APPENDIX

Appendix 1

INPUT DATA

FOR ESTIMATION OF THE PRODUCER'S SURPLUS BENEFIT

PRV. : RIAU KAB. : BENGKALIS SURVEY YEAR : 1983

Code No.	KECAMATAN NAME	CULTIVATED AREA : (PA)	YIELD RATE : (Y)	FARMER'S POPULATION : (AP)	CIRCULATED COMMODITY : (PG)
01	SIAK SEI. INDRAPURA	2,585	2.34	6,660	0
02	SEI. APIT	7,319	2.36	7,780	0
03	TEBING TINGGI	2,093	0.20	23,500	0
04	MERBAU	1,293.5	6.48	6,850	0
05	BENGKALIS	654	2.99	11,950	0
06	BUKIT BATU	3,629	2.69	10,900	0
07	MANDAU	1,378	1.84	1,378	0
08	TANAH PUTIH	2,105	1.92	6,950	0
09	KUBU	9,571	2.54	10,650	0
10	BANGKO	6,204.5	2.37	10,920	0
11	RUPAT	1,257	1.89	8,200	0
12	BUKIT KAPUR	1,186	2.48	4,350	0
13	DUMAI BARAT	1,046	2.37	2,700	0
14	DUMAI TIMUR	175.5	2.99	2,100	0

	r_1	r_2	r_3	r_4
ANNUAL AVERAGE GROWTH RATE %	6.5	3.0	5.5	5.9

FARMER'S CONSUMPTION : (Cp)	NON-AGRO REQUIRMENT : (NG)
0.14 Ton/head/year	0.567 Ton/ton

	SEDAN	BUS	TRUCK	MOTOR CYCLE
RATE OF EACH VEHICLE TYPE %	2.70	0.48	2.87	93.95

AVERAGE FREIGHT TONAGE	0.9 Ton/Truck

Appendix A-2 Engineering Data

ROAD LINK DATA

PROVINCE :Riau

KABUPATEN: Bengkalis

LINK NO.	BEGINNING POINT (DESA NAME)	END POINT (DESA NAME)	LENGTH (KM)	THROUGH THE KEC. NAME & LENGTH		REMARKS
				KEC. NAME	LENGTH (KM)	
01	Bengkalis	Pambang	57	Bengkalis	57	1
02	Selat Panjang	Lalang	15	Tebing Tinggi	15	4
03	Insit	Alahai	5	Tebing Tinggi	5	11
04	Bantar	Tanjung Kedabu	30	Tebing Tinggi	30	37
05	Pambang	Pematang Duku	20	Bengkalis	20	6
06	Bengkalis	Ketam Putih	30	Bengkalis	30	2
07	Sungai Pakning	Lubuk Muda	10	Bukit Batu	10	7
08	Simpang berkat	Siarang-arang	8	Tanah Putih	8	12
09	Teluk Belitung	Dedap	40	Merbau	40	5
10	Sei Apit	Mengkapan	21	Sungai Apit	21	28
11	Sei Apit	Tanjung Kuras	8	Sungai Apit	8	19
12	Sei Apit	Benuar	20	Sungai Apit	20	18
13	Bengkalis	Prapat Tunggal	18	Bengkalis	18	10
14	Teluk Merbau	Rantau Panjang Kanan	6	Kubu	6	20
15	Rantau Panjang kiri	Sei Pinang	4	Kubu	4	21
16	Rantau Panjang kiri	Teluk Nilap	4	Kubu	4	23
17	Teluk Nilap	Pinang Road	8.5	Kubu	8.5	22
18	Ujung Tanjung	Sedinginan	17	Tanah Putih	17	24
19	Bagan Siapi-api	Kampung Jawa	3	Bangko	3	25
20	Bagan Siapi-api	Bagan Punak	4	Bangko	4	26
21	Siarang-arang	Pujud	15	Tanah Putih	15	16
22	Tanjung Palas	Pelintung	18	Dumai Timur	18	27
23	Dumai	Besilam	30	Bukit Kapur Dumai Barat	11 4	9
24	Bukit Timah	Bukit Kapur	6	Bkt. Kapur	6	17

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 : Riau

KABUPATEN: Bengkalis

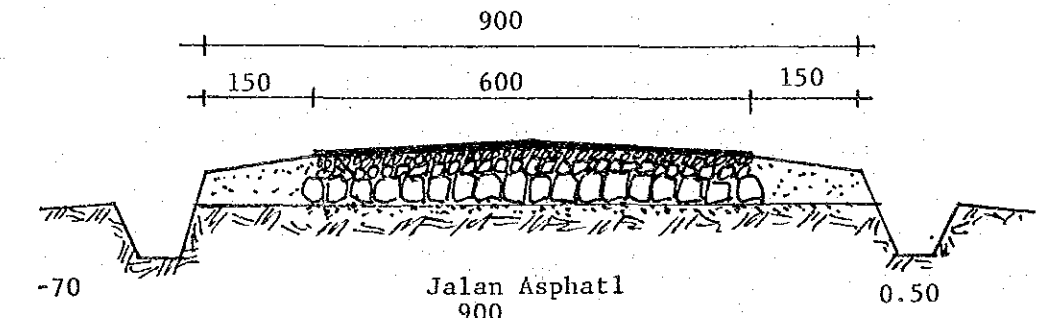
LINK NO.	BEGINNING POINT (DESA NAME)	END POINT (DESA NAME)	LENGTH (KM)	THROUGH THE KEC. NAME & LENGTH		REMARKS
				KEC. NAME	LENGTH (KM)	
25	Bukit Kapur	Bagan Besar	5	Bukit Kapur	5	13
26	Batu Panjang	Pangkalan Buah	30	Rupat	30	30
27	Bagan Batu	Bagan Sinembah	18	Kubu	18	14
28	Baran Melintang	Centai	30	Merbau	22	
29	Bukit Kapur	Pelintung	22	Bukit Kapur	32	15
30	Kampung Jawa	Seneboi	32	Bangko Bukit Kapur	29 3	3
31	Sokop	Tg. Samak	33	T. Tinggi	5	34
32	Teluk Belitung	Meranti Bunting	20	Merbau	20	29
33	Selat Baru	Pantai	5	Bengkalis	5	8
34	Tanjung Medang	Pangkalan Nyirih	15	Rupat	15	31
35	Pangkalan Nyirih	Titi Akar	15	Rupat	15	32

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

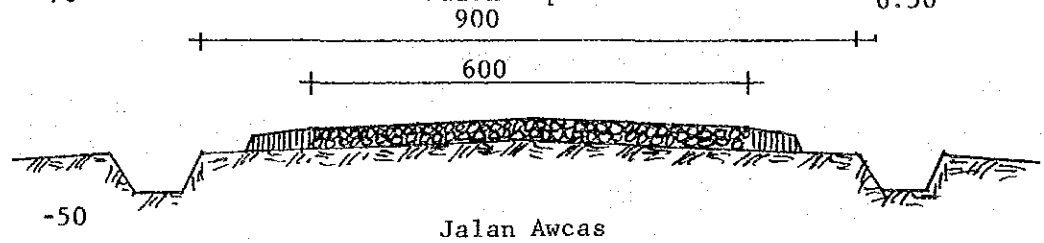
What Kind of Design Criteria has being applied for the new road construction and the improvement for the Kabupaten Road ?
Kriteria Perencanaan yang dipakai pada program penanganan jalan Kabupaten, baik untuk jalan lama maupun pembangunan baru.

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)

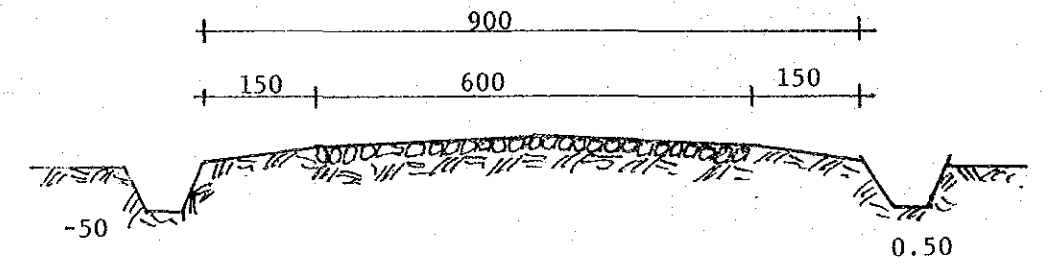
TYPICAL CROSS SECTION.



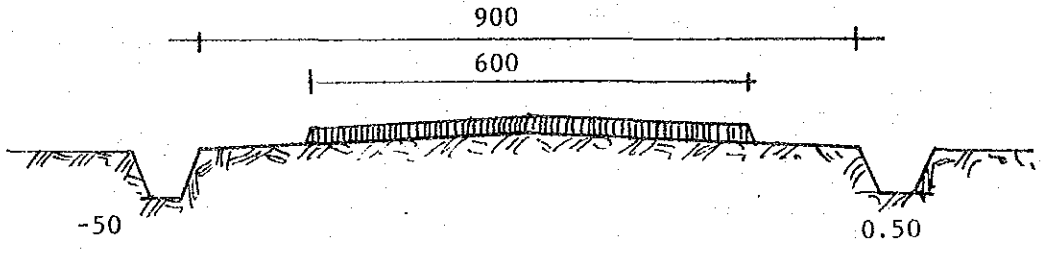
Jalan Asphatl



Jalan Awcas



Jalan Kerikil



Jalan Tanah

PROPINSI: Riau

KABUPATEN: Bengkalis

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	L O C A T I O N From - To (dari - ke)	Lebar perkerasan(m) / Lebar Jembatan	Type perkerasan / Type Jembatan	LENGTH Panjang (KM)	COSTS Harga (Rp 10^6)	REMARKS Keterangan
30	Bagan Siapi-api-Sina Boi	7m / 5m	Earth / Timber	5.121	90,160	
30	Bagan Siapi-api - Sina Boi	7m / 5m	Earth / Timber	9.879	84,850	
30	Bagan Siapi-api - Sina Boi	3m / 4m	Gravel / Timber	2.500	8,209	
	Desa Rajajamu menuju proyek Bagan Siapi-api - Sina Boi					

* 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: Riau

E-03-(2)

KABUPATEN: Bengkalis

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
29	Bukit Kapur - Pelintung (Dumai - Sei Pakning)	15 m 10 m	Earth Timber	22.000	152,362	
30	Bagan Siapi-api - Sina Boi	9 m 6 m	Earth Timber	9.000	72,960	
30	Bagan Siapi-api - Sina Boi	9 m 6 m	Earth Timber	7.500	88,880	
30	Bagan Siapi-api - Sina Boi	3 m 4m	Gravel Timber	2.000	16,140	

