

Table L-3-1 Breakdown of El Salam Canal (Item 1.1)

<u>No.</u>	<u>Description</u>	<u>Qty's</u>	<u>Unit</u>	(LE)	(Unit : '000LE)		
				<u>Rate</u>	<u>Total</u>	<u>F.C.</u>	<u>L.C.</u>
1)	Siphon under the Suez Canal						
1-1	Drilling						
	Preparatory for driving	1	L.s		1,310.00	260.00	1,050.00
	Soil Improvement	1	L.s		5,120.00	2,310.00	2,810.00
	Shield Driving	2,700	m		54,270.00	46,670.00	7,600.00
	Concrete Lining	2,700	m		6,860.00	2,740.00	4,120.00
	<u>Sub-Total</u>				<u>67,560.00</u>	<u>51,980.00</u>	<u>15,580.00</u>
1-2	Working Shaft, Manhole						
a.	Starting Shaft						
	Excavation	12,900	cu.m	20	258.00	175.00	83.00
	Diaphragm Wall	3,500	sq.m	2,900	10,150.00	7,610.00	2,540.00
	Waling/Strut	360	t	2,300	828.00	703.80	124.20
	Bottom Slab Conc.	330	cu,m	350	115.50	15.50	60.60
					(11,351.50)	(8,544.30)	(2,807.20)
b.	Intermediate Shaft						
	Excavation	4,100	cu.m	30	82.00	55.60	26.40
	Diaphragm Wall	2,900	sq.m	2,900	8,410.00	6,310.00	2,100.00
	Waling/Strut	280	t	2,300	644.00	547.40	96.60
	Bottom Slab Conc.	90	cu,m	350	31.50	15.50	16.40
					(9,167.50)	(6,928.10)	(2,239.40)
c.	Receiving Shaft						
	Excavation	8,100	cu.m	20	162.00	109.90	52.10
	Diaphragm	3,300	sq.m	2,900	9,570.00	7,180.00	2,390.00
	Waling/Strut	410	t	2,300	943.00	801.50	141.50
	Bottom Slab Conc.	170	cu,m	350	59.50	28.60	30.90
					(10,734.50)	(8,120.00)	(2,614.50)
	<u>Sub-Total</u>				<u>31,253.50</u>	<u>23,592.40</u>	<u>7,661.10</u>

No.	Description	Qty's	Unit	(LE)	(Unit: '000LE)		
				Rate	Total	F.C.	L.C.
1-3	Inlet/Outlet Structure						
a.	Inlet Facility						
	Excavation	28,000	cu.m	8	224.00	134.40	89.60
	Embankment	2,000	cu.m	6	12.00	7.80	4.20
	Sheet Piling (III)	250	m	1,500	375.00	356.00	19.00
	Concrete	12,000	cu.m	350	4,200.00	2,016.00	2,184.00
	Pile Work (Ø500×20m)	350	p.c.s	1,500	530.00	238.50	291.50
	Sluice Gate (5.0×7.0)	4	No.s		490.00	367.50	122.50
	Bar Screen (6.5×13.0)	2	No.s		380.00	361.00	19.00
	Screen Facilities	1	lot		930.00	880.00	50.00
					(7,141.00)	(4,361.20)	(2,779.80)
b.	Outlet Facility						
	Excavation	6,000	cu.m	8	48.00	28.80	19.20
	Embankment	1,000	cu.m	6	6.00	3.90	2.10
	Sheet Piling (Type II)	170	m	1,500	255.00	245.25	12.75
	Concrete	3,000	cu.m	350	1,050.00	504.00	546.00
	Found, Pile (Ø500×20m)	40	p.c.s	1,500	60.00	27.00	33.00
	Dewatering Facility	1	lot		120.00	96.00	24.00
	Sand Removal Facility	1	lot		500.00	375.00	125.00
					(2,039.00)	(1,276.95)	(762.05)
	<u>Sub-Total</u>				<u>9,180.00</u>	<u>5,638.15</u>	<u>3,541.85</u>

1-4 Construction Machineries

(Unit : 1,000LE)

a. Shaft Works

Diaphragm Drilling Machine	1	L.S.	4,130	4,130	4,130	-
Bentonite Mixer (3 cu.m)	1	No.s	75	75	75	-
Bentonite Tank (27 cu.m)	4	"	20	80	80	-
Casing Puller (480 ton)	1	"	360	360	360	-
Crawler Crane (80 ton)	1	"	1,600	1,600	1,600	-
Backhole (0.7 cu.m)	1	"	190	190	190	-
Compressor (11 cu.m)	1	"	75	75	75	-
				(6,510)	(6,510)	-

(Unit: '000L.E)

<u>No.</u>	<u>Description</u>	<u>Qty's</u>	<u>Unit</u>	<u>Rate</u>	<u>Total</u>	<u>F.C.</u>	<u>L.C.</u>
b.	Drilling						
	Shield Driving		No.s				
	Machine (6.5m)	2	"	9,400	18,800	18,800	-
	Battery Car (12 ton)	4	"	900	3,600	3,600	-
	Battery Charger (12 ton)	4	"	50	200	200	-
	Sludge Track (6 cu.m)	12	"	40	480	480	-
	Track (6 ton)	6	"	25	150	150	-
	Wheel Loader (2.5 cu.m)	2	L.s	360	720	720	-
	Submersible Pump	1	"	370	370	370	-
	Track Rail	1	"	920	920	920	-
	Blower, Duct (600 mm.)	1	"	390	390	390	-
	Tiller (50 ton)	1	No.s	360	360	360	-
	Centriform (5.3m)	2	"	320	640	640	-
	Agitator Car (6 cu.m)	4	"	170	680	680	-
	Conc. Pump (30 cu.m/H.)	2	"	210	420	420	-
					(27,730)	(27,300)	(-)
c.	Common Facilities						
	Water Purification Plant	1	L.s	305	305	305	-
	Pump. Plant (15 cu.m/H.)	1	"	90	90	90	-
	Concrete Cegment Plant	1	"	1,320	1,320	1,320	-
	Agitator Truck (6.3 cu.m)	6	No.s	140	840	840	-
	Wheel Loader (1.7 cu.m)	2	"	230	460	460	-
	Cargo Trunk (10 ton)	4	"	120	480	480	-
	Dump Truck (8 ton)	4	"	100	400	400	-
	Dump Truck (15 ton)	4	"	215	860	860	-
	Bull Dozer (10.4 ton)	1	"	220	220	220	-
	Pickup Car (1 ton)	5	"	30	150	150	-
	Wagon Car (2000 cc)	5	"	45	225	225	-
	Generator (230 KVA)	1	"	180	180	180	-
	" (1000 KVA)	2	"	750	1,500	1,500	-
	" (430 KVA)	2	"	340	680	680	-
	" (100 KVA)	3	"	100	300	300	-
					(8,010)	(8,010)	(-)
	<u>Sub-Total</u>				<u>42,250</u>	<u>42,250</u>	-
1-5	Temporary Work						
	Preparatory Works		L.s		200	-	200
	Office Building		"		890	-	890
	Common Facilities		"		1,370	-	1,370
	Power Water Plant		"		6,500	1,900	4,600
	Miscellaneous		"		520	-	520
	<u>Sub-Total</u>				<u>9,480</u>	<u>1,900</u>	<u>7,580</u>
	<u>Total of 1)</u>				<u>159,723</u>	<u>125,360</u>	<u>34,363</u>

No.	Description	Qty's	Unit	(LE)	(Unit : '000LE)		
				Rate	Total	F.C.	L.C.
2)	Tina Pump Station						
2-1	Civil Work						
	Concrete	7,380	cu.m	350	2,583.00	1,239.80	1,343.20
	Excavation	51,800	cu.m	10	518.00	310.80	207.20
	Backfill	8,300	cu.m	4	33.20	1.30	31.90
	R.C. Pile (Ø600x25)	100	p.c.s	3,500	350.00	157.50	192.50
	R.C. Pile (Ø400x8)	200	p.c.s	500	100.00	45.00	55.00
	<u>Sub-Total</u>				<u>3,584.20</u>	<u>1,754.40</u>	<u>1,829.80</u>
2-2	Building	1,440	sq.m	1,800	2,592.00	518.00	2,074.00
2-3	Pump Facilities						
	Pump (2,800 mm)	2	No.s	3,115	6,230.00	6,230.00	-
	Motor (870 KW)	2	No.s	265	530.00	530.00	-
	Reduction Gear	2	No.s	540	1,080.00	1,080.00	-
	Pipes in Station	1	Lot		1,460.00	1,460.00	-
	Flap Valve	2	No.s	170	340.00	340.00	-
	Screen Equipment	1	Lot		1,000.00	1,000.00	-
	Bar Screen	2	No.s	60	120.00	120.00	-
	Electric Equipment	1	Lot		1,410.00	1,410.00	-
	Auxiliary Equipment	1	Lot		160.00	160.00	-
	Cable and Earthing	1	Lot		350.00	350.00	-
	<u>Sub-Total</u>				<u>12,680.00</u>	<u>12,680.00</u>	<u>-</u>
2-4	Pump Erection (15%)	1	L.s		1,900.00	870.00	1,030.00
	<u>Sub-Total</u>				<u>20,756.00</u>	<u>15,822.00</u>	<u>4,934.00</u>
3)	Balouza Pump Station						
3-1	Civil Work						
	Concrete	6,100	cu.m	350	2,138.50	1,026.50	1,112.00
	Excavation	37,500	cu.m	10	375.00	225.00	150.00
	Backfill	6,300	cu.m	4	25.20	1.00	24.20
	R.C. Pile (Ø600x25)	100	pcs	3,500	350.00	157.50	192.50
	R.C. Pile (Ø400x8)	140	pcs	500	70.00	31.50	38.50
	<u>Sub-Total</u>				<u>2,958.70</u>	<u>1,441.50</u>	<u>1,517.20</u>
3-2	Building	1,615	sq.m	1,800	2,907.00	581.40	2,325.60

							(Unit: '000LE)		
<u>No.</u>	<u>Description</u>	<u>Qty's</u>	<u>Unit</u>	<u>Rate</u>	<u>Total</u>	<u>F.C.</u>	<u>L.C.</u>		
3-3	Pump Facilities								
	Pump (1,500 mm)	4	No.s	490	1,960.00	1,960.00	-		
	Motor (970 kw)	4	No.s	460	1,840.00	1,840.00	-		
	Check Valve (1,500mm)	4	No.s	270	1080.00	1080.00	-		
	Butterfly Valve	4	No.s		310.00	310.00	-		
	Pipe in Pump Station	1	Lot		2,000.00	2,000.00	-		
	Screen Equipment	1	Lot		1,430.00	1,430.00	-		
	Bar Screen	4	No.s	40	160.00	160.00	-		
	Electric Equipment	1	Lot		2,820.00	2,820.00	-		
	Crane (15t)	1	No.s		570.00	570.00	-		
	Auxiliary Equipment	1	Lot		60.00	60.00	-		
	Cable and Earthing	1	Lot		710.00	710.00	-		
	<u>Sub-Total</u>				<u>12,940.00</u>	<u>12,940.00</u>	-		
3-4	Pump Erection (15%)				1,940.00	890.00	1,050.00		
3-5	Discharge Pond			(LE)				(Unit : 1,000LE)	
	Excavation	29,200	cu.m	3	87.60	52.56	35.04		
	Plain Concrete	750	sq.m	110	82.50	24.75	57.75		
	Lining	2,930	sq.m	20	58.60	26.40	32.20		
	Check Gate (Type 4)				904.90	715.25	189.65		
	Miscellaneous		L.s		60.00	12.00	48.00		
	<u>Sub-Total</u>				<u>1,193.60</u>	<u>830.96</u>	<u>362.64</u>		
3-6	Pipeline								
	Ø2400mm Pipeline (incl. install)	880	m	7,840	6,899.20	5,312.40	1,586.80		
	Concrete	440		110	48.40	23.20	25.20		
	<u>Sub-Total</u>				<u>6,947.60</u>	<u>5,335.60</u>	<u>1,612.00</u>		
Total of 3)					28,886.90	22,019.46	6,867.44		
4)	Measurement and Remote Control System								
4-1	Building	400	sq.m	800	320.00	64.00	256.00		
4-2	Equipment		L.s		5,400.00	5,400.00	-		
Total of 4)					5,720.00	5,464.00	256.00		

No.	Description	Qty's	Unit	(L.E)	(Unit: '000LE)		
				Rate	Total	F.C.	L.C.
5)	El Salam Canal						
5-1	El Salam Canal in Tina Plain						
a.	Type I-A (0-2.0 km)						
	Excavation	314,000	cu.m	3	1,256.00	690.80	565.20
	Road Filling	28,000	cu.m	8	224.00	123.20	100.80
					(1,480.00)	(814.00)	(666.00)
b.	Type I-A (2.0 - 10.0km)						
	Excavation	399,200	cu.m	3	1,197.60	658.70	538.90
	Embankment	1,478,400	cu.m	5	7,392.00	4,065.60	3,326.40
	Road Filling	112,000	cu.m	8	896.00	510.70	385.30
					(9,485.60)	(5,235.00)	(4,250.60)
c.	Type I-B (10-13.5 km)						
	Excavation	218,800	cu.m	3	656.40	361.00	295.40
	Embankment	476,000	cu.m	5	2,380.00	1,309.00	1,071.00
	Road Filling	49,000	cu.m	8	392.00	223.40	168.60
					(3,428.40)	(1,893.40)	(1,535.00)
d.	Type I-C (13.5 - 23.5 km)						
	Excavation	396,900	cu.m	3	1,190.70	654.90	535.80
	Embankment	1,125,040	cu.m	5	5,625.20	3,093.90	2,531.30
	Road Filling	137,200	cu.m	8	1,097.60	625.60	472.10
					(7,913.50)	(4,374.40)	(3,539.10)
	<u>Sub-Total of 5-1.</u>				<u>22,308.00</u>	<u>12,317.00</u>	<u>9,991.00</u>
5-2	El Salam Canal in Sandy Area						
a.	Type II-A (24.4-39.4 km)						
	Excavation	695,000	cu.m	4.0	2,780.00	1,890.40	889.60
	Embankment	1,496,000	cu.m	7.0	10,472.00	5,759.60	4,712.40
	Lining	274,800	sq.m	20.0	5,496.00	2,473.20	3,022.80
	Road Filling	39,000	cu.m	8.0	312.00	177.80	134.20
	Drain Filter	30,000	m.	20	600.00	180.00	420.00
					(19,660.00)	(10,481.00)	(9,179.00)
b.	Type II-B (39.4-45.3 km)						
	Excavation	302,000	cu.m	4.0	1,208.00	821.40	386.60
	Embankment	368,000	cu.m	7.0	2,576.00	1,416.80	1,159.20
	Lining	93,700	sq.m	20.0	1,874.00	843.30	1,030.70
	Road Filling	15,300	cu.m	8.0	122.40	69.80	52.60
	Drain Filter	11,800	m.	20.0	236.00	70.80	165.20
					(6,016.40)	(3,222.10)	(2,794.30)

No.	Description	Qty's	Unit	(LE)	Total	(Unit: '000LE)	
				Rate		F.C.	L.C.
c.	Type II-C (45.3-50.4 km)						
	Excavation	177,000	cu.m	4.0	708.00	481.40	226.60
	Embankment	216,000	cu.m	7.0	1,512.00	831.60	680.40
	Lining	78,200	sq.m	20.0	1,564.00	703.80	860.20
	Road Filling	13,300	cu.m	8.0	106.40	60.60	45.80
	Drain Filter	10,200	m.	20.0	204.00	61.20	142.80
					(4,094.40)	(2,138.60)	(1,955.80)
d.	Type II-D (50.4-60.7 km)						
	Excavation	1,164,000	cu.m	4.0	4,656.00	3,166.00	1,490.00
	Embankment	202,000	cu.m	7.0	1,414.00	777.00	637.00
	Lining	143,600	sq.m	20.0	2,872.00	1,292.40	1,579.60
	Road Filling	26,800	cu.m	8.0	214.40	122.20	92.20
	Drain Filter	20,600	m.	20.0	412.00	123.60	288.40
					(9,568.40)	(5,481.20)	(4,087.20)
e.	Check Gate - Type A (Rumana North B.C.)						
	Concrete	400	cu.m	350.0	140.00	67.20	72.80
	Gate (5.0 x 3.7)	2	No.s		130.00	100.10	29.90
	Excavation	2,300	cu.m	3.0	6.90	4.10	2.80
	Backfill	500	cu.m	2.0	1.00		1.00
					(277.90)	(171.40)	(106.50)
f.	Check Gate - Type A (Rumana South B.C., 6 October B.C.)						
					(555.80)	(342.80)	(213.00)
g.	Check Gate - Type B (Rabaa/Qatia B.C.)						
	Concrete	350	cu.m	350.0	122.50	58.60	63.90
	Gate (4.5 x 3.3)	2	No.s		105.00	80.80	24.20
	Excavation	2,000	cu.m	3.0	6.00	3.60	2.40
	Backfill	400	cu.m	2.0	0.80		0.80
					(234.30)	(143.00)	(91.30)
h.	Check Gate - Type B (Rabaa North B.C., El Haswa B.C.)						
					(468.60)	(286.00)	(182.60)
i.	Check Gate - Type C (Nigila, El Nasr B.C.)						
	Concrete	320	cu.m	350.0	112.00	53.80	58.20
	Gate (4.0 x 2.9)	2	No.s		81.20	62.50	18.70
	Excavation	1,600	cu.m	3.0	4.80	2.90	1.90
	Backfill	300	cu.m	2.0	0.60		0.60
					(198.60)	(119.20)	(79.40)

<u>No.</u>	<u>Description</u>	<u>Qty's</u>	<u>Unit</u>	<u>(LE)</u>	<u>(Unit: '000LE)</u>		
				<u>Rate</u>	<u>Total</u>	<u>F.C.</u>	<u>L.C.</u>
j.	Highway Bridge at 28.5 km						
	Superstructure	240	sq.m	480.0	115.20	55.30	59.90
	R.C. Concrete	75	cu.m	350.0	26.50	12.70	13.80
	Excavation	720	cu.m	3.0	2.20	1.30	0.90
	Miscellaneous				14.40	2.90	11.50
					(158.30)	(72.20)	(86.10)
k.	Highway Bridge at 50.4 km				158.30	72.20	86.10
	<u>Total of 5-2</u>				41,391.00	22,529.70	18,861.30
	<u>Total of 5)</u>				63,699.00	34,846.70	28,852.30

<u>No.</u>	<u>Description</u>	<u>Qty's</u>	<u>Unit</u>	(LE)	(Unit: '000LE)		
				<u>Rate</u>	<u>Total</u>	<u>F.C.</u>	<u>L.C.</u>
6)	Branch Canal						
6-1	Balouza Branch Canal (L=5.6km)						
	Excavation	20,700	cu.m	3	62.10	37.30	24.80
	Embankment	150,640	cu.m	5	753.20	414.30	338.90
	Road Filling	78,400	cu.m	8	627.20	357.50	269.70
	<u>Sub-Total</u>				<u>1,442.50</u>	<u>809.10</u>	<u>633.40</u>
6-2	Rumana North Branch Canal (L=7.0km)						
	Excavation	125,000	cu.m	4	500.00	340.00	160.00
	Embankment	82,000	cu.m	7	574.00	315.70	258.30
	Lining	64,400	sq.m	16	1,030.40	463.70	566.70
	Road Filling	18,200	cu.m	8	145.60	83.00	62.60
	Drain Filter	14,000	m	14	196.00	58.80	137.20
	Check Gate	3	lot	-	61.50	49.20	12.30
	<u>Sub-Total</u>				<u>2,507.50</u>	<u>1,310.40</u>	<u>1,197.10</u>
6-3	Rumana South Branch canal (L=5.0km)						
	Excavation	70,000	cu.m	4	280.00	190.40	89.60
	Embankment	68,000	cu.m	7	476.00	261.80	214.20
	Lining	44,800	sq.m	16	716.80	322.60	394.20
	Road Filling	13,000	cu.m	8	104.00	59.30	44.70
	Drain Filter	10,000	m	14	140.00	42.00	98.00
	Check Gate	2	lot	t	16.00	12.80	3.20
	<u>Sub-Total</u>				<u>1,732.80</u>	<u>888.90</u>	<u>843.90</u>
6-4	6 October Branch Canal (L=6.5km)						
	Excavation	91,000	cu.m	4	364.00	247.50	116.50
	Embankment	76,000	cu.m	7	532.00	292.60	239.40
	Lining	46,000	sq.m	16	736.00	331.20	404.80
	Road Filling	17,000	cu.m	8	136.00	77.50	58.50
	Drain Filter	13,000	m	14	182.00	54.60	127.40
	Check Gate	3	lot		24.00	19.20	4.80
	<u>Sub-Total</u>				<u>1,974.00</u>	<u>1,022.60</u>	<u>951.40</u>

No.	Description	Qty's	Unit	(LE)	(Unit : '000LE)		
				Rate	Total	F.C.	L.C.
6-5	Rabaa/Qatia Branch Canal						
a.	Section (0.0~5.4 km)						
	Excavation	127,000	cu.m	4	508.00	345.40	162.60
	Embankment	151,000	cu.m	7	1057.00	581.40	475.60
	Lining	67,400	sq.m	16	1,078.40	485.30	593.10
	Road Filling	14,000	cu.m	8	112.00	63.80	48.20
	Drain Filter	10,800	m	14	151.20	45.40	105.80
	Check Gate	2	lot		62.20	49.80	12.40
					(2,968.80)	(1,571.10)	(1,397.70)
b.	Section (5.4 - 22.3 km)						
	Excavation	538,000	cu.m	4	2,152.00	1,463.40	688.60
	Embankment	201,000	cu.m	7	1,407.00	773.90	633.10
	Lining	162,500	sq.m	16	2,600.00	1,170.00	1,430.00
	Road Filling	44,200	cu.m	8	353.60	201.60	152.00
	Drain Filter	34,000	m	14	476.00	142.80	333.20
	Check Gate	8	lot		31.10	24.90	6.20
					(7,019.70)	(3,776.60)	(3,243.10)
	<u>Sub-Total of 6-5</u>				<u>9,988.50</u>	<u>5,347.70</u>	<u>4,640.80</u>
6-6	Raban North Branch Canal (L=6.0km)						
	Excavation	93,000	cu.m	4	372.00	253.00	119.00
	Embankment	35,000	cu.m	7	245.00	134.80	110.20
	Lining	48,000	sq.m	16	768.00	345.60	422.40
	Road Filling	15,600	cu.m	8	124.80	71.10	53.70
	Drain Filter	12,000	m	14	168.00	50.40	117.60
	Check Gate	3	lot		24.00	19.20	4.80
	<u>Sub-Total</u>				<u>1,701.80</u>	<u>874.10</u>	<u>827.70</u>
6-7	El-Tina Branch Canal (L=6.0km)						
	Excavation	105,000	cu.m	4	420.00	285.60	134.40
	Embankment	70,000	cu.m	7	490.00	269.00	221.00
	Lining	54,100	sq.m	16	865.60	389.50	476.10
	Road Filling	15,600	cu.m	8	124.80	71.10	53.70
	Drain Filter	12,000	m	14	168.00	50.40	117.60
	Check Gate	3	lot		45.50	36.40	9.10
	<u>Sub-Total</u>				<u>2,113.90</u>	<u>1,102.00</u>	<u>1,011.90</u>

No.	Description	Qty's	Unit	(LE)	(Unit: '000LE)		
				Rate	Total	F.C.	L.C.
6-8	E1 Haswa Branch Canal (L=2.0km)						
	Excavation	31,000	cu.m	4	124.00	84.30	39.70
	Embankment	12,000	cu.m	7	84.00	46.20	37.80
	Lining	15,800	sq.m	16	252.80	113.80	139.00
	Road Filling	5,200	cu.m	8	41.60	23.70	17.90
	Drain Filter	4,000	m	14	56.00	16.80	39.20
	Check Gate	1	lot		6.50	5.20	1.30
	<u>Sub-Total</u>				<u>564.90</u>	<u>290.00</u>	<u>274.90</u>
6-9	E1 Nasr Branch Canal (L=7.5km)						
	Excavation	117,000	cu.m	4	468.00	318.20	149.80
	Embankment	44,000	cu.m	7	308.00	169.40	138.60
	Lining	60,000	sq.m	16	960.00	432.00	528.00
	Road Filling	19,500	cu.m	8	156.00	88.90	67.10
	Drain Filter	15,000	m	14	210.00	63.00	147.00
	Check Gate	4	lot		32.00	25.60	6.40
	<u>Sub-Total</u>				<u>2,134.00</u>	<u>1,097.10</u>	<u>1,036.90</u>
6-10	Nigila Branch Canal (L=12.1km)						
	Excavation	417,000	cu.m	4	1,668.00	1,134.20	533.80
	Embankment	235,000	cu.m	7	1,645.00	904.80	740.20
	Lining	115,700	sq.m	16	1,851.20	833.00	1,018.20
	Road Filling	31,500	cu.m	8	252.00	143.60	108.40
	Drain Filter	24,200	m	14	338.80	101.60	237.20
	Check Gate	6	lot		123.00	98.40	24.60
	<u>Sub-Total</u>				<u>5,878.00</u>	<u>3,215.60</u>	<u>2,662.40</u>
	<u>Total of 6)</u>				<u>30,037.90</u>	<u>15,957.50</u>	<u>14,080.40</u>
	<u>Total of 1)~ 6)</u>				<u>308,823.00</u>	<u>219,468.00</u>	<u>89,355.00</u>
	Contingency				30,882.00	21,947.00	8,935.00
	<u>Grand Total</u>				<u>339,705.00</u>	<u>241,415.00</u>	<u>98,290.00</u>

Table L-3-2 Breakdown of Drainage Canal (Item 1.2)

