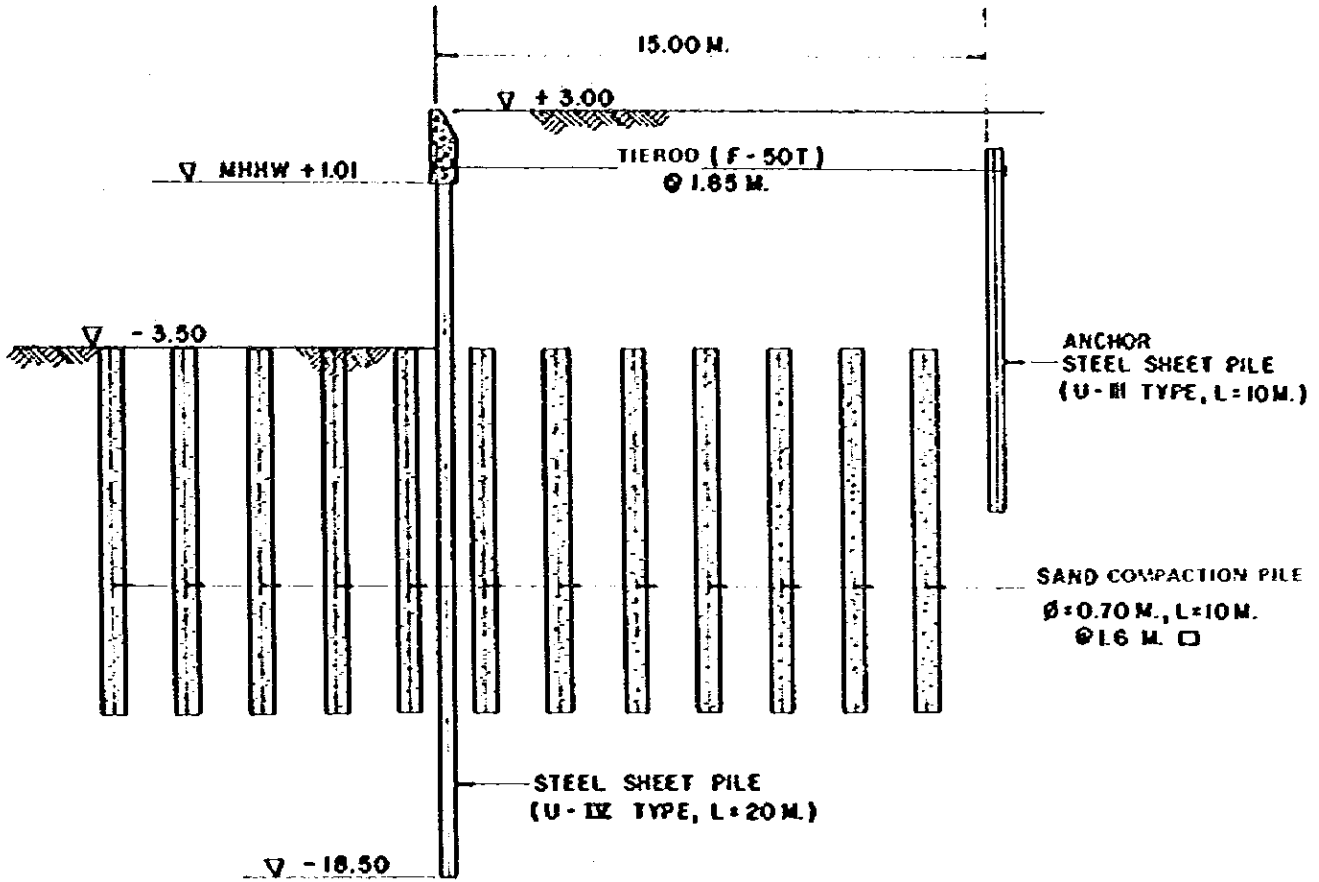


TYPE	SEABED ELEV. (M.)	SIZE & DIMENSIONS											
		PC SHEET PILES (M.)			JUNCTION PIPES (M.)			TIER ROD			RC ANCHOR WALL (M.)		RC HEAD CROWN WALL
		A	B	C	DIAMETER (D)	THICKNESS (T)	LENGTH (L)	TENSION FORCE (F)	LENGTH (L)	SPACING @ 3 M.	W	H	
VI	± 0.00	0.60	0.30	10	0.080	0.006	4	30 T	12 M.	1.80	0.40	2.50	—
VII	- 1.00	0.60	0.35	12	0.080	0.006	5	50 T	14 M.	1.80	0.40	2.50	—

TYPE	SEABED ELEV. (M.)	LENGTH (M.)	QUANTITIES per L.M. (Wall Length)				
			P. C. (pcs.)	JUNCTION PIPE (T)	TIER ROD (pcs.)	RC ANCHOR WALL (cu. m.)	RC HEAD CROWN WALL (cu. m.)
VI	± 0.00	4245	1.66	0.076	0.555	1.0	1.70
VII	- 1.00	1090	1.66	0.095	0.555	1.0	1.70

Appendix I-131  
 Fig. IV-6-22

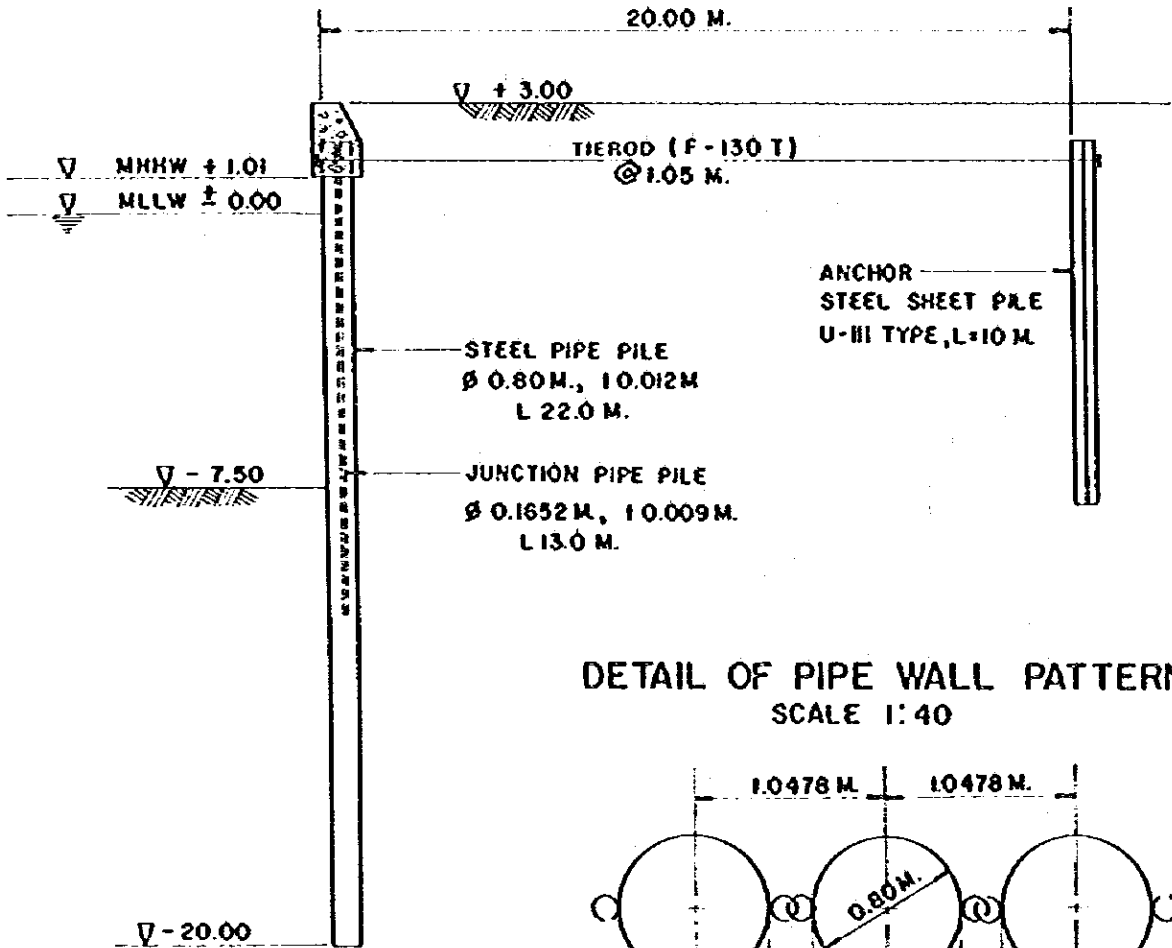
TYPICAL SECTION OF STEEL SHEET PILE (TYPE VIII)



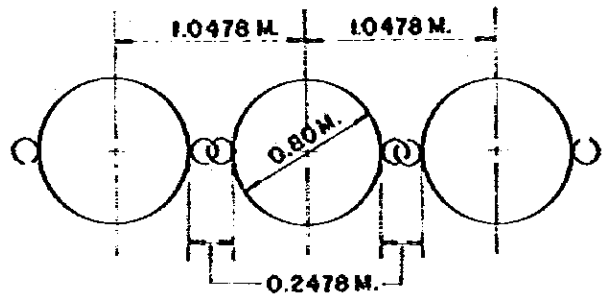
TYPE	SEABED ELEV. (M.)	QUANTITIES PER LM (WALL LENGTH)					HEAD CROWN WALL (cv. m)
		STEEL SHEET PILE (U-IX TYPE) (T)	ANCHOR STEEL SHEET PILE (U-II TYPE) (T)	TIEROD (F-130T) (pcs.)	SAND PILE		
					SAND (cv. m)	(pcs.)	
VIII	- 3.5	3.805	1.5	0.54	38.5	10	L7

Appendix I-132  
 Fig. IV-6-23

TYPICAL SECTION OF INTERLOCKED STEEL PILE (TYPE IX)



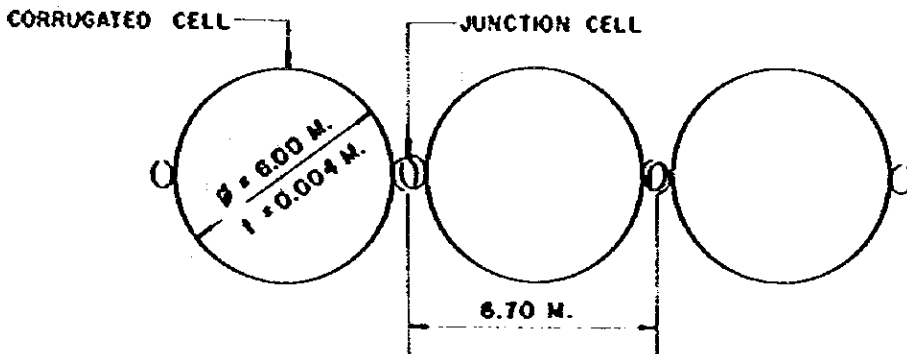
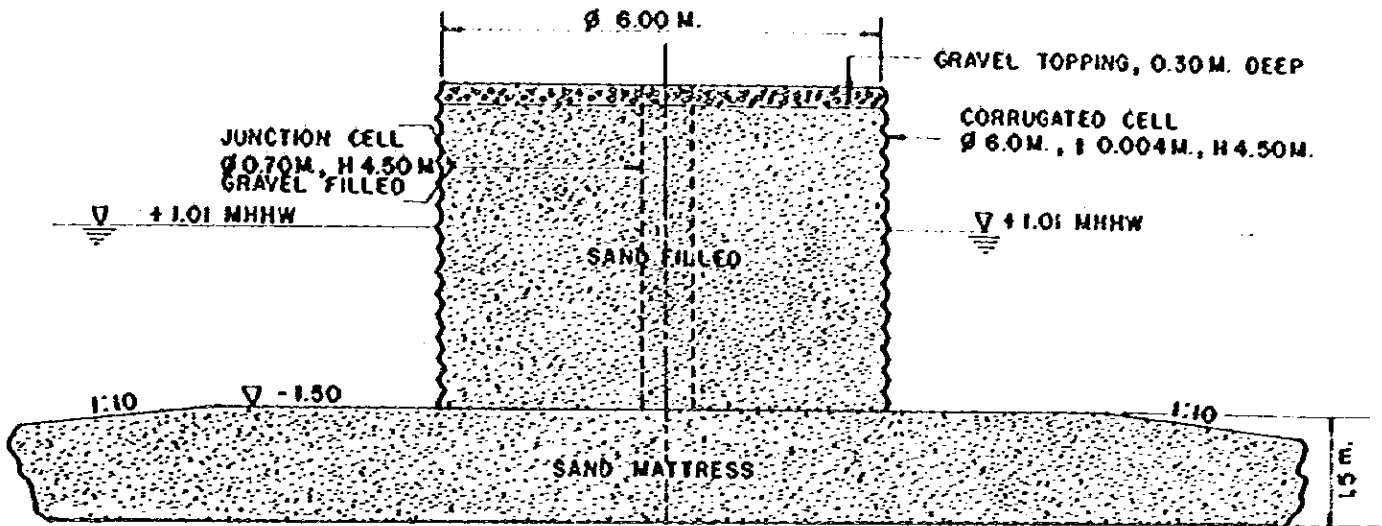
DETAIL OF PIPE WALL PATTERN  
 SCALE 1:40



TYPE	SEABED ELEV. (M.)	QUANTITIES PER LM (Wall Length)				
		STEEL PIPE PILE (T)	JUNCTION PIPE PILE (T)	TIEROD (F-130T) (pcs.)	ANCHOR STEEL SHEET PILE (T)	HEAD CROWN WALL (cu. m)
IX	- 7.5	4.90	0.86	0.95	0.5	2.50

