

**PROJECT ML - 4**

**Changwat : Rayong, Chanthaburi**

**A. Klaeng - C. Chanthaburi**

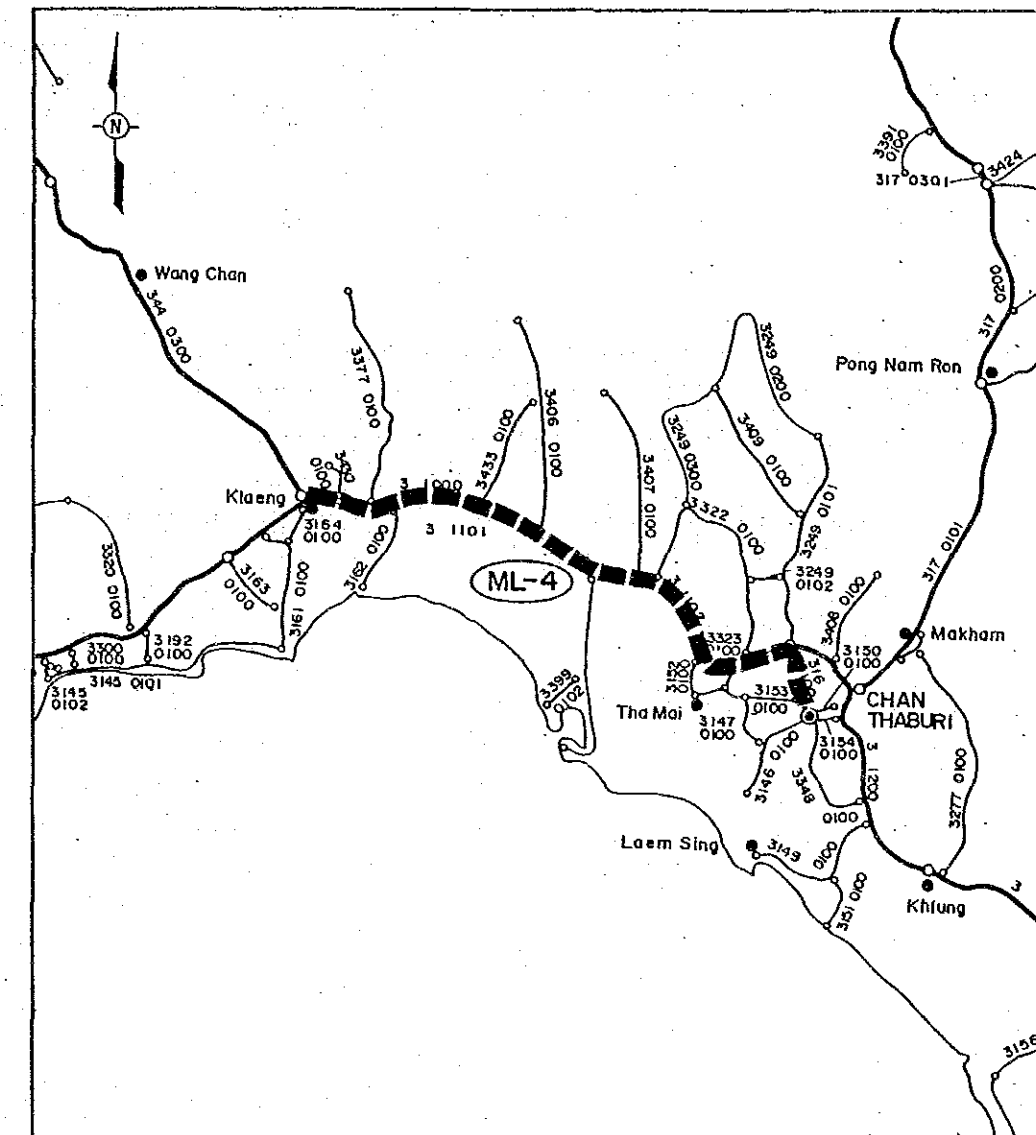
**Length : 61.30 km**

# SUMMARY

## PROJECT ML-4

Item	Description
Changwat	Rayong/Chantha Buri
Origin	A. Klaeng
Destination	C. Chanthaburi
Length	
Total	61.3 km
Improvement Section	61.3 km
DOH Road	No.3 61.3 km
Others	-
New Construction Section	-
Surface Type and Condition	AC Surfacing // Fair
Terrain	Flat (Partly Rolling)
Traffic (ADT)	
Existing	5,983
2000	14,207
2008	20,905
Existing Standard	P1
Proposed Standard	PD
Construction Cost	
Financial	445,894 Thousand Baht
Economic	370,904 Thousand Baht
IRR	21.0%
B/C	1.95

## LOCATION OF PROJECT ROUTE



SCALE  
5 0 10km.

### LEGEND :

- — — — — PROJECT ROUTE
- ==== DIVIDED HIGHWAYS
- NATIONAL HIGHWAYS
- PROVINCIAL HIGHWAYS
- PROVINCIAL HIGHWAYS ( Unpaved )
- , ● CHANGWAT , AMPHOE

## 1. GENERAL

The project route is a part of Route 3, and is located in Changwat Rayong and Changwat Chanthaburi from Amphoe Klaeng in Rayong to Muang Chanthaburi, with a total length of 61.3 km.

The existing road has a two-lane asphaltic concrete carriageway of 7.00 m width and 2.50-m shoulders. The terrain is generally flat, but there is a 6-km stretch of rolling section toward the end.

The alignment is generally good. Land use along the road is predominantly for orchards after about 12 km of paddy and coconut palm plantations. Patches of rubber plantations are increasingly found on the approach to Chanthaburi.

The road can be heavily trafficked by trucks carrying fruits during peak season. Trucks transporting raw rubber as well as parawood are increasing. Passenger vehicle traffic is also increasing, reflecting the growing economy in the surrounding area.

This project, therefore, is planned to increase the capacity of the road.

## 2. TRAFFIC (Growth Rate Method)

Base Traffic Volume

Route	Section	Year	MC	PC	LB	HB	LT	MT	HT	ADT
ML-4	3-1000	1986	2697	1349	750	278	3230	655	840	7102
	3-1102	1986	787	1069	458	207	2286	414	429	4863
Average		-	1742	1209	604	243	2758	535	635	5983

Traffic Growth Rate

Route	Period	MC	PC	LB	HB	LT	MT	HT	ADT
ML-4	- 1993	8.36	7.66	7.98	5.69	8.93	8.47	8.47	8.36
	1994 - 2000	5.37	5.35	7.68	5.11	4.74	4.67	4.61	5.37
	2001 - 2008	5.13	5.13	7.17	5.09	4.54	4.19	3.00	5.13

Future Traffic Volume

Route	Section	Year	MC	PC	LB	HB	LT	MT	HT	ADT
ML-4	3-1000	1993	4731	2261	1284	410	5878	1157	1484	12474
		2000	4731	3256	2155	581	8129	1593	2034	17748
		2008	10181	4858	3750	864	11596	2212	2577	25857
	3-1102	1993	1181	1682	731	317	3332	616	620	7298
		2000	1181	2499	1235	443	4701	888	900	10666
		2008	2581	3841	2289	620	6762	1251	1189	15952
	Average	1993	2956	1972	1008	364	4605	887	1052	9886
		2000	4275	2878	1695	512	6415	1241	1467	14207
		2008	6381	4350	3020	742	9179	1732	1883	20905

### 3. BENEFITS

#### VOC SAVINGS

(1000 BAHT/YEAR)

YEAR	MC	PC	LB	HB	LT	MT	HT	TOTAL
2000	0.	13162.	5646.	2837.	8451.	5551.	7108.	42755.
2008	875.	17754.	9929.	4520.	12323.	9564.	10336.	65300.