No.	Description	Qty's	Unit	(LE)	(Unit: '000LE)		
				Rate	Total	F.C.	L.C.
1)	Tina Main Drainage System						
1-1	Tina Main Drainage Canal (L=14.3 km)						
	Excavation	86,700	cu.m	3	260.10	143.10	117.00
	Embankment	147,200	cu.m	5	736.00	404.80	331.20
	Road Filling	64,400	cu.m	8	515.20	293.70	221.50
	<u>Sub-Total</u>				<u>1,511.30</u>	<u>841.60</u>	<u>669.70</u>
1-2	Tina Drainage Pump Station						
a.	Support Structure						
	Concrete	120	cu.m	350	42.00	20.20	21.80
	Excavation	720	cu.m	6	4.30	2.40	1.90
	Backfill	140	cu.m	4	0.60	-	0.60
	R.C. Pile (Ø400x8)	21	pcs	150	10.50	4.70	5.80
					(57.40)	(27.30)	(30.10)
b.	Building	27	sq.m	1,400	37.80	7.60	30.20
c.	Pump Facilities						
	Pump (11.7 cu.m/m)	3	No.s	66.4	199.20	199.20	-
	Motor (15kw-380v)	3	No.s	8.1	24.30	24.30	-
	Pipe in Station	1	lot	1.4	32.70	32.70	-
	Flap Valve (ø300)	3	No.s		4.20	4.20	-
	Bar Screen	1	lot		14.10	14.10	-
	Electric Equip.	1	lot		185.50	185.50	-
	Auxiliary Equip.	1	lot		18.80	18.80	-
	Cable and Earthing	1	lot		11.70	11.70	-
	Chain Block (3 ton)	1	lot		4.70	4.70	-
					(495.20)	(495.20)	-
d.	Erection		L.S		74.30	34.20	40.10
	<u>Sub-Total</u>				<u>664.70</u>	<u>564.30</u>	<u>100.40</u>
	Total of 1)				2,176.00	1,405.90	770.10

No.	Description	Qty's	Unit	(LE)	(Unit: '000LE)		
				Rate	Total	F.C.	L.C.
2)	Rabaa/Qation Main Drainage System						
2-1	Rabaa/Qtia M. Drainage Canal						
	Excavation	183,700	cu.m	4	734.80	404.10	330.70
	Embankment	101,200	cu.m	7	708.40	389.60	318.20
	Backfill	45,400	cu.m	3	136.20	5.50	130.70
	R.C. Pipe (φ1000)	2,400	m	700	1,680.00	504.00	1,176.00
	<u>Sub-Total</u>				<u>3,259.40</u>	<u>1,303.20</u>	<u>1,956.20</u>
2-2	Rabaa/Qtia Pump Station						
a.	Civil Work						
	Concrete	170	cu.m	350	59.50	28.60	30.90
	Excavation	1,180	cu.m	6	7.10	4.30	2.80
	Backfill	240	cu.m	4	1.00	-	1.00
					(67.60)	(32.90)	(34.70)
b.	Building	39	sq.m	1,400	54.60	10.90	43.70
c.	Pump Facilities						
	Pump (15 cu.m/m-980rpm)	3	No.s	74.5	223.50	223.50	-
	Motor (15kw-380v)	3	No.s	11.00	33.00	33.00	-
	Pipe in Station	1	lot	1.7	38.40	38.40	-
	Flap Valve (350mm)	3	No.s		5.10	5.10	-
	Bar Screen	1	lot		14.10	14.10	-
	Electric Equip.	1	lot		185.50	185.50	-
	Auxiliary Equip.	1	lot		18.80	18.80	-
	Cable and Earthing	1	lot		16.40	16.40	-
	Chain Block (3 ton)	1	lot		4.40	4.40	-
					(539.20)	(539.20)	-
d.	Erection		L.S.		80.90	37.20	43.70
	<u>Sub-Total</u>				<u>742.30</u>	<u>620.20</u>	<u>122.10</u>
	<u>Total of 2)</u>				<u>4,002.00</u>	<u>1,923.00</u>	<u>2079.00</u>
<u>Total of 1) + 2)</u>					<u>6,178.00</u>	<u>3,329.00</u>	<u>2,849.00</u>
Contingency					618.00	333.00	285.00
<u>Grand Total</u>					<u>6,796.00</u>	<u>3,662.00</u>	<u>3,134.00</u>

Table L-3-3 Breakdown of Land Reclamation (Item 1.3)

No.	Description	Qty's	Unit	(LE) Rate	(Unit: '000LE)		
					Total	F.C.	L.C.
1)	C.P.1. Block						
1-1.	Earth Work	5,540,000	cu.m	2.46	13,628	12,742	886
1-2	Road Work						
	Main Road	30,900	cu.m	10.93	338	88	250
	Farm Road	376,000	cu.m	8.30	3,121	812	2,309
1-3	Planting	2,441,400	No.s	3.00	7,324	-	7,324
	<u>Sub-Total of 1)</u>				<u>24,411</u>	<u>13,642</u>	<u>10,769</u>
2)	C.P.2 Block						
2-1.	Earth Work	240,000	cu.m	2.46	354	331	23
2-2.	Road Work						
	Main Road	-	cu.m	10.93	-	-	-
	Farm Road	32,200	cu.m	8.30	267	69	198
2-3.	Planting	193,200	No.s	3.00	580	-	580
2-4.	Leaching	900	fed.	5,867.00	5,280	4,585	695
	<u>Sub-Total of 2)</u>				<u>6,481</u>	<u>4,985</u>	<u>1,496</u>
3)	C.P.3 Block						
3-1.	Earth Work	1,620,000	cu.m	2.46	2,657	2,484	173
3-2.	Road Work						
	Main Road	6,050	cu.m	10.93	66	17	49
	Farm Road	77,350	cu.m	8.30	642	167	475
					(708)	(184)	(524)
3-3.	Planting	500,400	No.s	3.00	1,501	-	1,501
	<u>Sub-Total of 3)</u>				<u>4,866</u>	<u>2,668</u>	<u>2,198</u>

<u>No.</u>	<u>Description</u>	<u>Qty's</u>	<u>Unit</u>	<u>(LE)</u> <u>Rate</u>	<u>(Unit: '000LE)</u>		
					<u>Total</u>	<u>F.C.</u>	<u>L.C.</u>
4)	C.P.4 Block						
4-1.	Earth Work	4,200,000	cu.m	2.46	5,166	4,830	336
4-2.	Road Work						
	Main Road	7,900	cu.m	10.93	86	22	64
	Farm Road	100,900	cu.m	8.30	837	218	619
					(923)	(240)	(683)
4-3.	Planting	652,800	No.s	3.00	1,958	-	1,958
	<u>Sub-Total of 4)</u>				<u>8,047</u>	<u>5,070</u>	<u>2,977</u>
5)	C.P.5 Block						
5-1.	Earth Work	1,340,000	cu.m	2.46	3,296	3,082	214
5-2.	Road Work						
	Main Road	7,500	cu.m	10.93	82	22	60
	Farm Road	95,800	cu.m	8.30	795	207	588
5-3.	Planting	620,100	No.s	3.00	1,860	-	1,860
	<u>Sub-Total of 5)</u>				<u>6,033</u>	<u>3,311</u>	<u>2,722</u>
	<u>Total of 1)-5)</u>				<u>49,838</u>	<u>29,676</u>	<u>20,162</u>
	Contingency				4,984	2,968	2,016
	<u>Total:</u>				<u>54,822</u>	<u>32,644</u>	<u>22,178</u>

Table L-3-4 Breakdown of On Farm Facilities (Item 1.4)

No.	Description	Qty's	Unit	(LE) Rate	('000LE)		
					Total	F.C.	L.C.
1)	C.P.1 Area						
	W/O Drain Area	18,220	fed.	1,760	32,067.20	24,050.40	8,016.80
	W/ Drain Area	5,280	"	2,090	11,035.20	8,276.40	2,758.80
	<u>Sub-Total</u>				<u>43,102.40</u>	<u>32,326.80</u>	<u>10,775.60</u>
2)	C.P.2 Area						
	W/O Drain Area	-	fed.	-	-	-	-
	W/ Drain Area	1,800	"	1,490	2,682.00	2,011.50	670.50
	<u>Sub-Total</u>				<u>2,682.00</u>	<u>2,011.50</u>	<u>670.50</u>
3)	C.P.3 Area						
	W/O Drain Area	4,440	fed.	3,880	17,227.20	12,920.40	4,306.80
	W/ Drain Area	160	"	4,210	673.60	505.20	168.40
	<u>Sub-Total</u>				<u>17,900.80</u>	<u>13,425.60</u>	<u>4,475.20</u>
4)	C.P.4 Area						
	W/O Drain Area	3,930	fed.	4,770	18,746.10	14,059.60	4,686.50
	W/ Drain Area	2,070	"	5,100	10,557.00	7,917.80	2,639.20
	<u>Sub-Total</u>				<u>29,303.10</u>	<u>21,977.40</u>	<u>7,325.70</u>
5)	C.P.5 Area						
	W/O Drain Area	5,290	fed.	2,540	13,436.60	10,077.50	3,359.10
	W/ Drain Area	410	"	2,870	1,176.70	882.50	294.20
	<u>Sub-Total</u>				<u>14,613.30</u>	<u>10,960.00</u>	<u>3,653.30</u>
	<u>Total of 1)-5)</u>				<u>107,601.60</u>	<u>80,701.30</u>	<u>26,900.30</u>
	Contingency				10,760.20	8,070.10	2,690.10
	<u>Total:</u>				<u>118,361.80</u>	<u>88,771.40</u>	<u>29,590.40</u>

Table L-3-5 Initial Cost of On-Farm Irrigation System per Feddan for Each Land Settlement Type

Land Settlement Type	W/O Drains (LE/feddan)	W/ Drains (LE/feddan)	Remarks
CP - 1	1,760	2,090	Drip & Sprinkler (handmove)
CP - 2	-	1,490	Surface Irrigation
CP - 3	3,880	4,210	Drip & Sprinkler (solid set)
CP - 4	4,770	5,100	Sprinkler (solid set)
CP - 5	2,540	2,870	Drip

w/o: without
w/ : with

Breakdown of Initial Cost

Settlement Type	Distribution System (LE/feddan)	Drip System			Sprinkler System			Total (LE)
		Q'ty (%)	Rate (LE)	Amount (LE)	Q'ty (%)	Rate (LE)	Amount (LE)	
CP - 1	910	20	1,630	330	80	650	520	1,760
CP - 2		(surface irrigation)						1,490
CP - 3	910	40	1,630	650	60	3,860	2,320	3,880
CP - 4	910	0	1,630	0	100	3,860	3,860	4,770
CP - 5	910	100	1,630	1,630	0	3,860	0	2,540

Initial Cost of On-Farm Irrigation System per Feddan for
Each Field Irrigation System

A. Drip & Sprinkler

<u>I t e m s</u>	<u>Drip</u>	<u>Sprinkler Solid set</u>	<u>Sprinkler Handmove</u>
Distribution system	910 LE	910 LE	910 LE
Filter, regulator, etc.	300 "	- "	- "
Field irrigation system	1.330 "	3.860 "	650 "
Total (w/o drain)	2.540 LE	4.770 LE	1.560 LE
Drain	330 "	330 "	330 "
Total (w/ drain)	2.870 LE	5.100 LE	1.890 LE

Breakdown of Initial Cost of Distribution System
(Irrigation block : 640 feddan)

<u>Item</u>	<u>Unit</u>	<u>Q'ty</u>	<u>Rate</u>	<u>Amount</u>
(1) Pump station				
1.1 Pump	set	4	28.000	112.000
1.2 Switchgear	L. S.			75.000
1.3 Transformer	L. S.			14.000
1.4 Pipework & valves	L. S.			44.000
1.5 Cabling	L. S.			6.000
1.6 Erection & micellaneous	L. S.			76.000
Sub-total				327.000
1.7 Civil works	L. S.			100.000
Total				427.000
(2) Pipe works				
2.1 Asbestos-cement pressure pipe 6 bar				
- 500 mm dia.	m	320	125	40.000
- 450 mm dia.	m	410	84	34.440
- 400 mm dia.	m	210	76	15.960
- 350 mm dia.	m	200	64	12.800
- 300 mm dia.	m	210	45	9.450
- 250 mm dia.	m	320	36	11.520
Sub-total				124.170
2.2 Fittings & others (about 25 %)				31.830
Total				156.000
Grand total				583.000
Cost per feddan				910

Breakdown of Initial Cost of Field Irrigation System
(Field area : 40 feddan)

(1) Drip

Item	Unit	Q'ty	Rate	Amount
PVC pressure pipe 6 bar				
- 140 mm dia.	m	380	13	4,940
- 110 mm dia.	m	430	8	3,440
- 90 mm dia.	m	1,600	6	9,600
Drip lateral tubing 13 mm dia.	m	58,800	0.35	20,580
Turbulent flow emitter 4 lit/hr	Nr.	30,240	0.25	7,560
Miscellaneous (about 15 %)				6,880
Total				53,000
Cost per feddan				1,330

(2) Solid set sprinkler

Item	Unit	Q'ty	Rate	Amount
PVC pressure pipe 6 bar				
- 160 mm dia.	m	830	17	14,110
Aluminium lateral pipe				
- 110 mm dia.	m	610	10	6,100
- 90 mm dia.	m	11,520	8	92,160
Sprinkler (RB 30)	Nr.	1,088	20	21,760
Miscellaneous (about 15 %)				20,070
Total				154,200
Cost per feddan				3,860

(3) Handmove sprinkler

Item	Unit	Q'ty	Rate	Amount
PVC pressure pipe 6 bar				
- 160 mm dia.	m	830	17	14,110
Aluminium lateral pipe				
- 90 mm dia.	m	880	8	7,040
Sprinkler (RB 30)	Nr.	64	20	1,280
Miscellaneous (about 15 %)				3,370
Total				25,800
Cost per feddan				650

Breakdown of Initial Cost of Field Drainage System
(Irrigation Block : 640 feddan)

<u>Item</u>	<u>Unit</u>	<u>Q'ty</u>	<u>Rate</u>	<u>Amount</u>
Secondary drain				
- excavation	cu.m	37,700	3	113,100
- embankment	including in reclamation cost			
Field drain				
- 80 mm dia corrugated PVC pipe	m	28,200	3	84,600
Miscellaneous (about 5 %)				10,300
Total (640 feddan)				208,000
Cost per feddan				330

B. Surface irrigation (net cultivated area : 560 feddan)

<u>Item</u>	<u>Unit</u>	<u>Q'ty</u>	<u>Rate</u>	<u>Amount</u>
Secondary canal				
- excavation	cu.m	14,000	3	42,000
- embankment	including in reclamation cost			
- AVIO gate, etc.	L. S.			7,000
Tertiary canal				
- excavation	cu.m	45,900	3	137,700
Farm ditch				
- embankment	cu.m	64,100	3	192,300
- offtake, etc.	L. S.			40,000
Secondary drain				
- excavation	cu.m	34,500	3	103,500
- embankment	including in reclamation cost			
Collector drain				
- 150 mm dia A.C. pipe	m	2,100	10	21,000
- 200 mm dia A.C. pipe	m	2,500	12	30,000
- 250 mm dia A.C. pipe	m	2,100	14	29,400
- inspection manhole	Nr.	128	150	19,200
Field drain				
- 80 mm dia corrugated PVC pipe	m	49,300	3	147,900
Pump station				
- pump (50 lit/sec)	Nr.	7	2,100	14,700
- pump station	L. S.			7,700
Miscellaneous (about 5 %)				39,600
Total				832,000
Cost per feddan				1,490

Table L-3-6 Breakdown of Social Facilities (Item 2)

No.	Description	Qty's	Unit	(LE) Rate	('000LE)		
					Total	F.C.	L.C.
1)	Housing						
1-1.	Housing for Small Settlement Village						
	Large Farmers House	255	D.U.	11.5	2,933	-	2,933
	Managers House	10	"	42.0	420	-	420
	Technicians House	20	"	22.0	440	-	440
	Labours House	15	"	18.0	270	-	270
					(4,063)		(4,063)
	For Two Places						
	<u>Sub-Total</u>	<u>2</u>	<u>Place</u>	<u>4,063</u>	<u>8,126</u>		<u>8,126</u>
1-2.	Housing for Medium Settlement Village						
	Small Farmers House	425	D.U.	9.0	3,825	-	3,825
	Managers Houses	19	"	42.0	420	-	420
	Technicians Houses	25	"	22.0	550	-	550
	Labours Houses	40	"	18.0	720	-	720
	<u>Sub-Total</u>				<u>5,515</u>		<u>5,515</u>
1-3.	Housing for Large Settlement Village						
	Small Farmers Houses	640	D.U.	9.0	5,760	-	5,760
	Managers Houses	10	"	42.0	420	-	420
	Technicians Houses	25	"	22.0	550	-	550
	Labours Houses	75	"	18.0	1,350	-	1,350
					(8,080)		(8,080)
	For Nine Places						
	<u>Sub-Total</u>	<u>9</u>	<u>Place</u>	<u>8,080</u>	<u>72,720</u>		<u>72,720</u>
1-4.	Housing for Service Village						
	Managers Houses	14	D.U.	42.0	588	-	588
	Technicians Houses	80	"	22.0	1,760	-	1,760
	Labours Houses	31	"	18.0	558	-	558
					(2,906)		(2,906)
	For Three Places						
	<u>Sub-Total</u>	<u>3</u>	<u>Place</u>	<u>2,906</u>	<u>8,718</u>		<u>8,718</u>
1-5.	Housing for Central Village						
	Managers Houses	30	D.U.	42.0	1,260	-	1,260
	Technicians Houses	285	"	22.0	6,270	-	6,270
	Labours Houses	115	"	18.0	2,070	-	2,070
	<u>Sub-Total</u>				<u>9,600</u>		<u>9,600</u>
<u>Total</u>	<u>of 1)</u>				<u>104,699</u>		<u>104,699</u>

No.	Description	Qty's	Unit	(LE) Rate	('000LE)		
					Total	F.C.	L.C.
2)	Public and Social Facilities						
2-1.	Public & Social Facilities for Small Village						
	Primary School	1,000	sq.m	0.18	180	-	180
	Post Office	50	"	0.18	9	-	9
	Telephone Office	50	"	0.18	9	-	9
	Community Center	150	"	0.16	24	-	24
	Cooperative/ Association Unit	100	"	0.18	18	-	18
	Shops/Stores	200	"	0.15	30	-	30
	Mosque	150	"	0.60	90	-	90
					(360)		(360)
	For Two Places						
	<u>Sub-Total</u>	<u>2</u>	<u>places</u>	<u>360</u>	<u>720</u>		<u>720</u>
2-2.	Public & Social Facilities for Medium S.V.						
	Primary School	1,000	sq.m	0.18	180	-	180
	Preparatory School	1,000	"	0.18	180	-	180
	Post Office	50	"	0.18	9	-	9
	Telephone Office	50	"	0.18	9	-	9
	Community Center	150	"	0.16	24	-	24
	Cooperative/ Association Unit	100	"	0.18	18	-	18
	Shops/Stores	400	"	0.15	60	-	60
	Mosque	150	"	0.60	90	-	90
	<u>Sub-Total</u>				<u>570</u>		<u>570</u>
2-3.	Public & Social Facilities for Large S.V.						
	Primary School	1,500	Sq.m	0.18	270	-	270
	Preparatory School	1,500	"	0.18	270	-	270
	Health Unit	200	"	0.20	40	-	40
	Police Station	40	"	0.18	7.2	-	7.2
	Post Office	50	"	0.18	9	-	9
	Telephone Office	50	"	0.18	9	-	9
	Fire Station	100	"	0.18	18	-	18
	Community Center	200	"	0.16	32	-	32
	Cooperative/ Association Unit	100	"	0.18	18	-	18
	Shops/Stores	400	"	0.15	60	-	60
	Mosque	250	"	0.60	150	-	150
					(883.2)		
	For Nine Places						
	<u>Sub-Total</u>	<u>9</u>	<u>places</u>	<u>883.2</u>	<u>7,948.8</u>		<u>7,948.8</u>

No.	Description	Qty's	Unit	(LE) Rate	('000LE)		
					Total	F.C.	L.C.
2-4. Public & Social Facilities for Service & Central Village							
	Primary School	3,000	sq.m	0.18	540	-	540
	Preparatory School	8,000	"	0.18	1,440	-	1,440
	Secondary School	4,000	"	0.20	800	-	800
	Vocational School	1,500	"	0.10	150	-	150
	Hospital	1,800	"	0.25	450	-	450
	Post Office	100	"	0.18	18	-	18
	Fire Station	900	"	0.18	162	-	162
	Village Council Bldg.	2,600	"	0.15	390	-	390
	Youth Center	1,000	"	0.16	160	-	160
	Community Center	1,300	"	0.16	208	-	208
	Cooperative/ Association Unit	750	"	0.18	135	-	135
	Workshop	3,050	"	0.16	488	-	488
	Social Sport Club	500	"	0.10	50	-	50
	<u>Sub-Total</u>				<u>4,991</u>		<u>4,991</u>
<u>Total of 2)</u>					<u>14,230</u>		<u>14,230</u>

3) Village Road Development

3-1. Road for Small Settlement Village

	Main Street	0.40	km	150	60	-	60
	Main Road	3.90	"	120	468	-	468
	Local Road	5.80	"	60	348	-	348
					(876)		(876)
	For Two Places						
	<u>Sub-Total</u>	<u>2</u>	<u>places</u>	<u>876</u>	<u>1,752</u>		<u>1,752</u>

3-2. Road for Medium Settlement Villages

	Main Street	0.44	km	150	66	-	66
	Main Road	4.35	"	120	522	-	522
	Local Road	6.45	"	60	387	-	387
	<u>Sub-Total</u>				<u>975</u>		<u>975</u>

No.	Description	Qty's	Unit	(LE) Rate	('000LE)		
					Total	F.C.	L.C.
3-3.	Road for Large Settlement Village						
	Main Street	0.72	km	150	108	-	108
	Main Road	6.50	"	120	780	-	780
	Local Road	9.70	"	60	582	-	582
	For Nine Places				(1,470)		(1,470)
	<u>Sub-Total</u>	<u>9 places</u>		<u>1,470</u>	<u>13,230</u>	<u>-</u>	<u>13,230</u>
	Total of 3)				15,957	-	15,957
4)	Portable Water Supply						
4-1.	Portable Water Supply Facilities (Small S.V.)						
	Water Supply	785	cu.m	0.3	235.5	157	78.5
	Elevated Tank	390	"	0.5	195	-	195
	Miscellaneous				109.5	-	109.5
					(540)	(157)	(383)
	For Two Places						
	<u>Sub-Total</u>	<u>2 places</u>		<u>540</u>	<u>1,080</u>	<u>314</u>	<u>766</u>
4-2.	Portable Water Supply Facilities (Medium S.V.)						
	Water Supply	1,168	cu.m	0.3	350.4	2,336	1,168
	Elevated Tank	580	"	0.5	290	-	290
	Miscellaneous				159.6	-	159.6
	<u>Sub-Total</u>				<u>800</u>	<u>233.6</u>	<u>566.4</u>
4-3.	Portable Water Supply Facilities (Large S.V.)						
	Water Supply	1,976	cu.m	0.3	592.8	395.2	197.6
	Elevated Tank	990	"	0.5	495	-	495
	Miscellaneous				272.2	-	272.2
					(1,360)	(395.2)	(964.8)
	For Nine Places						
	<u>Sub-Total</u>	<u>9 places</u>		<u>1,360</u>	<u>12,240</u>	<u>3,556.8</u>	<u>8,683.2</u>
4-4.	Portable Water Supply Facilities (Investers Complex No.1)						
	Water Supply	1,290	cu.m	0.2	258	129	129
	Elevated Tank	645	"	0.5	322.5	-	322.5
	Miscellaneous				149.5	-	149.5
	<u>Sub-Total</u>				<u>730</u>	<u>129</u>	<u>601</u>

No.	Description	Qty's	Unit	(LE) Rate	('000LE)		
					Total	F.C.	L.C.
4-5.	Portable Water Supply Facilities (Investers Complex No. 2)						
	Water Supply	1,650	cu.m	0.2	330	165	165
	Elevated Tank	825	"	0.5	412.5	-	412.5
	Miscellaneous				187.5	-	187.5
	<u>Sub-Total</u>				<u>930</u>	<u>165</u>	<u>765</u>
4-6.	Portable Water Supply Facilities (Investers Cattle House)						
	Water Supply	350	cu.m	0.2	70	35	35
	Elevated Tank	175	"	0.5	87.5	-	87.5
	Miscellaneous				42.5	-	42.5
	<u>Sub-Total</u>				<u>200</u>	<u>35</u>	<u>165</u>
<u>Total of 4)</u>					<u>15,980</u>	<u>4,433.4</u>	<u>11,546.6</u>
5)	Sewage and Refuse Treatment						
5-1.	Small Settlement Village (Sewage)						
	Water Collection	187	cu.m	0.35	65.5	37.4	28.1
	Treatment Plant	200	"	0.5	100	70	30
	Office	100	"	0.18	18	-	18
	Miscellaneous				46.5	-	46.5
					(230)	(107.4)	(122.6)
	For Two Places						
	<u>Sub-Total</u>				<u>460</u>	<u>214.8</u>	<u>245.2</u>
5-2.	Medium Settlement Village (Sewage)						
	Water Collection	312	cu.m	0.35	109.2	62.4	46.8
	Treatment Plant	350	"	0.5	175	122.5	52.5
	Office	100	sq.m	0.18	18	-	18
	Miscellaneous				77.8	-	77.8
	<u>Sub-Total</u>				<u>380</u>	<u>184.9</u>	<u>195.1</u>
5-3.	Large Settlement Village (Sewage)						
	Water Collection	465	cu.m	0.35	162.8	93	69.8
	Treatment Plant	500	"	0.5	250	175	75
	Office	120	sq.m	0.18	21.6	-	21.6
	Miscellaneous				115.6	-	115.6
					(550)	(268)	(282)
	<u>For Nine Places Sub-Total</u>				<u>4,950</u>	<u>2,412</u>	<u>2,538</u>

