1.5 List of References

BOOKS

1.	NATIONAL DEVELOPMENT PLAN 1985-1989	A4 ORIG'L	1985	Minst'y of Econo'c Plan'g
2.	1989 RECURRENT ESTIMATE	A4 ORIG'L	1988	Gov't Print'g Works
3.	DATA AUDIT REPORT FOR LUNGA AT BRIDGE	A4 Copy	1988	Minist'y of N.Resourses
4.	SECOND ROAD PROJECT SOLOMON ISLANDS PHASE 1	A4 ORIG'L	1987	M.T.W.U
5.	ECONOMIC AND ENGINEERING STUDIES FOR EXTENSION AND UPGRADING OF THE LAMBI-AOLA TO MARAU SOUND ROAD	A4 Copy	1984	M.T.W.U
6.	PROJECT GENERATION IN SOLOMON ISLANDS-CONCEPT AND ISSUVES.	A4 ORIG'L	1987	M.E.P
7.	GUADALCANAL ROAD IMPROVEMENT PROJECT	A4 Copy	1989	M.T.W.U
8.	LAND RESOURCES OF THE SOLOMON ISLAND Vol 2.	A4 ORIG'L	1974	M.of Overseas Develop't
9.	GUADALCANAL ROAD PROJECT BRIDGES Vol 1.	A4 Copy	1985	M.T.W.U
10.	PHYSICAL STRUCTURE PLAN GUADALCANAL PROVINCE	A4 Copy	1985	Office of The Prime Minster
11.	TRADE REPORT 1979-1983	A4 ORIG'L		Statistic Office
12.	1984/5 STATISTICAL YEAR BOOK	A4 ORIG'L		Statistic Office
13.	1985/6 STATISTICAL YEAR BOOK	A4 ORIG'L		Statistic Office
14.	TRADE REPORT 1986	A4 ORIG'L		Statistic Office
15.	LOCAL PLANNING SCHME FOR HONIARA SLOLOMON ISLANDS	A4 Copy	1985	M.of Agricut'r Lands

MAPS

1.	GEOLOGICAL MAP OF GUADALCANAL	S=1:150,000	Bo ORIG'L	1978	M.of Natural Resourses
2.	MINERAL OCCURRANCES MAP	S=1:1,000,000	Bo ORIG'L	1980	M.of Natural Resourses
3.	GEOLOGICAL MAP OF THE BRITISH SOLOMON ISLAND	S=1:1,000,000	Bo ORIG'L	1969	M.of Natural Resourses
4.	SOLOMON ISLAND	S=1:3,000,000		1988	
5.	GUADALCANAL	S=1:150,000	A1 OGIG'L	1976	
6.	BATHYMETRY OF THE SOUTH PACIFI	S=1:6,442,192	A1	1983	
7.	SOLOMON ISLAND	S=1:1,000,000	A1	1985	
8.	GUADALCANAL GEOLOGECAL MAP HONIARA (HONIARA, LUNGGA, GOLD RIDGE)	S=1:50,000	A1	1978	M.of Natural Resourses
9.	GUADALCANAL ISLAND SHEET (LUNGGA, TUVARUHU)	S=1:10,000	A1	1976	
10.	HONIARA SHEET (BLOODY RIDGE)	S=1:2,500	A1	1976	
11.	HONIARA TOWN (EAST, WEST)	S=1:10,000	A1	1976	
12.	HONIARA	S=1:2,500	A1	1969	

APPENDIX 2

TABLE APP-2.1 LAND AREA,POPULATION AND POPULATION DENSITY IN 1986

	Land Area km	Population	Person per km
WESTERN	9,312	55,372	5.9
ISABEL	4,136	14,564	3.5
CENTRAL	1,286	18,522	14.4
GUADALCANAL	5,336	50,327	9.4
HONIARA	22	30,499	1393.9
HALAITA	4,225	80,183	19.0
MAKIRA	3,188	21,646	6.8
TEMOTU	865	14,683	17.0
TOTAL	28,370	285,796	10.0

(Source:1985/6 STATISTICAL YEARBOOK)

TABLE APP- 2. 2 ESTIMATED GROSS DOMESTIC PROPUCT 1972-1986

ESTIMATED GROSS DOMESTIC PRODUCT 1972-1986 ($'000)

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
1. Monetary Sector															
a. Wages and Salaries	8,580	9,036	11,133	14,600	18,200	21,700	25,200	27,100	33,153	40,947	47,873	56,161	66,653	77,892	91,735
b.Operating Surplus	1,813	3,778	10,718	4,858	7,139	11,212	13,636	27,528	21,275	19,038	13,876	16,862	44,406	28,259	16,806
- Business	883	2,524	6,611	3,209	5,212	7,696	9,300	20,700	14,687	12,495	8,087	10,801	28,408	13,334	8,120
- Government	175	146	152	133	547	746	775	657	899	854	989	961	998	936	1,054
- Households	755	1,108	3,955	1,516	1,380	2,770	3,561	6,171	5,689	5,689	4,800	5,100	15,000	13,989	7,632
c.Income at Factor Cost (a+b)	10,393	12,814	21,851	19,458	25,339	32,912	38,836	54,628	54,428	59,985	61,749	73,023	111,059	106,151	108,541
d.Depreciation	2,184	2,152	2,564	3,121	3,486	4,107	5,000	7,274	9,498	12,035	15,000	16,000	17,000	18,000	20,000
e.GDP at Factor Cost (c+d)	12,577	14,966	24,415	22,579	28,825	37,019	43,836	61,902	63,926	72,020	76,749	89,023	128,059	124,151	128,541
f.Indirect Taxes (Net)	2,136	2,378	4,121	3,430	4,000	5,408	6,200	10,546	10,795	14,450	18,000	18,000	27,329	27,904	27,719
g.GDP at Market Prices (e+f)	14,713	17,344	28,536	26,009	32,825	42,427	50,036	72,448	74,721	86,470	94,749	107,023	155,388	152,055	156,260
2.Non-Monetary Sector															
h.Subsistence Product (Gross)	8,680	9,620	11,900	13,270	13,720	15,340	16,940	17,770	21,270	25,960	29,640	34,410	38,120	41,050	45,970
3.Monetary and Non-Monetary Sectors															
i.GDP at Factor Cost (e+h)	21,257	24,586	36,315	35,849	42,545	52,359	60,776	79,672	85,196	97,980	106,389	123,433	166,179	165,201	174,511
j.GDP at Market Prices (g+h)	23,393	26,964	40,436	39,279	46,545	57,767	66,976	90,218	95,991	112,430	124,389	141,433	193,508	193,105	202,230
4. Gross National Product															
k.Net Property Income	-200	-300	-500	-2,000	-2,000	-3,000	-2,000	-500	-9,200	-4,700	-1,300	-5,400	-7,100	-3,500	-5,300
l.GNP at Market Prices (j+k)	23,193	26,664	39,936	37,279	44,545	54,767	64,976	89,718	86,791	107,730	123,089	136,033	186,408	189,605	196,930
5.GDP at 1977 Market Prices															
m.RPI(1977=100) Deflator.	65.5	67.6	80.3	88.4	92.2	100.0	106.4	114.8	129.9	151.2	170.8	182.4	202.6	222.0	252.9
n.GDP in 1977 Dollars (Both)	35,715	39,888	50,356	44,433	50,483	57,767	62,947	78,587	73,896	74,358	72,827	77,540	95,512	86,984	79,964
o.GDP in 1977 Dollars (Monetary)	22,463	25,657	35,537	29,422	35,602	42,427	47,026	63,108	57,522	57,189	55,474	58,675	76,697	68,493	61,787
6.Per Capita															
p.Mid Year Population ('000)	174.5	180.5	186.6	193.0	199.5	206.5	213.8	221.3	229.1	237.2	245.5	254.2	263.1	272.4	282.0
q.GDP Current Market Prices ($)	134	149	217	204	233	280	313	408	419	474	507	556	735	709	717
r.GDP 1977 Market Prices ($)	205	221	270	230	253	280	294	355	323	314	297	305	363	319	284

