No. 17

THE GOVERNMENT OF PAPUA NEW GUINEA

THE DETAILED DESIGN
ON
ROAD CONSTRUCTION PROJECT
IN
BEREINA - MALALAUA

TENDER DOCUMENTS

(Volume IV - 1)

JANUARY 1990

JAPAN INTERNATIONAL COOPERATION AGENCY

SSF
[redacted]
90 - 003

PAPUA NEW GUINEA

DEPERTMENT OF WORKS

TRANS-ISLAND HIGHWAY

BEREINA TO MALALAUA ROAD CONSTRUCTION PROJECT

CENTRAL/GULF PROVENCES

TENDER DOCUMENTS

FOR

LOT- I BEREINA TO MIARU RIVER SECTION
CONTRACT NO. SC. 120-33-814/A
CH 0+000 TO CH 33+500

VOLUME IV-1

DRAWINGS

DOCUMENT NO._____

LOT - I

LIST OF DRAWINGS

TITLE OF DRAWING		DRAWING NO.
GENERAL DRAWINGS		
SITE AND LOCALITY PLAN	A1/	87760
ABBREVIATIONS AND LEGEND	A1/	87761
PLANS LAYOUT, CO ORDINATES OF CONTROL POINTS AND INTERSECTION POINTS	A1/	87762
STANDARD DRAWINGS		
TYPICAL CROSS SECTION (FILL & CUT AND FILL SECTION)	A1/	87763
" " " (CUT SECTION)	A1/	87764
TYPICAL PAVEMENT SECTION FOR ROAD CH0+000-CH33+500	A1/	87765
SUPERELEVATION	A1/	87766
INTERSECTIONS		
INTERSECTION CH. 0+200 & CH 0+260 PLAN, LONGITUDINAL & CROSS SECTIONS	A1/	87767
INTERSECTION CH1+450 - PLAN & LONGITUDINAL SECTIONS	A1/	87768
" " - CROSS SECTIONS (A-LINE)	A1/	87769
" " - CROSS SECTIONS (B-LINE)	A1/	87770
INTERSECTION CH33+425 PLAN, LONGITUDINAL & CROSS SECTIONS	A1/	87771
ROAD FURNTURE		
STANDARD GUARD RAIL	A1/	87772
GUAD RAIL DETAILS APPROACH FOR TWO WAY BRIDGE	A1/	87773
ROAD EDGE GUIDE POST AND ROAD EDGE MARKERS	A1/	87774
SCHEDULE OF ROAD EDGE GUIDE POST CH.0+000 - CH.33+500 1/2	A1/	87775
SCHEDULE OF ROAD EDGE GUIDE POST CH. 0+000 - CH.33+500 2/2	A1/	87776
PAVEMENT MARKINGS	A1/	87777
SCHEDULE OF PAVEMENT MARKINGS CH. 0+000 - CH .33+500	A1/	87778
ROAD SIGNS	A1/	87779
ROAD SIGN FOR BRIDGE APPROACH AND INTERSECTION	A1/	87780
SCHEDULE OF ROAD SIGNS CH. 0+000 - CH. 33+500	A1/	87781
DRAINAGE		
STANDARD CULVERT HEADWALLS	A1/	87782
CULVERT BEDDING, SUBSOIL DRAIN AND STANDARD INLET PIT	A1/	87783
CULVERT SCHEDULE CH. 0+520 - CH. 12+333	A1/	87784
" " CH 12+760 - CH 24+091	A1/	87785
" " CH 24+517 - CH 32+950 AND ON SIDE DITCH	A1/	87786
OTHERS		
EARTHWORKS SCHEDULE CH. 0+000 - CH. 33+500	A1/	87787
SPOIL BANKS NO 1, 2 & 3 FOR LOT I / STOCK PILE NO.1 FOR LOT II	A1/	87788
RIVER OEPOSIT NO 1 AND QUARRY SITE NO 1	A1/	87789
SUBBASE BORROW PITS NO 1 AND NO 2	A1/	87790
PROJECT NOTICE BOARD	A1/	87791
ENGINEERS OFFICE ACCOMMODATION	A1/	87792
PLAN, ELEVATIONS SECTIONS AND DETAILS	A1/	87793
DOOR & WINDOW SCHEDLE STAIR DETAILS, SECTION AND JOINARY ELEVATIONS.	A1/	87794
PLANS, ELEVATIONS ELECTRICAL LEGEND AND WIRING DIAGRAM	A1/	87795
SECTIONS DETAILS	A1/	87796
RENO MATTRESS AND GABION	A1/	88072

TITLE OF DRAWING					DRAWING NO
LIST OF PLAN & LONGITUDINAL SECTIONS					
PLAN & LONGITUDINAL SECTION	CH. 0+000	—	CH 0+600	A1/	87797
" " "	CH. 0+600	—	CH 1+200	A1/	87798
" " "	CH. 1+200	—	CH 1+800	A1/	87799
" " "	CH 1+800	—	CH 2+500	A1/	87800
" " "	CH 2+500	—	CH 3+200	A1/	87801
" " "	CH 3+200	—	CH 3+900	A1/	87802
" " "	CH 3+900	—	CH 4+600	A1/	87803
" " "	CH 4+600	—	CH 5+300	A1/	87804
" " "	CH 5+300	—	CH 6+000	A1/	87805
" " "	CH 6+000	—	CH 6+700	A1/	87806
" " "	CH 6+700	—	CH 7+400	A1/	87807
" " "	CH 7+400	—	CH 7+900	A1/	87808
" " "	CH 7+900	—	CH 8+500	A1/	87809
" " "	CH 8+500	—	CH 9+200	A1/	87810
" " "	CH 9+200	—	CH 9+900	A1/	87811
" " "	CH 9+900	—	CH 10+600	A1/	87812
" " "	CH 10+600	—	CH 11+300	A1/	87813
" " "	CH 11+300	—	CH 12+000	A1/	87814
" " "	CH 12+000	—	CH 12+700	A1/	87815
" " "	CH 12+700	—	CH 13+400	A1/	87816
" " "	CH 13+400	—	CH 14+100	A1/	87817
" " "	CH 14+100	—	CH 14+800	A1/	87818
" " "	CH 14+800	—	CH 15+500	A1/	87819
" " "	CH 15+500	—	CH 16+200	A1/	87820
" " "	CH 16+200	—	CH 16+900	A1/	87821
" " "	CH 16+900	—	CH 17+600	A1/	87822
" " "	CH 17+600	—	CH 18+300	A1/	87823
" " "	CH 18+300	—	CH 19+000	A1/	87824
" " "	CH 19+000	—	CH 19+700	A1/	87825
" " "	CH 19+700	—	CH 20+400	A1/	87826
" " "	CH 20+400	—	CH 21+100	A1/	87827
" " "	CH 21+100	—	CH 21+800	A1/	87828
" " "	CH 21+800	—	CH 22+500	A1/	87829
" " "	CH 22+500	—	CH 23+200	A1/	87830
" " "	CH 23+200	—	CH 23+900	A1/	87831
" " "	CH 23+900	—	CH 24+600	A1/	87832
" " "	CH 24+600	—	CH 25+300	A1/	87833
" " "	CH 25+300	—	CH 26+000	A1/	87834
" " "	CH 26+000	—	CH 26+700	A1/	87835
" " "	CH 26+700	—	CH 27+400	A1/	87836
" " "	CH 27+400	—	CH 28+100	A1/	87837
" " "	CH 28+100	—	CH 28+800	A1/	87838
" " "	CH 28+800	—	CH 29+500	A1/	87839
" " "	CH 29+500	—	CH 30+200	A1/	87840
" " "	CH 30+200	—	CH 30+900	A1/	87841
" " "	CH 30+900	—	CH 31+600	A1/	87842
" " "	CH 31+600	—	CH 32+300	A1/	87843
" " "	CH 32+300	—	CH 33+000	A1/	87844
" " "	CH 33+000	—	CH 33+500	A1/	87845

TITLE OF DRAWING				DRAWING NO.
LIST OF CROSS SECTION				
CROSS SECTIONS	CH 0+000	—	CH 0+350	A1/ 87846
" "	CH 0+400	—	CH 0+750	A1/ 87847
" "	CH 0+800	—	CH 1+200	A1/ 87848
" "	CH 1+250	—	CH 1+400	A1/ 87849
" "	CH 1+425	—	CH 1+575	A1/ 87850
" "	CH 1+600	—	CH 1+750	A1/ 87851
" "	CH 1+775	—	CH 1+900	A1/ 87852
" "	CH 1+925	—	CH 2+125	A1/ 87853
" "	CH 2+142	—	CH 2+275	A1/ 87854
" "	CH 2+300	—	CH 2+425	A1/ 87855
" "	CH 2+450	—	CH 2+600	A1/ 87856
" "	CH 2+625	—	CH 2+775	A1/ 87857
" "	CH 2+800	—	CH 2+975	A1/ 87858
" "	CH 3+000	—	CH 3+150	A1/ 87859
" "	CH 3+175	—	CH 3+400	A1/ 87860
" "	CH 3+425	—	CH 3+600	A1/ 87861
" "	CH 3+623	—	CH 3+800	A1/ 87862
" "	CH 3+825	—	CH 4+000	A1/ 87863
" "	CH 4+025	—	CH 4+175	A1/ 87864
" "	CH 4+200	—	CH 4+350	A1/ 87865
" "	CH 4+375	—	CH 4+500	A1/ 87866
" "	CH 4+525	—	CH 6+650	A1/ 87867
" "	CH 4+675	—	CH 4+800	A1/ 87868
" "	CH 4+825	—	CH 4+975	A1/ 87869
" "	CH 5+000	—	CH 5+098	A1/ 87870
" "	CH 5+100	—	CH 5+200	A1/ 87871
" "	CH 5+225	—	CH 5+400	A1/ 87872
" "	CH 5+425	—	CH 5+625	A1/ 87873
" "	CH 5+650	—	CH 5+800	A1/ 87874
" "	CH 5+825	—	CH 5+975	A1/ 87875
" "	CH 6+000	—	CH 6+175	A1/ 87876
" "	CH 6+192	—	CH 6+375	A1/ 87877
" "	CH 6+400	—	CH 6+610	A1/ 87878
" "	CH 6+625	—	CH 6+825	A1/ 87879
" "	CH 6+850	—	CH 7+075	A1/ 87880
" "	CH 7+100	—	CH 7+300	A1/ 87881
" "	CH 7+325	—	CH 7+475	A1/ 87882
" "	CH 7+500	—	CH 7+675	A1/ 87883
" "	CH 7+700	—	CH 7+865	A1/ 87884
" "	CH 7+875	—	CH 8+025	A1/ 87885
" "	CH 8+050	—	CH 8+275	A1/ 87886
" "	CH 8+300	—	CH 8+450	A1/ 87887
" "	CH 8+475	—	CH 8+675	A1/ 87888
" "	CH 8+700	—	CH 8+850	A1/ 87889
" "	CH 8+875	—	CH 9+075	A1/ 87890
" "	CH 9+100	—	CH 9+250	A1/ 87891
" "	CH 9+275	—	CH 9+500	A1/ 87892
" "	CH 9+525	—	CH 9+700	A1/ 87893
" "	CH 9+725	—	CH 9+900	A1/ 87894
" "	CH 9+925	—	CH 10+000	A1/ 87895
" "	CH10+025	—	CH10+225	A1/ 87896
" "	CH10+240	—	CH10+425	A1/ 87897
" "	CH10+450	—	CH10+650	A1/ 87898
" "	CH10+675	—	CH10+875	A1/ 87899
" "	CH10+900	—	CH10+050	A1/ 87900
" "	CH11+075	—	CH11+275	A1/ 87901
" "	CH11+300	—	CH11+500	A1/ 87902
" "	CH11+550	—	CH11+800	A1/ 87903
" "	CH11+850	—	CH11+991	A1/ 87904

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK No.8

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Yukii — Principal — 25 Sep. 1989 — Date

DRAWN: K.E.
CHECKED:
DESIGNED: A. Magallo
CHECKED: T. Kawakami

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: A/ PRINCIPAL ENGINEER
APPROVED: 24.10.89 — for (TS) SECRETARY

SCALES

SHEET OF

PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
LIST OF DRAWING
CH. 0+000 — CH 33+500 1/2

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1

REV.