No.	Description	Qty's	Unit	(LE) Rate	('000LE)		
					Total	F.C.	L.C.
5-4.	Qatia Service Village (Sewage)						
	Water Collections	737	cu.m	0.35	258	147.4	110.6
	Treatment Plant	740	"	0.5	370	259	111
	Office	150	sq.m	0.18	27	-	27
	Miscellaneous				165	-	165
	<u>Sub-Total</u>				<u>820</u>	<u>406.4</u>	<u>413.6</u>
5-5.	Refuse Treatment Facilities in Rabaa						
	Incineration Plant	35	ton	3.0	105	70	35
	Offices	500	sq.m	0.18	90	-	90
	Miscellaneous				45	-	45
	<u>Sub-Total</u>				<u>240</u>	<u>70</u>	<u>170</u>
<u>Total of 5)</u>					<u>6,850.0</u>	<u>3,288.1</u>	<u>3,561.9</u>
6)	Electric Facilities						
	Transmission Line (66 kv)	18	km	130	2,340	1,872	468
	Distribution Line (11 kv)	102	"	28	2,856	2,285	571
	LV Cable Line	98	"	5	490	490	-
	Substation 66/11kv	1	Place	4,000	4,000	2,000	2,000
	11 kv Distribution Center (10Mkv)	3	Place	200	600	-	600
	Transformer (100 KvA)	206	Place	13	2,678	2,142	536
	Transformer (63 KvA)	85	Place	11	935	748	187
	Miscellaneous				3,401	-	3,401
	<u>Total of 6)</u>				<u>17,300</u>	<u>9,537</u>	<u>7,763</u>
7)	Telephoen Facilities						
	Telephone Exchanges	545	Line	0.65	354	177	177
	Network Cable	1	L.s	1,500	1,500	1,500	-
	Miscellaneous				414	-	414
	<u>Total of 7)</u>				<u>2,268</u>	<u>1,677</u>	<u>591</u>
<u>Total of 1) - 7)</u>					<u>177,284</u>	<u>18,935</u>	<u>158,349</u>
Contingency					17,716	1,865	15,851
<u>Grand Total:</u>					<u>195,000</u>	<u>20,800</u>	<u>174,200</u>

Table L-3-7 Breakdown of Agriculture Support and Market, Facilities (Item 3)

No.	Description	Qty's	Unit	(LE)	('000LE)		
				Rate	Total	F.C.	L.C.
1)	Machinery Center						
	Machinery Sheds	8,000	sq.m	135	1,080	0	1,080
	Sparepart warehouse	900	"	135	122	0	122
	Workshop	2,600	"	140	364	0	364
	Tool, Kit, Equip.	2	sets	194	388	310	78
	Machinery Test Room	600	sq.m	160	96	0	96
	Tractor (36 ps)	87	"	13,500	1,175	1,175	-
	Tractor (50 ps)	11	No.s	17,300	190	190	-
	Speedsprayer	24	"	7,500	180	180	-
	Mower	63	"	2,800	176	176	-
	Leveller	63	"	450	28	28	-
	Manure loader	84	"	2,000	168	168	-
	Hay Bailer	63	"	6,500	410	410	-
	Load Wagon	63	"	700	44	44	-
	Bottom Plow	24	"	600	14	14	-
	Reaper (Paddy)	11	"	2,600	29	29	-
	Rotary (Paddy)	11	"	1,800	20	20	-
	Rotary	11	"	1,550	17	17	-
	Limesower	63	"	1,700	107	107	-
	Cultipacker	33	"	700	23	23	-
	Handseeder	63	"	280	18	18	-
	Tooth Harrow	63	"	450	28	28	-
	Knapsack Sprayer	11	"	250	3	3	-
	Total Spareparts	1	Set	264	264	264	-
	<u>Sub-Total of 1)</u>				<u>4,944</u>	<u>3,204</u>	<u>1,740</u>
2)	Marketing Center						
	Warehouse	3,000	sq.m	50	150	0	150
	Product Reception	2,240	"	50	112	0	112
	Center Building	7,600	"	135	1,026	0	1,260
	Wash/Dry/Brushline	8	Line	120	960	960	-
	Rotary Grader/Conveyer	8	"	48	384	384	-
	Sorting Stand/Sizer	8	"	60	480	480	-
	Packing Bin	8	"	50	400	400	-
	Box Sealer	8	"	25	200	200	-
	Storage Box Flats	3,000	sq.m	50	150	0	150
	<u>Sub-Total of 2)</u>				<u>3,862</u>	<u>2,424</u>	<u>1,438</u>

No.	Description	Qty's	Unit	(LE)	('000LE)		
				Rate	Total	F.C.	L.C.
3) Live Stock Mating Center							
	Breeding Ball Cabin	500	sq.m	170	85	17	68
	Mating Pen	650	"	135	88	-	88
	Cow Barn	300	"	135	41	-	41
	Fodder Storage	140	"	125	18	-	18
	Manure Storage	70	"	125	9	-	9
	Management Bldg.	135	"	160	22	-	22
	Feed Silos	190	"	500	95	76	19
	Water Tanks	72	"	400	29	-	29
	Feeding Trough	100	m	50	5	-	5
	Labo, Apparatus	1	set	10	10	10	-
	Breeding Bulls	30	Head	1,200	36	-	36
	<u>Sub-Total of 3)</u>				<u>438</u>	<u>103</u>	<u>335</u>
4) Oil Processing Plant							
	Plant Building	1,500	sq.m	170	2,550	-	2,550
	Raw Material Storage	260	"	135	350	-	350
	Cake Drying Flat	3,000	"	60	1,800	-	1,800
	Cake Storage	600	"	135	810	-	810
	Cleaning Separater	4	"	4	160	160	-
	Cracking Roll Drum	5.5	No.s	4	230	230	-
	Flanking Roll	4	"	1	120	120	-
	Material Cooker	5	"	5	250	250	-
	Expeller	4	"	200	800	800	-
	Separator	4	"	95	380	380	-
	Screening Tank	4	"	70	280	280	-
	Filter	4	"	15	60	60	-
	Crude Oil Filter	4	"	100	400	400	-
	Refining Tank	4	"	50	200	200	-
	Crude Oil Filter	4	"	20	80	80	-
	Bleacher	1	"	170	170	170	-
	Deodolizer	1	"	150	150	150	-
	Vacuum Unit	1	"	320	320	320	-
	Automatic Scale	1	"	50	50	50	-
	Clarifier	1	"	200	200	200	-
	Centrifuger	4	"	35	140	140	-
	Cake Crusher	1	"	80	80	80	-
	Oil Boiler	1	"	380	380	380	-
	Stem Boiler	1	"	400	400	200	-
	Refined Oil Tank	4	"	75	300	300	-
	Packing Machine	4	"	40	160	160	-
	Washing Kit	2	"	70	140	140	-
	Utility Equipment	1	"	190	190	95	95
	<u>Sub-Total of 4)</u>				<u>11,150</u>	<u>5,345</u>	<u>5,805</u>

No.	Description	Qty's	Unit	(LE) Rate	('000LE)		
					Total	F.C.	L.C.
5)	Slaughter & Cut Meat Center						
	Center Building	17,600	sq.m	140	2,464	-	3,698
	Sewage Pond	2,000	"	100	200	-	400
	Cold Storage	160	"	10,000	1,600	1,600	-
	Carcass Conveyor	120	m	7,500	900	900	-
	Scale	4	No.s	100	400	400	-
	Hanging Rail	4	Lot	120,000	480	480	-
	Pre-refrigerator	80	sq.m	10,000	800	800	-
	Refrigerating Kits	1	set	1,500,000	1,500	1,500	-
	Meat Cutter	32	No.s	3,800	122	122	-
	Cutbeef Refrigerator	150	sq.m	10,000	1,000	1,000	-
	Meat Slicer	32	No.s	7,500	240	240	-
	Flush Washing Kit	4	set	40,000	160	160	-
	Meat Cutting Stand	200	m	2,200	440	440	-
	Air Compressor	4	set	150,000	600	600	-
	Freezing chamber	50	sq.m	10,000	500	500	-
	Forklift	4	No.s	55,000	220	220	-
	Pallet	1,600	"	400	640	640	-
	Stand by generator	2	"	125,000	250	250	-
	Slaughtering Kit	4	set	200,000	820	800	-
	Sewage Treating Work	1	"	900,000	900	-	900
	Carcass Hoist	8	No.s	100,000	800	800	-
	Burning Facility	1	set	750,000	750	-	750
	Electric Work	1	"	1,200,000	1,200	600	600
	Water Pipe Work	1	"	870,000	800	400	400
	Boiler	1	"	250,000	250	250	-
	Conveyer	160	m	1,500	240	240	-
	Refrigerator, Van	10	No.s	55,000	550	550	-
	<u>Sub-Total of 5)</u>				<u>18,862</u>	<u>13,492</u>	<u>5,314</u>
	Total of 1) - 5)				39,200	24,568	14,632
	Contingeny				3,920	2,457	1,463
	<u>Total</u>				<u>43,120</u>	<u>27,025</u>	<u>16,095</u>

Table L-3-8 Breakdown of Agriculture Development Center (Item 4)

No.	Description	Qty's	Unit	(LE)	(Unit: '000LE)		
				Rate	Total	F.C.	L.C.
1)	Main Building						
1-1.	Main Building	1,400	sq.m	1,200	1,680	—	1,680
1-2.	Office Facilities						
	Copy Machine	2	Set	13,000	26	26	—
	Word Processor	2	Set	7,400	15	15	—
	Overhead Projector	2	Set	2,200	5	5	—
	Audio and Visual Aids	1	Set	66,000	66	66	—
	Furniture and Others		L.S	—	100	100	—
	Miscellaneous				28	14	14
					(240)	(226)	(14)
1-3.	Vehicles						
	Station Wagon	6	Set	51,000	306	306	—
	Pickup (2 ton)	2	Set	45,000	90	90	—
	Micro Bus	2	Set	70,000	140	140	—
	Motorcycle	10	Set	2,900	29	29	—
	Spareparts (10%)				57	57	—
	Transportation				40	—	40
	Miscellaneous (10%)				66	60	6
					(728)	(682)	(46)
1-4.	Research Equipments				(450)	(400)	(50)
	<u>Sub-Tota of 1)</u>				<u>3,098</u>	<u>1,308</u>	<u>1,790</u>
2)	Dormitory						
2-1.	Building	1,000	sq.m	1,800	1,800	—	1,800
	Furniture and Others		L.S	—	600	—	600
	<u>Sub-Total of 2)</u>				<u>2,400</u>	<u>—</u>	<u>2,400</u>
3)	Workshop						
	Building	400	sq.m	500	200	—	200
	Equipment		L.S	—	500	500	—
	Garage	120	sq.m	200	24	—	24
	<u>Sub-Total of 3)</u>				<u>724</u>	<u>500</u>	<u>224</u>
4)	Officers Houses	2,000	sq.m	1,000	2,000	—	2,000

No.	Description	Qty's	Unit	(L.E)	(Unit: '000L.E)		
				Rate	Total	F.C.	L.C.
5)	Experimental Field						
	Water intake	2	Place	7,000	14	6	8
	Field for Fodder Product	2.6	fed.	3,000	8	—	8
	Demonstration Farm	3.7	fed.	6,000	22	—	22
	Field for Crops Test	2.6	fed.	5,000	13	—	13
	Cropping Test Field	5.5	fed.	4,000	22	—	22
	Warehouses	400	sq.m	300	120	—	120
	Livestock Shed	2,100	sq.m	500	1,050	—	1,050
	Hay Storage	200	sq.m	400	80	—	80
	Irrigat. Equip. for Test		L.S		300	270	30
	<u>Sub-Tota of 5)</u>				<u>1,629</u>	<u>276</u>	<u>1,353</u>
6)	Agri-Machineries						
	Tractor (70 HP)	8	set	73,000	584	584	—
	Disc Plow	4	set	11,000	44	44	—
	Bottom Plow	4	set	7,300	29	29	—
	Power Sprayer	8	set	15,000	120	120	—
	Rotary Harrow	4	set	13,000	52	52	—
	Broadcaster	4	set	5,800	23	23	—
	Disc Mower	4	set	4,300	17	17	—
	Power Tiller (10HP)	10	set	5,800	58	58	—
	Track (2 ton)	6	set	15,000	90	90	—
	Spareparts (10%)				102	102	—
	Transportation, etc.				60	—	60
	Miscellaneous (10%)				118	59	59
	<u>Sub-Total of 6)</u>				<u>1,297</u>	<u>1,178</u>	<u>119</u>
7)	Water Resource						
	Well	400	m	1,000	400	—	400
	Pump	2	set	25,000	50	35	15
	Pipeline	4,000	m	200	800	720	80
	Miscellaneous (10%)				125	100	25
	<u>Sub-Total of 7)</u>				<u>1,375</u>	<u>855</u>	<u>520</u>
8)	Electric Facilities						
	Generator	1	set		400	400	—
	Spareparts (10%)				40	40	—
	Power-line	2,000	m	200	400	360	40
	<u>Sub-total of 8)</u>				<u>840</u>	<u>800</u>	<u>40</u>

<u>No.</u>	<u>Description</u>	<u>Qty's</u>	<u>Unit</u>	(LE)	(Unit: '000LE)		
				<u>Rate</u>	<u>Total</u>	<u>F.C.</u>	<u>L.C.</u>
9)	Social Facilities						
	Dirnking water facilities		L.S.		500	400	100
	Sewage treatment facilities		L.S.		800	640	160
	Medical and other equipment		L.S.		200	100	100
	Mosque				100	--	100
	<u>Sub-Total of 9)</u>				<u>1,600</u>	<u>1,140</u>	<u>460</u>
10)	Others						
	Gate and Gates house	1	set		30	15	15
	Fence	1,400	m	200	280	--	280
	Other facilities		L.S.		190	--	190
	Land scape				500	--	500
	<u>Sub-total of 10)</u>				<u>1,000</u>	<u>15</u>	<u>985</u>
11)	Material						
	Fertilizers	20	fed.	8,400	168	--	168
	Chemicals	20	fed.	4,200	84	--	84
	Others				50	--	50
	<u>Sub-Total of 11)</u>				<u>302</u>	<u>--</u>	<u>302</u>
12)	Engineering fee (10%)				1,585	1,585	--
	<u>Total</u>				<u>17,850</u>	<u>7,657</u>	<u>10,193</u>
	Contingency (15%)				2,150	920	1,230
	<u>Total</u>				<u>20,000</u>	<u>8,577</u>	<u>11,423</u>

Table L-3-9 Estimate of Engineering Services (Item 5)

Stage I (Design Stage) will require about 12 months and the following experts

Expert	Number	Duration (Month)	Mon-Month (Man/Month)
Project leader	1	10	12
Siphon structure designer	1	10	10
Geologist	2	5	10
Hydrographic engineer	2	10	20
Pumping station engineer			
(civil engineer)	1	8	8
(mechanical engineer)	1	6	6
(electrical engineer)	1	6	6
On-farm designer	1	10	10
Irrigation engineer	1	10	10
Social infrastructures planner	2	8	16
Agro-products processing engineer			
(civil engineer)	1	8	8
(mechanical engineer)	1	8	8
Construction planner	1	6	6
Tender documents designer			
(contract)	1	4	4
(specification)	3	4	12
Cost estimation	1	4	4
Other experts			10
Total			160

Stage II (Pre-construction Stage) will require about 12 months and the following experts including pre-qualification.

Expert	Number	Duration (Month)	Mon-Month (Man/Month)
Project leader	1	6	6
Civil engineer	2	4	8
Mechanical engineer	1	2	2
Electrical engineer	1	2	2
Tender evaluation	2	4	8
Other experts			14
Total			30

Stage III (Construction Stage) is the construction supervision and the technical transfer of the construction techniques to the governmental engineers of Egypt, and will require 4-5 year period (54 months) and the following experts;

<u>Expert</u>	<u>Number</u>	<u>Duration (Month)</u>	<u>Man-Month (Man/Month)</u>
Project leader	1	54	54
Supervisor			
(Siphon)	1	48	48
(Architecture)	1	54	54
(Canal)	2	54	104
(Pumping stations)	1	36	36
(Mechanism)	1	12	12
(Electricity)	1	12	12
(New community)	1	36	36
(On-farm)	1	42	42
Social infrastructure	1	30	30
Farmers' organization	1	30	30
Agro-products processing	1	24	24
Agriculture	1	18	18
Irrigation	1	18	18
Soil improvement	1	18	18
Other experts			24
Total			560

APPENDIX-M. Project Evaluation

M.1. Exchange Rate	M-1
M.2. Standard Conversion Factor	M-3
M.3. Economic Farm-Gate Price	M-6
M.4. Operation & Maintenance Cost	M-11
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Table M.1 Exchange Rate

Date	Rate
Oct. 14	1US\$ = 2.300
17	= 2.300
Nov. 11	= 2.330
27	= 2.320
28	= 2.320
29	= 2.330
30	= 2.330
Dec. 3	= 2.330
4	= 2.330
5	= 2.333
6	= 2.333
7	= 2.320
8	= 2.320
11	= 2.320
12	= 2.320
13	= 2.330
14	= 2.330
16	= 2.330
19	= 2.330
20	= 2.330
22	= 2.340
24	= 2.340
25	= 2.340
Average	2.326

Source: Nisir Exterior Bank

Table M.2 Exchange Rate

<u>Year</u>	<u>UD\$</u>	<u>Egyptian Pound (LE)</u>	<u>Japanese Yen (Yen)</u>
1981	1.00	0.739	221.65
82	1.00	0.832	250.09
83	1.00	0.832	238.52
84	1.00	0.832	238.59
85	1.00	1.300	239.60
86	1.00	1.350	169.54
87	1.00	1.502	145.66
88	1.00	2.326	129.19

Table M.3 Calculation of Standard Conversion Factor

(unit: 1,000 LE)

	1985	1986	1987	Average
(1) Total Amount of Import (CIF)	6,973,061	8,051,432	11,357,837	8,794,110
(2) Total Amount of Export (FOB)	2,599,941	2,053,959	3,046,010	2,566,637
(3) Total Amount of Import Duty	1,464,530	1,560,155	1,770,099	1,598,261
(4) Total Amount of Export Duty	-	-	-	-
(5) Total Amount of Export Subsidy	-	-	-	-
(6) (1) + (2)	9,573,002	10,105,391	14,403,847	11,360,747
(7) (1) + (2) + (3) - (4) + (5)	11,037,532	11,665,546	16,173,946	12,959,008
(8) Standard Conversion Factor (6)/(7)	0.867	0.866	0.891	0.877

Source: Foreign Trade Computer Center, CAPMAS

Table M.4 Calculation of Conversion Factor for Capital Goods

(Unit: 1,000 LE)

	1985	1986	1987	Average
(1) Total Amount of Import of Capital Goods (CIF)	4,507,719	5,196,419	6,769,998	5,491,379
(2) Total Amount of Export of Capital Goods (FOB)	2,401,475	1,829,500	2,527,358	2,252,778
(3) Total Amount of Duty for Import of Capital Goods	754,143	900,750	1,033,668	896,187
(4) Total Amount of Duty for Export of Capital Goods	-	-	-	-
(5) Subsidy for Export of Capital Goods	-	-	-	-
(6) (1) + (2)	6,909,194	7,025,919	9,297,356	7,744,156
(7) (1) + (2) + (3) - (4) + (5)	7,663,337	7,926,669	10,331,024	8,640,343
(8) Conversion Factor (6) ÷ (7)	0.902	0.886	0.900	0.896

Note: Conversion factor is estimated based on the data of Foreign Trade Computer Center of CAPMAS.

Table M.5 Calculation of Conversion Factor for Consumption Goods

(Unit: 1,000 LE)

	1985	1986	1987	Average
(1) Total Amount of Import of Consumption Goods (CIF)	2,465,342	2,855,013	4,587,839	3,302,731
(2) Total Amount of Export of Consumption Goods (FOB)	198,466	224,459	518,652	313,859
(3) Total Amount of Duty for Import of Consumption Goods	710,387	659,405	736,431	702,074
(4) Total Amount of Duty for Export of Consumption Goods	-	-	-	-
(5) Subsidy for Export of Consumption Goods	-	-	-	-
(6) (1) + (2)	2,663,808	3,079,472	5,106,491	3,616,590
(7) (1) + (2) + (3) - (4) + (5)	3,374,195	3,738,877	5,842,922	4,318,664
(8) Conversion Factor (6) ÷ (7)	0.789	0.824	0.874	0.837

Note: Conversion factor is estimated based on the data of Foreign Trade Computer Center of CAPMAS.

Table M.6 Economic Farm-Gate Price of Paddy

Items	Unit	Economic Price
1. Forecasted prices in 2000, 1985 constant dollars ^{1/}	US\$/ton	213
2. Price forecast in 1988 constant dollars (FOB price at Port Said) ^{2/}	US\$/ton	299
3. FOB price at Port Said in LE ^{3/}	LE/ton	695
4. Fees overheads (5 %)		- 35
5. Shadow rate of 20 LE/ton for port duties ^{4/}	LE/ton	- 18
6. Wastage (5 %)	LE/ton	- 35
7. Shadow rate of 10 LE/ton for transport ^{5/} to market/factory	LE/ton	- 9
8. Value at market/factory	LE/ton	598
9. Shadow rate of 40 LE/ton for processing ^{6/}	LE/ton	- 35
10. Value net of processing cost	LE/ton	563
11. Conversion coefficient	%	60
12. Commodity value	LE/ton	338
13. Shadow rate of 10 LE/ton for transportation ^{7/} from project area to market/factory	LE/ton	- 9
14. Shadow rate of 3 LE/ton for marketing ^{8/} and storage	LE/ton	- 3
15. Farm-gate price		330
		(326)

Note: ^{1/}: IBRD's projected price (Source, IBRD, January 1988).
^{2/}: 140.3 of international price index (1986=100) is applied.
^{3/}: 1US\$ = 2.326LE.
^{4/ - 8/}: Standard conversion factor (0.877) is applied.

Table M.7 Economic Farm-Gate Price of Orange

Items	Unit	Economic Price
1. Forecasted prices in 2000, 1985 constant dollars ^{1/}	US\$/ton	334
2. Price forecast in 1988 constant dollars ^{2/} (FOB price at Port Said)	US\$/ton	469
3. FOB price at Port Said in LE ^{3/}	LE/ton	1,091
4. Fees overheads (5 %)	LE/ton	- 55
5. Shadow rate of 20 LE/ton for port duties, storage ^{4/}	LE/ton	- 18
6. Wastage (5 %)	LE/ton	- 55
7. Shadow rate of 10 LE/ton for transportation to market ^{5/}	LE/ton	- 9
8. Value at market	LE/ton	954
9. Shadow rate of 10 LE/ton for transportation from project area to market ^{6/}	LE/ton	- 9
10. Shadow rate of 3 LE/ton for marketing and storage ^{7/}	LE/ton	- 3
11. Farm-gate price	LE/ton	940
		(942)

Note: ^{1/}: IBRD's projected price (Source, IBRD, January 1988).
^{2/}: 140.3 of international price index is applied.
^{3/}: 1US\$ = 2.326LE.
^{4/ - 7/}: Standard conversion factor (0.877) is applied.

Table M.8 Economic Farm-Gate Prices of Trading Crops

Items	Unit	Wheat/ Barley	Maize	Beef (Boneless)
1. Forecasted prices in 2000, 1985 constant dollars ^{1/}	US\$/ton	138	97	2,370
2. Price forecast in 1988 constant dollars ^{2/}	US\$/ton	194	136	3,325
3. Freight and insurance (2% of FOB price)	US\$/ton	27	26	124
4. CIF price at Port Said	US\$/ton	221	162	3,449
5. CIF price at Port Said in LE ^{3/}	LE/ton	514	376	8,022
6. Fees overheads (5 %)	LE/ton	26	19	401
7. Shadow rate of 20 LE/ton for port duties, storage ^{4/}	LE/ton	18	18	31
8. Wastage (5 %)	LE/ton	26	19	-
9. Shadow rate of 10 LE/ton for transport to market or factory ^{5/}	LE/ton	9	9	18
10. Value at market/factory	LE/ton	593	441	8,472
11. Shadow rate of 40 LE/ton for processing ^{6/}	LE/ton	-	-	50
12. Value net of processing cost	LE/ton	-	-	8,422
13. Conversion coefficient	%	-	-	50
14. Commodity value	LE/ton	-	-	4,211
15. Shadow rate of 10 LE/ton for transportation from Project area to market/factory ^{7/}	LE/ton	- 9	- 9	- 18
16. Shadow rate of 3 LE/ton for marketing/storage ^{8/}	LE/ton	- 3	- 3	- 35
17. Farm-gate price	LE/ton	580	430	4,160
		(581)	(429)	(4,158)

Note: ^{1/}: IBRD's projected price (Source, IBRD, January 1988).
^{2/}: 140.3 of international price index (1986=100) is applied.
^{3/}: 1US\$ = 2.326LE.
^{4/ - 8/}: Standard conversion factor (0.877) is applied.

