

VI.2 BILL OF QUANTITIES AND COST ESTIMATION
FOR
SLUICES IN NORTH BEN TRE

CALCULATION EXPLANATION
NORTHERN BEN TRE WATER RESOURCES SYSTEMS PROJECT
BEN TRE PROVINCE

-**Volume:** Based on Draft Design Drawing of Northern Ben Tre water resources project

2-Construction method :By machine + manually

3-Materials price: according to materials price declaration for 07/2012 number 115/TB-STC-SXD dated 31/07/2012 of Ben Tre province inter-Department of Finance

- **Construction, for materials not mentioned in the declaration market price of**

4-Legal basis, norms, prices:

- Circular number 04/2010/TT-BXD dated 26/05/2010 by Ministry of Construction to regulate the establishment & management of construction investment cost management.

- Decree 70/2011/ND-CP dated 22/8/2011 regulating minimum wage for working labor in companies, enterprises, cooperatives, farm, household, individuals & other organizations

- Official documents number 1730/BXD-KTXD dated 20/10/2011 guiding the adjustment of cost estimate for construction according to new minimum wage from 01/10/2011 under the provisions of Decree No. 70/2011/ND-CP

- Circular number 129/2008/TT-BTC dated 26/12/2008 guiding the implementation of a number of items in Value Added Tax Law and the implementation of Decree No. 123/2008/ND-CP dated December 8th 2003 by the Government regulate details and implementation of

- Circular 33/2007/TT-BTC dated 9/4/2007 by Ministry of Finance to guide cost finalization for national budget project.

- Construction insurance cost is according to Decision number 33/2004/QD-BTC-TCNH dated 12/04/2004 by Ministry of Finance

- Circular number 176/2011/TT-BTC dated 08/11/2011 by Ministry of Finance guiding collection, payment & usage of appraisal fees for construction investment project

- Cost norms of project management and investment consulting for construction issued together with Decision number 957/QD-BXD dated 29/09/2009 by Ministry of Construction.

- Construction cost estimation norm for construction part issued together with the official documents number 1776/BXD-VP dated 16/8/2007

- Construction cost estimation norm for installation part issued together with the official documents number 1777/BXD-VP dated 16/8/2007

- Materials loading and unloading norms issued with the official documents number 1778/BXD-VP on 16/8/2007

- Materials norms for basic construction issued with the official document number 1784/BXD-VP on 16/8/2007

- Decision no 4892/UBXD-TMXDCB by Ben Tre PPC dated 14/12/2007 on issuance of construction price – for works in Ben Tre province

- Decision no 4892/UBXD-TMXDCB by Ben Tre PPC dated 14/12/2007 on issuance of construction price – for installation part in Ben Tre province

- Price for basic construction in Ben Tre province issued with decision number 1662/2006/QD-UBXD of Ben Tre PPC

- Decision number 2212/2006/QD-UBND on issuance of waterway transport fee of Ben Tre PPC on 27/10/2006.

- Decision number 4891/UBND-TMXDCB on issuance of price for horizontal transport at construction site in Ben Tre province by Ben Tre PPC on 14/12/2007.

- Machine shift & construction equipment price table for construction in Ben Tre province issued together with official documents number 1001/UBND-TCDDT dated 17/03/2011 by the People's Committee on issuance of machine shift & construction equipment in B

- Official documents of the Ben Tre People's Committee number 5708/UBND-TCDDT issued on 09/12/2011 regulating adjustment of cost estimation according to the new minimum wage from 01/10/2011.

Decision No. 30/2011/QD-UBND dated 28/12/2011 by Ben Tre People's Committee promulgating regulations on prices of land type in the province of Ben Tre in 2012.

Decision no 18/2011/QD-UBND dated 27/07/2011 by People's Committee of Ben Tre province on issuance of houses and structures price table applied in the province of Ben Tre.

Decision no 14/2010/QD-UBND dated 12/05/2010 of People's Committee of Ben Tre on issuance of supporting policies in cases the government recovers land in the province of

5-Explanation:

a-Summarized price:

$$NGTH= VL*Kvl+NC*Knc+MTC*Kmtc$$

$$Kvl=1,02*1,055*1,055*1,02*1,1=1,27$$

$$Knc=1,02*1,055*1,055*1,02*1,1=1,27$$

$$Kmtc=1,055*1,02*1,055*1,055*1,02*1,1=1,34$$

In which:

1,055	: Adjustment factor for construction machine cost in saline area
1,02	: Other direct cost
1,055	: General cost
1,055	: Pre-calculated taxed income
1,02	: Tents and temporary accommodation factor
1,1	: VAT

Ben Tre Project Cost

Stage2	Unit	Quantity	Total cost VND
1.Construction cost			1,159,242,000,000
Huong Diem B=(10×2)m			67,914,000,000
1)Preparation works	set	1	2,479,000,000
2)Pile Foundation	set	1	12,667,000,000
3)Cofferdam	set	1	3,226,000,000
4)Embankment,Wing Wall	set	1	672,000,000
5)Sluice body(Concrete works)	set	1	22,234,000,000
6)Gate equipment	set	1	26,000,000,000
7)Ancillary works	set	1	636,000,000
Ba Tri B=10m			40,556,000,000
1)Preparation works	set	1	2,002,000,000
2)Pile Foundation	set	1	6,240,000,000
3)Cofferdam	set	1	2,319,000,000
4)Embankment,Wing Wall	set	1	538,000,000
5)Sluice body(Concrete works)	set	1	15,821,000,000
6)Gate equipment	set	1	13,000,000,000
7)Ancillary works	set	1	636,000,000
Sau Chiem B=10m			40,556,000,000
1)Preparation works	set	1	2,002,000,000
2)Pile Foundation	set	1	6,240,000,000
3)Cofferdam	set	1	2,319,000,000
4)Embankment,Wing Wall	set	1	538,000,000
5)Sluice body(Concrete works)	set	1	15,821,000,000
6)Gate equipment	set	1	13,000,000,000
7)Ancillary works	set	1	636,000,000
Sluice B=(7.5×2)m			45,303,000,000
1)Preparation works	set	1	2,499,000,000
2)Pile Foundation	set	1	12,073,000,000
3)Cofferdam	set	1	3,031,000,000
4)Embankment,Wing Wall	set	1	496,000,000
5)Sluice body(Concrete works)	set	1	19,566,000,000
6)Gate equipment	set	1	7,002,000,000
7)Ancillary works	set	1	636,000,000
Sluice B=10m			68,437,000,000
1)Preparation works	set	2	4,005,000,000
2)Pile Foundation	set	2	12,479,000,000
3)Cofferdam	set	2	4,639,000,000
4)Embankment,Wing Wall	set	2	1,076,000,000
5)Sluice body(Concrete works)	set	2	31,642,000,000
6)Gate equipment	set	2	13,323,000,000
7)Ancillary works	set	2	1,273,000,000
Sluice B=7.5m			30,641,000,000
1)Preparation works	set	1	1,907,000,000
2)Pile Foundation	set	1	5,975,000,000
3)Cofferdam	set	1	2,331,000,000
4)Embankment,Wing Wall	set	1	538,000,000
5)Sluice body(Concrete works)	set	1	15,286,000,000
6)Gate equipment	set	1	3,968,000,000
7)Ancillary works	set	1	636,000,000

Ben Tre Project Cost

Stage1	Unit	Quantity	Total cost VND
1.Construction cost			1,894,487,000,000
An Hoa B=(10×10+30)m			596,474,000,000
1)Preparation works	set	1	2,190,000,000
2)Pile Foundation	set	1	106,591,000,000
3)Cofferdam	set	1	103,544,000,000
4)Embankment,Wing Wall	set	1	3,257,000,000
5)Sluice body(Concrete works)	set	1	148,902,000,000
6)Gate equipment	set	1	226,308,000,000
7)Ancillary works	set	1	5,682,000,000
Ben Tre B=(10×4+30)m			394,844,000,000
1)Preparation works	set	1	1,650,000,000
2)Pile Foundation	set	1	27,557,000,000
3)Cofferdam	set	1	62,152,000,000
4)Embankment,Wing Wall	set	1	2,480,000,000
5)Sluice body(Concrete works)	set	1	120,908,000,000
6)Gate equipment	set	1	174,415,000,000
7)Ancillary works	set	1	5,682,000,000
Ben Ro B=(10×2)m			63,034,000,000
1)Preparation works	set	1	2,729,000,000
2)Pile Foundation	set	1	8,753,000,000
3)Cofferdam	set	1	3,584,000,000
4)Embankment,Wing Wall	set	1	672,000,000
5)Sluice body(Concrete works)	set	1	20,660,000,000
6)Gate equipment	set	1	26,000,000,000
7)Ancillary works	set	1	636,000,000
Tan Phu B=(10×2)m			60,635,000,000
1)Preparation works	set	1	1,819,000,000
2)Pile Foundation	set	1	8,534,000,000
3)Cofferdam	set	1	2,257,000,000
4)Embankment,Wing Wall	set	1	672,000,000
5)Sluice body(Concrete works)	set	1	20,717,000,000
6)Gate equipment	set	1	26,000,000,000
7)Ancillary works	set	1	636,000,000
Management Building (S=300m2)	set	2	5,455,000,000
Management Building (S=60m2)	set	2	1,091,000,000
Canal system(dredging)	set	1	772,954,000,000
2.Land acquisition and compensation			31,624,000,000
3.Project management cost	%	1.0	18,944,870,000
4.Consulting services cost	%	8.0	151,558,960,000
5.Other expenses	%	2.0	37,889,740,000
6.Tax	%	10.0	208,393,570,000
7.Contingency			234,289,814,000
1)Physical contingency	%	10.0	234,289,814,000
Total			2,577,187,954,000
(Yen converted)		0.0038	9,793,314,225

Ben Tre Project Cost

Stage2	Unit	Quantity	Total cost VND
Sluice B=5m			199,990,000,000
1)Preparation works	set	8	12,182,000,000
2)Pile Foundation	set	8	43,742,000,000
3)Cofferdam	set	8	12,500,000,000
4)Embankment,Wing Wall	set	8	3,788,000,000
5)Sluice body(Concrete works)	set	8	103,275,000,000
6)Gate equipment	set	8	20,139,000,000
7)Ancillary works	set	8	4,364,000,000
Sluice B=3m			111,273,000,000
1)Preparation works	set	7	9,393,000,000
2)Pile Foundation	set	7	24,319,000,000
3)Cofferdam	set	7	10,248,000,000
4)Embankment,Wing Wall	set	7	3,059,000,000
5)Sluice body(Concrete works)	set	7	52,817,000,000
6)Gate equipment	set	7	7,619,000,000
7)Ancillary works	set	7	3,818,000,000
Small sluices (box culvert)			368,881,000,000
1)Preparation works	set	63	1,065,000,000
2)Sluice body(Concrete works)	set	63	337,847,000,000
3)Gate equipment	set	63	29,969,000,000
Management Building (S=60m2)	set	1	545,000,000
Management Building (S=45m2)	set	21	8,591,000,000
River dike	set	1	176,555,000,000
2.Land acquisition and compensation			731,423,252,380
3.Project management cost	%	1.0	11,592,420,000
4.Consulting services cost	%	8.0	92,739,360,000
5.Other expenses	%	2.0	23,184,840,000
6.Tax	%	10.0	127,516,620,000
7.Contingency			214,569,849,238
1)Physical contingency	%	10.0	214,569,849,238
Total			2,360,268,341,618
(Yen converted)		0.0038	8,969,019,698

Ben Tre Project Cost

Stage3	Unit	Quantity	Total cost VND
I.Construction cost			1,088,611,000,000
Sluice B=(7.5X 2)m			45,303,000,000
1)Preparation works	set	1	2,499,000,000
2)Pile Foundation	set	1	12,073,000,000
3)Cofferdam	set	1	3,031,000,000
4)Embankment,Wing Wall	set	1	496,000,000
5)Sluice body(Concrete works)	set	1	19,566,000,000
6)Gate equipment	set	1	7,002,000,000
7)Ancillary works	set	1	636,000,000
Sluice B=7.5m			61,284,000,000
1)Preparation works	set	2	3,814,000,000
2)Pile Foundation	set	2	11,950,000,000
3)Cofferdam	set	2	4,662,000,000
4)Embankment,Wing Wall	set	2	1,076,000,000
5)Sluice body(Concrete works)	set	2	30,573,000,000
6)Gate equipment	set	2	7,936,000,000
7)Ancillary works	set	2	1,273,000,000
Sluice B=5m			124,994,000,000
1)Preparation works	set	5	7,614,000,000
2)Pile Foundation	set	5	27,339,000,000
3)Cofferdam	set	5	7,813,000,000
4)Embankment,Wing Wall	set	5	2,367,000,000
5)Sluice body(Concrete works)	set	5	64,547,000,000
6)Gate equipment	set	5	12,587,000,000
7)Ancillary works	set	5	2,727,000,000
Sluice B=3m			95,378,000,000
1)Preparation works	set	6	8,051,000,000
2)Pile Foundation	set	6	20,845,000,000
3)Cofferdam	set	6	8,784,000,000
4)Embankment,Wing Wall	set	6	2,622,000,000
5)Sluice body(Concrete works)	set	6	45,272,000,000
6)Gate equipment	set	6	6,531,000,000
7)Ancillary works	set	6	3,273,000,000
Small sluices (box culvert)			638,222,000,000
1)Preparation works	set	109	1,842,000,000
2)Sluice body(Concrete works)	set	109	584,529,000,000
3)Gate equipment	set	109	51,851,000,000
Management Building (S=45m²)	set	14	5,727,000,000
River dike	set	1	117,703,000,000
2.Land acquisition and compensation			671,124,927,620
3.Project management cost	%	1.0	10,886,110,000
4.Consulting services cost	%	8.0	87,088,880,000
5.Other expenses	%	2.0	21,772,220,000
6.Tax	%	10.0	119,747,210,000
7.Contingency			199,923,034,762
1)Physical contingency	%	10.0	199,923,034,762
Total			2,199,153,382,382
(Yen converted)		0.0038	8,356,782,853

DETAILED COST ESTIMATE TABLE

Code	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
	P1 - An Hoa sluice Bc(10x10-20)m-PAL: Sluice to be located in the river-bed							451,224,771,868
	* Site area							
AA.11111	Site Clearance	100 m ²	785.00		175,008		252,921	174,983,148
AA.12111	Cutting down trees in site ground (Dtree <=30cm)	tree	2,000.00		28,108		28,108	58,316,818
AA.13111	Digging tree stumps (Dtree <=30cm)	tree	2,000.00		36,843		46,951	93,881,533
AA.13211	Digging bush of water cocnut (Ddiam<=30cm)	tree	1,000.00		97,686		124,367	124,366,519
AB.13214	Embankments g<=1.01m/s	1 m ³	1,232.00		149,218		190,070	234,185,801
AB.13213	Soil Excavation for embankment - Soil Grade II	1 m ³	1,318.24		184,215		245,465	291,784,744
AB.22121	Digging and transporting organic soil in a distance <= 50m	100 m ³	15.02			870,462	301,000	13,533,013
	Bulldozer <= 110CV, Soil Grade I							-
AB.13312	Embankment in combination with service roads, K<=0.9	1 m ³	1,019.00		132,688		168,981	172,180,902
	Using soil from the excavated pit for embankment							-
AB.41112	Embankment in combination with service roads, compressor 9T H<=0.9	100 m ³	30.56		320,838	799,448	1,462,695	46,309,311
AB.24122	Digging soil for embankment by excavators <=0.5m ³	100 m ³	33.82		119,741	836,404	1,279,213	43,002,024
	Soil grade II							-
AB.41112	Transporting soil by dump trucks	100 m ³	33.82			1,198,867	1,607,992	54,064,249
	Distance <= 300m, truck 5T, Soil grade II							-
AB.13312	Manual embankment of service roads K<=0.9	1 m ³	380.00		132,636		160,861	47,306,234
	Using soil from the excavated pit for embankment							-
AB.41112	Embankment of service roads, compressor 9T K<=1.1	100 m ³	31.40		320,838	799,448	1,462,695	12,484,130
AB.24122	Digging soil for embankment by excavators <=0.5m ³	100 m ³	31.24		119,741	836,404	1,279,213	11,810,928
	Soil grade II							-
AB.41112	Transporting soil by dump trucks	100 m ³	31.24			1,198,867	1,607,992	14,867,843
	Distance <= 300m, truck 5T, Soil grade II							-
AB.13111	Manual embankment of site ground	1 m ³	173.00		133,162		131,408	101,378,932
	Using soil from the excavated pit for embankment							-
AB.62111	Embankment of site ground by compressor 9 Ton K<=0.13	100 m ³	23.20		136,329	492,038	834,886	13,388,885
AB.24122	Digging soil for embankment by excavators <=0.5m ³	100 m ³	24.82		119,741	836,404	1,279,213	31,755,183
	Soil grade II							-
AB.41112	Transporting soil by dump trucks	100 m ³	24.82			1,198,867	1,607,992	38,516,788
	Distance <= 300m, truck 5T, Soil grade II							-

Code	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AB.11512	Digging drainage ditches B<=3m, H<=1m, Soil grade II	1 m ³	308.00		187,838		211,335	65,768,788
AD.21222	Embankment with aggregate with thickness of 20 cm for service roads	100 m ²	43.85	9,335,252	600,600	1,079,775	15,182,325	662,708,499
BB.11202	Installation of concrete pipes D500mm	100m	1.20	64,504,409	17,796,567	8,650,545	100,978,232	121,171,878
AB.22122	Land leveling as the previous condition of site ground, distance <=50m	100 m ³	40.00			825,882	1,109,581	44,383,844
	Bulldozer <= 110CV, Soil Grade II							-
BT	Material loading and unloading terminals	piece	1.00	25,000,000			31,844,758	31,844,758
	* Bored piles for ground treatment							-
AC.34223	Drilling on land under water by rotary drilling method	m	980.00	394,380	1,393,640	3,081,865	6,419,001	6,162,240,838
	Diameter of boreholes of 1000mm							-
AI.12111	Production of pipe casing (depreciation of 10%)	ton	828.98	2,162,609	4,319,289	1,861,387	10,814,802	3,718,360,487
AI.13111	Production of positioning frame system (depreciation of 10%)	ton	1,148.00	2,391,879	3,702,845	2,163,234	13,472,544	13,438,836,138
AI.11911	Production of bulkhead sheet (depreciation of 10%)	ton	90.28	2,591,879	3,702,845	2,163,234	13,472,544	12,118,233,887
AJ.83321	Erection of steel structure under water	ton	328.08	818,883	2,474,800	2,098,049	6,708,434	2,200,213,234
AJ.83321	Dismantling of steel structure under water	ton	328.08	371,330	1,484,860	1,234,829	4,025,880	1,320,127,967
AC.34512	Erection of pile casing for the bored piles	m	3,380.00	119,821	1,025,512	1,120,788	2,986,398	9,866,961,532
	Above the water level, with piles <=1000mm							-
AC.22812	Driving steel profile piles, h<=100mm, above water level	100 m	132.42		2,440,367	22,942,361	33,938,696	4,494,282,578
	L<=10 m, Soil grade II (part submerged by land)							-
AC.22812	Driving steel profile piles, h>100mm, above water level	100 m	116.40		1,830,290	17,206,771	25,454,704	2,962,976,389
	L<=10 m, Soil grade II (part out submerged by land)							-
AC.23120	Dismantling steel profile piles under water	100 m	132.42		1,238,660	8,548,969	13,046,179	1,727,574,961
AC.23120	Dismantling pile casing under water	100 m	33.60		1,238,660	8,548,969	13,046,179	438,361,839
AC.13320	Pumping bentonite solution for anti-settlement	1m ³	754.00	108,888	137,729	380,620	669,584	519,177,475
	of drilling hole wall underwater							-
AF.25215	Concrete of bored piles underwater	1 m ³	1,683.00	1,374,161	338,537	798,848	3,258,134	6,315,633,693
	D = 1000 mm, mortar of stone & concrete 1x2 M500							-
AF.67210	Reinforcement of underwater bored piles	ton	198.00	17,897,210	2,911,879	1,888,108	28,788,048	5,642,065,443
GT73	Sand pumping from the barge, a distance of 500m	100m ³	319.48	9,307,143	180,828	1,467,458	14,021,967	4,482,882,931
AF.34113	Bracing concrete of stone piles 1x2 M200	1 m ³	1,238.00	1,080,186	931,282	320,857	2,178,820	2,897,378,746
AF.68220	Bracing reinforcement of bored pile	ton	74.00	17,445,627	3,025,708	898,991	27,280,300	2,013,742,214
AF.81531	Bracing Formwork	100m ²	81.90	25,921,878	7,142,544		42,117,142	2,807,021,676
	Pile driving for ground treatment							-
	- Pile casing yard							-
AB.22122	Grading the pile casing yard by bulldozers <= 110CV, soil grade II	100 m ³	3.00			825,882	1,109,581	3,298,775
AK.41114	Mortar with grade 75 for leveling ground, 3 cm	1 m ²	1,000.00	15,802	14,834	605	39,583	39,583,200
AF.71121	stone-lined concrete +5% M100, width = 23cm	1 m ³	38.80	840,827	211,378	40,864	1,402,321	70,116,882

Code Names	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
- Scaffold:								
AB 82111	Soil embankment for scaffold by compressor 9 ton, K=0.85	100 m3	8.40	138.821	462.036		834.888	7.012.872
AB 24122	Digging soil for embankment by excavators =>0.8m3	100 m3	8.99	119.741	838.404		1.279.213	11.497.566
Soil grade II								
AB 41112	Transporting soil by dump trucks	100 m3	5.99		1.196.567		1.607.992	14.482.629
Distance = 300m, truck 5T, Soil grade II								
AB 68112	Soil embankment for scaffold by compressor 9T, K=0.8	100 m3	8.40	9.307.143	276.328	740.822	13.282.382	110.904.299
AD 21238	Aggregate of scaffold with thickness of 20cm	100 m2	16.80	9.335.262	980.600	1.879.775	15.182.325	355.063.065
AD 21239	Aggregate of scaffold with thickness of 10cm	100 m2	16.80	4.867.606	414.089	897.599	7.679.297	126.011.888
- Fabrication:								
AG 11115	Production of pre-cast concrete components piles, column, concrete mortar with crushed stone 1x3 MS100	1 m3	1.607.69	1.179.811	237.117	83.930	2.077.907	5.244.168.500
AG 13121	Pile reinforcement	ton	401.92	17.339.809	1.561.746	375.695	24.667.921	9.910.511.568
AG 31121	Production, section and dismantling of pile formwork	100 m2	91.87	834.723	5.288.871		7.800.175	718.688.449
AI 13151	Production of pile splices	ton	90.38	15.305.814	3.636.786	1.024.542	31.367.089	2.988.228.069
AI 64151	Erection of pile splices	ton	80.38	411.280	1.788.174	679.828	8.178.142	256.217.897
AI 11131	Production of drivers pile of steel profiles	ton	4.80	19.070.916	2.044.416	1.688.353	29.174.810	140.038.088
- Pile driving:								
AG 41141*	Pile transport	section	1.121.00			309.769	416.282	466.662.305
AC 19223*	Pilot Pile Driving on ground, hammer =>3.5T	100 m	6.58	1.281.267	12.428.235		19.110.808	125.366.577
Soil grade II, Pile L=24m F=35x35cm (K=1.5)								
AC 19223	Driving reinforced plain piles on ground, hammer =>3.5T	100 m	17.38	1.282.178	8.284.157		12.740.404	321.175.214
Soil grade II, Pile L=24m F=35x35cm								
AC 19223	Driving Reinforced negative piles on ground, hammer =>3.5T	100 m	75.72	1.282.178	8.284.157		12.740.404	999.222.585
Soil grade II, Pile L=24m F=35x35cm								
AC 19223**	Driving reinforced batter piles on ground, hammer =>3.5T	100 m	33.60	1.514.614	9.940.988		15.298.486	513.893.080
Soil grade II, Pile L=24m F=35x35cm (K=1.2)								
AC 19223**	Driving reinforced negative piles on ground, hammer =>3.5T	100 m	6.05	1.315.267	8.698.365		13.377.424	80.893.417
Soil grade II, Pile L=24m F=35x35cm (K=1.05)								
AC 23110	Dismantling driving piles	100 m	6.05		572.437	4.666.020	7.089.782	42.360.680
AA 21244	Pile head breaking	1 m3	32.20		1.086.444		1.396.130	73.036.611
GTT	using bulldozer 180 cv	shift	80.00			888.397	1.192.871	96.506.699
* Foundation pit excavation:								
AB 22122	Grading of service roads for foundation pit and storage yard	100 m3	8.80			805.682	1.109.591	9.764.402

Code Names	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
L=50m, bulldozer =>110cv, Soil grade II								
AD 21238	Embankment with aggregate with thickness of 30 cm	100 m2	11.00	9.335.262	800.600	1.879.775	15.182.325	167.068.578
AB 68112	Soil Embankment of service roads K=0.95	100 m3	11.26	9.307.143	276.328	911.370	13.432.074	151.110.828
AD 11233	Constructing road surface with stone aggregate 0-4	100m3	5.40	46.859.310	948.888	2.718.598	84.546.769	349.547.185
AB 25412	Digging foundation by excavators => 0.8m3	100 m3	87.43		291.957	986.309	1.628.021	143.076.557
Width of foundation > 30m, Soil grade II								
AB 41112	Transporting soil by dump trucks	100 m3	87.43		1.196.567		1.607.992	140.688.713
Distance = 300m, truck 5T, Soil grade II								
AB 11382	Manual foundation excavation with the width > 3m	1 m3	3.000.00		147.374		187.723	583.166.200
Depth > 3m, Soil grade II								
AB 34121	Manually soil digging on trucks	100 m3	30.00		92.169	708.026	1.064.774	31.943.206
AB 41111	Transporting soil by dump trucks	100 m3	30.00		986.671		1.285.821	38.568.639
Distance = 300m, truck 5T, Soil grade I								
AB 34119	Grafting the soil in the dumping area by a bulldozer 110 VN	100m3	117.43		198.358		288.334	31.296.040
Backfilling foundation pits:								
AB 11212	Dumping soil into bags, sewing the head of bags	1 m3	56.258.00		114.216		146.485	8.184.428.692
GTT2	Big soil bags	bag	2.081.472.00	3.182			4.063	8.436.063.773
AB 91111	Drop the big soil bags by barges as opening the bottom	100m3	582.68		988.179	1.329.308	2.471.816	347.816.265
AB 24122	Digging for removal of service road & scaffold by excavator => 0.8m3, Soil grade II	100 m3	16.85	119.741	838.404		1.279.213	21.298.396
AB 41112	Transporting soil by dump trucks	100 m3	16.85		1.196.567		1.607.992	38.773.082
Distance = 300m, truck 5T, Soil grade II								
GTT	Pumping water into foundation pit 20CV	shift	1.000.00		184.109		247.415	247.414.889
* Bored pile construction:								
AC 34223	Drilling on land under water by rotary drilling method	m	1.728.00	394.380	1.393.840	3.081.585	6.419.001	11.092.036.490
Diameter of boreholes of 1000mm								
AI 12111*	Production of pipe casing (10% of depreciation)	ton	1.172.01	2.192.809	4.319.289	1.661.267	10.614.802	12.323.406.831
AI 11911*	Production of positioning frame system (depreciation of 10%)	ton	955.10	2.591.679	5.702.845	2.163.234	13.472.544	12.897.828.536
AI 11911*	Production of bulkhead slot (depreciation of 10%)	ton	284.98	2.891.679	5.702.845	2.163.234	13.472.544	3.639.068.704
AI 63221	Erection of steel structure under water	ton	493.16	818.883	2.474.820	2.058.048	6.708.434	3.240.246.971
AI 63221*	Dismantling of steel structure under water	ton	493.16	371.330	1.484.892	1.234.829	4.023.860	1.948.148.207
AC 34612	Erection of pile casing for the bored piles	m	4.752.00	119.821	1.028.912	1.120.788	2.968.369	14.096.131.310
Above the water level, with piles =>1000mm								
AC 22612	Driving steel profile pile, h=100mm, above water level	100 m	110.35		2.440.367	22.942.361	33.899.908	3.745.236.481
L=10 m: Soil grade II (part not submerged by land)								
AC 22612*	Driving steel profile pile, h=100mm, above water level	100 m	97.02		1.890.290	11.206.771	25.454.704	2.499.619.917
L=10 m: Soil grade II (part not submerged by land)								

Code Noms	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine-shift		
AB.24122	Digging soil for embankment by excavators $\leq 0.8m^3$ Soil grade II	100m ³	44.99		119,741	868,404	1,278,213	57,551,793
AB.41112	Transporting soil by dump trucks Distance $\geq 300m$, truck 3T, Soil grade II	100m ³	44.99			1,198,557	1,607,992	72,343,548
AB.66112	Sand embankment for scaffold by compressor 5T, $K=0.9$	100 m ³	40.90	9,307,143	278,326	740,822	15,206,582	539,597,873
AD.21220	Aggregate of scaffold with thickness of 10cm	100 m ²	91.80	9,335,262	800,600	1,679,775	15,182,325	1,241,914,209
AD.21223	Aggregate of scaffold with thickness of 10cm	100 m ²	91.80	4,667,626	414,089	897,599	7,679,277	628,164,872
	+ Fabrication:							
AG.11115	Production of pre-stressed concrete components piles, column, concrete mixer with crushed stone 1 $M300$	t m ³	2,281.47	1,179,811	337,117	62,930	2,017,907	4,563,436,573
AG.15121	Pile reinforcement	ton	585.37	17,399,809	1,881,746	375,695	24,657,921	15,340,846,725
AG.31121	Fabrication, erection and dismantling of pile formwork	100 m ²	129.23	834,723	5,288,874		7,600,175	1,007,992,062
AI.13151	Production of pile splices	ton	46.79	18,305,814	5,698,785	1,024,542	31,651,083	1,494,991,178
AI.64151	Erection of pile splices	ton	46.79	411,280	1,798,174	279,828	3,175,142	148,564,884
AI.11131	Production of driver pile of steel profiles	ton	4.80	19,070,916	2,044,416	1,688,358	29,114,370	140,036,088
	+ Pile driving							
AG.41141*	Pile transport	section	1,582.00			206,789	416,282	650,232,736
AC.18221*	Pilot Pile Driving on ground, hammer $\approx 3.5T$ Soil grade II, Pile L $\geq 24m$, F=35x35cm (K=1.5)	100 m	9.26		1,993,267	12,408,235	19,118,698	178,984,213
AC.18223	Driving reinforced plumb piles on ground, hammer $\approx 3.5T$ Soil grade II, Pile L $\geq 24m$, F=35x35cm	100 m	17.36		1,262,178	8,264,157	12,740,404	221,173,414
AC.18223	Driving Reinforced negative piles on ground, hammer $\approx 2.5T$ Soil grade II, Pile L $\geq 24m$, F=35x35cm	100 m	125.05		1,262,178	8,264,157	12,740,404	1,693,187,524
AC.18223**	Driving reinforced bairn piles on ground, hammer $\approx 2.5T$ Soil grade II, Pile L $\geq 24m$, F=35x35cm (K=1.2)	100 m	33.60		1,514,614	9,940,981	15,288,495	813,663,090
AC.18223**	Driving reinforced negative piles on ground, hammer $\approx 2.5T$ Soil grade II, Pile L $\geq 24m$, F=35x35cm (K=1.05)	100 m	5.33		1,325,287	8,668,385	13,377,424	71,301,672
AC.23110	Dismantling driving piles	100 m	5.33		572,407	4,666,928	1,089,792	37,562,067
AA.21241	Pile head breaking	1 m ³	77.40		1,380,414		1,389,150	108,294,182
GTT	using bulldozer 130 cv	shift	100.00			888,397	1,199,571	119,387,124
	*Foundation pit excavation:							
AB.22122	Grading of service roads for foundation pit and storage yard L $\geq 50m$, bulldozer $\approx 110cv$, Soil grade II	100m ³	18.93			825,682	1,109,591	21,004,569
AB.31236	Embankment with aggregate with thickness of 30 cm	100m ²	23.85	9,335,262	800,600	1,679,775	15,182,325	389,061,393
AB.66113	Soil Embankment of service roads $K=0.95$	100 m ³	11.25	9,307,143	278,326	911,370	15,432,074	151,110,825

Code Noms	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine-shift		
AD.11222	Constructing road surface with stone aggregate 3-4	100m ²	5.40	48,859,310	949,888	2,176,598	54,585,799	348,547,155
AB.25412	Digging foundation by excavators $\approx 0.8m^3$ Width of foundation $> 20m$, Soil grade II	100 m ³	317.85		361,967	960,929	1,625,021	354,010,732
AB.41112	Transporting soil by dump trucks Distance $\geq 300m$, truck 3T, Soil grade II	100m ³	217.85			1,198,557	1,607,992	350,300,989
AB.11382	Manual foundation excavation with the width $> 2m$ Depth $> 3m$, Soil grade II	1 m ³	5,450.00		147,374		187,723	647,644,580
AB.24121	Manually soil digging on trucks	100m ³	24.80		32,109	705,025	1,064,774	36,794,688
AB.41111	Transporting soil by dump trucks Distance $\geq 300m$, truck 3T, Soil grade I	100m ³	34.80			956,671	1,285,821	44,353,965
AB.34110	Grading the soil in the dumping area by a bulldozer 110 CV Embankment of foundation pits	100m ²	252.35			196,398	286,534	67,269,755
AB.11212	Manually dumping soil on trucks	1 m ³	685.00		114,216		145,485	99,667,505
GTT2	Big soil bags	bag	25,345.00	3,182			4,063	102,721,918
AB.31111	Drop the big sand bags by barges as opening the bottom	100m ³	8.85			986,179	1,329,308	9,105,757
AB.24122	Digging for removal of service road & scaffold by excavator $\approx 0.8m^3$, Soil grade II	100m ³	16.85		119,741	868,404	1,278,213	21,298,888
AB.41112	Transporting soil by dump trucks Distance $\geq 300m$, truck 3T, Soil grade II	100 m ³	16.85			1,198,557	1,607,992	26,773,062
GTT	Pumping water into foundation pit 30CV	shift	800.00			184,109	247,415	197,931,727
	* Cofferdam by sheet piles of pre-stressed reinforced concrete							
AC.03822	Driving steel sheet piles above the water surface Pile L $> 13 m$, Soil grade II (depreciation of 30%)	100 m	431.45	51,014,785	3,361,103	47,512,277	109,388,327	46,764,230,025
AC.03822	Driving steel T410 piles above the water surface Length $> 12 m$, Soil grade II (depreciation of 30%)	100 m	111.74	19,107,708	3,489,081	31,780,510	71,399,088	7,977,883,900
AI.11911*	Production of fixed frame system (depreciation of 30%)	ton	80.40	7,775,097	5,702,845	2,163,394	20,091,055	1,212,693,341
AI.83321	Erection of steel structure under water	ton	80.40	618,883	2,474,820	2,058,048	8,708,454	405,068,595
AI.83321*	Dismantling of steel structure under water	ton	80.40	371,380	1,484,892	1,234,829	4,023,980	243,041,160
AC.23230	Dismantling sheet pile underwater	100 m	431.45		1,867,191	16,016,186	25,868,977	10,306,898,075
AC.23120	Dismantling steel profile piles under water	100 m	111.74		1,329,650	8,545,369	13,046,179	1,497,734,715
	* Connecting path with dikes							
AB.22121	Digging and transporting organic soil in a distance $\approx 50m$ Bulldozer $\approx 110CV$, Soil Grade I	100m ³	5.40			670,482	904,000	4,886,388
AB.27121	Digging channels by excavator $\approx 0.8m^3$ Width $\approx 10m$, Soil grade II	100m ³	52.00		1,872,143	1,011,549	2,123,048	141,702,983
AB.22122	Digging and leveling the lagoon in a distance $\approx 50m$, soil grade II	100 m ³	40.00			825,682	1,109,591	44,363,644

Code Items	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AD.21236	Embankment with aggregate with thickness of 20 cm	100 m ²	15.00	9,335,262	600,600	1,879,775	15,182,325	327,734,879
	*Sewer construction:							
AF.11225	Concrete of bottom slabs with stone 1x2 M300 E=25cm	1 m ³	7,230.00	1,310,542	362,908	40,887	2,128,337	15,609,213,355
AF.12145	Concrete of edge posts, Thickness = 45cm Height = 16 m, concrete mortar with stone 1x2 M300	1 m ³	4,985.43	1,358,700	788,881	98,058	2,864,839	14,281,359,453
AF.12145	Concrete of centre piers, Thickness = 45cm Height = 16 m, concrete mortar with stone 1x2 M300	1 m ³	2,395.59	1,358,700	788,881	98,058	2,864,839	6,490,086,854
AF.12145	Concrete for bulkhead box, Thickness = 45cm Height = 16 m, concrete mortar with stone 1x2 M300	1 m ³	498.00	1,358,700	788,881	98,058	2,864,839	1,426,585,747
AF.12145	Concrete for bulkhead floor, Thickness = 45cm Height = 16 m, concrete mortar with stone 1x2 M300	1 m ³	1,089.00	1,358,700	788,881	98,058	2,864,839	3,119,582,085
AF.12315	Concrete with stone 1x2 M300 for transport bridges	1 m ³	2,557.00	1,197,160	710,974	88,068	2,588,660	8,545,024,238
AF.12315	Concrete with stone 1x2 M200 for transport bridges	1 m ³	98.00	1,034,026	710,974	88,068	2,351,852	155,202,204
AF.12225	Concrete for pulling system of rock valves 1x2 M300	1 m ³	293.00	1,348,378	362,810	88,068	3,068,982	807,142,375
AF.12225	Concrete for pulling system of rock valves 1x2 M200	1 m ³	17.00	1,192,245	362,810	88,068	2,861,184	49,640,125
AF.10313	Concrete of stone slab 1x2 M200	1 m ³	44.00	1,034,026	802,685	88,118	2,162,778	95,162,133
AF.11212	Concrete of stone slab 1x2 M150	1 m ³	270.30	950,508	302,116	40,887	1,650,494	446,951,015
AF.11121	Crushed stone concrete 4x6 lining, E=350cm	1 m ³	583.00	1,940,627	217,378	40,884	1,402,321	817,565,169
AK.41124	Lining mortar grade M75 with thickness of 3 cm	1 m ²	2,186.87	22,129	22,841	808	58,323	126,966,432
AF.82111	Different types of metal framework	100m ²	482.15	5,718,284	5,237,921	511,011	18,481,427	8,901,116,901
AF.81322	Fabrication of different reinforcement	ton	2,212.93	17,399,809	2,078,999	387,281	25,345,802	68,088,373,928
AL.43410	fabrication of couplings by PVC plates	1 m	379.00	292,821	473,444		978,060	389,928,781
AL.05112	Erection of rubber bridge bearing	piece	90.00	578,466	733,206		1,686,258	132,663,084
AL.10122	Spreading geotextile fabric on land	100m ²	11.49	3,350,688	215,889		4,542,318	52,196,986
051.1	Spreading geotextile fabric fabric underwater	100m ²	285.82	3,455,417	247,643	482,302	5,368,733	1,582,560,801
051.4	Drop stone gabions underwater	m ³	11,094.00	356,210	348,440		866,029	9,802,588,788
051.2	Buoys & raft for dropping stone gabions	10m ²	1,106.40	9,938	34,810	60,383	124,659	137,900,615
G5T1	Gabion wire mesh	m ²	84,654.00	45,000			57,321	4,852,416,101
AC.11122	Driving sheeting piles with Lpile = 4.5m, Soil grade II	100 m	84.88	578,818	581,189		1,441,931	93,437,115
AD.21236	Construction of road surface with aggregate d=20cm	100 m ²	9.00	9,335,262	600,600	1,879,775	15,182,325	136,240,928
AE.88113	Soil embankment for road bases by compressors 9T K=0.95	100 m ³	34.50	9,307,143	278,326	911,370	13,432,074	483,406,541
AE.84112	Embankment for road bases by compressor 9T K=0.9	100 m ³	33.20	380,538	798,448	1,482,865	49,371,730	
AE.24121	Digging soil for embankment by excavators =>1.25m ³ Soil grade I	100 m ³	36.23	175,741	883,949	1,300,104	41,822,797	
AE.41122	Transporting soil by dump trucks Distance => 300m, truck 7T, Soil grade II	100 m ³	36.83			1,026,736	1,379,770	30,541,251
	* Wing wall							