* 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: Riau

E-03-(3)

KABUPATEN:Bengkalis

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	L O C A T I O N From - To (dari - ke)	Lebar perkerasan(m) / Lebar Jembatan	Type perkerasan / Type Jembatan	LENGTH Panjang (KM)	COSTS Harga (Rp 10^6)	REMARKS Keterangan
01	Bengkalis - Pambang	8 m	Earth	14.080	223,960	
		6 m	Timber			
01	Bengkalis - Pambang	8 m	Earth	9.420	140,920	
		6 m	Timber			
01	Bengkalis - Pambang	8 m	Earth	16.500	200,683	
		6 m	Timber			
29	Bukit Kapur - Pelintang	10 m	Timber	3.000	15,437	

* 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: Riau

E-03-(4)

KABUPATEN: Bengkalis

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
01	Bengkalis - Pambang (Muntai - Banan)	8 m	Earth	6.800	98,800	
		6 m	Timber			
01	Bengkalis - Pambang (Banan - Pambang)	8 m	Earth	6.200	98,070	
		6 m	Timber			
01	Bengkalis - Pambang (Simpang Sukajadi-ArahKembung	8 m	earth	2.500	36,718	
		6 m	Timber			
06	Bengkalis - Ketam Putih (Sei Alam - Penampi)	8 m	Earth	4.650	90,904	
		6 m	Timber			
06	Bengkalis - Ketam Putih (Penampi-Temeran-Penebal	8 m	Earth	7.850	94,809	
		6 m	Timber			
06	Bengkalis - Ketam Putih (Penebal-Pematang Duku)	8 m	Earth	4.750	78,020	
		6 m	Timber			
06	Bengkalis - Ketam Putih (PematangDuku-Sliau)	8 m	Earth	3.750	69 ,710	
		6 m	Timber			
06	Bengkalis - Ketam Putih (Sliau - Ketam Putih)	8 m	Earth	2.700	63,892	
		6 m	Timber			
02	Selat Panjang - Lalang (Selat Panjang-Insit)	7 m	Earth	6.000	82,907	
		5 m	Timber			
02	Selat Panjang - Lalang (Insit - Alai)	7 m	Earth	5.656	94,792	
		5 m	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: Riau

E-03-(5)

KABUPATEN:Bengkalis

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
01	Bengkalis - Pambang (Bamtamtu - Bantan Tua)	4 m	Gravel/Awcas	2.950	86,936	
01	Bengkalis - Pambang (Bantan Tua - Pasirah)	4 m 5 m	Gravel/Awcas Beton	3.050	78,377	
01	Bengkalis - Pambang (Pasikan - Selat Baru)	4 m	Gravel/Awcas	4.000	94,010	
23	Dumai - Basilam (Bangsal Aceh-Lubuk Gaung)	10 m 6 m	Earth Timber	3.650	71,215	
23	Dumai Basilam (Lubuk Gaung-Lubuk Gaung)	10 m 6 m	Earth Timber	3.750	55,913	
23	Dumai Basilam (Lubuk Gaung - Lubuk Gaung)	10 m 6 m	Earth Timber	2.600	63,863	
09	Teluk Belitung - Dedap (Kp Jawa-Bagan Melibur)	6 m 4 m	Earth Timber	5.100	69,163	
09	Teluk Belitung - Dedap (Bagan Melibur-Semelibur-Mengkirau)	6 m 4 m	Earth Timber	2.700	70,710	
09	Teluk Belitung - Dedap (Mengkirau-Mengkopot)	6 m 4 m	Earth Timber	3.950	57,066	
02	Selat Panjang - Lalang (Selat Panjang - Insit)	7 m 5 m	Earth Timber	5.800	73,315	
02	Selat Panjang - Lalang (Insit - Desa Tanjung)	7 m 5 m	Earth Timber	3.700	55,890	
02	Selat Panjang - Lalang (Desa Tanjung-Berkung)	7 m 5 m	Earth Timber	2.078	51,774	

* 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 : Riau

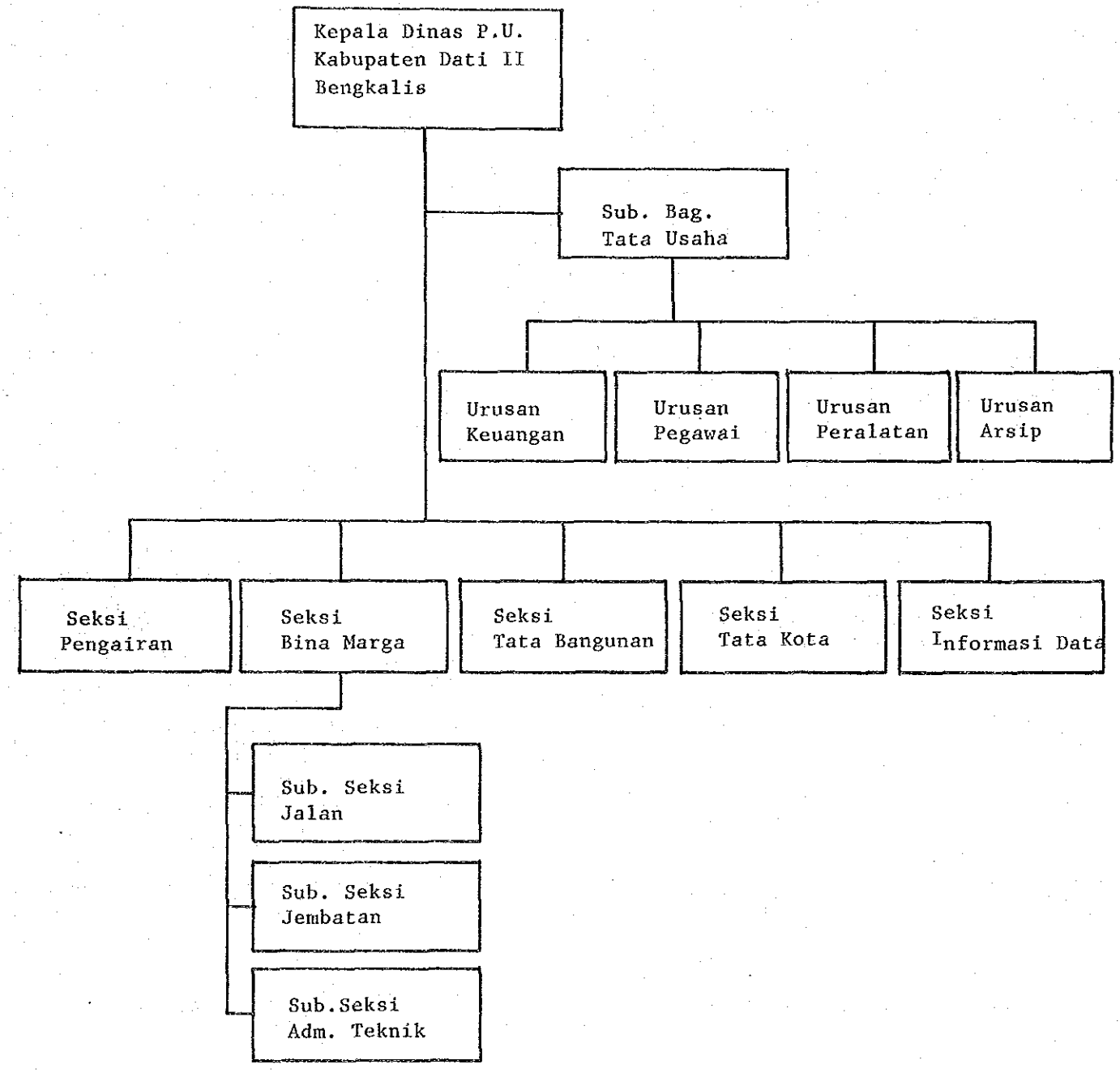
E-04

KABUPATEN: Bengkalis

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: Riau

KABUPATEN: Bengkalis

DESCRIPTION /Uraian	NUMBER / Jumlah	REMARKS Keterangan
CONTROLING STAFF Staff teknis PUK	(20)	(5)
DPUK ENGINEED Sarjana Teknik	-	
ASSISTANT ENGINEER Sarjana Muda Teknik	6	
TECHNICIAN STAFF Staff Teknik (STM)	14	5
ADMINISTRATION Tenaga Administrasi	16	
SUPERVISOR Tenaga Pengawas	14	1
WORKING FORCE Tenaga Pelaksana Lapangan	(7)	(6)
OPERATORS Operators	7	6
DRIVERS Supir		
MECHANICS Mechanic		
TRADESMAN Tukang		
L A B O U R Buruh / Pekerja		
OTHERS Lain-lain		
TOTAL / JUMLAH	57	12

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

LOCATION AND AREA OF DPUK WORKSHOP E-06

Lokasi Workshop DPUK

PROPINSI : Riau

KABUPATEN: Bengkalis

LOCATION Lokasi	AREA (m2) Luas	NUMBER Jumlah	REMARKS Keterangan
Batu Kapur	3.000	1	

PROPINSI: Riau

KABUPATEN: Bengkalis

E-07

LAND ACQUISITION COST

Daftar harga pembebasan tanah

DESCRIPTION Uraian	UNIT Satuan	RATE (RP) Harga	REMARKS Keterangan
CITY/kota	M2	1.400	
VILLAGE / desa	M2	800	
RICE FIELD/sawah	M2	700	
DRY FIELD/ladang	M2	600	
MIX CROPS/panen	M2	-	
FOREST/hutan	M2	100	
SWAMP / rawa	M2	100	
OTHERS / lain-lain	M2		

PROPINSI: Riau

KABUPATEN: Bengkalis

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
7	B2	119,227,857	-	
17	C1	69,810,647	-	
7	C2	37,047,000	-	
35	C3	35,836,143	-	

NOTE: DATI II

PROPINSI: Riau

KABUPATEN: Bengkalis

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							
Motor Grader							
Tyre Roller							
Steel Whell Roller							
Vibration Roller		1979	1	-	1		
Wheel Loader							
Front End Loader and Backhoe							
Mobile Crane							
Concrete Mixer							
Stone Crusher							
Portable Compressor							
Hydraulic Excavator		1980	1	-	1		
Asphalt Paving Machine							
Asphalt Sprayer							
Asphalt Mixing Machine							
Mobile Workshop							
Mechanic Rammer							
Plate Tamper							
Pile Driver							
Leg Drill							
Hand Hammer		1980	2	-	2		
Farm Tractor							
Dump Truck		1983	3	-	3		
Water Tank Truck							
Fuel Tank Truck							
Pick Up							
Jeep							
Motorcycle		1984	5	-	5		
Generator		1980	2	-	2		
Water Pump		1981	2	-	2		
Others							
-							