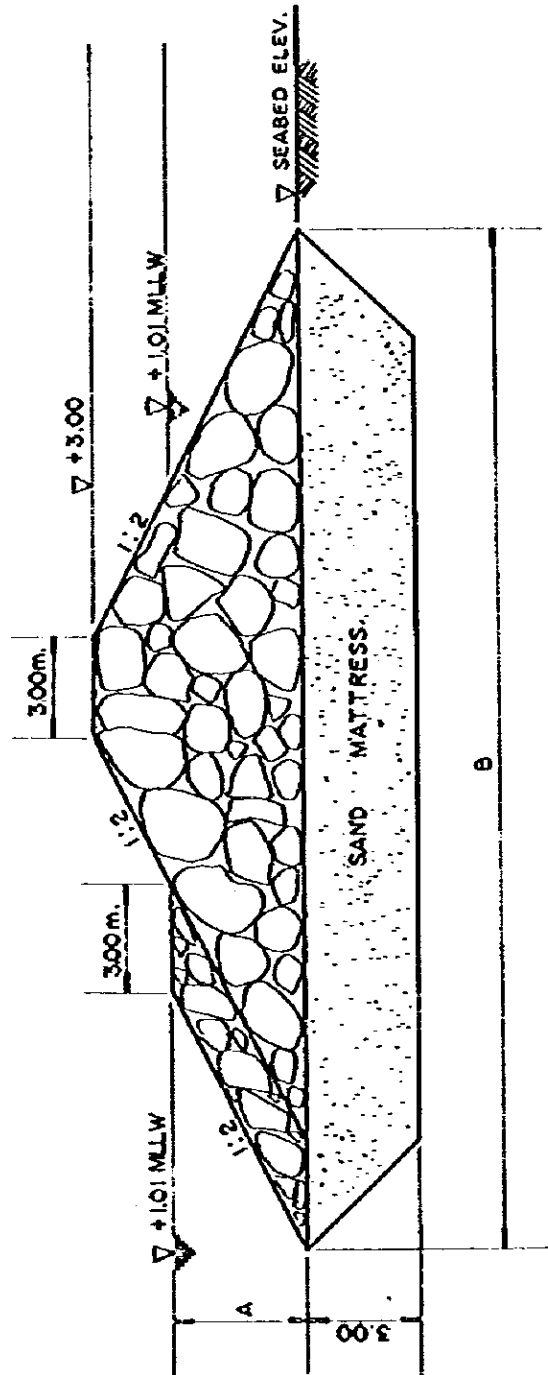
Appendix I-133  
Fig. IV-6-24

TYPICAL SECTION OF CORRUGATED CELL (TYPE X)



DESCRIPTION & SIZE (M)	QUANTITY/pc.	QUANTITY/L.M. (wall leng. )
CORRUGATED CELL $\phi = 6.00$ M. $t = 0.004$ M. $H = 4.50$ M.	3.81 ton	0.568 ton
JUNCTION CELL $\phi = 0.70$ M. $t = 0.004$ M. $H = 4.50$ M.	1.189 ton	0.177 ton
FILLING SAND	127 cu.m.	19 cu.m.
SANDMATTRESS	—	40.5 cu.m.
FILLING GRAVEL for JUNCTION PIPE	—	0.132 cu.m.

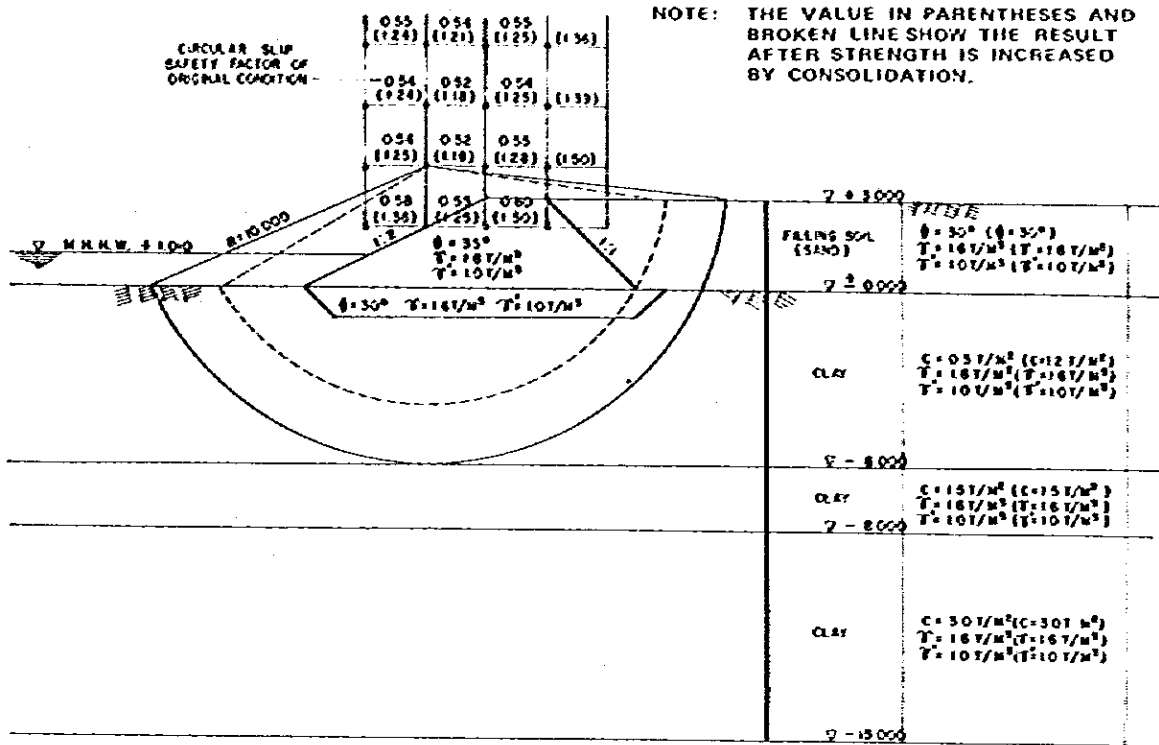
Appendix I-134  
 Fig. IV-6-25 TYPICAL SECTION OF BREAKWATER STRUCTURE (TYPE XI, XII, XIII)



TYPE	SEA BED ELEV. (DATUM MLLW)	SIZE OF BREAKWATER		QUANTITY PER LM	
		A	B	ROCK (cu. m.)	SANDMAT (cu. m.)
XI	- 2.5	3.5	28	95.75	75
XII	- 3.00	4.0	30	111.00	81
XIII	- 3.50	4.5	32	127.25	87

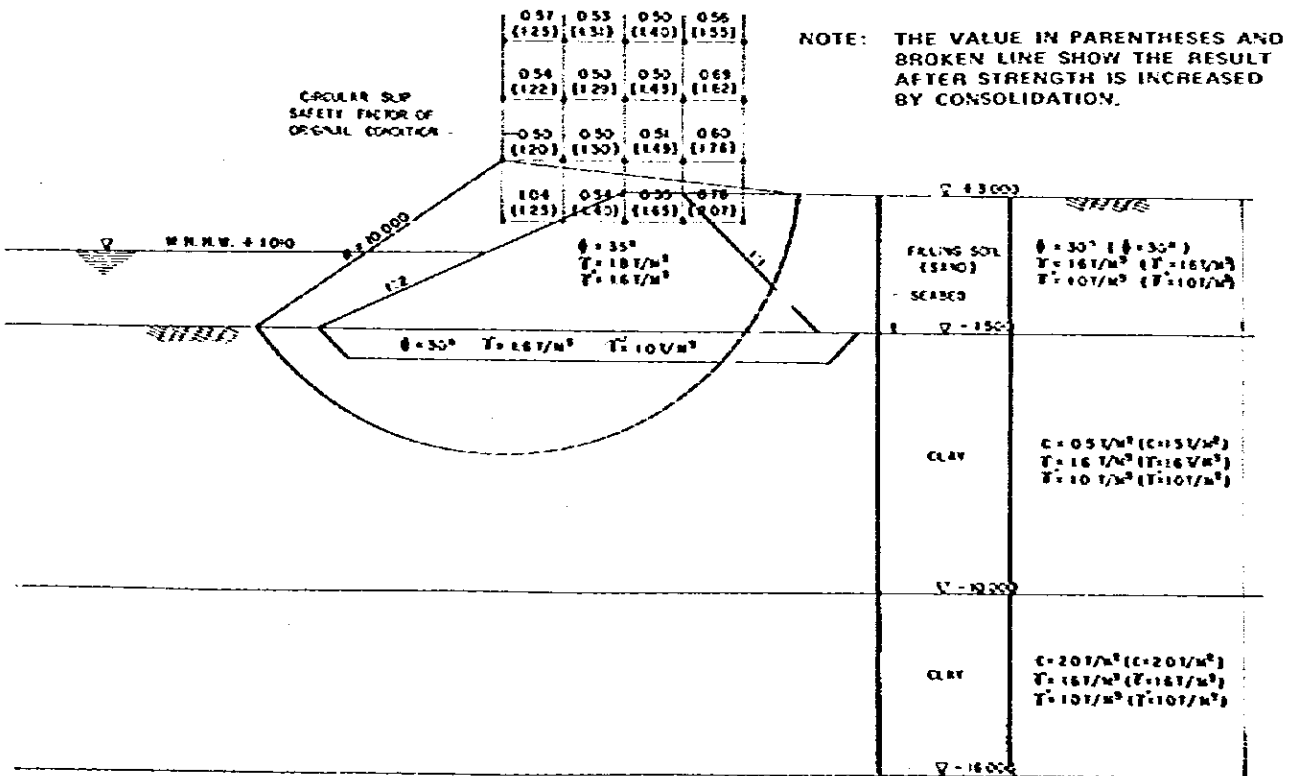
Appendix I-135  
Fig. IV-6-26

STABILITY ANALYSIS OF ROCK BULKHEAD (I)



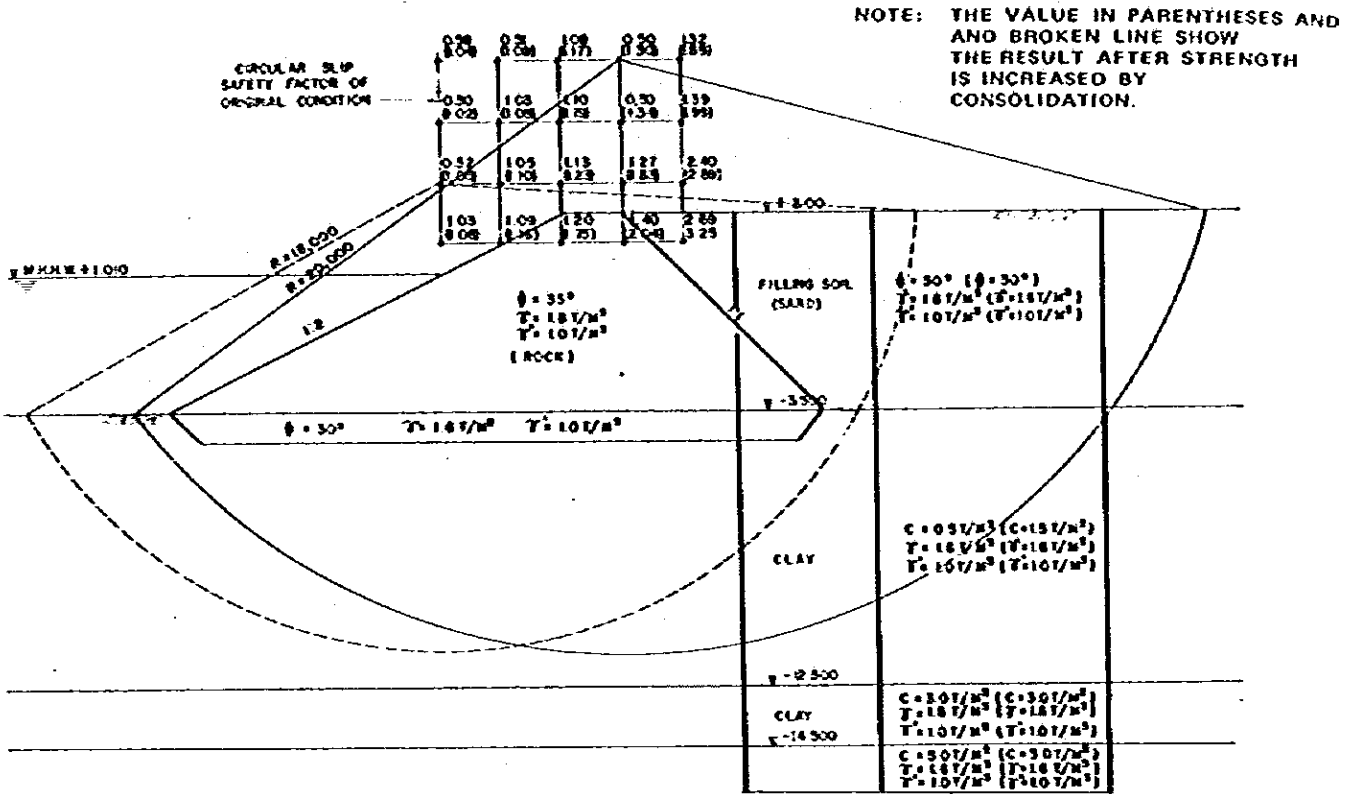
Appendix I-136  
Fig. IV-6-27

STABILITY ANALYSIS OF ROCK BULKHEAD (II)