Table M.9 Economic Price of Fertilizer

	Unit	Urea ^{1/} (Imported)	TSP ^{2/} (Exported)	Potassium ^{3/} Chloride (Imported)
1. Forecasted price in 2000, 1985 constant dollars ^{4/}	US\$/ton	175	150	90
2. Price forecast in 1988 constant price ^{5/}	US\$/ton	246	210	126
3. Freight and insurance (2% of FOB price)	US\$/ton	35	-25	33
4. CIF price at Port Said	US\$/ton	281	185	159
5. CIF price at Port Said in LE ^{6/}	LE/ton	654	430	370
6. Shadow rate of 23 LE for port handling, packing, storage	LE/ton	20 ^{7/}	-20	20
7. Shadow rate of 15 LE for handling, transportation to project	LE/ton	13 ^{8/}	-	13
8. Value in project store	LE/ton	687	410	403
9. Shadow rate of 15 LE for distribution from project store	LE/ton	13 ^{9/}	13	13
10. Farm-gate price	LE/ton	700	423	416
11. Percent of constituent	%	46 (N)	19.5 (P)	50 (K)
12. Farm-gate price		1,530	2,170	840

Note: ^{1/}; Urea (any origin), bagged, FOB NW. Europe

^{2/}; TSP, bulk, FOB us Gulf

^{3/}; Potassium chloride, bulk, FOB Vancouver

^{4/}; IBERD's projected price (Source; IBRD, January 1988)

^{5/}; 140.3 of international price index (1985; 100) is applied

^{6/}; 1US\$ = 2.326 LE

^{7/}, ^{8/}, ^{9/}; Standard conversion factor (0.877) is applied

Table M.10 Farm-Gate Prices of Crops and Inputs

Items	Unit	Financial Prices	Economic Prices
1. Fertilizers			
- Nitrogen	LE/ton	590	1,530
- Phosphorus	"	395	2,170
- Potassium	"	128	840
- Organic Manure	"	17	17
2. Crops			
- Paddy	LE/ton	305	290
- Wheat/Barley	"	330	580
- Maize	"	300	430
- Orange	"	250	940
- Beef	"	6,000	4,160
- Berseem	"	40	40
- Alfalfa	"	40	40
- Sunflower	"	520	520
- Flax	"	130	130
- Groundnut	"	1,220	1,220
- Cucumber	"	1,010	1,010
- Cucumber (tunnel)	"	1,430	1,430
- Cantaloupe	"	680	680
- Water Melon	"	250	250
- Tomato	"	630	630
- Potato	"	490	490
- Green Peas	"	690	690
- Green Pepper	"	580	580
- Apple	"	1,500	1,500
- Grape	"	650	650
- Guava	"	490	490
- Squash	"	660	660
- Fig	"	840	840
- Olive	"	930	930
- French Bean	"	1,260	1,260
- Amshoot	"	20	20
- Fodder Beet	"	30	30
- Bermuda Grass	"	30	30
- Sordan	"	30	30
- Napier Grass	"	30	30
- Safflower	"	420	420
- Fodder Maize	"	30	30
3. Agro-chemicals			
- Silkron	LE/kg	30	27 ^{1/}
- Marathon	"	8	7
- Bravo 500	"	30	27
- Karathene	"	25	22
- Daconil	"	7	6

Note: Prices of trading crop such as paddy and wheat etc., are estimated based on IBRD's forecasted prices, and other crops based on the wholesale prices for the last three (3) years in Ismailia market.

^{1/} : Conversion factor for capital goods (0.896) is applied.

Table M.11 Breakdown of Operation and Maintenance Cost

1. Irrigation Office	Quantity	(Unit: LE/year)	
		Unit Price	Amount
1) Main Office (Central Office)		(LE)	(LE)
Chairman	1x12 months	4,000	48,000
Engineer	3x12	3,000	108,000
Technician	7x12	1,500	126,000
Labour	10x12	500	60,000
Administration cost			2,000
Depreciation of equipments			2,000
<u>Total</u>			<u>346,000</u>
2) Tina Pump Station			
Engineer (civil, mechan., elect.)	3x12 months	3,000	108,000
Operator	6x12	1,500	108,000
Labour	10x12	500	60,000
Electric charge	L.S		160,000
Spare parts	14,950x10 ³ x0.5%		74,750
Miscellaneous			9,250
<u>Total</u>			<u>520,000</u>
3) Balouza Pump Station			
Engineer	3x12 months	3,000	108,000
Operator	6x12	1,500	108,000
Labour	20x12	500	120,000
Electric charge	L.S		609,600
Spare parts	15,230x10 ³ x1%		152,300
Miscellaneous			10,100
<u>Total</u>			<u>1,108,000</u>
4) Maintenance for Irrigation Facilities			
Technician	10x12 months	1,500	180,000
Labour	50x12	500	300,000
Depreciation of cars etc.			68,000
Oil and miscellaneous			192,000
Spare parts for control facilities			50,000
<u>Total</u>			<u>790,000</u>
5) Booster Pump Station (65 places)			
Operator	2x12monthx65	700	1,092,000
Electric charge	95kwx0.85x0.65x65x189.7LE		647,200
Spare parts	180,000x1.5%x65		175,500
Miscellaneous			25,300
<u>Total</u>			<u>1,940,000</u>

6) Drainage Pump Station (2 places)

Operator	3x12monthx2	1,500	108,000
Labour	6x12x2	500	72,000
Electric charge	33.5kwx0.85x0.65x189.7		3,500
Spare parts	800,000x1.5%		12,000
Miscellaneous			4,500
<u>Total</u>			<u>200,000</u>

2. Agricultural Services

Chairman	1x12 months	4,000	48,000
Experts	3x12	3,000	108,000
Extension service	42x12	1,000	504,000
Labour	20x12	500	120,000
Depreciation of cars etc.			50,000
Oil and miscellaneous			60,000
Administration fee			58,000
<u>Total</u>			<u>948,000</u>

3. Social Facilities

Maintenance for road	1,470km	100	147,000
Operation for sewage plant	12 places	20,000	240,000
Maintenance for water supply			100,000
Disuse treatment centre	1 place		100,000
Others			13,000
<u>Total</u>			<u>600,000</u>

Grand Total

6,452,000

Note. O & M cost for project evaluation is estimated excluding that of social facilities, therefore

$$5,852,000\text{LE} \times 0.877 = \underline{5,132,000 \text{ LE/year}}$$

Table M.12 Replacement Cost

Items	Financial			(Unit: 1,000LE) Economic		
	F.C.	L.C.	Total	F.C.	L.C.	Total
	1. Tina Plain Pump Station					
Equipment cost	14,950	-	14,950	13,111	-	13,111
Installment cost	1,030	1,210	2,240	903	1,210	2,113
2. Balouza Pump Station						
Equipment cost	15,230	-	15,230	13,357	-	13,357
Installment cost	1,050	1,230	2,280	921	1,230	2,151
3. Tina Plain Drainage						
Equipment cost	582	-	582	510	-	510
Installment cost	40	47	87	35	47	82
4. Rabaa Drainage						
Equipment cost	634	-	634	556	-	556
Installment cost	44	51	95	39	51	90
6. Maintenance Facilities	5,400	-	5,400	4,736	-	4,736
<u>Equipment cost</u>	<u>36,796</u>	<u>-</u>	<u>36,796</u>	<u>32,270</u>	<u>-</u>	<u>32,270</u>
<u>Installment cost</u>	<u>2,164</u>	<u>2,538</u>	<u>4,702</u>	<u>1,898</u>	<u>2,538</u>	<u>4,436</u>
<u>Total</u>			<u>33,116</u>			<u>29,043*</u>
			4,702			4,436
			<u>37,818</u>			<u>33,479</u>

Note. * Residual cost (10%) is applied for the equipment cost.

Table M.13 Crop Budget per Feddan (Economic)

<u>A. Without Project</u>	<u>Squash</u>	<u>Cucumber</u>	<u>Cantaloupe</u>	<u>Tomato</u>	<u>Guava</u>	<u>Fig</u>	<u>Water Melon</u>	<u>Olive</u>	<u>Orange</u>	<u>Dates</u>	<u>Grape</u>
1. Yield (ton/fed)	2.0	3.0	4.0	4.0	4.9	3.5	0.8	2.1	5.0	4.0	4.2
2. Farm-Gate Price (LE/ton)	660	1,430	680	630	490	840	250	930	940	500	650
3. CPV (LE/ton)	<u>1,320</u>	<u>4,290</u>	<u>2,720</u>	<u>2,520</u>	<u>2,401</u>	<u>2,940</u>	<u>200</u>	<u>1,953</u>	<u>4,700</u>	<u>2,000</u>	<u>2,730</u>
4. Production Cost (LE/fed)											
a) Seed	4	32	40	63	14	24	4	26	30	-	15
b) Fertilizer	65	300	239	273	302	302	85	206	342	-	302
c) Agri-chemicals	43	72	58	141	86	26	-	7	25	-	18
d) Labour	188	180	184	300	248	256	20	216	288	160	268
e) Equipment/Agri-machine	545	545	545	545	667	823	-	843	843	-	843
f) Fencing	36	36	36	36	36	36	-	36	36	-	36
g) Land levelling	10	10	10	10	21	21	-	21	21	-	21
h) Others	27	35	33	41	41	45	3	41	48	5	45
<u>Total</u>	<u>918</u>	<u>1,210</u>	<u>1,145</u>	<u>1,409</u>	<u>1,415</u>	<u>1,533</u>	<u>112</u>	<u>1,396</u>	<u>1,633</u>	<u>165</u>	<u>1,548</u>
5. Net Production Value (LE/fed)	<u>402</u>	<u>3,080</u>	<u>1,575</u>	<u>1,111</u>	<u>986</u>	<u>1,407</u>	<u>88</u>	<u>557</u>	<u>3,067</u>	<u>1,835</u>	<u>1,182</u>

Table M.14 Crop Budget per Feddan (Economic) (1)

	Cucumber		Cantaloupe		Tomato		Potato		Green Peas		Green Pepper		Squash	
	CP-1	CP-3	CP-1	CP-3	CP-1	CP-3	CP-1	CP-3	CP-1	CP-3	CP-1	CP-3	CP-2	CP-3
B. With Project														
1. Yield (ton/fed)	5.0	6.0	7.0	8.0	7.0	8.0	6.0	7.0	4.0	5.0	8.0	7.0		
2. Farm-Gate Price (LE/ton)	1,430	680	630	630	630	630	490	690	580	660	660	660		
3. GPV (LE/fed)	7,150	4,080	4,410	5,040	4,410	4,410	2,940	2,760	2,900	5,280	4,620	4,620		
4. Production Cost (LE/fed)														
a) Seed	35	40	90	90	90	90	250	50	20	20	20	20		
b) Fertilizer	516	398	319	319	319	319	480	278	323	254	254	254		
c) Agri-chemicals	124	153	360	360	360	360	117	34	72	61	61	61		
d) Labour	208	228	360	344	344	344	212	252	324	220	220	220		
e) Equipment/Agri-machine	331	83	51	51	51	51	66	304	339	67	67	67		
f) Fencing	36	36	26	26	26	26	26	36	26	36	36	36		
g) Windbreak	72	72	72	72	72	72	72	72	72	-	-	-		
h) Depreciation cost	22	70	70	70	70	70	70	178	178	22	178	22		
i) Others	40	32	40	39	43	39	39	36	41	20	25	25		
Total	1,384	1,112	1,421	1,323	1,483	1,483	1,332	1,240	1,395	700	861	861		
5. NPV (LE/fed)	5,766	2,968	2,989	3,717	2,927	2,927	1,608	1,520	1,505	4,580	3,759	3,759		
B. With Project														
1. Yield (ton/fed)	2.0	2.0	6.0	6.0	7.0	7.0	5.0	5.0	3.0	8.0	8.0	8.0		
2. Farm-Gate Price (LE/ton)	1,500	1,500	650	650	490	490	840	840	930	940	940	940		
3. GPV (LE/fed)	3,000	3,000	3,900	3,900	3,430	3,430	4,200	4,200	2,790	7,520	7,520	7,520		
4. Production Cost (LE/fed)														
a) Seed	117	117	22	22	22	22	29	29	42	54	54	54		
b) Fertilizer	600	600	483	483	440	440	373	373	526	512	512	512		
c) Agri-chemicals	97	97	196	196	108	108	54	54	53	234	234	234		
d) Labour	192	192	204	204	192	192	148	148	264	252	252	252		
e) Equipment/Agri-machine	534	534	518	518	523	523	734	734	266	565	565	565		
f) Fencing	36	36	36	36	36	36	36	36	36	36	36	36		
g) Windbreak	72	72	72	72	72	72	72	72	72	72	72	72		
h) Depreciation cost	339	339	339	339	339	339	339	339	339	339	339	339		
i) Others	60	60	56	56	52	52	54	54	48	62	62	62		
Total	2,047	2,047	1,926	1,926	1,784	1,784	1,839	1,839	1,646	2,126	2,126	2,126		
5. NPV (LE/fed)	953	953	1,974	1,974	1,646	1,646	2,361	2,361	1,144	5,394	5,394	5,394		

Crop Budget per Feddan (Economic) (2)

B. With Project	Dates	Maize CP-3	Paddy CP-2	Wheat CP-2	Barley CP-2	French		Safflower	
						Bean CP-2	Groundnut CP-3		
1. Yield (ton/fed)	4.0	1.5	2.0	1.3	0.8	5.0	0.8	0.5	0.5
2. Farm-Gate Price (LE/ton)	500	430	290	580	580	1,260	1,220	420	420
3. GPV (LE/fed)	<u>2,000</u>	<u>645</u>	<u>580</u>	<u>754</u>	<u>464</u>	<u>6,300</u>	<u>976</u>	<u>210</u>	<u>210</u>
4. Production Cost (LE/fed)									
a) Seed	-	20	16	10	18	40	30	30	30
b) Fertilizer	85	113	65	224	93	275	227	144	144
c) Agri-chemicals	-	57	78	25	-	64	50	13	13
d) Labour	160	48	208	108	40	252	52	68	52
e) Equipment/Agri-machine	-	32	160	24	24	83	24	24	24
f) Fencing	-	36	-	36	36	36	36	36	36
g) Windbreak	-	72	-	72	72	72	72	72	72
h) Depreciation cost	-	178	22	22	22	22	178	70	178
i) Others	7	17	16	16	9	25	22	14	16
<u>Total</u>	<u>252</u>	<u>573</u>	<u>565</u>	<u>537</u>	<u>314</u>	<u>869</u>	<u>751</u>	<u>471</u>	<u>565</u>
5. NPV (LE/fed)	<u>1,748</u>	<u>72</u>	<u>15</u>	<u>217</u>	<u>150</u>	<u>5,431</u>	<u>225</u>	<u>- 261</u>	<u>- 355</u>

B. With Project	Fodder Beet				Jordan				Flax	
	CP-1	CP-2	CP-3	CP-4	CP-1	CP-2	CP-3	CP-4	CP-1	CP-3
1. Yield (ton/fed)	32.0	35.0	32.0	32.0	32.0	35.0	32.0	32.0	2.8	2.8
2. Farm-Gate Price (LE/ton)	30	30	30	30	30	30	30	30	130	130
3. GPV (LE/fed)	<u>960</u>	<u>1,050</u>	<u>960</u>	<u>960</u>	<u>960</u>	<u>1,050</u>	<u>960</u>	<u>960</u>	<u>364</u>	<u>364</u>
4. Production Cost (LE/fed)										
a) Seed	30	30	30	30	30	30	30	30	20	20
b) Fertilizer	289	289	289	289	402	402	402	402	106	106
c) Agri-chemicals	56	56	56	56	22	22	22	22	25	25
d) Labour	52	36	36	36	40	24	24	24	90	80
e) Equipment/Agri-machine	152	152	152	152	88	88	88	88	48	48
f) Fencing	-	-	-	-	-	-	-	-	36	36
g) Windbreak	-	-	-	-	-	-	-	-	-	-
h) Depreciation cost	70	22	178	178	70	22	178	178	70	178
i) Others	19	18	22	22	20	18	22	22	12	15
<u>Total</u>	<u>668</u>	<u>603</u>	<u>763</u>	<u>763</u>	<u>672</u>	<u>606</u>	<u>766</u>	<u>766</u>	<u>407</u>	<u>508</u>
5. NPV (LE/fed)	<u>292</u>	<u>447</u>	<u>197</u>	<u>197</u>	<u>288</u>	<u>444</u>	<u>194</u>	<u>194</u>	<u>- 43</u>	<u>- 144</u>

Crop Budget per Feddan (Economic) (3)

B. With Project	Alfalfa (short)		Alfalfa (perennial)		Napier Grass	
	CP-1	CP-3	CP-1	CP-3	CP-1	CP-3
1. Yield (ton/fed)	20.0	20.0	20.0	30.0	27.0	30.0
2. Farm-Gate Price (LE/ton)	40	40	40	40	30	30
3. GPV (LE/fed)	800	800	800	1,200	810	900
4. Production Cost (LE/fed)						
a) Seed	83	83	66	66	20	20
b) Fertilizer	163	163	214	214	353	353
c) Agri-chemicals	34	34	28	28	18	18
d) Labour	24	8	64	32	80	80
e) Equipment/Agri-machine	120	120	168	168	72	72
f) Fencing	-	-	-	-	-	-
g) Windbreak	-	-	-	-	-	-
h) Depreciation cost	70	178	140	356	70	22
i) Others	15	18	20	26	19	17
Total	509	604	700	890	648	582
5. NPV (LE/fed)	291	196	500	310	162	318

B. With Project	Sunflower		Fodder		Bermuda	
	CP-1	CP-3	Maize	Amshoot	Grass	Berseem
1. Yield (ton/fed)	0.9	0.9	0.9	25.0	20.0	2.0
2. Farm-Gate Price (LE/ton)	520	520	30	20	30	40
3. GPV (LE/fed)	468	468	468	400	60	1,120
4. Production Cost (LE/fed)						
a) Seed	8	8	15	20	20	24
b) Fertilizer	109	109	185	110	130	198
c) Agri-chemicals	-	-	36	-	-	-
d) Labour	90	80	40	56	64	72
e) Equipment/Agri-machine	40	40	84	136	72	176
f) Fencing	36	36	-	-	-	-
g) windbreak	-	-	-	-	-	-
h) Depreciation cost	70	178	178	44	22	22
i) Others	11	14	16	17	9	15
Total	364	465	554	377	317	507
5. NPV (LE/fed)	104	3	196	23	-	613

Table M.15 Benefit (Economic)

A. Without Project

<u>Crops</u>	<u>Planted Area (fed)</u>	<u>NPV (LE/fed)</u>	<u>Total NPV (1,000LE)</u>
Squash	44	402	18
Tomato	266	1,111	296
Water Melon	765	88	67
Cantaloupe	505	1,575	795
Cucumber	66	3,080	203
Olive	132	557	74
Fig	61	1,407	86
Orange	68	3,067	209
Guava	85	986	84
Grape	14	1,182	17
Dates	702	1,835	1,288
Goat	3,174 head		378
Sheep	1,680		252
Chicken	27,900 birds		56
<u>Total</u>			<u>3,823</u>

B. With Project

CP-1	32,422
CP-2	4,536
CP-3	7,699
CP-4	1,925
CP-5	11,312
<u>Total</u>	<u>57,894</u>

Incremental Benefit

54,071

Note. NPV: Net Production Value
 CP : Cropping Pattern

Table M.16 Benefit (Economic) -- with Project (1)

<u>Cropping Pattern - 1</u>			
<u>Land Condition : Sandy Flat</u>			
<u>Settler : Small Holder</u>			
<u>Net Area : 23,500 feddan</u>			
<u>Crops</u>	<u>Planted Area (fed)</u>	<u>NPV (LE/fed)</u>	<u>Total NPV (1,000LE)</u>
Cantaloupe	1,175	2,968	3,487
Cucumber	587	5,766	3,385
Tomato	2,350	2,989	7,024
Flax	2,350	- 43	- 101
Safflower	2,350	- 261	- 613
Potato	588	1,608	945
Olive	4,700	1,144	5,377
Sunflower	2,350	104	244
Dates	394	1,748	689
Goat/sheep			11,985
<u>Total</u>			<u>32,422</u>

<u>Cropping Pattern - 2</u>			
<u>Land Condition : Clay Flat</u>			
<u>Settler : Small Holder</u>			
<u>Net Area : 1,800 feddan</u>			
<u>Crops</u>	<u>Planted Area (fed)</u>	<u>NPV (LE/fed)</u>	<u>Total NPV (1,000LE)</u>
Wheat	600	217	130
Paddy	600	15	9
Tomato	300	3,717	1,115
Squash	300	4,580	1,374
French Bean	300	5,431	1,629
Dates	28	1,748	49
Beef			230
<u>Total</u>			<u>4,536</u>

Benefit (Economic) - with Project (2)

Cropping Pattern - 3

Land Condition	: Sandy Undulating
Settler	: Graduate
Net Area	: 4,600 feddan

Crops	Planted Area (fed)	NPV (LE/fed)	Total NPV (1,000LE)
Maize	230	72	17
Groundnut	230	225	52
Tomato	230	2,927	673
Sunflower	690	3	2
Squash	230	3,759	865
Green Peas	230	1,520	350
Green Pepper	230	1,505	346
Safflower	230	- 355	- 82
Flax	230	- 144	- 33
Apple	460	953	438
Orange	460	5,394	2,481
Grape	460	1,974	908
Fig	460	2,361	1,086
Dates	77	1,748	135
Beef			461
<u>Total</u>			<u>7,699</u>

Cropping Pattern -4

Land Condition	: Sand Undulating
Settler	: Investor
Net Area	: 6,000 feddan

Crops	Planted Area (fed)	NPV (LE/fed)	Total NPV (1,000LE)
Sunflower	1,200	3	4
Dates	98	1,748	171
Beef			1,750
<u>Total</u>			<u>1,925</u>

Cropping Pattern -5

Land Condition	: Sand Undulating
Settler	: Investor
Net Area	: 5,700 feddan

Crops	Planted Area (fed)	NPV (LE/fed)	Total NPV (1,000LE)
Apple	2,280	953	2,173
Orange	570	5,394	3,075
Grape	1,140	1,974	2,250
Fig	1,140	2,361	2,692
Guava	570	1,646	938
Dates	105	1,748	184
<u>Total</u>			<u>11,312</u>

Table M. 17 Sensitivity Analysis of the Project

Alternatives	EIRR	10% increase of Project Cost
(1) Proto-type	8.9	8.1
(2) 10% increase in benefit	9.7	8.9
(3) 10% reduction in benefit	7.9	7.3
(4) 5 years delay in benefit	8.1	7.5
(5) Combination of (3) and (4)	7.3	6.7
(6) Including social infrastructure	6.3	5.7
(7) (1) including the cost of existing El Salam Canal	8.0	-

Table M. 18 PROJECT COST AND BENEFITS - EGYPT, NORTH SINAI DEVELOPMENT PROJECT, PROTO-TYPE
(UNIT : MILLION LE.)

YEAR	PROJECT COST		TOTAL	BENEFITS	RETURN	6 %		8 %		10 %	
	CAPITAL	O & M				(COST)	(BENEFITS)	(COST)	(BENEFITS)	(COST)	(BENEFITS)
1 1988	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 1990	8.8	0.0	8.8	0.0	-8.8	7.4	7.0	7.0	0.0	6.6	0.0
4 1991	10.7	0.0	10.7	0.0	-10.7	8.5	7.9	7.9	0.0	7.3	0.0
5 1992	56.4	0.0	56.4	0.0	-56.4	42.1	38.4	38.4	0.0	35.0	0.0
6 1993	107.0	0.0	107.0	0.0	-107.0	75.4	67.4	67.4	0.0	60.4	0.0
7 1994	127.6	0.0	127.6	0.0	-127.6	84.9	74.5	74.5	0.0	65.5	0.0
8 1995	75.0	3.0	78.0	10.8	-67.2	48.9	42.1	42.1	5.8	36.4	5.0
9 1996	0.0	5.1	5.1	16.8	11.7	5.0	2.6	2.6	8.4	7.1	7.1
10 1997	0.0	5.1	5.1	24.3	19.2	2.8	2.4	2.4	11.3	9.4	9.4
11 1998	0.0	5.1	5.1	31.9	26.8	2.7	2.2	2.2	13.7	11.2	11.2
12 1999	0.0	5.1	5.1	39.0	33.9	2.5	1.9	1.9	15.5	12.4	12.4
13 2000	0.0	5.1	5.1	44.9	39.8	2.4	1.7	1.7	16.5	13.0	13.0
14 2001	0.0	5.1	5.1	48.1	43.0	2.3	1.6	1.6	16.4	12.7	12.7
15 2002	0.0	5.1	5.1	50.9	45.8	2.1	1.5	1.5	16.0	12.2	12.2
16 2003	0.0	5.1	5.1	52.4	47.3	2.0	1.4	1.4	15.3	11.4	11.4
17 2004	0.0	5.1	5.1	53.1	48.0	1.9	1.3	1.3	14.4	10.5	10.5
18 2005	0.0	5.1	5.1	54.1	49.0	1.8	1.2	1.2	13.5	9.7	9.7
19 2006	0.0	5.1	5.1	54.1	49.0	1.7	1.1	1.1	12.5	8.8	8.8
20 2007	0.0	5.1	5.1	54.1	49.0	1.6	1.0	1.0	11.6	8.0	8.0
21 2008	0.0	5.1	5.1	54.1	49.0	1.5	0.9	0.9	10.7	7.3	7.3
22 2009	0.0	5.1	5.1	54.1	49.0	1.4	0.9	0.9	10.0	6.6	6.6
23 2010	0.0	5.1	5.1	54.1	49.0	1.3	0.8	0.8	9.2	6.0	6.0
24 2011	0.0	5.1	5.1	54.1	49.0	1.2	0.8	0.8	8.5	5.5	5.5
25 2012	0.0	5.1	5.1	54.1	49.0	1.1	0.7	0.7	7.9	5.0	5.0
26 2013	0.0	5.1	5.1	54.1	49.0	1.1	0.7	0.7	7.3	4.5	4.5
27 2014	0.0	5.1	5.1	54.1	49.0	1.1	0.6	0.6	6.8	4.1	4.1
28 2015	0.0	5.1	5.1	54.1	49.0	1.0	0.6	0.6	6.3	3.8	3.8
29 2016	0.0	5.1	5.1	54.1	49.0	1.0	0.5	0.5	5.8	3.4	3.4
30 2017	0.0	5.1	5.1	54.1	49.0	0.9	0.5	0.5	5.4	3.1	3.1
31 2018	0.0	38.6	38.6	54.1	15.5	6.3	3.6	3.6	5.0	2.8	2.8
32 2019	0.0	5.1	5.1	54.1	49.0	0.8	0.4	0.4	4.6	2.5	2.5
33 2020	0.0	5.1	5.1	54.1	49.0	0.7	0.4	0.4	4.3	2.2	2.2
34 2021	0.0	5.1	5.1	54.1	49.0	0.7	0.4	0.4	4.0	2.0	2.0
35 2022	0.0	5.1	5.1	54.1	49.0	0.7	0.3	0.3	3.7	1.9	1.9
36 2023	0.0	5.1	5.1	54.1	49.0	0.6	0.3	0.3	3.4	1.8	1.8
37 2024	0.0	5.1	5.1	54.1	49.0	0.6	0.3	0.3	3.1	1.6	1.6
38 2025	0.0	5.1	5.1	54.1	49.0	0.6	0.3	0.3	2.9	1.4	1.4
39 2026	0.0	5.1	5.1	54.1	49.0	0.5	0.3	0.3	2.7	1.3	1.3
40 2027	0.0	5.1	5.1	54.1	49.0	0.5	0.2	0.2	2.5	1.2	1.2
41 2028	0.0	5.1	5.1	54.1	49.0	0.4	0.2	0.2	2.3	1.1	1.1
42 2029	0.0	5.1	5.1	54.1	49.0	0.4	0.2	0.2	2.1	1.0	1.0
43 2030	0.0	5.1	5.1	54.1	49.0	0.4	0.2	0.2	2.0	0.9	0.9
44 2031	0.0	5.1	5.1	54.1	49.0	0.4	0.2	0.2	1.8	0.8	0.8
45 2032	0.0	5.1	5.1	54.1	49.0	0.4	0.2	0.2	1.7	0.7	0.7
46 2033	0.0	5.1	5.1	54.1	49.0	0.3	0.1	0.1	1.6	0.6	0.6
47 2034	0.0	5.1	5.1	54.1	49.0	0.3	0.1	0.1	1.5	0.5	0.5
48 2035	0.0	5.1	5.1	54.1	49.0	0.3	0.1	0.1	1.3	0.4	0.4
49 2036	0.0	5.1	5.1	54.1	49.0	0.3	0.1	0.1	1.2	0.3	0.3
50 2037	0.0	5.1	5.1	54.1	49.0	0.3	0.1	0.1	1.2	0.3	0.3
TOTAL	385.5	250.7	636.2	2157.5	1521.3	321.5	273.4	456.3	301.6	236.3	207.3

BENEFIT COST RATIO BY DISCOUNT RATE (B/C) = 1.42 (6%) / 1.10 (8%) / 0.88 (10%)
INTERNAL RATE OF RETURN (IRR) = 8.9 %

Table M. 19 PROJECT COST AND BENEFITS, 10% INCREASE IN BENEFIT

(UNIT : MILLION LE.)

