

***VOLUME 4 - SECTOR II***

***LAND USE***

**THE STUDY ON INTEGRATED URBAN DRAINAGE IMPROVEMENT  
FOR MELAKA AND SUNGAI PETANI  
IN MALAYSIA**

**FINAL REPORT**

**VOLUME 4: SUPPORTING REPORT ON FEASIBILITY STUDY**

**SECTOR II: LAND USE**

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## SECTOR II

### LAND USE

#### 1.0 INTRODUCTION

The existing land use for the four (4) study areas was clarified and updated in detail through supplementary field reconnaissance and aerial photographs newly taken on a scale of 1 to 6000. The projected land use for the year 2005 was also delineated using information on the committed developments in the areas which was obtained from the Local Authority.

All of the committed developments are assumed to be completed by year 2005. The land use for the year 2020 which was outlined in the Drainage Structure Plan (Phase 1 Study) was further reviewed and updated using existing and committed land uses. In the estimation of the projected land uses, the following proportionate ratios were assumed for open space, infrastructure and road requirements for new land development areas without layout plans.

- (a) Open space: 10% of the entire land development area; and
- (b) Infrastructure and road requirements: 24% of the entire land development area was applied to industrial and commercial zone, 22% for the residential zone and 4% for institutional use.

The existing and projected land use for these two priority areas are as shown in Tables II-1 to II-2, and Figures II-1 to II-8. The particular characteristics of their land use status are as described below:

#### 1.1 Drainage Basin of Sg Air Mendidih in Sungai Petani

The Sg. Air Mendidih runs in a north-south direction passing through areas such as Kg. Benggali, Jalan Market before it joins the Sungai Petani. The total area of this basin is 362 ha. out of which about 66% is developed. The area is also very close to the old CBD of Sungai Petani town. The Basin area is bounded in the west by the KTM railway, and extends northwards to the Swiss Garden Inn, eastward up to the North South Highway and southwards to the market area near Kuala Ketil Road.

##### 1.1.1 Existing Land Use

The existing land use in the area is characterised by residential use (31%), institutional uses (11.7%), commercial use (5.1%). Roads and railway constitutes 16.3% of the area while

insitu vacant land including cemetery land is 32.8 %. Residential uses (112ha) included both formal housing schemes and informal kampong houses such as found in Kg. Benggali. Formal Housing schemes in this area included Taman Peruda, Taman Nuri, Taman Tiong, Taman Mesra. Commercial uses were basically found along the major roads at Jalan Badli Shah and Jalan Sekerat and at Taman Bandar Baru along Jalan Peruda. Institutional Uses (59ha) include schools such as the Sekolah Menengah Mohamad Jiwa, Institut Kemahiran Mara, SRJK Tamil Saraswathy, Sekolah Kebangsaan Sg. Petani, the existing District Hospital and the jailhouse. Extensive vacant lands are found on either side of the road that leads to the Swiss Garden Inn, while insitu vacant land are found behind Jalan Market particularly along the river corridor. Cemetery lands are also found along Jalan Badli Shah near Taman Peruda. Vacant development lands including cemeteries account for 118 ha. while existing ponds including oxidation ponds accounted for 4.91 ha.

### 1.1.2 Projected Land Use

The land use in the river basin is expected to change over the next 20 years. In the near term, major committed developments in the area include the Kem PPH mixed development next to the Swiss Garden Inn ; Extension of Sekolah Menengah Sains Mohd. Jiwa and the redevelopment of informal housing in the Kampong Benggali area. In the near term (2005) significant increases are expected for residential and commercial use. By 2020, the major land use increase in the area will be for commercial use, which is expected to increase by 5.7% per annum from 18.5ha presently to 59ha (2020). Most of this land use change is expected to take place around the Jln Sekerat and Jalan Market area which is proposed for commercial use under the Local Plan. The existing cemetery area along Jalan Badli Shah is also proposed to be converted for commercial development under the Local Plan. Residential use is expected to grow by only 1.2% in the river basin while institutional and recreational use will increase by 1.7% and 2.4% respectively. Most of the existing pond areas near the Sekolah Menengah Mohd Jiwa will be reclaimed for school extension works; hence the drop in pond areas as listed below:

Classification of Land Use	Extent (ha)		Average Annual Growth (%)
	Present	2020	Present – 2020
1. Residential	112.38	145.28	1.2
2. Commercial	18.50	59.25	5.7
3. Industry	-	-	-
4. Institutional	42.49	60.86	1.7
5. Recreational	6.20	10.23	2.4
6. Agricultural	-	-	-
7. Roads/Railway	59.09	85.61	1.8
8. Others (Vacant Land)	118.86	0	-
9. Ponds	4.91	1.2	-6.5
Total	362.43	362.43	

\* Including oxidation ponds

## 1.2 Drainage Basin of Line G in Sg. Petani

The Line G Drainage basin is located to the south east sector of the town. The total basin area is about 299 ha. It includes housing schemes such as Taman Keladi and Taman Keranji. The topography of the area is characterised by undulating hilly areas to the east and low lying flat areas to the north. This includes Bt. Tok Acheh (60m above MSL). The area was previously a rubber plantation on the higher ground while padi was planted in the lower grounds around the Kampong Pengkalan Lebai Man. Most of the padi lands have been reclaimed for housing development while some are left as idle land. The drainage basin is divided by the North South Highway, thereby limiting drainage outlets to existing drainage culverts. In contrast to the Sg Air Mendidih Basin, the Line G Drainage Basin is relatively underdeveloped. About 60% of the area (180ha) is not built up and is either under agriculture or is vacant /idle land.

### 1.2.1 Existing Land Use

Only 19% or 57ha of the Drainage basin is occupied by residential use. This includes mainly housing schemes such as Taman Keladi, Taman Angsana, Taman Sri Wang, Taman Kranji and Taman Harmoni. There are some informal housing including kampong houses along the main road opposite Taman Sri Wang. The total area under residential use is 57ha. In view of the low residential population base, commercial uses are limited to local shops within the housing schemes. Some of the bigger commercial centres are located at Taman Keladi and Taman Sri Wang. Most of the commercial premises are double storey shop houses. Commercial uses account for 1.5% or 4.38ha of the area. In view of the proximity to the Bakar Arang Industrial estate, there is not much industrial use in the area. Existing industrial use include wood works, storage yards and light industrial activities along the road to Taman Berjaya. New light industrial premises have also been completed next to the North South Highway. Industrial uses account for 5.03ha or 1.7% of the total area. Institutional uses only account for 1.5ha or 0.5% of the area as most of the school sites identified have not been built. There is also a Telekom transmission tower and water reservoir facilities on the hill in the area. Recreational uses are mainly in the form of local open spaces and account for 5.3% or 15.9 ha. There is still substantial area under agriculture use especially rubber cultivation on the hilly areas. Agriculture use covered 96ha or 32.2% of the area. Major roads in the area include the North South highway and arterial roads linking the area to other parts of the town. Minor roads include residential and access roads. Total area under roads is 35ha or 11.8% of the area. Again there are substantial areas of vacant land accounting for 27% or 81ha. Pondered areas covered 2.25ha of which some of the larger pond areas are existing detention pond facilities in the Taman Keladi area.

### 1.2.2 Projected Land Use

In the near term, the main increase in land use is expected to be in residential use. New housing scheme projects have been committed near Taman Kranji and Taman Angsana. Residential use is expected to increase to 71 ha by 2005. There will be a marginal increase in commercial use to 5.35ha arising from commitments on local shops and institutional uses to 4.93ha. with the completion of school buildings. The corresponding increase in residential use will also result in an increase in roads and local open spaces. Industrial uses are not expected to increase in the near term.

