

Table 4.2.5 (38/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name	Calculation Quantity	Remarks								
U-P2-Bq-107	Asphalt Treated Base	10 m3									
Major Item	ID No.	Description	Unit	Quantity	PF/C	IF/C	L/C	PF/C	IF/C	L/C	Remarks
Direct Cost											
Equipment											
	A-2-1-96	Wheel Loader; 1.2 m3	hourly	0.48	72,404	1,116	58,629	34,754	536	28,142	
	A-2-2-16	Generator; 125 kVA	daily	0.13	271912.2	15120	209096	35,349	1,966	27,182	
	A-2-1-55	Dumptruck; 8 ton	hourly	2.4	58770.27	2200	53720.55	141,049	5,280	128,929	
	A-2-2-63	Asphalt Finisher 2.4m	hourly	0.69	170054.4	0	150540.1	117,338	0	103,873	
	A-2-1-60	Road Roller; Tandem 8-10 ton	hourly	0.23	63474.75	696	63412.53	14,599	160	14,585	
	A-2-1-68	Tire Roller; 8-20 ton	hourly	0.21	81684.16	864	82451.15	17,154	181	17,315	
Labour											
	L-2-1	Foreman	day	0.13	0	0	48800	0	0	6,344	
	L-2-22	Asphalt Worker	day	0.92	0	0	35100	0	0	32,292	
Material											
	M-B-2	Coarse Aggregate	m3	7.027778	0	2600	49400	0	18,272	347,172	
	M-B-1	Fine Aggregate (washed sand)	m3	5.341111	0	2100	39900	0	11,216	213,110	
		Filler Fraction	kg	1391.5	0	0	136.35	0	0	189,731	lessthan0.075mm
	M-C-4	Asphalt	kg	1569.75	0	450	1050	0	706,388	1,648,238	
Others											
		Small Tools	%	5				18,012	37,200	137,846	
Indirect Cost											
Site Expense											
			%	15	0.8		0.2	486,505	0	121,626	
Profit and Overhead Cost											
		Miscellaneous	L.S.	10	0.8		0.2	372,987	0	93,247	
								53	1	68	Round Up
Total for								10 m3			
Unit Cost for								1 m3			
Unit Cost for								1 m2 = 20 m2			
Unit Cost for								1 ton (25.23ton including 10% los	1427.045 ton		
									867	547	2,179

Analysis of surface base course (ATB) 1 M3, 50 mm thick

No	Working Name	Code	Coefficient	Unit	Remark	No	Working Name	Code	Coefficient	Unit
I.	Using equipment					2.4	Dump Truck	E09		
1	Work location is on the road length						Bucket capacity	V		8 ton
2	Existing condition of the road are medium						Efficiency factor	Fa		0.83
3	Average distance from base cam L			3 Km			Average loading spv1			30 Km/hour
4	Thickness of surface base course t			0.05 m			Average empty spv2			40 Km/hour
5	Effective hour / day	Tk		7 Hour			AMP capacity/batQ2b			0.5 ton
6	Loss factor of the material						Time to prepare 1 Tb			1 minute
	-Aggregate	Fh1		1.1			Cycle time :			
	-Asphalt	Fh2		1.05			Loading time * (VT)			16 minute
8	Composition of the material						Transportation tin T2			6 minute
	-Fine aggregate 26 - 49.5 %	FA		0.38			Waiting+dumping T3			15 minute
	-Coarse aggregate 40 - 60 %	CA		0.5			Turning back time T4			4.5 minute
	-Filler fraction 4.5 - 7.5 %	FF		0.055			Ts2			41.5 minute
	Asphalt minimum 6.7 %	As		0.065			Production capacity Q4			4.173913043 m3
9	Unit weight of material						= (V*Fa*60)/(D1*Ts2)			
	-ATB	D1		2.3 ton/m3			Equipment coeffiti E09			0.239583333 hour
	-Coarse aggregate & fine aggreg	D2		1.8 ton/m3		2.5	Asphalt Finisher	E02		
	-Filler fraction	D3		2 ton/m3			Production capacity V			40 ton/hour
	-Asphalt	D4		1.03 ton/m3			Efficiency factor	Fa		0.83
							Production capacity Q5			14.43478261 m3
II.	Material, equipment, and labour						Equipment coeffiti E02			0.069277108 hour
1	Material				ton	2.6	Tandem Roller	E17		
	Coarse aggregate = (CA*(D1*1) M03			0.702778 m3	1.265		Average speed v			3.5 km/hour
	Fine aggregate = (FA*(D1*1) m3M04			0.534111 m3	0.9614		Effective width of b			1.8 m
	Filler fraction = (FF*(D1*1) m3)M05			139.15 kg	0.13915		Number of track n			6 track
	Asphalt = (AS*(D1*1) m3)*Fh2)M10			156.975 kg	0.156975		Efficiency factor	Fa		0.83
					2.522525		Production capacity Q6			43.575 m3
							= (1000v*b*t*Fa)/(n)			
2	Equipment						Equipment coeffiti E19			0.022948939 hour
2.1	Wheel Loader	E15				2.7	Pneumatic Tire FE18			
	Bucket capacity	V		1.2 m3			Average speed v			5 km/hour
	Bucket factor	Fb		0.9			Effective width of b			1.8 m
	Efficiency factor	Fa		0.83			Number of track n			8 track
	Cycle time						Efficiency factor	Fa		0.83
	-Loading	T1		1.5 minute			Production capacity Q7			46.6875 m3
	-Others	T2		0.5 minute			= (1000v*b*t*Fa)/(n*t)			
		Ts1		2 minute			Equipment coeffiti E14			0.021419009 hour
	Production capacity (m3/hour)	Q1		21.04591 m3		2.8	Light tools			
	= (D2*V*Fb*Fa*60)/(D1*Ts1)						Pole			
	Equipment coefficient/m2 = 1/Q1E15			0.047515 hour			Carriage			
2.2	Asphalt Mixing Plant	E01					Shovel			
	Production capacity	V		30 ton/hour			Earth fork			
	Efficiency factor	Fa		0.83			Control stick for pavement thickness			
	Production capacity /hour = V*F.Q2			10.82609 m3		2.9	Man Power/ labor			
	Equipment coefficient/m2 = 1/Q.E01			0.092369 hour			The significant pr Q1			10.82608696 m2/hour
2.3	Generator Set	E12					AC production/da Qt			75.7826087 m2
	Production capacity = AMP	Q3		10.82609 m3			Man power			
	Equipment coefficient/m2 = 1/Q.E01			0.092369 hour	0.646586		-Common Labor P			7
							-Foreman M			1
							Man Power Coefficient			
							-Common Labor L01			0.646586345
							-Foreman L03			0.092369478 hour
							Remark			0.738955823

Table 4.2.5 (39/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name		Calculation Quantity			Remarks								
U-P2-Bq-112	Precast Prestressed Concrete Beam including tensioning and erection		1 L.S.			including PC cable, PC cable tensioning, formwork and Curing work								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks			
					PF/C	IF/C	L/C	PF/C	IF/C	L/C				
Direct Cost														
Working Base Cost														
	CW-6-1	Furnishing of Main Beam with Reinforcing Bar Temporary Work for	Beam	6	6101929	5128787	25816683	36,611,574	30,772,719	154,900,100				
	CW-6-2	Furnishing of Main Beam with Reinforcing Bar	Beam	6	28375138	3096	30035364	170,250,825	18,576	180,212,182				
	CW-6-3	Erection of Main Beam with Anchoring Work	Beam	6	3286228	596217.1	4530225	19,717,368	3,577,303	27,181,351				
Indirect Cost														
		Site Expense	%	15	0.8		0.2	74,789,040	0	18,697,260				
		Profit and Overhead Cost	%	10	0.8		0.2	57,338,264	0	14,334,566				
		Miscellaneous	L.S.					30	2	41	Round Up			
Total for								1 L.S.			358,707,100	34,368,600	395,325,500	
Unit Cost for								1 L.S.			358,707,100	34,368,600	395,325,500	

ID No.	Working Name		Calculation Quantity			Remarks								
U-P2-Bq-113	Precast Prestressed Concrete Diaphragm including tensioning and erection		1 L.S.											
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks			
					PF/C	IF/C	L/C	PF/C	IF/C	L/C				
Direct Cost														
Working Base Cost														
	CW-6-4	Furnishing of Diaphragm with Reinforcing Bar	Piece	15	1986742	392608	1836043	29,801,124	5,889,120	27,540,643				
Indirect Cost														
		Site Expense	%	15	0.8		0.2	7,587,706	0	1,896,927				
		Profit and Overhead Cost	%	10	0.8		0.2	5,817,242	0	1,454,310				
		Miscellaneous	L.S.					28	80	20	Round Up			
Total for								1 L.S.			43,206,100	5,889,200	30,891,900	
Unit Cost for								1 L.S.			43,206,100	5,889,200	30,891,900	

ID No.	Working Name		Calculation Quantity			Remarks								
U-P2-Bq-114	Precast Concrete Panel Including Erection		1 L.S.											
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks			
					PF/C	IF/C	L/C	PF/C	IF/C	L/C				
Direct Cost														
Working Base Cost														
	CW-6-22	Concrete Work of Type-B by Pump	m3	10.759	20270	43850	209410	218,085	471,782	2,253,042				
	CW-1-31	Reinforcing Bar Setup 2	t	1.5264	0	2808810	2992590	0	4,287,368	4,567,889				
	CW-1-23	Form Work A	m2	207.972	60	0	44798	12,478	0	9,316,730				
Indirect Cost														
		Site Expense	%	15	0.8		0.2	2,535,285	0	633,821				
		Profit and Overhead Cost	%	10	0.8		0.2	1,943,718	0	485,930				
		Miscellaneous	L.S.					33	50	88	Round Up			
Total for								1 L.S.			4,709,600	4,759,200	17,257,500	
Unit Cost for								1 L.S.			4,709,600	4,759,200	17,257,500	

U-P2-Bq-115 Deformed Reinforcing Bars

Table 4.2.5 (40/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-116		Concrete, Type B including Scaffolding and Formwork		10 m3							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment											
	A-2-1-71	Truck Crane; 11(10) ton, Oil Pressure	hourly	0.11	99321.89	1020	85928.77	10,925	112	9,452	
	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-24	Form Work B	m2	15.52239	10030	75	52910	155,690	1,164	821,290	
	CW-2-40	Breaking-up the Concrete Form	m2	15.52239	0	0	3700	0	0	57,433	
	CW-1-42	Tublar Scaffold for Re-Con IV	m2	0	24970	70	23610	0	0	0	
	CW-1-62	Reinforced Concrete Work Type B by Pump	m3	10	20270	43850	191650	202,700	438,500	1,916,500	
Indirect Cost											
Site Expense											
			%	15	0.8		0.2	484,449	0	121,112	
Profit and Overhead Cost											
		Miscellaneous	L.S.	10	0.8		0.2	371,411	0	92,853	
								92	12	92	Round Up
Total for								1,460,700	444,500	3,201,900	
Unit Cost for								146,070	44,450	320,190	

*1:	Total Concrete Volume :	67 m3							
*2:	Total Scaffolding Area :	0 m2		Total Supporting Volume :	0 m3				
	Average Scaffolding Area :	0 m2/unit m3		Average Supporting Volume :	0 m3/unit m3				
	Total Formwork Area :	104 m2							
	Average Formwork Area :	15.52239 m2/unit m3							
*3:	Truck Mixer :	10.2 m3	/	4.5 m3/truck	=	2.27 Truck			
		10 km/rnd /		30 km/hr +	60 mnts(loss)=	1.33 hours			
		2.27 Truck	x	1.33 hours	=	3.02 hours			
*4:	Truck Crane :	10.2 m3 /		90 m3/hour	=	0.11 hour			

U-P2-Bq-117 Asphalt concrete is equal unit cost with U-P1-Bq-30.

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-118		Expansion Joint		7 m							
U-P2-Bq-144		Expansion Joint									
U-P2-Bq-247		Expansion Joint									
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Labour											
	L-2-16	Steel Worker	day	0.7	0	0	39000	0	0	27,300	
	L-2-23	Common Labour	day	0.7	0	0	35100	0	0	24,570	
Material											
	M-E-36	Bolt and Nut Expansion Joint, Steel Profile	kg	0.3429	0	12375	28875	0	4,243	9,900	
	M-E-32	L-75x6mm	m	7	7367.25	0	387.75	51,571	0	2,714	
	M-C-62	Asphalt Jute Cord	kg	0.2596	0	180	420	0	47	109	
Others											
		Small Tools	%	5				2,579	214	3,230	
Indirect Cost											
Site Expense											
			%	15	0.8		0.2	15,177	0	3,794	
Profit and Overhead Cost											
			%	10	0.8		0.2	11,636	0	2,909	
		Miscellaneous	L.S.					38	96	74	Round Up
Total for								81,000	4,600	74,600	
Unit Cost for								11,571	657	10,657	

Price Analysis of Expansion Joint of 7 m

Material :				Unit weight	
Steel Plate width 75 mm, thick = 6 mm	7 m	m3	0.00315	7856.748	24.7488
Screw for Steel	14 pieces		4.36E-05	7856.748	0.3429
Asphaltic Jute Cord	14 pieces		0.000252	7856.748	0.2596
Labour :					
Drilling & installing work		Quantity			
steel worker	0.05	14		0.7	
common labour	0.05	14		0.7	

Table 4.2.5 (41/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name	Calculation Quantity	Remarks
U-P2-Bq-119	Hand Rail	6 m	
U-P2-Bq-145	Hand Rail		
U-P2-Bq-248	Hand Rail		

Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Labour											
	L-2-29	Chief of Steel Worker	day	3.03	0	0	58600	0	0	177,558	include. Welder
	L-2-16	Steel Worker	day	10.45	0	0	39000	0	0	407,550	
	L-2-23	Common Labour	day	12.72	0	0	35100	0	0	446,472	
Material											
	M-E-28	Galvanized Steel Pipe, Dia. 75mm	m	12	19000	0	1000	228,000	0	12,000	
	M-E-7	Steel Plate SS41 Anchor, Steel Bar (Dia.32&22)	kg	5.89	5225	0	275	30,775	0	1,620	
	M-E-33	incl. PVC Pipe	nos.	12	0	23100	9900	0	277,200	118,800	
Working Base Cost											
	CW-2-89	Polishing and 2times Shiny Painting	m2	4.5	0	3800	21600	0	17100	97200	
Others											
		Small Tool	%	5				12,939	14,715	63,060	Weld Machine, generator and etc.
Indirect Cost											
		Site Expense	%	15	0.8		0.2	228,599	0	57,150	
Profit and Overhead Cost											
		Miscellaneous	L.S.					28	85	76	Round Up
Total for 6 m											
								675,600	309,100	1,425,300	
Unit Cost for 1 m											
								112,600	51,517	237,550	
Unit Cost for 1 kg											
								2,298	1,051	4,848	

*1: All production rate are quoted from Indonesian Standard

ID No.	Working Name	Calculation Quantity	Remarks
U-P2-Bq-120	Drain Pipe, PVC Pipe Dia. 100 mm	10 m	
U-P2-Bq-146	Drain Pipe, PVC Pipe Dia. 100 mm		
U-P2-Bq-249	Drain Pipe, PVC Pipe Dia. 100 mm		

Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Labour											
	L-2-1	Foreman	day	0.05	0	0	48800	0	0	2,440	
	L-2-15	Plumber	day	0.5	0	0	39000	0	0	19,500	
	L-2-23	Common Labour	day	0.5	0	0	35100	0	0	17,550	
Material											
	M-G-7	PVC Pipe, Dia. 100mm	m	11.11	0	3465	8085	0	38,496	89,824	
Others											
		Small Tolls and Materials	%	10				0	3,850	12,931	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	22,151	0	5,538	
Profit and Overhead Cost											
		Miscellaneous	L.S.					67	54	71	Round Up
Total for 10 m											
								39,200	42,400	152,100	
Unit Cost for 1 m											
								3,920	4,240	15,210	

* 1:	Labor Rate	Chief	0.1 person /	20 m/day	=	0.005
		Plumber	1 person /	20 m/day	=	0.05
		Common	1 person /	20 m/day	=	0.05
* 2:	PVC Pipe	10 m /	0.9 loss =	11.11		

Table 4.2.5 (42/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-121		Utility Pipe, PVC Pipe Dia. 150 mm		10 m							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Labour											
	L-2-1	Foreman	day	0.05	0	0	48800	0	0	2,440	
	L-2-15	Plumber	day	0.5	0	0	39000	0	0	19,500	
	L-2-23	Common Labour	day	0.5	0	0	35100	0	0	17,550	
Material											
	M-G-9	PVC Pipe, Dia. 150mm	m	11.11	0	14108	32918	0	156,734	365,713	
Others											
		Small Tolls and Materials	%	10				0	15,673	40,520	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	74,176	0	18,544	
Profit and Overhead Cost											
		Miscellaneous	L.S.					56	92	15	Round Up
Total for								10 m	131,100	172,500	478,500
Unit Cost for								1 m	13,110	17,250	47,850

* 1:	Labor Rate	Chief	0.1 person /	20 m/day	=	0.005
		Plumber	1 person /	20 m/day	=	0.05
		Common	1 person /	20 m/day	=	0.05
* 2:	PVC Pipe	10 m /	0.9 loss =	11.11		

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-122		Elastomeric Bearing Pad (350 x 280 x 73)		1 nos.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment											
	A-2-1-73	Truck Crane; 22 ton, Oil Pressure	hourly	1	154912.5	1032	131787.6	154,913	1,032	131,788	
Labour											
	L-2-32	Chief of Bridge	day	0.4	0	0	68300	0	0	27,320	
	L-2-33	Bridge Worker	day	1.8	0	0	58600	0	0	105,480	
	L-2-18	Form Worker	day	0.4	0	0	39000	0	0	15,600	
	L-2-23	Common Labour	day	1.1	0	0	35100	0	0	38,610	
Material											
	M-C-45	Non Shrinkage Mortar	m ³	0.05	0	18260	73040	0	913	3,652	
	M-G-16	Elastomeric Bearing, 350x280x73mm	pcs	1	0	600000	600000	0	600,000	600,000	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	201,517	0	50,379	
Profit and Overhead Cost											
		Miscellaneous	L.S.					74	55	47	Round Up
Total for								1 nos.	511,000	602,000	1,011,500
Unit Cost for								1 nos.	511,000	602,000	1,011,500

* 1: All Labor Rates are quoted from Japanese Standard. (P1652)

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-123		Rubber Sheet (40 x 10 x 3)		10 nos.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Labour											
	L-2-32	Chief of Bridge	day	0.25	0	0	68300	0	0	17,075	
	L-2-33	Bridge Worker	day	2.5	0	0	58600	0	0	146,500	
	L-2-23	Common Labour	day	2.5	0	0	35100	0	0	87,750	
Material											
	M-G-18	Rubber Sheet, 400x100x 30mm	pcs	10	0	220000	220000	0	2,200,000	2,200,000	
Others											
		Small Tools & Materials	%	5				0	110,000	122,566	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	586,067	0	146,517	
Profit and Overhead Cost											
		Miscellaneous	L.S.					15	0	63	Round Up
Total for								10 nos.	1,035,400	2,310,000	2,832,800
Unit Cost for								1 nos.	103,540	231,000	283,280

* 1:	Labor Rate	Chief	0.1 person /	4 piece/day	=	0.025
		Bridge	1 person /	4 piece/day	=	0.25
		Common	1 person /	4 piece/day	=	0.25

U-P2-Bq-125 Structural Excavation is equal unit cost with U-P1-Bq-16.

U-P2-Bq-126 Backfill with Sandy Soil

Table 4.2.5 (43/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

U-P2-Bq-127 Embankment is equal unit cost with U-P1-Bq-29.

ID No. Working Name Calculation Quantity Remarks

U-P2-Bq-128 Furnishing and Driving PC Piles, Dia. 500 mm, Type A

10 m

Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Working Base Cost											
	CW-3-26	Pile Work of Asin & Baru No.1	m	10	229222.4	297.6471	63214.71	2,292,224	2,976	632,147	
	CW-3-27	Pile Work of Asin & Baru No.2	m	0	218426.7	235.1852	51903.33	0	0	0	
Indirect Cost											
Site Expense											
			%	15	0.8		0.2	351,282	0	87,820	
Profit and Overhead Cost											
			%	10	0.8		0.2	269,316	0	67,329	
		Miscellaneous	L.S.					79	24	4	Round Up
Total for								10 m			
Unit Cost for								1 m			
								2,912,900	3,000	787,300	
								291,290	300	78,730	

ID No. Working Name Calculation Quantity Remarks
U-P2-Bq-129 Furnishing and Driving PC Test Pile, Dia. 500mm, Type A 10 m

Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Working Base Cost											
	CW-3-26	Pile Work of Asin & Baru No.1	m	11	229222.4	297.6471	63214.71	2,521,446	3,274	695,362	
		Piling Test	m	10			30000	0	0	300,000	incl. All tests needed & report
Indirect Cost											
Site Expense											
			%	15	0.8		0.2	422,410	0	105,602	
Profit and Overhead Cost											
			%	10	0.8		0.2	333,848	0	80,962	
		Miscellaneous	L.S.					97	26	74	Round Up
Total for								10 m			
Unit Cost for								1 m			
								3,267,800	3,300	1,182,000	
								326,780	330	118,200	

ID No. Working Name Calculation Quantity Remarks
U-P2-Bq-130 Concrete, Type C1 including Formwork and Scaffolding 10 m3

Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment											
	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-24	Form Work B	m2	11.97	10030	75	52910	120,036	898	633,213	
	CW-2-40	Breaking-up the Concrete Form	m2	11.97	0	0	3700	0	0	44,281	
	CW-1-42	Tubular Scaffolding for Re-Con IV	m2	9.451613	24970	70	23610	236,007	662	223,153	
	CW-1-44	Frame Support	m3	0	11370	50	22310	0	0	0	
	CW-1-20	Concrete Work for Reinforced Concrete C1 by Pump	m3	10	20270	41770	183330	202,700	417,700	1,833,300	
Indirect Cost											
Site Expense											
			%	15	0.8		0.2	496,231	0	124,058	
Profit and Overhead Cost											
			%	10	0.8		0.2	380,444	0	95,111	
		Miscellaneous	L.S.					49	30	17	Round Up
Total for								10 m3			
Unit Cost for								1 m3			
								1,670,900	424,000	3,136,300	
								167,090	42,400	313,630	

*1 : Total Concrete Volume : 310 m3
 *2 : Total Scaffolding Area : 293 m2
 Average Scaffolding Area : 9.451613 m2/unit m3
 Total Formwork Area : 371 m2
 Average Formwork Area : 11.96774 m2/unit m3
 *3 : Truck Mixer : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/nd / 30 km/hr + 60 mins(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

Table 4.2.5 (44/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name		Calculation Quantity							Remarks	
U-P2-Bq-131	Concrete, Type E including Formwork		10 m ³								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer, 4.5 m ³	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-28	Form Work F	m ²	5	0	0	36510	0	0	182,550	
	CW-1-22	Concrete Work for Levelling Concrete	m ³	10	120	37130	158740	1,200	371,300	1,587,400	
Indirect Cost											
Site Expense			%	15	0.8		0.2	307,891	0	76,973	
Profit and Overhead Cost			%	10	0.8		0.2	236,050	0	59,013	
		Miscellaneous	L.S.					26	89	97	Round Up
Total for		10 m³						780,600	376,100	2,089,200	
Unit Cost for		1 m³						78,060	37,610	208,920	

*1 : Form Work Area : Total Form work area / Concrete Volume = Form Work Area m² / concrete 1m³

*2 : Dump Truck : 7 / 14 = 0.5 m²/m³
 10.2 m³ / 4.5 m³/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

U-P2-Bq-132 Deformed Reinforcing Bars

U-P2-Bq-133 Wet Stone Masonry is equal unit cost with U-P1-Bq-20.

