APPENDIX

INPUT DATA

Appendix A-1 FOR ESTIMATION OF THE PRODUCER'S SURPLUS BENEFIT

PRV. : KALIMANTAN TIMUR KAB. : BULUNGAN SURVEY YEAR : 1983

Code No.	KECAMATAN NAME	CULTIVATED AREA : (PA)	YIELD RATE : (Y)	FARMER'S POPULATION : (AP)	CIRCULATED COMMODITY : (PG)
01	KAYAN HULU	661	1.59	2,310	0
02	KAYAN HILIR	932	1.60	800	0
03	PUJUNGAN	693	1.61	1,200	0
04	MALINAU	1,851	2.90	6,230	0
05	LONG PESO	807	1.72	2,000	0
06	TANJUNG PALAS	5,758	2.04	6,100	0
07	TARAKAN	15	1.60	820	0
08	SESAYAP	871	2.02	1,040	0
09	SEMBAKUNG	920	1.93	1,630	0
10	MENTARANG	944	1.98	1,970	0
11	KERAYAN	2,731	2.15	2,200	0
12	LUMBIS	755	1.63	1,810	0
13	NUNUKAN	1,282	2.06	4,980	0

	r_1	r_2	r_3	r_4
ANNUAL AVERAGE % GROWTH RATE	4.0	2.7	5.5	5.1

FARMER'S CONSUMPTION : (Cp)	NON-AGRO REQUIRMENT : (NG)
0.15 Ton/head/year	0.04 Ton/ton

	SEDAN	BUS	TRUCK	MOTOR CYCLE
RATE OF EACH VEHICLE TYPE %	27.64	3.26	15.66	53.44

AVERAGE FREIGHT TONAGE	0.4 Ton/Truck

Appendix A-2 Engineering Data

ROAD LINK DATA

PROVINCE :Kalimantan Timur

KABUPATEN:Bulungan

LINK NO.	BEGINNING POINT (DESA NAME)	END POINT (DESA NAME)	LENGTH (KM)	THROUGH THE KEC. NAME & LENGTH		REMARKS
				KEC. NAME	LENGTH (KM)	
01	Tg.Palas	Pimping	25	Tanjung Palas	25	
02	Pimping	Sekatak Bengara	32	Tanjung Palas	20	
03	Sekatak Bengara	Sekatak Buji	24	Tanjung Palas	25	
04	Sekatak Buji	Betayau	24	Tanjung Palas Sesayap	10 25	
05	Betayau	Tideng Pale	12	Sesayap	35	
06	Sesayap	Tideng Pale	12	Sesayap	15	
07	Tideng Pale	Malinau	25	Sesayap Malinau	10 25	
08	Malinau	Tanjung Lapang	13	Malinau	13	
09	Tanjung Lapang	Pulau Sapi	3	Malinau	3	
10	Malinau Seberang	S a l a p	15	Malinau	10	
11	S a l a p	Mensalong	16	Malinau Lumbis	8 8	
12	Mensalong	A t a p	43	Lumbis Nunukan	15 25	
13	A m a l	Juata Laut	37	Tarakan	25	
14	Mamburungan	A m a l	4	Tarakan	6	
15	Gunung Sariang	Mara Ilir	40	Tanjung Palas	40	
16	Antutan	Pejalin	1	Tanjung Palas	25	
17	Main Road Bulungan/Berau	Mangkupadi	23	Tanjung Palas	25	
18	M a r a I	Long Beluah	15	Tanjung Palas	40	
19	Jelarai Selor	M a r a I	40	Nunukan	40	
20	Sungai Pancang	Sungai Taiwan	20	Nunukan	15	
21	Sungai Taiwan	Stabu-Liang Bunyu	15	Nunukan	15	
22	Sungai Bilal	Sungai Patima	15		15	
23	Selisun	Nunukan	3	Nunukan	3	
24	Bangsal Tengah	Pangkalan - Bunyu	10	Tarakan	10	

Please note the priority No. in the Remarks of this list for each links No. according to the each Kabupaten's development plan.

ROAD LINK DATA

PROVINCE Kalimantan Timur

KABUPATEN: Bulungan

LINK NO.	BEGINNING POINT (DESA NAME)	END POINT (DESA NAME)	LENGTH (KM)	THROUGH THE KEC. NAME & LENGTH		REMARKS
				KEC. NAME	LENGTH (KM)	
25	Sengkawit	Jelarai-Selor	5		5	
26	Tg.Harapan	Jelarai - Selor	5		5	
27	Jelarai - Selor	Gunung Seriang	7	Tanjung Palas	7.5	
28	Long Bawan	PA. Nado	14	Kayan	15	
29	Long Nawang	Long Ampung	20	Kayan Hulu	45	
30	Long Nawang	Long Lore	22	Kayan Hulu	60	
31	Tideng Pale	Sedulun	2	Sesayap	2	Dalam Kota
32	Gunung Belah	Sebengkok	2	Tarakan	2	Dalam Kota
33	Selumit	Sebengkok	1	Tarakan	1	Dalam Kota
34	Jl. Akbar	Tanah Seribu	2	N.I	2	Dalam Kota
35	Jl.H.Mansyur	Jl.Akbar	2	N.I	2	Dalam Kota
36	Jl.M.T.Haryono	R.S.U. S.Buaya	5	N.I	5	Dalam Kota
37	Jl.Suprapto	Jl.Kuburan	1	N.I	1	Dalam Kota
38	Tanah Seribu	Sengkawit	2	N.I	2	Dalam Kota
39	Agatis	K.N.P.I	1	N.I	1	Dalam Kota
40	Tg.Harapan	PAM S.Buaya	1	N.I	1	Dalam Kota
41	Tg.Harapan	Kapling Pegawai	1	N.I	1	Dalam Kota
42	Tg.Palas Ilir	Tg.Palas Ulu	4	N.I	4	Dalam Kota
43	KS.Tubun	Jl. PMD	1	N.I	1	Dalam Kota
44	Jl.Jalaluddin	Karang Jerawi	2	N.I	2	Dalam Kota
45	Karang Jerawi A	Karang Jerawi Selatan	1	N.I	1	Dalam Kota
46	Karang Jerawi B	Jl.Jalaluddin	3	N.I	3	Dalam Kota
47	Karang Jerawi A	G. Putih	1	N.I	1	Dalam Kota
48	G. Putih	Karang Anyar	1	N.I	1	Dalam Kota

Please note the priority No. in the Remarks of this list for each links No. according to the each Kabupaten's development plan.

ROAD LINK DATA

PROVINCE : Kalimantan Timur

KABUPATEN: Bulungan

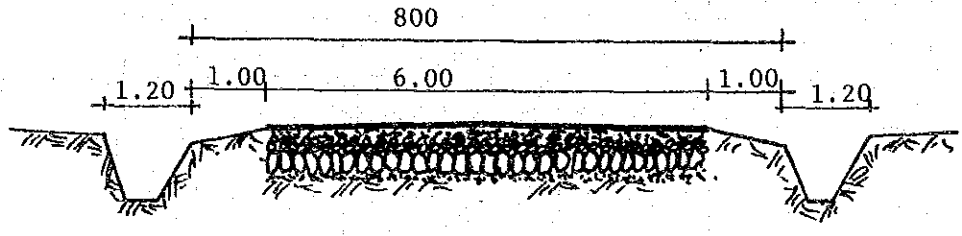
LINK NO.	BEGINNING POINT (DESA NAME)	END POINT (DESA NAME)	LENGTH (KM)	THROUGH THE KEC. NAME & LENGTH		REMARKS
				KEC. NAME	LENGTH (KM)	
49	Mesjid Tg. Palas	Karang Anyar	1	N.I	1	Dalam Kota
50	Iskandar Muda	Tg. Batu	1	N.I	1	Dalam Kota
51	Kecamatan Nunukan		4	N.I	4	Dalam Kota
52	Pelabuhan	Mambunut	5	N.I	5	Dalam Kota
53	Kampung Rel	Tanjung	1	N.I	1	Dalam Kota

Please note the priority No. in the Remarks of this list for each links No. according to the each Kabupaten's development plan.

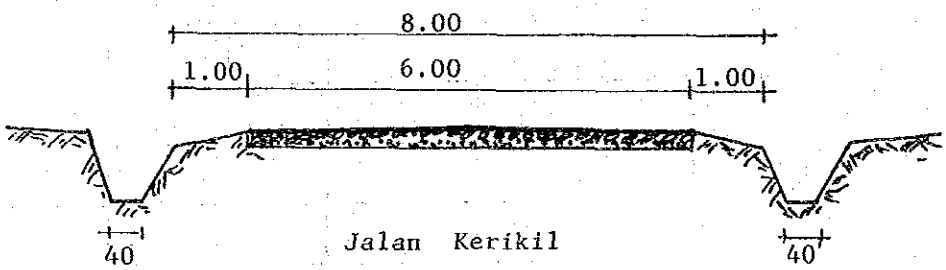
What Kind of Design Criteria has being applied for the new road construction and the improvement for the Kabupaten Road ?
Kriteria Perencanaan yang dipakai pada program penanganan jalan Kabupaten, baik untuk jalan lama maupun pembangunan baru.

Please draw the Typical Cross Section of the Kabupaten Road.
Buat gambar dan penjelasan dari: Typical cross section yang dipakai pada program penanganan jalan selama ini (baik untuk jalan lama, maupun pembangunan baru)

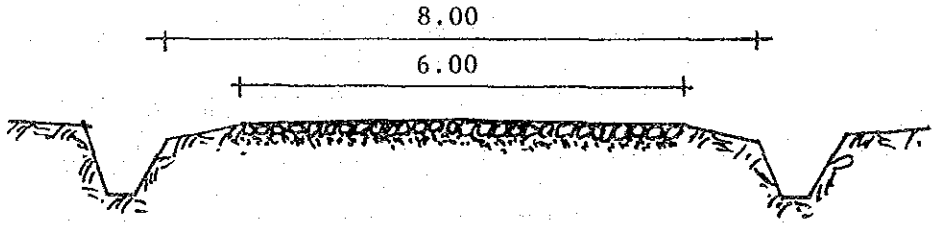
TYPICAL CROSS SECTION.



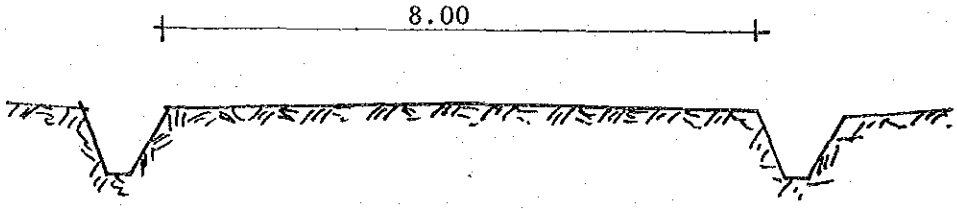
Jalan Asphalt



Jalan Kerikil



Jalan Makadam



Jalan Tanah

PROPINSI: Kalimantan Timur

E-03-(1)

KABUPATEN: Bulungan

LOCATION AND COSTS OF THE KABUPATEN ROADS CONSTRUCTED OR INPROVED IN 1980/1981

Biaya konstruksi penanganan jalan dan jembatan Kabupaten thn. 1980/1981

LINK NO. : Nomor Ruas	LOCATION From - To (dari - ke)	Lebar perkerasan(m) Lebar Jembatan	Type perkerasan Type Jembatan	LENGTH Panjang (KM)	COSTS Harga (Rp 10^6)	REMARKS Keterangan
11	Salap - Mensalong	3 4	Gravel Timber	17	167,599	

* PAVEMENT TYPE : Pls note the appropriate No. below.

1. : Asphalt surface / penetrasi macadam
2. : Asphalt seal / pelaburan aspal
3. : Gravel / kerikil
4. : Gravel /AWCAS / kerikil / japat

PROPINSI: Kalimantan Timur

KABUPATEN: Bulungan

LOCATION AND COSTS OF THE KABUPATEN ROADS CONSTRUCTED OR INPROVED IN 1981/1982

Biaya konstruksi penanganan jalan dan jembatan Kabupaten thn. 1981/1982

LINK NO. : Nomor Ruas	LOCATION From - To (dari - ke)	Lebar perkerasan(m) / Lebar Jembatan	Type perkerasan / Type Jembatan	LENGTH Panjang (KM)	COSTS Harga (Rp 10^6)	REMARKS Keterangan
15	Amal - Juata	4	Gravel	37	302,411	
		4	Timber			
26	Tg Harapan - Jl. Selor	5	Gravel	7.5	101,984	
		4	Timber			
8	Malinan Pelita - Kenaan Tg. Lapang	4	Gravel	5	41,945	
		4	Timber			

* PAVEMENT TYPE : Pls note the appropriate No. below.