TABLE APP- 2. 3 VALUE SHARE OF PRINCIPAL EXPORTS

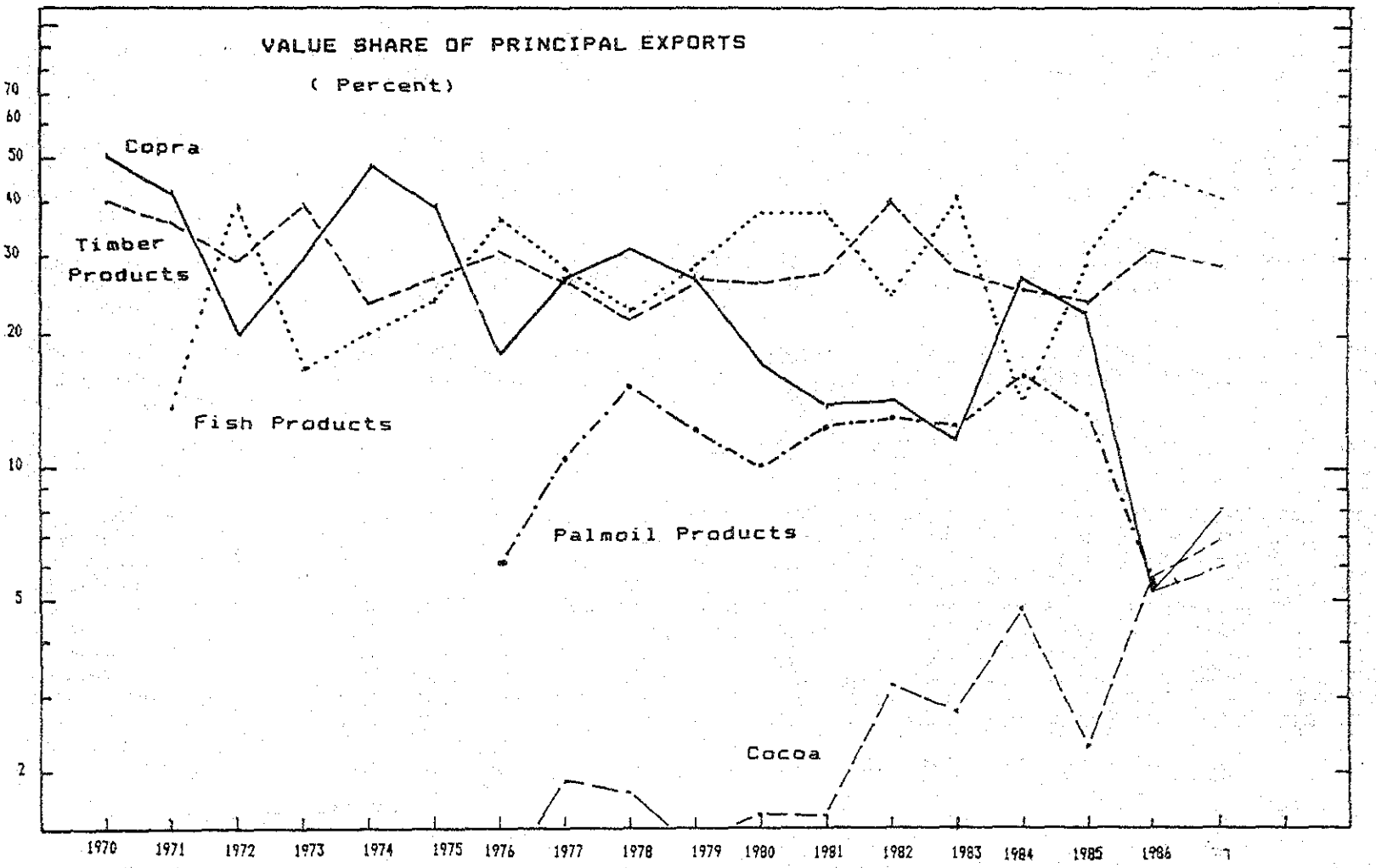


TABLE APP- 2. 4 COMMODITIES IMPORTED

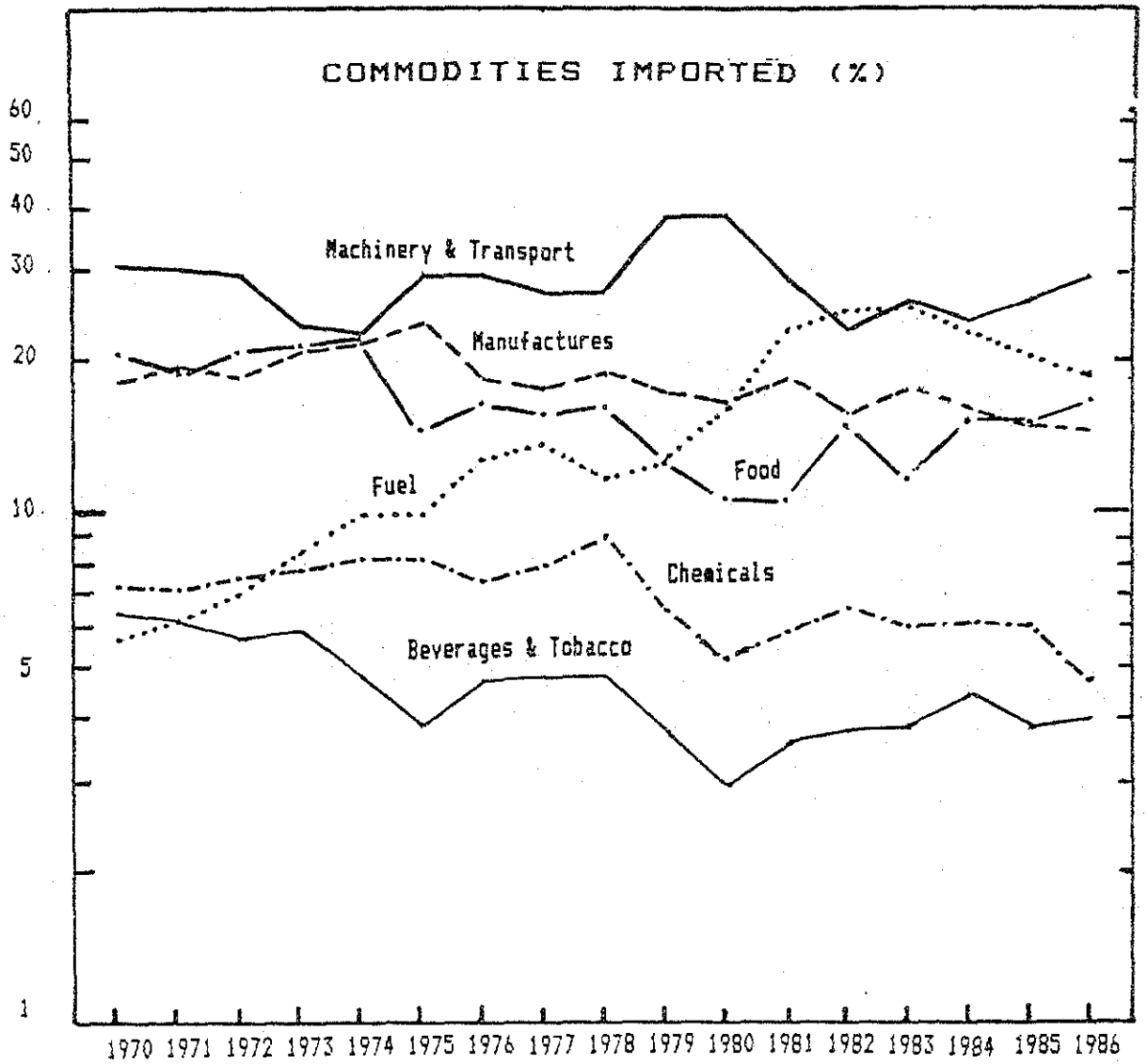


TABLE APP-2.5 BALANCE OF MERCHANDISE TRADE

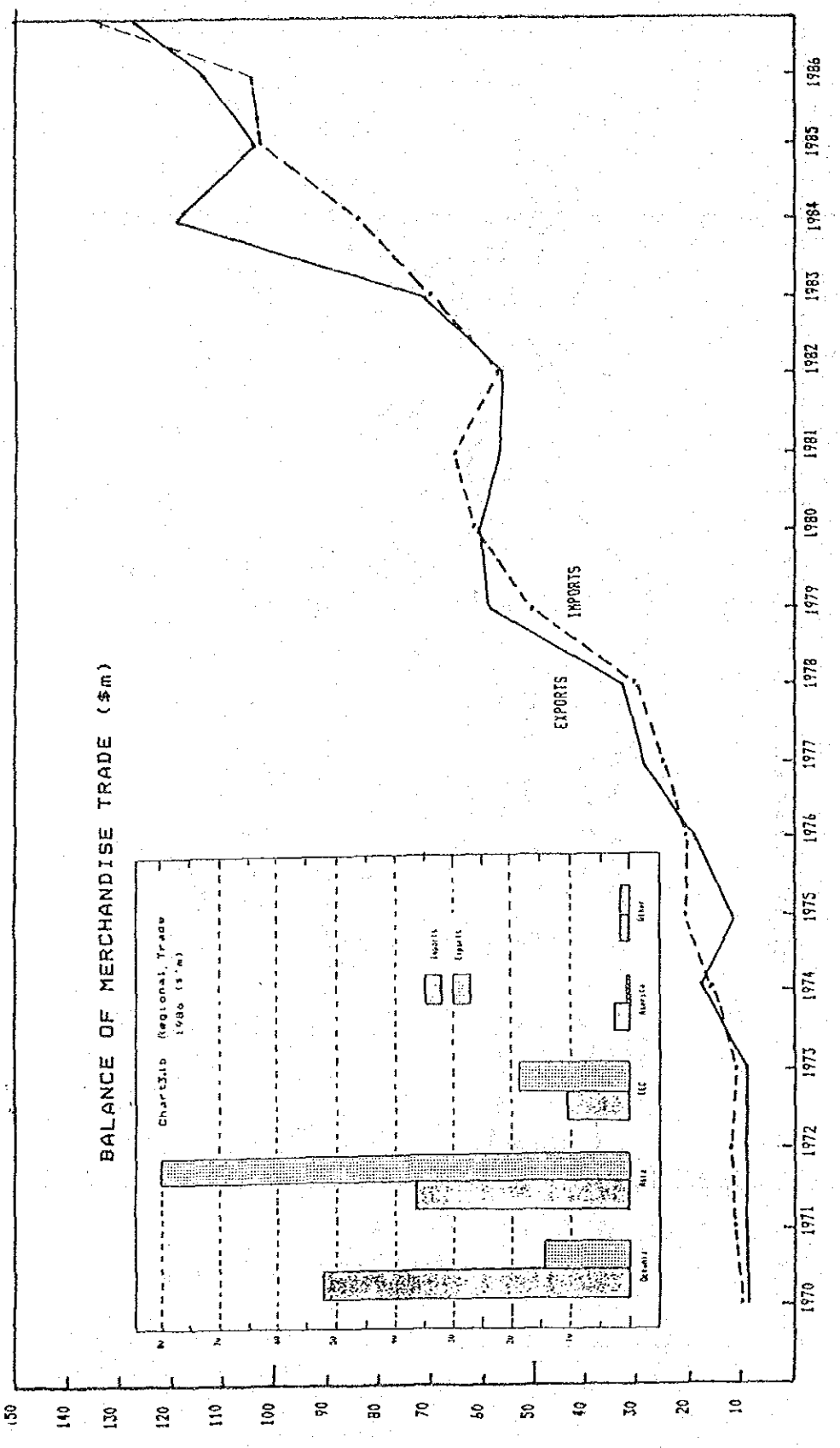


TABLE APP- 2. 6 SUMMARY OF RECURRENT ESTIMATE 1988

SUMMARY OF RECURRENT ESTIMATE 1988

	Head	Revenue External	Revenue Internal	Expenditure External Payroll	Expenditure External Other	Expenditure External Total	Expenditure Internal	Total Revenue	Total Expenditure
01	THE GOVERNOR GENERAL	0	0	97,868	123,170	221,038	31,700	0	252,738
02	AUDIT	65,000	0	218,117	32,000	250,117	13,500	65,000	263,617
03	PUBLIC SERVICES	0	0	665,515	92,990	758,505	28,500	0	787,005
04	OFFICE OF THE PRIME MINISTER	1,500	5,000	282,125	557,100	839,225	161,500	6,500	1,000,725
05	NATIONAL PARLIAMENT	28,000	0	1,339,723	100,400	1,440,123	73,600	28,000	1,513,723
06	ECONOMIC PLANNING	0	0	222,281	24,300	246,581	24,000	0	270,581
07	FOREIGN AFFAIRS	0	0	315,484	303,200	618,684	34,800	0	653,484
08	POLICE AND JUSTICE	457,400	0	5,979,142	1,431,911	7,411,053	442,900	457,400	7,853,953
09	TRADE,COMMERCE AND INDUSTRY	40,000	0	896,854	201,000	1,097,854	80,500	40,000	1,178,354
10	POSTS AND COMMUNICATIONS	3,618,500	1,140,500	2,379,193	1,204,950	3,584,143	320,800	4,759,000	3,904,943
11	MARINE	1,047,000	245,000	1,340,548	718,500	2,059,048	87,300	1,292,000	2,146,348
12	TRANSPORT,WORKS AND UTILITIES	1,371,300	181,300	1,966,480	1,524,005	3,490,485	423,600	1,552,600	3,914,085
13	PLANT AND VEHICLE POOL	161,000	693,500	1,050,204	1,662,100	2,712,304	160,200	854,500	2,872,504
14	NATURAL RESOURCES	1,091,350	0	1,144,648	391,070	1,535,718	130,600	1,091,350	1,666,318
15	IMMIGRATION AND LABOUR	323,000	0	399,430	45,210	444,640	44,400	323,000	489,040
16	HOME AFFAIRS & PROV. GOVT.	34,000	0	5,427,886	7,946,650	13,374,536	981,600	34,000	14,356,136
17	AGRICULTURE AND LANDS	928,650	23,000	2,413,361	766,746	3,180,107	160,000	951,650	3,340,107
18	EDUCATION AND TRAINING	140,000	0	11,087,635	2,663,500	13,751,135	154,000	140,000	13,905,135
19	HEALTH AND MEDICAL SERVICES	116,500	0	3,388,627	1,235,890	4,624,517	554,800	116,500	5,179,317
20	FINANCE	69,649,100	352,500	2,396,394	808,450	3,204,844	168,000	70,001,600	3,372,844
21	GOVERNMENT SUPPLY	1,391,600	1,692,900	257,702	2,376,200	2,633,902	32,900	3,084,500	2,666,802
22	PENSIONS AND GRATUITIES	0	0	0	783,000	783,000	0	0	783,000
23	MISCELLANEOUS EXPENSES	352,300	0	0	6,106,160	6,106,160	224,500	352,300	6,330,660
24	PUBLIC DEBT	2,888,815	0	0	15,591,416	15,591,416	0	2,888,815	15,591,416
	Government Totals	83,705,015	4,333,700	43,269,217	46,689,918	89,959,135	4,333,700	88,038,715	94,292,835