U-P2-Bq-134 Weep Hole, Dia.50mm

U-P2-Bq-135 Pointing

ID No. Working Name Calculation Quantity Remarks

U-P2-Bq-138	Precast Prestressed Concrete Beam including tensioning and erection		1 L.S.							including PC cable, PC cable tensioning, formwork and Curing work	
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Working Base Cost											
	CW-6-1	Furnishing of Main Beam with Reinforcing Bar	Beam	5	6101929	5128787	25816683	30,509,645	25,643,933	129,083,417	
	CW-6-2	Temporary Work for Furnishing of Main Beam with Reinforcing Bar	Beam	5	28375138	3096	30035364	141,875,688	15,480	150,176,818	
	CW-6-3	Erection of Main Beam with Anchoring Work	Beam	5	3286228	596217.1	4530225	16,431,140	2,981,086	22,651,125	
Indirect Cost											
Site Expense			%	15	0.8		0.2	62,324,200	0	15,581,050	
Profit and Overhead Cost			%	10	0.8		0.2	47,781,886	0	11,945,472	
		Miscellaneous	L.S.					41	2	18	Round Up
Total for		1 L.S.						298,922,600	28,640,500	329,437,900	
Unit Cost for		1 L.S.						298,922,600	28,640,500	329,437,900	

ID No. Working Name Calculation Quantity Remarks

U-P2-Bq-139	Precast Prestressed Concrete Diaphragm including tensioning and erection		1 L.S.								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Working Base Cost											
	CW-6-4	Furnishing of Diaphragm with Reinforcing Bar	Piece	12	1986742	392608	1836043	23,840,899	4,711,296	22,032,514	
Indirect Cost											
Site Expense			%	15	0.8		0.2	6,070,165	0	1,517,541	
Profit and Overhead Cost			%	10	0.8		0.2	4,653,793	0	1,163,448	
		Miscellaneous	L.S.					42	4	96	Round Up
Total for		1 L.S.						34,564,900	4,711,300	24,713,600	
Unit Cost for		1 L.S.						34,564,900	4,711,300	24,713,600	

Table 4.2.5 (45/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-140		Precast Concrete Panel Including Erection		1 L.S.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Working Base Cost											
	CW-6-22	Concrete Work of Type-B by Pump	m3	8.6072	20270	43850	209410	174,468	377,426	1,802,434	
	CW-1-31	Reinforcing Bar Setup 2	t	1.22112	0	2808810	2992590	0	3,429,894	3,654,312	
	CW-1-23	Form Work A	m2	166.3776	60	0	44798	9,983	0	7,453,384	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	2,028,228	0	507,057	
Profit and Overhead Cost											
		Miscellaneous	L.S.	10	0.8		0.2	1,554,975	0	388,744	
								47	80	70	Round Up
Total for		1 L.S.						3,767,700	3,807,400	13,806,000	
Unit Cost for		1 L.S.						3,767,700	3,807,400	13,806,000	

U-P2-Bq-141 Deformed Reinforcing Bars

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-142		Concrete, Type B including Scaffolding and Formwork		10 m3							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment											
	A-2-1-71	Truck Crane; 11(10) ton, Oil Pressure	hourly	0.11	99321.89	1020	85928.77	10,925	112	9,452	
	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-24	Form Work B	m2	35.71429	10030	75	52910	358,214	2,679	1,889,643	
	CW-2-40	Breaking-up the Concrete Form	m2	35.71429	0	0	3700	0	0	132,143	
	CW-1-42	Tublar Scaffold for Re-Con IV Reinforced Concrete Work	m2	17.85714	24970	70	23610	445,893	1,250	421,607	
	CW-1-62	Type B by Pump	m3	10	20270	43850	191650	202,700	438,500	1,916,500	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	750,352	0	187,588	
Profit and Overhead Cost											
		Miscellaneous	L.S.	10	0.8		0.2	575,270	0	143,817	
								13	48	82	Round Up
Total for		10 m3						2,578,800	447,300	4,884,000	
Unit Cost for		1 m3						257,880	44,730	488,400	

*1 : Total Concrete Volume : 56 m3
 *2 : Total Scaffolding Area : 100 m2
 Average Scaffolding Area : 17.85714 m2/unit m3
 Total Formwork Area : 200 m2
 Average Formwork Area : 35.71429 m2/unit m3
 *3 : Truck Mixer : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss)= 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours
 *4 : Truck Crane : 10.2 m3 / 90 m3/hour = 0.11 hour

U-P2-Bq-143 Asphalt Concrete is equal unit cost with U-P1-Bq-30.

U-P2-Bq-144 Expansion Joint is equal unit cost with U-P2-Bq-116.

U-P2-Bq-145 Hand Rail is equal unit cost with U-P2-Bq-117.

U-P2-Bq-146 Asphalt Concrete is equal unit cost with U-P2-Bq-118.

Table 4.2.5 (46/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name		Calculation Quantity			Remarks							
U-P2-Bq-147	Elastomeric Bearing Pad (Size 350 x 280 x 73)		1 nos.										
Major Item	ID No.	Description	Unit	Quantity	Unit Cost	Cost	Remarks						
					PF/C	IF/C	L/C	PF/C	IF/C	L/C			
Direct Cost													
Equipment													
	A-2-1-73	Truck Crane; 22 ton, Oil Pressure	hourly	1	154912.5	1032	131787.6	154,913	1,032	131,788			
Labour													
	L-2-32	Chief of Bridge	day	0.4	0	0	68300	0	0	27,320			
	L-2-33	Bridge Worker	day	1.8	0	0	58600	0	0	105,480			
	L-2-18	Form Worker	day	0.4	0	0	39000	0	0	15,600			
	L-2-23	Common Labour	day	1.1	0	0	35100	0	0	38,610			
Material													
	M-C-45	Non Shrinkage Mortar	m3	0.05	0	18260	73040	0	913	3,652			
	M-G-16	Elastomeric Bearing, 350x280x73mm	pcs	1	0	600000	600000	0	600,000	600,000			
Indirect Cost													
Site Expense													
			%	15	0.8		0.2	201,517	0	50,379			
Profit and Overhead Cost													
			%	10	0.8		0.2	154,496	0	38,624			
		Miscellaneous	L.S.					74	55	47	Round Up		
Total for								1 nos.		511,000	602,000	1,011,500	
Unit Cost for								1 nos.		511,000	602,000	1,011,500	

* 1 : All Labor Rates are quoted from Japanese Standard. (P1652)

- U-P2-Bq-148 Rubber Sheet (40 x 10 x 3) is equal unit cost with U-P2-Bq-199.1.
- U-P2-Bq-150 Structure Excavation is equal unit cost with U-P1-Bq-16.
- U-P2-Bq-151 Backfill with Sandy Soil
- U-P2-Bq-152 Embankment is equal unit cost with U-P1-Bq-29.

ID No.	Working Name		Calculation Quantity			Remarks							
U-P2-Bq-153	Furning and Driving PC Test Pile, Dia. 500mm, Type A		10 m										
Major Item	ID No.	Description	Unit	Quantity	Unit Cost	Cost	Remarks						
					PF/C	IF/C	L/C	PF/C	IF/C	L/C			
Direct Cost													
Working Base Cost													
	CW-3-26	Pile Work of Asin & Baru No.1	m	8	229222.4	297.6471	63214.71	1,833,779	2,381	505,718			
	CW-3-27	Pile Work of Asin & Baru No.2	m	2	218426.7	235.1852	51903.33	436,853	470	103,307			
Indirect Cost													
Site Expense													
			%	15	0.8		0.2	345,961	0	86,490			
Profit and Overhead Cost													
			%	10	0.8		0.2	265,237	0	66,309			
		Miscellaneous	L.S.					70	48	76	Round Up		
Total for								10 m		2,881,900	2,900	762,400	
Unit Cost for								1 m		288,190	290	76,240	

ID No.	Working Name		Calculation Quantity			Remarks							
U-P2-Bq-154	Furning and Driving PC Test Pile, Dia. 500mm, Type A		10 m										
Major Item	ID No.	Description	Unit	Quantity	Unit Cost	Cost	Remarks						
					PF/C	IF/C	L/C	PF/C	IF/C	L/C			
Direct Cost													
Working Base Cost													
	CW-3-26	Pile Work of Asin & Baru No.1	m	8.5	229222.4	297.6471	63214.71	1,948,390	2,530	537,325			
	CW-3-27	Pile Work of Asin & Baru No.2	m	2.5	218426.7	235.1852	51903.33	546,067	588	129,758			
		Piling Test	m	10			30000	0	0	300,000	incl. All tests needed & report		
Indirect Cost													
Site Expense													
			%	15	0.8		0.2	415,759	0	103,940			
Profit and Overhead Cost													
			%	10	0.8		0.2	318,749	0	79,687			
		Miscellaneous	L.S.					36	82	90	Round Up		
Total for								10 m		3,229,000	3,200	1,150,800	
Unit Cost for								1 m		322,900	320	115,080	

Table 4.2.5 (47/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name			Calculation Quantity			Remarks			
U-P2-Bq-155		Concrete, Type C1 including Formwork and Scaffolding			10 m3						
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment											
	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-24	Form Work B	m2	12.66	10030	75	52910	126,996	950	669,925	
	CW-2-40	Breaking-up the Concrete Form	m2	12.66	0	0	3700	0	0	46,848	
	CW-1-42	Tubular Scaffold for Re-Con IV	m2	9.543726	24970	70	23610	238,307	668	225,327	
	CW-1-44	Frame Support	m3	0	11370	50	22310	0	0	0	
	CW-1-20	Concrete Work for Reinforced Concrete C1 by Pump	m3	10	20270	41770	183330	202,700	417,700	1,833,300	
Indirect Cost											
Site Expense											
			%	15	0.8		0.2	502,324	0	125,581	
Profit and Overhead Cost											
		Miscellaneous	L.S.	10	0.8		0.2	385,115	0	96,279	
								26	71	72	Round Up
Total for		10 m3						1,690,900	424,100	3,180,500	
Unit Cost for		1 m3						169,090	42,410	318,050	

*1: Total Concrete Volume : 263 m3
 *2: Total Scaffolding Area : 251 m2
 Average Scaffolding Area : 9.543726 m2/unit m3
 Total Formwork Area : 333 m2
 Average Formwork Area : 12.66160 m2/unit m3
 *3: Truck Mixer : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

ID No.		Working Name			Calculation Quantity			Remarks			
U-P2-Bq-156		Concrete, Type E including Formwork			10 m3						
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment											
	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-28	Form Work F	m2	4.615385	0	0	36510	0	0	168,508	
	CW-1-22	Concrete Work for Levelling Concrete	m3	10	120	37130	158740	1,200	371,300	1,587,400	
Indirect Cost											
Site Expense											
			%	15	0.8		0.2	306,206	0	76,552	
Profit and Overhead Cost											
		Miscellaneous	L.S.	10	0.8		0.2	234,758	0	58,690	
								3	89	83	Round Up
Total for		10 m3						777,600	376,100	2,074,400	
Unit Cost for		1 m3						77,760	37,610	207,440	

*1: Form Work Area : Total Form work area / Concrete Volume = Form Work Area m2 / concrete 1m3
 6 / 13 = 0.461538 m2/m3
 *2: Dump Truck : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

U-P2-Bq-157 Deformed Reinforcing Bars

U-P2-Bq-158 Wet Stone Masonry is equal unit cost with U-P1-Bq-20.

U-P2-Bq-159 Weep Hole, Dia.50mm

U-P2-Bq-160 Pointing

Table 4.2.5 (48/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name	Calculation Quantity	Remarks	Unit Cost			Cost			Remarks	
Major Item	ID No.	Description	Unit	Quantity	PF/C	IF/C	L/C	PF/C	IF/C	L/C	Remarks
U-P2-Bq-162	Coffering and Dewatering	1 L.S.									
Direct Cost											
Material	M-E-31	Steel Sheet Pile (Purchasing)	ton	0	5700000	0	300000	0	0	0	
Working Base Cost											
	CW-4-7	Sand Bags	nos	50	88.5375	758.9625	4199.663	4,427	37,948	209,983	
	CW-3-9	Driving In of Steel Sheet Pile (Type-II)	m	165	9909.067	76.17755	8578.669	1,634,996	12,569	1,415,480	
	CW-3-10	Pulling Out of Steel Sheet Pile (Type-II)	m	165	9754	67	8548	1,609,410	11,055	1,410,420	
	CW-4-23	Temporary Dewatering by D160mm	day	20	319831.1	15124	234050.7	6,396,622	302,480	4,681,014	
Indirect Cost											
Site Expense			%	15	0.8		0.2	2,127,169	0	531,792	
Profit and Overhead Cost			%	10	0.8		0.2	1,630,829	0	407,707	
		Miscellaneous	L.S.					48	48	3	
Total for	1 L.S.							13,403,500	364,100	8,656,400	
Unit Cost for	1 L.S.							13,403,500	364,100	8,656,400	

Sand bag
 * 1 : Total number of Sand Bags : 50 nos.
 Steel Sheet Pile
 * 2 : Total Length of Driving (L1) : 5 m long x 33 pieces = 165 m
 * 3 : Purchasing Steel Sheet Pile (L2) : 0 ton No Purchasing
 Dewatering for Relocation of Semarang River
 * 4 : D160mm 2 monthes x 10 days/month = 20 days

U-P2-Bq-163 Structural Excavation is equal unit cost with U-P1-Bq-16.

ID No.	Working Name	U-P3-Bq-44	Backfill	Calculation Quantity	Remarks
U-P2-Bq-164	Backfill	U-P3-Bq-64	Backfill	10 m3	
U-P2-Bq-172	Backfill	U-P3-Bq-70	Backfill		
U-P2-Bq-179	Backfill	U-P3-Bq-101	Backfill		
U-P2-Bq-197	Backfill	U-P3-Bq-150	Backfill		
U-P2-Bq-262	Backfill	U-P3-Bq-210	Backfill		
		U-P3-Bq-221	Backfill		
		U-P3-Bq-231	Backfill		

Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Material				0	0	0	0	0	0	0	
Working Base Cost											
	CW-1-1	Backfill (Soil) A	m3	4	6076	87	5043	24,304	348	20,172	
	CW-1-2	Backfill (Soil) B	m3	3	7022	103	6326	21,066	309	18,978	
	CW-1-3	Backfill (Soil) C	m3	2	6392	98	6338	12,784	196	12,676	
	CW-1-4	Backfill (Soil) D	m3	2	6038	132	7114	12,076	264	14,228	
Indirect Cost											
Site Expense			%	15	0.8		0.2	16,488	0	4,122	
Profit and Overhead Cost			%	10	0.8		0.2	12,641	0	3,160	
		Miscellaneous	L.S.					41	83	64	Round Up
Total for	10 m3							99,400	1,209	73,400	
Unit Cost for	1 m3							9,940	120	7,340	

*1 : Sand : 10 m3 / 0.9 = 11.11 m3
 *2 : All Rates are quoted from Japanese Standard

Table 4.2.5 (49/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name		Calculation Quantity			Remarks					
U-P2-Bq-165	Concrete, Type C1 including Formwork		10 m3								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.17	77957.88	1560	60651.61	247,126	4,945	192,266	
Working Base Cost											
	CW-1-23	Form Work A	m2	38.86	60	0	44798	2,331	0	1,740,722	
	CW-2-40	Breaking-up the Concrete Form	m2	38.86	0	0	3700	0	0	143,771	
	CW-1-60	Concrete Work for Type-C by Shoot Hopper	m3	10	120	43660	197860	1,200	436,600	1,978,600	
Indirect Cost											
Site Expense			%	15	0.8		0.2	569,707	0	142,427	
Profit and Overhead Cost											
		Miscellaneous	L.S.	10	0.8		0.2	436,776	0	109,194	
			L.S.					59	55	20	Round Up
Total for								10 m3			
Unit Cost for								1 m3			
								1,257,200	441,600	4,307,000	
								125,720	44,160	430,700	

*1 : Total Concrete Volume : 35 m3
 *2 : Total Formwork Area : 136 m2
 Average Formwork Area : 38.86 m2/unit m3
 *3 : Truck Mixer : 10.7 m3 / 4.5 m3/truck = 2.38 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss)= 1.33 hours
 2.38 Truck x 1.33 hours = 3.17 hours

ID No.	Working Name		Calculation Quantity			Remarks					
U-P2-Bq-166	Concrete, Type E including Formwork		10 m3								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-28	Form Work F	m2	10	0	0	36510	0	0	365,100	
	CW-1-22	Concrete Work for Levelling Concrete	m3	10	120	37130	158740	1,200	371,300	1,587,400	
Indirect Cost											
Site Expense			%	15	0.8		0.2	329,797	0	82,449	
Profit and Overhead Cost											
		Miscellaneous	L.S.	10	0.8		0.2	252,845	0	63,211	
			L.S.					25	89	72	Round Up
Total for								10 m3			
Unit Cost for								1 m3			
								819,300	376,100	2,281,400	
								81,930	37,610	228,140	

*1 : Form Work Area : Total Form work area / Concrete Volume = Form Work Area m2 / concrete 1m3
 2 / 2 = 1 m2/m3

*2 : Dump Truck : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss)= 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

U-P2-Bq-167 Deformed Reinforcing Bars

ID No.	Working Name		Calculation Quantity			Remarks					
U-P2-Bq-168	Pipe Connection Works		10 L.S.								
Major Item	Description	Unit	Quantity	Unit Cost			Cost			Remarks	
				PF/C	IF/C	L/C	PF/C	IF/C	L/C		
Direct Cost											
Working Base Cost											
		Relocation of Steel Pipe Dia. 250mm	L.S.	1	10000000		20000000	10,000,000	0	20,000,000	
		IWF 450 x 200 ; 46.2 Steel Beam	L.S.	1	7500000		12500000	7,500,000	0	12,500,000	
		Canal Steel UNP 16 ; 9.8m	L.S.	1	3000000		7000000	3,000,000	0	7,000,000	
Indirect Cost											
Site Expense			%	15	0.8		0.2	7,200,000	0	1,800,000	
Profit and Overhead Cost											
		Miscellaneous	L.S.	10	0.8		0.2	5,520,000	0	1,380,000	
			L.S.					0	0	0	Round Up
Total for								10 L.S.			
Unit Cost for								1 L.S.			
								33,220,000	0	42,680,000	
								3,322,000	0	4,268,000	

Table 4.2.5 (50/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name		Calculation Quantity		Remarks						
U-P2-Bq-170	Coffering and Dewatering		1 L.S.								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Material	M-E-31	Steel Sheet Pile (Purchasing)	ton	0	5700000	0	300000	0	0	0	
Working Base Cost											
	CW-4-7	Sand Bags	nos	50	88.5375	758.9625	4199.663	4,427	37,948	209,983	
	CW-3-9	Driving In of Steel Sheet Pile (Type-II)	m	165	9909.067	76.17755	8578.669	1,634,996	12,569	1,415,480	
	CW-3-10	Pulling Out of Steel Sheet Pile (Type-II)	m	165	9754	67	8548	1,609,410	11,055	1,410,420	
	CW-4-23	Temporary Dewatering by D160mm	day	20	319831.1	15124	234050.7	6,396,622	302,480	4,681,014	
Indirect Cost											
Site Expense			%	15	0.8		0.2	2,127,169	0	531,792	
Profit and Overhead Cost			%	10	0.8		0.2	1,630,829	0	407,707	
		Miscellaneous	L.S.					48	48	3	
Total for	1 L.S.							13,403,500	364,100	8,656,400	
Unit Cost for	1 L.S.							13,403,500	364,100	8,656,400	

Sand bag

* 1: Total number of Sand Bags : 50 nos.

Steel Sheet Pile

* 2: Total Length of Driving (L1): 5 m long x 33 pieces = 165 m
 * 3: Purchasing Steel Sheet Pile (L2) 0 ton No Purchasing

Dewatering for Relocation of Semarang River

* 4: D160mm 2 months x 10 days/month = 20 days

U-P2-Bq-171 Structural Excavation is equal unit cost with U-P1-Bq-16.