YEAR	PROJECT COST		TOTAL	BENEFITS	RETURN	6%		8%		10%	
	CAPITAL	O & M				(COST)	(BENEFITS)	(COST)	(BENEFITS)	(COST)	(BENEFITS)
1 1988	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 1990	8.8	0.0	8.8	0.0	-8.8	7.4	0.0	7.0	0.0	6.6	0.0
4 1991	10.7	0.0	10.7	0.0	-10.7	8.5	0.0	7.9	0.0	7.3	0.0
5 1992	56.4	0.0	56.4	0.0	-56.4	42.1	0.0	38.4	0.0	35.0	0.0
6 1993	107.0	0.0	107.0	0.0	-107.0	75.4	0.0	67.4	0.0	60.4	0.0
7 1994	127.6	0.0	127.6	0.0	-127.6	84.9	0.0	74.5	0.0	65.5	0.0
8 1995	175.0	3.0	178.0	11.9	-66.1	48.9	7.5	42.1	6.4	36.4	5.6
9 1996	0.0	5.1	5.1	13.4	3.0	2.6	11.0	2.6	9.3	2.2	7.8
10 1997	0.0	5.1	5.1	26.7	21.6	2.8	14.9	2.4	12.4	2.0	10.3
11 1998	0.0	5.1	5.1	35.1	30.0	2.7	18.5	2.2	15.1	1.8	12.3
12 1999	0.0	5.1	5.1	42.9	37.8	2.5	21.3	2.0	17.0	1.6	13.7
13 2000	0.0	5.1	5.1	49.4	44.3	2.4	23.2	1.9	18.2	1.5	14.3
14 2001	0.0	5.1	5.1	52.9	47.8	2.3	23.4	1.7	18.0	1.3	13.9
15 2002	0.0	5.1	5.1	56.0	50.9	2.1	23.4	1.6	17.7	1.2	13.4
16 2003	0.0	5.1	5.1	57.6	52.5	2.0	22.7	1.5	16.8	1.1	12.5
17 2004	0.0	5.1	5.1	58.4	53.3	1.9	21.7	1.4	15.8	1.0	11.6
18 2005	0.0	5.1	5.1	59.5	54.4	1.8	20.8	1.3	14.9	0.9	10.7
19 2006	0.0	5.1	5.1	59.5	54.4	1.7	19.7	1.2	13.8	0.8	9.7
20 2007	0.0	5.1	5.1	59.5	54.4	1.6	18.6	1.1	12.8	0.8	8.8
21 2008	0.0	5.1	5.1	59.5	54.4	1.5	17.5	1.0	11.8	0.7	8.0
22 2009	0.0	5.1	5.1	59.5	54.4	1.4	16.5	0.9	10.9	0.6	7.3
23 2010	0.0	5.1	5.1	59.5	54.4	1.3	15.6	0.9	10.1	0.6	6.6
24 2011	0.0	5.1	5.1	59.5	54.4	1.3	14.7	0.8	9.4	0.5	6.0
25 2012	0.0	5.1	5.1	59.5	54.4	1.2	13.9	0.7	8.7	0.5	5.5
26 2013	0.0	5.1	5.1	59.5	54.4	1.1	13.1	0.7	8.0	0.4	5.0
27 2014	0.0	5.1	5.1	59.5	54.4	1.1	12.3	0.6	7.4	0.4	4.5
28 2015	0.0	5.1	5.1	59.5	54.4	1.0	11.6	0.6	6.9	0.4	4.1
29 2016	0.0	5.1	5.1	59.5	54.4	0.9	11.0	0.5	6.4	0.3	3.8
30 2017	0.0	5.1	5.1	59.5	54.4	0.9	10.4	0.5	5.9	0.3	3.4
31 2018	0.0	38.6	38.6	20.9	20.9	6.3	9.8	3.6	5.5	2.0	3.1
32 2019	0.0	5.1	5.1	59.5	54.4	0.8	9.2	0.4	5.1	0.2	2.8
33 2020	0.0	5.1	5.1	59.5	54.4	0.7	8.7	0.4	4.7	0.2	2.6
34 2021	0.0	5.1	5.1	59.5	54.4	0.7	8.2	0.4	4.3	0.2	2.3
35 2022	0.0	5.1	5.1	59.5	54.4	0.6	7.7	0.3	4.0	0.2	2.1
36 2023	0.0	5.1	5.1	59.5	54.4	0.6	7.3	0.3	3.7	0.2	1.9
37 2024	0.0	5.1	5.1	59.5	54.4	0.6	6.9	0.3	3.5	0.1	1.7
38 2025	0.0	5.1	5.1	59.5	54.4	0.5	6.5	0.3	3.2	0.1	1.6
39 2026	0.0	5.1	5.1	59.5	54.4	0.5	6.1	0.3	3.0	0.1	1.4
40 2027	0.0	5.1	5.1	59.5	54.4	0.5	5.8	0.2	2.7	0.1	1.3
41 2028	0.0	5.1	5.1	59.5	54.4	0.4	5.5	0.2	2.5	0.1	1.2
42 2029	0.0	5.1	5.1	59.5	54.4	0.4	5.1	0.2	2.3	0.1	1.1
43 2030	0.0	5.1	5.1	59.5	54.4	0.4	4.9	0.2	2.2	0.1	1.0
44 2031	0.0	5.1	5.1	59.5	54.4	0.4	4.6	0.2	2.0	0.1	0.9
45 2032	0.0	5.1	5.1	59.5	54.4	0.4	4.3	0.2	1.9	0.1	0.8
46 2033	0.0	5.1	5.1	59.5	54.4	0.3	4.1	0.1	1.7	0.1	0.7
47 2034	0.0	5.1	5.1	59.5	54.4	0.3	3.8	0.1	1.6	0.1	0.6
48 2035	0.0	5.1	5.1	59.5	54.4	0.3	3.6	0.1	1.5	0.1	0.6
49 2036	0.0	5.1	5.1	59.5	54.4	0.3	3.4	0.1	1.4	0.0	0.6
50 2037	0.0	5.1	5.1	59.5	54.4	0.3	3.2	0.1	1.3	0.0	0.5
TOTAL	385.5	250.7	636.2	2372.9	1736.7	321.5	501.9	273.4	331.7	236.3	228.1

BENEFIT COST RATIO BY DISCOUNT RATE (B/C) = 1.56 (6%), 1.21 (8%), 0.97 (10%)
INTERNAL RATE OF RETURN (IRR) = 9.7%

Table M. 20 PROJECT COST AND BENEFITS, 10% REDUCTION OF BENEFIT

(UNIT : MILLION LE.)

YEAR	PROJECT COST		TOTAL	BENEFITS	RETURN	6%		8%		10%	
	CAPITAL	O & M				(COST)	(BENEFITS)	(COST)	(BENEFITS)	(COST)	(BENEFITS)
1 1988	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 1990	8.8	0.0	8.8	0.0	-8.8	0.0	7.4	0.0	7.0	0.0	6.6
4 1991	10.7	0.0	10.7	0.0	-10.7	8.5	0.0	7.9	0.0	6.9	0.0
5 1992	56.4	0.0	56.4	0.0	-56.4	42.1	0.0	38.4	0.0	35.0	0.0
6 1993	107.0	0.0	107.0	0.0	-107.0	75.4	0.0	67.4	0.0	60.4	0.0
7 1994	127.6	0.0	127.6	0.0	-127.6	84.9	0.0	74.5	0.0	65.5	0.0
8 1995	75.0	3.0	78.0	9.7	-68.3	48.9	6.1	42.1	5.2	36.4	4.5
9 1996	0.0	5.1	5.1	15.1	10.0	3.0	8.9	2.6	7.6	2.2	6.4
10 1997	0.0	5.1	5.1	15.1	16.8	2.8	12.2	2.4	10.1	2.0	8.4
11 1998	0.0	5.1	5.1	28.7	23.6	2.7	15.1	2.2	12.3	1.8	10.1
12 1999	0.0	5.1	5.1	35.1	30.0	2.5	17.4	2.0	13.9	1.6	11.2
13 2000	0.0	5.1	5.1	40.4	35.3	2.4	18.9	1.9	14.9	1.5	11.7
14 2001	0.0	5.1	5.1	43.3	38.2	2.3	19.2	1.7	14.7	1.3	11.4
15 2002	0.0	5.1	5.1	45.8	40.7	2.1	19.1	1.6	14.4	1.2	11.0
16 2003	0.0	5.1	5.1	47.2	42.1	2.0	18.6	1.5	13.8	1.1	10.3
17 2004	0.0	5.1	5.1	47.8	42.7	1.9	17.8	1.4	12.9	1.0	9.5
18 2005	0.0	5.1	5.1	48.7	43.6	1.8	17.1	1.3	12.2	0.9	8.8
19 2006	0.0	5.1	5.1	48.7	43.6	1.7	16.1	1.2	11.3	0.8	8.0
20 2007	0.0	5.1	5.1	48.7	43.6	1.6	15.2	1.1	10.4	0.8	7.2
21 2008	0.0	5.1	5.1	48.7	43.6	1.5	14.3	1.0	9.7	0.7	6.6
22 2009	0.0	5.1	5.1	48.7	43.6	1.4	13.5	0.9	9.0	0.6	6.0
23 2010	0.0	5.1	5.1	48.7	43.6	1.3	12.0	0.8	8.3	0.5	5.4
24 2011	0.0	5.1	5.1	48.7	43.6	1.2	11.3	0.7	7.7	0.5	4.9
25 2012	0.0	5.1	5.1	48.7	43.6	1.1	10.7	0.7	7.1	0.4	4.5
26 2013	0.0	5.1	5.1	48.7	43.6	1.1	10.1	0.6	6.6	0.4	4.1
27 2014	0.0	5.1	5.1	48.7	43.6	1.0	9.5	0.6	6.1	0.4	3.7
28 2015	0.0	5.1	5.1	48.7	43.6	1.0	9.0	0.5	5.6	0.4	3.4
29 2016	0.0	5.1	5.1	48.7	43.6	0.9	8.5	0.5	5.2	0.3	3.1
30 2017	0.0	5.1	5.1	48.7	43.6	0.9	8.0	0.5	4.8	0.3	2.8
31 2018	38.6	38.6	77.2	10.1	10.1	6.3	7.5	3.6	4.5	2.0	2.5
32 2019	0.0	5.1	5.1	48.7	43.6	0.8	7.1	0.4	4.1	0.2	2.3
33 2020	0.0	5.1	5.1	48.7	43.6	0.7	6.7	0.4	3.8	0.2	2.1
34 2021	0.0	5.1	5.1	48.7	43.6	0.7	6.3	0.3	3.6	0.2	1.9
35 2022	0.0	5.1	5.1	48.7	43.6	0.6	6.0	0.3	3.5	0.2	1.7
36 2023	0.0	5.1	5.1	48.7	43.6	0.6	5.6	0.3	3.0	0.1	1.6
37 2024	0.0	5.1	5.1	48.7	43.6	0.6	5.3	0.3	2.8	0.1	1.4
38 2025	0.0	5.1	5.1	48.7	43.6	0.5	5.0	0.3	2.6	0.1	1.3
39 2026	0.0	5.1	5.1	48.7	43.6	0.5	4.7	0.2	2.4	0.1	1.2
40 2027	0.0	5.1	5.1	48.7	43.6	0.5	4.5	0.2	2.2	0.1	1.1
41 2028	0.0	5.1	5.1	48.7	43.6	0.4	4.2	0.2	1.9	0.1	1.0
42 2029	0.0	5.1	5.1	48.7	43.6	0.4	4.0	0.2	1.8	0.1	0.9
43 2030	0.0	5.1	5.1	48.7	43.6	0.4	3.8	0.2	1.6	0.1	0.8
44 2031	0.0	5.1	5.1	48.7	43.6	0.4	3.8	0.2	1.6	0.1	0.7
45 2032	0.0	5.1	5.1	48.7	43.6	0.4	3.5	0.2	1.5	0.1	0.7
46 2033	0.0	5.1	5.1	48.7	43.6	0.3	3.3	0.1	1.4	0.1	0.6
47 2034	0.0	5.1	5.1	48.7	43.6	0.3	3.1	0.1	1.3	0.1	0.6
48 2035	0.0	5.1	5.1	48.7	43.6	0.3	2.8	0.1	1.2	0.1	0.5
49 2036	0.0	5.1	5.1	48.7	43.6	0.3	2.6	0.1	1.1	0.0	0.5
50 2037	0.0	5.1	5.1	48.7	43.6	0.3	2.6	0.1	1.0	0.0	0.4
TOTAL	385.5	250.7	636.2	1942.1	1305.9	321.5	410.7	273.4	271.5	236.3	186.6

BENEFIT COST RATIO BY DISCOUNT RATE (B/C) = 1.28 (6%), 0.99 (8%), 0.79 (10%)
INTERNAL RATE OF RETURN (IRR) = 7.9%

Table M. 21 PROJECT COST AND BENEFITS / 5 YEARS DELAY IN BENEFIT

(UNIT : MILLION LE.)

YEAR	PROJECT COST		TOTAL	BENEFITS	RETURN	6 %		8 %		10 %	
	CAPITAL	O & M				(COST)	(BENEFITS)	(COST)	(BENEFITS)	(COST)	(BENEFITS)
1 1988	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 1990	8.8	0.0	8.8	0.0	-8.8	7.4	0.0	7.0	0.0	6.6	0.0
4 1991	10.7	0.0	10.7	0.0	-10.7	8.5	0.0	7.9	0.0	7.3	0.0
5 1992	56.4	0.0	56.4	0.0	-56.4	42.1	0.0	38.4	0.0	35.0	0.0
6 1993	107.0	0.0	107.0	0.0	-107.0	75.4	0.0	67.4	0.0	60.4	0.0
7 1994	127.6	0.0	127.6	0.0	-127.6	84.9	0.0	74.5	0.0	65.5	0.0
8 1995	175.0	3.0	178.0	10.8	-67.2	48.9	6.8	42.1	5.8	36.4	5.0
9 1996	5.1	5.1	10.2	15.1	10.0	3.0	8.9	2.6	7.6	2.2	6.4
10 1997	0.0	5.1	5.1	19.5	14.4	2.8	10.9	2.4	9.0	2.0	7.5
11 1998	0.0	5.1	5.1	24.3	19.2	2.7	12.8	2.2	10.4	1.8	8.5
12 1999	0.0	5.1	5.1	29.8	24.7	2.5	14.8	2.0	11.8	1.6	9.5
13 2000	0.0	5.1	5.1	34.6	29.5	2.4	16.2	1.9	12.7	1.5	10.0
14 2001	0.0	5.1	5.1	39.0	33.9	2.3	17.2	1.7	13.3	1.3	10.3
15 2002	0.0	5.1	5.1	43.3	38.2	2.1	18.1	1.6	13.7	1.2	10.4
16 2003	0.0	5.1	5.1	46.0	40.9	2.0	18.1	1.5	13.4	1.1	10.0
17 2004	0.0	5.1	5.1	48.4	43.2	1.9	18.0	1.4	13.1	1.0	9.6
18 2005	0.0	5.1	5.1	50.3	45.2	1.8	17.6	1.3	12.6	0.9	9.0
19 2006	0.0	5.1	5.1	51.4	46.3	1.7	17.0	1.2	11.9	0.8	8.4
20 2007	0.0	5.1	5.1	52.4	47.3	1.6	16.3	1.1	11.2	0.8	7.8
21 2008	0.0	5.1	5.1	52.9	47.8	1.5	15.6	1.0	10.5	0.7	7.1
22 2009	0.0	5.1	5.1	53.2	48.1	1.4	14.8	0.9	9.8	0.6	6.5
23 2010	0.0	5.1	5.1	54.1	49.0	1.3	14.2	0.9	9.2	0.6	6.0
24 2011	0.0	5.1	5.1	54.1	49.0	1.2	13.4	0.8	8.5	0.5	5.5
25 2012	0.0	5.1	5.1	54.1	49.0	1.1	12.6	0.7	7.9	0.5	5.0
26 2013	0.0	5.1	5.1	54.1	49.0	1.1	11.9	0.7	7.3	0.4	4.5
27 2014	0.0	5.1	5.1	54.1	49.0	1.0	11.2	0.6	6.8	0.4	4.1
28 2015	0.0	5.1	5.1	54.1	49.0	1.0	10.6	0.6	6.3	0.3	3.8
29 2016	0.0	5.1	5.1	54.1	49.0	0.9	10.0	0.5	5.8	0.3	3.4
30 2017	0.0	5.1	5.1	54.1	49.0	0.9	9.4	0.5	5.4	0.3	3.1
31 2018	0.0	38.6	38.6	54.1	15.5	6.3	8.9	3.6	5.0	2.0	2.8
32 2019	0.0	5.1	5.1	54.1	49.0	0.8	8.4	0.4	4.6	0.2	2.6
33 2020	0.0	5.1	5.1	54.1	49.0	0.7	7.9	0.4	4.3	0.2	2.3
34 2021	0.0	5.1	5.1	54.1	49.0	0.7	7.5	0.4	4.0	0.2	2.1
35 2022	0.0	5.1	5.1	54.1	49.0	0.6	7.0	0.3	3.7	0.2	1.9
36 2023	0.0	5.1	5.1	54.1	49.0	0.6	6.6	0.3	3.4	0.2	1.8
37 2024	0.0	5.1	5.1	54.1	49.0	0.6	6.3	0.3	3.1	0.1	1.6
38 2025	0.0	5.1	5.1	54.1	49.0	0.6	5.9	0.3	2.9	0.1	1.4
39 2026	0.0	5.1	5.1	54.1	49.0	0.5	5.6	0.3	2.7	0.1	1.3
40 2027	0.0	5.1	5.1	54.1	49.0	0.5	5.3	0.2	2.5	0.1	1.2
41 2028	0.0	5.1	5.1	54.1	49.0	0.4	5.0	0.2	2.3	0.1	1.1
42 2029	0.0	5.1	5.1	54.1	49.0	0.4	4.7	0.2	2.1	0.1	1.0
43 2030	0.0	5.1	5.1	54.1	49.0	0.4	4.4	0.2	2.0	0.1	0.9
44 2031	0.0	5.1	5.1	54.1	49.0	0.4	4.2	0.2	1.8	0.1	0.8
45 2032	0.0	5.1	5.1	54.1	49.0	0.4	3.9	0.2	1.7	0.1	0.7
46 2033	0.0	5.1	5.1	54.1	49.0	0.3	3.7	0.1	1.6	0.1	0.6
47 2034	0.0	5.1	5.1	54.1	49.0	0.3	3.5	0.1	1.5	0.1	0.6
48 2035	0.0	5.1	5.1	54.1	49.0	0.3	3.3	0.1	1.3	0.1	0.5
49 2036	0.0	5.1	5.1	54.1	49.0	0.3	3.1	0.1	1.2	0.0	0.5
50 2037	0.0	5.1	5.1	54.1	49.0	0.3	2.9	0.1	1.2	0.0	0.5
TOTAL	385.5	250.7	636.2	2085.8	1449.6	321.5	424.4	273.4	276.8	236.3	188.0

BENEFIT COST RATIO BY DISCOUNT RATE (B/C) = 1.32 (6%), 1.01 (8%), 0.80 (10%)
INTERNAL RATE OF RETURN (IRR) = 8.1%

Table M. 22 PROJECT COST AND BENEFITS / 5 YEARS DELAY / 10 % REDUCTION OF BENEFIT
(UNIT : MILLION LE.)

YEAR	PROJECT COST		TOTAL	BENEFITS	RETURN	6 %		8 %		10 %	
	CAPITAL	O & M				(COST)	(BENEFITS)	(COST)	(BENEFITS)	(COST)	(BENEFITS)
1 1988	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 1990	8.8	0.0	8.8	0.0	-8.8	7.4	0.0	7.0	0.0	6.6	0.0
4 1991	10.7	0.0	10.7	0.0	-10.7	8.5	0.0	7.9	0.0	7.3	0.0
5 1992	56.4	0.0	56.4	0.0	-56.4	42.1	0.0	38.4	0.0	35.0	0.0
6 1993	107.0	0.0	107.0	0.0	-107.0	84.9	0.0	74.5	0.0	68.5	0.0
7 1994	127.6	0.0	127.6	0.0	-127.6	48.9	0.0	42.1	0.0	36.4	0.0
8 1995	75.0	3.0	78.0	9.7	-68.3	3.0	6.1	2.6	5.2	2.2	4.5
9 1996	0.0	5.1	5.1	13.4	8.3	2.8	7.9	2.4	6.2	2.0	5.7
10 1997	0.0	5.1	5.1	17.6	12.5	2.7	9.8	2.2	8.2	2.0	6.8
11 1998	0.0	5.1	5.1	21.9	16.8	2.5	11.5	2.0	9.4	1.8	7.7
12 1999	0.0	5.1	5.1	26.8	21.7	2.4	13.3	1.9	11.4	1.6	8.5
13 2000	0.0	5.1	5.1	31.1	26.0	2.3	14.6	1.7	10.6	1.5	9.0
14 2001	0.0	5.1	5.1	35.1	30.0	2.1	15.5	1.6	12.0	1.3	9.3
15 2002	0.0	5.1	5.1	39.0	33.9	2.0	16.3	1.5	12.3	1.2	9.6
16 2003	0.0	5.1	5.1	41.4	36.3	1.9	16.2	1.4	11.8	1.0	9.0
17 2004	0.0	5.1	5.1	43.6	38.5	1.8	15.9	1.3	11.3	0.9	8.1
18 2005	0.0	5.1	5.1	45.3	40.2	1.6	14.7	1.2	10.7	0.8	7.6
19 2006	0.0	5.1	5.1	46.3	41.2	1.5	14.0	1.0	9.5	0.7	6.4
20 2007	0.0	5.1	5.1	47.2	42.5	1.5	13.7	0.9	8.8	0.6	5.9
21 2008	0.0	5.1	5.1	47.9	42.8	1.4	13.2	0.9	8.3	0.6	5.4
22 2009	0.0	5.1	5.1	48.7	43.6	1.3	12.7	0.8	7.7	0.5	4.9
23 2010	0.0	5.1	5.1	48.7	43.6	1.2	12.0	0.7	7.1	0.4	4.5
24 2011	0.0	5.1	5.1	48.7	43.6	1.1	11.5	0.7	6.6	0.4	4.1
25 2012	0.0	5.1	5.1	48.7	43.6	1.1	11.3	0.6	6.1	0.4	3.7
26 2013	0.0	5.1	5.1	48.7	43.6	1.0	10.9	0.6	5.6	0.3	3.4
27 2014	0.0	5.1	5.1	48.7	43.6	0.9	10.5	0.5	5.2	0.3	3.1
28 2015	0.0	5.1	5.1	48.7	43.6	0.9	10.1	0.5	4.8	0.3	2.8
29 2016	0.0	5.1	5.1	48.7	43.6	0.8	9.5	0.4	4.1	0.2	2.5
30 2017	0.0	5.1	5.1	48.7	43.6	0.7	8.8	0.4	3.8	0.2	2.3
31 2018	0.0	5.1	5.1	48.7	43.6	0.7	8.0	0.4	3.5	0.2	2.1
32 2019	0.0	5.1	5.1	48.7	43.6	0.7	7.1	0.4	3.3	0.2	1.9
33 2020	0.0	5.1	5.1	48.7	43.6	0.7	6.3	0.3	3.0	0.2	1.7
34 2021	0.0	5.1	5.1	48.7	43.6	0.6	6.0	0.3	2.8	0.1	1.6
35 2022	0.0	5.1	5.1	48.7	43.6	0.6	5.6	0.3	2.6	0.1	1.4
36 2023	0.0	5.1	5.1	48.7	43.6	0.5	5.3	0.3	2.4	0.1	1.3
37 2024	0.0	5.1	5.1	48.7	43.6	0.5	4.7	0.2	2.2	0.1	1.2
38 2025	0.0	5.1	5.1	48.7	43.6	0.5	4.2	0.2	1.9	0.1	1.1
39 2026	0.0	5.1	5.1	48.7	43.6	0.4	4.0	0.2	1.8	0.1	1.0
40 2027	0.0	5.1	5.1	48.7	43.6	0.4	3.8	0.2	1.6	0.1	0.8
41 2028	0.0	5.1	5.1	48.7	43.6	0.4	3.5	0.2	1.5	0.1	0.7
42 2029	0.0	5.1	5.1	48.7	43.6	0.4	3.3	0.2	1.4	0.1	0.6
43 2030	0.0	5.1	5.1	48.7	43.6	0.3	3.1	0.1	1.3	0.1	0.6
44 2031	0.0	5.1	5.1	48.7	43.6	0.3	3.0	0.1	1.2	0.1	0.5
45 2032	0.0	5.1	5.1	48.7	43.6	0.3	2.8	0.1	1.1	0.1	0.5
46 2033	0.0	5.1	5.1	48.7	43.6	0.3	2.6	0.1	1.0	0.1	0.5
47 2034	0.0	5.1	5.1	48.7	43.6	0.3	2.5	0.1	0.9	0.1	0.5
48 2035	0.0	5.1	5.1	48.7	43.6	0.3	2.4	0.1	0.8	0.1	0.5
49 2036	0.0	5.1	5.1	48.7	43.6	0.3	2.3	0.1	0.7	0.1	0.5
50 2037	0.0	5.1	5.1	48.7	43.6	0.3	2.2	0.1	0.6	0.1	0.4
TOTAL	385.5	250.7	636.2	1877.5	1241.3	321.5	381.9	273.4	249.1	236.3	169.2

BENEFIT COST RATIO BY DISCOUNT RATE (B/C) = 1.19 (6%), 0.91 (8%), 0.72 (10%)
INTERNAL RATE OF RETURN (IRR) = 7.3 %

Table M. 23 PROJECT COST AND BENEFITS / INCLUDED THE COST OF INFRASTRUCTURE (UNIT : MILLION LE.)

