2.3 Calculation of Tower

(1) Design section force

Load case-2 Dead + Shrinkage + Live(Mmax)

M=(3320.0+11650.0+78660.2)/2*1.10 =51,500 tf·m
N=(39370.8+12.0+1988.5)/2*1.10 = 22700 tf
S=(57.0-91.5-736.4)/2*1.10 = 425 tf

		Bse of Tower	
		Normal(Longitudinal)	Wind Load(Perpendicular)
Bending Moment(tf·m)		51500.0	(1551.5)
Axial Force(tf)		22700.0	(226.1)
Shearing Force(tf)		425.0	(152.6)
Width (cm)		600.0	900.0
Height(cm)		900.0	600.0
Bar Arrangemen	d1 As1 cm²	15.0 39-D35 373.074	15.0 59-D35 564.394
	d2 As2 cm²	885.0 39-D35 373.074	585 59-D35 564.394
σc (kgf/cm²)		100.1	107.4
σs (kgf/cm²)		-1479	-1573.4
τ (kgf/cm²)		0.8	1.09
σca(kgf/cm²)		130	162.5
σsa (kgf/cm²)		1800	2250
τa (kgf/cm²)		2.8	3.5

Minimum require reinforce-bar arrangemnt

As = 0.008*A (cm2)

Where, A = N/(0.008 σsa+ σca)

A: Require sectional area at axial force (cm2)

N: Design Axial Force

σsa: Allowable compressive strength of Reinforcing bar (kgf/cm2)

σca: Allowable compressive strength of concret (kgf/cm2)

A = 22700000/(0.008*1800+100)

198,426.6 (cm2)

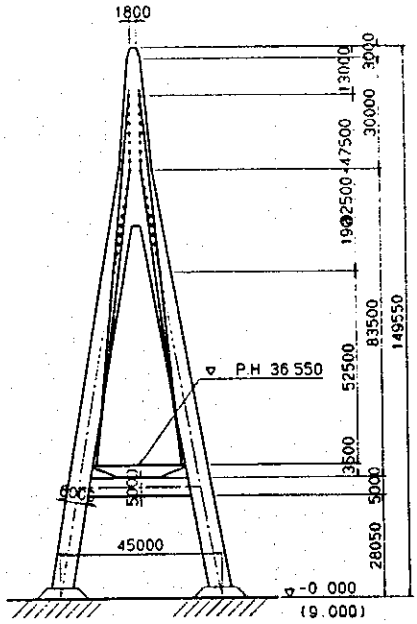
trerefore

As = 1587.4 (cm2)

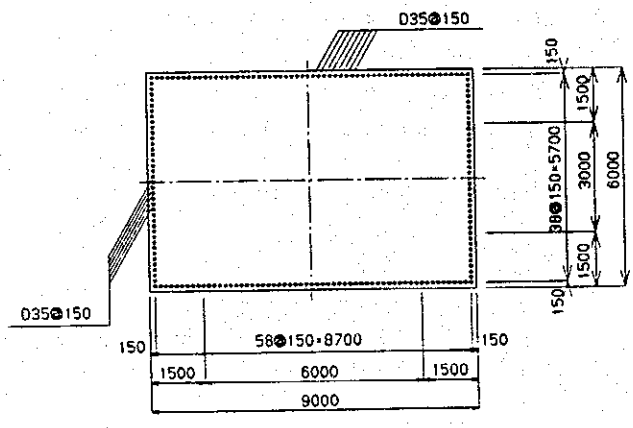
D35-@150 = n=192 nos * 9.566 = 1836.7

OK

MAIN TOWER SCALE 1:2000

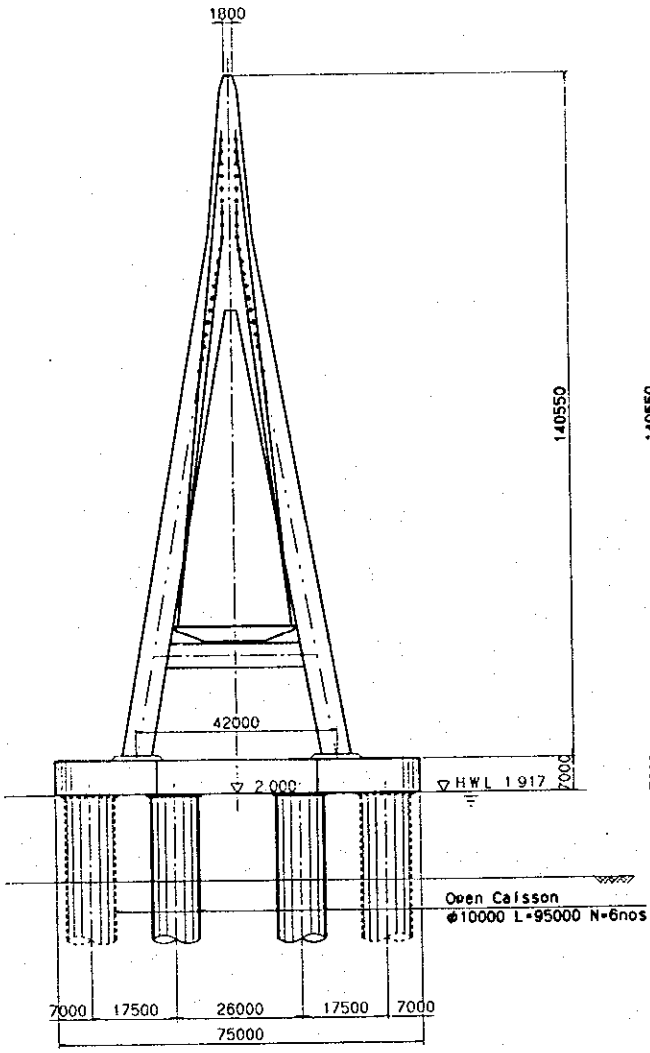


TOWER SECTION
RE-BAR ARRANGEMENT SCALE 1:200

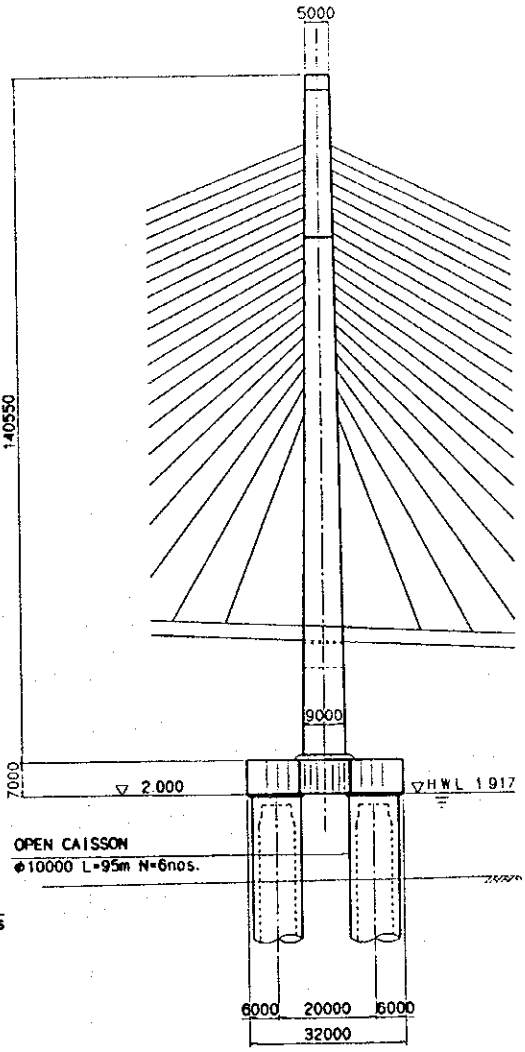


2.4 Design of Foundation

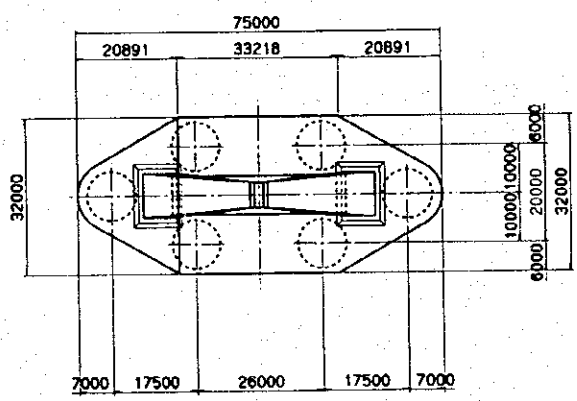
FRONT ELEVATION



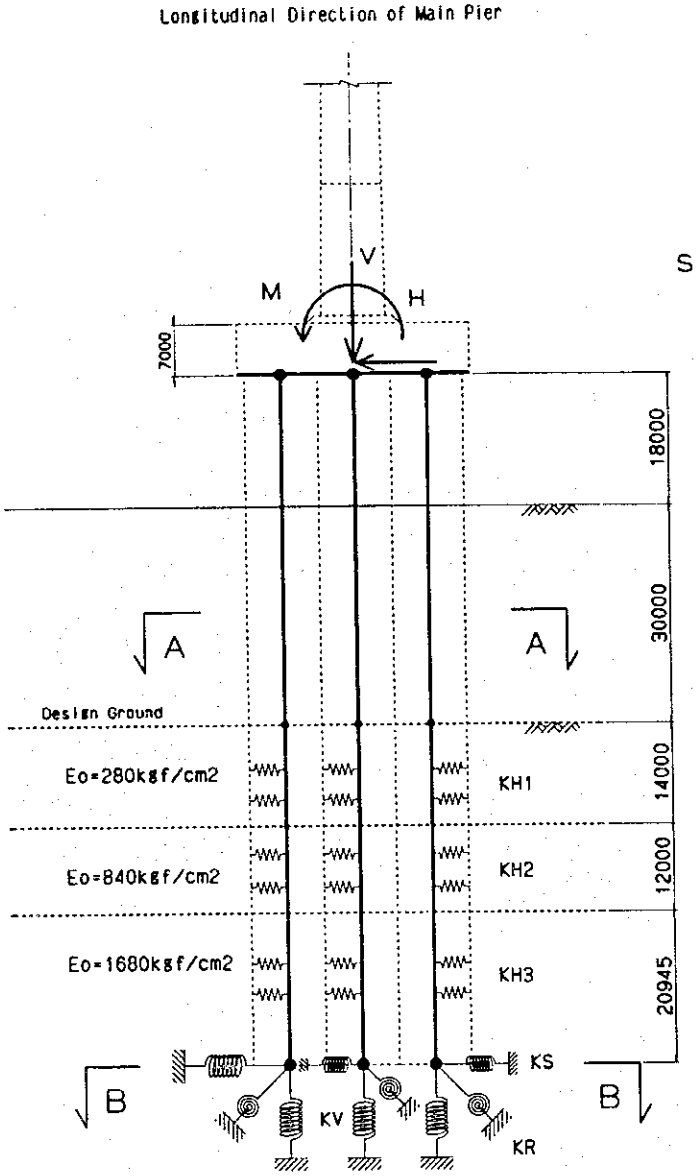
SIDE ELEVATION



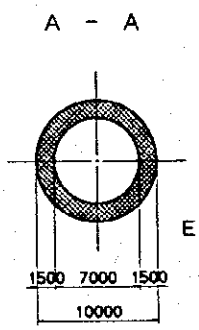
PLAN



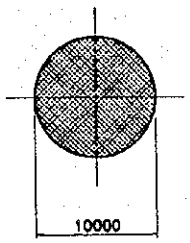
(1) Analytical Model



Section of Caisson



A=40.06 m2
I=373.02 m4
Ec=2500000 tf/m2



A=78.54 m2
I=490.87 m4

Eo : Coefficient of subgrade reaction(Eo=28N) kff/cm2

KH : Coefficient of horizontal subgrade reaction tf/m3

KV : Coefficient of vertical subgrade reaction tf/m3

KS : Coefficient of bottom shear subgrade reaction tf/m3

KR : Coefficient of bottom rotaning subgrade reaction tf/m3

Study on Vessel Collision for Main Pier
Calculated using AASHOT Guide Speciffication for Vessel Collision Design of Bridge.

The Collision impact force on a pier shall be taken as:

$$Ps = 1.2*100*(DWT)1/2*V$$

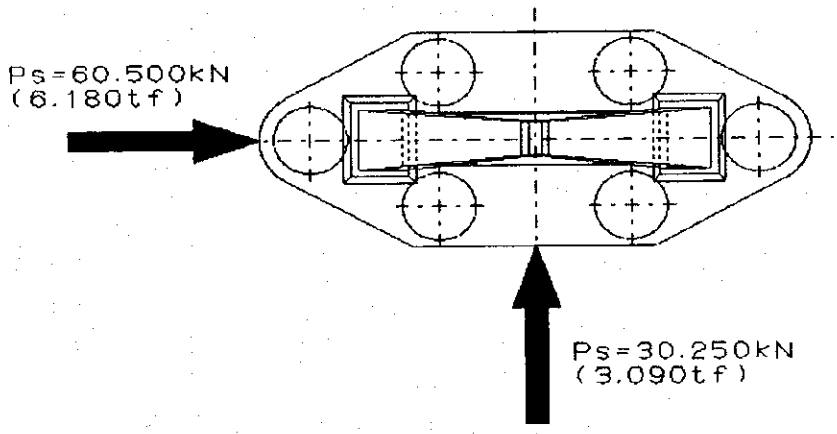
where:

Ps =	equivalent static vessel impact force	(KN)
DWT =	deadweight tonnage of vessel	(TONNE)
V =	vessel impact velocity	(m/sec)

Ship Impact Force (KN)

Impact Speed		Size of Vessel(DWT)						remarks
knots	m/sec	2,000	4,000	6,000	8,000	10,000	15,000	
2	1.03	5,522	7,809	9,564	11,043	12,347	15,122	
3	1.54	8,282	11,713	14,346	16,565	18,520	22,682	
5	2.57	13,804	19,522	23,909	27,608	30,867	37,804	
6	3.09	16,565	23,426	28,691	33,130	37,040	45,365	
7	3.60	19,326	27,331	33,473	38,651	43,213	52,925	
8	4.12	22,086	31,235	38,255	44,173	49,387	60,486	Check Load