J/08/1768

2

LOT - I

LIST OF DRAWINGS

TITLE OF DRAWING	DRAWING NO.
LIST OF CROSS SECTION	
CROSS SECTIONS CH 11+994·2 — CH12+026·5	A1/ 87905
" " CH 12+040 — CH12+250	A1/ 87906
" " CH 12+275 — CH12+425	A1/ 87907
" " CH 12+450 — CH12+625	A1/ 87908
" " CH 12+650 — CH12+808	A1/ 87909
" " CH 12+825 — CH13+025	A1/ 87910
" " CH 13+032 — CH13+200	A1/ 87911
" " CH 13+225 — CH13+375	A1/ 87912
" " CH 13+400 — CH13+575	A1/ 87913
" " CH 13+600 — CH13+750	A1/ 87914
" " CH 13+775 — CH13+950	A1/ 87915
" " CH 13+975 — CH14+175	A1/ 87916
" " CH 14+200 — CH14+375	A1/ 87917
" " CH 14+381 — CH14+550	A1/ 87918
" " CH 14+575 — CH14+708	A1/ 87919
" " CH 14+712 — CH14+750	A1/ 87920
" " CH 14+755 — CH 14+850	A1/ 87921
" " CH 14+875 — CH15+000	A1/ 87922
" " CH 15+025 — CH15+225	A1/ 87923
" " CH 15+235 — CH15+375	A1/ 87924
" " CH 15+400 — CH15+512	A1/ 87925
" " CH 15+525 — CH15+675	A1/ 87926
" " CH 15+700 — CH15+850	A1/ 87927
" " CH 15+857 — CH16+050	A1/ 87928
" " CH 16+075 — CH16+100	A1/ 87929
" " CH 16+103 — CH16+131·512	A1/ 87930
" " CH 16+134·551 — CH16+150	A1/ 87931
" " CH 16+156 — CH16+500	A1/ 87932
" " CH 16+550 — CH16+900	A1/ 87933
" " CH 16+925 — CH17+100	A1/ 87934
" " CH 17+113 — CH17+300	A1/ 87935
" " CH 17+325 — CH17+505	A1/ 87936
" " CH 17+525 — CH17+725	A1/ 87937
" " CH 17+750 — CH17+850	A1/ 87938
" " CH 17+875 — CH18+025	A1/ 87939
" " CH 18+050 — CH18+250	A1/ 87940
" " CH 18+275 — CH18+450	A1/ 87941
" " CH 18+475 — CH18+650	A1/ 87942
" " CH 18+675 — CH18+825	A1/ 87943
" " CH 18+850 — CH19+050	A1/ 87944
" " CH 19+075 — CH19+225	A1/ 87945
" " CH 19+250 — CH19+425	A1/ 87946
" " CH 19+450 — CH19+600	A1/ 87947
" " CH 19+625 — CH19+750	A1/ 87948
" " CH 19+775 — CH19+950	A1/ 87949
" " CH 19+975 — CH20+000	A1/ 87950
" " CH 20+025 — CH20+200	A1/ 87951
" " CH 20+225 — CH20+325	A1/ 87952
" " CH 20+350 — CH20+525	A1/ 87953
" " CH 20+550 — CH20+675	A1/ 87954
" " CH 20+700 — CH20+900	A1/ 87955
" " CH 20+925 — CH21+100	A1/ 87956
" " CH 21+125 — CH21+225	A1/ 87957
" " CH 21+250 — CH21+428	A1/ 87958
" " CH 21+450 — CH21+650	A1/ 87959
" " CH 21+709 — CH22+050	A1/ 87960
" " CH 22+100 — CH22+350	A1/ 87961
" " CH 22+400 — CH22+600	A1/ 87962
" " CH 22+625 — CH22+784	A1/ 87963
CROSS SECTIONS CH 22+800 — CH22+950	A1/ 87964
" " CH 22+975 — CH23+100	A1/ 87965
" " CH 23+150 — CH23+500	A1/ 87966
" " CH 23+550 — CH23+850	A1/ 87967
" " CH 23+872 — CH24+025	A1/ 87968
" " CH 24+050 — CH24+225	A1/ 87969
" " CH 24+242 — CH24+375	A1/ 87970
" " CH 24+400 — CH24+575	A1/ 87971
" " CH 24+600 — CH24+750	A1/ 87972
" " CH 24+775 — CH24+925	A1/ 87973
" " CH 24+950 — CH25+100	A1/ 87974
" " CH 25+125 — CH25+275	A1/ 87975
" " CH 25+300 — CH25+600	A1/ 87976
" " CH 25+650 — CH25+877	A1/ 87977
" " CH 25+900 — CH26+175	A1/ 87978
" " CH 26+200 — CH26+350	A1/ 87979
" " CH 26+375 — CH26+575	A1/ 87980
" " CH 26+600 — CH 26+750	A1/ 87981
" " CH 26+775 — CH 26+975	A1/ 87982
" " CH 27+000 — CH 27+200	A1/ 87983
" " CH 27+225 — CH 27+400	A1/ 87984
" " CH 27+425 — CH 27+575	A1/ 87985
" " CH 27+600 — CH 27+750	A1/ 87986
" " CH 27+800 — CH 28+025	A1/ 87987
" " CH 28+038 — CH 28+200	A1/ 87988
" " CH 28+225 — CH 28+425	A1/ 87989
" " CH 28+450 — CH 28+750	A1/ 87990
" " CH 28+800 — CH 28+975	A1/ 87991
" " CH 29+000 — CH 29+250	A1/ 87992
" " CH 29+300 — CH 29+540	A1/ 87993
" " CH 29+550 — CH 29+850	A1/ 87994
" " CH 29+900 — CH 30+250	A1/ 87995
" " CH 30+300 — CH 30+617	A1/ 87996
" " CH 30+650 — CH 30+978	A1/ 87997
" " CH 31+000 — CH 31+250	A1/ 87998
" " CH 31+300 — CH 31+650	A1/ 87999
" " CH 31+700 — CH32+000	A1/ 88000
" " CH 32+050 — CH32+250	A1/ 88001
" " CH 32+275 — CH32+426	A1/ 88002
" " CH 32+450 — CH32+575	A1/ 88003
" " CH 33+600 — CH32+750	A1/ 88004
" " CH 32+775 — CH33+000	A1/ 88005
" " CH 33+050 — CH33+100	A1/ 88006
" " CH 33+110 — CH33+125	A1/ 88007
" " CH 33+150 — CH33+300	A1/ 88008
" " CH 33+300 — CH33+500	A1/ 88009

TITLE OF DRAWING	DRAWING NO.
BRIDGES	
BRIDGE NO·1 — TAIENA BRIDGE	
GENERAL NOTES AND DRAWING LIST	A1/ 88010
GENERAL ARRANGEMENT	A1/ 88011
ABUTMENT CONCRETE & REINFORCEMENT DETAILS	A1/ 88012
CONCRETE DECK DETAILS	A1/ 88013
STEELWORK DETAILS	A1/ 88014
HANDRAILING / IMPACT ANGLE DETAILS	A1/ 88015
BAR BENDING SCHEDULE	A1/ 88016
BEARING BP·B - 103 (FIXED)	A1/ 88017
BEARING BP·B - 104 (MOVABLE)	A1/ 88018
RIVER BANK PROTECTION, BEARING UNITS, BACKFILL TO BRIDGE ABUTMENT AND OTHERS	A1/ 88019
BRIDGE NO·2 — AGOBINO BRIDGE	
GENERAL NOTES AND DRAWING LIST	A1/ 880 20
GENERAL ARRANGEMENT	A1/ 88021
ABUTMENT DETAILS	A1/ 88022
CONCRETE DECK DETAILS	A1/ 88023
STEEL WORK DETAILS	A1/ 88024
HANDRAILING / IMPACT ANGLE DETAILS	A1/ 88025
BAR BENDING SCHEDULE NOTES & STANDARD DETAILS	A1/ 88026
BEARING BP·B - 103 (FIXED)	A1/ 88027
BEARING BP·B- 104 (MOVABLE)	A1/ 88028
RIVER BANK PROTECTION, BEARING UNITS, BACKFILL TO BRIDGE ABUTMENT AND OTHERS	A1/ 88029
BRIDGE NO·3 — UNGONGO BRIDGE	
GENERAL NOTES AND DRAWING LIST	A1/ 88030
GENERAL ARRANGEMENT	A1/ 88031
ABUTMENT PLAN, ELEVATIONS & DETAILS	A1/ 88032
CONCRETE DECK DETAILS	A1/ 88033
STEELWORK DETAILS	A1/ 88034
HANDRAILING / IMPACT ANGLE DETAILS	A1/ 88035
BAR BENDING SCHEDULE NOTES & STANDARD DETAILS	A1/ 88036
BEARING BP B - 103 (FIXED)	A1/ 88037
BEARING BP B - 104 (MOVABLE)	A1/ 88038
RIVER BANK PROTECTION, BEARING UNITS, BACKFILL TO BRIDGE ABUTMENT AND OTHERS	A1/ 88039

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA (Date) — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM: — SURVEY BOOK NO.5

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Yatsu (Principal) 25 Sep. 1989 (Date)

DRAWN: K.E. — CHECKED: C. Tabi — DESIGNED: A. Magatto — CHECKED: T. Kawakami

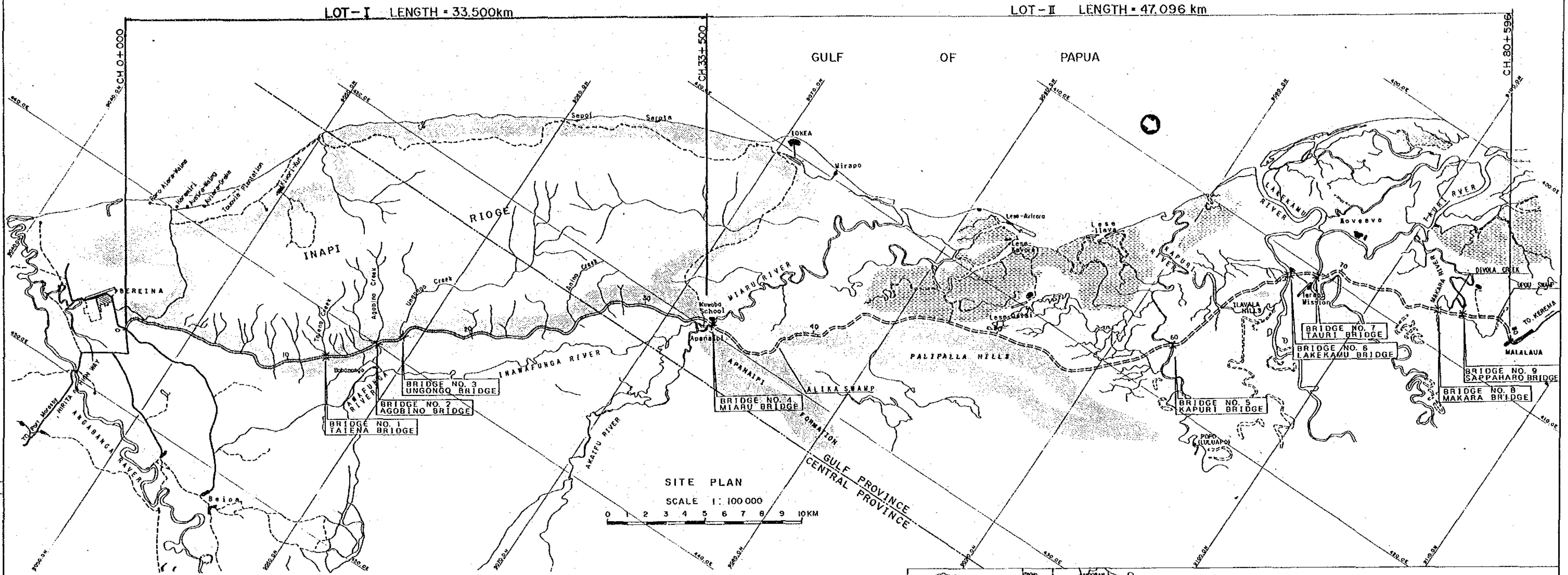
PROJECT ENGINEER — EXECUTIVE ENGINEER

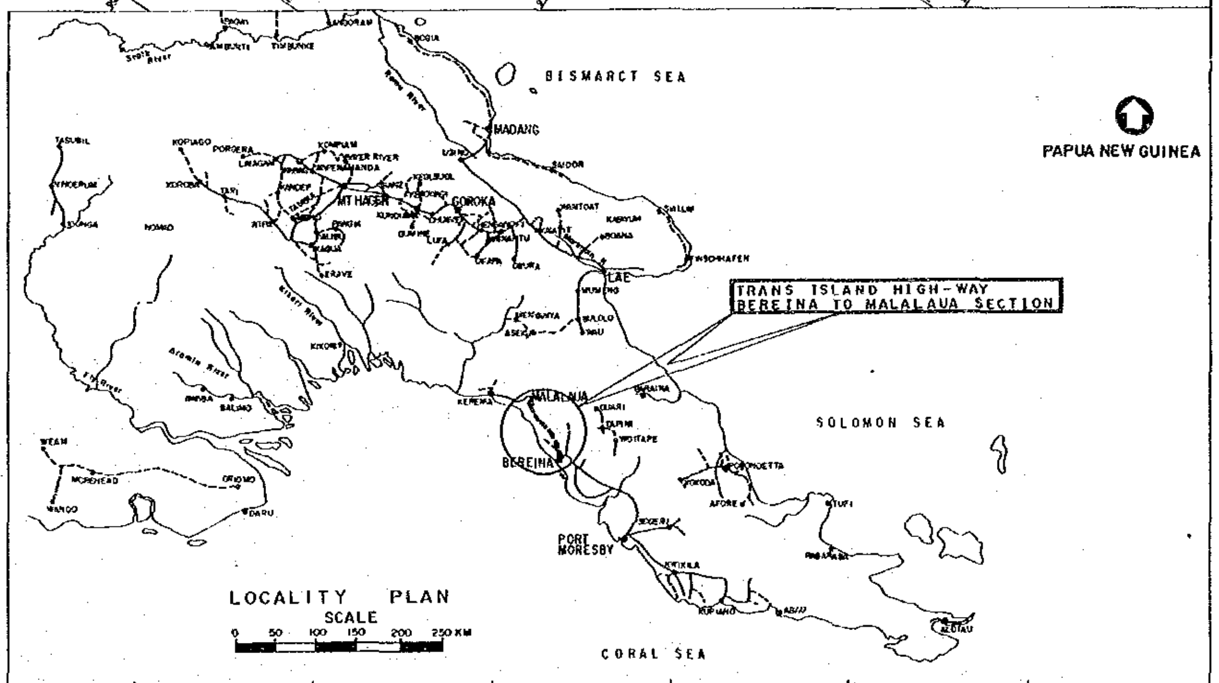
RECOMMENDED: Mr. PRINCIPAL ENGINEER — APPROVED: 24.10.89 — SECRETARY

SCALES

SHEET OF — PROJECT No. S.C. 120-33-814/A

CENTRAL GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
LIST OF DRAWING
CH 0+000 CH 33+500 2/2
PAPUA NEW GUINEA DEPARTMENT OF WORKS
DRAWING No. A1
REV.