PROPINSI: Riau

KABUPATEN: Bengkalis

LIST OF EXISTING EQUIPMENT OF P.U KABUPATEN

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							
Motor Grader							
Tyre Roller							
Steel Whell Roller		1978	11	-	11		
Vibration Roller							
Wheel Loader							
Front End Loader and Backhoe							
Mobile Crane							
Concrete Mixer							
Stone Crusher		1980	1	-	1		
Portable Compressor							
Hydraulic Excavator							
Asphalt Paving Machine							
Asphalt Sprayer							
Asphalt Mixing Machine							
Mobile Workshop							
Mechanic Rammer							
Plate Tamper							
Pile Driver							
Leg Drill							
Hand Hammer		1978	2	-	2		
Farm Tractor							
Dump Truck							
Water Tank Truck							
Fuel Tank Truck							
Pick Up							
Jeep							
Motorcycle		1982	4	-	4		
Generator		1983	1	-	1		
Water Pump							
Others							

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

PROV : RIAU KAB : BENGKALIS

LINK NO : 7 (IIIC) LENGTH : 10 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	201	91	0	0	0
Subgrade Preparation	m2	70000.0	26	11	1,820,000	770,000	2,590,000
Normal Fill	m3	0.0	2,084	862	0	0	0
Fill in Swamp	m3	1860.0	15,739	267	29,274,540	496,620	29,771,160
Normal Excavation to Spoil	m3	4120.0	1,214	522	5,001,680	2,150,640	7,152,320
Cement Stabilizing	m3	6400.0	20,950	11,979	134,080,000	76,665,600	210,745,600
Cement Stabilizing	m3	0.0	20,950	11,979	0	0	0
Shoulder	m2	30000.0	365	146	10,950,000	4,380,000	15,330,000
Asphalt Patching	m2	0.0	12,313	1,104	0	0	0
Surface Dressing (Single)	m2	0.0	1,734	640	0	0	0
Surface Dressing (Double)	m2	0.0	2,428	1,004	0	0	0
Earth Drain	m	0.0	1,142	119	0	0	0
Earth Drain in Swamp (by machine)	m3	6000.0	1,497	473	8,982,000	2,838,000	11,820,000
Pipe Culvert D80cm	m	77.0	84,875	41,489	6,535,375	3,194,653	9,730,028
Masonry Culvert (80x80cm)	m	0.0	150,350	34,870	0	0	0
Retaining Wall and Wing Wall (Timber)	m2	600.0	13,014	246	7,808,400	147,600	7,956,000
Retaining Wall and Wing Wall (Masonry)	m3	28.8	111,234	10,370	3,203,539	298,656	3,502,195
Gabion Protection	m3	0.0	46,371	120	0	0	0
New Bridge (Timber)	SET	1.0	--	--	0	0	0
New Bridge (Concrete)	SET	1.0	--	--	0	0	0
			Sub Total		207,655,534	90,941,769	298,597,303
Overhead (15%)					31,148,330	13,641,265	44,789,595
			TOTAL COST		238,803,864	104,583,034	343,386,898
Manual routine maintenance of road	Km	10.0	187,896	7,236	1,878,960	72,360	1,951,320
Routine maintenance of gravel road	Km	10.0	1,259,334	42,615	12,593,340	426,150	13,019,490
			Sub Total		14,472,300	498,510	14,970,810
Maintenance of Timber Bridge (New)	m2	0.0	9,059	1,121	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.0	3,733	2,662	0	0	0
Maintenance of Timber Bridge (Exist)	m2	102.0	9,339	2,403	952,578	245,106	1,197,684
Maintenance of Concrete Bridge (Exist)	m2	0.0	5,556	2,375	0	0	0

Earthwork & Pavement	Unit Cost	(Rp/Km)	:	34,338,690
Timber Bridge	Unit Cost	(Rp/m2)	:	
Concrete Bridge	Unit Cost	(Rp/m2)	:	
Survived Value		(Rp)	:	84,298,240
Maintenance Rate without Bridge		(%)	:	4.36
New Bridge Cost Rate		(%)	:	

PROV : RIAU KAB : BENGKALIS

LINK NO : 9 (IIIC) LENGTH : 40 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	COST TOTAL
Site Clearance in Light Bush	m2	30000.0	201	91	6,030,000	2,730,000	8,760,000
Subgrade Preparation	m2	240000.0	28	11	6,240,000	2,640,000	8,880,000
Normal Fill	m3	0.0	2,084	862	0	0	0
Fill in Swamp	m3	0.0	15,739	267	0	0	0
Normal Excavation to Spoil	m3	14494.0	1,214	522	17,595,716	7,565,868	25,161,584
Cement Stabilizing	m3	25600.0	20,950	11,979	536,320,000	306,662,400	842,982,400
Cement Stabilizing	m3	0.0	20,950	11,979	0	0	0
Shoulder	m2	80000.0	365	146	29,200,000	11,680,000	40,880,000
Asphalt Patching	m2	0.0	12,313	1,104	0	0	0
Surface Dressing (Single)	m2	0.0	1,734	640	0	0	0
Surface Dressing (Double)	m2	0.0	2,428	1,004	0	0	0
Earth Drain	m	0.0	1,142	319	0	0	0
Earth Drain in Swamp (by machine)	m3	0.0	1,497	473	0	0	0
Pipe Culvert D80cm	m	66.0	84,875	41,489	5,601,750	2,738,274	8,340,024
Masonry Culvert (80x80cm)	m	0.0	150,350	34,870	0	0	0
Retaining Wall and Wing Wall (Timber)	m2	3000.0	13,014	246	39,042,000	738,000	39,780,000
Retaining Wall and Wing Wall (Masonry)	m3	0.0	111,234	10,370	0	0	0
Gabion Protection	m3	0.0	46,371	120	0	0	0
New Bridge (Timber)	SET	1.0	--	--	0	0	0
New Bridge (Concrete)	SET	1.0	--	--	0	0	0
			Sub Total		640,029,466	334,754,542	974,784,008
Overhead (15%)					96,004,419	50,213,181	146,217,600
			TOTAL COST		736,033,885	384,967,723	1,121,001,608
Manual routine maintenance of road	Km	40.0	187,896	7,236	7,515,840	289,440	7,805,280
Routine maintenance of gravel road	Km	40.0	1,259,334	42,615	50,373,360	1,704,600	52,077,960
			Sub Total		57,889,200	1,994,040	59,883,240
Maintenance of Timber Bridge (New)	m2	0.0	9,059	1,121	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.0	3,733	2,662	0	0	0
Maintenance of Timber Bridge (Exist)	m2	240.0	9,339	2,403	2,241,360	576,720	2,818,080
Maintenance of Concrete Bridge (Exist)	m2	0.0	5,556	2,375	0	0	0

Earthwork & Pavement	Unit Cost	(Rp/Km)	:	28,025,040
Timber Bridge	Unit Cost	(Rp/m2)	:	
Concrete Bridge	Unit Cost	(Rp/m2)	:	
Survived Value		(Rp)	:	337,192,960
Maintenance Rate without Bridge		(%)	:	5.34
New Bridge Cost Rate		(%)	:	

PROV : RIAU KAB : BENGKALIS

LINK NO : 10 (IIIB-1) LENGTH : 21 Km

UPGRADE : 7.0m road bed, 4.0m road with surface Dressing (1)

(Rp)

ITEM	UNIT	QUANTITY	UNIT COST LOCAL	UNIT COST FOREIGN	COST LOCAL	COST FOREIGN	TOTAL
Site Clearance in Light Bush	m2	3000.0	201	91	603,000	273,000	876,000
Subgrade Preparation	m2	140000.0	26	11	3,640,000	1,540,000	5,180,000
Normal Fill	m3	0.0	2,084	862	0	0	0
Fill in Swamp	m3	0.0	15,739	267	0	0	0
Normal Excavation to Spoil	m3	10561.0	1,214	522	12,821,054	5,512,842	18,333,896
Cement Stabilizing	m3	11340.0	20,950	11,979	237,573,000	135,841,860	373,414,860
Cement Stabilizing	m3	5600.0	20,950	11,979	117,320,000	67,082,400	184,402,400
Shoulder	m2	63000.0	365	146	22,995,000	9,198,000	32,193,000
Asphalt Patching	m2	12.0	12,313	1,104	147,756	13,248	161,004
Surface Dressing (Single)	m2	84000.0	1,734	640	145,656,000	53,760,000	199,416,000
Surface Dressing (Double)	m2	0.0	2,428	1,004	0	0	0
Earth Drain	m	0.0	1,142	119	0	0	0
Earth Drain in Swamp (by machine)	m3	0.0	1,497	473	0	0	0
Pipe Culvert D80cm	m	20.0	84,875	41,489	1,697,500	829,780	2,527,280
Masonry Culvert (80x80cm)	m	0.0	150,350	34,870	0	0	0
Retaining Wall and Wing Wall (Timber)	m2	3000.0	13,014	246	39,042,000	738,000	39,780,000
Retaining Wall and Wing Wall (Masonry)	m3	6.4	111,234	10,370	711,897	66,368	778,265
Gabion Protection	m3	0.0	46,371	120	0	0	0
New Bridge (Timber)	SET	1.0	--	--	0	0	0
New Bridge (Concrete)	SET	1.0	--	--	0	0	0
			Sub Total		582,207,207	274,855,498	857,062,705
Overhead (15%)					87,331,081	41,228,324	128,559,405
			TOTAL COST		669,538,288	316,083,822	985,622,110
Manual routine maintenance of road	Km	21.0	187,896	7,236	3,945,816	151,956	4,097,772
Routine maintenance of asphalt road	Km	21.0	1,231,300	110,400	25,857,300	2,318,400	28,175,700
			Sub Total		29,803,116	2,470,356	32,273,472
Maintenance of Timber Bridge (New)	m2	0.0	9,059	1,121	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.0	3,733	2,662	0	0	0
Maintenance of Timber Bridge (Exist)	m2	0.0	9,339	2,403	0	0	0
Maintenance of Concrete Bridge (Exist)	m2	0.0	5,556	2,375	0	0	0