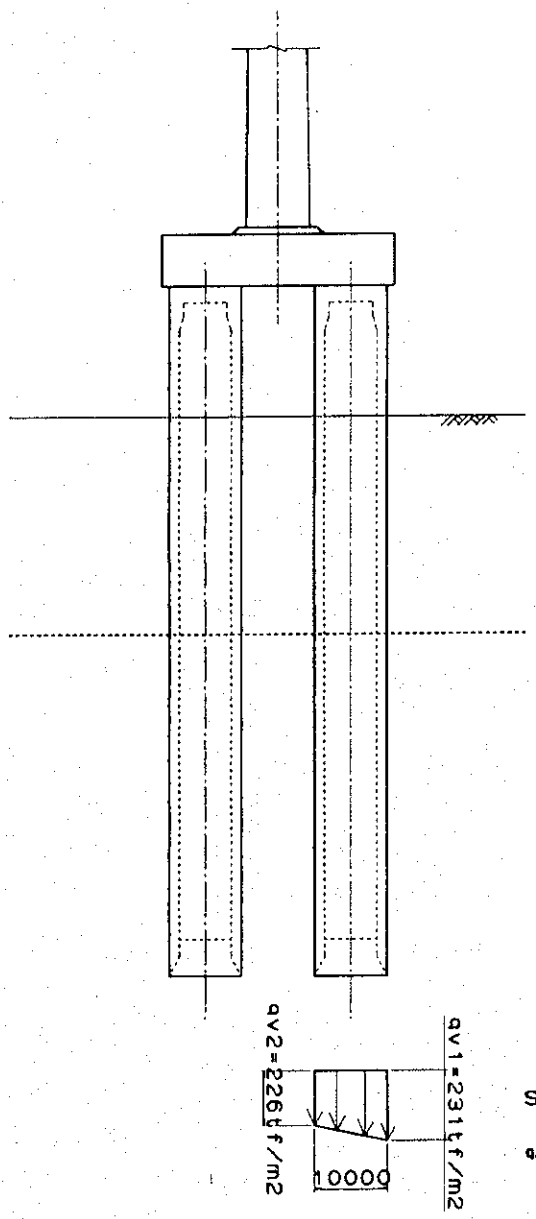
Ship Impact Loads on Pilecaps



PLAN

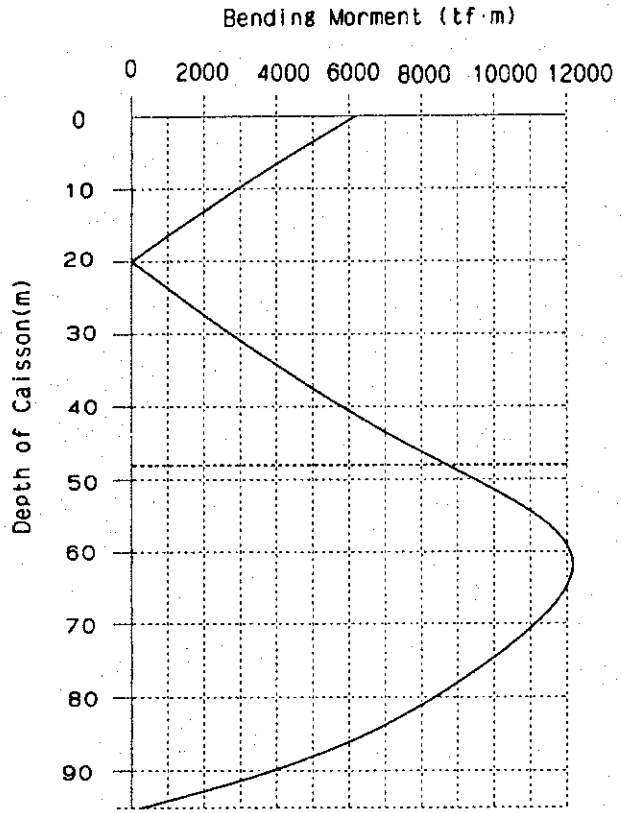
(2) Result of Analysis

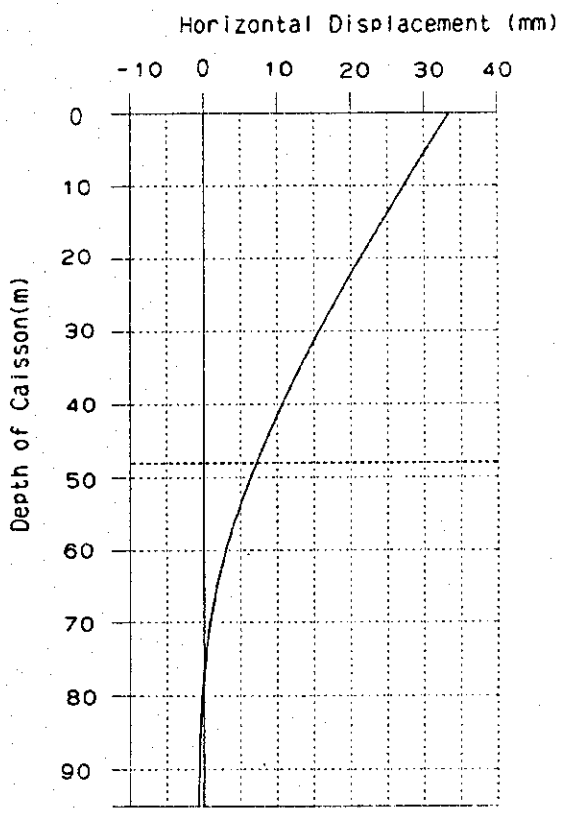
Normal Condition



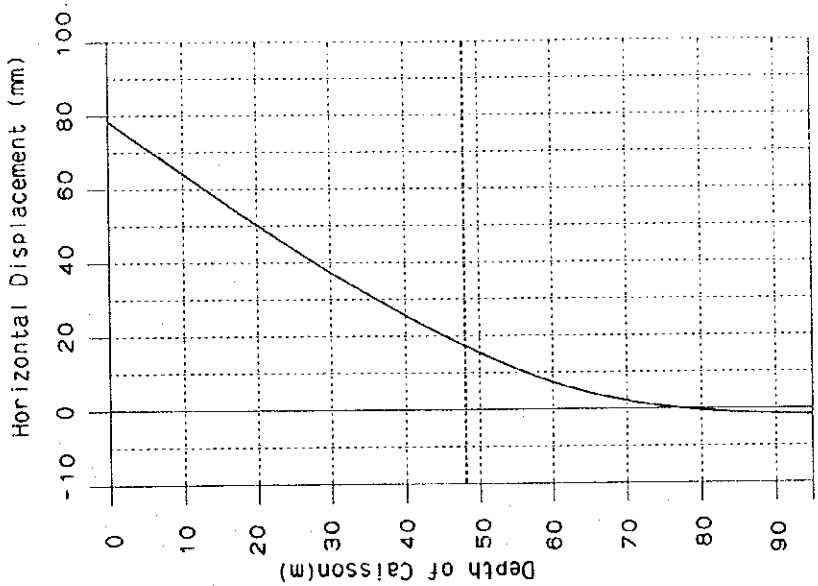
Subgrade reaction

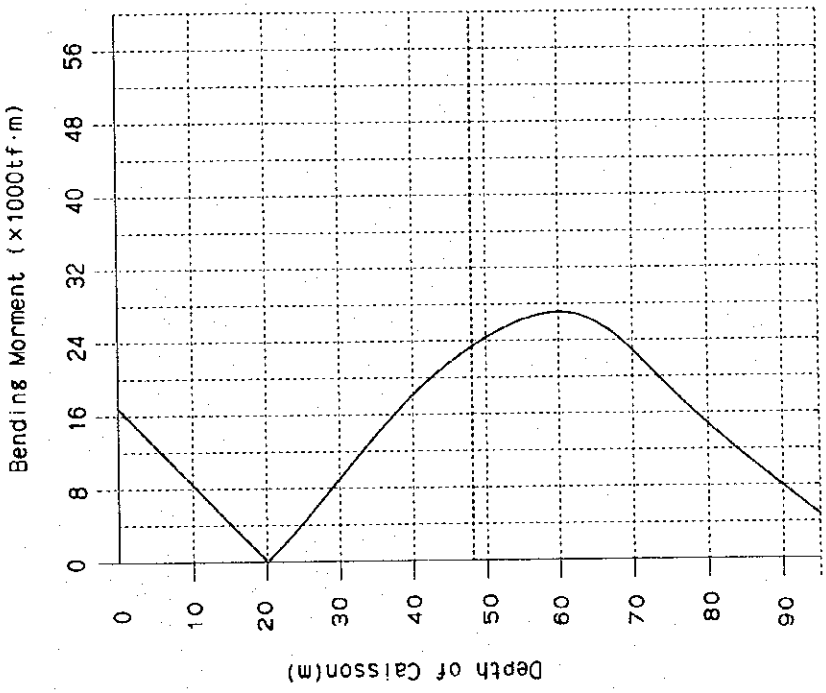
qa = 250 tf/m2

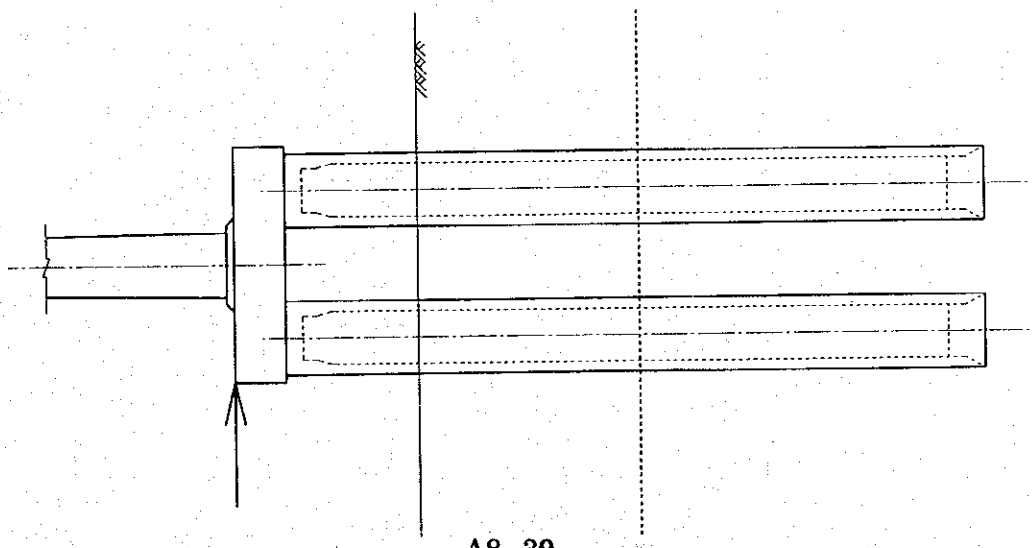




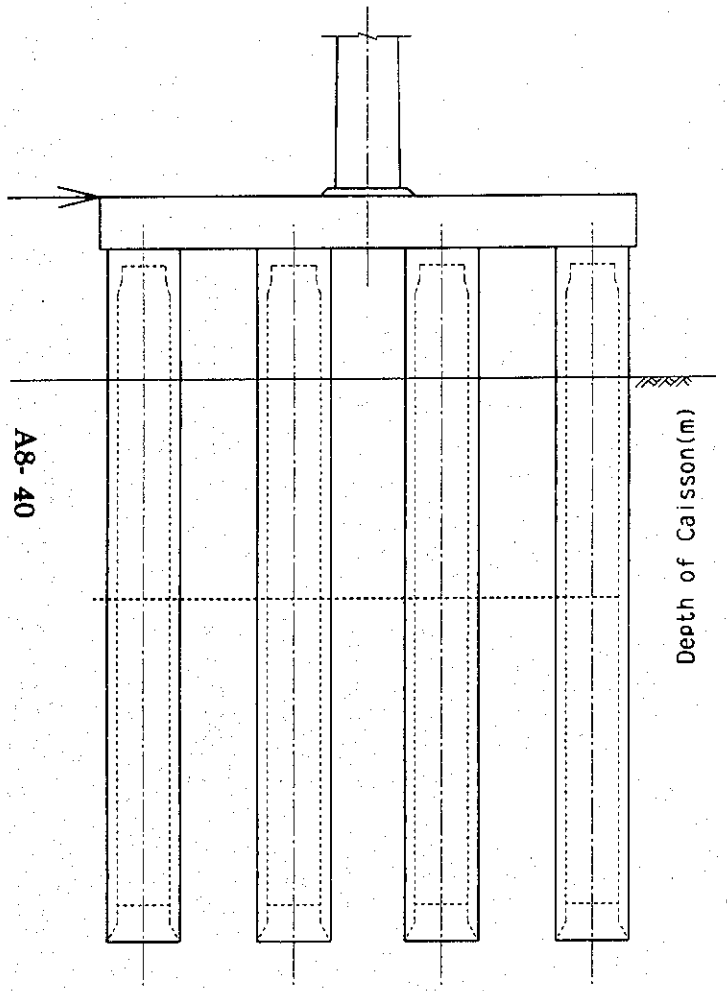
Ship Impact(Longitudinal Direction)

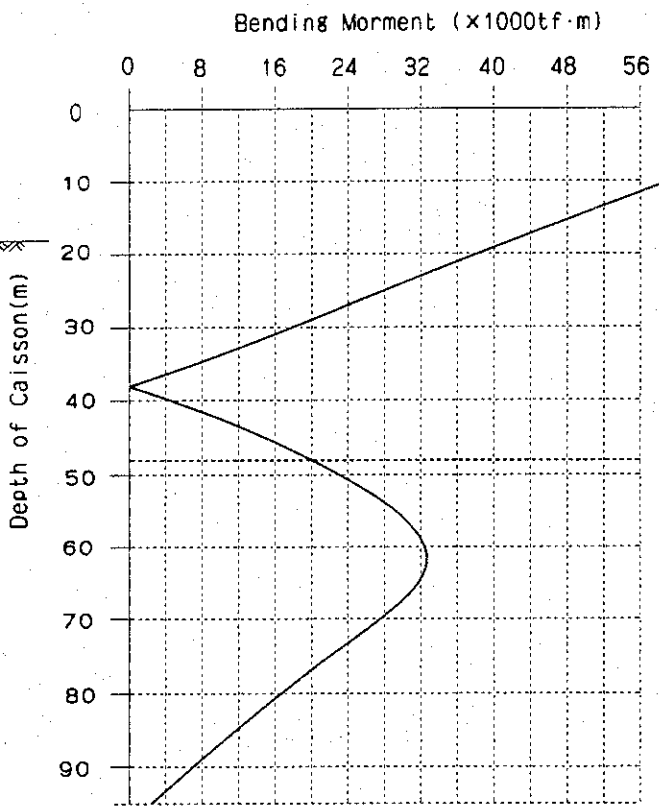


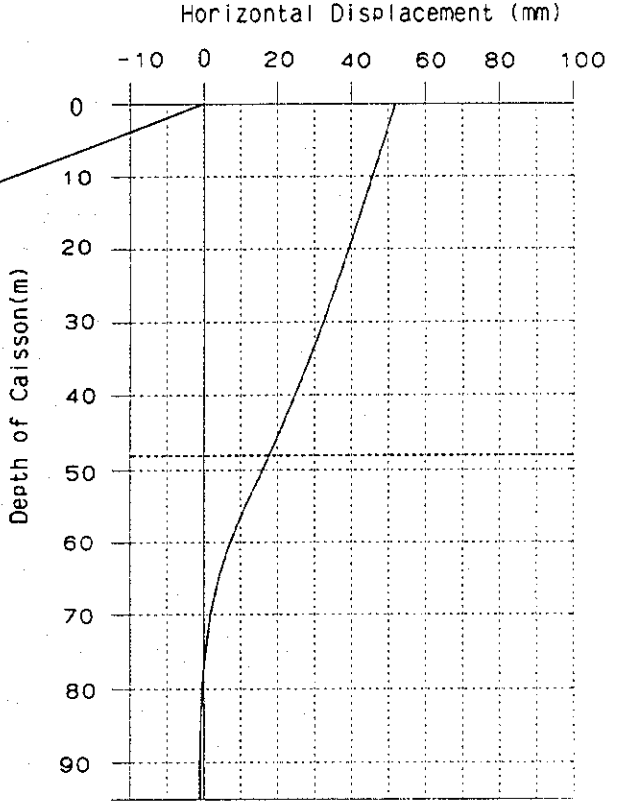




Ship Impact(Perpendicular Direction)







Stress Check of Section

		Caisson		
		Normal	Ship Collision	
		Longitudinal	Longitudinal	Perpendicular
Bending Moment(tf·m)		13,000.0	27,250.0	80,100.0
Axial Force(tf)		18,000.0	20,730.0	24,500.0
Shearing Force(tf)		330.0	840.0	2,090.0
R1:outside radial (cm)		500.0	500.0	500.0
R1:inside radial (cm)		350.0	350.0	0.0
Bar Arrangement	d1 As1 cm^2	12.0 200-D32 1588.4	12.0 200-D32 1588.4	12.0 200-D32 1588.4
	d2 As2 cm^2	140.0 100-D25 506.7	140.0 100-D25 506.7	140.0 100-D25 506.7
σc (kgf/cm^2)		70.2	81.5	127.0
σs (kgf/cm^2)		1037	1,210.0	1,863.0
τ (kgf/cm^2)		0.99	2.10	2.70
σca(kgf/cm^2)		80	132.0	132.0
σsa (kgf/cm^2)		1600	2,970	2,970
τa (kgf/cm^2)		2.3	3.8	3.8

Minimum require reinforce-bar arrangemnt

As = 0.008*A (cm2)

Where, A = N/(0.008 σsa+ σca)

A: Require sectional area at axial force (cm2)

N: Design Axial Force

σsa: Allowable compressive strength of Reinforcing bar (kgf/cm2)

σca: Allowable compressive strength of concret (kgf/cm2)

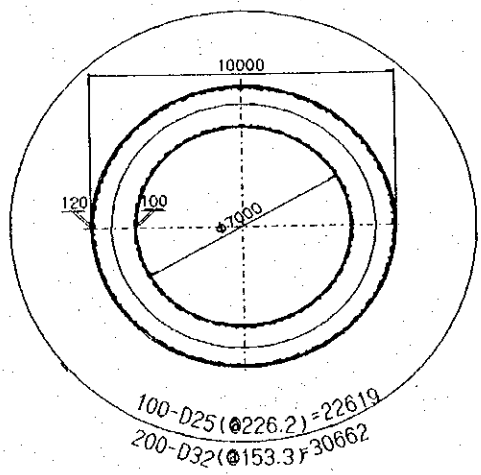
A = 18000000/(0.008*1600+65)

= 231,362.5 (cm2)

trerefore

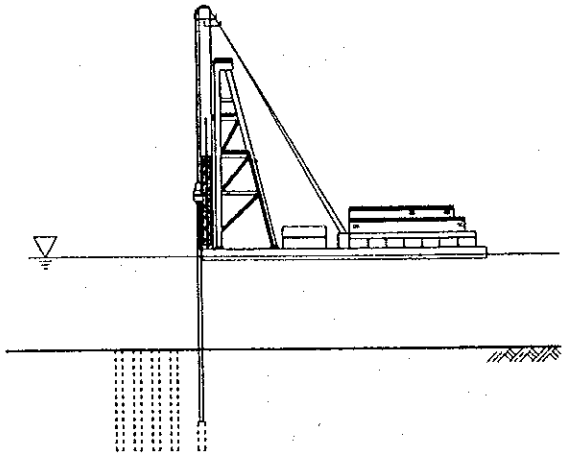
As = 1850.9 (cm2) < 2095.1 (cm2)

OK

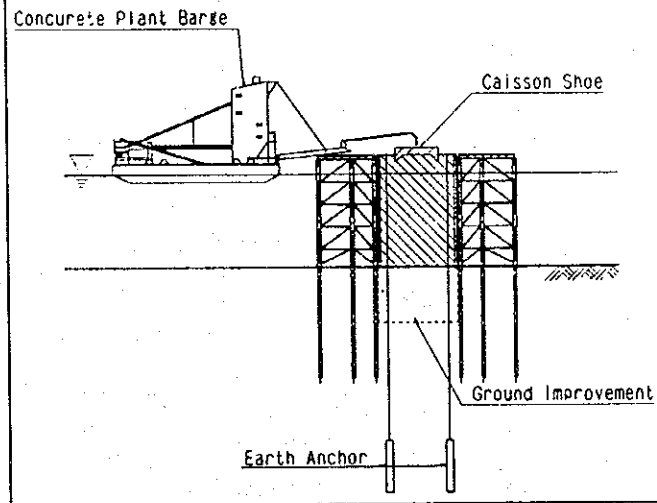


8.5 Construction Method Images of Foundations

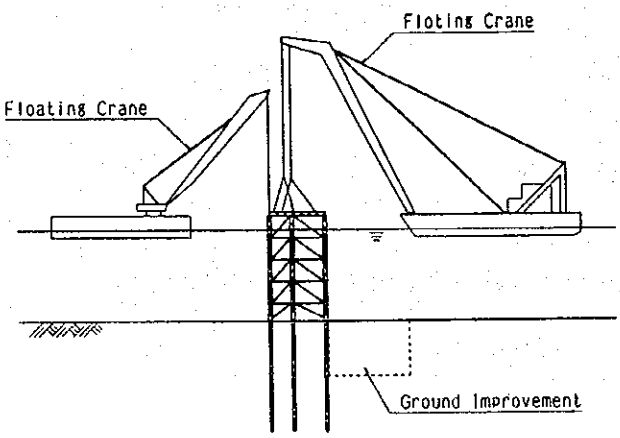
① Ground Improvement Works



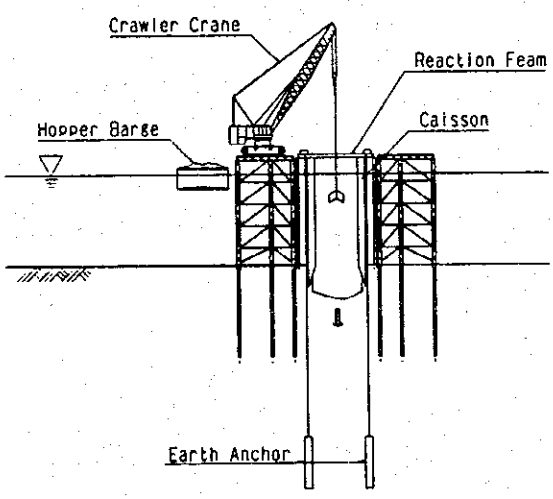
④ Setting of Caisson Shoe



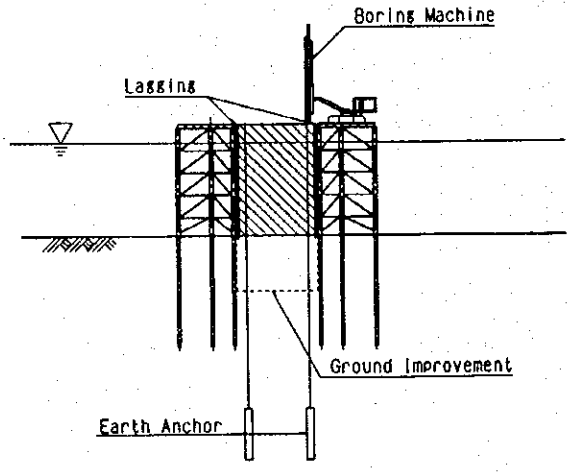
② Setting of Working Deck



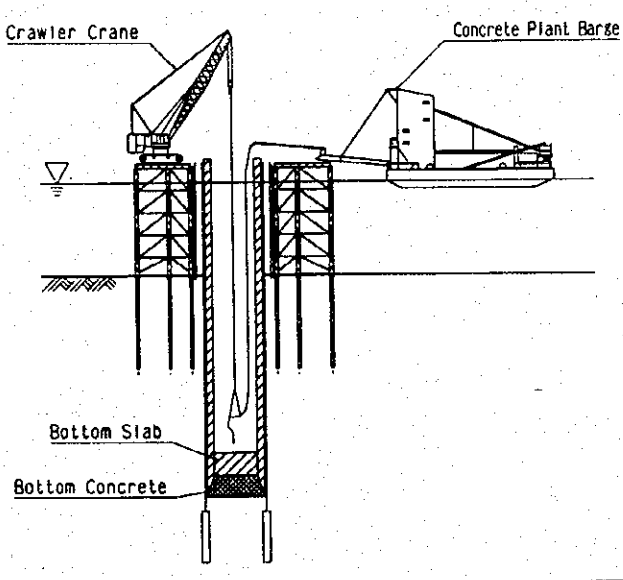
⑤ Caisson Works



③ Artificial Island . Soil Anchor Works
(For Immersion of Caisson)



⑥ Bottom Slab Works



- Design traffic density: In accordance with the traffic density of large size vehicles as a rule
  Based on the results of the present study on the traffic density, the total value of heavy buses (HBs), medium trucks (MTs), and heavy trucks (Hts) in 2020 are culculated as below.