YEAR	PROJECT COST		TOTAL	BENEFITS	RETURN	6 %		8 %		10 %	
	CAPITAL	O & M				(COST)	(BENEFITS)	(COST)	(BENEFITS)	(COST)	(BENEFITS)
1 1988	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 1990	8.8	0.0	8.8	0.0	-8.8	7.4	7.0	7.0	6.6	6.6	6.6
4 1991	10.7	0.0	10.7	0.0	-10.7	8.5	7.9	7.9	7.3	7.3	7.3
5 1992	56.4	0.0	56.4	0.0	-56.4	42.1	38.4	38.4	35.0	35.0	35.0
6 1993	141.7	0.0	141.7	0.0	-141.7	99.9	89.3	89.3	80.0	80.0	80.0
7 1994	197.0	0.0	197.0	0.0	-197.0	131.0	114.9	114.9	101.1	101.1	101.1
8 1995	144.4	3.0	147.4	10.8	-136.6	92.5	79.9	79.9	68.8	68.8	68.8
9 1996	0.0	5.7	5.7	16.8	11.1	3.4	2.9	2.9	2.4	2.4	2.4
10 1997	0.0	5.7	5.7	24.3	18.6	3.2	2.6	2.6	2.2	2.2	2.2
11 1998	0.0	5.7	5.7	31.9	26.2	3.0	2.4	2.4	2.0	2.0	2.0
12 1999	0.0	5.7	5.7	39.0	33.3	2.8	2.3	2.3	1.8	1.8	1.8
13 2000	0.0	5.7	5.7	44.9	39.2	2.7	2.1	2.1	1.7	1.7	1.7
14 2001	0.0	5.7	5.7	48.1	42.4	2.5	1.9	1.9	1.5	1.5	1.5
15 2002	0.0	5.7	5.7	50.9	45.2	2.4	1.8	1.8	1.4	1.4	1.4
16 2003	0.0	5.7	5.7	52.4	46.7	2.2	1.7	1.7	1.2	1.2	1.2
17 2004	0.0	5.7	5.7	53.1	47.4	2.1	1.5	1.5	1.1	1.1	1.1
18 2005	0.0	5.7	5.7	54.1	48.4	2.0	1.4	1.4	1.0	1.0	1.0
19 2006	0.0	5.7	5.7	54.1	48.4	1.9	1.3	1.3	0.9	0.9	0.9
20 2007	0.0	5.7	5.7	54.1	48.4	1.8	1.2	1.2	0.8	0.8	0.8
21 2008	0.0	5.7	5.7	54.1	48.4	1.7	1.1	1.1	0.8	0.8	0.8
22 2009	0.0	5.7	5.7	54.1	48.4	1.6	1.0	1.0	0.7	0.7	0.7
23 2010	0.0	5.7	5.7	54.1	48.4	1.5	1.0	1.0	0.6	0.6	0.6
24 2011	0.0	5.7	5.7	54.1	48.4	1.4	0.9	0.9	0.5	0.5	0.5
25 2012	0.0	5.7	5.7	54.1	48.4	1.3	0.8	0.8	0.5	0.5	0.5
26 2013	0.0	5.7	5.7	54.1	48.4	1.3	0.8	0.8	0.5	0.5	0.5
27 2014	0.0	5.7	5.7	54.1	48.4	1.2	0.7	0.7	0.4	0.4	0.4
28 2015	0.0	5.7	5.7	54.1	48.4	1.1	0.7	0.7	0.4	0.4	0.4
29 2016	0.0	5.7	5.7	54.1	48.4	1.1	0.6	0.6	0.4	0.4	0.4
30 2017	0.0	5.7	5.7	54.1	48.4	1.0	0.6	0.6	0.3	0.3	0.3
31 2018	0.0	39.2	39.2	54.1	14.9	6.4	8.9	8.9	5.0	5.0	5.0
32 2019	0.0	5.7	5.7	54.1	48.4	6.9	8.4	8.4	4.6	4.6	4.6
33 2020	0.0	5.7	5.7	54.1	48.4	0.8	7.9	7.9	4.3	4.3	4.3
34 2021	0.0	5.7	5.7	54.1	48.4	0.8	7.5	7.5	4.0	4.0	4.0
35 2022	0.0	5.7	5.7	54.1	48.4	0.7	7.0	7.0	3.7	3.7	3.7
36 2023	0.0	5.7	5.7	54.1	48.4	0.7	6.6	6.6	3.4	3.4	3.4
37 2024	0.0	5.7	5.7	54.1	48.4	0.6	6.3	6.3	3.1	3.1	3.1
38 2025	0.0	5.7	5.7	54.1	48.4	0.6	5.9	5.9	2.9	2.9	2.9
39 2026	0.0	5.7	5.7	54.1	48.4	0.6	5.6	5.6	2.7	2.7	2.7
40 2027	0.0	5.7	5.7	54.1	48.4	0.6	5.3	5.3	2.5	2.5	2.5
41 2028	0.0	5.7	5.7	54.1	48.4	0.5	5.0	5.0	2.3	2.3	2.3
42 2029	0.0	5.7	5.7	54.1	48.4	0.5	4.7	4.7	2.1	2.1	2.1
43 2030	0.0	5.7	5.7	54.1	48.4	0.5	4.4	4.4	2.0	2.0	2.0
44 2031	0.0	5.7	5.7	54.1	48.4	0.4	4.2	4.2	1.8	1.8	1.8
45 2032	0.0	5.7	5.7	54.1	48.4	0.4	3.9	3.9	1.7	1.7	1.7
46 2033	0.0	5.7	5.7	54.1	48.4	0.4	3.7	3.7	1.6	1.6	1.6
47 2034	0.0	5.7	5.7	54.1	48.4	0.4	3.5	3.5	1.5	1.5	1.5
48 2035	0.0	5.7	5.7	54.1	48.4	0.3	3.3	3.3	1.3	1.3	1.3
49 2036	0.0	5.7	5.7	54.1	48.4	0.3	3.1	3.1	1.2	1.2	1.2
50 2037	0.0	5.7	5.7	54.1	48.4	0.3	2.9	2.9	1.1	1.1	1.1
TOTAL	559.0	275.9	834.9	2157.5	1322.6	441.4	456.3	377.2	301.6	326.6	207.3

BENEFIT COST RATIO BY DISCOUNT RATE (B/C) = 1.03 (6%), 0.80 (8%), 0.63 (10%)
INTERNAL RATE OF RETURN (IRR) = 6.3 %

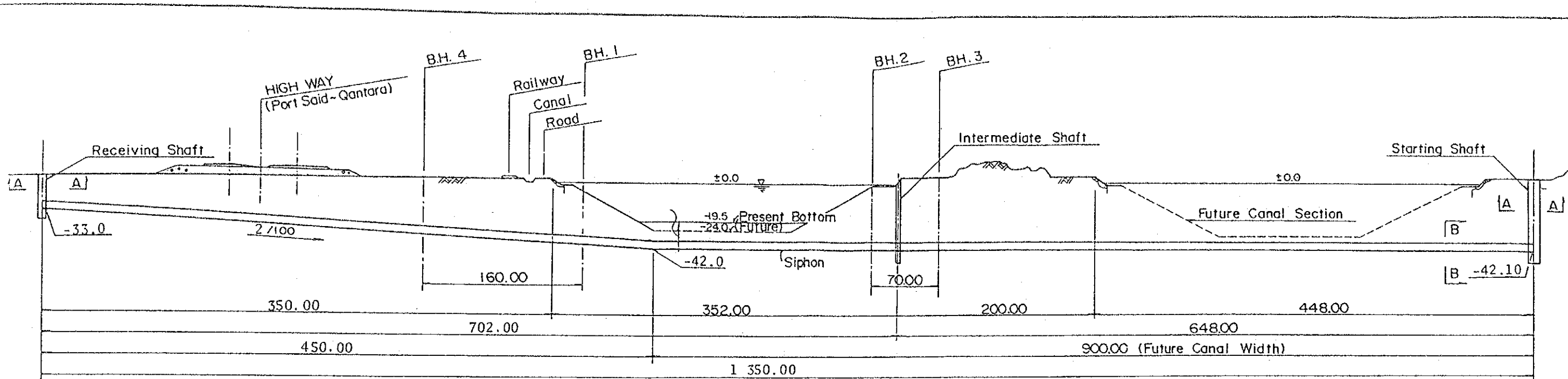
Table M. 24 PROJECT COST AND BENEFITS, INCLUDED THE COST OF WESTERN SIDE OF SUEZ CANAL
(UNIT : MILLION LE.)

YEAR	PROJECT COST		TOTAL	BENEFITS	RETURN	6 %		8 %		10 %	
	CAPITAL	O & M				(COST)	(BENEFITS)	(COST)	(BENEFITS)	(COST)	(BENEFITS)
1 1981	1.0	0.0	1.0	0.0	-1.0	1.0	0.0	1.0	0.0	1.0	0.0
2 1982	1.0	0.0	1.0	0.0	-1.0	0.9	0.0	0.9	0.0	0.8	0.0
3 1983	4.3	0.0	4.3	0.0	-4.3	3.6	0.0	3.4	0.0	3.2	0.0
4 1984	2.1	0.0	2.1	0.0	-2.1	1.7	0.0	1.5	0.0	1.4	0.0
5 1985	3.1	0.0	3.1	0.0	-3.1	2.3	0.0	2.1	0.0	1.9	0.0
6 1986	1.5	0.0	1.5	0.0	-1.5	1.1	0.0	0.9	0.0	0.8	0.0
7 1987	1.2	0.0	1.2	0.0	-1.2	0.8	0.0	0.6	0.0	0.6	0.0
8 1988	1.2	0.0	1.2	0.0	-1.2	0.7	0.0	0.6	0.0	0.5	0.0
9 1989	8.8	0.0	8.8	0.0	-8.8	4.9	0.0	4.1	0.0	3.4	0.0
10 1990	10.7	0.0	10.7	0.0	-10.7	5.6	0.0	4.6	0.0	3.8	0.0
11 1991	56.4	0.0	56.4	0.0	-56.4	28.0	0.0	22.4	0.0	18.0	0.0
12 1992	107.0	0.0	107.0	0.0	-107.0	50.2	0.0	39.3	0.0	31.0	0.0
13 1993	127.6	0.0	127.6	0.0	-127.6	56.4	0.0	43.4	0.0	33.6	0.0
14 1994	75.0	0.0	75.0	0.0	-75.0	32.5	0.0	24.6	0.0	18.7	0.0
15 1995	0.0	0.0	0.0	10.8	11.7	2.0	0.0	1.1	0.0	1.1	0.0
16 1996	0.0	0.0	0.0	16.3	19.2	1.9	0.0	1.4	0.0	1.0	0.0
17 1997	0.0	0.0	0.0	24.3	26.8	1.8	0.0	1.3	0.0	0.9	0.0
18 1998	0.0	0.0	0.0	31.9	33.9	1.7	0.0	1.2	0.0	0.8	0.0
19 1999	0.0	0.0	0.0	39.0	39.8	1.6	0.0	1.1	0.0	0.8	0.0
20 2000	0.0	0.0	0.0	44.9	43.0	1.5	0.0	1.0	0.0	0.7	0.0
21 2001	0.0	0.0	0.0	48.1	45.8	1.4	0.0	0.9	0.0	0.6	0.0
22 2002	0.0	0.0	0.0	50.9	47.3	1.3	0.0	0.9	0.0	0.6	0.0
23 2003	0.0	0.0	0.0	52.4	48.0	1.3	0.0	0.8	0.0	0.5	0.0
24 2004	0.0	0.0	0.0	53.1	49.0	1.2	0.0	0.7	0.0	0.5	0.0
25 2005	0.0	0.0	0.0	54.1	49.0	1.1	0.0	0.7	0.0	0.4	0.0
26 2006	0.0	0.0	0.0	54.1	49.0	1.1	0.0	0.6	0.0	0.4	0.0
27 2007	0.0	0.0	0.0	54.1	49.0	1.0	0.0	0.6	0.0	0.3	0.0
28 2008	0.0	0.0	0.0	54.1	49.0	0.9	0.0	0.5	0.0	0.3	0.0
29 2009	0.0	0.0	0.0	54.1	49.0	0.9	0.0	0.5	0.0	0.3	0.0
30 2010	0.0	0.0	0.0	54.1	49.0	0.8	0.0	0.5	0.0	0.3	0.0
31 2011	0.0	0.0	0.0	54.1	49.0	0.8	0.0	0.4	0.0	0.2	0.0
32 2012	0.0	0.0	0.0	54.1	49.0	0.7	0.0	0.4	0.0	0.2	0.0
33 2013	0.0	0.0	0.0	54.1	49.0	0.7	0.0	0.4	0.0	0.2	0.0
34 2014	0.0	0.0	0.0	54.1	49.0	0.7	0.0	0.3	0.0	0.2	0.0
35 2015	0.0	0.0	0.0	54.1	49.0	0.6	0.0	0.3	0.0	0.2	0.0
36 2016	0.0	0.0	0.0	54.1	49.0	0.6	0.0	0.3	0.0	0.1	0.0
37 2017	0.0	0.0	0.0	54.1	49.0	0.6	0.0	0.3	0.0	0.1	0.0
38 2018	0.0	0.0	0.0	54.1	49.0	0.5	0.0	0.3	0.0	0.1	0.0
39 2019	0.0	0.0	0.0	54.1	49.0	0.5	0.0	0.3	0.0	0.1	0.0
40 2020	0.0	0.0	0.0	54.1	49.0	0.5	0.0	0.2	0.0	0.1	0.0
41 2021	0.0	0.0	0.0	54.1	49.0	0.4	0.0	0.2	0.0	0.1	0.0
42 2022	0.0	0.0	0.0	54.1	49.0	0.4	0.0	0.2	0.0	0.1	0.0
43 2023	0.0	0.0	0.0	54.1	49.0	0.4	0.0	0.2	0.0	0.1	0.0
44 2024	0.0	0.0	0.0	54.1	49.0	0.4	0.0	0.2	0.0	0.1	0.0
45 2025	0.0	0.0	0.0	54.1	49.0	0.3	0.0	0.1	0.0	0.1	0.0
46 2026	0.0	0.0	0.0	54.1	49.0	0.3	0.0	0.1	0.0	0.1	0.0
47 2027	0.0	0.0	0.0	54.1	49.0	0.3	0.0	0.1	0.0	0.1	0.0
48 2028	0.0	0.0	0.0	54.1	49.0	0.3	0.0	0.1	0.0	0.1	0.0
49 2029	0.0	0.0	0.0	54.1	49.0	0.3	0.0	0.1	0.0	0.1	0.0
50 2030	0.0	0.0	0.0	54.1	49.0	0.3	0.0	0.1	0.0	0.1	0.0
TOTAL	402.1	215.0	617.1	1778.8	1161.7	225.0	287.1	170.8	170.0	132.0	104.2

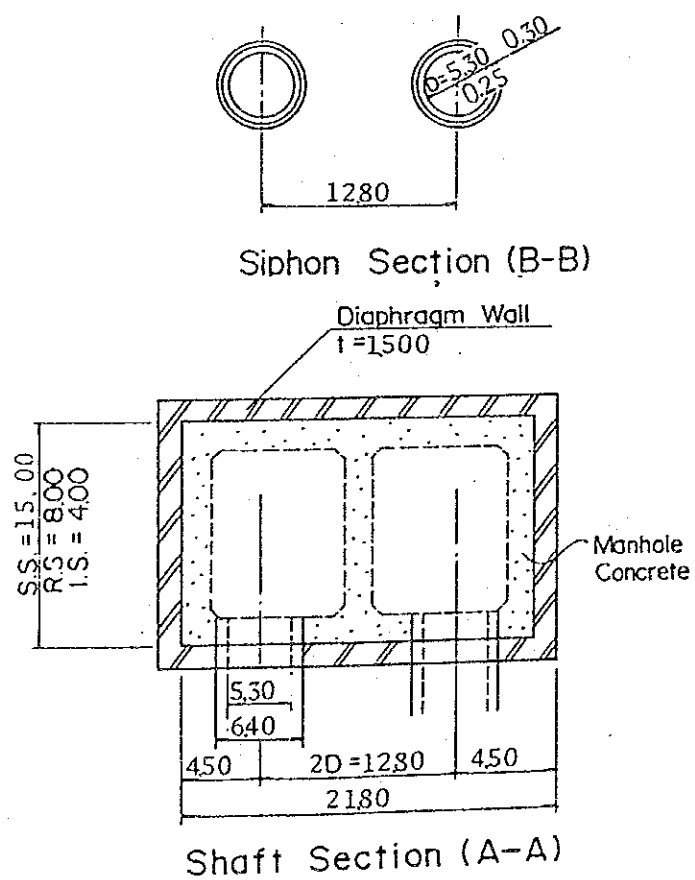
BENEFIT COST RATIO BY DISCOUNT RATE (B/C) = 1.28 (6%), 1.00 (8%), 0.79 (10%)
INTERNAL RATE OF RETURN (IRR) = 8.0 %

DRAWINGS

- D-01 Siphon under the Suez Canal
- D-02 Intake & Outlet Facilities of Siphon
- D-03 Tina Pump Station
- D-04 Balouza Pump Station
- D-05 Drainage Pump Stations
- D-06 Turnouts to Balouza and Nigila Branch Canals
- D-07 Turnout to Rabaa/Qatia Branch Canal
- D-08 Bridge

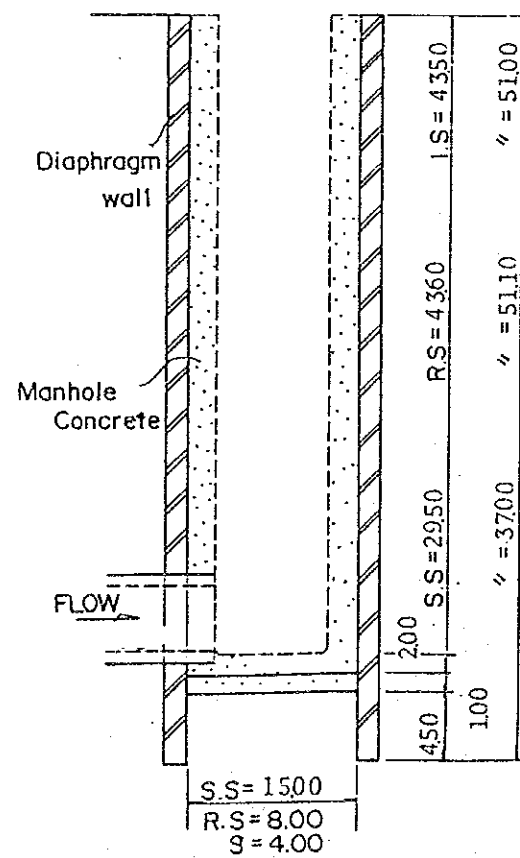


LONGITUDINAL SECTION

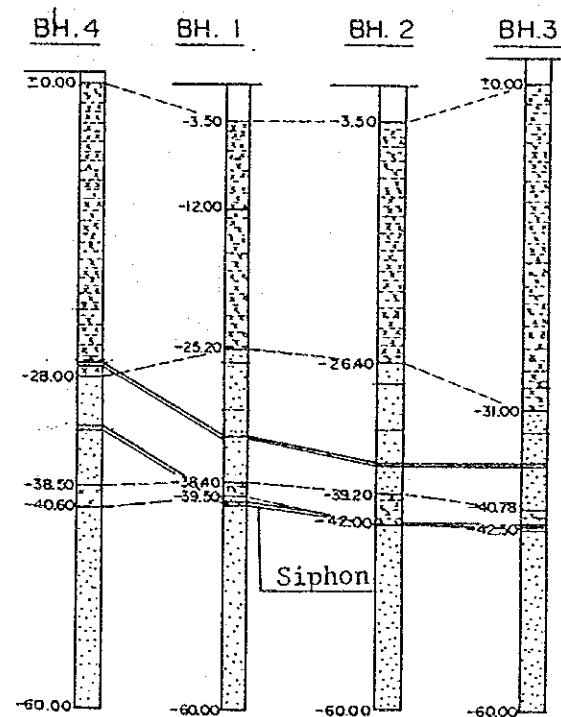


Siphon Section (B-B)

Shaft Section (A-A)



Starting Shaft



Borehole Section

Dark gray silty clay,
of medium to high
plasticity, occasional
traces of organic matter

Yellowish gray sand,
very dense.

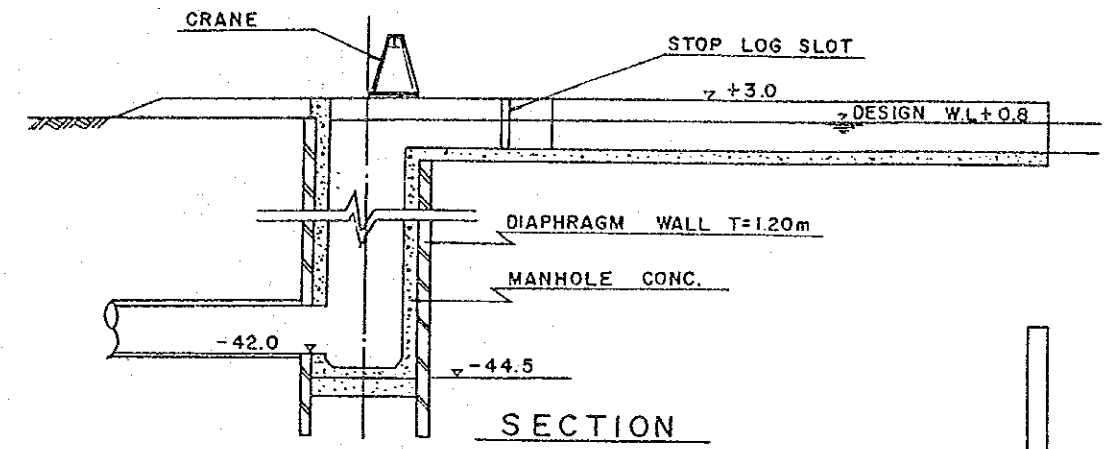
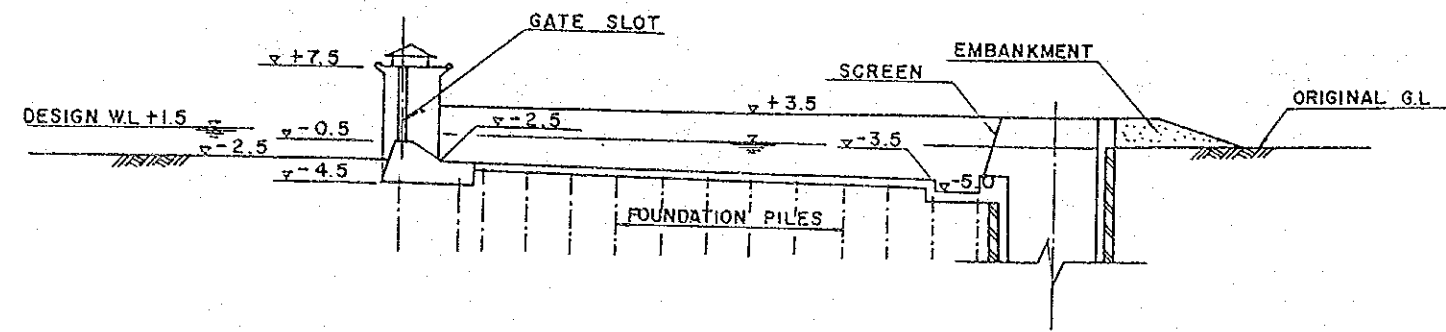
Dark gray silty clay.