Code Items	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AE.88143	Soil embankment by Vibratory Rammers K=0.95	100 m ³	29.25	9,307,143	882,400	869,439	13,919,381	323,682,386
AE.88113	Soil embankment by compressors 9T K=0.95	100 m ³	54.25	9,307,143	278,326	911,370	13,432,074	729,689,336
AE.85130	Soil embankment for wing wall by vibratory rammers K=0.95	100 m ³	89.75		2,190,753	1,458,063	4,688,387	327,748,087
AE.84113	Soil embankment for wing wall by compressor 9T K=0.95	100 m ³	82.75		320,538	1,118,207	1,942,389	311,238,080
AE.24121	Digging soil for embankment by excavators =>0.8m ³ Soil grade I	100 m ³	282.73		82,109	705,025	1,064,774	279,742,621
AE.41111	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade I	100 m ³	282.73			966,671	1,288,621	327,764,888
	* Signs of waterway transport	system	1.00				150,000,000	150,000,000
	* Protective fence for works	system	1.00				400,000,000	400,000,000
	* Construction of landscape	system	1.00				5,000,000,000	5,000,000,000
	* Sluice Management & operation building	system	1.00				200,000,000	200,000,000
	* Oil station for operation (20m ²)	system	2.00				50,000,000	100,000,000
	* Storage area, electricity & water supply	system	1.00				400,000,000	400,000,000
	* Mechanic:							
	Valve gate (10,5x2)m	set	1.00					
	Sluice gate (8x2)m	set	8.00					
	Hydraulic Cylinders	set	10.00					
	Hatches (30x8)m	set	1.00					
	Gantry cranes 50T	piece	2.00					
	6- Ben Ro Sluice Bc-(2x10)m:							44,738,683,548
	* Site area							
AA.11111	Site Clearance	100m ²	838.00		175,806		222,381	88,276,797
AA.12111	Cutting down trees in flat ground Dtree =>20cm	tree	1,992.00		22,406		28,158	58,808,967
AA.12111	Digging tree stumps Dtree =>20cm	tree	1,992.00		28,843		46,951	95,016,780
AA.13211	Digging bush of water coconut Dbush =>50cm	tree	800.00		97,655		124,367	74,618,911
AE.13214	Dinh Trung Sluice	1 m ³	2,422.00		144,216		190,070	409,327,783
AE.11212	Soil Excavation for embankment - Soil Grade II	1 m ³	2,270.54		114,215		148,485	380,330,541
AE.22121	Digging and transporting organic soil in a distance => 50m Bulldozer => 110CV, Soil Grade I	100 m ³	17.34			870,482	980,000	15,623,332
AB.13312	Embankment in combination with service roads, K=0.9 Using soil from the excavated pit for embankment	1 m ³	1,251.00		132,888		168,361	211,367,436
AE.84112	Embankment in combination with service roads, compressor 9T K=0.9	100 m ³	37.32		320,538	798,448	1,482,835	55,628,447
AE.24122	Digging soil for embankment by excavators =>0.8m ³ Soil grade II	100 m ³	41.27		119,741	888,404	1,279,213	62,758,679

Case Name	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AB.41112	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade II	100 m ³	41.27			1,196,557	1,607,992	66,365,033
AB.13312	Manual embankment of service roads K=0.9 Using soil from the excavated pit for embankment	1 m ³	138.00		132,686		168,951	23,316,215
AB.64112	Embankment of service roads, compressor 9 T K=0.9	100 m ³	4.32	320,538	786,448		1,482,635	8,123,381
AB.24122	Digging soil for embankment by excavators <=0.8m ³ Soil grade II	100 m ³	4.54		119,741	836,404	1,278,213	5,811,468
AB.41112	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade II	100 m ³	4.54			1,196,557	1,607,992	7,305,108
AB.13311	Manual embankment of site ground Using soil from the excavated pit for embankment	1 m ³	800.00		103,162		131,405	78,843,673
AB.62111	Embankment of site ground by compressor 9 Ton K=0.81	100 m ³	19.60	196,321	492,056		694,866	15,027,983
AB.24122	Digging soil for embankment by excavators >=0.8m ³ Soil grade II	100 m ³	19.80		119,741	836,404	1,278,218	35,328,417
AB.41112	Transporting soil by dump trucks Distance => 300m, truck 5 T, Soil grade II	100 m ³	19.80			1,196,557	1,607,992	31,838,235
AB.11512	Digging drainage ditches B=3m, H=1m, Soil grade II	1 m ³	1,582.00		167,636		213,635	338,947,762
AD.21228	Embankment with aggregate with thickness of 20 cm for service roads	100 m ²	51.80	9,335,252	800,600	1,879,775	15,182,325	783,407,965
BB.11206	Installation of concrete pipes 1500mm	100m	1.20	54,564,409	17,799,591	6,650,545	100,978,282	121,179,878
AB.22122	Land leveling as the previous condition of site ground, distance <=50m Bulldozer => 110CV, Soil Grade II	100 m ³	78.50			825,682	1,109,591	84,883,719
GTT	Material loading and unloading terminals	piece	1.00	25,800,000			31,844,758	31,844,758
	Pile driving for ground treatment + Pile casting yard:							
AB.22122	Grading the pile casting yard by bulldozers => 110CV, soil grade II	100 m ³	1.20			825,682	1,109,591	1,331,609
AK.41114	Mortar with grade 75 for leveling ground, 2 cm	1 m ²	400.00	15,802	14,834	606	39,963	15,833,280
AF.11121	stone-lined concrete 4x6 M100, width = 15cm + Scaffold:	1 m ³	20.00	840,627	217,376	40,664	1,402,321	38,046,421
AB.62111	Soil embankment for scaffold by compressor 9 T K=0.81	100 m ³	3.68	196,321	492,056		694,866	3,072,308
AB.24122	Digging soil for embankment by excavators >=0.8m ³ Soil grade II	100 m ³	3.54		119,741	836,404	1,278,218	5,037,029
AB.41112	Transporting soil by dump trucks Distance => 300m, truck 5 T, Soil grade II	100 m ³	3.94			1,196,557	1,607,992	6,331,823
AB.66111	Sand embankment for scaffold	100 m ³	5.05	9,307,143	276,326	518,547	12,904,179	66,295,144
AD.21228	Aggregate of scaffold with thickness of 20cm	100 m ²	7.36	9,335,252	800,600	1,879,775	15,182,325	111,741,914
AD.21228	Aggregate of scaffold with thickness of 10cm	100 m ²	7.36	4,667,626	414,089	897,599	7,873,277	38,519,480

Code Name	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
	+ Fabrication:							
AG.11115	Production of pre-cast concrete components piles, column, concrete mortar with crushed stone 1x3 M300	1 m ³	181.79	1,179,611	337,117	61,930	2,017,907	388,836,268
AG.13121	Pile reinforcement	ton	45.45	17,399,809	1,561,746	375,695	24,667,901	1,120,702,504
AG.31121	Fabrication, erection and dismantling of pile formwork	100 m ²	10.39	834,723	5,388,871		7,800,175	81,028,215
AI.13154	Production of pile splices	ton	12.71	18,305,814	5,898,765	1,024,543	31,967,613	406,757,288
AI.84151	Erection of pile splices	ton	12.71	411,280	1,785,174	279,826	3,175,142	40,419,555
AI.11131	Production of driver pile of steel profiles	ton	2.40	19,070,916	2,044,416	1,888,358	23,174,510	73,019,543
	+ Pile driving							
AG.41141	Pile transport	section	134.00			309,769	416,282	56,781,810
AO.15229	Pilot Pile Driving on ground, hammer => 2.5T Soil grade II, Pile L=0.4m F=3%*35cm (K=1.5)	100 m	1.00		1,895,267	12,426,235	19,410,608	19,410,608
AO.15229	Driving reinforced plumb piles on ground, hammer => 2.5T Soil grade II, Pile L=0.4m F=3%*35cm	100 m	2.40		1,262,178	8,284,157	12,740,404	43,377,374
AO.15229	Driving Reinforced negative piles on ground, hammer => 2.5T Soil grade II, Pile L=0.4m F=3%*35cm	100 m	3.64		1,262,178	8,284,157	12,740,404	102,432,848
AO.15229	Driving reinforced batter piles on ground, hammer => 2.5T Soil grade II, Pile L=0.4m F=3%*35cm (K=1.2)	100 m	2.40		1,514,814	9,140,968	15,095,465	38,682,364
AO.15229	Driving reinforced negative piles on ground, hammer => 2.5T Soil grade II, Pile L=0.4m F=3%*35cm (K=1.05)	100 m	1.44		1,325,267	8,646,365	13,377,434	19,263,491
AO.23110	Dismantling driving piles	100 m	1.44		572,437	4,696,928	7,039,782	10,137,286
AA.21241	Pile head breaking using bulldozer 130 cv	1 m ³	8.23		1,036,414		1,399,150	8,828,834
GTT		shift	50.00			888,397	1,188,871	59,662,562
	*Foundation pit excavation:							
AB.22122	Grading of service roads for foundation pit and storage yard L<=50m, bulldozer => 110cv, Soil grade II	100 m ³	3.88			825,682	1,108,991	9,774,402
AD.21228	Embankment by aggregate for service road with the thickness of 20 cm	100 m ²	37.48	9,335,252	800,600	1,879,775	15,182,325	590,570,062
AB.66113	Soil Embankment of service roads K=0.95	100 m ³	9.10	9,307,143	276,326	911,370	13,432,074	122,231,870
AB.25412	Soil from foundation excavation is dumped directly on trucks, soil grade II	100 m ³	55.07		261,957	960,929	1,625,021	89,469,888
AB.35111	Foundation excavation on the weak and soft soil by two excavator:	100 m ³	186.21		1,954,279	1,709,650	4,761,576	788,626,980
AB.11362	Manual foundation excavation with the width = 3m Depth > 3m, Soil grade II	1 m ³	4,820.00		147,374		187,723	887,280,568
AB.24121	Soil taken on trucks by excavator >=0.8m ³	100 m ³	48.36		92,109	705,025	1,064,774	49,182,838
AB.41111	Transporting soil by dump trucks	100 m ³	286.48			986,871	1,285,821	342,582,395

Code Notes	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
	Distance <= 300m, truck 5T, Soil grade I							
AE 11111	Excavating thick sludge, transport in 30 m	1 m3	4,983.00		173.164		220.575	1,089,123,378
AE 11121	Transporting in 70 m store	1 m3	4,983.00		18.052		22.968	114,586,661
AE 34110	Grading the soil in the dumping area by a bulldozer 110 CV	100m2	316.21			198.209	388.534	84,207,242
AE 24122	Digging for removal of service road & scaffold by excavator <= 0.8m3, Soil grade II	100 m3	25.24		119.741	838.404	1,279.213	32,415,257
AE 41112	Transporting soil by dump trucks	100 m3	25.24			1,198.557	1,807.382	40,746,509
	Distance <= 300m, truck 5T, Soil grade II							
AE 11512	Digging drainage ditch at the bottom B<=3m, H<=1m, soil grade II	1 m3	260.00		187.838		213.555	35,519,107
AK 96110	Construct a stone layer 2x4 as a buffer for the drainage ditches	1 m3	260.00	572.444	318.499		1,134.874	295,067,357
AL 16122	Spreading geotextile fabric	100 m2	9.15	3,350.688	215.889		4,542.818	41,566,767
GT	Pumping water into foundation pit 30CV	shift	200.00			184.109	247.415	49,482,932
AC 11122	Driving sheeting piles with Lpile = 4.5m, Soil grade II	100 m	195.00	570,810	591,180		1,441,991	194,660,688
AE 11211	Manually digging eroded soil - Soil Grade I	1 m3	4,000.00		82.898		105.594	422,377,155
AE 11911*	Manually transporting soil in 300 m, Soil Grade I	1 m3	4,000.00		171.322		218.229	872,912,209
AE 13112	Soil re-embankment due to erosion K = 0.9	1 m3	4,000.00		123.425		157.218	826,872,324
AE 24122	Digging soil for embankment by excavator <=0.8m3, Soil grade II	100 m3	44.00		119,741	838,404	1,279,213	56,285,372
AE 41112	Transporting soil by dump trucks	100 m3	44.00			1,198,557	1,807,982	70,754,694
	Distance <= 300m, truck 5T, Soil grade II							
	* Cofferdam at the downstream & upstream							
	-Preparation							
AE 22122	Grading the demarcation of the soil taken yard L<=50m, bulldozer <=110cv, Soil grade II	100 m2	8.42			825.882	1,109.381	7,123,575
AO 21228	Embankment with aggregate with thickness of 20 cm for demarcation -Embankment of cofferdam	100 m2	8.68	9,385.252	800.800	1,879.775	15,182.325	122,217,719
AE 63111	Embankment of cofferdam by compressor 9T, dr<=1.65m2 soil taken from the soil ground	100 m3	164.87		272.641	549.187	1,085.313	178,718,418
AE 24122	Digging soil for embankment by excavator <=0.8m3, Soil grade II	100 m3	181.14		119,741	838,404	1,279,213	291,712,804
AE 41112	Transporting soil by dump trucks	100 m3	181.14			1,198,557	1,807,982	291,286,790
	Distance <= 300m, truck 5T, Soil grade II							
AE 63111	Embankment of cofferdam by compressor 9T, dr<=1.65m2 soil taken from diversion canal	100 m3	45.88		272,641	549,187	1,085,313	30,879,432
AE 66111	Sand embankment for anti-subsidence	100 m3	2.00	9,307,143	278.326	518.547	12,904,179	25,608,387
AO 21228	Embankment with aggregate with thickness of 20 cm road dip	100 m2	4.80	9,335.252	800.800	1,879.775	15,182.325	72,875,161
AE 71229	Pha gè quy tau hui chng suit <=1000CV, L=500m	100m3	141.03		138,229	5,965.939	8,218,871	1,139,107,309

Code Notes	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
	-Sluice connecting path							
AE 22124	Digging and transporting organic soil in a distance <= 30m Bulldozer <= 110CV, Soil Grade I	100 m3	13.80			870.482	901.000	11,165,494
AE 64112	Embankment for road bases by compressor 9T K<=0.8 soil taken from the storage yard	100 m3	100.00		320.538	796.448	1,482.635	148,263,458
AE 24122	Digging soil for embankment by excavator <=0.8m3, Soil grade II	100 m3	110.60		119,741	838,404	1,279,213	140,713,429
AE 41112	Transporting soil by dump trucks	100 m3	110.60			1,191,468	1,887,382	282,411,991
	Distance <=1000m, truck 3T, Soil grade II							
AO 21228	Embankment with aggregate with thickness of 20 cm	100 m2	57.50	9,385.252	800.800	1,879.775	15,182.325	589,337,199
	Diversion canal							
AE 22122	Grading the demarcation of the soil taken yard L<=50m, bulldozer <=110cv, Soil grade II	100 m2	4.88			825.882	1,109.591	5,414,805
AO 21228	Embankment with aggregate with thickness of 20 cm for demarcation	100 m2	8.10	9,385.252	800.800	1,879.775	15,182.325	32,812,184
AE 27212	Digging the diversion canal by excavator <= 0.8m3 Width <= 10m, Soil grade II	100 m3	101.40		1,072,142	1,011,543	2,795,048	278,319,848
AE 41112	Transporting soil by dump trucks	100 m3	101.40			1,198,557	1,807,982	183,080,357
	Distance <= 300m, truck 5T, Soil grade II							
AE 22122	Land levelling as the previous condition of site ground, distance <=50m Bulldozer <= 110CV, Soil Grade II	100 m3	101.40			825.882	1,109.591	112,512,587
	* Sewer construction							
AF 11225	Concrete of bottom slabs with stone 1x2 M300 B<=350cm	1 m3	457.94	1,310,542	382.308	40.857	2,186,530	1,001,299,640
AF 12145	Concrete of edge posts, Thickness <= 45cm Height <= 1.6 m, concrete mortar with stone 1x2 M300	1 m3	390.90	1,958.700	788.861	96.058	2,884.630	747,381,970
AF 12145	Concrete of centre piers, Thickness <= 45cm Height <= 1.6 m, concrete mortar with stone 1x2 M300	1 m3	171.38	1,958.700	788.861	96.058	2,884.630	490,963,209
AF 12145	Stone concrete 1x2 M300 for energy dissipaters toward the sea	1 m3	368.28	1,358.700	788.861	96.058	2,884.630	1,049,256,661
AF 12145	Stone concrete 1x2 M300 for energy dissipaters toward the paddy fields	1 m3	369.70	1,358.700	788.861	96.058	2,884.630	1,039,053,718
AF 12315	Concrete with stone 1x2 M300 for transport bridges	1 m3	347.21	1,197.160	710.974	96.058	2,586.650	888,735,975
AF 12319	Concrete with stone 1x2 M200 for transport bridges	1 m3	32.00	1,034.028	710.974	96.058	2,361.852	75,259,250
AF 12225	Concrete for pulling system of rock valves 1x2 M300	1 m3	190.30	1,345.379	982.610	96.058	3,068.982	461,288,057
AF 12223	Concrete for pulling system of rock valves 1x2 M200	1 m3	14.00	1,182.245	982.610	96.058	2,861.134	40,026,560
AF 11213	Stone concrete 1x2 of backyard M200	1 m3	257.04	1,034.028	302.116	40.857	1,756.871	451,688,002
AF 11213	Stone concrete 1x2 of transition section M200	1 m3	117.30	1,034.028	302.116	40.857	1,756.871	205,080,913
AF 15315	stone concrete 1x2 for main M200	1 m3	548.41	1,034.028	802.565	96.118	2,182.778	1,185,087,880

Code Work	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AF 11212	Concrete of stone slab 1x3 M150	1 m ³	91.28	930,536	302,116	40,257	1,660,484	150,886,163
AF 11121	Crushed stone concrete 4x6 lining, B=230cm	1 m ³	179.80	840,627	217,376	40,664	1,402,321	252,137,324
AK 41124	Lime mortar grade M15 with thickness of 3 cm	1 m ²	2,686.00	22,123	22,811	808	28,323	158,838,493
AF 81521	Different types of metal formwork	100m ²	79.26	5,716,264	8,237,921	511,011	16,461,427	1,469,413,399
AF 81522	Fabrication of different reinforcement	ton	309.44	17,399,809	2,076,999	397,261	25,345,802	7,766,974,469
AL 41410	Fabrication of couplings by PVC plates	1 m	130.00	292,621	473,444		976,065	129,367,607
AL 26112	Erection of rubber bridge bearing	piece	40.00	578,465	753,206		1,698,256	67,850,251
AL 16122	Spreading geotextile fabric fabric on land	100 m ²	81.96	3,360,688	215,689		4,542,616	372,329,302
055.3	Erection of stone gabions (purchased gabions)	m ²	743.00	489,789	323,333		1,036,620	769,466,306
GTT	Gelvon wire mesh	m ²	6,588.00	46,000			57,321	378,366,829
AE 11114	Ashlar M100	1 m ³	21.40	875,198	381,449		1,660,708	34,266,102
AK 96110	Making sand filter beds	100 m ³	2.09	24,316,842	1,081,354	1,078,199	33,800,913	70,649,908
AK 96131	Making filter beds for crushed-stone m ²	100 m ²	4.19	32,749,075	1,584,267	1,211,618	70,837,518	296,867,518
AC 11102	Driving sheeting piles with L pile = 4.5m, Soil grade II	100 m	1,672.29	570,810	561,150		1,441,931	2,411,328,428
AD 21028	Construction of road surface with aggregate d=30cm	100 m ²	9.00	9,336,252	600,600	1,679,775	15,182,325	196,640,928
AE 84112	Soil embankment for road bases by compressors 9T K=0.95	100 m ³	34.20	9,307,743	276,328	911,370	13,432,074	483,406,341
AE 84112	Embankment for road bases by compressors 9T K=0.9	100 m ³	33.30		320,638	799,449	1,462,635	49,371,730
AE 24122	Digging soil for embankment by excavators \approx 1.25m ³ Soil grade II	100 m ³	38.83		119,741	853,649	1,300,104	47,022,797
AE 41122	Transporting soil by dump trucks Distance \approx 300m, truck 3T, Soil grade II	100 m ³	38.83			1,028,736	1,379,778	30,541,321
	* Wing wall							
AE 85143	Sand embankment by Vibratory Rammers K=0.95	100 m ³	7.50	9,307,743	962,400	699,439	13,919,281	104,394,609
AE 85113	Sand embankment by compressors 9T K=0.95	100 m ³	17.50	9,307,743	276,328	911,370	13,432,074	235,061,389
AE 85130	Soil embankment for wing-wall by vibratory rammers K=0.95	100 m ³	22.50		2,193,783	1,420,053	4,698,697	105,725,183
AE 84113	Soil embankment for wing-wall by compressor 9T K=0.95	100 m ³	52.50		320,638	1,119,227	1,912,369	101,393,381
AE 24121	Digging soil for embankment by excavators \approx 0.8m ³ Soil grade I	100 m ³	82.50		92,109	706,025	1,064,774	87,843,815
AE 41111	Transporting soil by dump trucks Distance \approx 300m, truck 3T, Soil grade I	100 m ³	82.50			838,671	1,286,821	108,983,756
	* Signs of waterway transport	system	1.00				100,000,000	100,000,000
	* Protective fence for works	system	1.00				300,000,000	300,000,000
	* Average cost, electricity & water supply	system	1.00				300,000,000	300,000,000
	* Mechanics							
	Valve gate 10.5x7.0m-1B	set	3.00					
	*- Tan Phu Sluice Bc=(2x10m)							28,808,154,139

Code Work	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
	* Site area							
AA 11111	Site Clearance	100 m ²	331.00		175,036		232,921	51,494,756
AA 12111	Cutting down trees in flat ground Dtree \approx 20cm	tree	1,166.00		22,106		28,158	32,561,121
AA 13111	Digging tree stumps Dtree \approx 20cm	tree	1,166.00		36,943		46,931	54,251,968
AA 13211	Digging bush of water coconut Dbush \approx 30cm	tree	800.00		97,836		124,367	74,619,911
AE 12214	Dimk Trung Space	1 m ³	962.00		149,210		190,670	190,948,300
AE 11212	Soil Excavation for embankment - Soil Grade II	1 m ³	1,047.20		114,216		145,465	162,382,367
AE 22121	Digging and transporting organic soil in a distance \approx 5 km Bulldozer \approx 110CV, Soil Grade I	100 m ³	13.76			1,670,462	901,600	12,969,754
AE 13212	Embankment in combination with service roads, K=0.9 Using soil from the excavated pit for embankment	1 m ³	1,055.00		132,636		188,951	170,243,132
AE 24112	Embankment in combination with service roads, compressor 9T K=0.9	100 m ³	31.68		320,638	799,449	1,462,635	46,941,395
AE 24122	Digging soil for embankment by excavators \approx 0.8m ³ Soil grade II	100 m ³	34.83		119,741	838,404	1,279,213	44,549,672
AE 41112	Transporting soil by dump trucks Distance \approx 300m, truck 3T, Soil grade II	100 m ³	34.83			1,196,667	1,607,992	36,999,919
AE 13212	Manual embankment of service roads K=0.9 Using soil from the excavated pit for embankment	1 m ³	124.00		132,636		188,951	20,949,904
AE 84112	Embankment of service roads, compressor 9T K=0.9	100 m ³	3.71		320,638	799,449	1,462,635	5,600,574
AE 24122	Digging soil for embankment by excavators \approx 0.8m ³ Soil grade II	100 m ³	4.08		119,741	838,404	1,279,213	5,220,486
AE 41112	Transporting soil by dump trucks Distance \approx 300m, truck 3T, Soil grade II	100 m ³	4.08			1,196,667	1,607,992	8,562,214
AE 13111	Manual embankment of site ground Using soil from the excavated pit for embankment	1 m ³	800.00		103,162		131,406	79,843,673
AE 62111	Embankment of site ground by compressor 9 Ton K=0.15	100 m ³	18.00		136,321	492,056	834,866	15,027,562
AE 24122	Digging soil for embankment by excavators \approx 0.8m ³ Soil grade II	100 m ³	19.80		119,741	838,404	1,279,213	25,328,417
AE 41112	Transporting soil by dump trucks Distance \approx 300m, truck 3T, Soil grade II	100 m ³	19.80			1,196,667	1,607,992	31,838,235
AE 11512	Digging drainage ditches B=3m, H=1m, Soil grade II	1 m ²	714.00		167,638		213,833	162,464,009
AD 21028	Embankment with aggregate with thickness of 30 cm for service roads	100 m ²	40.95	9,336,252	600,600	1,679,775	15,182,325	621,716,231
BE 11038	Installation of concrete pipes D300mm	100m	0.80	34,884,409	17,739,691	6,850,545	100,978,232	80,782,888
AE 22122	Land levelling as the previous condition of site ground, distance \approx 50m Bulldozer \approx 110CV, Soil Grade II	100 m ²	36.00			825,682	1,109,691	39,946,279
GTT	Manual loading and unloading terminals	piece	1.00	25,000,000			31,844,753	31,844,753
	File driving for ground treatment							

Code- Notes	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
	- Pile casting yard:							
AB 22122	Grading the pile-casting yard by bulldozers => 110CV, soil grade II	100 m3	1.20			825,882	1,109,591	1,331,509
AK 41114	Mortar with grade 75 for trowling ground, 3 cm	1 m3	400.00	15,902	14,694	908	36,586	15,933,290
AF 11121	stone-met concrete #45 M100, width > 35cm	1 m3	20.00	843,827	217,376	40,664	1,402,321	28,046,421
	- Scaffold:							
AE 22111	Soil embankment for scaffold by compressor 9 T R=0.55	100 m3	3.88		188,221	492,098	3,072,306	
AE 24122	Digging soil for embankment by excavators => 0.8m3 Soil grade II	100 m3	3.94		119,741	838,404	1,279,213	5,037,029
AE 41112	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade II	100 m3	3.94			1,198,357	1,607,992	6,331,828
AE 68111	Sand embankment for scaffold	100 m3	5.06	9,307,143	278,326	518,547	12,904,179	66,256,144
AO 21226	Aggregate of scaffold with thickness of 10cm	100 m2	7.36	9,335,262	800,600	1,879,775	15,182,325	111,741,914
AO 21229	Aggregate of scaffold with thickness of 10cm	100 m2	7.36	4,867,628	414,069	897,399	7,679,277	56,516,480
	- Fabrication:							
AG 11115	Production of pre-cast concrete components piles, column, concrete mortar with crushed stone 1#2 M300	1 m3	198.38	1,179,811	337,117	83,980	2,017,907	315,923,480
AG 13121	Pile reinforcement	ton	39.14	17,939,805	1,561,746	375,695	24,857,921	985,111,023
AG 31121	Fabrication, erection and dismantling of pile formwork	100 m2	8.95	834,723	5,288,671		7,800,175	89,782,581
AI 13151	Production of pile splices	ton	15.66	15,305,814	5,696,765	1,024,542	31,961,083	500,363,961
AI 64151	Erection of pile splices	ton	15.66	411,260	1,788,174	279,828	3,476,142	49,722,720
AI 11131	Production of driver pile of steel profiles	ton	2.40	19,070,916	2,044,416	1,666,366	29,774,810	70,019,643
	- Pile driving							
AG 41141*	Pile transport	section	134.00			308,789	416,382	56,781,810
AC 16223*	Pilot Pile Driving on ground, hammer => 1.5 T Soil grade II, Pile L=34m, F=35x35cm (K=1.5)	100 m	0.98		1,893,287	12,428,285	19,110,608	18,436,121
AC 16229	Driving reinforced plumb piles on ground, hammer => 2.5 T Soil grade II, Pile L=34m, F=35x35cm	100 m	3.06		1,292,178	9,284,157	12,740,404	38,986,808
AC 16223	Driving Reinforced negative piles on ground, hammer => 1.5 T Soil grade II, Pile L=34m, F=35x35cm	100 m	6.70		1,820,178	8,284,157	12,740,404	85,360,707
AC 16223**	Driving reinforced batter piles on ground, hammer => 1.5 T Soil grade II, Pile L=34m, F=35x35cm (K=1.2)	100 m	2.16		1,514,614	9,940,668	15,286,485	33,023,127
AC 16223***	Driving reinforced negative piles on ground, hammer => 2.5 T Soil grade II, Pile L=34m, F=35x35cm (K=1.05)	100 m	1.44		1,325,287	8,688,365	13,377,424	19,160,491
AC 23110	Dismantling driving piles	100 m	1.44		572,437	4,688,928	7,836,782	10,137,298
AA 21241	Pile head breaking	1 m3	6.31		1,096,414		1,368,150	8,828,634

Code- Notes	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
G11	using bulldozer 150 cv	shift	80.00			888,397	1,193,871	11,682,275
	*Foundation pit excavation:							
AB 22122	Grading of service roads for foundation pit and storage yard L=>50m, bulldozer => 110cv, Soil grade II	100 m3	9.80			825,882	1,109,591	9,784,402
AD 21228	Embankment by aggregate for service road with the thickness of 20 cm	100 m2	39.35	9,335,262	800,600	1,879,775	15,182,325	597,424,300
AE 68113	Soil Embankment of service roads; K=0.95	100 m3	9.75	9,307,143	278,326	911,370	13,432,074	130,966,718
AE 25412	Soil from foundation excavation is dumped directly on truck; soil grade I	100 m3	49.88		281,967	860,929	1,625,021	81,936,024
AE 28111	Foundation excavation on the weak and soft soil by two excavators	100 m3	159.71		1,934,279	1,709,650	4,781,378	780,439,391
AE 11382	Manual foundation excavation with the width > 3m Depth > 3m, Soil grade II	1 m3	4,196.00		147,374		187,223	180,860,511
AE 24121	Soil taken on trucks by excavator => 0.8m3	100 m3	41.58		92,109	705,025	1,064,774	44,273,258
AE 41111	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade I	100 m3	250.85			888,871	1,385,821	322,488,185
AE 11111	Excavating thick sludge transport in 30 m	1 m3	4,983.00		173,164		220,575	1,099,123,378
AE 11121	Transporting in 70 m more	1 m3	4,983.00		10,083		22,598	114,695,661
AE 34110	Grading the soil in the dumping area by a bulldozer 110 CV	100 m2	300.88			198,368	266,334	80,141,321
AE 24122	Digging for removal of service road & scaffold by excavator => 0.8m3, Soil grade II	100 m3	26.37		119,741	838,404	1,279,213	33,732,847
AE 41112	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade II	100 m3	26.37			1,198,357	1,607,992	42,402,741
AE 11512	Digging drainage ditch at the bottom, B => 3m, H => 1m, soil grade II	1 m3	880.00		187,638		213,335	55,519,107
AK 38119	Construct a stone layer 2#4 as a buffer for the drainage ditches	1 m3	880.00	572,444	318,469		1,134,874	295,087,357
AL 18122	Spreading geotextile fabric fabric	100 m2	9.15	3,350,888	215,889		4,542,818	41,586,787
G11	Pumping water into foundation pit 20CV	shift	200.00			184,109	247,415	43,482,932
AC 11122	Driving sheeting piles with L pile = 4.5m, Soil grade II	100 m	135.00	570,810	581,190		1,441,931	194,860,666
AE 11211	Manually digging eroded soil - Soil Grade I	1 m3	4,000.00		82,898		105,594	422,377,155
AE 11911*	Manually transporting soil in 300 m, Soil Grade I	1 m3	4,000.00		171,222		218,228	872,912,209
AE 13112	Soil re-embankment due to erosion K = 0.9	1 m3	4,000.00		123,425		157,218	828,872,324
AE 24122	Digging soil for embankment by excavators => 0.8m3 Soil grade II	100 m3	44.00		119,741	838,404	1,279,213	58,265,372
AE 41112	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade II	100 m3	44.00			1,198,357	1,607,992	70,751,834
	* Cofferdam at the downstream & upstream:							
	-Preparation:							
AE 22122	Grading the demarcation of the soil taken yard	108 m3	4.41			825,882	1,109,591	4,593,297

Code Items	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
	L = 50m, bulldozer = 110CV, Soil grade II							
AD 21239	Embankment with aggregate with thickness of 30 cm for demarcation: --Embankment of earthenbank	100 m2	9.30	9,335,262	600,600	1,879,775	18,182,325	63,602,789
AB 83111	Embankment of cofferdam by compressors 9T, dn=1.65m2 soil taken from the soil ground	100 m3	113.16		272,647	545,167	1,085,313	122,813,968
AB 24122	Digging soil for embankment by excavators =0.8m3 Soil grade II	100 m3	124.48		119,741	836,404	1,279,213	159,231,317
AB 41112	Transporting soil by dump trucks Distance = 300m, truck 3T, Soil grade II	100 m3	124.48			1,196,557	1,607,992	200,166,373
AB 88111	Sand embankment for anti-subsidence	100 m3	1.00	9,307,143	278,328	518,547	12,904,179	25,808,357
AD 21238	Embankment with aggregate with thickness of 30 cm for dike top	100 m2	7.50	9,335,262	600,600	1,879,775	15,182,325	113,867,440
AB 71220	Pha di quay (mặt đất công suất =1000CV, L=500m --Since connecting path:	100 m2	75.44		158,229	5,965,939	8,218,871	620,031,562
AB 22121	Digging and transporting organic soil in a distance = 50m Bulldozer = 110CV, Soil Grade I	100 m3	13.50			670,462	901,000	12,163,494
AB 84112	Embankment for road bases by compressors 9T K=0.9 soil taken from the storage yard	100 m3	100.00		320,538	799,448	1,482,685	149,388,459
AB 24122	Digging soil for embankment by excavators =0.8m3 Soil grade II	100 m3	110.00		119,741	838,404	1,279,213	140,713,429
AB 41112	Transporting soil by dump trucks Distance = 100m, truck 3T, Soil grade II	100 m3	110.00			1,910,469	2,567,382	282,411,991
AD 21238	Embankment with aggregate with thickness of 30 cm	100 m2	37.50	9,335,262	600,600	1,879,775	15,182,325	589,337,199
	*Sewer construction:							
AF 11225	Concrete of bottom slabs with stone 1x2 M300 B=250cm	1 m3	457.94	1,310,542	382,908	40,857	2,162,308	1,001,299,840
AF 12145	Concrete of edge posts, Thickness = 45cm Height = 1.6 m, concrete mortar with stone 1x2 M300	1 m3	350.90	1,358,700	788,881	98,068	2,884,869	747,381,370
AF 12145	Concrete of centre piers, Thickness = 45cm Height = 1.6 m, concrete mortar with stone 1x2 M300	1 m3	157.95	1,388,700	788,881	98,068	2,884,869	482,482,581
AF 12145	Stone concrete 1x2 M300 for energy dissipaters toward the sea	1 m3	388.28	1,358,700	728,881	98,068	2,884,890	1,049,256,981
AF 12145	Stone concrete 1x2 M300 for energy dissipaters toward the paddy fields	1 m3	389.70	1,358,700	728,881	98,068	2,884,890	1,059,063,716
AF 12315	Concrete with stone 1x2 M300 for transport bridges	1 m3	347.21	1,197,180	710,974	98,068	2,559,650	886,736,975
AF 12313	Concrete with stone 1x2 M200 for transport bridges	1 m3	32.00	1,034,028	710,974	98,068	2,351,852	75,259,250
AF 12225	Concrete for pulling system of rock valves 1x2 M300	1 m3	150.30	1,345,379	982,610	98,068	3,068,982	481,288,067
AF 12223	Concrete for pulling system of rock valves 1x2 M200	1 m3	44.00	1,182,048	982,610	98,068	2,861,184	40,056,580
AF 11213	Stone concrete 1x2 of backyard M200	1 m3	257.04	1,034,028	302,116	40,857	1,736,871	451,588,002
AF 11213	Stone concrete 1x2 of transition section M200	1 m3	117.30	1,034,028	302,116	40,857	1,736,871	205,080,913

Code Items	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AF 15313	stone concrete 1x2 film lat cast M200	1 m3	548.41	1,034,028	602,585	58,118	2,162,778	1,188,087,850
AF 11212	Concrete of stone slab 1x2 M150	1 m3	91.26	950,508	302,116	40,857	1,850,484	150,856,169
AF 11121	Crushed stone concrete 4x6 lining, B = 350cm	1 m3	179.80	840,627	217,375	40,864	1,402,321	252,137,324
AK 41124	Lining mortar grade M75 with thickness of 3 cm.	1 m2	2,886.00	22,123	22,811	800	58,323	136,665,493
AF 82111	Different types of metal formwork	100m2	79.26	5,716,284	8,037,921	511,011	18,481,427	1,483,210,280
AF 81322	Fabrication of different reinforcement	ton	395.18	17,939,806	2,078,999	387,281	25,346,802	7,783,040,063
AL 41410	fabrication of couplings by PVC plates	1 m	130.00	292,821	473,444		976,063	128,887,807
AL 25112	Erection of rubber bridge bearing	piece	40.00	579,458	753,208		1,868,258	87,860,251
AL 16122	Spreading geotextile fabric on land	100 m2	81.96	3,350,888	215,889		4,542,818	372,329,202
G05.3	Erection of stone gabions (purchased gabions)	m3	743.00	356,210	348,440		896,029	865,008,475
GTT1	Gobton wire mesh	m2	5,598.00	45,000			57,321	378,366,829
AE 11114	Ashlar M100	1 m3	21.40	875,196	381,440		1,600,708	34,255,100
AK 98113	Making sand filter beds	100 m3	2.09	24,316,842	1,081,384	1,078,199	33,800,313	70,843,908
AK 98131	Making filter beds for crushed-stone 1x1	100 m3	4.19	82,749,075	1,784,267	1,211,818	70,837,518	296,809,193
AK 11122	Driving sheeting piles with Lpile = 4.3m, Soil grade II	100 m	1,842.30	570,810	861,190		1,441,931	2,856,486,080
AD 21239	Construction of road surface with aggregate d=10cm	100 m2	9.00	9,335,262	600,600	1,879,775	15,182,325	136,840,828
AB 86113	Sand embankment for road bases by compressors 9T K=0.95	100 m3	34.50	9,307,143	278,328	911,370	13,492,074	483,406,541
AB 84112	Embankment for road bases by compressors 9T K=0.8	100 m3	33.30		320,538	799,448	1,482,895	49,371,750
AB 24122	Digging soil for embankment by excavators =1.25m3 Soil grade I	100 m3	36.83		119,741	883,949	1,300,104	47,622,797
AB 41122	Transporting soil by dump trucks Distance = 300m, truck 3T, Soil grade II	100 m3	36.83			1,028,738	1,378,779	50,541,251
	* Wing wall:							
AB 88143	Sand embankment by Vibratory Rammers K=0.95	100 m3	7.50	9,307,143	882,400	886,439	13,319,281	104,384,609
AB 88113	Sand embankment by compressors 9T K=0.95	100 m3	17.50	9,307,143	278,328	911,370	13,432,074	235,061,289
AB 85130	Sand embankment for wing-wall by vibratory rammers K=0.95	100 m3	22.50		2,150,782	1,420,063	4,686,897	105,725,163
AB 84113	Soil embankment for wing-wall by compressor 9T K=0.95	100 m3	52.50		320,538	1,119,227	1,912,369	100,369,381
AB 24121	Digging soil for embankment by excavators =0.8m3 Soil grade I	100 m3	82.50		92,109	705,025	1,084,774	87,843,815
AB 41111	Transporting soil by dump trucks Distance = 300m, truck 3T, Soil grade I	100 m3	82.50			986,871	1,285,821	106,083,758
	* Signs of waterway transport	system	1.00	100,000,000			100,000,000	100,000,000
	* Protective fence for works	system	1.00	300,000,000			300,000,000	300,000,000
	* storage area, electricity & water supply	system	1.00	300,000,000			300,000,000	300,000,000
	* Mechanics							
	Valve gate (10.5x7.0m -TB	=	2.00					