REV	AMENDMENTS	BY	APP'D	DATE

SURVEY	JICA
VERTICAL DATUM	MEAN SEA LEVEL
HORIZONTAL DATUM	
SURVEY BOOK NO.S	
DESIGN	JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal	J. Yahi — 25 Sep. 1989 (Date)
DRAWN	K.E.
CHECKED	C. [signature]
DESIGNED	A. Magatto
CHECKED	T. Kawabe
PROJECT ENGINEER	[signature]
EXECUTIVE ENGINEER	[signature]
RECOMMENDED	[signature] A/PRINCIPAL ENGINEER 24.10.89
APPROVED	[signature] FAS(TS) SECRETARY
SCALES	AS SHOWN
SHEET	1 OF 281
PROJECT No.	S.C. 120-33-814/A

CENTRAL / GULF PROVINCES

TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION

SITE AND LOCALITY PLAN

PAPUA NEW GUINEA DEPARTMENT OF WORKS

DRAWING No. A1/ 87760

ABBREVIATION	FULL WORDS
B.C.	BEGINNING OF CURVE
B.H.	BORE HOLE
℄	CENTRELINE
CH. / ch.	CHAINAGE
COR.	CORRUGATED
C.S.P.	CORRUGATED STEEL PIPE
Dia.	DIAMETER
ø	PIPE DIAMETER
D.L.	DATUM LINE
Drg. No.	DRAWING NUMBER
E.C.	END OF CURVE
ELEV.	ELEVATION
e	SUPERELEVATION (%)
F.L.	FLOOD LEVEL
Galv.	GALVANISED
G.H.	GROUND HEIGHT
G.R.	GUARD RAIL
H.W.L.	HIGH WATER LEVEL
I.L.	INVERT LEVEL
I.P.	INTERSECTION POINT
I.A.	INTERSECTION ANGLE
Km.	KILOMETRE
L.	LENGTH
Lc.	LENGTH OF CURVE
L.H.S.	LEFT HAND SIDE
m.	METRE
mm.	MILLIMETRE
ML.	MATCH LINE
NO.	NUMBER
N.T.S.	NOT TO SCALE
Pvt.	PAVEMENT
R.	RADIUS OF CIRCULAR CURVE
R.L.	*REDUCED LEVEL*
REF.	REFERENCE
R.O.W.	RIGHT OF WAY
R.H.S.	RIGHT HAND SIDE
std.	STANDARD
t	THICK
T	TANGENT LENGTH
V.C.L.	VERTICAL CURVE LENGTH
V.C.R.	VERTICAL CURVE RADIUS
W.L.	WATER LEVEL
∞	INFINITY

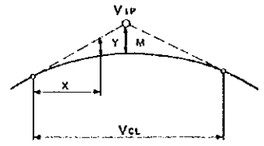
DETAIL	SYMBOL
Traverse Point	JP29 ⊙1234
Minor Leveling	12.12
Spot Height	12.8
Formed Roads	
Unformed Roads.	
Track	
Embankment	
Buildings	
Public Building	LAE HOSPITAL
Position Approximate Observed	
Fence	
Special Use Areas Fenced	
Unfenced	
Lake / Reservoir	
River / Creek	
River / Creek Symbolized	
Subject To Inundation during Floods	
Subject To Inundation during Floods	
Swamp	
Direction of Flow	
Seasonal Stream	
Forest	
Secondary Growth	S.G
Large Isolated Tree	
Mangrove	
Palms	
Plantation	PL
Food Garden	
Scattered Trees	
Grassland	
Staff Gauge	
Contours Index	
Standard	
Half	
Supplementary	
Depression	
Road Bridge	
Power Poles	
Tank	TANK
Provincial Boundary	
Design Centreline Road	
Drain Water Flow	
Pipe Culvert	
Reno Mattress	
Slope (Cut & Fill)	
Level Cut	
Level Fill	

SYMBOLS FOR SOIL AND ROCK

		CLAYEY	SILTY	SANDY
TOP SOIL				
PEAT				
SAND				
SILT				
CLAY				
SANDSTONE				
SILTY MUDSTONE				
LIMESTONE				
BOGWOOD				
CONGLOMERATE				
AGGLOMERATE				

FOR THE VERTICAL CURVES THE PARAMETERS GIVEN IN THE DRAWINGS ARE THE RADIUS AND THE CURVE LENGTH. HOWEVER FOR SETTING OUT PURPOSES, PARABOLIC CURVE MAY BE ASSUMED AS GIVEN BY THE EQUATION BELOW.

$$R = \frac{V_{CL}}{A} \qquad Y = \frac{A}{2V_{CL}} \times X^2$$



WHERE :—

R	Radius of vertical curve
V_{CL}	Vertical curve length
A	Algebraic difference of tangent grades
Y	Vertical offset
X	Horizontal distance from the curve end
M	Mid – Ordinate
VIP	Vertical intersection point
ELEV	Elevation of Vertical Intersection point

VERTICAL CURVE

GENERAL NOTES

1. VERTICAL CONTROL

ALL ELEVATIONS IN THIS PROJECT ARE BASED ON MEAN SEA LEVEL DATUM WHICH WAS ESTABLISHED BY TIDAL OBSERVATION AT IOKEA GULF PROVINCE IN DECEMBER 1987.

2. HORIZONTAL CONTROL

THE HORIZONTAL CONTROL AND ALIGNMENT CALCULATIONS IN THIS PROJECT ARE BASED ON THE AUSTRALIAN GRID DATUM (U.T.M. ZONE 55). THE TOPOGRAPHIC MAPS WERE MADE BY PHOTOGRAMETRIC METHOD, USING AERIAL PHOTOGRAPHY WHICH WERE TAKEN IN DECEMBER 1987.

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NOS:

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Yuhi — Principal — 25 Sep. 1989 — Date

DRAWN: K.E.
CHECKED:
DESIGNED: A. Magabe
CHECKED: Z. Kawabeni

PROJECT ENGINEER:
EXECUTIVE ENGINEER:

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 26.10.89 — SECRETARY

SCALES:

SHEET 2 OF 281

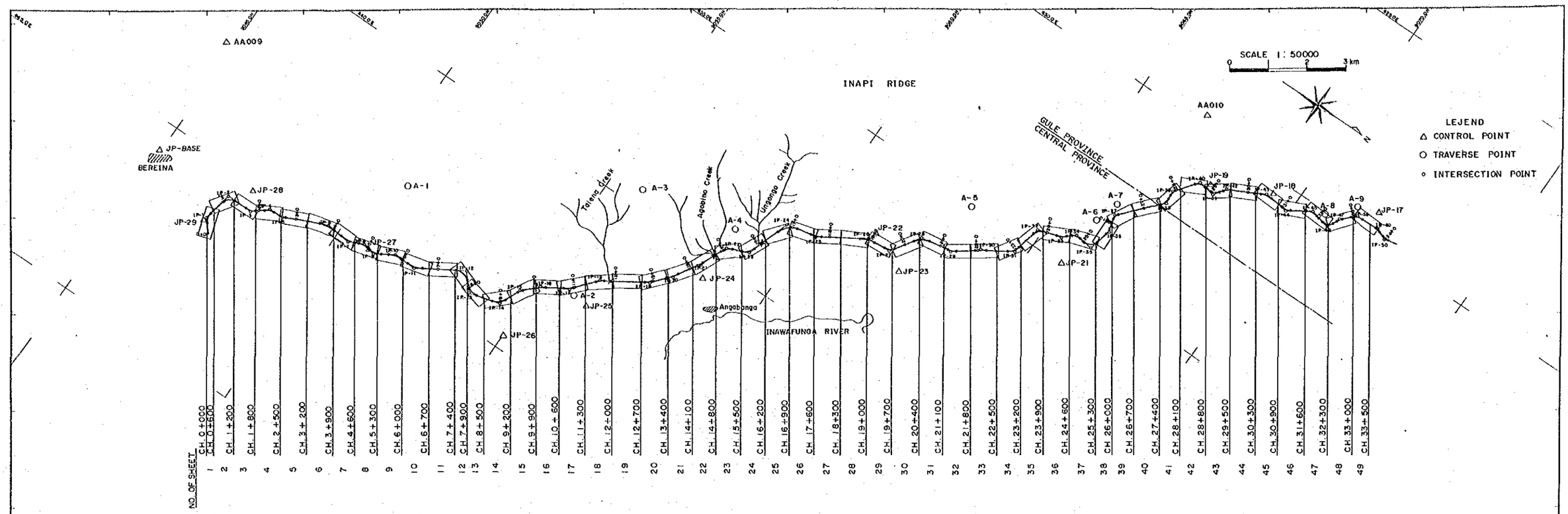
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
ABBREVIATIONS AND LEGEND

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1/ 87761

REV.



COORDINATES & ELEVATION OF CONTROL POINTS

(Transformed to A. G. D. System)

STATION	NORTHING	EASTING	ELEVATION	REMARKS
	m	m	m	
JP-17	9071897.393	429240.295	5.112	✻✻
JP-18	9069394.365	430442.978	18.073	
JP-19	9067896.129	431113.438	47.795	
JP-21	9065841.444	434989.175	19.488	○
JP-22	9061453.144	437122.316	30.114	○
JP-23	9062522.864	437544.593	28.753	
JP-24	9058333.379	440554.353	22.541	
JP-25	9056365.873	442814.345	12.341	○
JP-26	9055013.440	444604.084	17.838	○
JP-27	9050877.342	444748.253	28.514	○
JP-28	9047567.514	445245.856	41.351	○
JP-29	9046989.289	446595.673	8.627	○
BESE	9045004.587	445676.212	8.312	✻✻✻○
AA-009	9044837.418	442458.547	121.370	✻✻✻○

NOTES: ✻✻ ····Direct Leveling
✻✻✻····Control Point
○ ····Monumented Point

COORDINATES OF NEW TRAVERSE POINTS

STATION	NORTHING	EASTING	ELEVATION
	m	m	m
A-1	9050815.884	442882.622	154.42
A-2	9855931.394	442767.349	45.39
A-3	9055856.116	439568.683	107.18
A-4	9058385.378	439019.171	56.58
A-5	9063102.219	435133.874	75.65
A-6	9066000.789	433568.238	63.62
A-7	9066211.702	433932.223	54.00
A-8	9070769.102	430068.531	55.81
A-9	9071342.886	429486.907	40.81

COORDINATES OF INTERSECTION POINTS

IPNO.	NORTHING	EASTING	BEARING	DISTANCE
	m	m	° ′ ″	m
BP	9047200.000	446772.000	231 29 03	403.867
1	9046948.500	446456.000	281 34 00	765.547
2	9047102.000	445706.000	359 17 11	682.553
3	9047784.500	445697.500	321 48 5	504.536
4	9048181.000	445385.500	356 27 5	387.743
5	9048568.000	445361.500	334 48 19	1196.862
6	9049651.000	444852.000	5 25 55	854.941
7	9050303.000	444914.000	337 13 49	412.117
8	9050683.000	444754.500	3 21 59	391.676
9	9051704.000	444777.500	329 54 43	538.568
10	9051540.000	444507.500	359 11 47	606.060
11	9052146.000	444499.000	329 13 42	1304.683
12	9053267.000	443831.500	46 20 55	570.793
13	9053661.000	444244.500	345 29 9	813.978
14	9054449.000	444040.500	295 9 36	629.195
15	9054716.500	443471.000	312 58 20	528.601
16	9055077.500	443083.500	328 27 16	752.148
17	9055718.500	442690.000	311 45 10	817.668
18	9056263.000	442080.000	372 27 37	1250.269
19	9057317.000	441407.500	311 25 48	607.523
20	9057719.000	440952.000	302 19 51	783.457
21	9058138.000	440290.000	294 3 5	785.168
22	9058458.000	439573.000	336 21 16	605.866
23	9059013.000	439330.000	289 21 32	1215.738
24	9059416.000	438183.000	348 9 5	813.330

COORDINATES OF INTERSECTION POINTS

IPNO.	NORTHING	EASTING	BEARING	DISTANCE
	m	m	° ′ ″	m
25	9060212.000	438016.000	328 15 53	1337.465
26	9061349.500	437312.500	354 12 12	628.715
27	9061975.000	437249.000	304 19 5	886.391
28	9062481.500	436507.000	348 17 1	856.853
29	9063320.500	436333.000	232 2 52	765.201
30	9063932.000	435873.000	328 23 10	868.954
31	9064672.000	435417.500	283 25 57	828.669
32	9064864.500	434611.500	342 8 30	644.030
33	9065477.500	434414.000	319 39 46	400.132
34	9065782.500	434155.000	7 30 7	490.196
35	9066268.500	434219.000	282 9 55	624.013
36	9066400.000	433609.000	257 59 9	446.786
37	9066307.000	433172.000	311 44 41	1369.755
38	9067219.000	432150.000	264 11 1	350.303
39	9067183.500	431801.500	308 40 38	767.282
40	9067683.000	431202.500	12 39 23	438.146
41	9068090.500	431298.500	304 39 2	405.404
42	9068321.000	430985.000	333 9 50	1040.007
43	9069249.000	430495.500	5 19 45	635.248
44	9069881.500	430554.500	329 9 28	686.596
45	9070471.000	430202.500	12 1 25	535.242
46	9070994.500	430314.000	296 42 24	361.573
47	9071157.000	429991.000	313 29 25	483.122
48	9071489.500	429640.500	358 29 25	626.217
49	9072115.500	429624.000	16 27 7	310.722
50	9072413.500	429712.000	350 25 37	935.021