Route A:	722	4,927	445	6,144	
Route B:	788	4,979	463	6,230	Average of three routes ≒ 6,200 vehicles
Route C:	783	4,956	454	6,193	

The above mentioned traffic density is for the round-trips. Therefore, the traffic density of one-way traffic will be counted as a half (1/2) of the above value. Thus, the total will become 3,100 vehicles/day•direction, and the division of design traffic density is traffic D as shown in the Table below.)

Division of the design traffic density

Division of the design traffic density	Range of the traffic density of large size vehicles (vehicles/day•direction)
Traffic L	Less than 100
Traffic A	More than 100 and less than 250
Traffic B	More than 250 and less than 1,000
Traffic C	More than 1,000 and less than 3,000
Traffic D	More than 3,000

- Roadbed
  As the results of the boring study conducted this time, the N-values of under ground levels (0 to 5 m) of all routes are 0.
  At present, a draft ground improvement plan is being formulated, in which the N-value after ground improvement is expected to be increased by 3% to make CBR = 3%.

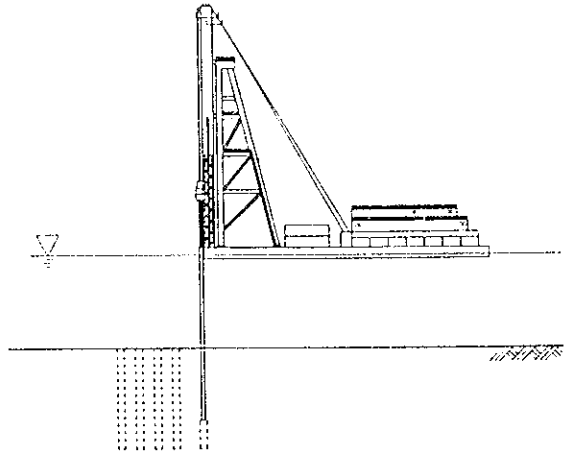
- Design of the thickness of pavement

Target T_A (in cm)

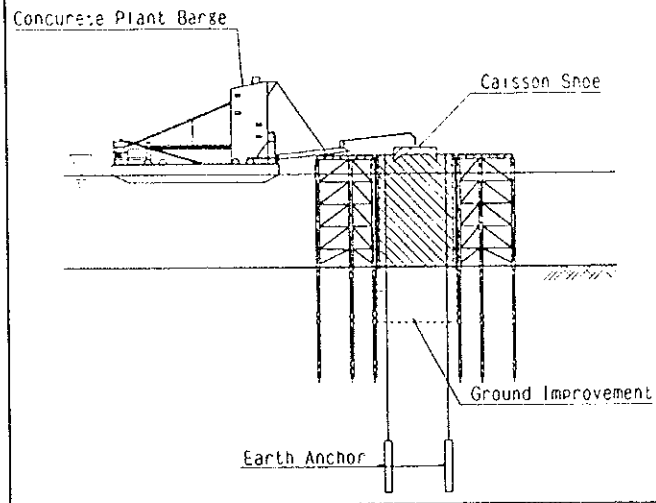
Design CBR	Traffic L	Traffic A	Traffic B	Traffic C	Traffic D
3	15	19	26	35	45
4	14	18	24	32	41
6	12	16	21	28	37
8	11	14	19	26	34

8.5 Construction Method Images of Foundations

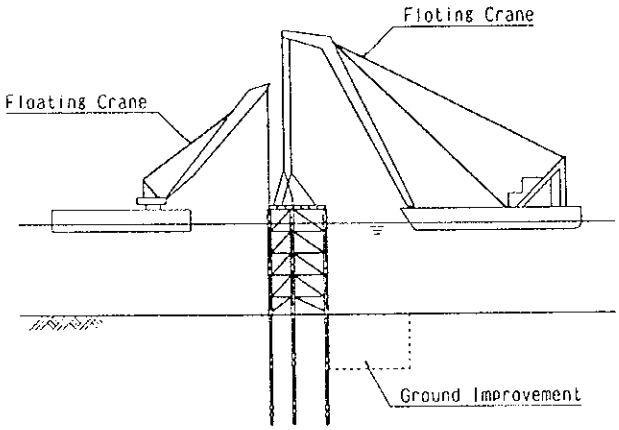
① Ground Improvement Works



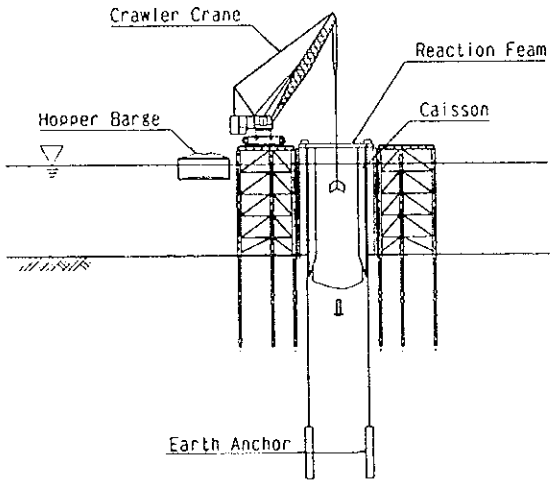
④ Setting of Caisson Shoe



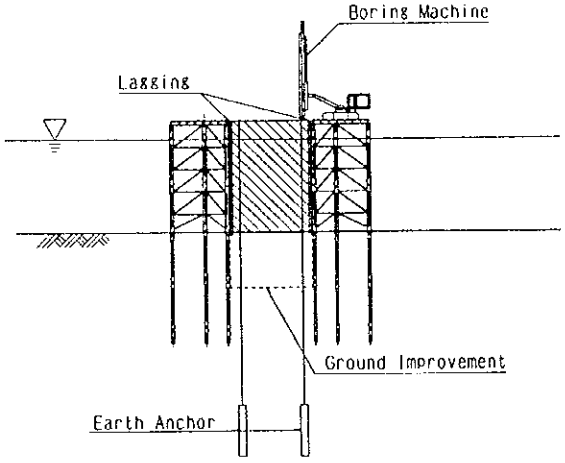
② Setting of Working Deck



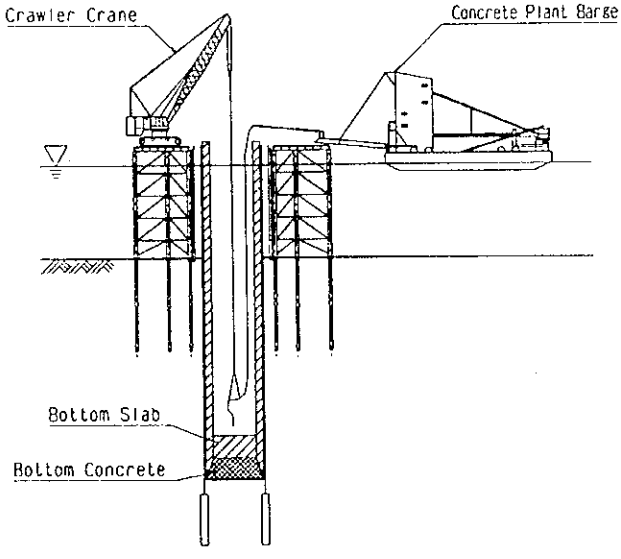
⑤ Caisson Works



③ Artificial Island . Soil Anchor Works
(For Immersion of Caisson)



⑥ Bottom Slab Works



- Design traffic density: In accordance with the traffic density of large size vehicles as a rule
  Based on the results of the present study on the traffic density, the total value of heavy buses (HBs), medium trucks (MTs), and heavy trucks (Hts) in 2020 are culculated as below.

Route A:	722	4,927	445	6,144	
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The above mentioned traffic density is for the round-trips. Therefore, the traffic density of one-way traffic will be counted as a half (1/2) of the above value. Thus, the total will become 3,100 vehicles/day•direction, and the division of design traffic density is traffic D as shown in the Table below.)

Division of the design traffic density

Division of the design traffic density	Range of the traffic density of large size vehicles (vehicles/day•direction)
Traffic L	Less than 100
Traffic A	More than 100 and less than 250
Traffic B	More than 250 and less than 1,000
Traffic C	More than 1,000 and less than 3,000
Traffic D	More than 3,000

- Roadbed
  As the results of the boring study conducted this time, the N-values of under ground levels (0 to 5 m) of all routes are 0.
  At present, a draft ground improvement plan is being formulated, in which the N-value after ground improvement is expected to be increased by 3% to make CBR = 3%.

- Design of the thickness of pavement

Target T_A (in cm)

Design CBR	Traffic L	Traffic A	Traffic B	Traffic C	Traffic D
3	15	19	26	35	45
4	14	18	24	32	41
6	12	16	21	28	37
8	11	14	19	26	34

Minimum thickness of surface course and base course

Division of the design traffic density	Thickness in which the surface and the base courses are added (in cm)
Traffics L and A	5
Traffic B	10 (5)
Traffic C	15 (10)
Traffic D	20 (15)

Note: If a bituminous stabilization is used for the upper base course, the thickness can be reduced to the value shown in the parentheses ( ).

Liayer equivalent value

Location to be used	Method and materials	Quality standard	Liayer equivalent value α
Surface course and base course	Heated asphalt mixture for surface and base courses		1.00
Upper base course	Bituminous stabilization	Heat mixing: Stability of more than 350 kgf (3.43 kN)	0.80
		Cold mixing: Stability of more than 250 kgf (2.45 kN)	0.55
	Cement bituminous stabilization	Unconfined compression strength: 15 to 30 kgf/cm^2 (1.5 to 2.9 MPa) Primary displacement: 5 to 30 (1/100 cm1) Residual strength: More than 65%	0.65
	Cement stabilization	Unconfined compression strength (7 days): 30 kgf/cm^2 (2.9 MPa)	0.55
	Soil stabilization by lime	Unconfined compression strength (10 days): 10 kgf/cm^2 (0.98 MPa)	0.45
	Crushed stone for mechanical stabilization, steel slug for mechanical stabilization	Corrected CBR: 80 ore more	0.35
	Hydraulic steel slug for mechanical stabilization	Corrected CBR: More than 80 Unconfined compression strength (14 days): 12 kgf/cm^2 or more (1.2 Mpa)	0.55
Lower base course	Crusher-run, steel slug, and sand	Corrected CBR: More than 30	0.25
		Corrected CBR: More than 20 and less than 30	0.20
	Cement stabilization	Unconfined compression strength (7 days): 10 kgf/cm^2 (0.98 MPa)	0.25
	Soil stabilization by lime	Unconfined compression strength (10 days): 7 kgf/cm^2 (0.7 MPa)	0.25

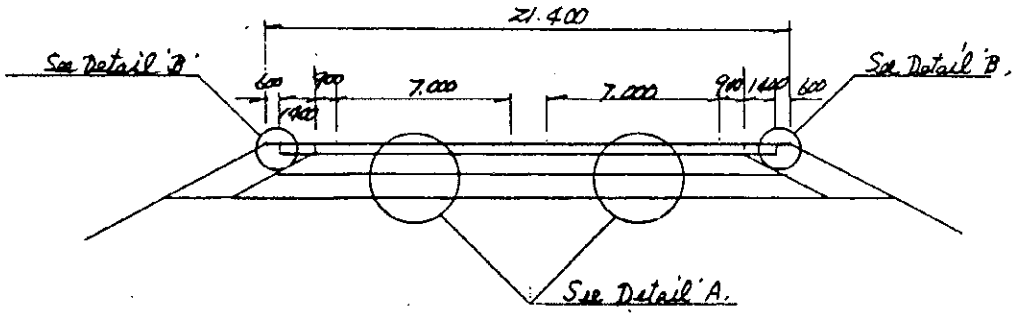
Calculation of the thickness of pavement:

Target TA value: TA = 45

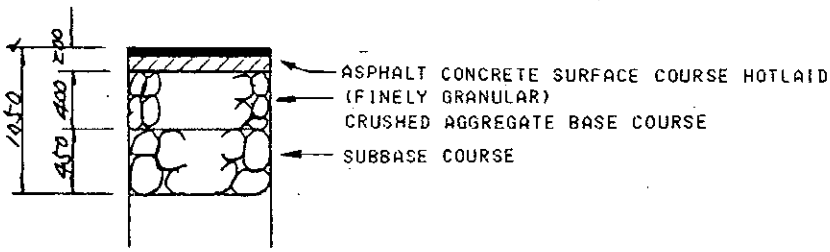
$20 \times 1.0 + 40 \times 0.35 + 45 \times 0.25 = 45.25 > 45$

The sectional view of structure of pavement is shown in Figure 1.

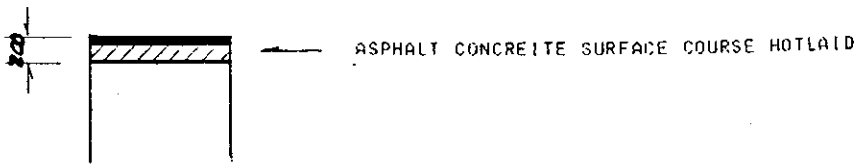
PAVEMENT DETAIL FOR FOUR (4) LANES CARRIAGEWAY



Detail 'A'



Detail 'B'



The Feasibility Study
on The Can Tho Bridge Construction in
Socialist Republic of Viet Nam

ANNEXURE 9

COST ESTIMATE

9.1 Project Cost by Components (Summary)

Unit: thousand US $

Component		Foreign Currency Portion	Local Currency Portion	Total
1. Construction Cost	Mobilization & Demobilization	6,838.24	4,111.93	10,950.17
	Main Bridge	84,636.21	19,723.36	104,359.57
	Approach Bridge (Vinh Long)	8,734.35	3,428.45	12,162.80
	Approach Bridge (Can Tho)	33,763.77	10,071.57	43,835.34
	Approach Road (Vinh Long)	5,157.11	9,333.34	14,490.45
	Approach Road (Can Tho)	4,473.20	9,756.92	14,230.12
(Sub Total)		(143,602.88)	(56,425.57)	(200,028.45)
2. Engineering Cost	Detail Design & Tender Assistance	4,087.50	3,240.00	7,327.50
	Construction Supervision	3,506.25	2,384.20	5,890.45
(Sub Total)		(7,593.75)	(5,624.20)	(13,217.95)
3. Administration Cost		0.00	2,000.28	2,000.28
4. Environmental Monitoring & Countermeasures		0.00	235.90	235.90
5. Land Acquisition		0.00	1,944.45	1,944.45
6. Compensation		0.00	591.67	591.67
7. Sub Total of Project Cost without Contingency (1. + 2. + 3. + 4. + 5. + 6.)		(151,246.63)	(66,772.07)	(218,018.70)
8. Physical Contingency		15,124.66	6,677.21	21,801.87
9. Price Escalation (Base year, 1997)		17,647.76	10,747.22	28,394.98
Total	(7. + 8.)	166,371.29	73,449.28	239,820.57
	(7. + 8. + 9.)	184,019.05	84,196.50	268,215.55

* Price Escalation: 2% for Foreign Currency Portion
3% for Local Currency Portion

9.2 Construction Cost

9.2.1 Mobilization and Demobilization

Unit: thousand USD

Items		Foreign Currency Portion	Local Currency Portion	Total Cost
(1) Mobilization				
1) Mobilization	2.5% of Total Construction Cost	3,419.12	1,289.09	4,708.21
2) UXO Clearance	(1,452,200m2)	0.00	493.75	493.75
3) Construction Yard	(520m2)	0.00	1,040.00	1,040.00
Sub Total		3,419.12	2,822.84	6,241.96
(2) Demobilization				
1) Demobilization	2.5% of Total Construction Cost	3,419.12	1,289.09	4,708.21
Total		6,838.24	4,111.93	10,950.17

9.2.2 Package-1, Main Bridge (Bridge Length = 1,040m, Hybrid Cable Stayed)

(1) Summary

Unit: thousand USD

Construction Items	Foreign Currency Portion	Local Currency Portion	Total Cost
1)Foundation	18,016.80	3,696.69	21,713.49
2)Substructure	1,423.73	3,977.11	5,400.84
3)Superstructure	65,195.68	12,049.56	77,245.24
Total	84,636.21	19,723.36	104,359.57

(2) Foundation

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)Open Caisson Foundation	(Dia. = 10m, L=90m, N = 12)	15,945.38	3,201.01	19,146.39
2)S.P.P Foundation	(Dia. = 1.5m, L=70m, N = 28)	1,987.70	34.41	2,022.11
3)C.C.P. Foundation	(Dia. = 1.5m, L=72m, N = 24)	83.72	461.27	544.99
Total		18,016.80	3,696.69	21,713.49

(3) Substructure

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)Piers on the Ground	(P7, P8)	11.92	199.06	210.98
2)Piers on the Waterway	(P11, P12)	24.26	261.78	286.04
3)Caisson Cap on the Ground	(P9)	104.46	1,751.01	1,855.47
4)Riverbank Protection	(around P9)	1,185.06	98.61	1,283.67
5)Caisson Cap on the Waterway	(P10)	98.03	1,666.65	1,764.68
Total		1,423.73	3,977.11	5,400.84