Code Items	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine-shift		
#-Cảng Hương Diêm Bc=(2x10)m:								
	* Site area						-	44,166,847,997
AA 11111	Site Clearance	100 m ²	536.00		175,006		222,921	119,485,766
AA 12111	Cutting down trees in flat ground Dtree =>30cm	tree	2,000.00		22,106		26,153	58,316,818
AA 13111	Digging tree stumps Dtree =>20cm	tree	2,000.00		38,843		48,311	93,861,533
AA 13211	Digging bush of water coconut Dbush =>30cm	tree	600.00		97,636		124,367	74,819,911
AE 13214	Dinh Trung Slince	1 m ³	1,445.00		149,216		199,970	174,680,893
AE 11212	Soil Excavation for embankment - Soil Grade II	1 m ³	1,546.16		114,216		145,495	224,942,333
AE 20121	Digging and transporting organic soil in a distance => 30m	100 m ³	16.41			670,462	901,000	14,785,403
	Bulldozer => 110CV, Soil Grade I							
AE 13312	Embankment in combination with service roads, K=0.9	1 m ³	1,264.00		132,636		166,951	216,932,674
	Using soil from the excavated pit for embankment							
AE 64112	Embankment in combination with service roads, compressor 9T K=1.5	100 m ³	38.85		320,538	799,448	1,482,688	57,725,906
AE 24122	Digging soil for embankment by excavators =>0.8m ³	100 m ³	42.38		119,741	838,404	1,279,213	84,816,884
	Soil grade II							
AE 41112	Transporting soil by dump trucks	100 m ³	42.38			1,196,567	1,607,992	88,161,512
	Distance => 300m, truck 5T, Soil grade II							
AE 13312	Manual embankment of service roads K=0.9	1 m ³	426.00		132,636		166,951	72,310,988
	Using soil from the excavated pit for embankment							
AE 64112	Embankment of service roads, compressor 9T K=0.9	100 m ³	12.84		320,538	799,448	1,482,635	19,037,027
AE 24122	Digging soil for embankment by excavators =>0.8m ³	100 m ³	14.12		119,741	838,404	1,279,213	15,067,604
	Soil grade II							
AE 41112	Transporting soil by dump trucks	100 m ³	14.12			1,196,567	1,607,992	22,711,278
	Distance => 300m, truck 5T, Soil grade II							
AE 13111	Manual embankment of site ground	1 m ³	625.00		103,162		131,406	80,988,214
	Using soil from the excavated pit for embankment							
AE 62111	Embankment of site ground by compressor 9 Ton K=0.5	100 m ³	15.75		138,321	492,036	634,866	15,149,135
AE 24122	Digging soil for embankment by excavators =>0.8m ³	100 m ³	17.33		119,741	838,404	1,279,213	22,162,365
	Soil grade II							
AE 41112	Transporting soil by dump trucks	100 m ³	17.33			1,196,567	1,607,992	27,858,456
	Distance => 300m, truck 5T, Soil grade II							
AE 11512	Digging drainage ditches B=>1m, H=>1m, Soil grade II	1 m ³	418.00		167,638		213,535	89,257,841
AD 21228	Embankment with aggregate with thickness of 30 cm for service roads	100 m ²	47.90	9,335,252	800,600	1,679,775	15,182,325	107,233,382
BE 11228	Installation of concrete pipes D500mm	100m	9.90	54,884,469	17,798,591	8,560,545	100,978,132	86,782,885
AE 22122	Land leveling as the previous condition of site ground, distance =>50m	100 m ³	25.00			825,682	1,109,591	27,739,777
	Bulldozer => 110CV, Soil Grade II							
GTT	Material loading and unloading terminals	piece	1.00	25,000,000			31,844,758	31,844,758
AE 27212	Digging the diversion canal by excavators => 0.8m ³	100 m ³	57.89		1,072,144	1,011,543	2,725,048	157,762,903

Code Items	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine-shift		
	Width => 10m, Soil grade II						-	-
AE 41112	Transporting soil by dump trucks	100 m ³	57.89			1,196,567	1,607,992	98,086,899
	Distance => 300m, truck 5T, Soil grade II							
	Pile driving for ground treatment							
	- Pile casting yard:							
AE 20122	Grading the pile casting yard by bulldozers => 110CV, soil grade II	100 m ³	1.20			825,682	1,109,591	1,331,509
AK 41114	Mortar with grade 75 for leveling ground, 1 cm	1 m ²	400.00	15,802	14,634	686	38,383	15,832,280
AF 11121	stone-lined concrete 4x6 M100, width > 25cm	1 m ³	20.00	840,627	217,376	40,664	1,402,321	28,046,421
	- Scaffold:							
AE 62111	Soil embankment for scaffold by compressor 9 T K=0.5	100 m ³	5.68		138,321	492,036	634,866	3,072,306
AE 24122	Digging soil for embankment by excavators =>0.8m ³	100 m ³	9.94		119,741	838,404	1,279,213	5,037,009
	Soil grade II							
AE 41112	Transporting soil by dump trucks	100 m ³	9.94			1,196,567	1,607,992	8,331,826
	Distance => 300m, truck 5T, Soil grade II							
AE 66111	Sand embankment for scaffold	100 m ³	5.68	9,307,143	278,326	618,547	12,904,179	86,296,144
AQ 21228	Aggregate of scaffold with thickness of 20cm	100 m ²	1.36	9,335,252	800,600	1,679,775	15,182,325	111,741,914
AQ 21223	Aggregate of scaffold with thickness of 10cm	100 m ²	7.36	4,867,626	414,069	897,599	7,679,277	36,519,480
	- Fabrication:							
AG 11115	Production of pre-cast concrete components piles, column, concrete mortar with crushed stone 1x1 M300	1 m ³	522.48	1,179,811	337,117	63,930	2,017,307	1,054,295,580
AG 13121	Pile reinforcement	ton	130.62	17,369,806	1,381,746	376,695	24,667,321	3,280,917,829
AG 31121	Fabrication, erection and dismantling of pile formwork	100 m ²	92.98	834,723	5,298,871		7,800,175	257,227,473
AI 13151	Production of pile splices	ton	35.57	18,305,814	5,698,785	1,024,542	31,961,083	1,168,451,109
AI 64151	Erection of pile splices	ton	35.57	411,280	1,708,174	279,828	3,175,142	116,114,935
AI 11131	Production of driver pile of steel profiles	ton	2.40	19,070,916	2,044,416	1,655,358	23,174,810	70,019,543
	- Pile driving:							
AG 41141	Pile transport	section	840.00			309,769	416,282	141,386,365
AC 16221	Pilot Pile Driving on ground, hammer =>1.5T	100 m	2.89		1,993,267	12,428,235	19,110,608	85,229,662
	Soil grade II, Pile L=24m F=35x35cm (K=1.5)							
AC 16223	Driving reinforced piling piles on ground, hammer =>2.5T	100 m	1.99		1,282,178	8,284,157	12,740,404	101,795,329
	Soil grade II, Pile L=24m F=35x35cm							
AC 16223	Driving Reinforced negative piles on ground, hammer =>2.5T	100 m	26.13		1,282,178	8,284,157	12,740,404	332,906,757
	Soil grade II, Pile L=24m F=35x35cm							
AC 16225	Driving reinforced batter piles on ground, hammer =>2.5T	100 m	5.84		1,514,814	9,940,988	15,268,485	89,227,054

Code Name	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labour	Machine-shift		
AC.16223**	Soil grade II, Pile L=24m F=35x35cm (K=1.2)							
	Driving reinforced negative piles on ground, hammer => 5T	100 m	1.44		1,326,207	8,698,365	13,377,424	13,263,491
AC.23110	Soil grade II, Pile L=24m F=35x35cm (K=1.05)							
	Dismantling driving piles	100 m	1.44		572,437	4,685,928	7,098,782	10,137,289
AA.21241	Pile head breaking	1 m3	8.31		1,088,414		1,359,150	8,828,834
GTT	using bulldozer 180 cv	shift	60.00			888,397	1,193,871	71,602,278
	*Foundation pit excavation:							
AE.22122	Grading of service roads for foundation pit and storage yard L=>50m, bulldozer =>110cv, Soil grade II	100 m3	13.20			825,682	1,109,591	14,646,802
AD.21228	Embankment by aggregate for service road with the thickness of 20 cm	100 m2	42.50	9,335,282	800,600	1,879,775	15,182,325	645,248,825
AE.88113	Soil Embankment of service roads K=0.53	100-m3	8.94	9,307,143	279,326	911,370	13,432,074	130,082,738
AE.25412	Soil from foundation excavation is dumped directly on trucks, soil grade	100-m3	57.83		261,987	980,909	1,625,021	93,974,945
AE.28111	Foundation excavation on the weak and soft soil by two excavators	100-m3	187.97		1,934,279	1,709,653	4,781,578	799,768,358
AE.11882	Manual foundation excavation with the width > 3m Depth > 3m, Soil grade II	1 m3	4,851.00		147,374		187,223	310,644,297
AE.24121	Soil taken on trucks by excavator =>0 km3	100 m3	46.51		92,109	705,025	1,064,774	51,862,163
AE.41111	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade I	100 m3	274.31			956,671	1,285,821	352,656,751
AE.11111	Excavating thick silt/clay, transport in 30 m	1 m3	4,484.00		173,164		220,575	989,066,838
AE.11121	Transporting in 70 m more	1 m3	4,484.00		13,882		22,968	103,114,596
AE.34118	Grading the soil in the dumping area by a bulldozer 110 CV	100m2	319.15			198,336	266,534	85,084,197
AE.24122	Digging for removal of service road & scaffold by excavator => 0.5km, Soil grade II	100 m3	25.09		119,741	838,404	1,279,213	32,086,454
AE.41112	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade II	100 m3	25.09			1,196,567	1,607,992	40,344,511
AE.11512	Digging drainage ditch at the bottom B=>3m, H=>1m, soil grade I	1 m3	280.00		187,658		215,365	56,519,107
AK.98110	Construct a stone layer 2x4 as a buffer for the drainage ditches	1 m3	280.00	572,444	318,499		1,134,874	295,067,367
AL.18122	Spreading geotextile fabric fabric	100 m2	9.15	3,950,688	215,689		4,542,918	41,566,767
GTT	Pumping water into foundation pit 30CV	shift	200.00			184,109	247,415	49,482,832
AC.11122	Driving sheeting piles with Lpile = 4.5m, Soil grade II	100 m	135.00	570,810	581,190		1,441,991	194,660,688
AE.11211	Manually digging eroded soil - Soil Grade I	1 m3	4,000.00		82,898		105,594	422,377,155
AE.11911*	Manually transporting soil in 300 m, Soil Grade I	1 m3	4,000.00		171,322		218,258	872,512,200
AE.18112	Soil re-embankment due to erosion K=0.9	1 m3	4,000.00		121,425		157,218	328,872,324
AE.24122	Digging soil for embankment by excavators =>0 km3 Soil grade II	100 m3	44.00		119,741	838,404	1,279,213	56,285,372
AE.41112	Transporting soil by dump trucks	100 m3	44.00			1,196,567	1,607,992	70,751,854

Code Name	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labour	Machine-shift		
	Distance => 300m, truck 5T, Soil grade II							
	* Cofferdam at the downstream & upstream +Preparation:							
AE.22122	Grading the demarcation of the soil taken yard L=>50m, bulldozer =>110cv, Soil grade II	100 m3	10.49			825,682	1,109,591	11,639,611
AD.21228	Embankment with aggregate with thickness of 20 cm for demarcation -Embankment of cofferdam:	100 m2	13.10	9,335,282	800,600	1,879,775	15,182,325	136,888,461
AE.63111	Embankment of cofferdam by compressor 9T, dt=>1.65m3 soil taken from the soil ground	100 m3	288.87		272,641	549,187	1,386,313	291,807,988
AE.24122	Digging soil for embankment by excavators =>0 km3 Soil grade II	100 m3	295.78		119,741	838,404	1,279,213	378,336,198
AE.41112	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade II	100 m3	295.78			1,196,567	1,607,992	475,574,798
AE.63111	Embankment of cofferdam by compressor 9T, dt=>1.65m3 soil taken from diversion canal	100 m3	44.53		272,641	549,187	1,085,313	48,328,968
AE.88111	Sand embankment for anti-subsidence	100 m3	2.00	9,307,143	278,326	518,547	12,904,179	25,808,357
AD.21228	Embankment with aggregate with thickness of 20 cm near diap	100 m2	7.80	9,335,282	800,600	1,879,775	15,182,325	118,422,137
AE.81212	Damaging cofferdam by excavator bucket 1.6m	100m3	209.94		322,803	2,711,684	4,065,278	847,308,994
	+Sluice connecting path:							
AE.22121	Digging and transporting organic soil in a distance => 90m Bulldozer => 110CV, Soil Grade I	100 m3	13.80		670,482		901,003	12,182,494
AE.64112	Embankment for road bases by compressor 9T K=0.9 soil taken from the storage yard	100 m3	100.00		320,530	799,448	1,482,625	148,283,458
AE.24122	Digging soil for embankment by excavators =>0 km3 Soil grade II	100 m3	110.00		119,741	838,404	1,279,213	140,713,429
AE.41112	Transporting soil by dump trucks Distance => 1000m, truck 5T, Soil grade II	100 m3	110.00			1,910,469	2,627,392	292,411,991
AD.21228	Embankment with aggregate with thickness of 20 cm	100 m2	37.50	9,335,282	800,600	1,879,775	15,182,325	589,337,199
	* Sewer construction:							
AF.12125	Concrete of bottom slabs with stone 1x2 M300 B-250cm	1 m3	457.94	1,310,542	262,908	40,857	2,186,550	1,001,299,640
AF.12145	Concrete of edge piers, Thickness > 43cm Height => 16 m, concrete mortar with stone 1x2 M300	1 m3	244.00	1,358,700	788,881	98,058	2,864,630	898,986,723
AF.12145	Concrete of centre piers, Thickness > 43cm Height <= 16 m, concrete mortar with stone 1x2 M300	1 m3	180.33	1,358,700	788,881	98,058	2,864,630	459,280,401

Code Norms	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AF 12145	Stone concrete 1x2 M300 for energy dissipater toward the sea	1 m3	367.99	1,388,700	788,861	98,058	2,884,830	1,023,790,120
AF 12146	Stone concrete 1x2 M300 for energy dissipater toward the paddy fields	1 m3	350.82	1,358,700	788,861	98,058	2,884,830	1,033,616,801
AF 12315	Concrete with stone 1x2 M300 for transport bridges	1 m3	347.21	1,197,160	710,974	98,058	2,884,830	988,736,975
AF 12316	Concrete with stone 1x2 M300 for transport bridges	1 m3	32.00	1,034,028	710,974	98,058	2,351,852	75,259,250
AF 12225	Concrete for pulling system of rock valves 1x2 M300	1 m3	150.30	1,345,379	982,810	98,058	3,068,962	461,288,057
AF 12225	Concrete for pulling system of rock valves 1x2 M300	1 m3	14.00	1,182,245	982,810	98,058	2,861,184	40,066,580
AF 1121E	Stone concrete 1x2 of backyard M200	1 m3	514.10	1,034,028	302,118	40,857	1,756,871	903,207,141
AF 1121F	Stone concrete 1x2 of transition section M200	1 m3	117.30	1,034,028	302,118	40,857	1,756,871	206,080,913
AF 13313	stone concrete 1x2 tam liti mat M200	1 m3	950.82	1,034,028	802,965	58,118	2,162,778	1,407,145,139
AF 1121E	Concrete of stone slab 1x2 M150	1 m3	98.10	959,506	302,118	40,857	1,661,484	161,912,463
AF 11121	Crushed stone concrete 4x6 lining B >350cm	1 m3	213.40	840,827	217,376	40,884	1,402,321	299,266,311
AK 4112A	Lining mortar grade M75 with thickness of 3 cm	1 m2	8,035.33	22,123	22,811	808	58,323	180,529,028
AF 52111	Different types of metal formwork	100m2	17.66	5,716,264	8,237,921	811,011	15,464,427	1,617,270,870
AF 61522	Fabrication of different reinforcement	ton	312.85	17,399,809	2,078,999	397,251	25,345,802	7,329,434,025
AL 41410	fabrication of couplings by PVC plates	1 m	130.00	292,821	473,444	-	876,060	138,887,807
AL 35112	Erection of rubber bridge bearing	piece	40.00	578,455	738,208	-	1,698,258	87,860,251
AL 15122	Spreading geotextile fabric fabric on land	100m2	99.23	3,350,688	215,889	-	4,542,918	430,782,835
039.3	Erection of stone gabions (purchased gabions)	m3	1,021.00	499,789	323,233	-	1,036,620	1,057,366,224
GT11	Gabion wire mesh	m2	9,022.00	45,000	-	-	57,321	517,146,136
AE 11114	Ashlar M100	1 m3	21.40	675,158	381,449	-	1,600,708	34,265,102
AK 90110	Making sand filter beds	100 m3	2.36	24,316,842	1,081,354	1,078,199	33,800,913	79,432,145
AK 90121	Making filter beds for crushed-stone 1/2	100 m3	4.70	52,749,075	1,584,267	1,211,618	70,837,518	332,596,327
AC 11122	Driving sheeting piles with L.pile = 4.5m, Soil grade II	100 m	1,842.30	570,810	581,180	-	1,441,951	2,858,486,050
AD 21220	Construction of road surface with aggregate d=30cm	100 m2	9.00	9,335,252	800,800	1,879,775	15,182,325	136,840,929
AB 80113	Sand embankment for road bases by compressors 9T K=0.95	100 m3	34.50	9,307,143	276,336	911,370	13,432,074	483,406,541
AB 84112	Embankment for road bases by compressors 9T K=0.9	100 m3	33.30	-	320,838	799,448	1,482,655	49,371,730
AB 24122	Digging soil for embankment by excavators <=1.25m3 Soil grade II	100 m3	36.83	-	119,741	880,949	1,300,104	47,602,797
AB 41122	Transporting soil by dump trucks Distance >= 300m, truck 7T, Soil grade II	100 m3	36.83	-	-	1,029,738	1,378,778	50,541,251
AB 86143	Sand embankment by Vibratory Rammers K=0.95	100 m3	7.50	9,307,143	882,400	669,439	13,919,281	104,394,609
AB 86113	Sand embankment by compressors 9T K=0.95	100 m3	17.50	9,307,143	276,336	911,370	13,432,074	235,061,289
AB 88120	Soil embankment for wing-wall by vibratory rammers K=0.95	100 m3	22.50	-	1,190,783	1,400,063	4,898,897	106,725,183
AB 84113	Soil embankment for wing-wall by compressor 9T K=0.95	100 m3	52.50	-	320,838	1,119,227	1,312,369	100,269,381
AB 24121	Digging soil for embankment by excavators <=0.8m3 Soil grade I	100 m3	82.50	-	92,109	705,025	1,084,774	67,843,815
AE 41111	Transporting soil by dump trucks	100 m3	82.50	-	-	966,671	1,285,821	106,063,758

Code Norms	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
	Distance >= 300m, truck 5T, Soil grade I						-	-
	* Signs of waterway transport	system	1.00				100,000,000	100,000,000
	* Protective fence for works	system	1.00				300,000,000	300,000,000
	* storage wa. electricity & water supply	system	1.00				800,000,000	800,000,000
	* Mechanics						-	-
	Valve gate 10.5m3 5m	set	2.00				-	-
	9- Open sluice Br=(2x7.5)m (01 sluice):						-	42,129,529,271
	* Site area						-	-
AA 11111	Site Clearance	100m2	583.00		175,008		222,921	115,919,027
AA 12111	Cutting down trees in flat ground Dtree <=30cm	tree	2,000.00		22,106		38,158	58,316,818
AA 13111	Digging tree stumps Dtree <=30cm	tree	2,000.00		36,843		48,391	99,861,533
AA 13211	Digging bush of water coconut Dbush <=30cm	tree	800.00		97,835		124,387	99,493,215
AB 13214	Dinh Trung Sluice	1 m3	1,445.00		149,216		190,070	274,650,635
AB 11212	Soil Excavation for embankment - Soil Grade II	1 m3	1,548.15		114,215		146,435	224,942,303
AS 22121	Digging and transporting organic soil in a distance <= 50m Bulldozer <= 110CV, Soil Grade I	100 m3	16.41			670,462	501,000	14,785,408
AB 13312	Embankment in combination with service roads, K=0.9 Using soil from the excavated pit for embankment	1 m3	1,284.00		132,836		168,351	218,932,874
AB 84112	Embankment in combination with service roads, compressor 9T K=0.9	100 m3	38.83		320,838	799,448	1,482,655	57,126,908
AB 24122	Digging soil for embankment by excavators <=0.8m3 Soil grade II	100 m3	42.38		119,741	838,404	1,279,213	54,216,894
AE 41112	Transporting soil by dump trucks Distance >= 300m, truck 5T, Soil grade II	100 m3	42.38			1,166,557	1,607,992	66,161,512
AE 13312	annual embankment of service roads K=0.9 Using soil from the excavated pit for embankment	1 m3	428.00		132,836		168,351	22,310,568
AB 84112	Embankment of service roads, compressor 9T K=0.9	100 m3	12.84		320,838	799,448	1,482,655	19,037,027
AB 24122	Digging soil for embankment by excavators <=0.8m3 Soil grade II	100 m3	14.12		119,741	838,404	1,279,213	18,067,804
AE 41112	Transporting soil by dump trucks Distance >= 300m, truck 5T, Soil grade II	100 m3	14.12			1,198,557	1,607,992	32,711,275
AE 13111	Manual embankment of site ground Using soil from the excavated pit for embankment	1 m3	525.00		103,162		131,408	68,988,214
AE 62111	Embankment of site ground by compressor 9 Ton K=0.85	100 m3	15.75		138,324	492,036	304,588	13,146,135
AB 24122	Digging soil for embankment by excavators <=0.8m3 Soil grade II	100 m3	17.33		119,741	838,404	1,279,213	22,192,385
AE 41112	Transporting soil by dump trucks	100 m3	17.33			1,188,557	1,607,992	31,988,456

Code Noms	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
	Distance \Rightarrow 300m, truck 5T, Soil grade II						-	-
AB 11512	Grading drainage ditches B=3m, H=1m, Soil grade II	m ³	48.00		167.688		217.535	49.257.641
AD 21228	Embankment with aggregate with thickness of 20 cm for service roads	100 m ²	47.80	9,335,252	600,600	1,879,775	15,882,325	727,233,382
BE 11208	Insulation of concrete pipes D300mm	100m	0.80	54,584,408	17,798,591	8,580,545	100,978,232	80,782,885
AE 22122	Land levelling as the previous condition of site ground, distance \Rightarrow 50m	100 m ³	25.00			825.882	1,109,591	27,739,777
	Bulldozer \Rightarrow 110CV, Soil Grade II							-
GT7	Material loading and unloading terminals	piece	1.00	35,000,000			31,844,758	31,844,758
AB 22121	Digging the diversion canal by excavators \Rightarrow 0.8m ³	100 m ³	57.89		1,072,143	1,011,543	2,725,048	157,752,905
	Width \Rightarrow 10m, Soil grade II							-
AB 41112	Transporting soil by dump trucks	100 m ³	57.89			1,196,557	1,607,992	90,086,539
	Distance \Rightarrow 300m, truck 5T, Soil grade II							-
	Pile driving for ground treatment							-
	+ Pile casting yard							-
AB 22122	Grading the pile casting yard by bulldozers \Rightarrow 110CV, soil grade II	100 m ²	1.28			825.882	1,109,591	1,331,608
AK 41114	Mortar with grade 75 for troweling ground, 1 cm	m ²	400.00	15,502	14,884	805	39,583	15,831,280
AF 11121	stone-lined concrete 4x6 M100, width \Rightarrow 25cm	m ³	20.00	840,627	211,376	40,654	1,402,321	28,046,421
	- Scaffold:							-
AB 62111	Soil embankment for scaffold by compressor S T K=0.85	100 m ³	3.88		136,321	492,058	834,866	3,072,306
AB 24122	Digging soil for embankment by excavators \Rightarrow 0.8m ³	100 m ³	3.94		189,741	898,404	1,279,213	5,017,029
	Soil grade II							-
AB 41112	Transporting soil by dump trucks	100 m ³	3.94			1,196,657	1,607,992	8,301,628
	Distance \Rightarrow 300m, truck 5T, Soil grade II							-
AB 66111	Sand embankment for scaffold	100 m ³	5.08	9,307,141	276,326	518,541	12,904,173	85,295,144
AD 21228	Aggregate of scaffold with thickness of 20cm	100 m ²	7.36	9,335,252	600,600	1,879,775	15,162,325	111,741,914
AD 21223	Aggregate of scaffold with thickness of 10cm	100 m ²	7.36	4,667,626	414,089	897,599	7,679,277	56,519,480
	- Fabrication:							-
AG 11115	Production of pre-cast concrete components: piles, column, concrete mortar with crushed stone 1x1 M300	m ³	623.89	1,179,611	337,117	63,930	2,019,907	1,258,951,641
AG 13121	Pile reinforcement	ton	137.28	17,399,809	1,581,748	375,696	24,667,921	3,384,546,219
AG 31121	Fabrication, erection and dismantling of pile formwork	100 m ²	35.86	834,723	5,289,871		7,800,175	278,062,914
AI 13151	Production of pile splices	ton	43.87	18,305,814	5,396,785	1,024,342	24,967,083	1,395,301,799
AI 04151	Erection of pile splices	ton	43.87	411,200	1,768,174	279,828	3,175,142	188,858,442
AI 11121	Production of driver pile of steel profiles	ton	2.40	19,070,916	2,044,416	1,695,358	29,174,810	70,019,545
	+ Pile driving:							-

Code Noms	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AC 41141	Pile transport	section	134.00			288,789	418,282	55,781,510
AC 18221	Pilot Pile Driving on ground, hammer \Rightarrow 2.5T	100 m	2.88		1,999,287	12,428,255	19,110,866	58,229,682
	Soil grade II, Pile L=24m F=35x35cm (R=1.5)							-
AC 18223	Driving reinforced blank piles on ground, hammer \Rightarrow 2.5T	100 m	7.95		1,282,178	8,284,157	12,740,404	101,796,826
	Soil grade II, Pile L=24m F=35x35cm							-
AC 18223	Driving Reinforced negative piles on ground, hammer \Rightarrow 2.5T	100 m	26.43		1,282,178	8,284,157	12,740,404	332,906,757
	Soil grade II, Pile L=24m F=35x35cm							-
AC 18222	Driving reinforced batter piles on ground, hammer \Rightarrow 2.5T	100 m	5.64		1,514,814	9,940,988	15,288,485	88,227,054
	Soil grade II, Pile L=24m F=35x35cm (R=1.2)							-
AC 18221	Driving reinforced negative piles on ground, hammer \Rightarrow 2.5T	100 m	1.44		1,325,287	8,698,865	13,377,424	19,263,491
	Soil grade II, Pile L=24m F=35x35cm (R=1.05)							-
AO 23110	Dismantling driving piles	100 m	1.44		572,437	4,895,028	7,039,782	10,137,288
AA 21241	Pile head breaking	m ³	8.21		1,098,414		1,369,150	8,828,634
GT7	using bulldozer 180 cv	shift	80.00			888,397	1,199,871	71,832,275
	*Foundation pit excavation:							-
AB 22122	Grading of service roads for foundation pit and storage yard	100 m ²	11.80			825.882	1,109,591	12,398,302
	L=50m, bulldozer \Rightarrow 110cv, Soil grade II							-
AD 21028	Embankment by aggregate for service road with the thickness of 20 cm	100 m ²	38.45	8,385,252	600,600	1,879,775	15,182,325	563,586,767
AB 66113	Soil Embankment of service roads K=0.95	100 m ²	7.80	9,307,143	276,326	518,541	13,432,074	104,770,174
AB 25412	Soil from foundation excavation is dumped directly on trucks, soil grade	100 m ³	49.81		261,567	960,929	1,625,011	78,067,217
AB 26111	Foundation excavation on the weak and soft soil	100 m ³	143.10		1,354,279	1,709,650	4,761,576	601,751,458
	by two excavators							-
AB 11382	Manual foundation excavation with the width \Rightarrow 3m	m ³	3,234.00		147,374		167,723	607,096,396
	Depth \Rightarrow 3m, Soil grade II							-
AB 24121	Soil taken on trucks by excavator \Rightarrow 0.8m ³	100 m ³	32.34		92,106	706,025	1,064,774	34,434,775
AB 41111	Transporting soil by dump trucks	100 m ³	222.34			998,671	1,285,621	285,845,042
	Distance \Rightarrow 300m, truck 5T, Soil grade I							-
AB 11111	Excavating thick sudge, transport in 30 m	m ³	4,484.00		173,164		220,575	989,086,636
AB 11121	Transporting in 70 m more	m ³	4,484.00		15,063		22,966	103,114,506
AB 34110	Grading the soil in the dumping area by a bulldozer 110 VN	100m ²	287.18			198,356	286,554	71,212,440
AB 24122	Digging for removal of service road & scaffold by excavator \Rightarrow 0.8m ³ , Soil grade II	100 m ³	23.29		189,741	898,404	1,279,213	29,792,671
AB 41112	Transporting soil by dump trucks	100 m ³	23.29			1,196,557	1,607,992	37,450,126
	Distance \Rightarrow 300m, truck 5T, Soil grade II							-
AB 11512	Digging drainage ditch at the bottom, B=3m, H=1m, soil grade II	m ³	254.00		167,638		211,635	54,237,897
AK 98110	Construct a stone layer 2m as a buffer for the drainage ditches	m ³	254.00	572,444	918,498		1,194,674	298,296,111
AL 16122	Spreading geotextile fabric fabric	100 m ²	8.93	5,380,888	215,685		4,342,616	40,567,347

Code Name	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
GTT	Pumping water into foundation pit 20CV	shft	300.00			154.109	247.415	49,482,992
AC.11122	Driving sheeting piles with Lpile = 4.5m. Soil grade II	100 m	112.50	570,610	561,190		1,441,991	182,217,213
AE.11211	Manually diggers eroded soil - Soil Grade I	1 m3	3,000.00		82,888		105,594	316,782,866
AE.11911	Manually transporting soil in 300 m. Soil Grade I	1 m3	3,000.00		171,322		278,228	654,684,157
AE.13112	Soil re-embankment due to erosion K = 0.9	1 m3	3,000.00		123,426		157,218	471,664,243
AE.24122	Digging soil for embankment by excavators =>0.8m3 Soil grade II	100 m3	33.00		119,741	838.404	1,279,218	42,214,029
AE.41112	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade II	100 m3	33.00			1,196,557	1,607,992	53,083,726
	* Cofferdam at the downstream & upstream -Preparation							
AE.22122	Grading the demarcation of the soil taken yard L=>50m, bulldozer =>110CV, Soil grade II	100 m3	9.40			825,682	1,109,591	10,430,158
AD.21228	Embankment with aggregate with thickness of 20 cm for demarcation -Embankment of cofferdam	100 m2	11.75	9,336,292	800,600	1,879,775	15,182,325	178,392,322
AE.63111	Embankment of cofferdam by compressors 9T, dt =>1.65m3 soil taken from the soil ground	100 m3	241.07		272,641	549,187	1,086,313	261,636,297
AE.24122	Digging soil for embankment by excavators =>0.8m3 Soil grade II	100 m3	285.18		119,741	838.404	1,279,218	389,217,864
AE.41112	Transporting soil by dump trucks Distance = 300m, truck 5T, Soil grade II	100 m3	285.18			1,196,557	1,607,992	436,400,410
AE.63111	Embankment of cofferdam by compressors 9T, dt =>1.65m3 soil taken from diversion canal	100 m3	44.83		272,641	549,187	1,086,313	48,328,368
AE.66111	Sand embankment for anti-subsidence	100 m3	2.00	9,307,143	278,326	518,547	12,504,179	25,808,367
AD.21228	Embankment with aggregate with thickness of 20 cm for dyp	100 m2	7.80	9,336,260	800,600	1,879,775	15,182,325	119,422,157
AB.81212	Damaging cofferdam by excavator bucket 1.6m	100m3	190.40		322,893	2,711,684	4,056,378	772,124,574
	-Gulch connecting path:							
AE.22121	Digging soil transporting organic soil in a distance => 70m Bulldozer => 110CV, Soil Grade I	100 m3	13.50			670,462	907,000	12,163,494
AE.64112	Embankment for road bases by compressors 9T K=0.9 soil taken from the storage yard	100 m3	100.00		320,536	799,448	1,482,635	142,398,463
AE.24122	Digging soil for embankment by excavators =>0.8m3 Soil grade II	100 m3	110.80		119,741	838.404	1,279,218	140,713,428
AE.41112	Transporting soil by dump trucks Distance =>1,000m, truck 5T, Soil grade I	100 m3	110.80			1,610,469	2,587,382	282,411,991

Code Name	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AD.21228	Embankment with aggregate with thickness of 20 cm	100 m2	31.50	9,336,292	800,600	1,879,775	15,182,325	389,337,199
	*Sewer construction:							
AF.11225	Concrete of bottom slabs with stone 1x2 M300 B=250cm	1 m3	388.25	1,310,542	382,308	40,357	2,186,200	800,816,686
AF.12145	Concrete of edge posts, Thickness > 45cm Height => 1.6 m, concrete mortar with stone 1x2 M300	1 m3	227.46	1,358,700	788,881	96,058	2,664,630	651,588,749
AF.12145	Concrete of centre piles, Thickness > 45cm Height => 1.6 m, concrete mortar with stone 1x2 M300	1 m3	143.52	1,358,700	788,881	96,058	2,664,630	428,319,480
AF.12145	Stone concrete 1x2 M300 for energy dissipaters toward the sea	1 m3	308.23	1,358,700	788,881	96,058	2,664,630	892,964,909
AF.12145	Stone concrete 1x2 M300 for energy dissipaters toward the paddy fields	1 m3	309.36	1,358,700	788,881	96,058	2,664,630	886,201,941
AF.12315	Concrete with stone 1x2 M300 for transport bridges	1 m3	949.79	1,197,160	710,974	96,058	2,558,650	895,339,871
AF.12315	Concrete with stone 1x2 M300 for transport bridges	1 m3	32.00	1,054,026	710,974	96,058	2,567,852	75,259,250
AF.12225	Concrete for pulling system of rock valves 1x2 M300	1 m3	119.90	1,345,379	962,610	96,058	3,068,962	364,902,009
AF.12225	Concrete for pulling system of rock valves 1x2 M300	1 m3	12.00	1,182,245	962,610	96,058	2,861,184	34,334,211
AF.11213	Stone concrete 1x2 of backyard M300	1 m3	422.30	1,034,026	302,116	40,857	1,756,871	741,928,426
AF.11213	Stone concrete 1x2 of transition section M300	1 m3	90.60	1,034,026	302,116	40,857	1,756,871	106,466,354
AF.12313	stone concrete 1x2 1m for main M300	1 m3	681.77	1,034,026	602,566	58,118	2,162,778	1,052,238,049
AF.11212	Concrete of stone slab 1x2 M150	1 m3	99.10	350,806	302,116	40,857	1,680,484	161,912,463
AF.11121	Crushed stone concrete 4x6 lining, B =250cm	1 m3	173.80	840,627	217,376	40,884	1,402,321	243,302,701
AK.41124	Lining mortar grade M75 with thickness of 3 cm	1 m2	3,888.67	32,123	22,811	809	68,323	167,190,510
AF.82111	Different types of metal formwork	100m2	75.91	5,716,284	8,237,921	511,011	58,461,427	1,401,382,381
AF.81822	Fabrication of different reinforcement	ton	276.41	17,389,809	2,078,999	397,251	25,346,802	7,016,088,265
AL.41410	fabrication of couplings by PVC plates	1 m	61.00	292,821	473,444		976,060	53,539,663
AL.25112	Erection of rubber bridge bearing	piece	40.00	578,465	753,206		1,666,268	67,850,251
AL.16122	Spraying geotextile fabric on land	100 m2	38.54	3,350,688	215,689		4,542,818	402,220,931
R65.3	Erection of stone gabiions (purchased gabiions)	m3	904.00	489,788	333,233		1,026,620	936,200,660
GTT1	Gabion wire mesh	m2	7,982.00	45,000			67,321	457,522,749
AE.11114	Ashlar M100	1 m3	21.40	875,198	381,448		1,600,708	34,255,102
AK.96110	Making sand filter beds	100 m3	2.02	24,318,842	1,081,364	1,078,199	33,800,913	58,277,844
AK.96131	Making filter beds for crushed-stone 1x2	100 m3	4.05	82,749,076	1,584,267	1,211,518	70,837,516	286,891,941
AC.11122	Driving sheeting piles with Lpile = 4.5m. Soil grade II	100 m	1,528.98	570,610	561,190		1,441,991	2,345,985,384
AD.21228	Construction of road surface with aggregate d=20cm	100 m2	9.00	9,336,292	800,600	1,879,775	15,182,325	136,640,928
AE.66113	Sand embankment for road bases by compressors 9T K=0.9	100 m3	34.50	9,307,143	278,326	518,547	13,432,074	483,406,541
AE.64112	Embankment for road bases by compressors 9T K=0.9	100 m3	35.30		320,536	799,448	1,482,635	49,371,730
AE.24132	Digging soil for embankment by excavators =>1.35m3 Soil grade II	100 m3	36.83		119,741	838.349	1,300,104	47,622,797
AE.41122	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade II	100 m3	36.83			1,028,738	1,379,778	38,541,251

Code Items	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine-shift		
	* Wing wall:							
AB 66143	Sand embankment by Vibratory Rammers K=0,95	100 m ³	6,00	9.307,143	882,400	669,499	13,916,361	89.516,887
AB 66113	Sand embankment by compressor 9T K=0,95	100 m ³	14,00	9.307,143	278,328	911,370	13,432,074	186.049,031
AB 66130	Soil embankment for wing-wall by vibratory rammers K=0,95	100 m ³	18,00		2.190,752	1.430,063	4.688,937	84.560,148
AB 64113	Soil embankment for wing-wall by compressor 9T K=0,95	100 m ³	42,00		320,838	1.119,227	1.912,369	90.316,304
AB 24121	Digging soil for embankment by excavators =>0,8m ³	100 m ³	46,00		92,109	706,025	1.064,774	49.156,838
	Soil grade I							
AB 41141	Transporting soil by dump trucks	100 m ³	46,20			666,671	1.295,821	59.396,704
	Distance => 300m, truck 5T, Soil grade I							
	* Signs of waterway transport	system	1,00	100.000,000			100.000,000	100.000,000
	* Protective fence for works	system	1,00	800.000,000			800.000,000	300.000,000
	* storage area, electricity & water supply	system	1,00	800.000,000			800.000,000	300.000,000
	* Mechanics							
	Valve gate (10,5x6)m - Black steel	set	2,00					
	Valve gate (10,5x6)m - Stainless steel	set	2,00					
	10- Open sluice Bc=10m (01 sluice):							39.112.212.674
	* Site area							
AA 11111	Site Clearance	100 m ²	430,00		175,006		222,921	93.628,526
AA 12111	Cutting down trees in the ground Dtree =>30cm	tree	1.600,00		22,106		28,158	45.083,454
AA 13111	Digging tree stump Dtree =>30cm	tree	1.800,00		36,843		46,931	75.089,227
AA 12311	Digging bush of water coconut Dbush =>30cm	tree	500,00		97,635		124,367	62.183,259
AB 13214	Danh Trung Sluice	1 m ³	1.145,00		149,216		190,070	217.629,742
AB 14212	Soil Excavation for embankment - Soil Grade II	1 m ³	1.225,15		114,215		148,465	175.241,503
AS 22121	Digging and transporting organic soil in a distance => 50m:	100 m ³	13,41			870,462	901,000	12.062,404
	Bulldozer => 110CV, Soil Grade I							
AB 13312	Embankment in combination with service roads, K=0,9	1 m ³	979,00		132,858		168,951	186.402,989
	Using soil from the excavated pit for embankment							
AB 64112	Embankment in combination with service roads, compressor 9T K=3,5	100 m ³	29,38		320,698	799,448	1.482,605	43.638,150
AB 24122	Digging soil for embankment by excavator =>0,8m ³	100 m ³	32,30		119,741	838,404	1.279,213	41.315,485
	Soil grade II							
AB 41112	Transporting soil by dump trucks	100 m ³	32,30			1.196,567	1.607,992	51.931,700
	Distance => 300m, truck 5T, Soil grade II							
AB 13312	manual embankment of service roads K=0,9	1 m ³	326,00		132,636		168,951	55.077,973
	Using soil from the excavated pit for embankment							
AB 64112	Embankment of service roads, compressor 9T K=0,9	100 m ³	9,79		320,698	799,448	1.482,605	14.574,992
AB 24122	Digging soil for embankment by excavator =>0,8m ³	100 m ³	10,77		119,741	838,404	1.279,213	13.775,945