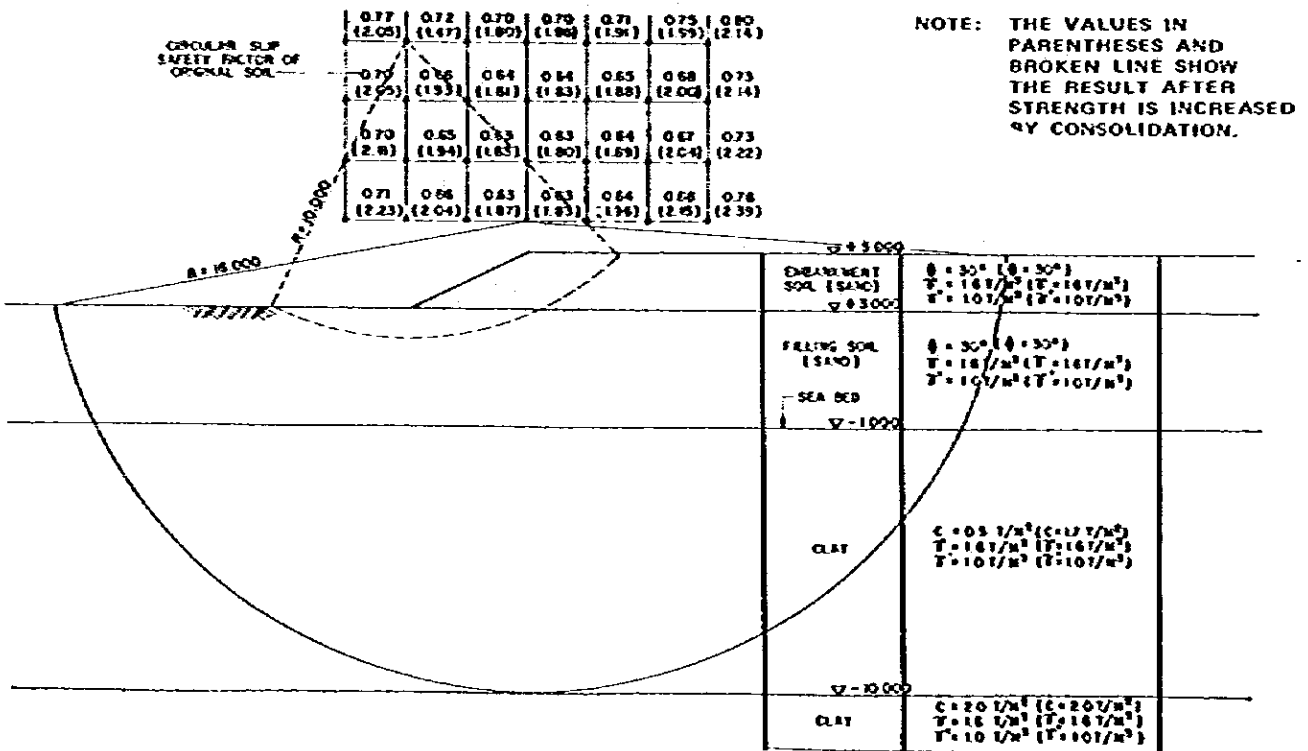
Appendix I-137  
Fig. IV-6-28

STABILITY ANALYSIS OF ROCK BULKHEAD (III)



Appendix I-138  
Fig. IV-6-29

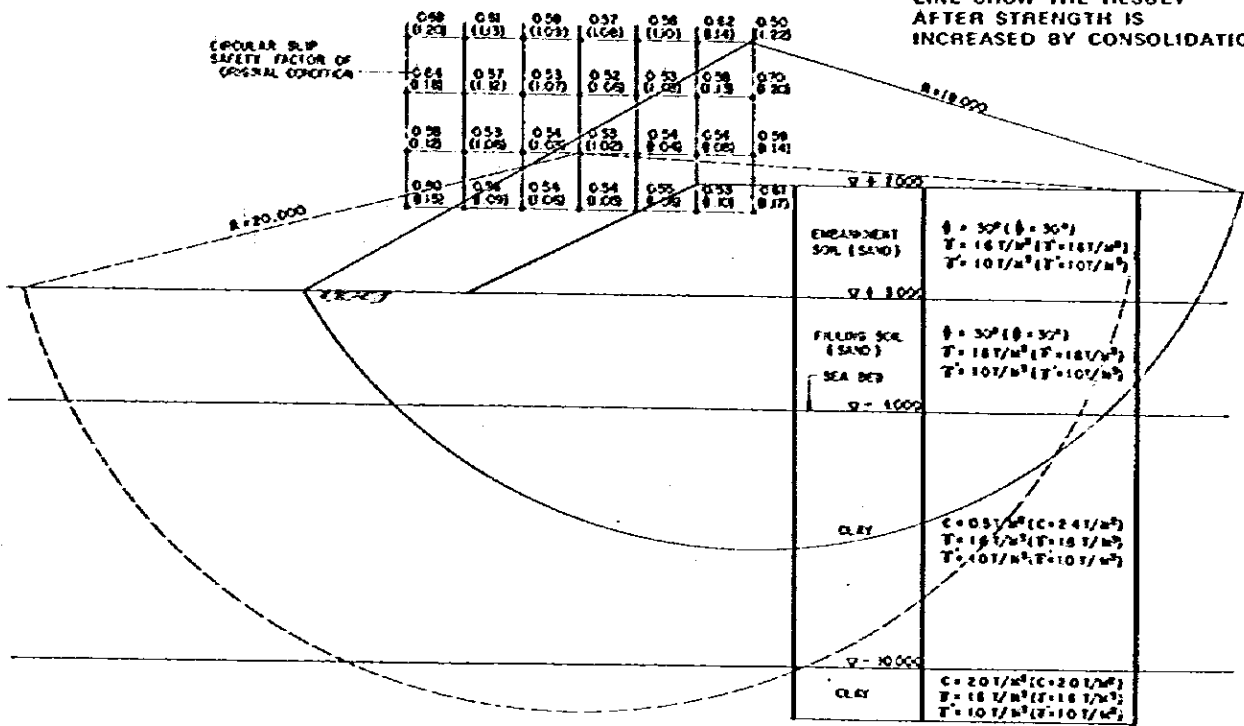
STABILITY ANALYSIS OF EMBANKMENT (I)



Appendix I-139  
 Fig. IV-6-30

STABILITY ANALYSIS OF EMBANKMENT (III)

NOTE: THE VALUES IN PARENTHESES AND BROKEN LINE SHOW THE RESULT AFTER STRENGTH IS INCREASED BY CONSOLIDATION



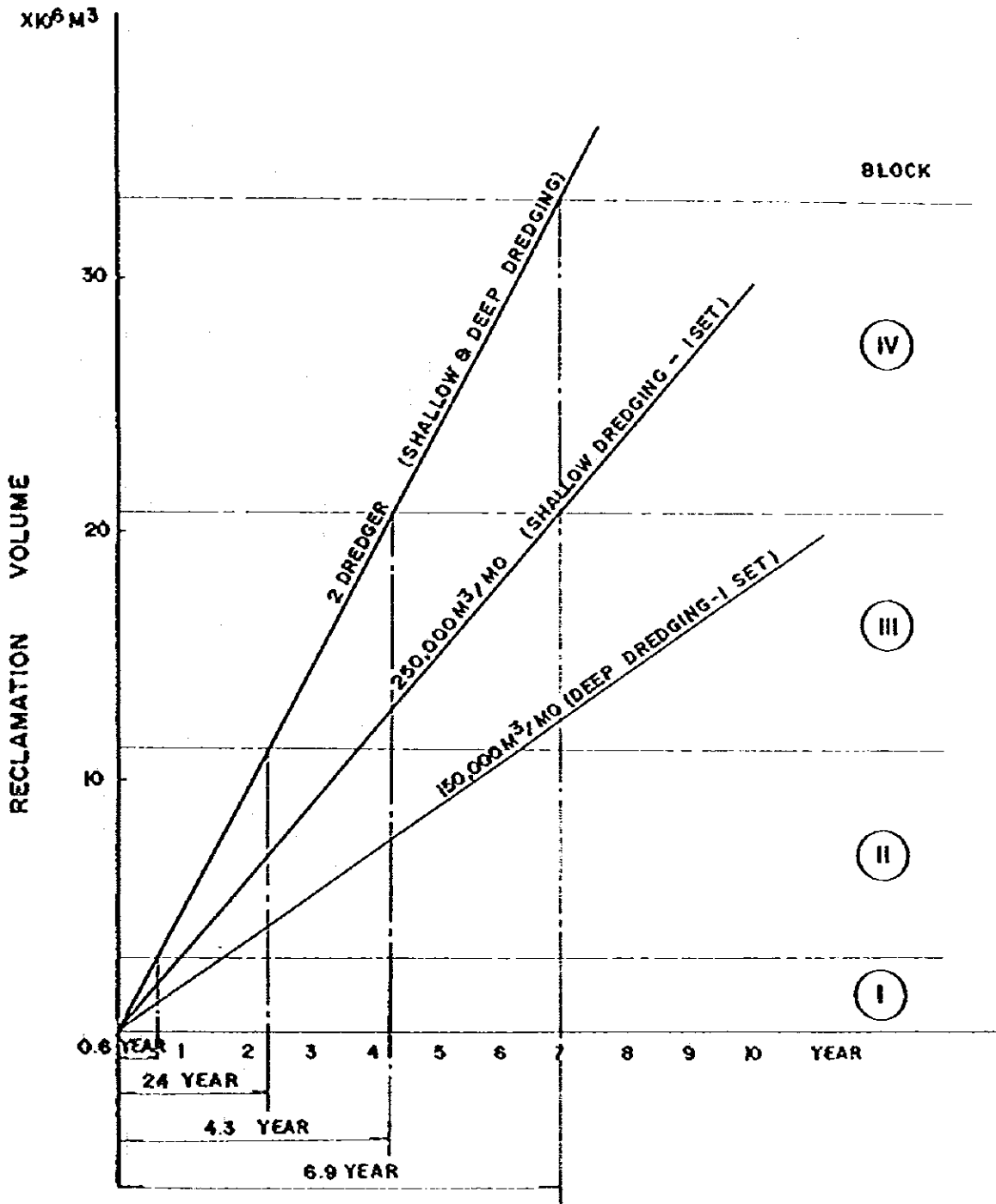


Appendix I-140  
Table IV-6-1

EQUIPMENT QUANTITY AND TIME SCHEDULE

Block	Description	Quantity	Average Monthly Achievement	Equipment Needed	Required Period (Mo.)
I	Filling	2,960,000 cu.m	200,000 cu.m/outfit	3 dredging outfit	4.90
	Rock Mound	193,000 cu.m	12,000 cu.m/outfit	3 rock mound outfit	5.36
	Sand pile (φ400)	120,000 l.m	5,000 l.m/outfit	5 driving outfit	4.80
	Sand pile (φ700)	110,000 l.m	3,000 l.m/outfit	6 driving outfit	6.11
	Sheet pile (steel)	82,000 l.m	2,000 l.m/outfit	5 driving outfit	8.20
II	Filling	8,635,000 cu.m	200,000 cu.m/outfit	3 dredging outfit	14.4
	Rock mound	298,000 cu.m	12,000 cu.m/outfit	3 rock mound outfit	8.3
	Corrugated Cell	150 set	40 set/outfit	1 installation outfit	3.75
	Sand pile (φ400)	195,000 l.m	5,000 l.m/outfit	5 driving outfit	7.80
III	Filling	9,155,000 cu.m	200,000 cu.m/outfit	3 dredging outfit	15.26
	Rock mound	139,000 cu.m	12,000 cu.m/outfit	3 rock mound outfit	3.86
	Sand pile (φ400)	100,000 l.m	3,000 l.m/outfit	5 driving outfit	6.66
	Sand pile (φ700)	100,000 l.m	2,000 l.m/outfit	6 driving outfit	8.33
	Sheet pile (steel)	75,000 l.m	2,000 l.m/outfit	5 driving outfit	7.50
	Sheet pile (P.C.)	20,000 l.m	2,000 l.m/outfit	3 driving outfit	3.33
IV	Filling	12,545,000 cu.m	200,000 cu.m/outfit	3 dredging outfit	21.00
	Rock Mound	47,000 cu.m	12,000 cu.m/outfit	2 rock mound outfit	1.96
	Sheet pile (P.C.)	81,000 l.m	2,000 l.m/outfit	3 driving outfit	13.50
	Sheet pipe pile	26,000 l.m	1,500 l.m/outfit	3 driving outfit	5.77
	Sheet pile (steel)	30,000 l.m	2,000 l.m/outfit	3 driving outfit	5.00
V	Rock Mound	171,000 cu.m	12,000 cu.m/outfit	3 rock mound outfit	4.75
VI	Rock Mound	172,000 cu.m	12,000 cu.m/outfit	3 rock mound outfit	4.778
VII	Rock Mound	211,000 cu.m	12,000 cu.m/outfit	3 rock mound outfit	5.86

Appendix I-141  
 Fig. IV-6-31 RATE OF RECLAMATION FOR MBCRP



Appendix I-142  
Table IV-8-1 COST OF RECLAMATION (A)

- Alternative 1 -

Descriptions	Block - I				Block - II				Total
	'000 m <sup>2</sup>	For C	Loc C	Taxes	'000 m <sup>2</sup>	For C	Loc C	Taxes	
Residential									
Lots	354.2	43,723	30,031	10,390	84,144				
Service Road	112.8	11,482	5,976	2,653	20,111				
Total	467.0	55,205	36,007	13,043	104,255				
Industry									
Lots					1,447.0	139,184	65,188	33,255	237,627
Service Road					84.0	10,097	5,242	2,575	17,914
Total					1,531.0	149,281	20,430	35,820	255,541
Park, etc.	1,001.0	75,205	27,051	15,149	117,405				
Arterial Street	84.0 (98.0/1)	10,120	5,981	2,469	18,570	200.0 (119.0)	13,080	6,329	44,061
Sub-total	1,650	140,530	69,039	30,661	240,230	1,850.0	83,510	42,159	299,602
Profit and Overhead (25%)	25%	35,133	17,260	7,665	60,058	25%	20,878	10,540	74,901
Sub-total		175,663	86,299	38,326	300,288		104,388	52,699	374,503
Detailed Design and Supervision (10%)	10%	17,566	8,630	3,833	30,029		10,439	5,270	37,450
Fishery Compensation			5,000		5,000		5,000		5,000
Physical Contingency (10%)	10%	19,323	9,993	4,216	33,532		11,983	5,796	41,605
Grand Total		212,552	109,922	46,375	368,849		131,810	63,765	458,648

Note: 1) The figure in ( ) indicate the area allocated for R-10 extension, not covered in this cost estimate.