(4) Superstructure

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)PC Girder Segmental Block	(315block, Total Length=840m)	23,029.62	2,783.44	25,813.06
2)Steel Girder	(2,464tf, Total Length=200m)	15,701.50	1,463.08	17,164.58
3)Stay Cable	(1,366.23tf)	16,197.33	930.89	17,128.22
4)Tower	(P9, P10)	9,878.01	6,340.30	16,218.31
5)Bridge Miscellaneous	(Navigational Signals etc)	308.07	25.26	333.33
6)Pavement	(Waterproofing, Asphalt pavement etc)	81.15	506.59	587.74
Total		65,195.68	12,049.56	77,245.24

9.2.3 Package-2, Approach Bridge on Vinh Long side (L=350m, PC Box Girder)

(1) Summary

Unit: thousand USD

Construction Items	Foreign Currency Portion	Local Currency Portion	Total Cost
1)Foundation	267.45	1,473.51	1,740.96
2)Substructure	29.58	455.14	484.72
3)Superstructure	8,437.32	1,499.80	9,937.12
Total	8,734.35	3,428.45	12,162.80

(2) Foundation

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)C.C.P. Foundation	(Dia. = 1.5m, L=72m, N = 24)	267.45	1,473.51	1,740.96

(3) Substructure

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)Substructures on the Ground	(A1, P1~P6)	29.58	455.14	484.72

(4) Superstructure

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)PC Girder Segmental Block	(168block, Total Length=350m)	8,409.10	1,328.75	9,737.85
2)Pavement	(Waterproofing, Asphalt pavement etc)	28.22	171.05	199.27
Total		8,437.32	1,499.80	9,937.12

9.2.4 Package-3, Approach Bridge on Can Tho side

(1) Summary

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)PC Box Girder (18@50=900m)	a)Foundation	1,711.98	2,974.67	4,686.65
	b)Substructure	68.02	923.06	991.08
	c)Superstructure	21,695.93	3,856.65	25,552.58
	Sub Total	23,475.93	7,754.38	31,230.31
2)PC Cantilever Box (50+75+50=175m)	a)Foundation	2,354.14	55.29	2,409.43
	b)Substructure	29.48	244.33	273.81
	c)Superstructure	3,849.06	851.30	4,700.36
	Sub Total	6,232.68	1,150.92	7,383.60
3)PC Box Girder (3@50=150m)	a)Foundation	427.55	381.89	809.44
	b)Substructure	11.62	141.60	153.22
	c)Superstructure	3,615.99	642.78	4,258.77
	Sub Total	4,055.16	1,166.27	5,221.43
Total		33,763.77	10,071.57	43,835.34

(2) PC Box Girder (18@50=900m)

a) Foundation

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)S.P.P Foundation	(Dia. = 1.5m, L=70m&65m, N =12&18)	1,177.07	27.65	1,204.72
2)C.C.P Foundation	(Dia. = 1.5m, L=72m, N =160)	534.91	2,947.02	3,481.93
Total		1,711.98	2,974.67	4,686.65

b) Substructure

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)Piers on the Ground	(P13, P29)	15.76	147.75	163.51
2)Piers on the Waterway	(P14~P28)	52.26	775.31	827.57
Total		68.02	923.06	991.08

c) Superstructure

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)PC Girder Segmental Block	(432block, Total Length=900m)	21,623.37	3,416.81	25,040.18
2)Pavement	(Waterproofing, Asphalt pavement etc)	72.56	439.84	512.40
Total		21,695.93	3,856.65	25,552.58

(3) PC Cantilever Box (50+75+50=175m)

a) Foundation

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)S.P.P Foundation	(Dia. = 0.8m, L=65m, N =36)	721.39	27.03	748.42
2)S.P.P Foundation	(Dia. = 1.5m, L=70m, N =24)	1,632.75	28.26	1,661.01
Total		2,354.14	55.29	2,409.43

b) Substructure

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)Piers on the Waterway	(P30~P33)	29.48	244.33	273.81

c) Superstructure

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)PC Girder Segmental Block	(78block, Total Length=175m)	3,834.95	765.78	4,600.73
2)Pavement	(Waterproofing, Asphalt pavement etc)	14.11	85.52	99.63
Total		3,849.06	851.30	4,700.36

(4) PC Box Girder (3@50=150m)

a) Foundation

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)S.P.P Foundation	(Dia. = 0.8m, L=65m, N =18)	360.69	13.51	374.20
2)C.C.P Foundation	(Dia. = 1.5m, L=72m, N =20)	66.86	368.38	435.24
Total		427.55	381.89	809.44

b) Substructure

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)Substructures on the Ground	(P35, A2)	6.58	105.42	112.00
2)Piers on the Waterway	(P34)	5.04	36.18	41.22
Total		11.62	141.60	153.22

c) Superstructure

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)PC Girder Segmental Block	(72block, Total Length=150m)	3,603.90	569.47	4,173.37
2)Pavement	(Waterproofing, Asphalt pavement etc)	12.09	73.31	85.40
Total		3,615.99	642.78	4,258.77

9.2.5 Package-4, Approach Road on Vinh Long side

(1) Summary (Total Road Length = 4,990m)

Unit: thousand USD

Construction Items	Foreign Currency Portion	Local Currency Portion	Total Cost
1)Road Works	391.59	3,788.09	4,179.68
2)Road Miscellaneous	184.38	84.52	268.90
3)Structures	3,847.00	4,975.60	8,822.60
4)Soft Ground Treatment	734.14	110.13	844.27
5)Service Area	0.00	375.00	375.00
Total	5,157.11	9,333.34	14,490.45

(2) Road Works (Earthwork Length = 4,470m)

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)Embankment	(516,536.9m3)	19.36	328.76	348.12
2)Base Course & Subgrade	(98,439.0m3)	79.54	868.03	947.57
3)Pavement	(84,780.0m2)	79.95	1,909.97	1,989.92
4)Slope Protection Works	(15,690.2m2)	212.74	681.33	894.07
Total		391.59	3,788.09	4,179.68

(3) Road Miscellaneous

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)Road Miscellaneous	(Kerb, Median, Guard Railing etc)	184.38	84.52	268.90

(4) Structures

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)Minor Bridges	(10 Bridges, Total Length=520m)	3,833.66	4,815.88	8,649.54
2)Culvert Pipe	(9points)	0.00	7.64	7.64
3)Retaining Wall	(Total Length = 330m)	13.34	152.08	165.42
Total		3,847.00	4,975.60	8,822.60

(5) Soft Ground Treatment

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
Soft Ground Treatment	(Drainage Blanket, Geo-texitile Drainage etc)	734.14	110.13	844.27

(6) Service Area

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
Service Area	(15,000m2)	0.00	375.00	375.00

9.2.6 Package-5, Approach Road on Can Tho side

(1) Summary (Total Road Length = 6,917m)

Unit: thousand USD

Construction Items	Foreign Currency Portion	Local Currency Portion	Total Cost
1)Road Works	519.98	4,677.17	5,197.15
2)Road Miscellaneous	133.84	115.84	249.68
3)Structures	3,439.67	4,438.24	7,877.91
4)Soft Ground Treatment	379.71	150.67	530.38
5)Service Area	0.00	375.00	375.00
Total	4,473.20	9,756.92	14,230.12

(2) Road Works (Earthwork Length = 6,457m)

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)Embankment	(558,139.3m3)	27.37	363.84	391.21
2)Base Course & Subgrade	(62,627.9m3)	63.10	599.44	662.54
3)Pavement	(119,862.0m2)	113.03	2,700.31	2,813.34
4)Slope Protection Works	(23,341.5m2)	316.48	1,013.58	1,330.06
Total		519.98	4,677.17	5,197.15

(3) Road Miscellaneous

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)Road Miscellaneous	(Kerb, Median, Guard Railing etc)	133.84	115.84	249.68

(4) Structures

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
1)Minor Bridges	(7 Bridges, Total Length=460m)	3,419.71	4,191.22	7,610.93
2)Culvert Pipe	(5points)	0.00	4.23	4.23
3)Retaining Wall	(Total Length = 330m)	19.96	242.79	262.75
Total		3,439.67	4,438.24	7,877.91

(5) Soft Ground Treatment

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
Soft Ground Treatment	(Drainage Blanket, Geo-texitile Drainage etc)	379.71	150.67	530.38

(6) Service Area

Unit: thousand USD

Construction Items		Foreign Currency Portion	Local Currency Portion	Total Cost
Service Area	(15,000m2)	0.00	375.00	375.00

9.3 Engineering and Administration Cost

9.3.1 Engineering Cost

Unit: thousand USD

Items		Foreign Currency Portion	Local Currency Portion	Total Cost
(1) Detailed Design and Pre-Qualification				
a) Remuneration	Foreign Engineers	2,020.83	0.00	2,020.83
	Local Engineers	0.00	432.00	432.00
	Local Support Staff	0.00	216.00	216.00
b) Direct Cost		1,616.67	2,592.00	4,208.67
c) Laboratory Test	Hydraulic Test, Wind-Tunnel Test etc	450.00	0.00	450.00
Sub Total		4,087.50	3,240.00	7,327.50
(2) Construction Supervision				
a) Remuneration	Foreign Engineers	3,187.50	0.00	3,187.50
	Local Engineers	0.00	1,692.00	1,692.00
b) Direct Cost		318.75	592.20	910.95
c) Site Test	Loading Test for Pile etc	0.00	100.00	100.00
Sub Total		3,506.25	2,384.20	5,890.45
Total		7,593.75	5,624.20	13,217.95

9.3.2 Administration Cost

Unit: thousand USD

Items		Foreign Currency Portion	Local Currency Portion	Total Cost
(1) Administration Cost	1% of Total Construction Cost	0.00	2,000.28	2,000.28

9.4 Cost for Environmental Monitoring and Countermeasures

Unit: thousand USD

Items	Foreign Currency Portion	Local Currency Portion	Total Cost
(1)During the Construction Phase			
a) Water Quality Monitoring	0.00	33.70	33.70
b) Air Quality Monitoring	0.00	38.88	38.88
c) Noise Monitoring	0.00	3.78	3.78
d) Monitoring on Aquatic Ecosystem	0.00	43.19	43.19
e) Monitoring on Socio-Economic Conditions	0.00	21.60	21.60
Sub Total	0.00	141.15	141.15
(2)During the Operation Phase after the Construction			
a) Water Quality Monitoring	0.00	4.86	4.86
b) Air Quality Monitoring	0.00	8.10	8.10
c) Noise Monitoring	0.00	0.79	0.79
d) Monitoring on Aquatic Ecosystem	0.00	54.00	54.00
e) Monitoring on Socio-Economic Conditions	0.00	27.00	27.00
Sub Total	0.00	94.75	94.75
Total	0.00	235.90	235.90

9.5 Cost for Land Acquisition

Unit: thousand USD

Items	Foreign Currency Portion	Local Currency Portion	Total Cost
(1)Compensation Cost for Residential Land			
a) City	0.00	615.20	615.20
b) District	0.00	145.71	145.71
Sub Total	0.00	760.91	760.91
(2)Compensation Cost for Crop Land			
a) Annual Crop Land and Aquacultural Land			
a-1) City	0.00	477.59	477.59
a-2) District	0.00	276.50	276.50
b) Perennial Crop Land			
b-1) City	0.00	429.45	429.45
b-2) District	0.00	0.00	0.00
Sub Total	0.00	1,183.54	1,183.54
Total	0.00	1,944.45	1,944.45

9.6 Compensation for Loss of Dwellings

Unit: thousand USD

Items	Foreign Currency Portion	Local Currency Portion	Total Cost
(1)Compensation Cost for Loss of Dwelling			
(210 dwellings)	0.00	591.67	591.67

The Feasibility Study
on The Can Tho Bridge Construction in
Socialist Republic of Viet Nam

ANNEXURE 10

ENVIRONMENTAL IMPACT ASSESSMENT

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Sampling 5 February 1998

Tide : Low

Surface water quality

Station	Time	BOD_5 (mg/l)	COD (mg/l)	TOTAL P (mg/l)	TOTAL Fe (mg/l)	Hg^{2+} (mg/l)	Al^{3+} (mg/l)	Phenol (mg/l)	Oils (mg/l)	Total COLIFORMS (MPN/100ml)	Feacal COLIFORMS (MPN/100ml)
A_1	8^h25	2.85	18	0.12	0.9	< 0.0008	0.05	< 0.0006	0.18	2500	1600
A_2	8^h35	2.7	19	0.09	0.85	< 0.0008	0.04	< 0.0006	0.21	1800	900
A_3	8^h45	2.8	19	0.08	0.85	< 0.0008	0.04	< 0.0006	0.18	2600	1600
B_1	9^h10	2.9	21	0.11	0.7	< 0.0008	0.05	< 0.0006	0.12	2100	1400
B_2	9^h20	2.85	21	0.12	0.78	< 0.0008	0.06	< 0.0006	0.13	1200	800
B_3	9^h30	2.8	24	0.12	0.82	< 0.0008	0.045	< 0.0006	0.12	1900	1300

A_1, A_2, A_3 : Ferry Area
B_1, B_2, B_3 : Project Area

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Tide : Low

Surface water quality

Station	Time	PH	SS (mg/l)	EC ($\mu\delta$/cm)	Turbidity (mg/l)	Color (Cobal+Scale)	T° (°C)	DO (mg/l)	NH_4^+ (mg/l)	NO_3^- (mg/l)	Total N (mg/l)	PO_4^{2-} (mg/l)
A_1	8^h25	7.4	0.65	115	3.5	< 7	27°5	6.5	0.16	0.5	0.18	0.18
A_2	8^h35	7.4	0.65	118	3.8	< 7	27°5	6.5	0.14	0.4	0.17	0.17
A_3	8^h45	7.5	0.60	120	4.0	< 7	27°5	6.8	0.09	0.4	0.14	0.18
B_1	9^h10	7.3	0.45	125	2.7	< 5	28°	7.0	0.11	0.6	0.19	0.16
B_2	9^h20	7.5	0.50	120	2.9	< 5	28°5	7.3	0.14	0.66	0.22	0.16
B_3	9^h30	7.3	0.48	123	2.7	< 5	28°5	0.8	0.15	0.8	0.18	0.16

A_1, A_2, A_3 : Ferry Area
B_1, B_2, B_3 : Project Area

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Tide : High

Surface water quality

Station	Time	PH	SS (mg/l)	EC (μδ/cm)	Turbidity (mg/l)	Color (Cobal+Scale)	T° (°C)	DO (mg/l)	NH_4^+ (mg/l)	NO_3^- (mg/l)	Total N (mg/l)	PO_4^{2-} (mg/l)
A_1	16^h30	7.6	0.3	120	2.4	< 6	28°5	7.5	0.11	0.4	0.17	0.17
A_2	16^h35	7.5	0.35	120	2.35	< 6	28°5	7.0	0.14	0.45	0.19	0.17
A_3	16^h40	7.6	0.3	122	2.5	< 6	28°5	7.2	1.12	0.45	0.19	0.17
B_1	17^h00	7.5	0.27	128	2.2	< 6	28°	7.8	0.11	0.5	0.16	0.16
B_2	17^h05	7.5	0.3	125	2.0	< 6	28°5	7.5	0.16	0.45	0.17	0.16
B_3	17^h10	7.5	0.35	125	2.1	< 6	28°5	8.0	0.15	0.40	0.18	0.16

A_1, A_2, A_3 : Ferry Area
B_1, B_2, B_3 : Project Area

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Tide : High

Surface water quality

Station	Time	BOD_5 (mg/l)	COD (mg/l)	TOTAL P (mg/l)	TOTAL Fe (mg/l)	Hg^{2+} (mg/l)	Al^{3+} (mg/l)	Phenol (mg/l)	Oils (mg/l)	Total COLIFORMS (MPN/100ml)	Feacal COLIFORMS (MPN/100ml)
A_1	16^h30	2.95	18	0.07	0.4	< 0.0005	0.03	< 0.0006	0.09	1900	1500
A_2	16^h35	3.06	17	0.08	0.45	< 0.0005	0.035	< 0.0006	0.12	800	850
A_3	16^h40	3.0	18	0.07	0.5	< 0.0005	0.033	< 0.0006	0.11	1700	1600
B_1	17^h00	2.8	19	0.06	0.4	< 0.0005	0.4	< 0.0006	0.08	1800	1500
B_2	17^h05	2.9	21	0.09	0.55	< 0.0005	0.45	< 0.0006	0.08	900	900
B_3	17^h10	3.2	21	0.08	0.45	< 0.0005	0.35	< 0.0006	0.07	1900	1400

A_1, A_2, A_3 : Ferry Area
B_1, B_2, B_3 : Project Area

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Tide : High

Surface water quality

Station	Time	PH	SS (mg/l)	EC ($\mu\delta$/cm)	Turbidity (mg/l)	Color (Cobal+Scale)	T° (°C)	DO (mg/l)	NH_4^+ (mg/l)	NO_3^- (mg/l)	Total N (mg/l)	PO_4^{2-} (mg/l)
A_1	18^h40	7.5	0.45	115	1.8	< 6	29°	5.8	0.16	0.45	0.16	0.19
A_2	18^h45	7.5	0.45	115	2.0	< 6	29°	5.9	0.17	0.40	0.16	0.19
A_3	18^h50	7.5	0.6	115	2.1	< 6	29°	5.9	0.15	0.48	0.16	0.19
B_1	17^h20	7.5	0.40	110	1.9	< 6	29°	6.2	0.12	0.31	0.19	0.19
B_2	17^h30	7.5	0.35	110	1.9	< 6	29°	6.0	0.14	0.45	0.21	0.19
B_3	17^h40	7.5	0.35	110	1.8	< 6	29°	6.0	0.14	0.40	0.19	0.19

A_1, A_2, A_3 : Ferry Area
B_1, B_2, B_3 : Project Area

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Sampling 6 February 1998

Tide : High

Surface water quality

Station	Time	BOD_5 (mg/l)	COD (mg/l)	TOTAL P (mg/l)	TOTAL Fe (mg/l)	Hg^{2+} (mg/l)	Al^{3+} (mg/l)	Phenol (mg/l)	Oils (mg/l)	Total COLIFORMS (MPN/100ml)	Feacal COLIFORMS (MPN/100ml)
A_1	18^h40	2.9	19	0.13	0.7	0	0.04	0	0.14	2200	1700
A_2	18^h45	3.1	17	0.10	0.6	0	0.04	0	0.16	1200	1100
A_3	18^h50	2.8	17	0.12	0.6	0	0.05	0	0.15	2400	1900
B_1	17^h20	2.8	18	0.09	0.8	0	0.03	0	0.12	2100	1800
B_2	17^h30	2.9	18	0.09	0.7	0	0.04	0	0.10	900	900
B_3	17^h40	3.2	18	0.11	0.7	0	0.04	0	0.12	1900	1700