1. : Asphalt surface / penetrasi macadam
2. : Asphalt seal / pelaburan aspal
3. : Gravel / kerikil
4. : Gravel /AWCAS / kerikil / japat

PROPINSI: Kalimantan Timur

E-03-(3)

KABUPATEN: Bulungan

LOCATION AND COSTS OF THE KABUPATEN ROADS CONSTRUCTED OR INPROVED IN 1982/1983

Biaya konstruksi penanganan jalan dan jembatan Kabupaten thn. 1982/1983

LINK NO : Nomor Ruas	LOCATION From - To (dari - ke)	Lebar perkerasan(m) / Lebar jembatan	Type perkerasan / Type jembatan	LENGTH Panjang (KM)	COSTS Harga (Rp 10^6)	REMARKS Keterangan
25	Sengkawit - Jelarai Selor	4	Gravel	5	53,060	
		4	Timber			
9	Tg. Lapang - Pulau Sapi	4	Gravel	2.5	24,384	
		4	Timber			
19	Jelapai Selor - Gunung-Seriang-Mara I/Mara Hilir	4	Gravel	40	377,544	
		4	Timber			
1	Tg. Palas - Pimping	4	Gravel	25	228,639	
		4	Timber			

* PAVEMENT TYPE : Pls note the appropriate No. below.

1. : Asphalt surface / penetrasi macadam
2. : Asphalt seal / pelaburan aspal
3. : Gravel / kerikil
4. : Gravel /AWCAS / kerikil / japat

PROPINSI: Kalimantan Timur

E-03-(4)

KABUPATEN: Bulungan

LOCATION AND COSTS OF THE KABUPATEN ROADS CONSTRUCTED OR INPROVED IN 1983/1984

Biaya konstruksi penanganan jalan dan jembatan Kabupaten thn. 1983/1984

LINK NO Nomor Ruas	LOCATION From - To (dari - ke)	Lebar perkerasan(m) / Lebar Jembatan	Type perkerasan / Type Jembatan	LENGTH Panjang (KM)	COSTS Harga (Rp 10^6)	REMARKS Keterangan
2	Pimping - Sekatak Bengara Tideng Pale	4	Gravel	35	317,411	
		4	Timber	-		
26	Tg. Harapan - Jelarai Selor	4	Telford	5.3	88,168	
		4	Timber	-		
14	Kamp. IV - Mamburungan Pantai Amal	5	Asphalt	1.2	59,303	
		4	Timber	-		
20	Sungai Pancang - Sungai Taiwan	4	Gravel	15	125,564	
		4	Timber	-		
23	Selisun	4	Gravel	3	32,554	
		4	Timber	-		

* PAVEMENT TYPE : Pls note the appropriate No. below.

1. : Asphalt surface / penetrasi macadam
2. : Asphalt seal / pelaburan aspal
3. : Gravel / kerikil
4. : Gravel /AWCAS / kerikil / japat

PROPINSI: Kalimantan Timur

KABUPATEN: Bulungan

E-03-(5)

LOCATION AND COSTS OF THE KABUPATEN ROADS CONSTRUCTED OR INPROVED IN 1984/1985

Biaya konstruksi penanganan jalan dan jembatan Kabupaten thn. 1984/1985

LINK NO Nomor Ruas	LOCATION From - To (dari - ke)	Lebar perkerasan(m) / Lebar Jembatan	Type perkerasan / Type Jembatan	LENGTH Panjang (KM)	COSTS Harga (Rp 10^6)	REMARKS Keterangan
3		4	Gravel	40	388,000	
		4	Timber			
21		4	Gravel	15	164,295	
		4	Timber			
10		4	Gravel	10	121,325	
		4	Timber			

* PAVEMENT TYPE : Pls note the appropriate No. below.

1. : Asphalt surface / penetrasi macadam
2. : Asphalt seal / pelaburan aspal
3. : Gravel / kerikil
4. : Gravel /AWCAS / kerikil / japat

PROPINSI : Kalimantan Timur

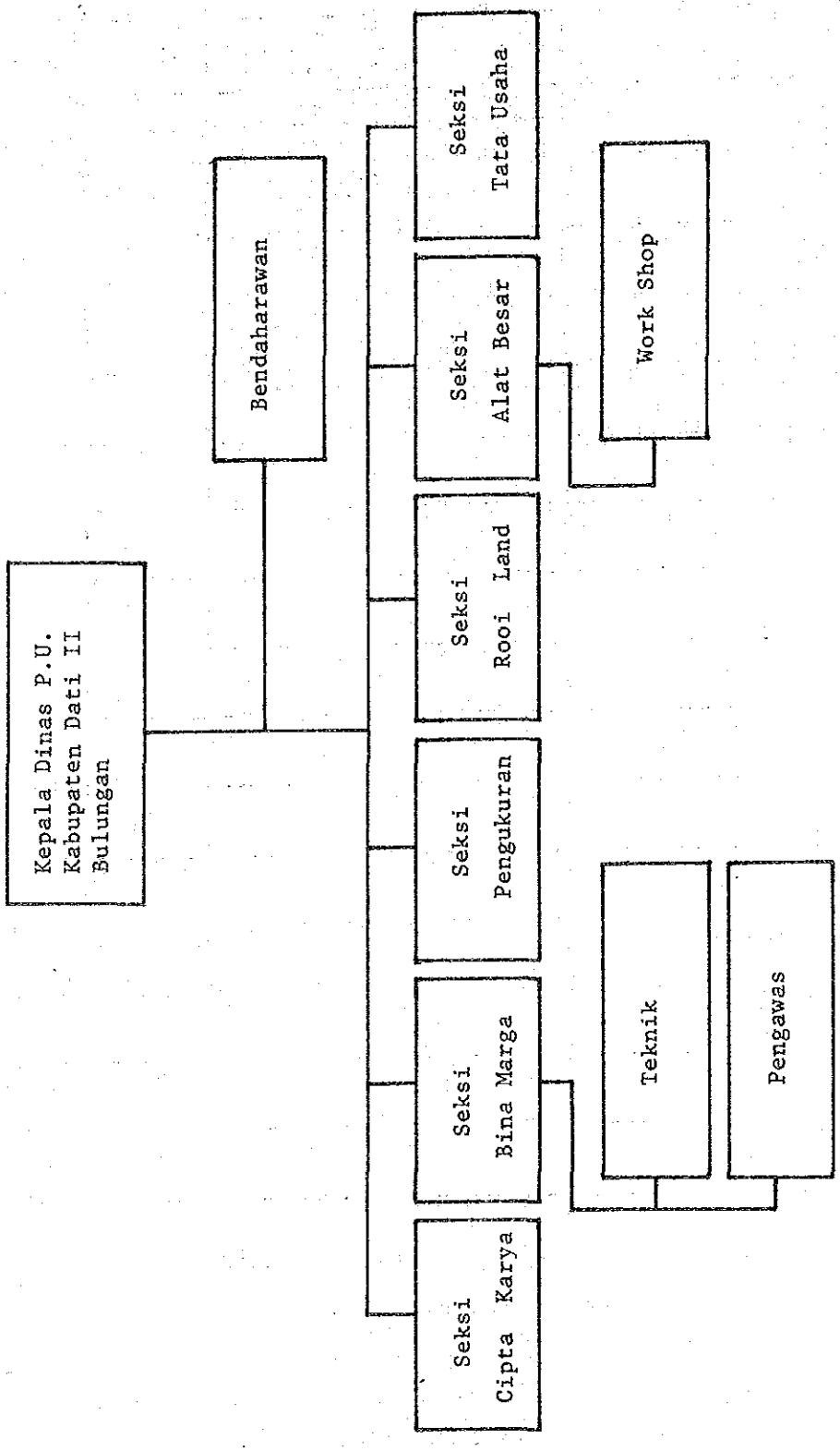
E-04

KABUPATEN: Bulungan

EXISTING ORGANIZATION IN KABUPATEN

Structur Organisasi yang ada dari P.U Kabupaten

Please draw the Cart of the Existing Organization in the Kabupaten.
Harap digambar bagan organisasi dari DPUK.



EXISTING STAFF RESOURCES OF BINA MARGA OF PU KABUPATEN

Tenaga Dinas PUK yang ada

PROPINSI: Kalimantan Timur

KABUPATEN: Bulungan

DESCRIPTION /Uraian	NUMBER / Jumlah	REMARKS Keterangan
CONTROLING STAFF Staff teknis PUK	(10)	(7)
DPUK ENGINEED Sarjana Teknik	-	-
ASSISTANT ENGINEER Sarjana Muda Teknik	1	-
TECHNICIAN STAFF Staff Teknik (STM)	9	7
ADMINISTRATION Tenaga Administrasi	5	-
SUPERVISOR Tenaga Pengawas	8	-
WORKING FORCE Tenaga Pelaksana Lapangan	(5)	(3)
OPERATORS Operators	3	3
DRIVERS Supir	2	-
MECHANICS Mechanic	-	-
TRADESMAN Tukang	-	-
L A B O U R Buruh / Pekerja	-	-
OTHERS Lain-lain	-	-
TOTAL / JUMLAH	28	10

Catatan ; Untuk kolom keterangan harap diisi berapa orang yang telah mendapat Training.

LOCATION AND AREA OF DPUK WORKSHOP

E-06

Lokasi Workshop DPUK

PROPINSI : Kalimantan Timur

KABUPATEN: Bulungan

LOCATION Lokasi	AREA (m2) Luas	NUMBER Jumlah	REMARKS Keterangan
Tg. Selor	138	1	-

PROPINSI: Kalimantan Timur

E-07

KABUPATEN: Bulungan

LAND ACQUISITION COST

Daftar harga pembebasan tanah

DESCRIPTION Uraian	UNIT Satuan	RATE (RP) Harga	REMARKS Keterangan
CITY/kota	M2	10,000	Berdasarkan S.K.
VILLAGE / desa	M2	5 ,000	Bupati KDH TK II
RICE FIELD/sawah	M2	3,000	Bulungan No. 55
DRY FIELD/ladang	M2	2,000	1981
MIX CROPS/panen	M2	2,000	Tgl 1 Desember 1981
FOREST/hutan	M2	300	
SWAMP / rawa	M2	300	
OTHERS / lain-lain	M2	200	

PROPINSI: Kalimantan Timur

KABUPATEN: Bulungan

E-08

Classification of local contractors at Kabupaten level.
Klasifikasi kontraktor di Kabupaten

COMPANY NAME Nama Kontraktor	CLASS Kelas	CAPITAL Modal (Rp)	NUMBER OF EMPLOYEE Jumlah pegawai	REMARKS Keterangan
3	A2	243.000.000	14	
7	B1	127.714.000	13	
10	B2	62.700.000	10	
5	C1	38.100.000	8	

NOTE: DATI II

PROPINSI: Kalimantan Timur

KABUPATEN: Bulungan

E-09

LIST OF EXISTING EQUIPMENT OF LOCAL CONTRACTOR

Name of contractor

NAME OF EQUIPMENT Jenis peralatan	EXISTING CONDITION/ Kondisi Peralatan						REQUIRE - MENT / Kebutuhan peralatan baru
	TYPE/ Tipe	P.Y	NUMBER / Jumlah			REASON OF BAD CONDITION/Sebab Kerusakan	
			GOOD Baik	BAD Rusak	TOTAL Jumlah		
Bulldozer	D.8.	1970	Baik	-	5	-	-
Motor Grader	125 HP.	1975	Baik	-	2	-	-
Tyre Roller	-	-	-	-	-	-	-
Steel Whell Roller	8-15 Ton	1975	Baik	-	1	-	-
Vibration Roller	3 Ton	1980	Baik	-	2	-	-
Wheel Loader	95 HP	1975	Baik	-	1	-	-
Front End Loader and Backhoe	-	-	-	-	-	-	-
Mobile Crane	-	-	-	-	-	-	-
Concrete Mixer	-	-	-	-	-	-	-
Stone Crusher	-	1974	Baik	-	3	-	-
Portable Compressor	-	-	-	-	-	-	-
Hydraulic Excavator	-	-	-	-	-	-	-
Asphalt Paving Machine	-	-	-	-	-	-	-
Asphalt Sprayer	-	1981	Baik	-	2	-	-
Asphalt Mixing Machine	-	-	-	-	-	-	-
Mobile Workshop	-	-	-	-	-	-	-
Mechanic Rammer	-	-	-	-	-	-	-
Plate Tamper	-	-	-	-	-	-	-
Pile Driver	-	-	-	-	-	-	-
Leg Drill	-	-	-	-	-	-	-
Hand Hammer	-	1980	Baik	-	20	-	-
Farm Tractor	-	-	-	-	-	-	-
Dump Truck	Mitsubisi	1980	Baik	-	8	-	-
Water Tank Truck	-	1982	Baik	-	2	-	-
Fuel Tank Truck	-	-	-	-	-	-	-
Pick Up	Toyota	1981	Baik	-	10	-	-
Jeep	Toyota	1980	Baik	-	5	-	-
Motorcycle	Yamaha	1981	Baik	-	40	-	-
Generator	7,5 KVA	1979	Baik	-	10	-	-
Water Pump	3,5 HP	1980	Baik	-	10	-	-
Others	5 KVA	1981	Baik	-	5	-	-