Earthwork & Pavement	Unit Cost	(Rp/Km)	:	46,934,386
Timber Bridge	Unit Cost	(Rp/m2)	:	
Concrete Bridge	Unit Cost	(Rp/m2)	:	
Survived Value		(Rp)	:	298,270,882
Maintenance Rate without Bridge		(%)	:	3.27
New Bridge Cost Rate		(%)	:	

PROV : RIAU KAB : BENGKALIS

LINK NO : 12 (IIIB-2) LENGTH : 20 Km

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

(Rp)

ITEM	UNIT	QUANTITY	UNIT COST LOCAL	UNIT COST FOREIGN	COST LOCAL	COST FOREIGN	COST TOTAL
Site Clearance in Light Bush	m2	4000.0	201	91	804,000	364,000	1,168,000
Subgrade Preparation	m2	96000.0	26	11	2,496,000	1,056,000	3,552,000
Normal Fill	m3	0.0	2,084	862	0	0	0
Fill in Swamp	m3	0.0	15,739	267	0	0	0
Normal Excavation to Spoil	m3	8660.0	1,214	522	10,513,240	4,520,520	15,033,760
Cement Stabilizing	m3	9660.0	20,950	11,979	202,377,000	115,717,140	318,094,140
Cement Stabilizing	m3	4800.0	20,950	11,979	100,560,000	57,499,200	158,059,200
Shoulder	m2	40000.0	365	146	14,600,000	5,840,000	20,440,000
Asphalt Patching	m2	0.0	12,313	1,104	0	0	0
Surface Dressing (Single)	m2	0.0	1,734	640	0	0	0
Surface Dressing (Double)	m2	0.0	2,428	1,004	0	0	0
Earth Drain	m	0.0	1,142	119	0	0	0
Earth Drain in Swamp (by machine)	m3	0.0	1,497	473	0	0	0
Pipe Culvert D80cm	m	68.0	84,875	41,489	5,771,500	2,821,252	8,592,752
Masonry Culvert (80x80cm)	m	0.0	150,350	34,870	0	0	0
Retaining Wall and Wing Wall (Timber)	m2	0.0	13,014	246	0	0	0
Retaining Wall and Wing Wall (Masonry)	m3	9.6	111,234	10,370	1,067,846	99,552	1,167,398
Gabion Protection	m3	0.0	46,371	120	0	0	0
New Bridge (Timber)	SET	1.0	--	--	0	0	0
New Bridge (Concrete)	SET	1.0	--	--	0	0	0
			Sub Total		338,189,586	187,917,664	526,107,250
Overhead (15%)					50,728,437	28,187,649	78,916,086
			TOTAL COST		388,918,023	216,105,313	605,023,336
Manual routine maintenance of road	Km	20.0	187,896	7,236	3,757,920	144,720	3,902,640
Routine maintenance of gravel road	Km	20.0	1,259,334	42,615	25,186,680	852,300	26,038,980
			Sub Total		28,944,600	997,020	29,941,620
Maintenance of Timber Bridge (New)	m2	0.0	9,059	1,121	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.0	3,733	2,662	0	0	0
Maintenance of Timber Bridge (Exist)	m2	120.0	9,339	2,403	1,195,392	307,584	1,502,976
Maintenance of Concrete Bridge (Exist)	m2	0.0	5,556	2,375	0	0	0

Earthwork & Pavement	Unit Cost	(Rp/Km)	:	30,251,167
Timber Bridge	Unit Cost	(Rp/m2)	:	
Concrete Bridge	Unit Cost	(Rp/m2)	:	
Survived Value		(Rp)	:	159,047,070
Maintenance Rate without Bridge		(%)	:	4.95
New Bridge Cost Rate		(%)	:	

PROV : RIAU KAB : BENGKALIS

LINK NO : 30 (IIIC) LENGTH : 32 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	TOTAL
Site Clearance in Light Bush	m2	0.0	201	91	0	0	0
Subgrade Preparation	m2	0.0	26	11	0	0	0
Normal Fill	m3	0.0	2,084	862	0	0	0
Fill in Swamp	m3	0.0	15,739	267	0	0	0
Normal Excavation to Spoil	m3	8000.0	1,214	522	9,712,000	4,176,000	13,888,000
Cement Stabilizing	m3	3246.0	20,950	11,979	68,003,700	38,883,834	106,887,534
Cement Stabilizing	m3	7680.0	20,950	11,979	160,896,000	91,998,720	252,894,720
Shoulder	m2	96000.0	365	146	35,040,000	14,016,000	49,056,000
Asphalt Patching	m2	0.0	12,313	1,104	0	0	0
Surface Dressing (Single)	m2	0.0	1,734	640	0	0	0
Surface Dressing (Double)	m2	0.0	2,428	1,004	0	0	0
Earth Drain	m	0.0	1,142	119	0	0	0
Earth Drain in Swamp (by machine)	m3	0.0	1,497	473	0	0	0
Pipe Culvert D80cm	m	0.0	84,875	41,489	0	0	0
Masonry Culvert (80x80cm)	m	0.0	150,350	34,870	0	0	0
Retaining Wall and Wing Wall (Timber)	m2	0.0	13,014	246	0	0	0
Retaining Wall and Wing Wall (Masonry)	m3	0.0	111,234	10,370	0	0	0
Gabion Protection	m3	0.0	46,371	120	0	0	0
New Bridge (Timber)	SET	1.0	--	--	0	0	0
New Bridge (Concrete)	SET	1.0	--	--	0	0	0
			Sub Total		273,651,700	149,074,554	422,726,254
Overhead (15%)					41,047,755	22,361,183	63,408,938
			TOTAL COST		314,699,455	171,435,737	486,135,192
Manual routine maintenance of road	Km	32.0	187,896	7,236	6,012,672	231,552	6,244,224
Routine maintenance of gravel road	Km	32.0	1,259,334	42,615	40,298,688	1,363,680	41,662,368
			Sub Total		46,311,360	1,595,232	47,906,592
Maintenance of Timber Bridge (New)	m2	0.0	9,059	1,121	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.0	3,733	2,662	0	0	0
Maintenance of Timber Bridge (Exist)	m2	1570.0	9,339	2,403	14,662,230	3,772,710	18,434,940
Maintenance of Concrete Bridge (Exist)	m2	0.0	5,556	2,375	0	0	0

Earthwork & Pavement	Unit Cost	(Rp/Km)	:	15,191,725
Timber Bridge	Unit Cost	(Rp/m2)	:	
Concrete Bridge	Unit Cost	(Rp/m2)	:	
Survived Value		(Rp)	:	42,755,013
Maintenance Rate without Bridge		(%)	:	9.85
New Bridge Cost Rate		(%)	:	

PROV : RIAU KAB : BENGKALIS

LINK NO : 11 (IIIB-1) LENGTH : 8 Km

UPGRADE : 7.0m road bed, 4.0m 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	0.0	201	91	0	0	0
Subgrade Preparation	m2	56000.0	26	11	1,456,000	616,000	2,072,000
Normal Fill	m3	0.0	2,084	862	0	0	0
Fill in Swamp	m3	0.0	15,739	267	0	0	0
Normal Excavation to Spoil	m3	2304.0	1,214	522	2,797,056	1,202,688	3,999,744
Cement Stabilizing	m3	4480.0	20,950	11,979	93,856,000	53,665,920	147,521,920
Cement Stabilizing	m3	2240.0	20,950	11,979	46,928,000	26,832,960	73,760,960
Shoulder	m2	24000.0	365	146	8,760,000	3,504,000	12,264,000
Asphalt Patching	m2	0.0	12,313	1,104	0	0	0
Surface Dressing (Single)	m2	32000.0	1,734	640	55,488,000	20,480,000	75,968,000
Surface Dressing (Double)	m2	0.0	2,428	1,004	0	0	0
Earth Drain	m	0.0	1,142	119	0	0	0
Earth Drain in Swamp (by machine)	m3	0.0	1,497	473	0	0	0
Pipe Culvert D80cm	m	4.0	84,875	41,489	339,500	165,956	505,456
Masonry Culvert (80x80cm)	m	0.0	150,350	34,870	0	0	0
Retaining Wall and Wing Wall (Timber)	m2	0.0	13,014	246	0	0	0
Retaining Wall and Wing Wall (Masonry)	m3	0.0	111,234	10,370	0	0	0
Gabion Protection	m3	0.0	46,371	120	0	0	0
New Bridge (Timber)	SET	1.0	--	--	10,014,816	780,392	10,795,208
New Bridge (Concrete)	SET	1.0	--	--	0	0	0
			Sub Total		219,639,372	107,247,916	326,887,288
Overhead (15%)					32,945,905	16,087,187	49,033,092
			TOTAL COST		252,585,277	123,335,103	375,920,380
Manual routine maintenance of road	Km	8.0	187,896	7,236	1,503,168	57,888	1,561,056
Routine maintenance of asphalt road	Km	8.0	1,231,300	110,400	9,850,400	883,200	10,733,600
			Sub Total		11,353,568	941,088	12,294,656
Maintenance of Timber Bridge (New)	m2	48.0	9,059	1,121	434,832	53,808	488,640
Maintenance of Concrete Bridge (New)	m2	0.0	3,733	2,662	0	0	0
Maintenance of Timber Bridge (Exist)	m2	0.0	9,339	2,403	0	0	0
Maintenance of Concrete Bridge (Exist)	m2	0.0	5,556	2,375	0	0	0

Earthwork & Pavement	Unit Cost	(Rp/Km)	:	45,438,237
Timber Bridge	Unit Cost	(Rp/m2)	:	258,635
Concrete Bridge	Unit Cost	(Rp/m2)	:	
Survived Value		(Rp)	:	118,017,536
Maintenance Rate without Bridge		(%)	:	3.38
New Bridge Cost Rate		(%)	:	3.30