Code Items	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine-shift		
	Soil grade II							
AB 41112	Transporting soil by dump trucks	100 m ³	10,77			1.196,567	1.607,992	17.316,482
	Distance => 300m, truck 5T, Soil grade II							
AB 13311	Manual embankment of site ground	1 m ³	325,00		100,162		131,408	86.988,214
	Using soil from the excavated pit for embankment							
AB 62111	Embankment of site ground by compressor 9 Ton K=0,85	100 m ³	15,35		108,321	492,038	834,388	13.149,135
AB 24122	Digging soil for embankment by excavator =>0,8m ³	100 m ³	17,33		119,741	838,404	1.279,213	22.162,365
	Soil grade II							
AB 41112	Transporting soil by dump trucks	100 m ³	17,33			1.196,567	1.607,992	27.868,458
	Distance => 300m, truck 5T, Soil grade II							
AB 11612	Digging drainage ditches B =>3m, H=>1m, Soil grade II	1 m ³	318,00		187,698		213,635	67.904,138
AD 21228	Embankment with aggregate with thickness of 20 cm for service roads	100 m ²	38,50	9.335,252	800,600	1.879,775	15.182,325	354.154,873
BB 11208	Installation of concrete pipes D500mm	100m	0,70	54.564,409	17.798,591	6.560,545	100.978,232	70.864,762
AB 22122	Land levelling as the previous condition of site ground, distance =>50m	100 m ³	20,00			825,682	1.109,591	22.191,822
	Bulldozer => 110CV, Soil Grade II							
GTT	Material loading and unloading terminal:	piece	1,00	25.000,000			31.844,758	31.844,758
AB 27212	Digging the diversion canal by excavator =>0,8m ³	100 m ³	54,89		1.072,143	1.011,543	2.726,048	149.032,756
	Width => 10m, Soil grade II							
AB 41112	Transporting soil by dump trucks	100 m ³	54,89			1.196,567	1.607,992	87.941,065
	Distance => 300m, truck 5T, Soil grade II							
	Pile driving for ground treatment							
	- Pile casting yard:							
AB 22122	Grading the pile casting yard by bulldozers => 110CV, soil grade II	100 m ²	1,20			825,682	1.109,591	1.331,509
AK 41114	Mortar with grade 75 for troweling ground, 2 cm	1 m ²	400,00	15,602	14,604	608	36,583	15.833,280
AF 11121	stone-lined concrete 4x6 M100, width > 25cm	1 m ³	30,00	840,627	217,376	40,884	1.438,321	38.046,421
	- Scaffolding:							
AB 62111	Soil embankment for scaffold by compressor 9 T K=0,85	100 m ³	1,81		136,321	492,038	834,388	1.344,134
AB 24122	Digging soil for embankment by excavator =>0,8m ³	100 m ³	1,77		119,741	838,404	1.279,213	2.266,486
	Soil grade II							
AB 41112	Transporting soil by dump trucks	100 m ³	1,77			1.196,567	1.607,992	2.847,763
	Distance => 300m, truck 5T, Soil grade II							
AB 68111	Sand embankment for scaffold	100 m ³	1,61	9.307,143	278,328	618,547	12.904,179	20.775,729
AD 21228	Aggregate of scaffold with thickness of 20cm	100 m ²	3,32	9.335,252	800,600	1.879,775	15.182,325	48.587,087
AD 21225	Aggregate of scaffold with thickness of 10cm	100 m ²	3,32	4.867,608	414,089	897,589	7.679,277	34.737,372
	- Fabrication:							

Code Work	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AG 11115	Production of pre-cast concrete components: piles, column, concrete u-stair with crushed stone 1x, 2 M500	m ³	208.66	1,179,811	337,117	61,830	2,017,957	417,020,609
AG 13121	Pile reinforcement	ton	51.66	17,399,808	1,561,746	375,695	24,667,921	1,273,828,132
AG 31121	Fabrication, erection and dismantling of pile formwork	100 m ²	11.81	834,723	5,286,874	-	7,800,175	32,113,377
AI 13151	Production of pile splices	ton	20.67	16,306,814	5,696,766	1,024,542	31,961,663	690,428,888
AI 64151	Erection of pile splices	ton	20.67	411,280	1,766,174	279,826	3,175,142	35,630,181
AI 11131	Production of driver pile of steel profiles	ton	2.40	19,070,946	2,044,416	1,895,356	39,174,810	70,019,545
	- Pile driving:							
AG 41141	Pile transport	section	101.80	-	-	306,769	316,262	42,044,496
AC 16229	Pilot Pile Driving on ground, hammer => 0.5T Soil grade II, Pile L=>24m F=3%*33cm (K=1.5)	100 m	2.34	-	1,893,287	12,426,235	19,110,606	42,937,766
AC 16223	Driving reinforced plumb piles on ground, hammer => 0.5T Soil grade II, Pile L=>24m F=3%*33cm	100 m	6.29	-	1,262,178	8,294,157	12,740,404	90,137,141
AC 16223	Driving Reinforced negative piles on ground, hammer => 0.5T Soil grade II, Pile L=>24m F=3%*33cm	100 m	10.20	-	1,262,178	8,294,157	12,740,404	129,962,121
AC 16229	Driving reinforced batter piles on ground, hammer => 0.5T Soil grade II, Pile L=>24m F=3%*33cm (K=1.2)	100 m	4.44	-	1,514,614	9,940,383	15,388,486	67,880,875
AC 16229	Driving reinforced negative piles on ground, hammer => 0.5T Soil grade II, Pile L=>24m F=3%*33cm (K=1.05)	100 m	3.78	-	1,325,287	8,698,365	13,317,424	18,424,281
AD 23110	Dismantling driving piles	100 m	0.78	-	572,437	4,666,928	7,039,782	5,491,050
AA 21241	Pile head breaking using bulldozer 110 cv	shift	50.00	-	1,098,414	888,297	1,939,671	58,693,362
	* Foundation pit excavation:							
AB 22122	Grading of service roads for foundation pit and storage yard L<=50m, bulldozer =>110cv, Soil grade II	100 m ³	8.80	-	-	825,682	1,109,691	9,784,402
AD 21228	Embankment by aggregate for service road with the thickness of 20 cm Soil Embankment of service roads E=0.95	100 m ³	33.70	9,335,282	800,600	1,879,775	16,182,326	511,544,262
AB 66113	Soil Embankment of service roads E=0.95	100 m ³	7.80	9,307,143	276,326	911,876	13,432,674	104,770,174
AB 25412	Soil from foundation excavation is dumped directly on trucks, soil grade I	100 m ³	49.58	-	281,967	960,929	1,425,021	30,536,024
AB 25111	Foundation excavation on the weak and soft soil by two excavators	100 m ³	137.80	-	1,994,279	1,709,650	4,761,379	655,548,274
AB 11382	Manual foundation excavation with the width > 5m Depth > 3m, Soil grade II	1 m ³	2,772.00	-	147,374	-	167,723	620,566,341
AB 24124	Soil taken on trucks by excavators => 0.5m ³	100 m ³	27.72	-	42,106	705,025	1,064,774	29,515,263
AB 41111	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade I	100 m ³	214.86	-	-	988,671	1,226,621	278,467,157
AB 11111	Excavating thick sludge, transport in 50 m	1 m ³	3,388.00	-	173,164	-	220,575	679,210,477

Code Work	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AB 11121	Transporting in 10 m more	1 m ³	3,906.00	-	15,055	-	31,995	91,662,530
AB 24130	Grading the soil in the dumping area by a bulldozer 110 CV	100m ³	264.02	-	-	196,236	386,534	67,916,091
AB 24122	Digging for removal of service road & scaffold by excavator => 0.8m ³ , Soil grade II	100 m ³	16.63	-	119,741	838,404	1,279,213	21,146,391
AB 41112	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade II	100 m ³	18.63	-	-	1,196,657	1,607,962	28,580,105
AB 11512	Digging drainage ditch at the bottom B<=3m, H<=1m, soil grade II	1 m ³	246.00	-	167,638	-	213,835	52,316,082
AK 59110	Construct a stone layer 2x4 as a buffer for the drainage ditches	1 m ³	245.03	572,444	818,496	-	1,394,874	278,044,241
AL 16122	Spreading geotextile fabric	100 m ²	8.62	3,350,888	215,689	-	4,542,816	39,169,074
DTT	Pumping water into foundation pit 20CV	shift	200.00	-	-	184,109	247,415	49,462,932
	* Cofferdam at the downstream & upstream:							
	- Preparation:							
AB 22122	Grading the demarcation of the soil taken yard L<=50m, bulldozer =>110cv, Soil grade II	100 m ³	8.47	-	-	825,682	1,109,591	7,179,054
AD 21228	Embankment with aggregate with thickness of 20 cm for demarcation - Embankment of cofferdam:	100 m ³	8.10	9,335,282	800,600	1,879,775	16,182,326	122,976,838
AB 63111	Embankment of cofferdam by compressors 9T, dir=>1.55m ³ soil taken from the soil ground	100 m ³	186.83	-	272,641	549,167	1,086,313	179,977,383
AB 24122	Digging soil for embankment by excavators => 0.5m ³ Soil grade II	100 m ³	182.41	-	119,741	838,404	1,279,213	233,346,060
AB 41112	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade II	100 m ³	182.41	-	-	1,196,657	1,607,962	293,318,368
AB 63111	Embankment of cofferdam by compressors 9T, dir=>1.55m ³ soil taken from drainage canal	100 m ³	42.07	-	272,641	549,167	1,086,313	45,689,889
AB 63111	Sand embankment for anti-subsidence	100 m ³	2.00	9,307,143	276,326	518,547	12,904,173	25,808,357
AD 21228	Embankment with aggregate with thickness of 20 cm one dip	100 m ²	7.50	9,335,282	800,600	1,879,775	16,182,326	113,867,440
AB 61212	Damaging cofferdam by excavator bucket 1.6m	100m ³	138.60	-	322,603	2,741,664	4,065,276	502,061,271
	- Sluice connecting path:							
AB 22121	Digging and transporting organic soil in a distance => 50m Bulldozer => 110CV, Soil Grade I	100 m ³	13.50	-	-	670,462	901,000	12,162,494
AB 64112	Embankment for road base by compressors 9T E=0.9 soil taken from the storage yard	100 m ³	87.80	-	330,638	799,448	1,482,835	100,077,851
AB 24122	Digging soil for embankment by excavators => 0.5m ³ Soil grade II	100 m ³	74.26	-	119,741	838,404	1,279,213	34,981,808
AB 41112	Transporting soil by dump trucks	100 m ³	74.26	-	-	1,910,469	2,667,382	190,626,094

Code Notes	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AD 21228	Distance \leq 1000m, truck 3T, Soil grade II Embankment with aggregate with thickness of 30 cm	100 m ³	37.50	9,335,262	600,600	1,675,775	15,182,325	589,337,199
	*Sewer construction:							
AF 11235	Concrete of bottom slabs with stone 1x2 M300 B=250cm	1 m ³	239.70	1,310,542	362,908	40,857	2,184,933	524,111,289
AF 12145	Concrete of edge posts, Thickness \geq 45cm Height \geq 1.6 m, concrete mortar with stone 1x2 M300	1 m ³	227.46	1,358,700	785,861	96,058	2,894,633	651,583,748
AF 12145	Stone concrete 1x2 M300 for energy dissipaters toward the sea	1 m ³	214.98	1,358,700	785,861	96,058	2,894,630	615,838,180
AF 12145	Stone concrete 1x2 M300 for energy dissipaters toward the paddy fields	1 m ³	219.20	1,358,700	785,861	96,058	2,894,630	627,828,599
AF 12315	Concrete with stone 1x2 M300 for transport bridges	1 m ³	328.80	1,197,180	710,974	96,058	2,599,660	838,489,824
AF 12315	Concrete with stone 1x2 M200 for transport bridges	1 m ³	31.20	1,034,026	710,974	96,058	2,361,852	73,377,788
AF 12325	Concrete for pulling system of rock valves 1x2 M300	1 m ³	137.31	1,345,379	362,610	96,058	3,068,362	421,401,975
AF 12325	Concrete for pulling system of rock valves 1x2 M200	1 m ³	13.50	1,182,245	362,610	96,058	3,881,184	38,625,368
AF 11215	Stone concrete 1x2 of backyard M200	1 m ³	149.90	1,034,026	302,116	40,857	1,766,871	258,084,281
AF 11215	Stone concrete 1x2 of transition section M200	1 m ³	87.00	1,034,026	302,116	40,857	1,766,871	117,740,326
AF 11315	stone concrete 1x2 top lot unit M200	1 m ³	381.70	1,034,026	302,668	58,118	2,182,778	1,284,086,895
AF 11212	Concrete of stone slab 1x3 M150	1 m ³	98.10	950,506	302,116	40,857	1,660,484	161,912,463
AF 11121	Crossed stone-concrete 4x6 lining, B \geq 250cm	1 m ³	100.80	840,627	217,376	40,864	1,462,321	141,863,581
AK 41124	Lining unstar grade M75 with thickness of 3 cm	1 m ²	2,866.67	22,123	22,811	808	58,323	187,192,510
AF 12111	Different types of metal formwork	100m ²	57.60	5,718,264	6,237,921	511,011	15,461,427	1,383,342,610
AF 11322	Fabrication of different reinforcement	ton	222.92	17,399,809	2,075,969	397,261	25,345,802	5,850,069,804
AL 41410	fabrication of couplings by PVC plates	1 m	61.00	292,821	473,444	976,083	976,083	59,539,663
AL 25112	Erection of rubber bridge bearing	piece	30.00	578,485	763,206	1,658,256	1,658,256	50,867,688
AL 16122	Spreading geotextile fabric fabric on land	100 m ²	81.52	3,350,888	215,669	4,542,819	4,542,819	369,421,800
035.3	Erection of stone columns (purchased columns)	m ³	785.00	489,789	323,233	1,035,920	1,035,920	312,391,857
GTT1	Galvan wire mesh	m ²	6,831.00	46,000	-	97,821	97,821	397,388,836
AE 11114	Ashlar M100	1 m ³	21.40	875,198	381,449	1,600,705	3,428,102	24,286,102
AK 98110	Making sand filter beds	100 m ³	3.43	24,318,842	1,081,354	1,078,199	33,930,818	115,837,131
AK 98131	Making filter beds for crushed-stone 1x2	100 m ³	3.84	52,749,073	1,984,267	1,211,618	70,837,218	257,708,864
AC 11122	Driving sheeting piles with L pile = 4.5m, Soil grade II	100 m	1,382.57	570,810	551,930	1,441,931	1,441,931	1,960,305,106
AD 21228	Construction of road surface with aggregate d=30cm	100 m ²	9.00	9,335,262	600,600	1,679,775	15,182,325	188,640,268
AB 65113	Sand embankment for road bases by compressors 9T K=0.95	100 m ³	34.50	9,307,143	276,328	911,370	13,432,074	493,406,541
AB 64112	Embankment for road bases by compressors 9T K=0.9	100 m ³	33.90	9,335,262	320,638	789,448	1,462,835	49,371,730
AB 24132	Digging soil for embankment by excavators \leq 1.13m ³ Soil grade II	100 m ³	36.82	-	119,741	833,349	1,300,104	47,822,797
AB 41122	Transporting soil by dump trucks Distance \leq 300m, truck 3T, Soil grade II	100 m ³	38.83	-	-	1,028,758	1,379,778	58,541,251
	* Wing wall							

Code Notes	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AB 65143	Sand embankment by Vibratory Rammer K=0.95	100 m ³	6.00	9,307,143	392,400	699,439	13,919,381	53,515,667
AB 65113	Sand embankment by compressors 9T K=0.95	100 m ³	14.00	9,307,143	276,328	911,370	13,432,074	188,049,051
AB 65130	Soil embankment for wing-wall by vibratory rammer K=0.95	100 m ³	14.00	2,190,759	1,420,053	4,668,997	4,668,997	84,580,146
AB 64112	Soil embankment for wing-wall by compressor 9T K=0.95	100 m ³	43.00	9,335,262	330,638	1,118,237	1,912,869	30,319,804
AB 24121	Digging soil for embankment by excavators \leq 0.8m ³ Soil grade I	100 m ³	88.00	-	42,109	705,025	1,084,774	70,275,082
AB 41111	Transporting soil by dump trucks Distance \leq 300m, truck 3T, Soil grade I	100 m ³	88.00	-	-	958,671	1,268,821	84,851,006
	* Signs of waterway transport	system	1.00	-	-	-	100,000,000	100,000,000
	* Protective fence for works	system	1.00	-	-	-	300,000,000	300,000,000
	* arrange area electricity & water supply	system	1.00	-	-	-	300,000,000	300,000,000
	* Mechanics						-	-
	Valve gate (10.5x6)m - TB - Black steel	set	1.00	-	-	-	-	-
	Valve gate (10.5x6)m - Stainless steel	set	1.00	-	-	-	-	-
	11- Open sluice Bc=7.5m (01 sluice):							24,241,297,442
	* Site area							
AK 11111	Site Clearance	100 m ²	428.00	-	172,006	-	228,921	93,639,306
AA 12111	Cutting down trees in flat ground Dtree \leq 20cm	tree	1,800.00	-	35,106	-	35,106	45,063,454
AA 13111	Digging tree stumps Dtree \leq 20cm	tree	1,800.00	-	86,943	-	46,931	75,089,227
AA 13211	Digging bank of water coconut Dtree \leq 30cm	tree	300.00	-	37,636	-	124,367	102,183,259
AB 13214	Dirt Thruing Sluice	1 m ³	1,031.00	-	149,216	-	150,073	195,961,832
AB 11212	Soil Excavation for embankment - Soil Grade II	1 m ³	1,103.17	-	114,215	-	545,485	100,495,157
AB 22121	Digging and transporting organic soil in a distance \leq 50m Bulldozer \leq 110CV, Soil Grade I	100 m ³	12.07	-	-	670,462	901,000	10,875,065
AE 13312	Embankment in combination with service roads, K=0.9 Using soil from the excavated pit for embankment	1 m ³	317.80	-	132,638	-	188,951	154,827,917
AE 64112	Embankment in combination with service roads, compressor 9T K=0.9	100 m ³	27.82	-	380,638	788,448	1,462,835	40,882,102
AE 24132	Digging soil for embankment by excavators \leq 0.8m ³ Soil grade II	100 m ³	38.27	-	119,741	838,404	1,279,213	38,724,336
AB 41112	Transporting soil by dump trucks Distance \leq 300m, truck 3T, Soil grade II	100 m ³	38.27	-	-	1,096,557	1,607,992	58,677,124
AB 13312	manual embankment of service roads K=0.9 Using soil from the excavated pit for embankment	1 m ³	308.00	-	132,638	-	188,951	51,650,356
AE 64112	Embankment of service roads, compressor 9T K=0.9	100 m ³	31.17	-	330,638	788,448	1,462,835	13,838,795
AE 24132	Digging soil for embankment by excavators \leq 0.8m ³ Soil grade II	100 m ³	18.02	-	119,741	838,404	1,279,213	12,962,421

Code Norms	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AB 41112	Transporting soil by dump trucks Distance \leq 300m, truck 5T, Soil grade II	100 m ³	10.09			1,196,557	1,607,992	18,219,812
AB 15111	Manual embankment of site ground Using soil from the excavated pit for embankment	1 m ³	525.00			103,162	131,405	68,988,214
AB 62111	Embankment of site ground by compressor 9 Ton K=0.15	100 m ³	15.75			136,321	492,036	834,866
AB 24122	Digging soil for embankment by excavators \leq 0.8m ³ Soil grade II	100 m ³	17.32			119,741	838,404	1,279,213
AB 41112	Transporting soil by dump trucks Distance \leq 300m, truck 5T, Soil grade II	100 m ³	17.23			1,196,557	1,607,992	27,858,456
AB 11512	Digging drainage ditches B \geq 3m, H \geq 1m, Soil grade II	1 m ³	299.00			167,668	213,535	63,846,975
AD 21228	Embankment with aggregate with thickness of 20 cm for service roads	100 m ²	34.20	9,335,282	800,600	1,679,775	15,162,325	519,235,525
BE 11238	Installation of concrete pipes D500mm	100m	0.70	54,684,408	17,798,581	8,560,545	100,978,232	70,984,782
AB 22122	Land leveling as the previous condition of site ground, distance \leq 50m Bulldozer \leq 110CV, Soil Grade II	100 m ³	29.60			825,682	1,109,591	22,191,823
GTT	Material loading and unloading terminals	pieces	1.00	25,000,000			31,644,758	21,644,758
AB 22122	Digging the diversion canal by excavators \leq 0.8m ³ Width \leq 10m, Soil grade II	100 m ³	54.69			1,012,143	1,011,543	149,032,765
AB 41112	Transporting soil by dump trucks Distance \leq 300m, truck 5T, Soil grade II	100 m ³	54.69			1,196,557	1,607,992	27,941,695
	Pile driving for ground treatment - Pile casting yard							
AB 22122	Grading the pile casting yard by bulldozers \leq 110CV, soil grade II	100 m ³	1.20			825,682	1,109,591	1,331,808
AK 41114	Mortar with grade 75 for troweling ground, 1 cm	1 m ²	400.00	19,892	14,684	806	38,883	15,893,280
AF 11121	stone-lined concrete 4x5 M100, width \geq 25cm - Scaffold	1 m ³	20.00	840,827	211,376	40,654	1,402,321	28,048,421
AB 62111	Soil embankment for scaffold by compressor 9 T K=0.15	100 m ³	1.38			136,321	492,036	1,162,115
AB 24122	Digging soil for embankment by excavators \leq 0.8m ³ Soil grade II	100 m ³	17.32			119,741	838,404	1,941,645
AB 41112	Transporting soil by dump trucks Distance \leq 300m, truck 5T, Soil grade II	100 m ³	17.23			1,196,557	1,607,992	2,440,931
AB 66111	Soil embankment for scaffold	100 m ³	1.38	9,307,143	278,326	516,547	12,904,179	17,897,767
AD 21228	Aggregate of scaffold with thickness of 20cm	100 m ²	2.76	9,335,282	800,600	1,879,775	15,162,325	41,800,215
AD 21223	Aggregate of scaffold with thickness of 10cm - Fabrication	100 m ²	2.76	4,867,626	414,089	697,599	7,679,277	21,194,905
AG 11115	Production of pre-cast concrete components	1 m ³	189.26	1,179,411	327,117	63,930	2,017,907	381,919,031

Code Norms	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AG 13121	piles, column, concrete mortar with crushed stone 1=3 M500	ton	47.32	17,399,898	1,561,746	173,895	24,657,921	1,188,612,616
AG 31121	Fabrication, erection and dismantling of pile framework	100 m ²	13.81	834,723	5,283,871		7,810,175	84,327,775
AI 13154	Production of pile splices	ton	18.93	16,305,814	5,696,765	1,024,542	21,967,063	604,834,003
AI 84154	Erection of pile splices	ton	18.93	411,280	1,786,174	279,828	3,175,142	80,105,434
AI 13134	Production of driver pile of steel profiles - Pile driving	ton	2.40	19,070,916	2,044,416	1,696,356	29,174,810	70,019,545
AG 41141	Pile transport	km	89.88			308,789	416,282	37,468,396
AG 15221	Pilot Pile Driving on ground, hammer \leq 2.5T Soil grade II, Pile L=34m F=3% \times 35cm (K=1.1)	100 m	2.24			1,893,287	12,426,235	19,110,806
AD 15223	Driving reinforced plumb piles on ground, hammer \leq 2.5T Soil grade II, Pile L=24m F=3% \times 35cm	100 m	5.88			1,282,178	8,294,157	12,740,404
AD 15223	Driving Reinforced negative piles on ground, hammer \leq 2.5T Soil grade II, Pile L=24m F=3% \times 35cm	100 m	8.10			1,282,178	8,294,157	12,740,404
AD 15223	Driving reinforced batter piles on ground, hammer \leq 2.5T Soil grade II, Pile L=34m F=3% \times 35cm (K=1.1)	100 m	4.44			1,514,614	9,640,968	15,288,485
AD 15223	Driving reinforced negative piles on ground, hammer \leq 1.5T Soil grade II, Pile L=24m F=3% \times 35cm (K=1.05)	100 m	3.64			1,325,287	9,698,365	13,377,424
AG 33110	Dismantling driving piles	100 m	3.64			572,437	4,698,928	7,038,783
AA 21241	Pile head breaking	1 m ³	3.74			1,098,414	1,399,150	5,232,820
GTT	using bulldozer 110 cv	shift	50.00			888,397	1,193,871	59,699,562
	*Foundation pit excavation:							
AB 22122	Grading of service roads for foundation pit and storage yard L \geq 50m, bulldozer \leq 110cv, Soil grade II	100 m ³	8.80			825,682	1,109,591	9,784,402
AD 21228	Embankment by aggregate for service roads with the thickness of 20 cm	100 m ²	33.76	9,335,282	800,600	1,679,775	15,162,325	511,644,382
AB 66111	Soil Embankment of service roads K=0.15	100 m ³	7.86	9,307,143	278,326	511,370	13,432,074	194,770,174
AB 25412	Soil from foundation excavation is dumped directly on trucks, soil grade II	100 m ³	44.68			381,587	980,929	1,635,021
AB 25411	Foundation excavation on the weak and soft soil by two excavators	100 m ³	132.17			1,934,279	4,709,650	4,761,978
AB 11362	Manual foundation excavation with the width \geq 3m Depth \geq 3m, Soil grade II	1 m ³	3,234.00			147,374	187,723	807,096,526
AB 24121	Soil taken on trucks by excavator \leq 0.8m ³	100 m ³	32.34			82,109	706,025	34,434,775
AB 41111	Transporting soil by dump trucks Distance \leq 300m, truck 5T, Soil grade I	100 m ³	388.57			386,671	1,285,621	388,142,036
AB 11111	Excavating thick sludge, transport in 30 m	1 m ³	3,737.00			175,164	230,875	824,287,388
AB 11121	Transporting in 70 m more	1 m ³	3,737.00			15,083	22,998	115,938,497

Code Name	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AB 24110	Grading the soil in the dumping area by a bulldozer TL0 VN	100m ³	345.94				345.94	85,551,272
AB 24122	Digging for removal of service road & scaffold by excavator => 0.8m ³ , Soil grade II	100 m ³	15.93		119,741	838,404	1,279,213	30,377,853
AB 41112	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade II	100 m ³	16.83			1,196,867	1,697,992	25,416,308
AB 11512	Digging drainage ditch in the bottom, B>=3m, H>=1m, soil grade II	1 m ³	242.00		187,638		242,000	51,675,478
AK 09110	Construct a stone layer 2x4 as a buffer for the drainage ditches	1 m ³	342.00	972,444	918,498		1,494,574	274,898,817
AL 16122	Spreading geotextile fabric fabric	100 m ²	3.51	3,350,888	215,689		4,542,816	38,859,364
GTT	Pumping water into foundation pit 20CV	shft	200.00			184,109	247,415	49,482,932
	* Cofferdam at the downstream & upstream: -Preparation:							
AB 22122	Grading the demarcation of the soil taken yard L>=30m, bulldozer =>110cv, Soil grade II	100 m ³	5.66			825,862	1,109,591	8,286,386
AD 21228	Embankment with aggregate with thickness of 20 cm for demarcation ->Embankment of cofferdam:	100 m ²	7.05	9,335,252	800,600	1,879,775	15,182,325	107,036,393
AB 65111	Embankment of cofferdam by compressors 9T, dr>=1.651m ³ soil taken from the soil ground	100 m ³	145.04		272,641	549,167	1,065,313	157,413,733
AB 24122	Digging soil for embankment by excavators =>0.8m ³ Soil grade II	100 m ³	159.54		119,741	838,404	1,279,213	204,090,758
AB 41112	Transporting soil by dump trucks Distance => 300m, truck 5T, Soil grade II	100 m ³	159.54			1,196,867	1,697,992	256,546,438
AB 65111	Embankment of cofferdam by compressors 9T, dr>=1.651 m ³ soil taken from diversion canal	100 m ³	42.07		272,641	549,167	1,065,819	46,689,099
AB 65111	Sand embankment for anti-inundation	100 m ³	2.00	9,307,141	275,326	518,547	12,904,179	25,806,357
AD 21228	Embankment with aggregate with thickness of 20 cm mat dip	100 m ²	8.75	9,335,252	800,600	1,879,775	15,182,325	102,480,696
AB 81212	Demolishing cofferdam by excavator bucket 1.5m	100m ³	124.74		322,809	2,711,864	4,868,278	505,888,144
	=>Shut connecting path:							
AB 22121	Digging and transporting organic soil in a distance => 70m Bulldozer => 110CV, Soil Grade I	100 m ³	13.60			870,482	901,000	12,163,494
AB 64112	Embankment for road bases by compressors 9T K=>0.9 soil taken from the storage yard	100 m ³	130.00		320,538	799,449	1,482,655	149,393,453
AB 24122	Digging soil for embankment by excavators =>0.8m ³ Soil grade II	100 m ³	118.69		119,741	838,404	1,279,213	140,711,439
AB 41412	Transporting soil by dump trucks Distance =>1000m, truck 5T, Soil grade II	100 m ³	116.60			1,910,469	2,567,382	381,411,991

Code Name	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AD 21228	Embankment with aggregate with thickness of 20 cm	100 m ²	37.25	9,335,252	800,600	1,879,775	15,182,325	569,337,199
	* Sewer construction:							
AF 11225	Concrete of bottom slabs with stone 1x2 M300 B<250cm	1 m ³	198.12	1,310,542	382,508	40,857	2,188,630	428,822,303
AF 12145	Concrete of edge posts, Thickness >45cm Height => 16 m, concrete mortar with stone 1x2 M300	1 m ³	227.46	1,858,700	798,861	96,058	2,884,630	861,588,749
AF 12145	Stone concrete 1x2 M300 for energy dissipaters toward the sea	1 m ³	101.47	1,858,700	798,861	96,058	2,884,630	519,844,409
AF 12145	Stone concrete 1x2 M300 for energy dissipaters toward the paddy fields	1 m ³	102.74	1,858,700	798,861	96,058	2,884,630	623,482,489
AF 12315	Concrete with stone 1x2 M300 for transport bridges	1 m ³	318.28	1,197,160	710,574	96,058	2,599,650	815,493,203
AF 12315	Concrete with stone 1x2 M200 for transport bridges	1 m ³	31.20	1,034,026	710,574	96,058	2,361,362	73,377,789
AF 12225	Concrete for pulling system of rock valves 1x2 M300	1 m ³	113.13	1,345,379	962,610	96,058	3,068,362	347,193,960
AF 12225	Concrete for pulling system of rock valves 1x2 M200	1 m ³	11.80	1,182,245	962,610	96,058	2,861,784	33,761,975
AF 11215	Stone concrete 1x2 of backyard M200	1 m ³	123.90	1,034,026	302,116	40,857	1,756,871	217,676,259
AF 11215	Stone concrete 1x2 of transition section, M200	1 m ³	56.80	1,034,026	302,116	40,857	1,756,871	98,438,672
AF 16315	stone concrete 1x2 for mat: M200	1 m ³	581.70	1,034,026	802,666	58,118	2,162,776	1,258,088,655
AF 11212	Concrete of stone slab 1x2 M150	1 m ³	98.10	950,506	302,116	40,857	1,650,484	161,912,463
AF 11121	Crushed stone concrete 4x6 lining, B >250cm	1 m ³	86.10	849,827	217,376	40,864	1,462,321	123,544,484
AK 41124	Lining quarz grade M75 with thickness of 5 cm	1 m ²	2,888.67	22,123	32,811	808	86,323	187,192,510
AF 82111	Different types of metal framework	100m ²	83.07	5,718,264	8,237,921	511,011	18,461,427	379,781,575
AF 81522	Fabrication of different reinforcement	ton	392.68	17,399,809	2,078,999	397,261	25,346,902	5,128,981,677
AL 41410	fabrication of couplings by PVC plates	1 m	40.00	392,821	473,444		976,090	39,042,402
AL 25112	Erection of rubber bridge bearing	piece	30.00	578,465	753,208		1,696,256	50,887,888
AL 16122	Spreading geotextile fabric fabric on land	100 m ²	78.72	3,350,888	215,689		4,542,816	357,810,478
035.3	Erection of stone gabions (purchased gabions)	m ³	742.00	489,789	323,233		1,025,820	768,430,188
GTT1	Gabion wire mesh	m ²	6,596.00	45,000			67,321	575,793,823
AE 11114	Ashlar M100	1 m ³	21.40	875,198	391,449		1,600,708	34,256,102
AK 96110	Making sand filter beds	100 m ³	28.74	24,316,842	1,081,354	1,078,199	33,800,913	903,838,408
AK 96131	Making filter beds for treated-stone 1x2	100 m ³	3.49	32,749,075	1,594,267	1,271,818	70,837,516	247,222,932
AC 11122	Driving sheeting piles with L pile = 4.3m, Soil grade II	100 m	1,215.37	570,810	581,190		1,441,931	1,752,336,322
AD 21226	Construction of road surface with aggregate d=30cm:	100 m ²	9.00	9,335,252	800,600	1,879,775	15,182,325	136,540,928
AB 65113	Sand embankment for road bases by compressors 9T K=>0.95	100 m ³	34.80	9,307,141	275,326	941,570	13,422,074	493,406,541
AB 64113	Embankment for road bases by compressors 9T K=>0.9	100 m ³	33.30		320,538	799,449	1,482,655	49,371,750
AB 24132	Digging soil for embankment by excavators =>1.25m ³ Soil grade II	100 m ³	36.83		119,741	853,949	1,300,104	47,622,797
AB 41122	Transporting soil by dump trucks Distance => 300m, truck 7T, Soil grade II	100 m ³	36.83			1,026,758	1,379,778	50,541,251
	* Wing wall:							
AB 65143	Sand embankment by Vibratory Rammer K=>0.95	100 m ²	8.00	9,307,141	882,400	699,493	13,919,251	11,516,687

Code Notes	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine-shift		
AB 66113	Sand embankment by compressors 9T K=0.95	100 m ³	14.00	9,307,943	276,328	911,570	13,432,074	188,049,031
AB 65130	Soil embankment for wing-wall by vibratory rammers K=0.95	100 m ³	18.00	-	2,193,763	1,420,053	4,898,897	84,580,148
AB 64113	Soil embankment for wing-wall by compressor 9T K=0.95	100 m ³	42.00	-	320,638	1,119,327	1,912,369	80,319,504
AB 24121	Digging soil for embankment by excavators <=0.5m ³	100 m ³	88.00	-	92,109	706,025	1,084,774	70,278,082
	Soil grade I							
AB 41111	Transporting soil by dump trucks	100 m ³	88.00	-	-	966,671	1,286,821	84,861,008
	Distance <= 300m, truck 5T, Soil grade I							
	* Signs of waterway transport	system	1.00	-	-	-	100,000,000	100,000,000
	* Protective fence for works	system	1.00	-	-	-	300,000,000	300,000,000
	* storage area electricity & water supply	system	1.00	-	-	-	300,000,000	300,000,000
	* Mechanics							
	Valve gate (7.5x6m)-TB - Black steel	set	1.80	-	-	-	-	-
	Valve gate (7.5x6m)-TB - Stainless steel	set	1.80	-	-	-	-	-
	11- Open choice B<=5m (01 choice):							24,729,547,874
	* Site area							
AA 11111	Site Clearance	100 m ²	980.00	-	175,008	-	222,921	84,710,058
AA 12111	Cutting down trees in flat ground Dtree <=10cm	tree	1,200.00	-	22,102	-	26,158	33,790,291
AA 13111	Digging tree stumps Dtree <=30cm	tree	1,200.00	-	39,843	-	46,931	58,316,920
AA 13211	Digging bush of water cocnut Dbush <=30cm	tree	400.00	-	97,635	-	124,381	58,746,808
AE 12114	Dinh Trung Gate	1 m ³	918.00	-	143,216	-	190,679	174,103,793
AB 11212	Soil Excavation for embankment - Soil Grade II	1 m ³	980.12	-	114,216	-	146,436	142,583,202
AB 22121	Digging and transporting organic soil in a distance <= 50m	100 m ³	10.73	-	-	670,482	901,000	9,867,705
	Bulldozer <= 110CV, Soil Grade I							
AB 13212	Embankment in combination with service roads, K=0.9	1 m ³	866.00	-	132,636	-	168,951	144,621,916
	Using soil from the excavated pit for embankment							
AB 64112	Embankment in combination with service roads, compressor 9T K=0.9	100 m ³	35.69	-	380,638	789,449	1,482,635	38,088,881
AB 24122	Digging soil for embankment by excavators <=0.5m ³	100 m ³	28.28	-	119,741	838,404	1,279,213	38,940,280
	Soil grade II							
AB 41112	Transporting soil by dump trucks	100 m ³	28.28	-	-	1,196,367	1,607,992	45,440,237
	Distance <= 300m, truck 5T, Soil grade II							
AB 13312	manual embankment of service roads K=0.9	1 m ³	285.00	-	132,636	-	160,951	49,150,988
	Using soil from the excavated pit for embankment							
AB 64113	Embankment of service roads, compressor 9T K=0.9	100 m ³	8.56	-	320,638	789,449	1,402,635	12,691,362
AB 24122	Digging soil for embankment by excavators <=0.5m ³	100 m ³	9.42	-	119,741	838,404	1,279,213	12,045,070
	Soil grade II							
AB 41112	Transporting soil by dump trucks	100 m ³	9.42	-	-	1,196,367	1,607,992	15,140,850
	Distance <= 300m, truck 5T, Soil grade II							

Code Notes	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine-shift		
AB 13111	Manual embankment of site ground	1 m ³	483.00	-	704,182	-	131,408	38,132,788
	Using soil from the excavated pit for embankment							
AB 62111	Embankment of site ground by compressor 9 Ton K=0.95	100 m ³	13.80	-	138,321	492,038	834,968	11,270,687
AB 24122	Digging soil for embankment by excavators <=0.5m ³	100 m ³	14.85	-	119,741	838,404	1,279,213	12,998,313
	Soil grade I							
AB 41112	Transporting soil by dump trucks	100 m ³	14.85	-	-	1,196,367	1,607,992	33,878,677
	Distance <= 300m, truck 5T, Soil grade II							
AB 11212	Digging drainage ditches B<=3m, H<=1m, Soil grade II	1 m ³	279.00	-	157,638	-	215,635	59,570,272
AD 21228	Embankment with aggregate with thickness of 20 cm for service roads	100 m ²	31.90	9,335,282	903,600	1,879,775	15,182,325	484,316,177
BE 12038	Insulation of concrete pipes D500mm	100m	0.80	54,504,409	17,798,591	8,550,545	100,978,232	38,598,939
AB 22122	Land levelling as the previous condition of site ground, distance <=50m	100 m ³	26.00	-	-	825,882	1,109,991	22,191,822
	Bulldozer <= 110CV, Soil Grade II							
GTT	Material loading and unloading terminals	piece	1.00	25,000,000	-	-	31,844,758	31,844,758
	Pile driving for ground treatment							
	- Pile casting yard:							
AB 22122	Grading the pile casting yard by bulldozers <= 110CV, soil grade II	100 m ²	1.20	-	-	825,882	1,109,991	1,331,909
AK 41114	Mortar with grade 75 for tunneling ground, 1 cm	1 m ²	400.00	15,802	14,634	603	32,565	13,833,280
AF 11121	stone-lined concrete 4x6 M100, width <= 25cm	1 m ³	20.00	892,827	217,376	40,684	1,402,321	29,046,421
	- Scaffold:							
AB 62111	Soil embankment for scaffold by compressor 9 T K=0.95	100 m ³	1.04	-	138,321	492,038	834,966	864,069
AB 24122	Digging soil for embankment by excavators <=0.5m ³	100 m ³	1.14	-	119,741	838,404	1,279,213	1,466,384
	Soil grade II							
AB 41112	Transporting soil by dump trucks	100 m ³	1.14	-	-	1,196,367	1,607,992	1,830,999
	Distance <= 300m, truck 5T, Soil grade II							
AE 88111	Sand embankment for scaffold	100 m ³	1.04	9,307,143	276,328	618,547	12,904,179	13,386,825
AD 21228	Aggregate of scaffold with thickness of 10cm	100 m ²	2.07	9,335,282	900,600	1,879,775	15,182,325	31,427,413
AD 21229	Aggregate of scaffold with thickness of 10cm	100 m ²	2.07	4,867,626	414,089	897,999	7,679,277	15,898,104
	- Fabrication:							
AG 11116	Production of pre-casted concrete components piles, column, concrete mortar with crushed stone 1x2 MG00	1 m ³	184.82	1,179,611	337,117	63,930	2,017,907	331,988,018
AG 13121	Pile reinforcement	ton	41.13	17,399,009	1,581,746	375,895	24,667,921	1,014,180,289
AG 31121	Fabrication, section and dismantling of pile framework	100 m ²	9.40	834,721	5,282,871	7,600,175	13,330,367	73,330,367
AI 13151	Production of pile splices	ton	18.46	18,306,814	5,995,766	1,024,642	31,989,063	329,636,317
AI 84151	Erection of pile splices	ton	18.46	411,280	1,796,174	279,829	3,175,143	53,291,063
AI 11131	Production of driver pile of steel profiles	ton	2.40	19,070,916	2,044,416	1,895,395	23,774,810	70,079,345