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM
SURVEY BOOK NO.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Martin — Principal — 25 Sep. 1989 — Date

DRAWN: K. E.
CHECKED: C. Zah
DESIGNED: A. Magabio
CHECKED: T. Kawakegi

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 26.10.89 — FAS(T) SECRETARY

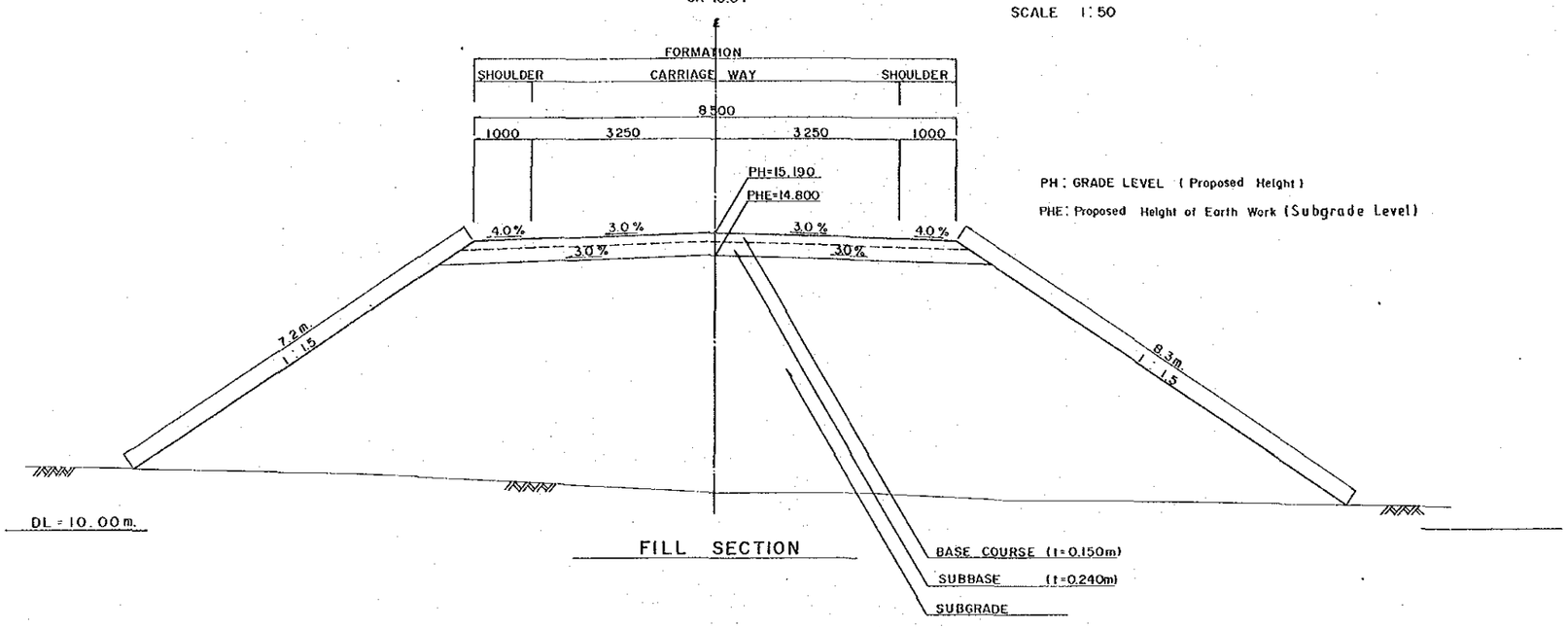
SCALES: 0 1 2 3 4km — 1 : 50000
SHEET 3 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
PLANS LAYOUT, COORDINATES OF CONTROL POINTS AND INTERSECTION POINTS
PAPUA NEW GUINEA DEPARTMENT OF WORKS
DRAWING No. A1/ 87762
REV.

CH. 3 + 000

PH=15.190
GH=10.64

SCALE 1:50



PH : GRADE LEVEL (Proposed Height)

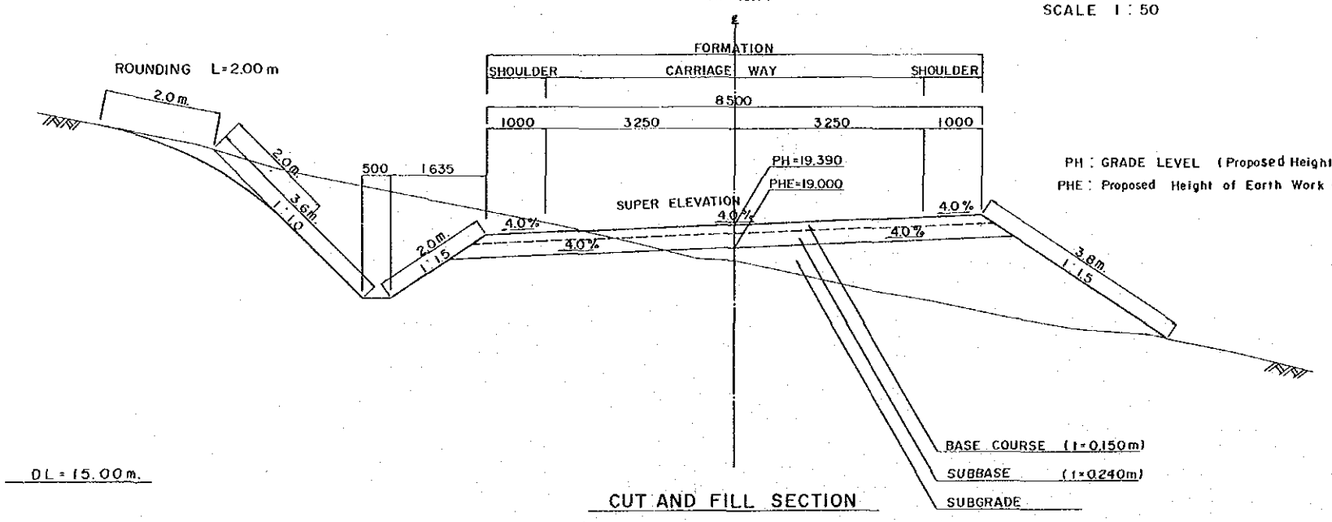
PHE : Proposed Height of Earth Work (Subgrade Level)

FILL SECTION

CH. 4 + 550

PH = 19.390
GH = 18.77

SCALE 1 : 50



PH : GRADE LEVEL (Proposed Height)

PHE : Proposed Height of Earth Work (Subgrade Level.)

CUT AND FILL SECTION

Note: All dimensions are in millimetre unless otherwise stated.

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK No.

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Martin, Principal — 25 Sep. 1989 Date

DRAWN: K.E. — CHECKED — DESIGNED: A. Magaki — CHECKED — PROJECT ENGINEER — EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER

APPROVED 24.10.89 — for SECRETARY

SCALES: AS SHOWN

SHEET 4 OF 281

PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES

TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION

TYPICAL CROSS SECTION (FILL & CUT AND FILL SECTION)

CH. 3+000, CH. 4 + 550

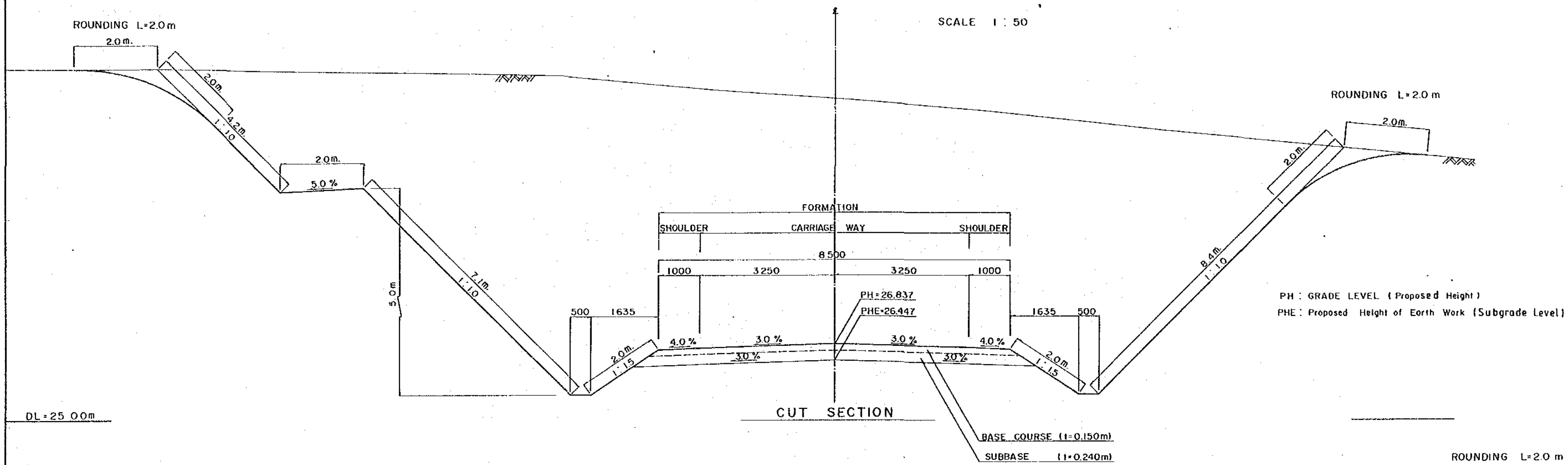
PAPUA NEW GUINEA DEPARTMENT OF WORKS

DRAWING No. A1/ 87763

REV

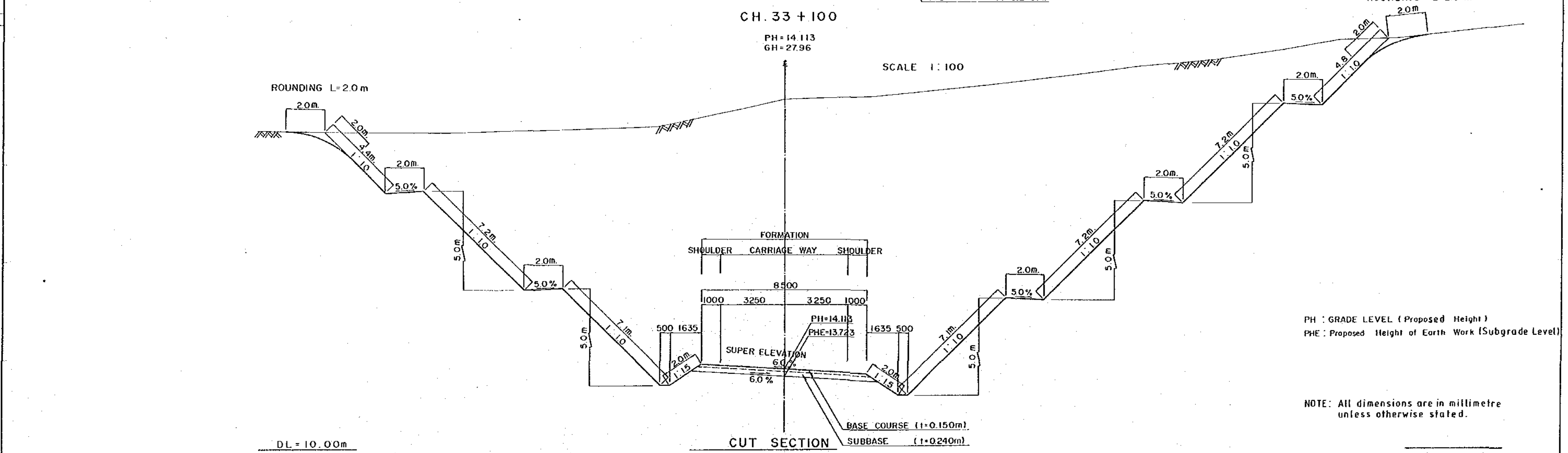
CH. 10 + 100

PH = 26.837
GH = 32.74



CH. 33 + 100

PH = 14.113
GH = 27.96

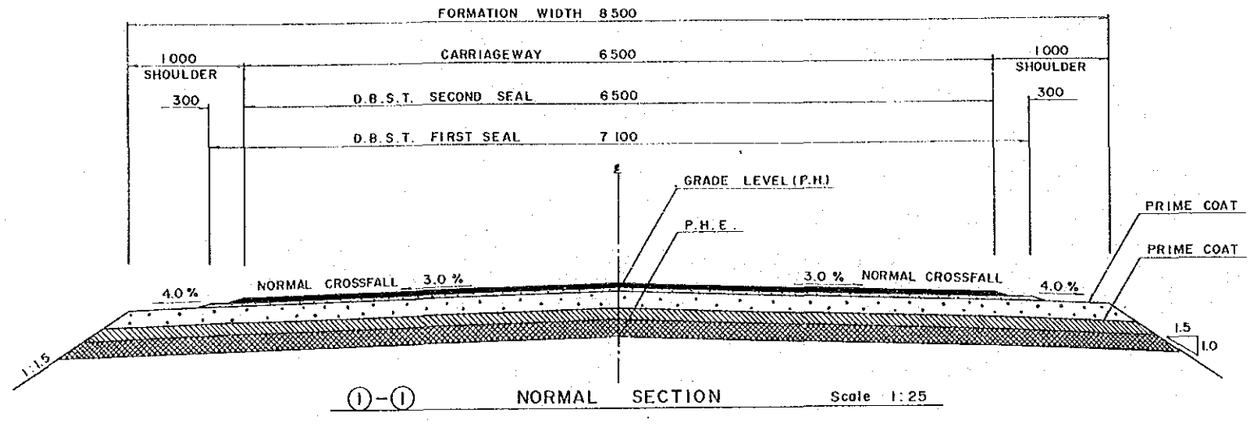


REV. AMENDMENTS BY APP'D DATE	SURVEY: JICA VERTICAL DATUM: MEAN SEA LEVEL HORIZONTAL DATUM SURVEY BOOK No.S	DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY Principal 25 Sep. 1989 Date	DRAWN: K.E. CHECKED DESIGNED: A. Magabio CHECKED	PROJECT ENGINEER EXECUTIVE ENGINEER	RECOMMENDED: PRINCIPAL ENGINEER APPROVED 24.10.89 FAS(T) 1st SECRETARY	SCALES: AS SHOWN SHEET 5 OF 281 PROJECT No. S.C. 120-33-814/A