#### TIME SAVINGS

(1000 BAHT/YEAR)

YEAR	MC	PC	LB	HB	LT	MT	HT	TOTAL
2000	4488.	17784.	24935.	27454.	24126.	4667.	5517.	108972.
2008	5707.	22901.	37849.	33896.	29409.	5549.	6033.	141345.

#### TOTAL BENEFITS

(1000 BAHT/YEAR)

YEAR	MC	PC	LB	HB	LT	MT	HT	TOTAL
2000	4488.	30946.	30581.	30291.	32577.	10218.	12625.	151727.
2008	6583.	40654.	47778.	38416.	41732.	15113.	16369.	206645.

### 4. ENGINEERING

#### SUMMARY OF ROAD INVENTORY

(PROJECT ML-4)

Item	Description
Changwat	Rayong/Chanthaburi
Origin	A. Klaeng
Destination	C. Chanthaburi
Length	
Total	61.3 km
Improvement Section	61.3 km
DOH Road	No.3 61.3 km
Others	-
New Construction Section	-
Terrain	Flat (partly Rolling)
Alignment (Hori./Vert.)	Good // Good/Fair
Formation Width	P1
Embankment Section	
Length	61.3
Height	0.50 m ~ 2.00 m
Cut Section	-
Length	-
Depth	-
Surface Type and Condition	AC surfacing // Fair
SBST or DBST	-
Soil Aggregate	-
Earth	-
Box Culvert	1 unit 14.50 m
Bridge	
Permanent Bridge	28 sites 643.0 m
Narrow Concrete Bridge	-
Wooden Bridge	-
Overflow Section	-
Right of way	40.0 m

**CONSTRUCTION QUANTITIES AND COSTS**  
(Project ML-4 Length = 61.3 km)

Item	Unit	Financial	Quantity	Financial	Economic Cost		Residual Value	
		Unit Rate Baht		Total Cost 1000 Baht	%	1000 Baht	%	1000 Baht
EARTHWORK					83		90	
Clearing & Grubbing	ha	9,500	79	751				
Earth Excavation	m3	16	-	0				
Embankment (Side Borrow)	m3	40	1,121,000	44,840				
Embankment (Borrow Pit)	m3	100	-	0				
Sub Total				45,591		37,841		34,057
PAVEMENT					83		50	
Subbase (Selected Material)	m3	180	109,200	19,656				
Subbase (Soil Aggregate)	m3	220	145,600	32,032				
Base (Soil Aggregate)	m3	350	97,100	33,985				
Shoulder (Soil Aggregate)	m3	250	60,700	15,175				
Asphaltic Prime/Tack Coat	m2	12	970,600	11,647				
DBST	m2	40	-	0				
AC Surfacing	m2	190	636,900	121,011				
Sub Total				233,506		193,810		96,905
STRUCTURES					83		50	
RC Pipe Culvert (D 1.00 Equivalent)	m	1,800	1,968	3,542				
RC Box Culvert (2 x 2.4 x 2.4 Equivalent)	m	20,000	16	320				
RC Bridge (W=7.0 L=10.0 Equivalent)	m	80,000	643	51,440				
Sub Total				55,302		45,901		22,951
INTERCHANGE/INTERSECTION	nos.	5,000,000	2	10,000	83	8,300	50	4,150
Total (a)				344,399		285,852		158,063
Miscellaneous Work ( (a) x 7% )	1s			24,108	83	20,010	0	0
CONTRACT AMOUNT (b)				368,507		305,862		158,063
PHYSICAL CONTINGENCIES ( (b) x 10% ) (c)	1s			36,851		30,586		15,806
ENGINEERING AND SUPERVISION ( ((b) + (c)) x 10% ) (d)	1s			40,536	85	34,456	0	0
LAND ACQUISITION					100		100	
Highly Developed Land	ha	-	-	0				
Less Developed Land	ha	-	-	0				
Sub Total (e)	1s			0		0		0
PROJECT COST ( (b) + (c) + (d) + (e) )				445,894		370,904		173,869
AVERAGE COST PER KM				7,274				

## 5. ECONOMIC EVALUATION

### COST AND BENEFIT STATEMENT

(1000 BAHT)

YEAR	COST		BENEFITS		DISCOUNTED (12%)	
	CONST. COST	VOC SAVING	TIME SAVING	TOTAL	COST	BENEFIT
1991	74,181			0	104,219	0
1992	185,452			0	232,631	0
1993	111,271			0	124,624	0
1994		15,051	64,233	79,284	0	70,789
1995		19,668	71,689	91,357	0	72,829
1996		24,286	79,146	103,432	0	73,621
1997		28,903	86,602	115,505	0	73,406
1998		33,521	94,059	127,580	0	72,392
1999		38,138	101,515	139,653	0	70,753
2000		42,755	108,972	151,727	0	68,634
2001	71,793	45,574	113,018	158,592	32,476	64,053
2002		48,392	117,065	165,457	0	59,665
2003		51,210	121,112	172,322	0	55,483
2004		54,028	125,158	179,186	0	51,512
2005		56,846	129,205	186,051	0	47,755
2006		59,664	133,252	192,916	0	44,211
2007		62,482	137,298	199,780	0	40,879
2008	(152,798)	65,300	141,345	206,645	(31,265)	37,753
TOTAL	289,899	645,816	1,623,668	2,269,487	462,685	903,735