Code Name	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
	* Pile driving:							
AG 41141	Pile transport	don	85.00			309.769	416.262	35,800.266
AC 18229	Pilot Pile Driving on ground, hammer \Rightarrow 2.5T Soil grade II, Pile L=2.4m, F=35x35cm (K=1.5)	100m	2.24	1,993,267	12,426,235		19,419,502	42,887,755
AC 18230	Driving reinforced phumb piles on ground, hammer \Rightarrow 2.5T Soil grade II, Pile L=2.4m, F=35x35cm	100m	5.55	1,262,178	9,284,157		12,746,404	70,709,242
AC 18222	Driving Reinforced negative piles on ground, hammer \Rightarrow 2.5T Soil grade II, Pile L=2.4m, F=35x35cm	100m	6.90	1,262,178	9,284,157		12,746,404	87,908,788
AC 18223	Driving reinforced batter piles on ground, hammer \Rightarrow 2.5T Soil grade II, Pile L=2.4m, F=35x35cm (K=1.2)	100m	4.44	1,514,614	9,940,968		15,286,485	87,880,873
AC 18224	Driving reinforced negative piles on ground, hammer \Rightarrow 2.5T Soil grade II, Pile L=2.4m, F=35x35cm (K=1.05)	100m	0.58	1,325,287	9,688,365		13,377,424	7,491,358
AC 28110	Disassembling driving piles	100m	0.68		972,427	4,686,969	7,098,782	3,942,278
AA 2124	Pile head breaking	1 m3	3.49		1,038,414		1,399,153	4,883,032
GTT	using bulldozer 130 cv	shift	40.00			888,397	1,192,871	47,754,850
	* Foundation pit excavation:							
AE 22122	Grading of service roads for foundation pit and storage yard L=50m, bulldozer \Rightarrow 110CV, Soil grade II	100 m3	5.80			825,682	1,109,591	9,764,402
AD 21228	Embankment by aggregate for service road with the thickness of 20 cm	100 m2	32.75	9,335,252	900,800	1,879,775	15,182,325	497,221,153
AE 68113	Soil Embankment of service roads K=0.95	100 m3	7.48	9,307,143	276,326	911,370	13,432,074	100,471,911
AE 25412	Soil from foundation excavation is dumped directly on trucks, soil grade II	100 m3	38.55		281,997	980,929	1,825,021	82,844,547
AB 28111	Foundation excavation on the weak and soft soil by two excavators	100 m3	192.17		1,934,279	1,709,653	4,781,378	829,311,091
AE 11882	Manual foundation excavation with the width > 3m Depth > 3m, Soil grade II	1 m3	2,172.00		147,374		187,723	920,368,341
AE 24121	Soil taken on trucks by excavator \Rightarrow 0.5m3	100 m3	27.72		92,109	705,025	1,064,774	29,516,822
AE 41111	Transporting soil by dump trucks Distance \Rightarrow 300m, truck 5T, Soil grade I	100 m3	198.44			956,871	1,285,621	255,118,693
AE 11111	Excavating thick sludge, transport in 30 m	1 m3	3,488.00		173,164		300,575	769,384,308
AE 11121	Transporting in 70 m more	1 m3	3,488.00		18,082		22,368	80,210,463
AE 34118	Grading the soil in the dumping area by a bulldozer 110 CV	100m3	233.32			156,338	286,524	82,187,818
AE 24122	Digging for removal of service road & scaffold by excavator \Rightarrow 0.5m3, Soil grade II	100 m3	14.51		119,741	838,404	1,279,213	13,561,381
AE 41112	Transporting soil by dump trucks Distance \Rightarrow 300m, truck 5T, Soil grade II	100 m3	14.51			1,196,557	1,607,992	23,331,969
AE 11512	Digging drainage ditch, at the bottom B=3m, H=1m, soil grade II	1 m3	239.00		187,838		213,535	51,034,871

Code Name	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AK 98110	Construct a stone layer 2x4 as a buffer for the drainage ditches	1 m3	239.00	572,444	218,499		1,134,374	211,234,984
AL 16122	Spreading geotextile fabric, fabric	100 m2	9.40	3,380,688	215,689		4,542,919	38,159,665
GTT	Pumping water into foundation pit 30CV	shift	200.00			184,100	947,415	49,482,882
	* Cofferdam at the downstream & upstream:							
	-Preparation:							
AE 22122	Grading the demarcation of the soil taken yard L=50m, bulldozer \Rightarrow 110CV, Soil grade II	100 m3	2.31			825,682	1,109,591	2,583,135
AD 21228	Embankment with aggregate with thickness of 20 cm for demarcation \Rightarrow Embankment of cofferdam	100 m2	2.90	9,335,252	900,800	1,879,775	15,182,325	44,028,743
AE 63111	Embankment of cofferdam by compressors 9T, dt =1.63m3 soil taken from the soil ground	100 m3	59.15		272,641	549,187	1,086,313	64,196,237
AE 24122	Digging soil for embankment by excavators \Rightarrow 0.5m3 Soil grade II	100 m3	65.07		119,741	838,404	1,279,213	83,231,994
AE 41112	Transporting soil by dump trucks Distance \Rightarrow 300m, truck 5T, Soil grade II	100 m3	65.07			1,196,557	1,607,992	104,623,979
AE 68111	Soil embankment for anti-subside	100 m3	2.00	9,307,143	276,326	518,547	12,904,179	25,888,357
AD 21228	Embankment with aggregate with thickness of 20 cm msy dip	100 m2	3.75	9,335,252	900,800	1,879,775	15,182,325	58,933,720
AB 81212	Damaging cofferdam by excavator bucket 1.6m	100m3	45.50		322,808	2,711,684	4,056,278	154,515,064
	-Since cofferdam pit:							
AE 22121	Digging and transporting organic soil in a distance \Rightarrow 50m Bulldozer \Rightarrow 110CV, Soil Grade I	100 m3	13.50			670,482	901,000	11,183,494
AE 64112	Embankment for road bases by compressors 9T K=0.9 soil taken from the storage yard	100 m3	100.00		320,520	799,448	1,482,535	148,283,483
AE 24122	Digging soil for embankment by excavators \Rightarrow 0.5m3 Soil grade II	100 m3	110.00		119,741	838,404	1,279,213	140,713,429
AE 41412	Transporting soil by dump trucks Distance \Rightarrow 1000m, truck 5T, Soil grade II	100 m3	110.00			1,910,469	2,667,362	282,411,391
AD 21228	Embankment with aggregate with thickness of 20 cm	100 m2	37.50	9,335,252	900,800	1,879,775	15,182,325	389,337,199
	* Sewer construction:							
AF 11225	Concrete of bottom slabs with stone 1x2 M300 B=250cm	1 m3	113.67	1,310,542	382,908	40,857	2,186,580	248,542,888
AD 12145	Concrete of edge posts, Thickness > 45cm Height \Rightarrow 1.6 m, concrete mortar with stone 1x2 M300	1 m3	210.58	1,358,700	788,881	98,058	2,884,630	605,175,456
AF 12145	Stone concrete 1x2 M300 for energy dissipaters toward the sea	1 m3	128.20	1,958,700	788,881	98,058	2,884,630	397,245,585
AF 12145	Stone concrete 1x2 M300 for energy dissipaters toward the paddy fields	1 m3	131.30	1,958,700	788,881	98,058	2,884,630	378,125,921

Code Name	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AF 12315	Concrete with stone 1x2 M200 for transport bridges	1 m ³	305.60	1,197,160	710,974	98,058	2,006,192	184,788,800
AF 12313	Concrete with stone 1x2 M200 for transport bridges	1 m ³	30.80	1,034,026	710,974	98,058	2,351,856	72,437,029
AF 12225	Concrete for pulling system of rock valves 1x2 M300	1 m ³	96.60	1,345,379	962,816	98,068	3,068,982	386,773,877
AF 12223	Concrete for pulling system of rock valves 1x2 M200	1 m ³	10.00	1,182,246	962,816	98,068	2,861,184	28,611,843
AF 11215	Stone concrete 1x2 of backyard M200	1 m ³	101.00	1,034,026	302,116	40,857	1,766,871	177,443,924
AF 11213	Stone concrete 1x2 of transition section M200	1 m ³	46.10	1,034,026	302,116	40,857	1,766,871	80,991,732
AF 15313	stone concrete 1x2 for main section M200	1 m ³	438.69	1,034,026	602,585	58,118	2,162,778	948,786,094
AF 11212	Concrete of stone slab 1x2 M150	1 m ³	99.10	950,506	302,116	40,857	1,690,484	169,912,483
AF 11121	Crushed stone concrete 3x6 lining B >=350cm	1 m ³	95.20	840,627	217,376	40,884	1,402,321	91,571,584
AK 41124	Lining mortar grade M75 with thickness of 3 cm	1 m ²	2,633.33	22,123	22,811	808	58,323	153,683,817
AF 92111	Different types of metal formwork	100m ²	41.34	5,716,264	8,237,921	511,011	19,461,427	785,368,344
AF 61522	Fabrication of different reinforcement	1 ton	167.17	17,399,809	2,078,999	397,281	25,345,802	4,237,080,719
AL 41410	fabrication of couplings by PVC plates	1 m	35.00	292,821	478,444	-	976,060	34,162,102
AL 25112	Erection of rubber bridge bearing	piece	30.00	578,455	758,208	-	1,696,258	50,887,688
AL 15122	Spreading geotextile fabric fabric on land	100 m ²	66.48	3,350,888	215,689	-	4,542,818	311,092,042
039 3	Erection of stone ginnons (purchased ginnons)	m ²	813.00	489,789	323,233	-	1,036,820	834,836,182
G171	Gabion wire mesh	m ²	5,414.00	45,000	-	-	57,321	310,333,538
AE 11114	Asphalt M100	1 m ³	21.40	875,198	381,449	-	1,620,708	34,558,102
AK 98110	Making sand filter beds	100 m ³	26.49	34,318,842	1,081,184	1,078,199	32,808,913	895,336,179
AK 98131	Making filter beds for crushed-stone 1x2	100 m ³	2.99	82,749,075	1,884,267	1,211,818	70,837,518	211,440,988
AC 11122	Driving sheeting piles with L pile = 4.5m Soil grade II	100 m	1,100.52	570,810	581,190	-	1,441,991	1,588,873,664
AO 21228	Construction of road surface with aggregate d=50cm	100 m ²	9.00	9,335,262	800,600	1,879,775	15,182,325	136,840,925
AB 68113	Sand embankment for road bases by compressor 9T K=0.95	100 m ³	34.50	9,307,143	278,328	911,370	13,492,074	483,406,541
AB 84112	Embankment for road bases by compressor 9T K=0.9	100 m ³	33.30	-	320,538	799,448	1,482,655	49,371,750
AB 24122	Digging soil for embankment by excavators <=0.8m ³ Soil grade II	100 m ³	35.83	-	119,741	838,404	1,300,104	47,822,797
AB 41122	Transporting soil by dump trucks Distance >= 300m, truck 7T, Soil grade II	100 m ³	35.83	-	-	1,028,738	1,379,779	50,541,251
	* Wing wall:							
AB 68143	Sand embankment by Vibratory Rammer K=0.95	100 m ³	4.29	9,307,143	882,400	609,459	15,915,251	87,856,456
AB 68113	Sand embankment by compressor 9T K=0.95	100 m ³	11.38	9,307,143	278,328	911,370	15,432,074	152,769,838
AB 85130	Soil embankment for wing-wall by vibratory rammer K=0.95	100 m ³	14.63	-	2,190,753	1,420,063	4,699,897	86,720,369
AB 64113	Soil embankment for wing-wall by compressor 9T K=0.95	100 m ³	55.13	-	320,538	1,119,227	1,912,369	105,419,350
AB 24121	Digging soil for embankment by excavators <=0.8m ³ Soil grade I	100 m ³	53.23	-	119,741	708,025	1,084,774	57,096,480
AB 41111	Transporting soil by dump trucks Distance >= 300m, truck 5T, Soil grade I	100 m ³	53.23	-	-	886,871	1,386,621	68,941,443

Code Name	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
	* Signs of waterway transport	system	1.00				100,000,000	100,000,000
	* Protective fence for works	system	1.00				250,000,000	250,000,000
	* storage area, electricity & water supply	system	1.00				250,000,000	250,000,000
	* Mechanics:							
	Valve gate (5.1x5.3m) - Block steel	set	1.00				-	-
	Valve gate (5.1x5.3m) - Stainless steel	set	1.00				-	-
	13- Open sluice Bc=2m (01 sluice):						-	16,399,519,878
	* Site area:							
AA 11111	Site Clearance	100 m ²	380.00		175,008		222,301	84,710,058
AA 12111	Cutting down trees in flat ground Dbase <=30cm	tree	1,000.00		22,106		22,106	28,158,409
AA 13111	Digging tree stumps Dbase <=30cm	tree	1,000.00		36,843		36,843	48,900,767
AA 13211	Digging bush of water cocoon Dbase <=30cm	tree	400.00		37,636		37,636	49,748,808
AB 12114	Dimb Truong Sluice	1 m ³	802.00		149,216		190,070	192,438,354
AB 11212	Soil Excavation for embankment - Soil Grade II	1 m ³	859.14		114,215		145,455	124,846,357
AB 22121	Digging and transporting organic soil in a distance >=50m Bulldozer <= 110CV, Soil Grade I	100 m ³	9.39		-	870,462	901,000	8,460,388
AB 13312	Embankment in combination with service roads, K=0.9 Using soil from the excavated pit for embankment	1 m ³	794.00		132,858		168,951	124,009,914
AB 84112	Embankment in combination with service roads, compressor 9T K=0.9	100 m ³	22.02		320,538	799,448	1,482,655	92,847,812
AB 24122	Digging soil for embankment by excavators <=0.8m ³ Soil grade II	100 m ³	24.22		119,741	838,404	1,279,213	30,886,097
AB 41112	Transporting soil by dump trucks Distance >= 300m, truck 5T, Soil grade II	100 m ³	24.22		-	1,196,557	1,607,992	38,948,775
AB 10312	Manual embankment of service roads K=0.9 Using soil from the excavated pit for embankment	1 m ³	245.00		132,858		168,951	41,392,955
AB 84112	Embankment of service roads, compressor 9T K=0.9	100 m ³	7.34		320,538	799,448	1,482,635	10,882,537
AB 24122	Digging soil for embankment by excavators <=0.8m ³ Soil grade II	100 m ³	8.07		119,741	838,404	1,279,213	10,329,386
AB 41112	Transporting soil by dump trucks Distance >= 300m, truck 5T, Soil grade II	100 m ³	8.07		-	1,196,557	1,607,992	12,892,925
AB 13111	Manual embankment of site ground Using soil from the excavated pit for embankment	1 m ³	450.00		102,462		131,408	59,132,755
AB 62111	Embankment of site ground by compressor 9 Ton K=0.85	100 m ³	13.50		138,321	492,038	834,868	11,270,687
AB 24122	Digging soil for embankment by excavators <=0.8m ³ Soil grade II	100 m ³	14.85		119,741	838,404	1,279,213	15,996,513
AB 41112	Transporting soil by dump trucks Distance >= 300m, truck 5T, Soil grade II	100 m ³	14.85		-	1,196,557	1,607,992	23,978,677

Code Notes	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AB 11512	Digging drainage ditches B>=3m, H>=1m, Soil grade II	1 m3	339.00		167.636		211.595	51,034,871
AD 21028	Embankment with aggregate with thickness of 30 cm for service roads	100 m2	27.35	9,335,262	600,600	1,679,775	15,182,325	415,236,397
BB 11208	Installation of concrete pipes D500mm	100m	0.50	54,564,409	17,796,591	6,650,545	100,978,232	50,489,116
AB 22122	Land levelling as the previous condition of site ground, distance <=10m	100 m3	15.00			825,682	1,109,591	19,643,868
	Bulldozer <= 110CV, Soil Grade II							
GTT	Material loading and unloading terminals	piece	1.00	25,000,000			31,844,758	31,844,758
	Pile driving for ground treatment							
	- Pile casting yard							
AB 22122	Grading the pile casting yard by bulldozers <= 110CV, soil grade II	100 m3	0.90			825,682	1,109,591	968,632
AK 41114	Mortar with grade 75 for roweling ground, 3 cm	1 m2	300.00	16,802	14,634	609	39,563	11,874,880
AF 11121	stone-lined concrete-4x6 M100, width <= 35cm	1 m3	15.00	849,827	217,376	48,684	1,402,321	21,034,816
	+ Scaffold:							
AB 22111	Soil embankment for scaffold by compressor 9 T K=0.85	100 m3	0.81		135,321	492,036	634,668	672,067
AB 24122	Digging soil for embankment by excavators <=0.8m3	700 m3	0.89		119,741	838,404	1,279,213	1,152,745
	Soil grade II							
AB 41112	Transporting soil by dump trucks	100 m3	0.89			1,196,557	1,607,992	1,423,877
	Distance <= 300m, truck 5T, Soil grade II							
AB 65111	Sand embankment for scaffold	100 m3	0.81	9,307,143	276,326	518,541	12,904,179	10,361,264
AD 21028	Aggregate of scaffold with thickness of 20cm	100 m2	1.91	9,335,262	600,600	1,679,775	15,182,325	24,443,544
AD 21029	Aggregate of scaffold with thickness of 10cm	100 m2	1.91	4,667,626	414,089	897,399	7,679,277	12,363,836
	+ Fabrication:							
AG 11115	Production of pre-cast concrete components	1 m3	45.82	1,179,611	397,117	61,930	2,017,907	92,461,437
	piles, column, concrete mason with crushed stone 1% M500							
AG 13121	Pile reinforcement	ton	11.45	17,399,809	1,961,746	375,695	24,657,921	282,338,194
AG 31121	Fabrication, erection and dismantling of pile formwork	100 m2	2.62	834,723	5,285,875		7,000,175	20,422,086
AI 13151	Production of pile splices	ton	4.58	18,305,814	5,936,765	1,024,542	31,961,063	142,335,961
AI 84151	Erection of pile splices	ton	4.96	411,230	1,786,174	275,329	3,175,142	14,542,149
AI 11131	Production of driver pile of steel profiles	ton	2.40	19,070,916	2,044,416	1,656,368	23,174,810	70,019,543
	+ Pile driving:							
AG 41141	Pile transport	section	69.00			309,759	416,262	28,121,469
AC 15223	Pilot Pile Driving on ground, hammer <=1.5T	100 m	1.50		1,893,287	12,426,235	19,110,606	38,665,909
	Soil grade II, Pile L=24m F=35x35cm (K=1.5)							
AC 15223	Driving Reinforced negative piles on ground, hammer <=1.5T	100 m	6.90		1,262,178	8,284,157	12,740,404	87,900,766
	Soil grade II, Pile L=24m F=35x35cm							

Code Notes	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AC 15223	Driving reinforced negative piles on ground, hammer <=1.5T	100 m	0.46		1,525,287	8,696,365	13,577,424	8,162,615
	Soil grade II, Pile L=24m F=35x35cm (K=1.05)							
AC 13116	Dismantling driving piles	100 m	0.46		572,437	4,698,928	7,099,783	3,238,300
AA 21241	Pile head breaking	1 m3	1.41		1,096,414		1,399,150	1,972,801
GTT	using bulldozer 180 cv	shift	20.00			888,397	1,192,871	25,816,137
	*Foundation pit excavation:							
AB 22122	Grading of service roads for foundation pit and storage yard	100 m2	5.40			825,682	1,109,591	5,991,792
	L<=50m, bulldozer <=110cv, Soil grade II							
AD 21028	Embankment by aggregate for service road with the thickness of 30 cm	100 m2	23.75	9,335,262	600,600	1,679,775	15,182,325	381,880,228
AB 66112	Soil Embankment of service roads K=0.85	100 m3	5.86	9,307,143	276,326	511,570	13,432,074	78,577,631
AB 25412	Soil from foundation excavation is dumped directly on trucks, soil grade	100 m3	44.06		291,587	960,329	1,623,021	71,598,410
AB 25111	Foundation excavation on the weak and soft soil	100 m3	121.16		1,934,279	1,709,650	4,761,376	576,888,336
	by two excavators							
AB 11382	Manual foundation excavation with the width <= 3m	1 m3	2,772.00		147,374		187,725	520,360,541
	Depth <= 5m, Soil grade II							
AB 24121	Soil taken on trucks by excavator <=0.8m3	100 m3	27.72		92,109	706,025	1,064,774	29,516,322
AB 41111	Transporting soil by dump trucks	100 m3	192.94			896,671	1,286,821	248,647,776
	Distance <= 300m, truck 5T, Soil grade I							
AB 11111	Excavating thick sludge, transport in 30 m	1 m3	2,491.00		173,164		220,675	549,461,401
AB 11121	Transporting in 70 m more	1 m3	2,491.00		15,053		22,096	57,269,532
AB 34110	Grading the soil in the dumping area by a bulldozer 110 VN	100m3	217.00			198,336	266,834	58,051,017
AB 24122	Digging for removal of service road & scaffold by excavator <=	100 m3	11.16		119,741	838,404	1,279,213	14,278,017
	0.8m3, Soil grade II							
AB 41112	Transporting soil by dump trucks	100 m3	11.16			1,196,557	1,607,992	17,945,187
	Distance <= 300m, truck 5T, Soil grade II							
AB 11512	Digging drainage ditch at the bottom B<=3m, H<=1m, soil grade II	1 m3	186.00		167,636		241,935	39,717,515
AK 99110	Construct a stone layer 2x4 as a buffer for the drainage ditches	1 m2	186.00	572,444	319,496		1,134,674	211,086,646
AL 18122	Spreading geotextile fabric	100 m2	6.96	3,350,688	215,689		4,542,616	29,800,873
GTT	Pumping water into foundation pit 20CV	shift	200.00			184,109	247,415	49,402,932
	*Cofferdam at the downstream & upstream:							
	-Preparation:							
AB 22122	Grading the demarcation of the soil takes yard	100 m3	1.85			825,682	1,109,591	1,062,744
	L<=50m, bulldozer <=110cv, Soil grade II							
AD 21028	Embankment with aggregate with thickness of 30 cm for demarcation	100 m2	2.38	9,335,262	600,600	1,679,775	15,182,325	38,519,548
	-Embankment of cofferdam:							
AB 63111	Embankment of cofferdam by compressor 9T, at <=1.55m2	100 m3	41.32		272,641	549,181	1,086,913	51,956,990

Code	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AB 24722	soil taken from the soil ground Digging soil for embankment by excavators $E=0.8m^3$ Soil grade II	100 m³	52.05		119.741	838.404	1,079.213	86,326,595
AB 41112	Transporting soil by dump trucks Distance $= 300m$ truck 3T, Soil grade II	100 m³	52.05			1,196.957	1,897.982	83,889,183
AB 86111	Sand embankment for anti-subsidence	100 m³	2.80	9,307,143	278,329	518,547	12,904,179	25,888,357
AD 21229	Embankment with aggregate with thickness of 20 cm roll dip	100 m²	3.80	9,335,292	890,600	1,879,775	15,182,925	46,546,978
AB 81212	Damaging cofferdam by excavator bucket 1 firm	100m³	36.40		322,803	2,711,864	4,885,278	147,812,051
	-> Since connecting path:							
AB 22121	Digging and transporting organic soil in a distance $= 30m$ Bulldozer $= 110CV$, Soil Grade I	100 m³	13.60			670,482	901,000	12,183,494
AB 64112	Embankment for road bases by compressors 9T $E=0.9$ soil taken from the storage yard	100 m³	106.80		320,536	799,448	1,462,635	148,289,453
AB 24122	Digging soil for embankment by excavators $E=0.8m^3$ Soil grade II	100 m³	110.00		119,741	838.404	1,079.213	140,711,439
AB 41412	Transporting soil by dump trucks Distance $= 1000m$ truck 3T, Soil grade II	100 m³	110.00			1,910,469	2,587,382	282,411,991
AD 21229	Embankment with aggregate with thickness of 20 cm	100 m²	37.60	9,335,292	890,600	1,079,775	15,182,925	569,337,199
	* Sewer construction:							
AF 12145	Concrete of bottom slabs with stone 1x2 M200 B=250cm	1 m³	88.98	1,318,542	362,208	40,857	2,198,330	127,849,833
AF 12146	Concrete of edge posts, Thickness > 45cm Height $= 1.8$ m, concrete mortar with stone 1x2 M200	1 m³	196.58	1,358,700	788,861	98,058	2,864,830	448,543,787
AF 12145	Stone concrete 1x2 M200 for energy dissipaters toward the sea	1 m³	80.20	1,358,700	788,861	98,058	2,864,830	258,989,627
AF 12145	Stone concrete 1x2 M200 for energy dissipaters toward the paddy fields	1 m³	80.20	1,358,700	788,861	98,058	2,864,830	258,989,627
AF 12315	Concrete with stone 1x2 M200 for transport bridges	1 m³	20.51	1,197,160	710,974	98,058	2,599,650	52,490,415
AF 12313	Concrete with stone 1x2 M200 for transport bridges	1 m³	0.38	1,034,028	710,974	98,058	2,351,352	546,667
AF 12225	Concrete for pulling system of rock valve 1x2 M200	1 m³	10.80	1,345,379	982,610	98,058	3,068,982	33,451,908
AF 12223	Concrete for pulling system of rock valve 1x2 M200	1 m³	0.79	1,182,245	982,610	98,058	2,861,184	2,260,338
AF 11213	Stone concrete 1x2 of backyard M200	1 m³	71.86	1,034,028	302,116	40,857	1,756,871	128,143,964
AF 11213	Stone concrete 1x2 of transition section M200	1 m³	37.70	1,034,028	302,116	40,857	1,756,871	89,254,019
AF 16313	stone concrete 1x2 tim lat cum M200	1 m³	348.90	1,034,028	802,386	88,118	2,182,778	754,892,480
AF 11212	Concrete of stone slab 1x2 M150	1 m³	80.80	950,506	302,116	40,857	1,650,494	99,029,029
AF 11121	Crushed stone concrete 4x6 lining, B = 250cm	1 m³	42.40	840,627	217,376	40,864	1,402,321	59,498,412
AK 41124	Lining mortar grade M75 with thickness of 5 cm	1 m²	1,090.00	22,123	22,811	808	58,323	110,230,410
AF 82111	Different types of metal formwork	100m2	23.60	5,716,264	8,237,951	811,011	18,481,457	436,780,445

Code	Work items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AF 81822	Fabrication of different reinforcement	ton	63.06	17,388,808	2,078,596	397,281	25,346,800	1,341,997,881
AL 41410	Fabrication of couplings by PVC plates	1 m	135.80	292,821	473,444		976,060	34,182,102
AL 25112	Erection of rubber bridge bearing	piece	30.00	578,455	753,206		1,698,256	50,887,888
AL 18122	Spreading geotextile fabric on land	100 m²	88.97	3,350,888	215,889		4,542,818	343,336,193
0353	Erection of stone gabions (purchased gabions)	m³	844.40	489,789	323,233		1,035,820	867,383,058
GTT1	Gabion wire mesh	m²	5,892.00	45,000			57,321	326,286,658
AK 96110	Making sand filter beds	100 m³	1.43	24,318,842	1,091,354	1,078,199	33,800,913	48,336,305
AK 96131	Making filter beds for crushed-stone(s)	100 m³	2.88	52,749,075	1,584,267	1,201,618	70,867,516	302,878,647
AC 11122	Drying sheeting piles with Lpile = 4.5m, Soil grade II	100 m	988.81	570,810	581,150		1,441,931	1,425,499,961
AD 21229	Construction of road surface with aggregate $E=10cm$	100 m²	9.00	9,335,292	890,600	1,879,775	15,182,925	136,840,928
AB 86113	Sand embankment for road bases by compressors 9T $E=0.9$	100 m³	34.80	9,307,143	278,329	511,570	13,432,074	483,466,541
AB 64112	Embankment for road bases by compressors 9T $E=0.9$	100 m³	33.30		320,536	799,448	1,462,855	49,371,750
AB 24132	Digging soil for embankment by excavators $E=1.25m^3$ Soil grade II	100 m³	38.83		119,741	850,949	1,300,104	47,622,797
AB 41122	Transporting soil by dump trucks Distance $= 300m$ truck 7T, Soil grade II	100 m³	38.83			1,028,798	1,379,778	50,541,251
	* Wing wall:							
AB 86143	Sand embankment by Vibratory Rammer; $E=0.9$	100 m³	4.88	9,307,143	882,400	699,458	13,919,351	97,698,498
AB 86113	Sand embankment by compressor 9T $E=0.9$	100 m³	11.98	9,307,143	278,329	511,570	13,432,074	152,789,838
AB 85136	Soil embankment for wing-wall by vibratory rammer $E=0.9$	100 m³	14.83		2,190,793	1,420,053	4,889,897	88,796,488
AB 64113	Soil embankment for wing-wall by compressor 9T $E=0.9$	100 m³	34.13		320,536	1,119,227	1,542,369	86,259,597
AB 24121	Digging soil for embankment by excavators $E=0.8m^3$ Soil grade I	100 m³	83.83		92,109	705,025	1,084,774	57,098,480
AB 41111	Transporting soil by dump trucks Distance $= 300m$ truck 5T, Soil grade I	100 m³	83.83			956,671	1,285,821	88,941,443
	* Signs of waterway transport	system	1.00				100,000,000	100,000,000
	* Protective fence for works	system	1.00				250,000,000	250,000,000
	* storage area, electricity & water supply	system	1.00				250,000,000	250,000,000
	* Mechanics							
	Valve gate (3,5x3,5)m$=TB$ - Black steel	set	1.00					
	Valve gate (3,5x3,5)m$=TB$ - Stainless steel	set	1.00					
	16-System of small gate (culvert boxes) on the dykes:							3,474,752,856,488
AA 11111	Site Clearance	100 m²	14,343.43		175,006		202,921	3,197,484,706
AB 25412	Soil digging by excavators $E=0.8m^3$	100 m³	7,517.80			251,957	1,626,021	12,216,254,217
AB 41112	Transporting soil by dump trucks Distance $= 300m$ truck 5T, Soil grade II	100 m³	7,517.80			1,106,567	1,607,992	12,088,217,407

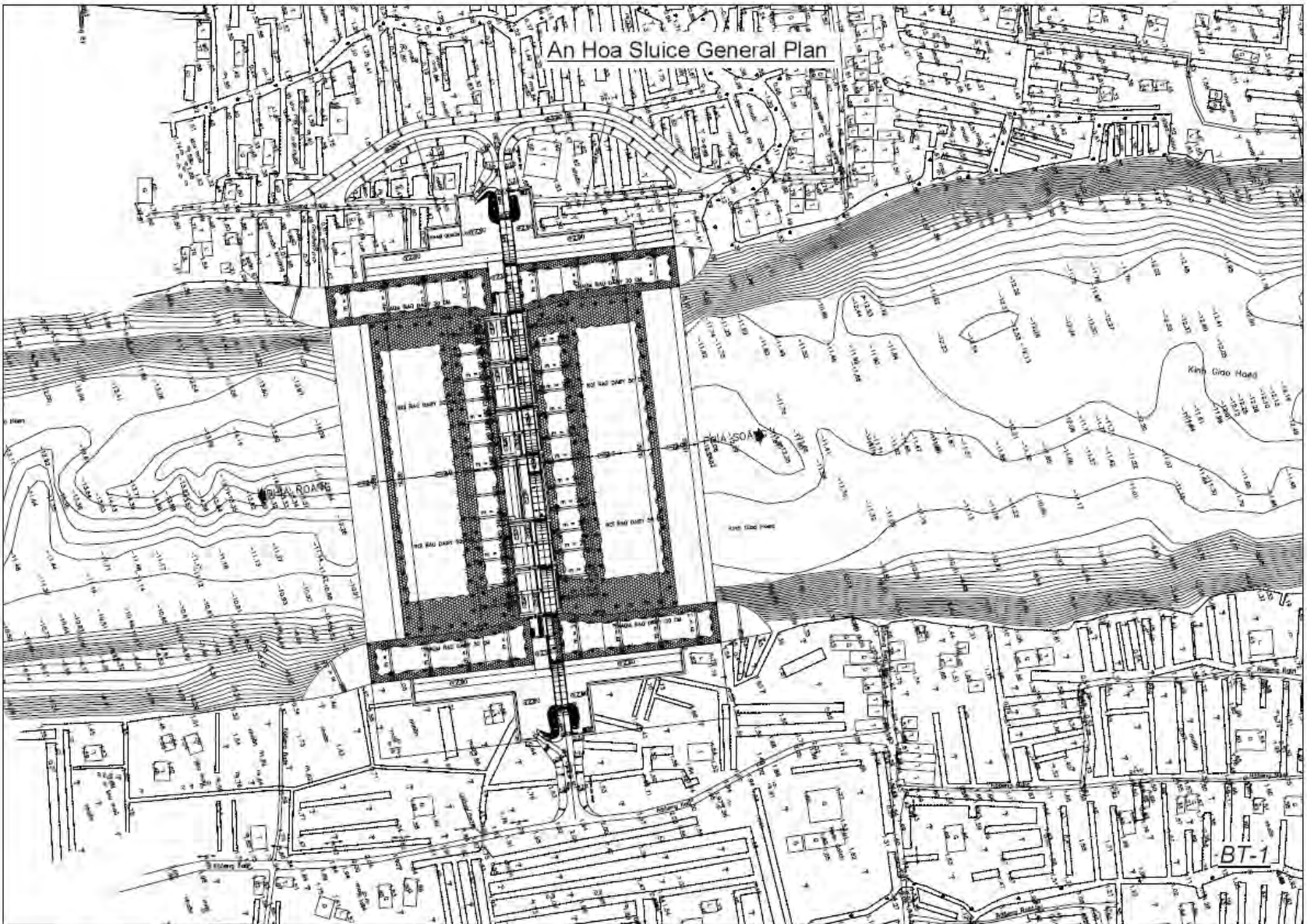
Code Norms	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AB.1382	Manual soil digging with the width > 3m Depth > 3m, Soil grade II	m ³	322,182.30	-	147,374	-	187,723	80,491,046,400
AB.64112	Dip. dit. compressor 9T K=0.8	100m ³	10,077.29	-	309,838	799,448	1,402,835	14,940,998,578
AB.24122	Digging soil for embankment by excavators $=>0.8m$ Soil grade II	100 m ³	11,095.02	-	119,741	838,404	1,279,212	14,180,106,765
AE.41112	Transporting soil by dump trucks Distance $=>300m$, truck 5T Soil grade II	100 m ³	11,095.02	-	-	1,196,557	1,607,992	17,824,820,178
AB.13112	Manual soil embankment K=0.9	m ³	431,893.90	-	129,425	-	-	-
AO.21222	Embankment with aggregate with thickness of 20 cm	100 m ²	1,450.90	9,335,282	800,600	1,879,775	15,182,325	22,179,888,023
AO.24222	Aggregate embankment with a thickness of 15cm	100 m ²	1,450.90	4,667,628	414,089	897,599	7,679,277	11,218,666,012
AK.38121	Aggregate stone	100 m ³	125.93	40,259,407	1,584,267	1,211,818	54,928,238	6,917,120,812
AF.12145	stone concrete 1x2 M300	m ³	34,477.00	1,358,700	788,861	96,058	2,864,630	96,783,848,971
AF.12225	stone concrete 1x2 M200	m ³	33,098.00	1,192,245	982,610	96,058	2,861,184	151,894,551,224
AF.11212	stone concrete 1x2 M150	m ³	18,838.00	950,508	302,116	40,557	1,650,484	31,091,814,174
AF.11212	stone CT concrete 1x3 M150	m ³	8,935.00	950,508	302,116	40,557	1,650,484	14,747,072,919
AK.21124	Lining mortar grade M75 with thickness of 5 cm	m ²	314,588.87	22,123	22,811	308	38,323	16,348,481,780
AF.11121	Concrete M100	m ³	2,857.00	840,627	217,378	40,684	1,482,321	4,036,431,224
AE.11114	Ashlar M100	m ³	45,642.00	876,198	381,449	-	1,600,708	73,099,409,091
AK.38131	crushed stone 1x3	100m ³	224.90	82,749,075	1,584,267	1,211,818	70,837,818	15,331,357,419
AK.98110	Making sand filter bed:	100m ³	108.78	24,318,842	1,381,384	1,078,189	33,800,813	3,878,882,291
AB.68113	Sand embankment by compressor 9T K=0.95	100 m ³	5,133.64	9,307,143	278,326	911,370	13,432,074	68,965,430,541
AF.82111	Different types of metal formwork	100m ²	1,499.85	5,716,264	8,237,921	511,011	15,461,427	27,135,508,792
AF.61222	Fabrication of different reinforcement	ton	5,111.00	17,399,809	2,078,099	307,281	25,345,802	129,542,391,890
AL.41410	fabrication of couplings by PVC plates	m	4,284.00	292,821	473,444	-	976,060	4,161,920,880
AL.16122	Spreading geotextile fabric fabric on land	100 m ²	3,022.08	3,350,888	215,689	-	4,542,818	22,814,385,527
GTT1	Galium wire mesh	m ²	988,892.00	45,000	-	-	57,321	22,165,403,880
AC.11122	Driving sheeting piles with Lpile = 4.5m, Soil grade II	100 m	107,898.21	570,810	581,190	-	1,441,331	186,984,891,363
GTT	Stainless steel pipes D60	m	2,023.00	275,000	-	-	388,292	708,641,406
GTT	Mechanic equipments - 5red CT3	ton	1,175.50	-	-	-	45,000,000	82,942,800,000
18-System of main channels and channels of grade I								1,214,841,599,517
AA.11111	Site Clearance	100m ²	76,850.00	-	173,016	-	222,821	17,534,982,019
AB.71222	Dredging by a dredger with capacity $=>2000CV$ chiller	100m ³	36,705.58	-	153,229	5,950,341	6,197,909	1,120,699,908,878
AB.83122	Dredging depth $=>3m$, height of the discharging pipe $=>5m$, L $=>100m$	100m ³	12,912.00	-	272,641	886,488	1,279,568	15,883,718,320
	Soil embankment for setting tank by compactors 1.6T							
AB.21432	Soil with density $=>1.15T/m$ ³	100m ³	15,543.20	-	119,741	988,835	1,414,177	19,102,481,129
AB.22121	Soil digging by excavators 1.35m ³ , EC2	100m ³	41,011.87	-	-	870,462	901,000	35,351,496,383
	Soil digging for making channel in the distance $=>50m$							

Code Norms	Work Items	Unit	Volume	Price			Total price	Amount
				Material	Labor	Machine shift		
AC.11222	bulldozer $=>110CV$, Soil Grade I	100m	2,492.40	570,810	581,190	-	1,441,951	6,550,670,368
AL.16121	Sheeting piles D75-8cm, L=4.5m	100m ²	305.20	3,350,888	215,689	-	4,542,818	932,156,349
GTT	geotextile fabric	m ²	20,620.00	5,000	-	-	6,369	130,650,888
GTT	Barbed wire	kg	205.00	21,134	-	-	38,320	5,332,913
	zinc wire							