TABLE APP- 2. 7 NEWLY REGISTERED MOTOR VEHICLES

Newly Registered Motor Vehicles Classified by Sector and Type

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Private																
Motor Cars	12	31	26	54	56	68	16	43	62	98	65	68	64	51	150	72
Pub.Ser.Vehicles	82	83	64	105	60	50	66	106	147	220	188	121	130	121	50	13
Goods Vehicles	159	155	144	179	118	118	88	128	157	184	150	124	118	143	321	131
Motor Cycles	65	58	76	57	77	85	43	58	43	87	86	62	35	34	45	32
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	129	59
Total	318	327	310	395	311	321	213	335	409	589	489	375	347	349	695	307
Government																
Motor Cars	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	2
Pub.Ser.Vehicles	50	71	34	22	15	96	114	8	44	57	23	47	-	6	-	-
Goods Vehicles	6	10	3	-	8	13	3	12	1	-	12	1	-	-	91	36
Motor Cycles	8	13	3	-	23	53	13	49	41	46	14	6	-	1	3	4
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	1
Total	64	94	40	22	46	162	130	69	86	103	49	54	-	7	124	43
Total All Vehicles																
Motor Cars	12	31	26	54	56	68	16	43	62	98	65	68	64	57	171	74
Pub.Ser.Vehicles	132	154	98	127	75	146	180	114	191	277	211	168	130	121	50	13
Goods Vehicles	165	165	147	179	126	131	91	140	158	184	162	125	118	143	412	167
Motor Cycles	73	71	79	57	100	138	56	107	84	133	100	68	35	35	48	36
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	138	60
Total	382	421	350	417	357	483	343	404	495	692	538	429	347	356	819	350

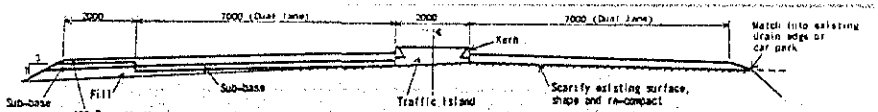
TABLE APP- 2. 8 RESULTS OF TRAFFIC SURVEY

		FROM HONIARA					TO HONIARA					TOTAL
		H/C	CAR	TRUCK	BUS	SUB TOTAL	H/C	CAR	TRUCK	BUS	SUB TOTAL	
1	6~ 7.00	2	32	3	4	41	1	26	8	1	36	77
2	~ 8.00	1	53	11	17	82	—	71	25	23	119	201
3	~ 9.00	—	101	29	11	141	—	59	23	7	89	230
4	~10.00	1	94	25	12	132	1	112	30	16	159	291
5	~11.00	—	28	13	12	53	—	86	18	10	114	167
6	~12.00	—	44	10	7	61	—	29	10	6	45	106
7	~13.00	2	48	11	9	70	3	54	7	11	75	145
8	~14.00	1	58	12	10	81	—	41	7	8	56	137
9	~15.00	—	42	4	10	56	—	42	21	11	74	130
10	~16.00	—	29	15	17	61	1	31	5	9	46	107
11	~17.00	5	73	25	27	130	—	52	12	20	84	214
12	~18.00	1	108	24	25	158	4	74	10	10	98	256
13	~19.00	2	45	10	4	61	1	95	9	13	118	179
14	~20.00	—	17	6	5	28	1	18	10	6	35	63
15	~21.00	—	20	2	2	24	—	10	5	2	17	41
16	~22.00	—	15	1	3	19	—	13	1	2	16	35
TOTAL		15	807	201	175	1198	12	813	201	155	1181	2379 (2061)

( ) 6.00~18.00

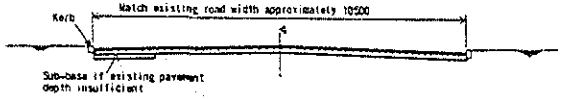
APPENDIX 3 FIGURES

FIG.APP-3.1 ROAD IMPROVEMENT PLAN OPTION 2



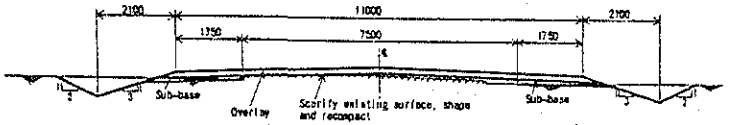
OPTION 1 – 200 thick base course with 2 coat B.S.T.
OPTION 2 – 150 thick base course with 50 thick Asphaltic Concrete

CH.7950 – CH.9000



OPTION 1 – 200 thick base course with 2 coat B.S.T.
OPTION 2 – 150 thick base course with 50 thick Asphaltic Concrete

CH.7000 – CH.7950
CH.9000 – CH.9500

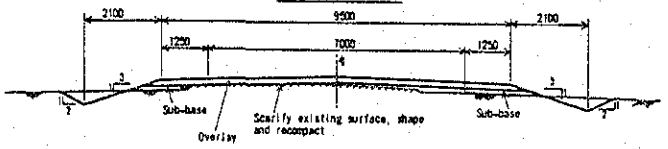


OVERLAY
OPTION 1 AND 2 – 150 thick base course and 2 coat B.S.T. except shoulders 1 coat B.S.T.

WHITE RIVER – CH.6000
CH.15300 – CH.19800

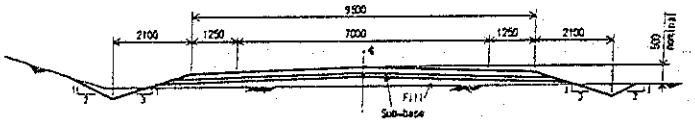
OPTION 1 – 200 thick base course and 2 coat B.S.T. except shoulders 1 coat B.S.T.
OPTION 2 – 150 thick base course and 50 thick Asphaltic Concrete

CH.6000 – CH.7000
CH.9500 – CH.15300



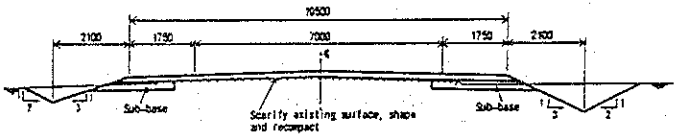
OVERLAY
OPTION 1 AND 2 – 150 thick base course and 2 coat B.S.T. except shoulders 1 coat B.S.T.

CH.00 – WHITE RIVER



OPTION 1 AND 2 – 150 thick base course and 2 coats B.S.T. except shoulders 1 coat B.S.T.

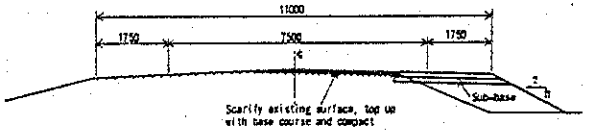
CH.30600 – END



OPTION 1 AND 2 – 150 thick base course and 2 coats B.S.T. except shoulders 1 coat B.S.T.

CH.22000 – CH.30600

NOTE
B.S.T. is Bituminous Seal Treatment.

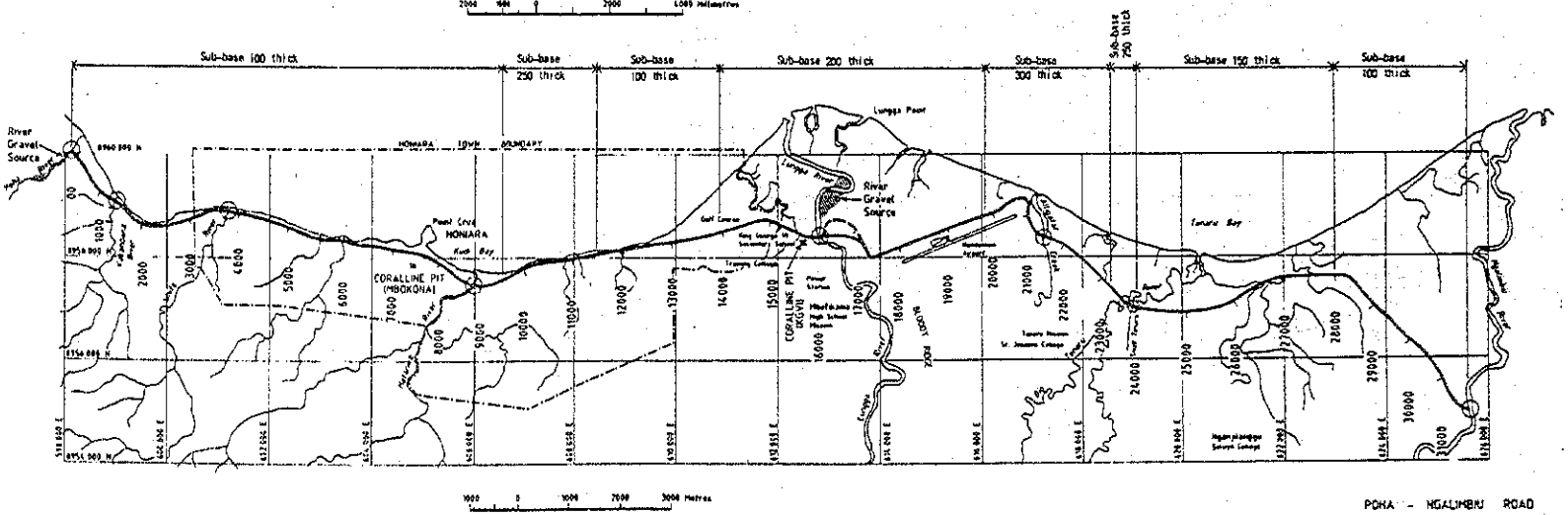


OPTION 1 AND 2 – 150 thick base course and 2 coats B.S.T. except shoulders 1 coat B.S.T. on new work. Elsewhere 1 coat B.S.T.