NET PRESENT VALUE : 441,050  
 BENEFIT COST RATIO : 1.95  
 INTERNAL RATE OF RETURN : 21.0%

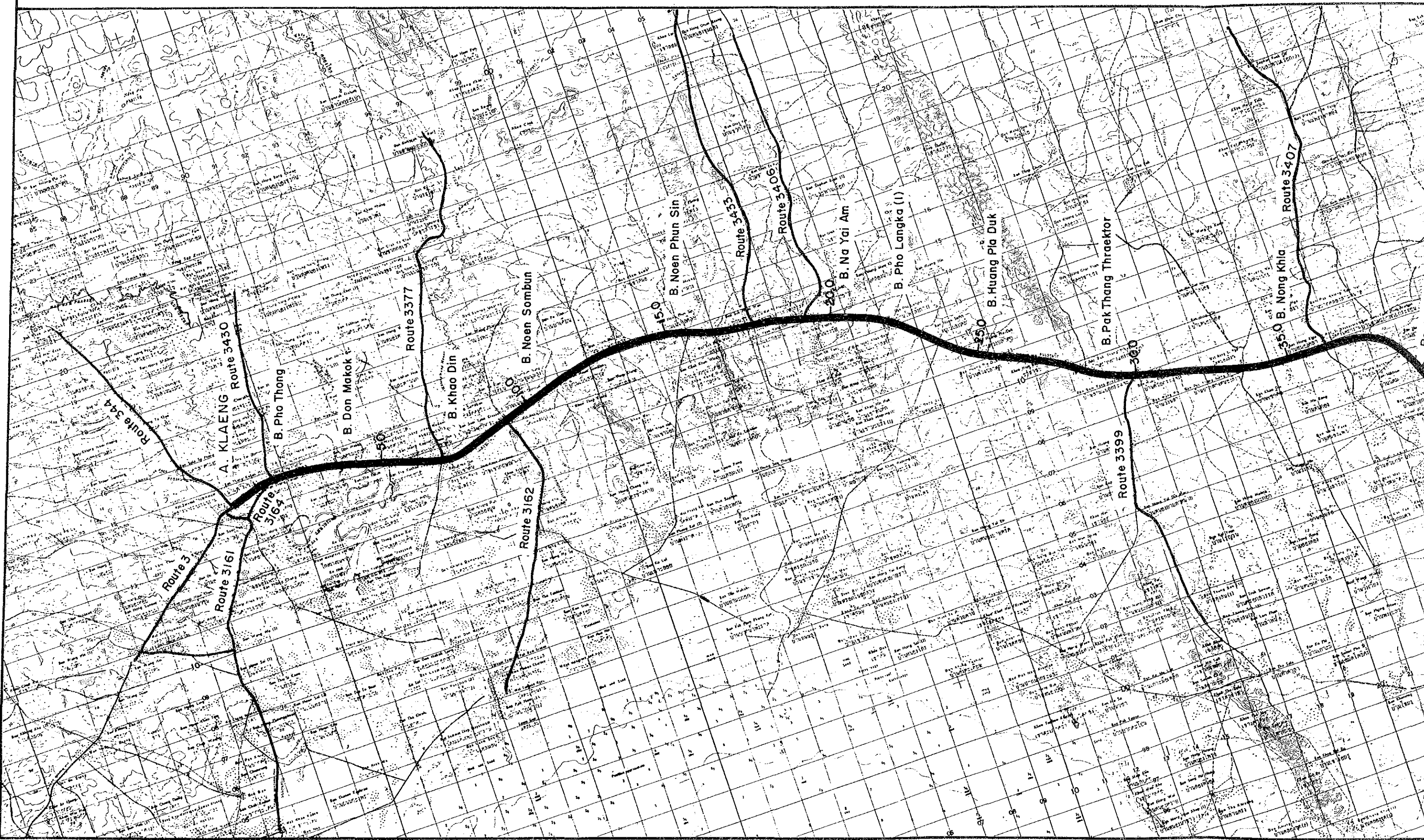
## 6. DEVELOPMENT AND SOCIAL IMPACTS

The growing economic link between Rayong and Chanthaburi would be strengthened by the completion of this project and Rayong's growth could be spread to Chanthaburi. Chanthaburi's traditionally strong export, fruits, would be further developed. Major tourism development, the thrust of which has reached Rayong via Pattaya from Bangkok, may be extended to Chanthaburi.

PROJECT NO. ML - 4

A. KLAENG - C. CHANTHABURI  
C. RAYONG, C. CHANTHABURI

L = 61.30 KM.

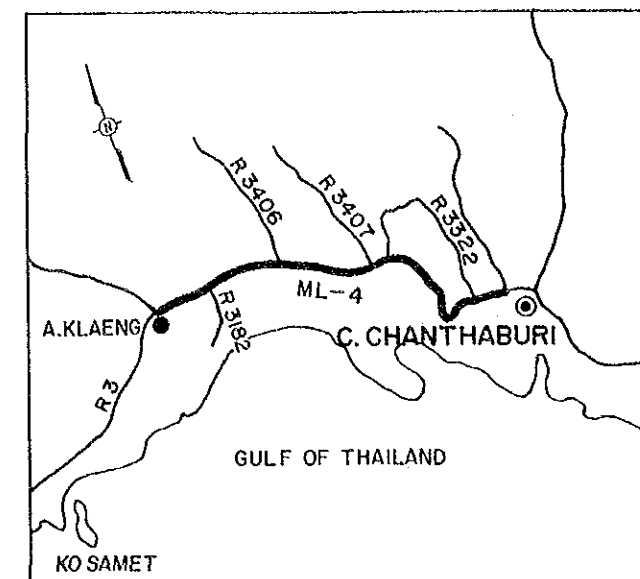
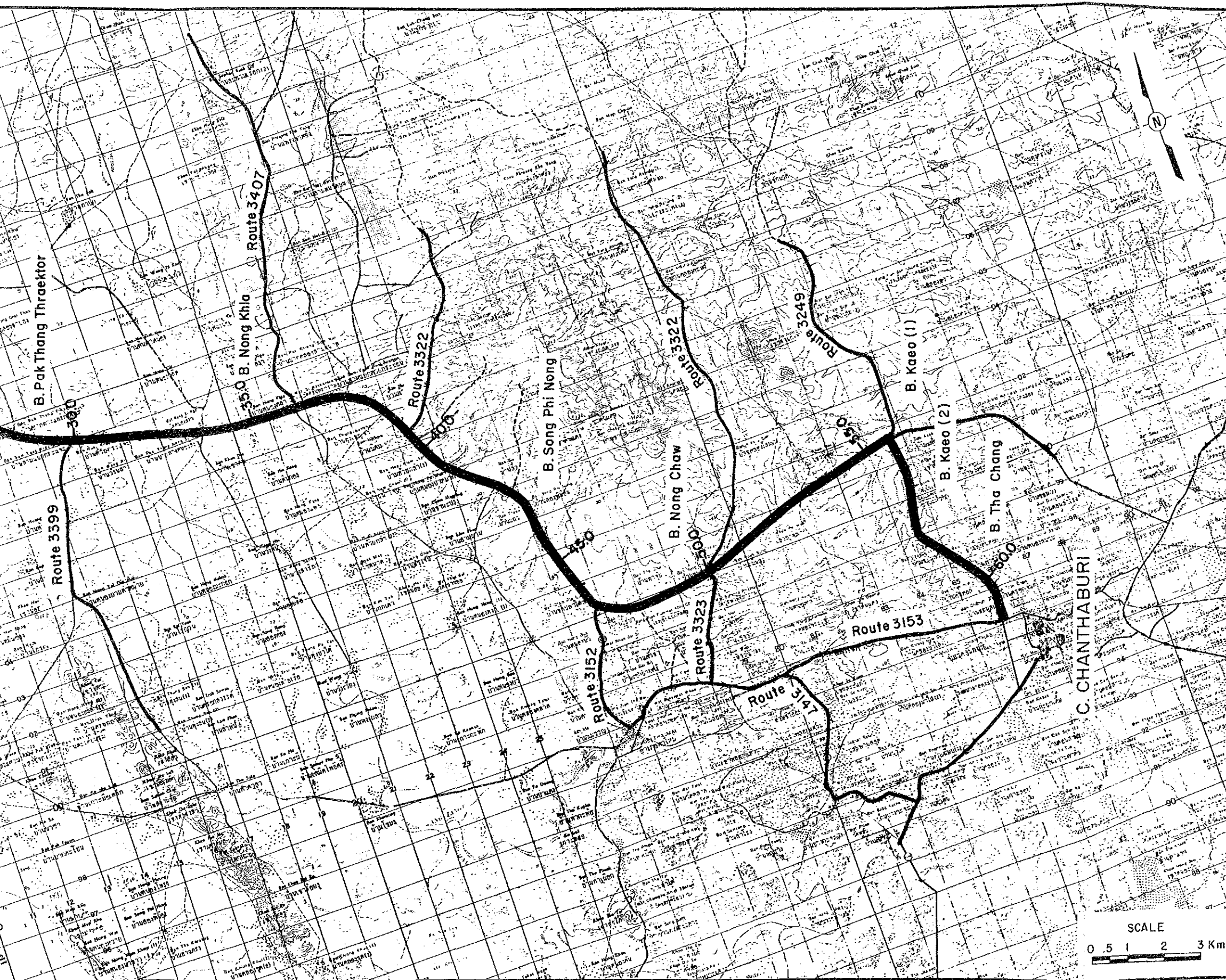




NG -- C.CHANTHABURI  
NG, C.CHANTHABURI

L = 61.30 KM.