Appendix I-143  
Table IV-8-2 COST OF RECLAMATION (B)

- Alternative 1 -

Descriptions	Block - III				Block - IV					
	'000 m <sup>2</sup>	For C	Loc C	Taxes	Total	'000 m <sup>2</sup>	For C	Loc C	Taxes	Total
Residential										
Lots										
Service Road										
Total										
Industry										
Lots	1,356.4	139,955	66,086	31,598	237,639	2,266.0	212,045	101,398	48,191	361,634
Service Road	93.6	11,490	5,687	2,781	19,958	144.0	16,713	8,674	4,106	29,493
Total	1,450.0	151,445	71,773	34,379	257,597	2,410.0	228,758	110,072	52,297	391,127
Park, etc.	344.1	30,845	9,782	6,605	47,232	346.3	28,721	9,663	6,237	44,621
Arterial Street	220.1 (135.8) <sup>1)</sup>	27,716	14,058	6,764	48,538	359.3 (134.4)	43,108	23,079	10,715	76,902
Sub-total	2,150.0	210,006	95,613	47,748	353,367	3,250	300,587	142,814	69,249	512,650
Profit and Overhead	25%	52,502	23,903	11,937	88,342	25%	75,147	35,704	17,312	128,163
Sub-total		262,508	119,516	59,685	441,709		375,734	178,518	86,561	640,813
Detailed Design and Supervision (10%)	10%	26,251	11,952	5,969	44,171		37,573	17,852	8,656	64,081
Fishery Compensation			5,000		5,000					
Physical Contingency (10%)	10%	26,876	13,647	6,565	49,088		41,331	19,637	9,522	70,489
Grand Total		317,635	150,115	72,218	539,968		454,538	216,107	104,938	775,583

Note: 1) The figure in ( ) indicate the area allocated for R-10 extension, not covered in this cost estimate.

Appendix I-144  
Table IV-8-3  
COST OF RECLAMATION (A)  
- Alternative II -

(P'000 in 1979 Prices)

Descriptions	Block - I				Block - II					
	'000 m <sup>2</sup>	For C	Loc C	Taxes	Total	'000 m <sup>2</sup>	For C	Loc C	Taxes	Total
Residential Lots	354.2	43,723	30,031	10,390	84,144					
Service Road	112.8	11,482	5,976	2,653	20,111					
Total	467.0	55,205	36,007	13,043	104,255					
Industry										
Lots						1,287.4	124,582	60,133	29,875	214,590
Service Road						81.6	9,809	5,091	2,502	17,402
Total						1,369.0	134,391	65,224	32,377	231,992
Park, etc.	1,001.0	75,205	27,051	15,149	117,405	171.0	14,892	5,141	3,444	23,477
Arterial Street	84.0 (98.0)	10,120	5,981	2,469	18,570	200.0 (119.0)	24,729	13,160	6,353	44,242
Sub-total	1,650	140,530	69,039	30,661	240,230	1,850.0	174,012	83,525	42,174	299,711
Profit and Overhead	25%	35,133	17,260	7,665	60,058	25%	43,503	20,881	10,544	74,928
Sub-total		175,663	86,299	38,326	300,288		217,515	104,406	52,718	374,637
Detailed Design and Supervision (10%)	10%	17,566	8,630	3,833	30,029	10%	21,752	10,441	5,272	37,465
Fishery Compensation			5,000		5,000			5,000		5,000
Physical Contingency (10%)	10%	19,328	9,993	4,216	33,532		23,927	11,984	5,799	41,710
Grand Total		212,552	109,922	46,375	368,849		263,194	131,831	63,789	458,814

Note: 1) The figure in ( ) indicate the area allocated for the causingway, not covered in this cost estimate. The portion of the cost for the causingway is included in the Road project cost in Part III.

Appendix I-145  
Table IV-8-4 COST OF RECLAMATION (B)

- Alternative II -

Descriptions	Block - III					Block - IV				
	'000 m <sup>2</sup>	For C	Loc C	Taxes	Total	'000 m <sup>2</sup>	For C	Loc C	Taxes	Total
<b>Residential</b>										
Lots	160.2	20,872	15,147	5,096	41,115	535.9	61,937	36,354	14,835	113,126
Service Road	46.1	5,388	2,538	1,285	9,211	155.7	17,141	8,463	4,135	29,739
Total	206.3	26,260	17,685	6,381	50,326	691.6	79,078	44,817	18,970	142,865
<b>Industry</b>										
Lots	620.4	66,106	33,390	15,087	114,583	948.8	92,405	47,841	21,259	161,505
Service Road	39.6	4,861	2,406	1,177	8,444	61.2	7,087	3,666	1,735	12,488
Total	660.0	70,967	35,796	16,264	123,027	1,010.0	99,492	51,507	22,994	173,993
Park, etc.	883.7	79,213	25,121	16,964	121,298	1,077.6	89,373	30,067	19,408	138,848
Arterial Street	264.2 (135.8)	33,379	16,981	8,154	58,514	336.4 (134.4)	42,759	23,941	10,789	77,489
Sub-total	2,150.0	209,819	95,583	47,763	353,165	3,250.0	310,702	150,332	72,161	533,195
Profit and Overhead	25%	52,455	23,896	11,941	88,292	25%	77,676	37,583	18,040	133,299
Sub-total		262,274	119,479	59,704	441,457		388,378	187,915	90,201	666,494
Detailed Design and Supervision (10%)	10%	26,227	11,948	5,970	44,145		38,838	18,792	9,020	66,650
Fishery Compensation			5,000		5,000					
Physical Contingency (10%)	10%	28,850	13,642	6,567	49,059		42,722	20,670	9,922	73,314
Grand Total		317,351	150,069	72,241	539,661		469,938	227,377	109,143	806,458

Note: 1) The figure in ( ) indicates the area allocated for R-10 extension, not covered in this cost estimate.

Appendix I-146  
Table IV-8-5 COST OF RECLAMATION (A)

- Alternative III -

(M'000 in 1979 Prices)

Descriptions	Block -- I					Block -- II				
	'000 m <sup>2</sup>	For C	Loc C	Taxes	Total	'000 m <sup>2</sup>	For C	Loc C	Taxes	Total
Residential										
Lots L	354.2	43,723	30,031	10,390	84,144					
Service Road	112.8	11,482	5,976	2,653	20,111					
Total	467.0	55,205	36,007	13,043	104,255					
Industry										
Lots						1,433.8	137,956	64,778	32,972	235,706
Service Road						97.2	11,085	6,065	2,979	20,729
Total						1,531.0	149,641	70,843	35,951	256,435
Park, etc.	1,001.0	75,205	27,051	15,149	117,405					
Arterial Street	84.0 (98.2) 1)	10,120	5,981	2,469	18,570	200.0 (119.0)	24,233	12,652	6,172	43,057
Sub-total	1,650	140,530	69,039	30,661	240,230	1,850.0	173,874	83,495	42,123	299,492
Profit and Overhead	25%	35,133	17,260	7,665	60,058	25%	43,469	20,874	10,531	74,873
Sub-total		175,663	86,299	78,326	300,288		217,343	104,369	52,654	374,365
Detailed Design and Supervision (10%)	10%	17,567	8,630	3,833	30,029	10%	21,734	10,437	5,265	37,437
Fishery Compensation			5,000		5,000			5,000		5,000
Physical Contingency (10%)	10%	19,323	9,993	4,216	33,532		23,908	11,981	5,792	41,690
Grand Total		212,553	109,922	46,375	368,849		262,985	131,787	63,711	458,482

Note: 1) The figure in ( ) indicate the area allocated for R-10 extension, not covered in this cost estimate.

Appendix I-147  
Table IV-8-6

COST OF RECLAMATION (B)

- Alternative III -

(#'000 in 1979 Prices)

Descriptions	Block - III				Block - IV					
	'000 m <sup>2</sup>	For C	Loc C	Taxes	Total	'000 m <sup>2</sup>	For C	Loc C	Taxes	Total
Residential										
Lots						369.6	44,762	27,569	10,836	83,167
Service Road						108.2	11,359	5,607	2,740	19,706
Total						472.8	56,121	33,176	13,576	102,873
Industry										
Lots	1,222.0	127,821	62,252	29,001	219,074	1,191.2	117,442	58,737	23,712	199,891
Service Road	78.0	9,575	4,739	2,318	16,632	118.8	13,795	7,156	3,381	24,332
Total	1,300.0	137,396	66,991	31,319	255,706	1,310.0	131,237	65,893	27,093	224,223
Park, etc.	494.1	44,290	14,046	9,484	67,820	976.0	80,946	27,233	17,578	125,757
Arterial Street	220.1 (135.8)	28,233	14,562	6,927	49,723	356.8 (134.4)	39,275	19,441	9,510	68,226
Sub-total	2,150.0	209,919	95,559	47,730	853,249	3,250.0	307,579	145,743	67,757	521,079
Profit and Overhead	25%	52,480	23,900	11,933	88,312	25%	76,895	36,895	16,939	130,270
Sub-total		262,399	119,499	59,663	441,561		384,474	182,179	84,696	651,349
Detailed Design and Supervision (10%)	10%	26,240	11,950	5,966	44,156		38,447	18,218	8,470	65,135
Fishery Compensation			5,000		5,000					
Physical Contingency (10%)	10%	28,864	13,645	6,563	49,072		42,292	20,040	9,317	71,649
Grand Total		317,503	150,094	72,192	539,789		465,213	220,437	102,483	788,135

Note: 1) The figure in ( ) indicate the area allocated for R-10 extension, not covered in this cost estimate.



Appendix I-148

Table IV-9-1 PRICES OF OPEN LAND IN NAVOTAS, MALABON, CALOOCAN AND QUEZON 2)

Unit: Pesos/m<sup>2</sup>

Land Use	Navotas & Malabon 1)	Caloocan	Quezon
Commercial	140 - 250	150 - 1,850	500 - 2,500
Industrial	80 - 140	40 - 700	50 - 760
Residential	90 - 140	120 - 750	180 - 1,800
Fishpond & Rice Field	65 - 80	-	-
Undeveloped land	20 - 35	28 - 40	35 - 60

Source : Real estate dealers in Quezon City.

Notes : 1) The coastal municipalities of Navotas, Obando and part of Malabon are presently considered isolated due to the shortage in roads and facilities, limited power supply, deep well sources of water and limited water supply network.

2) Even under the above conditions, the price has increased four to five times in commercial, industrial and residential areas and six to seven times in undeveloped land, fish ponds and rice fields over the past ten years.

Appendix I-149

Table IV-9-2 PRICES OF OPEN LAND IN MSA 1)

Unit: Pesos/m<sup>2</sup>

Municipal	Residential	Commercial	Municipality	Residential	Commercial
<b>Quezon City</b>			<b>Makati</b>		
EDSA (inside)	600	1,600	EDSA	-	1,800
Kamuning	450	500	1st class subdiv.	1,600	-
Diliman	350	-	2nd class subdiv.	400	-
Interior area	250	-	Commercial center	-	1,500
España	350	800	Ayala avenue	-	5,000
			Legaspi office area	-	1,400
<b>San Juan</b>			<b>Manila</b>		
Greenhills 1st cl.	1,600	-	Sampaloc	350	800
Greenhills 2nd cl.	450	-	Sta. Cruz	600	1,200
Interior area	250	-	Tondo	250	-
EDSA Greenhills	-	1,850	Sta. Ana	250	-
			Pandacan	250	-
<b>Mandaluyong</b>			<b>Pasig</b>		
EDSA	-	1,450	Shaw	450	1,600
Boni Avenue	250	-	Interior	350	-
Kalentong	350	450	Capitolyo	450	-
Shaw	600	1,400	Subdiv. outside kapitolyo	250	-
<b>Pasay</b>					
Roxas Bld. (inside)	600	1,800			
Interior	400	-			
<b>Parañaque</b>					
B.F. Homes	520	-			
Sucac	350	550			
Interior	350	-			
Las Pinas	350	550			

Source : A real estate dealer in Pasig, Metro-Manila.

Note : 1) If a developer sells the lots, 30% is added on the cost for land acquisition and development cost as his return on the investment.