PROPINSI: Kalimantan Timur

KABUPATEN: Bulungan

LIST OF EXISTING EQUIPMENT OF P.U KABUPATEN

NAME OF EQUIPMENT Jenis peralatan	EXISTING CONDITION/ Kondisi Peralatan						REQUIRE - MENT / Kebutuhan peralatan baru
	TYPE/ Tipe	P.Y	NUMBER / Jumlah			REASON OF BAD CONDITION/Sebab Kerusakan	
			GOOD Baik	BAD Rusak	TOTAL Jumlah		
Bulldozer							
Motor Grader							
Tyre Roller							
Steel Whell Roller							
Vibration Roller							
Wheel Loader							
Front End Loader and Backhoe							
Mobile Crane							
Concrete Mixer							
Stone Crusher							
Portable Compressor							
Hydraulic Excavator							
Asphalt Paving Machine							
Asphalt Sprayer							
Asphalt Mixing Machine							
Mobile Workshop							
Mechanic Rammer							
Plate Tamper							
Pile Driver							
Leg Drill							
Hand Hammer							
Farm Tractor							
Dump Truck							
Water Tank Truck							
Fuel Tank Truck							
Pick Up							
Jeep							
Motorcycle							
Generator							
Water Pump							
Others							

Appendix A-3 CONSTRUCTION AND MAINTENANCE COST FOR PROPOSED ROAD LINKS

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO : 5 (IIIC) LENGTH : 12 Km

UPGRADE : 6.0m road bed, 4.0m road with surface Subbase Cource

(Rp)

ITEM	UNIT	QUANTITY	UNIT COST LOCAL	UNIT COST FOREIGN	COST LOCAL	COST FOREIGN	TOTAL
Site Clearance in Light Bush	m2	66000.0	278	91	18,348,000	6,006,000	24,354,000
Subgrade Preparation	m2	72000.0	35	11	2,520,000	792,000	3,312,000
Normal Fill	m3	0.0	2,924	863	0	0	0
Fill in Swamp	m3	0.0	4,067	1,053	0	0	0
Normal Excavation to Spoil	m3	192.0	1,705	523	327,360	100,416	427,776
Sub Base Course	m3	7680.0	5,293	1,348	40,650,240	10,352,640	51,002,880
Base Course	m3	0.0	7,317	2,300	0	0	0
Shoulder	m2	24000.0	499	146	11,976,000	3,504,000	15,480,000
Asphalt Patching	m2	0.0	4,997	1,512	0	0	0
Surface Dressing (Single)	m2	0.0	711	766	0	0	0
Surface Dressing (Double)	m2	0.0	924	1,207	0	0	0
Earth Drain	m	21600.0	1,038	119	22,420,800	2,570,400	24,991,200
Earth Drain in Swamp (by machine)	m3	0.0	2,008	474	0	0	0
Pipe Culvert D80cm	m	108.0	51,840	50,140	5,598,720	5,415,120	11,013,840
Masonry Culvert (80x80cm)	m	0.0	81,531	40,282	0	0	0
Retaining Wall and Wing Wall (Timber)	m2	0.0	14,144	246	0	0	0
Retaining Wall and Wing Wall (Masonry)	m3	38.4	60,126	11,692	2,308,838	448,588	2,757,426
Gabion Protection	m3	0.0	20,721	120	0	0	0
New Bridge (Timber)	SET	1.0	--	--	14,953,050	1,224,948	16,178,006
New Bridge (Concrete)	SET	1.0	--	--	0	0	0
			Sub Total		119,103,016	30,414,112	149,517,128
Overhead (15%)					17,865,452	4,562,116	22,427,568
			TOTAL COST		136,968,468	34,976,228	171,944,696
Manual routine maintenance of road	Km	12.0	165,472	7,248	1,985,664	86,976	2,072,640
Routine maintenance of gravel road	Km	12.0	329,067	88,092	3,948,804	1,057,104	5,005,908
			Sub Total		5,934,468	1,144,080	7,078,548
Maintenance of Timber Bridge (New)	m2	120.0	9,710	1,054	1,165,200	126,480	1,291,680
Maintenance of Concrete Bridge (New)	m2	0.0	2,380	3,001	0	0	0
Maintenance of Timber Bridge (Exist)	m2	0.0	11,930	2,370	0	0	0
Maintenance of Concrete Bridge (Exist)	m2	0.0	7,551	2,443	0	0	0

Earthwork & Pavement	Unit Cost	(Rp/Km)	:	12,778,333
Timber Bridge	Unit Cost	(Rp/m2)	:	155,039
Concrete Bridge	Unit Cost	(Rp/m2)	:	
Survived Value		(Rp)	:	20,401,152
Maintenance Rate without Bridge		(%)	:	4.62
New Bridge Cost Rate		(%)	:	10.82

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO : 4 (IIIC) LENGTH : 24 Km

UPGRADE : 7.0m road bed, 4.0m road with surface Subbase Cource

(Rp)

ITEM	UNIT	QUANTITY	<<< UNIT COST >>> LOCAL	FOREIGN	<<<<<< COST LOCAL	FOREIGN	>>>>>> TOTAL
Site Clearance in Light Bush	m2	0.0	278	91	0	0	0
Subgrade Preparation	m2	168000.0	35	11	5,880,000	1,848,000	7,728,000
Normal Fill	m3	0.0	2,924	863	0	0	0
Fill in Swamp	m3	0.0	4,067	1,053	0	0	0
Normal Excavation to Spoil	m3	3168.0	1,705	523	5,401,440	1,656,864	7,058,304
Sub Base Course	m3	15360.0	5,293	1,348	81,300,480	20,705,280	102,005,760
Base Course	m3	0.0	7,317	2,300	0	0	0
Shoulder	m2	72000.0	499	146	35,928,000	10,512,000	46,440,000
Asphalt Patching	m2	0.0	4,997	1,512	0	0	0
Surface Dressing (Single)	m2	0.0	711	766	0	0	0
Surface Dressing (Double)	m2	0.0	924	1,207	0	0	0
Earth Drain	m	0.0	1,038	119	0	0	0
Earth Drain in Swamp (by machine)	m3	0.0	2,008	474	0	0	0
Pipe Culvert D80cm	m	312.0	51,840	50,140	16,174,080	15,643,680	31,817,760
Masonry Culvert (80x80cm)	m	0.0	81,531	40,282	0	0	0
Retaining Wall and Wing Wall (Timber)	m2	0.0	14,144	246	0	0	0
Retaining Wall and Wing Wall (Masonry)	m3	76.8	60,126	11,682	4,617,676	897,177	5,514,853
Gabion Protection	m3	0.0	20,721	120	0	0	0
New Bridge (Timber)	SET	1.0	--	--	0	0	0
New Bridge (Concrete)	SET	1.0	--	--	0	0	0
			Sub Total		149,301,676	51,263,001	200,564,677
Overhead (15%)					22,395,251	7,689,450	30,084,701
			TOTAL COST		171,696,927	58,952,451	230,649,378
Manual routine maintenance of road	Km	24.0	165,472	7,248	3,971,328	173,952	4,145,280
Routine maintenance of gravel road	Km	24.0	329,067	88,092	7,897,608	2,114,208	10,011,816
			Sub Total		11,868,936	2,288,160	14,157,096
Maintenance of Timber Bridge (New)	m2	0.0	9,710	1,054	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.0	2,380	3,001	0	0	0
Maintenance of Timber Bridge (Exist)	m2	60.0	11,930	2,370	715,800	142,200	858,000
Maintenance of Concrete Bridge (Exist)	m2	0.0	7,551	2,443	0	0	0

Earthwork & Pavement	Unit Cost	(Rp/Km)	:	9,610,391
Timber Bridge	Unit Cost	(Rp/m2)	:	
Concrete Bridge	Unit Cost	(Rp/m2)	:	
Survived Value		(Rp)	:	40,802,304
Maintenance Rate without Bridge		(%)	:	6.14
New Bridge Cost Rate		(%)	:	

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO : 12 (IIIB-2) LENGTH : 43 Km

UPGRADE : 7.0m road bed, 4.0m road with surface Base Cource

(Rp)

ITEM	UNIT	QUANTITY	UNIT COST LOCAL	UNIT COST FOREIGN	COST LOCAL	COST FOREIGN	TOTAL
Site Clearance in Light Bush	m2	172000.0	278	91	47,816,000	15,652,000	63,468,000
Subgrade Preparation	m2	301000.0	35	11	10,535,000	3,311,000	13,846,000
Normal Fill	m3	0.0	2,924	863	0	0	0
Fill in Swamp	m3	33300.0	4,067	1,053	135,431,100	35,064,900	170,496,000
Normal Excavation to Spoil	m3	5031.0	1,705	523	8,577,855	2,631,213	11,209,068
Sub Base Course	m3	24080.0	5,293	1,348	127,455,440	32,459,840	159,915,280
Base Course	m3	10320.0	7,317	2,300	75,511,440	23,736,000	99,247,440
Shoulder	m2	129000.0	499	146	64,371,000	18,834,000	83,205,000
Asphalt Patching	m2	0.0	4,997	1,512	0	0	0
Surface Dressing (Single)	m2	0.0	711	766	0	0	0
Surface Dressing (Double)	m2	0.0	924	1,207	0	0	0
Earth Drain	m	0.0	1,038	119	0	0	0
Earth Drain in Swamp (by machine)	m3	36000.0	2,008	474	72,288,000	17,064,000	89,352,000
Pipe Culvert D80cm	m	0.0	51,840	50,140	0	0	0
Masonry Culvert (80x80cm)	m	0.0	81,531	40,282	0	0	0
Retaining Wall and Wing Wall (Timber)	m2	0.0	14,144	246	0	0	0
Retaining Wall and Wing Wall (Masonry)	m3	0.0	60,126	11,682	0	0	0
Gabion Protection	m3	0.0	20,721	120	0	0	0
New Bridge (Timber)	SET	1.0	--	--	29,228,116	2,389,128	31,617,244
New Bridge (Concrete)	SET	1.0	--	--	0	0	0
			Sub Total		571,213,951	151,142,081	722,356,032
Overhead (15%)					85,682,092	22,671,312	108,353,404
			TOTAL COST		656,896,043	173,813,393	830,709,436
Manual routine maintenance of road	Km	43.0	165,472	7,248	7,115,296	311,664	7,426,960
Routine maintenance of gravel road	Km	43.0	329,067	88,092	14,149,881	3,787,956	17,937,837
			Sub Total		21,265,177	4,099,620	25,364,797
Maintenance of Timber Bridge (New)	m2	240.0	9,710	1,054	2,330,400	252,960	2,583,360
Maintenance of Concrete Bridge (New)	m2	0.0	2,380	3,001	0	0	0
Maintenance of Timber Bridge (Exist)	m2	0.0	11,930	2,370	0	0	0
Maintenance of Concrete Bridge (Exist)	m2	0.0	7,551	2,443	0	0	0

Earthwork & Pavement	Unit Cost	(Rp/Km)	:	18,473,247
Timber Bridge	Unit Cost	(Rp/m2)	:	151,499
Concrete Bridge	Unit Cost	(Rp/m2)	:	
Survived Value		(Rp)	:	79,957,640
Maintenance Rate without Bridge		(%)	:	3.19
New Bridge Cost Rate		(%)	:	4.38

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO : 11 (IIIC) LENGTH : 16 Km

UPGRADE : 10.0m road bed, 4.0m road with surface Subbase Cource

(Rp)