In the long term most of the area is zoned for development in the Local Plan except for a major new recreational use in the higher ground to the east. This recreational use has been proposed for a Golf Course in the Local Plan. Most of the undulating grounds currently utilised for tree crops will be allowed for housing development with a net density of 21-100 units/ha. The major increase will in residential use which is expected to increase to 168ha by 2020. There will not be any significant increase in commercial and industrial uses in the area. Informal industries along the road to Taman Berjaya will also be converted to housing. There will however be a significant increase in institutional and recreational land use as listed below. The existing large ponds in the area will also be converted into detention ponds with recreational facilities.

Classification of Land Use	Extent (ha)		Average Annual Growth (%)
	Present	2020	Present – 2020
1. Residential	53.45	151.19	5.1
2. Commercial	3.72	4.77	1.2
3. Industry	5.03	7.55	2.0
4. Institutional	1.42	7.19	8.0
5. Recreational	15.87	33.59	3.6
6. Agriculture	83.19	0	-
7. Road/Railway	32.45	63.53	3.3
8. Others (Vacant Land)	75.48	2.84	-14.5
9. Ponds	2.18	2.12	-0.1
Total	272.78	272.78	

### 1.3 Drainage Basin of Pokok Mangga in Melaka

The Pokok Mangga Drainage Basin is an offshoot of the Sg. Malim. The total area under this drainage basin is 470.9ha. The main drainage channel drains into the Melaka Straits. The area as a whole is flat and is affected by the tidal flows and backwashes from the sea. The area is located about 3km from the city and is accessible from both the Federal road 5 to Tg. Kling and Federal road 19 to Alor Gajah. The other major roads in the area are the M5 and the M3 which are State roads providing the main linkage to the area.

### 1.3.1 Existing Land Use

Most of the land abutting the main roads are developed while agricultural use is found in the interior lots. The flat topography makes it suitable for paddy cultivation. Urban development has mainly taken place in areas close to the Alor Gajah road, and along the main roads in a strip development pattern. Built up landuses constitute 50.8% of the total area. Residential use accounts for 165ha. includes several new housing schemes such as Taman Pokok Mangga and Taman Seri Mangga close to the Alor Gajah road. There are also high rise apartments at the junction of the coastal road and the M5 and a public housing scheme at the Kg. Padang Flats. Most of the other residential uses are kampong houses at Kg. Pokok Mangga, Kampong Pulau Limbongan, Kampong Padang and Kampong Lapan. Most of these informal housing will eventually make way for formal housing schemes in the future. Institutional uses comprises mainly schools and health centers and constitute 4.22 ha. Existing commercial uses (8.62 ha) are mainly shophouses facing the main road. The main commercial center in the area is the planned Malim Business Park which is currently under construction. Industries include informal uses such as sawmills and storage yards which will eventually be phased out.

### 1.3.2 Projected Land Use

The land use in the drainage basin is expected to change significantly over the next 20 years. In the near term committed projects include small housing schemes near Taman Pokok Mangga. There are also several commercial premises under construction especially at the Malim Business Park and at Taman Sri Perdana along the M5. In the long term most of the land has been zoned for residential use under the Local Plan. This will mean that all the agricultural areas will be converted to residential use. It is also likely that most of the existing kampong housing will eventually give way to formal housing schemes. New institutional land uses are not identified in the Landuse zoning plan however additional community facilities such as schools and health facilities will be provided in tandem with housing development. Commercial uses are mainly located at the Malim Business Park and at the junction of the M3 and the FR19 (main road to Alor Gajah). It is also likely that local shops will be built in the housing schemes. The changes in land use patterns are as below:

Classification of Land Use	Extent (ha)		Average Annual Growth (%)
	Present	2020	Present - 2020
1. Residential	164.97	318.99	3.2
2. Commercial	8.62	15.12	2.7
3. Industry	2.08	0.39	-7.6
4. Institutional	4.22	4.22	0
5. Recreational	2.85	24.96	10.9
6. Agricultural	183.80	0.00	-ve
7. Roads	59.02	105.23	2.8
8. Others (Vacant land)	45.34	1.99	-13.8
9. Future Developments	0.00	0.00	0
Total	470.90	470.90	