Appendix I-150

Table IV-9-3 LAND SALE PRICES IN NEWSPAPER ADVERTISEMENTS IN AUG., 1979

(Pesos/m<sup>2</sup>)

Land Use	Manila	Malabon & Valenzuela	Quezon	Mandaluyong & Pasig	Makati	Parañaque
Industrial & Commercial	650-5,000	350-800	500-1,400	150-300	2,300-6,000	-
Residential	150-1,000	150-400	100-1,000	180-280	1,200-1,600	170-370

Source : Selected from Bulletin Today, August 18-29, 1979.

Appendix I-151  
 Table IV-9-4 ESTIMATED SUBSIDIES FOR THE SALES OF RESIDENTIAL LOTS

1. Alternatives	II		III		I, II, III	
	1988 B-III		1993 B-IV		1996 B-I	
2. Year of sales and reclamation block	Large Lot	Small Lot	Large Lot	Small Lot	Large Lot	Small Lot
3. Classification						
4. Area (m <sup>2</sup> )	110	70	110	70	110	70
5. Development cost per m <sup>2</sup> 1)	475	475	403	403	445	445
6. Development cost per lot	52,250	33,250	44,330	28,210	48,950	31,150
7. CRF 0.1275, i = 12%, 25 yrs.	6,662	4,239	5,652	3,597	6,241	3,972
8. Cost per month (7. ÷ 12)	555	353	471	300	520	331
9. Administration cost (8. x 5%)	27	17	23	15	36	16
10. Monthly equivalency (8. + 9.)	582	370	494	315	546	347
11. (Year of Sales) 2) Income affordability/mo	(1988) 196	(1988) 42	(1993) 227	(1993) 48	(1996) 248	(1996) 53
12. Subsidies (10. - 11.)	386	328	267	267	296	294
13. PW of 12. in the year of sales	36,329	30,871	25,129	25,129	27,859	27,671
14. Number of lots	1,376	552	4,580	1,972	1,428	2,846
15. Total subsidies in million	49.99	17.04	115.09	49.55	39.78	78.75
16. Total of 15.		67.03	164.64	120.50		118.53

Notes: 1) Development cost covers the costs of reclamation and infrastructures of the residential area.

2) Income per family is assumed to increase 3% p.a. from 1979, Quoted from Table IV. 9-2.

Appendix I-152  
Table IV-9-5 FORECAST MARKET PRICES OF THE RECLAIMED AREA, 1988-'96

(in 1979 prices of ₪ million)

Description	Net area in ha.	Unit area in m <sup>2</sup>	Number of lots	Lot price in ₪ of 1979 prices	Year of sales and revenues										References
					1988	1989	1990	1993	1994	1995	1996				
Alternative I				1.00	1.551	1.629	1.710	1.980	2.079	2.183	2.290	2.290	Land price indexes		
Resid.	20	70	(2,846)	24,500							(2,846)	159.7	2.846 x 24,500 x 2.290		
Total	16	110	(1,428)	38,500								(1,428)	125.9	1.428 x 38,500 x 2.290	
Ind.	145	18,800	(4,274)		(49.8)	(49.8)	(49.8)					285.6			
B II	136		(149.5)	11.28 mil.	871.3	915.1	960.6	(40)	(40)	(40.7)			48.3 x 11.28 x 1,551		
B IV	227		(120.7)	11.28 mil.	871.3	915.1	960.6	(40)	(40)	(40.7)			40 x 11.28 x 1,980		
Total	508		(270.2)												
Alternative II				24,500											
Resid.	20	70	(2,846)	24,500									159.7		
Total	16	110	(1,428)	38,500	(688)	27.5							125.9		
B III	10	70	(1,376)	24,500	(688)	27.5									
B IV	6	110	(552)	38,500	(276)	11.2									
Total	32	70	(4,580)	24,500											
B II	22	110	(1,972)	8,500											
Total	106		(12,754)		36.7	38.7									
B III	128		(50)		(51)										
Ind.	62	18,800	(101)	11.28 mil.	874.8	937.1									
B IV	95	18,800	(50.5)	11.28 mil.	874.8	937.1									
Total	285		(151.5)												
Alternative III				24,500											
Resid.	20	70	(2,846)	24,500											
Total	16	110	(1,428)	38,500											
B IV	21	70	(3,004)	24,500											
Total	16	110	(1,456)	38,500											
B II	143		(8,734)		(46.6)	(46.6)	(47.7)								
B III	122	18,800	(140.9)	11.28 mil.	815.3	856.3	900.8	(21)	(21)	(21.3)					
B IV	119	18,800	(63.3)	11.28 mil.	815.3	856.3	900.8	(21)	(21)	(21.3)					
Total	384		(204.2)												

Notes: 1) Land price is assumed to rise at 5% p.a.  
2) ( ) means the number of lots to be sold in that year.

Appendix I-153  
Table IV-9-6

PROJECTED CASH FLOW: ALTERNATIVE I  
(Phase I)  
(P'000 in 1979 prices)

Descriptions	Year	1981	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
A. Carry over from the previous year		-	0	-	22,147	49,000	34,166	99,372	3,594	75,894	143,516	894,674	894,674	667,824	1,571,224	2,496,928	3,540,538
B. Income of the year																	
1. Equity of the corporation			5,000	10,000	5,000												
2. Gov't agency's contribution		22,963	22,962	3,928	5,326	25,500	20,173	11,651	28,195			28,563	28,563	3,201	10,725	10,724	
a. MPH (Road & Eng.)							31,213	31,213				23,395	23,394			33,844	
b. MPW (Drain & sewerage)								38,053					30,843			14,446	
c. MWSS (Water supply)								23,852					18,153			10,285	
d. MEICO & PLDTC												10,226	10,226			26,905	
e. M. Hum. Ser. (parks, center, etc)				39,084	39,083												
f. MMA (Refuse site of B-1)				100,000	300,000	250,000	400,000	150,000		871,500	915,100	960,600	960,600	893,400	938,000	1,002,200	285,600
3. Borrowings																	
4. Sales of lots																	
a. Residence																	
b. Industry																	
5. Total of B.		22,963	27,962	153,012	349,409	275,500	472,308	275,689	899,495	915,100	960,600	62,184	111,179	896,601	975,631	1,098,404	285,600
C. Expenses																	
1. Detailed engineering		22,963	22,962						28,195					3,201			
2. Reclamation & infrastructure				117,615	297,306	237,334	324,102	240,467		182,478	204,442	175,789	184,424		39,927	44,794	
3. Compensation to fishery				8,250	8,250												
4. Interest payment					12,000	48,000	78,000	126,000	144,000	110,000							
5. Repayment of loans									650,000	550,000							
6. Subsidies																	118,530
7. Administration			5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	10,000	10,000	10,000	10,000	10,000	10,000
8. Total of C.		22,963	27,962	130,865	322,556	290,334	407,102	371,467	827,195	847,478	209,442	185,789	194,424	13,201	49,927	54,794	128,530
D. Surplus or deficit		0	0	22,147	49,000	34,166	99,372	3,594	75,894	143,516	894,674	771,069	667,824	1,571,224	2,496,928	3,540,538	3,699,218

Appendix I-154  
Table IV-9-7 PROJECTED CASH FLOW: ALTERNATIVE II  
(Phase I)  
(P'000 in 1979 prices)

Descriptions	Year	1981	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
A. Carry over from the previous year		-	0	0	22,565	50,149	37,179	15,445	41,638	87,108	252,174	34,964	85,548	16,691	356,551	1,072,555	1,250,885
B. Income of the year			5,000	10,000	5,000												
1. Equity of the corporation			5,000	10,000	5,000												
2. Gov't agency's contribution		22,960	22,960	4,147	5,624	26,923	21,300	12,302	29,329			33,292	33,292	3,201	10,725	10,724	
a. MPH (Roads)																	
b. MPW (Drain & sewerage)					30,440		30,440					27,999	27,998			33,844	
c. MWSS (Water supply)					33,646		33,646						31,855			14,466	
d. MELCO & PLDTC					25,967		25,967						26,723			10,285	
e. M. Hum. Ser. (parks, center, etc.)					33,178		33,178					31,819	31,820		26,906	26,905	
f. MMA (Refuse site of B-1)				39,084	39,083												
3. Borrowings				100,000	300,000	250,000	250,000					150,000					
4. Sales of lots									36,700	38,700				124,100	130,300	136,900	285,600
a. Residence									874,800	937,100				558,400	598,000		
b. Industry									940,829	975,800	0	243,110	151,688	685,701	765,991	233,124	285,600
5. Total of B.		22,960	27,960	153,231	349,707	276,923	384,918	385,583	940,829	975,800	0	243,110	151,688	685,701	765,991	233,124	285,600
C. Expenses																	
1. Detailed Eng.		22,960	22,960						29,329					3,201			
2. Reclamation & Infrastructures				117,416	296,873	236,893	323,652	240,340		189,734	212,210	182,526	192,545		39,927	44,794	
3. Compensation to fishery				8,250	8,250												
4. Interest payment					12,000	48,000	78,000	114,000	144,000	66,000			18,000	18,000			
5. Repayment of loans								650,000	650,000	550,000				150,000			
6. Subsidies								67,034						164,640			118,530
7. Administration			5,000	5,000	5,000	5,000	5,000	5,000	67,030	5,000	5,000	10,000	10,000	10,000	10,000	10,000	10,000
8. Total of C.		22,960	27,960	130,666	322,123	289,893	406,652	359,340	894,239	810,734	217,210	192,526	220,545	344,611	49,927	54,794	128,530
D. Surplus or deficit		0	0	22,565	50,149	37,179	15,445	41,638	87,108	252,174	34,964	85,548	16,691	356,551	1,072,555	1,250,885	1,407,955

Appendix I-155  
Table IV-9-8

PROJECTED CASH FLOW: ALTERNATIVE III  
(Phase I)

(P'000 in 1979 prices)

Descriptions	Year	1981	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
<b>A. Carry over from the previous year</b>		-	0	0	22,147	-1,000	40,166	-8	10,836	27,136	79,958	771,316	668,255	615,546	1,083,147	1,698,151	2,264,061
<b>B. Income of the year</b>			5,000	10,000	5,000												
1. Equity of the corporation			5,000	10,000	5,000												
2. Gov't agency's contribution		22,956	22,956	3,928	5,326	25,500	20,173	11,651	28,660			25,910	25,910	3,201	10,725	10,724	
a. MPH (Roads)																	
b. MPW (Drain & sewerage)							31,213	31,212				27,999	27,998			33,844	
c. MWSS (Water supply)								38,053					36,480			14,446	
d. MELCO & PLDTC								23,537					23,220			10,285	
e. M. Hum. Set. (parks, center, etc.)							15,542	15,543				28,819	28,820		26,906	26,905	
f. MMA (Refuse site of B-1)				39,084	39,083												
3. Borrowings				100,000	250,000	300,000	300,000	250,000									
4. Sales of lots																	
a. Residence									815,300	856,300	900,800			128,400	134,800		285,600
b. Industry									843,960	856,300	900,800	82,728	142,428	469,000	492,500	524,500	
5. Total of B.		22,956	27,956	153,012	299,409	325,500	366,928	369,960	843,960	856,300	900,800	82,728	142,428	600,601	664,931	650,704	285,600
<b>C. Expenses</b>																	
1. Detailed Eng.		22,956	22,956						28,660					3,201			
2. Reclamation & infrastructures				117,615	297,306	237,334	324,102	240,152		182,478	204,442	175,789	185,137		39,927	44,794	
3. Compensation to fishery				8,250	8,250												
4. Interest payment					12,000	42,000	78,000	114,000	144,000	66,000							
5. Repayment of loans									650,000	550,000							
6. Subsidies														120,500			118,530
7. Administration			5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	10,000	10,000	10,000	10,000	10,000	10,000
8. Total of C.		22,956	27,956	130,865	322,556	284,334	407,102	359,152	827,660	803,478	209,442	185,789	195,137	133,000	49,927	54,394	128,230
D. Surplus or deficit		0	0	22,147	-1,000	40,166	-8	10,836	27,136	79,958	771,316	668,255	615,546	1,082,447	1,697,451	2,263,361	2,420,431

Appendix I-156  
 Table IV-10-1 ECONOMIC COST AND BENEFIT, 1981-1996  
 (Phase I)  
 (P'000 in 1979 prices)

Year	Alternative I				Alternative II				Alternative III						
	Construc- tion	Admini- stration	Subsidies	Savings in transport of garbage	Revenue of lot sales	Construc- tion	Admini- stration	Subsidies	Savings in transport of garbage	Revenue of lot sales	Construc- tion	Admini- stration	Subsidies	Savings transport of garbage	Revenue of lot sales
1981	18,227					18,158					18,217				
2	25,494	5,000				25,389	5,000				25,493	5,000			
3	127,172	5,000				126,597	5,000				127,172	5,000			
4	282,203	5,000		5,309		280,924	5,000		5,309		282,203	5,000		5,309	
5	225,276	5,000		5,575		224,257	5,000		5,575		225,276	5,000		5,575	
6	307,635	5,000		5,853		306,243	5,000		5,853		307,635	5,000		5,853	
7	228,460	5,000		6,146		227,749	5,000		6,146		228,140	5,000		6,146	
8	26,441	5,000		6,453	871,300	28,166	5,000	67,030	6,453	911,500	27,038	5,000		6,453	815,300
9	173,124	5,000		6,776	915,100	180,875	5,000		6,776	975,400	176,842	5,000		6,776	856,300
1990	193,664	5,000		7,115	960,600	202,335	5,000		7,115		197,822	5,000		7,115	900,800
1	166,522	10,000		7,471		173,977	10,000		7,471		170,098	10,000		7,471	
2	174,770	10,000		7,844		183,637	10,000		7,844		179,223	10,000		7,844	
3	2,946	10,000		8,236	893,400	2,946	10,000	164,640	8,236	682,500	2,946	10,000	120,500	8,236	597,400
4	37,100	10,000			938,000	37,100	10,000			728,300	37,100	10,000			627,300
5	41,741	10,000			1,002,200	41,741	10,000			136,000	41,741	10,000			524,500
6		10,000	118,530		245,600		10,000	118,530		285,600		10,000	118,530		285,600
Total	2,030,775	105,000	118,530	66,778	5,866,200	2,059,594	105,000	350,200	66,778	3,719,700	2,046,946	105,000	239,030	66,778	4,607,200