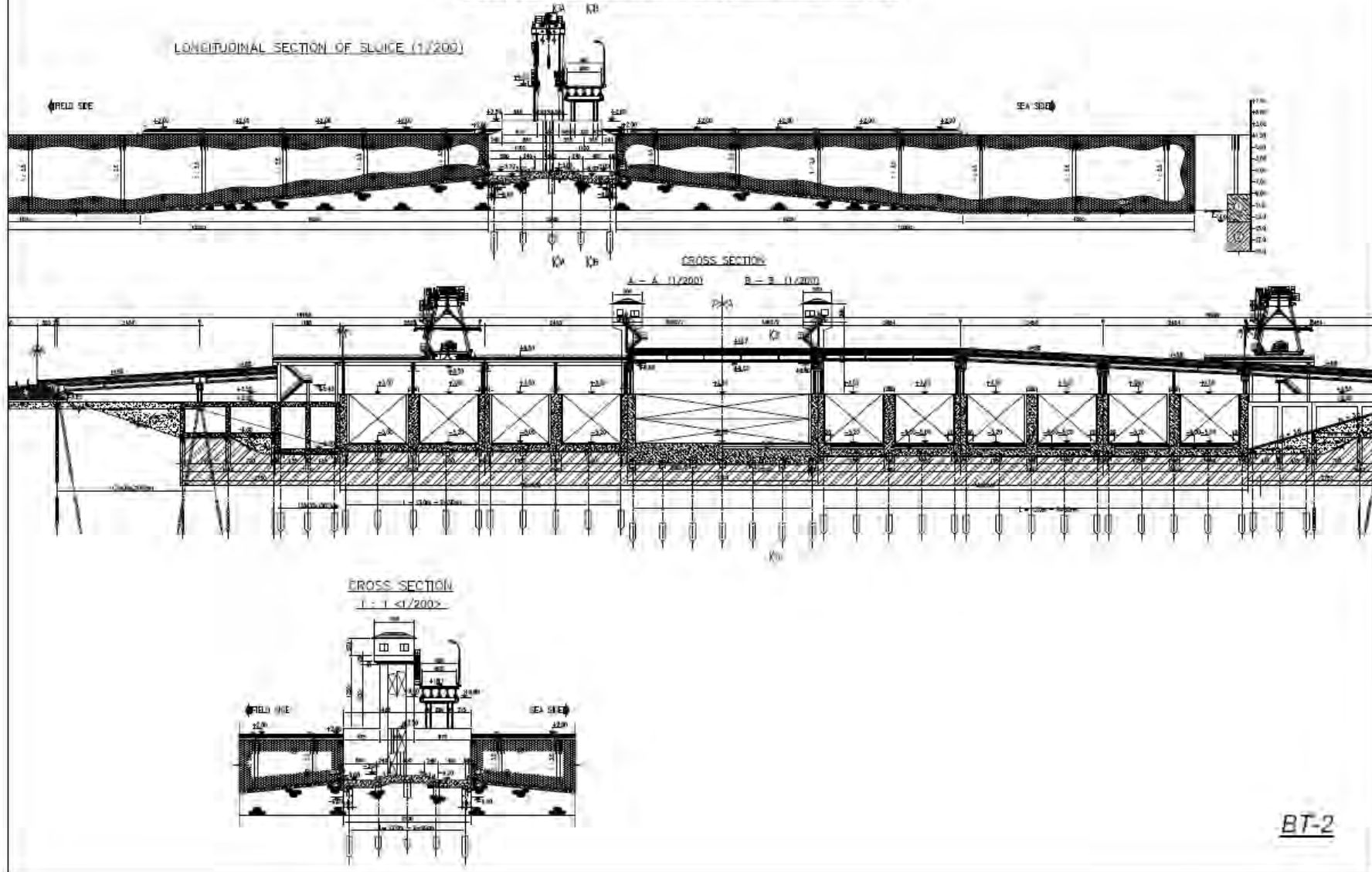
VI.3 DRAWINGS

List of Drawings

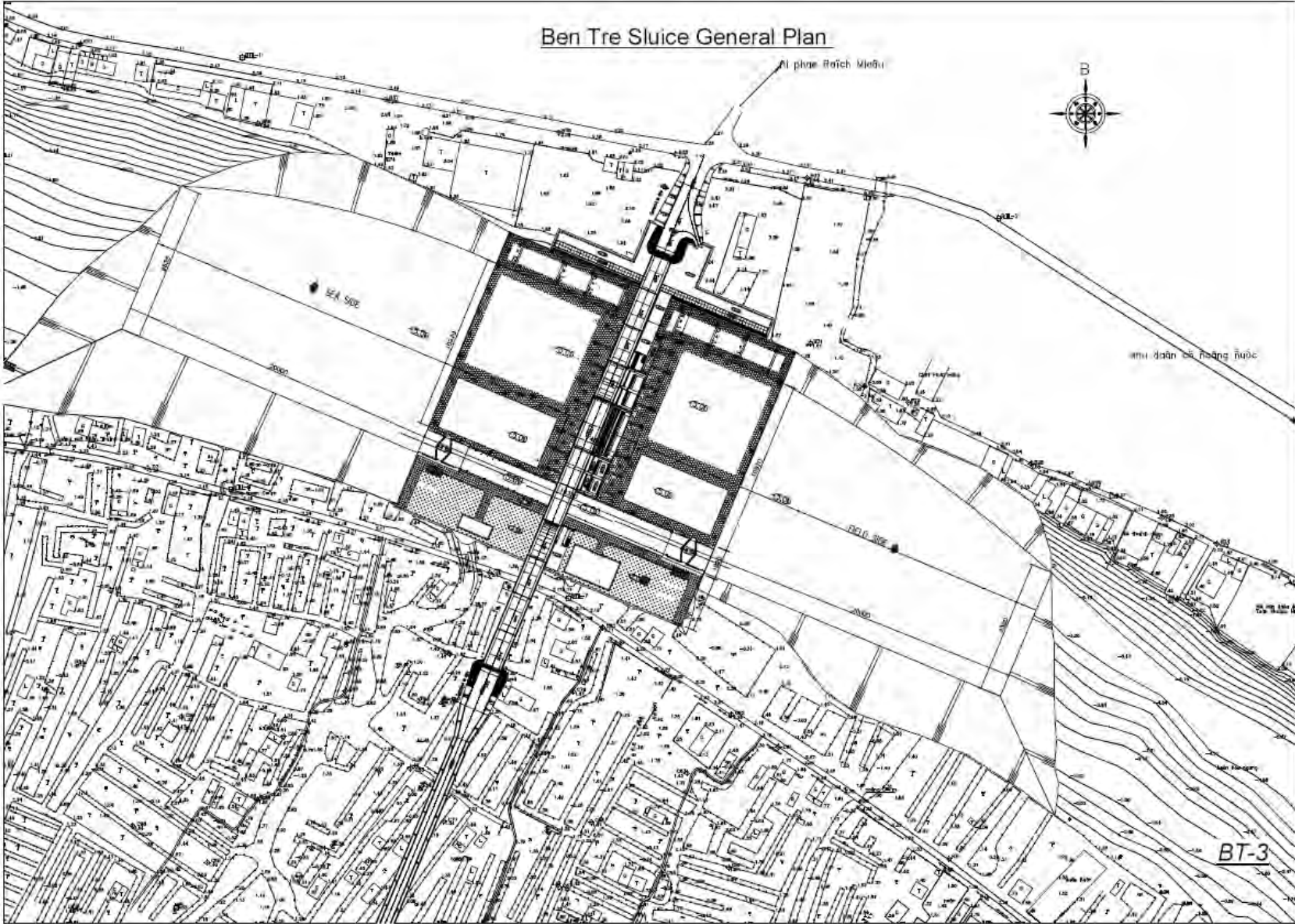
Drw. No.	Drawing Name	Remarks
1. Ben Tre Province		
BT- 1	An Hoa Sluice General Plan	
BT- 2	An Hoa Sluice Profile and Front Elevation	
BT- 3	Ben Tre Sluice General Plan	
BT- 4	Ben Tre Sluice Profile and Front Elevation	
BT- 5	Tan Phu Sluice General Plan	
BT- 6	Tan Phu Sluice Profile and Front Elevation	
BT- 7	Ben Ro Sluice General Plan	
BT- 8	Ben Ro Sluice Profile and Front Elevation	
BT- 9	General Plan of Sluice(Total Gate Width B=20m)	
BT- 10	Longitudinal Profile and Front Elevation of Sluice(Total Gate Width B=20m)	
BT- 11	General Plan of Sluice(Total Gate Width B=15m)	
BT- 12	Longitudinal Profile and Front Elevation of Sluice(Total Gate Width B=15m)	
BT- 13	General Plan of Sluice(Total Gate Width B=10m)	
BT- 14	Longitudinal Profile and Front Elevation of Sluice(Total Gate Width B=10m)	
BT- 15	General Plan of Sluice(Total Gate Width B=7.5m)	
BT- 16	Longitudinal Profile and Front Elevation of Sluice(Total Gate Width B=7.5m)	
BT- 17	General Plan of Sluice(Total Gate Width B=5m)	
BT- 18	Longitudinal Profile and Front Elevation of Sluice(Total Gate Width B=5m)	
BT- 19	General Plan of Sluice(Total Gate Width B=3m)	
BT- 20	Longitudinal Profile and Front Elevation of Sluice(Total Gate Width B=3m)	
BT- 21	Plan and Sections of Box Culvert(Gate Width B=3m)	
BT- 22	Plan and Sections of Box Culvert(Gate Width B=2m)	
BT- 23	Plan and Sections of Box Culvert(Gate Width B=1.5m)	
BT- 24	General View of Swing Gate	
2. Tra Vinh Province		
TV- 1	Bong Bot Sluice General Plan	
TV- 2	Bong Bot Sluice Profile and Front Elevation	
TV- 3	Tan Dinh Sluice General Plan	
TV- 4	Tan Dinh Sluice Profile and Front Elevation	
TV- 5	Vung Liem Sluice General Plan	
TV- 6	Vung Liem Sluice Profile and Front Elevation	



An Hoa Sluice Profile and Front Elevation



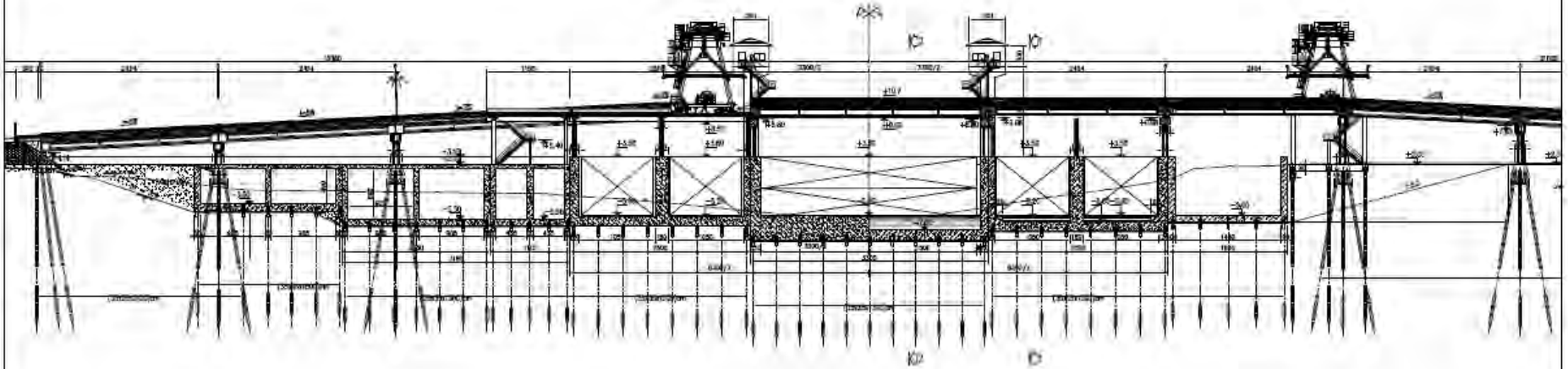
BT-2



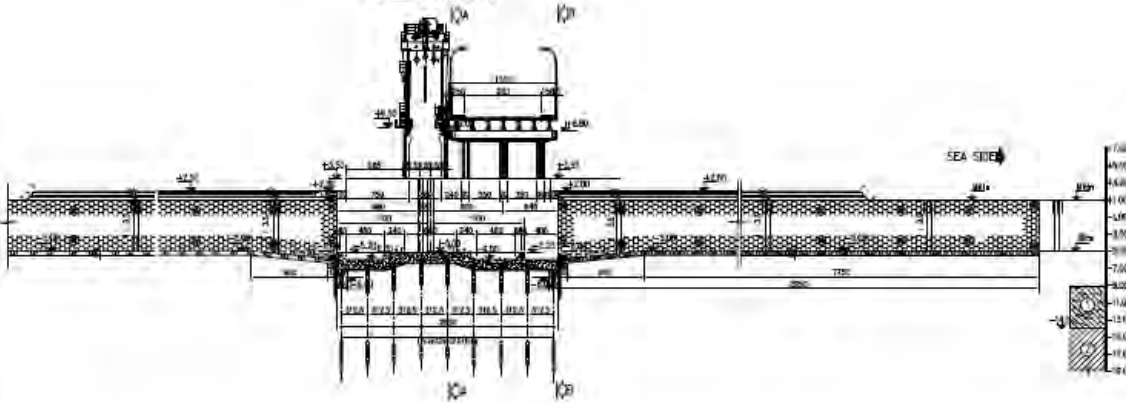
Ben Tre Sluice Profile and Front Elevation

CROSS SECTION

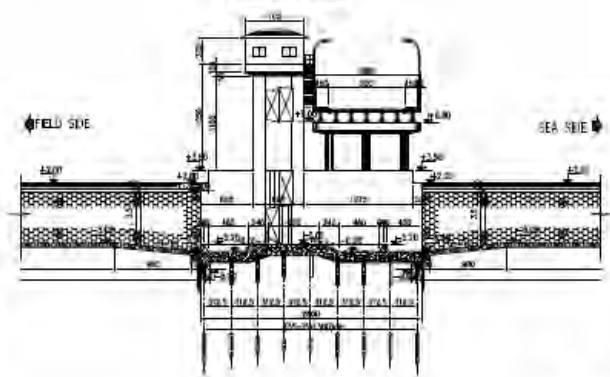
A - A (1/200) B - B' (1/200)



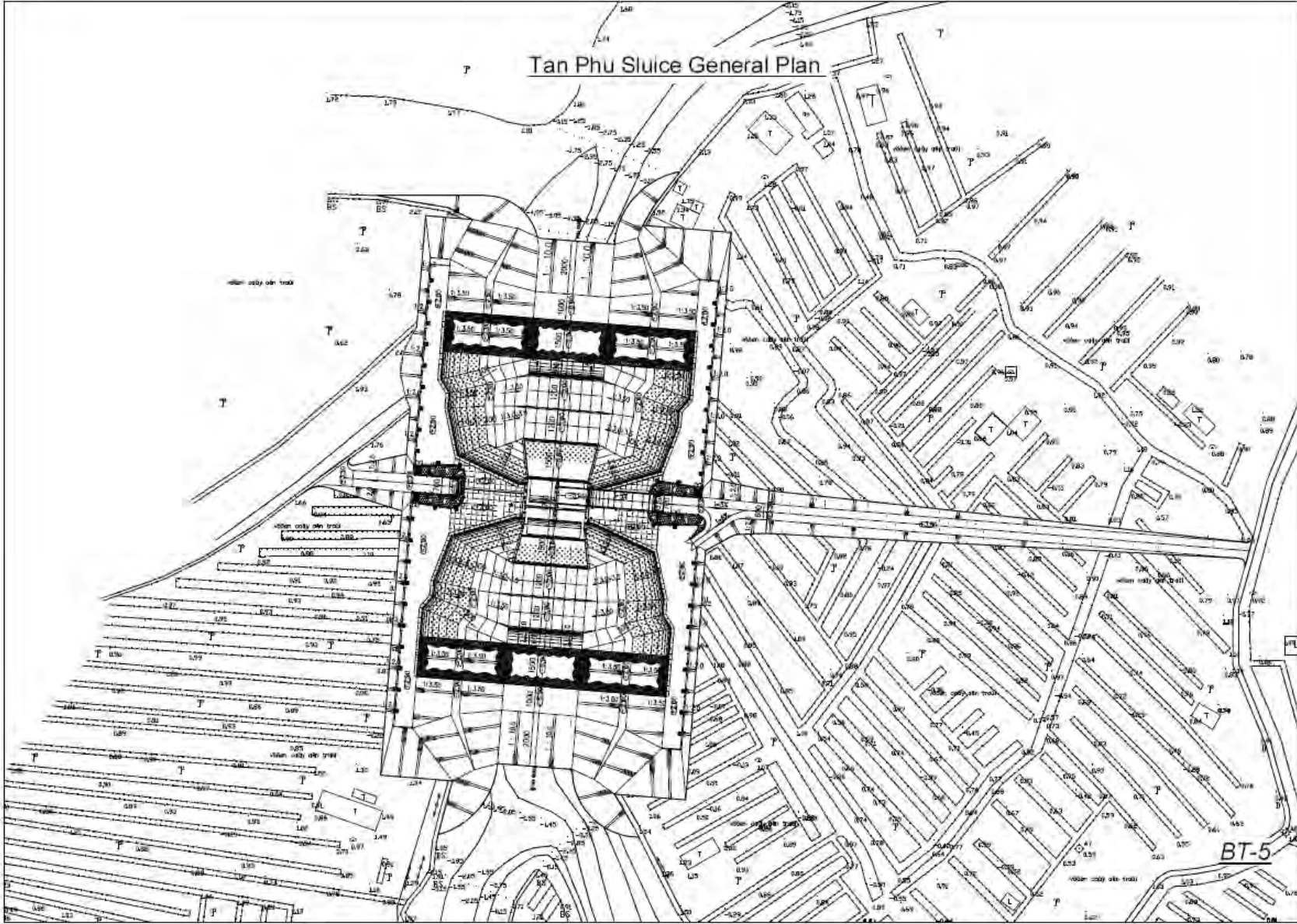
CROSS SECTION
1 - 1' (1/200)



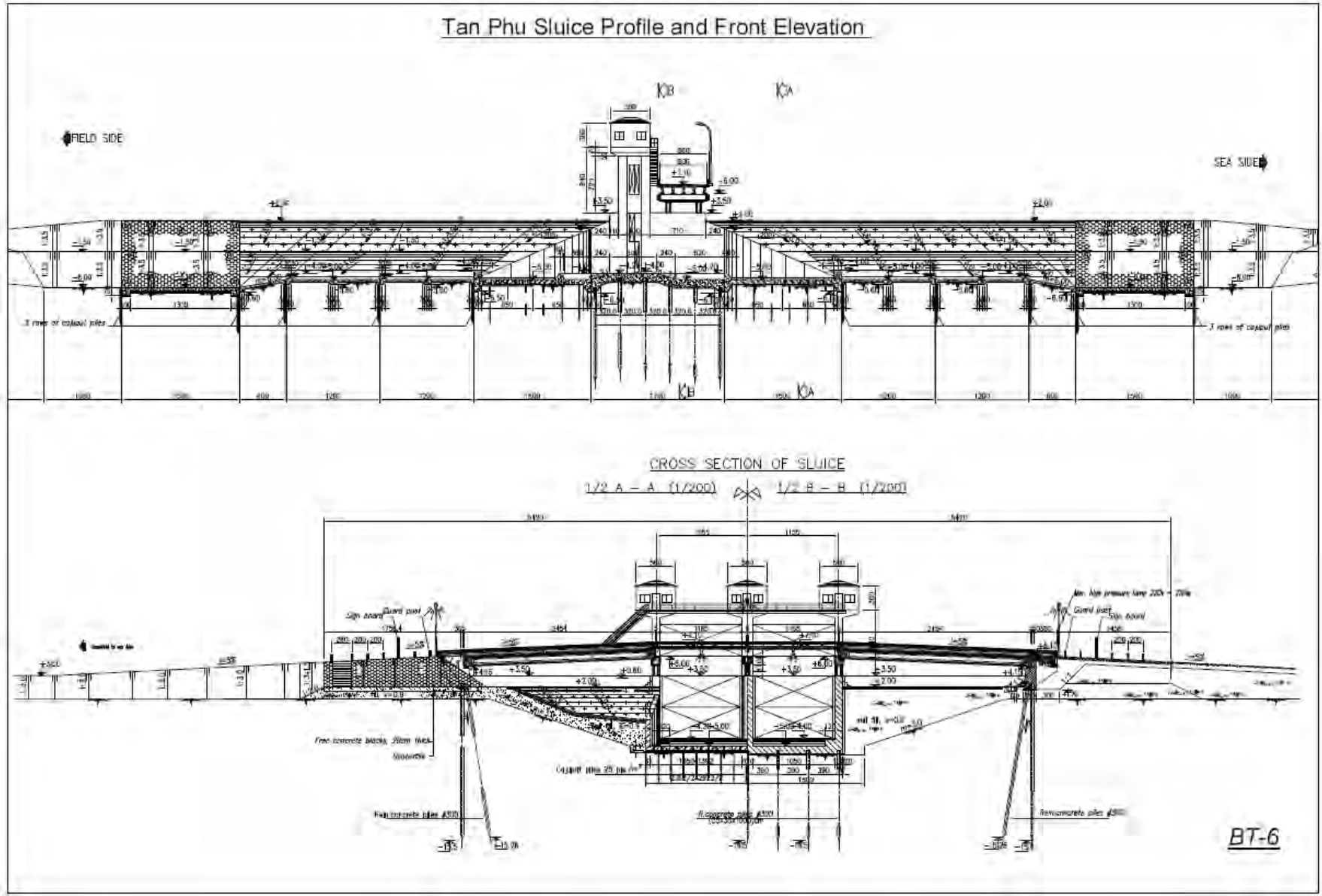
CROSS SECTION
2 - 2' (1/200)