Source : MPMBB and Local Plan

Note : Additional community facility will be provided within the residential area



#### **1.4 Drainage Basin of Ayer Salak in Melaka**

The Ayer Salak Drainage Basin covers an area of 2081ha. The Area is predominantly under agricultural use but has been identified as a major industrial estate. The drainage basin is bordered by the Sg. Ayer Hitam and drained by Sg. Ayer Salak. The site is accessible from the Federal road to Alor Gajah (F19) by the state road M4. It is bordered in the north by the state road M136 and to the west by the state road M9. The area itself is undulating in the northern portion and flat towards the south. Built up land use currently account for 22% of the total land use.

##### **1.4.1 Existing Land Use:**

The higher lands to the north were previously rubber plantation lands. Large tracts of this area has been levelled for the Bt. Rambai Industrial estate. The lower lying areas along the banks of Sg. Salak were previously paddy areas but have now been converted to residential landuse. Residential use constitutes 211ha or 10.1% of the total area. New housing schemes in the area include Taman Rambai Jaya, Taman Rambai Utama, Taman Sri Rambai and Taman Tanjung Minyak. There are also a number of villages in the area including Kampong Ayer Salak and Kampong Paya Mengkuang.

There is also an existing animal farm (poultry) near the Bt. Rambai industrial area. Industrial uses currently account for 124ha. There are however several tracts of land that has been levelled for industrial development. Agricultural land constitutes 1283ha (61.6%) while vacant land amounted to 335ha (16.1%).

##### **1.4.2 Projected Land Use**

Major committed land uses in the near term will be the expansion of industrial landuse at Bt. Rambai including the Taman Perindustrian Rambai Maju. Extension to housing schemes are proposed at Taman Tg. Minyak Utama, Taman Rambai Jaya and Taman Rambai Utama as well as Taman Tanjung Minyak. Residential land use (net) is expected to increase to 362ha while industrial uses will increase to 294ha by 2005.

In the long term most of the area will be converted for development. Industrial use will account for 803ha or 38.5% of the total area while residential use will account for 567ha or 27.2% of the total area. There will be a new commercial center in the area of about 6.7ha. Again new institutional uses have not been identified in the land use zoning plan; however these facilities will be provided according to planning standards as new residential development takes place. Both roads and recreational uses will increase with urban

development. The big reduction will be in the area under agriculture and vacant land which will be converted to urban uses as listed below:

Classification of Land Use	Extent (ha)		Average Annual Growth (%)
	Present	2020	Present – 2020
1. Residential	204.17	477.55	4.1
2. Commercial	0.0	7.31	-
3. Industry	126.37	627.05	7.9
4. Institutional	1.12	0.96	-0.7
5. Recreational	3.43	165.01	20.3
6. Agricultural	922.83	1.37	-26.7
7. Roads	121.77	439.84	6.3
8. Others (Vacant land)	341.30	1.20	-23.6
Total	1,720.29	1720.29	

Source : MPMBB and Local Plan

Note : Additional community facility will be provided within the residential area

## ***TABLES***

Table II-1(1/2) Existing Land Use (Sg. Air Mendidh and Line G)

