, labour, and administration. Preoperations expenses are assumed to be amortized in the first 5-years of operations. No provision is made for taxes i.e. The project is assumed to be tax-exempted.

6. RESULTS & DISCUSSION

In view of the cost estimate and items given in the Consultant's study financial analysis have yielded the following results:

1. There is a surplus in the accumulated funds flow (cash at year begin) at the beginning of the years 1982 through 1988. This is due to the funds provided by the given loans whose actual repayment start in 1986.
2. There is a deficit in the accumulated funds flow that extends over the period from 1989 till 1998. This deficit is attributed to the following factors: -
  - a) The inability of the project, as indicated by the income statement to realize any net earnings during the first ten years of its operations i.e. from 1980 to 1995. Annual deficit will range between L.E. 27 million and L.E. 41 million. This might be due to an underestimation of the project revenues or an overestimation of its operating costs. However a comparison with the revenue and operating cost estimates of Alexandria, table (8), shows wide discrepancies between those estimates for Damietta and the figures of Alexandria whether those figures of revenue or operating costs.
  - b) The financing structure suggested by the consultant, particularly the loan terms. Therefore it is necessary to introduce certain amendments on this structure such as increasing the grace period, increasing the repayment period, and changing the timing of those loans. Alternatively, it might be necessary to introduce an additional loan to finance the operations deficit of the project to be repayed later from the subsequent expected profits.
3. Starting from the year 1999, the project will begin to realize a positive and increased liquidity but at diminishing rates.

4. The previous results lend themselves to the conclusion that the project in its current configurations might not be attractive to either domestic or foreign private entrepreneurs . In view of this finding the Egyptian Government might be compelled to undertake the project on account of its indirect developmental benefits. This conclusion provides an answer to the central question of this report.
5. There are broadly two main schools of thoughts regarding port investments; the "European" school that views the port as part of the social infrastructure of the whole region and the " Anglo-Saxon" school which, irrespective of the benefits to the hinterland, considers that the port should be profitable by itself. Assuming that the Egyptian Government will adopt the attitude of the first school and carry-out the project, the following studies have to be carried -out:
  - a) A new financial evaluation for the project in its new perspectives taking into account the remarks previously mentioned in this report.
  - b) A new economic as well as social evaluation of the project.

The previous results lead themselves to the conclusion that the project in its current configuration might not be attractive to either domestic or foreign private enterprise. In view of this, the Egyptian Government might be compelled to undertake the project on account of the indirect developmental benefits. This conclusion provides an answer to the central question of this report.

There are primarily two main schools of thoughts regarding port development. The "proportional" school that views the port as part of the social infrastructure of the whole region and the "Anglo-American" school which irrespective of the benefits to the hinterland, considers that the port should be profitable by itself.

Assuming that the Egyptian Government will adopt the attitude of the first school, the following studies

#### APPENDIX (A): FINANCIAL ANALYSIS TABLES

(Table 1 to Table 9)

- a) A new financial evaluation for the project in its new perspectives taking into account the remarks previously mentioned in this report.
- b) A new economic as well as social evaluation of the project.

TABLE (1): Cargo Allocation to Damietta Port by Cargo Handling Group  
in the Period From 1980 to 2010

Cargo Handling Group	1980 to 1984	1985	1986	1987	1988	1989	1990	1991	1992
<b>I. <u>Import and Export through Damietta:</u></b>									
Group A: Containerizable	0	774	878	940	1129	1280	1452	1541	1590
Group B: Neobulk	0	1134	1119	1103	1088	1073	1058	1251	1424
Group C: Special Handling	0	1628	1741	1863	1994	2134	2284	2394	2463
Group D: Dry Bulk	0	2056	2194	2338	2492	2655	2829	3584	3689
Total	0	5592	5932	6244	6703	7142	7632	8770	9166
<b>II. <u>Transshipment Cargo</u></b>	0	1800	1880	1960	2040	2120	2200	2280	2360

TABLE (1): Cont'd

Cargo Handling Group	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
<u>I. Imports and Export Through</u>										
<u>Damietta:</u>										
Group A: Containerizable	1636	1723	2006	2216	2447	2702	2984	3296	3471	3646
Group B: Neobulk	1654	1808	1975	2158	2358	2577	2816	3076	3187	3298
Group C: Special Handling	2527	2693	2871	3068	3262	3477	3706	3952	4111	4270
Group D: Dry Bulk	3763	4836	4328	4641	4978	5338	5724	6136	6264	6392
Total	9580	10260	11180	12083	13045	14094	15230	16460	17033	17606
<u>II. Transshipment Cargo:</u>	2440	2520	2600	2680	2760	2840	2920	2975	3080	3185



TABLE (1): Cont'd

Cargo Handling Group	2003	2004	2005	2006	2007	2008	2009	2010
<u>I. Imports and Export through</u>								
<u>Damietta:</u>								
Group A: Containerizable	3821	3996	4170	4402	4634	4866	5098	5333
Group B: Neobulk	3409	3520	3630	3761	3892	4023	4154	4284
Group C: Special Handling	4429	4588	4746	4947	5148	5349	5550	5750
Group D: Dry Bulk	6520	6648	6775	6924	7073	7222	7371	7521
Total	18179	18752	19321	20034	20747	21460	22173	22888
<u>II. Transshipment Cargo:</u>	3290	3395	3501	3625	3749	3873	3997	4120

- Notes:
- Operations assumed to start in 1985
  - Table figures are obtained as follows:
    - a) Period 1985-2000: - imports and exports from table (11.2) of the Consultant's report.
    - transshipment cargo: medium variant of table (3.2) of the Consultant's report is used for 1985 and 2000 with linear interpolation for intermediate years;
    - b) Period 2000-2010: - imports, exports and transshipment cargo from table (3.3) of the Consultant's report for the years 2000, 2005, 2010 with interpolation for the year in between.

TABLE (2): Phasing of Project Investments

(000)

	1981			1982		
	F	L	T <sup>5/</sup>	F	L	T
<b>1. Fixed Assets:</b>						
1.1 Equipments (CIF Value) <sup>1/</sup> , <sup>2/</sup> Transport cost to site ( $\approx$ 5%) Total equipments						
1.2 Land aquisition	-	225		-	-	
1.3 Construction, superstructure <sup>3/</sup>	14243	2347		32047	5280	
1.4 Construction, infrastructure <sup>3/</sup>	5113	1563		11505	3516	
1.5 Construction, miscellaneous	9500	1250		2000	1000	
1.6 Total construction + 20% contingency	34627	6192		54662	11755	
Total fixed assets			32387			52571
<b>2. Preliminary Expenses:</b>						
2.1 Planning and design consultancy (2% of total fixed assets)			648			
2.2 Training of personnel (2% of total fixed assets) <sup>4/</sup>			648			
INITIAL INVESTMENTS			33683			52571

TABLE (2): Cont'd

(000)

	1983			1984		
	F	L	T	F	L	T
<b>1. <u>Fixed Assets:</u></b>						
1.1 Equipments (CIF Value) <sup>1/</sup> , <sup>2/</sup> Transport cost to site ( $\approx$ 5%) Total equipments						
1.2 Land aquisation				-	-	
1.3 Construction, superstructure <sup>3/</sup>	32047	5280		32047	5280	
1.4 Construction, infrastructure <sup>3/</sup>	11505	3516		11505	3516	
1.5 Construction, miscellaneous	2000	1000		2000	1000	
1.6 Total construction + 20% contingency	54662	11755		54662	11755	
Total fixed assets			52571			52571
<b>2. <u>Preliminary Expenses:</u></b>						
2.1 Planning and design consultancy (2% of total fixed assets)						
2.2 Training of personnel (2% of total fixed assets) <sup>4/</sup>						
INITIAL INVESTMENTS			52571			52571

TABLE (2): Cont'd

(000)

	1985			1986		
	F	L	T	F	L	T
<b>1. <u>Fixed Assets:</u></b>						
1.1 Equipments (CIF Value) <sup>1/</sup> , <sup>2/</sup>	65629	33		7805	39	
Transport cost to site ( $\approx 5\%$ )	3281	2		390	2	
Total equipments	68910	35		8195	41	
1.2 Land aquisition	-	-		-	-	
1.3 Construction, superstructure <sup>3/</sup>	32048	5280		9141	719	
1.4 Construction, infrastructure <sup>3/</sup>	11507	3518		2323	944	
1.5 Construction, miscellaneous	2000	2600		171	226	
1.6 Total construction + 20% contingency	54667	13678		13962	2267	
Total fixed assets			106396			18926
<b>2. <u>Preliminary Expenses:</u></b>						
2.1 Planning and design consultancy (2% of total fixed assets)						
2.2 Training of personnel (2% of total fixed assets) <sup>4/</sup>						
INITIAL INVESTMENTS			106396			18926

TABLE (2): Cont'd

(000)						
	1987			1988		
	F	L	T	F	L	T
<b>1. <u>Fixed Assets:</u></b>						
1.1 Equipments (CIF Value) <sup>1/</sup> , <sup>2/</sup>	7805	39		7805	39	
Transport cost to site ( $\approx 5\%$ )	390	2		390	2	
Total equipments	8195	41		8195	41	
1.2 Land acquisition	-	-		-	-	
1.3 Construction, superstructure <sup>3/</sup>	9141	719		9141	719	
1.4 Construction, infrastructure <sup>3/</sup>	2323	944		2323	944	
1.5 Construction, miscellaneous	171	226		171	226	
1.6 Total construction + 20% contingency	13962	2267		13962	2267	
Total fixed assets			18926			18926
<b>2. <u>Preliminary Expenses:</u></b>						
2.1 Planning and design consultancy (2% of total fixed assets)						
2.2 Training of personnel (2% of total fixed assets) <sup>4/</sup>						
INITIAL INVESTMENTS			18926			18926

TABLE (2): Cont'd

(000)						
	1989			1990		
	F	L	T	F	L	T
<b>1. <u>Fixed Assets:</u></b>						
1.1 Equipments (CIF Value) <sup>1/</sup> , <sup>2/</sup>	7804	39		3746	19	
Transport cost to site ( $\approx 5\%$ )	390	2		187	1	
Total equipments	8194	41		3933	20	
1.2 Land aquisition	-	-		-	-	
1.3 Construction, superstructure <sup>3/</sup>	9143	718		6965	529	
1.4 Construction, infrastructure <sup>3/</sup>	2323	945		1858	752	
1.5 Construction, miscellaneous	172	1028		177	181	
1.6 Total construction + 20% contingency	13966	3229		10800	1754	
Total fixed assets			19890			12824
<b>2. <u>Preliminary Expenses:</u></b>						
2.1 Planning and design consultancy (2% of total fixed assets)						
2.2 Training of personnel (2% of total fixed assets) <sup>4/</sup>						
INITIAL INVESTMENTS			19890			12824

TABLE (2): Cont'd

(000)

	1991		1992	
	T	L	T	L
<b>1. Fixed Assets:</b>				
1.1 Equipments (CIF Value) <sup>1/</sup> , <sup>2/</sup>	3746	19	3746	19
Transport cost to site ( $\approx 5\%$ )	187	1	187	1
Total equipments	3933	20	3933	20
1.2 Land acquisition	-	-	-	-
1.3 Construction, superstructure <sup>3/</sup>	6965	529	6965	529
1.4 Construction, infrastructure <sup>3/</sup>	1858	752	1858	752
1.5 Construction, miscellaneous	177	181	177	181
1.6 Total construction + 20% contingency	10800	1754	10800	1754
Total fixed assets			12824	12824
<b>2. Preliminary Expenses:</b>				
2.1 Planning and design consultancy (2% of total fixed assets)				
2.2 Training of personnel (2% of total fixed assets) <sup>4/</sup>				
INITIAL INVESTMENTS			12824	12824



TABLE (2): Cont'd

(000)

	1996 <sup>6/</sup>			1997		
	F	L	T	F	L	T
<u>1. Fixed Assets:</u>						
1.1 Equipments (CIF Value) <sup>1/</sup> , <sup>2/</sup>	3746	19		3744	19	
Transport cost to site ( $\approx 5\%$ )	187	1		186	1	
Total equipments	3933	20		3930	20	
1.2 Land aquisition	-	-		-	-	
1.3 Construction, superstructure <sup>3/</sup>	6965	529		6965	529	
1.4 Construction, infrastructure <sup>3/</sup>	1858	752		1860	753	
1.5 Construction, miscellaneous	5177	331		177	982	
1.6 Total construction + 20% contingency	16800	1934		10802	2718	
Total fixed assets			17504			13787
<u>2. Preliminary Expenses:</u>						
2.1 Planning and design consultancy (2% of total fixed assets)						
2.2 Training of personnel (2% of total fixed assets) <sup>4/</sup>						
INITIAL INVESTMENTS			17504			13787

TABLE (2): Cont'd

(000)

	1998		
	F	L	T

1. Fixed Assets:

1.1 Equipments (CIF Value) 1/, 2/

Transport cost to site ( $\approx 5\%$ )

Total equipments

1.2 Land aquisition

1.3 Construction, superstructure 3/

1.4 Construction, infrastructure 3/

1.5 Construction, miscellaneous

1.6 Total construction +  
20% contingency

Total fixed assets

2. Preliminary Expenses:

2.1 Planning and design consultancy  
(2% of total fixed assets)

2.2 Training of personnel  
(2% of total fixed assets) 4/

INITIAL INVESTMENTS

∴ TOTAL INITIAL  
INVESTMENTS = L.E. 444223

TABLE (2): Cont'd

Table Notes:

- (1) Assumed exempted from taxes.
- (2) See table (9.1) of consultant report for details.
- (3) See table (8.1) of consultant report for details.
- (4) Assumed in first year of each phase.
- (5) Based on the prevailing exchange rate in base year.
- (6) Initial investments for the years 1993, 1994 and 1995 assumed nil.

TABLE (3): FINANCING PLAN 1/

SOURCES

Financing (in L.E. million)

1. LOANS

Official Concessionary Aid, initial constr.	200.000
Private Commercial Banks, initial constr. <u>2/</u>	40.000
Private Commercial Banks, subsequent const.	68.000
Export Financing Banks, initial constr. <u>2/</u>	40.000
Export Financing Banks, subsequent Const.	26.000
Total Loans	<u>374.000</u>

2. EQUITY

	<u>70.000</u>
Total Financing	<u><u>444.223</u></u>

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1/ Loan structure as suggested by HARRIS. Equity capital is assumed to cover the balance of the Project costs.

2/ 5 years allowance period is understood. Loan repayment suggested by HARRIS starts after the first 5 years of initial construction are over.