PROV : RIAU KAB : BENGKALIS

LINK NO : 19 (IIIC) LENGTH : 3 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	0.0	201	91	0	0	0
Subgrade Preparation	m2	18000.0	26	11	468,000	198,000	666,000
Normal Fill	m3	0.0	2,089	862	0	0	0
Fill in Swamp	m3	0.0	15,739	767	0	0	0
Normal Excavation to Spoil	m3	1141.0	1,219	522	1,388,816	597,168	1,985,984
Cement Stabilizing	m3	1920.0	20,950	11,979	40,224,000	22,999,680	63,223,680
Cement Stabilizing	m3	0.0	20,950	11,979	0	0	0
Shoulder	m2	6000.0	365	146	2,190,000	876,000	3,066,000
Asphalt Patching	m2	0.0	12,313	1,104	0	0	0
Surface Dressing (Single)	m2	0.0	1,734	640	0	0	0
Surface Dressing (Double)	m2	0.0	2,428	1,004	0	0	0
Earth Drain	m	0.0	1,142	119	0	0	0
Earth Drain in Swamp (by machine)	m3	0.0	1,497	473	0	0	0
Pipe Culvert D80cm	m	0.0	84,875	41,489	0	0	0
Masonry Culvert (80x80cm)	m	0.0	150,350	34,870	0	0	0
Retaining Wall and Wing Wall (Timber)	m2	700.0	13,014	246	9,109,800	172,200	9,282,000
Retaining Wall and Wing Wall (Masonry)	m3	0.0	111,234	10,370	0	0	0
Gabion Protection	m3	0.0	46,311	120	0	0	0
New Bridge (Timber)	SET	1.0	--	--	0	0	0
New Bridge (Concrete)	SET	1.0	--	--	0	0	0
			Sub Total		53,380,616	24,843,048	78,223,664
Overhead (15%)					8,007,092	3,726,457	11,733,549
			TOTAL COST		61,387,708	28,569,505	89,957,213
Manual routine maintenance of road	Km	3.0	187,896	7,236	563,688	21,708	585,396
Routine maintenance of gravel road	Km	3.0	1,259,334	42,615	3,778,002	127,845	3,905,847
			Sub Total		4,341,690	149,553	4,491,243
Maintenance of Timber Bridge (New)	m2	0.0	9,059	1,121	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.0	3,733	2,662	0	0	0
Maintenance of Timber Bridge (Exist)	m2	84.0	9,339	2,403	784,476	201,852	986,328
Maintenance of Concrete Bridge (Exist)	m2	0.0	5,556	2,375	0	0	0

Earthwork & Pavement	Unit Cost	(Rp/Km)	:	29,985,738
Timber Bridge	Unit Cost	(Rp/m2)	:	
Concrete Bridge	Unit Cost	(Rp/m2)	:	
Survived Value		(Rp)	:	25,289,472
Maintenance Rate without Bridge		(%)	:	4.99
New Bridge Cost Rate		(%)	:	

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

PROV : RIAU KAB : BENGKALIS

ITEM	UNIT	(1988)	(1989)	(1990)	(1991)	(1992)	(TOTAL)
EQUIPMENT :							
Bulldozer	hr	350.1	756.7	878.4	1033.5	1129.5	4148.2
Bulldozer/Ripper	hr	218.0	559.0	691.6	653.7	708.9	2829.2
Swamp Bulldozer	hr	0.0	0.0	31.0	31.0	0.0	62.0
Motor Grader	hr	724.6	1622.1	1962.3	2108.9	2274.2	8692.1
Road Stabilizer	hr	350.1	756.7	878.4	1033.5	1129.5	4148.2
Hand-guide Vib. Roller	hr	104.8	145.9	168.1	193.1	168.4	780.3
Tire Roller	hr	210.0	489.9	266.6	0.0	0.0	966.5
Vibratory Roller (D&T)	hr	674.8	1476.3	1774.7	1999.7	2138.2	8063.7
Hydraulic Excavator; Wheel	hr	0.0	0.0	225.0	225.0	0.0	450.0
Wheel Loader	hr	741.1	1694.1	2009.2	2203.9	2403.1	9051.4
Water Tank Truck	hr	570.1	1208.6	1404.4	1703.0	1838.2	6724.3
Dump Truck	hr	3829.5	8865.2	10986.5	11497.0	12129.5	47307.7
Flat Bed Truck with Crane	hr	151.3	204.8	138.8	227.6	225.8	948.3
Flat Bed Truck	hr	779.6	1729.1	1688.0	1587.3	1717.5	7501.5
Concrete Mixer	hr	2.1	5.0	15.8	28.4	15.4	66.7
Water Pump	hr	1.7	4.1	12.9	24.5	14.5	57.7
Concrete Vibrator	hr	1.0	2.4	7.2	16.9	12.6	40.1
Asphalt Sprayer	hr	210.0	489.9	266.6	0.0	0.0	966.5
LABOUR :							
Mandor	man day	498.0	943.6	963.6	1068.1	1092.6	4565.9
Skilled Labourer	man day	1439.4	2022.5	1049.6	1295.6	1523.6	7330.7
Carpenter	man day	727.5	955.3	468.2	687.4	822.3	3660.7
Mason	man day	1.9	4.4	14.4	19.2	4.8	44.7
Labourer	man day	3017.8	6311.1	6949.1	7206.7	7158.9	30643.6
Driver	man day	942.2	2111.9	2428.1	2491.9	2642.6	10616.7
Operator	man day	577.4	1324.4	1620.1	1654.7	1711.4	6888.0
MATERIAL :							
Bitumen	l	43054.8	100461.2	54666.6	0.0	0.0	198182.6
Asphalt Oil	l	8610.0	20090.0	10933.3	0.0	0.0	39633.3
Kerosene	l	10290.5	24011.1	13066.6	0.0	0.0	47368.2
Sand	m3	7142.6	15464.2	18890.8	21815.4	22730.3	86043.3
Cement	bag	13494.5	29173.1	33930.3	40044.1	43671.5	160313.5
River Stone	m3	1.9	4.4	14.4	19.2	4.8	44.7
Steel Moulds	set	6.0	14.0	42.5	98.9	73.6	235.0
Timber	m3	101.8	133.6	48.9	95.4	114.5	494.2
Paint	l	0.0	0.0	220.0	0.0	0.0	220.0
Reinforcing Steel	kg	191.4	446.6	1355.7	3154.9	2347.8	7496.4
Tying Wire	kg	1.7	4.0	12.3	28.6	21.3	67.9
BaseCourse Material	m3	0.5	1.2	0.0	0.0	0.0	1.7
Crushed Stone	m3	421.7	984.1	545.4	28.2	21.0	2000.4

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

PROV : RIAU KAB : BENGKALIS

ITEM	UNIT	(1988)	(1989)	(1990)	(1991)	(1992)	(TOTAL)
EQUIPMENT :							
Bulldozer	hr	0.0	0.0	0.0	0.0	0.0	0.0
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	498.2	1004.0	1004.0	1116.0	1145.0	4767.2
Road Stabilizer	hr	0.0	0.0	0.0	0.0	0.0	0.0
Hand-guide Vib. Roller	hr	75.0	150.0	465.0	585.0	585.0	1860.0
Tire Roller	hr	498.2	1004.0	1004.0	1116.0	1145.0	4767.2
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	0.0	0.0	0.0	0.0	0.0	0.0
Water Tank Truck	hr	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	hr	150.0	300.0	930.0	1170.0	1170.0	3720.0
Flat Bed Truck with Crane	hr	1103.5	2255.5	2255.5	4010.5	4115.2	13740.2
Flat Bed Truck	hr	2031.2	4088.0	4340.0	4836.0	4937.0	20232.2
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	660.7	1330.8	1519.8	1773.1	1809.5	7093.9
Skilled Labourer	man day	356.3	726.1	936.1	1503.3	1559.0	5080.8
Carpenter	man day	164.4	336.1	336.1	597.7	627.6	2061.9
Mason	man day	0.0	0.0	0.0	0.0	0.0	0.0
Labourer	man day	7641.9	15376.9	17686.9	20151.0	20521.8	81378.5
Driver	man day	599.6	1214.1	1361.1	1859.6	1900.1	6934.5
Operator	man day	166.0	334.6	334.6	372.0	381.6	1588.8
MATERIAL :							
Bitumen	l	675.0	1350.0	4185.0	5265.0	5265.0	16740.0
Asphalt Oil	l	0.0	0.0	0.0	0.0	0.0	0.0
Kerosene	l	75.0	150.0	465.0	585.0	585.0	1860.0
Sand	m3	12.5	25.0	77.5	97.5	97.5	310.0
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	14.9	30.5	30.5	54.3	57.0	187.2
Paint	l	106.5	217.7	217.7	387.1	406.4	1335.4
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
BaseCourse Material	m3	401.2	870.0	1185.0	2025.0	2250.0	6731.2
Crushed Stone	m3	7.5	15.0	46.5	58.5	58.5	186.0

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

PROV : RIAU KAB : BENGKALIS

ITEM	UNIT	(1988)	(1989)	(1990)	(1991)	(1992)	(TOTAL)
EQUIPMENT :							
Bulldozer	hr	350.1	756.7	878.4	1033.5	1129.5	4148.2
Bulldozer/Ripper	hr	216.0	559.0	691.6	653.7	708.9	2829.2
Swamp Bulldozer	hr	0.0	0.0	31.0	31.0	0.0	62.0
Motor Grader	hr	1222.8	2626.1	2966.3	3224.9	3419.2	13459.3
Road Stabilizer	hr	350.1	756.7	878.4	1033.5	1129.5	4148.2
Hand-guide Vib. Roller	hr	179.8	295.9	633.1	778.1	753.4	2640.3
Tire Roller	hr	708.2	1493.9	1270.6	1116.0	1145.0	5733.7
Vibratory Roller (D&T)	hr	674.8	1476.3	1774.7	1999.7	2138.2	8063.7
Hydraulic Excavator; Wheel	hr	0.0	0.0	225.0	225.0	0.0	450.0
Wheel Loader	hr	741.1	1694.1	2009.2	2203.9	2403.1	9051.4
Water Tank Truck	hr	570.1	1208.6	1404.4	1703.0	1838.2	6724.3
Dump Truck	hr	3979.5	9165.2	11916.5	12667.0	13299.5	51027.7
Flat Bed Truck with Crane	hr	1254.8	2460.3	2394.3	4238.1	4341.0	14688.5
Flat Bed Truck	hr	2810.8	5817.1	6028.0	6423.3	6654.5	27733.7
Concrete Mixer	hr	2.1	5.0	15.8	28.4	15.4	66.7
Water Pump	hr	1.7	4.1	12.9	24.5	14.5	57.7
Concrete Vibrator	hr	1.0	2.4	7.2	16.9	12.6	40.1
Asphalt Sprayer	hr	210.0	489.9	266.6	0.0	0.0	966.5
LABOUR :							
Mandur	man day	1158.7	2274.4	2483.4	2841.2	2902.1	11659.8
Skilled Labourer	man day	1795.7	2748.6	1985.7	2798.9	3082.6	12411.5
Carpenter	man day	891.9	1291.4	804.3	1285.1	1449.9	5722.6
Mason	man day	1.9	4.4	14.4	19.2	4.8	44.7
Labourer	man day	10659.7	21688.0	24636.0	27357.7	27680.7	112022.1
Driver	man day	1541.8	3326.0	3789.2	4351.5	4542.7	17551.2
Operator	man day	743.4	1659.0	1954.7	2026.7	2093.0	8476.8
MATERIAL :							
Bitumen	l	43729.8	101811.2	58851.6	5265.0	5265.0	214922.6
Asphalt Oil	l	8610.0	20090.0	10933.3	0.0	0.0	39633.3
Kerosene	l	10365.5	24161.1	13531.6	585.0	585.0	49228.2
Sand	m3	7155.1	15489.2	18960.3	21912.9	22827.8	86353.3
Cement	bag	13494.5	29173.1	33930.3	40044.1	43671.5	160313.5
River Stone	m3	1.9	4.4	14.4	19.2	4.8	44.7
Steel Moulds	set	6.0	14.0	42.5	98.9	73.6	235.0
Timber	m3	116.7	164.1	79.4	149.7	171.5	681.4
Paint	l	106.5	217.7	437.7	387.1	406.4	1555.4
Reinforcing Steel	kg	191.4	446.6	1355.7	3154.9	2347.8	7496.4
Tying Wire	kg	1.7	4.0	12.3	28.6	21.3	67.9
BaseCourse Material	m3	401.7	871.2	1185.0	2025.0	2250.0	6732.9
Crushed Stone	m3	429.2	999.1	591.9	86.7	79.5	2186.4