Yellowish gray sand.
very dense.

THE FEASIBILITY STUDY ON PRIORITY SUB-PROJECTS
SIPHON UNDER THE SUEZ CANAL
DRAWING No. D-01
JAPAN INTERNATIONAL COOPERATION AGENCY

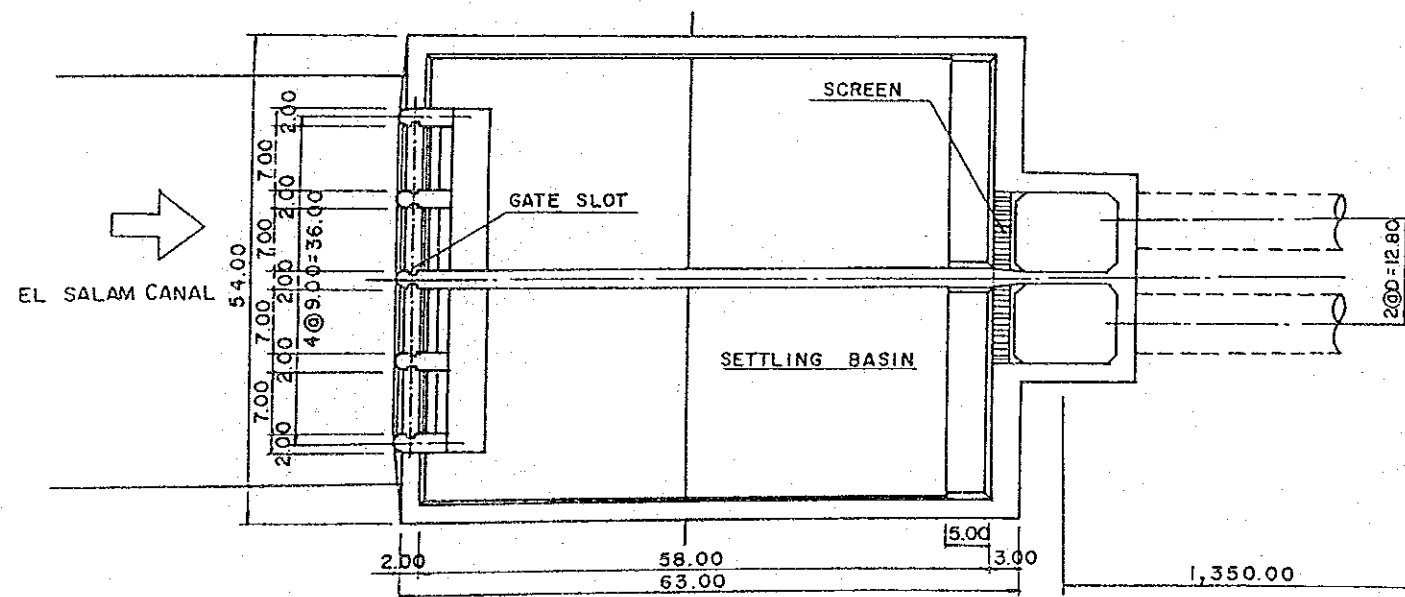
INTAKE FACILITIES

OUTLET FACILITIES

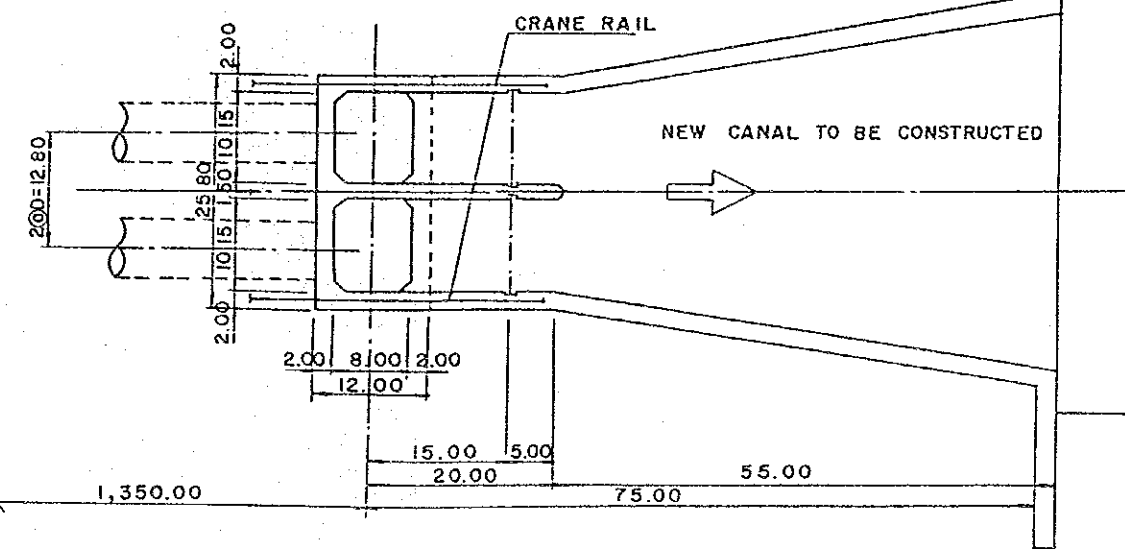


SECTION

SECTION

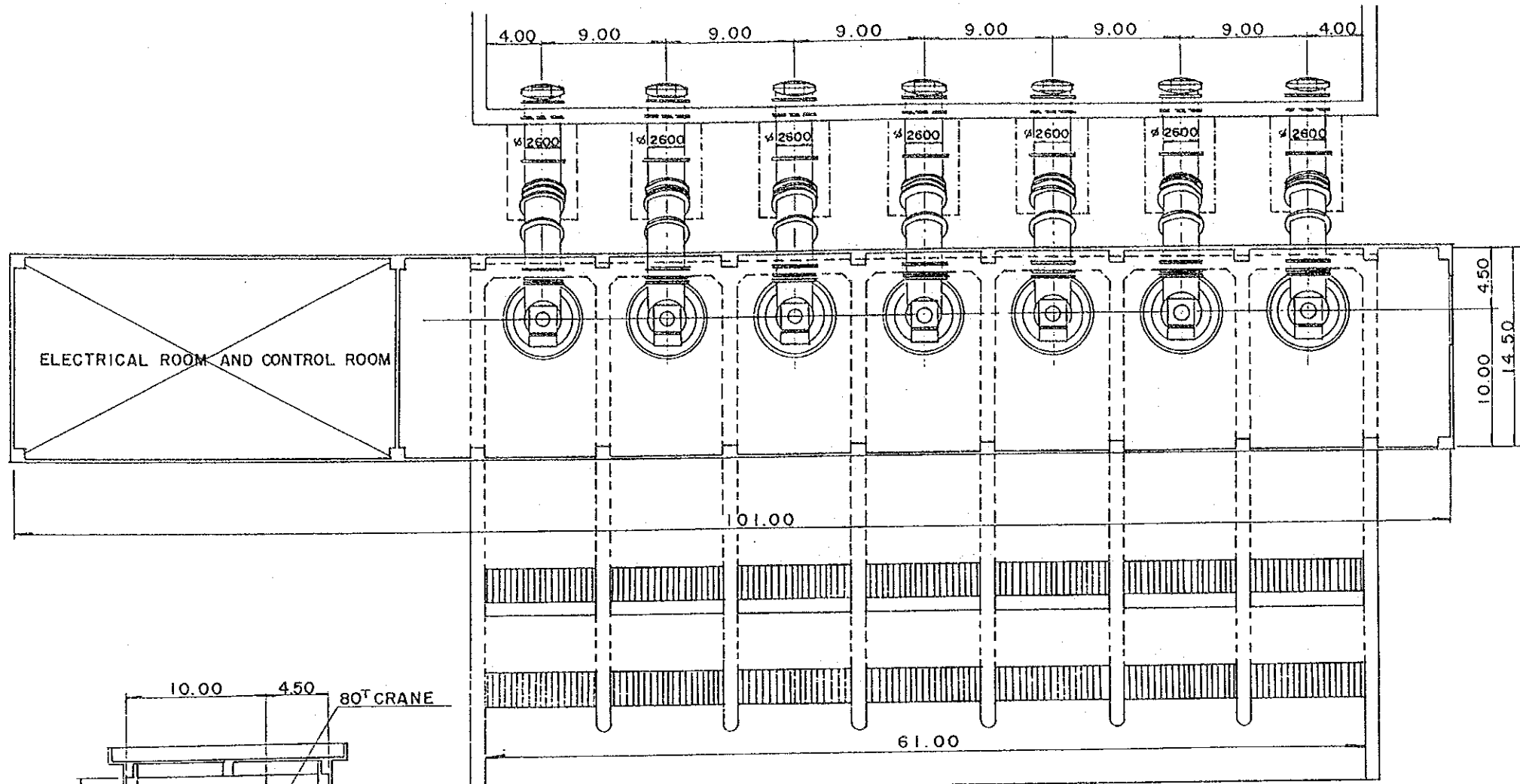


PLAN

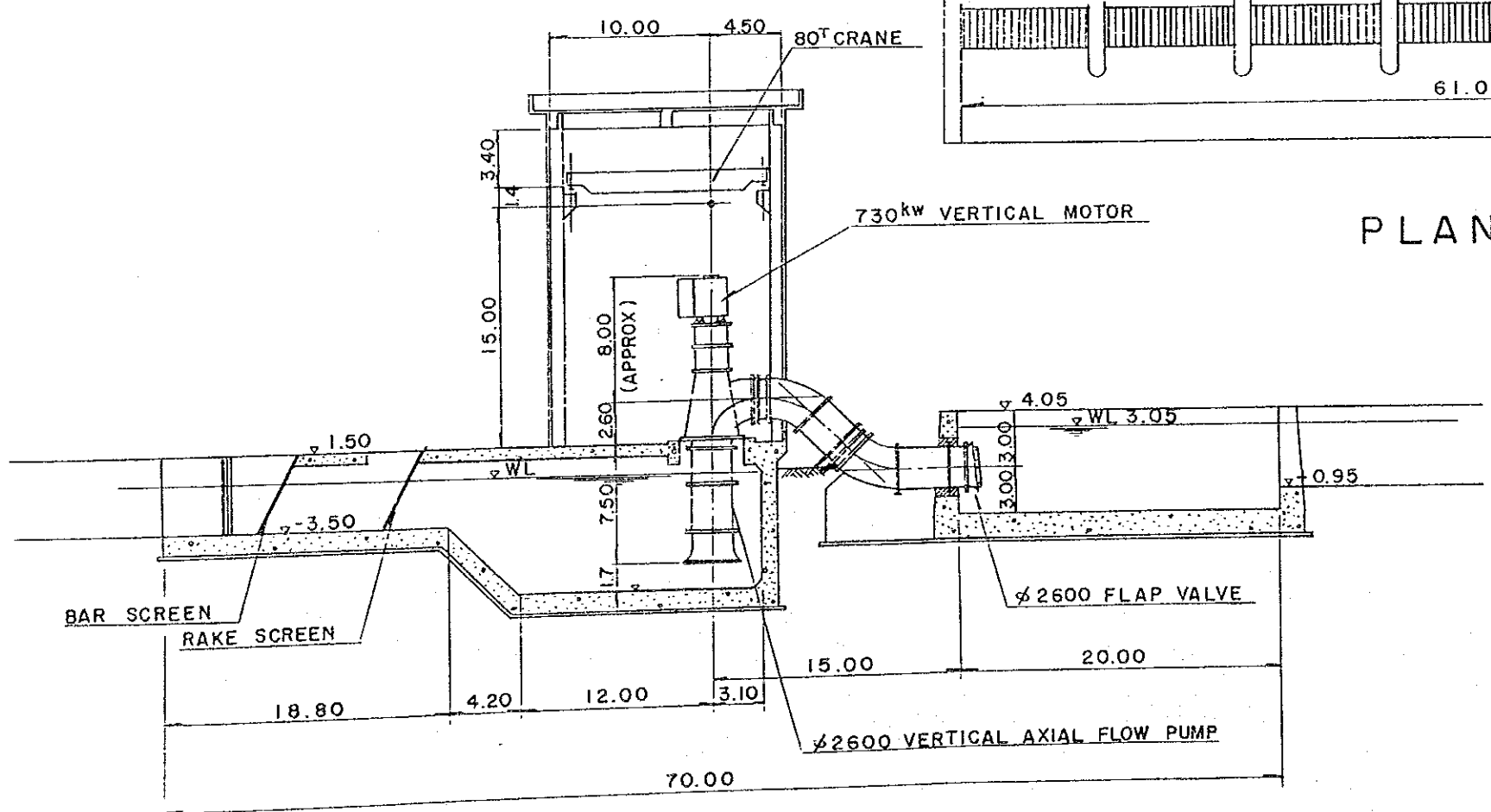


PLAN

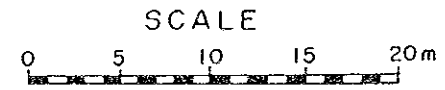
THE FEASIBILITY STUDY ON PRIORITY SUB-PROJECTS
INTAKE & OUTLET FACILITIES OF SIPHON UNDER THE SUEZ CANAL
DRAWING No. D-02
JAPAN INTERNATIONAL COOPERATION AGENCY



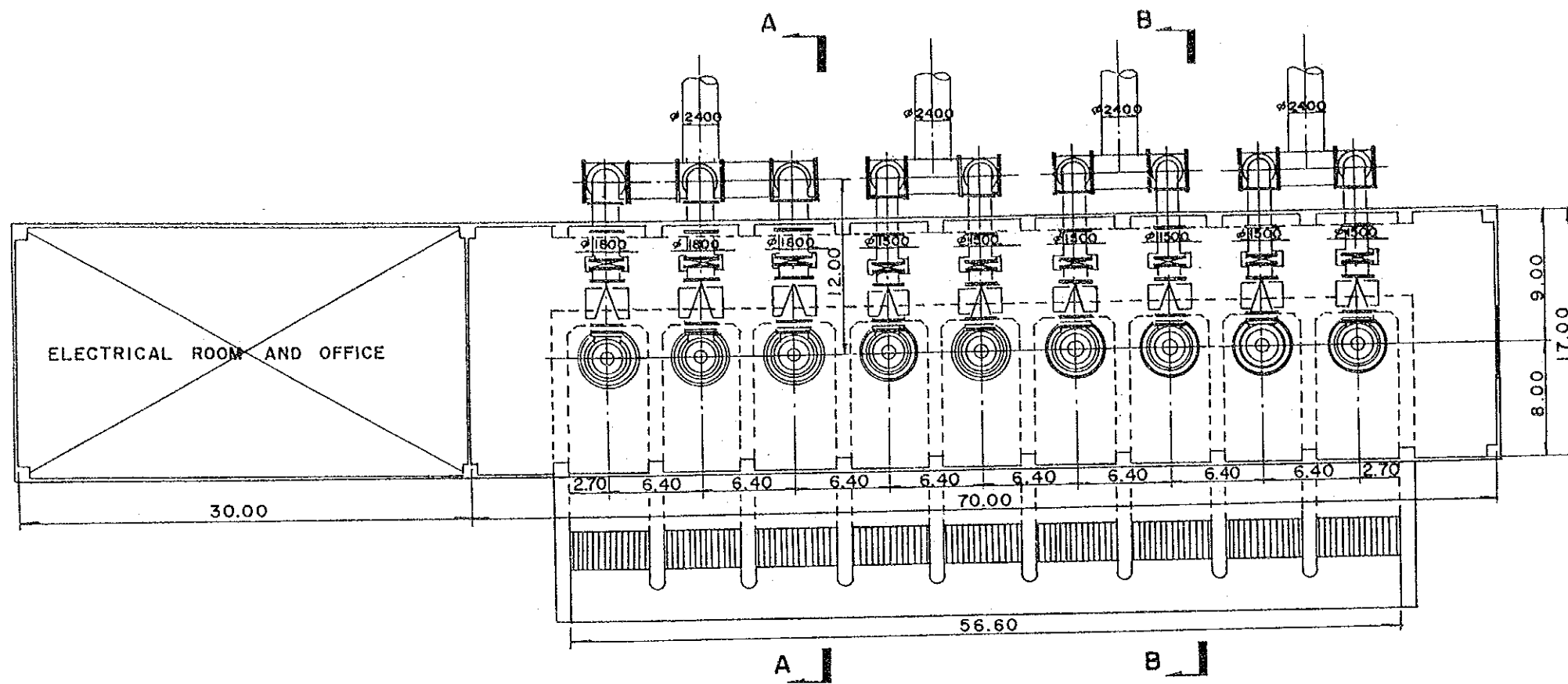
PLAN



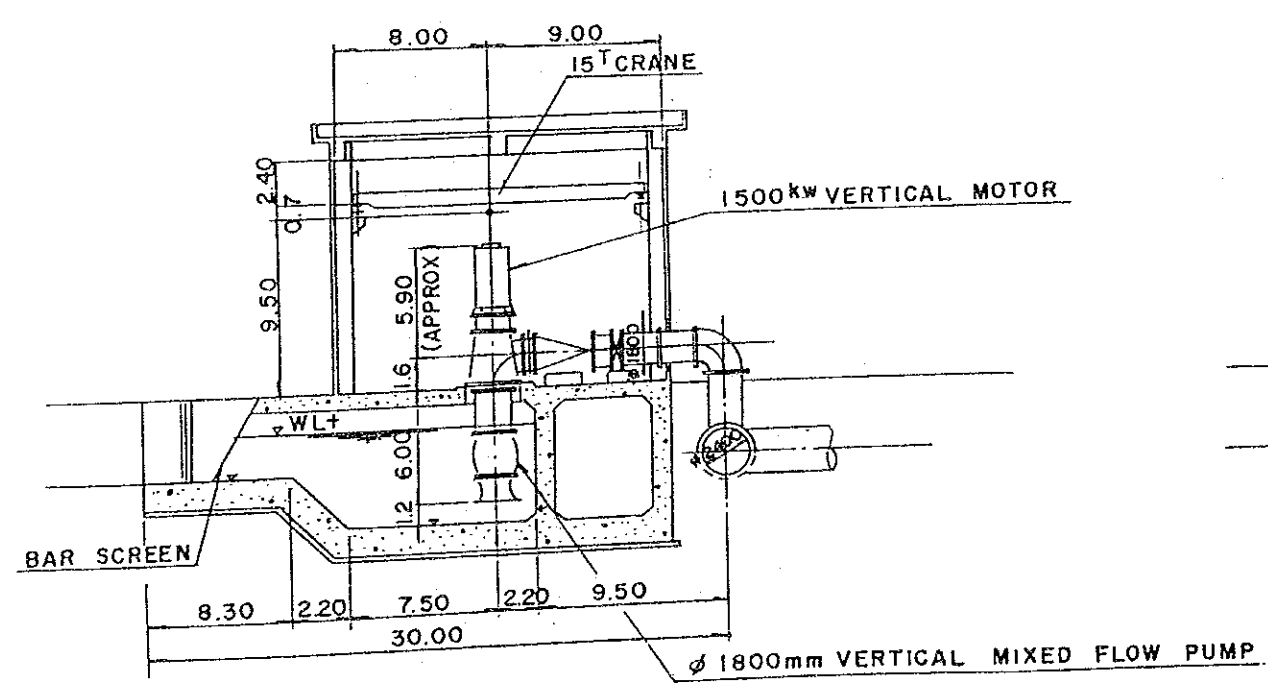
SECTION A-A



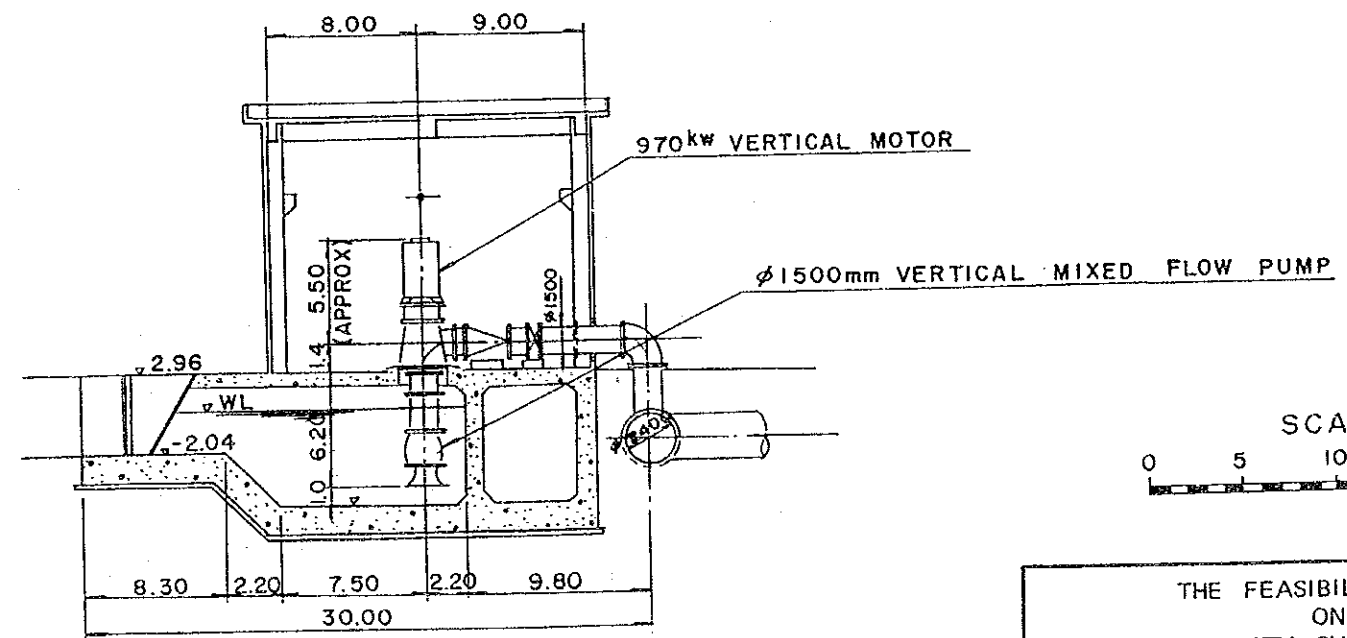
THE FEASIBILITY STUDY ON PRIORITY SUB-PROJECTS
TINA PUMP STATION
DRAWING No. D-03
JAPAN INTERNATIONAL COOPERATION AGENCY



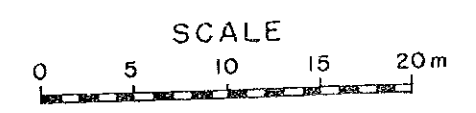
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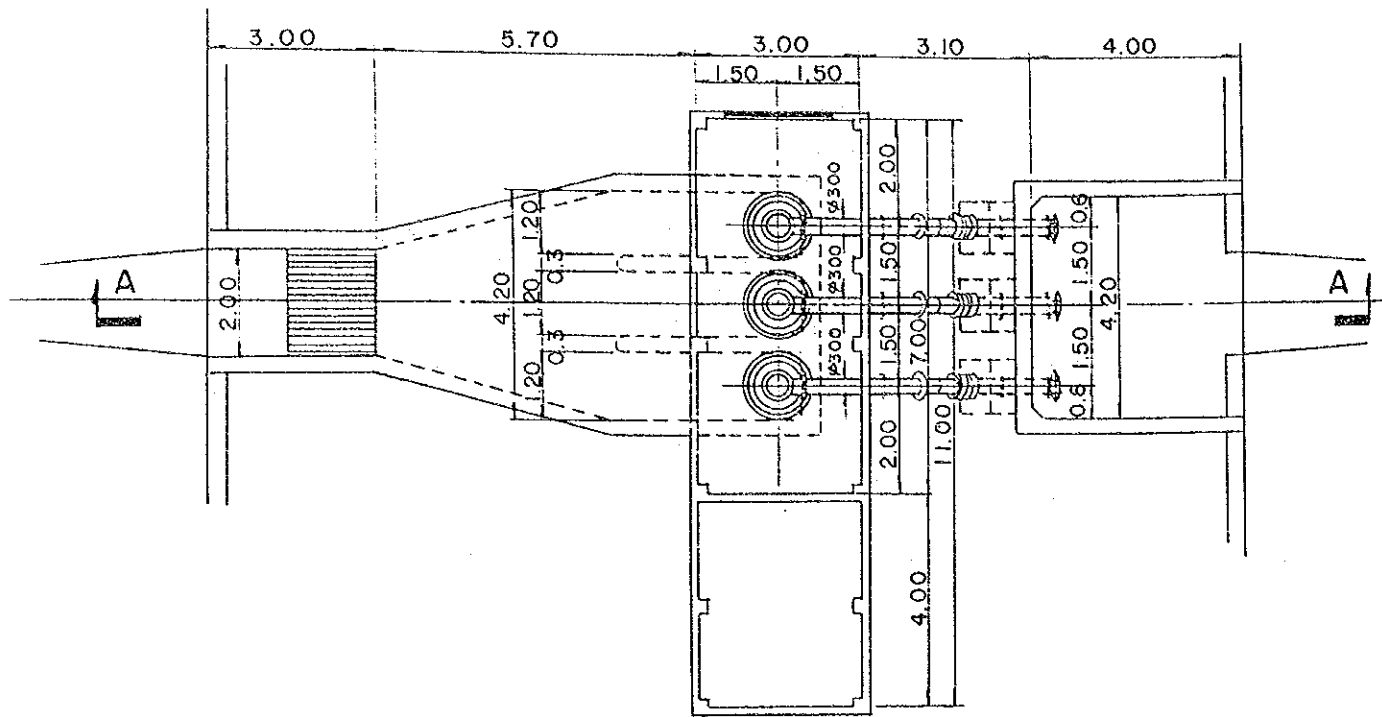
SECTION A - A