River Basin	Sub-basin No,	Total Area (ha)	Area for Each Land Use Category																		
			Residential	Institutional	Commercial	Industry	Recreational	Road	Pond	Natural	Paddy	Dry Crop	Others								
Air Mendidh	AM- 1	6.96	3.43					1.12	3.53												
	AM- 2	5.36	2.97					0.55	1.27												
	AM- 3	24.53	9.84			3.92		0.44	8.06		1.20		0.96								
	AM- 4	8.87	6.81						1.62												
	AM- 5	25.42		15.71					1.37		3.22		5.12								
	AM- 6	13.69	6.61			1.52		1.03	1.66		0.49		3.90								
	AM- 7	54.47							1.53				51.42								
	AM- 8	17.69	3.35						2.15				12.19								
	AM- 9	1.59	0.21						0.36				1.02								
	AM- 10	9.58	4.02						1.13				4.43								
	AM- 11	11.36	3.36		6.20				1.45				0.35								
	AM- 12	14.35	3.38			0.42			0.88	1.12			8.55								
	AM- 13'	15.96	7.72						2.18	4.07			1.99								
	AM- 13	30.46	18.70							9.86			1.90								
	AM- 14	12.43	5.73		4.28					2.42											
	AM- 15	19.73	10.43			1.62				6.22			1.46								
	AM- 16	50.32	9.29		14.05	3.61				8.03			15.34								
	AM- 17	10.93	3.73		1.58	1.13				0.88			3.61								
	AM- 18	25.35	11.52		0.67	5.40				2.03			5.73								
AM- 19	3.38	1.28			0.88				0.33			0.89									
	<b>Sub total</b>	<b>362.43</b>	<b>112.38</b>	<b>42.49</b>	<b>18.50</b>	<b>0.00</b>	<b>0.00</b>	<b>6.20</b>	<b>59.09</b>	<b>4.91</b>	<b>118.86</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	
Line G	LG- 1	37.06		0.31					0.02												36.74
	LG- 2	32.65		0.75					0.01												31.89
	LG- 3	6.18							0.00												6.05
	LG- 4	69.59	30.53	0.36	1.29			9.12	16.46	1.56											4.65
	LG- 5	4.86							0.82												3.86
	LG- 6	17.70	4.42					3.13	4.92												
	LG- 7	11.52							0.81		0.06										
	LG- 8	4.61							0.38												
	LG- 9	28.04	9.58		1.83			3.62	5.46		0.56										
	LG- 10	20.49	1.22	0.60					0.79												
	LG- 11	15.72	1.89						0.55												
	LG- 12	7.05	1.96						0.45												
	LG- 13	12.53	2.32						1.17												
	LG- 14	4.79	1.53		1.30			1.30	0.61												
	<b>Sub total</b>	<b>272.78</b>	<b>53.45</b>	<b>1.42</b>	<b>3.72</b>	<b>5.03</b>	<b>15.87</b>	<b>32.45</b>	<b>2.18</b>	<b>0.00</b>	<b>83.19</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>75.48</b>

Table II-1(2/2) Existing Land Use (Prt. Pokk Mangga and Sg. Ayer Salak)