Appendix I-157  
Table IV-10-2 COST-BENEFIT ANALYSIS TABLES

COST BENEFIT ANALYSIS TABLE \*\*\* Plan I (Phase I)

Year	DISC = 0%			DISC = 15%			DISC = 30%		
	Invest.	Maint.	Benefits	Invest.	Maint.	Benefits	Invest.	Maint.	Benefits
1981	18.2	0.0	0.0	18.2	0.0	0.0	18.2	0.0	0.0
1982	30.5	0.0	0.0	26.5	0.0	0.0	23.5	0.0	0.0
1983	132.2	0.0	0.0	100.0	0.0	0.0	78.2	0.0	0.0
1984	287.2	0.0	-5.3	188.8	0.0	-3.5	130.7	0.0	-2.4
1985	230.3	0.0	-5.6	131.7	0.0	-3.2	80.6	0.0	-2.0
1986	312.6	0.0	-5.9	155.4	0.0	-2.9	84.2	0.0	-1.6
1987	236.6	0.0	-6.1	102.3	0.0	-2.6	49.0	0.0	-1.3
1988	31.4	0.0	-877.8	11.8	0.0	-330.0	5.0	0.0	-139.9
1989	178.1	0.0	-921.9	58.2	0.0	-301.4	21.8	0.0	-113.0
1990	198.7	0.0	-967.7	56.5	0.0	-275.1	18.7	0.0	-91.3
1991	176.5	0.0	-7.5	43.6	0.0	-1.9	12.8	0.0	-0.5
1992	184.8	0.0	-7.8	39.7	0.0	-1.7	10.3	0.0	-0.4
1993	12.9	0.0	-901.6	2.4	0.0	-168.5	0.6	0.0	-38.7
1994	47.1	0.0	-938.0	7.7	0.0	-152.5	1.6	0.0	-31.0
1995	51.7	0.0	-1,000.2	7.3	0.0	-141.4	1.3	0.0	-25.4
1996	128.5	0.0	-285.6	15.8	0.0	-35.1	2.5	0.0	-5.6
Total	2,257.3	0.0	-5,931.0	965.9	0.0	-1,419.7	539.1	0.0	-453.0
	B/C = -2.627		Total -3,673.7	B/C = -1.470		Total -453.7	B/C = -0.840		Total 86.1
	***** I R *****		25.2%						



Appendix I-157  
 Table IV-10-2 COST-BENEFIT ANALYSIS TABLES  
 COST BENEFIT ANALYSIS TABLE \*\*\*\* Plan 2 (Phase I)

Year	DISC = 0%			DISC = 15%			DISC = 30%		
	Invest.	Maint.	Benefits	Invest.	Maint.	Benefits	Invest.	Maint.	Benefits
1981	18.2	0.0	0.0	18.2	0.0	0.0	18.2	0.0	0.0
1982	30.4	0.0	0.0	26.4	0.0	0.0	23.4	0.0	0.0
1983	131.6	0.0	0.0	99.5	0.0	0.0	77.9	0.0	0.0
1984	285.9	0.0	-5.3	188.0	0.0	-3.5	130.1	0.0	-2.4
1985	229.3	0.0	-5.6	131.1	0.0	-3.2	80.3	0.0	-2.0
1986	311.2	0.0	-5.9	154.7	0.0	-2.9	83.8	0.0	-1.6
1987	232.7	0.0	-6.1	100.6	0.0	-2.6	48.2	0.0	-1.3
1988	100.2	0.0	-918.0	37.7	0.0	-345.1	16.0	0.0	-146.3
1989	185.9	0.0	-982.6	60.8	0.0	-321.2	22.8	0.0	-120.5
1990	207.3	0.0	-7.1	58.9	0.0	-2.0	19.5	0.0	-0.7
1991	184.0	0.0	-7.5	45.5	0.0	-1.9	13.3	0.0	-0.5
1992	193.6	0.0	-7.8	41.6	0.0	-1.7	10.8	0.0	-0.4
1993	177.6	0.0	-690.7	33.2	0.0	-129.1	7.6	0.0	-29.6
1994	47.1	0.0	-728.3	7.7	0.0	-118.4	1.6	0.0	-24.0
1995	51.7	0.0	-136.0	7.3	0.0	-19.2	1.3	0.0	-3.5
1996	128.5	0.0	-285.6	15.8	0.0	-35.1	2.5	0.0	-5.6
Total	2,515.2	0.0	-3,786.5	1,027.0	0.0	-985.9	557.4	0.0	-338.4
		Total	-1,271.3		Total	41.0		Total	219.0
	B/C = -1.505			B/C = -0.960			B/C = -0.607		
	***** I R *****		13.6%						

Appendix I-157  
 Table IV-10-2 COST-BENEFIT ANALYSIS TABLES  
COST BENEFIT ANALYSIS TABLE \*\*\* Plan 3 (Phase I)

Year	DISC = 0%			DISC = 15%			DISC = 30%		
	Invest.	Maint.	Benefits	Invest.	Maint.	Benefits	Invest.	Maint.	Benefits
1981	18.2	0.0	0.0	18.2	0.0	0.0	18.2	0.0	0.0
1982	30.5	0.0	0.0	26.5	0.0	0.0	23.5	0.0	0.0
1983	132.2	0.0	0.0	100.0	0.0	0.0	78.2	0.0	0.0
1984	287.2	0.0	-5.3	188.8	0.0	-3.5	130.7	0.0	-2.4
1985	230.3	0.0	-5.6	131.7	0.0	-3.2	80.6	0.0	-2.0
1986	312.6	0.0	-5.9	155.4	0.0	-2.9	84.2	0.0	-1.6
1987	233.1	0.0	-6.1	100.8	0.0	-2.6	48.3	0.0	-1.3
1988	32.0	0.0	-821.8	12.0	0.0	-308.9	5.1	0.0	-131.0
1989	181.8	0.0	-863.2	59.4	0.0	-282.2	22.3	0.0	-105.8
1990	202.8	0.0	-907.9	57.6	0.0	-258.1	19.1	0.0	-85.6
1991	180.1	0.0	-7.5	44.5	0.0	-1.9	13.1	0.0	-0.5
1992	189.2	0.0	-7.8	40.7	0.0	-1.7	10.6	0.0	-0.4
1993	133.4	0.0	-605.6	24.9	0.0	-113.2	5.7	0.0	-26.0
1994	47.1	0.0	-627.3	7.7	0.0	-102.0	1.6	0.0	-20.7
1995	51.7	0.0	-524.5	7.3	0.0	-74.1	1.3	0.0	-13.3
1996	128.5	0.0	-285.6	15.8	0.0	-35.1	2.5	0.0	-5.6
Total	2,390.7	0.0	-4,674.1	991.4	0.0	-1,189.4	545.0	0.0	-396.2
	B/C = -1.955		-2,283.4	B/C = -1.200		-198.0	Total	Total	148.8
	***** I R *****		20.4%			B/C = -0.727			

Appendix I-158

OD TABLES 1970 (Total Vehicles per day)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	0	270	481	1282	0	0	0	111	224	742	132	192	106	94	0	9
2	42	0	120	32	394	0	0	0	224	663	132	192	106	114	42	206
3	203	403	0	128	310	10	44	0	214	294	179	41	66	28	21	127
4	1426	273	14	242	242	29	15	22	301	261	179	41	123	32	21	142
5	0	294	301	227	0	0	0	102	11	703	12	42	0	0	0	0
6	0	150	7	11	0	0	0	61	4	35	0	0	0	0	0	0
7	305	241	0	12	122	0	42	22	232	154	21	0	17	12	12	298
8	23	270	212	292	24	0	0	132	233	97	33	0	17	44	44	65
9	683	471	292	252	1214	48	74	132	233	474	60	0	17	44	44	79
10	14	142	148	171	175	0	29	54	25	49	117	0	32	12	0	24
11	14	142	148	171	175	0	14	0	14	57	32	0	32	7	14	15
12	58	112	66	119	10	0	0	202	14	22	11	0	32	7	0	42
13	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
14	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
15	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
16	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
17	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
18	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
19	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
20	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
21	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
22	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
23	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
24	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
25	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
26	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
27	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
28	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
29	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
30	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
31	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
32	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
33	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
34	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
35	24	140	30	14	10	0	0	146	14	22	11	0	32	7	0	42
Total	5226	1470	4350	5249	5327	129	514	2162	1391	9160	1121	1142	405	967	424	421

Appendix I-158

(Cont'd)

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	152	71	1490	304	3066	2138	447	309	608	144	338	648	1164	1330	928	240

Appendix I-158

( 10-20-3 )

	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	115	132	132	132	132	110	23	0	0	20	0	0	0	0
3	12	132	17	15	27	0	0	0	0	0	0	0	0	0
4	0	109	147	115	0	33	0	0	0	0	0	0	0	0
5	32	132	144	187	288	32	10	0	0	10	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	24	0	0	0	14	0	0	0	0	0	0	0	0	0
10	205	0	0	0	0	0	0	0	0	0	0	0	0	0
11	44	0	0	0	0	0	0	0	0	0	0	0	0	0
12	62	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	124	174	164	130	149	104	76	27	0	0	0	14	0	0
22	34	63	81	107	127	127	140	0	0	0	0	0	0	0
23	63	65	54	47	70	22	14	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	17	35	33	70	57	26	33	0	0	0	0	0	0	0
28	54	130	106	44	143	118	106	0	0	0	0	0	0	0
29	22	175	130	44	143	118	106	0	0	0	0	0	0	0
30	22	175	130	44	143	118	106	0	0	0	0	0	0	0
31	12	34	24	22	31	24	24	0	0	0	0	0	0	0
32	12	44	39	26	29	24	24	0	0	0	0	0	0	0
33	22	175	130	44	143	118	106	0	0	0	0	0	0	0
34	105	0	0	0	0	0	0	0	0	0	0	0	0	0
35	22	0	0	0	0	0	0	0	0	0	0	0	0	0
36	187	0	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2206	808	2930	1617	1015	1124	1603	40	124	436	348	77	206	145



Appendix I-158

OD TABLES 1988 (Total Vehicles per day)

(19-88=1)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	0	297	1899	2602	0	0	0	185	0	1362	0	705	5	147	26	17
2	1950	16	165	95	594	0	242	0	377	740	401	136	25	140	71	24
3	2867	121	1997	224	499	60	81	0	327	491	270	156	192	87	83	214
4	0	174	465	51	371	109	25	31	488	420	512	18	341	75	27	200
5	0	434	954	349	0	0	0	133	16	1154	0	242	0	0	0	0
6	0	0	0	0	0	0	0	99	1	75	0	12	0	0	0	0
7	0	242	11	17	0	0	0	0	1	0	142	0	0	0	0	25
8	0	0	11	16	0	0	0	59	1	220	142	0	0	106	73	44
9	0	0	337	475	311	0	56	180	121	220	162	0	0	0	16	97
10	42	348	337	475	311	0	56	180	121	220	162	0	0	0	16	97
11	1217	755	485	425	2390	301	130	210	145	1444	245	0	0	58	59	124
12	37	415	253	505	210	0	85	141	65	256	550	0	0	27	75	0
13	524	45	350	24	272	0	44	0	0	0	129	0	0	11	59	0
14	104	294	164	555	12	9	0	80	64	145	122	0	120	19	40	40
15	184	114	81	42	12	0	0	114	0	146	144	144	0	12	0	214
16	71	550	255	258	0	0	0	455	104	126	80	88	44	12	0	484
17	0	22	54	65	0	0	0	0	0	0	60	68	0	0	0	0
18	0	15	61	0	0	0	0	474	50	15	20	101	21	0	0	0
19	0	267	147	256	0	0	0	0	0	142	20	40	0	0	0	0
20	0	12	208	230	0	0	0	71	4	222	84	221	0	0	0	0
21	0	190	205	224	0	0	0	42	13	212	54	227	0	0	0	0
22	0	146	110	107	0	0	0	61	27	175	0	99	0	0	0	0
23	0	14	119	102	0	0	0	147	0	79	0	42	0	0	0	0
24	0	0	170	92	0	0	0	147	0	56	0	22	0	0	0	0
25	0	38	70	54	0	0	0	147	0	241	0	22	0	0	0	0
26	0	0	52	66	0	0	0	114	0	91	24	26	0	0	0	0
27	0	0	52	66	0	0	0	114	0	71	24	26	0	0	0	0
28	0	0	471	34	0	0	0	121	2	151	265	62	0	42	107	427
29	41	215	107	144	0	0	0	121	27	151	265	62	0	42	107	427
30	0	0	107	88	0	0	0	0	0	360	309	0	0	0	0	0
31	0	0	88	47	0	0	0	0	0	71	0	0	0	0	0	0
32	0	0	88	47	0	0	0	0	0	56	0	0	0	0	0	0
33	0	44	223	142	0	0	0	152	0	502	27	76	0	0	0	0
34	267	16	12	212	111	0	0	44	2	11	222	0	0	0	0	0
35	275	100	4	211	1510	24	47	110	32	130	222	0	0	0	0	0
36	182	100	14	181	870	23	149	0	0	0	22	0	0	0	0	0
37	108	7	35	42	589	23	96	0	0	0	0	0	0	0	0	0
38	179	10	0	0	30	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	26	0	19	50	149	111	11	0	0	0	0	0	0	0	0	0
47	26	0	19	50	149	111	11	0	0	0	0	0	0	0	0	0
48	26	0	19	50	149	111	11	0	0	0	0	0	0	0	0	0
49	26	0	19	50	149	111	11	0	0	0	0	0	0	0	0	0
50	26	0	19	50	149	111	11	0	0	0	0	0	0	0	0	0
51	0	16	44	96	0	0	0	104	0	240	24	112	0	0	0	0
52	0	16	44	96	0	0	0	104	0	241	24	112	0	0	0	0
53	0	17	44	96	0	0	0	104	0	241	24	112	0	0	0	0
54	0	17	44	96	0	0	0	104	0	241	24	112	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	10042	4576	6297	6869	8684	696	1614	3322	3309	11749	3604	4396	3070	1266	654	7392