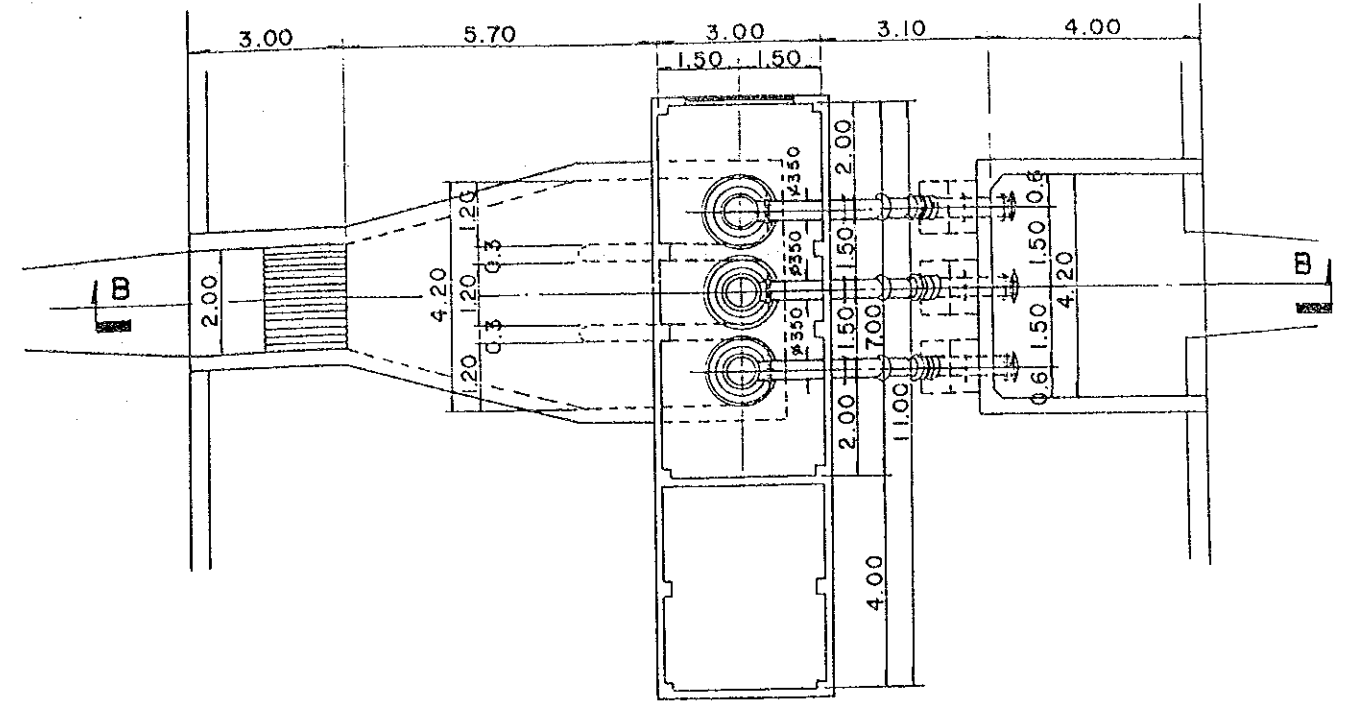
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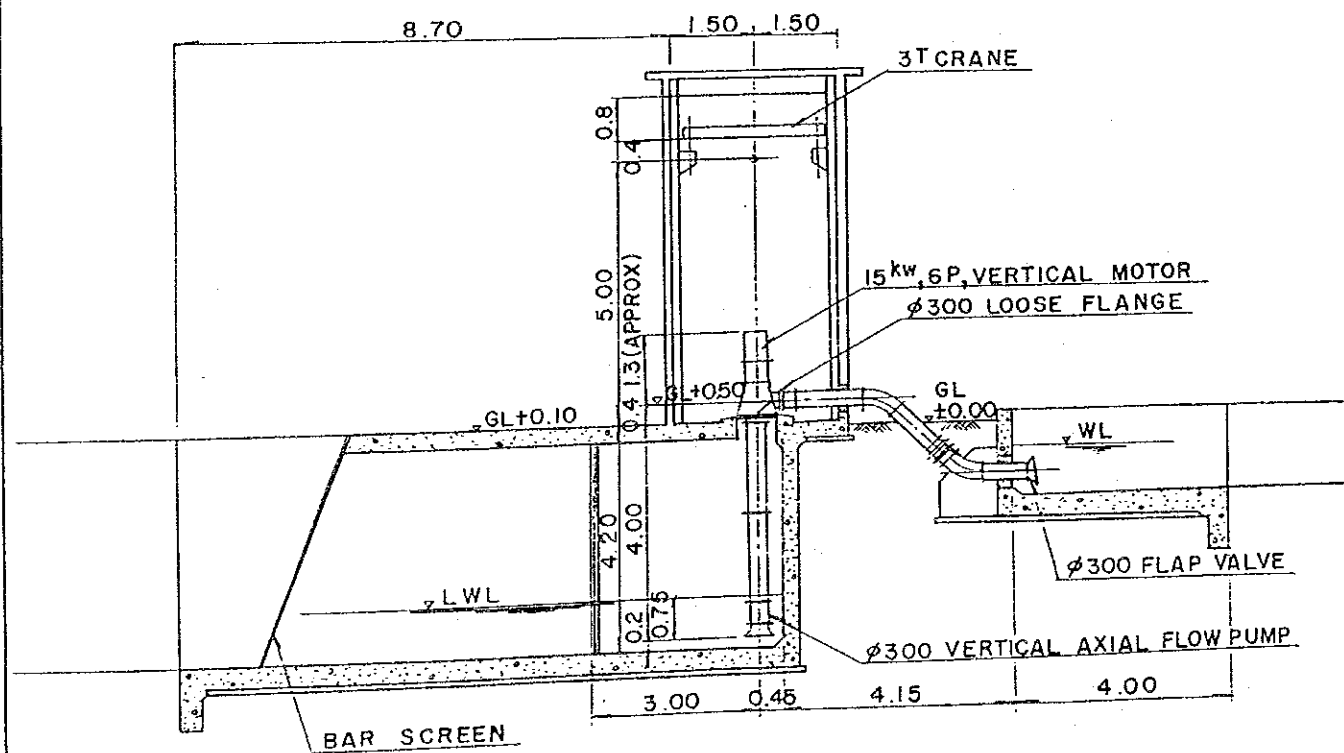
THE FEASIBILITY STUDY ON PRIORITY SUB-PROJECTS
BALOUZA PUMP STATION
DRAWING No. D-04
JAPAN INTERNATIONAL COOPERATION AGENCY



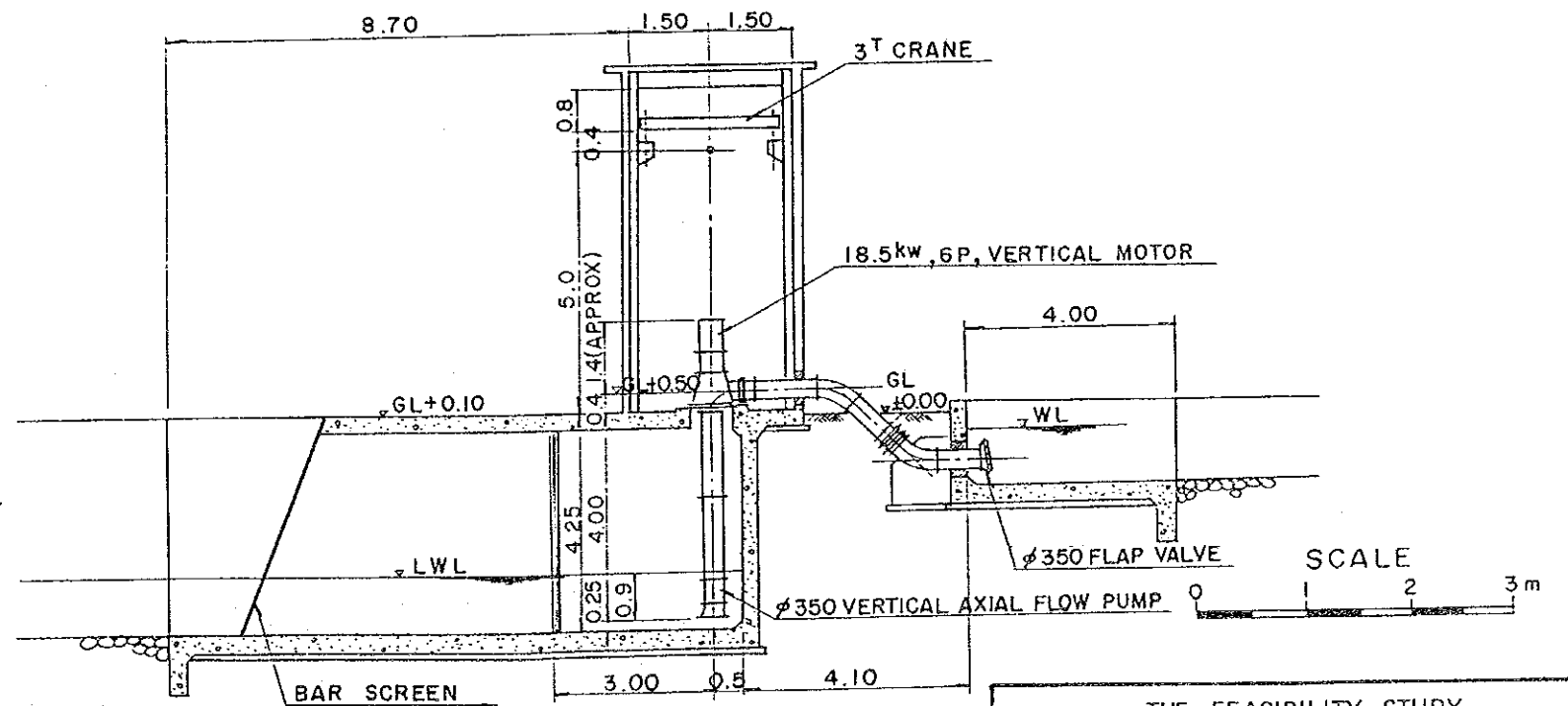
PLAN OF BALOUZA DRAINAGE PUMP STATION



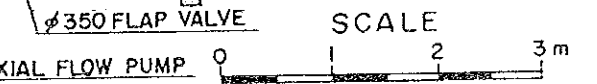
PLAN OF RABAA-QATIA DRAINAGE PUMP STATION



SECTION A-A



SECTION B-B

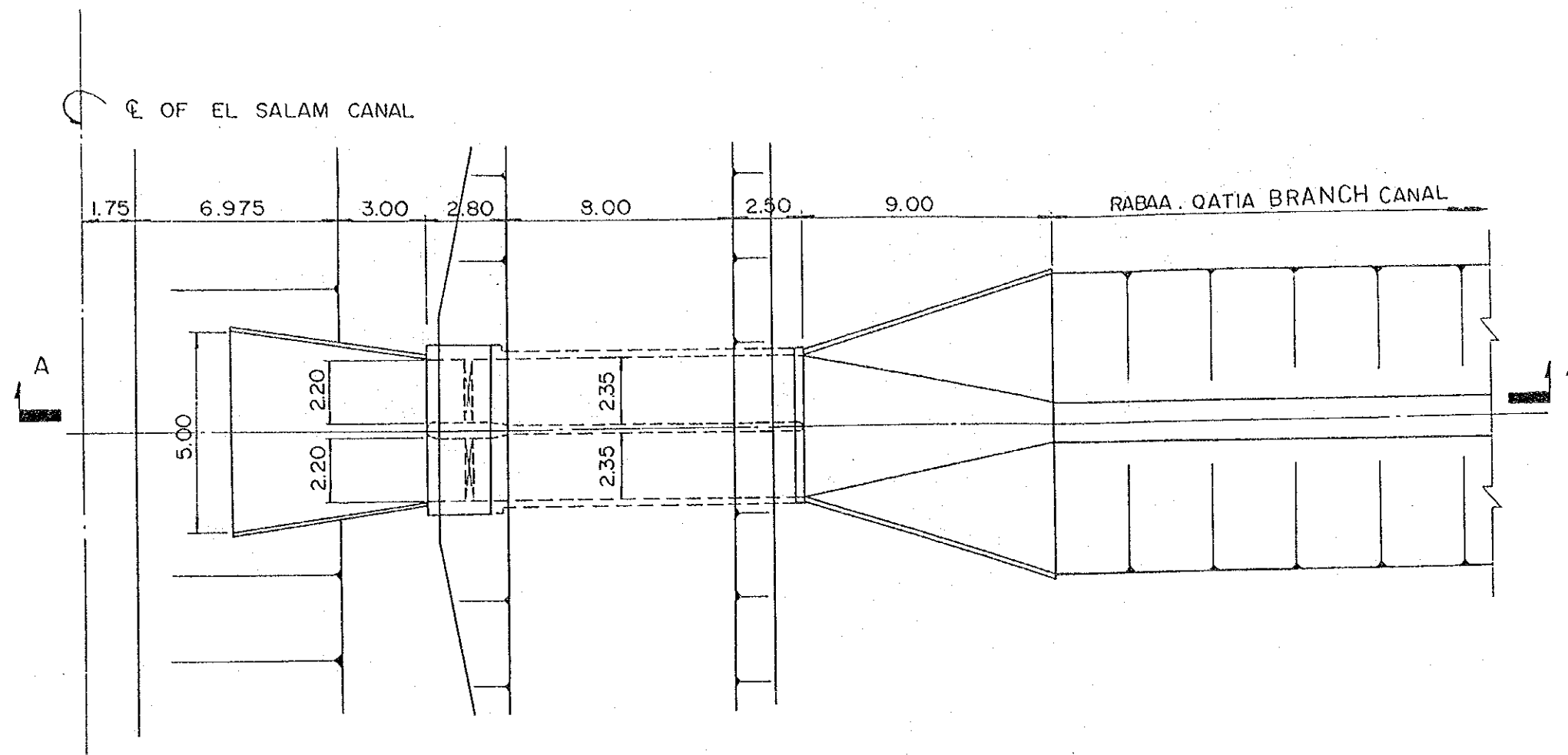


THE FEASIBILITY STUDY
ON
PRIORITY SUB-PROJECTS

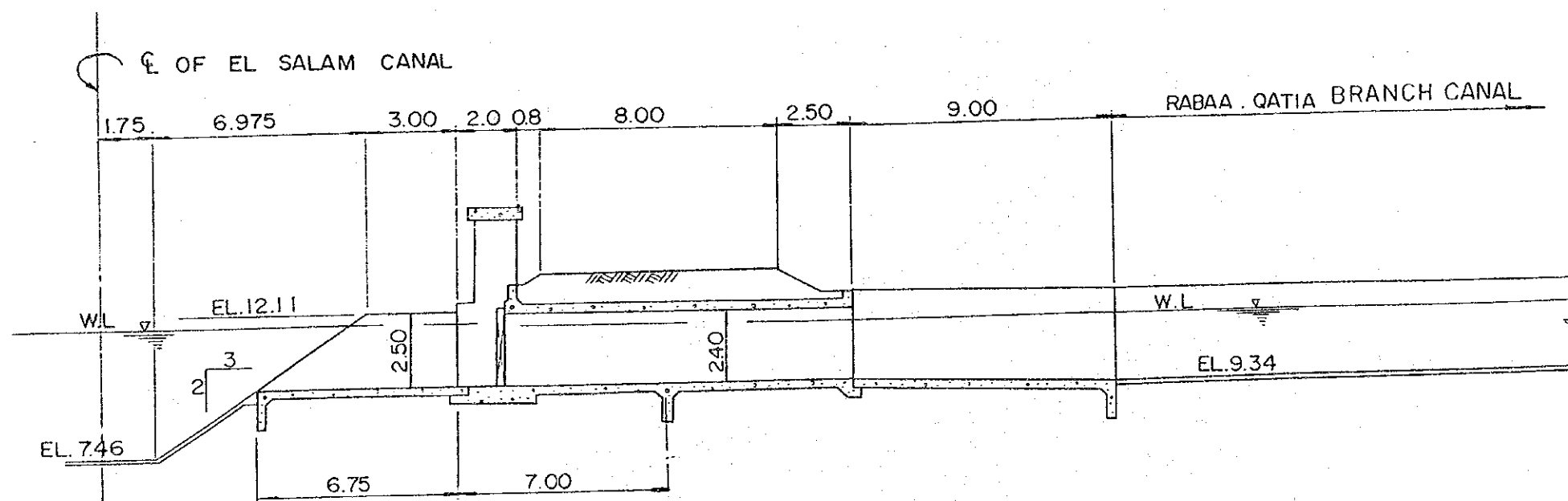
DRAINAGE PUMP STATIONS

DRAWING No. D-05

JAPAN INTERNATIONAL COOPERATION AGENCY

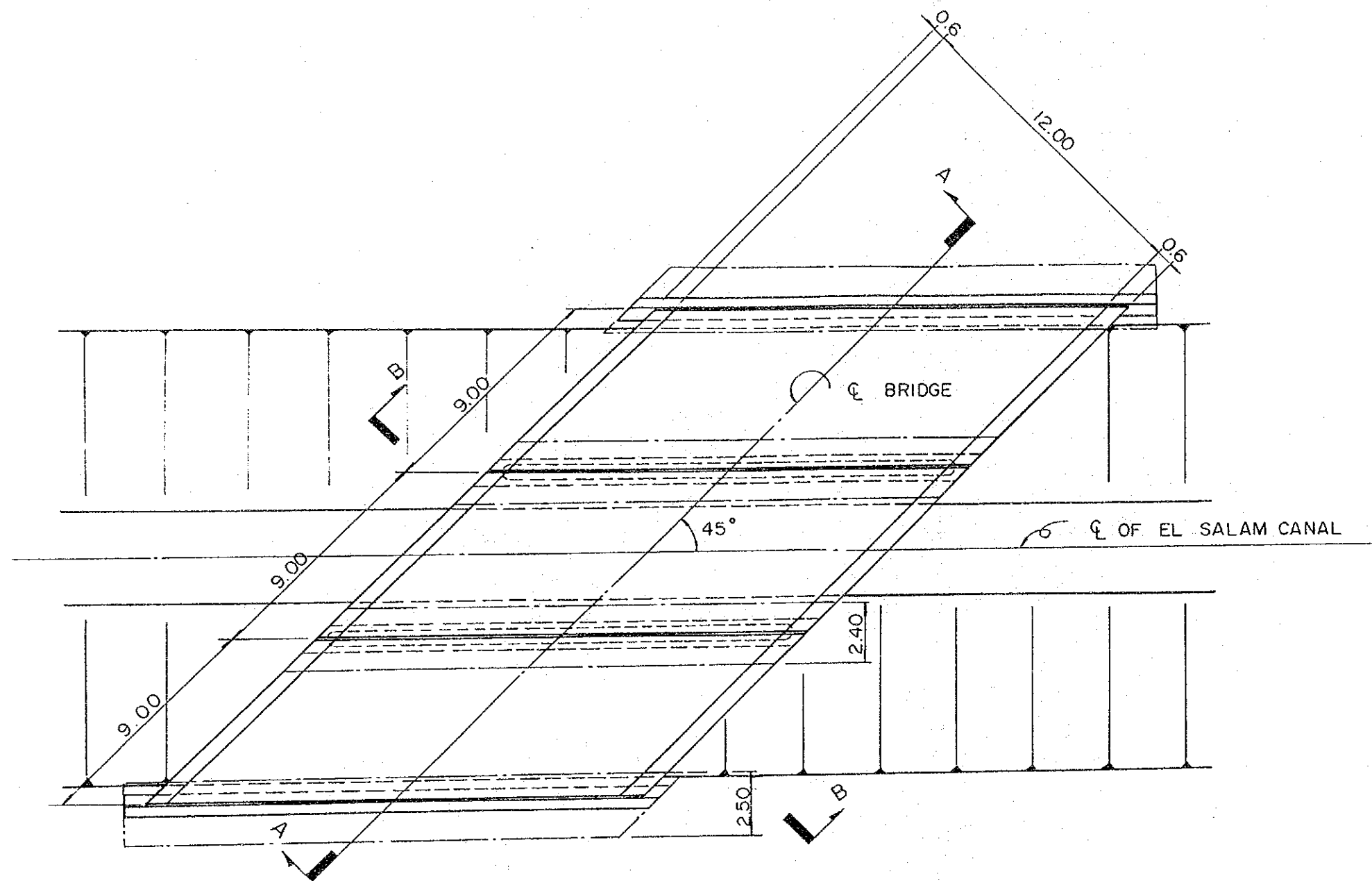


PLAN
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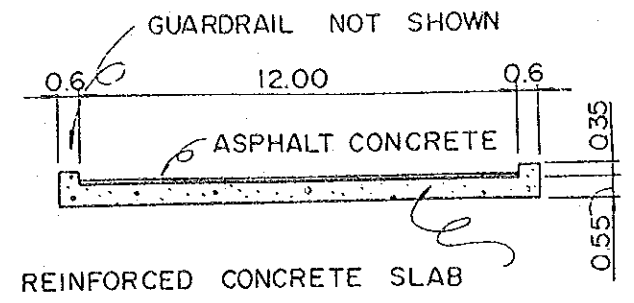


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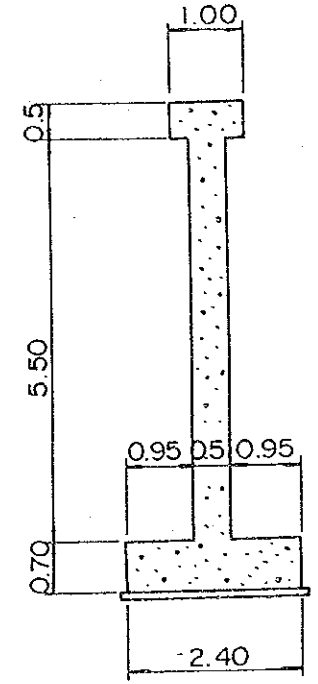
THE FEASIBILITY STUDY ON PRIORITY SUB-PROJECTS
TURNOUT TO RABAA QATIA BRANCH CANAL
DRAWING No. D-07
JAPAN INTERNATIONAL COOPERATION AGENCY



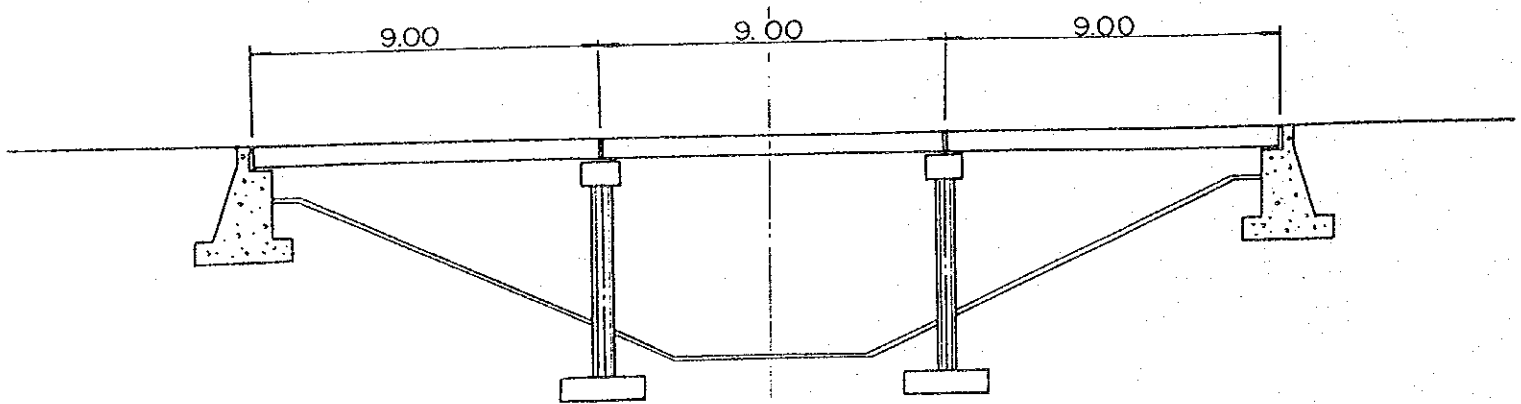
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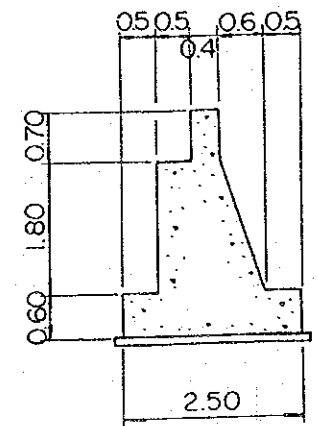
SECTION B-B
SCALE 1 : 200



PIER
SCALE 1 : 100



SECTION A-A
SCALE 1 : 200



ABUTMENT
SCALE 1 : 100

THE FEASIBILITY STUDY ON PRIORITY SUB-PROJECTS
BRIDGE
DRAWING No. D-08
JAPAN INTERNATIONAL COOPERATION AGENCY

JICA