LOCATION MAP



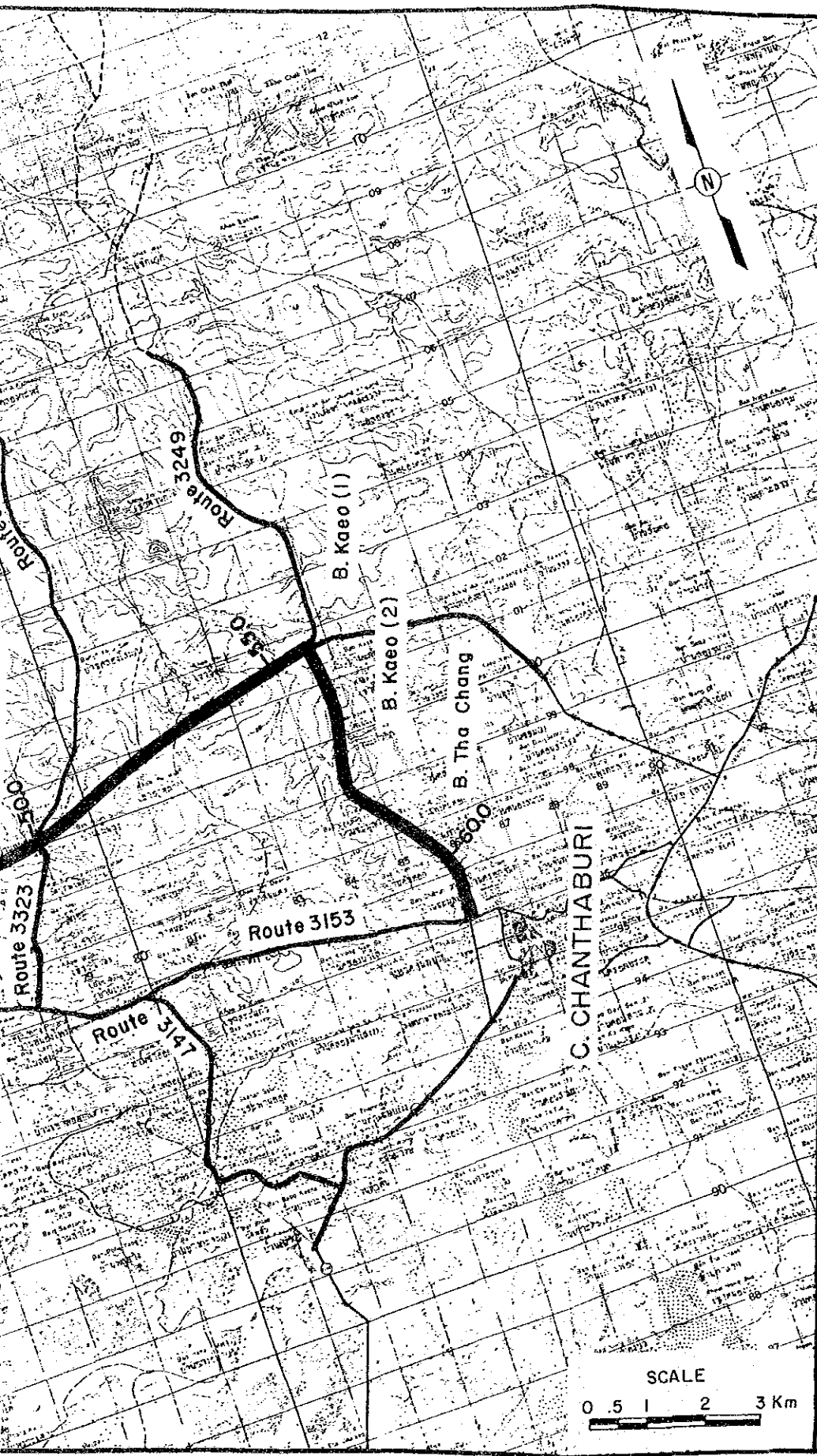
No.	Station Km.	P
1	0.15	
2	0.6	
3	1.0	
4	1.8	
5	3.0	
6	3.4	
7	7.0	
8	7.3	
9	8.5	
10	13.6	
11	18.9	
12	20.8	
13	23.0	
14	23.6	
15	23.7	
16	29.5	
17	30.4	
18	33.8	
19	34.4	
20	35.2	
21	37.3	
22	42.5	
23	43.7	
24	44.5	
25	46.1	
26	50.1	
27	52.6	
28	54.5	

LEGEND

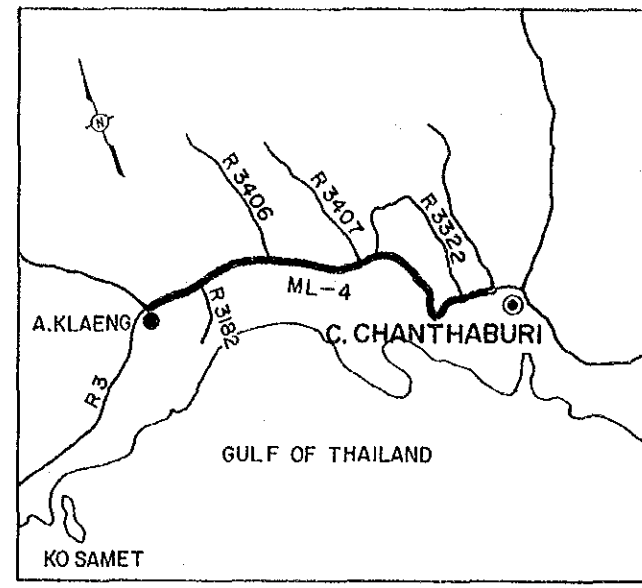
- PROPOSED ROUTE (IMPROVEMENT)
- PROPOSED ROUTE (NEW CONSTRUCTION)
- PAVED ROUTE
- UNPAVED ROUTE
- INVENTORY SURVEY ROUTE