ITEM	UNIT	QUANTITY	UNIT COST LOCAL	UNIT COST FOREIGN	COST LOCAL	COST FOREIGN	COST TOTAL
Site Clearance in Light Bush	m2	0.0	278	91	0	0	0
Subgrade Preparation	m2	160000.0	35	11	5,600,000	1,760,000	7,360,000
Noraal Fill	m3	150.0	2,924	863	438,600	129,450	568,050
Fill in Swamp	m3	0.0	4,067	1,053	0	0	0
Noraal Excavation to Spoil	m3	108.0	1,705	523	184,140	56,484	240,624
Sub Base Course	m3	10240.0	5,293	1,348	54,200,320	13,803,520	68,003,840
Base Course	m3	0.0	7,317	2,300	0	0	0
Shoulder	m2	96000.0	499	146	47,904,000	14,016,000	61,920,000
Asphalt Patching	m2	0.0	4,997	1,512	0	0	0
Surface Dressing (Single)	m2	0.0	711	766	0	0	0
Surface Dressing (Double)	m2	0.0	924	1,207	0	0	0
Earth Drain	m	15240.0	1,038	119	15,819,120	1,813,560	17,632,680
Earth Drain in Swamp (by machine)	m3	0.0	2,008	474	0	0	0
Pipe Culvert D80cm	m	25.0	51,840	50,140	1,296,000	1,253,500	2,549,500
Masonry Culvert (80x80cm)	m	0.0	81,531	40,282	0	0	0
Retaining Wall and Wing Wall (Timber)	m2	200.0	14,144	246	2,828,800	49,200	2,878,000
Retaining Wall and Wing Wall (Masonry)	m3	209.6	60,126	11,682	12,602,409	2,448,547	15,050,956
Gabion Protection	m3	0.0	20,721	120	0	0	0
New Bridge (Timber)	SET	1.0	--	--	0	0	0
New Bridge (Concrete)	SET	1.0	--	--	0	0	0
			Sub Total		140,873,389	35,330,261	176,203,650
Overhead (15%)					21,131,008	5,299,539	26,430,547
			TOTAL COST		162,004,397	40,629,800	202,634,197
Manual routine maintenance of road	Km	16.0	165,472	7,248	2,647,552	115,968	2,763,520
Routine maintenance of gravel road	Km	16.0	329,067	88,092	5,265,072	1,409,472	6,674,544
			Sub Total		7,912,624	1,525,440	9,438,064
Maintenance of Timber Bridge (New)	m2	0.0	9,710	1,054	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.0	2,380	3,001	0	0	0
Maintenance of Timber Bridge (Exist)	m2	340.0	11,930	2,370	4,056,200	805,800	4,862,000
Maintenance of Concrete Bridge (Exist)	m2	0.0	7,551	2,443	0	0	0

Earthwork & Pavement	Unit Cost	(Rp/Km)	:	12,664,637
Timber Bridge	Unit Cost	(Rp/m2)	:	
Concrete Bridge	Unit Cost	(Rp/m2)	:	
Survived Value		(Rp)	:	27,201,536
Maintenance Rate without Bridge		(%)	:	4.66
New Bridge Cost Rate		(%)	:	

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO : 8 (IIIB-1) LENGTH : 13 Km

UPGRADE : 6.5m road bed, 4.5m road with surface Dressing (1)

(Rp)

ITEM	UNIT	QUANTITY	UNIT COST LOCAL	UNIT COST FOREIGN	COST LOCAL	COST FOREIGN	COST TOTAL
Site Clearance in Light Bush	m2	1500.0	278	91	417,000	136,500	553,500
Subgrade Preparation	m2	84500.0	35	11	2,957,500	929,500	3,887,000
Normal Fill	m3	1000.0	2,924	863	2,924,000	863,000	3,787,000
Fill in Swamp	m3	0.0	4,067	1,053	0	0	0
Normal Excavation to Spoil	m3	1495.0	1,705	523	2,548,975	781,885	3,330,860
Sub Base Course	m3	8190.0	5,293	1,348	43,349,670	11,040,120	54,389,790
Base Course	m3	4095.0	7,317	2,300	29,963,115	9,418,500	39,381,615
Shoulder	m2	26000.0	499	146	12,974,000	3,796,000	16,770,000
Asphalt Patching	m2	0.0	4,997	1,512	0	0	0
Surface Dressing (Single)	m2	58500.0	711	766	41,593,500	44,811,000	86,404,500
Surface Dressing (Double)	m2	0.0	924	1,207	0	0	0
Earth Drain	m	17820.0	1,038	119	18,497,160	2,120,580	20,617,740
Earth Drain in Swamp (by machine)	m3	0.0	2,008	474	0	0	0
Pipe Culvert D80cm	m	169.0	51,840	50,140	8,760,960	8,473,660	17,234,620
Masonry Culvert (80x80cm)	m	40.0	81,531	40,282	3,261,240	1,611,280	4,872,520
Retaining Wall and Wing Wall (Timber)	m2	100.0	14,144	246	1,414,400	24,600	1,439,000
Retaining Wall and Wing Wall (Masonry)	m3	364.9	60,126	11,682	21,939,977	4,262,761	26,202,738
Gabion Protection	m3	0.0	20,721	120	0	0	0
New Bridge (Timber)	SET	1.0	--	--	8,749,637	723,270	9,472,907
New Bridge (Concrete)	SET	1.0	--	--	0	0	0
			Sub Total		199,351,134	88,992,656	288,343,790
Overhead (15%)					29,902,670	13,348,898	43,251,568
			TOTAL COST		229,253,804	102,341,554	331,595,358
Manual routine maintenance of road	Km	13.0	165,472	7,248	2,151,136	94,224	2,245,360
Routine maintenance of asphalt road	Km	13.0	499,700	151,200	6,496,100	1,965,600	8,461,700
			Sub Total		8,647,236	2,059,824	10,707,060
Maintenance of Timber Bridge (New)	m2	64.0	9,710	1,054	621,440	67,456	688,896
Maintenance of Concrete Bridge (New)	m2	0.0	2,380	3,001	0	0	0
Maintenance of Timber Bridge (Exist)	m2	112.0	11,930	2,370	1,336,160	265,440	1,601,600
Maintenance of Concrete Bridge (Exist)	m2	0.0	7,551	2,443	0	0	0

Earthwork & Pavement	Unit Cost	(Rp/Km)	:	24,669,347
Timber Bridge	Unit Cost	(Rp/m2)	:	170,216
Concrete Bridge	Unit Cost	(Rp/m2)	:	
Survived Value		(Rp)	:	45,949,176
Maintenance Rate without Bridge		(%)	:	3.34
New Bridge Cost Rate		(%)	:	3.29

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO : 7 (IIIC) LENGTH : 25 Km

UPGRADE : 6.0m road bed, 4.0m road with surface Subbase Cource

(Rp)

ITEM	UNIT	QUANTITY	<<< UNIT COST >>> LOCAL	FOREIGN	<<<<<< COST LOCAL	FOREIGN	>>>>>> TOTAL
Site Clearance in Light Bush	m2	13750.0	278	91	3,822,500	1,251,250	5,073,750
Subgrade Preparation	m2	150000.0	35	11	5,250,000	1,650,000	6,900,000
Normal Fill	m3	0.0	2,924	863	0	0	0
Fill in Swamp	m3	57500.0	4,067	1,053	233,852,500	60,547,500	294,400,000
Normal Excavation to Spoil	m3	400.0	1,705	523	682,000	209,200	891,200
Sub Base Course	m3	16000.0	5,293	1,348	84,688,000	21,568,000	106,256,000
Base Course	m3	0.0	7,317	2,300	0	0	0
Shoulder	m2	50000.0	499	146	24,950,000	7,300,000	32,250,000
Asphalt Patching	m2	0.0	4,997	1,512	0	0	0
Surface Dressing (Single)	m2	0.0	711	766	0	0	0
Surface Dressing (Double)	m2	0.0	924	1,207	0	0	0
Earth Drain	m	45000.0	1,038	119	46,710,000	5,355,000	52,065,000
Earth Drain in Swamp (by machine)	m3	62500.0	2,008	474	125,500,000	29,625,000	155,125,000
Pipe Culvert D80cm	m	275.0	51,840	50,140	14,256,000	13,788,500	28,044,500
Masonry Culvert (80x80cm)	m	0.0	81,531	40,282	0	0	0
Retaining Wall and Wing Wall (Timber)	m2	80.0	14,144	246	1,131,520	19,680	1,151,200
Retaining Wall and Wing Wall (Masonry)	m3	0.0	60,126	11,682	0	0	0
Gabion Protection	m3	0.0	20,721	120	0	0	0
New Bridge (Timber)	SET	1.0	--	--	48,639,649	3,985,359	52,625,008
New Bridge (Concrete)	SET	1.0	--	--	0	0	0
			Sub Total		589,482,169	145,299,489	734,781,658
Overhead (15%)					88,422,325	21,794,923	110,217,248
			TOTAL COST		677,904,494	167,094,412	844,998,906
Manual routine maintenance of road	Km	25.0	165,472	7,248	4,136,800	181,200	4,318,000
Routine maintenance of gravel road	Km	25.0	329,067	88,092	8,226,675	2,202,300	10,428,975
			Sub Total		12,363,475	2,383,500	14,746,975
Maintenance of Timber Bridge (New)	m2	375.0	9,710	1,054	3,641,250	395,250	4,036,500
Maintenance of Concrete Bridge (New)	m2	0.0	2,380	3,001	0	0	0
Maintenance of Timber Bridge (Exist)	m2	0.0	11,930	2,370	0	0	0
Maintenance of Concrete Bridge (Exist)	m2	0.0	7,551	2,443	0	0	0

Earthwork & Pavement	Unit Cost	(Rp/Km)	:	31,379,206
Timber Bridge	Unit Cost	(Rp/m2)	:	161,383
Concrete Bridge	Unit Cost	(Rp/m2)	:	
Survived Value		(Rp)	:	42,502,400
Maintenance Rate without Bridge		(%)	:	1.88
New Bridge Cost Rate		(%)	:	7.16

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO : 3 (IIIC) LENGTH : 24 Km

UPGRADE : 7.0m road bed, 4.0m road with surface Subbase Cource

(Rp)

ITEM	UNIT	QUANTITY	UNIT COST LOCAL	UNIT COST FOREIGN	COST LOCAL	COST FOREIGN	COST TOTAL
Site Clearance in Light Bush	m2	0.0	278	91	0	0	0
Subgrade Preparation	m2	0.0	35	11	0	0	0
Normal Fill	m3	0.0	2,924	863	0	0	0
Fill in Swamp	m3	0.0	4,067	1,053	0	0	0
Normal Excavation to Spoil	m3	0.0	1,705	523	0	0	0
Sub Base Course	m3	1056.0	5,293	1,348	5,589,408	1,423,488	7,012,896
Base Course	m3	5760.0	7,317	2,300	42,145,920	13,248,000	55,393,920
Shoulder	m2	72000.0	499	146	35,928,000	10,512,000	46,440,000
Asphalt Patching	m2	0.0	4,997	1,512	0	0	0
Surface Dressing (Single)	m2	0.0	711	766	0	0	0
Surface Dressing (Double)	m2	0.0	924	1,207	0	0	0
Earth Drain	m	0.0	1,038	119	0	0	0
Earth Drain in Swamp (by machine)	m3	0.0	2,008	474	0	0	0
Pipe Culvert D80cm	m	0.0	51,840	50,140	0	0	0
Masonry Culvert (80x80cm)	m	0.0	81,531	40,282	0	0	0
Retaining Wall and Wing Wall (Timber)	m2	0.0	14,144	246	0	0	0
Retaining Wall and Wing Wall (Masonry)	m3	0.0	60,126	11,682	0	0	0
Gabion Protection	m3	0.0	20,721	120	0	0	0
New Bridge (Timber)	SET	1.0	--	--	0	0	0
New Bridge (Concrete)	SET	1.0	--	--	0	0	0
			Sub Total		83,663,328	25,183,488	108,846,816
Overhead (15%)					12,549,499	3,777,523	16,327,022
			TOTAL COST		96,212,827	28,961,011	125,173,838
Manual routine maintenance of road	Km	24.0	165,472	7,248	3,971,328	173,952	4,145,280
Routine maintenance of gravel road	Km	24.0	329,067	88,092	7,897,608	2,114,208	10,011,816
			Sub Total		11,868,936	2,288,160	14,157,096
Maintenance of Timber Bridge (New)	m2	0.0	9,710	1,054	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.0	2,380	3,001	0	0	0
Maintenance of Timber Bridge (Exist)	m2	60.0	11,930	2,370	715,800	142,200	858,000
Maintenance of Concrete Bridge (Exist)	m2	0.0	7,551	2,443	0	0	0

Earthwork & Pavement	Unit Cost	(Rp/Km)	:	5,215,577
Timber Bridge	Unit Cost	(Rp/m2)	:	
Concrete Bridge	Unit Cost	(Rp/m2)	:	
Survived Value		(Rp)	:	2,805,158
Maintenance Rate without Bridge		(%)	:	11.31
New Bridge Cost Rate		(%)	:	

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO : 2 (IIIC) LENGTH : 32 Km

UPGRADE : 7.0m road bed, 4.0m road with surface Subbase Cource

(Rp)