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TABLE (4): Loan Repayment Schedule

(L.E. million)

Loan Structure (as suggested by Consultant)	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Official Concessionary Aids	11.48	11.48	11.48	11.48	11.48	11.48	11.48	11.48	11.48	11.48
Private Concessionary Banks	19.10	10.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10
Export Promotion Financing Banks	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Total annual loan repayment	37.28	37.28	37.28	37.28	37.28	37.28	37.28	37.28	37.28	37.28
of which interest equals	15.18	15.18	15.18	15.18	15.18	15.18	15.18	15.18	15.18	15.18
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Official Concessionary Aids	11.48	11.48	11.48	11.48	11.48	11.48	11.48	11.48	11.48	11.48
Private Concessionary Banks	-	-	-	-	-	-	-	-	-	-
Export Promotion Financing Banks	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Total annual loan repayment	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8
of which interest equals	6.88	6.88	6.88	6.88	6.88	6.88	6.88	6.88	6.88	6.88
	2006	2007	2008	2009	2010					
Official Concessionary Aids	11.48	11.48	11.48	11.48	11.48					
Private Concessionary Banks	-	-	-	-	-					
Export Promotion Financing Banks	-	-	-	-	-					
Total annual loan repayment	11.48	11.48	11.48	11.48	11.48					
of which interest equals	3.48	3.48	3.48	3.48	3.48					

TABLE (5): Depreciation Destimation

Assumptions:

1. Staight line depreciation

2. Depreciation Periods

- Constructions 40 Years

- Equipments

Cargo handling 25 Years

Marine & other  
equipment 15 Years

Item	Total Cost (000 L.E.)	Depreciation Period (Years)	Annual Depreciation Amount (000 L.E.)
Construction	351930	40	8798
Cargo Handl- ing equip.	73161	25	2926
Marine and Other equip.	13803	15	920

TABLE (6): Projected Income Statement, 1986-2011

	(000 L.E.)						
	1986	1987	1988	1989	1990	1991	1992
<b>1. REVENUES:</b>							
1.1 Port imports/exports revenue <sup>1/</sup>	85599	90101	96724	103060	110000	126551	132265
1.2 Trnasshipment terminal (table 11.6)	46639	48144	49949	51755	53560	55366	57171
1.3 Revenue from container repair <sup>2/</sup>	665	731	805	885	974	1071	1178
Total Revenue	47304	48875	50754	52640	54534	56437	58349
<b>2. COST OF OPERATIONS:</b>							
2.1 Containerized Cargo <sup>4/</sup>	5163	5527	6639	7526	8538	9061	9349
2.2 Neobulk Cargo <sup>5/</sup>	9870	9728	9596	9404	9332	11034	12560
2.3 Special Handling Cargo <sup>6/</sup>	15356	16432	17587	18822	20145	21115	21724
2.4 Dry Bulk Cargo <sup>7/</sup>	3840	4092	4361	4646	4951	6272	6456
2.5 Trnasshipment Cargo <sup>8/</sup>	11806	12309	12811	13314	2200	14318	14821
2.6 Depreciation	12644	12644	12644	12644	12644	12644	12644
Total operating Costs	58679	60732	63638	66416	57810	74444	77554
<b>3. GROSS PROFIT</b>	11375	11857	12884	13776	3276	18007	19205
<b>4. NON-OPERATING EXPENSES</b>							
4.1 Loans Interest	15180	15180	15180	15180	15180	15180	15180
4.2 Administrative Expenses <sup>2/</sup>	260	260	260	260	260	-	-
4.3 Amortization of Preoperational Expenses	260	260	260	260	260	-	-
<b>5. PROFIT BEFORE TAX <sup>10/</sup></b>	26815	27297	28324	29216	18716	33187	34385



TABLE (6): Projected Income Statement, 1986-2011

	(Con't)				(000 L.E.)		
	1993	1994	1995	1996	1997	1998	1999
1. <u>REVENUES:</u>							
1.1 Port imports/exports revenue <u>1/</u>	138239	148052	161327	174358	188239	203376	219769
1.2 Transshipment terminal (table 11.6)	59277	61384	63490	65596	68603	70411	72818
1.3 Revenue from container repair <u>2/</u>	1296	1425	1568	1725	1897	2087	2296
Total Revenue	60573	62809	65058	241679	258739	275874	294883
2. <u>COST OF OPERATIONS:</u>							
2.1 Containerized Cargo <u>4/</u>	9620	10131	11795	13030	14388	15888	17546
2.2 Neobulk Cargo <u>5/</u>	14588	15947	17420	19034	20798	22729	24837
2.3 Special Handling Cargo <u>6/</u>	22288	23752	25322	27060	28771	30667	32687
2.4 Dry Bulk Cargo <u>7/</u>	6585	8463	7574	8122	8712	9342	10017
2.5 Transshipment cargo <u>8/</u>	15323	15826	16328	16830	17333	17835	18338
2.6 Depreciation	12644	12644	12644	12644	12644	12644	12644
Total Operating Costs	81048	86763	91083	96720	102646	109105	116069
3. <u>GROSS PROFIT</u>	20475	23954	26025	144959	156093	166769	178814
4. <u>NON-OPERATING EXPENSES</u>							
4.1 Loans Interest	15180	15180	15180	6880	6880	6880	16880
4.2 Administrative Expenses <u>2/</u>							
4.3 Amortization of Preoperational Expenses	-	-	-	-	-	-	-
5. <u>PROFIT BEFORE TAX</u> <u>10/</u>	35655	39134	41205	138079	149213	159213	181934

TABLE (6): Projected Income Statement, 1986-2011

(Con't)

(000 L.E.)

	2000	2001	2002	2003	2004	2005
<b>1. REVENUES:</b>						
1.1 Port imports/exports revenue <u>1/</u>	237518	245786	254055	262323	270591	278802
1.2 Transshipment terminal (table 11.6)	75225	77828*	80521	83307	86189	89171
1.3 Revenue from container repair <u>2/</u>	2525	2777	3055	3361	3697	4067
Total Revenue	315268	326391	337631	348991	360477	272040
<b>2. COST OF OPERATIONS:</b>						
2.1 Containerized Cargo <u>4/</u>	19380	20409	21438	22467	23496	24520
2.2 Neobulk Cargo <u>5/</u>	27130	28109	29088	30067	31046	32017
2.3 Special Handling Cargo <u>6/</u>	34857	36259	37661	39064	40466	41861
2.4 Dry Bulk Cargo <u>7/</u>	10738	10962	11186	11410	11634	11856
2.5 Transshipment Cargo <u>8/</u>	18683	19342	20002	20661	21321	21986
2.6 Depreciation	12644	11724	11724	11724	11724	11724
Total Operating Costs	123432	126805	131099	135393	139687	143961
<b>3. GROSS PROFIT</b>	191836	199586	206532	213598	220790	128079
<b>4. NON-OPERATING EXPENSES</b>						
4.1 Loans Interest	6880	6880	6880	6880	6880	6880
4.2 Administrative Expenses <u>2/</u>	-	-	-	-	-	-
4.3 Amortization of Preoperational Expenses	-	-	-	-	-	-
<b>5. PROFIT BEFORE TAX <u>10/</u></b>	184956	192706	199652	206718	213910	121199

\* From this year onwards, revenues are obtained from table (11.12) of the Consultant's report.

TABLE (6): Projected Income Statement, 1986-2011

	(Cont'd)					
	(000 L.E.)					
	2006	2007	2008	2009	2010	2011
<b>1. REVENUES:</b>						
1.1 Port imports/exports revenue <u>1/</u>	289091	299379	309668	319956	330274	330274
1.2 Transshipment terminal (table 11.6)	92257	95489	98751	102168	105703	105703
1.3 Revenue from container repair <u>2/</u>	4473	4921	5413	5954	6550	6550
Total Revenue	385821	399789	413832	428078	442527	442527
<b>2. COST OF OPERATIONS:</b>						
2.1 Containerized Cargo <u>4/</u>	25884	27248	28612	29976	31358	31358
2.2 Neobulk Cargo <u>5/</u>	33172	34327	35483	36638	37785	37785
2.3 Special Handling Cargo <u>6/</u>	43633	45405	47178	48951	50715	50715
2.4 Dry Bulk Cargo <u>7/</u>	12117	12378	12639	12899	13162	13162
2.5 Transshipment Cargo <u>8/</u>	22765	23544	24322	25101	25874	25874
2.6 Depreciation	11724	11724	11724	11724	8798	8798
Total Operating Costs	149295	154626	159958	165289	167692	167692
<b>3. GROSS PROFIT</b>	236526	245163	253874	153565	274835	274835
<b>4. NON-OPERATING EXPENSES</b>						
4.1 Loans Interest	3480	3480	3480	3480	3480	-
4.2 Administrative Expenses <u>2/</u>						
4.3 Amortization of Preoperational Expenses	-	-	-	-	-	-
<b>5. PROFIT BEFORE TAX <u>10/</u></b>	233046	241683	250394	259309	271355	271355

TABLE (7): Projected Funds Flow Statement

(000 L.E.)

	1981	1982	1983	1984	1985	1986
<u>SOURCES:</u>						
Profit after taxes	-	-	-	-	-	(26815)
Add back depreciation	-	-	-	-	-	12644
Add back amortization	-	-	-	-	-	260
Equity	70223	-	-	-	-	-
Official Concessionary aids	200000	-	-	-	-	-
Private commercial banks	40000	-	-	-	-	68000
Export financing banks	40000	-	-	-	-	26000
Total Sources	350223	-	-	-	-	80089
<u>APPLICATIONS:</u>						
Capital expenditure	33683	52571	52571	52571	106396	18926
Pre-operational expenses	648	-	-	-	-	-
Loan repayment, concess. aids						8000
Loan repayment, comm. banks						10800
Loan repayment, export financing						3300
Total Applications	34331	52571	52571	52571	106396	41026
<u>NET CASH FLOW:</u>	315892	(52571)	(52571)	(52571)	(106396)	39063
<u>CASH AT YEAR BEGIN:</u>	-	315892	263321	210750	158179	51783

-39-  
TABLE (7): Cont'd

	(000 L.E.)						
	1987	1988	1989	1990	1991	1992	1993
<u>SOURCES:</u>							
Profit after taxes	(27297)	(28324)	(29216)	(18716)	(33187)	(34385)	(35655)
Add back depreciation	12644	12644	12644	12644	12644	12644	12644
Add back amortization	260	260	260	260	-	-	-
Equity	-	-	-	-	-	-	-
Official Concessionary aids	-	-	-	-	-	-	-
Private commercial banks	-	-	-	-	-	-	-
Export financing banks	-	-	-	-	-	-	-
Total Sources	(14393)	(15420)	(16312)	(5812)	(20543)	(21741)	(23011)
<u>APPLICATIONS:</u>							
Capital expenditure	18926	18926	19890	12824	12824	12824	-
Pre-operational expenses	-	-	-	-	-	-	-
Loan repayment, concess. aids	8000	8000	8000	8000	8000	8000	8000
Loan repayment, comm. banks	10800	10800	10800	10800	10800	10800	10800
Loan repayment, export financing	3300	3300	3300	3300	3300	3300	3300
Total Applications	41026	41026	41990	34924	34924	23924	22100
<u>NET CASH FLOW:</u>	(55419)	(56446)	(58302)	(40736)	(55467)	(56665)	(45111)
<u>CASH AT YEAR BEGIN:</u>	90846	35427	21019	79321	120057	175524	232189

TABLE (7): Cont'd

(000 L.E.)

	1994	1995	1996	1997	1998	1999	2000
<u>SOURCES:</u>							
Profit after taxes	39134	41205	138079	149213	159889	171934	184956
Add back depreciation	12644	12644	12644	12644	12644	12644	12644
Add back amortization	-	-	-	-	-	-	-
Equity	-	-	-	-	-	-	-
Official Concessionary aids	-	-	-	-	-	-	-
Private commercial banks	-	-	-	-	-	-	-
Export financing banks	-	-	-	-	-	-	-
Total Sources	25490	28561	150723	161857	172533	184578	197600
<u>APPLICATIONS:</u>							
Capital expenditure	-	-	17504	13787	-	-	-
Pre-operational expenses	-	-	-	-	-	-	-
Loan repayment, concess. aids	8000	8000	8000	8000	8000	8000	8000
Loan repayment, comm. banks	10800	10800	-	-	-	-	-
Loan repayment, export financing	3300	3300	3300	3300	3300	3300	3300
Total Applications	22100	22100	28804	25087	11300	11300	11300
<u>NET CASH FLOW:</u>	48590	50661	121919	136770	161233	173278	186300
<u>CASH AT YEAR BEGIN:</u>	277300	325890	376551	254632	117862	43371	216649

TABLE (7): Cont'd

(000 L.E.)

	2001	2002	2003	2004	2005	2006	2007	2008
<u>SOURCES:</u>								
Profit after taxes	192706	199652	206718	213910	121197	233046	241683	250394
Add back depreciation	11724	11724	11724	17724	17724	17724	11724	11724
Add back amortization	-	-	-	-	-	-	-	-
Equity	-	-	-	-	-	-	-	-
Official Concessionary aids	-	-	-	-	-	-	-	-
Private commercial banks	-	-	-	-	-	-	-	-
Export financing banks	-	-	-	-	-	-	-	-
Total Sources								
<u>APPLICATIONS:</u>								
Capital expenditure	-	-	-	-	-	-	-	-
Pre-operational expenses	-	-	-	-	-	-	-	-
Loan repayment, concess. aids	8000	8000	8000	8000	8000	8000	8000	8000
Loan repayment, comm. banks	-	-	-	-	-	-	-	-
Loan repayment, export financing	3300	3300	3300	3300	3300	-	-	-
Total Applications	11300	11300	11300	11300	11300	8000	8000	8000
<u>NET CASH FLOW:</u>	193130	200076	207142	214334	121621	236770	245407	245118
<u>CASH AT YEAR BEGIN:</u>	402949	596079	796155	1003297	1217631	1339252	1576022	1821429

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TABLE (7): Cont'd

(000 L.E.)

	2009	2010	2011
<u>SOURCES:</u>			
Profit after taxes	259309	271355	271355
Add back depreciation	11724	8798	8798
Add back amortization	-	-	-
Equity	-	-	-
Official Concessionary aids	-	-	-
Private commercial banks	-	-	-
Export financing banks	-	-	-
Total Sources			
<u>APPLICATIONS:</u>			
Capital expenditure	-	-	-
Pre-operational expenses	-	-	-
Loan repayment, concess. aids	8000	8000	-
Loan repayment, comm. banks	-	-	-
Loan repayment, export financing	-	-	-
Total Applications	8000	8000	-
<u>NET CASH FLOW:</u>	263033	272153	280153
<u>CASH AT YEAR BEGIN:</u>	2075547	2338580	2610733



TABLE (8): General Alexandria Port Authority  
Revenues and Expenses <sup>1/</sup>,  
1974 and 1975 (L.E. 000)

	<u>1974</u>	<u>1976</u>
REVENUES (000 L.E.)		
1. Operating Revenues (Berthing fee, Pilotage fee, ... etc.)	1408	9257
2. Warehousing rents, ...	884	5138
3. Other	264	330
	<u>2556</u>	<u>14725</u>
OPERATING EXPENSES (000 L.E.)	1545	1946
CARGO TRAFFIC (Imports + exports 000 tons)	9275	12295
REVENUE PER TON (L.E./ton)	0.27	1.19
OPERATING EXPENSES PER TON	0.17	0.16
NET REVENUE PER TON (L.E./ton)	0.10	1.03

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<sup>1/</sup> Table compiled from "Egypt National Transport Study" Source for 1974 Figures is IBRD "Alexandria Port Appraisal Report" and for 1976 is Alexandria Port Authority files.