CH.19800 – CH.22000

TYPICAL CROSS SECTIONS

(Chainages are approximate)



POHA – NGALIMBU ROAD
FIG B111

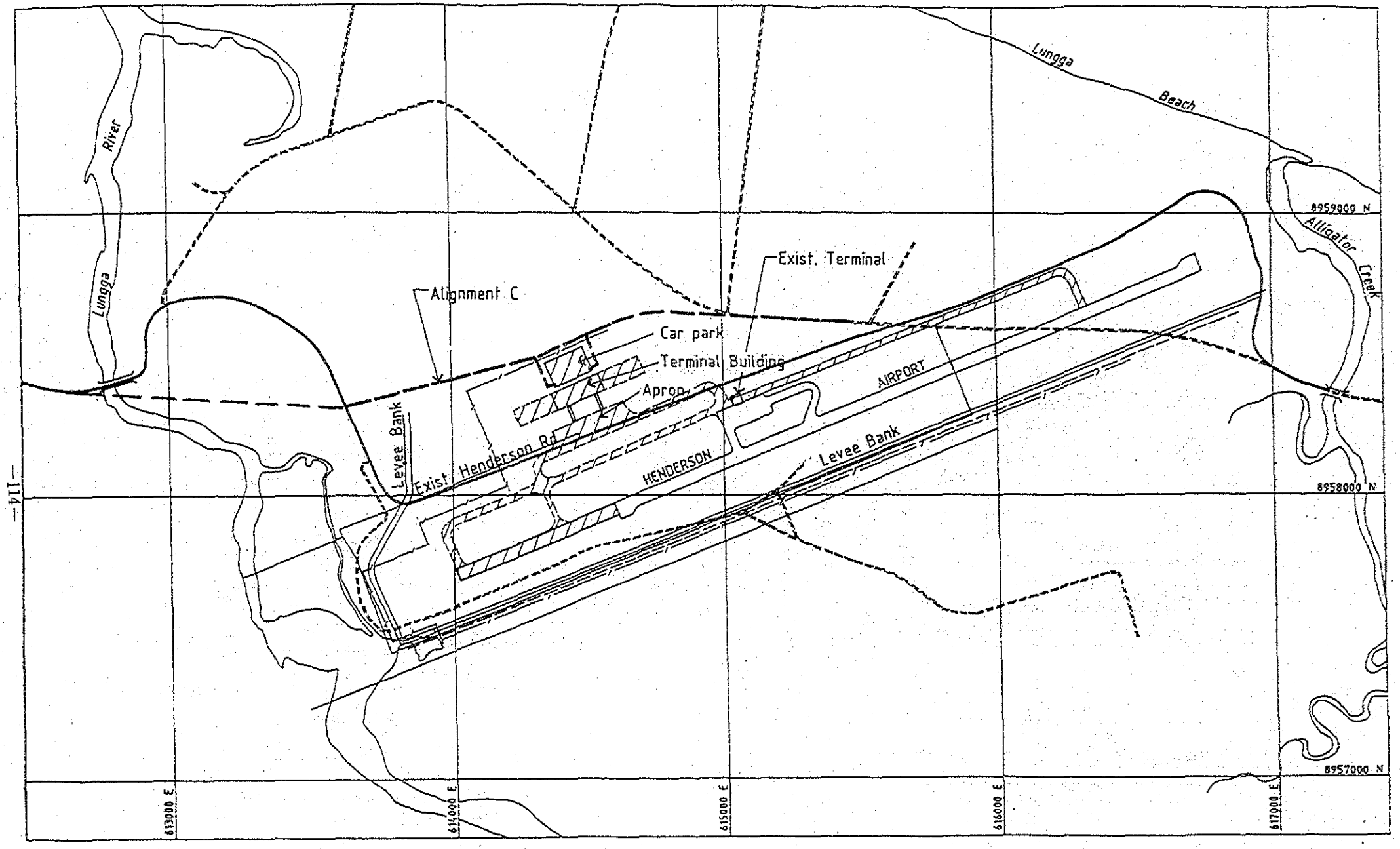
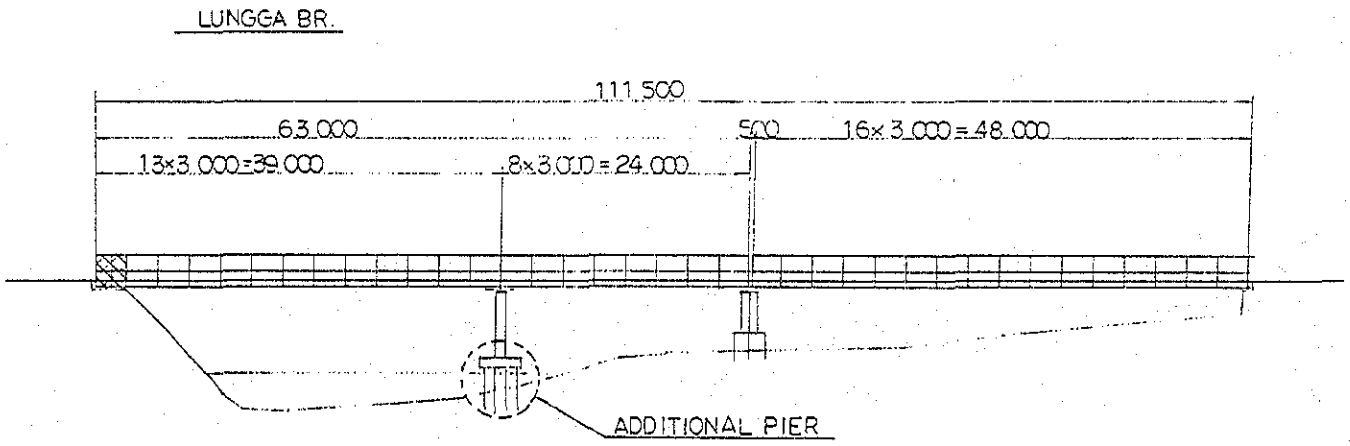


FIG.APP-3.2 PROPOSED UPGRADING OF HENDERSON AIRPORT

FIG.APP-3.3 GENERAL VIEW OF THE LUNGGA BRIDGE



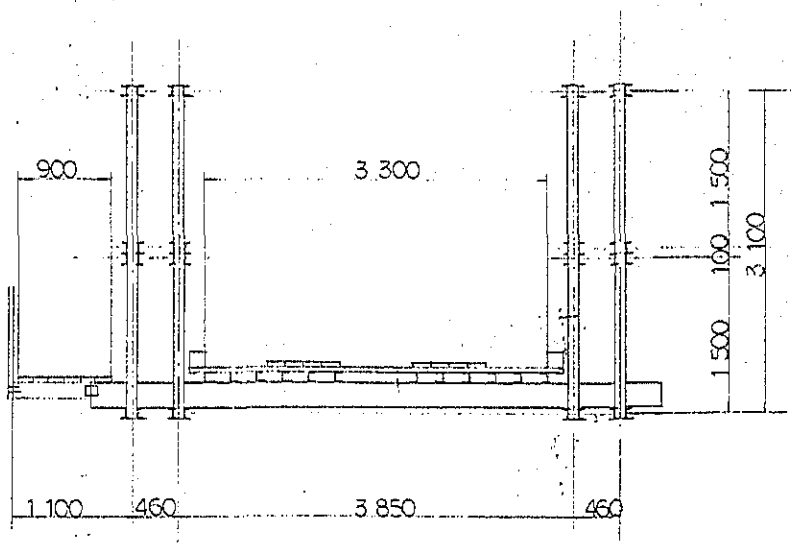


FIG.APP-3.4 LOCATION MAP OF GUADALCANAL BRIDGES

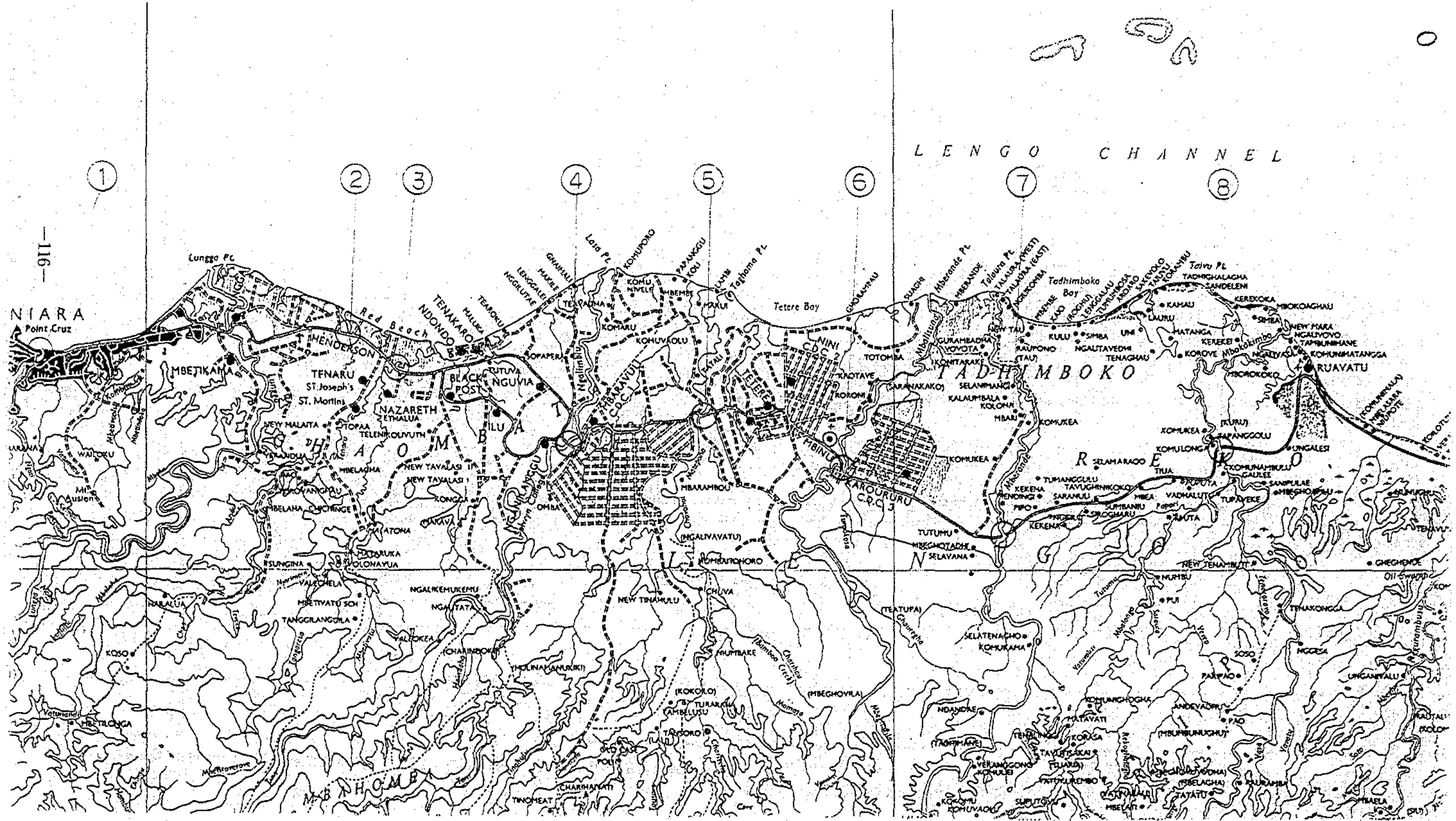
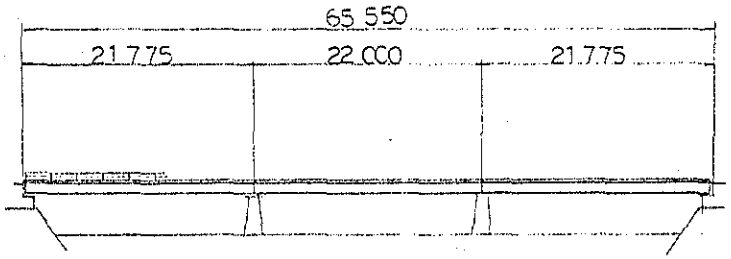


FIG.APP-3.5 GENERAL VIEW OF THE MATANIKO BRIDEG

① MATANIKO BR.