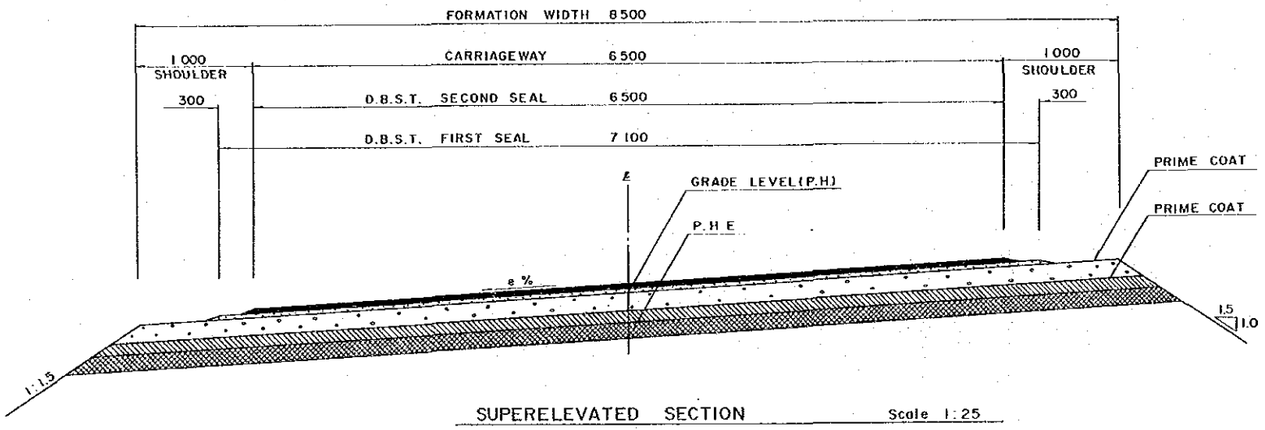
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
TYPICAL CROSS SECTION (CUT SECTION)
CH. 10 + 000, CH 33 + 100

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

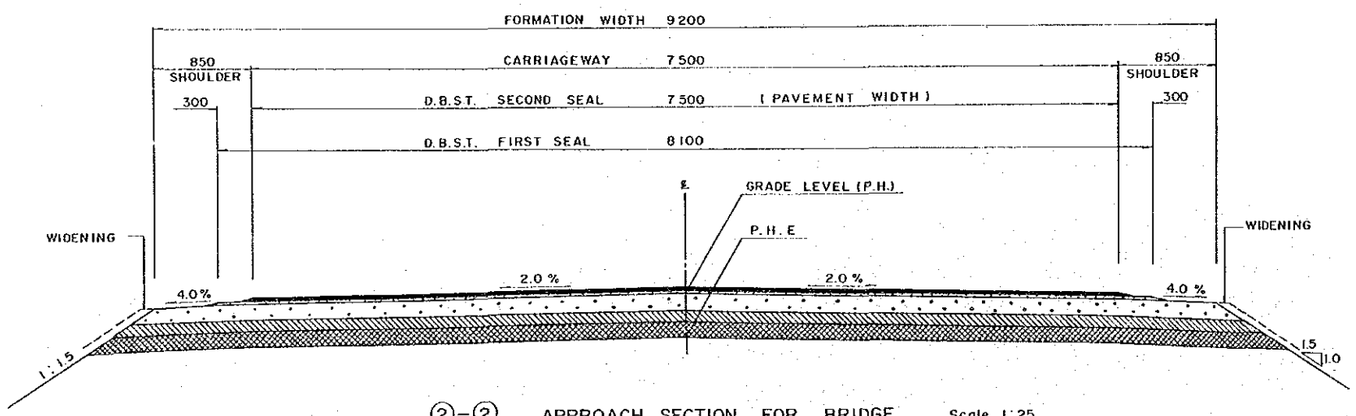
DRAWING No. A1/ 87764



①-① NORMAL SECTION Scale 1:25



SUPERELEVATED SECTION Scale 1:25



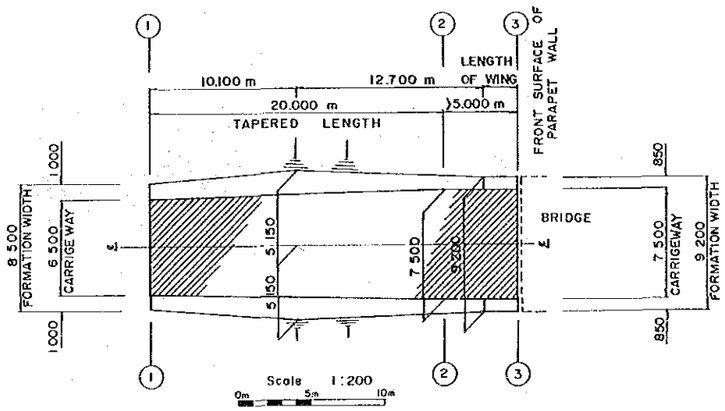
②-② APPROACH SECTION FOR BRIDGE Scale 1:25

CH.0+000 TO CH.33+500

D.B.S.T.

- DOUBLE BITUMINOUS SURFACE TREATMENT ··· SECOND SEAL — Cover aggregate : 9.5mm · 100-135 m²/m³ — Bitumen 170 0.6-1.0 ℓ/m²
- DOUBLE BITUMINOUS SURFACE TREATMENT ··· FIRST SEAL — Cover aggregate : 19mm · 65-85 m²/m³ — Bitumen 170 1.25 1.65 ℓ/m²
- PRIME COAT with Cutback Bitumen : 0.4 ~ 0.8 ℓ/m²
- 150mm COMPACTED BASE COURCE (CRUSHED STONE)
- PRIME COAT with Cutback Bitumen : 0.4 ~ 0.8 ℓ/m²
- 100mm COMPACTED SUBBASE (CEMENT TREATED SANDY GRAVEL)
- 140mm COMPACTED SUBBASE (SANDY GRAVEL)

NOTE : ALL DIMENSIONS ARE IN MILLIMETRES.



LOCATION OF APPROACH SECTION FOR BRIDGE

①	②	③	NAME OF BRIDGE	③'	②'	①'
CH.11 +971	+991	+996.400	TAIENA Br.	CH.12 +014.600	+020	+040
CH.14 +697	+717	+722.900	AGOBINO Br.	CH.14 +744.100	+750	+770
CH.16 +083	+103	+108.861	UNGONGO Br.	CH.16 +130.139	+136	+156

NOTES: ③ & ③' are located front surface of parapet wall.
UNGONGO Br. is skewed.

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK NOS

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Yuhi — Principal — 25 Sep. 1969 Date

DRAWN: K.E. — CHECKED: C. Zeh — DESIGNED: A. Magabi — CHECKED: Z. Kawakami

PROJECT ENGINEER — EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER

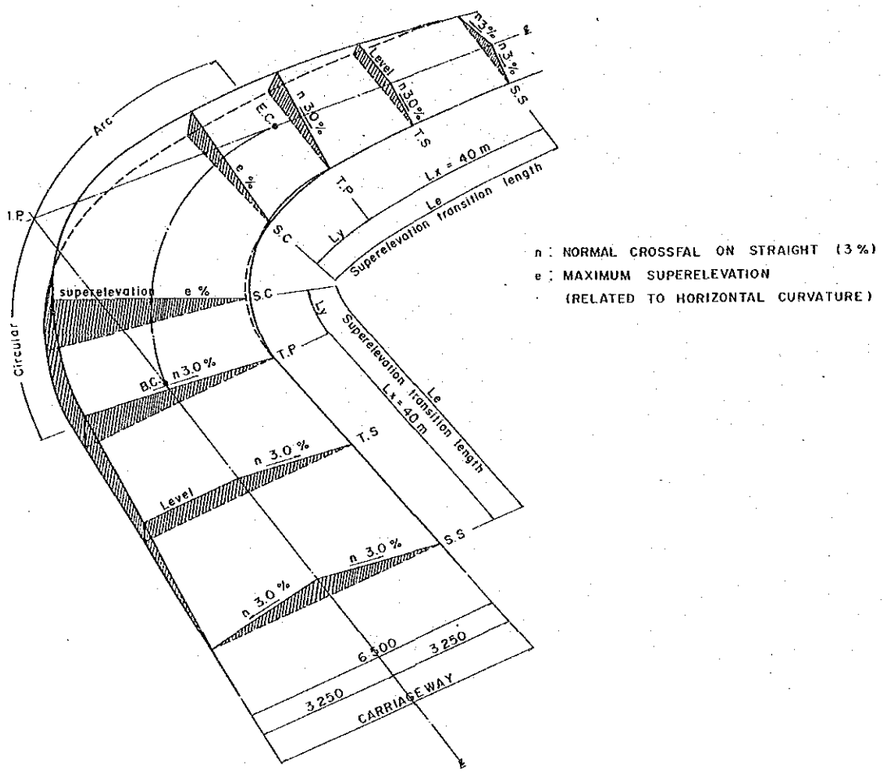
APPROVED 29.10.69 — for (T.Y.) SECRETARY

SCALES: AS SHOWN

SHEET 6 OF 281 — PROJECT No. S.C.120-33-814/A

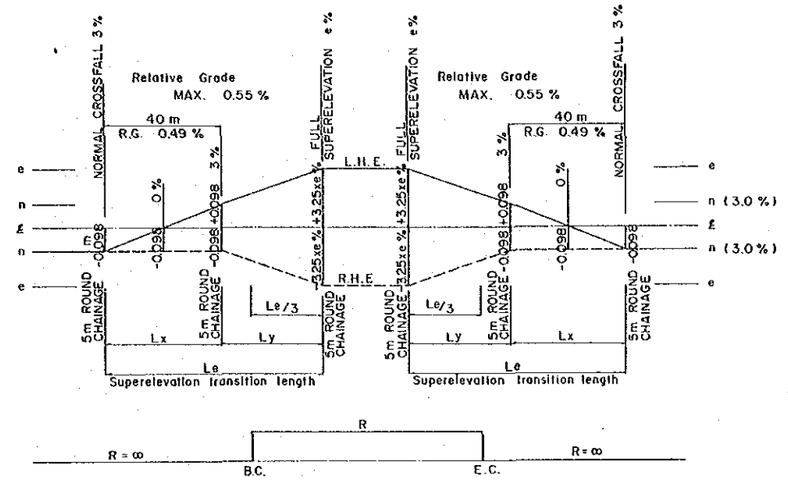
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
TYPICAL PAVEMENT SECTION FOR ROAD
CH. 0+000 TO CH.33+500

PAPUA NEW GUINEA DEPARTMENT OF WORKS — DRAWING No. A1/ 87765 — REV



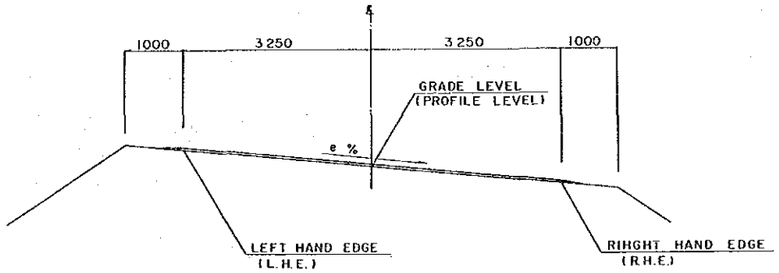
n : NORMAL CROSSFAL ON STRAIGHT (3 %)
e : MAXIMUM SUPERELEVATION
(RELATED TO HORIZONTAL CURVATURE)

DEVELOPMENT OF SUPERELEVATION



SIMPLE CURVE

(STRAIGHT —— CIRCULAR —— STRAIGHT)



SUPERELEVATION RATE e (%)	HORIZONTAL CURVE RADIUS R (m)
10	155 ≦ R < 180
9	180 ≦ R < 220
8	220 ≦ R < 260
7	260 ≦ R < 320
6	320 ≦ R < 420
5	420 ≦ R < 580
4	580 ≦ R < 880
3	880 ≦ R