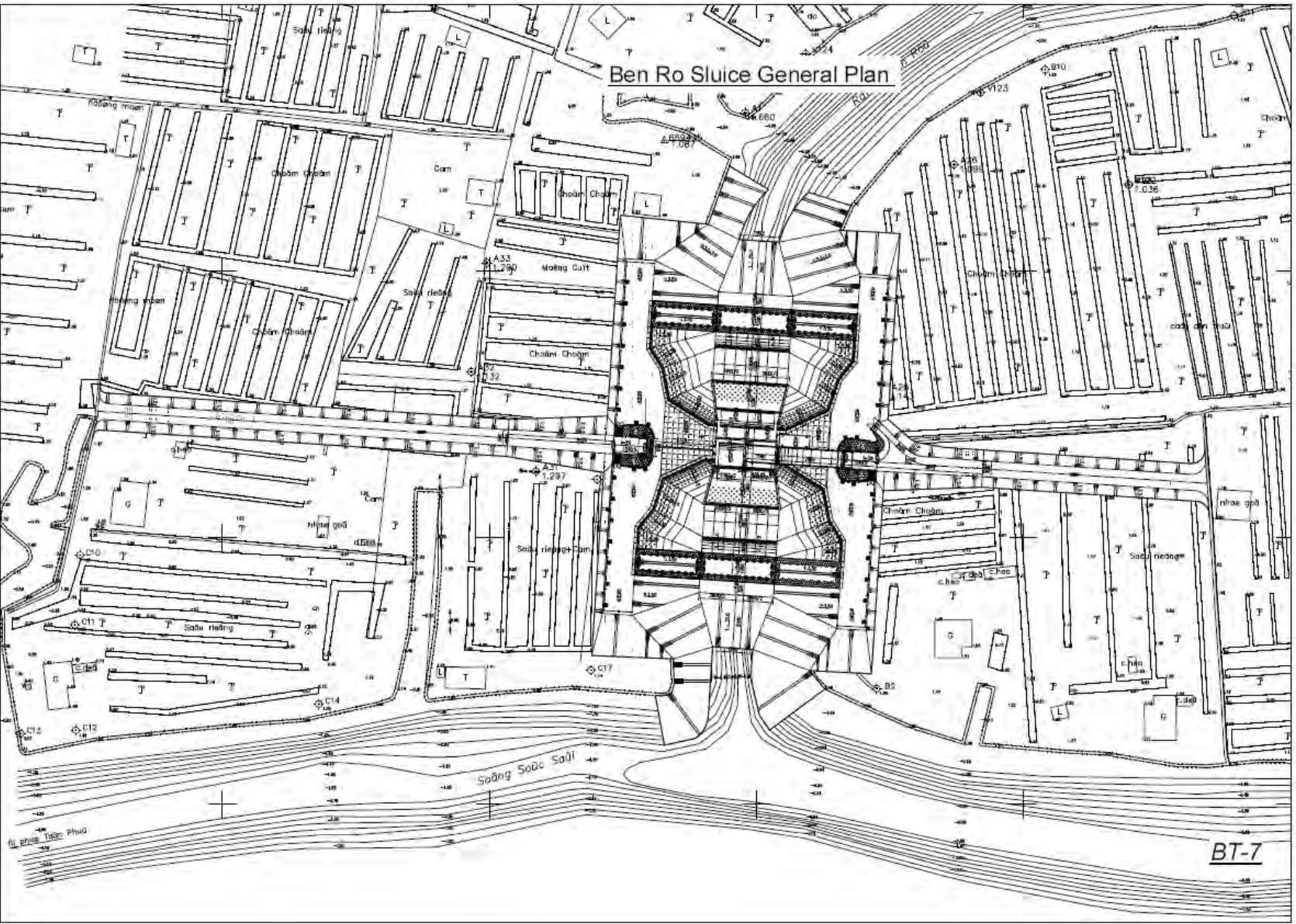


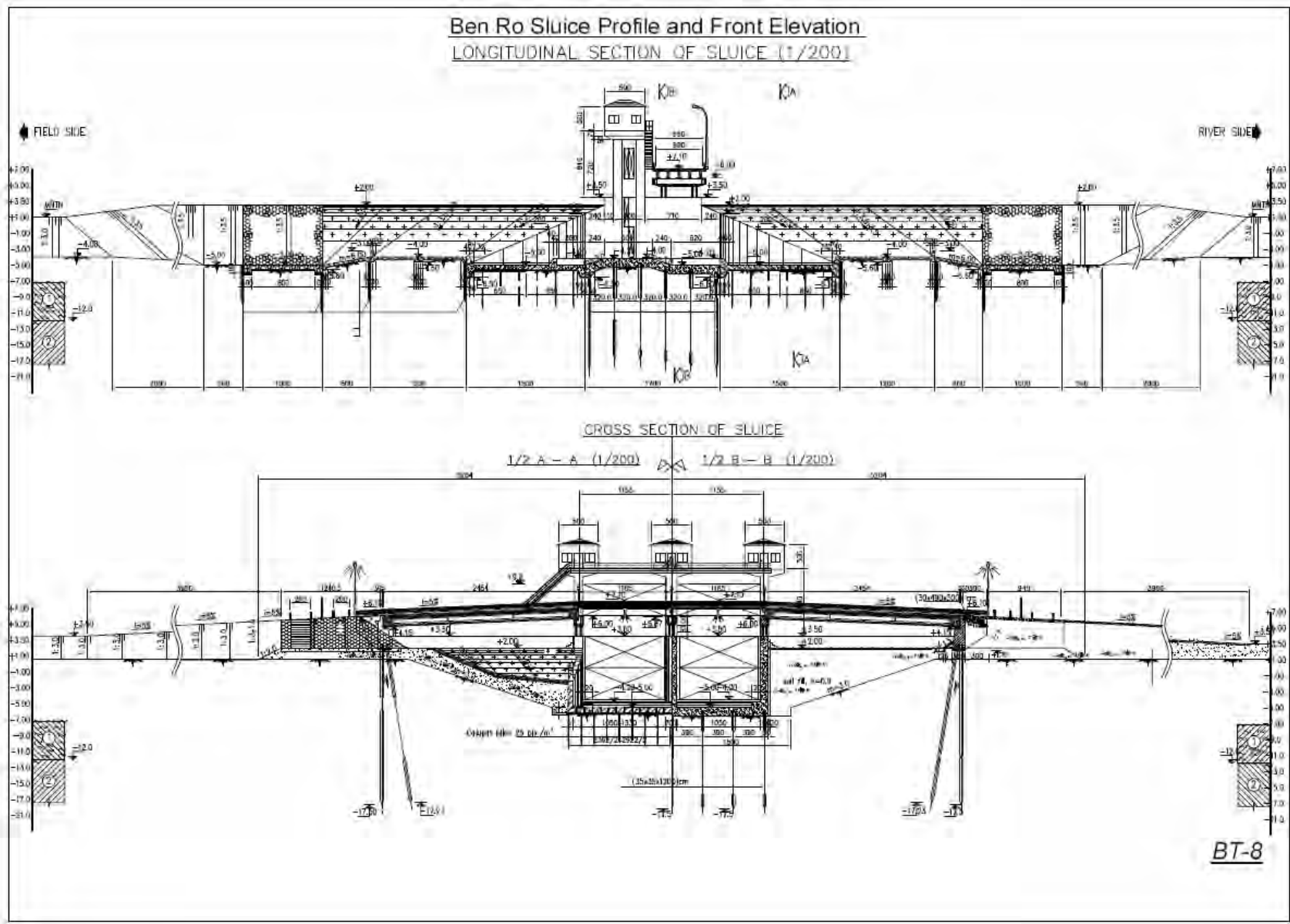
BT-4

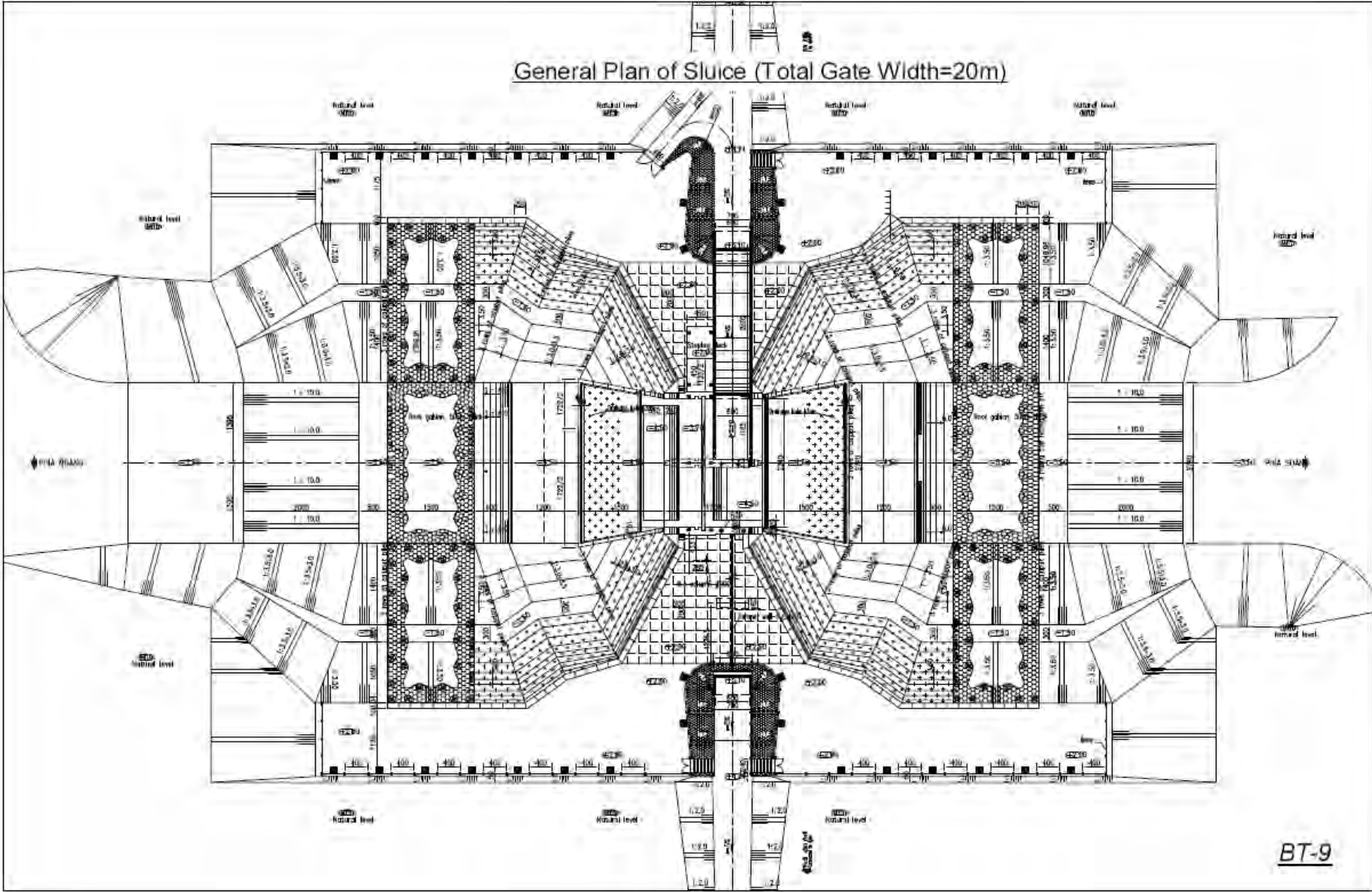


Tan Phu Sluice Profile and Front Elevation

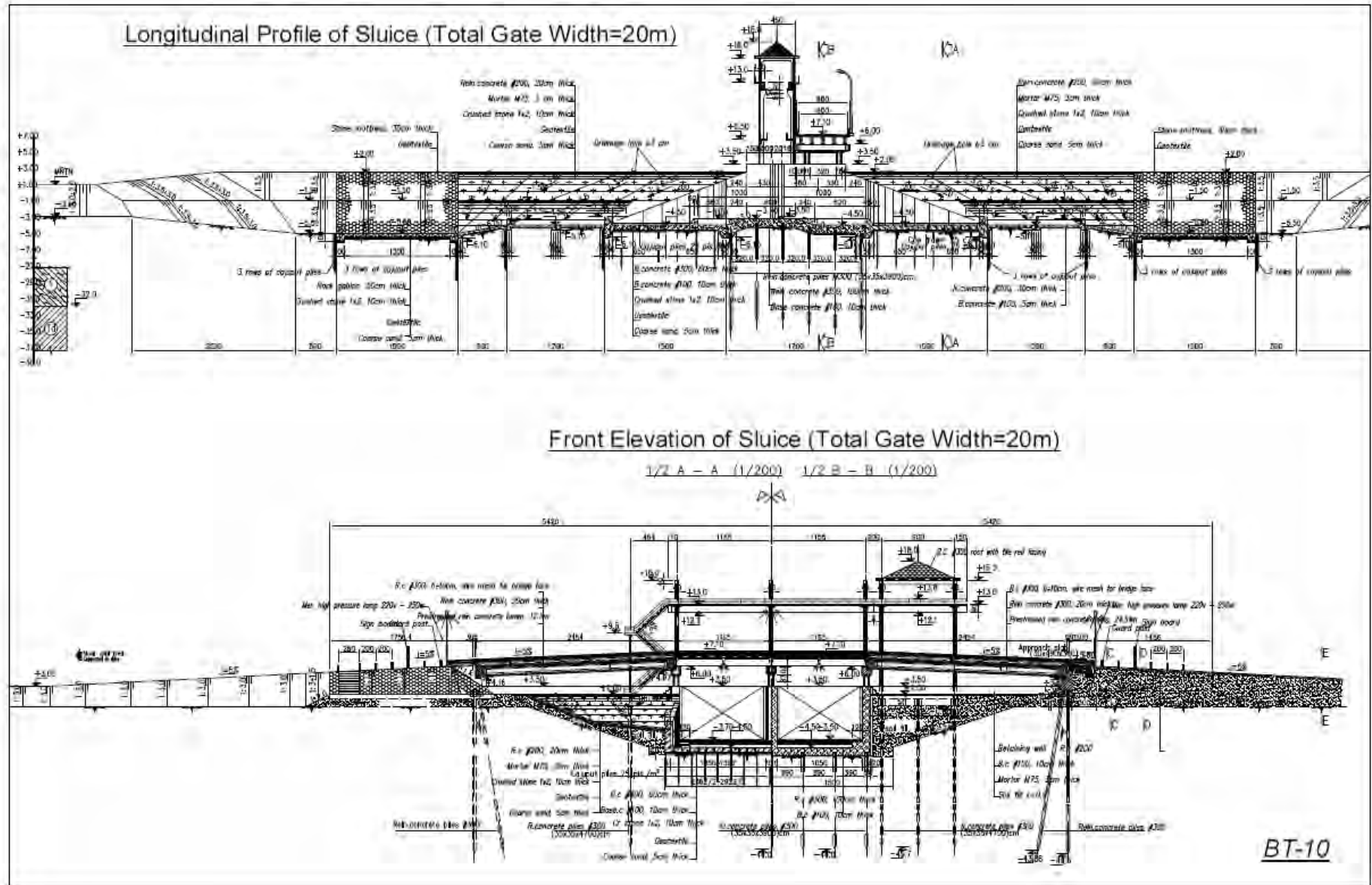


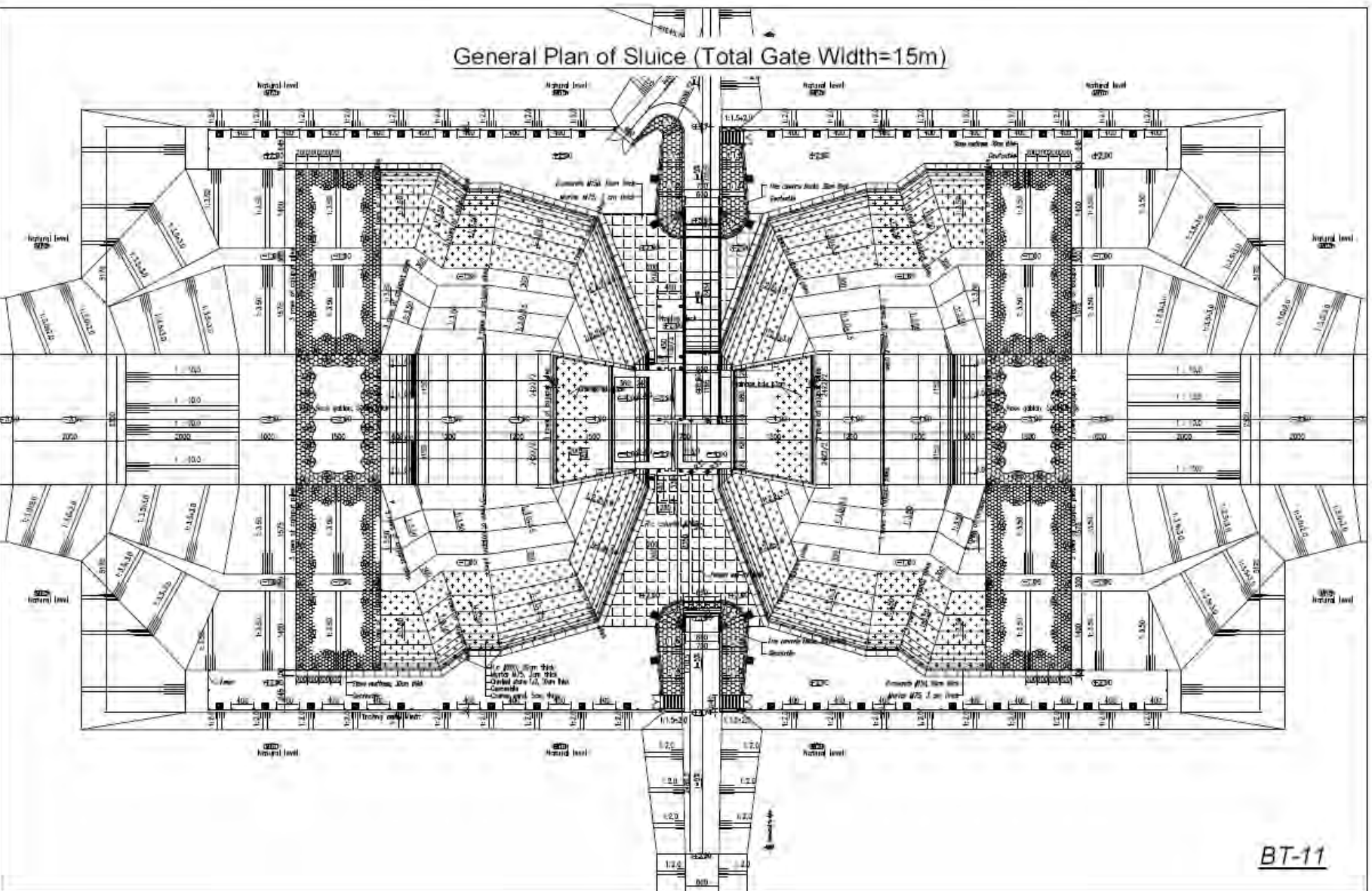






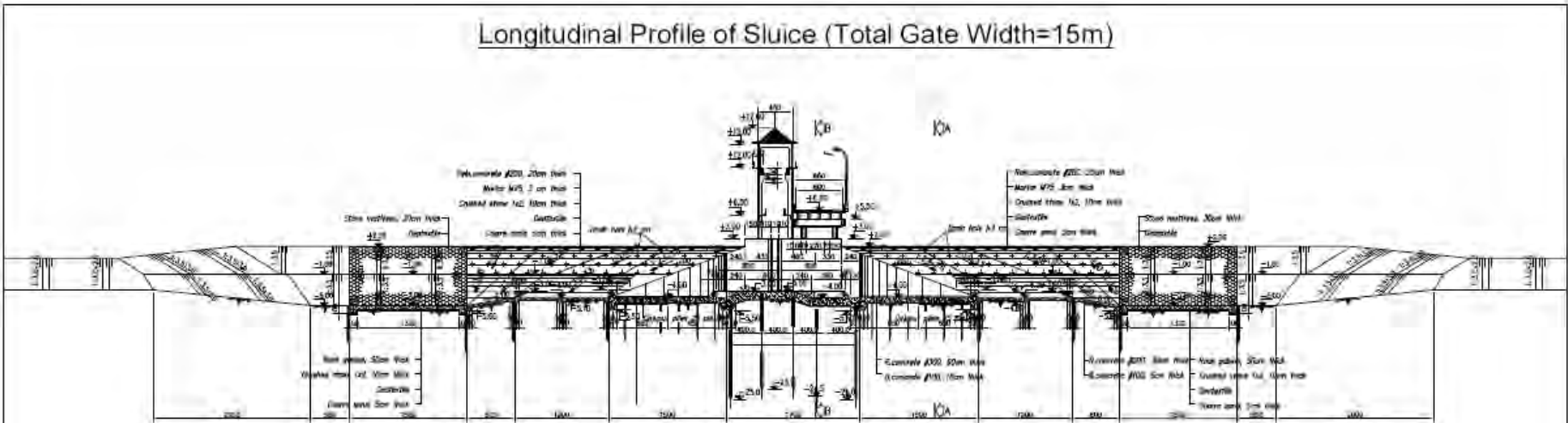
BT-9



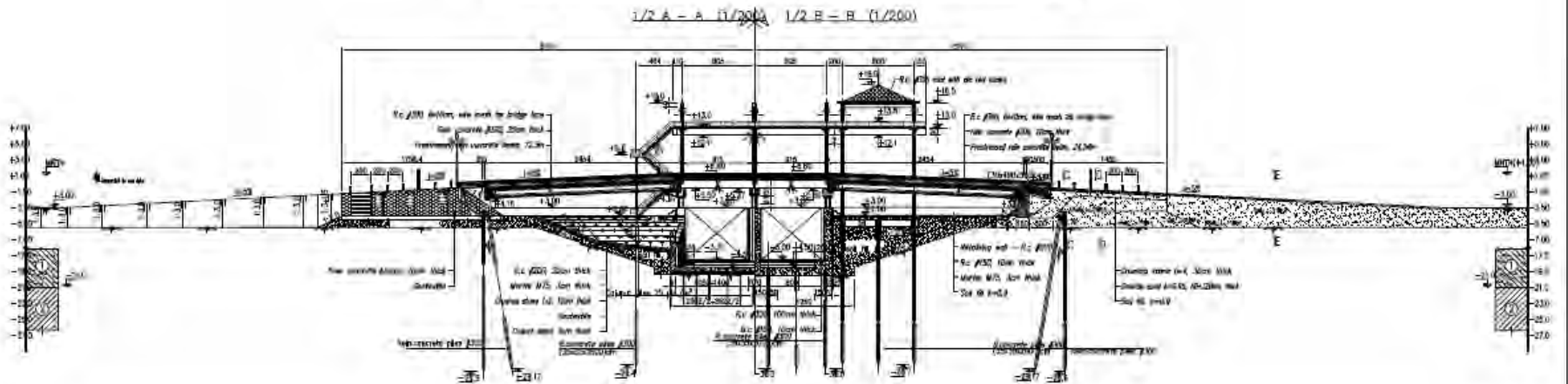


BT-11

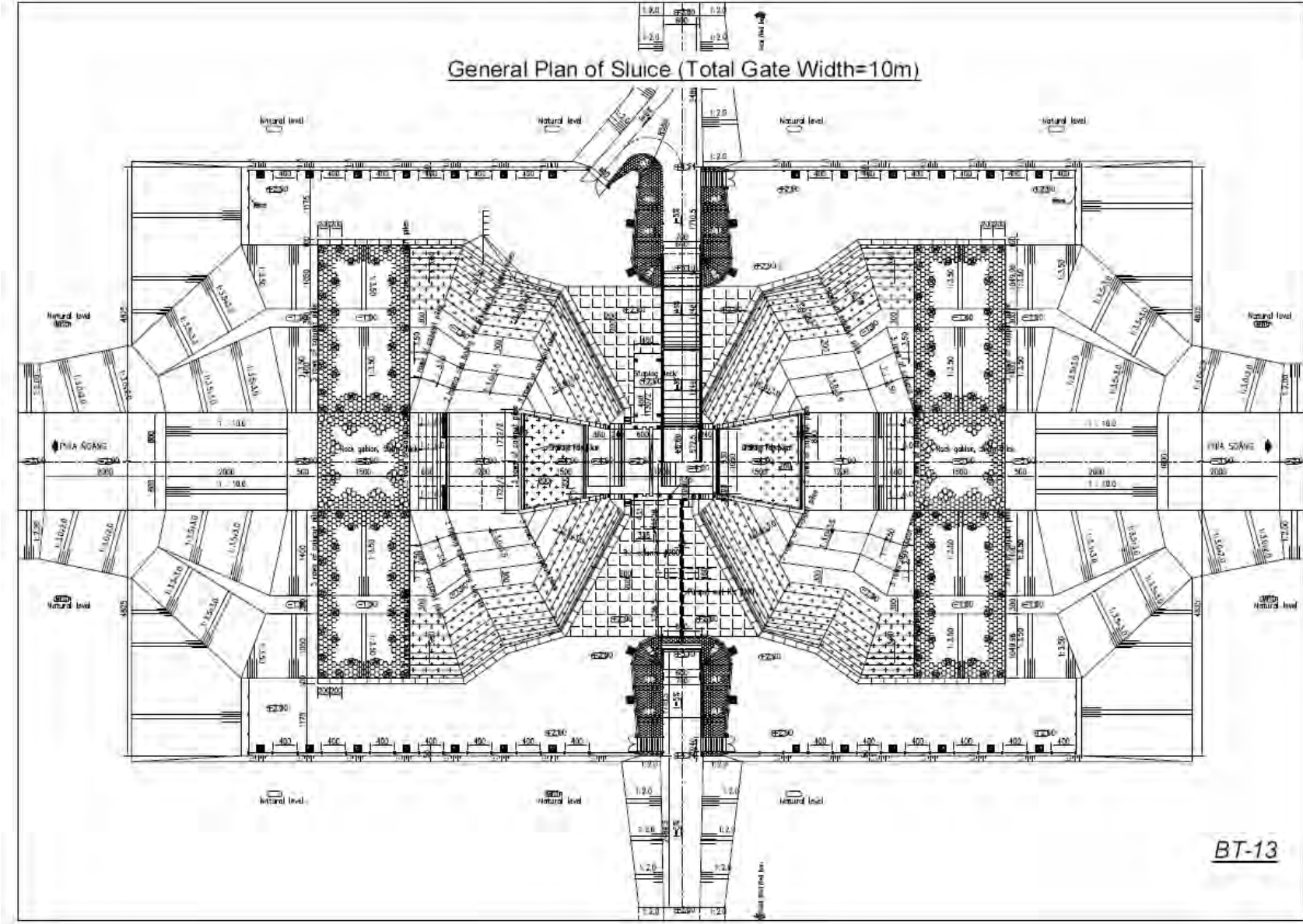
Longitudinal Profile of Sluice (Total Gate Width=15m)



Front Elevation of Sluice (Total Gate Width=15m)

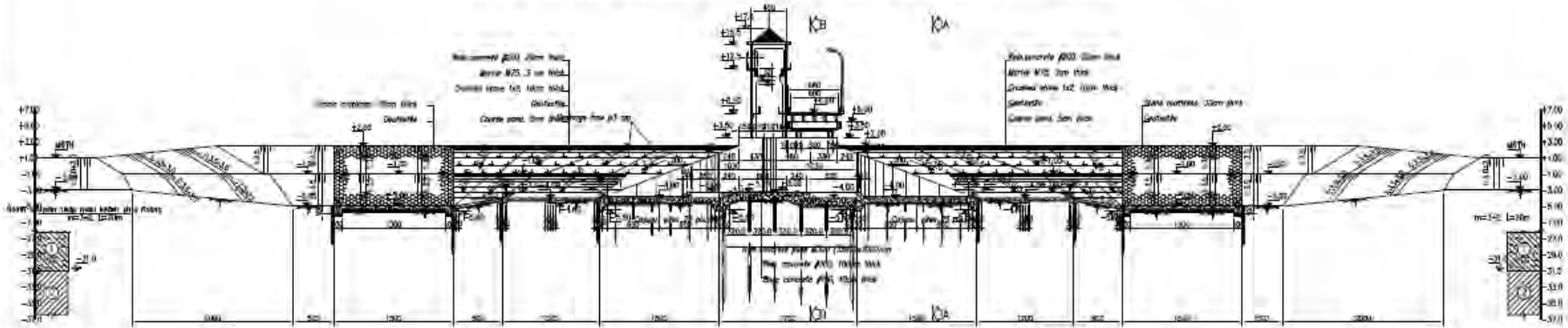


BT-12

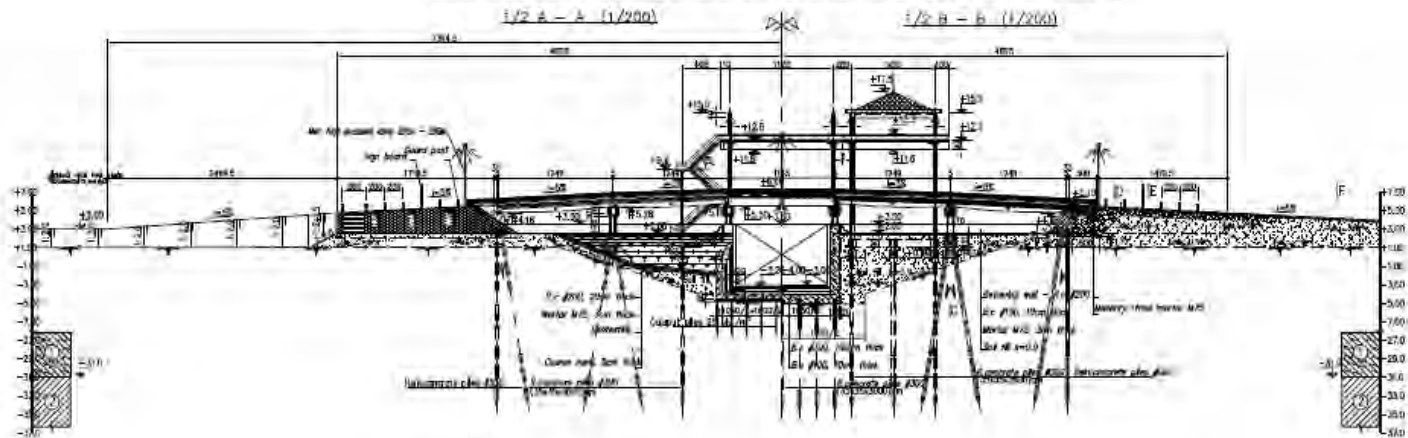


BT-13

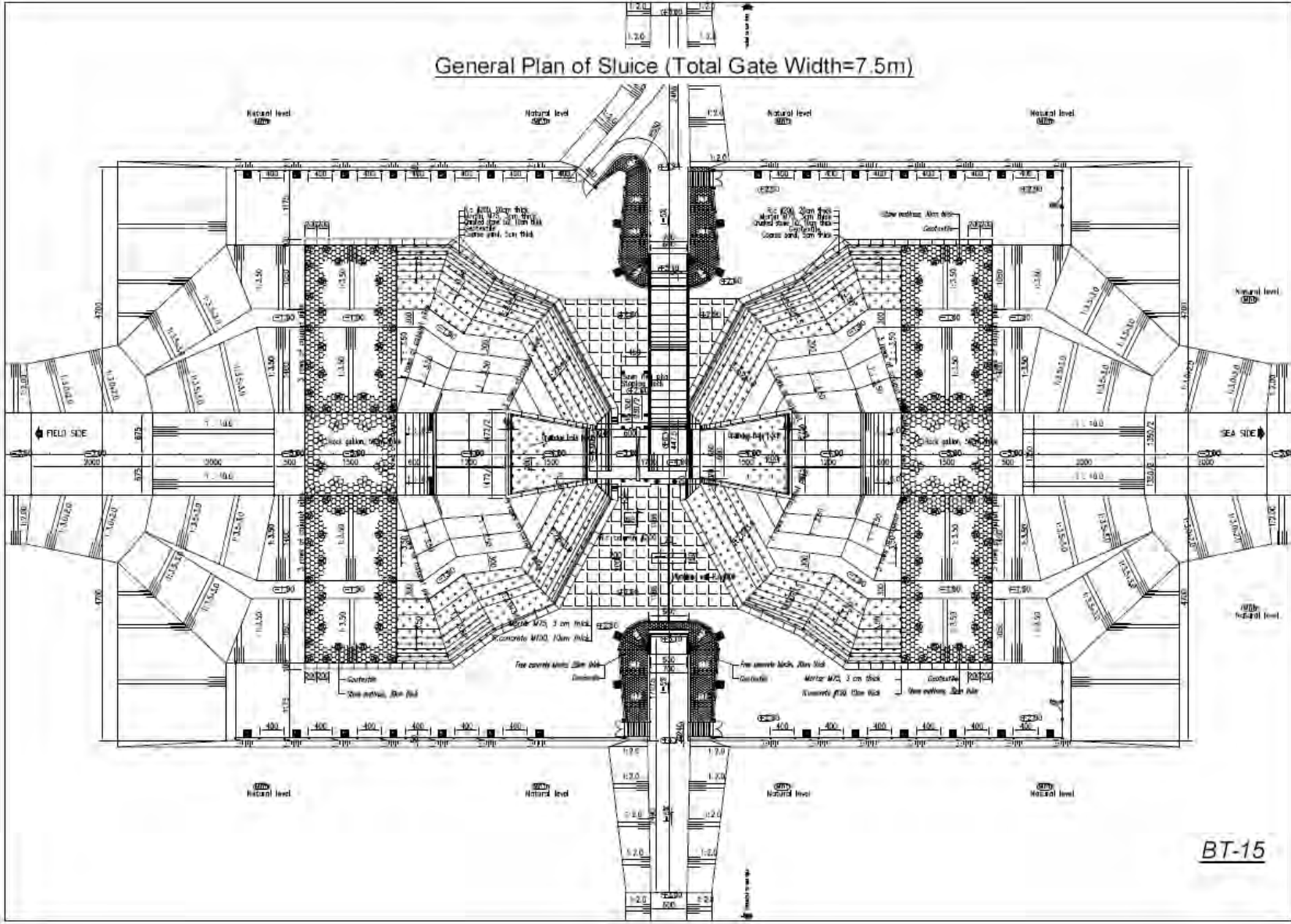
Longitudinal Profile of Sluice (Total Gate Width=10m)



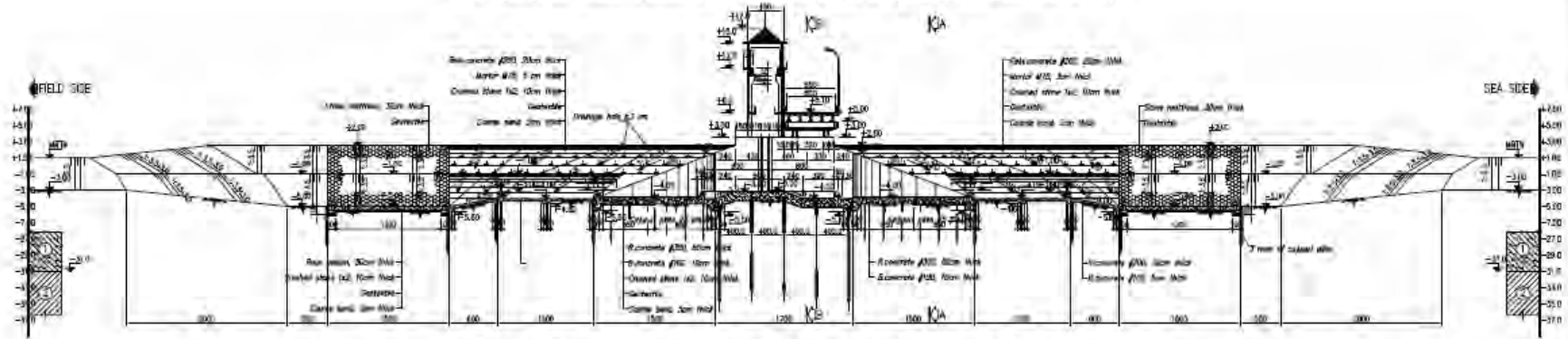
Front Elevation of Sluice (Total Gate Width=10m)



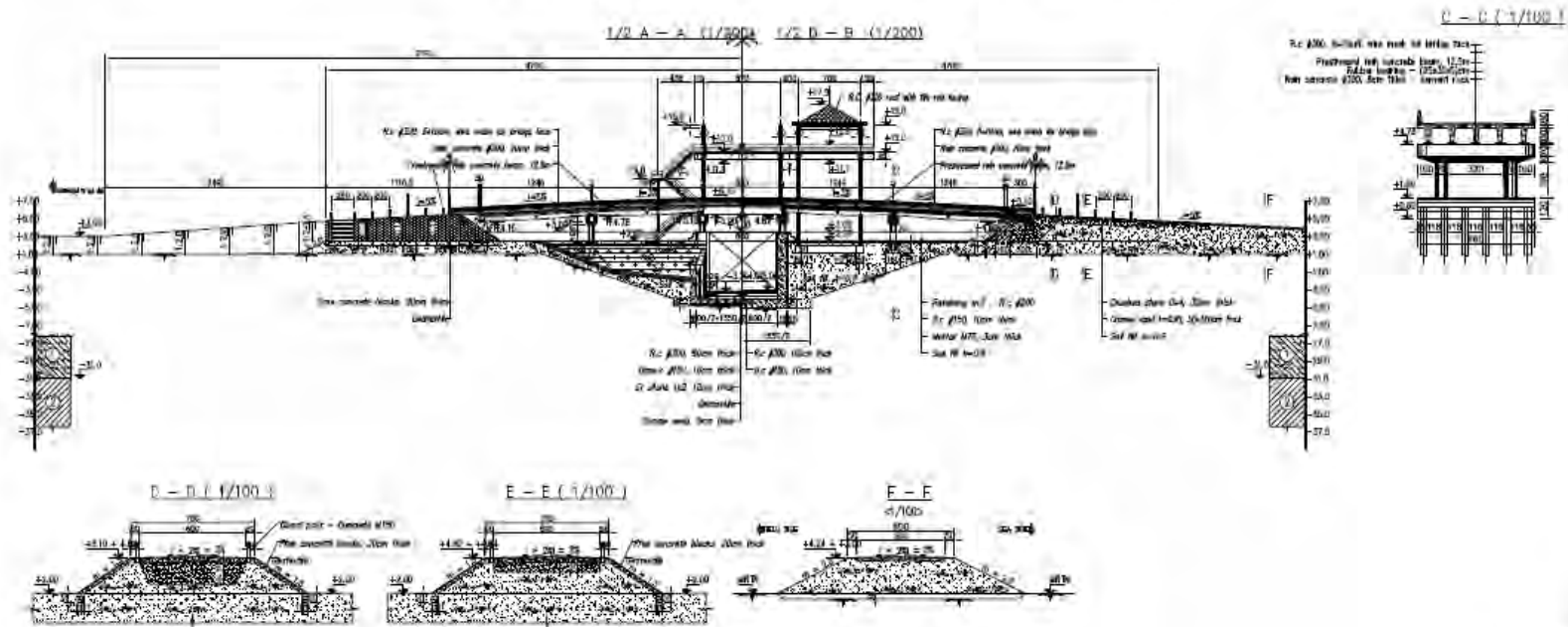
BT-14



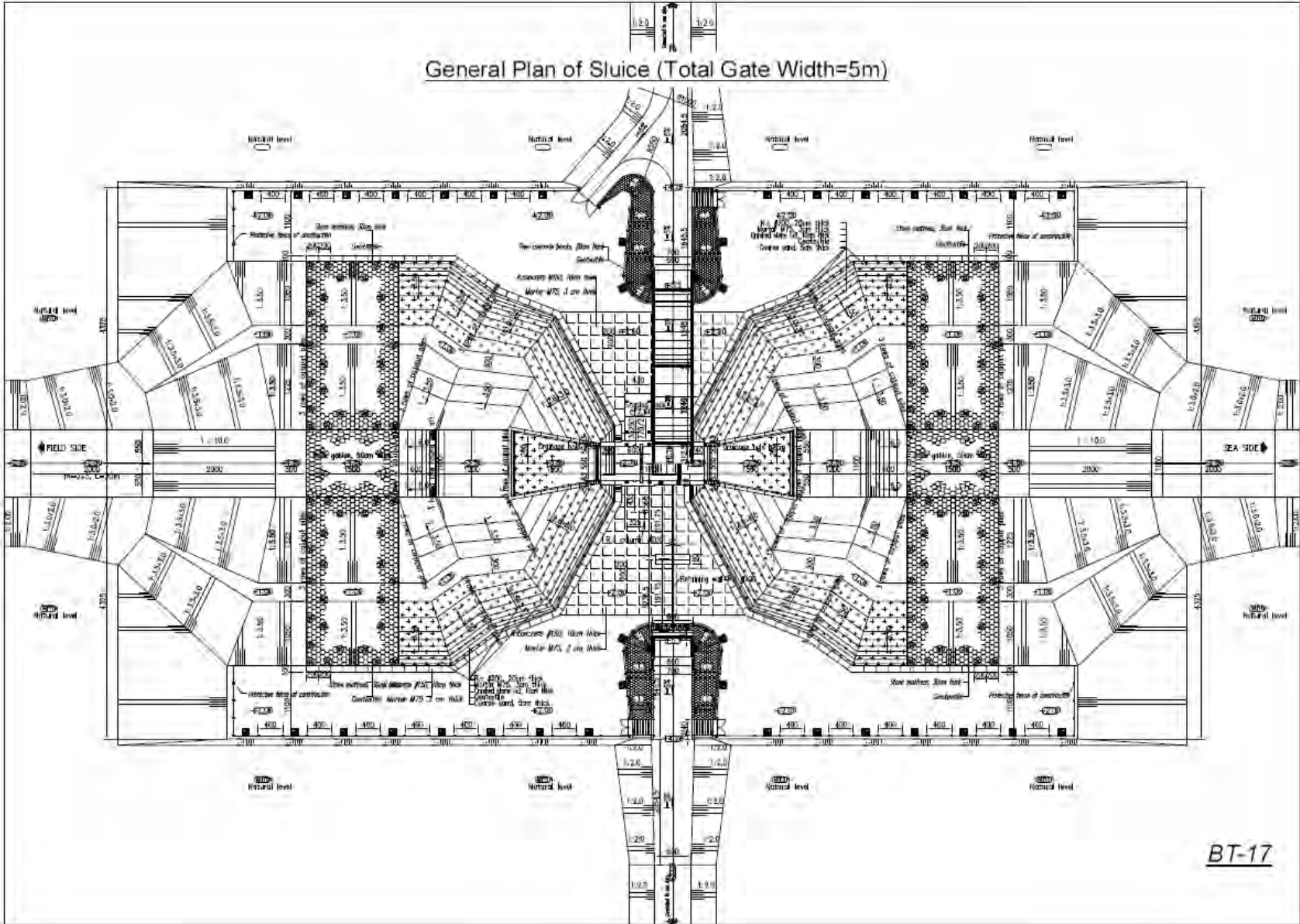
Longitudinal Profile of Sluice (Total Gate Width=7.5m)



Front Elevation of Sluice (Total Gate Width=7.5m)

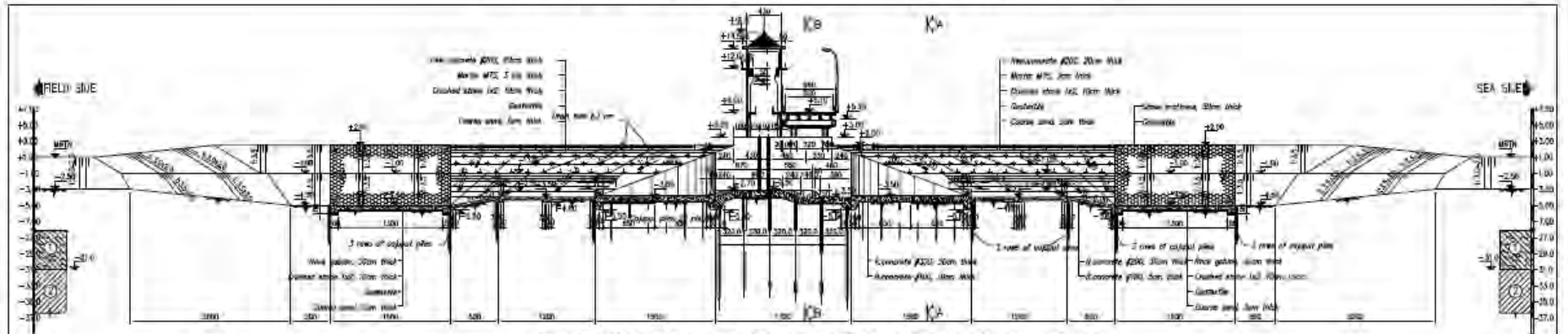


BT-16

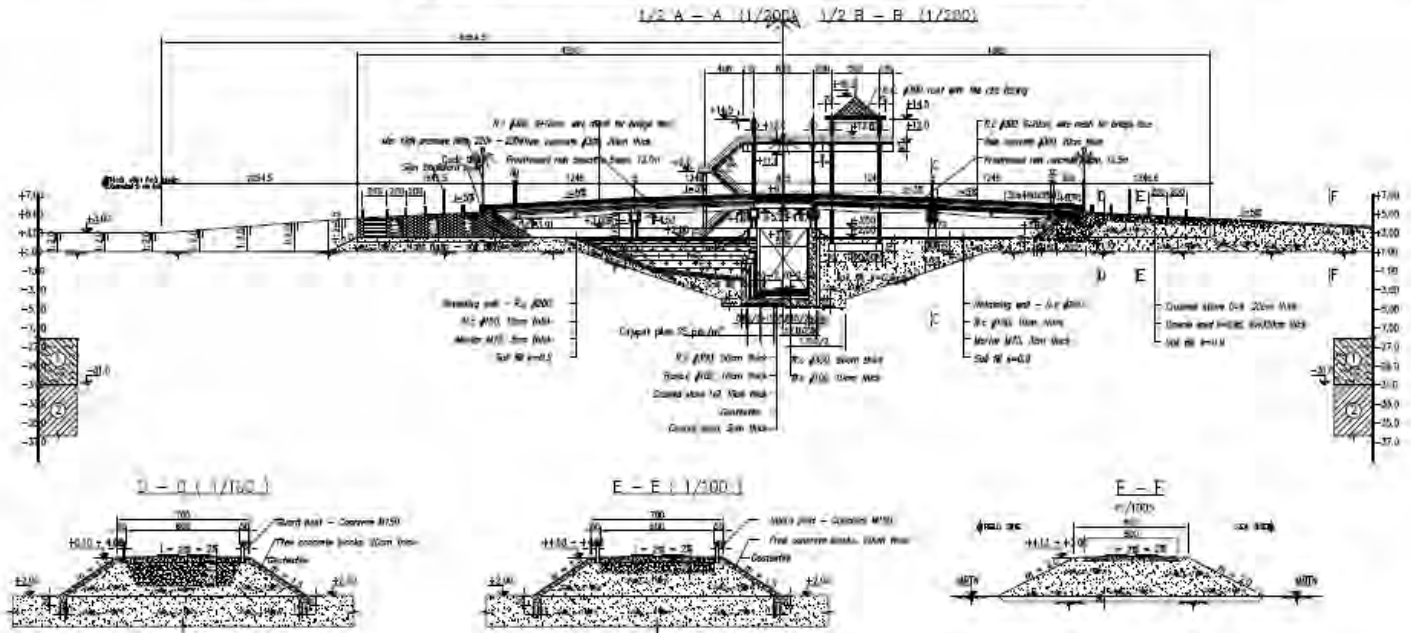


BT-17

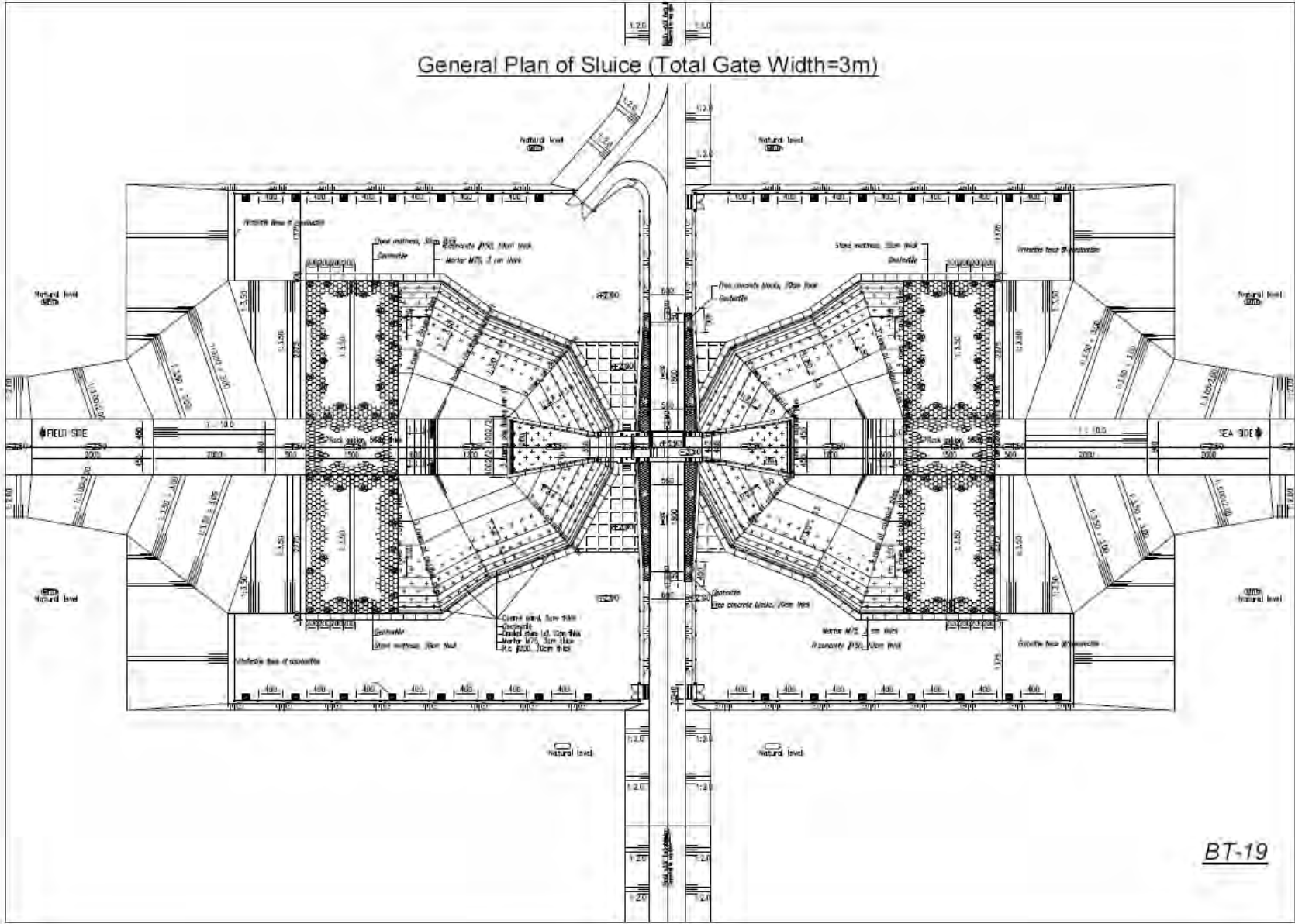
Longitudinal Profile of Sluice (Total Gate Width=5m)



Front Elevation of Sluice (Total Gate Width=5m)

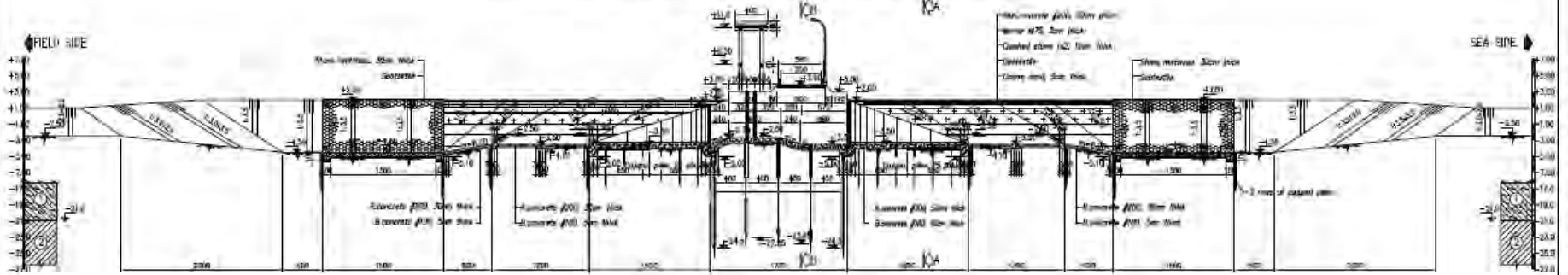


BT-18

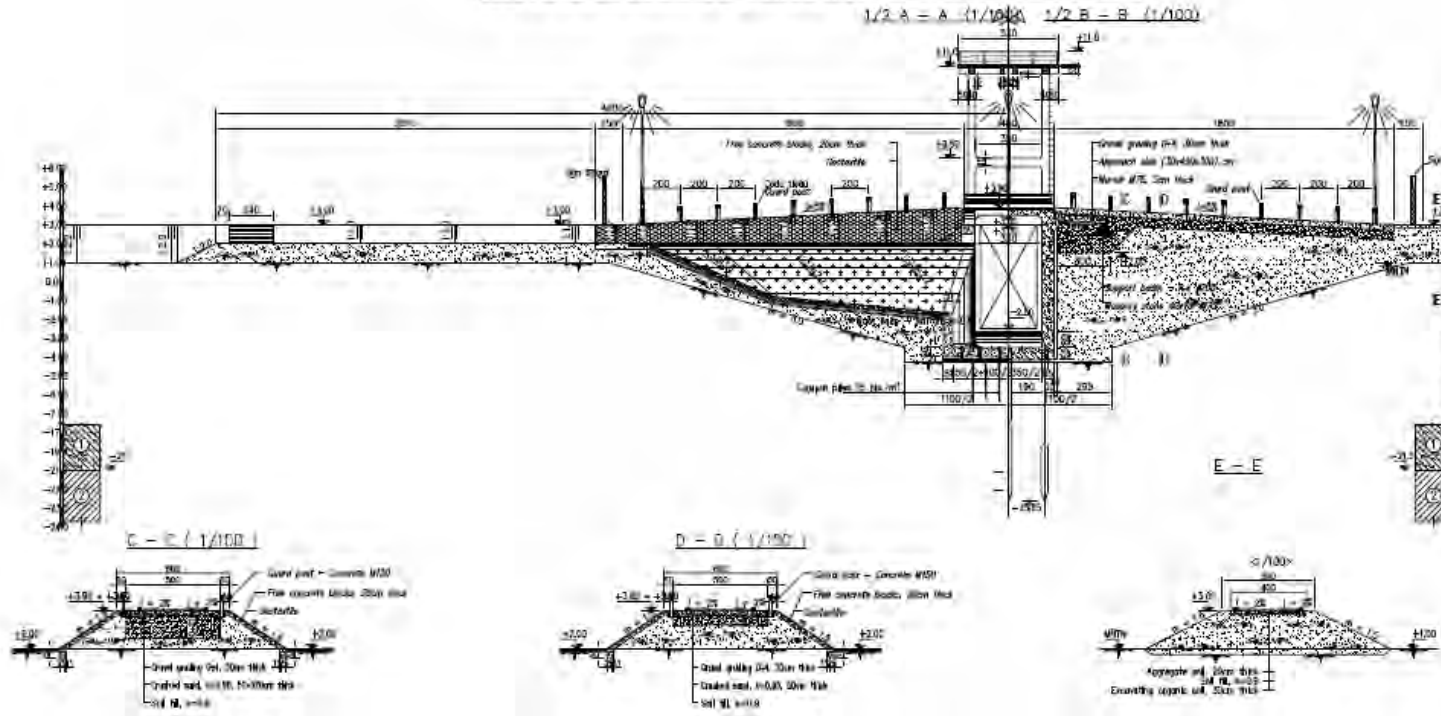


BT-19

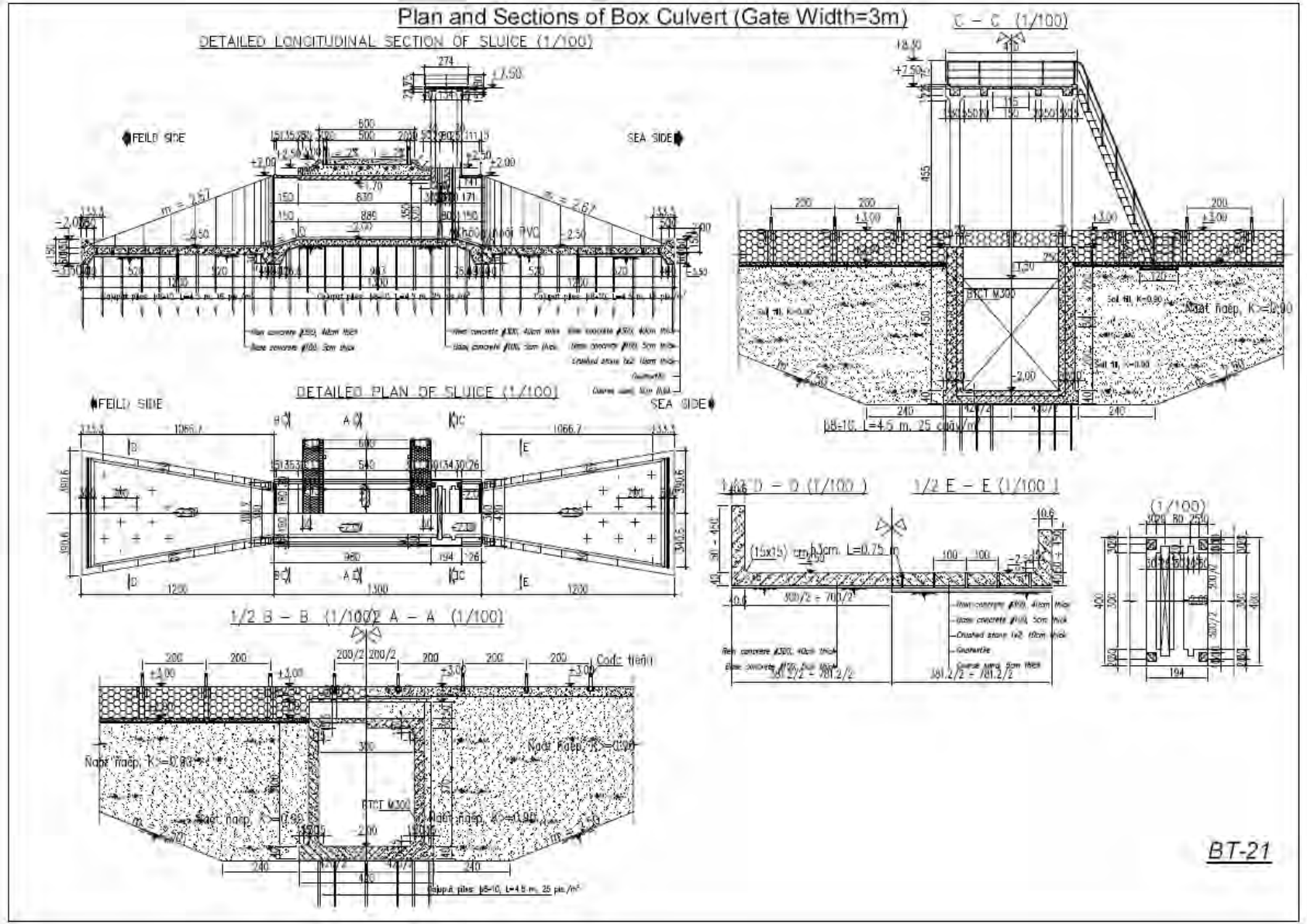
Longitudinal Profile of Sluice (Total Gate Width=3m)