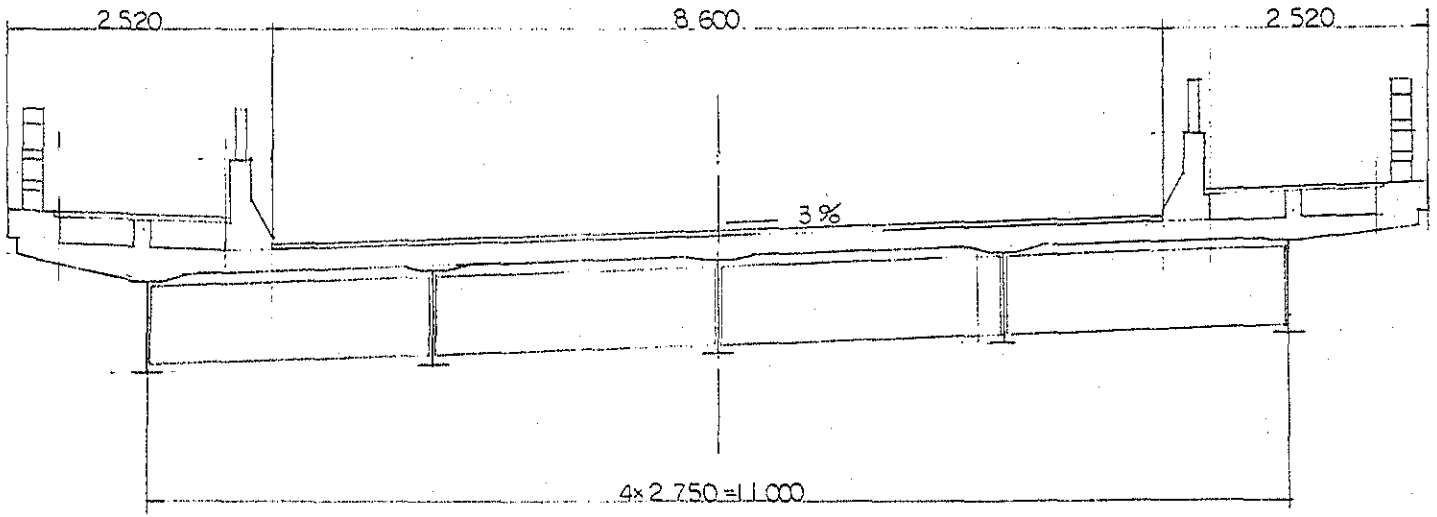
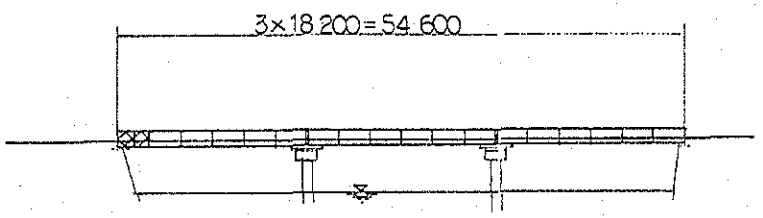


FIG.APP-3.6 GENERAL VIEW OF THE ALLIGATOR CREEK BRIDGE

② ALLIGATOR CREEK B.R.