Appendix II-1, Table 2-1 POPULATION BY MUNICIPALITY

PROVINCE/ Municipality	Population				Average Annual Rate of Increase	
	1948	1960	1970	1975	'60-'70	'70-'75
<b>PHILIPPINES</b>	19,234,182	27,087,685	36,684,486	42,070,660	3.0	2.8
<b>ZAMBALES</b>	138,536	213,442	343,034	416,280	4.8	3.9
<b>BULACAN</b>	394,642	514,346	737,975	899,529	3.7	4.0
Malolos	38,779	48,968	73,996	83,491	4.2	2.4
San Miguel	38,093	43,195	58,712	66,870	3.1	2.6
San Ildefonso	18,288	26,140	34,559	39,593	2.8	2.8
San Rafael	14,632	19,772	28,039	32,342	3.6	2.9
Angat	12,776	15,051	19,798	23,344	2.8	3.3
Norzagaray	13,394	12,202	19,144	23,750	4.6	4.4
San Jose del Monte	5,363	9,329	18,704	59,021	7.2	25.8
Baliuag	30,670	37,409	52,133	61,624	3.4	3.4
Bustos	10,493	13,412	19,254	22,622	3.7	3.2
Pandi	5,054	10,283	15,884	18,824	4.4	3.5
Santa Maria	17,509	26,341	36,369	45,615	3.3	4.6
Pulilan	16,843	20,436	28,923	34,234	3.5	3.4
Plaridel	14,290	18,714	27,648	32,613	4.0	3.4
Guiguinto	7,979	10,629	16,075	20,590	4.2	5.1
Balagtas	8,085	10,280	17,109	21,422	5.2	4.6
Bocause	16,537	22,417	33,953	40,577	4.2	3.6
Marilao	6,206	9,206	16,128	21,017	5.8	5.4
Meycawayan	21,695	32,234	50,977	60,225	4.7	3.4
Calumpit	21,788	27,662	36,119	41,041	2.7	2.6
Bulacan	13,242	18,395	26,750	28,361	3.8	1.2
Obando	11,957	18,733	27,176	32,378	3.8	3.6
Hagonoy	37,532	46,861	59,889	65,592	2.5	1.8
Paombong	13,437	16,677	20,636	24,383	2.2	3.4
<b>PAMPANGA</b>	416,583	617,259	907,275	1,042,164	3.9	2.8
Angeles City	37,558	75,900	134,544	151,164	5.9	2.4
Apalit	14,576	25,408	36,138	41,283	3.6	2.7
Arayat	22,783	32,976	45,840	52,739	3.3	2.8
Bacolor	22,920	29,634	40,212	46,044	3.1	2.7
Candaba	16,036	28,811	41,512	48,458	3.7	3.1
Florida Blanca	24,825	28,655	39,830	45,419	3.3	2.7
Guagua	34,738	40,126	58,270	65,336	3.8	2.3
Lubao	36,574	44,129	61,608	69,903	3.4	2.6
Nabalacat	25,281	31,752	55,897	69,874	5.8	4.6
Macabebe	17,647	27,888	39,017	42,397	3.4	1.7
Magalang	13,049	18,626	26,342	31,462	3.5	3.6
Masantol	15,770	24,159	30,538	32,658	2.4	1.4
Mexico	18,678	29,449	44,145	48,805	4.1	2.0
Minalin	9,856	16,223	21,896	25,428	3.0	3.0
Porac	14,685	23,449	36,232	44,462	4.4	4.2
San Fernando	39,549	56,861	84,362	98,382	4.0	3.1
San Luis	9,472	14,873	20,205	23,866	3.1	3.4
San Simon	9,607	13,549	19,147	21,553	3.5	2.4
Santa Ana	10,491	14,121	19,402	22,595	3.2	3.1
Santa Rita	12,684	15,492	19,439	22,167	2.3	2.7
Santo Tomas	-	12,097	18,907	21,320	4.6	2.4
Sexroan	9,804	13,081	16,792	16,849	2.5	0.07

Continued

Cont'd.

PROVINCE/ Municipality	Population				Average Annual Rate of Increase	
	1948	1960	1970	1975	'60-'70	'70-'75
<b>BATAAN</b>	92,901	145,323	216,210	263,269	4.1	4.0
Balanga	12,379	18,143	28,484	34,289	4.6	3.8
Abucay	8,453	12,900	18,140	20,437	3.5	2.4
Bagac	2,745	6,889	9,268	10,676	3.0	2.9
Dinalupihan	14,341	21,249	30,509	36,302	3.7	3.5
Hermosa	8,437	12,550	19,501	23,246	4.5	3.6
Limay	4,509	7,126	12,912	18,182	6.1	7.1
Mariveles	4,462	9,067	16,157	25,167	5.9	9.3
Morong	3,338	5,734	6,738	7,793	1.6	3.0
Orani	12,718	17,618	25,740	29,464	3.9	2.7
Orion	8,721	14,672	19,672	24,283	3.0	4.3
Pilar	5,805	9,667	14,087	16,699	3.8	3.4
Samal	6,995	9,708	15,002	16,731	4.4	2.2
<b>BATANGAS</b>	510,224	681,414	926,308	1,032,009	3.1	2.2
<b>LAGUNA</b>	321,247	472,064	699,736	803,750	4.0	2.8
<b>CAVITE</b>	262,550	378,138	520,180	628,321	3.2	3.8
<b>RIZAL</b>	104,578	173,958	307,238	414,192	5.9	6.2
<b>REGION(IV)MMA</b>	1,569,128	2,462,489	3,966,695	4,970,006	4.9	4.6
Valenzuela	16,740	41,473	98,456	150,605	9.0	8.9
Caloocan City	58,208	145,523	274,453	397,201	6.6	7.7
Quezon City	107,977	137,990	754,452	956,864	18.5	4.9
Malabon	46,455	76,438	141,514	174,878	6.4	4.3
Navotas	28,889	49,262	83,245	97,098	5.4	3.1
Marikina	23,353	40,455	113,400	168,453	10.9	8.2
San Juan del Monte	31,493	56,861	104,559	122,492	6.3	3.2
Mandaluyong	26,309	71,619	149,407	182,267	7.6	4.1
Pasig	35,407	62,130	156,492	209,915	9.7	6.0
Makati	41,335	114,540	264,918	334,448	8.7	4.8
Pateros	8,380	13,173	25,468	32,821	6.8	5.2
Taguig	15,340	21,856	55,257	73,702	9.7	5.9
Pasay City	88,728	132,673	206,283	254,999	4.5	4.3
Parañaque	28,884	41,898	97,214	158,974	4.6	10.3
Las Piñas	9,280	16,093	45,732	81,610	11.0	12.3
Muntlupa	18,444	21,893	65,057	94,563	11.5	7.8
<b>MANILA</b>	983,906	1,138,611	1,330,788	1,479,116	1.6	2.1

Source: NCSO, Integrated Census, 1975

Appendix II-2, Table 2-2 EMPLOYED PERSONS BY RESIDENCE, 1975

Provinces	Total Employment Persons	Primary 1/	Secondary 2/	Tertiary 3/
Philippines	12,418,996 (100.0)	6,800,920 (54.8)	1,778,501 (14.3)	3,839,575 (30.9) 5/
Zambales	114,594 (100.0)	34,308 (29.9)	13,320 (11.6)	66,966 (58.5)
Bataan	74,975 (100.0)	29,840 (39.8)	16,496 (22.0)	28,639 (38.2)
Pampanga	266,576 (100.0)	85,299 (32.0)	65,837 (24.7)	115,440 (43.3)
Bulacan 4/	328,274 (100.0)	91,733 (27.9)	107,535 (32.8)	129,006 (39.3)
Rizal	1,237,262 (100.0)	61,409 (5.0)	418,884 (33.9)	756,949 (61.1)
MMA	1,624,296 (100.0)	37,187 (2.3)	523,888 (32.3)	1,063,221 (65.4)
Cavite	182,632 (100.0)	56,885 (31.1)	34,509 (18.9)	91,238 (50.0)
Laguna	241,490 (100.0)	89,019 (36.9)	61,935 (25.6)	90,536 (37.5)
Batangas	308,152 (100.0)	148,159 (48.1)	61,903 (19.8)	98,900 (32.1)

Source: NCSO, Integrated Census, 1975

Notes: 1/ Primary - agriculture, logging, mining and quarrying.  
 2/ Secondary - manufacturing, electricity, gas and water, construction.  
 3/ Tertiary - wholesale and retail, transport storage and communication, etc.  
 4/ Including Valenzuela  
 5/ ( ) indicates percent composition.

Appendix II-3, Table 2-3 AVERAGE FAMILY INCOME, 1975

Area	Number of Families (Thousands)	Total Family Income (Millions of Pesos)	Average Family Income (Pesos)
Philippines	6,859	40,059	5,840
Region I	558	3,082	5,525
Region II	329	1,679	5,102
Region III	662	3,824	5,773
Bataan	42	195	4,632
Bulacan	149	864	5,806
Nueva Ecija	148	600	4,068
Pampanga	152	1,113	7,317
Tarlac	97	516	5,309
Zambales	75	537	7,188
Region IV (MMA)	770	8,057	10,469
Manila	247	2,432	9,834
Quezon City	133	1,633	12,241
Caloocan City	68	532	7,858
Pasay City	33	208	6,361
Las Pinas	13	215	16,667
Makati	45	993	21,969
Malabon	29	187	6,561
Mandaluyong	29	313	10,646
Marikina	29	298	10,171
Muntinlupa	13	103	8,175
Navotas	15	105	6,818
Paranaque	23	348	15,000
Pasig	34	230	6,866
Pateros	5	36	6,667
San Juan	18	149	8,142
Taguig	11	80	7,018
Valenzuela	24	201	8,553

Source: NCSO Special Release No. 190 and NEDA Regional Development Information, 1978.

Appendix II-4, Table 2-4 GENERAL STATISTICS FOR ALL WHOLESALE AND RETAIL ESTABLISHMENTS, 1974

Province	Number of Establishments	Employment (Average for the Year)	Gross Receipts (P1,000)	Gross Receipts Per Establishment (P1,000)	Gross Receipt Per Employee (P1,000)
Bataan	2,044	4,008	61,476	30	15
Bulacan	6,774	15,127	274,301	40	18
Pampanga	10,370	18,283	451,326	44	25
Zamboales	5,394	10,817	161,603	30	15
Manila	24,039	80,720	9,002,747	375	112
Rizal	40,155	138,119	18,151,286	452	131
Batangas	7,978	13,792	153,174	19	11
Cavite	6,158	10,122	98,522	16	10
Laguna	8,381	15,785	327,985	39	21
Philippines	341,850	802,262	40,670,785	119	51

Source: NCSO, Annual Survey of Establishments "WHOLESALE AND RETAILING", 1974.

Appendix II-5, Table 2-5 GENERAL STATISTICS FOR ALL CONSTRUCTION ESTABLISHMENTS, 1974

Province	Number of Establishments	Employment (Average for the Year)	Value of Gross Output	Census Value Added	Value of Gross Output Per Establishment	Census Value Added per Establishment	Value of Gross Output Per Employee	Census Value Added per Employee
Bataan	6	553	8,124	2,359	1,161	408	15	5
Pampanga	4	414	2,172	1,476	543	369	5	4
Manila	40	9,607	201,200	111,108	5,030	2,778	21	12
Rizal	107	14,594	466,377	215,287	4,359	2,012	32	15
Philippines	222	29,746	760,853	367,657	3,427	1,656	26	12

Source: NCSO, Annual Survey of Establishments "CONSTRUCTION", 1974.

Appendix II-6, Table 2-6 GENERAL STATISTICS FOR ALL MINING AND QUARRYING ESTABLISHMENTS, 1974

Province	Number of Establishments	Employment (Average for the Year)	Value of Gross Output	Census Value Added	Value of Gross Output Per Establishment	Census Value Added per Establishment	Value of Gross Output Per Employee	Census Value Added per Employee
Bulacan	24	223	2,109	1,427	89	59	9	6
Zamboales	6	2,831	96,083	70,178	16,014	11,696	34	25
Manila	15	664	9,786	6,706	652	447	15	10
Rizal	19	1,344	22,734	12,067	1,197	635	17	9
Cavite	4	27	102	81	26	20	4	3
Laguna	4	193	7,434	3,931	1,858	983	38	20
Philippines	201	40,171	3,492,566	2,381,433	17,376	11,848	87	59

Source: NCSO, Annual Survey of Establishments "MINING AND QUARRYING", 1974.