RATE OF SUPERELEVATION RELATED TO HORIZONTAL CURVATURE

RELATIVE GRADE n(%) ~ n(%) ~ e(%)	Le (m)	Lx (m)	Ly (m)	Le/3 (m)
-3.0 ~ +3.0 ~ +10.0	90	40	50	30
-3.0 ~ +3.0 ~ + 9.0	80	40	40	27
-3.0 ~ +3.0 ~ + 8.0	75	40	35	25
-3.0 ~ +3.0 ~ + 7.0	70	40	30	23
-3.0 ~ +3.0 ~ + 6.0	60	40	20	20
-3.0 ~ +3.0 ~ + 5.0	55	40	15	—
-3.0 ~ +3.0 ~ + 4.0	50	40	10	—
-3.0 ~ +3.0 ~ —	40	40	—	—

RELATIVE LENGTH IN DEVELOPMENT SUPERELEVATION

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK No.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Yahiro, Principal — 25 Sep. 1989 Date

DRAWN: K.E. — CHECKED — DESIGNED: A. Magatio — CHECKED: T. Kawakami

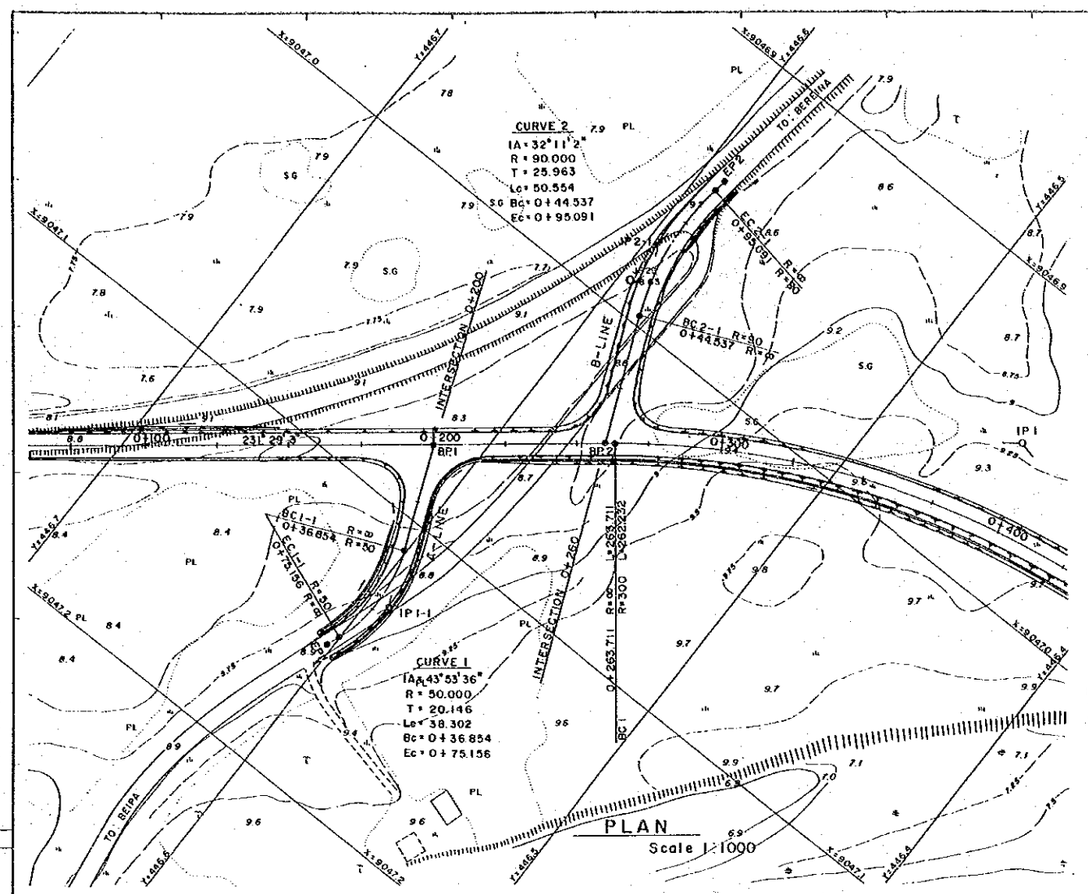
PROJECT ENGINEER — EXECUTIVE ENGINEER

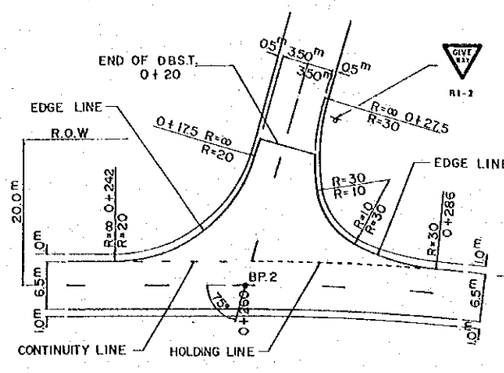
RECOMMENDED: PRINCIPAL ENGINEER — APPROVED: 24.10.89 — for SECRETARY

SCALES: N.T.S.

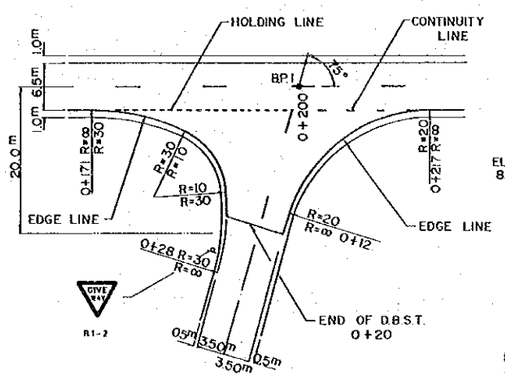
SHEET 7 OF 281 — PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
SUPERELEVATION
PAPUA NEW GUINEA DEPARTMENT OF WORKS — DRAWING No. A1/ 87766 — REV.



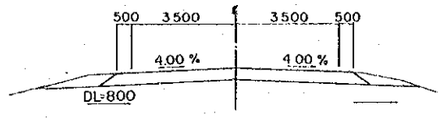


DETAILS OF INTERSECTION 0+260
Scale 1:400



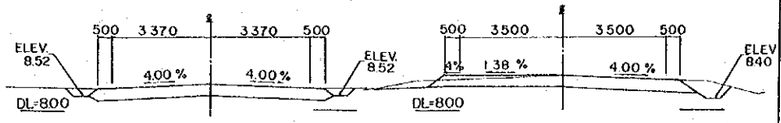
DETAILS OF INTERSECTION 0+200
Scale 1:400

EP.2 (CH.0+100)
PH=9.220 GH=9.22 FILL=0 CUT=4.5 m²



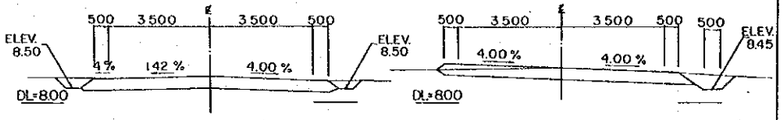
EP.1 (CH.0+80)
PH=8.900 GH=8.90 FILL=0 CUT=3.6 m²

EC.2-1 (CH.0+95.091)
PH=9.210 GH=9.21 FILL=0 CUT=3.9 m²



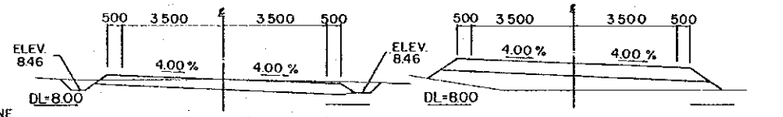
EC.1-1 (CH.0+75.156)
PH=8.892 GH=8.90 FILL=0 CUT=3.9 m²

CH.0+80
PH=9.218 GH=9.19 FILL=0 CUT=3.6 m²



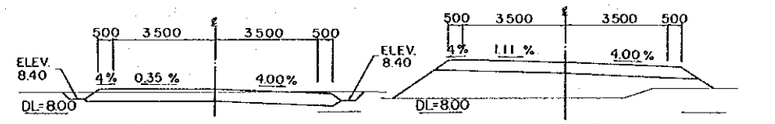
CH.0+60
PH=8.866 GH=8.85 FILL=0 CUT=3.4 m²

CH.0+60
PH=9.427 GH=8.50 FILL=4.5 m² CUT=0



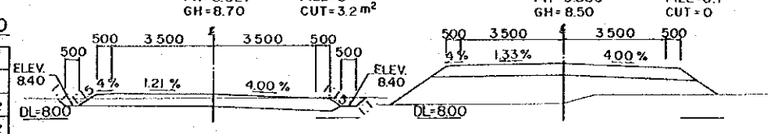
CH.0+40
PH=8.832 GH=8.70 FILL=0 CUT=3.3 m²

BC.2-1 (CH.0+44.537)
PH=9.799 GH=8.50 FILL=7.7 m² CUT=0



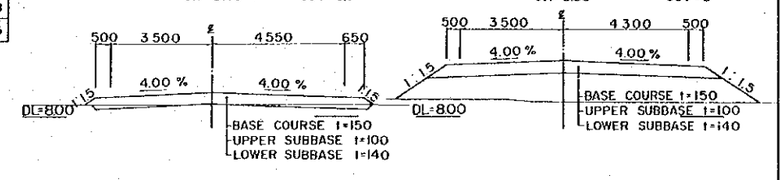
BC.1-1 (CH.0+36.854)
PH=8.827 GH=8.70 FILL=0 CUT=3.2 m²

CH.0+40
PH=9.886 GH=8.50 FILL=8.1 m² CUT=0



CH.0+20
PH=8.818 GH=8.40 FILL=0 CUT=0.7 m²

CH.0+20
PH=9.974 GH=8.50 FILL=9.8 m² CUT=0



APPROACH TO CH.0+200 (A-LINE)

APPROACH TO CH.0+260 (B-LINE)

CROSS SECTIONS
Scale 1:100

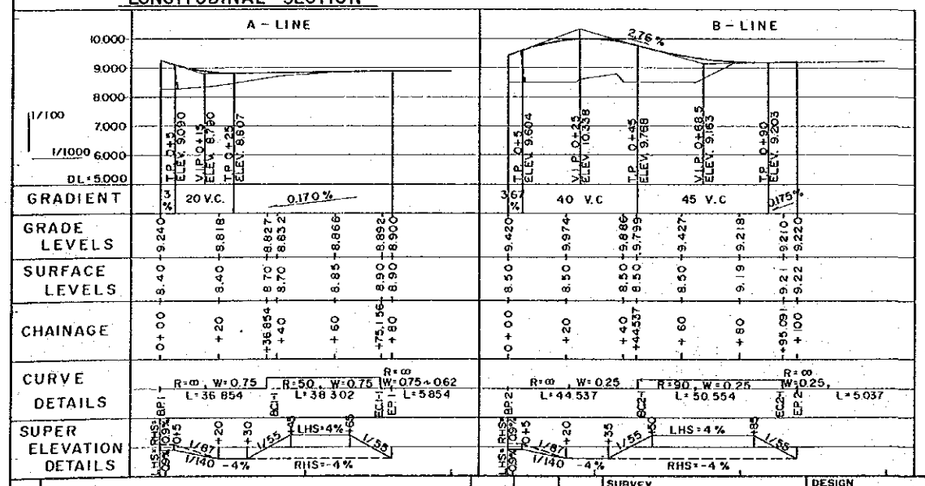
A-LINE DATA

No.	Eastings m	Northings m	Bearing	Distance(m)
B.P. 1	446 615.513	9 047 075.454	336°29'03"	57.000
I.P. 1-1	446 592.770	9 047 127.720	20°22'29"	26.000
E.P. 1	446 601.822	9 047 152.093		

B-LINE DATA

No.	Eastings(m)	Northings(m)	Bearing	Distance(m)
B.P. 2	446 568.567	9 047 038.090	156°29'03"	70.550
I.P. 2-1	446 596.697	9 046 973.445	188°40'05"	31.000
E.P. 2	446 592.025	9 046 942.799		

LONGITUDINAL SECTION



APPROACH TO CH.0+200

CH.	Eastings (m)	Northings(m)
+20	446 607.533	9 047 093.793
BC.1-1 +36.854	446 600.808	9 047 109.247
+40	446 599.645	9 047 112.170
+60	446 596.725	9 047 131.821
EC.1-1 +75.156	446 599.784	9 047 146.605
+80	446 601.471	9 047 151.147

APPROACH TO CH.0+260

CH.	Eastings (m)	Northings (m)
+20	446 576.547	9 047 019.751
+40	446 584.527	9 047 001.412
BC.2-1 +44.537	446 586.337	9 046 997.252
+60	446 591.262	9 046 982.614
+80	446 593.800	9 046 962.817
EC.2-1 +95.091	446 592.784	9 046 947.778
+100	446 592.044	9 046 942.925

NOTE: BITUMINOUS SURFACE TREATMENT AND MARKING SHALL BE TERMINATED AT CH. 0+20 ON THE APPROACH ROAD AT THE INTERSECTIONS.