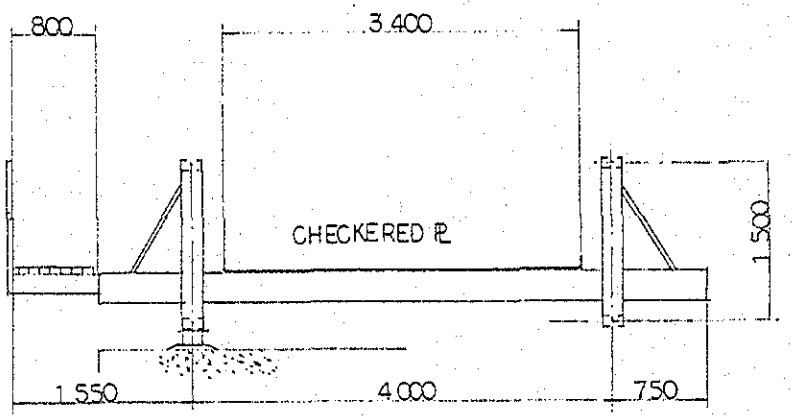


FIG.APP-3.7 GENERAL VIEW OF THE BIG TENARU BRIDGE

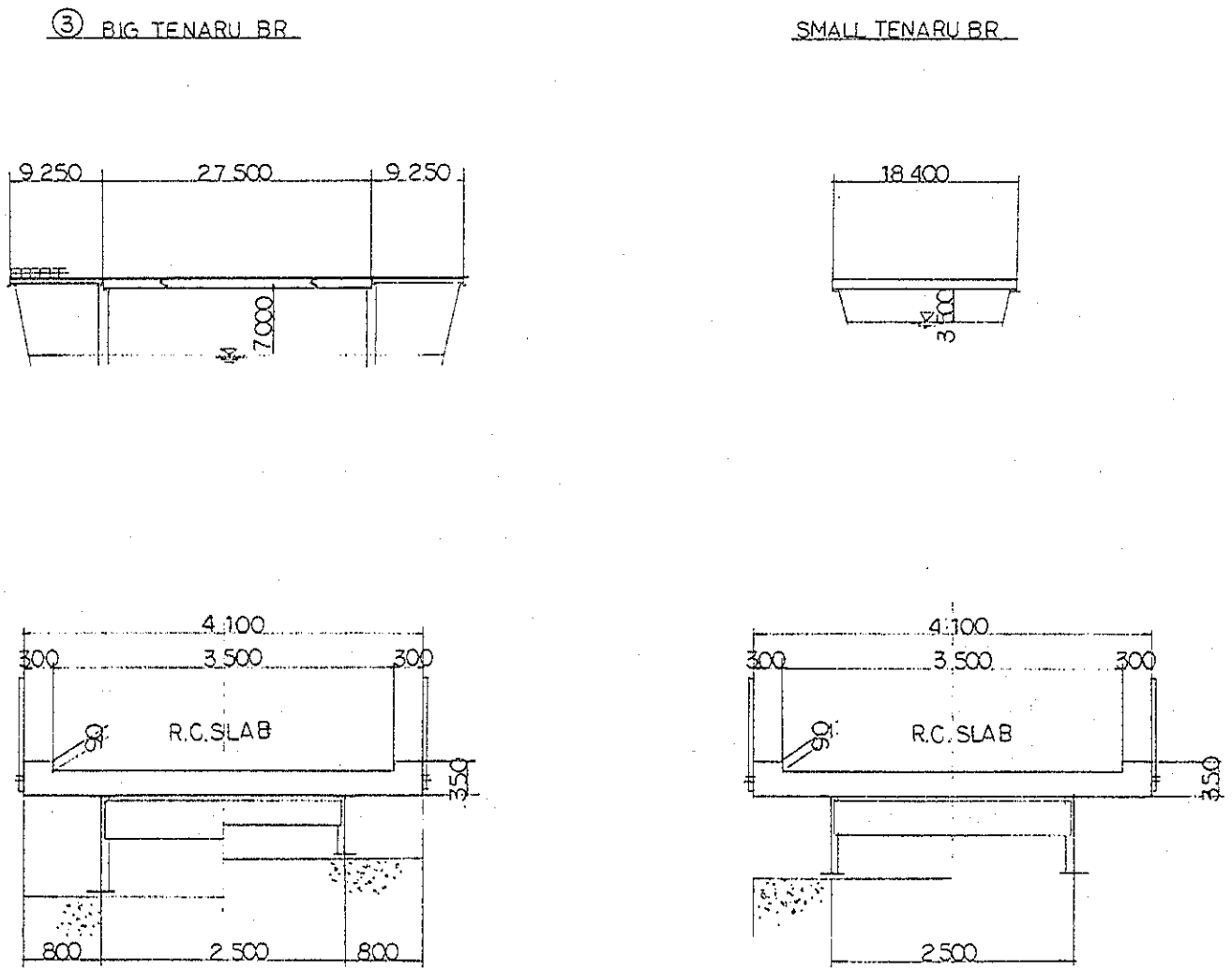


FIG.APP-3.8 GENERAL VIEW OF THE NGALIMBIU BRIDGE

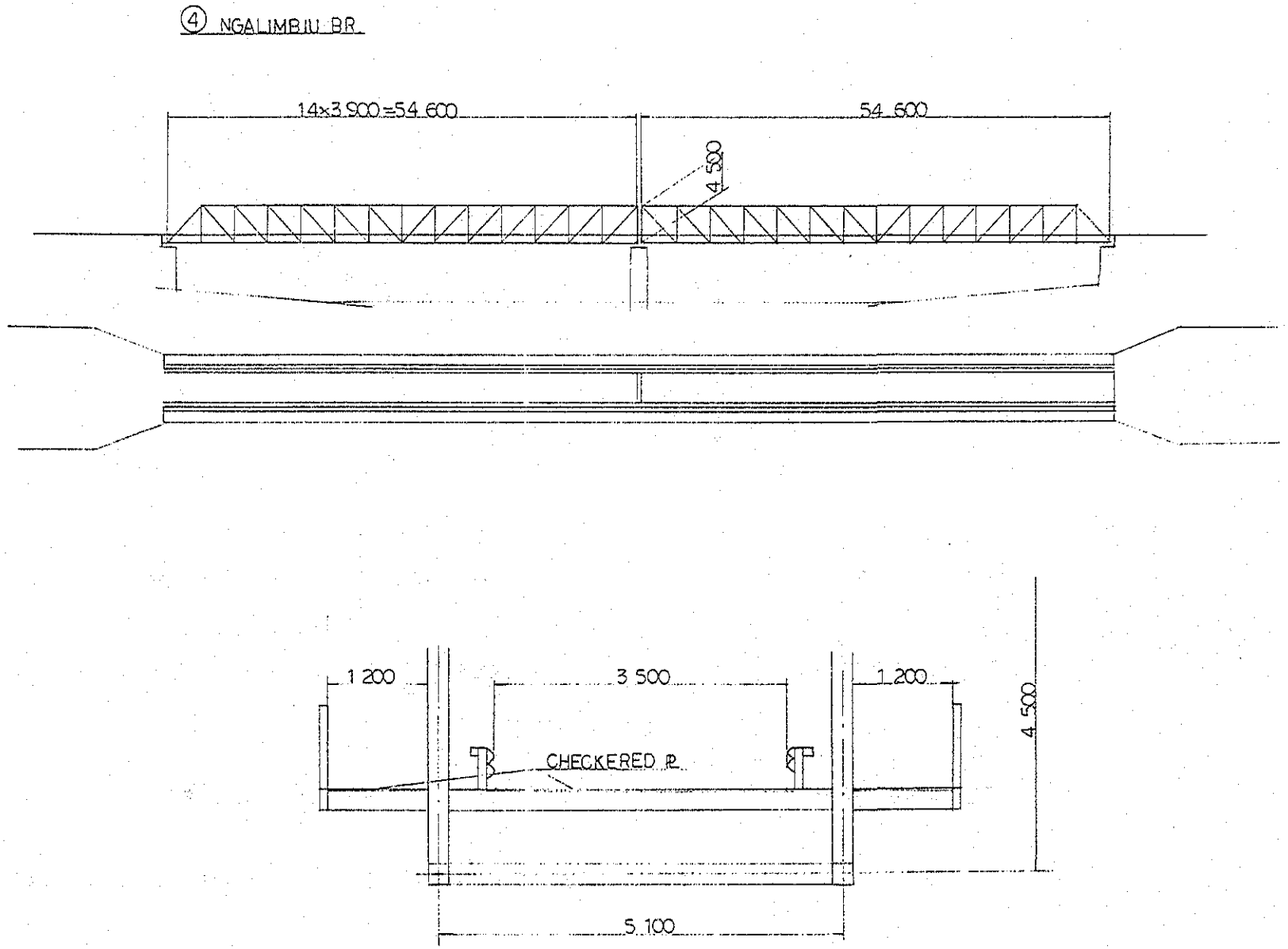


FIG.APP-3.9 GENERAL VIEW OF THE MATEPONO BRIDGE

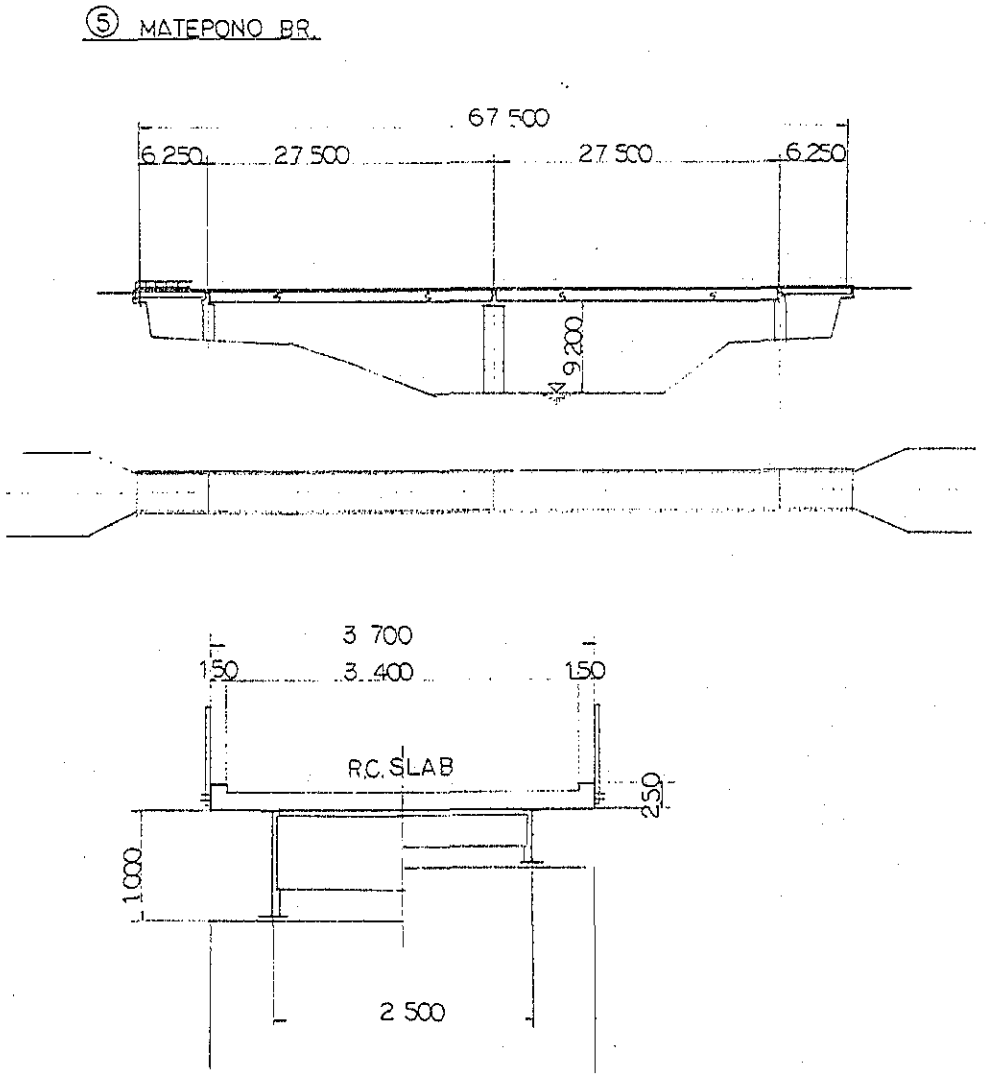


FIG.APP-3.10 GENERAL VIEW OF THE MBALISUNA BRIDGE

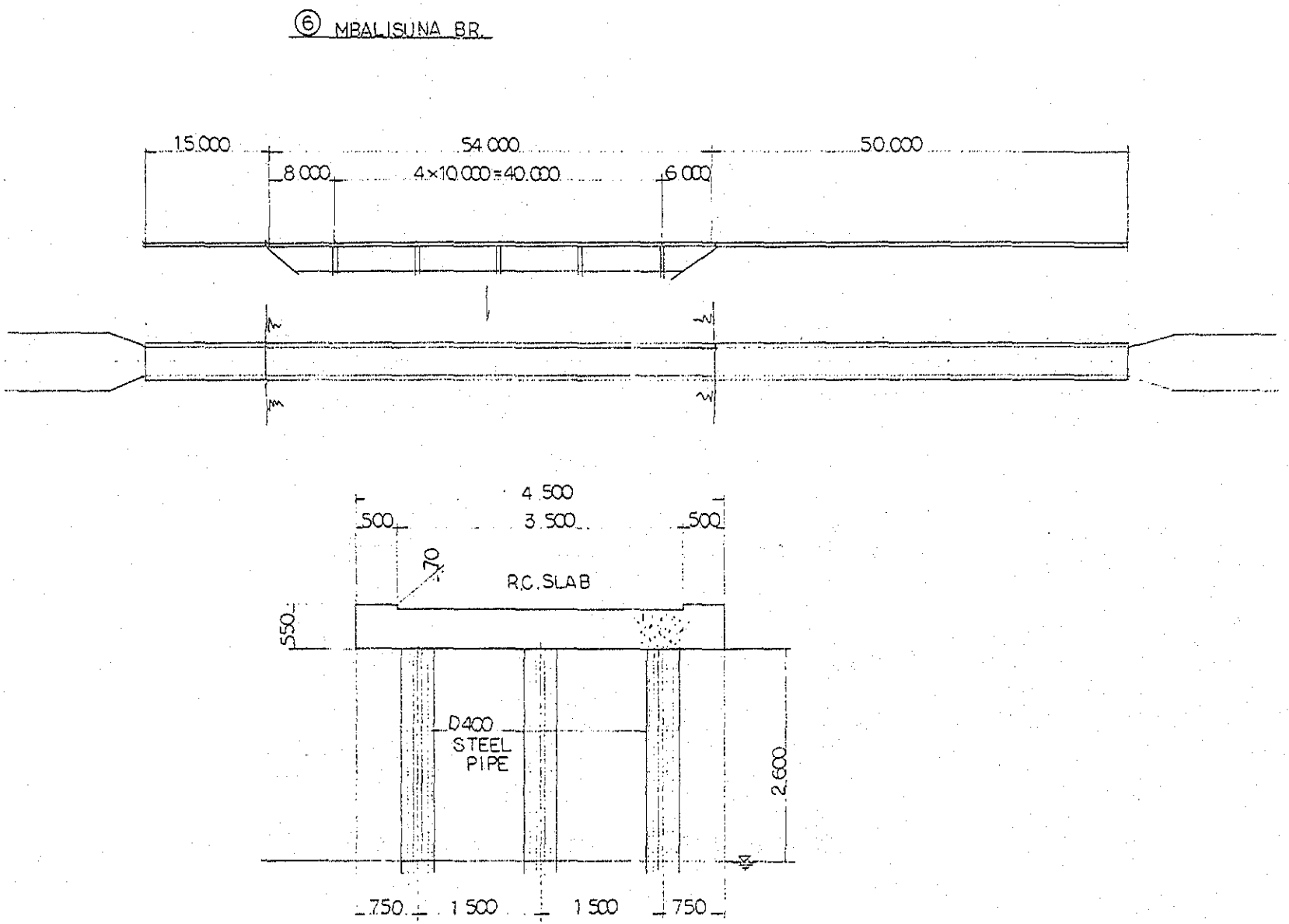
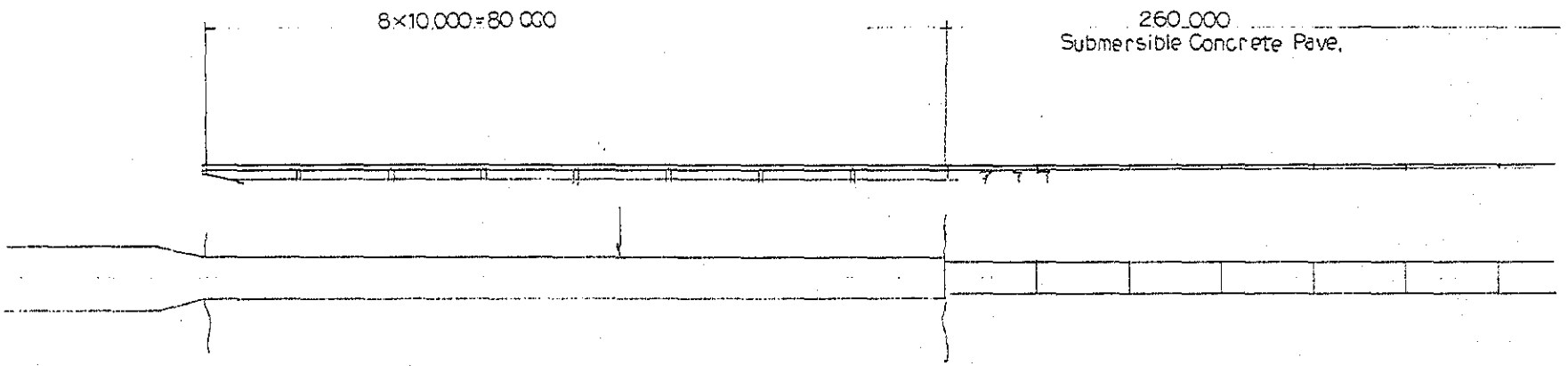


FIG.APP-3.11 GENERAL VIEW OF THE MBRANDE BRIDGE

⑦ MBRANDE BR.