River Basin	Sub-basin No,	Total Area (ha)	Area for Each Land Use Category (ha)										
			Residential	Institutional	Commercial	Industry	Recreational	Road	Pond	Natural	Paddy	Dry Crop	Others
Pokkok Mangga	L- 1	88.17	22.58	0.13	2.03	0.00	0.00	7.75	0.00	0.00	0.00	41.30	14.38
	L- 2	27.43	7.33	0.10	0.00	0.43	0.00	2.37	0.00	0.00	0.00	17.07	0.13
	L- 3	48.77	13.02	0.18	0.00	0.77	0.00	4.21	0.00	0.00	0.00	30.35	0.24
	L- 4	80.79	30.01	1.86	0.31	0.00	0.00	9.33	0.00	0.00	0.00	38.27	1.01
	L- 5	22.79	8.47	0.52	0.09	0.00	0.00	2.63	0.00	0.00	0.00	10.80	0.28
	P- 1	28.77	4.12	0.12	5.40	0.00	0.00	6.74	0.00	0.00	0.00	0.00	12.39
	P- 2	45.43	23.22	0.00	0.00	0.00	0.00	5.81	0.00	0.00	0.00	7.58	6.69
P- 3	15.14	7.74	0.00	0.00	0.00	0.00	1.94	0.00	0.00	0.00	2.53	2.23	
P- 4	34.78	10.04	0.10	0.00	0.00	0.00	2.51	0.00	0.00	0.00	18.38	3.75	
P- 5	15.47	7.33	0.14	0.00	0.00	0.00	4.72	0.00	0.00	0.00	3.26	0.02	
P- 6	28.51	14.00	0.48	0.36	0.00	0.40	4.96	0.00	0.00	0.00	6.42	1.90	
P- 7	34.85	17.11	0.59	0.43	0.00	0.48	6.06	0.00	0.00	0.00	7.85	2.32	
	<b>Total</b>	<b>470.90</b>	<b>164.97</b>	<b>4.22</b>	<b>8.62</b>	<b>2.08</b>	<b>2.85</b>	<b>59.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>183.80</b>	<b>45.34</b>
Ayer Salak	AI- 1	128.95						0.00				128.95	7.57
	AI- 2	133.04	2.47					0.67				122.33	12.15
	AI- 3	91.13	27.93	1.12				7.53	1.49			40.91	4.83
	AI- 4	12.14	5.52					1.49				0.30	15.27
	A2- 2	15.27						0.00				5.12	4.35
	A2- 1	82.86					52.76	20.63				44.93	21.34
	A2- 2	66.96					1.00	0.69				32.29	4.81
	A2- 3	56.02	11.56					6.36				179.27	132.63
	AS- 1	179.27						0.00					
	AS- 2	134.63						2.00					
	AS- 3	28.38						0.06				28.17	
	AS- 4	46.95	6.30			0.16		2.26				38.39	
AS- 5	61.67	7.30			15.59		8.22				30.57		
AS- 6	34.93	5.55					1.99				27.39		
AS- 7	137.55	31.21					11.28				92.95		
AS- 8	177.77	5.42					21.04				26.63	71.57	
AS- 9	147.51	43.60					15.67				47.28	40.96	
AS- 10	108.35	50.67					18.97				10.77	25.81	
AS- 11	61.77	6.61					2.90				50.79		
AS- 12	15.83	0.01					0.00				15.82		
	<b>Total</b>	<b>1,720.98</b>	<b>204.17</b>	<b>1.12</b>	<b>0.00</b>	<b>126.37</b>	<b>3.43</b>	<b>121.77</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>922.83</b>	<b>341.30</b>

Table II-2 (1/2) Projected Land Use in 2020 (Sg. Air Mendidih and Line G)

River Basin	Sub-basin No.	Total Area (ha)	Area for Each Land Use Category															
			Residential	Institutional	Commercial	Industry	Recreational	Road	Pond	Natural	Paddy	Dry Crop	Others					
Air Mendidih	AM- 1	6.96	3.43								3.53							
	AM- 2	5.36	2.97					1.12		1.27								
	AM- 3	24.53	10.62		3.92			0.55		8.24	1.20							
	AM- 4	8.87	6.81					0.44		1.62								
	AM- 5	25.42		23.77						1.65								
	AM- 6	13.69	8.26		0.93			1.03		1.84								
	AM- 7	54.47	22.82		13.62			1.66		16.37								
	AM- 8	17.69	11.70					1.30		4.69								
	AM- 9	1.59	0.21			0.76				0.62								
	AM- 10	9.58	3.86			3.20				2.52								
	AM- 11	11.36	3.58		6.20					1.58								
	AM- 12	14.35	9.36			0.42				3.54								
	AM- 13'	15.96	8.14						1.03	4.72								
	AM- 13	30.46	20.46						3.10	10.00								
	AM- 14	12.43	6.07		4.28					2.08								
	AM- 15	19.73	11.89			1.62				6.22								
	AM- 16	50.32	10.29		23.40					8.53								
	AM- 17	10.93	0.59		1.58					0.22								
	AM- 18	25.35	4.22			15.72				5.41								
AM- 19	3.38				2.42				0.96									
	<b>Sub total</b>	<b>362.43</b>	<b>145.28</b>	<b>60.86</b>	<b>59.25</b>	<b>0.00</b>	<b>10.23</b>	<b>85.61</b>	<b>1.20</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	
Line G	LG- 1	37.06	20.09	0.31				10.29		6.37								
	LG- 2	32.65	23.88	0.75				0.46		7.57							0.12	
	LG- 3	6.18	4.60							1.46							2.54	
	LG- 4	69.59	33.79	3.44		1.29		9.48		17.49	1.56						0.18	
	LG- 5	4.86	2.93							1.75								
	LG- 6	17.70	7.34					4.18		5.90								
	LG- 7	11.52	1.89					0.81		1.55								
	LG- 8	4.61	3.38			0.31				0.91								
	LG- 9	28.04	12.81	2.69		1.83		4.16		5.99	0.56							
	LG- 10	20.49	13.84			0.89		1.57		4.19								
	LG- 11	15.72	10.59					1.18		3.95								
	LG- 12	7.05	4.77					0.53		1.75								
	LG- 13	12.53	7.82			0.45		0.92		3.34								
	LG- 14	4.79	3.47					1.32										
	<b>Total</b>	<b>272.78</b>	<b>151.19</b>	<b>7.19</b>	<b>4.77</b>	<b>7.55</b>	<b>33.59</b>	<b>63.53</b>	<b>2.12</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>2.84</b>	