A_1, A_2, A_3 : Ferry Area
B_1, B_2, B_3 : Project Area

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Sampling 6 February 1998

Tide : Low

Surface water quality

Station	Time	PH	SS (mg/l)	EC (μδ/cm)	Turbidity (mg/l)	Color (Cobal+Scale)	T° (°C)	DO (mg/l)	NH_4^+ (mg/l)	NO_3^- (mg/l)	Total N (mg/l)	PO_4^{2-} (mg/l)
A_1	8^h30	7.7	0.5	125	3.5	< 7	28°	6.6	0.16	0.6	0.19	0.19
A_2	8^h35	7.8	0.6	120	3.0	< 7	28°	6.7	0.15	0.65	0.21	0.21
A_3	8^h40	7.8	0.5	125	3.5	< 7	28°	6.7	0.15	0.7	0.21	0.19
B_1	9^h00	7.8	0.5	120	3.0	< 7	28°	7.0	0.12	0.58	0.17	0.21
B_2	9^h05	7.8	0.45	120	2.8	< 7	28°	7.2	0.12	0.55	0.18	0.21
B_3	9^h10	7.8	0.5	120	3.2	< 7	28°	7.2	0.12	0.6	0.17	0.20

A_1, A_2, A_3 : Ferry Area
B_1, B_2, B_3 : Project Area

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Tide : Low

Surface water quality

Station	Time	BOD_5 (mg/l)	COD (mg/l)	TOTAL P (mg/l)	TOTAL Fe (mg/l)	Hg^{2+} (mg/l)	Al^{3+} (mg/l)	Phenol (mg/l)	Oils (mg/l)	Total COLIFORMS (MPN/100ml)	Feacal COLIFORMS (MPN/100ml)
A_1	8^h30	2.7	19	0.12	0.07	0	0.030.	0	0.19	2500	1700
A_2	8^h35	2.6	18	0.09	0.65	0	045	0	0.22	1100	800
A_3	8^h40	2.7	18	0.11	0.65	0	0.04	0	0.22	2400	1800
B_1	9^h00	2.65	21	0.10	0.8	0	0	0	0.16	2000	1600
B_2	9^h05	2.7	20	0.12	0.7	0	0	0	0.14	900	800
B_3	9^h10	2.7	21	0.11	0.7	0	0	0	0.14	1900	1700

A_1, A_2, A_3 : Ferry Area
B_1, B_2, B_3 : Project Area

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Tide : Low

Surface water quality

Station	Time	PH	SS (mg/l)	EC (μδ/cm)	Turbidity (mg/l)	Color (Cobal+Scale)	T° (°C)	DO (mg/l)	NH_4^+ (mg/l)	NO_3^- (mg/l)	Total N (mg/l)	PO_4^{2-} (mg/l)
A_1	8^h30	7.5	0.60	125	3.9	< 7	28°	6.8	0.15	0.45	0.17	0.19
A_2	8^h40	7.6	0.65	120	4.0	< 7	28°	7.0	0.15	0.50	0.16	0.19
A_3	8^h50	7.6	0.65	120	3.5	< 7	28°	6.5	0.12	0.35	0.18	0.17
B_1	9^h10	7.6	0.55	120	2.9	< 7	28°	7.0	0.14	0.50	0.19	0.18
B_2	9^h20	7.6	0.50	125	2.9	< 7	28°	7.0	0.12	0.60	0.17	0.17
B_3	9^h30	7.6	0.55	115	2.9	< 7	28°	7.0	0.13	0.45	0.17	0.17

A_1, A_2, A_3 : Ferry Area
B_1, B_2, B_3 : Project Area

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Tide : Low

Surface water quality

Station	Time	BOD_5 (mg/l)	COD (mg/l)	TOTAL P (mg/l)	TOTAL Fe (mg/l)	Hg^{2+} (mg/l)	Al^{3+} (mg/l)	Phenol (mg/l)	Oils (mg/l)	Total COLIFORMS (MPN/100ml)	Feacal COLIFORMS (MPN/100ml)
A_1	8^h30	2.80	19	0.13	0.90	< 0.0008	0.05	< 0.0006	0.19	2600	1700
A_2	8^h40	2.80	19	0.11	1.05	< 0.0008	0.05	< 0.0006	0.21	1500	800
A_3	8^h50	2.85	21	0.12	0.95	< 0.0008	0.04	< 0.0006	0.20	2500	1800
B_1	9^h10	2.90	22	0.12	0.70	< 0.0008	0.06	< 0.0006	0.18	2400	1200
B_2	9^h20	2.80	22	0.12	0.70	< 0.0008	0.05	< 0.0006	0.17	1600	700
B_3	9^h30	2.75	21	0.12	0.85	< 0.0008	0.06	< 0.0006	0.14	2100	1600

A_1, A_2, A_3 : Ferry Area
B_1, B_2, B_3 : Project Area

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Tide : High

Surface water quality

Station	Time	PH	SS (mg/l)	EC (μδ/cm)	Turbidity (mg/l)	Color (Cobal+Scale)	T° (°C)	DO (mg/l)	NH_4^+ (mg/l)	NO_3^- (mg/l)	Total N (mg/l)	PO_4^{2-} (mg/l)
A_1	16^h30	7.5	0.45	120	2.8	< 6	29°	6.8	0.12	0.5	0.18	0.19
A_2	16^h40	7.5	0.5	120	2.8	< 6	29°	6.8	0.13	0.45	0.19	0.18
A_3	16^h50	7.5	0.5	120	3.5	< 6	29°	6.5	0.10	0.55	0.16	0.18
B_1	17^h20	7.5	0.4	120	2.2	< 6	29°	7.0	1.11	0.40	0.17	0.19
B_2	17^h30	7.5	0.3	120	2.0	< 6	29°	7.2	0.10	0.38	0.17	0.19
B_3	17^h40	7.5	0.4	120	2.4	< 6	29°	7.0	0.12	0.44	0.16	0.19

A_1, A_2, A_3 : Ferry Area
B_1, B_2, B_3 : Project Area

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Sampling 7 February 1998

Tide : High

Surface water quality

Station	Time	BOD_5 (mg/l)	COD (mg/l)	TOTAL P (mg/l)	TOTAL Fe (mg/l)	Hg^{2+} (mg/l)	Al^{3+} (mg/l)	Phenol (mg/l)	Oils (mg/l)	Total COLIFORMS (MPN/100ml)	Feacal COLIFORMS (MPN/100ml)
A_1	16^h30	2.80	19	0.09	0.60	< 0.0005	0.03	0	0.16	2000	1700
A_2	16^h40	2.75	19	0.07	0.60	< 0.0005	0.03	0	0.14	1100	900
A_3	16^h50	2.75	18	0.09	0.65	< 0.0005	0.03	0	0.14	1900	1800
B_1	17^h20	2.70	18	0.06	0.60	< 0.0005	0.027	0	0.12	1800	1600
B_2	17^h30	2.80	17	0.06	0.7	< 0.0005	0.025	0	0.11	1000	700
B_3	17^h40	2.80	18	0.08	0.75	< 0.0005	0.03	0	0.12	1900	1500

A_1, A_2, A_3 : Ferry Area
B_1, B_2, B_3 : Project Area

Table 1: Position 1 (Northern Bridge Approach, Vinh Long side)

Parameter	Unit	Sampling time																						
		0.00-3.00			3.00-6.00			6.00-9.00			9.00-12.00			12.00-15.00			15.00-18.00			18.00-21.00			21.00-24.00		
Temp	°C	23.3			23.7			25.6			34.5			35.4			34.6			27.4			24.3		
Humidity	%	91			90			83			63			58			59			72			83		
Wind speed	m/s	2.45			2.48			2.56			2.51			2.45			2.35			2.30			2.45		
Wind direction	-	SE			SE			SE			SE			SE			SE			SE			SE		
TSPM	mg/m^3	0.13			0.20			0.25			0.28			0.21			0.28			0.19			0.16		
SO_2	mg/m^3	0.008			0.010			0.070			0.042			0.030			0.041			0.039			0.006		
NO_x	mg/m^3	0.001			0.002			0.015			0.009			0.006			0.010			0.009			0.002		
CH	mg/m^3	0.17			0.27			1.54			1.19			0.60			1.20			0.11			0.17		
CO	mg/m^3	2.01			3.21			4.06			3.09			3.01			4.06			3.58			2.11		
Pb	mg/m^3	0.0001			0.0006			0.0011			0.0006			0.0007			0.0014			0.0005			0.0003		
Noise	dB_A	48.3	49.5	57.1	65.4	69.8	70.5	72.3	72.5	71.2	71.8	75.2	74.6	71.5	72.1	73.2	72.6	74.6	73.1	72.5	72.1	71.5	71.7	71.4	69.4
d	$mm/10^3$	10	12	13	15	14	15	18	16	17	15	15	14	14	15	14	15	15	17	14	12	12	10	10	9
f	Hz	3.3	3.4	3.5	3.5	3.4	3.5	3.3	3.5	3.3	3.8	3.5	3.6	3.7	3.5	3.4	3.6	3.6	3.6	3.5	3.7	2.8	2.9	3.1	2.5

Table 2: Position 2 (Northern Bridge Approach, Vinh Long side)

Parameter	Unit	Sampling time																						
		0.00-3.00			3.00-6.00			6.00-9.00			9.00-12.00			12.00-15.00			15.00-18.00			18.00-21.00			21.00-24.00		
Temp	°C	23.3			23.7			25.6			34.5			35.4			34.6			27.4			24.3		
Humidity	%	91			90			83			63			58			59			72			83		
Wind speed	m/s	2.45			2.48			2.56			2.51			2.45			2.35			2.30			2.45		
Wind direction	-	SE			SE			SE			SE			SE			SE			SE			SE		
TSPM	mg/m^3	0.11			0.21			0.27			0.25			0.19			0.26			0.18			0.14		
SO_2	mg/m^3	0.009			0.011			0.068			0.039			0.027			0.039			0.035			0.005		
NO_x	mg/m^3	-			0.002			0.013			0.008			0.007			0.010			0.007			0.002		
CH	mg/m^3	0.15			0.28			1.50			1.17			0.58			1.20			0.10			0.16		
CO	mg/m^3	1.89			3.20			4.00			3.04			2.96			4.01			3.59			2.07		
Pb	mg/m^3	-			0.0007			0.0010			0.0006			0.0007			0.0015			0.0005			0.0002		
Noise	dB_A	48.3	49.5	57.1	65.4	69.8	70.5	72.3	72.5	71.2	72.1	75.2	74.6	72.0	72.3	73.2	72.6	74.6	73.1	72.5	72.1	71.5	71.7	71.4	69.4
d	$mm/10^3$	10	11	13	15	16	15	18	16	17	15	15	14	14	15	14	15	15	17	14	12	12	10	10	9
f	Hz	3.1	3.0	3.5	3.5	3.4	3.5	3.3	3.5	3.3	3.8	3.5	3.6	3.7	3.5	3.4	3.6	3.6	3.6	3.5	3.7	2.8	2.9	3.1	2.5

Table 3: Position 3 (Ferry Terminal, Vinh Long side)

Parameter	Unit	Sampling time																					
		0.00-3.00			3.00-6.00			6.00-9.00			9.00-12.00			12.00-15.00			15.00-18.00			18.00-21.00			21.00-24.00		
Temp	°C	22.5			23.2			25.4			34.1			35.1			34.5			29.5			25.0		
Humidity	%	89			90			82			60			50			55			70			75		
Wind speed	m/s	2.50			2.45			2.60			2.75			2.40			2.55			2.24			2.30		
Wind direction	-	SE			SE			SE			SE			SE			SE			SE			SE		
TSPM	mg/m^3	0.18			0.21			0.28			0.25			0.22			0.28			0.19			0.17		
SO_2	mg/m^3	0.009			0.011			0.074			0.045			0.031			0.047			0.041			0.008		
NO_x	mg/m^3	-			0.003			0.016			0.010			0.006			0.011			0.009			0.002		
CH	mg/m^3	0.15			0.28			1.55			1.21			0.59			1.21			0.10			0.18		
CO	mg/m^3	2.01			3.20			4.08			3.11			3.00			4.10			3.61			2.13		
Pb	mg/m^3	0.0003			0.0008			0.0012			0.0007			0.0008			0.0015			0.0005			0.0003		
Noise	dB_A	58.2	61.2	68.1	71.2	72.3	73.5	74.7	75.2	76.1	75.2	75.4	74.6	73.5	73.7	74.0	75.2	75.3	75.6	75.1	74.7	73.1	70.6	64.4	59.8
d	$mm/10^3$	13	13	15	15	16	16	17	16	15	17	15	14	15	14	16	15	16	17	14	14	12	12	10	11
f	Hz	3.0	3.0	3.1	3.3	3.6	3.5	3.5	3.4	3.3	3.4	3.6	3.5	3.7	3.5	3.4	3.5	3.2	3.4	3.2	3.4	3.0	2.9	2.8	2.8

Table 4: Position 4 (Ferry Terminal, Vinh Long side)

Parameter	Unit	Sampling time																					
		0.00-3.00			3.00-6.00			6.00-9.00			9.00-12.00			12.00-15.00			15.00-18.00			18.00-21.00			21.00-24.00		
Temp	°C	22.5			23.2			25.4			34.1			35.1			34.5			29.5			25		
Humidity	%	89			90			82			60			50			55			70			75		
Wind speed	m/s	1.50			1.45			1.60			1.75			1.40			1.55			1.24			1.30		
Wind direction	-	SE			SE			SE			SE			SE			SE			SE			SE		
TSPM	mg/m^3	0.19			0.20			0.27			0.26			0.20			0.24			0.19			0.16		
SO_2	mg/m^3	0.008			0.011			0.070			0.044			0.030			0.047			0.040			0.007		
NO_x	mg/m^3	0.001			0.003			0.015			0.011			0.005			0.010			0.009			0.001		
CH	mg/m^3	0.14			0.27			1.51			1.01			0.48			1.02			0.81			0.17		
CO	mg/m^3	2.00			3.18			4.00			3.07			2.89			4.01			3.54			2.09		
Pb	mg/m^3	0.0003			0.0007			0.0010			0.0007			0.0008			0.0013			0.0006			0.0002		
Noise	dB_A	58.4	61.4	68.3	70.4	72.5	73.7	74.8	75.2	76.3	75.3	75.5	74.6	73.5	73.7	74.1	75.2	75.4	75.6	75.1	74.7	73.1	70.6	64.4	59.9
d	$mm/10^3$	12	12	15	15	16	16	17	16	15	17	15	14	15	15	16	16	16	17	14	14	13	12	10	11
f	Hz	3.0	3.0	3.1	3.3	3.6	3.5	3.5	3.4	3.3	3.4	3.6	3.5	3.7	3.5	3.4	3.5	3.2	3.4	3.2	3.4	3.0	2.9	2.8	2.8

Table 5: Position 5 (Ferry Terminal, Can Tho side)

Parameter	Unit	Sampling time																					
		0.00-3.00			3.00-6.00			6.00-9.00			9.00-12.00			12.00-15.00			15.00-18.00			18.00-21.00			21.00-24.00		
Temp	°C	23.1			23.5			24.8			32.9			35.6			34.2			29.6			24.3		
Humidity	%	90			91			80			59			51			55			69			78		
Wind speed	m/s	2.35			2.38			2.60			2.71			2.40			2.50			2.35			2.40		
Wind direction	-	SE			SE			SE			SE			SE			SE			SE			SE		
TSPM	mg/m^3	0.18			0.22			0.31			0.24			0.24			0.29			0.20			0.21		
SO_2	mg/m^3	0.011			0.019			0.086			0.060			0.037			0.085			0.048			0.009		
NO_x	mg/m^3	0.002			0.004			0.018			0.013			0.008			0.018			0.010			0.004		
CH	mg/m^3	0.15			0.26			1.42			1.11			0.80			1.00			0.80			0.11		
CO	mg/m^3	2.08			3.21			4.17			3.20			3.15			3.90			4.01			2.05		
Pb	mg/m^3	0.0004			0.0009			0.0015			0.0011			0.0010			0.0016			0.0009			0.0002		
Noise	dB_A	58,2	61.9	68.2	69.2	71.5	73.7	74.9	75.2	74.8	74.9	76.4	74.6	75.5	74.7	74.5	74.8	76.3	77.6	75.9	73.7	69.9	68.2	64.9	60.1
d	$mm/10^3$	13	15	17	16	15	15	16	15	14	18	16	15	17	15	14	15	17	13	12	11	11	11	11	10
f	Hz	3.2	3.4	3.3	3.5	3.6	3.5	3.5	3.4	3.3	3.4	3.6	3.5	3.7	3.6	3.4	3.5	3.6	3.4	3.5	3.4	3.3	2.9	2.8	2.8

Table 6: Position 6 (Ferry Terminal, Can Tho side)

Parameter	Unit	Sampling time																					
		0.00-3.00			3.00-6.00			6.00-9.00			9.00-12.00			12.00-15.00			15.00-18.00			18.00-21.00			21.00-24.00		
Temp	°C	23.1			23.5			24.8			32.9			35.6			34.2			29.6			24.3		
Humidity	%	90			91			80			59			51			55			69			78		
Wind speed	m/s	2.37			2.32			2.65			2.75			2.43			2.45			2.32			2.43		
Wind direction	-	SE			SE			SE			SE			SE			SE			SE			SE		
TSPM	mg/m^3	0.16			0.21			0.29			0.24			0.25			0.31			0.22			0.23		
SO_2	mg/m^3	0.010			0.020			0.084			0.056			0.031			0.080			0.043			0.008		
NO_x	mg/m^3	0.003			0.010			0.017			0.012			0.007			0.017			0.011			0.003		
CH	mg/m^3	0.16			0.30			1.45			1.21			0.88			1.02			0.81			0.17		
CO	mg/m^3	2.10			3.19			4.27			3.12			3.10			3.82			3.91			2.00		
Pb	mg/m^3	0.0002			0.0007			0.0018			0.0011			0.0011			0.0014			0.0008			0.0002		
Noise	dB_A	58,5	61.9	68.4	69.4	71.6	73.7	74.9	75.2	74.8	74.9	76.6	74.6	75.5	74.7	74.5	74.8	76.2	77.6	75.9	73.7	69.9	68.2	64.9	60.0
d	$mm/10^3$	13	15	17	16	15	15	16	15	14	18	16	15	17	15	14	15	17	13	12	11	11	11	11	9
f	Hz	3.2	3.4	3.3	3.5	3.6	3.5	3.5	3.4	3.3	3.4	3.6	3.5	3.7	3.6	3.4	3.5	3.6	3.4	3.5	3.4	3.3	2.9	2.8	2.8