ITEM	UNIT	QUANTITY	<<< UNIT COST >>> LOCAL	FOREIGN	<<<<<< COST LOCAL	FOREIGN	>>>>>> TOTAL
Site Clearance in Light Bush	m2	0.0	278	91	0	0	0
Subgrade Preparation	m2	84000.0	35	11	2,940,000	924,000	3,864,000
Normal Fill	m3	0.0	2,924	863	0	0	0
Fill in Swamp	m3	0.0	4,067	1,053	0	0	0
Normal Excavation to Spoil	m3	1280.0	1,705	523	2,182,400	669,440	2,851,840
Sub Base Course	m3	7760.0	5,293	1,348	41,073,680	10,460,480	51,534,160
Base Course	m3	4800.0	7,317	2,300	35,121,600	11,040,000	46,161,600
Shoulder	m2	96000.0	499	146	47,904,000	14,016,000	61,920,000
Asphalt Patching	m2	0.0	4,997	1,512	0	0	0
Surface Dressing (Single)	m2	0.0	711	766	0	0	0
Surface Dressing (Double)	m2	0.0	924	1,207	0	0	0
Earth Drain	m	0.0	1,038	119	0	0	0
Earth Drain in Swamp (by machine)	m3	0.0	2,008	474	0	0	0
Pipe Culvert D80cm	m	10.0	51,840	50,140	518,400	501,400	1,019,800
Masonry Culvert (80x80cm)	m	0.0	81,531	40,282	0	0	0
Retaining Wall and Wing Wall (Timber)	m2	0.0	14,144	246	0	0	0
Retaining Wall and Wing Wall (Masonry)	m3	0.0	60,126	11,682	0	0	0
Gabion Protection	m3	0.0	20,721	120	0	0	0
New Bridge (Timber)	SET	1.0	--	--	0	0	0
New Bridge (Concrete)	SET	1.0	--	--	0	0	0
			Sub Total		129,740,080	37,611,320	167,351,400
Overhead (15%)					19,461,012	5,641,698	25,102,710
			TOTAL COST		149,201,092	43,253,018	192,454,110
Manual routine maintenance of road	Km	32.0	165,472	7,248	5,295,104	231,936	5,527,040
Routine maintenance of gravel road	Km	32.0	329,067	88,092	10,530,144	2,818,944	13,349,088
			Sub Total		15,825,248	3,050,880	18,876,128
Maintenance of Timber Bridge (New)	m2	0.0	9,710	1,054	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.0	2,380	3,001	0	0	0
Maintenance of Timber Bridge (Exist)	m2	60.0	11,930	2,370	715,800	142,200	858,000
Maintenance of Concrete Bridge (Exist)	m2	0.0	7,551	2,443	0	0	0

Earthwork & Pavement	Unit Cost	(Rp/Km)	:	6,014,191
Timber Bridge	Unit Cost	(Rp/m2)	:	
Concrete Bridge	Unit Cost	(Rp/m2)	:	
Survived Value		(Rp)	:	20,613,664
Maintenance Rate without Bridge		(%)	:	9.81
New Bridge Cost Rate		(%)	:	

Appendix A-4 CONSTRUCTION AND MAINTENANCE QUANTITIES
FOR ALL PROPOSED ROAD LINKS
(CONSTRUCTION)

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

I T E M	UNIT	(1988)	(1989)	(1990)	(1991)	(1992)	(TOTAL)
EQUIPMENT :							
Bulldozer/Ripper	hr	672.0	917.0	215.2	948.5	1218.6	3971.3
Swamp Bulldozer	hr	0.0	287.5	1437.4	413.6	888.0	3026.5
Motor Grader	hr	1523.6	1908.2	772.5	2301.1	1821.7	8327.1
Hand-guide Vib. Roller	hr	6.9	666.3	382.8	1389.2	150.2	2595.4
Tire Roller	hr	0.0	0.0	0.0	487.4	0.0	487.4
Vibratory Roller (D&T)	hr	1050.4	1882.1	1847.5	2252.2	2180.0	9212.2
Hydraulic Excavator; Wheel	hr	0.0	703.1	3515.6	1013.4	2160.0	7392.1
Wheel Loader	hr	1690.6	2441.2	2458.3	3002.4	3667.6	13260.1
Water Tank Truck	hr	539.2	1156.4	1302.3	1386.1	1478.3	5862.3
Dump Truck	hr	12009.1	21413.6	24434.6	26865.5	25845.8	110568.6
Flat Bed Truck with Crane	hr	8.0	628.9	477.9	753.9	196.4	2065.1
Flat Bed Truck	hr	2.8	232.7	138.1	974.6	50.0	1398.2
Portable Crusher/Screening	hr	332.1	47.7	3.2	274.3	291.3	948.6
Concrete Mixer	hr	1.7	148.1	35.3	411.7	0.0	596.8
Water Pump	hr	1.7	125.0	35.3	289.1	0.0	451.1
Concrete Vibrator	hr	1.7	79.0	35.3	43.9	0.0	159.9
Asphalt Sprayer	hr	0.0	0.0	0.0	487.4	0.0	487.4
LABOUR :							
Mandur	man day	595.7	2143.2	2536.0	2763.8	1816.7	9855.4
Skilled Labourer	man day	6.9	1985.4	2907.7	2176.7	1741.7	8818.4
Carpenter	man day	0.5	925.1	1503.9	941.6	939.5	4310.6
Mason	man day	0.0	115.2	0.0	613.0	0.0	728.2
Labourer	man day	4584.5	19803.8	23858.3	27412.0	12615.6	88274.2
Driver	man day	2121.1	4012.1	4650.7	5276.9	4744.0	20804.8
Operator	man day	1316.5	2043.7	2098.8	2867.2	2584.9	10911.1
MATERIAL :							
Bitumen	l	0.0	0.0	0.0	99937.4	0.0	99937.4
Asphalt Oil	l	0.0	0.0	0.0	19987.5	0.0	19987.5
Kerosene	l	0.0	0.0	0.0	23887.4	0.0	23887.4
Sand	m3	8.4	424.9	174.5	669.7	0.0	1277.5
Cement	bag	25.0	1196.8	515.6	874.1	0.0	2611.5
River Stone	m3	0.0	115.2	0.0	613.0	0.0	728.2
Steel Moulds	set	10.0	461.2	206.2	221.5	0.0	898.9
Timber	m3	0.0	81.8	136.9	91.0	85.3	395.0
Paint	l	0.0	532.5	873.5	469.9	558.9	2434.8
Reinforcing Steel	kg	319.0	14713.8	6579.3	7652.6	0.0	29264.7
Tying Wire	kg	2.9	133.7	59.8	69.5	0.0	265.9
Equivalent Royalty	m3	20043.3	42403.0	58504.6	51792.0	58879.0	231621.9

CONSTRUCTION AND MAINTENANCE QUANTITIES
FOR ALL PROPOSED ROAD LINKS
(MAINTENANCE)

PROV : KALIMANTAN TIMUR KAB : BULLUNGAN

ITEM	UNIT	(1988)	(1989)	(1990)	(1991)	(1992)	(TOTAL)
EQUIPMENT :							
Bulldozer/Ripper	hr	0.0	0.0	0.0	0.0	0.0	0.0
Swamp Bulldozer	hr	0.0	0.0	0.0	0.0	0.0	0.0
Motor Grader	hr	299.9	707.2	880.0	854.0	1012.5	3753.6
Hand-guide Vib. Roller	hr	135.0	270.0	270.0	270.0	465.0	1410.0
Tire Roller	hr	299.9	707.2	880.0	854.0	1012.5	3753.6
Vibratory Roller (D&T)	hr	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Excavator/ Wheel	hr	0.0	0.0	0.0	0.0	0.0	0.0
Wheel Loader	hr	96.4	239.4	300.4	300.4	380.7	1317.3
Water Tank Truck	hr	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	hr	849.1	1976.7	2342.6	2342.6	3213.9	10724.9
Flat Bed Truck with Crane	hr	968.4	1992.1	2068.2	2003.4	2386.5	9418.6
Flat Bed Truck	hr	1226.3	2838.4	3472.0	3368.0	4096.5	15001.2
Portable Crusher/Screening	hr	48.5	120.2	150.7	150.7	191.2	661.3
Concrete Mixer	hr	0.0	0.0	0.0	0.0	0.0	0.0
Water Pump	hr	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Vibrator	hr	0.0	0.0	0.0	0.0	0.0	0.0
Asphalt Sprayer	hr	0.0	0.0	0.0	0.0	0.0	0.0
LABOUR :							
Mandur	man day	456.4	1033.6	1229.0	1205.4	1505.7	5430.1
Skilled Labourer	man day	358.8	733.0	754.1	802.7	972.5	3621.1
Carpenter	man day	144.3	296.9	308.2	334.3	355.7	1439.4
Mason	man day	0.0	0.0	0.0	0.0	0.0	0.0
Labourer	man day	5137.5	11682.1	13980.1	13631.4	17174.0	61605.1
Driver	man day	553.0	1228.6	1411.5	1383.6	1728.6	6305.3
Operator	man day	132.1	315.7	393.6	384.9	464.7	1691.0
MATERIAL :							
Bitumen	l	1215.0	2430.0	2430.0	2430.0	4185.0	12690.0
Asphalt Oil	l	0.0	0.0	0.0	0.0	0.0	0.0
Kerosene	l	135.0	270.0	270.0	270.0	465.0	1410.0
Sand	m3	22.5	45.0	45.0	45.0	77.5	235.0
Cement	bag	0.0	0.0	0.0	0.0	0.0	0.0
River Stone	m3	0.0	0.0	0.0	0.0	0.0	0.0
Steel Moulds	set	0.0	0.0	0.0	0.0	0.0	0.0
Timber	m3	13.1	26.9	28.0	30.3	32.3	130.6
Paint	l	93.4	192.3	199.6	216.5	230.4	932.2
Reinforcing Steel	kg	0.0	0.0	0.0	0.0	0.0	0.0
Tying Wire	kg	0.0	0.0	0.0	0.0	0.0	0.0
Equivalent Royalty	m3	1368.0	3393.0	4257.0	4257.0	5394.0	18669.0

CONSTRUCTION AND MAINTENANCE QUANTITIES
FOR ALL PROPOSED ROAD LINKS
(TOTAL)

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

I T E M	UNIT	(1988)	(1989)	(1990)	(1991)	(1992)	(TOTAL)
EQUIPMENT :							
Bulldozer/Ripper	hr	672.0	917.0	215.2	948.5	1218.6	3971.3
Swamp Bulldozer	hr	0.0	287.5	1437.4	413.6	888.0	3026.5
Motor Grader	hr	1823.5	2615.4	1652.5	3155.1	2834.2	12080.7
Hand-guide Vib. Roller	hr	141.9	936.3	652.8	1659.2	615.2	4005.4
Tire Roller	hr	299.9	707.2	880.0	1341.4	1012.5	4241.0
Vibratory Roller (D&T)	hr	1050.4	1882.1	1847.5	2252.2	2180.0	9212.2
Hydraulic Excavator; Wheel	hr	0.0	703.1	3515.6	1013.4	2160.0	7392.1
Wheel Loader	hr	1787.0	2680.6	2758.7	3302.8	4048.3	14577.4
Water Tank Truck	hr	539.2	1156.4	1302.3	1386.1	1478.3	5862.3
Dump Truck	hr	12858.2	23390.3	26777.2	29208.1	29059.7	121293.5
Flat Bed Truck with Crane	hr	976.4	2621.0	2546.1	2757.3	2582.9	11483.7
Flat Bed Truck	hr	1229.1	3071.1	3610.1	4342.6	4146.5	16399.4
Portable Crusher/Screening	hr	380.6	167.9	153.9	425.0	482.5	1609.9
Concrete Mixer	hr	1.7	148.1	35.3	411.7	0.0	596.8
Water Pump	hr	1.7	125.0	35.3	289.1	0.0	451.1
Concrete Vibrator	hr	1.7	79.0	35.3	43.9	0.0	159.9
Asphalt Sprayer	hr	0.0	0.0	0.0	487.4	0.0	487.4
LABOUR :							
Mandor	man day	1052.1	3176.8	3765.0	3969.2	3322.4	15285.5
Skilled Labourer	man day	365.7	2718.4	3661.8	2979.4	2714.2	12439.5
Carpenter	man day	144.8	1222.0	1812.1	1275.9	1295.2	5750.0
Mason	man day	0.0	115.2	0.0	613.0	0.0	728.2
Labourer	man day	9722.0	31485.9	37838.4	41043.4	29789.6	149879.3
Driver	man day	2674.1	5240.7	6062.2	6660.5	6472.6	27110.1
Operator	man day	1448.6	2359.4	2492.4	3252.1	3049.6	12602.1
MATERIAL :							
Bitumen	l	1215.0	2430.0	2430.0	102367.4	4185.0	112627.4
Asphalt Oil	l	0.0	0.0	0.0	19987.5	0.0	19987.5
Kerosene	l	135.0	270.0	270.0	24157.4	465.0	25297.4
Sand	m3	30.9	469.9	219.5	714.7	77.5	1512.5
Cement	bag	25.0	1196.8	515.6	874.1	0.0	2611.5
River Stone	m3	0.0	115.2	0.0	613.0	0.0	728.2
Steel Moulds	set	10.0	461.2	206.2	221.5	0.0	898.9
Timber	m3	13.1	108.7	164.9	121.3	117.6	525.6
Paint	l	93.4	724.8	1073.1	686.4	789.3	3367.0
Reinforcing Steel	kg	319.0	14713.8	6579.3	7652.6	0.0	29264.7
Tying Wire	kg	2.9	133.7	59.8	69.5	0.0	265.9
Equivalent Royalty	m3	21411.3	45796.0	62761.6	56049.0	64273.0	250290.9