U-P2-Bq-172 Backfill is equal unit cost with U-P2-Bq-122.

ID No.	Working Name		Calculation Quantity		Remarks						
U-P2-Bq-173	Concrete, Type C1 including Formwork		10 m3								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.17	77957.88	1560	60651.61	247,126	4,945	192,266	
Working Base Cost											
	CW-1-23	Form Work A	m2	22.00	60	0	44798	1,320	0	985,556	
	CW-2-40	Breaking-up the Concrete Form Concrete Work for Type-C by	m2	22.00	0	0	3700	0	0	81,400	
	CW-1-60	Shoot Hopper	m3	10	120	43660	197860	1,200	436,600	1,978,600	
Indirect Cost											
Site Expense			%	15	0.8		0.2	471,482	0	117,870	
Profit and Overhead Cost			%	10	0.8		0.2	361,469	0	90,367	
		Miscellaneous	L.S.					3	55	41	Round Up
Total for	10 m3							1,082,600	441,600	3,446,100	
Unit Cost for	1 m3							108,260	44,160	344,610	

*1: Total Concrete Volume : 10 m3
 *2: Total Formwork Area : 22 m2
 Average Formwork Area : 22.00 m2/unit m3
 *3: Truck Mixer : 10.7 m3 / 4.5 m3/truck = 2.38 Truck
 10 km/rnd / 30 km/hr + 60 mins(loss) = 1.33 hours
 2.38 Truck x 1.33 hours = 3.17 hours

Table 4.2.5 (51/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-174		Concrete, Type E including Formwork		10 m ³							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m ³	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-28	Form Work F	m ²	20	0	0	36510	0	0	730,200	
	CW-1-22	Concrete Work for Levelling Concrete	m ³	10	120	37130	158740	1,200	371,300	1,587,400	
Indirect Cost											
Site Expense			%	15	0.8		0.2	373,609	0	93,402	
Profit and Overhead Cost			%	10	0.8		0.2	286,434	0	71,608	
		Miscellaneous	L.S.					24	89	21	Round Up
Total for		10 m ³						896,700	376,100	2,665,800	
Unit Cost for		1 m ³						89,670	37,610	266,580	

*1: Form Work Area : Total Form work area / Concrete Volume = Form Work Area m² / concrete 1m³

*2: Dump Truck : 10.2 m³ / 4.5 m³/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

U-P2-Bq-175 Deformed Reinforcing Bars

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-176		Cable Connection Works		1 L.S.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Working Base Cost		Cable Connection Work	L.S.	1	20000000	0	50000000	20,000,000	0	50,000,000	
Indirect Cost											
Site Expense			%	15	0.8		0.2	8,400,000	0	2,100,000	
Profit and Overhead Cost			%	10	0.8		0.2	6,440,000	0	1,610,000	
		Miscellaneous	L.S.					0	0	0	Round Up
Total for		1 L.S.						34,840,000	0	53,710,000	
Unit Cost for		1 L.S.						34,840,000	0	53,710,000	

U-P2-Bq-178 Structural Excavation is equal unit cost with U-P1-Bq-16.

U-P2-Bq-179 Backfill is equal unit cost with U-P2-Bq-122.

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-180		Concrete, Type C1 including Formwork and Falsework		10 m ³							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m ³	hourly	3.17	77957.88	1560	60651.61	247,126	4,945	192,266	
Working Base Cost											
	CW-1-23	Form Work A	m ²	3.78	60	0	44798	227	0	169,506	
	CW-1-44	Frame Support	m ³	9.19	11370	50	22310	104,490	460	205,029	
	CW-2-40	Breaking-up the Concrete Form	m ²	3.78	0	0	3700	0	0	14,000	
	CW-1-60	Concrete Work for Type-C by Shoot Hopper	m ³	10	120	43660	197860	1,200	436,600	1,978,600	
Indirect Cost											
Site Expense			%	15	0.8		0.2	402,534	0	100,633	
Profit and Overhead Cost			%	10	0.8		0.2	308,609	0	77,152	
		Miscellaneous	L.S.					13	95	14	Round Up
Total for		10 m ³						1,064,200	442,100	2,737,200	
Unit Cost for		1 m ³						106,420	44,210	273,720	

*1: Total Concrete Volume : 37 m³
 *2: Total Formwork Area : 14 m²
 Average Formwork Area : 3.78 m²/unit m³
 *3: Truck Mixer : 10.7 m³ / 4.5 m³/truck = 2.38 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.38 Truck x 1.33 hours = 3.17 hours

Total Falsework Volume : 34 m³
 Average Falsework Volume : 9.19 m³/unit m³
 2.38 Truck
 1.33 hours
 3.17 hours

Table 4.2.5 (52/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name		Calculation Quantity							Remarks	
U-P2-Bq-181	Concrete, Type E including Formwork		10 m3								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-28	Form Work F	m2	14.28571	0	0	36510	0	0	521,571	
	CW-1-22	Concrete Work for Levelling Concrete	m3	10	120	37130	158740	1,200	371,300	1,587,400	
Indirect Cost											
Site Expense			%	15	0.8		0.2	348,574	0	87,143	
Profit and Overhead Cost			%	10	0.8		0.2	267,240	0	66,810	
		Miscellaneous	L.S.					53	89	7	Round Up
Total for		10 m3						852,500	376,100	2,446,100	
Unit Cost for		1 m3						85,250	37,610	244,610	

*1 : Form Work Area : Total Form work area / Concrete Volume = Form Work Area m2 / concrete 1m3

*2 : Dump Truck : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

U-P2-Bq-182 Deformed Reinforcing Bars

U-P2-Bq-183 Wet Stone Masonry is equal unit cost with U-P1-Bq-20.

U-P2-Bq-184 Pointing

ID No.	Working Name		Calculation Quantity							Remarks	
U-P2-Bq-185	Gravel Filling		10 m3								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-7	Backhoe; 0.6 m3	hourly	0.31	125542.9	2040	90965.08	38,918	632	28,199	
Labour											
	L-2-1	Foreman	day	0.05	0	0	48800	0	0	2,440	
	L-2-23	Common Labour	day	0.2	0	0	35100	0	0	7,020	
Material											
	M-B-12	Crushed Stone for Pavement and Concrete	m3	11.11	0	3250	61750	0	36,108	686,043	
Indirect Cost											
Site Expense			%	15	0.8		0.2	95,923	0	23,981	
Profit and Overhead Cost			%	10	0.8		0.2	73,541	0	18,385	
		Miscellaneous	L.S.					17	60	32	Round Up
Total for		10 m3						208,400	36,800	766,100	
Unit Cost for		1 m3						20,840	3,680	76,610	

*1 : Manpower ; Foreman : 1 man/day / 200 m3/day x 10 m2 = 0.05
 Common Labor : 4 man/day / 200 m3/day x 10 m2 = 0.2
 Common Labor : 1 manpower = 50 m3/day
 *2 : Backhoe : 3600 x q x f x E
 f : 0.9 q : 0.59 E : 0.5 Cm : 30
 Hence, Volume = 31.86 m3/hour

Table 4.2.5 (53/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

U-P2-Bq-186 Gravel Bedding is equal unit cost with U-P2-Bq-100.
 U-P2-Bq-187 Cobble Stone
 U-P2-Bq-188 Weep Hole, Dia.50mm is equal unit cost with U-P2-Bq-29.

ID No.	Working Name			Calculation Quantity	Remarks
U-P2-Bq-189	Log Pile, Dia. 150 mm L=2.0 m	U-P3-Bq-216	Log Pile, Dia. 150 mm L=2.0 m	10 m	
U-P2-Bq-315	Log Pile, Dia. 150 mm L=2.0 m	U-P3-Bq-227	Log Pile, Dia. 150 mm L= 2.0 m		
U-P3-Bq-82	Log Pile, Dia. 150 mm L=2.0m	U-P3-Bq-237	Log Pile, Dia. 150mm L=2.0 m		
		U-P3-Bq-273.1	Log Pile, Dia 150 mm L= 2.0 m		

Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Material	M-D-1	Log Pile, Dia. 15cm	m	10	0	0	10000	0	0	100,000	
Working Base Cost	CW-3-12	Driving In of Log Pile	piece	5	24435.51	362.3243	18529.95	122,178	1,812	92,650	
Indirect Cost											
Site Expense			%	15	0.8		0.2	37,997	0	9,499	
Profit and Overhead Cost			%	10	0.8		0.2	29,131	0	7,283	
		Miscellaneous	L.S.					95	88	68	Round Up
Total for		10 m						189,400	1,900	209,500	
Unit Cost for		1 m						18,940	190	20,950	

Table 4.2.5 (54/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity		Remarks		Cost			Remarks
U-P2-Bq-14		Coffering and Dewatering		1 L.S.				PF/C	IF/C	L/C	
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Material	M-E-31	Steel Sheet Pile (Purchasing)	ton	0	5700000	0	300000	0	0	0	
	M-B-9	Soil for Backfilling	m3	1803	0	400	7600	0	721,200	13,702,800	for Earth Filling
Working Base Cost											
	CW-1-1	Backfill (Soil) A	m3	1803	6076	87	5043	10,955,028	156,861	9,092,529	for Earth Filling
	CW-1-65	Spreading by Swamp	m3	1803	4284.320275	54.264	4047.347784	7,724,629	97,838	7,297,368	for Earth Filling
	CW-1-48	Excavation C	m3	1803	3943	65	2857	7,109,229	117,195	5,151,171	for Earth Filling
	CW-3-9	Driving In of Steel Sheet Pile (Type-II)	m	500	9909.066783	76.17755	8578.669205	4,954,533	38,089	4,289,335	
	CW-3-10	Pulling Out of Steel Sheet Pile (Type-II)	m	500	9754	67	8548	4,877,000	33,500	4,274,000	
	CW-4-7	Sand Bags	nos	120	88.5375	758.9625	4199.6625	10,625	91,076	503,960	
	CW-4-21	Temporary Dewatering by D200mm	day	720	353884.4413	15124	251251.1045	254,796,798	10,889,280	180,900,795	
	CW-4-22	Temporary Dewatering by D180mm	day	90	339695.5418	15124	244084.2624	30,572,399	1,361,160	21,967,384	
	CW-4-23	Temporary Dewatering by D160mm	day	120	319831.0824	15124	234050.6834	38,379,730	1,814,880	28,086,082	
Indirect Cost											
Site Expense			%	15	0.8		0.2	77,996,025	0	19,499,006	
Profit and Overhead Cost			%	10	0.8		0.2	59,796,952	0	14,949,238	
		Miscellaneous	L.S.					52	22	33	
Total for	1 L.S.							497,173,200	15,321,100	309,713,900	
Unit Cost for	1 L.S.							497,173,200	15,321,100	309,713,900	

- Earthfill
- * 1 : Volume of Earthfill (V1) : 1803 m3 from Construction Planning
- Steel Sheet Pile
- * 2 : Total Length of Driving (L1) : 5 m long x 100 pieces = 500 m
 - * 3 : Purchasing Steel Sheet Pile (L2) : 0 ton No purchasing
- Sand Bag
- * 4 : Total Number of Sand Bags : 120 nos. from Construction Planning
- Dewatering
- * 5 : D200mm 6 month x 30 days x 4 sets = 720 days
 - D180mm 6 month x 5 days x 3 sets = 90 days
 - D160mm 6 month x 10 days x 2 sets = 120 days

ID No.		Working Name		Calculation Quantity		Remarks		Cost			Remarks
U-P2-Bq-193		Clearing of Garbage		1 L.S.				PF/C	IF/C	L/C	
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-54	Dumptruck; 4 ton	hourly	1.66	30203.66479	1376	28631.7736	50,138	2,284	47,529	
	A-2-1-7	Backhoe; 0.6 m3	hourly	3.5	125542.9076	2040	90965.07649	439,400	7,140	318,378	
Labour	L-2-1	Foreman	day	1	0	0	48800	0	0	48,800	
	L-2-23	Common Labour	day	5	0	0	35100	0	0	175,500	
Material		Plastic Bag	sheet	50	0	0	1000	0	0	50,000	
Indirect Cost											
Site Expense			%	15	0.8		0.2	136,700	0	34,175	
Profit and Overhead Cost			%	10	0.8		0.2	104,804	0	26,201	
		Miscellaneous	L.S.					58	76	18	Round Up
Total for	1 L.S.							731,100	9,500	700,600	
Unit Cost for	1 L.S.							731,100	9,500	700,600	

- * 1 : Dump Truck : 2 Truck (Assumption) 10 km/hr / 2 Truck x 20 km/hr + 20 mnts(loss)= 0.83 hours

Table 4.2.5 (55/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name	Calculation Quantity	Remarks								
U-P2-Bq-194	Densification of Existing Revetment	1 L.S.									
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-7	Backhoe; 0.6 m3	hourly	1.25	125,543	2,040	90,965	156,929	2,550	113,706	
	A-2-2-35	Pick Hammer	daily	2.17	5716.910885	0	2030.086722	12,428	0	4,413	
	A-2-1-18	Dumptruck; 10 ton	hourly	2.94	77268.99609	3060	70744.12066	227,171	8,996	207,988	
	A-2-2-17	Generator; 15 kVA	daily	0.54	82875	1800	52496.05263	44,753	972	28,348	
Labour	L-2-1	Foreman	day	0.54	0	0	48800	0	0	26,522	
	L-2-10	Drill Worker	day	2.17	0	0	39000	0	0	84,783	
	L-2-23	Common Labour	day	2.17	0	0	35100	0	0	76,304	
Working Base Cost	CW-1-54	Excavation I	m3	100	5072	83	3675	507,200	8,300	367,500	
Indirect Cost											
Site Expense			%	15	0.8		0.2	225,463	0	56,366	
Profit and Overhead Cost			%	10	0.8		0.2	150,309	0	37,577	
		Miscellaneous	L.S.					747	182	493	Round Up
Total for	1 L.S.							1,325,000	21,000	1,004,000	
Unit Cost for	1 L.S.							1,325,000	21,000	1,004,000	

Manpower Composition; Foreman : 1 man/day
 Common Labor : 4 man/day
 Drill Worker : 4 man/day

* 1 : Length of Revetment Demolished L = 50 m x
 * 2 : Thickness Assumed of Revetment t = 0.3 m Hence, Volume = 15 m3

* 3 0.5m3 x $\frac{T_a}{T \times 60}$ x Composition of Manpower = Foreman 0.54 Drill Worker 2.17 Common 2.17
 * 4 1m3 x $\frac{T_b}{60}$ = Dump Truck 2.94 hour
 * 5 0.5m3 x $\frac{T_a}{T \times 60}$ = Generator 0.54 days
 * 6 0.5m3 x $\frac{T_c}{60}$ = Backhoe 1.25 hour

* 7 : Average Daily Working Time of Generator, Labor, Breaker
 $T = \frac{690}{100} = 6.9$ (hour/day)

Working Time by Hand Breaker / 1m3 (Ta) $T_a = 30$ minutes/m3

Working Time by Dump Truck / 1m3 (Tb) $T_b = \left(\frac{5}{20} \text{ km(one way)} \times 2 \right) + \frac{30}{10} \text{ km/hour} = 11.75$ minutes/m3

Working Time by Backhoe and Pick Hammer / 1m3 (Tc) $T_c = 10$ minutes/m3

U-P2-Bq-196 Structural Excavation is equal unit cost with U-P1-Bq-16.
 U-P2-Bq-197 Backfill is equal unit cost with U-P2-Bq-122.
 U-P2-Bq-198 Embankment is equal unit cost with U-P1-Bq-29.

ID No.	Working Name	Calculation Quantity	Remarks								
U-P2-Bq-199	Concrete, Type C1 including Formwork, Scaffolding and Falsework	10 m3									
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.87571	1560	60651.61	235,433	4,711	183,168	
Working Base Cost	CW-1-24	Form Work B	m2	16.88	10030	75	52910	169,346	1,266	893,329	
		Breaking-up the Concrete									
	CW-2-40	Form	m2	16.88	0	0	3700	0	0	62,471	
	CW-1-42	Tubular Scaffold for Re-Con IV	m2	11.98214	24970	70	23610	299,194	839	282,898	
	CW-1-44	Frame Support	m3	8.401786	11370	50	22310	95,528	420	187,444	
	CW-1-20	Concrete Work for Reinforced Concrete C1 by Pump	m3	10	20270	41770	183330	202,700	417,700	1,833,300	
Indirect Cost											
Site Expense			%	15	0.8		0.2	584,370	0	146,092	
Profit and Overhead Cost			%	10	0.8		0.2	448,017	0	112,004	
		Miscellaneous	L.S.					13	64	94	Round Up
Total for	10 m3							2,034,600	425,000	3,700,800	
Unit Cost for	1 m3							203,460	42,500	370,080	

* 1 : Total Concrete Volume : 1120 m3
 * 2 : Total Scaffolding Area : 1342 m2
 Average Scaffolding Area : 11.98214 m2/unit m3
 Total Formwork Area : 1891 m2
 Average Formwork Area : 16.88393 m2/unit m3
 * 3 : Truck Mixer : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/hr / 30 km/hr + 60 mins(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

ID Con Fm Sca Sup
 1120 1891 1342 941

Table 4.2.5 (56/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-200		Concrete, Type E including Formwork		10 m3							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.87571	1560	60651.60529	235,433	4,711	183,168	
Working Base Cost											
	CW-1-28	Form Work F	m2	2.575758	0	0	36510	0	0	94,041	
	CW-1-22	Concrete Work for Levelling Concrete	m3	10	120	371.30	158740	1,200	371,300	1,587,400	
Indirect Cost											
Site Expense			%	15	0.8		0.2	297,270	0	74,318	
Profit and Overhead Cost			%	10	0.8		0.2	227,907	0	56,977	
		Miscellaneous	L.S.					90	89	97	Round Up
Total for		10 m3						761,900	376,100	1,996,000	
Unit Cost for		1 m3						76,190	37,610	199,600	

*1: Form Work Area : Total Form work area / Concrete Volume = Form Work Area m2 / concrete 1m3
 17 / 66 = 0.257575758 m2/m3
 *2: Dump Truck : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-201		Secondary Concrete, Type C2		10 m3							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.87571	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-23	Form Work A	m2	0.00	60	0	44798	0	0	0	
	CW-2-40	Breaking-up the Concrete Form	m2	0.00	0	0	3700	0	0	0	
	CW-1-20	Concrete Work for Reinforced Concrete C1 by Pump	m3	10	20270	41770	183330	202,700	417,700	1,833,300	
Indirect Cost											
Site Expense			%	15	0.8		0.2	345,241	0	86,310	
Profit and Overhead Cost			%	10	0.8		0.2	264,685	0	66,171	
		Miscellaneous	L.S.					41	89	51	Round Up
Total for		10 m3						1,048,100	422,500	2,169,000	
Unit Cost for		1 m3						104,810	42,250	216,900	

*1: Total Concrete Volume : 131 m3
 *2: Total Formwork Area : 0 m2
 Average Formwork Area : 0.00 m2/unit m3
 *3: Truck Mixer : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

U-P2-Bq-202 Deformed Reinforcing Bars

U-P2-Bq-203 Water Stop, 200 mm wide is equal unit cost with U-P2-Bq-66.

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-204		Dowel Bar Dia. 19 mm, 1 m Long (Round Bar and PVC Pipe)		10 kg							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Labour	L-2-29	Chief of Steel Worker	day	0.02	0	0	58600	0	0	1,172	
	L-2-16	Steel Worker	day	0.09	0	0	39000	0	0	3,510	
Material	M-E-1	Reinforcing Bar, Round U-30	kg	10	0	2500	2500	0	25,000	25,000	
	M-G-3	PVC Pipe, Dia. 25.4mm(1")	bar	4.48	0	6000	14000	0	26,880	62,720	
Others		Small Tools	%	10				0	5,188	9,310	Steel Wire and etc.
Indirect Cost											
Site Expense			%	15	0.8		0.2	19,045	0	4,761	
Profit and Overhead Cost			%	10	0.8		0.2	14,601	0	3,650	
		Miscellaneous	L.S.					53	32	46	Round Up
Total for		10 kg						33,700	57,100	110,100	
Unit Cost for		1 kg						3,370	5,710	11,010	
Unit Cost for		1 piece						752	1,275	2,458	

*1: Dowel Bar 10 kg / 4.48 pcs x 2.23 kg/piece = 4.48 pieces/10kg
 *2: PVC Pipe 4.48 pcs x 1 bar = 4.48 bar
 *3: Labor Chief 1 man / 200 pcs/day x 4.48 pieces/10kg = 0.02
 Worker 3 men / 200 pcs/day x 4.48 pieces/10kg = 0.09
 1 Steel Worker Capacity : 30 pcs/day

Table 4.2.5 (57/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-205		Furnishing and Driving PC Piles, Dia. 500 mm, Type A		10 m							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Working Base Cost											
	CW-3-26	Pile Work of Asin & Baru No.1	m	3.8	229222.3529	297.6471	63214.70588	871,045	1,131	240,216	
	CW-3-27	Pile Work of Asin & Baru No.2	m	6.2	218426.6667	235.1852	51903.33333	1,354,245	1,458	321,801	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	334,788	0	83,697	
		Profit and Overhead Cost	%	10	0.8		0.2	256,670	0	64,168	
		Miscellaneous	L.S.					52	11	19	Round Up
Total for 10 m								2,816,800	2,600	709,900	
Unit Cost for 1 m								281,680	260	70,990	

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-206		Furnishing and Driving PC Test Pile, Dia. 500 mm, Type A		10 m							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Working Base Cost											
	CW-3-26	Pile Work of Asin & Baru No.1	m	4.3	229222.3529	297.6471	63214.70588	985,656	1,280	271,823	
	CW-3-27	Pile Work of Asin & Baru No.2	m	6.8	218426.6667	235.1852	51903.33333	1,485,301	1,599	352,943	
		Piling Test	m	10			30000	0	0	300,000	incl. All tests needed & report
Indirect Cost											
		Site Expense	%	15	0.8		0.2	407,832	0	101,958	
		Profit and Overhead Cost	%	10	0.8		0.2	312,671	0	78,168	
		Miscellaneous	L.S.					39	21	8	Round Up
Total for 10 m								3,191,500	2,900	1,104,900	
Unit Cost for 1 m								319,150	290	110,490	

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-207		Furnishing and Driving Steel Sheet Pile, Type II		10 m							
U-P2-Bq-279		Furnishing and Driving Steel Sheet Pile, Type II		10 m							
U-P3-Bq-49		Furnishing and Driving Steel Sheet Pile, Type II		10 m							
U-P3-Bq-109		Furnishing and Driving Steel Sheet Pile, Type II		10 m							
U-P3-Bq-172		Furnishing and Driving Steel Sheet Pile, Type II		10 m							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Material											
	M-E-31	Steel Sheet Pile (Purchasing)	ton	0.48	5700000	0	300000	2736000	0	144000	
Working Base Cost											
	CW-3-9	Driving In of Steel Sheet Pile (Type-II)	m	10	9909.066783	76.17755	8578.669205	99090.66783	761.7754941	85786.69205	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	367876.6962	0	91969.17406	
		Profit and Overhead Cost	%	10	0.8		0.2	282038.8005	0	70509.70011	
		Miscellaneous	L.S.					94	38	34	Round Up
Total for 10 m								3,485,100	800	392,300	
Unit Cost for 1 m								348,510	80	39,230	

U-P2-Bq-208 Furnishing and Driving PC Sheet Piles (t=220 mm) is equal unit cost with U-P2-Bq-33.