TABLE (9): Financing Structure Suggested by HARRIS

Loan Source	Initial Construction 1980-1984					Next 5 years of Port Development (1985-1989)				
	Amount L.E. million	Interest	Terms (Years)	Repayment		Amount L.E. million	Interest	Terms (Years)	Repayment	
				Annual amount L.E. million	Period of Re- payment				Annual amount L.E. million	Period of Re- payment
Official Con- cessionary Aids	200	3%	25	11.48	1985-2010	-	-	-	-	-
Private Commercial Banks	40	12%	10	7.1	1985-1995	68	12%	10	12	1985-1995
Export Financing Banks	40	8%	20	4.1	1985-2205	26	8%	20	2.6	1985-2005

**APPENDIX (B): TABLES AND FIGURES OF  
Consultant's Study Referred  
to in this Report**



CONTAINER -  
CARGO ROUTED VIA  
GIBRALTAR AND  
MEDITERRANEAN



NEOBULK -  
CARGO ROUTED VIA  
GIBRALTAR AND  
MEDITERRANEAN

2-9



CONTAINER -  
CARGO ROUTED VIA  
RED SEA



NEOBULK -  
CARGO ROUTED VIA  
RED SEA

FIGURE 2.3



SPECIAL HANDLING -  
CARGO ROUTED VIA  
GIBRALTAR AND  
MEDITERRANEAN



DRY BULK -  
CARGO ROUTED VIA  
GIBRALTAR AND  
MEDITERRANEAN



SPECIAL HANDLING -  
CARGO ROUTED VIA  
RED SEA



DRYBULK -  
CARGO ROUTED VIA  
RED SEA

FIGURE 2.4

SERVICE AREAS FOR PORTS OF EGYPT

TABLE 3.1  
SUMMARY OF COMMODITY MOVEMENT THROUGH  
THE PORT OF DAMIETTA  
1985 - 2000

CARGO HANDLING CATEGORY	COMMODITY	1 9 8 5			2 0 0 0		
		IMPORT	EXPORT	TOTAL THRUPUT	IMPORT	EXPORT	TOTAL THRUPUT
A CONTAINERIZABLE	MEAT	84,900	--	24,900	69,700	--	69,700
	FISH	500	4,000	4,500	--	8,800	8,800
	VEGETABLES	99,700	43,400	143,100	213,800	1,473,800	1,687,600
	CONSUMER GOODS	75,100	31,120	106,220	155,800	64,110	219,910
	CHEMICALS	328,000	--	328,000	684,000	--	684,000
	ELECTRIC MACHINES	24,410	--	24,410	51,100	--	51,100
	COTTON & TEXTILES	--	101,590	101,590	--	116,300	116,300
	FRUITS & NUTS	--	41,500	41,500	--	458,700	458,700
	SUB-TOTAL	552,610	221,610	774,220	1,174,400	2,121,710	3,296,110
B NEOBULK	RAW COTTON	610	41,340	41,950	--	--	--
	FLOUR	106,700	--	106,700	--	--	--
	CEMENT	311,600	--	311,600	--	--	--
	FATS & OIL	259,000	--	259,000	834,000	--	834,000
	TOBACCO	14,810	--	14,810	29,310	--	29,310
	RICE	--	334,600	344,600	--	1,989,400	1,989,400
	OIL CAKE	--	26,910	26,910	--	31,110	31,110
	ONION	--	28,700	28,700	--	192,600	192,600
	SUB-TOTAL	692,720	441,550	1,134,270	863,310	2,213,110	3,076,420
C SPECIAL HANDLING	WOOD	628,200	--	628,200	2,624,400	--	2,624,400
	MACHINERY	123,610	--	123,610	260,410	--	260,410
	IRON & STEEL	807,810	67,400	875,210	819,810	247,100	1,066,910
	SUB-TOTAL	1,559,620	67,400	1,627,020	3,704,620	247,100	3,951,720
D DRY BULK	WHEAT	1,774,000	--	1,774,000	3,218,400	--	3,218,400
	SALT & SULPHUR	22,400	--	22,400	91,700	--	91,700
	IRON & PYRITES	49,400	--	49,400	--	--	--
	CORN & MAIZE	160,500	--	160,500	--	974,200	974,200
	FERTILIZER	--	80,000	80,000	--	83,600	83,600
	CEMENT	--	--	--	--	1,768,200	1,768,200
	SUB-TOTAL	1,976,300	80,000	2,056,300	3,310,100	2,826,000	6,136,100
TOTALS		4,781,250	810,560	5,591,810*	9,052,430	7,407,920	16,460,350**

\* Projected total commodity thruput in 1985.

\*\* Projected total commodity thruput in 2000.

NOTE: COMMODITY THRUPUT IN METRIC TONS.

**TABLE 3.2**  
**PROJECTED TRANSSHIPMENT TONNAGE**  
**1985 - 2000**

FORECAST VARIANT	1985	2000	1985	2000
	NO TEU'S	NO TEU'S	TONNAGES	
HIGH	275,000	465,000	3,300,000	5,580,000
MEDIUM	150,000	215,000	1,800,000	3,000,000
LOW	87,500	154,000	1,050,000	1,848,000

**TABLE 3.3**  
**SUMMARY OF COMMODITY MOVEMENT THROUGH THE**  
**PORT OF DAMIETTA BY CARGO HANDLING CATEGORIES**  
**2000. - 2010**

CARGO HANDLING CATEGORY	YEAR		
	2000	2005	2010
A	3,296	4,170	5,333
B	3,076	3,630	4,284
C	3,952	4,746	5,750
D	6,136	6,775	7,521
TOTAL	16,460	19,321	22,888
TRANSSHIPMENT VOLUME	2,975	3,501	4,120
GRAND TOTAL	19,435	22,826	27,008

NOTE: COMMODITY THRUPUT IN METRIC TONS.



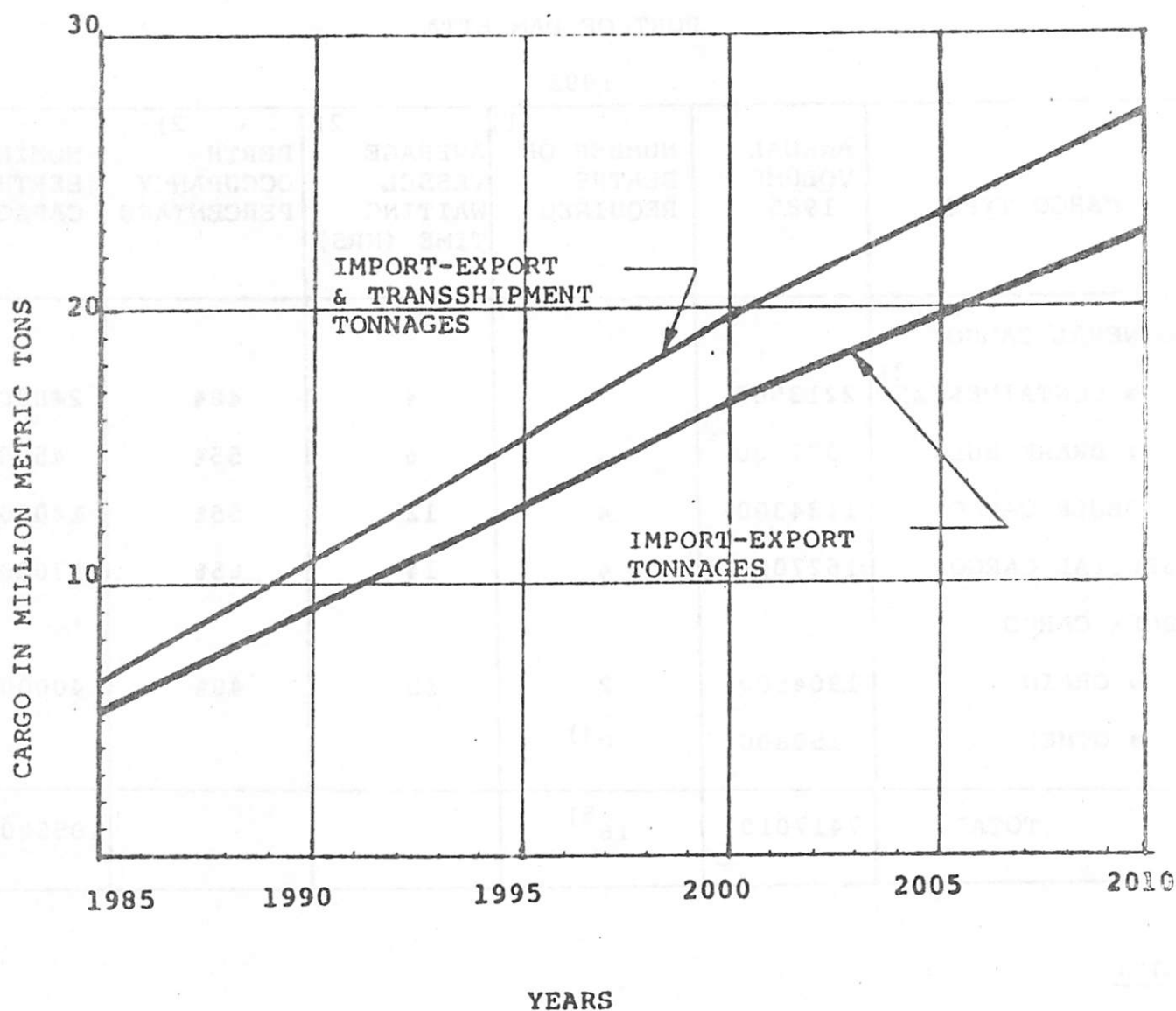


FIGURE 3.3

DAMIETTA CARGO PROJECTION

3-16

1985 - 2010

TABLE 4.2  
BERTH REQUIREMENTS  
PORT OF DAMIETTA

1985

CARGO TYPE	ANNUAL VOLUME 1985	NUMBER OF BERTHS REQUIRED <sup>1)</sup>	AVERAGE VESSEL WAITING TIME (HRS) <sup>2)</sup>	BERTH OCCUPANCY PERCENTAGE <sup>2)</sup>	NOMINAL BERTH CAPACITY <sup>2)</sup>
GENERAL CARGO					
<sup>3)</sup> CONTAINERIZED	2213500	2	4	48%	2400000
BULK CARGO	387100	4	6	55%	450000
OBULK CARGO	1134300	4	12	55%	1400000
SPECIAL CARGO	1627000	4	14	65%	1700000
BULK CARGO					
GRAIN	1904500	2	15	40%	4000000
OTHER	150800	0 <sup>4)</sup>			
TOTAL	7417010	16 <sup>5)</sup>			10550000

**NOTE:**

1. Excludes Petroleum.
2. As computed by FRH, Inc. Proprietary Berth Capacity Methodology.
3. Includes 1.83 million times of transshipment Cargo. Roll on/ Roll off cargo to be handled at container berths from combination vessels and at available open berths from stern and bow vessels. Container berth capacity assumes two cranes per berth.
4. Miscellaneous Bulk Cargo in small annual volume to be handled at Special or Neobulk berths until sufficient volume to justify facilities.
5. Time of construction constraint is expected to limit berth availability in 1985 to 12 berths. (3 container berths 2 grain berths, 3 special berths and 4 general or neobulk cargo berths.

TABLE 4.3  
BERTH REQUIREMENTS  
PORT OF DAMIETTA  
2000

CARGO TYPE	1) ANNUAL VOLUME 2000	1) NUMBER BERTHS	2) AVERAGE VESSEL WAITING TIME (HRS)	2) BERTH OCCUPANCY PERCENTAGE	2) NOMINAL BERTH CAPACITY
GENERAL CARGO					
3) • CONTAINERIZED	5446900	4	4	60%	6600000
• BREAK BULK	824000	7	6	60%	880000
NEOBULK CARGO	3076400	7	12	65%	3200000
SPECIAL CARGO	3951700	6	15	68%	4200000
BULK CARGO					
• GRAIN	4192600	2	24	50%	5000000
• CEMENT	1768200	1	45	45%	5000000
• OTHER	175300	04)			
TOTAL	19435000	27			20880000

**NOTE:**

1. Excludes Petroleum.
2. As computed by FRH Inc. Proprietary Berth Capacity methodology.
3. Includes 2.97 million tons of transshipment cargo. Roll on/ Roll off cargo to be handled at container berths from combination vessels and at available open berths from stern and bow vessels. Container berth capacity assumes 2 cranes/berth.
4. Miscellaneous bulk cargo consisting of bulk fertilizer, salt and sulphur to be handled at special cargo berths until sufficient volume develops to justify a berth.

TABLE 4.4  
FACILITIES REQUIREMENTS

TYPE BERTH	TOTAL AREA (M <sup>2</sup> )	APRON WIDTH (M)	BUILDINGS TYPE	OPEN STORAGE (M <sup>2</sup> )	TRANSPORT FACILITIES
CONTAINER & ROLL ON-ROLL OFF	100,000	INCLUDED IN TOTAL AREA	STRIPPING & STUFFING 170M X 40 M	INCLUDED IN TOTAL AREA	RAIL, HIGHWAY
GENERAL BREAKBULK	30,000	25M	1 TRANSIT SHED 170 X 60M 1 WAREHOUSE 170 X 60M FOR EVERY 2 TRANSIT SHEDS	18000 M <sup>2</sup> INCLUDED IN TOTAL AREA	HIGHWAY
NEOBULK	30,000	25M	1 TRANSIT SHED 170 X 60M 1 WAREHOUSE 170 X 60M FOR EVERY 3 TRANSIT SHEDS	18000 M <sup>2</sup> INCLUDED IN TOTAL AREA	HIGHWAY
SPECIAL	30,000	INCLUDED IN TOTAL AREA	NOT INDICATED	TOTAL AREA	RAIL, HIGHWAY
DRYBULK	DETERMINED BY VOLUME AND TYPE CARGO HANDLED	NOT CRITICAL	SILOS OR STORAGE YARDS TO HOLD 10% ANNUAL THROUGHPUT	FOR ORE, COAL AND SIMILAR CARGOES	RAIL, HIGHWAY BARGE