Table 7: Position 7 (Southern Bridge Approach, Can Tho side)

Parameter	Unit	Sampling time																							
		0.00-3.00			3.00-6.00			6.00-9.00			9.00-12.00			12.00-15.00			15.00-18.00			18.00-21.00			21.00-24.00		
Temp	°C	23.3			23.7			25.6			34.5			35.5			35.1			27.4			24.3		
Humidity	%	92			89			83			64			59			60			71			83		
Wind speed	m/s	2.38			2.45			2.68			2.75			2.42			2.40			2.32			2.43		
Wind direction	-	SE			SE			SE			SE			SE			SE			SE			SE		
TSPM	mg/m^3	0.15			0.19			0.30			0.23			0.26			0.32			0.20			0.24		
SO_2	mg/m^3	0.012			0.022			0.091			0.057			0.034			0.078			0.041			0.016		
NO_x	mg/m^3	0.004			0.011			0.017			0.012			0.007			0.017			0.011			0.003		
CH	mg/m^3	0.16			0.31			1.48			1.19			0.78			1.13			0.29			0.17		
CO	mg/m^3	2.01			3.12			4.20			3.09			3.02			3.73			3.81			2.02		
Pb	mg/m^3	-			0.0005			0.0019			0.0012			0.0009			0.0015			0.0007			0.0001		
Noise	dB_A	48.1	51.0	56.3	64.3	64.6	71.9	73.9	75.2	74.8	74.7	75.0	75.1	73.0	72.3	72.1	74.7	75.5	76.0	74.6	74.2	73.5	72.0	69.3	67.5
d	$mm/10^3$	11	11	13	15	16	16	16	17	15	14	17	15	16	15	14	15	14	15	14	13	11	12	8	8
f	Hz	2.7	2.9	3.1	3.5	3.6	3.5	3.5	3.4	3.3	3.4	3.6	3.5	3.4	3.5	3.4	3.5	3.5	3.4	3.3	3.4	3.2	2.9	2.8	2.6

Table 8: Position 8 (Southern Bridge Approach, Can Tho side)

Parameter	Unit	Sampling time																							
		0.00-3.00			3.00-6.00			6.00-9.00			9.00-12.00			12.00-15.00			15.00-18.00			18.00-21.00			21.00-24.00		
Temp	°C	23.3			23.7			25.6			34.5			35.5			35.1			27.4			24.3		
Humidity	%	92			89			83			64			59			60			71			83		
Wind speed	m/s	2.38			2.45			2.68			2.76			2.42			2.40			2.32			2.43		
Wind direction	-	SE			SE			SE			SE			SE			SE			SE			SE		
TSPM	mg/m^3	0.15			0.18			0.29			0.22			0.24			0.29			0.21			0.24		
SO_2	mg/m^3	0.013			0.023			0.090			0.056			0.036			0.076			0.043			0.017		
NO_x	mg/m^3	0.005			0.012			0.016			0.011			0.006			0.016			0.010			0.003		
CH	mg/m^3	0.17			0.32			1.63			1.30			0.82			1.15			0.35			0.19		
CO	mg/m^3	2.03			3.10			4.12			3.07			3.00			3.69			3.78			1.95		
Pb	mg/m^3	-			0.0003			0.0016			0.0013			0.0007			0.0011			0.0005			-		
Noise	dB_A	48.2	51.1	56.4	64.4	64.7	71.9	73.9	75.2	74.8	74.7	75.8	75.1	73.0	72.3	72.1	74.7	75.4	76.1	74.6	74.2	73.5	72.0	69.3	67.6
d	$mm/10^3$	11	12	13	15	16	16	16	17	15	14	17	15	16	15	14	15	14	15	14	13	11	12	8	8
f	Hz	2.7	2.9	3.1	3.5	3.6	3.5	3.5	3.4	3.3	3.4	3.6	3.5	3.4	3.5	3.4	3.5	3.5	3.4	3.3	3.4	3.2	2.9	2.8	2.6

Table 9: Position 9 &10 (Southern Bridge Approach, Can Tho side)

Parameter	Unit	Sampling time																					
		0.00-3.00			3.00-6.00			6.00-9.00			9.00-12.00			12.00-15.00			15.00-18.00			18.00-21.00			21.00-24.00		
Temp	°C	23.0			23.3			24.6			32.8			35.5			34.1			29.5			24.1		
Humidity	%	91			91			81			60			52			56			69			78		
Wind speed	m/s	2.37			2.40			2.65			2.57			2.46			2.65			2.55			2.47		
Wind direction	-	SE			SE			SE			SE			SE			SE			SE			SE		
TSPM	mg/m^3	0.05			0.05			0.08			0.09			0.09			0.08			0.05			0.04		
SO_2	mg/m^3	-			-			-			-			-			-			-			-		
NO_x	mg/m^3	-			-			-			-			-			-			-			-		
CH	mg/m^3	-			-			-			-			-			-			-			-		
CO	mg/m^3	-			-			-			-			-			-			-			-		
Pb	mg/m^3	-			-			-			-			-			-			-			-		
Noise	dB_A	38.0	38.5	39.2	37.7	38.6	42.7	47.9	49.2	51.8	53.9	54.0	51.6	49.7	47.7	47.5	48.8	54.3	53.6	49.9	48.3	47.9	47.2	46.9	43.6
d	$mm/10^3$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
f	Hz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 10: Position 11 &12 (Northern Bridge Approach, Can Tho side)

Parameter	Unit	Sampling time																					
		0.00-3.00			3.00-6.00			6.00-9.00			9.00-12.00			12.00-15.00			15.00-18.00			18.00-21.00			21.00-24.00		
Temp	°C	23.0			23.3			24.6			32.8			35.5			34.1			29.5			24.1		
Humidity	%	91			91			81			60			52			56			69			78		
Wind speed	m/s	2.39			2.44			2.60			2.51			2.46			2.65			2.55			2.47		
Wind direction	-	SE			SE			SE			SE			SE			SE			SE			SE		
TSPM	mg/m^3	0.04			0.04			0.08			0.10			0.08			0.08			0.07			0.05		
SO_2	mg/m^3	-			-			-			-			-			-			-			-		
NO_x	mg/m^3	-			-			-			-			-			-			-			-		
CH	mg/m^3	-			-			-			-			-			-			-			-		
CO	mg/m^3	-			-			-			-			-			-			-			-		
Pb	mg/m^3	-			-			-			-			-			-			-			-		
Noise	dB_A	38.2	38.1	40.3	39.8	39.9	41.7	45.9	48.3	48.8	49.9	52.0	53.2	51.5	49.7	49.5	51.8	55.3	54.6	50.5	49.4	47.9	46.5	46.5	44.0
d	$mm/10^3$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
f	Hz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 1: NUMBER OF HOUSEHOLDS AND NUMBER PEOPLE IN THE PROPOSED BRIDGE SITE, SHELTERS, BUSINESS ACTIVITIES AND BUSINESS HOUSEHOLDS EXISTING ON ACCESS ROADS TO THE FERRY CROSSING

1. Total of interview households	400
2. Number of households in the proposed bridge site	200
2.1. Vinh Long side	125
2.2. Can Tho side	75
3. Number of shop households near the ferry crossing	200
3.1. Vinh Long side	125
3.2. Can Tho side	75
4. Total people in interview households	2332
4.1. Vinh Long side	1455
4.2. Can Tho side	877
5. Average size of interview households	5.83
5.1. Vinh Long side	5.82
5.2. Can Tho side	5.85
6. Total labours of interview households	1475
6.1. Vinh Long side	919
6.2. Can Tho side	556
7. Average labour size of interview households	3.7
7.1. Vinh Long side	3.68
7.2. Can Tho side	3.71
8. Total dependent members in interview households	857
8.1. Vinh Long side	536
8.2. Can Tho side	321
9. Average dependent members size of interview households	2.14
9.1. Vinh Long side	2.14
9.2. Can Tho side	2.14

A .GROUPS OF HOUSEHOLD ARE IN PROPOSED BRIDGE SITE

Table 2:

TOTAL ANNUAL INCOME OF HOUSEHOLDS (Question C1)

(Unit: household)

Groups in proposed bridge site	Annual income size				
	1	2	3	4	5
1. Total	12	44	44	43	57
100%	**6%**	**22%**	**22%**	**21.5%**	**28.5**
2. Vinh Long side	1	7	41	28	48
100%	**0.8%**	**5.6%**	**32.8%**	**22.4%**	**38.4%**
3. Can Tho side	11	37	3	15	9
100%	**14.7%**	**49.3%**	**4%**	**20%**	**12%**

Notice:

Column 1: Income <3,000,000 VND/year

Column 2: Income from 3,000,000 to 5,000,000 VND/year

Column 3: Income from 5,000,000 to 7,000,000 VND/year

Column 4: Income from 7,000,000 to 9,000,000 VND/year

Column 5: Income >9. ,000,000 VND/year

Table 3:

KINDS OF MAIN SOURCE OF INCOME

(Unit: Household)

Groups in proposed bridge site	Main source of income				
	1	2	3	4	5
1. Total	40	155	55	39	2
2. Vinh Long side	33	106	34	23	1
3. Can Tho side	7	49	11	16	1

197
84

Notice:

1. Each household have more than one income source , total will be more than 100%
2. Column 1: Salary, wages
   Column 2: Gardening, cultivate
   Column 3: Fishing, Pig rearing
   Column 4: Business
   Column 5: Other cases

Table 4 :

MAIN INCOME SOURCE NUMBER OF HOUSEHOLD

(Unit: Household)

Groups in proposed bridge site	Main income source number			
	1	2	3	4
1. Total	143 **71.5%**	40 **20%**	15 **7.5%**	2 **1%**
2. Vinh Long side	83 **66.4%**	29 **23.2%**	11 **8.8%**	2 **1.6%**
3. Can Tho side	60 **80%**	11 **14.7%**	4 **5.4%**	0 **0%**

Notice:

Column 1: Household have one source income

Column 2: Household have two source incomes

Column 3: Household have three source incomes

Column 4: Household have four source incomes

Table 5:

VOCATIONAL TRAINING COURSE

(Unit: Household)

Groups in proposed bridge site	Vocational training course	
	Yes	no
1. Total	40 **20%**	160 **80%**
2. Vinh Long side	32 **2.5%**	93 **74.4%**
3. Can Tho side	8 **10.7%**	67 **89.3%**

Table 6:

TIME THAT FAMILY LIVED (question D1)

(Unit: household)

Groups in proposed bridge site	Time dwelling				
	<5 year	5 ~ 10 year	10 ~ 15 year	15 ~ 20 year	>20 year
1. Total	15	34	21	11	124
100%	**7.5%**	**17%**	**10.5%**	**5.5%**	**62%**
2. Vinh Long side	14	34	16	8	58
100%	**11.2%**	**27.2%**	**12.8%**	**6.4%**	**46.4%**
3. Can Tho side	1	0	5	3	66
100%	**1.3%**	**0%**	**6.7%**	**4%**	**88%**

Table7:

REASON OF HAVING DWELLING

(Unit: Household)

Groups in proposed bridge site	Reason of having dwelling					
	Self built	Inherited	Purchased	Rented	Allotted	Other cases
1. Total	84	63	32	1	9	1
	42%	**31.5%**	**16%**	**0.5%**	**4.5%**	**4.5%**
2. Vinh Long side	80	10	24	1	9	1
	64%	**8%**	**19.2%**	**0.8%**	**7.2%**	**0.8%**
3. Can Tho side	4	53	18	0	0	0
	5.3%	**70.7%**	**24%**	**0%**	**0%**	**0%**

Table 8:

RIGHT TO USE LANDS OF HOUSEHOLDS (question D3)

(Unit: household)

Groups in proposed bridge site	Right to use lands	
	Have right certificate	Not have right certificate
1. Total	188 **94%**	12 **6%**
2. Vinh Long side	115 **92%**	10 **8%**
3. Can Tho side	73 **97.3%**	2 **2.7%**

Table 9:

DWELLING CLASSIFICATION

(Unit: Household)

Groups in proposed bridge site	Category of house			
	Category 1	Category 2	Category 3	Category 4
1. Total	6 **3%**	11 **5.5%**	74 **37%**	106 **53%**
2. Vinh Long side	6 **4.8%**	11 **8.8%**	52 **41.6%**	56 **44.8%**
3. Can Tho side	0 **0%**	0 **0%**	22 **29.3%**	53 **70.7%**

Table 10:

SIZE OF DWELLING LANDS (INCLUDING GARDEN, POND...)

(Unit: Household)

Groups in proposed bridge site	Size of dwelling lands				
	1	2	3	4	5
1. Total	27	13	33	31	96
2. Vinh Long side	17	4	17	20	67
3. Can Tho side	10	9	16	11	29

Notice:

Column 1: Size of dwelling land <100 m2

Column 2: Size of dwelling land from 100 to 200 m2

Column 3: Size of dwelling land from 200 to 500 m2

Column 4: Size of dwelling from 500 to 1000 m2

Column 5: Size of dwelling land >1000 m2

Table 11:

AVERAGE SIZE OF DWELLING LAND

Groups in proposed bridge site	Total			Average size of land	
	Number people	Number household	Size of land dwelling (m2)	Average size /household (m2)	Average size /person (m2)
1. Total	1143	200	381400	1907	333.7
2. Vinh Long side	717	125	151078	1208.62	210.7
3. Can Tho side	426	75	230322	3071	540.7

Table 12:

HOUSEHOLDS HAVE OTHER LANDS (question E1)

(Unit: Household)

Groups that have other lands be in proposed bridge site	Have other lands	Not have other lands
1. Total	99 **49.5%**	101 **50.5%**
2. Vinh Long side	73 **58.4%**	52 **41.6%**
3. Can Tho side	26 **34.7%**	49 **65.3%**

Table13:

SIZE OF OTHER LANDS

(Unit: Household)

Groups that have other lands be in bridge site proposed	Biggest size (m2)	Smallest size (m2)	Size of other lands		
			<500 (m2)	500 ~ 1000 (m2)	>1000 (m2)
1. Total			3	1	95
2. Vinh Long side	16700	300	2	0	71
3. Can Tho side	14000	500	1	1	24

Table 14:

SITE OF OTHER LANDS

(Unit: Household)

Groups that have other lands be in proposed bridge site	Site of other lands		
	The same district	Outside the district	Total
1. Total	91	8	99
2. Vinh Long side	68	5	73
3. Can Tho side	23	3	26

Table 15:

INTENTION TO USE OTHER LANDS

(Unit: Household)

Groups that have other lands be in proposed bridge site	Use (unit: household)					
	Rice paddy	Business	Crop land	Lying fallow	Family homestead	Other cases
1. Total	75	2	35	0	2	2
2. Vinh Long side	64	2	21	0	2	0
3. Can Tho side	11	0	14	0	0	2

Table 16:

RIGHT TO USE OTHER LANDS OF HOUSEHOLDS

(Unit: Household)

Groups that have other lands be in proposed bridge site	Right to use other lands	
	Have right certificate	Do not have right certificate
1.Total **100%**	84 **85%**	15 **15%**
2. Vinh Long side **100%**	70 **96%**	3 **4%**
3. Can Tho side **100%**	14 **54%**	12 **46%**

Table 17:

HOUSEHOLDS THAT SOME MEMBERS ARE PUPILS

(Unit: Household)

Groups in proposed bridge site	Households use the school, ferry				Use the ferry	Do not use the ferry
	Elementary school	High school	Double	not have the pupil		
1.Total **100 %**	51 **25,5%**	9 **4,5%**	108 **54%**	32 **16%**	0 **0%**	200 **100%**
2.Vinh Long side **100%**	42 **33,6%**	9 **7,2%**	45 **36%**	29 **23,2%**	0 **0%**	125 **100%**
3. Can Tho side **100%**	9 **12%**	0 **0%**	63 **84%**	3 **4%**	0 **0%**	75 **100%**

Table 18:

HEALTH CARE

(Unit: Household)

Groups in bridge proposed site	Households use			Use the ferry	Do not use ferry
	District clinic	Hospital	Double		
1.Total **100%**	43 **45%**	8 **4%**	149 **54,6%**	2 **1%**	198 **99%**
2. Vinh Long side **100%**	34 **27,2%**	6 **4,8%**	85 **68%**	2 **1,6%**	123 **98.4%**
3. Can Tho side **100%**	9 **12%**	2 **2,7%**	64 **85,3%**	0 **0%**	75 **100%**

Table 19:

HOUSEHOLDS HAVE ANY MEMBERS THAT CROSS HAU GIANG RIVER FOR SHOPPING

(Unit: Household)

Groups in proposed bridge site	Number of household				
	Every day	Every week	Every month	Some times a year	Do not ferry
1. Total **100%**	12 **6%**	10 **5%**	25 **12,5%**	136 **68%**	17 **8,4%**
2. Vinh Long side **100%**	12 **9,6%**	10 **8%**	12 **9,6%**	78 **62,4%**	13 **10,4%**
3. Can Tho side **100%**	0 **0%**	0 **0%**	13 **17.3%**	58 **77,4%**	4 **5,3%**

Table 20:

HOUSEHOLDS THAT HEARD ABOUT THE PLAN TO CONSTRUCT BRIDGE

(Unit: household)

Groups in proposed bridge site	Heard	Do not hear	Source of information			
			Newspaper	Radio,TV	Rumour	Other
	1	2	3	4	5	6
1. Total **100%**	126 **63%**	74 **37%**	32	24	59	11
2. Vinh Long side **100%**	53 **42.4%**	72 **57.6%**	19	21	13	0
3. Can Tho side **100%**	73 **97.8%**	2 **2.2%**	13	3	46	11

Notice: (3) + (4) + (5) + (6) = (1)

Table 21:

IDEA OF HOUSEHOLDS FOR BRIDGE CONSTRUCTION PROJECT

(Unit: Household)

Groups in proposed bridge site	Idea of households				
	Welcome	Disagree	No idea	Very important	No important
1. Total	146 **73%**	0 **0%**	54 **27%**	157 **78,5%**	43 **21,5%**
2. Vinh Long side	82 **65,6%**	0 **0%**	43 **34,4%**	93 **74,4%**	32 **23,6%**
3. Can Tho side	64 **85,3%**	0 **0%**	11 **14,7%**	64 **85,3%**	11 **14,7%**

Table 22:

HOUSEHOLDS THAT SOME MEMBERS WANT BE CONSTRUCTION LABOURS BE IN THE PROJECT AND THEIR INTENTIONS

Groups in proposed bridge site	want	Do not want	Intentions after building bridge							
			1	2	3	4	1,2	1,4	2,3	2,4
1. Total	127 **63,5 %**	73 **36,5%**	61 **30,5 %**	62 **31 %**	46 **23 %**	2 **1%**	23 **11.5 %**	4 **2%**	1 **0.5 %**	1 **0.5 %**
2. Vinh Long side	61 **48,8 %**	64 **51,2%**	52 **41,6 %**	36 **28.8 %**	30 **24 %**	2 **1.6 %**	3 **2.4 %**	2 **1.6 %**	0 **0 %**	0 **0%**
3. Can Tho side	66 **88%**	9 **12%**	9 **12%**	26 **34.6 %**	16 **21.3 %**	0 **0 0%**	20 **26.7 %**	2 **2.7 %**	1 **1.3 %**	1 **1.3 %**

Notice 1:

Column 1. Cultivate more to income

Column 2. Doing some kinds of new business

Column 3. No idea

Column 4. Other intention

Table 23:

ISSUES CONCERN THE MOST IF THE BRIDGE IS BUILT

(Unit: household)

Groups in proposed bridge site	Concern issues										
	1	2	3	4	5	6	7	8	9	10	11
1. Total	90	15	180	20	171	7	39	43	0	0	36
[%]	**45**		**90**		**85.5**		**19,5**				**18**
2. Vinh Long side	41	15	116	0	110	7	11	43	0	0	36
[%]	**33,8**		**92,8**		**88**		**8,8**				**28.8**
3. Can Tho side	49	0	64	20	61	0	28	0	0	0	0
[%]	**65,3**		**85.5**		**81,3**		**37,3**				**0**

Notice:

Column 1. Relocation of dwelling and crop land

Column 2. Remove of ancestor tombs

Column 3. Discontinuation of children schooling

Column 4. Decrease of income

Column 5. Unfair compensation for loss of land and dwelling

Column 6. Natural environmental degrading

Column 7. Pollution caused by increased traffic volume

Column 8. Increase accident, spread of infected diseases

Column 9. Insufficient compensation to make new live

Column 10. Difficulty in establishing new neighbourhood

Column 11. Other

Table 24:

ABOUT THE ISSUES OF COMPENSATION FOR LOSS OF LANDS AND DWELLINGS (Question H)

(unit: household)

Groups in proposed bridge site	Move to other district	Stay at the same district	Do not Want to visit new resettlement	Want to visit new resettlement
1. Total	21 **10.5%**	198% **89.5%**	117 **58.5%**	83 **41.5%**
2. Vinh Long side	21 **16.8%**	123 **83.2%**	69 **55.2%**	56 **44.8%**
3. Can Tho side	0 **0%**	75 **100%**	48 **64%**	27 **36%**

Table 25:

HOUSEHOLDS STAY AT THE SAME DISTRICT

(unit: household)

Groups that stay at the same district be in	Site where households want to relocate their dwelling and their land			
proposed bridge site	1	2	3	4
1. Total	60 **30%**	77 **38,5%**	16 **8%**	26 **13%**
2. Vinh Long side	55 **44%**	14 **11,2%**	10 **8%**	25 **20%**
3. Can Tho side	5 **6,7%**	63 **84%**	6 **8%**	1 **1,4%**

Notice:

Column 1. To a resettlement zone planned by the authority

Column 2. To somewhere just near existing dwelling and land

Column 3. To near by community/town where your relatives are living

Column 4. To other place

B.GROUPS OF BUSINESS HOUSEHOLDS AND BUSINESS ACTIVITIES EXISTING ARE IN ACCESS ROADS TO THE FERRY CROSSING

Table 26:

TOTAL ANNUAL INCOME OF HOUSEHOLDS (Question C1)

(Unit: household)

Groups of business household	Annual income size				
	1	2	3	4	5
1. Total	6	38	20	18	118
100%	**3%**	**19%**	**10%**	**9%**	**59%**
2. Vinh Long side	5	36	16	12	56
100%	**4%**	**28.8%**	**12.8%**	**9.6%**	**47.2%**
3. Can Tho side	1	2	4	6	62
100%	**1.3%**	**2.7%**	**5.3%**	**8%**	**82.7%**

Notice:

Column 1: Income <3,000,000 VND/year

Column 2: Income from 3,000,000 to 5,000,000 VND/year

Column 3: Income from 5,000,000 to 7,000,000 VND/year

Column 4: Income from 7,000,000 to 9,000,000 VND/year

Column 5: Income >9. ,000,000 VND/year

Table 27:

KINDS OF MAIN SOURCE OF INCOME

(Unit: Household)

Groups of business household	Main source of income				
	1	2	3	4	5
1. Total	18	5	7	184	12
2. Vinh Long side	13	4	6	119	6
3. Can Tho side	5	1	1	65	6

Notice:

1. Each household have more than one income source , total will be more than 100%
2. Column 1: Salary, wages
   Column 2: Gardening, cultivate
   Column 3: Fishing, Pig rearing
   Column 4: Business
   Column 5: Other cases

Table 28 :

NUMBER MAIN INCOME SOURCE OF ONE HOUSEHOLD

(Unit: Household)

Groups of business household	Main income source number			
	1	2	3	4
1. Total	185 **92.5%**	12 **6%**	2 **1%**	1 **0.5%**
2. Vinh Long side	113 **90.4%**	9 **7.2%**	2 **1.6%**	1 **0.8%**
3. Can Tho side	72 **%96**	3 **4%**	0 **0%**	0 **0%**

Notice:

Column 1: Household have one source income

Column 2: Household have two source incomes

Column 3: Household have three source incomes

Column 4: Household have four source incomes

Table 29:

VOCATIONAL TRAINING COURSE

(Unit: Household)

Groups of business household	Vocational training course	
	Yes	no
1. Total **100%**	40 **20%**	160 **80%**
2. Vinh Long side **100%**	10 **8%**	115 **92%**
3. Can Tho side **100%**	30 **40%**	45 **60%**

Table 30:

HOUSEHOLDS THAT SOME MEMBERS ARE PUPILS USE THE SCHOOL

(Unit: Household)

Groups of business household	Households use the school				Use the ferry	Do not use the ferry
	Elementary school	High school	Double	not have the pupil		
1.Total **100 %**	49 **24.5%**	44 **22%**	63 **31.5%**	39 **19.5%**	8 **4%**	192 **96%**
2.Vinh Long side **100%**	37 **29.6%**	22 **17.6%**	38 **30.4%**	28 **22.4%**	6 **4.8%**	119 **95.2%**
3. Can Tho side **100%**	12 **16%**	22 **29.3%**	25 **33.3%**	11 **14.7%**	2 **2.7%**	73 **97.3%**

Table 31:

HEALTH CARE

(Unit: Household)

Groups of business household	Households use			Use the ferry	Do not use ferry
	District clinic	Hospital	Double		
1.Total **100%**	21 **10.5%**	136 **68%**	43 **21.5%**	58 **29%**	142 **71%**
2. Vinh Long side **100%**	18 **14.4%**	75 **6%**	32 **25.6%**	56 **44.8%**	69 **55.2%**
3. Can Tho side **100%**	3 **4%**	61 **81.3%**	11 **14.7%**	2 **2.7%**	73 **97.3%**

Table 32:

HOUSEHOLDS HAVE ANY MEMBERS THAT CROSS HAU GIANG RIVER FOR SHOPPING

(Unit: Household)

Groups of business household	Number of household				
	Every day	Every week	Every month	Some times a year	Do not ferry
1. Total **100%**	71 **35.5%**	25 **12.5%**	14 **7%**	66 **33%**	24 **12%**
2. Vinh Long side **100%**	66 **52.8%**	23 **18.4%**	5 **4%**	25 **20%**	6 **4.8%**
3. Can Tho side **100%**	5 **6.7%**	2 **2.7%**	9 **12%**	41 **54.7%**	18 **23.9%**

Table 33:

HOUSEHOLDS THAT HEARD ABOUT THE PLAN TO CONSTRUCT BRIDGE

(Unit: household)

Groups of business household	Heard	Do not hear	Source of information			
			Newspaper	Radio,TV	Rumour	Other
	(1)	(2)	(3)	(4)	(5)	(6)
1. Total **100%**	106 **%**	94 **%**	24	25	58	12
2. Vinh Long side **100%**	48 **%**	77 **%**	18	18	18	7
3. Can Tho side **100%**	58 **%**	17 **%**	8	9	40	5

Notice: (3) + (4) + (5) + (6) > (1) beacause one hear the more than souce information

Table 34:

IDEA OF HOUSEHOLDS FOR BRIDGE CONSTRUCTION PROJECT

(Unit: Household)

Groups of business household	Idea of households				
	Welcome	Disagree	No idea	Very important	No important
1. Total	89 **44.5%**	3 **1.5%**	108 **54%**	133 **66.5%**	67 **33.5%**
2. Vinh Long side	49 **39.2%**	1 **0.8%**	75 **60%**	92 **73.6%**	33 **26.4%**
3. Can Tho side	40 **53.3%**	2 **2.7%**	33 **44%**	41 **54.7%**	34 **45.3%**

Table 35:

HOUSEHOLDS THAT SOME MEMBERS WANT BE CONSTRUCTION LABOURS BE IN THE PROJECT AND THEIR INTENTIONS

Groups of business household	want	Do not want	Intentions after building bridge						
			1	2	3	4	1,2	3,4	2,4
1. Total	49 **24.5%**	151 **75.5%**	6 **3%**	50 **25 %**	137 **68.5 %**	3 **1.5 %**	1 **0.5 %**	2 **1%**	1 **0.5 %**
2. Vinh Long side	30 **24%**	95 **76%**	3 **2.4 %**	23 **18.4 %**	96 **76.8 %**	1 **0.8 %**	0 **0%**	2 **1.6 %**	0 **0%**
3. Can Tho side	19 **25.3%**	56 **74.7%**	3 **4%**	27 **36 %**	41 **54.7 %**	2 **2.7 %**	1 **1.3 %**	0 **0%**	1 **1.3 %**

Notice 1:

Column 1. Cultivate more to income

Column 2. Doing some kinds of new business

Column 3. No idea

Column 4. Other intention

Table 36:

ISSUES CONCERN THE MOST IF THE BRIDGE IS BUILT

(Unit: household)

Groups of business household	Concern issues										
	1	2	3	4	5	6	7	8	9	10	11
1. Total	27	30	75	53	109	10	25	163	37	2	20
[%]	**13.5**		**37.5**	**26.5**	**54.5**			**81.5**	**18.5**		
2. Vinh Long side	16	17	51	47	99	6	14	98	18	2	15
[%]	**12.8**		**40.8**	**37.6**	**79.2**			**78.4**	**14.4**		
3. Can Tho side	11	13	24	6	10	4	11	55	19	0	5
[%]	**14.7**		**32**	**8**	**13.3**			**73.3**	**25.3**		

Notice:

Column 1. Relocation of dwelling and crop land
Column 2. Remove of ancestor tombs
Column 3. Discontinuation of children schooling
Column 4. Decrease of income
Column 5. Unfair compensation for loss of land and dwelling
Column 6. Natural environmental degrading
Column 7. Pollution caused by increased traffic volume
Column 8. Increase accident, spread of infected diseases
Column 9. Insufficient compensation to make new live
Column 10. Difficulty in establishing new neighbourhood
Column 11. Other cases

Table 1: Sex of Interviewees

Group of Pedlars	Male	Female
TOTAL **100%**	14 **28%**	39 **72%**
Pedlars leaving in Vinh Long	9 **23%**	30 77%
Pedlars leaving in Can Tho	2 **18%**	9 **82%**

Table 2 : Age of Interviewees

Group of Pedlars	Year Old				
	<20	21÷30	31÷40	41÷50	>51
TOTAL **100%**	26 **52%**	10 **20%**	7 **14%**	5 **10%**	2 **4%**
Pedlars leaving in Vinh Long	19 **48.7%**	10 **25.6%**	5 **12.8%**	3 **7.7%**	2 **5.1%**
Pedlars leaving in Can Tho	7 **63.6%**	0 **0%**	2 **18.2%**	2 **18.2%**	0 **0%**

Table 3 : Education Level of Pedlars

Group of Pedlars	1÷5	6÷9	10÷12
TOTAL **100%**	37 **74%**	13 **26%**	0 **0%**
Pedlars leaving in Vinh Long	29 **74.4%**	10 **25.6%**	0 **0%**
Pedlars leaving in Can Tho	8 **72.8%**	3 **27.2%**	0 **0%**

Table 4 : Size of Families of Pedlars

Group of Pedlars	Size of Families of Pedlars		
	Average	Biggest	Smallest
TOTAL	5.88	8	3
Pedlars leaving in Vinh Long	5.72	8	3
Pedlars leaving in Can Tho	6.46	8	4

Table 5 : Pedlars Made Main Income Source for the Family

Group of Pedlars	Made Family's Main Income	Cannot Made Family's Main Income
TOTAL **100%**	21 **42%**	29 **58%**
Pedlars leaving in Vinh Long	17 **43.6%**	22 **56.4%**
Pedlars leaving in Can Tho	4 **36.4%**	7 **63.6%**

Table 6 : Number of Pedlars Participate to Family Income

Group of Pedlars Families	Number of Pedlars in Family		
	Average	Highest	Smallest
TOTAL	1.92	4	1
Pedlars leaving in Vinh Long	1.80	3	1
Pedlars leaving in Can Tho	2.36	4	1

Table 7 : Structure of Goods Selling

Group of Pedlars Families	Cakes, drink, tobaco	Fresh fruit	Lottery tickets, chew	Other goods
TOTAL **100%**	21 **42%**	14 **28%**	8 **16%**	7 **14%**
Pedlars leaving in Vinh Long	16 **41.0%**	11 **28.2%**	5 **12.8%**	7 **18.0%**
Pedlars leaving in Can Tho	5 **45.5%**	3 **27.3%**	3 **27.3%**	0 **0%**

Table 8 : Daily Profit of Pedlars

Group of Pedlars	Daily Profit [1000 VND]		
	Average	Highest	Lowest
TOTAL	31.76	45.00	20.00
Pedlars leaving in Vinh Long	31.80	45.00	20.00
Pedlars leaving in Can Tho	31.64	45.00	23.00

Table 9 : Distance from Place of Dweling to the Ferry Crossing

Group of Pedlars	Distance [m]		
	Average	Longest	Nearest
TOTAL	1004	3200	250
Pedlars leaving in Vinh Long	804	2500	250
Pedlars leaving in Can Tho	1714	3200	400

Table 10 : Time of Being Pedlars

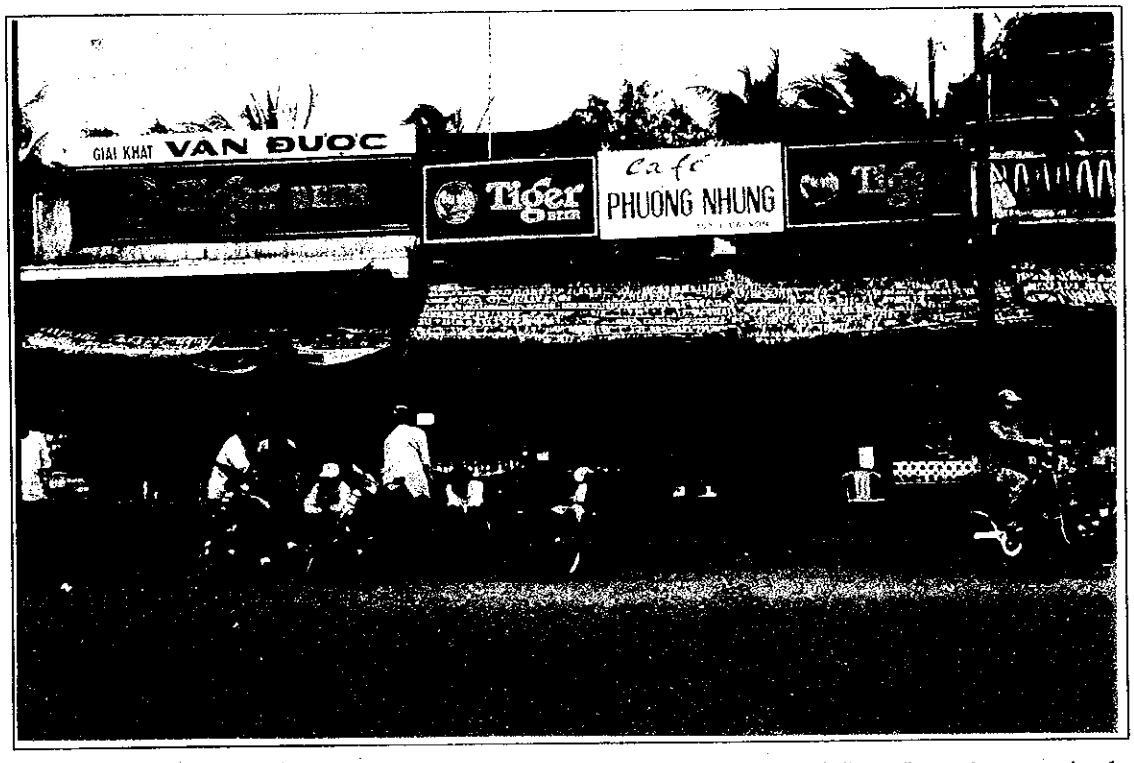
Group of Pedlars	Time of Being Pedlars [Years]		
	Average	Longest	Nearest
TOTAL	3.92	12	1
Pedlars leaving in Vinh Long	3.90	12	1
Pedlars leaving in Can Tho	4.00	12	1

Table 11 : Situation of Pedlars Household Land

Group of Pedlars	NO land	HAVE land	Surface [m^2]		
			Average	Largest	Smallest
TOTAL **100%**	25 **50%**	25 **50%**	2188	3300	700
Pedlars leaving in Vinh Long	20 **51.3%**	19 **48.7%**	2189	3300	1200
Pedlars leaving in Can Tho	5 **45.5%**	6 **54.5%**	2183	3200	700

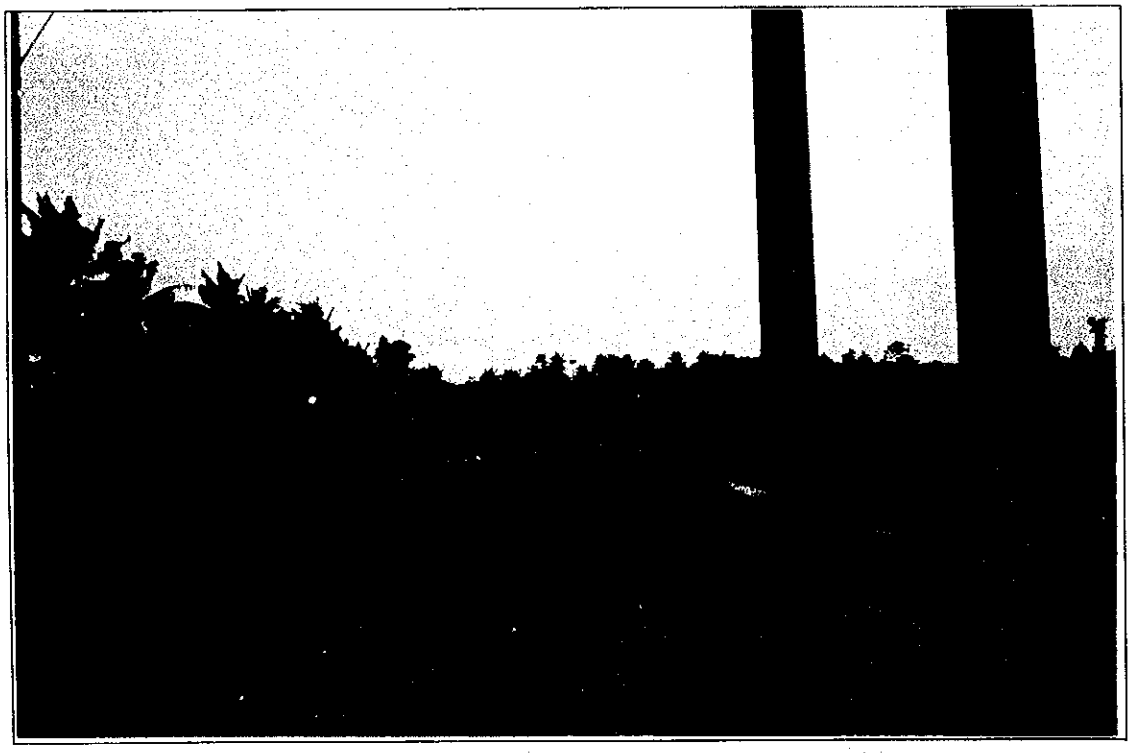
Appendix 17c **Some remarkable photographs on the study area's environmental issue.**

Cars, trucks, etc. in a queue at Can Tho Ferry's terminal for boarding on the ferry. Natural environment at such area is degrading remarkably by exhausted gas, noises, etc.