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK NOS

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Matsui, Principal — 25 Sep. 1989 Date

DRAWN: K.E. — CHECKED — DESIGNED: A. Magalio — CHECKED: T. Kawakami

PROJECT ENGINEER — EXECUTIVE ENGINEER

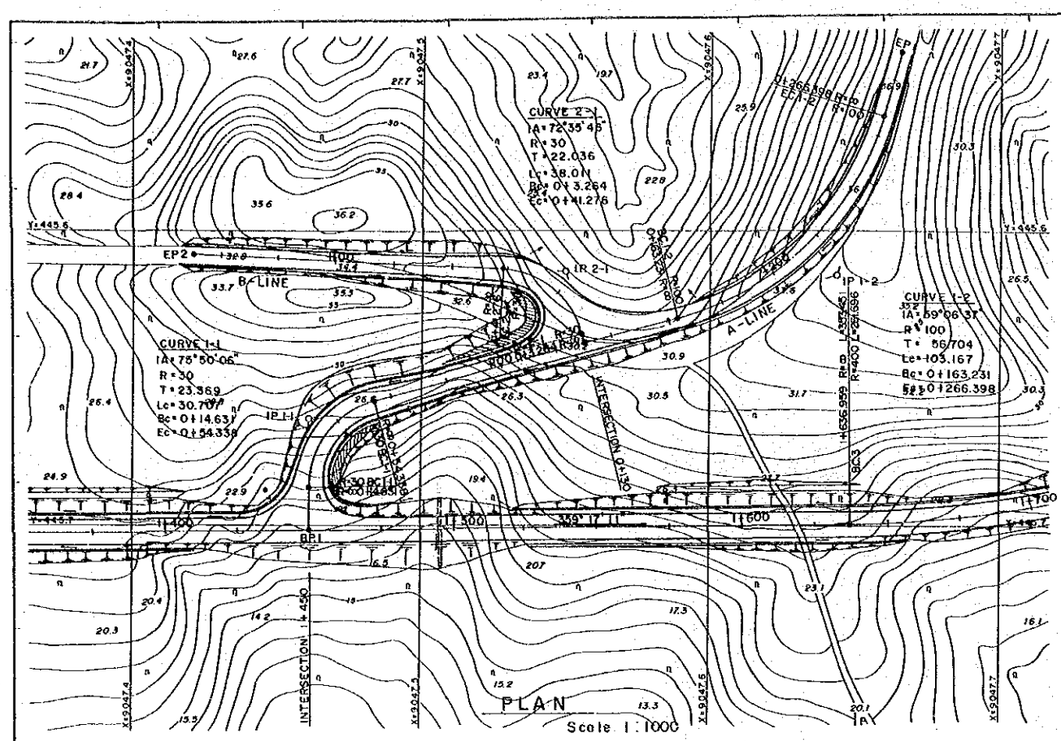
RECOMMENDED: PRINCIPAL ENGINEER — APPROVED: 21.10.89 — SECRETARY

SCALES: AS SHOWN

SHEET 8 OF 281 — PROJECT No. S.C. 120-33-814/A

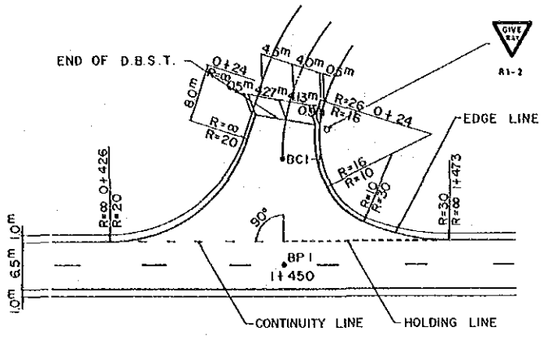
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY (BEREINA-MALALAUA SECTION)
INTERSECTION CH.0+200 & CH.0+260
PLAN, LONGITUDINAL & CROSS SECTIONS

PAPUA NEW GUINEA — DEPARTMENT OF WORKS — DRAWING No. A1/ 87767 — REV.

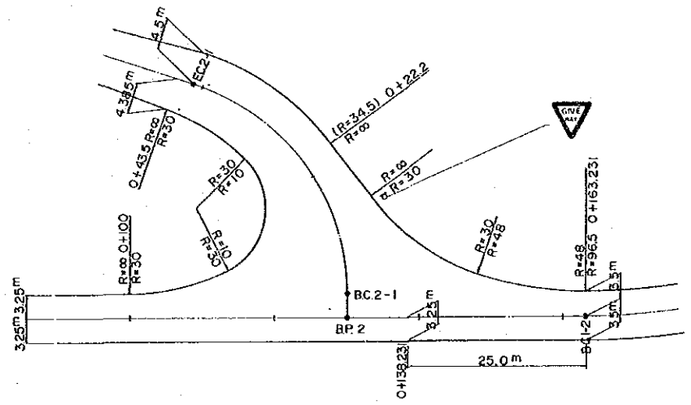


APPROACH ROAD TO MAIN LINE CH.1+450		
CH.	Eastings (m)	Northings (m)
BC.1-1 0+14.631	445 686.889	9 047 461.660
0+20	445 681.543	9 047 462.073
0+40	445 664.313	9 047 471.482
EC.1-1 0+54.338	445 657.521	9 047 483.955
0+60	445 656.067	9 047 489.427
0+80	445 650.932	9 047 508.756
0+100	445 645.796	9 047 528.086
0+120	445 640.661	9 047 547.415
0+130	445 638.093	9 047 557.080
0+140	445 635.525	9 047 566.745
0+160	445 630.390	9 047 586.074
BC.1-2 0+163.231	445 629.560	9 047 589.197
0+180	445 623.919	9 047 604.968
0+200	445 613.870	9 047 622.221
0+220	445 600.594	9 047 637.135
0+240	445 584.620	9 047 649.114
0+260	445 575.817	9 047 635.848
EC.1-2 0+266.398	445 560.495	9 047 659.641
0+280	445 547.421	9 047 663.392
0+290	445 537.809	9 047 666.151

APPROACH ROAD TO A-LINE CH.0+130		
CH.	Eastings (m)	Northings (m)
BC.2-1 0+3.264	445 634.938	9 047 556.242
0+20	445 620.757	9 047 547.768
0+40	445 612.754	9 047 529.842
EC.2-1 0+41.276	445 612.670	9 047 528.569
0+60	445 611.845	9 047 509.863
0+80	445 610.964	9 047 489.883
0+100	445 610.083	9 047 469.902
0+120	445 609.202	9 047 449.921
0+140	445 608.321	9 047 429.941
0+150	445 607.880	9 047 419.951



DETAILS OF INTERSECTION CH.1+450
Scale 1:400

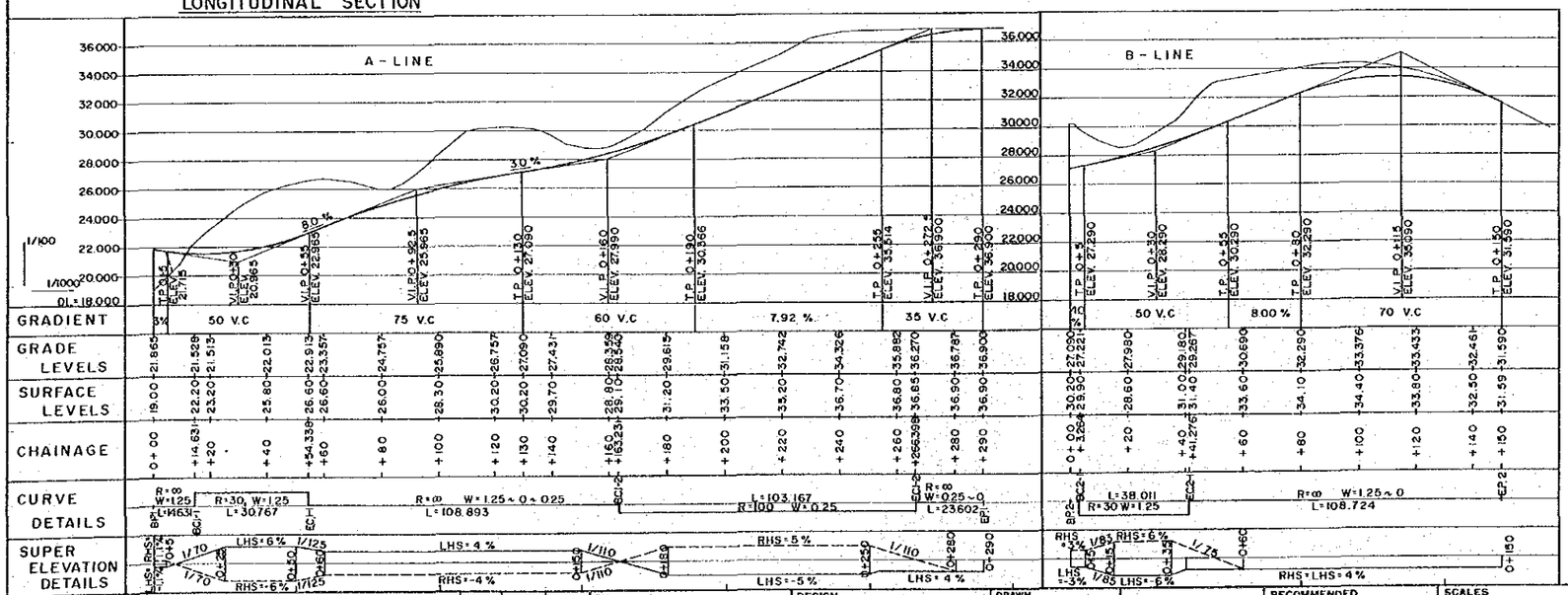


DETAILS OF INTERSECTION CH.0+130 (A LINE)
Scale 1:400

A-LINE DATA				
No.	Eastings (m)	Northings (m)	Bearing	Distance (m)
B.P. 1	445 701.519	9 047 461.842	269°17'11"	38.000
I.P. 1-1	445 663.521	9 047 461.369	345°07'17"	188.966
I.P. 1-2	445 615.000	9 047 644000	286°00'40"	80.306
E.P. 1	445 537.809	9 047 666.151		

B-LINE DATA				
No.	Eastings (m)	Northings (m)	Bearing	Distance (m)
B.P. 1	445 638.093	9 047 557.080	255°07'17"	25.300
I.P. 2-1	445 613.641	9 047 550.584	182°31'31"	130.760
E.P. 2	445 607.880	9 047 419.951		

LONGITUDINAL SECTION



NOTE : DBST PAVEMENT SHALL BE EXTENDED TO CH 0+20 ON THE APPROACH ROAD AT THE INTERSECTION BASE COURSE (t=150) SHALL BE SURFACED OTHER SECTIONS ON THE APPROACH ROAD.

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM
SURVEY BOOK NO.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Hatin — Principal — 25 Sep. 1989 — Date

DRAWN: K.E.
CHECKED
DESIGNED: A. Magata
CHECKED: T. Kawakami

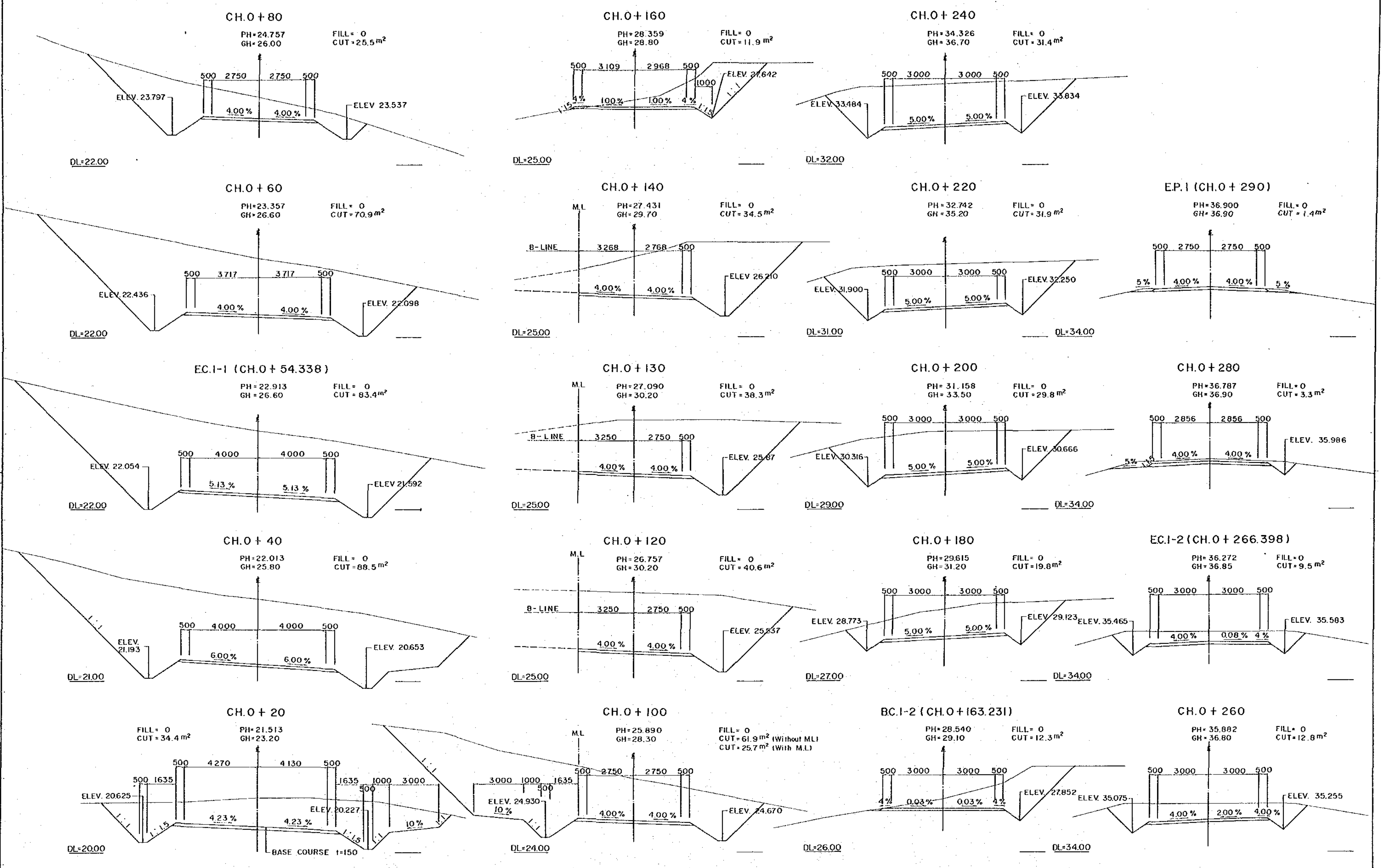
PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER
APPROVED 24.10.89 — SECRETARY