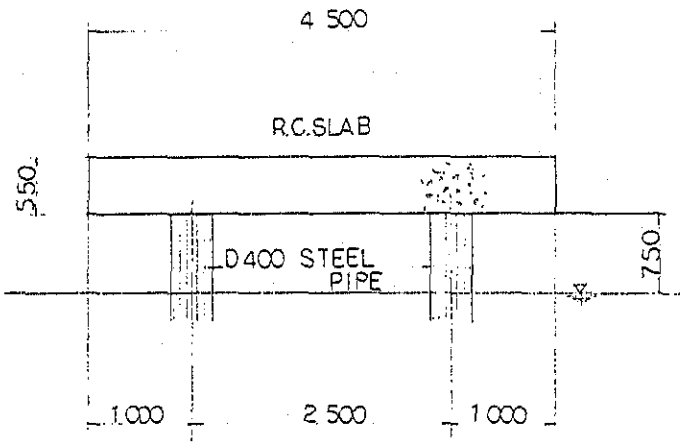


FIG.APP-3.12 GENERAL VIEW OF THE MBOKOKIMBO BRIDGE

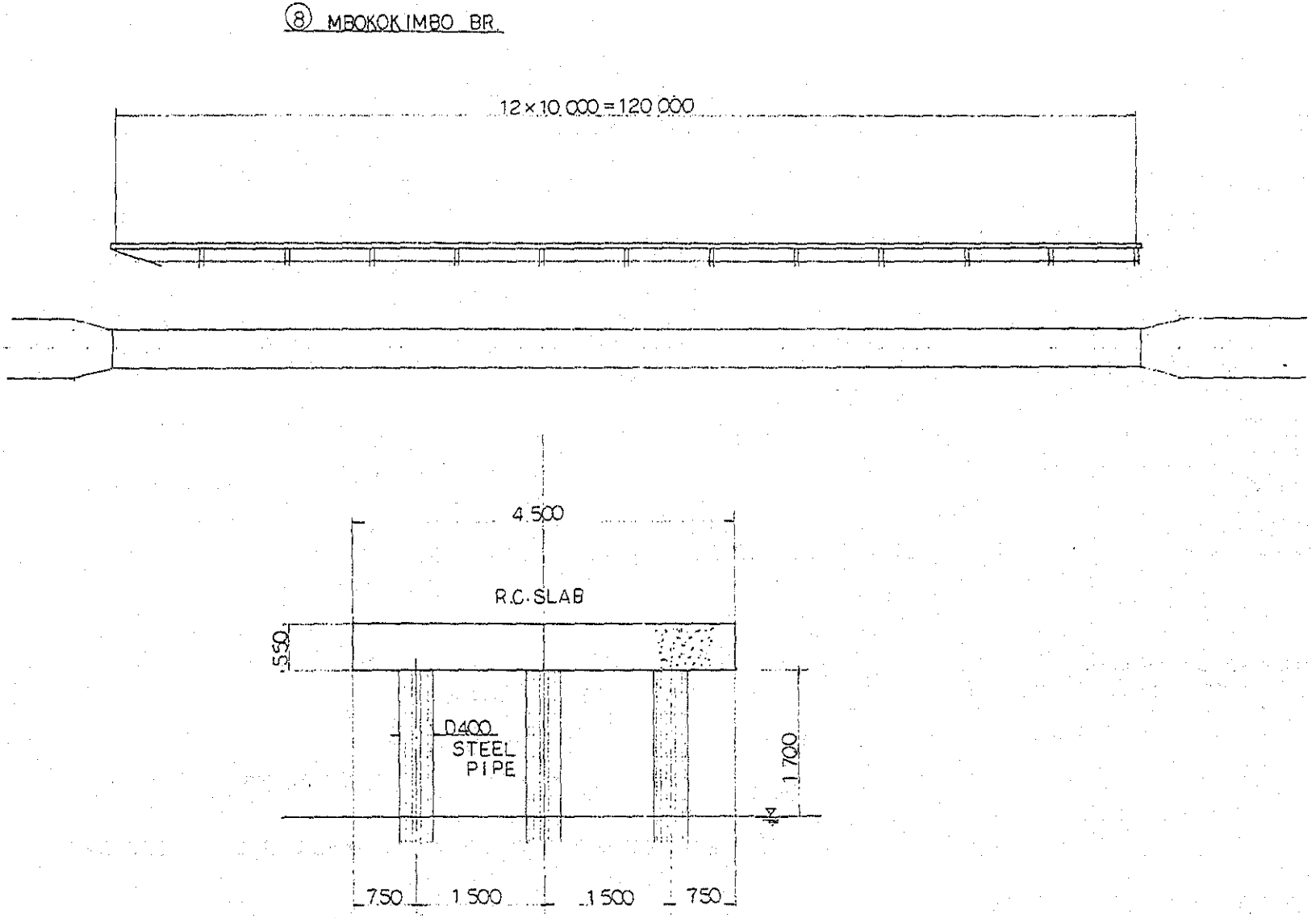


FIG.APP-3.13 BOREHOLE LOG OF THE No.2 BORING

FIG.APP-3.14 BOREHOLE LOG OF THE No.3 BORING

TONKIN & TAYLOR LTD.

ENGINEERING LOG TERMINOLOGY

DRILLING OR EXCAVATION

FLUID LOSS

NO LOSS

PARTIAL LOSS

COMPLETE LOSS

WATER

WATER LEVEL ON DATE SHOWN

WATER INFLOW

WATER OUTFLOW

CORE RECOVERY

Core recovered expressed as percentage of the length of the core run.

METHOD/CASING

Shows drilling method and depth of casing.

PENETRATION

SAMPLES AND TESTS

SAMPLE TYPE

- OPEN BARREL
- DOUBLE OR TRIPLE TUBE
- STANDARD PENETRATION TEST
- LARGE DIAMETER THIN WALLED TUBE
- SMALL DIAMETER THIN WALLED TUBE
- BULK SAMPLE

Length of sample indicated by length of symbol.

TESTS

N = 22 SPT. UNCORRECTED BLOW COUNT FOR 300MM

●75kPa UNDRAINED SHEAR STRENGTH AS MEASURED BY FIELD VANE

☒ PRESSUREMETER TEST

✳ LABORATORY TEST(S) CARRIED OUT — UNSPECIFIED OR SPECIFIED AS BELOW

LV - LABORATORY VANE	AL - ATTERBERG LIMITS
UU - UNDRAINED TRIAXIAL	PSD - PARTICLE SIZE
Cϕ' - EFFECTIVE STRESS	CONS - CONSOLIDATION
DS - DIRECT SHEAR	COMP - COMPACTION
UC - UNCONFINED COMPRESSION	IS - POINT LOAD

GRAPHIC LOG

The Graphic Log shows soil and rock substances, significant defects, and core loss. Soil and rock substances represented by clear contrasting symbols consistent for each project.

TYPICAL SYMBOLS

SOIL DESCRIPTION

CLASSIFICATION SYMBOL

Based on USBR Unified Soil Classification System Visual Method for field identification. Classification symbols based on Laboratory Method may differ.

MOISTURE CONTENT

D - DRY, LOOKS AND FEEL DRY

M - MOIST, NO FREE WATER ON HAND WHEN REMOULDING

W - WET, FREE WATER ON HAND WHEN REMOULDING

Moisture content may be compared to the plastic limit (PL) eg M > PL = moist, moisture content greater than the plastic limit

UNDRAINED SHEAR STRENGTH

	Cu (kPa)
VS - VERY SOFT	< 10
S - SOFT	10 to 25
F - FIRM	25 to 50
St - STIFF	50 to 100
VSt - VERY STIFF	100 to 200
H - HARD	> 200
Fb - FRIABLE	

RELATIVE DENSITY

	SPT-UNCORRECTED N VALUE
VL - VERY LOOSE	0 to 4
L - LOOSE	4 to 10
MD - MEDIUM DENSE	10 to 30
D - DENSE	30 to 50
VD - VERY DENSE	> 50

ROCK DESCRIPTION

WEATHERING

Fr - FRESH

SW - SLIGHTLY WEATHERED

HW - HIGHLY WEATHERED

EW - EXTREMELY WEATHERED

ROCK STRENGTH

	UCS (MPa)
EXTREMELY LOW	< 2
VERY LOW	2 to 6
LOW	6 to 20
MODERATE	20 to 60
HIGH	60 to 200
VERY HIGH	> 200

SIGNIFICANT DEFECTS

SIGNIFICANT DEFECTS SHOWN GRAPHICALLY

JOINT

SHEARED ZONE

CRUSHED SEAM

INFILL SEAM

EXTREMELY WEATHERED SEAM

TONKIN & TAYLOR LTD.

BOREHOLE LOG

BOREHOLE NO: 2

SHEET 1 OF 5

PROJECT: LUNGGA BRIDGE
LOCATION: GUADALCANAL, SOLOMON ISLANDS
JOB NO: 97/10203

CO-ORDINATES: 895394 N
612869 E
RL: 4.86 m
DATUM:

DRILL TYPE: Longyear 38
DRILL METHOD: Rotary
DRILL FLUID: Polymer

HOLE STARTED: 2/8/89
HOLE FINISHED: 6/8/89
DRILLED BY: EH
LOGGED BY: LA
CHECKED BY: NWR

DRILLING AND TESTS					ENGINEERING DESCRIPTION						GEOLOGICAL	
FLUID LOSS	WATER	CORE RECOVERY	METHOD/CASING	SAMPLES, TESTS	RL (m) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	MOISTURE CONDITION	SHEAR STRENGTH OR RELATIVE DENSITY	ESTIMATED SHEAR STRENGTH, kPa (19, 50, 100, 200)	ORIGIN TYPE, MINERAL COMPOSITION, DEFECTS, STRUCTURE	UNIT
	6/8/89 ▼	100		N=4	1			SAND (fine), v.loose-loose		VL L			FLOOD PLAIN DEPOSITS / RIVER ALLUVIUM
		100		N=14	2			SAND (fine), medium dense, occasional gravel					
		100		N=23	3			GRAVEL, sandy, medium dense, silt matrix, l.yellow		MD			
		100		N=23	4 5			GRAVEL, sandy, medium dense, silt matrix					
		100		N=41	6			GRAVEL, sandy, dense, silt matrix, grey/green		D			
		100		N=33	7 8			SAND, dense, gravelly					
		100		N=42	9 10			GRAVEL, sandy, dense					

TONKIN & TAYLOR LTD.

BOREHOLE LOG

BOREHOLE NO: 2'

SHEET 2. OF 5

PROJECT: LUNGGA BRIDGE	LOCATION: GUADALCANAL, SOLOMON ISLANDS		JOB NO: 97/10203
CO-ORDINATES: 8958394 N	DRILL TYPE: Longyear 38	HOLE STARTED: 2/8/89	
612869 E	DRILL METHOD: Rotary	HOLE FINISHED: 6/8/89	
RL: 4.86m		DRILLED BY: EH	
DATUM:	DRILL FLUID: Polymer	LOGGED BY: LA	CHECKED BY: NWR

DRILLING AND TESTS						ENGINEERING DESCRIPTION						GEOLOGICAL	
FLUID LOSS	WATER	CORE RECOVERY	METHOD/CASING	SAMPLES, TESTS	RL (m) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	MOISTURE CONDITION	SHEAR STRENGTH OR RELATIVE DENSITY	ESTIMATED SHEAR STRENGTH, kPa	ORIGIN TYPE, MINERAL COMPOSITION, DEFECTS, STRUCTURE,	UNIT
		100		N=10	10			SAND(medium), loose-medium dense		L to MD			DELTAIC SEDIMENTS
					11			shell and fine coral gravels					
		100		N=7	12			SILT, slightly sandy, loose		L			
		100						thin organic layer					
					13			SILT, slightly sandy, slightly clayey, l.grey					
		100		N=7	14								
					15			SILT, slightly clayey, firm, l.grey/green		F			
		100		N=2									
					16								
		100			17								
		0		N=3	18			SILT, slightly clayey, firm, fine shell and coral fragments					
		100		N=5	19			SILT, slightly sandy, firm					
					20								

TONKIN & TAYLOR LTD.