Table II-2 (2/2) Projected Land Use in 2020 (Prt. Pokok Mangga and Sg. Ayer Salak)

River Basin	Sub-basin No.	Total Area (ha)	Area for Each Land Use Category																
			Residential	Institutional	Commercial	Industry	Recreational	Road	Pond	Natural	Paddy	Dry Crop	Others						
Pokok Mangga	L- 1	88.17	58.89	0.13	4.93			5.18	19.04										
	L- 2	27.43	19.37	0.10	0.18	0.14		1.72	5.93										
	L- 3	48.77	34.43	0.18	0.31	0.25		3.06	10.53									0.41	
	L- 4	80.79	57.22	1.86	0.31			3.88	17.11									0.12	
	L- 5	22.79	16.14	0.52	0.09			1.10	4.82										
	P- 1	28.77	9.85	0.12	8.59			0.82	9.39										1.10
	P- 2	45.43	32.39					3.53	8.42										0.37
P- 3	15.14	10.80					1.18	2.81											
P- 4	34.78	25.53		0.10			2.21	6.94											
P- 5	15.47	9.63		0.14			0.33	5.37											
P- 6	28.51	20.14		0.48	0.32		0.88	6.70											
P- 7	34.85	24.61		0.59	0.39		1.07	8.18											
	<b>Sub-total</b>	<b>470.90</b>	<b>318.99</b>	<b>4.22</b>	<b>15.12</b>	<b>0.39</b>	<b>24.96</b>	<b>105.23</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.99</b>	
Ayer Salak	A1- 1	128.95					98.01		30.94										
	A1- 2	133.04	6.42				33.38		20.89									0.12	
	A1- 3	91.13	45.86	0.96	7.31	0.89		6.35	28.38									1.37	
	A1- 4	12.14	4.68					5.00	2.46										
	A2- 2	15.27					11.13		4.14										
	A2- 1	82.86					60.40		22.46										
	A2- 2	66.27					37.05		28.14										
	A2- 3	56.02	19.40				12.44		24.18										1.08
	AS- 1	179.27	88.75				33.97		11.78	44.76									
	AS- 2	134.63	20.47				81.41		32.74										
	AS- 3	28.38					20.79		7.59										
	AS- 4	46.95	20.69				13.72		12.55										
AS- 5	61.67					45.19		16.48											
AS- 6	34.93					25.59		9.34											
AS- 7	137.55	45.95				36.58		24.91	30.11										
AS- 8	177.77	13.77				116.48		47.51											
AS- 9	147.51	108.08						39.43											
AS- 10	108.35	79.39						28.96											
AS- 11	61.77	23.76						29.34	8.67										
AS- 12	15.83	0.31						15.40	0.11										
	<b>Sub-total</b>	<b>1720.29</b>	<b>477.55</b>	<b>0.96</b>	<b>7.31</b>	<b>627.05</b>	<b>165.01</b>	<b>439.84</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.37</b>	<b>1.20</b>