SCALE  
0 5 1 2 3 Km










LOCATION MAP



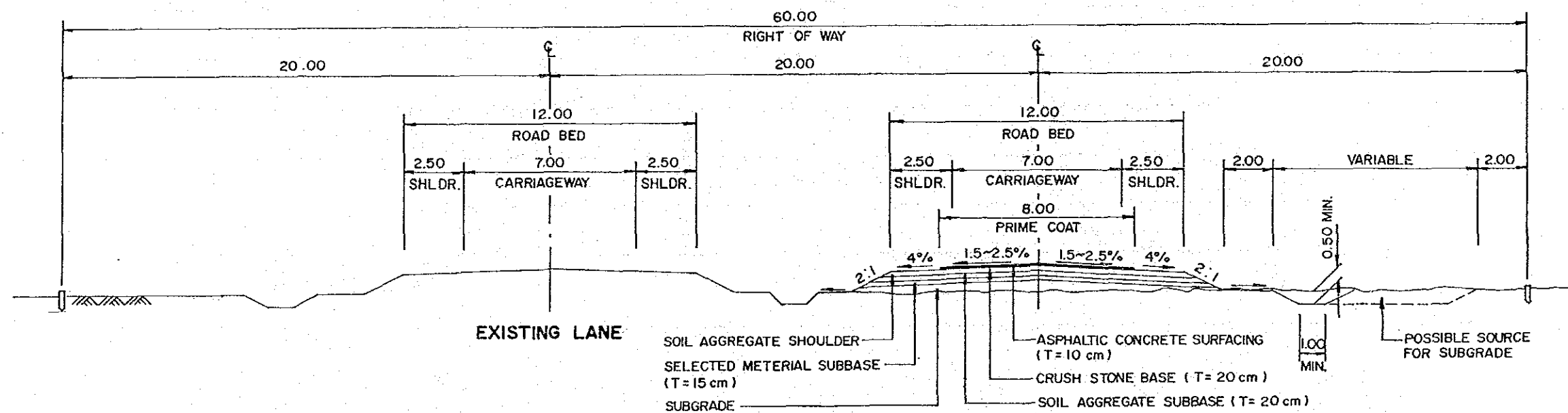
BRIDGE LIST

No.	Station Km.	Proposed Bridge	Existing Bridge
1	0.15	C-8.00 x 42.00	C-8.00 x 42.00
2	0.6	C-8.00 x 16.00	C-8.00 x 16.00
3	1.0	C-8.00 x 30.00	C-8.00 x 30.00
4	1.8	C-8.00 x 16.00	C-8.00 x 16.00
5	3.0	C-8.00 x 20.00	C-8.00 x 20.00
6	3.4	C-8.00 x 46.50	C-8.00 x 46.50
7	7.0	C-8.00 x 40.00	C-8.00 x 40.00
8	7.3	C-8.00 x 20.00	C-8.00 x 20.00
9	8.5	C-8.00 x 12.00	C-8.00 x 12.00
10	13.6	C-8.00 x 15.00	C-8.00 x 15.00
11	18.9	C-8.00 x 32.00	C-8.00 x 32.00
12	20.8	C-8.00 x 24.00	C-8.00 x 24.00
13	23.0	C-8.00 x 16.00	C-8.00 x 16.00
14	23.6	C-8.00 x 12.00	C-8.00 x 12.00
15	23.7	C-8.00 x 12.00	C-8.00 x 12.00
16	29.5	C-8.00 x 12.00	C-8.00 x 12.00
17	30.4	C-8.00 x 20.00	C-8.00 x 20.00
18	33.8	C-8.00 x 24.00	C-8.00 x 24.00
19	34.4	C-8.00 x 16.00	C-8.00 x 16.00
20	35.2	C-8.00 x 59.00	C-8.00 x 59.00
21	37.3	C-8.00 x 18.00	C-8.00 x 18.00
22	42.5	C-8.00 x 16.00	C-8.00 x 16.00
23	43.7	C-8.00 x 12.00	C-8.00 x 12.00
24	44.5	C-8.00 x 16.00	C-8.00 x 16.00
25	46.1	C-8.00 x 24.00	C-8.00 x 24.00
26	50.1	C-8.00 x 32.00	C-8.00 x 32.00
27	52.6	C-8.00 x 24.00	C-8.00 x 24.00
28	54.5	C-8.00 x 16.00	C-8.00 x 16.00

LEGEND

-  PROPOSED ROUTE (IMPROVEMENT)
-  PROPOSED ROUTE (NEW CONSTRUCTION)
-  PAVED ROUTE
-  UNPAVED ROUTE
-  INVENTORY SURVEY ROUTE

TYPICAL CROSS SECTION



PRIMARY HIGHWAY (CLASS PD)

## ROAD INVENTORY (1/3)

ROUTE NO. A. KLAENG - C. CHANTHABURI

L = 61.3 km

PROJECT NO. ML-4

C. RAMONG/CHANTHABURI

		269	271	273	275	277	279	281	283	285	287	289	291	293	295	297	299	
STATION (Km)		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	
VILLAGE Name of Village		B.Thang Kwien	B.Pho Thang	B.Don Makok	B.Nong Kapho	B. Khao Din	B. Noen Somboon		B.Kha Rasadon Arec	B.Noen Poonsin	B.Suk Pailwon	B.Siyak Klang Sin	B. Noen Thongchai	B.Phothi Lanka	B.Noen Sathit	B.Hung Pla-duk	B.Pakthang Tractor	
TERRAIN		Flat																
CROSS SECTION	Formation Width (m)	Carriageway 7.00 Shoulder 2.50																
	Embankment Height (m)	2.0 1.5 1.0 2.0 1.5 0.8 0.5 2.0 1.5 0.5 1.0 1.5 1.0 2.0 0.5 1.5 1.0 0.5 1.0																
	Cutting Depth (m)																	
SURFACE	Type/Length (km)	Asphaltic Concrete																
	Condition	Fair																
FLOODING	Overflow Length (km)/Height (m)	No.																
LAND USE	Left	Coconut Plantation				Paddy			Orchard		rubber planta- tion						Orchard	
	Right					Paddy					rubber planta- tion						Orchard	
BOX CULVERT & BRIDGE	Station (km)	0+150 0+600 1+000 1+800 3+000 3+400				7+000 7+300 7+500			13+600			18+900	20+800	22+500 23+000 23+600 23+700			29+500	
	Dimension (m) Bridge - Conc. or wooden - Width - (Side walk) - Length Box - width - Height - Length	C-Br. 8.00(1.50)x42.00 C-Br. 8.00(0.75)x16.00 C-Br. 8.00(0.60)x30.00 C-Br. 8.00(0.60)x16.00 C-Br. 8.00(0.60)x20.00 C-Br. 8.00(1.50)x46.50				C-Br. 8.00(0.50)x40.00 C-Br. 8.00(0.75)x20.00 C-Br. 8.00(0.75)x12.00			C-Br. 6.00x15.00			C-Br. 8.00(0.75)x32.00	C-Br. 8.00(0.75)x24.00	C-Box 2(2.40x2.00)x14.50 C-Br. 8.00(0.75)x16.00 C-Br. 8.00(0.75)x12.00 C-Br. 8.00(0.75)x12.00			C-Br. 8.00(0.75)x12.00	
	RIGHT OF WAY (m) (Left/Right)	Left = Right = 20.00 m.																
ALIGNMENT	Horizontal	Good																
	Vertical	Good																
ROUTE NO., AGENCIES																		

**L = 61.3 km.**

### C. RAMONG/CHANTHABURI

27-9

PROJECT NO. ML-4

ROAD INVENTORY (3/3)  
 ROUTE NO. A. KLAENG - C. CHANTHABURI  
 C. RAMONG/CHANTHABURI

L = 61.3 km

STATION (Km)		60	61
VILLAGE Name of Village		C. Chanthaburi	
TERRAIN			
CROSS SECTION	Formation Width (m)		
	Embankment Height (m)		
	Cutting Depth (m)		
SURFACE	Type/Length (km)		
	Condition		
FLOODING	Overflow Length (km)/Height (m)		
LAND USE	Left		
	Right		
BOX CULVERT & BRIDGE	Station (km)		
	Dimension (m) Bridge - Conc. or wooden - Width - (Side walk) - Length Box - width - Height - Length		
RIGHT OF WAY (m) (Left/Right)			
ALIGNMENT	Horizontal		
	Vertical		
ROUTE NO., AGENCIES			