Appendix A-5

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

PROV : RIAU KAB : BENGKALIS

(1000 Rp)

ITEM	UNIT	(1988)	(1989)	(1990)	(1991)	(1992)	(TOTAL)
EQUIPMENT :		78,566	177,668	211,160	223,423	235,779	926,604
Bulldozer	16723	5,854	12,654	14,689	17,283	18,888	69,368
Bulldozer/Ripper	18039	3,896	10,083	12,475	11,792	12,787	51,033
Swamp Bulldozer	13159	0	0	407	407	0	814
Motor Grader	15207	11,018	24,667	29,840	32,070	34,583	132,178
Road Stabilizer	12596	4,409	9,531	11,064	13,017	14,227	52,248
Hand-guide Vib. Roller	1657	173	241	278	319	279	1,290
Tire Roller	13104	2,751	6,419	3,493	0	0	12,663
Vibratory Roller (D&T)	7520	5,074	11,101	13,345	15,037	16,079	60,636
Hydraulic Excavator; Wheel	14743	0	0	3,317	3,317	0	6,634
Wheel Loader	18307	13,567	31,013	36,782	40,346	43,993	165,701
Water Tank Truck	4854	2,767	5,866	6,816	8,266	8,922	32,637
Dump Truck	6366	24,378	56,435	69,940	73,189	77,216	301,158
Flat Bed Truck with Crane	5953	900	1,219	826	1,354	1,344	5,643
Flat Bed Truck	4261	3,321	7,367	7,192	6,763	7,318	31,961
Concrete Mixer	8618	18	43	136	244	132	573
Water Pump	548	0	2	7	13	7	29
Concrete Vibrator	387	0	0	2	6	4	12
Asphalt Sprayer	2097	440	1,027	559	0	0	2,026
LABOUR :		21,803	41,382	40,886	43,745	45,588	193,404
Mandor	3000	1,494	2,830	2,890	3,204	3,277	13,695
Skilled Labourer	3000	4,318	6,067	3,148	3,886	4,570	21,989
Carpenter	3500	2,546	3,343	1,638	2,405	2,878	12,810
Mason	3500	6	15	50	67	16	154
Labourer	2500	7,544	15,777	17,372	18,016	17,897	76,606
Driver	3500	3,297	7,391	8,498	8,721	9,249	37,156
Operator	4500	2,598	5,959	7,290	7,446	7,701	30,994
MATERIAL :		235,045	507,878	520,170	535,305	566,787	2,365,185
Bitumen	350	15,069	35,161	19,133	0	0	69,363
Asphalt Oil	1500	12,915	30,135	16,399	0	0	59,449
Kerosene	250	2,572	6,002	3,266	0	0	11,840
Sand	15000	107,139	231,963	283,362	327,231	340,954	1,290,649
Cement	4800	64,773	140,030	162,865	192,211	209,623	769,502
River Stone	40000	76	176	576	768	192	1,788
Steel Moulds	8000	48	112	340	791	588	1,879
Timber	110000	11,198	14,696	5,379	10,494	12,595	54,362
Paint	2500	0	0	550	0	0	550
Reinforcing Steel	750	143	334	1,016	2,366	1,760	5,619
Tying Wire	1200	2	4	14	34	25	79
BaseCourse Material	50000	25	60	0	0	0	85
Crushed Stone	50000	21,085	49,205	27,270	1,410	1,050	100,020

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

PROV : RIAU KAB : BENGKALIS

(1000 Rp)

I T E M	UNIT	(1988)	(1989)	(1990)	(1991)	(1992)	(TOTAL)
EQUIPMENT :		30,405	61,424	67,031	84,492	86,366	329,718
Bulldozer	16723	0	0	0	0	0	0
Bulldozer/Ripper	18039	0	0	0	0	0	0
Swamp Bulldozer	13159	0	0	0	0	0	0
Motor Grader	15207	7,576	15,267	15,267	16,971	17,412	72,493
Road Stabilizer	12596	0	0	0	0	0	0
Hand-guide Vib. Roller	1657	124	248	770	969	969	3,080
Tire Roller	13104	6,528	13,156	13,156	14,624	15,004	62,468
Vibratory Roller (D&T)	7520	0	0	0	0	0	0
Hydraulic Excavator; Wheel	14743	0	0	0	0	0	0
Wheel Loader	18307	0	0	0	0	0	0
Water Tank Truck	4854	0	0	0	0	0	0
Dump Truck	6366	954	1,909	5,920	7,448	7,448	23,679
Flat Bed Truck with Crane	5953	6,569	13,426	13,426	23,874	24,497	81,792
Flat Bed Truck	4261	8,654	17,418	18,492	20,606	21,036	86,206
Concrete Mixer	8618	0	0	0	0	0	0
Water Pump	548	0	0	0	0	0	0
Concrete Vibrator	387	0	0	0	0	0	0
Asphalt Sprayer	2097	0	0	0	0	0	0
LABOUR :		25,574	51,542	59,028	70,478	71,972	278,594
Mandur	3000	1,982	3,992	4,559	5,319	5,428	21,280
Skilled Labourer	3000	1,068	2,178	2,808	4,509	4,677	15,240
Carpenter	3500	575	1,176	1,176	2,091	2,196	7,214
Mason	3500	0	0	0	0	0	0
Labourer	2500	19,104	38,442	44,217	50,377	51,304	203,444
Driver	3500	2,098	4,249	4,763	6,508	6,650	24,268
Operator	4500	747	1,505	1,505	1,674	1,717	7,148
MATERIAL :		22,781	49,033	68,216	114,565	126,161	380,756
Bitumen	350	236	472	1,464	1,842	1,842	5,856
Asphalt Oil	1500	0	0	0	0	0	0
Kerosene	250	18	37	116	146	146	463
Sand	15000	187	375	1,162	1,462	1,462	4,648
Cement	4800	0	0	0	0	0	0
River Stone	40000	0	0	0	0	0	0
Steel Moulds	8000	0	0	0	0	0	0
Timber	110000	1,639	3,355	3,355	5,973	6,270	20,592
Paint	2500	266	544	544	967	1,016	3,337
Reinforcing Steel	750	0	0	0	0	0	0
Tying Wire	1200	0	0	0	0	0	0
BaseCourse Material	50000	20,060	43,500	59,250	101,250	112,500	336,560
Crushed Stone	50000	375	750	2,325	2,925	2,925	9,300

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

PROV : RIAU KAB : BENGKALIS

(1000 Rp)

I T E M	UNIT	(1988)	(1989)	(1990)	(1991)	(1992)	(TOTAL)
EQUIPMENT :		108,971	239,092	278,199	307,915	322,145	1,256,322
Bulldozer	16723	5,854	12,654	14,689	17,283	18,888	69,368
Bulldozer/Ripper	18039	3,896	10,083	12,475	11,792	12,787	51,033
Swamp Bulldozer	13159	0	0	407	407	0	814
Motor Grader	15207	18,594	39,934	45,107	49,041	51,995	204,671
Road Stabilizer	12596	4,409	9,531	11,064	13,017	14,227	52,248
Hand-guide Vib. Roller	1657	297	489	1,048	1,288	1,248	4,370
Tire Roller	13104	9,279	19,575	16,649	14,624	15,004	75,131
Vibratory Roller (D&T)	7520	5,074	11,101	13,345	15,037	16,079	60,636
Hydraulic Excavator; Wheel	14743	0	0	3,317	3,317	0	6,634
Wheel Loader	18307	13,567	31,013	36,782	40,346	43,993	165,701
Water Tank Truck	4854	2,767	5,866	6,816	8,266	8,922	32,637
Dump Truck	6366	25,332	58,344	75,860	80,637	84,664	324,837
Flat Bed Truck with Crane	5953	7,469	14,645	14,252	25,228	25,841	87,435
Flat Bed Truck	4261	11,975	24,785	25,684	27,369	28,354	118,167
Concrete Mixer	8618	18	43	136	244	132	573
Water Pump	548	0	2	7	13	7	29
Concrete Vibrator	387	0	0	2	6	4	12
Asphalt Sprayer	2097	440	1,027	559	0	0	2,026
LABOUR :		47,377	92,924	99,914	114,223	117,560	471,998
Mandor	3000	3,476	6,822	7,449	8,523	8,705	34,975
Skilled Labourer	3000	5,386	8,245	5,956	8,395	9,247	37,229
Carpenter	3500	3,121	4,519	2,814	4,496	5,074	20,024
Mason	3500	6	15	50	67	16	154
Labourer	2500	26,648	54,219	61,589	68,393	69,201	280,050
Driver	3500	5,395	11,640	13,261	15,229	15,899	61,424
Operator	4500	3,345	7,464	8,795	9,120	9,418	38,142
MATERIAL :		257,826	556,911	588,386	649,870	692,948	2,745,941
Bitumen	350	15,305	35,633	20,597	1,842	1,842	75,219
Asphalt Oil	1500	12,915	30,135	16,399	0	0	59,449
Kerosene	250	2,590	6,039	3,382	146	146	12,303
Sand	15000	107,326	232,338	284,524	328,693	342,416	1,295,297
Cement	4800	64,773	140,030	162,865	192,211	209,623	769,502
River Stone	40000	76	176	576	768	192	1,788
Steel Moulds	8000	48	112	340	791	588	1,879
Timber	110000	12,837	18,051	8,734	16,467	18,865	74,954
Paint	2500	266	544	1,094	967	1,016	3,887
Reinforcing Steel	750	143	334	1,016	2,366	1,760	5,619
Tying Wire	1200	2	4	14	34	25	79
BaseCourse Material	50000	20,085	43,560	59,250	101,250	112,500	336,645
Crushed Stone	50000	21,460	49,955	29,595	4,335	3,975	109,320