Restaurants and mini-local transporters at the Can Tho Ferry's terminal. A great part of shopkeepers, peddlers, mini-local transporters here would lose main sources of income after the completion of the proposed bridge.

A common landscape in the study area. The vegetation here comprises mainly garden crops, coconut trees, planted bamboo, nypa palm, water hyacinth, grasses, etc.



A rice paddy field on the site where the proposed approach road is planned to pass through. Problems on land excavation and land reform may not be serious, provided that all sources of contaminant from construction sites are appropriately controlled and managed.

A dwelling among those would be acquired by the project. 'Compensation' and 'resettlement' are the most concerned issues among residents who would lose existing dwellings and lands for the project implementation.

Likely affected residents are interviewed during a hearing survey conducted by RITST's members. The proposed bridge construction project is welcomed by a major part of local residents, provided that compensation policy is carefully examined and fairly done, taken into account residents' opinions.

The Feasibility Study
on The Can Tho Bridge Construction in
Socialist Republic of Viet Nam

ANNEXURE 11

ECONOMIC AND FINANCIAL ANALYSIS

Cost and Benefit Flows for Economic Evaluation (C-2/3)

11.1 Cost and Benefit Flows for Economic Evaluation

(unit: 1,000US$)

Hybrid Cable Stayed (C-2/3)

Year	Costs			Benefit				Discounted (8%) Costs			Benefit			
	Investment	Maintenance & Exogenous	Total	Savings in Time Costs & VOCs	Savings in Ferry Operation	Increase in Land Potential	Total	Investment	Maintenance & Exogenous	Total	Savings in Time Costs & VOCs	Savings in Ferry Operation	Increase in Land Potential	Total
1999	3,385	0	3,385	0	0	0	0	3,385	0	3,385	0	0	0	0
2000	4,765	0	4,765	0	0	0	0	4,412	0	4,412	0	0	0	0
2001	9,279	0	9,279	0	0	0	0	7,955	0	7,955	0	0	0	0
2002	34,946	0	34,946	0	0	0	0	27,741	0	27,741	0	0	0	0
2003	72,386	0	72,386	0	0	0	0	53,206	0	53,206	0	0	0	0
2004	63,521	0	63,521	0	0	0	0	43,232	0	43,232	0	0	0	0
2005	3,213	0	3,213	0	0	0	0	2,025	0	2,025	0	0	0	0
2006	0	83	83	6,211	6,430	14,265	26,906	0	49	49	3,624	3,752	8,323	15,699
2007	0	83	83	7,890	2,430	0	10,320	0	45	45	4,262	1,313	0	5,575
2008	0	83	83	9,568	2,430	0	11,998	0	42	42	4,786	1,216	0	6,002
2009	0	83	83	11,246	2,430	0	13,676	0	39	39	5,209	1,126	0	6,335
2010	0	83	83	12,924	15,880	0	28,804	0	36	36	5,543	6,811	0	12,354
2011	0	83	83	16,479	3,780	0	20,259	0	33	33	6,544	1,501	0	8,045
2012	0	83	83	20,033	3,780	0	23,813	0	31	31	7,366	1,390	0	8,756
2013	0	83	83	23,587	3,780	0	27,367	0	28	28	8,031	1,287	0	9,318
2014	0	83	83	27,142	3,780	0	30,922	0	26	26	8,556	1,192	0	9,748
2015	0	83	83	30,696	37,400	0	68,096	0	24	24	8,960	10,917	0	19,877
2016	0	83	83	34,250	5,400	0	39,650	0	23	23	9,257	1,459	0	10,716
2017	0	83	83	37,805	5,400	0	43,205	0	21	21	9,461	1,351	0	10,812
2018	0	83	83	41,359	5,400	0	46,759	0	19	19	9,583	1,251	0	10,835
2019	0	83	83	44,914	5,400	0	50,314	0	18	18	9,636	1,159	0	10,795
2020	0	83	83	48,468	42,250	0	90,718	0	17	17	9,628	8,393	0	18,022
2021	0	83	83	52,022	9,450	0	61,472	0	15	15	9,569	1,738	0	11,307
2022	0	83	83	55,577	9,450	0	65,027	0	14	14	9,466	1,609	0	11,075
2023	0	83	83	59,131	9,450	0	68,581	0	13	13	9,325	1,490	0	10,815
2024	0	83	83	62,685	9,450	0	72,135	0	12	12	9,153	1,380	0	10,533
2025	0	83	83	66,240	9,450	0	75,690	0	11	11	8,956	1,278	0	10,233
2026	0	83	83	66,240	9,450	0	75,690	0	10	10	8,292	1,183	0	9,475
2027	0	83	83	66,240	9,450	0	75,690	0	10	10	7,678	1,095	0	8,773
2028	0	83	83	66,240	9,450	0	75,690	0	9	9	7,109	1,014	0	8,124
2029	0	83	83	66,240	9,450	0	75,690	0	8	8	6,583	939	0	7,522
2030	0	83	83	66,240	9,450	0	75,690	0	8	8	6,095	870	0	6,965
2031	0	83	83	66,240	9,450	0	75,690	0	7	7	5,644	805	0	6,449
2032	0	83	83	66,240	9,450	0	75,690	0	7	7	5,226	746	0	5,971
2033	0	83	83	66,240	9,450	0	75,690	0	6	6	4,838	690	0	5,529
2034	0	83	83	66,240	9,450	0	75,690	0	6	6	4,480	639	0	5,119
2035	0	83	83	66,240	9,450	0	75,690	0	5	5	4,148	592	0	4,740
2036	0	83	83	66,240	9,450	0	75,690	0	5	5	3,841	548	0	4,389
2037	0	83	83	66,240	9,450	0	75,690	0	4	4	3,556	507	0	4,064
2038	0	83	83	66,240	9,450	0	75,690	0	4	4	3,293	470	0	3,763
2039	0	83	83	66,240	9,450	0	75,690	0	4	4	3,049	435	0	3,484
2040	0	83	83	66,240	9,450	0	75,690	0	4	4	2,823	403	0	3,226
2041	0	83	83	66,240	9,450	0	75,690	0	3	3	2,614	373	0	2,987
2042	0	83	83	66,240	9,450	0	75,690	0	3	3	2,420	345	0	2,766
2043	0	83	83	66,240	9,450	0	75,690	0	3	3	2,241	320	0	2,561
2044	0	83	83	66,240	9,450	0	75,690	0	3	3	2,075	296	0	2,371
2045	0	83	83	66,240	9,450	0	75,690	0	2	2	1,921	274	0	2,196
2046	0	83	83	66,240	9,450	0	75,690	0	2	2	1,779	254	0	2,033
2047	0	83	83	66,240	9,450	0	75,690	0	2	2	1,647	235	0	1,882
2048	0	83	83	66,240	9,450	0	75,690	0	2	2	1,525	218	0	1,743
2049	0	83	83	66,240	9,450	0	75,690	0	2	2	1,412	201	0	1,614
2050	0	83	83	66,240	9,450	0	75,690	0	2	2	1,308	187	0	1,494
2051	0	83	83	66,240	9,450	0	75,690	0	2	2	1,211	173	0	1,384
2052	0	83	83	66,240	9,450	0	75,690	0	1	1	1,121	160	0	1,281
2053	0	83	83	66,240	9,450	0	75,690	0	1	1	1,038	148	0	1,186
2054	0	83	83	66,240	9,450	0	75,690	0	1	1	961	137	0	1,098
2055	0	83	83	66,240	9,450	0	75,690	0	1	1	890	127	0	1,017
				NPV =				142,971						
				B/C ratio =				2.003						
				IRR =				13.47%						

11.2 Cash Flow

(unit: 1000USD)

Cash Flow (C-2/3, FC-0, m=1.5)

	Profit and Loss Statement					Cash Flow											Loan Balance (opening)			Cashflow Investment Payback					CF FIRR	CF NPV
						Inflow				Outflow							Cash Generation	Carry-over		Loan Balance (opening)	Investment (PV)		Payback (PV)		Balance		
Year	Revenue	Costs			Profit (tax deducted)													BF	CF	L. Term S. Term							
		O & M	Depreciation	Interest	Tax	Profit (tax deducted)	Revenue	Capital	Loan L. Term	Loan S. Term	O & M	Interest L. Term 1.8%	Interest S. Term 8%	Capital Expenditure	Repayment L. Term	Repayment S. Term	Tax					discount 1.8%		discount 1.8%			discount 8%
1999				51	-51			606	2,830			51		3,385				0		0	3,436	3,436	51	51	3,385	-3,385	-3,385
2000				125	-125			2,716	4,141			125		6,731				0		2,830	6,857	6,736	125	123	9,997	-6,731	-6,233
2001				311	-311			3,606	10,295			311		13,590				0		6,971	13,900	13,413	311	300	23,111	-13,590	-11,651
2002				1,011	-1,011			5,978	38,895			1,011		43,862				0		17,266	44,873	42,535	1,011	958	64,687	-43,862	-34,819
2003				2,470	-2,470			12,051	81,083			2,470		90,664				0		56,161	93,134	86,720	2,470	2,300	149,107	-90,664	-66,641
2004				3,709	-3,709			10,039	68,825			3,709		75,154				0		137,244	78,864	72,134	3,709	3,393	217,847	-75,154	-51,149
2005				3,875	-3,875			960	9,213			3,875		6,298				0		206,069	10,174	9,141	3,875	3,482	223,507	-6,298	-3,969
2006	7,465	205	4,350	3,875	-965	0	7,465	4		0	205	3,875	0	29	0	0	0	3,360	0	3,360	215,282	0	4	3	7,235	6,386	217,124	7,231	4,219
2007	8,926	205	4,350	3,875	496	0	8,926	4		0	205	3,875	0	29	0	0	0	4,821	3,360	8,181	215,282	0	4	3	8,696	7,589	209,588	8,692	4,696
2008	10,387	205	4,350	3,875	1,957	0	10,387	4		0	205	3,875	0	29	0	0	0	6,282	8,181	14,463	215,282	0	4	3	10,157	8,650	200,941	10,153	5,079
2009	11,848	205	4,350	3,875	3,418	0	11,848	4		0	205	3,875	0	29	0	0	0	7,743	14,463	22,206	215,282	0	4	3	11,618	9,720	191,224	11,614	5,380
2010	13,309	205	4,350	3,875	4,879	0	13,309	3		0	205	3,875	0	19	72	0	0	9,141	22,206	31,347	215,282	0	3	2	13,088	10,756	180,471	13,085	5,612
2011	15,498	205	4,350	3,874	7,064	0	15,498			0	205	3,874	0		177	0	0	11,237	31,347	42,584	215,210	0	0	0	15,288	12,342	168,129	15,288	6,071
2012	17,677	205	4,350	3,871	9,251	0	17,677			0	205	3,871	0		439	0	0	13,162	42,584	55,746	215,033	0	0	0	17,472	13,856	154,273	17,472	6,424
2013	19,860	205	4,350	3,863	11,443	0	19,860			0	205	3,863	0		1,428	0	0	14,365	55,746	70,111	214,594	0	0	0	19,656	15,312	138,961	19,656	6,692
2014	22,044	205	4,350	3,837	13,652	0	22,044			0	205	3,837	0		3,490	0	0	14,512	70,111	84,623	213,166	0	0	0	21,840	16,712	122,249	21,840	6,885
2015	24,278	205	4,350	3,774	15,949	0	24,278			0	205	3,774	0	500	5,241	0	0	14,559	84,623	99,182	209,675	0	0	0	23,573	17,720	104,530	23,573	6,881
2016	26,412	205	4,350	3,680	18,177	0	26,412			0	205	3,680	0		5,670	0	0	16,857	99,182	116,039	204,435	0	0	0	26,207	19,351	85,178	26,207	7,083
2017	28,596	205	4,350	3,578	20,463	0	28,596			0	205	3,578	0		5,772	0	0	19,041	116,039	135,080	198,764	0	0	0	28,391	20,593	64,585	28,391	7,105
2018	30,779	205	4,350	3,474	22,751	0	30,779			0	205	3,474	0		5,876	0	0	21,225	135,080	156,305	192,992	0	0	0	30,575	21,785	42,800	30,575	7,085
2019	32,963	205	4,350	3,368	25,040	0	32,963			0	205	3,368	0		5,982	0	0	23,409	156,305	179,714	187,116	0	0	0	32,759	22,928	19,872	32,759	7,028
2020	35,147	205	4,350	3,260	27,332	0	35,147			0	205	3,260	0		6,090	0	0	25,592	179,714	205,306	181,134	0	0	0	34,942	24,024	0	34,942	6,942
2021	37,331	205	4,350	3,151	29,625	0	37,331			0	205	3,151	0		6,199	0	0	27,776	205,306	233,082	175,045	0	0	0	37,126	25,074	0	37,126	6,829
2022	39,515	205	4,350	3,039	31,920	0	39,515			0	205	3,039	0		6,311	0	0	29,960	233,082	263,042	168,845	0	0	0	39,310	26,080	0	39,310	6,695
2023	41,698	205	4,350	2,926	34,218	0	41,698			0	205	2,926	0		6,424	0	0	32,144	263,042	295,186	162,535	0	0	0	41,494	27,042	0	41,494	6,544
2024	43,882	205	4,350	2,810	36,517	0	43,882			0	205	2,810	0		6,540	0	0	34,328	295,186	329,514	156,110	0	0	0	43,678	27,962	0	43,678	6,378
2025	46,116	205	4,350	2,692	38,869	0	46,116			0	205	2,692	0	500	6,658	0	0	36,061	329,514	365,575	149,570	0	0	0	45,411	28,558	0	45,411	6,140
2026	46,066	205	4,350	2,572	38,939	0	46,066			0	205	2,572	0		6,778	0	0	36,511	365,575	402,087	142,912	0	0	0	45,861	28,331	0	45,861	5,741
2027	46,066	205	4,350	2,450	39,061	0	46,066			0	205	2,450	0		6,900	0	0	36,511	402,087	438,598	136,135	0	0	0	45,861	27,830	0	45,861	5,316
2028	46,066	205	4,350	2,326	39,185	0	46,066			0	205	2,326	0		7,024	0	0	36,511	438,598	475,109	129,235	0	0	0	45,861	27,338	0	45,861	4,922
2029	46,066	205	4,350	2,200	39,311	0	46,066			0	205	2,200	0		7,150	0	0	36,511	475,109	511,621	122,211	0	0	0	45,861	26,854	0	45,861	4,558
2030	46,066	205	4,350	2,071	39,440	0	46,066			0	205	2,071	0		7,279	0	0	36,511	511,621	548,132	115,061	0	0	0	45,861	26,379	0	45,861	4,220
2031	46,066	205	4,350	1,940	39,571	0	46,066			0	205	1,940	0		7,410	0	0	36,511	548,132	584,644	107,782	0	0	0	45,861	25,913	0	45,861	3,907
2032	46,066	205	4,350	1,807	39,704	0	46,066			0	205	1,807	0		7,543	0	0	36,511	584,644	621,155	100,372	0	0	0	45,861	25,455	0	45,861	3,618
2033	46,066	205	4,350	1,671	39,840	0	46,066			0	205	1,671	0		7,679	0	0	36,511	621,155	657,667	92,829	0	0	0	45,861	25,005	0	45,861	3,350
2034	46,066	205	4,350	1,533	39,978	0	46,066			0	205	1,533	0		7,817	0	0	36,511	657,667	694,178	85,150	0	0	0	45,861	24,563	0	45,861	3,102
2035	46,116	205	4,350	1,392	40,169	0	46,116			0	205	1,392	0	500	7,958	0	0	36,061	694,178	730,239	77,333	0	0	0	45,411	23,892	0	45,411	2,844
Total	974,436	6,137	130,510	90,534	747,255	0	974,436	35,955	215,282	0	6,137	102,087	0	239,685	145,908	0	0	730,239					251,255		978,233			726,978	-10,501

Investment Pay back Period = 15 Years

FIRR = 7.61 %

NPV = -10.501 thousand USD

Condition:

Charge level: 1.5 times of current Can Tho Ferry charge level

Long term loan: Project cost excluding administration and land acquisitionand compensation cost (85% of main bridge construction cost)

Subsidy: Other Project costs

11.3 EIRR of Construction Options

		C-2/3 Case (recommended route)	C-1 Case (shortest route)	C-3 Case (longest route)
Base	EIRR	13.5%	14.0%	13.4%
Construction Options				
i) Approach road length l=100m (each side)	EIRR	14.6%	14.6%	14.6%
ii) Navigation clearance H=41m	EIRR	13.0%	13.6%	13.0%
iii) Structure type All Steel Cable Stayed	EIRR	12.5%	12.9%	12.4%

Source: JICA Study Team