U-P2-Bq-209 Gabion Mattress, (t=500 mm) (Galvanized) is equal unit cost with U-P2-Bq-31.

Table 4.2.5 (58/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-210		Safety Hand Rail (Type-I)		2 m							
U-P2-Bq-281		Safety Hand Rail (Type-I)									
U-P3-Bq-111		Safety Hand Rail (Type-I)		U-P3-Bq-173	Safety Hand Rail (Type-I)						
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Labour											
	L-2-29	Chief of Steel Worker	day	0.85	0	0	58600	0	0	49,810	including Welder
	L-2-16	Steel Worker	day	2.97	0	0	39000	0	0	115,830	
	L-2-23	Common Labour	day	3.61	0	0	35100	0	0	126,711	
Material											
	M-E-27	Galvanized Steel Pipe, Dia. 50mm	m	4	14250	0	750	57,000	0	3,000	
	M-E-28	Galvanized Steel Pipe, Dia. 75mm	m	1.5	19000	0	1000	28,500	0	1,500	
	M-E-1	Reinforcing Bar, Round U-30	kg	15.64	0	2500	2500	0	39,100	39,100	
Working Base Cost											
	CW-2-89	Polishing and 2times Shiny Painting	m ²	1.5	0	3800	21600	0	5700	32400	
Others											
		Small Tool	%	5				4,275	2,240	18,418	Weld Machine, generator and etc.
Indirect Cost											
		Site Expense	%	15	0.8		0.2	62,830	0	15,708	
		Profit and Overhead Cost	%	10	0.8		0.2	48,170	0	12,042	
		Miscellaneous	L.S.					25	60	82	Round Up
Total for		2 m						200,800	47,100	414,600	
Unit Cost for		1 m						100,400	23,550	207,300	
Unit Cost for		1 kg						2,049	481	4,231	

*1 : All production rate are quoted from Indonesian Standard

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-211		Safety Hand Rail (Type-II)		2 m							
U-P3-Bq-112		Safety Hand Rail (Type-II)									
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Labour											
	L-2-29	Chief of Steel Worker	day	0.85	0	0	58600	0	0	49,810	including Welder
	L-2-16	Steel Worker	day	2.97	0	0	39000	0	0	115,830	
	L-2-23	Common Labour	day	3.61	0	0	35100	0	0	126,711	
Material											
	M-E-27	Galvanized Steel Pipe, Dia. 50mm	m	4	14250	0	750	57,000	0	3,000	
	M-E-28	Galvanized Steel Pipe, Dia. 75mm	m	1.5	19000	0	1000	28,500	0	1,500	
	M-E-1	Reinforcing Bar, Round U-30	kg	15.64	0	2500	2500	0	39,100	39,100	
Working Base Cost											
	CW-2-89	Polishing and 2times Shiny Painting	m ²	1.5	0	3800	21600	0	5700	32400	
Others											
		Small Tool	%	5				4,275	2,240	18,418	Weld Machine, generator and etc.
Indirect Cost											
		Site Expense	%	15	0.8		0.2	62,830	0	15,708	
		Profit and Overhead Cost	%	10	0.8		0.2	48,170	0	12,042	
		Miscellaneous	L.S.					25	60	82	Round Up
Total for		2 m						200,800	47,100	414,600	
Unit Cost for		1 m						100,400	23,550	207,300	
Unit Cost for		1 kg						2,049	481	4,231	

*1 : All production rate are quoted from Indonesian Standard

U-P2-Bq-212 Wet Stone Masonry is equal unit cost with U-P1-Bq-20.

U-P2-Bq-213 Pointing

U-P2-Bq-214 Weep Hole, Dia.50mm

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-216		Furnishing and Installing Main Pump Units		1 set							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing Transportation Installation											
			set	1	1,961,917,020	0	217,990,780	1,961,917,020	0	217,990,780	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	261,588,936	0	65,397,334	
		Profit and Overhead Cost	%	10	0.8		0.2	200,551,518	0	50,137,879	
		Miscellaneous	L.S.					26	0	7	Round Up
Total for		1 set						2,424,057,500	0	333,525,900	
Unit Cost for		1 set						2,424,057,500	0	333,525,900	

Table 4.2.5 (59/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-217		Gear Boxes		1 set							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing											
Transportation			set	1	529,931,030	0	58,881,226	529,931,030	0	58,881,226	
Installation								0	0	0	
Indirect Cost											
Site Expense		%		15	0.8		0.2	70,657,471	0	17,664,368	
Profit and Overhead Cost		%		10	0.8		0.2	54,170,727	0	13,542,682	
		Miscellaneous	L.S.					72	0	25	Round Up
Total for			1 set					654,759,300	0	90,088,300	
Unit Cost for			1 set					654,759,300	0	90,088,300	

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-218		Diesel Engine Units		1 set							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing											
Transportation			set	1	647,537,670	0	71,948,630	647,537,670	0	71,948,630	
Installation								0	0	0	
Indirect Cost											
Site Expense		%		15	0.8		0.2	86,338,356	0	21,584,589	
Profit and Overhead Cost		%		10	0.8		0.2	66,192,740	0	16,548,183	
		Miscellaneous	L.S.					34	0	96	Round Up
Total for			1 set					800,068,800	0	110,081,500	
Unit Cost for			1 set					800,068,800	0	110,081,500	

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-219		Fuel Service Tank		1 set							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing											
Transportation			set	1	71,685,000	0	7,965,000	71,685,000	0	7,965,000	
Installation											
Indirect Cost											
Site Expense		%		15	0.8		0.2	9,558,000	0	2,389,500	
Profit and Overhead Cost		%		10	0.8		0.2	7,327,800	0	1,831,950	
		Miscellaneous	L.S.					0	0	50	Round Up
Total for			1 set					88,570,800	0	12,186,500	
Unit Cost for			1 set					88,570,800	0	12,186,500	

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-220		Fuel Transfer Pump		1 set							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing											
Transportation			set	1	22,585,140	0	2,509,460	22,585,140	0	2,509,460	
Installation											
Indirect Cost											
Site Expense		%		15	0.8		0.2	3,011,352	0	752,838	
Profit and Overhead Cost		%		10	0.8		0.2	2,308,703	0	577,176	
		Miscellaneous	L.S.					5	0	26	Round Up
Total for			1 set					27,905,200	0	3,839,500	
Unit Cost for			1 set					27,905,200	0	3,839,500	

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-221		Auxiliary Drainage Pump System		1 set							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing											
Transportation			set	1	246,473,325	0	27,385,925	246,473,325	0	27,385,925	
Installation											
Indirect Cost											
Site Expense		%		15	0.8		0.2	32,863,110	0	8,215,778	
Profit and Overhead Cost		%		10	0.8		0.2	25,195,051	0	6,298,763	
		Miscellaneous	L.S.					14	0	35	Round Up
Total for			1 set					304,531,500	0	41,900,500	
Unit Cost for			1 set					304,531,500	0	41,900,500	

Table 4.2.5 (60/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-223		Overhead Crane		1 set							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing			set	1	222,149,813	0	24,683,313	222,149,813	0	24,683,313	
Transportation											
Installation											
Indirect Cost											
Site Expense			%	15	0.8		29,619,975	0	7,404,994		
Profit and Overhead Cost			%	10	0.8		22,708,648	0	5,677,162		
		Miscellaneous	L.S.				65	0	32	Round Up	
Total for		1 set					274,478,500	0	37,765,500		
Unit Cost for		1 set					274,478,500	0	37,765,500		

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-223		Piping System		1 item							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing			item	1	67,500,000	0	7,500,000	67,500,000	0	7,500,000	
Transportation											
Installation											
Indirect Cost											
Site Expense			%	15	0.8		9,000,000	0	2,250,000		
Profit and Overhead Cost			%	10	0.8		6,900,000	0	1,725,000		
		Miscellaneous	L.S.				0	0	0	Round Up	
Total for		1 item					83,400,000	0	11,475,000		
Unit Cost for		1 item					83,400,000	0	11,475,000		

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-224		Inspection and Test		1 item							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing			item	1	53,568,000	0	5,952,000	53,568,000	0	5,952,000	
Transportation											
Installation		Electricity and Fuel Cost	L.S.	1			42938000	0	42,938,000		
Indirect Cost											
Site Expense			%	15	0.8		12,294,960	0	3,073,740		
Profit and Overhead Cost			%	10	0.8		9,426,136	0	2,356,534		
		Miscellaneous	L.S.				4	0	26	Round Up	
Total for		1 item					75,289,100	0	54,320,300		
Unit Cost for		1 item					75,289,100	0	54,320,300		

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-225		Spare Parts		1 item							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing			item	1	124,632,563	0	13,848,063	124,632,563	0	13,848,063	
Transportation											
Installation											
Indirect Cost											
Site Expense			%	15	0.8		16,617,675	0	4,154,419		
Profit and Overhead Cost			%	10	0.8		12,740,218	0	3,185,054		
		Miscellaneous	L.S.				45	0	64	Round Up	
Total for		1 item					153,990,500	0	21,187,600		
Unit Cost for		1 item					153,990,500	0	21,187,600		

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-226		Maintenance Tools		1 item							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing			item	1	34,893,000	0	3,877,000	34,893,000	0	3,877,000	
Transportation											
Installation											
Indirect Cost											
Site Expense			%	15	0.8		4,652,400	0	1,163,100		
Profit and Overhead Cost			%	10	0.8		3,566,840	0	891,710		
		Miscellaneous	L.S.				60	0	90	Round Up	
Total for		1 item					43,112,300	0	5,931,900		
Unit Cost for		1 item					43,112,300	0	5,931,900		

Table 4.2.5 (61/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-228		Main Control Panel		1 set							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing											
Transportation			set	1	728,079,300	0	80,897,700	728,079,300	0	80,897,700	
Installation											
Indirect Cost											
Site Expense			%	15	0.8		0.2	97,077,310	0	24,269,310	
Profit and Overhead Cost			%	10	0.8		0.2	74,425,884	0	18,606,471	
		Miscellaneous	L.S.					76	0	19	Round Up
Total for		1 set						899,582,500	0	123,773,500	
Unit Cost for		1 set						899,582,500	0	123,773,500	

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-229		Local Switch		1 set							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing											
Transportation			set	1	14,121,450	0	1,569,050	14,121,450	0	1,569,050	
Installation											
Indirect Cost											
Site Expense			%	15	0.8		0.2	1,882,860	0	470,715	
Profit and Overhead Cost			%	10	0.8		0.2	1,443,526	0	360,882	
		Miscellaneous	L.S.					64	0	54	Round Up
Total for		1 set						17,447,900	0	2,400,700	
Unit Cost for		1 set						17,447,900	0	2,400,700	

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-230		Inspection and Test		1 set							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing											
Transportation			set	1	21,672,900	0	2,408,100	21,672,900	0	2,408,100	
Installation											
Indirect Cost											
Site Expense			%	15	0.8		0.2	2,889,720	0	722,430	
Profit and Overhead Cost			%	10	0.8		0.2	2,215,452	0	553,863	
		Miscellaneous	L.S.					28	0	7	Round Up
Total for		1 set						26,778,100	0	3,684,400	
Unit Cost for		1 set						26,778,100	0	3,684,400	

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-231		Spare Parts		1 set							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing											
Transportation			set	1	27,139,500	0	3,015,500	27,139,500	0	3,015,500	
Installation											
Indirect Cost											
Site Expense			%	15	0.8		0.2	3,618,600	0	904,650	
Profit and Overhead Cost			%	10	0.8		0.2	2,774,260	0	693,565	
		Miscellaneous	L.S.					40	0	85	Round Up
Total for		1 set						33,532,400	0	4,613,800	
Unit Cost for		1 set						33,532,400	0	4,613,800	

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-232		Maintenance Tools		1 set							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing											
Transportation			set	1	30,496,500	0	3,388,500	30,496,500	0	3,388,500	
Installation											
Indirect Cost											
Site Expense			%	15	0.8		0.2	4,066,200	0	1,016,550	
Profit and Overhead Cost			%	10	0.8		0.2	3,117,420	0	779,355	
		Miscellaneous	L.S.					80	0	95	Round Up
Total for		1 set						37,680,300	0	5,184,500	
Unit Cost for		1 set						37,680,300	0	5,184,500	

Table 4.2.5 (62/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name		Calculation Quantity			Remarks					
U-P2-Bq-233	Control Panels for Auxiliary Drainage Pumps		1 set								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing			set	1	68,922,000	0	7,658,000	68,922,000	0	7,658,000	
Transportation											
Installation											
Indirect Cost											
Site Expense			%	15	0.8		0.2	9,189,600	0	2,297,400	
Profit and Overhead Cost			%	10	0.8		0.2	7,045,360	0	1,761,340	
		Miscellaneous	L.S.					40	0	60	Round Up
Total for		1 set						85,157,000	0	11,716,800	
Unit Cost for		1 set						85,157,000	0	11,716,800	

ID No.	Working Name		Calculation Quantity			Remarks					
U-P2-Bq-234	Generator System		1 set								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing			set	1	26,187,750	0	2,909,750	26,187,750	0	2,909,750	
Transportation											
Installation											
Indirect Cost											
Site Expense			%	15	0.8		0.2	3,491,700	0	872,925	
Profit and Overhead Cost			%	10	0.8		0.2	2,676,970	0	669,243	
		Miscellaneous	L.S.					80	0	83	Round Up
Total for		1 set						32,356,500	0	4,452,000	
Unit Cost for		1 set						32,356,500	0	4,452,000	

ID No.	Working Name		Calculation Quantity			Remarks					
U-P2-Bq-236	Concrete, Type B including Formwork		10 m3								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-71	Truck Crane; 11(10) ton, Oil Pressure	hourly	0.11	99321.88995	1020	85928.7745	10,925	112	9,452	
	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.87571	1560	60651.60529	235,433	4,711	183,168	
Working Base Cost											
	CW-1-24	Form Work B	m2	20,18519	10030	75	52910	202,457	1,514	1,067,998	
	CW-2-40	Breaking-up the Concrete Form	m2	20,18519	0	0	3700	0	0	74,685	
	CW-1-62	Reinforced Concrete Work Type B by Pump	m3	10	20270	43850	191650	202,700	438,500	1,916,500	
Indirect Cost											
Site Expense			%	15	0.8		0.2	521,779	0	130,445	
Profit and Overhead Cost			%	10	0.8		0.2	400,030	0	100,008	
		Miscellaneous	L.S.					75	63	44	Round Up
Total for		10 m3						1,573,400	444,900	3,482,300	
Unit Cost for		1 m3						157,340	44,490	348,230	

*1: Total Concrete Volume : 54 m3
 *2: Total Formwork Area : 109 m2
 Average Formwork Area : 20,18519 m2/unit m3
 *3: Truck Mixer : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mins(loss) = 2.27 Truck x 1.33 hours = 3.02 hours
 *4: Truck Crane : 10.2 m3 / 90 m3/hour = 0.11 hour

ID No.	Working Name		Calculation Quantity			Remarks					
U-P2-Bq-237 U-P2-Bq-265	Deformed Reinforcing Bars		1000 kg								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Working Base Cost											
	CW-1-30	Reinforcing Bar Setup by using Crane 1	t	1	137000	3122000	3442150	137,000	3,122,000	3,442,150	
Indirect Cost											
Site Expense			%	15	0.8		0.2	804,138	0	201,035	
Profit and Overhead Cost			%	10	0.8		0.2	616,506	0	154,126	
		Miscellaneous	L.S.					56	0	89	Round Up
Total for		1000 kg						1,557,700	3,122,000	3,797,400	
Unit Cost for		1 kg						1,558	3,122	3,797	

Table 4.2.5 (63/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-238		Safety Hand Rail (Type I)		6 m							
U-P3-Bq-147		Safety Hand Rail									
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Labour											
	L-2-29	Chief of Steel Worker	day	3.03	0	0	58600	0	0	177,558	include. Welder
	L-2-16	Steel Worker	day	10.45	0	0	39000	0	0	407,550	
	L-2-23	Common Labour	day	12.72	0	0	35100	0	0	446,472	
Material											
	M-E-28	Galvanized Steel Pipe, Dia. 75mm	m	12	19000	0	1000	228,000	0	12,000	
	M-E-7	Steel Plate SS41 Anchor, Steel Bar (Dia.32&22) incl. PVC Pipe	kg	5.89	5225	0	275	30,775	0	1,620	
	M-E-33		nos.	12	0	23100	9900	0	277,200	118,800	
Working Base Cost											
	CW-2-89	Polishing and 2times Shiny Painting	m2	4.5	0	3800	21600	0	17100	97200	
Others											
		Small Tool	%	5				12,939	14,715	63,060	Weld Machine, generator and etc.
Indirect Cost											
		Site Expense	%	15	0.8		0.2	228,599	0	57,150	
		Profit and Overhead Cost	%	10	0.8		0.2	175,259	0	43,815	
		Miscellaneous	L.S.					28	85	76	Round Up
Total for		6 m					675,600	309,100	1,425,300		
Unit Cost for		1 m					112,600	51,517	237,550		
Unit Cost for		1 kg					2,298	1,051	4,848		

*1 : All production rate are quoted from Indonesian Standard

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-241		Precast Prestressed Concrete Beam including Tensioning and Erection		1 L.S.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Working Base Cost											
	CW-6-1	Furnishing of Main Beam with Reinforcing Bar Temporary Work for	Beam	3	6101929.06	5128787	25816683.37	18,305,787	15,386,360	77,450,050	
	CW-6-2	Furnishing of Main Beam with Reinforcing Bar	Beam	3	28375137.5	3096	30035363.66	85,125,413	9,288	90,106,091	
	CW-6-3	Erection of Main Beam with Anchoring Work	Beam	3	3286227.917	596217.1	4530225.094	9,858,684	1,788,651	13,590,675	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	37,394,520	0	9,348,630	
		Profit and Overhead Cost	%	10	0.8		0.2	28,669,132	0	7,167,283	
		Miscellaneous	L.S.					65	1	71	Round Up
Total for		1 L.S.					179,353,600	17,184,300	197,662,800		
Unit Cost for		1 L.S.					179,353,600	17,184,300	197,662,800		

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-242		Precast Prestressed Concrete Diaphragm including Tensioning and Erection		1 L.S.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Working Base Cost											
	CW-6-4	Furnishing of Diaphragm with Reinforcing Bar	Piece	6	1986741.605	392608	1836042.835	11,920,450	2,355,648	11,016,257	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	3,035,083	0	758,771	
		Profit and Overhead Cost	%	10	0.8		0.2	2,326,897	0	581,724	
		Miscellaneous	L.S.					71	52	48	Round Up
Total for		1 L.S.					17,282,500	2,355,700	12,356,800		
Unit Cost for		1 L.S.					17,282,500	2,355,700	12,356,800		

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-243		Precast Concrete Panel including Erection		1 L.S.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Working Base Cost											
	CW-6-22	Concrete Work of Type-B by Pump	m3	4.466	20270	43850	209410	90,526	195,834	935,225	
	CW-1-31	Reinforcing Bar Setup 2	t	0.6336	0	2808810	2992590	0	1,779,662	1,896,105	
	CW-1-23	Form Work A	m2	86.328	60	0	44798	5,180	0	3,867,322	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	1,052,382	0	263,096	
		Profit and Overhead Cost	%	10	0.8		0.2	806,827	0	201,707	
		Miscellaneous	L.S.					86	4	46	Round Up
Total for		1 L.S.					1,955,000	1,975,500	7,163,500		
Unit Cost for		1 L.S.					1,955,000	1,975,500	7,163,500		

Table 4.2.5 (64/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

U-P2-Bq-244 Deformed Reinforcing Bars

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-245		Concrete, Type B including Formwork		10 m3							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment											
	A-2-1-71	Truck Crane; 11(10) ton, Oil Pressure	hourly	0.11	99321.88995	1020	85928.7745	10,925	112	9,452	
	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.87571	1560	60651.60529	235,433	4,711	183,168	
Working Base Cost											
	CW-1-24	Form Work B Breaking-up the Concrete	m2	28.48485	10030	75	52910	285,703	2,136	1,507,133	
	CW-2-40	Form Reinforced Concrete Work	m2	28.48485	0	0	3700	0	0	105,394	
	CW-1-62	Type B by Pump	m3	10	20270	43850	191650	202,700	438,500	1,916,500	
Indirect Cost											
Site Expense			%	15	0.8		0.2	588,224	0	147,056	
Profit and Overhead Cost			%	10	0.8		0.2	450,972	0	112,743	
		Miscellaneous	L.S.					43	40	54	Round Up
Total for		10 m3						1,774,000	443,500	3,981,500	
Unit Cost for		1 m3						177,400	44,350	398,150	

*1: Total Concrete Volume: 33 m3
 *2: Total Formwork Area: 94 m2
 Average Formwork Area: 28.48485 m2/unit m3
 *3: Truck Mixer: 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/mnd / 30 km/hr + 60 mins(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours
 *4: Truck Crane: 10.2 m3 / 90 m3/hour = 0.11 hour

U-P2-Bq-246 Asphalt Concrete is equal unit cost with U-P1-Bq-30.
 U-P2-Bq-247 Expansion Joint is equal unit cost with U-P2-Bq-116.
 U-P2-Bq-248 Hand Rail is equal unit cost with U-P2-Bq-117.
 U-P2-Bq-249 Drain Pipe, PVC Pipe Dia. 100 mm is equal unit cost with U-P2-Bq-118.