Appendix A-5

CONSTRUCTION AND MAINTENANCE COSTS FOR ALL PROPOSED ROAD LINKS (CONSTRUCTION)

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

(1000 Rp)

I T E M	UNIT	(1988)	(1989)	(1990)	(1991)	(1992)	(TOTAL)
EQUIPMENT :		231,556	373,032	433,270	493,647	501,000	2,032,505
Bulldozer/Ripper	24290	16,322	22,273	5,227	23,039	29,599	96,460
Swamp Bulldozer	17281	0	4,968	24,839	7,147	15,345	52,299
Motor Grader	20018	30,499	38,198	15,463	46,063	36,466	166,689
Hand-guide Vib. Roller	2037	14	1,357	779	2,829	305	5,284
Tire Roller	19449	0	0	0	9,479	0	9,479
Vibratory Roller (D&T)	9760	10,251	18,369	18,031	21,981	21,276	89,908
Hydraulic Excavator; Wheel	20482	0	14,400	72,006	20,756	44,241	151,403
Wheel Loader	23023	38,922	56,203	56,597	69,124	84,439	305,285
Water Tank Truck	7434	4,008	8,596	9,681	10,304	10,989	43,578
Dump Truck	9211	110,615	197,240	225,067	247,458	238,065	1,018,445
Flat Bed Truck with Crane	8518	68	5,356	4,070	6,421	1,672	17,587
Flat Bed Truck	6810	19	1,584	940	6,637	340	9,520
Portable Crusher/Screening	62695	20,821	2,990	200	17,197	18,263	59,471
Concrete Mixer	9159	15	1,356	323	3,770	0	5,464
Water Pump	762	1	95	26	220	0	342
Concrete Vibrator	596	1	47	21	26	0	95
Asphalt Sprayer	2454	0	0	0	1,196	0	1,196
LABOUR :		17,526	57,880	69,615	78,236	48,739	271,996
Mandor	3000	1,787	6,429	7,608	8,291	5,450	29,565
Skilled Labourer	2000	13	3,970	5,815	4,353	3,483	17,634
Carpenter	2500	1	2,312	3,759	2,354	2,348	10,774
Mason	2500	0	288	0	1,532	0	1,820
Labourer	1500	6,876	29,705	35,787	41,118	18,923	132,409
Driver	2000	4,242	8,024	9,301	10,553	9,488	41,608
Operator	3500	4,607	7,152	7,345	10,035	9,047	38,186
MATERIAL :		5,561	51,628	48,486	111,216	28,743	245,634
Bitumen	400	0	0	0	39,974	0	39,974
Asphalt Oil	600	0	0	0	11,992	0	11,992
Kerosene	250	0	0	0	5,971	0	5,971
Sand	4500	37	1,912	785	3,013	0	5,747
Cement	4500	112	5,385	2,320	3,933	0	11,750
River Stone	15000	0	1,728	0	9,195	0	10,923
Steel Moulds	8000	80	3,689	1,649	1,772	0	7,190
Timber	150000	0	12,270	20,535	13,650	12,795	59,250
Paint	2200	0	1,171	1,921	1,033	1,229	5,354
Reinforcing Steel	1000	319	14,713	6,579	7,652	0	29,263
Tying Wire	1200	3	160	71	83	0	317
Equivalent Royalty	250	5,010	10,600	14,626	12,948	14,719	57,903

CONSTRUCTION AND MAINTENANCE COSTS
FOR ALL PROPOSED ROAD LINKS
(MAINTENANCE)

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

(1000 Rp)

I T E M	UNIT	(1988)	(1989)	(1990)	(1991)	(1992)	(TOTAL)
EQUIPMENT :		41,788	96,009	114,480	112,194	139,486	503,957
Bulldozer/Ripper	24290	0	0	0	0	0	0
Swamp Bulldozer	17281	0	0	0	0	0	0
Motor Grader	20018	6,003	14,156	17,615	17,095	20,268	75,137
Hand-guide Vib. Roller	2037	274	549	549	549	947	2,868
Tire Roller	19449	5,832	13,754	17,115	16,609	19,692	73,002
Vibratory Roller (D&T)	9760	0	0	0	0	0	0
Hydraulic Excavator; Wheel	20482	0	0	0	0	0	0
Wheel Loader	23023	2,219	5,511	6,916	6,916	8,764	30,326
Water Tank Truck	7434	0	0	0	0	0	0
Dump Truck	9211	7,821	18,207	21,577	21,577	29,603	98,785
Flat Bed Truck with Crane	8518	8,248	16,968	17,616	17,064	20,328	80,224
Flat Bed Truck	6810	8,351	19,329	23,644	22,936	27,897	102,157
Portable Crusher/Screening	62695	3,040	7,535	9,448	9,448	11,987	41,458
Concrete Mixer	9159	0	0	0	0	0	0
Water Pump	762	0	0	0	0	0	0
Concrete Vibrator	596	0	0	0	0	0	0
Asphalt Sprayer	2454	0	0	0	0	0	0
LABOUR :		11,720	26,392	31,135	30,617	38,195	138,059
Mandur	3000	1,389	3,100	3,687	3,616	4,517	16,289
Skilled Labourer	2000	717	1,466	1,508	1,605	1,945	7,241
Carpenter	2500	360	742	770	835	889	3,596
Mason	2500	0	0	0	0	0	0
Labourer	1500	7,706	17,523	20,970	20,447	25,761	92,407
Driver	2000	1,106	2,457	2,823	2,767	3,457	12,610
Operator	3500	462	1,104	1,377	1,347	1,626	5,916
MATERIAL :		3,132	6,547	6,944	7,326	8,837	32,786
Bitumen	400	486	972	972	972	1,674	5,076
Asphalt Oil	600	0	0	0	0	0	0
Kerosene	250	33	67	67	67	116	350
Sand	4500	101	202	202	202	348	1,055
Cement	4500	0	0	0	0	0	0
River Stone	15000	0	0	0	0	0	0
Steel Moulds	8000	0	0	0	0	0	0
Timber	150000	1,965	4,035	4,200	4,545	4,845	19,590
Paint	2200	205	423	439	476	506	2,049
Reinforcing Steel	1000	0	0	0	0	0	0
Tying Wire	1200	0	0	0	0	0	0
Equivalent Royalty	250	342	848	1,064	1,064	1,348	4,666

CONSTRUCTION AND MAINTENANCE COSTS
FOR ALL PROPOSED ROAD LINKS
(TOTAL)

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

(1000 Rp)

I T E M	UNIT	(1988)	(1989)	(1990)	(1991)	(1992)	(TOTAL)
EQUIPMENT :		273,344	469,041	547,750	605,841	640,486	2,536,462
Bulldozer/Ripper	24290	16,322	22,273	5,227	23,039	29,599	96,460
Swamp Bulldozer	17281	0	4,968	24,839	7,147	15,345	52,299
Motor Grader	20018	36,502	52,354	33,078	63,158	56,734	241,826
Hand-guide Vib. Roller	2037	288	1,906	1,328	3,378	1,252	8,152
Tire Roller	19449	5,832	13,754	17,115	26,088	19,692	82,481
Vibratory Roller (D&T)	9760	10,251	18,369	18,031	21,981	21,276	89,908
Hydraulic Excavator; Wheel	20482	0	14,400	72,006	20,756	44,241	151,403
Wheel Loader	23023	41,141	61,714	63,513	76,040	93,203	335,611
Water Tank Truck	7434	4,008	8,596	9,681	10,304	10,989	43,578
Dump Truck	9211	118,436	215,447	246,644	269,035	267,668	1,117,230
Flat Bed Truck with Crane	8518	8,316	22,324	21,686	23,485	22,000	97,811
Flat Bed Truck	6810	8,370	20,913	24,584	29,573	28,237	111,677
Portable Crusher/Screening	62695	23,861	10,525	9,648	26,645	30,250	100,929
Concrete Mixer	9159	15	1,356	323	3,770	0	5,464
Water Pump	762	1	95	26	220	0	342
Concrete Vibrator	596	1	47	21	26	0	95
Asphalt Sprayer	2454	0	0	0	1,196	0	1,196
LABOUR :		29,246	84,272	100,750	108,853	86,934	410,055
Mandur	3000	3,156	9,529	11,295	11,907	9,967	45,854
Skilled Labourer	2000	730	5,436	7,323	5,958	5,428	24,875
Carpenter	2500	361	3,054	4,529	3,189	3,237	14,370
Mason	2500	0	288	0	1,532	0	1,820
Labourer	1500	14,582	47,228	56,757	61,565	44,684	224,816
Driver	2000	5,348	10,481	12,124	13,320	12,945	54,218
Operator	3500	5,069	8,256	8,722	11,382	10,673	44,102
MATERIAL :		8,693	58,175	55,430	118,542	37,580	278,420
Bitumen	400	486	972	972	40,946	1,674	45,050
Asphalt Oil	600	0	0	0	11,992	0	11,992
Kerosene	250	33	67	67	6,038	116	6,321
Sand	4500	138	2,114	987	3,215	348	6,802
Cement	4500	112	5,385	2,320	3,933	0	11,750
River Stone	15000	0	1,728	0	9,195	0	10,923
Steel Moulds	8000	80	3,689	1,649	1,772	0	7,190
Timber	150000	1,965	16,305	24,735	18,195	17,640	78,840
Paint	2200	205	1,594	2,360	1,509	1,735	7,403
Reinforcing Steel	1000	319	14,713	6,579	7,652	0	29,263
Tying Wire	1200	3	160	71	83	0	317
Equivalent Royalty	250	5,352	11,448	15,690	14,012	16,067	62,569

Appendix A-6 QUANTITIES OF BRIDGE ON PROPOSED ROAD LINKS

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO	BRIDGE NAME	Km	From	<< TYPE >> (EXIST)	(NEW)	DESIGN LOAD	SPAN CLASS	LENGTH (m)	SPAN NO (no)	SPAN LENGTH (m)	WIDTH (m)	AREA (EXIST) (m2)	AREA (NEW) (m2)	PIER (no)	ABUT (no)	ROAD CLASS
2	SUNGAI PUNGIT	31	PIMP	KK				15.00	1	15.00	4.00	60.00		0	2	IIIC
3	SUNGAI SEKATAK	3	SKTB	KK				15.00	1	15.00	4.00	60.00		0	2	IIIC
4	SUNGAI BETAYAN	23	SKBT	KK				15.00	1	15.00	4.00	60.00		0	2	IIIC
5	AK.SEI SESAYAP	11	BBKG	KK	TM	10T	(C)	15.00	2	7.50	4.00	12.00	60.00	1	2	IIIC
	SEI BETAYA II	1	BBKG	KK	TM	10T	(C)	15.00	2	7.50	4.00	12.00	60.00	1	2	
8	SEBAMBAH	1	NLIN	KK				5.00	1	5.00	5.60	28.00		0	2	IIIB-1
	MASAIR	2	NLIN	KK				14.00	3	4.67	6.00	84.00		2	2	
	LAPANG	11	NLIN	LL	TM	10T	(A)	16.00	6	2.67	4.00	64.00	64.00	5	2	
11	BULAN I	2	SLAP	KK				17.00	1	17.00	4.00	68.00		0	2	IIIC
	BULAN II	2	SLAP	KK				10.00	1	10.00	4.00	40.00		0	2	
	SERUYUNG	5	SLAP	KK				13.00	1	13.00	4.00	52.00		0	2	
	LIBANG	8	SLAP	KK				11.00	1	11.00	4.00	44.00		0	2	
	PEGATASON	11	SLAP	KK				22.00	5	4.40	4.00	88.00		4	2	
	SUNALANAP	15	SLAP	KK				12.00	3	4.00	4.00	48.00		2	2	
12	N.I	18	NSLG	--	TM	10T	(C)	15.00	2	7.50	4.00	0.00	60.00	1	2	IIIB-2
	N.I	21	NSLG	--	TM	10T	(C)	15.00	2	7.50	4.00	0.00	60.00	1	2	
	N.I	23	NSLG	--	TM	10T	(C)	15.00	2	7.50	4.00	0.00	60.00	1	2	
	N.I	30	NSLG	--	TM	10T	(C)	15.00	2	7.50	4.00	0.00	60.00	1	2	