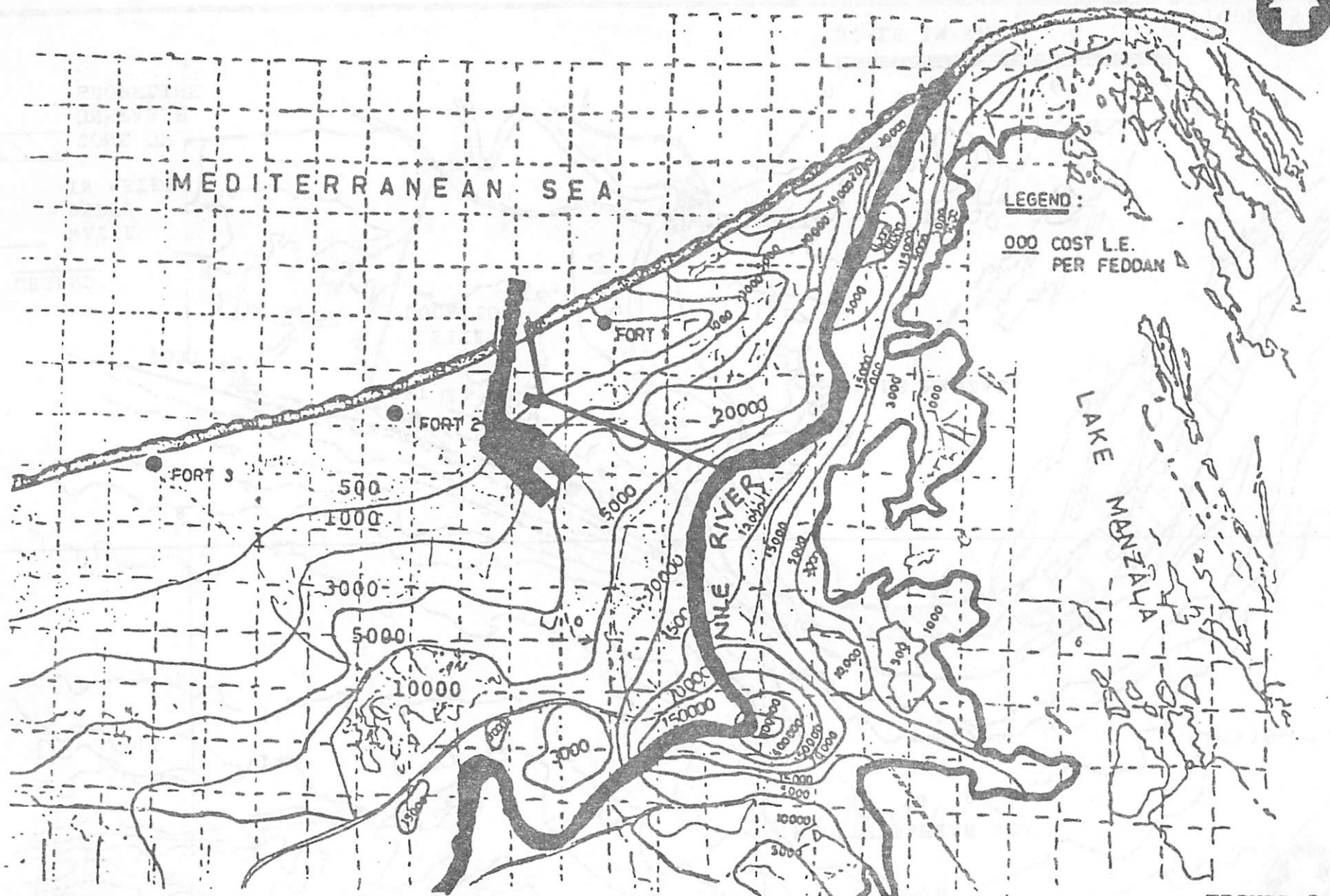


FIGURE 5.2

LAND VALUE MAP



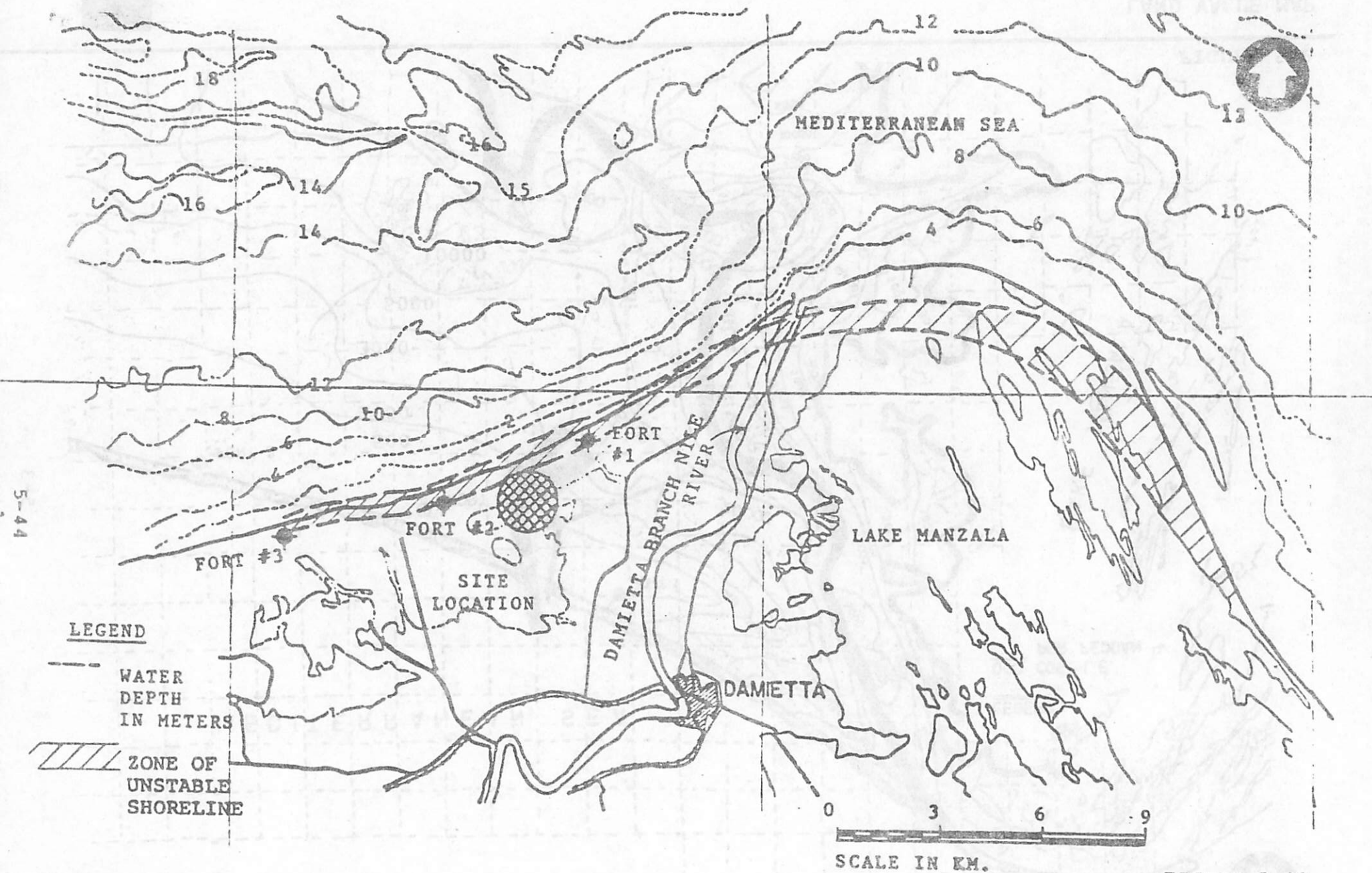


FIGURE 5.22

DAMietta CONCEPTUAL DESIGN  
POTENTIAL VARIATION OF

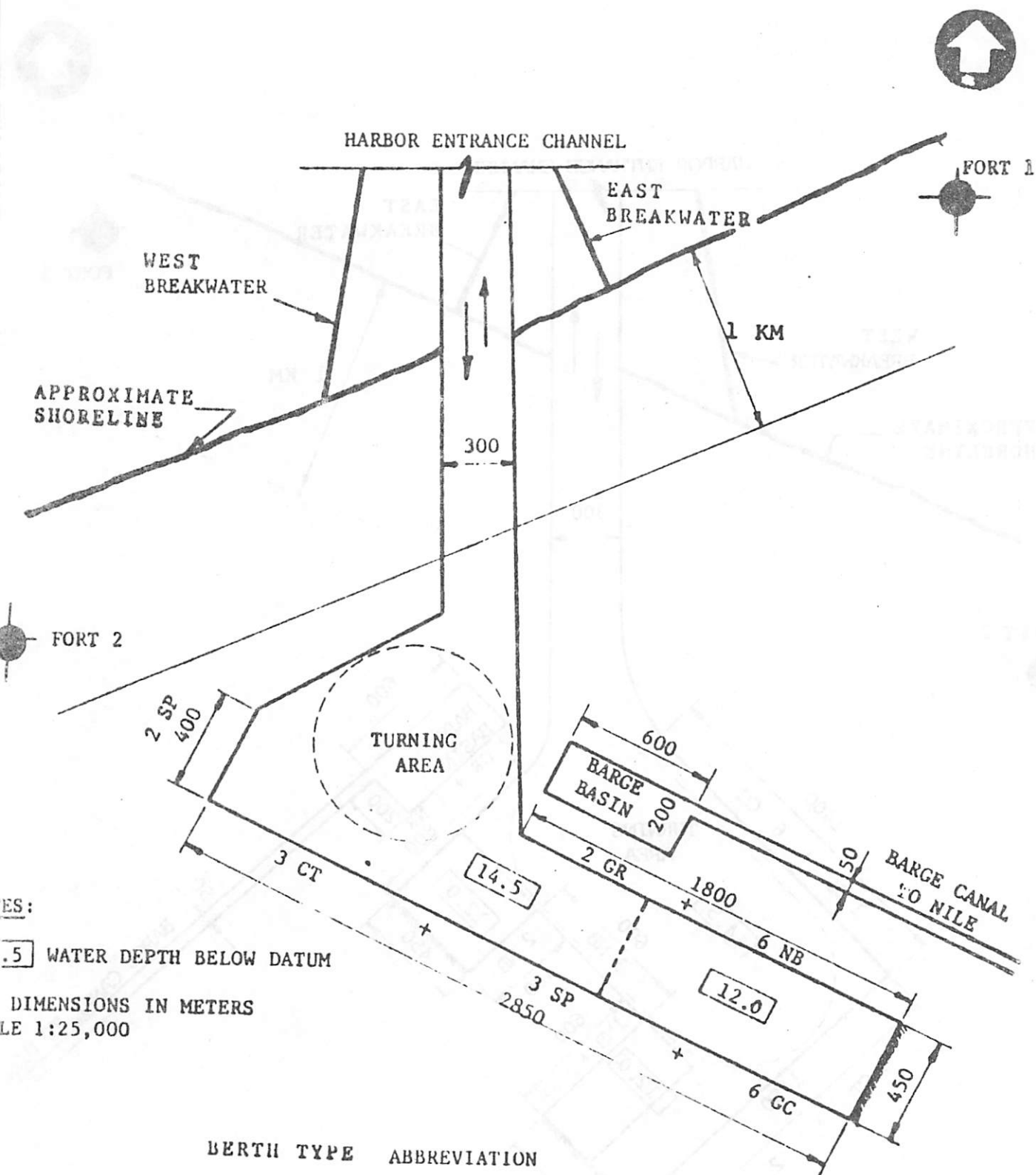
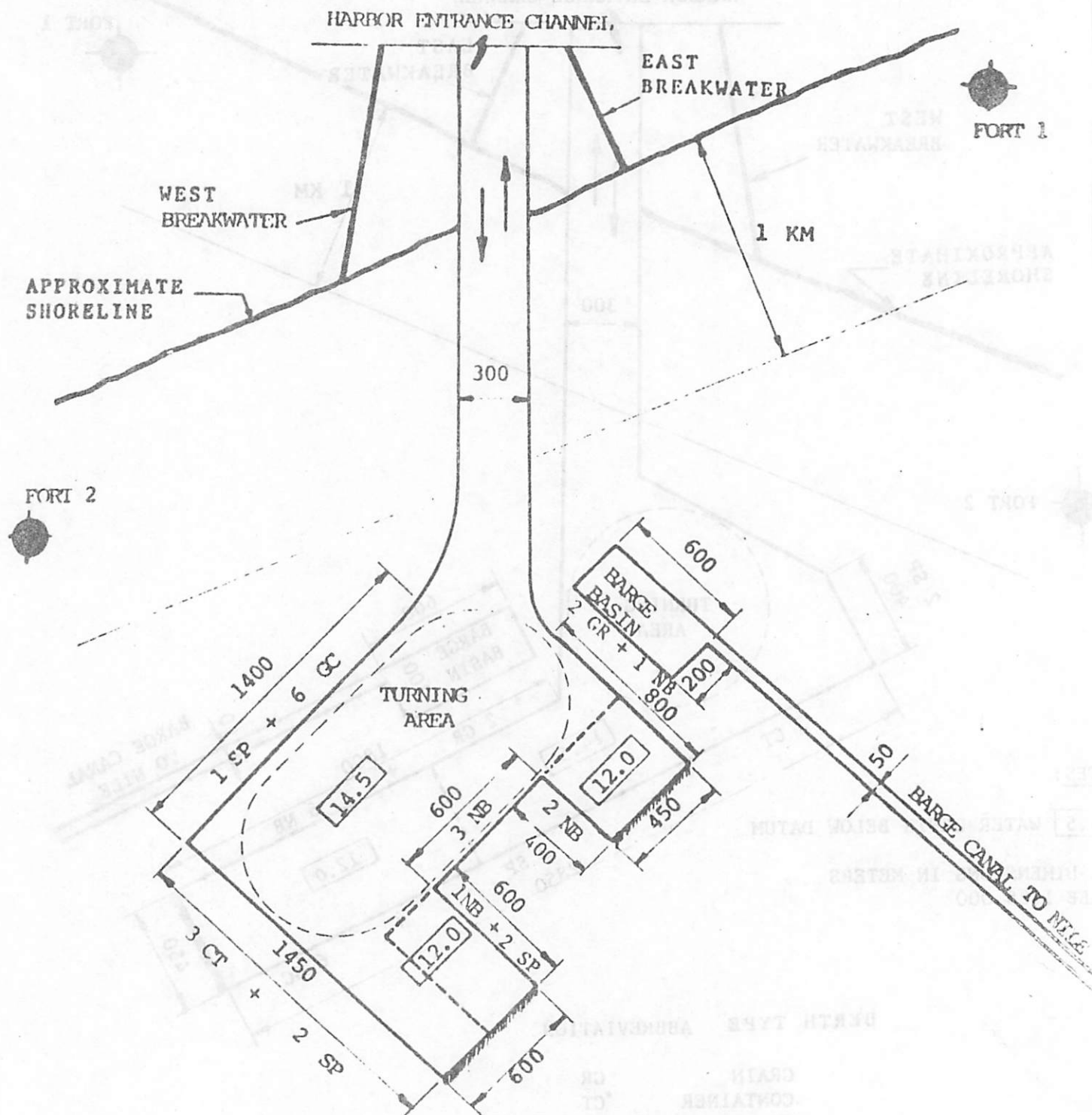