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-250		Elastomeric Bearing Pad (350 x280 x 73)		1 nos.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment											
	A-2-1-73	Truck Crane; 22 ton, Oil Pressure	hourly	1	154912.5	1032	131787.555	154,913	1,032	131,788	
Labour											
	L-2-32	Chief of Bridge	day	0.4	0	0	68300	0	0	27,320	
	L-2-33	Bridge Worker	day	1.8	0	0	58600	0	0	105,480	
	L-2-18	Form Worker	day	0.4	0	0	39000	0	0	15,600	
	L-2-23	Common Labour	day	1.1	0	0	35100	0	0	38,610	
Material											
	M-C-45	Non Shrinkage Mortar	m3	0.05	0	18260	73040	0	913	3,652	
	M-G-16	Elastomeric Bearing, 350x280x 73mm	pcs	1	0	600000	600000	0	600,000	600,000	
Indirect Cost											
Site Expense			%	15	0.8		0.2	201,517	0	50,379	
Profit and Overhead Cost			%	10	0.8		0.2	154,496	0	38,624	
		Miscellaneous	L.S.					74	55	47	Round Up
Total for		1 nos.						511,000	602,000	1,011,500	
Unit Cost for		1 nos.						511,000	602,000	1,011,500	

*1: All Labor Rates are quoted from Japanese Standard. (P1652)

U-P2-Bq-251 Rubber Sheet (40 x 10 x 3) is equal unit cost with U-P2-Bq-199.1.
 U-P2-Bq-253 Structure Excavation is equal unit cost with U-P1-Bq-16.
 U-P2-Bq-254 Backfill with Sandy Soil is equal unit cost with U-P2-Bq-122.

Table 4.2.5 (65/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-255		Furnishing and Driving PC Piles, Dia. 500 mm		10 m							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Working Base Cost											
	CW-3-26	Pile Work of Asin & Baru No.1	m	8	229222.3529	297.6471	63214.70588	1,833,779	2,381	505,718	
	CW-3-27	Pile Work of Asin & Baru No.2	m	2	218426.6667	235.1852	51903.33333	436,853	470	103,807	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	345,961	0	86,190	
		Profit and Overhead Cost	%	10	0.8		0.2	265,237	0	66,309	
		Miscellaneous	L.S.					70	48	76	Round Up
Total for		10 m						2,881,900	2,900	762,400	
Unit Cost for		1 m						288,190	290	76,240	

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-256		Furnishing and Driving PC Test Pile, Dia. 500mm		10 m							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Working Base Cost											
	CW-3-26	Pile Work of Asin & Baru No.1	m	8.5	229222.3529	297.6471	63214.70588	1,948,390	2,530	537,325	
	CW-3-27	Pile Work of Asin & Baru No.2	m	2.5	218426.6667	235.1852	51903.33333	546,067	588	129,758	
		Piling Test	m	10			30000	0	0	300,000	incl. All tests needed & report
Indirect Cost											
		Site Expense	%	15	0.8		0.2	415,759	0	103,940	
		Profit and Overhead Cost	%	10	0.8		0.2	318,749	0	79,687	
		Miscellaneous	L.S.					36	82	90	Round Up
Total for		10 m						3,229,000	3,200	1,150,800	
Unit Cost for		1 m						322,900	320	115,080	

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-257		Concrete, Type C1 including Formwork and Scaffolding		10 m ³							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment											
	A-2-1-79	Truck Mixer, 4.5 m ³	hourly	3.02	77957.87571	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-24	Form Work B Breaking-up the Concrete	m ²	20.38	10030	75	52910	204,371	1,528	1,078,091	
	CW-2-40	Form	m ²	20.38	0	0	3700	0	0	75,391	
	CW-1-42	Tublar Scaffold for Re-Con IV	m ²	12.4812	24970	70	23610	311,656	874	294,681	
	CW-1-20	Concrete Work for Reinforced Concrete C1 by Pump	m ³	10	20270	41770	183330	202,700	417,700	1,833,300	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	581,232	0	145,308	
		Profit and Overhead Cost	%	10	0.8		0.2	445,611	0	111,403	
		Miscellaneous	L.S.					97	87	58	Round Up
Total for		10 m ³						1,981,100	424,900	3,721,400	
Unit Cost for		1 m ³						198,110	42,490	372,140	

*1: Total Concrete Volume: 133 m³
 *2: Total Scaffolding Area: 166 m²
 Average Scaffolding Area: 12.4812 m²/unit m³
 Total Formwork Area: 271 m²
 Average Formwork Area: 20.37594 m²/unit m³
 *3: Truck Mixer: 10.2 m³ / 4.5 m³/truck = 2.27 Truck
 10 km/hr / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

Table 4.2.5 (66/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-258		Concrete, Type E including Formwork		10 m3							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.87571	1560	60651.60529	235,433	4,711	183,168	
Working Base Cost											
	CW-1-28	Form Work F	m2	4.444444	0	0	36510	0	0	162,267	
	CW-1-22	Concrete Work for Levelling Concrete	m3	10	120	371.30	158740	1,200	371,300	1,587,400	
Indirect Cost											
Site Expense			%	15	0.8		0.2	305,457	0	76,364	
Profit and Overhead Cost			%	10	0.8		0.2	234,184	0	58,546	
		Miscellaneous	L.S.					26	89	55	Round Up
Total for		10 m3						776,300	376,100	2,067,800	
Unit Cost for		1 m3						77,630	37,610	206,780	

*1 : Form Work Area : Total Form work area / Concrete Volume = Form Work Area m2 / concrete 1m3
 4 / 9 = 0.44444444 m2/m3

*2 : Dump Truck : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/nd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

U-P2-Bq-259 Deformed Reinforcing Bars

U-P2-Bq-261 Structural Excavation is equal unit cost with U-P1-Bq-16.

U-P2-Bq-262 Backfill is equal unit cost with U-P2-Bq-122.

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-263		Concrete, Type C1 including Formwork		10 m3							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.87571	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-24	Form Work B	m2	34.08	10030	75	52910	341,839	2,556	1,803,259	
		Breaking-up the Concrete									
	CW-2-10	Form	m2	34.08	0	0	3700	0	0	126,102	
	CW-1-42	Tubular Scaffold for Re-Con IV	m2	27,14286	24970	70	23610	677,757	1,900	640,843	
	CW-1-14	Frame Support	m3	12.65306	11370	50	22310	143,865	633	282,290	
	CW-1-20	Concrete Work for Reinforced Concrete C1 by Pump	m3	10	20270	41770	183330	202,700	417,700	1,833,300	
Indirect Cost											
Site Expense			%	15	0.8		0.2	827,767	0	206,942	
Profit and Overhead Cost			%	10	0.8		0.2	634,621	0	158,655	
		Miscellaneous	L.S.					18	0	41	Round Up
Total for		10 m3						3,064,000	427,500	5,231,600	
Unit Cost for		1 m3						306,400	42,750	523,460	

*1 : Total Concrete Volume : 49 m3
 *2 : Total Scaffolding Area : 133 m2
 Average Scaffolding Area : 27.14286 m2/unit m3
 Total Formwork Area : 167 m2
 Average Formwork Area : 34.08163 m2/unit m3
 Total Supporting Volume : 62 m3
 Average Supporting Volume : 12.65306122 m3/unit m3

*3 : Truck Mixer : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/nd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-264		Concrete, Type E including Formwork		10 m3							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.87571	1560	60651.60529	235,433	4,711	183,168	
Working Base Cost											
	CW-1-28	Form Work F	m2	10	0	0	36510	0	0	365,100	
	CW-1-22	Concrete Work for Levelling Concrete	m3	10	120	371.30	158740	1,200	371,300	1,587,400	
Indirect Cost											
Site Expense			%	15	0.8		0.2	329,297	0	82,449	
Profit and Overhead Cost			%	10	0.8		0.2	252,845	0	63,211	
		Miscellaneous	L.S.					25	89	72	Round Up
Total for		10 m3						819,300	376,100	2,281,400	
Unit Cost for		1 m3						81,930	37,610	228,140	

*1 : Form Work Area : Total Form work area / Concrete Volume = Form Work Area m2 / concrete 1m3
 3 / 3 = 1 m2/m3

*2 : Dump Truck : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/nd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

U-P2-Bq-265 Deformed Reinforcing Bars is equal unit cost with U-P2-Bq-237.

Table 4.2.5 (67/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-266		Fuel Tank and Accessories		1 set							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing											
Transportation			set	1	162,090,000	0	18,010,000	162,090,000	0	18,010,000	
Installation											
Indirect Cost											
Site Expense			%	15	0.8		0.2	21,612,000	0	5,403,000	
Profit and Overhead Cost			%	10	0.8		0.2	16,569,200	0	4,142,300	
		Miscellaneous	L.S.					0	0	0	Round Up
Total for		1 set						200,271,200	0	27,555,300	
Unit Cost for		1 set						200,271,200	0	27,555,300	

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-267		Grounding		1 set							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing											
Transportation			set	1	8,775,000	0	975,000	8,775,000	0	975,000	
Installation											
Indirect Cost											
Site Expense			%	15	0.8		0.2	1,170,000	0	292,500	
Profit and Overhead Cost			%	10	0.8		0.2	897,000	0	224,250	
		Miscellaneous	L.S.					0	0	50	Round Up
Total for		1 set						10,842,000	0	1,491,800	
Unit Cost for		1 set						10,842,000	0	1,491,800	

Table 4.2.5 (68/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

U-P2-Bq-270 Structural Excavation is equal unit cost with U-P1-Bq-16.
 U-P2-Bq-271 Backfill with Sandy Soil is equal unit cost with U-P2-Bq-122.

ID No.	Working Name		Calculation Quantity							Remarks	
U-P2-Bq-272	Concrete, Type C1 including Formwork, Scaffolding, and Falsework		10 m3								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment											
	A-2-1-72	Truck Crane; 16 ton, Oil Pressure	hourly	0.11	135641.089	1020	115858.48	14,921	112	12,744	
	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.8757	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-24	Form Work B Breaking-up the Concrete	m2	19.30	10030	75	52910	193,584	1,448	1,021,190	
	CW-2-40	Form	m2	19.30	0	0	3700	0	0	71,412	
	CW-1-42	Tablar Scaffold for Re-Con IV	m2	18.96373	24970	70	23610	473,524	1,327	447,734	
	CW-1-44	Frame Support	m3	6.580311	11370	50	22310	74,818	329	146,807	
	CW-1-20	Concrete Work for Reinforced Concrete C1 by Pump	m3	10	20270	41770	183330	202,700	417,700	1,833,300	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	640,435	0	160,109	
		Profit and Overhead Cost	%	10	0.8		0.2	491,001	0	122,750	
		Miscellaneous	L.S.					84	73	86	Round Up
Total for				10 m3				2,326,500	425,700	3,999,300	
Unit Cost for				1 m3				232,650	42,570	399,930	

*1: Total Concrete Volume : 386 m3
 *2: Total Scaffolding Area : 732 m2
 Average Scaffolding Area : 18.963731 m2/unit m3
 Total Formwork Area : 745 m2
 Average Formwork Area : 19.30052 m2/unit m3
 *3: Truck Mixer : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours
 *4: Truck Crane : 10.2 m3 / 90 m3/hour = 0.11 hour

ID No.	Working Name		Calculation Quantity							Remarks	
U-P2-Bq-273	Concrete, Type E including Formwork		10 m3								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment											
	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.8757	1560	60651.60529	235,433	4,711	183,168	
Working Base Cost											
	CW-1-28	Form Work F Concrete Work for Levelling	m2	2.777778	0	0	36510	0	0	101,417	
	CW-1-22	Concrete	m3	10	120	37130	158740	1,200	371,300	1,587,400	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	298,155	0	74,539	
		Profit and Overhead Cost	%	10	0.8		0.2	228,586	0	57,146	
		Miscellaneous	L.S.					26	89	30	Round Up
Total for				10 m3				763,400	376,100	2,003,700	
Unit Cost for				1 m3				76,340	37,610	200,370	

*1: Form Work Area : Total Form work area 5 / Concrete Volume 18 = From Work Area m2 / concrete 1m3 0.27777778 m2/m3
 *2: Dump Truck : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

Table 4.2.5 (69/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name		Calculation Quantity							Remarks	
U-P2-Bq-274	Secondary Concrete, Type C2		10 m3								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.8757	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-23	Form Work A Breaking-up the Concrete	m2	11.11	60	0	44798	667	0	497,756	
	CW-2-40	Form Concrete Work for Reinforced	m2	11.11	0	0	3700	0	0	41,111	
	CW-1-20	Concrete C1 by Pump	m3	10	20270	41770	183330	202,700	417,700	1,833,300	
Indirect Cost											
Site Expense			%	15	0.8		0.2	409,985	0	102,496	
Profit and Overhead Cost			%	10	0.8		0.2	314,322	0	78,581	
		Miscellaneous	L.S.					93	89	89	Round Up
Total for	10 m3							1,163,200	422,500	2,736,500	
Unit Cost for	1 m3							116,320	42,250	273,650	

*1: Total Concrete Volume : 9 m3
 *2: Total Formwork Area : 10 m2
 Average Formwork Area : 11.11 m2/unit m3
 *3: Truck Mixer : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

- U-P2-Bq-275 Deformed Reinforcing Bars
- U-P2-Bq-276 Water Stop, 200 mm wide is equal unit cost with U-P2-Bq-66.
- U-P2-Bq-277 Dowel Bar, Dia. 19 mm, 1.0 m Long (Round Bar and PVC Pipe)

ID No.	Working Name		Calculation Quantity							Remarks	
U-P2-Bq-278	Furnishing and Driving PC Piles, Dia. 500 mm		10 m								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Working Base Cost											
	CW-3-26	Pile Work of Asin & Baru No.1	m	3.4	229222.353	297.64706	63214.70588	779,356	1,012	214,930	
	CW-3-27	Pile Work of Asin & Baru No.2	m	6.6	218426.667	235.18519	51903.33333	1,441,616	1,552	342,562	
Indirect Cost											
Site Expense			%	15	0.8		0.2	333,723	0	83,431	
Profit and Overhead Cost			%	10	0.8		0.2	255,855	0	63,964	
		Miscellaneous	L.S.					50	36	14	Round Up
Total for	10 m							2,810,600	2,600	704,900	
Unit Cost for	1 m							281,060	260	70,490	

- U-P2-Bq-279 Furnishing and Driving Steel Sheet Pile, Type II is equal unit cost with U-P2-Bq-196
- U-P2-Bq-280 Gabion Mattress (t=500 mm (Galvanized))
- U-P2-Bq-281 Safety Hand Rail (Type-I) is equal unit cost with U-P2-Bq-198.

Table 4.2.5 (70/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity			Remarks					
U-P2-Bq-282		Ladder		1 L.S.								
U-P3-Bq-174		Ladder		set								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks	
					PF/C	IF/C	L/C	PF/C	IF/C	L/C		
Direct Cost												
Labour												
	L-2-29	Chief of Steel Worker	day	0.85	0	0	58600	0	0	49,810	including Welder	
	L-2-16	Steel Worker	day	2.97	0	0	39000	0	0	115,830		
	L-2-23	Common Labour	day	3.61	0	0	35100	0	0	126,711		
Material												
	M-E-27	Galvanized Steel Pipe, Dia. 50mm	m	4	14250	0	750	57,000	0	3,000		
	M-E-28	Galvanized Steel Pipe, Dia. 75mm	m	1.5	19000	0	1000	28,500	0	1,500		
	M-E-1	Reinforcing Bar, Round U-30	kg	15.64	0	2500	2500	0	39,100	39,100		
Working Base Cost												
	CW-2-89	Polishing and 2times Shiny Painting	m2	1.5	0	3800	21600	0	5700	32400		
Others												
		Small Tool	%	5				4,275	2,240	18,418	Weld Machine, generator and etc.	
Indirect Cost												
		Site Expense	%	15	0.8		0.2	62,830	0	15,708		
		Profit and Overhead Cost	%	10	0.8		0.2	48,170	0	12,042		
		Miscellaneous	L.S.					25	60	82	Round Up	
Total for								1 L.S.	200,800	47,100	414,600	
Unit Cost for								1 L.S.	200,800	47,100	414,600	
Unit Cost for								1 kg	4,098	961	8,461	

*1 : All production rate are quoted from Indonesian Standard

ID No.		Working Name		Calculation Quantity			Remarks					
U-P2-Bq-283		Window		1 L.S.								
U-P3-Bq-175		Window										
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks	
					PF/C	IF/C	L/C	PF/C	IF/C	L/C		
Direct Cost												
Labour												
	L-2-26	Chief of Carpenter	day	1	0	0	58600	0	0	58,600		
	L-2-12	Carpenter	day	1	0	0	39000	0	0	39,000		
	L-2-23	Common Labour	day	1	0	0	35100	0	0	35,100		
Material												
	M-K-11	Window Frame (Alumi) with Accessory, 0.6 x 1.2m	m2	2.5	0	4000	36000	0	10,000	90,000		
	M-K-38	Glass of 3mm thick	m2	2.5	0	8700	20300	0	21,750	50,750		
Others												
		Small Tools	%	5				0	1,588	13,673		
Indirect Cost												
		Site Expense	%	15	0.8		0.2	38,455	0	9,614		
		Profit and Overhead Cost	%	10	0.8		0.2	29,482	0	7,371		
		Miscellaneous	L.S.					62	63	93	Round Up	
Total for								1 L.S.	68,000	33,400	304,200	
Unit Cost for								1 L.S.	68,000	33,400	304,200	

ID No.		Working Name		Calculation Quantity			Remarks					
U-P2-Bq-284		Door		1 L.S.								
U-P3-Bq-176		Door										
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks	
					PF/C	IF/C	L/C	PF/C	IF/C	L/C		
Direct Cost												
Labour												
	L-2-26	Chief of Carpenter	day	0.5	0	0	58600	0	0	29,300		
	L-2-12	Carpenter	day	1	0	0	39000	0	0	39,000		
	L-2-23	Common Labour	day	2	0	0	35100	0	0	70,200		
Material												
	M-D-9	Door incl. Frame Accessories, 2.1x0.9m	nos.		0	0	900000	0	0	0		
Others												
		Small Tools	%	5				0	0	6,925		
Indirect Cost												
		Site Expense	%	15	0.8		0.2	17,451	0	4,363		
		Profit and Overhead Cost	%	10	0.8		0.2	13,379	0	3,345		
		Miscellaneous	L.S.					70	0	67	Round Up	
Total for								1 L.S.	30,900	0	153,200	
Unit Cost for								1 L.S.	30,900	0	153,200	

Table 4.2.5 (7/1/19) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity						Remarks			
U-P2-Bq-285		Roof Sealing		1 L.S.									
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks		
					PF/C	IF/C	L/C	PF/C	IF/C	L/C			
Direct Cost													
Labour													
	L-2-16	Steel Worker	day	10.46775	0	0	39000	0	0	408,242			
	L-2-29	Chief of Steel Worker	day	2.47275	0	0	58600	0	0	144,903			
	L-2-23	Common Labour	day	18.11625	0	0	35100	0	0	635,880			
	L-2-22	Asphalt Worker	day	3	0	0	35100	0	0	105,300			
	L-2-1	Foreman	day	2	0	0	48800	0	0	97,600			
Material													
	M-C-4	Asphalt	kg	4828.125	0	450	1050	0	2,172,656	5,069,531			
	M-C-46	Sealant	m3	2.5	0	17600	70400	0	44,000	176,000			
	M-E-50	Stopper Nail	pcs	50	0	3	7	0	150	350			
	M-E-7	Steel Plate SS41 Galvanizing	kg	109.9	5225	0	275	574,228	0	30,223			
		Rubber	m	25	0	0	200	287,114	0	15,111			
		Foam	m	50	0	0	100	0	0	5,000			
Indirect Cost													
Site Expense													
		%		15	0.8		0.2	1,172,555	0	293,139			
Profit and Overhead Cost													
		%		10	0.8		0.2	898,959	0	224,740			
		Miscellaneous	L.S.					46	94	81	Round Up		
Total for								1 L.S.		2,932,900	2,216,900	7,211,100	
Unit Cost for								1 L.S.		2,932,900	2,216,900	7,211,100	

- * 1 : Plating Production Rate for Furnishing (100kg)
 - Steel Worker 6.75 Hence, 7.41825
 - Chief of Steel Worker 2.25 2.47275
 - Common Labor 6.75 7.41825
- for Installation (100kg)
 - Steel Worker 0.5 0.5495
 - Common Labor 2 2.198
- for Drilling (1 hole)
 - Steel Worker 0.05 2.5
 - Common Labor 0.05 2.5
- * 2 : Another Production Rate
 - Foreman 2
 - Common Labor 6
 - Asphalt Worker 3
- * 3 : Steel Plate
 - Unit Weight 0.35 m x 0.0016 m x 7850 kg/m3 = 4.396 kg/m
 - Total Weight 4.396 kg/m x 5 m long x 5 piece = 109.9 kg
- * 4 : Rubber
 - Total Length 5 m long x 5 piece = 25 m
- * 5 : Foam
 - Total Length 5 m long x 5 piece x 2 = 50 m
- * 6 : Drilling
 - Total Number 5 m long x 5 piece x 2 = 50 piece
- * 7 : Asphalt
 - Total Volume 0.25 m x 0.75 m x 5 m long x 5 piece
- * 8 : Sealant
 - Total Volume 1.03 ton/m3 = 4828.125 kg
 - 0.5 m x 0.1 m x 5 m long x 5 piece
 - x 2 sides = 2.5 m3