Appendix A-7 CONSTRUCTION AND MAINTENANCE COST OF BRIDGES ON PROPOSAL ROAD LINKS

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO : 2 (IIIC) LENGTH : 32 Km

(Rp)

ITEM	UNIT	QUANTITY	UNIT COST LOCAL	UNIT COST FOREIGN	COST LOCAL	COST FOREIGN	TOTAL
Superstructure (Timber;Span 3m;10T)	m2	0.00	49,834	3,215	0	0	0
Superstructure (Timber;Span 5m;10T)	m2	0.00	55,199	3,550	0	0	0
Superstructure (Timber;Span 8m;10T)	m2	0.00	73,115	4,665	0	0	0
Superstructure (Timber;Span 3m;BM50)	m2	0.00	61,793	3,975	0	0	0
Superstructure (Timber;Span 5m;BM50)	m2	0.00	67,462	4,309	0	0	0
Superstructure (Timber;Span 8m;BM50)	m2	0.00	85,560	5,455	0	0	0
Superstructure (Concrete;Span 3m;BM50)	m2	0.00	54,675	105,767	0	0	0
Superstructure (Concrete;Span 5m;BM50)	m2	0.00	56,060	118,299	0	0	0
Superstructure (Concrete;Span 8m;BM50)	m2	0.00	57,678	128,919	0	0	0
Superstructure (Concrete;Span10m;BM50)	m2	0.00	62,984	146,517	0	0	0
Superstructure (Concrete;Span15m;BM50)	m2	0.00	67,745	172,712	0	0	0
Substructure (Pier;for Timber;10T)	NO	0.00	434,033	29,776	0	0	0
Substructure (Abut;for Timber;10T)	NO	0.00	1,243,048	143,803	0	0	0
Substructure (Pier;for Timber;BM50)	NO	0.00	638,325	44,057	0	0	0
Substructure (Abut;for Timber;BM50)	NO	0.00	1,396,980	159,216	0	0	0
Substructure (Pier;for Concrete;BM50)	NO	0.00	2,390,993	467,275	0	0	0
Substructure (Abut;for Concrete;BM50)	NO	0.00	5,007,281	982,926	0	0	0
Demolition of Bridge (Timber->Timber)	m2	0.00	14,125	1,266	0	0	0
Demolition of Bridge (Timber->Concrete)	m2	0.00	14,125	1,266	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	107,156	79,820	0	0	0
Maintenance of Timber Bridge (New)	m2	0.00	9,710	1,054	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.00	2,380	3,001	0	0	0
Maintenance of Timber Bridge (Exist)	m2	60.00	11,930	2,370	715,800	142,200	858,000
Maintenance of Concrete Bridge (Exist)	m2	0.00	7,551	2,443	0	0	0
(Without Overhead)	TOTAL COST (Timber Bridge)				0	0	0
	(Concrete Bridge)				0	0	0
	TOTAL COST (without Maintenance)				0	0	0
(Overhead : 15%)	TOTAL COST (Timber Bridge)				0	0	0
	(Concrete Bridge)				0	0	0
	TOTAL COST (without Maintenance)				0	0	0

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO : 3 (IIIC) LENGTH : 24 Km

(Rp)

ITEM	UNIT	QUANTITY	UNIT COST LOCAL	UNIT COST FOREIGN	COST LOCAL	COST FOREIGN	TOTAL
Superstructure (Timber;Span 3m;10T)	m2	0.00	49,834	3,215	0	0	0
Superstructure (Timber;Span 5m;10T)	m2	0.00	55,199	3,550	0	0	0
Superstructure (Timber;Span 8m;10T)	m2	0.00	73,115	4,665	0	0	0
Superstructure (Timber;Span 3m;BM50)	m2	0.00	61,793	3,975	0	0	0
Superstructure (Timber;Span 5m;BM50)	m2	0.00	67,462	4,309	0	0	0
Superstructure (Timber;Span 8m;BM50)	m2	0.00	85,560	5,455	0	0	0
Superstructure (Concrete;Span 3m;BM50)	m2	0.00	54,675	105,767	0	0	0
Superstructure (Concrete;Span 5m;BM50)	m2	0.00	56,060	118,299	0	0	0
Superstructure (Concrete;Span 8m;BM50)	m2	0.00	57,678	128,919	0	0	0
Superstructure (Concrete;Span10m;BM50)	m2	0.00	62,984	146,517	0	0	0
Superstructure (Concrete;Span15m;BM50)	m2	0.00	67,745	172,712	0	0	0
Substructure (Pier;for Timber;10T)	NO	0.00	434,033	29,776	0	0	0
Substructure (Abut;for Timber;10T)	NO	0.00	1,243,048	143,803	0	0	0
Substructure (Pier;for Timber;BM50)	NO	0.00	638,325	44,057	0	0	0
Substructure (Abut;for Timber;BM50)	NO	0.00	1,396,980	159,216	0	0	0
Substructure (Pier;for Concrete;BM50)	NO	0.00	2,390,993	467,275	0	0	0
Substructure (Abut;for Concrete;BM50)	NO	0.00	5,007,281	982,926	0	0	0
Demolition of Bridge (Timber->Timber)	m2	0.00	14,125	1,266	0	0	0
Demolition of Bridge (Timber->Concrete)	m2	0.00	14,125	1,266	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	107,156	79,820	0	0	0
Maintenance of Timber Bridge (New)	m2	0.00	9,710	1,054	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.00	2,380	3,001	0	0	0
Maintenance of Timber Bridge (Exist)	m2	60.00	11,930	2,370	715,800	142,200	858,000
Maintenance of Concrete Bridge (Exist)	m2	0.00	7,551	2,443	0	0	0
(Without Overhead)	TOTAL COST (Timber Bridge)				0	0	0
	(Concrete Bridge)				0	0	0
	TOTAL COST (without Maintenance)				0	0	0
(Overhead : 15%)	TOTAL COST (Timber Bridge)				0	0	0
	(Concrete Bridge)				0	0	0
	TOTAL COST (without Maintenance)				0	0	0

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO : 4 (IIIC) LENGTH : 24 Km

(Rp)

ITEM	UNIT	QUANTITY	UNIT COST LOCAL	UNIT COST FOREIGN	COST LOCAL	COST FOREIGN	TOTAL
Superstructure (Timber;Span 3m;10T)	m2	0.00	49,834	3,215	0	0	0
Superstructure (Timber;Span 5m;10T)	m2	0.00	55,199	3,550	0	0	0
Superstructure (Timber;Span 8m;10T)	m2	0.00	73,115	4,685	0	0	0
Superstructure (Timber;Span 3m;BM50)	m2	0.00	61,793	3,975	0	0	0
Superstructure (Timber;Span 5m;BM50)	m2	0.00	67,462	4,309	0	0	0
Superstructure (Timber;Span 8m;BM50)	m2	0.00	85,560	5,455	0	0	0
Superstructure (Concrete;Span 3m;BM50)	m2	0.00	54,675	105,767	0	0	0
Superstructure (Concrete;Span 5m;BM50)	m2	0.00	56,060	118,299	0	0	0
Superstructure (Concrete;Span 8m;BM50)	m2	0.00	57,678	128,919	0	0	0
Superstructure (Concrete;Span10m;BM50)	m2	0.00	62,984	146,517	0	0	0
Superstructure (Concrete;Span15m;BM50)	m2	0.00	67,745	172,712	0	0	0
Substructure (Pier;for Timber;10T)	NO	0.00	434,033	29,776	0	0	0
Substructure (Abut;for Timber;10T)	NO	0.00	1,243,048	143,803	0	0	0
Substructure (Pier;for Timber;BM50)	NO	0.00	630,325	44,057	0	0	0
Substructure (Abut;for Timber;BM50)	NO	0.00	1,396,980	159,216	0	0	0
Substructure (Pier;for Concrete;BM50)	NO	0.00	2,390,993	467,275	0	0	0
Substructure (Abut;for Concrete;BM50)	NO	0.00	5,007,281	982,926	0	0	0
Demolition of Bridge (Timber->Timber)	m2	0.00	14,125	1,266	0	0	0
Demolition of Bridge (Timber->Concrete)	m2	0.00	14,125	1,266	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	107,156	79,820	0	0	0
Maintenance of Timber Bridge (New)	m2	0.00	9,710	1,054	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.00	2,380	3,001	0	0	0
Maintenance of Timber Bridge (Exist)	m2	60.00	11,930	2,370	715,800	142,200	858,000
Maintenance of Concrete Bridge (Exist)	m2	0.00	7,551	2,443	0	0	0
(Without Overhead)	TOTAL COST (Timber Bridge)				0	0	0
	(Concrete Bridge)				0	0	0
	TOTAL COST (without Maintenance)				0	0	0
(Overhead : 15%)	TOTAL COST (Timber Bridge)				0	0	0
	(Concrete Bridge)				0	0	0
	TOTAL COST (without Maintenance)				0	0	0

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO : 5 (IIIC) LENGTH : 12 Km

(Rp)

ITEM	UNIT	QUANTITY	UNIT COST LOCAL	UNIT COST FOREIGN	COST LOCAL	COST FOREIGN	TOTAL
Superstructure (Timber;Span 3m;10T)	m2	0.00	49,834	3,215	0	0	0
Superstructure (Timber;Span 5m;10T)	m2	0.00	55,199	3,550	0	0	0
Superstructure (Timber;Span 8m;10T)	m2	120.00	73,115	4,665	8,773,800	559,800	9,333,600
Superstructure (Timber;Span 3m;BM50)	m2	0.00	61,793	3,975	0	0	0
Superstructure (Timber;Span 5m;BM50)	m2	0.00	67,462	4,309	0	0	0
Superstructure (Timber;Span 8m;BM50)	m2	0.00	85,560	5,455	0	0	0
Superstructure (Concrete;Span 3m;BM50)	m2	0.00	54,675	105,767	0	0	0
Superstructure (Concrete;Span 5m;BM50)	m2	0.00	56,060	118,299	0	0	0
Superstructure (Concrete;Span 8m;BM50)	m2	0.00	57,678	128,919	0	0	0
Superstructure (Concrete;Span10m;BM50)	m2	0.00	62,984	146,517	0	0	0
Superstructure (Concrete;Span15m;BM50)	m2	0.00	67,745	172,712	0	0	0
Substructure (Pier;for Timber;10T)	NO	2.00	434,033	29,776	868,066	59,552	927,618
Substructure (Abut;for Timber;10T)	NO	4.00	1,243,048	143,803	4,972,192	575,212	5,547,404
Substructure (Pier;for Timber;BM50)	NO	0.00	638,325	44,057	0	0	0
Substructure (Abut;for Timber;BM50)	NO	0.00	1,396,980	159,216	0	0	0
Substructure (Pier;for Concrete;BM50)	NO	0.00	2,390,993	467,275	0	0	0
Substructure (Abut;for Concrete;BM50)	NO	0.00	5,007,281	982,926	0	0	0
Demolition of Bridge (Timber->Timber)	m2	24.00	14,125	1,266	339,000	30,384	369,384
Demolition of Bridge (Timber->Concrete)	m2	0.00	14,125	1,266	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	107,156	79,820	0	0	0
Maintenance of Timber Bridge (New)	m2	120.00	9,710	1,054	1,165,200	126,480	1,291,680
Maintenance of Concrete Bridge (New)	m2	0.00	2,380	3,001	0	0	0
Maintenance of Timber Bridge (Exist)	m2	0.00	11,930	2,370	0	0	0
Maintenance of Concrete Bridge (Exist)	m2	0.00	7,551	2,443	0	0	0
(Without Overhead) TOTAL COST (Timber Bridge)					14,953,058	1,224,948	16,178,006
(Concrete Bridge)					0	0	0
TOTAL COST (without Maintenance)					14,953,058	1,224,948	16,178,006
(Overhead : 15%) TOTAL COST (Timber Bridge)					17,196,017	1,408,690	18,604,707
(Concrete Bridge)					0	0	0
TOTAL COST (without Maintenance)					17,196,017	1,408,690	18,604,707

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO : 7 (IIIC) LENGTH : 25 Km

(Rp)