Appendix II-7, Table 2-7 NUMBER OF PERSONS EMPLOYED IN BRACKISHWATER AND FRESHWATER FISHPONDS, 1970

Province	Total Number of Employed Workers	Permanent Workers				Additional Worker During Peak Period			
		Total	Managerial Personnel	Fishpond Workers	Other Workers	Total	Managerial Personnel	Fishpond Workers	Other Workers
Philippines	69,239	28,088	3,604	18,358	6,126	372	26,311	14,468	
Zambales	621	463	28	231	204	4	90	64	
Bataan	2,373	696	124	481	91	5	845	827	
Pampanga	1,901	835	105	592	138	4	792	270	
Bulacan	2,720	894	150	634	110	16	1,186	624	
Rizal	1,846	864	96	721	47	8	812	162	
Manila	51	37	3	20	14	-	-	14	
Cavite	1,777	819	163	487	169	8	900	50	
Laguna	900	772	4	330	438	-	111	17	
Batangas	316	144	17	91	36	1	108	63	

Source: NCSO, Census of fishery, 1971.

Appendix II-8, Table 2-8 NUMBER OF FISHING HOUSEHOLDS AND EXTENT OF DEPENDENCY ON FISHING, 1970

Province	Total Number of Fishing Household	Number of Households Reporting Fishing	
		Sole Source of Income	Other Source of Income
Philippines	82,805	24,031	58,274
Zambales	768	404	364
Bataan	810	576	234
Pampanga	7,223	1,600	5,623
Bulacan	2,328	1,393	935
Rizal	3,136	1,537	1,599
Manila	-	-	-
Cavite	426	294	132
Laguna	4,142	2,534	1,608
Batangas	810	216	594

Source: NCSO, Census of fishery, 1971.

Appendix II-9, Table 2-9 SUMMARY OF ESTIMATED AREA, PRODUCTION AND VALUE OF OUTPUT IN THE FISHERIES OF THE INFLUENCE AREA, 1975

	Pampanga		Bulacan		Total
	Pampanga	Bulacan	Bulacan	Total	
A. Total area (has)	16,946	17,414	1,137	35,497	
B. Total Production (tons)	6,802	21,307	1,450	39,612	
Brackish fishponds	15,479	15,719	1,193	32,394	
Municipal fisheries	1,323	5,588	257	7,218	
C. Value of production (in ₱1,000)	81,007	98,813	6,845	186,365	
Brackish fishponds	75,847	77,023	5,845	158,415	
Municipal fisheries	5,160	21,790	1,000	27,950	

Source: DPWTC and Tahal Engr. Consultants Ltd., Pampanga Delta Candaba Swamp Area Development Project, 1978.

Appendix II-10  
 Table 2-10 EXPORTS: PHILIPPINES AND BATAAN EXPORT PROCESSING ZONE

A. Export and Import Targets (in current million U.S. dollars)

	1978	1982	1987	Growth Rate 1978-87 (percent)
Exports	3,572	7,038	16,795	18.8
Imports	4,580	8,351	17,692	16.2
Trade Balance (deficit)	(1,008)	(1,313)	(897)	

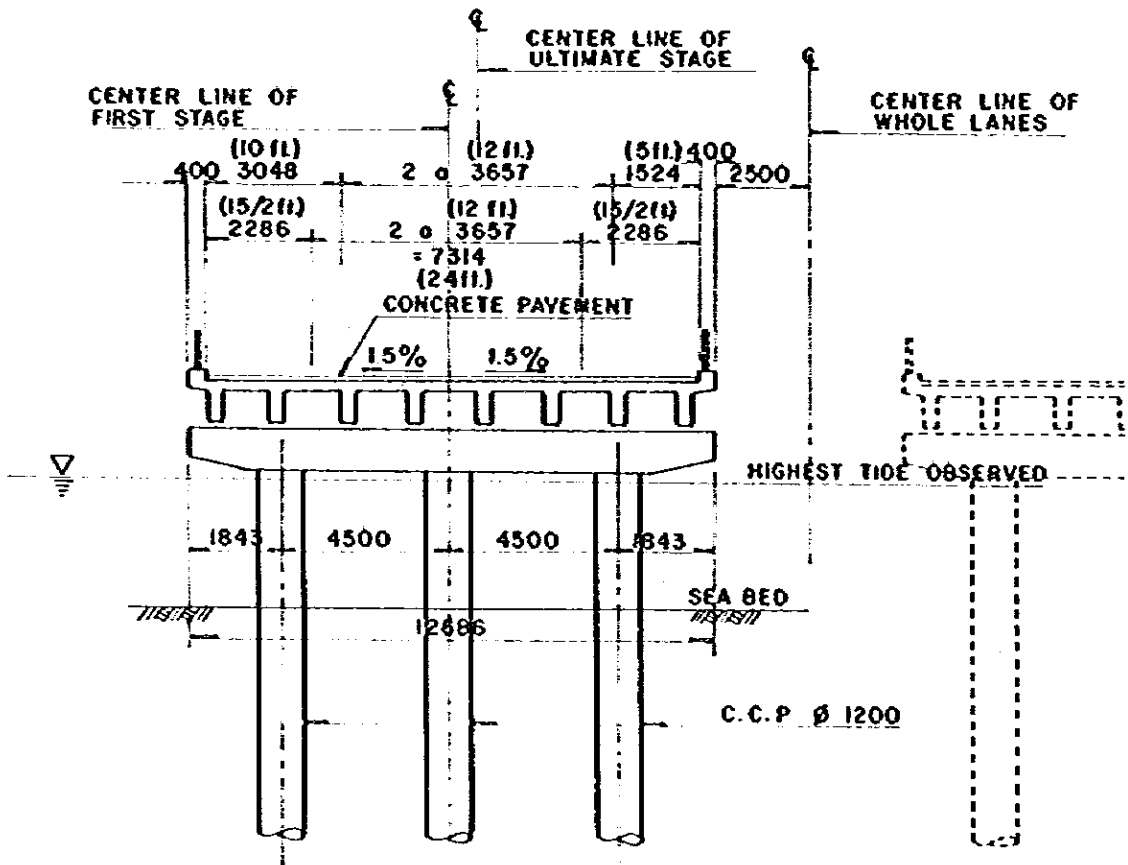
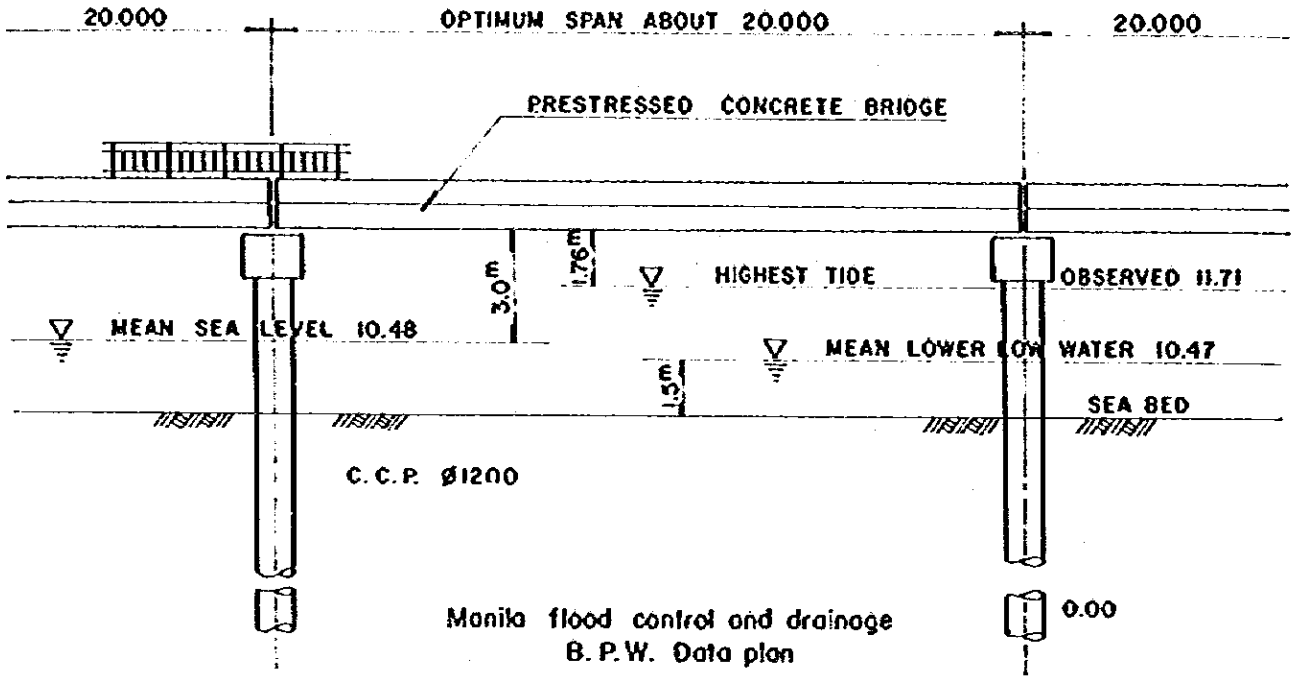
B. Export by Major Categories (in percent share)

	1978	1982	1987
Manufacturing	35	42	50
Non-manufacturing	65	58	50
Total	100	100	100

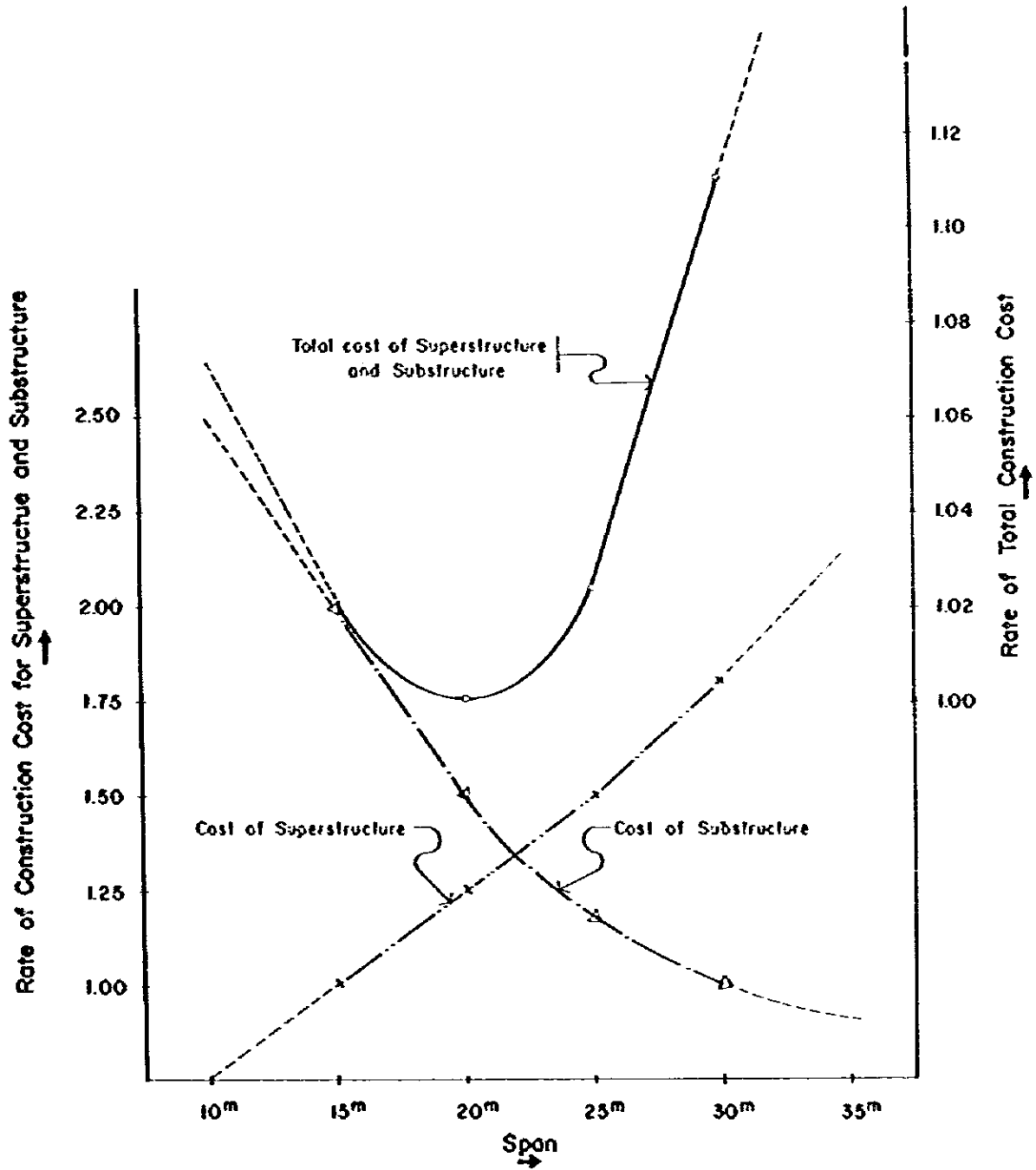
Source: NEDA, Summary of the five-year Philippine development plan, 1978-1982 (including the ten year development plan, 1978-1987), 1977.



Appendix II-11  
 Fig. 3-1 GENERAL VIEW OF CONCRETE VIADUCT  
 SCALE = 1:200



Appendix II-12  
 Fig. 3-2 OPTIMUM SPAN LENGTH OF CONCRETE VIADUCT







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