**PROJECT NO. ML - 5**

**Changwat : Chon Buri**

**Chon Buri - Pattaya New Highway**

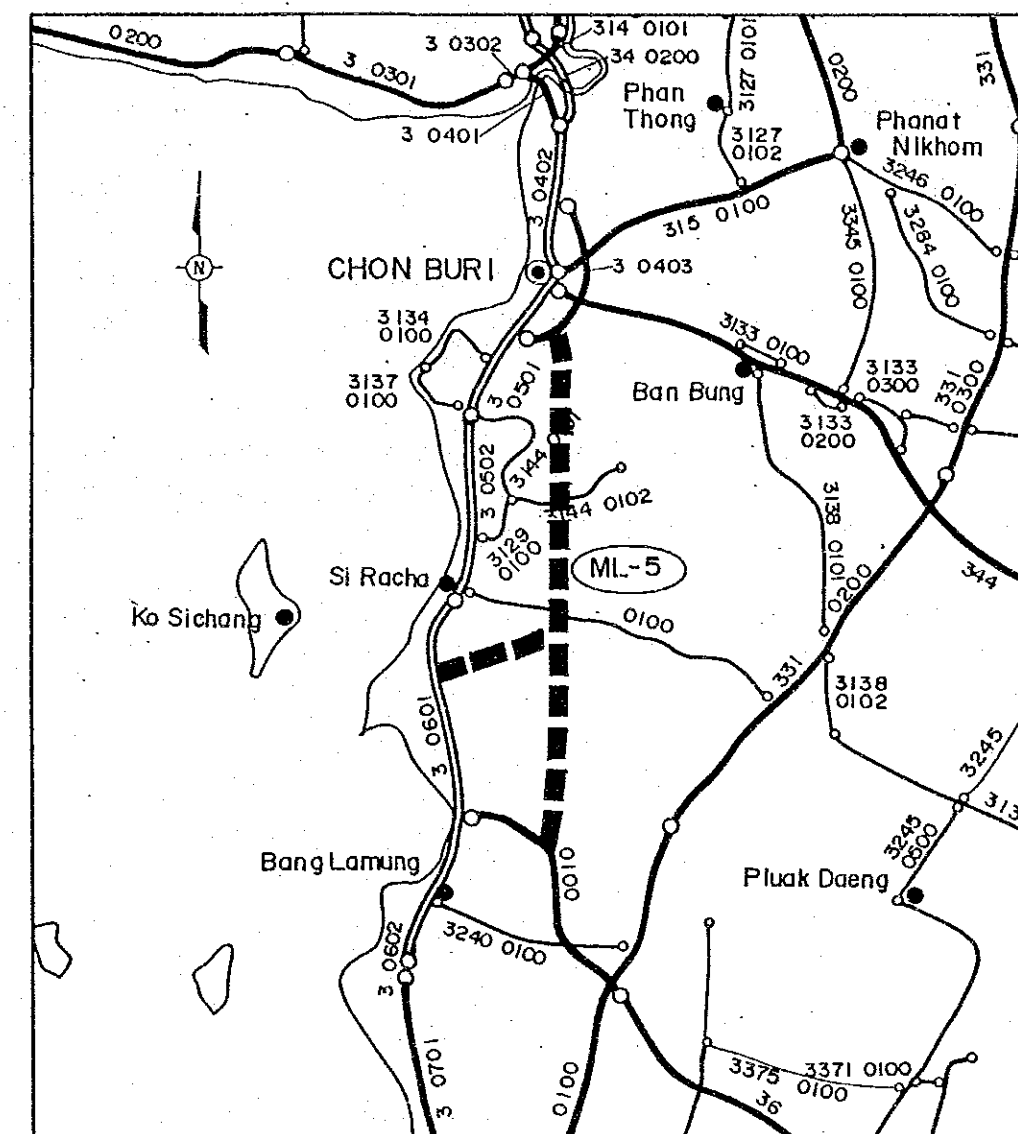
**Length : 48.80 km**

# SUMMARY

## PROJECT ML-5

Item	Description
Changwat	Chon Buri
Origin	Chon Buri
Destination	Pattaya New Highway (including Access Road to Laem Chabang)
Length	
Total	48.8 km
Improvement Section	-
DOH Road	-
Others	-
New Construction Section	48.8 km
Surface Type and Condition	-
Terrain	Rolling/Flat
Traffic (ADT)	
Existing	-
2000	25,318
2008	40,956
Existing Standard	-
Proposed Standard	PD, P1, FD
Construction Cost	
Financial	518,297 Thousand Baht
Economic	447,526 Thousand Baht
IRR	43.4%
B/C	6.34

## LOCATION OF PROJECT ROUTE



### LEGEND :

■■■■■	PROJECT ROUTE	—	PROVINCIAL HIGHWAYS
====	DIVIDED HIGHWAYS	---	PROVINCIAL HIGHWAYS ( Unpaved )
———	NATIONAL HIGHWAYS	●, ●	CHANGWAT, AMPHOE



## 1. GENERAL

The proposed route lies in Changwat Chon Buri. The route currently planned originates at the junction with the Chon Buri Bypass (at Km 12 + 000) and immediately crosses (at about 100 m) the Sattahip Railway, runs almost exactly southward to pass the eastside of the Bang Phra reservoir and ends at the junction with Route 36. The total length of this route is 40.2 km. A spur road is also planned, which turns off the main route at Km 20 + 200 and proceeds southwestward to end at the junction with Route 3 at the site of the Laem Chabang Port and Industrial Complex, with a length of 8.6 km. The total project road length is 48.8 km.

Proposed design standards are four-lane PD from the starting point to the spur road junction, two-lane P1 standards from that point to the end point and four-lane FD standards for the spur road.

The terrain along the proposed route is generally rolling. The section between Km 5 and Km 9 is mountainous. There are no major river crossings. Eight short bridges with a total length of about 160 m will be needed.

This project is intended to segregate local traffic in the increasingly densely developed Eastern Seaboard area, and long distance traffic.

## 2. TRAFFIC (Network Assignment Method)

Future Traffic Volume

Route	Section	Year	MC	PC	LB	HB	LT	MT	HT	ADT
ML-5	BP-N	1993	3306	8394	2981	1328	5139	1543	1420	20805
		2000	3306	13713	5214	2074	7601	2488	2511	33602
		2008	7504	22743	9459	3224	11339	3770	3854	54389
	BP-M	1993	3325	8433	3043	1337	5167	1550	1433	20962
		2000	3325	13780	5305	2084	7638	2497	2532	33835
		2008	7545	22845	9578	3236	11391	3783	3885	54717
	Ave. of N . M	1993	3316	8414	3012	1333	5153	1547	1427	20884
		2000	3316	13747	5260	2079	7620	2493	2522	33719
		2008	7525	22794	9519	3230	11365	3777	3870	54553
	BP-S	1993	2961	7173	2505	1122	4616	1348	1285	18048
		2000	2961	11846	4431	1770	6934	2212	2332	29525
		2008	6715	19763	8116	2762	10445	3382	3611	48078
	BP-W	1993	1069	1260	538	215	551	202	148	2914
		2000	1069	1934	874	314	704	285	200	4310
		2008	1535	3082	1462	474	946	401	274	6639
	Average	1993	2665	6315	2267	1001	3868	1161	1072	15682
		2000	3870	10318	3956	1561	5719	1871	1894	25318
		2008	5825	17108	7154	2424	8530	2834	2906	40956

### 3. BENEFITS

#### VOC SAVINGS

(1000 BAHT/YEAR)

YEAR	MC	PC	LB	HB	LT	MT	HT	TOTAL
2000	-573.	46974.	18682.	5192.	5059.	4239.	3786.	83359.
2008	-756.	78184.	32631.	8138.	7587.	6451.	5951.	138186.

#### TIME SAVINGS

(1000 BAHT/YEAR)

YEAR	MC	PC	LB	HB	LT	MT	HT	TOTAL
2000	6656.	108836.	120904.	134088.	27496.	9851.	10112.	417943.
2008	10004.	180894.	210990.	209109.	40817.	14850.	15617.	682281.

#### TOTAL BENEFITS

(1000 BAHT/YEAR)

YEAR	MC	PC	LB	HB	LT	MT	HT	TOTAL
2000	6083.	155810.	139587.	139280.	32554.	14091.	13897.	501302.
2008	9247.	259078.	243621.	217248.	48404.	21301.	21569.	820467.