ITEM	UNIT	QUANTITY	UNIT COST LOCAL	UNIT COST FOREIGN	COST LOCAL	COST FOREIGN	TOTAL
Superstructure (Timber;Span 3m;10T)	m2	0.00	49,834	3,215	0	0	0
Superstructure (Timber;Span 5m;10T)	m2	0.00	55,199	3,550	0	0	0
Superstructure (Timber;Span 8m;10T)	m2	375.00	73,115	4,665	27,418,125	1,749,375	29,167,500
Superstructure (Timber;Span 3m;BM50)	m2	0.00	61,793	3,975	0	0	0
Superstructure (Timber;Span 5m;BM50)	m2	0.00	67,462	4,309	0	0	0
Superstructure (Timber;Span 8m;BM50)	m2	0.00	85,560	5,455	0	0	0
Superstructure (Concrete;Span 3m;BM50)	m2	0.00	54,675	105,767	0	0	0
Superstructure (Concrete;Span 5m;BM50)	m2	0.00	56,060	118,299	0	0	0
Superstructure (Concrete;Span 8m;BM50)	m2	0.00	57,678	128,919	0	0	0
Superstructure (Concrete;Span10m;BM50)	m2	0.00	62,984	146,517	0	0	0
Superstructure (Concrete;Span15m;BM50)	m2	0.00	67,745	172,712	0	0	0
Substructure (Pier;for Timber;10T)	NO	6.00	434,033	29,776	2,604,198	178,656	2,782,854
Substructure (Abut;for Timber;10T)	NO	12.00	1,243,048	143,803	14,916,576	1,725,636	16,642,212
Substructure (Pier;for Timber;BM50)	NO	0.00	638,325	44,057	0	0	0
Substructure (Abut;for Timber;BM50)	NO	0.00	1,396,980	159,216	0	0	0
Substructure (Pier;for Concrete;BM50)	NO	0.00	2,390,993	467,275	0	0	0
Substructure (Abut;for Concrete;BM50)	NO	0.00	5,007,281	982,926	0	0	0
Demolition of Bridge (Timber->Timber)	m2	262.00	14,125	1,266	3,700,750	331,692	4,032,442
Demolition of Bridge (Timber->Concrete)	m2	0.00	14,125	1,266	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	107,156	79,820	0	0	0
Maintenance of Timber Bridge (New)	m2	375.00	9,710	1,054	3,641,250	395,250	4,036,500
Maintenance of Concrete Bridge (New)	m2	0.00	2,380	3,001	0	0	0
Maintenance of Timber Bridge (Exist)	m2	0.00	11,930	2,370	0	0	0
Maintenance of Concrete Bridge (Exist)	m2	0.00	7,551	2,443	0	0	0
(Without Overhead)	TOTAL COST (Timber Bridge)				48,639,649	3,985,359	52,625,008
	(Concrete Bridge)				0	0	0
	TOTAL COST (without Maintenance)				48,639,649	3,985,359	52,625,008
(Overhead : 15%)	TOTAL COST (Timber Bridge)				55,935,596	4,583,163	60,518,759
	(Concrete Bridge)				0	0	0
	TOTAL COST (without Maintenance)				55,935,596	4,583,163	60,518,759

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO : 8 (IIIB-1) LENGTH : 13 Km

(Rp)

ITEM	UNIT	QUANTITY	<<< UNIT COST >>> LOCAL	FOREIGN	<<<<<< COST LOCAL	FOREIGN	>>>>>> TOTAL
Superstructure (Timber;Span 3m;10T)	m2	64.00	49,834	3,215	3,189,376	205,760	3,395,136
Superstructure (Timber;Span 5m;10T)	m2	0.00	55,199	3,550	0	0	0
Superstructure (Timber;Span 8m;10T)	m2	0.00	73,115	4,665	0	0	0
Superstructure (Timber;Span 3m;BM50)	m2	0.00	61,793	3,975	0	0	0
Superstructure (Timber;Span 5m;BM50)	m2	0.00	67,462	4,309	0	0	0
Superstructure (Timber;Span 8m;BM50)	m2	0.00	85,560	5,455	0	0	0
Superstructure (Concrete;Span 3m;BM50)	m2	0.00	54,675	105,767	0	0	0
Superstructure (Concrete;Span 5m;BM50)	m2	0.00	56,060	118,299	0	0	0
Superstructure (Concrete;Span 8m;BM50)	m2	0.00	57,678	128,919	0	0	0
Superstructure (Concrete;Span10m;BM50)	m2	0.00	62,984	146,517	0	0	0
Superstructure (Concrete;Span15m;BM50)	m2	0.00	67,745	172,712	0	0	0
Substructure (Pier;for Timber;10T)	NO	5.00	434,033	29,776	2,170,165	148,880	2,319,045
Substructure (Abut;for Timber;10T)	NO	2.00	1,243,048	143,803	2,486,096	287,606	2,773,702
Substructure (Pier;for Timber;BM50)	NO	0.00	638,325	44,057	0	0	0
Substructure (Abut;for Timber;BM50)	NO	0.00	1,396,980	159,216	0	0	0
Substructure (Pier;for Concrete;BM50)	NO	0.00	2,390,993	467,275	0	0	0
Substructure (Abut;for Concrete;BM50)	NO	0.00	5,007,281	982,926	0	0	0
Demolition of Bridge (Timber->Timber)	m2	64.00	14,125	1,266	904,000	81,024	985,024
Demolition of Bridge (Timber->Concrete)	m2	0.00	14,125	1,266	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	107,156	79,820	0	0	0
Maintenance of Timber Bridge (New)	m2	64.00	9,710	1,054	621,440	67,456	688,896
Maintenance of Concrete Bridge (New)	m2	0.00	2,380	3,001	0	0	0
Maintenance of Timber Bridge (Exist)	m2	112.00	11,930	2,370	1,336,160	265,440	1,601,600
Maintenance of Concrete Bridge (Exist)	m2	0.00	7,551	2,443	0	0	0
(Without Overhead)	TOTAL COST (Timber Bridge)				8,749,637	723,270	9,472,907
	(Concrete Bridge)				0	0	0
	TOTAL COST (Without Maintenance)				8,749,637	723,270	9,472,907
(Overhead : 15%)	TOTAL COST (Timber Bridge)				10,062,083	831,761	10,893,843
	(Concrete Bridge)				0	0	0
	TOTAL COST (Without Maintenance)				10,062,083	831,761	10,893,843

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO : 11 (IIIC) LENGTH : 16 Km

(Rp)

ITEM	UNIT	QUANTITY	<<< UNIT COST >>> LOCAL	FOREIGN	<<<<<< COST LOCAL	FOREIGN	>>>>>> TOTAL
Superstructure (Timber;Span 3m;10T)	m2	0.00	49,834	3,215	0	0	0
Superstructure (Timber;Span 5m;10T)	m2	0.00	55,199	3,550	0	0	0
Superstructure (Timber;Span 8m;10T)	m2	0.00	73,115	4,665	0	0	0
Superstructure (Timber;Span 3m;BM50)	m2	0.00	61,793	3,975	0	0	0
Superstructure (Timber;Span 5m;BM50)	m2	0.00	67,462	4,309	0	0	0
Superstructure (Timber;Span 8m;BM50)	m2	0.00	85,580	5,455	0	0	0
Superstructure (Concrete;Span 3m;BM50)	m2	0.00	54,675	105,767	0	0	0
Superstructure (Concrete;Span 5m;BM50)	m2	0.00	56,060	110,299	0	0	0
Superstructure (Concrete;Span 8m;BM50)	m2	0.00	57,670	120,919	0	0	0
Superstructure (Concrete;Span10m;BM50)	m2	0.00	62,984	146,517	0	0	0
Superstructure (Concrete;Span15m;BM50)	m2	0.00	67,745	172,712	0	0	0
Substructure (Pier;for Timber;10T)	NO	0.00	434,033	29,776	0	0	0
Substructure (Abut;for Timber;10T)	NO	0.00	1,243,048	143,803	0	0	0
Substructure (Pier;for Timber;BM50)	NO	0.00	638,325	44,057	0	0	0
Substructure (Abut;for Timber;BM50)	NO	0.00	1,396,980	159,216	0	0	0
Substructure (Pier;for Concrete;BM50)	NO	0.00	2,390,993	467,275	0	0	0
Substructure (Abut;for Concrete;BM50)	NO	0.00	5,007,281	982,926	0	0	0
Demolition of Bridge (Timber->Timber)	m2	0.00	14,125	1,266	0	0	0
Demolition of Bridge (Timber->Concrete)	m2	0.00	14,125	1,266	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	107,156	79,820	0	0	0
Maintenance of Timber Bridge (New)	m2	0.00	9,710	1,054	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.00	2,380	3,001	0	0	0
Maintenance of Timber Bridge (Exist)	m2	340.00	11,930	2,370	4,056,200	805,800	4,862,000
Maintenance of Concrete Bridge (Exist)	m2	0.00	7,551	2,443	0	0	0
(Without Overhead)	TOTAL COST (Timber Bridge)				0	0	0
	(Concrete Bridge)				0	0	0
	TOTAL COST (without Maintenance)				0	0	0
(Overhead : 15%)	TOTAL COST (Timber Bridge)				0	0	0
	(Concrete Bridge)				0	0	0
	TOTAL COST (without Maintenance)				0	0	0

PROV : KALIMANTAN TIMUR KAB : BULUNGAN

LINK NO : 12 (IIIB-2) LENGTH : 43 Km

(Rp)

ITEM	UNIT	QUANTITY	<<< UNIT COST >>> LOCAL	FOREIGN	<<<<<< COST LOCAL	FOREIGN	>>>>>> TOTAL
Superstructure (Timber;Span 3m;10T)	m2	0.00	49,834	3,215	0	0	0
Superstructure (Timber;Span 5m;10T)	m2	0.00	55,199	3,550	0	0	0
Superstructure (Timber;Span 8m;10T)	m2	240.00	73,115	4,665	17,547,600	1,119,600	18,667,200
Superstructure (Timber;Span 3m;BM50)	m2	0.00	61,793	3,975	0	0	0
Superstructure (Timber;Span 5m;BM50)	m2	0.00	67,462	4,309	0	0	0
Superstructure (Timber;Span 8m;BM50)	m2	0.00	85,560	5,455	0	0	0
Superstructure (Concrete;Span 3m;BM50)	m2	0.00	54,675	105,767	0	0	0
Superstructure (Concrete;Span 5m;BM50)	m2	0.00	56,060	118,299	0	0	0
Superstructure (Concrete;Span 8m;BM50)	m2	0.00	57,678	128,919	0	0	0
Superstructure (Concrete;Span10m;BM50)	m2	0.00	62,984	146,517	0	0	0
Superstructure (Concrete;Span15m;BM50)	m2	0.00	67,745	172,712	0	0	0
Substructure (Pier;for Timber;10T)	NO	4.00	434,033	29,776	1,736,132	119,104	1,855,236
Substructure (Abut;for Timber;10T)	NO	8.00	1,243,048	143,803	9,944,384	1,150,424	11,094,808
Substructure (Pier;for Timber;BM50)	NO	0.00	638,325	44,057	0	0	0
Substructure (Abut;for Timber;BM50)	NO	0.00	1,396,980	159,216	0	0	0
Substructure (Pier;for Concrete;BM50)	NO	0.00	2,390,993	467,275	0	0	0
Substructure (Abut;for Concrete;BM50)	NO	0.00	5,007,281	982,926	0	0	0
Deaolition of Bridge (Timber->Timber)	m2	0.00	14,125	1,266	0	0	0
Deaolition of Bridge (Timber->Concrete)	m2	0.00	14,125	1,266	0	0	0
Deaolition of Bridge (Concrete)	m2	0.00	107,156	79,820	0	0	0
Maintenance of Timber Bridge (New)	m2	240.00	9,710	1,054	2,330,400	252,960	2,583,360
Maintenance of Concrete Bridge (New)	m2	0.00	2,380	3,001	0	0	0
Maintenance of Timber Bridge (Exist)	m2	0.00	11,930	2,370	0	0	0
Maintenance of Concrete Bridge (Exist)	m2	0.00	7,551	2,443	0	0	0
(Without Overhead)	TOTAL COST (Timber Bridge)				29,228,116	2,389,128	31,617,244
	(Concrete Bridge)				0	0	0
	TOTAL COST (without Maintenance)				29,228,116	2,389,128	31,617,244
(Overhead : 15%)	TOTAL COST (Timber Bridge)				33,612,333	2,747,497	36,359,831
	(Concrete Bridge)				0	0	0
	TOTAL COST (without Maintenance)				33,612,333	2,747,497	36,359,831