FIGURE 6.1

ALTERNATIVE HARBOR LAYOUT NO. 1





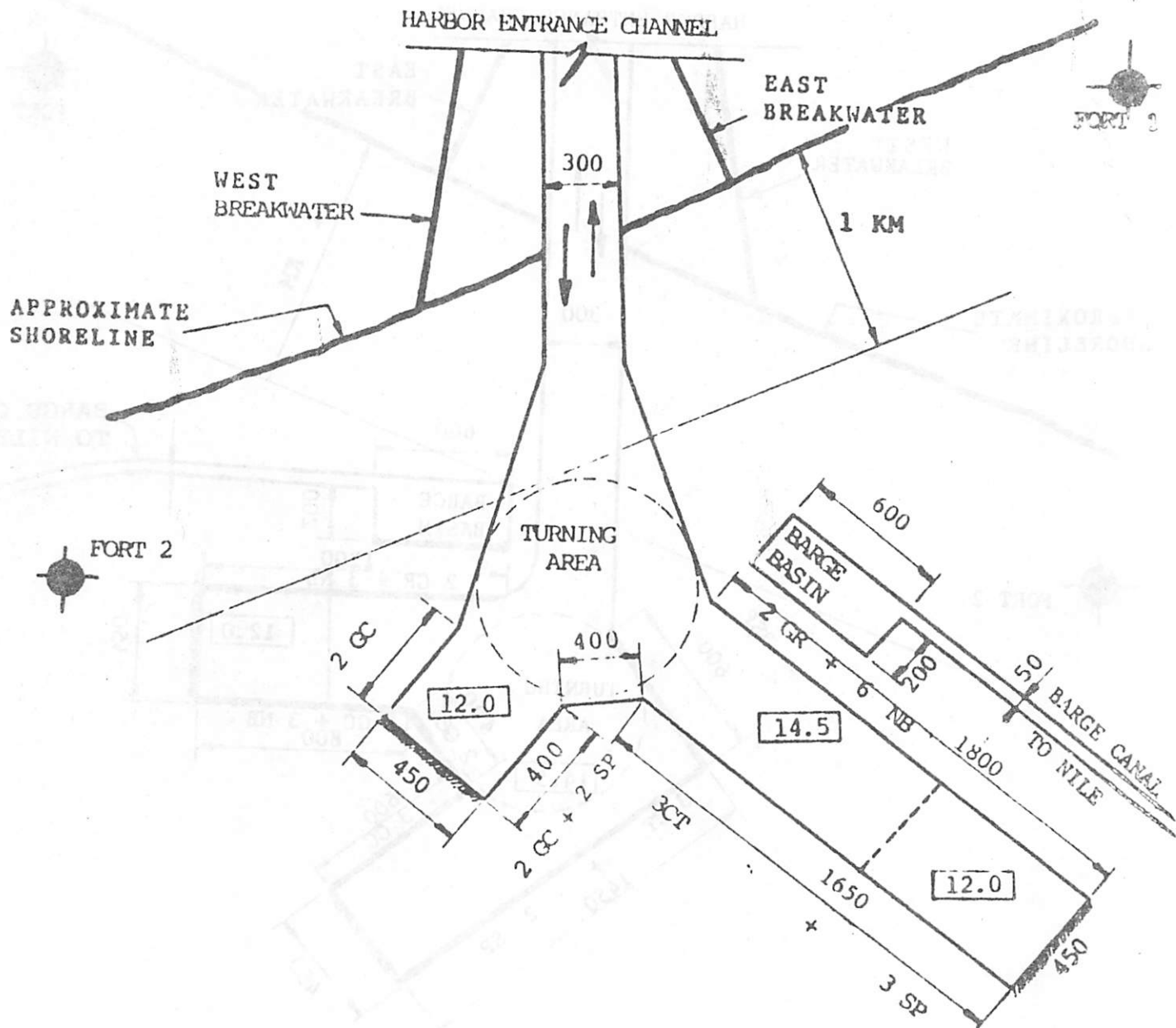
SEE NOTES ALTERNATE 1

FIGURE 6.2

ALTERNATIVE HARBOR LAYOUT NO. 2



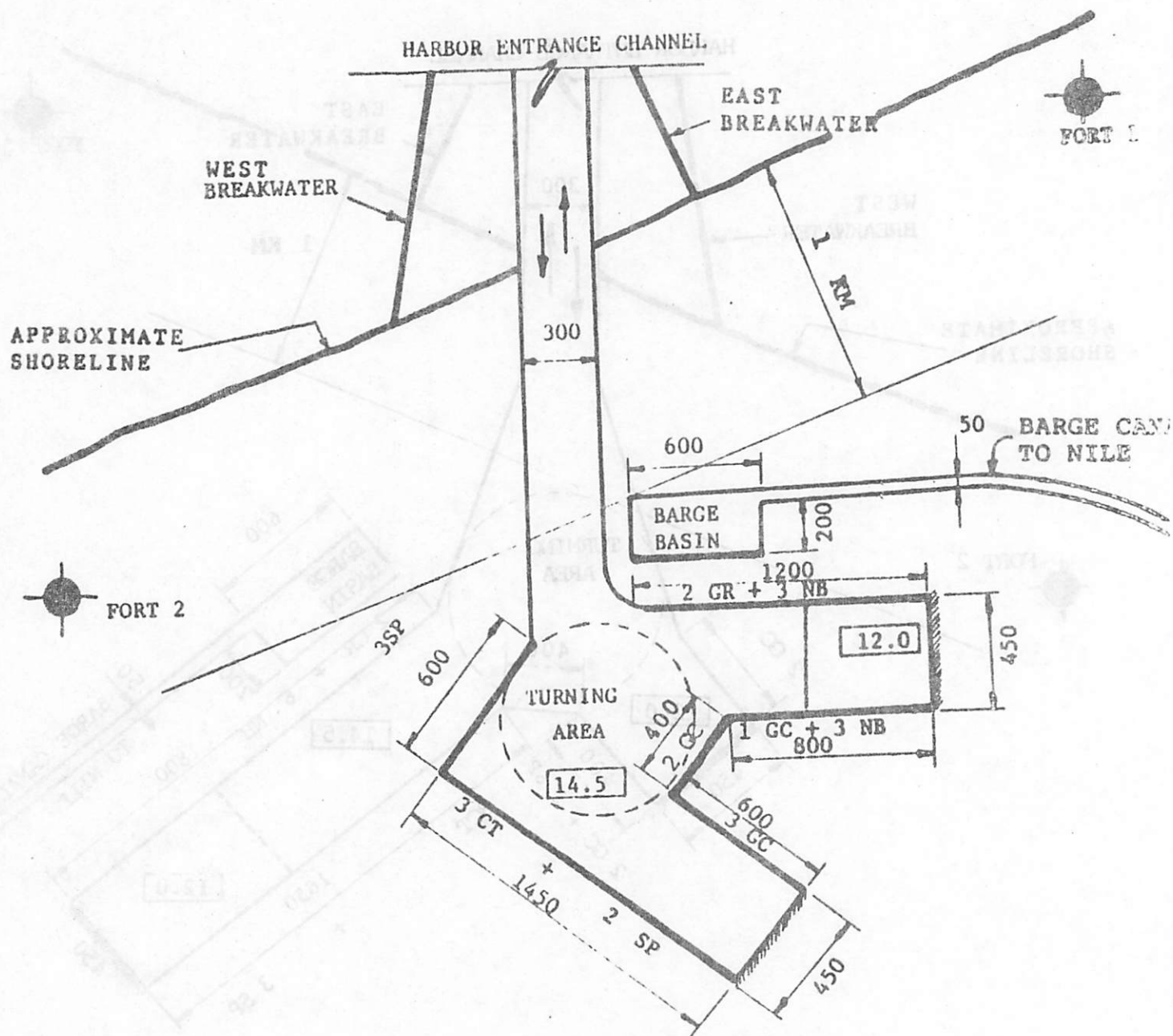




SEE ALTERNATIVE 1 FOR NOTES

FIGURE 6.3

ALTERNATIVE HARBOR LAYOUT NO. 3



SEE ALTERNATIVE 1 FOR NOTES

FIGURE 6.4

ALTERNATIVE HARBOR LAYOUT NO. 6



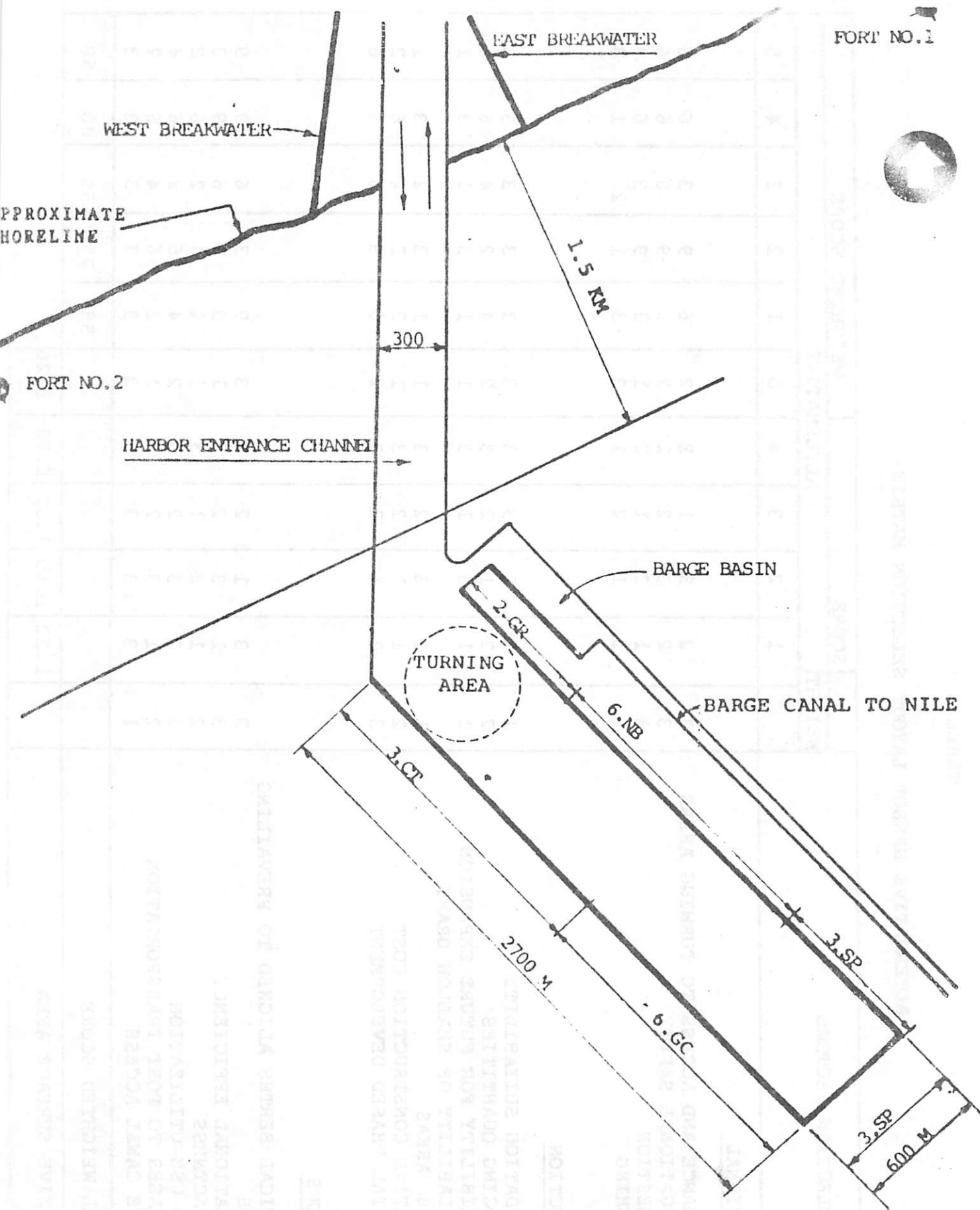


FIGURE 6.5

TABLE 6.1

## ALTERNATIVE HARBOR LAYOUT SELECTION MATRIX

SELECTION FACTORS	SCORE					WEIGHTED SCORE					
	WEIGHT	ALTERNATIVE									
		1	2	3	4	5	1	2	3	4	5
<u>NAVIGATIONAL</u>											
• ENTRANCE AND ACCESS TO TURNING AREAS	3	2	3	1	2	2	6	9	3	6	6
• NAVIGATIONAL SAFETY	3	2	3	2	2	2	6	9	6	6	6
• CONGESTION	3	1	3	1	2	1	3	9	3	6	3
• FLUSHING	1	3	1	2	1	3	3	1	2	1	3
<u>CONSTRUCTION</u>											
• FOUNDATION SUITABILITY	1	3	3	3	3	3	3	3	3	3	3
• DREDGING QUANTITIES	2	2	1	2	3	2	4	2	4	6	4
• FLEXIBILITY FOR FUTURE EXPANSION	1	1	3	1	3	1	1	3	1	3	1
• AVAILABILITY OF SHALLOW DRAFT (12.0) AREAS	1	1	3	2	3	1	1	3	2	3	1
• RELATIVE CONSTRUCTION COST	2	1	1	2	3	1	2	2	4	6	2
• INITIAL PHASED DEVELOPMENT	3	2	1	2	3	2	6	3	6	9	6
<u>OPERATIONS</u>											
• CRITICAL BERTHS ALIGNED TO PREVAILING WINDS	3	3	1	2	3	3	9	3	6	9	9
• OPERATIONAL EFFICIENCY	3	1	3	2	3	1	3	9	6	9	3
• COMPACTNESS	2	1	2	1	3	1	2	4	2	6	2
• LAND USE UTILIZATION	2	2	3	2	3	2	4	6	2	6	4
• LINKAGES TO PORT TRANSPORTATION	2	1	3	2	3	1	2	6	4	6	2
• BARGE CANAL ACCESS	1	3	3	3	3	3	3	3	3	3	3
TOTAL WEIGHTED SCORE							58	75	59	88	58
RELATIVE SURFACE AREA		1.22	1.10	1.30	1.00	1.20					

## 6.5 MASTER PLAN

The developed Master Plan for the year 2000 incorporates the following major features and facilities as illustrated in Figure 6.11 and the foldout drawing found at the back of this volume.

### Navigational

- A 300 meter wide two way harbor entrance channel
- A 4.5 square kilometer offshore anchorage
- A main 800 meter turning area
- Two inner "legs" capable of turning 150 meter ships alongside berths
- A three berth ship "holding station"
- Provision for future harbor extension
- Barge basin
- Fishing boats channel
- Fishing boats and barge canal
- Marine services harbor

### Coastal Protection

- Channel breakwaters
- Shore protection works

### Berths

- Container, RO/RO
- General cargo
- Neobulk
- Special handling
- Grain
- Cement
- Liquid bulk

FORT No. 1



MEDITERRANEAN SEA

HARBOR ACCESS CHANNEL  
(- 15.00 M)

ORT No. 2

TURNING AREA

(- 14.5 M)

(- 12 M)

(- 12 M)

END

CONTAINER BERTHS  
GRAIN BERTHS & SILOS  
GENERAL CARGO BERTHS  
SPECIAL CARGO BERTHS  
NEOBULK CARGO BERTHS  
CEMENT BERTH  
INDUSTRIAL AREA  
FOREIGN TRADE ZONE  
ADMINISTRATION BUILDING  
FUTURE EXPANSION  
WASTE TREATMENT AREA  
POWER PLANT  
BUNKER & FUEL STORAGE

SCALE 1 : 25,000

FIGURE 6.11

MASTER PLAN  
PORT OF DAMIETTA

## Buildings

- Consolidation shed
- Refrigerated warehouses
- Container and pallet repair
- Operations
- Administration
- Customs and Health
- Transit sheds
- Warehouses
- Mechanical Maintenance
- Railroad loading/unloading

## Silos

- Grain
- Cement

## Power and Utilities

- Power plant
- Power substation
- Desalinization plant
- Water tanks
- Water pump station
- Waste treatment plant
- Bunker and fuel storage

## Port Supporting Facilities

- Fire substation
- Employee port entrance
- Employee building
- Mosque
- First aid

- Port security
- Port entrance
- Gate houses
- Fire pump station
- Harbor Master
- Marine repair
- Cargo transfer corridor
- Railroad yard
- Potential passenger RO/RO ferry facilities
- Port roads and railroads
- Truck parking
- Truck Stop/Canteen
- Bus station
- Entrance/exit road

#### Industrial

- Foreign Trade Zone
- Foreign Trade Zone road
- Industrial area
- Industrial road

#### 6.5.1 SPECIAL FEATURES OF THE MASTER PLAN

- Tug basin has provision for 8 tugs and 10 harbor crafts. Repair facilities are provided.
- All Port related industry is placed on the east side of the Port to be convenient to the neobulk (raw material) supply berths and the barge canal for potential barge movement of products.
- Container berths and special handling heavy lift berths are adjacent to each other, allowing for utilization of the same crane rails, and also permitting future



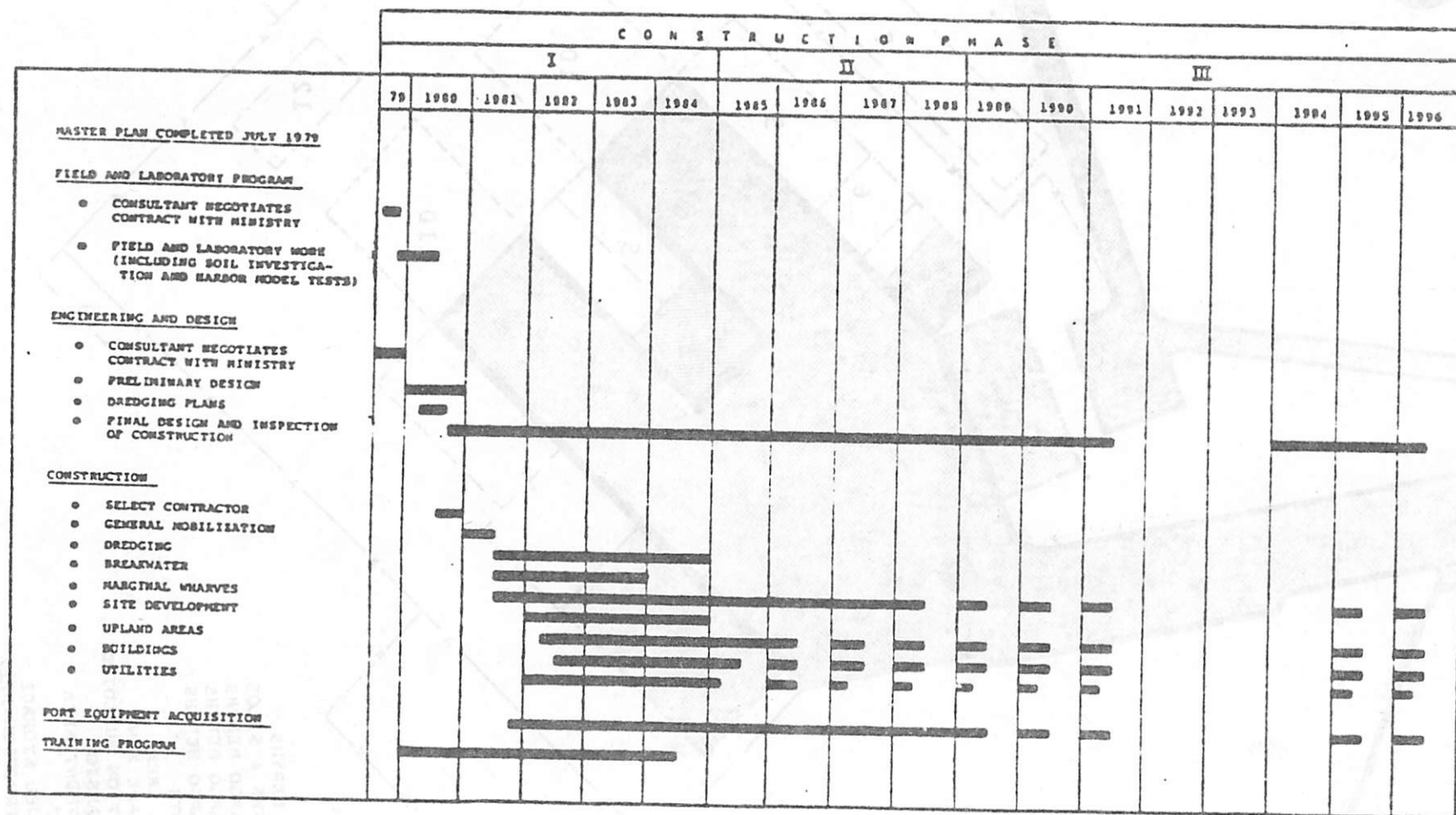
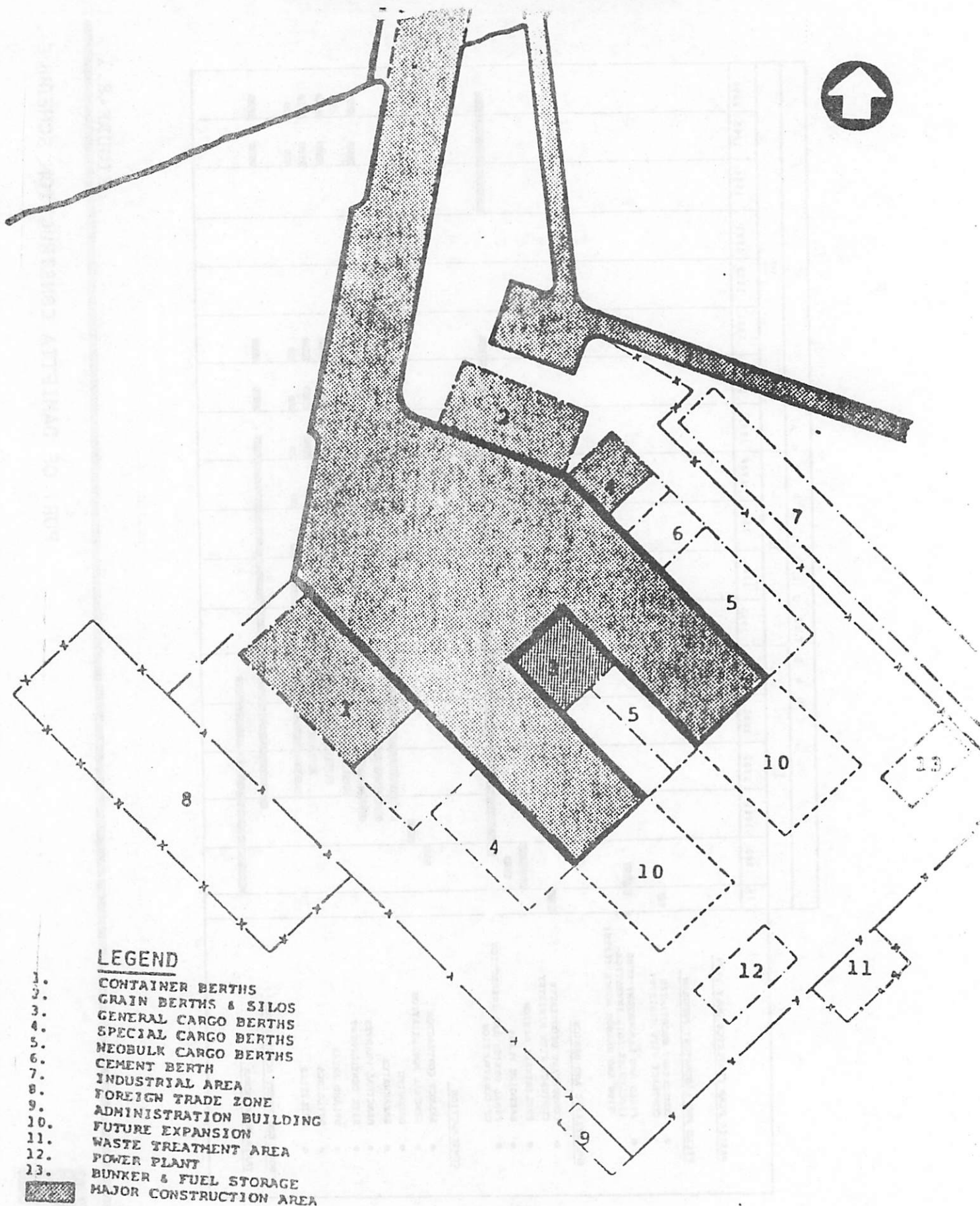