ID No.		Working Name		Calculation Quantity						Remarks			
U-P2-Bq-287		Gate Leaf		1 set									
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks		
					PF/C	IF/C	L/C	PF/C	IF/C	L/C			
Direct Cost													
Furnishing													
		Transportation	set	1	109676930	0	186,018,541	109,676,930	0	186,018,541			
Installation													
Indirect Cost													
Site Expense													
		%		15	0.8		0.2	35,483,456	0	8,870,864			
Profit and Overhead Cost													
		%		10	0.8		0.2	27,203,983	0	6,800,996			
		Miscellaneous	L.S.					30	0	99	Round Up		
Total for								1 set		172,364,400	0	201,690,500	
Unit Cost for								1 set		172,364,400	0	201,690,500	

ID No.		Working Name		Calculation Quantity						Remarks			
U-P2-Bq-288		Guide Frame		1 set									
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks		
					PF/C	IF/C	L/C	PF/C	IF/C	L/C			
Direct Cost													
Furnishing													
		Transportation	set	1	17212573.7	0	140,401,165	17,212,574	0	140,401,165			
Installation													
Indirect Cost													
Site Expense													
		%		15	0.8		0.2	18,913,649	0	4,728,412			
Profit and Overhead Cost													
		%		10	0.8		0.2	14,500,464	0	3,625,116			
		Miscellaneous	L.S.					14	0	6	Round Up		
Total for								1 set		50,626,700	0	148,754,700	
Unit Cost for								1 set		50,626,700	0	148,754,700	

Table 4.2.5 (72/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-289		Hoist		1 set							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing											
Transportation			set	1	465063.431	0	126,675,178	465,063,431	0	126,675,178	
Installation											
Indirect Cost											
Site Expense			%	15	0.8		0.2	71,008,633	0	17,752,158	
Profit and Overhead Cost			%	10	0.8		0.2	54,439,952	0	13,609,988	
		Miscellaneous	L.S.					84	0	75	Round Up
Total for				1 set				590,512,100	0	158,037,400	
Unit Cost for				1 set				590,512,100	0	158,037,400	

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-290		Stop Log		1 set							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing											
Transportation			set	1	67980742.8	0	103,960,378	67,980,743	0	103,960,378	
Installation											
Indirect Cost											
Site Expense			%	15	0.8		0.2	20,632,934	0	5,158,234	
Profit and Overhead Cost			%	10	0.8		0.2	15,818,583	0	3,954,646	
		Miscellaneous	L.S.					40	0	43	Round Up
Total for				1 set				104,432,300	0	113,073,300	
Unit Cost for				1 set				104,432,300	0	113,073,300	

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-291		Spare Part		1 L.S.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Furnishing											
Transportation			set	1	67980742.8	0	103,960,378	67,980,743	0	103,960,378	
Installation											
Indirect Cost											
Site Expense			%	15	0.8		0.2	20,632,934	0	5,158,234	
Profit and Overhead Cost			%	10	0.8		0.2	15,818,583	0	3,954,646	
		Miscellaneous	L.S.					40	0	43	Round Up
Total for				1 L.S.				104,432,300	0	113,073,300	
Unit Cost for				1 L.S.				104,432,300	0	113,073,300	

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-294		Pump Control Building		1 L.S.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
		Pump Control Building		1 L.S.	39320529.1	22375870	226283000	39,320,529	22,375,870	226,283,000	
Indirect Cost											
Site Expense			%	15	0.8		0.2	34,557,528	0	8,639,382	
Profit and Overhead Cost			%	10	0.8		0.2	26,494,105	0	6,623,526	
		Miscellaneous	L.S.					38	30	92	Round Up
Total for				1 L.S.				100,372,200	22,375,900	241,546,000	
Unit Cost for				1 L.S.				100,372,200	22,375,900	241,546,000	

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-295		Management Office		1 L.S.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
		Management Office		1 L.S.	419357.404	14961420	159770312.8	419,357	14,961,420	159,770,313	
Indirect Cost											
Site Expense			%	15	0.8		0.2	21,018,131	0	5,254,533	
Profit and Overhead Cost			%	10	0.8		0.2	16,113,900	0	4,028,475	
		Miscellaneous	L.S.					11	80	79	Round Up
Total for				1 L.S.				37,551,400	14,961,500	169,053,400	
Unit Cost for				1 L.S.				37,551,400	14,961,500	169,053,400	

Table 4.2.5 (73/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-296		Garage		I L.S.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost		Garage		1 L.S.	442843.855	17172360	180601359.5	442,844	17,172,360	180,601,359	
Indirect Cost											
Site Expense			%	15	0.8		0.2	23,785,988	0	5,946,497	
Profit and Overhead Cost			%	10	0.8		0.2	18,235,924	0	4,558,981	
		Miscellaneous	L.S.					45	40	63	Round Up
Total for		1 L.S.						42,464,800	17,172,400	191,106,900	
Unit Cost for		1 L.S.						42,464,800	17,172,400	191,106,900	

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-297		Staff House		I L.S.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost		Staff House		1 L.S.	123599.888	7906455.2	91647601.89	123,600	7,906,455	91,647,602	
Indirect Cost											
Site Expense			%	15	0.8		0.2	11,961,319	0	2,990,330	
Profit and Overhead Cost			%	10	0.8		0.2	9,170,344	0	2,292,586	
		Miscellaneous	L.S.					37	45	82	Round Up
Total for		1 L.S.						21,255,300	7,906,500	96,930,600	
Unit Cost for		1 L.S.						21,255,300	7,906,500	96,930,600	

ID No.		Working Name		Calculation Quantity						Remarks	
U-P2-Bq-298		External Works		I L.S.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost		Staff House		1 L.S.	8172185.33	6912130.6	92588192.53	8,172,185	6,912,131	92,588,193	
Indirect Cost											
Site Expense			%	15	0.8		0.2	12,920,701	0	3,230,175	
Profit and Overhead Cost			%	10	0.8		0.2	9,905,871	0	2,476,468	
		Miscellaneous	L.S.					43	69	65	Round Up
Total for		1 L.S.						30,998,800	6,912,200	98,294,900	
Unit Cost for		1 L.S.						30,998,800	6,912,200	98,294,900	

Table 4.2.5 (74/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name		Calculation Quantity			Remarks							
U-P2-Bq-301	Common Excavation including Hauling and Spoiling		10 m3										
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks		
					PF/C	IF/C	L/C	PF/C	IF/C	L/C			
Direct Cost													
Equipment													
	A-2-1-48	Dumptruck; 10 ton	hourly	1.07	77269	3060	70744.12	82,678	3,274	75,696			
Working Base Cost													
	CW-1-5	Spreading A	m3	12	2941	35	2823	35,292	420	33,876	for Reclamation Site		
	CW-1-46	Excavation A	m3	4	2361	39	1711	9,444	156	6,844			
	CW-1-47	Excavation B	m3	5	2951	48	2138	14,755	240	10,690			
	CW-1-6	Manpower Excavation	m3	1	0	0	15800	0	0	15,800			
Indirect Cost													
Site Expense													
			%	15	0.8		0.2	34,700	0	8,675			
Profit and Overhead Cost													
			%	10	0.8		0.2	26,603	0	6,651			
		Miscellaneous	L.S.					28	10	68	Round Up		
Total for								10 m3		203,500	4,100	158,300	
Unit Cost for								1 m3		20,350	410	15,830	

*1 : Soil Volume : 10 m3
 *2 : Dump Truck : 10 ton/dump / 15 km/md / 10 m3 / 1.5 dp/10m3
 40 km/hr + 20 mnts(loss) = 6.67 m3/dump = 0.71 hours
 6.67 m3/dump = 1.5 dp/10m3
 0.71 hours = 1.07 hours
 *3 : Spreading : 10 m3 x 1.2 = 12 m3

U-P2-Bq-302 Embankment is equal unit cost with U-P1-Bq-29.

ID No.	Working Name		Calculation Quantity			Remarks							
U-P2-Bq-304	Coffering and Dewatering		1 Item										
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks		
					PF/C	IF/C	L/C	PF/C	IF/C	L/C			
Direct Cost													
Material													
	M-B-9	Soil for Backfilling	m3	1705	0	400	7600	0	682,000	12,958,000	for Earth Filling		
Working Base Cost													
	CW-1-1	Backfill (Soil) A	m3	1705	6076	87	5043	10,359,580	148,335	8,598,315	for Earth Filling		
	CW-1-65	Spreading by Swamp Bulldozer	m3	1705	4284.32	54.264	4047.348	7,304,766	92,520	6,900,728	for Earth Filling		
	CW-1-48	Excavation C	m3	1705	3943	65	2857	6,722,815	110,825	4,871,185	for Earth Filling		
	CW-4-23	Temporary Dewatering by D160mm	day	30	319831.1	15124	234050.7	9,594,932	453,720	7,021,521			
Indirect Cost													
Site Expense													
			%	15	0.8		0.2	9,098,309	0	2,274,577			
Profit and Overhead Cost													
			%	10	0.8		0.2	6,975,370	0	1,743,843			
		Miscellaneous	L.S.					27	100	32			
Total for								1 Item		50,055,800	1,487,500	44,368,200	
Unit Cost for								1 Item		50,055,800	1,487,500	44,368,200	

Earthfill * 1 : Volume of Earthfill (V1) : 1705 m3 from Construction Planning

Dewatering * 2 : D160mm 6 month x 5 days x 1 sets = 30 days

- U-P2-Bq-305 Structural Excavation is equal unit cost with U-P1-Bq-16.
- U-P2-Bq-306 Backfill with Cobble is equal unit cost with U-P2-Bq-21.
- U-P2-Bq-307 Backfill with Gravel is equal unit cost with U-P2-Bq-22.
- U-P2-Bq-308 Backfill with Sandy Soil is equal unit cost with U-P2-Bq-23.
- U-P2-Bq-309 Wet Stone Masonry is equal unit cost with U-P1-Bq-20.

Table 4.2.5 (75/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name		Calculation Quantity							Remarks	
U-P2-Bq-310	Concrete, Type C1 including Formwork		10 m3								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.17	77957.88	1560	60651.61	247,126	4,945	192,266	
Working Base Cost											
	CW-1-23	Form Work A	m2	63.61	60	0	44798	3,817	0	2,849,716	
	CW-2-40	Breaking-up the Concrete Form Concrete Work for Type-C by	m2	63.61	0	0	3700	0	0	235,366	
	CW-1-60	Shoot Hopper	m3	10	120	43660	197860	1,200	436,600	1,978,600	
Indirect Cost											
Site Expense			%	15	0.8		0.2	713,956	0	178,489	
Profit and Overhead Cost			%	10	0.8		0.2	547,367	0	136,842	
		Miscellaneous	L.S.					34	55	21	Round Up
Total for	10 m3							1,513,500	441,600	5,571,300	
Unit Cost for	1 m3							151,350	44,160	557,130	

*1: Total Concrete Volume : 191 m3
 *2: Total Formwork Area : 1215 m2
 Average Formwork Area : 63.61257 m2/unit m3
 *3: Truck Mixer : 10.7 m3 / 4.5 m3/truck = 2.38 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.38 Truck x 1.33 hours = 3.17 hours

ID No.	Working Name		Calculation Quantity							Remarks	
U-P2-Bq-311	Concrete, Type E including Formwork		10 m3								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-28	Forms Work F Concrete Work for Levelling	m2	32.94118	0	0	36510	0	0	1,202,682	
	CW-1-22	Concrete	m3	10	120	37130	158740	1,200	371,300	1,587,400	
Indirect Cost											
Site Expense			%	15	0.8		0.2	430,307	0	107,577	
Profit and Overhead Cost			%	10	0.8		0.2	329,902	0	82,476	
		Miscellaneous	L.S.					58	89	97	Round Up
Total for	10 m3							996,900	376,100	3,163,400	
Unit Cost for	1 m3							99,690	37,610	316,340	

*1: Form Work Area : Total Form work area / Concrete Volume = Form Work Area m2 / concrete 1m3
 112 / 34 = 3.294118 m2/m3

*2: Dump Truck : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

- U-P2-Bq-312 Deformed Reinforcing Bars
- U-P2-Bq-313 Pointing is equal unit cost with U-P1-Bq-23.
- U-P2-Bq-314 Weep Hole, Dia.50mm is equal unit cost with U-P2-Bq-29.
- U-P2-Bq-315 Log Pile, Dia. 150 mm L=2.0 m is equal unit cost with U-P2-Bq-176.
- U-P2-Bq-316 Furnishing and Driving PC Sheet Pile (t=220 mm) is equal unit cost with U-P2-Bq-33.
- U-P2-Bq-318 Stripping of Top Soil is equal unit cost with U-P1-Bq-28.
- U-P2-Bq-319 Embankment is equal unit cost with U-P1-Bq-29.
- U-P2-Bq-320 Aggregate Class A is equal unit cost with U-P1-Bq-32.
- U-P2-Bq-321 Aggregate Class B is equal unit cost with U-P1-Bq-33.
- U-P2-Bq-322 Sand Bedding is equal unit cost with U-P1-Bq-19.
- U-P2-Bq-323 Concrete Block Pavement
- U-P2-Bq-324 Cement Mortar
- U-P2-Bq-325 Concrete Kerb

Table 4.2.5 (76/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name		Calculation Quantity			Remarks					
U-P2-Bq-327	Tree Planting		1 L.S.								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost	Cost	Remarks				
					PF/C	IF/C	L/C				
Direct Cost											
Working Base Cost											
	CW-4-19	Palm BotoI Planting	tree	234	0	150	328560	0	35,100	76,883,040	
	CW-4-20	Bougainvillea Planting	tree	696	0	150	103560	0	104,400	72,077,760	
Indirect Cost											
Site Expense			%	15	0.8		0.2	17,892,036	0	4,473,009	
Profit and Overhead Cost			%	10	0.8		0.2	13,717,228	0	3,429,307	
	Miscellaneous		L.S.					36	0	84	Round Up
Total for			1 L.S.					31,609,300	139,500	156,863,200	
Unit Cost for			1 L.S.					31,609,300	139,500	156,863,200	

ID No.	Working Name		Calculation Quantity			Remarks					
U-P2-Bq-328	Staff Gauge		2 Set								
U-P3-Bq-291.1	Staff Gauge										
Major Item	Description	Nos	Weight	Quantity	PF/C	IF/C	L/C	Remarks			
			kg/nos								
Direct Cost											
Furnishing											
	Water Level Gauging Staff	1	50		4,778,946	250	30,179,176	incl. Local Transportation			
Installation											
	Equipment	1	L.S.		411,048	46,951	2,169,880				
	Material	1	L.S.		82,210	187,806	1,301,928				
	Labor	1	L.S.		54,806	0	867,952				
	Others	1	L.S.								
Indirect Cost											
Site Expense			%	15	0.8		0.2	4,809,714	0	1,202,429	
Profit and Overhead Cost			%	10	0.8		0.2	3,687,448	0	921,862	
	Miscellaneous		L.S.					28	93	74	Round Up
Total for			2 Set					13,824,200	235,100	36,643,300	
Unit Cost for			1 Set					6,912,100	117,550	18,321,650	
Unit Cost for			1 L.S.	=	3 set			20,736,300	352,650	54,964,950	

Table 4.2.5 (7/7/19) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity			Remarks				
U-P2-Bq-330		Supplying Maintenance Equipment		1 L.S.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Material											
	M-L-18	Backhoe, 0.35m3	nos.	1	469871053	0	0	469,871,053	0	0	
	M-L-19	Dump Truck, 8t	nos.	1	422763158	0	0	422,763,158	0	0	
	M-L-11	Truck with Crane, 2.2ton	nos.	1	344250000	0	0	344,250,000	0	0	
	M-L-22	Outboard Motor Boat	nos.	1	90592105.3	0	0	90,592,105	0	0	
	M-L-10	Garbage Container	nos.	2	0	100000	900000	0	200,000	1,800,000	
Others											
Indirect Cost											
	Site Expense		%	15	0.8		0.2	159,537,158	0	39,884,289	
	Profit and Overhead Cost		%	10	0.8		0.2	122,311,821	0	30,577,955	
	Miscellaneous		L.S.					5	0	55	Round Up
Total for		1 L.S.						1,609,325,300	200,000	72,262,300	
Unit Cost for		1 L.S.						1,609,325,300	200,000	72,262,300	

Table 4.2.5 (78/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name	Calculation Quantity	Remarks										
U-P3-Bq-2	Mobilization and Demobilization	1 L.S.											
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks		
					PF/C	IF/C	L/C	PF/C	IF/C	L/C			
Direct Cost													
Equipment													
	A-2-1-69	Trailer; 20 ton	hourly	228	119,879	2,160	102,572	27,332,507	492,480	23,386,341			
	A-2-1-48	Dumptruck; 10 ton	hourly	288	77269	3060	70744.12	22,253,471	881,280	20,374,307			
	A-2-1-80	Truck; 11 ton	hourly	0	96,932	1,560	95,161	0	0	0			
		Truck with crane; 4 ton, Crane											
	A-2-1-31	2.9 ton	hourly	72	48669.75	780	47767.65	3,504,222	56,160	3,439,271			
	A-2-1-32	Truck with crane; 6 ton	hourly	0	62783.98	912	61243.41	0	0	0			
	A-2-2-37	Pontoon Barge; 100 ton	daily	0	314821.3	0	237790.6	0	0	0			
	A-2-2-41	Drifter Air Type : 150kg class	daily	0	257007.1	0	88827.32	0	0	0			
	A-2-1-84	Tugboat; 15 ton	hourly	0	129433.1	4440	140042.2	0	0	0			
Indirect Cost													
	Site Expense	%		15	0.8		0.2	12,206,405	0	3,051,601			
Profit and Overhead Cost													
	Miscellaneous	L.S.		10	0.8		0.2	9,358,244	0	2,339,561			
								52	80	20	Round Up		
Total for								1 L.S.			74,654,900	1,430,000	52,591,100
Unit Cost for								1 L.S.			74,654,900	1,430,000	52,591,100

- * 1 : All Equipment : Land Transportation : hours land transportation. hours ship transportation
 All Equipment : Ship Transportation : Though it takes longer time than land transportation, it assumes that the cost is same.
- * 2 : Number of Mobilized and Demobilized Equipment

	Mobilization	Demobilization
Trailer	29	28
Dump Truck 10t	36	36
Ordinary Truck 10t		
Truck with Crane 4 t	9	9
Truck with Crane 6 t		
Pontoon Barge 100 t		
Soil Carriage 100m3		
Tag Boat 15 ton		

ID No.	Working Name	Calculation Quantity	Remarks										
U-P2-Bq-3	Establishment	1 L.S.											
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks		
					PF/C	IF/C	L/C	PF/C	IF/C	L/C			
Direct Cost													
		Install of Office and Others	m2	1148	80000	80000	915000	91,840,000	91,840,000	1,050,420,000	including all facilities		
		Removal of Office	%	30				27,552,000	27,552,000	315,126,000			
		Rental of Land	%	10				11,939,200	11,939,200	136,554,600			
Indirect Cost													
	Site Expense	%		15	0.8		0.2	211,771,560	0	52,942,890			
Profit and Overhead Cost													
	Miscellaneous	L.S.		10	0.8		0.2	162,358,196	0	40,589,549			
								44	0	61			
Total for								1 L.S.			505,461,000	131,331,200	1,595,633,100
Unit Cost for								1 L.S.			505,461,000	131,331,200	1,595,633,100

ID No.	Working Name	Calculation Quantity	Remarks										
U-P3-Bq-4	Contractor's Site Office and Facilities	1 L.S.											
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks		
					PF/C	IF/C	L/C	PF/C	IF/C	L/C			
Direct Cost													
		Install of Office	m2	88	80000	80000	915000	7,040,000	7,040,000	80,520,000	including all facilities		
		Removal of Office	%	30				2,112,000	2,112,000	24,156,000			
		Rental of Land	%	10				915,200	915,200	10,467,600			
Indirect Cost													
	Site Expense	%		15	0.8		0.2	16,233,360	0	4,058,340			
Profit and Overhead Cost													
	Miscellaneous	L.S.		10	0.8		0.2	12,445,576	0	3,111,394			
								64	0	66			
Total for								1 L.S.			38,746,200	10,067,200	122,313,400
Unit Cost for								1 L.S.			38,746,200	10,067,200	122,313,400

Table 4.2.5 (79/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No. Working Name Calculation Quantity Remarks
 U-P3-Bq-5 Engineer's Site Office and Facilities 1 L.S.

Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
		Install of Office	m2	88	80000	80000	915000	7,040,000	7,040,000	80,520,000	including all facilities
		Removal of Office	%	30				2,112,000	2,112,000	24,156,000	
		Rental of Land	%	10				915,200	915,200	10,467,600	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	16,233,360	0	4,058,340	
Profit and Overhead Cost											
		Miscellaneous	L.S.					64	0	66	
Total for		1 L.S.						38,746,200	10,067,200	122,313,400	
Unit Cost for		1 L.S.						38,746,200	10,067,200	122,313,400	

ID No. Working Name Calculation Quantity Remarks
 U-P3-Bq-6 Drawings 1 L.S.

Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Labour											
	L-2-34	Cad Operator	day	400	0	0	54700	0	0	21,880,000	
	L-2-35	Draft Man	day	400	0	0	39000	0	0	15,600,000	
Material											
	M-L-15	Drawing Paper (A1)	sheet	200	8000	0	2000	1,600,000	0	400,000	
	M-L-16	Blue Copy (A1)	sheet	200	0	2500	2500	0	500,000	500,000	
Others											
		Tools	%	20				320,000	100,000	7,676,000	Computer, Plotter, Drafer and etc.
Indirect Cost											
		Site Expense	%	15	0.8		0.2	5,829,120	0	1,457,280	
Profit and Overhead Cost											
		Miscellaneous	L.S.	10	0.8		0.2	4,468,992	0	1,117,248	
								88	0	72	Round Up
Total for		1 L.S.						12,218,200	600,000	48,630,600	
Unit Cost for		1 L.S.						12,218,200	600,000	48,630,600	

ID No. Working Name Calculation Quantity Remarks
 U-P3-Bq-7 Surveying 1 L.S.

Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
		Drawing Plan of River Scale 1:500	ha	10			112,000	0	0	1,120,000	
		River Cross Section Survey Scale 1:100									
		a. Surveying	section	20			232000	0	0	4,640,000	
		b. Drawing & Processing	section	20			62000	0	0	1,240,000	
Indirect Cost											
		Site Expense	%	15	0.8		0.2	840,000	0	210,000	
Profit and Overhead Cost											
		Miscellaneous	L.S.	10	0.8		0.2	644,000	0	161,000	
								0	0	0	Round Up
Total for		1 L.S.						1,484,000	0	7,371,000	
Unit Cost for		1 L.S.						1,484,000	0	7,371,000	

Table 4.2.5 (80/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity			Remarks			
U-P3-Bq-9		Relocation of Existing Utilities		1 L.S.						
Major Item	No.	Description	Unit	Quantity	Unit Cost		Cost			Remarks
					Material	Others	PF/C	IF/C	L/C	
Direct Cost										
Working Cost										
I. Installation of JTM 1 Phase & 3 Phasa (430301)										
	1	Concrete Pole C11-200E	Bar	4	2016800	382400				2,399,200
	2	Concrete Pole C11-350E	Bar	1	635900	114900				750,800
	3	C1	Unit	1		116203				116,203
	4	A1	Unit	3		144953				144,953
	5	A6	Unit	1		117942				117,942
	6	A5	Unit	1		70374				70,374
	7	M2-12	Unit	4		45160				45,160
	8	M2-12A	Unit	1		12466				12,466
	9	M2-11	Unit	1		39819				39,819
	10	M5-9	Unit	1		26033				26,033
	11	Conductor 3xAAAC#240mm2	Km	0.11	559431.2	173800				733,231
		Conductor 1xAAAC#150mm2	Km	0.11						0
	12	Conductor 2xAAAC#70mm2	Km	0.11	103517.7	66000				169,518
	13	Conductor 1xAAAC#70mm2	Km	0.25	106439.4	145250				251,689
		Conductor 1xAAAC#50mm2	Km	0.25						0
	14	E1-2	Unit	3		177387				177,387
	15	F1-2	Unit	3		128433				128,433
	16	Pole Numbering	Set	5		1500				1,500
II. Demolition of JTM 1 Phasa & 3 Phasa (230301)										
	1	Steel Pole S11A	Bar	4		105120				105,120
	2	Steel Pole S11 B	Bar	1		29880				29,880
	3	SC1	Unit	1		6600				6,600
	4	SA1	Unit	3		7650				7,650
	5	SA6	Unit	1		6150				6,150
	6	SA5	Unit	1		3300				3,300
	7	M5-9	Unit	1		6150				6,150
	8	Conductor 3xAAAC#240mm2	Km	0.1		94800				94,800
		Conductor 1xAAAC#150mm2	Km	0.1						0
	9	Conductor 2xAAAC#70mm2	Km	0.1		36000				36,000
	10	Conductor 1xAAAC#70mm2	Km	0.238		82966.8				82,967
		Conductor 1xAAAC#50mm2	Km	0.238						0
III. Installation of JTR UB. 1 Phasa (430310)										
	1	CJ5	Unit	5		115585				115,585
	2	CJ6	Unit	3		97995				97,995
	3	LVIC 3x50mm2	Km	0.25	160708.4	152187.5				312,896
VI. Demolition of JTR UB. 1 Phasa (230310)										
	1	CJ5	Unit	5		11250				11,250
	2	CJ6	Unit	3		8550				8,550
	3	LVIC 3x50mm2	Km	0.238		86929.5				86,930
Indirect Cost										
Site Expense			%	15	0.8		743,584	0		185,896
Profit and Overhead Cost			%	10	0.8		570,081	0		142,520
Miscellaneous			L.S.				36	0		53 Round Up
Total for		1 L.S.					1,313,700	0		6,525,000
Unit Cost for		1 L.S.					1,313,700	0		6,525,000

Table 4.2.5 (81/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name		Calculation Quantity		Remarks					
U-P3-Bq-12		Coffering and Dewatering		1 L.S.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Material	M-E-31	Steel Sheet Pile (Purchasing)	ton	67.2	5700000	0	300000	383,040,000	0	20,160,000	
Working Base Cost											
	CW-3-9	Driving In of Steel Sheet Pile (Type-II)	m	875	9909.067	76.17755	8578.669	8,670,433	66,655	7,506,336	for 1st year
	CW-3-10	Pulling Out of Steel Sheet Pile (Type-II)	m	875	9754	67	8548	8,534,750	58,625	7,479,500	for 1st year
	CW-3-9	Driving In of Steel Sheet Pile (Type-II)	m	1775	9909.067	76.17755	8578.669	17,588,594	135,215	15,227,138	for 2nd year
	CW-3-10	Pulling Out of Steel Sheet Pile (Type-II)	m	1775	9754	67	8548	17,313,350	118,925	15,172,700	for 2nd year
	CW-4-7	Sand Bags	nos	240	88.5375	758.9625	4199.663	21,249	182,151	1,007,919	
	CW-4-21	Temporary Dewatering by D200mm	day	720	353884.4	15124	251251.1	254,796,798	10,889,280	180,900,795	
	CW-4-22	Temporary Dewatering by D180mm	day	180	339695.5	15124	244084.3	61,145,198	2,722,320	43,935,167	
	CW-4-23	Temporary Dewatering by D160mm	day	240	319831.1	15124	234050.7	76,759,460	3,629,760	56,172,164	
Indirect Cost											
Site Expense			%	15	0.8		0.2	143,188,138	0	35,797,034	
Profit and Overhead Cost			%	10	0.8		0.2	109,777,572	0	27,444,393	
		Miscellaneous	L.S.					59	68	54	
Total for	1 L.S.							1,080,835,600	17,803,000	410,803,200	
Unit Cost for	1 L.S.							1,080,835,600	17,803,000	410,803,200	

- Steel Sheet Pile for 1st Year**
- * 1: Total Length of Driving (L1) : 5 m long x 175 pieces = 875 m
 - * 2: Purchasing Steel Sheet Pile (L2) : 8 m long x 175 pieces x 48 kg/m = 67.2 ton
- Steel Sheet Pile for 2nd Year**
- * 3: Total Length of Driving (L1) : 5 m long x 355 pieces = 1775 m
 - * 4: Purchasing Steel Sheet Pile (L2) : 0 ton No purchasing
- Dewatering**
- * 5: D200mm 12 month x 20 days x 3 sets = 720 days
 - D180mm 12 month x 5 days x 3 sets = 180 days
 - D160mm 12 month x 10 days x 2 sets = 240 days
- Sand Bag for Pumping Station**
- * 6: Total Number of Sand Bags : 240 nos. from Construction Planning

ID No.		Working Name		Calculation Quantity		Remarks					
U-P3-Bq-12		Temporary Construction Road		1 L.S.							
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Material											
	M-B-13	Solid Soil	m3	1718	0	600	11400	0	1,030,800	19,585,200	for Embankment
	M-B-12	Crushed Stone for Pavement and Concrete	m3	205	0	3250	61750	0	666,250	12,658,750	for Embankment
Working Base Cost											
	CW-1-46	Excavation A	m3	450	2361	39	1711	1,062,450	17,550	769,950	
	CW-1-56	Spreading and Compaction for Gravel Pavement	m3	205	5117.168	43.2	16431.17	1,049,019	8,856	3,368,389	for Embankment
	CW-1-59	Spreading and Compaction-D	m3	1718	1509	19	1473	2,592,462	32,642	2,530,614	for Embankment
Indirect Cost											
Site Expense			%	15	0.8		0.2	5,444,752	0	1,361,188	
Profit and Overhead Cost			%	10	0.8		0.2	4,174,310	0	1,043,577	
		Miscellaneous	L.S.					7	2	31	Round Up
Total for	1 L.S.							14,323,000	1,756,100	41,317,700	
Unit Cost for	1 L.S.							14,323,000	1,756,100	41,317,700	

- for Embankment**
- * 1: Temporary Road Body Volume (V1) : 1718 m3 from Construction Planning
 - * 2: Gravel Pavement Volume (V2) : 0.15 m thick x 3.0 m wide = 0.45 m3/m
 - Purchased Crushed Stone : 0.45 m3/m / 0.9 loss = 0.5 m3/m
 - * 3: Temporary Road Length (l1) : 405 m from Construction Planning roundup 410 m
 - * 4: Excavation Volume (V3) : 450 m3 from Construction Planning

Table 4.2.5 (82/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name		Calculation Quantity							Remarks	
U-P3-Bq-13	Clearing of Garbage		1 L.S.								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-54	Dumptruck; 4 ton	hourly	0	30203.66	1376	28631.77	0	0	0	
	A-2-1-7	Backhoe; 0.6 m3	hourly	7	125542.9	2040	90965.08	878,800	14,280	636,756	
Labour	L-2-1	Foreman	day	1	0	0	48800	0	0	48,800	
	L-2-23	Common Labour	day	10	0	0	35100	0	0	351,000	
Material		Plastic Bag	sheet	100	0	0	1000	0	0	100,000	
Indirect Cost											
Site Expense			%	15	0.8		0.2	243,556	0	60,889	
Profit and Overhead Cost			%	10	0.8		0.2	186,727	0	46,682	
		Miscellaneous	L.S.					17	20	74	Round Up
Total for	1 L.S.							1,309,100	14,300	1,244,200	
Unit Cost for	1 L.S.							1,309,100	14,300	1,244,200	

ID No.	Working Name		Calculation Quantity							Remarks	
U-P3-Bq-14	Demolition of Existing Revetment		1 L.S.								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-48	Dumptruck; 10 ton	hourly	51.27	77269	3060	70744.12	3,961,218	156,872	3,626,718	
Working Base Cost		Pulling Out of Steel Sheet Pile (Type-II)	m	7227.25	9754	67	8548	70,494,597	484,226	61,778,533	
Indirect Cost											
Site Expense			%	15	0.8		0.2	16,860,260	0	4,215,065	
Profit and Overhead Cost			%	10	0.8		0.2	11,240,173	0	2,810,043	
		Miscellaneous	L.S.					753	902	641	Round Up
Total for	1 L.S.							102,557,000	642,000	72,431,000	
Unit Cost for	1 L.S.							102,557,000	642,000	72,431,000	
	Manpower Composition:										
		Foreman :		1	man/day						
		Common Labor :		4	man/day						
		Drill Worker :		4	man/day						

Working Time by Dump Truck

$$\begin{aligned}
 T_b &= \left(\frac{5 \text{ km (one way)} \times 2}{60 \text{ minutes}} \right) \times \frac{30 \text{ km/hour}}{1.33 \text{ hours/truck}} \\
 &= 1.33 \text{ hours} \times \left(\frac{7227.25 \text{ m} \times 48 \text{ kg/m}}{9 \text{ ton/truck}} \right) / \\
 &= 51.26529 \text{ hours}
 \end{aligned}$$

Table 4.2.5 (83/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name		Calculation Quantity			Remarks					
U-P3-Bq-16	Common Channel Excavation including hauling and treatment of contaminated soil		100 m3								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment											
	A-2-1-48	Dumptruck; 10 ton	hourly	17.78	77269	3060	70744.12	1,373,843	54,407	1,257,830	for Hauling
	A-2-2-2	Stabilizer	hourly	0.683761	743275.5	1092	502607.8	508,223	747	343,663	for Mixing
Labour											
	L-2-1	Foreman	day	0.008686	0	0	48800	0	0	424	for water proof sheet
	L-2-23	Common Labour	day	0.028952	0	0	35100	0	0	1,016	for water proof sheet
	L-2-23	Common Labour	day	6.666667	0	0	35100	0	0	234,000	for Spreading of Concrete
Material											
		Drain Pipe	m	0.173712	108000	0	12600	18,761	0	2,085	for Disposal Site
		Water Proof Sheet for Disposal Site	m2	47.57788	27000	0	3000	1,284,603	0	142,734	for Disposal Site
		Water Proof Sheet for Dump Truck	sheet	0.347423	0	0	50000	0	0	17,371	for Hauling
	M-B-3	Sand for Mortar (Masonry)	m3	21.74986	0	2250	42750	0	48,937	929,806	for Backfill of Drain
	M-C-1	Portland Cement	kg	7000	0	100	400	0	700,000	2,800,000	for Backfill of Drain
	M-B-5	Cobble Stone	m3	0.496526	0	1850	35150	0	919	17,453	for Backfill of Drain
	M-B-13	Solid Soil	m3	33.42373	0	600	11400	0	20,054	381,030	for Banking
Working Base Cost											
	CW-1-64	Excavation by Backhoe 0.35m3	m3	0.496526	2687.773	45.24	1953.753	1,335	22	970	for Excavation
	CW-1-64	Excavation by Backhoe 0.35m3	m3	0.551695	2687.773	45.24	1953.753	1,483	25	1,078	for Backfill
	CW-1-65	Spreading by Swamp Bulldozer	m3	108	4284.32	54.264	4047.348	462,707	5,861	437,114	for Spreading
	CW-1-5	Spreading A	m3	80.74117	2941	35	2823	237,460	2,826	227,932	for Disposal Site
	CW-1-10	Slope Clearing for Embankment 2	m2	3.420382	3265	54	2660	11,168	185	9,098	for Disposal Site
	CW-1-5	Spreading A	m3	20.26636	2941	35	2823	59,603	709	57,212	for Final Spreading
	CW-1-1	Backfill (Soil) A	m3	30.57788	6076	87	5043	185,791	2,660	154,204	for Banking
	CW-1-58	Spreading and Compaction for Earth Filling	m3	30.57788	2833.803	36.252	2632.618	86,652	1,109	80,500	for Banking
	CW-1-47	Excavation B	m3	100	2951	48	2138	295,100	4,800	213,800	for Dredging
	CW-1-47	Excavation B	m3	1.022583	2951	48	2138	3,018	49	2,186	for Pit
	CW-1-21	Concrete Work for Small Structure : Type-D	m3	0.348871	120	42570	193500	42	14,851	67,507	for Pit
	CW-1-23	Form Work A	m2	0.318471	60	0	44798	19	0	14,267	for Pit
	CW-1-29	Reinforcing Bar Setup 1	t	0.006977	0	3120900	3325100	0	21,776	23,201	for Pit
	CW-1-15	Gravel Bedding	m3	0.056167	0	1360	31260	0	76	1,756	for Pit
	CW-1-2	Backfill (Soil) B	m3	0.132021	7022	103	6326	927	14	835	for Pit
Indirect Cost											
Site Expense											
			%	15	0.8		0.2	1,539,580	0	384,895	
Profit and Overhead Cost											
		Miscellaneous	L.S.	10	0.8		0.2	1,180,344	0	295,086	
								44	74	47	
Total for 100 m3											
								7,250,700	380,100	8,099,100	
Unit Cost for 1 m3											
								72,507	8,801	80,991	

Table 4.2.5 (84/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

* 1 :	Dump Truck for Hauling:	107 m ³	/	6.5 m ³ /truck	=	16.46 Truck	
		15 km ² /rd /	20 km/hr +	20 mts(lost)	=	1.08 hours	
		16.46 Truck	x	1.08 hours	=	17.78 hours	
	Water Proof Sheet	10 m ² /truckx	20 trucks x	3 changes	=	600	
	Unit Quantity	600 m ² /	172700	=	0.003474	m ³	
* 2 :	Excavation/Backfill by Backhoe	0.35m ³ for construction of drain					
	Dimension of Drain	0.5 m wide x	0.5 m depthx	490	x	350)m length	
		x	2 /	100 m pitch	=	857.5 m ³	
	Unit excavation/Backfilling Volume	857.5 m ³ /	172700	=	0.004965	m ³	
	Cobble Stone	0.004965 /	0.9 loss =	0.005517			
* 3 :	Spreading by Swamp Bull	100 m ³ x	1.2 (L) x	0.9 (C) =		108 m ³	
* 4 :	Banking	52808 m ³	from Construction Planning				
	Unit Volume	52808 /	172700	=	0.305779	m ³	
	Soil	(52808	-	857.5)/		0.9 loss =	57722.77778 m ³
	Unit Volume	57722.78 /	172700	=	0.334237	m ³	
* 5 :	Labor Rate and Cement:	Cement : 70 kg/m ³ is necessary					
	Labor :	2 person/party for Spreading at 50kg (1bag) of cement					
		It takes 10 minutes.					
	Hence,	70 kg/m ³ /	50 kg/bag x	2 person/party			
	x	10 minutes /	60 minutes/hour /	7 hours/day			
	=	0.066667	person/m ³				
* 6 :	Mixing	$Q = \frac{60 \times q \times E}{Cm}$ (m ³ /hour)	Cm = (0.027	x	30 m +		
		q = 3 m wide x	0.79 x	3 round =	4.8 minutes		
		146.25 m ³ /hour	Hence, Tm =	0.006837607	hour/m ³	18 m ³ /time	
* 7 :	Final Spreading	500 m x	350 m x	0.2 m depth =	35000 m ³		
		35000 m ³ /	172700	=	0.202664	m ³	
* 8 :	Water Proof Sheet for Disposal Site :	82167 m ² /	172700 m ³ =	0.475778807			
	including Drain Pipe and	Foreman :	3 persons x	5 days/	172700	m ³ =	8.68558E-05
	Coarse Sand	Common Labor :	10 persons x	5 days/	172700	m ³ =	0.000289519
* 9 :	Spreading for Disposal Site :	139440 m ²	from Construction Planning /	172700	m ³ =	0.807411697	
* 10 :	Slope Clearing :	5907 m ²	from Construction Planning /	172700	m ³ =	0.034203822	
* 11 :	Drain Pipe :	300 m	from Construction Planning /	172700	m ³ =	0.001737116	
* 12 :	Coarse Sand :	37562 m ³ (from Construction Planning) /	172700	m ³ =	0.217498552		
Reservoir Pit	* 13 :	Excavation :	1766 m ³ (from Construction Planning) /	172700	m ³ =	0.010225825	
	* 14 :	Concrete :	602.5 m ³ (from Construction Planning) /	172700	m ³ =	0.003488709	
	* 15 :	Formwork :	550 m ² (from Construction Planning) /	172700	m ³ =	0.003184713	
	* 16 :	Reinforcing Bar :	12050 kg (from Construction Planning) /	172700	m ³ =	0.069774175	
	* 17 :	Backfilling Gravel :	97 m ³ (from Construction Planning) /	172700	m ³ =	0.000561668	
	* 18 :	Backfilling :	228 m ³ (from Construction Planning) /	172700	m ³ =	0.001320208	

Table 4.2.5 (85/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name	Calculation Quantity	Remarks								
U-P3-Bq-17	Channel Excavation below Water Level including hauling and treatment of contaminated soil	100 m ³									
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment											
	A-2-1-84	Tugboat; 15 ton	hourly	1.17	129433.1	4440	140042.2	151,437	5,195	163,849	from Ship
	A-2-2-41	Drifter Air Type : 150kg class	daily	4.99	257007.1	0	88827.32	1,282,465	0	443,248	from Ship
	A-2-2-37	Pontoon Barge; 100 ton	daily	1.17	314821.3	0	237790.6	368,341	0	278,215	from Ship
	A-2-1-7	Backhoe; 0.6 m ³	hourly	2.82	125542.9	2040	90965.08	354,031	5,753	256,522	for Transportation
	A-2-1-1	Backhoe; 2 m ³ Long Arm	hourly	1.17	512435	4440	355749.2	599,549	5,195	416,227	from Ship
Labour											
	L-2-1	Foreman	day	0.008686	0	0	48800	0	0	424	for water proof sheet
	L-2-23	Common Labour	day	0.028952	0	0	35100	0	0	1,016	for water proof sheet
	L-2-1	Foreman	day	0.17	0	0	48800	0	0	8,296	for Excavation by ship
	L-2-23	Common Labour	day	0.34	0	0	35100	0	0	11,934	for Excavation by ship
Equipment											
	A-2-1-48	Dumptruck; 10 ton	hourly	13.66	77269	3060	70744.12	1,055,494	41,800	966,365	from Hauling
	A-2-2-2	Stabilizer	hourly	0.683761	743275.5	1092	502607.8	508,223	747	343,663	for Mixing
Labour											
	L-2-23	Common Labour	day	6.666667	0	0	35100	0	0	234,000	for Spreading of Concrete
Material											
		Drain Pipe	m	0.173712	108000	0	12000	18,761	0	2,085	for Disposal Site
		Water Proof Sheet for Disposal Site	m ²	44.9	27000	0	3000	1,212,300	0	134,700	for Disposal Site
		Water Proof Sheet for Dump Truck	sheet	0.347423	0	0	50000	0	0	17,371	for Hauling
	M-B-3	Sand for Mortar (Masonry)	m ³	21.74986	0	2250	42750	0	48,937	929,806	for Backfill of Drain
	M-C-1	Portland Cement	kg	7000	0	100	400	0	700,000	2,800,000	for Backfill of Drain
	M-B-5	Cobble Stone	m ³	0.496526	0	1850	35150	0	919	17,453	for Backfill of Drain
	M-B-13	Solid Soil	m ³	33.42373	0	600	11400	0	20,054	381,030	for Banking
Working Base Cost											
	CW-1-64	Excavation by Backhoe 0.35m ³	m ³	0.496526	2687.773	45.24	1953.753	1,335	22	970	for Excavation
	CW-1-64	Excavation by Backhoe 0.35m ³	m ³	0.551695	2687.773	45.24	1953.753	1,483	25	1,078	for Backfill
	CW-1-65	Spreading by Swamp Bulldozer	m ³	108	4284.32	54.264	4047.348	462,707	5,861	437,114	for Spreading
	CW-1-5	Spreading A	m ³	80.74117	2941	35	2823	237,460	2,826	227,932	for Disposal Site
		Slope Clearing for									
	CW-1-10	Embankment 2	m ²	3.420382	3265	54	2660	11,168	185	9,098	for Disposal Site
	CW-1-5	Spreading A	m ³	19.12568	2941	35	2823	56,249	669	53,992	for Final Spreading
	CW-1-1	Backfill (Soil) A	m ³	30.57788	6076	87	5043	185,791	2,660	154,204	for Banking
		Spreading and Compaction for									
	CW-1-58	Earth Filling	m ³	30.57788	2833.803	36.252	2632.618	86,652	1,109	80,500	for Banking
	CW-1-47	Excavation B	m ³	1.022583	2951	48	2138	3,018	49	2,186	for Pit
		Concrete Work for Small									
	CW-1-21	Structure : Type-D	m ³	0.348871	120	42570	193500	42	14,851	67,507	for Pit
	CW-1-23	Form Work A	m ²	0.318471	60	0	44798	19	0	14,267	for Pit
	CW-1-29	Reinforcing Bar Setup 1	t	0.006977	0	3120900	3325100	0	21,776	23,201	for Pit
	CW-1-15	Gravel Bedding	m ³	0.056167	0	1360	31260	0	76	1,756	for Pit
	CW-1-2	Backfill (Soil) B	m ³	0.132021	7022	103	6326	927	14	835	for Pit
Indirect Cost											
Site Expense			%	15	0.8		0.2	1,914,842	0	478,710	
Profit and Overhead Cost			%	10	0.8		0.2	1,468,045	0	367,011	
Miscellaneous			L.S.					64	78	35	
Total for 100 m³								9,980,400	878,800	9,326,600	
Unit Cost for 1 m³								99,804	8,788	93,266	