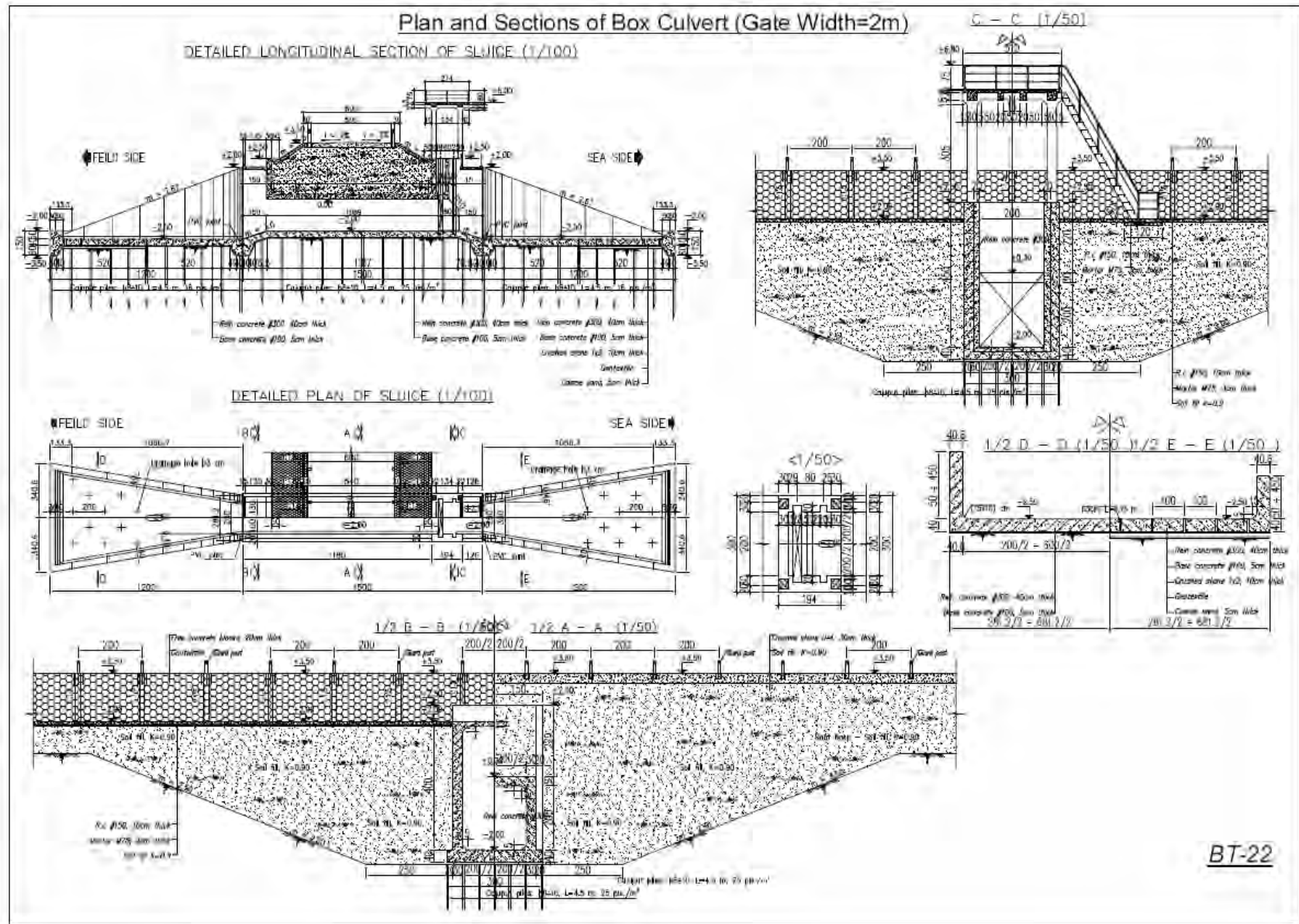


Front Elevation of Sluice (Total Gate Width=3m)



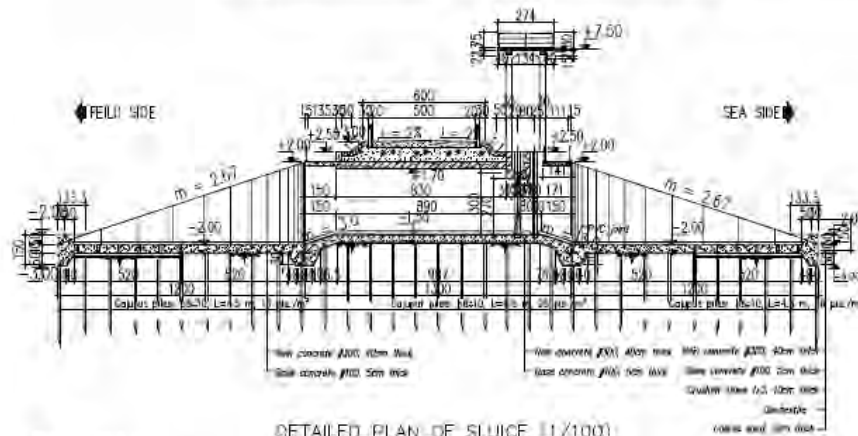
BT-20



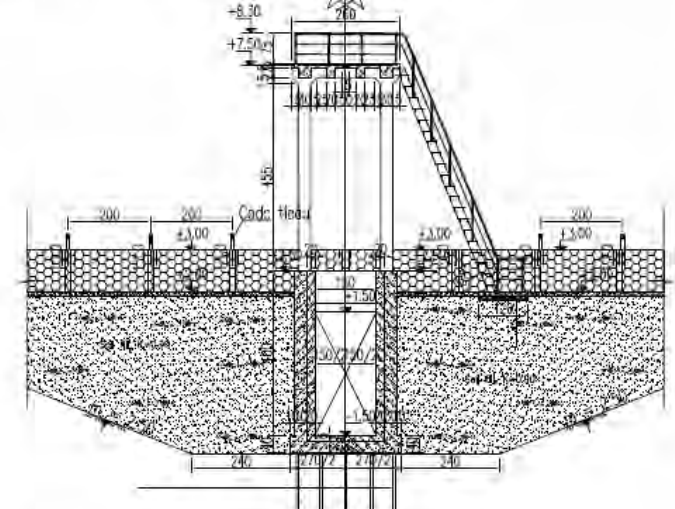


Plan and Sections of Box Culvert (Gate Width=1.5m)

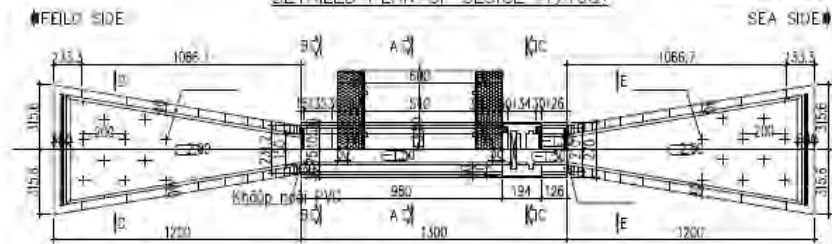
DETAILED LONGITUDINAL SECTION OF SLUICE (1/100)



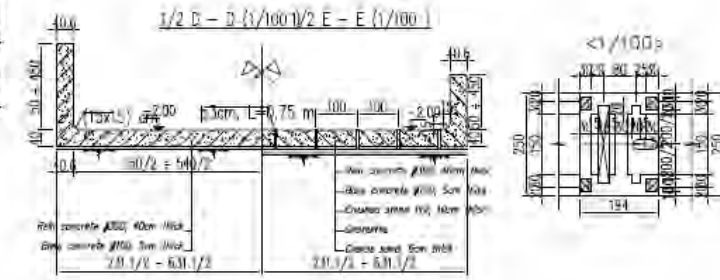
E - E (1/100)



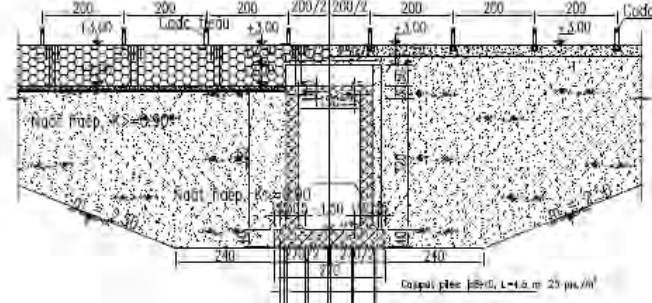
DETAILED PLAN OF SLUICE (1/100)



1/2 D - D (1/100) 1/2 E - E (1/100)

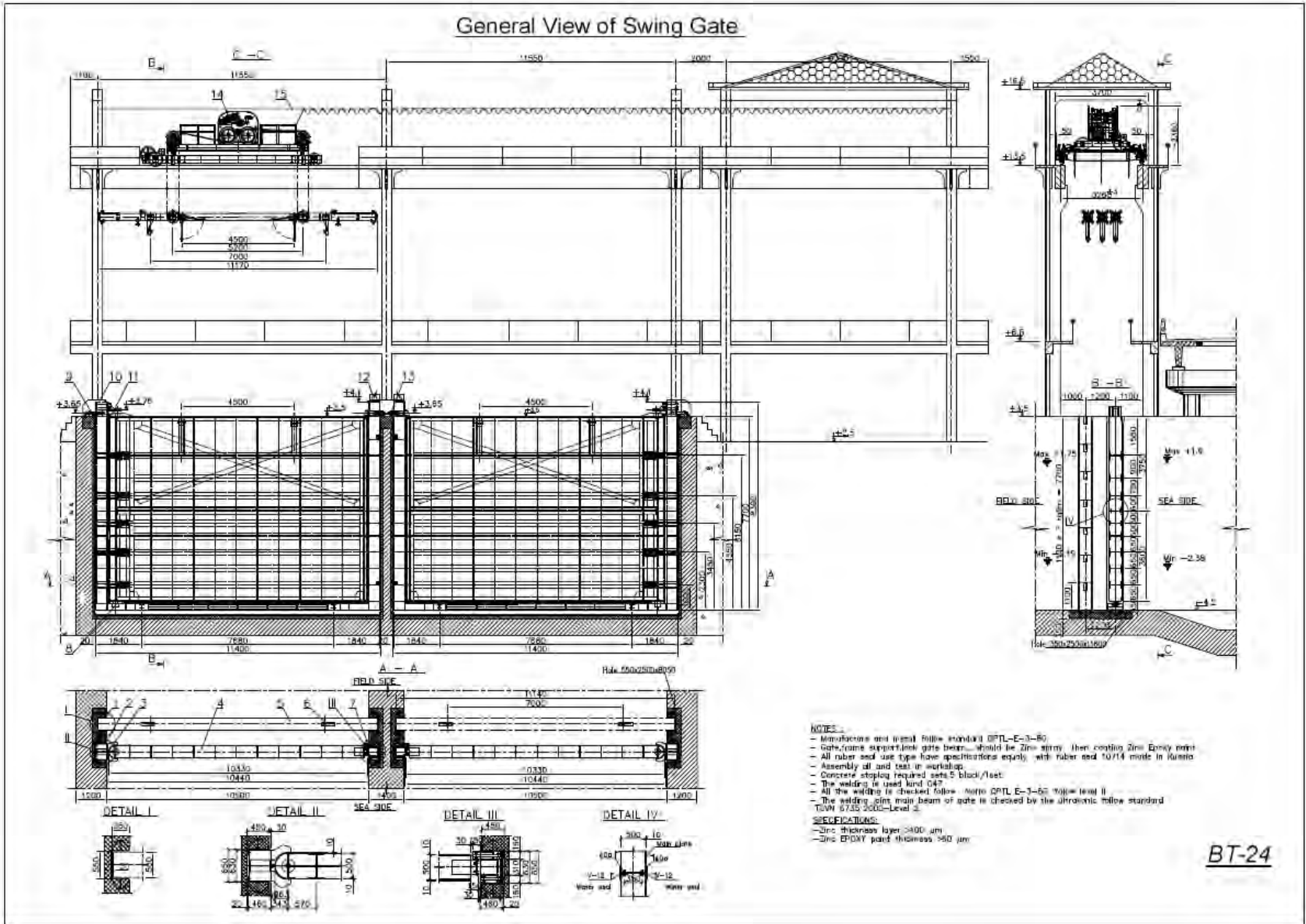


1/2 B - B (1/100) 1/2 A - A (1/100)

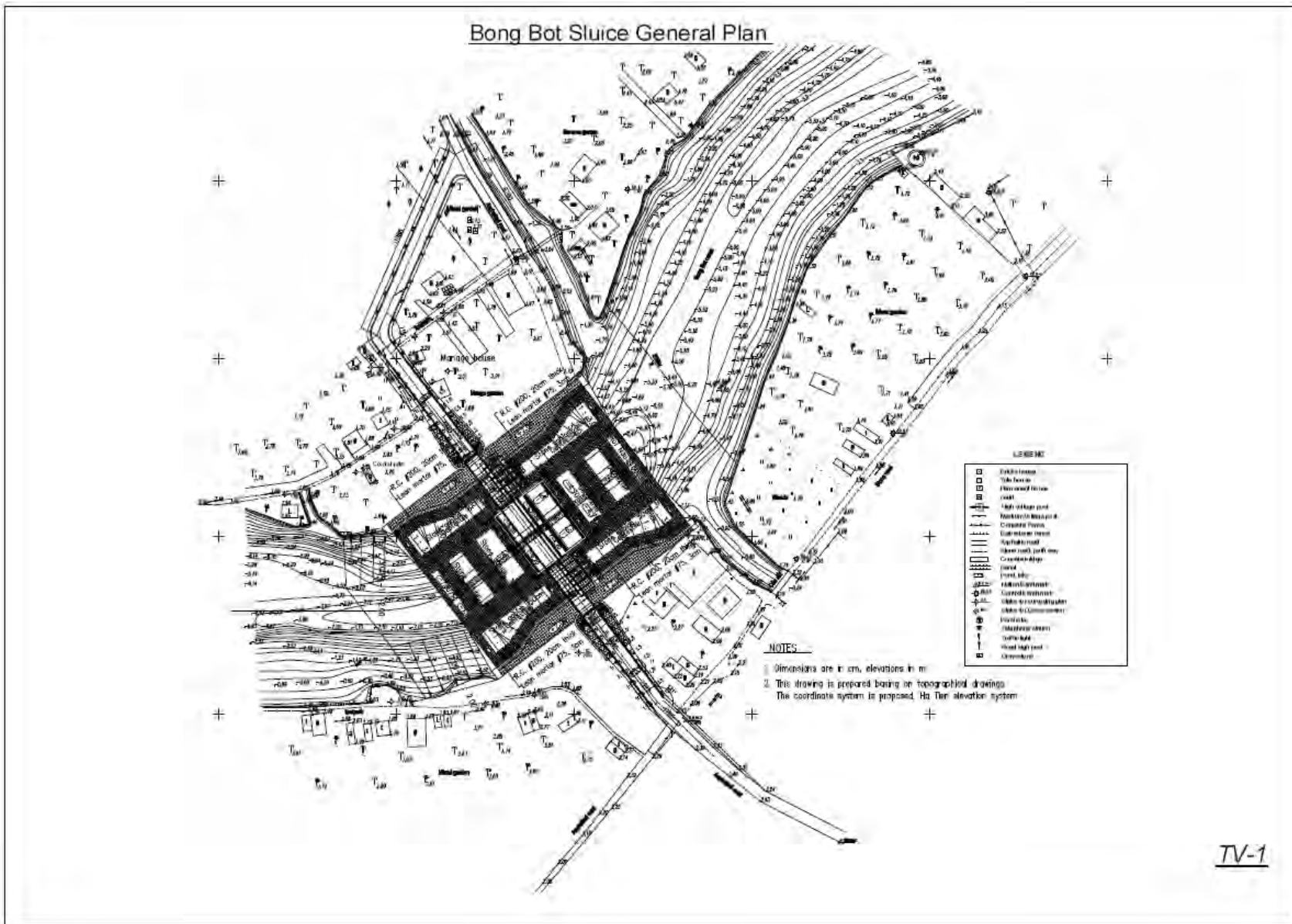


BT-23

General View of Swing Gate

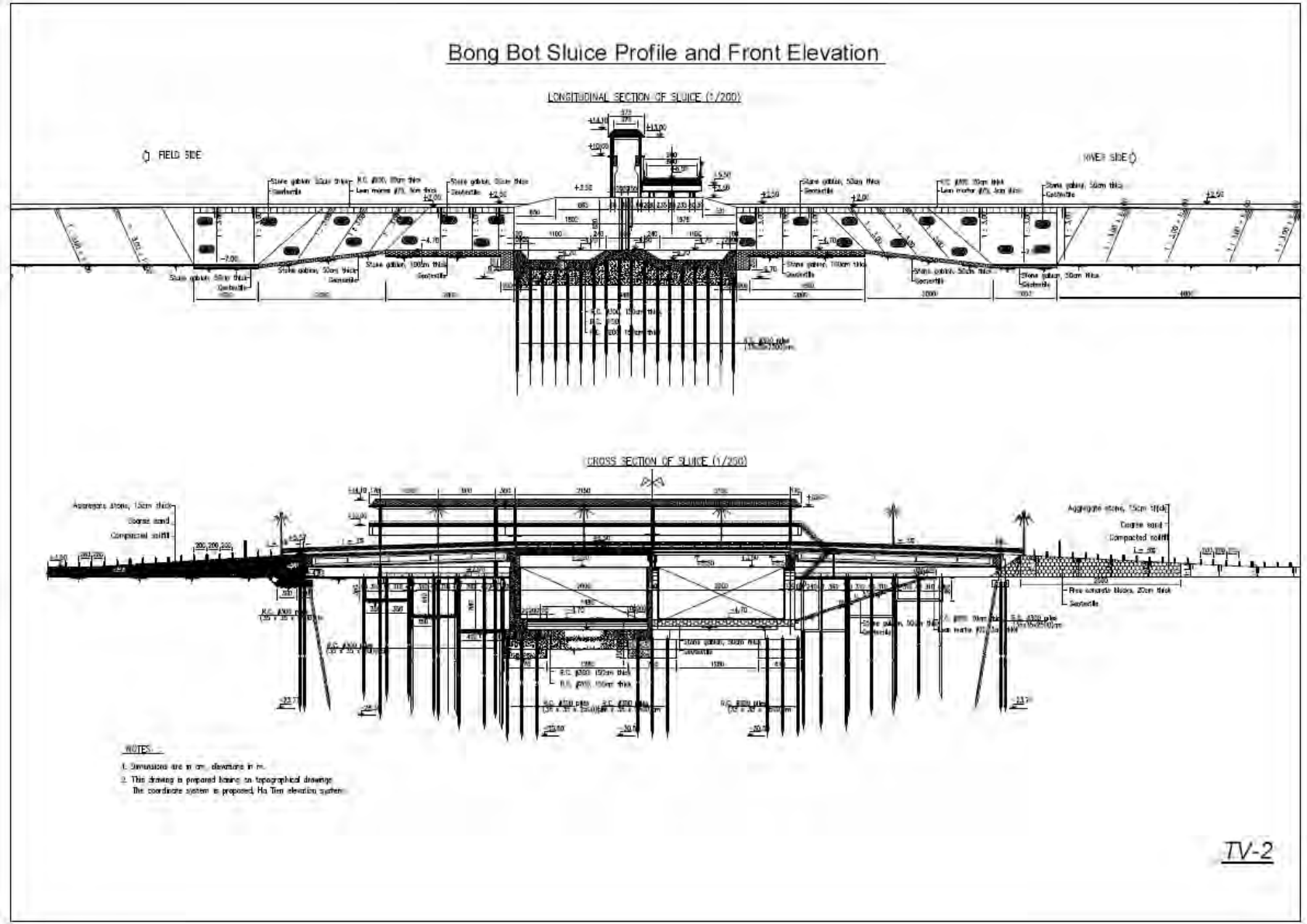


BT-24



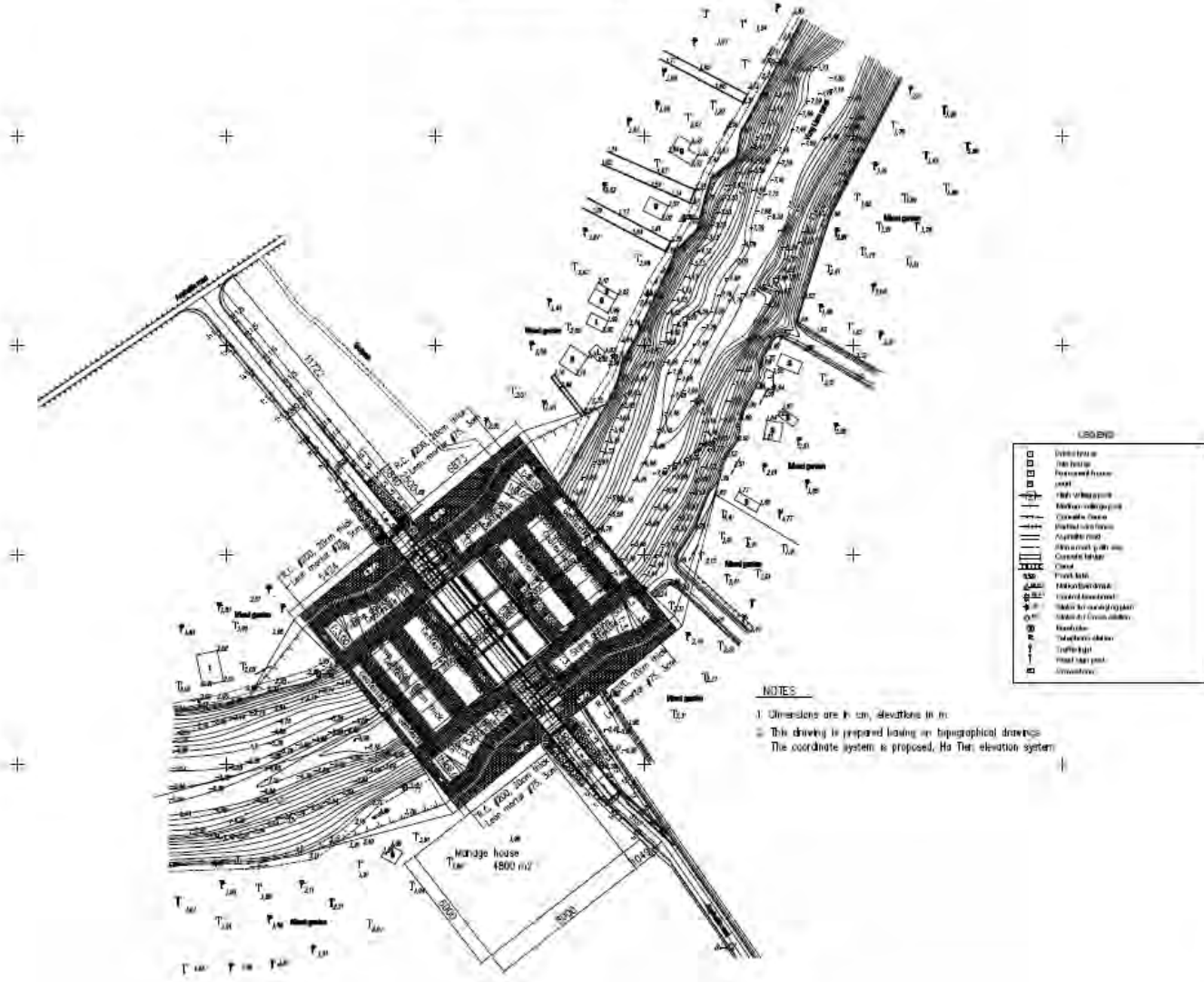
TV-1

Bong Bot Sluice Profile and Front Elevation



IV-2

Tan Dinh Sluice General Plan



LEGEND

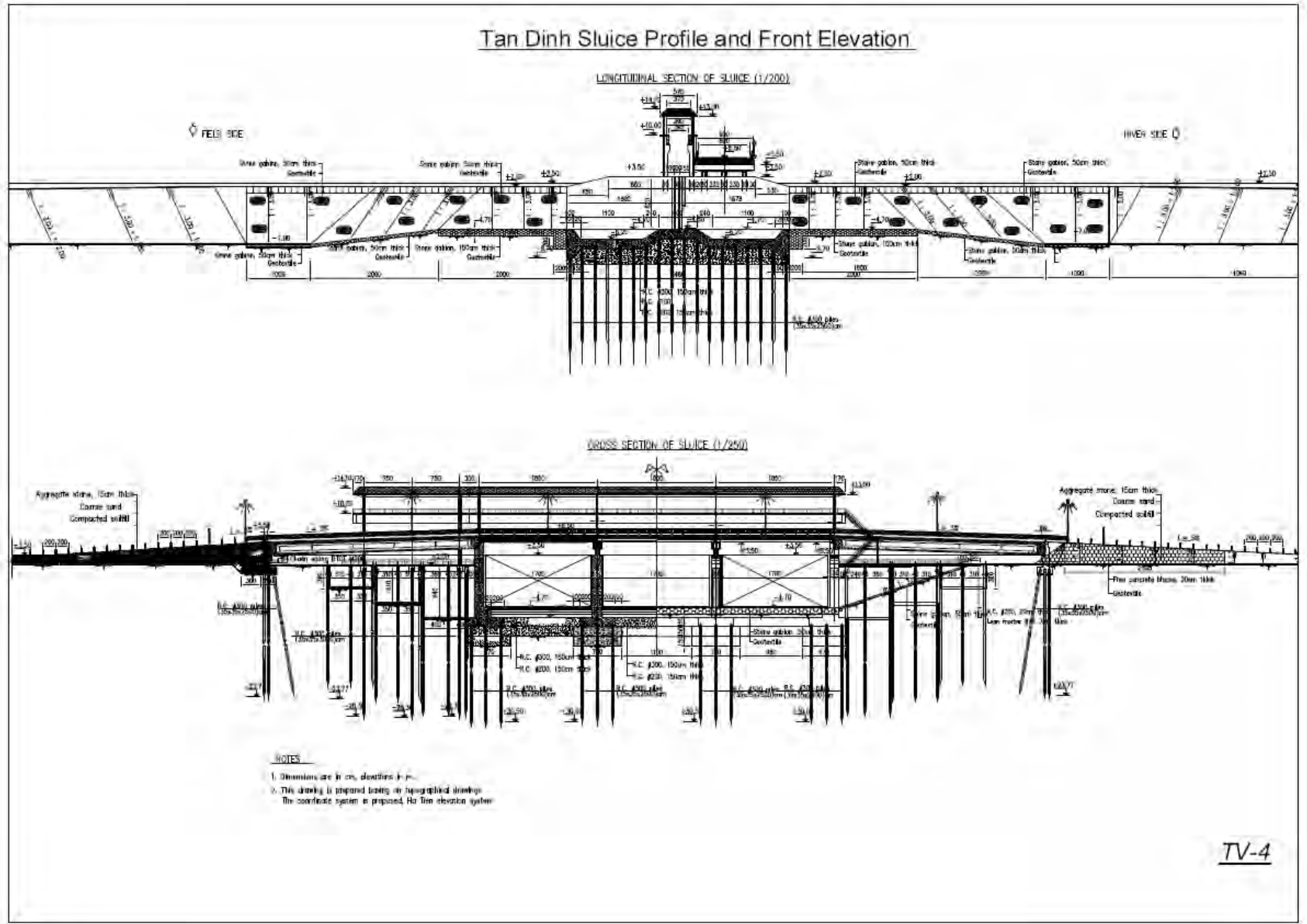
[Symbol]	Water level
[Symbol]	High bridge
[Symbol]	Reinforced concrete
[Symbol]	road
[Symbol]	Red soil
[Symbol]	Black soil
[Symbol]	Canal No. 1
[Symbol]	Canal No. 2
[Symbol]	Canal No. 3
[Symbol]	Canal No. 4
[Symbol]	Canal No. 5
[Symbol]	Canal No. 6
[Symbol]	Canal No. 7
[Symbol]	Canal No. 8
[Symbol]	Canal No. 9
[Symbol]	Canal No. 10
[Symbol]	Canal No. 11
[Symbol]	Canal No. 12
[Symbol]	Canal No. 13
[Symbol]	Canal No. 14
[Symbol]	Canal No. 15
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[Symbol]	Canal No. 100

NOTES

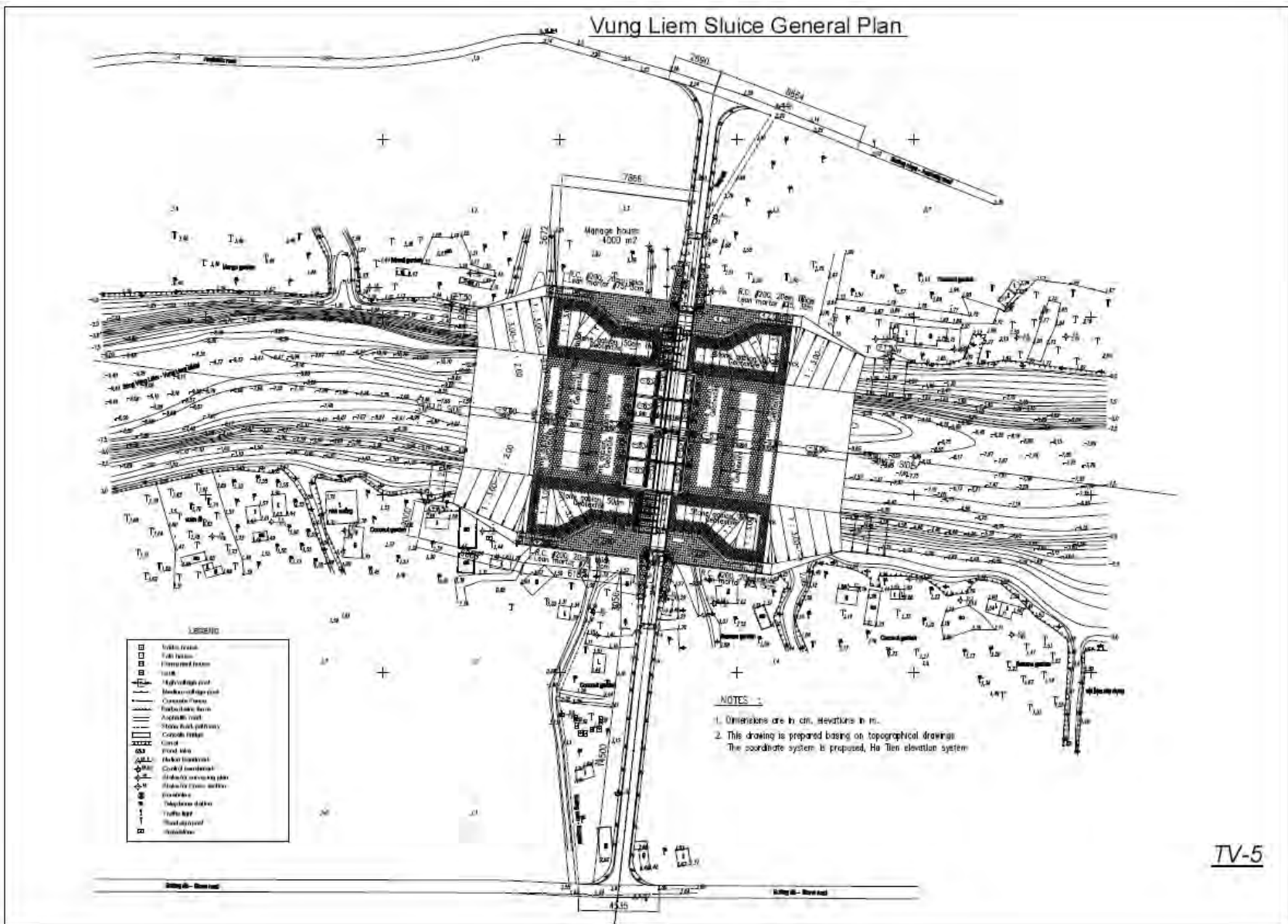
- Dimensions are in cm, elevations in m.
- This drawing is prepared based on topographical drawings.
- The coordinate system is proposed, Ho Chi elevation system.

TV-3

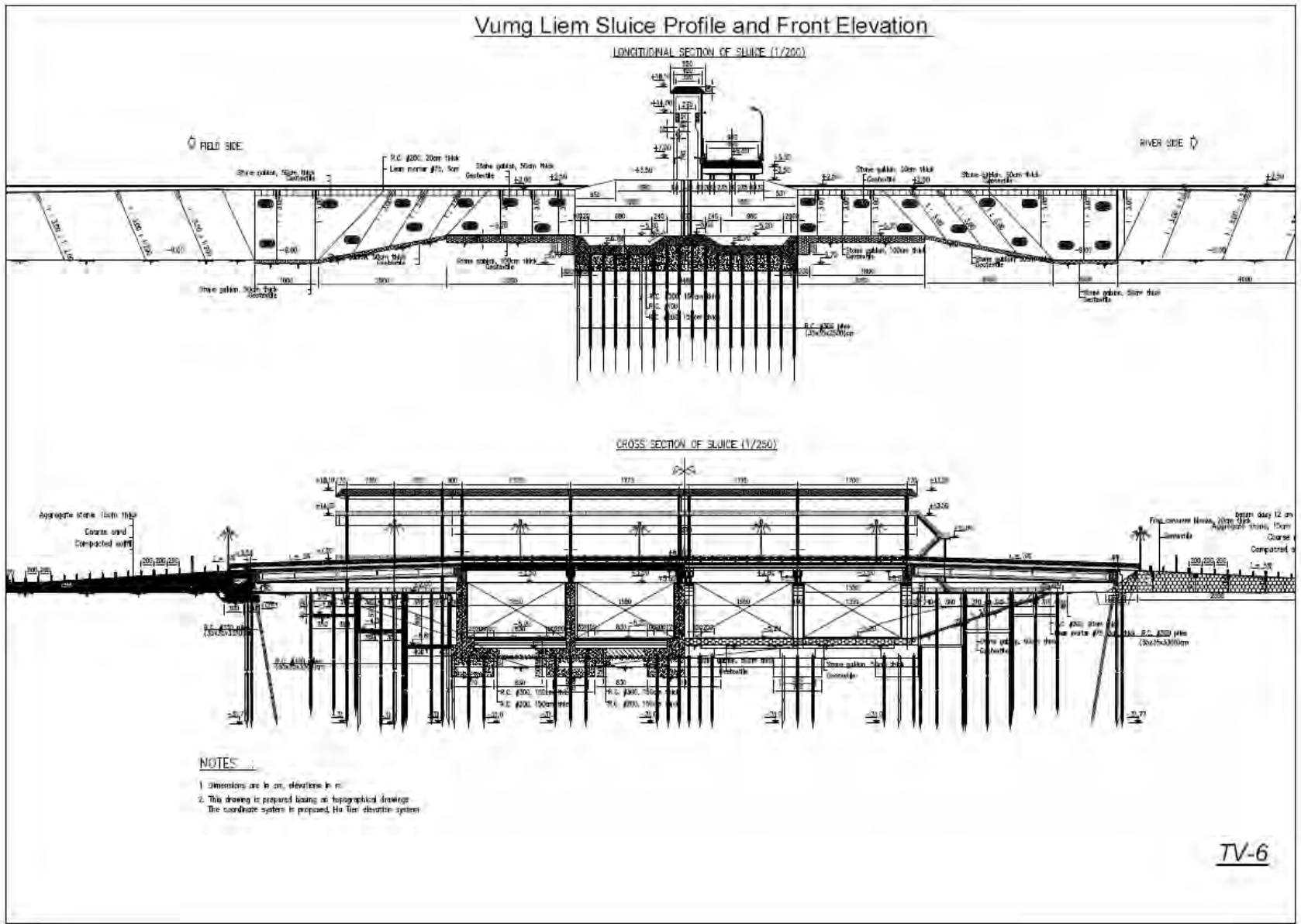
Tan Dinh Sluice Profile and Front Elevation



TV-4



Vung Liem Sluice Profile and Front Elevation



VI.4 FISHPASS

Fish-pass

In order to mitigate the influence against habitat environment of fish due to construction of sluices as much as possible, it is recommended to consider fish-pass during detail design stage. Necessary information and considerations for the study are described below.

1) Selection of target fish

On the selection of fish to be considered for design, several data for fishes which migrate around the sluice construction site should be collected. Those are the species of fish, migration season and its purpose, length and height of fishes, amount of fishes and so on. Moreover, the existence of major fishes for fishery also should be investigated.

2) Water level condition

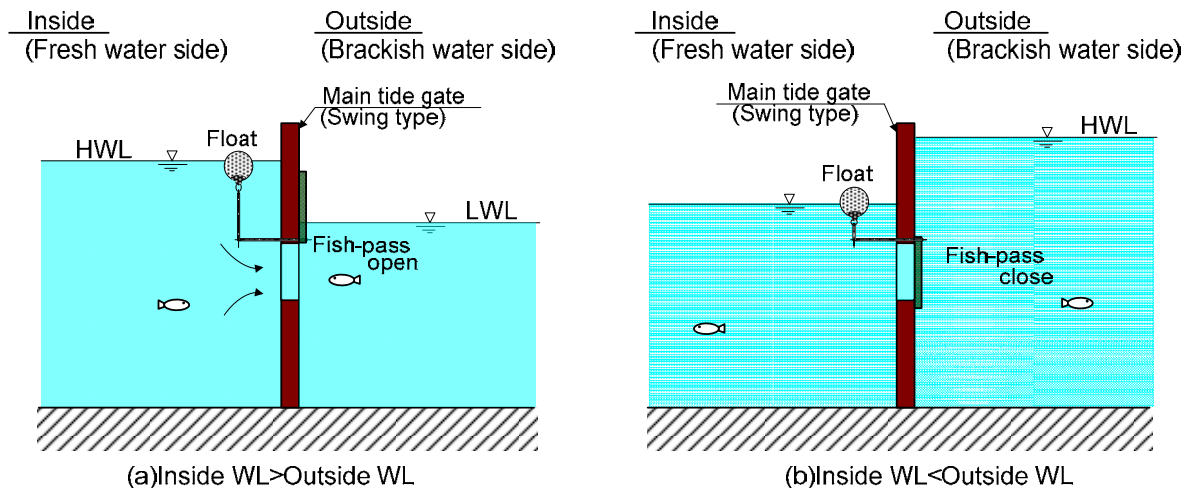
The fluctuation range of water level in upstream and downstream of the sluice should be clarified. This is the essential factor for considering structural type or installation position of the fish-pass that allows fishes to migrate freely through the sluice with keeping protection of saline intrusion.

3) Structural type of the fish-pass

Fish-pass should be satisfied following requirements.

- Fishes can gather around the fish-pass easily and pass through it safely and smoothly.
- Structure of it is simple and has solidity, and what is more, easy to operate and maintain.

Following figure shows one example of fish-pass which is consisted of a part of main gate and opens and closes automatically by float.



However, this type has some defectives to be improved. In case that inside water level is so high as to open the fish gate, when outside water level rises higher than that of inside, salt water can possibly intrude into the inside area. And if the fish-pass is too small for the main gate which has commonly 10m width and 7 to 8m height, it is difficult for fishes to find the position of the tiny path in the water. Moreover, this passage may be blocked up or malfunctioned by floating debris or waterweed. Therefore, practicability of installing an appropriate fish-pass and its detail structure should be examined deeply including measures for aforementioned problems.