**CONSTRUCTION QUANTITIES AND COSTS**  
(Project ML-5 Length=48.8 km)

Item	Unit	Financial	Quantity	Financial	Economic Cost		Residual Value	
		Unit Rate Baht		Total Cost 1000 Baht	%	1000 Baht	%	1000 Baht
EARTHWORK					83		90	
Clearing & Grubbing	ha	9,500	102	969				
Earth Excavation	m3	16	-	0				
Embankment (Side Borrow)	m3	40	1,177,200	47,088				
Embankment (Borrow Pit)	m3	100	-	0				
Sub Total				48,057		39,887		35,898
PAVEMENT					83		50	
Subbase (Selected Material)	m3	180	141,000	25,380				
Subbase (Soil Aggregate)	m3	220	188,000	41,360				
Base (Soil Aggregate)	m3	350	125,400	43,890				
Shoulder (Soil Aggregate)	m3	250	78,400	19,600				
Asphaltic Prime/Tack Coat	m2	12	626,900	7,523				
DBST	m2	40	-	0				
AC Surfacing	m2	190	548,500	104,215				
Sub Total				241,968		200,833		100,417
STRUCTURES					83		50	
RC Pipe Culvert (D 1.00 Equivalent)	m	1,800	2,528	4,550				
RC Box Culvert (2 x 2.4 x 2.4 Equivalent)	m	20,000	132	2,640				
RC Bridge (W=7.0 L=10.0 Equivalent)	m	80,000	160	12,800				
Sub Total				19,990		16,592		8,296
INTERCHANGE/INTERSECTION	nos.	5,000,000	3	15,000	83	12,450	50	6,225
Total (a)				325,015		269,762		150,836
Miscellaneous Work ( (a) x 7% )	ls			22,751	83	18,883	0	0
CONTRACT AMOUNT (b)				347,766		288,645		150,836
PHYSICAL CONTINGENCIES ( (b) x 10% ) (c)	ls			34,777		28,865		15,084
ENGINEERING AND SUPERVISION ( ((b) + (c)) x 10% ) (d)	ls			38,254	85	32,516	0	0
LAND ACQUISITION					100		100	
Highly Developed Land	ha	500,000	195	97,500				
Less Developed Land	ha	-	-	0				
Sub Total (e)	ls			97,500		97,500		97,500
PROJECT COST ( (b) + (c) + (d) + (e) )				518,297		447,526		263,420
AVERAGE COST PER KM				10,621				

## 5. ECONOMIC EVALUATION

### COST AND BENEFIT STATEMENT

(1000 BAHT)

YEAR	COST		BENEFITS		DISCOUNTED(12%)	
	CONST. COST	VOC SAVING	TIME SAVING	TOTAL	COST	BENEFIT
1991	89,505			0	125,748	0
1992	223,763			0	280,688	0
1993	134,258			0	150,369	0
1994		55,138	280,994	336,132	0	300,118
1995		59,842	303,819	363,661	0	289,908
1996		64,545	326,644	391,189	0	278,441
1997		69,249	349,468	418,717	0	266,102
1998		73,952	372,293	446,245	0	253,211
1999		78,656	395,118	473,774	0	240,029
2000		83,359	417,943	501,302	0	226,764
2001	49,493	90,212	450,985	541,197	22,388	218,580
2002		97,066	484,027	581,093	0	209,548
2003		103,919	517,070	620,989	0	199,942
2004		110,772	550,112	660,884	0	189,988
2005		117,626	583,154	700,780	0	179,873
2006		124,479	616,197	740,676	0	169,744
2007		131,332	649,239	780,571	0	159,720
2008	(263,420)	138,186	682,281	820,467	(53,901)	149,896
TOTAL	233,599	1,398,333	6,979,344	8,377,677	525,292	3,331,864

NET PRESENT VALUE : 2,806,572  
 BENEFIT COST RATIO : 6.34  
 INTERNAL RATE OF RETURN : 43.4%

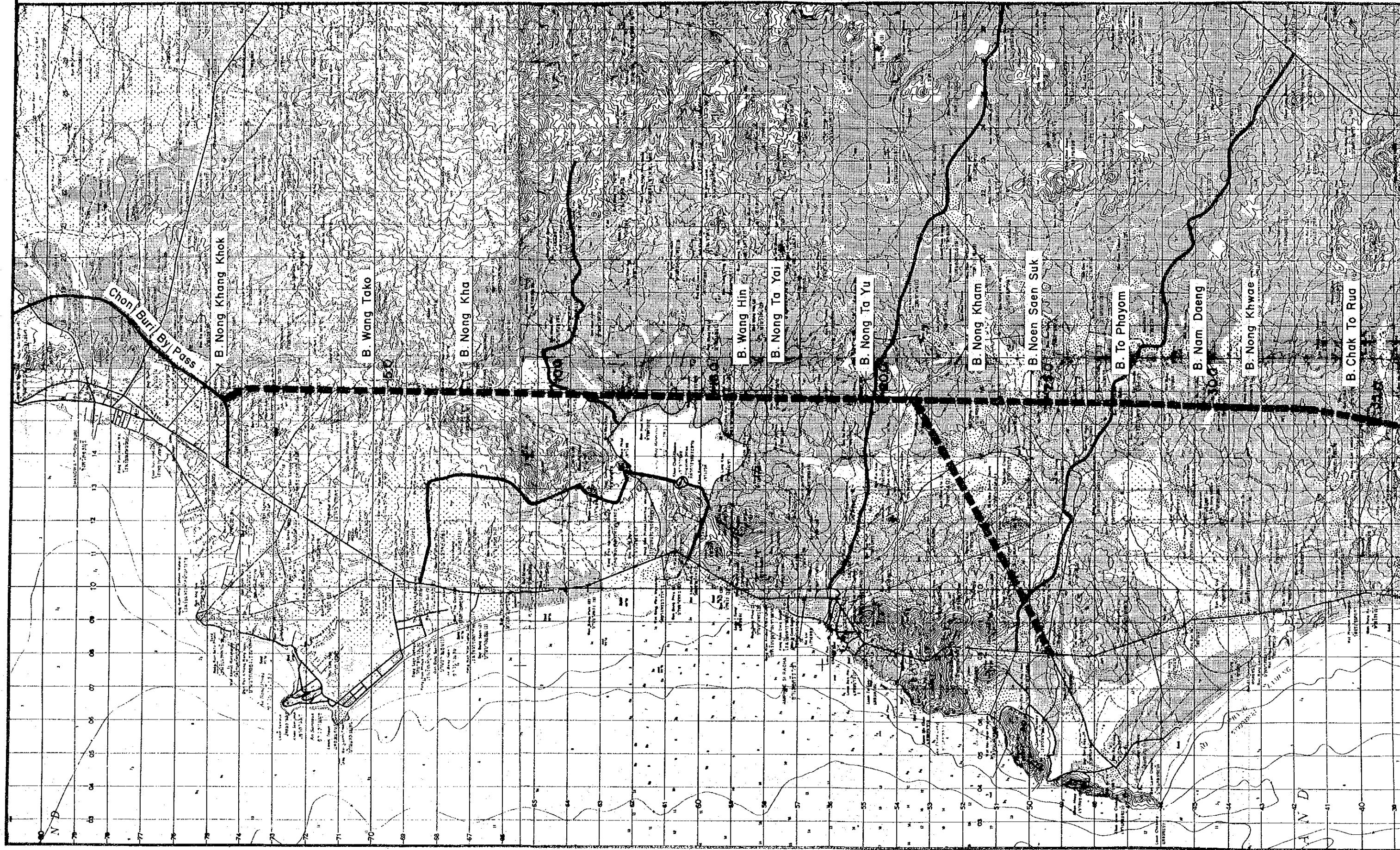
## 6. DEVELOPMENT AND SOCIAL IMPACTS

The project road, if implemented, will have characteristics of an expressway. Impact on adjoining communities would be generally more negative than positive. However, it will greatly boost the accessibility of the Eastern Seaboard, thus helping its development, which in turn should benefit residents in the area.