Appendix A-6 QUANTITIES OF BRIDGE ON PROPOSED ROAD LINKS

PROV : RIAU KAB : BENGKALIS

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
7	N.I	2 SIPA	KK				4.00	1	4.00	3.00	12.00		0	2	IIIC
	N.I	2 SIPA	KK				4.00	1	4.00	5.00	20.00		0	2	
	N.I	3 SIPA	KK				4.00	1	4.00	5.00	20.00		0	2	
	N.I	4 SIPA	KK				2.50	1	2.50	4.00	10.00		0	2	
	N.I	6 SIPA	KK				2.50	1	2.50	4.00	10.00		0	2	
	N.I	9 SIPA	KK				6.00	1	6.00	5.00	30.00		0	2	
9	N.I	4 TLBG	KK				10.00	3	3.33	4.00	40.00		2	2	IIIC
	N.I	14 TLBG	KK				5.00	2	2.50	4.00	20.00		1	2	
	N.I	16 TLBG	KK				10.00	3	3.33	4.00	40.00		2	2	
	N.I	25 TLBG	KK				15.00	4	3.75	4.00	60.00		3	2	
	N.I	30 TLBG	KK				20.00	5	4.00	4.00	80.00		4	2	
11	N.I	1 SEAP	KK	TM	10T	(C)	6.00	1	6.00	4.00	6.00	24.00	0	2	IIIB-1
	N.I	2 SEAP	KK	TM	10T	(C)	6.00	1	6.00	4.00	6.00	24.00	0	2	
12	N.I	9 SEAP	KK				15.00	2	7.50	4.00	60.00		1	2	IIIB-2
	N.I	10 SEAP	KK				12.00	2	6.00	4.00	48.00		1	2	
	N.I	10 SEAP	KK				5.00	1	5.00	4.00	20.00		0	2	
19	N.I	1 BAGN	KK				7.00	2	3.50	4.00	28.00		1	2	IIIC
	N.I	2 BAGN	KK				7.00	2	3.50	4.00	28.00		1	2	
	N.I	3 BAGN	KK				7.00	2	3.50	4.00	28.00		1	2	
30	N.I	1 BGSA	KK				10.00	2	5.00	5.00	50.00		1	2	IIIC
	N.I	2 BGSA	KK				15.00	2	7.50	5.00	75.00		1	2	
	N.I	3 BGSA	KK				8.00	2	4.00	5.00	40.00		1	2	
	N.I	4 BGSA	KK				10.00	2	5.00	5.00	50.00		1	2	
	N.I	5 BGSA	KK				10.00	2	5.00	5.00	50.00		1	2	
	N.I	6 BGSA	KK				15.00	2	7.50	5.00	75.00		1	2	
	N.I	7 BGSA	KK				8.00	2	4.00	5.00	40.00		1	2	
	N.I	7 BGSA	KK				15.00	2	7.50	5.00	75.00		1	2	
	N.I	8 BGSA	KK				10.00	2	5.00	5.00	50.00		1	2	
	N.I	8 BGSA	KK				15.00	2	7.50	5.00	75.00		1	2	
	N.I	9 BGSA	KK				15.00	2	7.50	5.00	75.00		1	2	
	N.I	10 BGSA	KK				10.00	2	5.00	5.00	50.00		1	2	
	N.I	11 BGSA	KK				15.00	2	7.50	5.00	75.00		1	2	
	N.I	12 BGSA	KK				8.00	2	4.00	5.00	40.00		1	2	
	N.I	13 BGSA	KK				10.00	2	5.00	5.00	50.00		1	2	
	N.I	14 BGSA	KK				15.00	2	7.50	5.00	75.00		1	2	
	N.I	15 BGSA	KK				15.00	3	5.00	5.00	75.00		2	2	
	N.I	16 BGSA	KK				8.00	2	4.00	5.00	40.00		1	2	
	N.I	17 BGSA	KK				8.00	2	4.00	5.00	40.00		1	2	
	N.I	18 BGSA	KK				8.00	2	4.00	5.00	40.00		1	2	
	N.I	18 BGSA	KK				10.00	2	5.00	5.00	50.00		1	2	
	N.I	19 BGSA	KK				15.00	3	5.00	5.00	75.00		2	2	
	N.I	20 BGSA	KK				10.00	2	5.00	5.00	50.00		1	2	
	N.I	21 BGSA	KK				8.00	2	4.00	5.00	40.00		1	2	
	N.I	22 BGSA	KK				10.00	2	5.00	5.00	50.00		1	2	
	N.I	23 BGSA	KK				8.00	2	4.00	5.00	40.00		1	2	
	N.I	26 BGSA	KK				15.00	3	5.00	5.00	75.00		2	2	
	N.I	28 BGSA	KK				10.00	2	5.00	5.00	50.00		1	2	

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

PROV : RIAU KAB : BENGKALIS

LINK NO : 7 (IIIC) LENGTH : 10 Km

(Rp)

ITEM	UNIT	QUANTITY	<<< UNIT COST >>> LOCAL	FOREIGN	<<<<<< COST LOCAL	FOREIGN	>>>>>> TOTAL
Superstructure (Timber;Span 3m;10T)	m2	0.00	48,736	3,540	0	0	0
Superstructure (Timber;Span 5m;10T)	m2	0.00	53,982	3,909	0	0	0
Superstructure (Timber;Span 8m;10T)	m2	0.00	71,500	5,136	0	0	0
Superstructure (Timber;Span 3m;BM50)	m2	0.00	60,430	4,377	0	0	0
Superstructure (Timber;Span 5m;BM50)	m2	0.00	65,971	4,744	0	0	0
Superstructure (Timber;Span 8m;BM50)	m2	0.00	83,669	6,005	0	0	0
Superstructure (Concrete;Span 3m;BM50)	m2	0.00	81,050	85,319	0	0	0
Superstructure (Concrete;Span 5m;BM50)	m2	0.00	85,741	95,239	0	0	0
Superstructure (Concrete;Span 8m;BM50)	m2	0.00	89,607	103,675	0	0	0
Superstructure (Concrete;Span10m;BM50)	m2	0.00	98,629	117,650	0	0	0
Superstructure (Concrete;Span15m;BM50)	m2	0.00	108,916	138,457	0	0	0
Substructure (Pier;for Timber;10T)	NO	0.00	424,610	32,854	0	0	0
Substructure (Abut;for Timber;10T)	NO	0.00	1,598,028	129,749	0	0	0
Substructure (Pier;for Timber;BM50)	NO	0.00	624,407	48,620	0	0	0
Substructure (Abut;for Timber;BM50)	NO	0.00	1,749,005	146,917	0	0	0
Substructure (Pier;for Concrete;BM50)	NO	0.00	3,828,518	472,735	0	0	0
Substructure (Abut;for Concrete;BM50)	NO	0.00	8,566,434	912,790	0	0	0
Demolition of Bridge (Timber->Timber)	m2	0.00	15,892	1,239	0	0	0
Demolition of Bridge (Timber->Concrete)	m2	0.00	15,892	1,239	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	177,135	66,347	0	0	0
Maintenance of Timber Bridge (New)	m2	0.00	9,059	1,121	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.00	3,733	2,662	0	0	0
Maintenance of Timber Bridge (Exist)	m2	102.00	9,339	2,403	952,578	245,106	1,197,684
Maintenance of Concrete Bridge (Exist)	m2	0.00	5,556	2,375	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 : RIAU KAB : BENGKALIS

LINK NO : 30 (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	48,736	3,540	0	0	0
Superstructure (Timber;Span 5m;10T)	m2	0.00	53,982	3,909	0	0	0
Superstructure (Timber;Span 8m;10T)	m2	0.00	71,500	5,136	0	0	0
Superstructure (Timber;Span 3m;BM50)	m2	0.00	60,430	4,377	0	0	0
Superstructure (Timber;Span 5m;BM50)	m2	0.00	65,971	4,744	0	0	0
Superstructure (Timber;Span 8m;BM50)	m2	0.00	83,669	6,005	0	0	0
Superstructure (Concrete;Span 3m;BM50)	m2	0.00	81,850	85,319	0	0	0
Superstructure (Concrete;Span 5m;BM50)	m2	0.00	85,741	95,239	0	0	0
Superstructure (Concrete;Span 8m;BM50)	m2	0.00	89,607	103,675	0	0	0
Superstructure (Concrete;Span10m;BM50)	m2	0.00	98,629	117,650	0	0	0
Superstructure (Concrete;Span15m;BM50)	m2	0.00	108,916	138,457	0	0	0
Substructure (Pier;for Timber;10T)	NO	0.00	424,610	32,854	0	0	0
Substructure (Abut;for Timber;10T)	NO	0.00	1,598,028	129,749	0	0	0
Substructure (Pier;for Timber;BM50)	NO	0.00	624,487	48,620	0	0	0
Substructure (Abut;for Timber;BM50)	NO	0.00	1,749,005	146,917	0	0	0
Substructure (Pier;for Concrete;BM50)	NO	0.00	3,828,518	472,735	0	0	0
Substructure (Abut;for Concrete;BM50)	NO	0.00	8,566,434	912,790	0	0	0
Demolition of Bridge (Timber->Timber)	m2	0.00	15,892	1,239	0	0	0
Demolition of Bridge (Timber->Concrete)	m2	0.00	15,892	1,239	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	177,135	66,347	0	0	0
Maintenance of Timber Bridge (New)	m2	0.00	9,059	1,121	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.00	3,733	2,662	0	0	0
Maintenance of Timber Bridge (Exist)	m2	1570.00	9,339	2,403	14,662,230	3,772,710	18,434,940
Maintenance of Concrete Bridge (Exist)	m2	0.00	5,556	2,375	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 : RIAU KAB : BENGKALIS

LINK NO : 19 (IIIC) LENGTH : 3 Km

(Rp)