FIGURE 8.1

PORT OF DAMIETTA CONSTRUCTION SCHEDULE



SCALE 1:25,000

FIGURE 8.7.

PHASE I CONSTRUCTION  
1981 - 1983

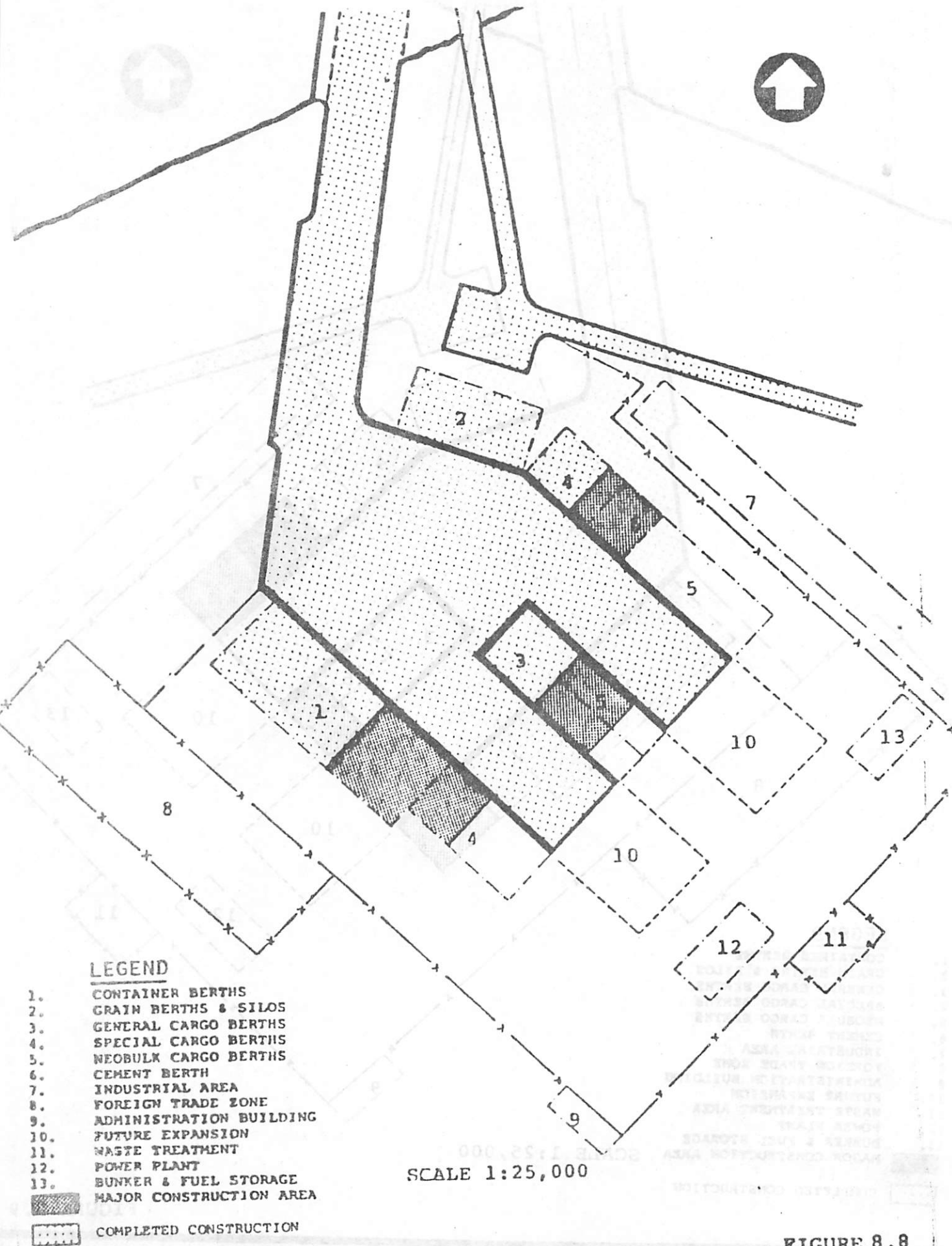
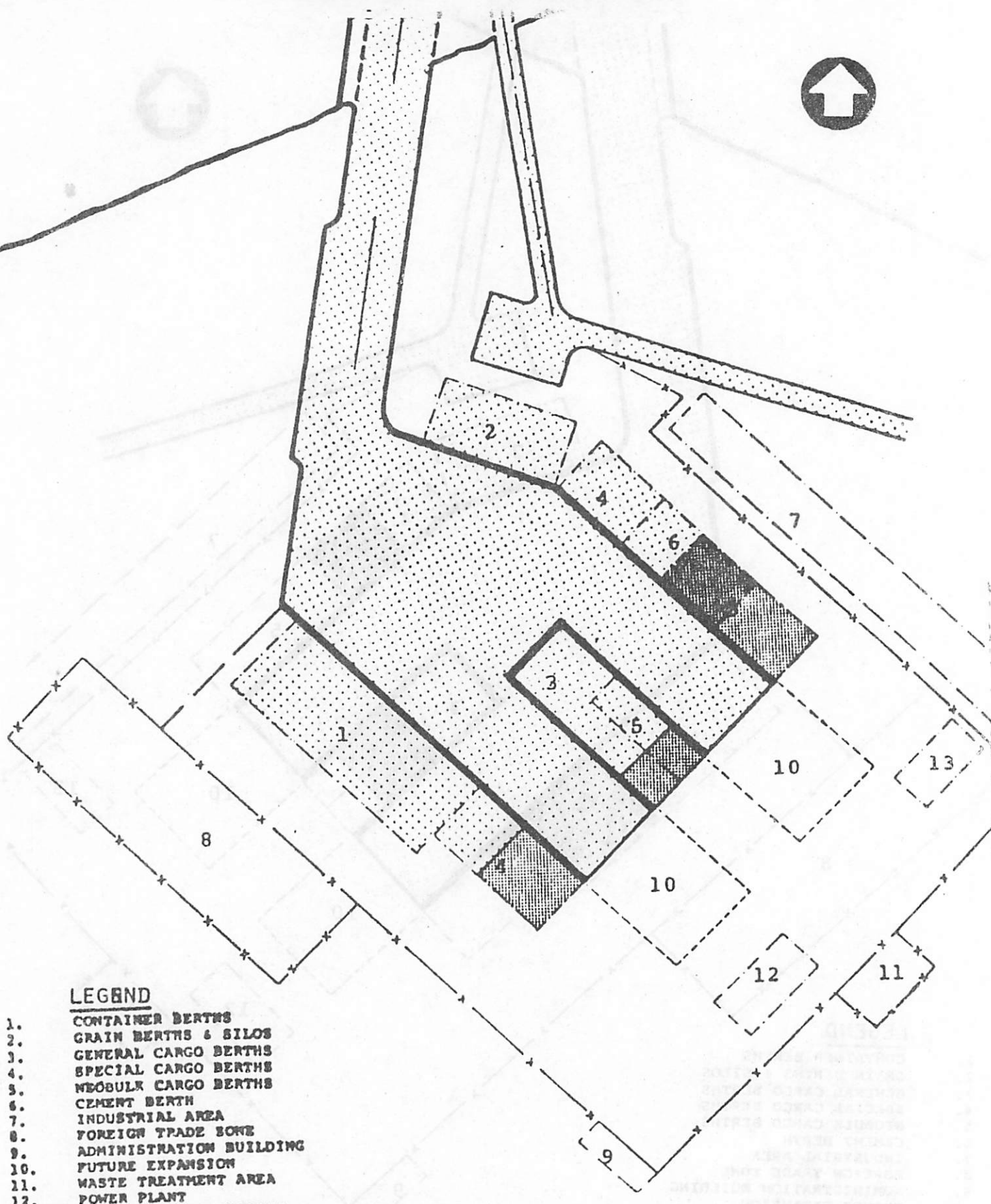


FIGURE 8.8

PHASE II CONSTRUCTION  
1985 - 1986



# **LEGEND**

- 1. CONTAINER BERTHS
- 2. GRAIN BERTHS & SILOS
- 3. GENERAL CARGO BERTHS
- 4. SPECIAL CARGO BERTHS
- 5. NEOSULX CARGO BERTHS
- 6. CEMENT BERTH
- 7. INDUSTRIAL AREA
- 8. FOREIGN TRADE ZONE
- 9. ADMINISTRATION BUILDING
- 10. FUTURE EXPANSION
- 11. WASTE TREATMENT AREA
- 12. POWER PLANT
- 13. BUNKER & FUEL STORAGE



MAJOR CONSTRUCTION AREA

COMPLETED CONSTRUCTION

SCALE 1:25,000

FIGURE 8.9

PHASE III CONSTRUCTION  
1989 - 1996

TABLE 8.1  
PORT OF DAMIETTA QUANTITY AND CONSTRUCTION COST ESTIMATE

ITEM	UNIT	UNIT PRICE		QUANTITIES			C O S T (IN THOUSANDS)							
				PHASE 1	PHASE 2	PHASE 3	PHASE 1 (1980-84)		PHASE 2 (1985-88)		PHASE 3 (1989-94)		TOTAL	
		\$	L.E.	1980-84	1985-88	1989-94	\$	L.E.	\$	L.E.	\$	L.E.	\$	L.E.
DREDGING	CM	1.25	0.15	50,500,000	—	—	63,125	7,575	—	—	—	—	63,125	7,575
EXCAVATION	CM	—	1.00	—	560,000	410,000	—	—	—	—	—	—	—	—
GRADING	SQM	8.10	—	5,700,000	—	—	570	—	—	560	—	410	—	970
FENCING	LM	25.00	4.00	9,200	—	—	230	37	—	—	—	—	370	—
ROADWAYS	SQM	—	16.00	196,000	45,000	44,000	—	3,136	—	720	—	700	—	4,560
PAVING AREAS	SQM	—	14.00	55,000	12,500	12,500	—	770	—	175	—	175	—	1,120
CONTAINER STORAGE AREA	SQM	—	16.00	200,000	100,000	100,000	—	3,200	—	1,600	—	1,600	—	6,400
DRAINAGE	L.S.	—	—	—	—	—	—	350	—	—	—	—	—	350
NAVIGATION AIDS	L.S.	—	—	—	—	—	—	150	—	—	—	—	—	150
BULKHEADS & WHARVES														
- 14.5 M	LM	24,200	1,500	1,750	630	50	42,350	2,625	15,246	945	1,210	75	50,006	3,645
- 12.0 M	LM	21,800	1,400	800	978	1,542	17,440	1,120	21,320	1,370	33,616	2,160	72,315	4,650
BARGE MARINA (-5 <sup>M</sup> )	LM	2,176	1,408	378	—	—	805	521	—	—	—	—	805	521
TUG MARINA	LS	—	—	—	—	—	326	136	—	—	—	—	326	136
RAILROADS	LM	205	58	14,700	—	—	3,019	848	—	—	—	—	3,019	848
BUILDINGS & OTHER STRUCTURES	LS	—	—	—	—	—	35,000	4,400	0,500	1,000	8,500	1,000	52,000	6,400
FIRE FIGHTING SYSTEM	LS	—	—	—	—	—	3,500	800	—	—	—	—	3,500	800
WATER SUPPLY SYSTEM	LS	—	—	—	—	—	4,500	850	—	—	—	—	4,500	850
TELEPHONE (COMMUNICATIONS)	LS	—	—	—	—	—	1,000	350	—	—	—	—	1,000	350
LIGHTING	LS	—	—	—	—	—	2,166	608	492	156	492	156	3,250	1,000
ELECTRICAL DISTRIBUTION	LS	—	—	—	—	—	1,720	550	300	126	300	126	2,320	802
SYNCHRO LIFT & EQUIPMENT	LS	—	—	—	—	—	3,686	—	—	—	—	—	3,686	—
BREAKWATERS	LS	—	—	—	—	—	6,300	7,300	—	—	—	—	6,300	7,300
SLOPE PROTECTION	SQM	20.00	10.00	304,000	—	—	7,680	3,840	—	—	—	—	7,680	3,840
FIELD OVERHEAD	LS	—	—	—	—	—	10,000	5,000	005.	906	885	906	11,570	6,812
MOBILIZATION	LS	—	—	—	—	—	7,500	250	—	—	5,000	150	12,500	400
DEMobilIZATION	LS	—	—	—	—	—	—	1,600	—	000	—	000	—	3,200
CONTINGENCIES @ 20%							211,067	25,040	46,743	0,350	50,000	0,262	307,352	42,547
							42,213	9,109	9,349	1,672	10,000	1,652	61,510	12,513
TOTAL							253,280	55,135	56,092	10,030	60,000	0,916	369,062	75,000