BOREHOLE LOG

BOREHOLE NO: 2

SHEET 3 OF 5

PROJECT: LUNGGA BRIDGE
LOCATION: GUADALCANAL, SOLOMON ISLANDS
JOB NO: 97/10203

CO-ORDINATES: 8958394 N
612869 E
RL:
DATUM: 4.86m

DRILL TYPE: Longyear 38
DRILL METHOD: Rotary
DRILL FLUID: Polymer

HOLE STARTED: 2/8/89
HOLE FINISHED: 6/8/89
DRILLED BY: EH
LOGGED BY: LA CHECKED BY: NWR

DRILLING AND TESTS					ENGINEERING DESCRIPTION						GEOLOGICAL	
FLUID LOSS	WATER	CORE RECOVERY	METHOD/CASING	SAMPLES, TESTS	RL (m) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	MOISTURE CONDITION	SHEAR STRENGTH OR RELATIVE DENSITY	ESTIMATED SHEAR STRENGTH, kPa	ORIGIN TYPE, MINERAL COMPOSITION, DEFECTS, STRUCTURE	UNIT
		100		N=2	20 / 21			SILT, slightly clayey, form					DELTAIC SEDIMENTS
					22			thin layers of fine shell/ coral pieces		F			
		0		N=4	23			becomes sandy, and gravelly, medium dense		L to MD			
		0		N=11	24								
					25			SILT, gravelly (fine), sandy, medium dense, grey					
		100		N=25	26								
					27			SILT, loose, slightly gravelly few shell pieces		L			
		100		N=9	28								
					29			SILT, slightly clayey, form, organic staining shell pieces		F			
		100		N=6	30								

TONKIN & TAYLOR LTD.

BOREHOLE LOG

BOREHOLE NO: 2

SHEET 4 OF 5

PROJECT: LUNGGA BRIDGE
LOCATION: GUADALCANAL, SOLOMON ISLANDS
JOB NO: 97/10203

CO-ORDINATES: 895394 N, 612869 E
RL:
DATUM: 4.86m

DRILL TYPE: Longyear 38
DRILL METHOD: Rotary
DRILL FLUID: Polymer

HOLE STARTED: 2/8/89
HOLE FINISHED: 6/8/89
DRILLED BY: EH
LOGGED BY: LA CHECKED BY: NWR

DRILLING AND TESTS					ENGINEERING DESCRIPTION						GEOLOGICAL	
FLUID LOSS / WATER / CORE RECOVERY / METHOD/CASING	SAMPLES, TESTS	RL (m) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	MOISTURE CONDITION	SHEAR STRENGTH OR RELATIVE DENSITY	ESTIMATED SHEAR STRENGTH, kPa	ORIGIN TYPE, MINERAL COMPOSITION, DEFECTS, STRUCTURE	UNIT
CORE RECOVERY 100	N=6	30			SILT, slightly organic, shell fragments, firm		F			LAGOONAL SEDIMENTS
CORE RECOVERY 100	N=7	31			SILT, slightly organic, firm					
		32			becomes more organic					
CORE RECOVERY 100	N=21	33			SILT, organic, v.stiff, d.brown		VSt			
		34								
CORE RECOVERY 100	N=12	35			SILT, slightly organic, stiff, d.grey/green					
		36								
CORE RECOVERY 100	N=13	37			SILT, clayey, stiff, some gravels					
CORE RECOVERY 100	N=15	38			CLAY, silty, stiff to v.stiff		St to VSt			DELTAIC SEDIMENTS
					less gravels					
CORE RECOVERY 100	N=21	39			SILT, clayey, stiff to v.stiff					
		40								

TONKIN & TAYLOR LTD.

BOREHOLE LOG

BOREHOLE NO: 2
SHEET 5 OF 5

PROJECT: LUNGGA BRIDGE
LOCATION: GUADALCANAL, SOLOMON ISLANDS
JOB NO: 97/10203
CO-ORDINATES: 8958394 N, 612869 E
RL: 4.86m
DATUM:
DRILL TYPE: Longyear 38
DRILL METHOD: Rotary
DRILL FLUID: Polymer
HOLE STARTED: 2/8/89
HOLE FINISHED: 6/8/89
DRILLED BY: EH
LOGGED BY: LA
CHECKED BY: NWR

DRILLING AND TESTS						ENGINEERING DESCRIPTION						GEOLOGICAL	
FLUID LOSS	WATER	CORE RECOVERY	METHOD/CASING	SAMPLES, TESTS	RL (m) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	MOISTURE CONDITION	SHEAR STRENGTH OR RELATIVE DENSITY	ESTIMATED SHEAR STRENGTH, kPa	ORIGIN TYPE, MINERAL COMPOSITION, DEFECTS, STRUCTURE	UNIT
					40			SILT, clayey, v.stiff		VSt			DELTAIC
		100		N=38+ (9/17/21 for 120mm)	41			SAND (medium), gravelly, (fine coral), dense to v.dense, yellow					
					42								
					43			cemented silt layers					
		100		N=37				less gravels					
					44					D			
		100		N=36	45								RIVER ALLUVIUM
					46			SAND, gravelly, v.dense, red-brown					
		100		N=50+ (15/31/-)	47					VD			
					48								
		100		N=50+ (13/32/-)									
					49			End of Borehole @ 48.5m					

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BOREHOLE LOG

BOREHOLE NO: 3
SHEET 1 OF 4

PROJECT: LUNGGA BRIDGE	LOCATION: GUADALCANAL, SOLOMON ISLANDS		JOB NO: 97/10203
CO-ORDINATES: 8958400 N 612905 E	DRILL TYPE: Longyear 38	HOLE STARTED:	29/7/89
	DRILL METHOD: Rotary	HOLE FINISHED:	1/8/89
RL: 6.96m		DRILLED BY:	EH
DATUM:	DRILL FLUID: Polymer	LOGGED BY: LA	CHECKED BY: NWR

DRILLING AND TESTS						ENGINEERING DESCRIPTION						GEOLOGICAL	
FLUID LOSS	WATER	CORE RECOVERY	METHOD/CASING	SAMPLES, TESTS	RL (m) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	MOISTURE CONDITION	SHEAR STRENGTH OR RELATIVE DENSITY	ESTIMATED SHEAR STRENGTH, kPa	ORIGIN TYPE, MINERAL COMPOSITION, DEFECTS, STRUCTURE	UNIT
		100		N=6	0			SILT, loose, organic, d.brown					
				(N=SPT blows/300 mm)	1			becomes sandy					
					2					L			
		100		N=6	3			SILT, loose, l.brown					
					4								
	6/8/89				5								FLOOD PLAIN DEPOSITS
		100		N=13	6			SAND (fine), medium dense, l.brown					
					7					MD			
					8								
		100		N=19	9			SAND, medium dense, gravelly (coral), d.grey					RIVER ALLUVIUM
					10								

TONKIN & TAYLOR LTD.

BOREHOLE LOG

BOREHOLE NO: 3

SHEET 2 OF 4

PROJECT: LUNGGA BRIDGE
LOCATION: GUADALCANAL, SOLOMON ISLANDS
JOB NO: 97/10203

CO-ORDINATES: 8958400 N
612905 E
RL: 6.96 m
DATUM:

DRILL TYPE: Longyear 38
DRILL METHOD: Rotary
DRILL FLUID: Polymer

HOLE STARTED: 29/7/89
HOLE FINISHED: 1/8/89
DRILLED BY: EH
LOGGED BY: LA
CHECKED BY: NWR

DRILLING AND TESTS						ENGINEERING DESCRIPTION						GEOLOGICAL	
FLUID LOSS	WATER	CORE RECOVERY	METHOD/CASING	SAMPLES, TESTS	RL (m) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	MOISTURE CONDITION	SHEAR STRENGTH OR RELATIVE DENSITY	ESTIMATED SHEAR STRENGTH, kPa	ORIGIN TYPE, MINERAL COMPOSITION, DEFECTS, STRUCTURE	UNIT
					10								
				(N = SPT blows/300mm)	11			SAND, gravelly, medium dense		MD			
		100		N=5	12			SILT, loose, slightly plastic, d.grey		L			LAGOONAL SEDIMENTS
					13								
					14								
		100		N=12	15			SILT, medium dense, fine coral fragments becomes gravelly, l.grey		MD			
					16								
					17								
		100		N=25	18			SILT, medium dense, gravelly, l.grey					DELTAIC SEDIMENTS
					19								
					20			becomes less dense		L to MD			

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BOREHOLE LOG

BOREHOLE NO: 3

SHEET 3 OF 4

PROJECT: LUNGGA BRIDGE | LOCATION: GUADALCANAL, SOLOMON ISLANDS | JOB NO: 97/10203

CO-ORDINATES: 8958400 N, 612905 E | DRILL TYPE: Longyear 38 | HOLE STARTED: 29/7/89

DRILL METHOD: Rotary | HOLE FINISHED: 1/8/89

RL: 6.96 m | DRILLED BY: EH

DATUM: | DRILL FLUID: Polymer | LOGGED BY: LA | CHECKED BY: NWR

DRILLING AND TESTS					ENGINEERING DESCRIPTION						GEOLOGICAL	
FLUID LOSS	WATER	CORE RECOVERY	METHOD/CASING	SAMPLES, TESTS	RL (m) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	MOISTURE CONDITION	SHEAR STRENGTH OR RELATIVE DENSITY	ESTIMATED SHEAR STRENGTH, kPa	ORIGIN TYPE, MINERAL COMPOSITION, DEFECTS, STRUCTURE	UNIT
				(N=SPT blows/300mm)	20					L to MD			
		100		N=10	21			SILT, Loose - medium dense, l.grey					
					22			becomes slightly gravelly					
					23								
					24					MD			
		100		N=29				SAND (coarse), medium dense, gravelly l.brown					
					25								
					26			l.grey layers					
					27					VD			
		100		N=50+				GRAVEL, sandy, very dense coral					
				24/12 for 30 mm	28								
					29			SAND, gravelly, v.dense					
					30								

RIVER ALLUVIUM / DELTAIC SEDIMENTS

TONKIN & TAYLOR LTD.

BOREHOLE LOG

BOREHOLE NO: 3

SHEET 4 OF 4

PROJECT: LUNGGA BRIDGE
LOCATION: GUADALCANAL, SOLOMON ISLANDS
JOB NO: 97/10203

CO-ORDINATES: 8958400 N
612905 E
RL: 6.96 m
DATUM:

DRILL TYPE: Longyear 38
DRILL METHOD: Rotary
DRILL FLUID: Polymer

HOLE STARTED: 29/7/89
HOLE FINISHED: 1/8/89
DRILLED BY: EH
LOGGED BY: LA
CHECKED BY: MR

DRILLING AND TESTS					ENGINEERING DESCRIPTION						GEOLOGICAL	
FLUID LOSS	WATER	CORE RECOVERY	METHOD/CASING	SAMPLES, TESTS	RL (m) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	SOIL NAME, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, SECONDARY AND MINOR COMPONENTS	MOISTURE CONDITION	SHEAR STRENGTH OR RELATIVE DENSITY	ESTIMATED SHEAR STRENGTH, kPa	ORIGIN TYPE, MINERAL COMPOSITION, DEFECTS, STRUCTURE	UNIT
		100		N=50+ 16/29/-	30			SAND, gravelly, v.dense l.brown					
					31			becomes less gravelly sand, sl.silty and gravelly, v.dense					
					32								
		100		N=50+ 13/27/10 for 30 mm	33			SAND, v.dense, l.brown		VD			
								hard silt layers					
					34			thin fine gravel layers					
					35			hard silt layers					RIVER ALLUVIUM
		100		N=50+ 11/34/-	36			SAND, silty, v.dense, some gravels					
					37								
					38			becomes more gravelly					
		100		N=50+ 25 for 110 mm	39			SAND, gravelly, v.dense					
					40			END OF BOREHOLE 40.0 m