ITEM	UNIT	QUANTITY	UNIT COST LOCAL	UNIT COST FOREIGN	COST LOCAL	COST FOREIGN	TOTAL
Superstructure (Timber;Span 3m;10T)	m2	0.00	48,736	3,540	0	0	0
Superstructure (Timber;Span 5m;10T)	m2	0.00	53,982	3,909	0	0	0
Superstructure (Timber;Span 8m;10T)	m2	0.00	71,500	5,136	0	0	0
Superstructure (Timber;Span 3m;BM50)	m2	0.00	60,430	4,377	0	0	0
Superstructure (Timber;Span 5m;BM50)	m2	0.00	65,971	4,744	0	0	0
Superstructure (Timber;Span 8m;BM50)	m2	0.00	83,669	6,005	0	0	0
Superstructure (Concrete;Span 3m;BM50)	m2	0.00	81,850	85,319	0	0	0
Superstructure (Concrete;Span 5m;BM50)	m2	0.00	85,741	95,239	0	0	0
Superstructure (Concrete;Span 8m;BM50)	m2	0.00	89,607	103,675	0	0	0
Superstructure (Concrete;Span10m;BM50)	m2	0.00	98,629	117,650	0	0	0
Superstructure (Concrete;Span15m;BM50)	m2	0.00	108,916	138,457	0	0	0
Substructure (Pier;for Timber;10T)	NO	0.00	424,610	32,854	0	0	0
Substructure (Abut;for Timber;10T)	NO	0.00	1,598,028	129,749	0	0	0
Substructure (Pier;for Timber;BM50)	NO	0.00	624,487	48,620	0	0	0
Substructure (Abut;for Timber;BM50)	NO	0.00	1,749,005	146,917	0	0	0
Substructure (Pier;for Concrete;BM50)	NO	0.00	3,828,518	472,735	0	0	0
Substructure (Abut;for Concrete;BM50)	NO	0.00	8,566,434	912,790	0	0	0
Demolition of Bridge (Timber->Timber)	m2	0.00	15,892	1,239	0	0	0
Demolition of Bridge (Timber->Concrete)	m2	0.00	15,892	1,239	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	177,135	66,347	0	0	0
Maintenance of Timber Bridge (New)	m2	0.00	9,059	1,121	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.00	3,733	2,662	0	0	0
Maintenance of Timber Bridge (Exist)	m2	84.00	9,339	2,403	784,476	201,852	986,328
Maintenance of Concrete Bridge (Exist)	m2	0.00	5,556	2,375	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 : RIAU KAB : BENGKALIS

LINK NO : 12 (IIIB-2) LENGTH : 20 Km

(Rp)

ITEM	UNIT	QUANTITY	<<< UNIT COST >>> LOCAL	FOREIGN	<<<<<< COST LOCAL	FOREIGN	TOTAL >>>>>>
Superstructure (Timber;Span 3m;10T)	m2	0.00	48,736	3,540	0	0	0
Superstructure (Timber;Span 5m;10T)	m2	0.00	53,982	3,909	0	0	0
Superstructure (Timber;Span 8m;10T)	m2	0.00	71,500	5,136	0	0	0
Superstructure (Timber;Span 3m;BM50)	m2	0.00	60,430	4,377	0	0	0
Superstructure (Timber;Span 5m;BM50)	m2	0.00	65,971	4,744	0	0	0
Superstructure (Timber;Span 8m;BM50)	m2	0.00	83,669	6,005	0	0	0
Superstructure (Concrete;Span 3m;BM50)	m2	0.00	81,850	85,319	0	0	0
Superstructure (Concrete;Span 5m;BM50)	m2	0.00	85,741	95,239	0	0	0
Superstructure (Concrete;Span 8m;BM50)	m2	0.00	89,607	103,675	0	0	0
Superstructure (Concrete;Span10m;BM50)	m2	0.00	98,629	117,650	0	0	0
Superstructure (Concrete;Span15m;BM50)	m2	0.00	108,916	138,457	0	0	0
Substructure (Pier;for Timber;10T)	NO	0.00	424,610	32,854	0	0	0
Substructure (Abut;for Timber;10T)	NO	0.00	1,598,028	129,749	0	0	0
Substructure (Pier;for Timber;BM50)	NO	0.00	624,487	48,620	0	0	0
Substructure (Abut;for Timber;BM50)	NO	0.00	1,749,005	146,917	0	0	0
Substructure (Pier;for Concrete;BM50)	NO	0.00	3,828,518	472,735	0	0	0
Substructure (Abut;for Concrete;BM50)	NO	0.00	8,566,434	912,790	0	0	0
Demolition of Bridge (Timber->Timber)	m2	0.00	15,892	1,239	0	0	0
Demolition of Bridge (Timber->Concrete)	m2	0.00	15,892	1,239	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	177,135	66,347	0	0	0
Maintenance of Timber Bridge (New)	m2	0.00	9,059	1,121	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.00	3,733	2,662	0	0	0
Maintenance of Timber Bridge (Exist)	m2	128.00	9,339	2,403	1,195,392	307,584	1,502,976
Maintenance of Concrete Bridge (Exist)	m2	0.00	5,556	2,375	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 : RIAU KAB : BENGKALIS

LINK NO : 11 (IIIB-1) LENGTH : 8 Km

(Rp)

I T E M	UNIT	QUANTITY	UNIT COST LOCAL	UNIT COST FOREIGN	COST LOCAL	COST FOREIGN	TOTAL
Superstructure (Timber;Span 3m;10T)	m2	0.00	48,736	3,540	0	0	0
Superstructure (Timber;Span 5m;10T)	m2	0.00	53,982	3,909	0	0	0
Superstructure (Timber;Span 8m;10T)	m2	48.00	71,500	5,136	3,432,000	246,528	3,678,528
Superstructure (Timber;Span 3m;BM50)	m2	0.00	60,430	4,377	0	0	0
Superstructure (Timber;Span 5m;BM50)	m2	0.00	65,971	4,744	0	0	0
Superstructure (Timber;Span 8m;BM50)	m2	0.00	83,669	6,005	0	0	0
Superstructure (Concrete;Span 3m;BM50)	m2	0.00	81,850	85,319	0	0	0
Superstructure (Concrete;Span 5m;BM50)	m2	0.00	85,741	95,239	0	0	0
Superstructure (Concrete;Span 8m;BM50)	m2	0.00	89,607	103,675	0	0	0
Superstructure (Concrete;Span10m;BM50)	m2	0.00	98,629	117,650	0	0	0
Superstructure (Concrete;Span15m;BM50)	m2	0.00	108,916	138,457	0	0	0
Substructure (Pier;for Timber;10T)	NO	0.00	424,610	32,854	0	0	0
Substructure (Abut;for Timber;10T)	NO	4.00	1,598,028	129,749	6,392,112	518,996	6,911,108
Substructure (Pier;for Timber;BM50)	NO	0.00	624,487	48,620	0	0	0
Substructure (Abut;for Timber;BM50)	NO	0.00	1,749,005	146,917	0	0	0
Substructure (Pier;for Concrete;BM50)	NO	0.00	3,828,518	472,735	0	0	0
Substructure (Abut;for Concrete;BM50)	NO	0.00	8,566,434	912,790	0	0	0
Demolition of Bridge (Timber->Timber)	m2	12.00	15,892	1,239	190,704	14,868	205,572
Demolition of Bridge (Timber->Concrete)	m2	0.00	15,892	1,239	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	177,135	66,347	0	0	0
Maintenance of Timber Bridge (New)	m2	48.00	9,059	1,121	434,832	53,808	488,640
Maintenance of Concrete Bridge (New)	m2	0.00	3,733	2,662	0	0	0
Maintenance of Timber Bridge (Exist)	m2	0.00	9,339	2,403	0	0	0
Maintenance of Concrete Bridge (Exist)	m2	0.00	5,556	2,375	0	0	0
(Without Overhead)	TOTAL COST (Timber Bridge)				10,014,816	780,392	10,795,208
	(Concrete Bridge)				0	0	0
	TOTAL COST (without Maintenance)				10,014,816	780,392	10,795,208
(Overhead : 15%)	TOTAL COST (Timber Bridge)				11,517,038	897,451	12,414,489
	(Concrete Bridge)				0	0	0
	TOTAL COST (without Maintenance)				11,517,038	897,451	12,414,489

PROV : RIAU KAB : BENGKALIS

LINK NO : 9 (IIIC) LENGTH : 40 Km

(Rp)

ITEM	UNIT	QUANTITY	<<< UNIT COST >>> LOCAL	FOREIGN	<<<<<< COST LOCAL	FOREIGN	>>>>>> TOTAL
Superstructure (Timber;Span 3m;10T)	m2	0.00	48,736	3,540	0	0	0
Superstructure (Timber;Span 5m;10T)	m2	0.00	53,982	3,909	0	0	0
Superstructure (Timber;Span 8m;10T)	m2	0.00	71,500	5,136	0	0	0
Superstructure (Timber;Span 3m;BM50)	m2	0.00	60,430	4,377	0	0	0
Superstructure (Timber;Span 5m;BM50)	m2	0.00	65,971	4,744	0	0	0
Superstructure (Timber;Span 8m;BM50)	m2	0.00	83,669	6,005	0	0	0
Superstructure (Concrete;Span 3m;BM50)	m2	0.00	81,850	85,319	0	0	0
Superstructure (Concrete;Span 5m;BM50)	m2	0.00	85,741	95,239	0	0	0
Superstructure (Concrete;Span 8m;BM50)	m2	0.00	89,607	103,675	0	0	0
Superstructure (Concrete;Span10m;BM50)	m2	0.00	98,629	117,650	0	0	0
Superstructure (Concrete;Span15m;BM50)	m2	0.00	108,916	138,457	0	0	0
Substructure (Pier;for Timber;10T)	NO	0.00	424,610	32,854	0	0	0
Substructure (Abut;for Timber;10T)	NO	0.00	1,598,028	129,749	0	0	0
Substructure (Pier;for Timber;BM50)	NO	0.00	624,487	48,620	0	0	0
Substructure (Abut;for Timber;BM50)	NO	0.00	1,749,005	146,917	0	0	0
Substructure (Pier;for Concrete;BM50)	NO	0.00	3,828,518	472,735	0	0	0
Substructure (Abut;for Concrete;BM50)	NO	0.00	8,566,434	912,790	0	0	0
Demolition of Bridge (Timber->Timber)	m2	0.00	15,892	1,239	0	0	0
Demolition of Bridge (Timber->Concrete)	m2	0.00	15,892	1,239	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	177,135	66,347	0	0	0
Maintenance of Timber Bridge (New)	m2	0.00	9,059	1,121	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.00	3,733	2,662	0	0	0
Maintenance of Timber Bridge (Exist)	m2	240.00	9,339	2,403	2,241,360	576,720	2,818,080
Maintenance of Concrete Bridge (Exist)	m2	0.00	5,556	2,375	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

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