NOTE: ALL COSTS BASED ON FIRST HALF 1979 PRICES



TABLE 9.1  
EQUIPMENT LIST AND ESTIMATED COSTS

TYPE OF EQUIPMENT	FOR 1995 (12 BERTHS)				BY YEAR 1990 (20 BERTHS)				BY YEAR 2000 (20 BERTHS)			
	UNITS REQUIR- ED	UNIT <sup>1)</sup> COST	TOTAL COST <sup>1)</sup>		ADD. UNITS REQUIR.	UNIT COST	TOTAL COST <sup>1)</sup>		ADD. UNITS REQUIR.	UNIT COST	TOTAL COST <sup>1)</sup>	
			US\$	L.E.			US\$	L.E.			US\$	L.E.
CARGO HANDLING EQUIPMENT												
CRANE, CONTAINER, PORTAL	4	3000000	12000000	--	2	3000000	6000000	--	2	3000000	6000000	--
CRANE, MULTIPURPOSE, PORTAL 100 TON	2	1000000	2000000	--	1	1000000	1000000	--	--	--	--	--
CRANE, TRUCK MOUNTED 140 TON	2	450000	900000	--	2	450000	900000	--	2	450000	900000	--
CRANE, TRUCK MOUNTED 51 TON	6	300000	1800000	--	6	300000	1800000	--	2	300000	600000	--
CRANE, HYDRAULIC, 40 TON	4	170000	680000	--	4	170000	680000	--	4	170000	680000	--
CRANE, HYDRAULIC, 20 TON	6	80000	480000	--	6	80000	480000	--	4	80000	320000	--
CRANE, BRIDGE FOR CONTAINER STACKING	--	--	--	--	2	600000	1200000	--	2	600000	1200000	--
FORKLIFT, CONTAINER HANDLER, 40 TON	8	250000	2000000	--	--	--	--	--	--	--	--	--
FORKLIFT, 15 TON	10	60000	600000	--	6	60000	360000	--	6	60000	360000	--
FORKLIFT, 5 TON	12	38000	456000	--	20	30000	600000	--	20	30000	600000	--
FORKLIFT, 3 TON	20	20000	400000	--	20	20000	400000	--	20	20000	400000	--
FORKLIFT, LOW MAST, 3 TON	30	20000	600000	--	90	20000	1800000	--	60	20000	1200000	--
TERMINAL TRACTOR, 5TH WHEEL TRAILER, 20' CONTAINER	16	50000	800000	--	10	20000	200000	--	40	20000	800000	--
CHASSIS	20	50000	1000000	--	20	50000	1000000	--	10	20000	200000	--
TRAILER, 40' CONTAINER	25	13000	325000	--	20	13000	260000	--	10	13000	130000	--
CHASSIS	25	14000	350000	--	20	14000	280000	--	10	14000	140000	--
BORG ATTACHMENTS, HAPI OR EQUAL	6	2000	12000	--	3	2000	6000	--	1	2000	2000	--
LOADER, FRONT END, 1.5 CU. YD.	4	40000	160000	--	4	40000	160000	--	1	40000	40000	--
TRUCK, DUMP, 10 CU. YD.	6	50700	304200	--	2	50000	100000	--	1	50000	50000	--
TRUCK, FLATBED, 10 TON	20	25000	500000	--	20	25000	500000	--	10	25000	250000	--
TRUCK, TRACTOR, 6 X 4 HEAVY DUTY	2	70000	140000	--	1	70000	70000	--	--	--	--	--
TRUCK, TRACTOR, 6 X 4 MEDIUM DUTY	2	40000	80000	--	1	40000	40000	--	1	40000	40000	--
TRAILER, LOWBED, 35 TON	2	18000	36000	--	1	18000	18000	--	1	18000	18000	--
TRAILER, LOWBED, 60 TON	2	25000	50000	--	1	25000	25000	--	1	25000	25000	--
TRAILER, SEMI, FLATBED	10	16000	160000	--	30	16000	480000	--	10	16000	160000	--
TRUCK, FUEL, 1500 GAL.	1	100000	100000	--	--	--	--	--	1	100000	100000	--
TRUCK, LUBRICATION	2	65000	130000	--	--	--	--	--	1	65000	65000	--
TRUCK, SHOP, FULLY EQUIPPED	2	75000	150000	--	--	--	--	--	1	75000	75000	--
TRUCK, TRASH AND GARBAGE	2	80000	160000	--	2	80000	160000	--	1	80000	80000	--
TRUCK, AERIAL LIFTING	1	30000	30000	--	--	--	--	--	1	30000	30000	--
MOTOR GRADER	1	60000	60000	--	--	--	--	--	1	60000	60000	--
SWEEPER, SELF PROPELLED	2	80000	160000	--	1	80000	80000	--	--	--	--	--
MARKER LEG FOR GRAIN UNLOADING 2)	4	300000	1200000	--	--	--	--	--	--	--	--	--
BULK LOADER FOR GRAIN LOADING	1	2000000	2000000	--	--	--	--	--	--	--	--	--
PNEUMATIC CEMENT SYSTEM	--	--	--	--	1	6000000	6000000	--	--	--	--	--
CARGO PALLETS	50000	20	1000000	--	50000	20	1000000	--	50000	20	1000000	--
MISCELLANEOUS CARGO HANDLING EQUIPMENT	--	--	1000000	--	--	--	1000000	--	--	--	1000000	--
TOTAL	--	--	42923000	--	--	--	26127000	--	--	--	1575000	--
PLUS 15% FOR SPARE PARTS	--	--	6438000	--	--	--	3919000	--	--	--	2346000	--
TOTAL CARGO HANDLING EQUIPMENT	--	--	49361000	--	--	--	30046000	--	--	--	18116000	--

TO BE CONTINUED

**TABLE 9.1 (CONTINUED)**  
**EQUIPMENT LIST AND ESTIMATED COSTS**

TYPE OF EQUIPMENT	FOR 1985 (12 MONTHS)				BY YEAR 1990 (20 MONTHS)				BY YEAR 2000 (20 MONTHS)			
	UNITS REQUIRED	UNIT COST	TOTAL COST \$US	LE	ADD. UNITS REQUIRED	UNIT COST	TOTAL COST \$US	LE	ADD. UNITS REQUIRED	UNIT COST	TOTAL COST \$US	LE
<b>MARINE EQUIPMENT</b>												
TUG, HARBOR-2500 SHP, FIRE FIGHTER	8	1,500,000	12,000,000	--	--	--	--	--	--	--	--	--
PILOT BOAT - 40 FOOT 7/8 DIESEL-STEEL	5	96,000	480,000	--	--	--	--	--	--	--	--	--
LAUNCH - 24 FOOT 7/8 FIBER-GLASS	6	22,000	132,000	--	--	--	--	--	--	--	--	--
WORK BARGE - 15' X 40' WITH STIFFLEG	1	10,000	10,000	--	--	--	--	--	--	--	--	--
WORK BARGE - 25' X 60' WITH 20 TON CRANE	1	140,000	140,000	--	--	--	--	--	--	--	--	--
OIL SPILL SET - 2 BOSTON WHALER 17' - 1 DOCK CARRIER (25') OIL BOOM & SKimmer	2	15,000	30,000	--	--	--	--	--	--	--	--	--
HARBOR MAINT. UNIT - 25' BLUNTSON BARGE WITH HYDRAULIC LIFT BASKET HARBOR MULE DRIVE	1	65,000	65,000	--	--	--	--	--	--	--	--	--
<b>TOTAL PLUS 15% FOR SPARE PARTS</b>			12,865,000	--	--	--	--	--	--	--	--	--
			643,000	--	--	--	--	--	--	--	--	--
<b>TOTAL MARINE EQUIPMENT</b>			13,508,000	--	--	--	--	--	--	--	--	--
<b>OTHER EQUIPMENT</b>												
REPAIR SHOP EQUIPMENT & TOOLS	--	--	1,500,000	--	--	--	500,000	--	--	--	200,000	--
COMMUNICATIONS EQUIPMENT	--	--	100,000	--	--	--	20,000	--	--	--	10,000	--
AMBULANCE	2	50,000	100,000	--	2	50,000	1,000,000	--	--	--	--	--
FIRE ENGINE	2	100,000	200,000	--	--	--	--	--	1	100,000	100,000	--
FIRE PROTECTION EQUIPMENT (FIRED)	--	--	--	--	--	--	--	--	--	--	--	--
AUTOS AND PICKUP TRUCKS	20	10,000	200,000	--	10	10,000	100,000	--	5	10,000	50,000	--
BUSES	10	30,000	300,000	--	10	30,000	300,000	--	5	30,000	150,000	--
<b>TOTAL PLUS 15% FOR SPARE PARTS</b>			2,400,000	--	--	--	1,020,000	--	--	--	510,000	--
			340,000	--	--	--	153,000	--	--	--	77,000	--
<b>TOTAL OTHER EQUIPMENT</b>			2,740,000	--	--	--	1,173,000	--	--	--	587,000	--
<b>TOTAL COST ALL EQUIPMENT AND SPARE PARTS</b>			162,528,000	LE 22,800	--	--	\$31,219,000	LE 154,000	--	--	10,728,000	93,000

**NOTES**

- 1) COSTS ARE IN 1979 PRICES; MOBILE AND MARINE EQUIPMENT COSTS ARE CIP ALEXANDRIA.  
- EQUIPMENT REQUIRING ERECTION ON SITE IS ESTIMATED COST AFTER ERECTION.  
- LOCAL CURRENCY COST ESTIMATED AT 1/2 % - COVERS COST OF LOCAL START UP IN COUNTRY FREIGHT AND CONSULTANCY SERVICES.

- 2) ASSURES CONTAINER LINES WILL SUPPLY CRANES WHERE THEIR OPERATION PROCEDURES CALL FOR CONTAINER STORAGE OR CRANES (LEAD OPERATION).

- 3) CAN ALSO REQUEST FOR CRANE AND CRANE DELIVERED IN CONSTRUCTION CRANE.

GRAND TOTAL OF FOREIGN EXCHANGE	\$119,576,000
GRAND TOTAL OF LOCAL CURRENCY	LE 201,800

TABLE 10.1  
EMPLOYMENT IN PORT OPERATIONS

	1985	1990	1995	2000
STAFF REQUIREMENTS				
MANAGEMENT AND OFFICE	284	284	292	292
SUPERVISORS, FOREMEN & INSPECTORS	217	217	277	349
TECHNICIANS, REPAIRMEN & MECHANICS	2754	4033	4097	4169
EQUIPMENT OPERATORS	181	211	343	426
LABORERS	469	654	666	690
TOTAL	3906	5460	5675	5926



**TABLE 11.3**  
**BERTH PRODUCTIVITY AND AVERAGE SHIP LOADS**

HANDLING GROUP	1985 - 1990		1991 - 1995		1995 - 2000	
	TONS/BERTH/DAY	AVERAGE TONS PER VESSEL	TONS/BERTH/DAY	AVERAGE TONS PER VESSEL	TONS/BERTH/DAY	AVERAGE TON PER VESSEL
A1 Containerized	4,500 6,750 <sup>1</sup>	2,000	4,500 6,750 <sup>1</sup>	4,000	4,500 6,750 <sup>1</sup>	10.000
A2 General Cargo	600	1,000	600	2,000	720	3,000
B Neo Bulk (Bulk General)	2,000	10,000	2,000	10,000	2,000	10,000
C Special Cargo	2,000	5,000	2,000	5,000	2,000	5,000
D Dry Bulk	15,000	30,000	15,000	50,000	15,000	50,000

<sup>1</sup>productivity with 2 cranes

TABLE 11.4  
SHIP WAITING TIME (HOURS)

YEAR	1) TOTAL	2) TOTAL	DIFFEREN- TIAL
1985	144051	138609	5442
1986	144861	60408	84453
1987	156280	55770	100520
1988	186788	72921	113867
1989	237587	86306	151281
1990	549287	117664	431623
1991	372644	16603	356041
1992	526106	23890	502216
1993	632033	28989	603044
1994	353873	40062	313811
1995	699694	84813	614881
1996	493587	83940	409647
1997	519122	288382	230740
1998	740060	295557	444503
1999	770061	327765	412296
2000	969099	584866	384233

1)  
WITHOUT DAMIETTA

2)  
WITH DAMIETTA

To arrive at the cost of ship waiting time, the cargo volumes were divided into the average ship loads and a standard ship configuration was established for each cargo handling category. Provision was made for the trend toward more specialized and costly ships particularly in the growth in containerized traffic. The vessel characteristics are shown below:

<u>Cargo Handling Category</u>	<u>Ship</u>	<u>Cost In Port Per day</u>
A <sub>1</sub> - Containerized	1595 teu <sup>1</sup>	\$ 14,000
	300	7,000
A <sub>2</sub> - General Cargo	Breakbulk	8,000
B - Neobulk	15,000 DWT	8,000
C - Special	15,000 DWT	8,000
D - Drybulk	36,000 DWT	7,000
	100,000 DWT	10,000

The saving in waiting costs resulting from the port capacity provided by Damietta are shown on Table 11.5.

### 11.5.3 REDUCED HOLDING COSTS OF COMMODITIES (CARGO) RELATED TO VESSEL WAITING TIME

As demonstrated in the previous section, the transportation of Egypt's foreign trade would be characterized by major outlays for demurrage, and surcharge if the Port of Damietta is not built. Of even greater significance to the economy of Egypt, however, is the holding (or inventory) cost of the commodities tied-up in the harbors of Egypt while vessels await berth.<sup>2</sup>

<sup>1</sup>Teu - Twenty Foot equivalent container unit.

<sup>2</sup>Normal inventory costs of goods in transit were calculated as part of the Policy Study for the Ports of Egypt. They were one of the cost components entering into the transportation cost savings related to the Port of Damietta. The analysis carried-out in this study did not include waiting time related cost, owing to the unconstrained nature of economic analysis used in the study.

TABLE 11.5  
MEDITERRANEAN PORTS/SHIP WAITING TIME  
COST DIFFERENTIAL  
(WITHOUT DAMIETTA - WITH DAMIETTA)

	CARGO HANDLING CATEGORY					
	A <sub>1</sub>	A <sub>2</sub>	B	C	D	T <sub>1</sub>
1985	1165	-14826	2935	12413	1840	3527
1986	1606	-469	4056	9455	2200	16848
1987	1984	2130	5123	17492	1274	28003
1988	2930	4338	5101	18525	821	31715
1989	5296	13176	3631	19296	614	42013
1990	25058	69149	3605	22374	773	120959
1991	2037	69181	709	24827	7499	104253
1992	2280	69701	788	26381	7508	106658
1993	5395	70638	954	28067	7518	112572
1994	9949	70298	1606	29567	7379	118799
1995	4449	67307	2502	31099	7155	112512
1996	20203	60817	3286	32428	7143	123887
1997	20135	7761	4264	33985	7192	73337
1998	84547	9067	19971	36500	7571	157656
1999	76753	9854	19646	39883	8324	154460
2000	43271	10782	15525	41973	6472	118023

- INDICATES NEGATIVE DIFFERENTIAL STEMMING  
FROM CONGESTION IN DAMIETTA.

TOTALS IN THOUSANDS OF EGYPTIAN POUNDS.

An example will serve to illustrate the value of holding cost losses attributable to ship waiting time. For instance, it is forecasted that in 1985, 4.8 million tons of fertilizers would be exported via Mediterranean ports. (See Table A4, Volume 3) By 1995 fertilizer exports would reach 6.6 million tons. In that year average waiting time of drybulk vessels would be 468 hours at Egypt's Mediterranean Ports, if Damietta is not built. At the average value of 51 LE ton, the holding cost to Egyptian exporters would be:

Holding Cost :

$$\frac{6,600,000 \text{ tons} \times 468 \text{ hours waiting} \times 51 \text{ LE/ton} \times 12\% \text{ cost of Capital}}{8760 \text{ hours/year}} = 2,157,929 \text{ LE}$$

8760 hours/year

Thus, without the capacity of the Port of Damietta, Egyptian fertilizer exporters would, in 1995, have to finance each ton of product for 468 hours. The opportunity cost of this product tied-up awaiting shipment is assumed to equal 12% of its value, thus necessitating a holding cost per ton of export of 0.33 LE.