PROJECT NO. ML - 5

CHON BURI - PATTAYA NEW HIGHWAY  
C. CHON BURI

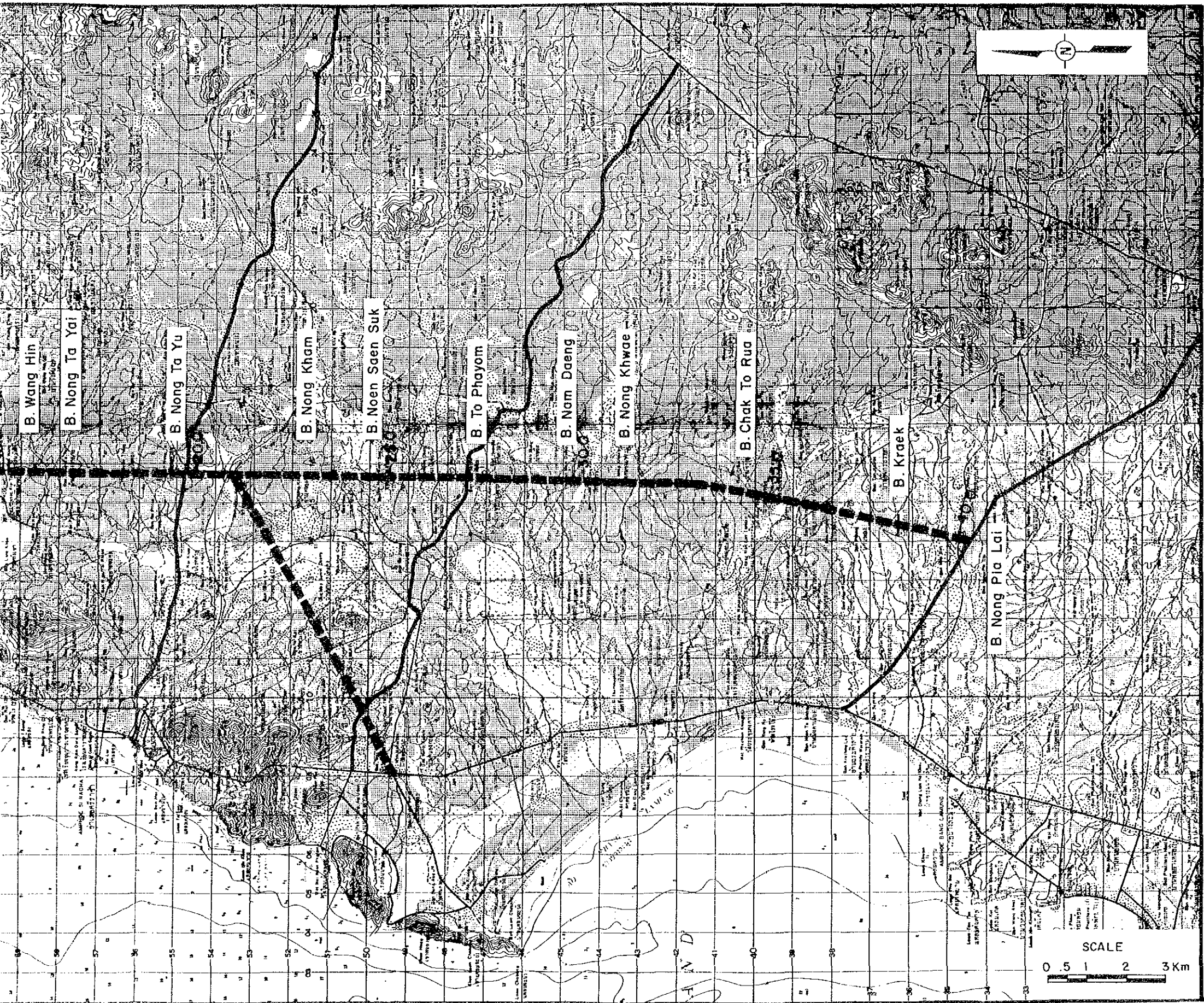
L = 48.80 KM.



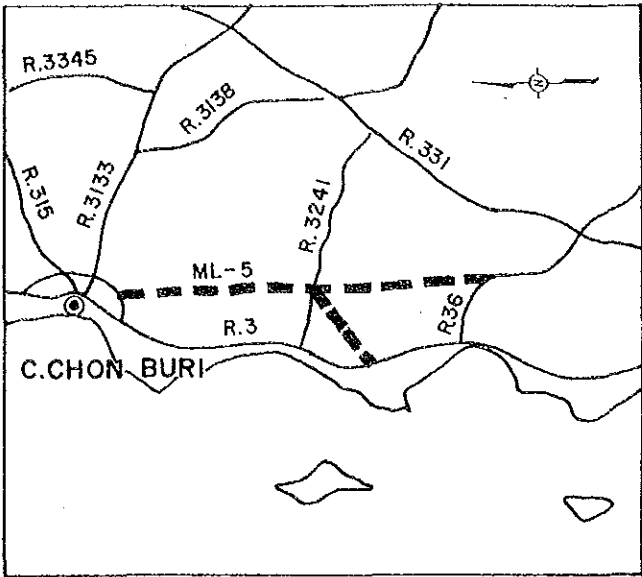


CHON BURI - PATTAYA NEW HIGHWAY  
C. CHON BURI

L = 48.80 KM.



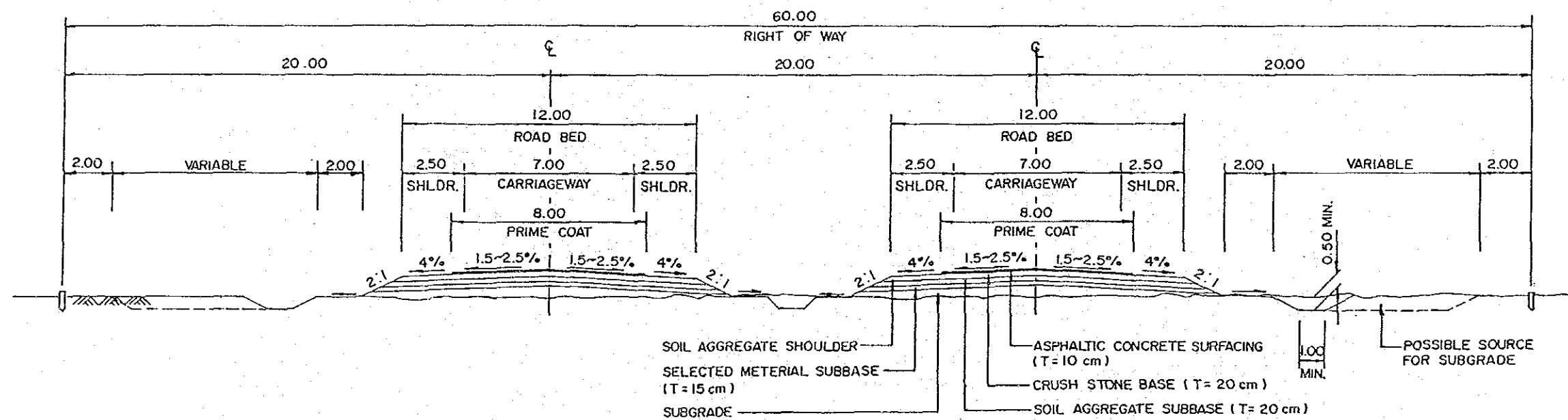
LOCATION MAP



LEGEND

- PROPOSED ROUTE (IMPROVEMENT)
- PROPOSED ROUTE (NEW CONSTRUCTION)
- PAVED ROUTE
- UNPAVED ROUTE
- INVENTORY SURVEY ROUTE

# TYPICAL CROSS SECTION



PRIMARY HIGHWAY (CLASS PD , FD)