Table 4.2.5 (86/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

* 1 :	Dump Truck for Hauling:	107 m ³	/	6.5 m ³ /truck	=	16.46 Truck
		10 km/rd /	20 km/hr	+	20 mnts(loss)=	0.83 hours
		16.46 Truck	x	0.83 hours	=	13.66 hours
	Water Proof Sheet	10 m ² /truckx	20 trucks x	3 changes =		600
	Unit Quantity	600 m ² /	172700	=	0.003474	m ³
* 2 :	Excavation/Backfill by Backhoe 0.35m ³ for construction of drain					
	Dimension of Drain	0.5 m wide x	0.5 m depthx(490	x	350)m length
		x	2 /	100 m pitch	=	857.5 m ³
	Unit excavation/Backfilling Volume	857.5 m ³ /	172700	=	0.004965	m ³
	Cobble Stone	0.004965 /	0.9 loss =	0.005517		
* 3 :	Spreading by Swamp Bull	100 m ³ x	1.2 (L) x	0.9 (C) =		108 m ³
* 4 :	Banking	52808 m ³	from Construction Planning			
	Unit Volume	52808 /	172700	=	0.305779	m ³
	Soil	(52808	-	857.5) /		0.9 loss = 57722.77778 m ³
	Unit Volume	57722.78 /	172700	=	0.334237	m ³
* 5 :	Labor Rate and Cement:	Cement : 70 kg/m ³ is necessary				
	Labor :	2 person/party for Spreading at 50kg (1bag) of cement				
		It takes 10 minutes.				
	Hence,	70 kg/m ³ /	50 kg/bag x	2 person/party		
	x	10 minutes /	60 minutes/hour /	7 hours/day		
	=	0.066667 person/m ³				
* 6 :	Mixing	Q = $\frac{60 \times q \times E}{Cm}$ (m ³ /hour)	Cm = (0.027	x	30 m +	
		q = 3 m wide x	0.2 m depth x	3 round =	4.8 minutes	
		Q = 146.25 m ³ /hour	Hence, Tm =	0.006837607 hour/m ³	18 m ³ /time	
* 7 :	Final Spreading	500 m x	350 m x	0.2 m depth =		35000 m ³
		35000 m ³ /	183000	=	0.191257	m ³
* 8 :	Backhoe & Tagboat & Pontoon	1 hour = 3600	q = 1.9	f = 1		
	Q = 1hour x q x f x E / Cm (m ³ /hr)	E = work efficiency = 0.5	Cm = 40			Q = 85.5
	Hence, Driving Time =	100 m ³ /	85.5	=	1.17	hour/100m ³
				=	0.17	day/100m ³
* 9 :	Backhoe for Transportation	1 hour = 3600	q = 0.59	f = 0.833333333		
	Q = 1hour x q x f x E / Cm (m ³ /hr)	E = work efficiency = 0.6	Cm = 30			Q = 35.4
	Hence, Driving Time =	100 m ³ /	35.4	=	2.82	hour/100m ³
* 10 :	Snail Carriage Ship:	1.17 hour +	2.82 hour +	1 hour for Moving =		4.99 day/100m ³
* 11 :	Labor Rate :	Foreman : 1 person/party	Hence,	0.17		
		Common Labor : 2 person/party	Hence,	0.34		
* 12 :	Water Proof Sheet for Disposal Site :	82167 m ² /	183000 m ³ =	0.449		
	including Drain Pipe and	Foreman : 3 persons x	5 days /	172700	m ³ =	8.68558E-05
	Coarse Sand	Common Labor : 10 persons x	5 days /	172700	m ³ =	0.000289519
* 13 :	Spreading for Disposal Site :	139440 m ²	from Construction Planning /	172700	m ³ =	0.807411697
* 14 :	Slope Clearing :	5907 m ²	from Construction Planning /	172700	m ³ =	0.034203822
* 15 :	Drain Pipe :	300 m	from Construction Planning /	172700	m ³ =	0.001737116
* 16 :	Coarse Sand :	37562 m ³ (from Construction Planning) /	172700	m ³ =	0.217498552	
Reservoir Pit	* 17 :	Excavation :	1766 m ³ (from Construction Planning) /	172700	m ³ =	0.010225825
	* 18 :	Concrete :	602.5 m ³ (from Construction Planning) /	172700	m ³ =	0.003488709
	* 19 :	Formwork :	550 m ² (from Construction Planning) /	172700	m ³ =	0.003184713
	* 20 :	Reinforcing Bar :	12050 kg (from Construction Planning) /	172700	m ³ =	0.069774175
	* 21 :	Backfilling Gravel :	97 m ³ (from Construction Planning) /	172700	m ³ =	0.000561668
	* 22 :	Backfilling :	228 m ³ (from Construction Planning) /	172700	m ³ =	0.001320208
U-P3-Bq-18	Stripping of Top Soil	is equal unit cost with U-P2-Bq-28.				
U-P3-Bq-19	Embankment	is equal unit cost with U-P2-Bq-29.				
U-P3-Bq-21	Structural Excavation	is equal unit cost with U-P1-Bq-16.				
U-P3-Bq-22	Backfill with Cobble	is equal unit cost with U-P2-Bq-21.				
U-P3-Bq-23	Backfill with Gravel	is equal unit cost with U-P2-Bq-22.				
U-P3-Bq-24	Backfill with Sandy Soil	is equal unit cost with U-P2-Bq-23.				

Table 4.2.5 (87/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name		Calculation Quantity			Remarks						
U-P3-Bq-25	Concrete, Type C1 including Formwork		10 m3									
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks	
					PF/C	IF/C	L/C	PF/C	IF/C	L/C		
Direct Cost												
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168		
Working Base Cost												
	CW-1-23	Form Work A	m2	54.92	60	0	44798	3,295	0	2,460,280		
	CW-2-40	Breaking-up the Concrete Form	m2	54.92	0	0	3700	0	0	203,202		
	CW-1-20	Concrete Work for Reinforced Concrete C1 by Pump	m3	10	20270	41770	183330	202,700	417,700	1,833,300		
Indirect Cost												
Site Expense			%	15	0.8		0.2	665,255	0	166,314		
Profit and Overhead Cost			%	10	0.8		0.2	510,029	0	127,507		
		Miscellaneous	L.S.					89	89	29	Round Up	
Total for		10 m3						1,616,800	422,500	4,973,800		
Unit Cost for		1 m3						161,680	42,250	497,380		

*1: Total Concrete Volume : 1303 m3
 *2: Total Formwork Area : 7156 m2
 Average Formwork Area : 54.92 m2/unit m3
 *3: Truck Mixer : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

ID No.	Working Name		Calculation Quantity			Remarks						
U-P3-Bq-26	Concrete, Type E including Formwork		10 m3									
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks	
					PF/C	IF/C	L/C	PF/C	IF/C	L/C		
Direct Cost												
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168		
Working Base Cost												
	CW-1-28	Form Work F	m2	34.22857	0	0	36510	0	0	1,249,685		
	CW-1-22	Concrete Work for Levelling Concrete	m3	10	120	37130	158740	1,200	371,300	1,587,400		
Indirect Cost												
Site Expense			%	15	0.8		0.2	435,948	0	108,987		
Profit and Overhead Cost			%	10	0.8		0.2	334,227	0	83,557		
		Miscellaneous	L.S.					93	89	3	Round Up	
Total for		10 m3						1,006,900	376,100	3,212,800		
Unit Cost for		1 m3						100,690	37,610	321,280		

*1: Form Work Area : Total Form work area / Concrete Volume = Form Work Area m2 / concrete 1m3
 1198 / 350 = 3.422857 m2/m3

*2: Dump Truck : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

U-P3-Bq-27 Deformed Reinforcing Bars

U-P3-Bq-28 Wet Stone Masonry is equal unit cost with U-P1-Bq-20.

U-P3-Bq-29 Pointing is equal unit cost with U-P1-Bq-23.

U-P3-Bq-30 Weep Hole, Dia. 50 mm is equal unit cost with U-P2-Bq-29.

U-P3-Bq-32 Furnishing and Driving PC Sheet Pile (t=220 mm) is equal unit cost with U-P2-Bq-33.

Table 4.2.5 (88/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name		Calculation Quantity			Remarks					
U-P3-Bq-33	Concrete, Type C1 including Formwork		10 m3								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.17	77957.88	1560	60651.61	247,126	4,945	192,266	
Working Base Cost											
	CW-1-23	Form Work A	m2	62.50	60	0	44798	3,750	0	2,799,875	
	CW-2-40	Breaking-up the Concrete Form	m2	62.50	0	0	3700	0	0	231,250	
	CW-1-60	Concrete Work for Type-C by Shoot Hopper	m3	10	120	43660	197860	1,200	436,600	1,978,600	
Indirect Cost											
Site Expense			%	15	0.8		0.2	707,473	0	176,868	
Profit and Overhead Cost			%	10	0.8		0.2	542,396	0	135,599	
		Miscellaneous	L.S.					54	55	42	Round Up
Total for		10 m3						1,502,000	441,600	5,514,500	
Unit Cost for		1 m3						150,200	44,160	551,450	

*1: Total Concrete Volume : 8 m3
 *2: Total Formwork Area : 50 m2
 Average Formwork Area : 62.50000 m2/unit m3
 *3: Truck Mixer : 10.7 m3 / 4.5 m3/truck = 2.38 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.38 Truck x 1.33 hours = 3.17 hours

- U-P3-Bq-34 Deformed Reinforcing Bars
- U-P3-Bq-41.1 Sand Bedding is equal unit cost with U-P1-Bq-19.
- U-P3-Bq-41.2 Concrete Block Pavement
- U-P3-Bq-41.3 Cement Mortar
- U-P3-Bq-41.4 Concrete Kerb is equal unit cost with U-P1-Bq-33.4.
- U-P3-Bq-43 Structural Excavation is equal unit cost with U-P1-Bq-16.
- U-P3-Bq-44 Backfill is equal unit cost with U-P2-Bq-122.
- U-P3-Bq-45 Chipping of Existing Concrete Surface is equal unit cost with U-P1-Bq-18.

ID No.	Working Name		Calculation Quantity			Remarks					
U-P3-Bq-46	Concrete, Type C1 including Formwork		10 m3								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.17	77957.88	1560	60651.61	247,126	4,945	192,266	
Working Base Cost											
	CW-1-23	Form Work A	m2	10.28	60	0	44798	617	0	460,424	
	CW-2-40	Breaking-up the Concrete Form	m2	10.28	0	0	3700	0	0	38,028	
	CW-1-60	Concrete Work for Type-C by Shoot Hopper	m3	10	120	43660	197860	1,200	436,600	1,978,600	
Indirect Cost											
Site Expense			%	15	0.8		0.2	403,177	0	100,794	
Profit and Overhead Cost			%	10	0.8		0.2	309,102	0	77,276	
		Miscellaneous	L.S.					78	55	13	Round Up
Total for		10 m3						961,300	441,600	2,847,400	
Unit Cost for		1 m3						96,130	44,160	284,740	

*1: Total Concrete Volume : 36 m3
 *2: Total Formwork Area : 37 m2
 Average Formwork Area : 10.27778 m2/unit m3
 *3: Truck Mixer : 10.7 m3 / 4.5 m3/truck = 2.38 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.38 Truck x 1.33 hours = 3.17 hours

Table 4.2.5 (89/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name	Calculation Quantity	Remarks								
U-P3-Bq-47	Concrete, Type E including Formwork	10 m3									
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
Direct Cost					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168	
Working Base Cost	CW-1-28	Form Work F	m2	10	0	0	36510	0	0	365,100	
	CW-1-22	Concrete Work for Levelling Concrete	m3	10	120	37130	158740	1,200	371,300	1,587,400	
Indirect Cost											
Site Expense			%	15	0.8		0.2	329,797	0	82,449	
Profit and Overhead Cost			%	10	0.8		0.2	252,845	0	63,211	
		Miscellaneous	L.S.					25	89	72	Round Up
Total for		10 m3						819,300	376,100	2,281,400	
Unit Cost for		1 m3						81,930	37,610	228,140	

*1 : Form Work Area : Total Form work area / Concrete Volume = From Work Area m2 / concrete 1m3

*2 : Dump Truck : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss)= 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

U-P3-Bq-48 Deformed Reinforcing Bars

U-P3-Bq-49 Furnishing and Driving Steel Sheet Pile, Type II is equal unit cost with U-P2-Bq-63.

ID No. Working Name Calculation Quantity Remarks
 U-P3-Bq-50 Coffering and Dewatering 1 L.S.

Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
Direct Cost					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Working Base Cost	CW-4-7	Sand Bags	nos	226	88.5375	758.9625	4199.663	20,009	171,526	949,124	
	CW-4-21	Temporary Dewatering by D200mm	day	60	353884.4	15124	251251.1	21,233,066	907,440	15,075,066	
Indirect Cost											
Site Expense			%	15	0.8		0.2	4,602,748	0	1,150,687	
Profit and Overhead Cost			%	10	0.8		0.2	3,528,773	0	882,193	
		Miscellaneous	L.S.					3	34	30	
Total for		1 L.S.						29,384,600	1,079,000	18,057,100	
Unit Cost for		1 L.S.						29,384,600	1,079,000	18,057,100	

*1 : Total Number of Sand Bags : 226 nos. from Construction Planning

*2 : D200mm 1 month x 30 days x 2 set = 60

U-P3-Bq-52 Structural Excavation is equal unit cost with U-P1-Bq-16.

U-P3-Bq-53 Backfill with Sandy Soil is equal unit cost with U-P2-Bq-23.

Table 4.2.5 (90/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.	Working Name		Calculation Quantity							Remarks	
U-P3-Bq-54	Concrete, Type C1 including Formwork, Scaffolding and Falsework		10 m ³								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m ³	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-24	Form Work B	m ²	38.48	10030	75	52910	386,003	2,886	2,036,233	
	CW-2-40	Breaking-up the Concrete Form	m ²	38.48	0	0	3700	0	0	142,394	
	CW-1-42	Tablar Scaffold for Re-Con IV	m ²	32.12121	24970	70	23610	802,067	2,248	758,382	
	CW-1-44	Frame Support	m ³	6.060606	11370	50	22310	68,909	303	135,212	
	CW-1-20	Concrete Work for Reinforced Concrete C1 by Pump	m ³	10	20270	41770	183330	202,700	417,700	1,833,300	
Indirect Cost											
Site Expense			%	15	0.8		0.2	865,398	0	216,349	
Profit and Overhead Cost			%	10	0.8		0.2	663,472	0	165,868	
		Miscellaneous	L.S.					19	51	94	Round Up
Total for		10 m ³						3,224,000	427,900	5,471,000	
Unit Cost for		1 m ³						322,400	42,790	547,100	

*1: Total Concrete Volume : 33 m³
 *2: Total Scaffolding Area : 106 m² Total Supporting Volume : 20 m³
 Average Scaffolding Area : 32.12121 m²/unit m³ Average Supporting Volume : 6.060606061 m³/unit m³
 Total Formwork Area : 127 m²
 Average Formwork Area : 38.48485 m²/unit m³
 *3: Truck Mixer : 10.2 m³ / 4.5 m³/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

ID No.	Working Name		Calculation Quantity							Remarks	
U-P3-Bq-55	Concrete, Type E including Formwork		10 m ³								
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m ³	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-28	Form Work F	m ²	10	0	0	36510	0	0	365,100	
	CW-1-22	Concrete Work for Levelling Concrete	m ³	10	120	37130	158740	1,200	371,300	1,587,400	
Indirect Cost											
Site Expense			%	15	0.8		0.2	329,797	0	82,449	
Profit and Overhead Cost			%	10	0.8		0.2	252,845	0	63,211	
		Miscellaneous	L.S.					25	89	72	Round Up
Total for		10 m ³						819,300	376,100	2,281,400	
Unit Cost for		1 m ³						81,930	37,610	228,140	

*1: Form Work Area : Total Form work area / Concrete Volume = Form Work Area m² / concrete 1m³
 2 / 2 = 1 m²/m³
 *2: Dump Truck : 10.2 m³ / 4.5 m³/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss) = 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

U-P3-Bq-56 Deformed Reinforcing Bars

U-P3-Bq-57 Wet Stone Masonry is equal unit cost with U-P1-Bq-20.

U-P3-Bq-63 Structural Excavation is equal unit cost with U-P1-Bq-16.

U-P3-Bq-64 Backfill is equal unit cost with U-P2-Bq-122.

Table 4.2.5 (91/119) CALCULATION SHEET FOR UNIT COST OF EACH PAYMENT ITEM OF THREE PACKAGES

ID No.		Working Name			Calculation Quantity			Remarks			
U-P3-Bq-65		Concrete, Type C1 including Formwork, Scaffolding and Falsework			10 m3						
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-24	Form Work B	m2	42.50	10030	75	52910	426,275	3,188	2,248,675	
	CW-2-40	Breaking-up the Concrete Form	m2	42.50	0	0	3700	0	0	157,250	
	CW-1-42	Tublar Scaffold for Re-Con IV	m2	32.14286	24970	70	23610	802,607	2,250	758,893	
	CW-1-44	Frame Support	m3	11.07143	11370	50	22310	125,882	554	247,004	
	CW-1-20	Concrete Work for Reinforced Concrete C1 by Pump	m3	10	20270	41770	183330	202,700	417,700	1,833,300	
Indirect Cost											
Site Expense			%	15	0.8		0.2	917,951	0	229,488	
Profit and Overhead Cost			%	10	0.8		0.2	703,762	0	175,941	
		Miscellaneous	L.S.					90	98	83	Round Up
Total for	10 m3							3,414,700	428,500	5,833,800	
Unit Cost for	1 m3							341,470	42,850	583,380	

*1 : Total Concrete Volume : 28 m3
 *2 : Total Scaffolding Area : 90 m2 Total Supporting Volume : 31 m3
 Average Scaffolding Area : 32.14286 m2/unit m3 Average Supporting Volume : 11.07142857 m3/unit m3
 Total Formwork Area : 119 m2
 Average Formwork Area : 42.50000 m2/unit m3
 *3 : Truck Mixer : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss)= 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

ID No.		Working Name			Calculation Quantity			Remarks			
U-P3-Bq-66		Concrete, Type E including Formwork			10 m3						
Major Item	ID No.	Description	Unit	Quantity	Unit Cost			Cost			Remarks
					PF/C	IF/C	L/C	PF/C	IF/C	L/C	
Direct Cost											
Equipment	A-2-1-79	Truck Mixer; 4.5 m3	hourly	3.02	77957.88	1560	60651.61	235,433	4,711	183,168	
Working Base Cost											
	CW-1-28	Form Work F	m2	20	0	0	36510	0	0	730,200	
	CW-1-22	Concrete Work for Levelling Concrete	m3	10	120	37130	158740	1,200	371,300	1,587,400	
Indirect Cost											
Site Expense			%	15	0.8		0.2	373,609	0	93,402	
Profit and Overhead Cost			%	10	0.8		0.2	286,434	0	71,608	
		Miscellaneous	L.S.					24	89	21	Round Up
Total for	10 m3							896,700	376,100	2,665,800	
Unit Cost for	1 m3							89,670	37,610	266,580	

*1 : Form Work Area : Total Form work area / Concrete Volume = From Work Area m2 / concrete 1m3
 4 / 2 = 2 m2/m3

*2 : Dump Truck : 10.2 m3 / 4.5 m3/truck = 2.27 Truck
 10 km/rnd / 30 km/hr + 60 mnts(loss)= 1.33 hours
 2.27 Truck x 1.33 hours = 3.02 hours

U-P3-Bq-67 Deformed Reinforcing Bars

U-P3-Bq-69 Structural Excavation is equal unit cost with U-P1-Bq-16.

U-P3-Bq-70 Backfill is equal unit cost with U-P2-Bq-122.