Utilizing the methodology illustrated above, the holding costs of all of Egypt's Mediterranean bound exports and imports in the absence of the Port of Damietta were calculated for each year from 1985 through 2010. A summary, the present value of these holding costs is as follows:

<u>Cargo Handling Category</u>	<u>Present Value for 25 Yrs. Million LE</u>
Containerized	128
Neobulk	253
Special Handling	82
Drybulk	137
TOTAL	<u>600</u>

TABLE 11.6  
TRANSSHIPMENT TERMINAL  
(REVENUES AND OPERATING COSTS)  
(NUMBERS IN THOUSANDS)

YEARS	TEU'S	REVENUE L.E.	OPERATING COST L.E.
1985	150	45135	32497
86	155	46639	33580
87	160	48144	34663
88	166	49949	35963
89	172	51755	37263
90	178	53560	38564
91	184	55366	39862
92	190	57171	41163
93	197	59277	42679
94	204	61384	44196
95	211	63490	45713
96	218	65596	47229
97	226	68603	48962
98	234	70411	50696
99	242	72818	52428
2000	250	75225	54162

#### 11.5.6 DEVELOPMENTAL BENEFITS

Beyond those benefits directly accruing to port activities, described in the previous sections, the construction of the Port of Damietta would cause the development of many other related non-port activities. Volume 3 of this report deals systematically with many of these benefits.

Analysis shows that several industrial activities, unique to the Damietta area, would develop in parallel and inter-dependently with the Port:

<u>Activity</u>	<u>2000 Employment</u>
<u>Export Base Industries</u>	
Wheat & Corn Storage	548
Fats & Oil Storage Terminal	175
Fish Processing	97
Meat Inspection & Storage	34
Lumber Sawmill	375
Animal Feed & Fertilizer Manufacture	250
Fruits, Nuts & Candy Manufacture	359
Rice Milling	3,460
Container Manufacturing	5,900
Foreign Trade Zone	<u>11,242</u>
TOTAL EXPORT BASE	28,366
Commerce	9,000
Transportation	5,500
Services	19,200
Agriculture	<u>7,700</u>
TOTAL PORT INDUCED	67,800

With the addition of port employment, the total employment induced by the port would equal 73,700 by the year 2000.

TABLE 11.7  
VEGETABLE EXPORT BENEFITS

YEAR	VEGETABLE EXPORTS (TONS)	BENEFIT (EGYPTIAN POUNDS)	PRESENT VALUE OF BENEFITS (12% DISCOUNT)
1985	43400	2213400	2213400
1986	138760	7076760	6318535
1987	234120	11940120	9518590
1988	329480	16803480	11960385
1989	424840	21666840	13769668
1990	520200	26530200	15053947
1991	615560	31393560	15904954
1992	710920	36256920	16400789
1993	806280	41120280	16607791
1994	901640	45983640	16582161
1995	997000	50847000	16371373
1996	1092360	55710360	16015397
1997	1187770	60573720	15547765
1998	1283080	65437080	14996489
1999	1378440	70300440	14384862
2000	1473800	75163800	13732145
2001	1521480	77595480	12657503
2002	1569160	80027160	11655502
2003	1616840	82458840	10722913
2004	1664520	84890520	9856366
2005	1712200	87322200	9052410
2006	1759880	89753880	8307584
2007	1807560	92185560	7618446
2008	1855240	94617240	6981612
2009	1902920	97048920	6393786
2010	1950600	99480600	5851777
			304476148



TABLE 11.8  
FISH CLEANING, PROCESSING, PACKAGING AND  
FREEZING BENEFITS

YEARS	ANNUAL PRODUCTION (TONS)	BENEFITS L.E.	PRESENT VALUE OF BENEFITS 12% DISCOUNT L.E.
1985	10600	2666200	1599720
1986	10600	2666200	1428321
1987	10600	2666200	1275286
1988	10600	2666200	1138648
1989	10600	2666200	1016650
1990	11600	2959700	1007647
1991	11600	2959700	899685
1992	11600	2959700	803290
1993	11600	2959700	717223
1994	11600	2959700	640378
1995	11600	2959700	571766
1996	11600	2959700	510505
1997	11600	2959700	455808
1998	11600	2959700	406971
1999	11600	2959700	363367
2000	11600	2959700	324435
2001	11600	2959700	289674
2002	11600	2959700	258637
2003	11600	2959700	230926
2004	11600	2959700	206184
2005	11600	2959700	184093
2006	11600	2959700	164368
2007	11600	2959700	146758
2008	11600	2959700	131034
2009	11600	2959700	116994
2010	11600	2959700	104459
			14992840

TABLE 11.9  
CONTAINER MANUFACTURING BENEFITS

YEARS	CONTAINER PRODUCTION 20 FOOT EQUIVALENT UNITS		BENEFITS		PRESENT VALUE OF BENEFITS 12% DISCOUNT
	DRY CARGO	REFRIGERATED CARGO	DRY CARGO	REFRIGERATED	
1985	11685	615	4469513	352856	4822369
1986	13226	696	5058945	399330	4873460
1987	14970	788	5726025	452115	4925175
1988	16944	892	6481080	563423	5014138
1989	19179	1009	7335968	578914	5030050
1990	21708	1142	8303310	655223	5083312
1991	23293	1225	8909573	702844	4869949
1992	24993	1315	9559823	754481	4665667
1993	26817	1411	10257503	809561	4469801
1994	28775	1514	11006438	868658	4282278
1995	30875	1625	11809688	932344	4102593
1996	35149	1850	13444493	1061438	4170108
1997	40015	2106	15305738	1208318	4238746
1998	45555	2398	17424787	1375853	4308621
1999	51862	2730	19837215	1566379	4379591
2000	59042	3108	22583565	1783215	4451717
2001	63129	3323	24146843	1906571	4249876
2002	67499	3553	25818368	2038534	4057200
2003	72171	3799	27605408	2179676	3873240
2004	77167	4062	29516378	2330573	3697647
2005	82508	4343	31559310	2491796	3529968
2006	88220	4644	33744150	2664495	3369970
2007	94326	4965	36079695	2848669	3217138
2008	100856	5309	38577420	2046039	3071310
2009	107837	5677	41247653	3257179	2932072
2010	115302	6070	44103015	3482663	2799147
					108485143

TABLE 11.10

PROJECT COST - PHASE I  
TOTALS IN THOUSANDS

	1980		1981		1982		1983		1984		TOTAL	
	\$	L.E.	\$	L.E.	\$	L.E.	\$	L.E.	\$	L.E.	\$	L.E.
PORT SUPERSTRUCTURE	14243	2347	32047	5280	32047	5280	32047	5280	32048	5280	142432	23467
PORT INFRASTRUCTURE	5113	1563	11505	3516	11505	3516	11505	3516	11507	3518	51135	15629
MISCELLANEOUS	9500	1250	2000	1000	2000	1000	2000	1000	2000	2600	17500	6850
TOTAL CONSTRUCTION	28856	5160	45552	9796	45552	9796	45552	9796	45555	11398	211067	45946
PLUS 20% CONTINGENCY	34627	6192	54662	11755	54662	11755	54662	11755	54667	13678	253280	55135
LAND		225										225
EQUIPMENT									65629	33	65629	33
TOTAL	34627	6417	54662	11755	54662	11755	54662	11755	120296	13711	318909	55393
TOTAL COST IN L.E.		35850		58218		58218		58218		115962		326466

NUMBERS IN THOUSANDS

TABLE 11.11

## PROJECT COST 1985 - 1996

	1985		1986		1987		1988		1989		1990		1991		1992		1993		1994		TOTAL 1985-1996		PROJECT TOTAL	
	\$	L.E.	\$	L.E.	\$	L.E.	\$	L.E.	\$	L.E.	\$	L.E.	\$	L.E.	\$	L.E.	\$	L.E.	\$	L.E.	\$	L.E.	\$	L.E.
PORT SUPERSTRUCTURE	9141	719	9141	719	9141	719	9143	710	6965	529	6965	529	6965	529	6965	529	6965	529	6965	529	71791	5520	213023	2947
PORT INFRASTRUCTURE	2323	944	2323	944	2323	944	2323	945	1050	752	1050	752	1050	752	1050	752	1050	752	1050	752	10504	7530	68719	2316
MISCELLANEOUS	171	226	171	226	171	226	172	1020	177	101	177	101	177	101	5177	331	177	982	6570	3562	26070	1041		
TOTAL CONSTRUCTION	11635	1899	11635	1899	11635	1899	11638	2691	9000	1462	9000	1462	9000	1462	14000	1612	9002	2264	94545	16620	307612	67566		
+20% CONTINGENCY	13962	2267	13962	2267	13962	2267	13966	3229	10000	1754	10000	1754	10000	1754	16800	1934	10802	2710	115854	19964	369134	75000		
LAND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EQUIPMENT	7805	39	7805	39	7805	39	7804	39	3746	19	3746	19	3746	19	3746	19	3746	17	69947	248	115578	20		
TOTAL	21767	2306	21767	2306	21767	2306	21770	3268	14546	1773	14546	1773	14546	1773	20546	1953	14546	2725	165801	20193	406710	75566		
TOTAL IN L.E.		20808		20808		20808		21772		14137		14137		14137		19417		15100		161124		48770		

**TABLE 11.12**  
**COST AND BENEFIT STREAMS**

YEAR	COSTS			BENEFITS							
	PROJECT COST	TRANS-SHIPMENT OPERATING COST	TOTAL COSTS	TRANSPORT COST SAVINGS	REDUCED SHIPWAITING TIME	HOLDING COST SAVING	TRANS-SHIPMENT REVENUES	CONTAINER REPAIR NET REVENUE	TOTAL DIRECT BENEFITS	SELECTED DEVELOPMENTAL BENEFITS	TOTAL BENEFITS
1980	35478		35478								
1981	57513		57513								
1982	57513		57713								
1983	57513		57513								
1984	115141		115141								
1985	20672	32497	53169	9635	3527	6871	45135	604	65772	9702	75474
1986	20672	33580	54252	9813	16848	9555	46639	665	83520	14331	97851
1987	20672	34663	55335	9997	28003	14224	48144	731	101099	18991	120090
1988	21519	35963	57542	10187	31715	18462	49949	805	111118	23715	134833
1989	14032	37263	51295	10385	42013	15572	51755	885	120610	28391	149001
1990	14032	38564	52596	10589	120959	27545	53566	974	213627	33293	246920
1991	14032	39862	53894	10801	104253	20234	55366	1071	191725	37763	229488
1992		41163	41163	11020	106658	45454	57171	1178	221481	42261	263742
1993		42679	42679	11250	112572	50146	59277	1296	234541	46785	281326
1994		44196	44196	11486	118799	57298	61384	1425	250392	51333	301725
1995	19301	45713	65014	11732	112512	97619	63490	1568	286921	55903	342824
1996	14937	47229	62166	11988	123887	61090	65596	1725	264286	60731	325017
1997		48962	48962	12235	73337	106427	68003	1897	261899	65572	327471
1998		50696	50696	12531	157656	156018	70411	2087	398703	70424	469127
1999		52428	52428	12818	154460	181097	72818	2296	423489	75286	498775
2000		54162	54162	13118	118023	140114	75225	2525	349005	80156	429161
2001		56036	56036	13380	134456	159945	77828	2777	388386	82328	470714
2002		57975	57975	13648	153383	181392	80521	3055	431999	84515	516514
2003		59981	59981	13921	174856	205957	83307	3361	481402	86717	568119
2004		62056	62056	14199	199336	239437	86189	3697	542858	88932	631790
2005		64203	64203	14483	227243	266526	89171	4067	601490	91159	692649
2006		66425	66425	14773	259057	303793	92257	4473	674353	93398	767751
2007		68723	68723	15068	296325	253473	95489	4921	664276	95647	759923
2008		71101	71101	15368	336671	264027	98751	5413	720230	97907	818137
2009		73561	73561	15672	383805	320640	102168	5954	824239	100776	929015
2010		76106	76106	15991	437537	519878	105703	6550	1085659	102454	1188113

**NOTES**

Foreign Exchange component expressed in U.S. Dollars and converted to LE at a rate of 1 LE = \$0.85 U.S.

LE construction cost labor component has been shadow priced at 80% of prevailing salary level

TABLE 11.13

**PRESENT VALUE OF  
COST AND BENEFIT STREAMS  
DISCOUNT RATE: 12%**

YEAR	COSTS			BENEFITS					
	PROJECT COST	TRANS- SHIPMENT OPERATING COST	TOTAL COSTS	TRANSPORT COST SAVINGS	REDUCED SHIPWAITING TIME	HOLDING COST SAVING	TRANS- SHIPMENT REVENUES	CONTAINER REPAIR NET REVENUE	SELECTED DEVELOP- MENTAL BENEFITS
1580-84	434927		434927						
1985	20672	32497	53169	9635	3527	6871	45135	604	9702
1986	18457	29982	48439	8762	14718	8582	41642	594	12795
1987	16480	27633	44113	7970	22324	12696	38380	583	15139
1988	15360	25598	40958	7251	22574	13298	35553	573	16879
1989	8918	23681	32599	6600	26700	9680	32891	563	18043
1990	7962	21882	29844	6008	68635	18561	30391	553	18891
1991	7109	20195	27304	5472	52818	9951	28050	543	19132
1992		18620	18620	4985	48247	20573	25861	533	19116
1993		17237	17237	4544	45466	20285	23941	523	18896
1994		15938	15938	4142	42840	20714	22136	514	18511
1995	6214	14718	20932	3777	36226	33770	20442	505	17999
1996	4294	13577	17871	3466	35614	17562	18857	496	17458
1997		12567	12567	3140	18824	27566	17455	487	16831
1998		11618	11618	2872	36131	39826	16136	478	16139
1999		10728	10728	2623	31606	37070	14900	470	15405
2000		9895	9895	2397	21562	25451	13743	461	14644
2001		9141	9141	2183	21933	25821	12695	453	13429
2002		8444	8444	1988	22399	26479	11727	445	12309
2003		7800	7800	1810	22738	26780	11431	437	11276
2004		7205	7205	1649	23144	27364	10007	429	10326
2005		6656	6656	1501	23558	27631	9244	422	9450
2006		6148	6148	1367	23978	28047	8539	414	8645
2007		5679	5679	1245	24406	28554	7891	407	7904
2008		5246	5246	1134	24842	29242	7287	399	7224
2009		4846	4846	1032	25286	29897	6731	392	6639
2010		4477	4477	940	25737	30610	6218	385	6027
<b>TOTAL</b>	<b>540393</b>	<b>372008</b>	<b>912401</b>	<b>98493</b>	<b>765773</b>	<b>602881</b>	<b>517283</b>	<b>12663</b>	<b>358809</b>

TOTAL DIRECT BENEFITS

1997093

TOTAL DIRECT AND SELECTED  
DEVELOPMENT BENEFITS

2355902

TABLE 11.14  
FINANCIAL PROFORMA

	1985	1986	1987	1988	1989
CARGO THROUGHPUT	7418	7819	8193	8717	9222
DIRECT OPERATING COST PER TON	38499 5.19	40581 5.19	42522 5.19	45503 5.22	48323 5.24
INDIRECT OPERATING COST PER TON	7715 1.04	8132 1.04	8521 1.04	9066 1.04	9592 1.04
TOTAL OPERATING COST PER TON	46214 6.23	48713 6.23	51043 6.23	54569 6.26	57914 6.28
CAPITAL COST PER TON	37200 5.01	37200 4.76	37200 4.54	37200 4.27	37200 4.03
DEPRECIATION PER TON	5786 .78	6490 .83	7210 .88	8543 .98	11363 1.22
TOTAL COST	89200	92403	95453	100312	106457
REQUIRED PORT RATE (BREAKDOWN)	12.02	11.82	11.65	11.51	11.54
PROBABLE TARIFF RATE	14.43	14.43	14.43	14.43	14.43
GROSS REVENUE AT TARIFF RATE	107042	112828	118225	125786	133075
NET REVENUE AT TARIFF RATE	17842	20425	22772	25474	26616

ALL NUMBERS IN THOUSANDS