SCALES: AS SHOWN

SHEET 9 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY (BEREINA-MALALAUA SECTION)
INTERSECTION CH.1+450
PLAN & LONGITUDINAL SECTIONS
PAPUA NEW GUINEA DEPARTMENT OF WORKS
DRAWING No. A1/ 87768
REV



REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK No.:

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal — 25 Sep. 1989 Date

DRAWN: K.E.
CHECKED:
DESIGNED: A. Mapalo
CHECKED: T. Kawakami
PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24.10.89 SECRETARY

SCALES: 0 1 2 3 4 5 6 7 8 9 10m
CROSS SECTION 1:100

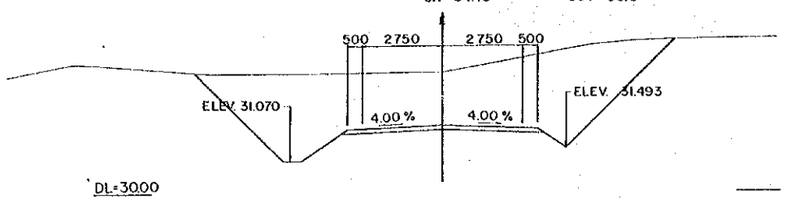
SHEET 10 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY (BEREINA-MALALAUA SECTION)
INTERSECTION CH.1+450
CROSS SECTIONS (A-LINE)

PAPUA NEW GUINEA DEPARTMENT OF WORKS
DRAWING No. A1/ 87769

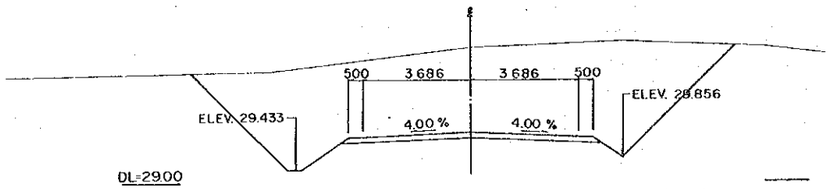
CH.0 + 80

PH = 32.290
GH = 34.10
FILL = 0
CUT = 33.3 m²



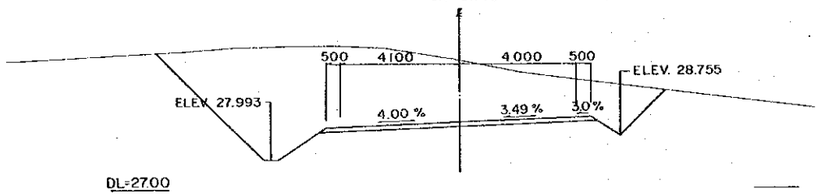
CH.0 + 60

PH = 30.690
GH = 33.60
FILL = 0
CUT = 49.8 m²



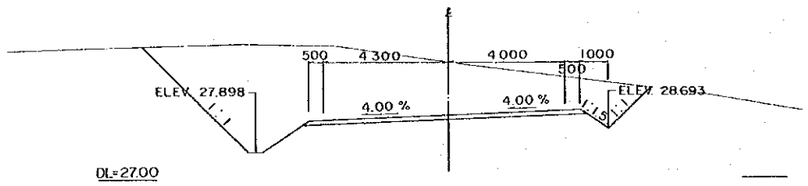
EC.2-1 (CH.0 + 41.276)

PH = 29.267
GH = 31.40
FILL = 0
CUT = 40.4 m²



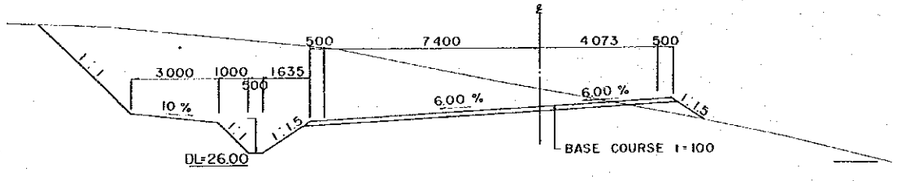
CH.0 + 40

PH = 29.180
GH = 31.00
FILL = 0
CUT = 34.8 m²



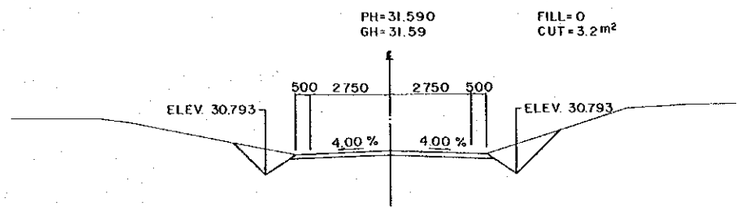
CH.0 + 20

PH = 27.980
GH = 28.60
FILL = 0.6 m²
CUT = 40.7 m²



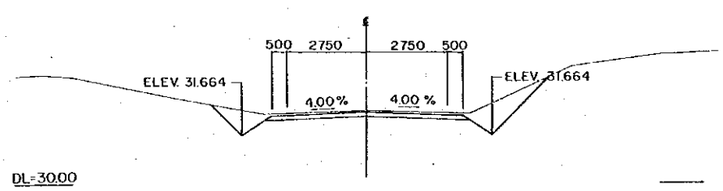
E.P.2 (CH.0 + 150)

PH = 31.590
GH = 31.59
FILL = 0
CUT = 3.2 m²



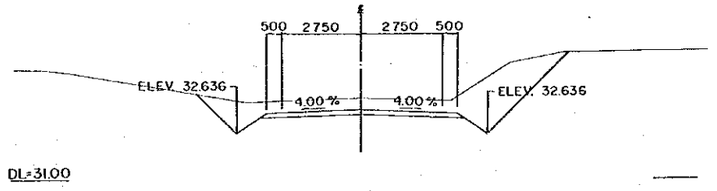
CH.0 + 140

PH = 32.461
GH = 32.50
FILL = 0
CUT = 3.9 m²



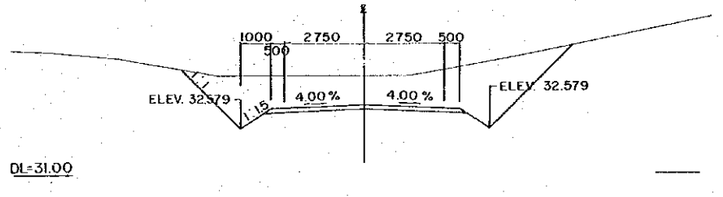
CH.0 + 120

PH = 33.433
GH = 33.80
FILL = 0
CUT = 8.9 m²



CH.0 + 100

PH = 33.376
GH = 34.40
FILL = 0
CUT = 16.4 m²



REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA
Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM
SURVEY BOOK NOS

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Martin, Principal — 25 Sep. 1989, Date

DRAWN: K.E.
CHECKED
DESIGNED: A. Magazino
CHECKED: T. Kuwakami

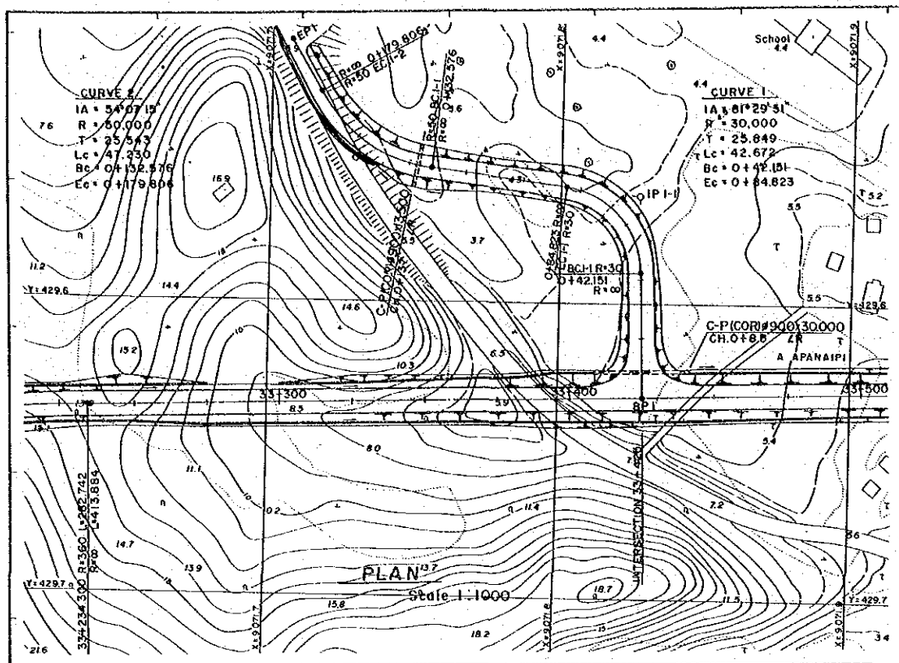
PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24.10.89 — SECRETARY

SCALES: 0 1 2 3 4 5 6 7 8 9 10m
CROSS SECTION 1:100

SHEET 11 OF 281
PROJECT No. S.C. 120-33-814/A

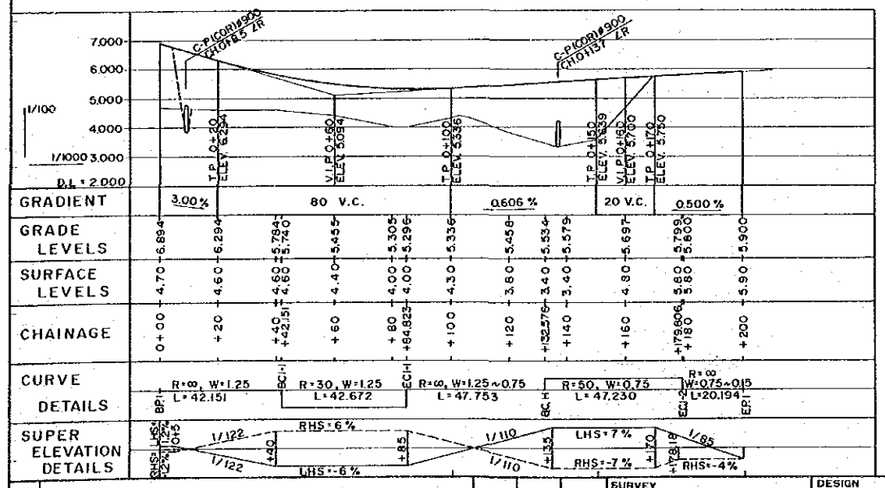
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY (BEREINA-MALALAUA SECTION)
INTERSECTION CH.1+450
CROSS SECTIONS (B-LINE)
PAPUA NEW GUINEA
DEPARTMENT OF WORKS
DRAWING No. A1/ 87770
REV.

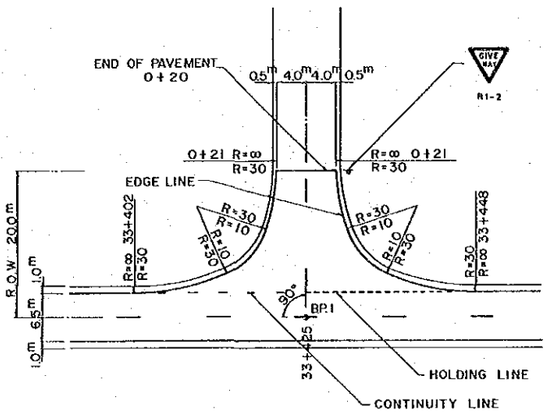


I.P. DATA				
No.	Eastings (e)	Northings (n)	Bearing	Distance(m)
B.P. 1	429 631.546	9 071 829.198	268°29'25"	68.000
I.P. 1-1	429 563.570	9 071 827.407	186°59'33"	99.144
I.P. 1-2	429 551.500	9 071 729.000	241°06'48"	45.737
E.P. 1	429 511.454	9 071 706.905		

CH.	Eastng (e)	Northing (n)
+ 20	429 611.553	9 071 828.671
+ 40	429 591.560	9 071 828.144
BC I-1 +42.151	429 589.410	9 071 828.088
+ 60	429 572.737	9 071 822.492
+ 80	429 561.392	9 071 806.470
EC I-1 +84.823	429 560.423	9 071 801.750
+100	429 558.576	9 071 786.687
+120	429 556.141	9 071 766.836
BC I-2 +132.576	429 554.610	9 071 754.353
+140	429 553.163	9 071 747.078
+160	429 544.157	9 071 729.370
EC I-2 +179.806	429 529.135	9 071 716.661
+180	429 528.965	9 071 716.567
+200	429 511.454	9 071 706.905

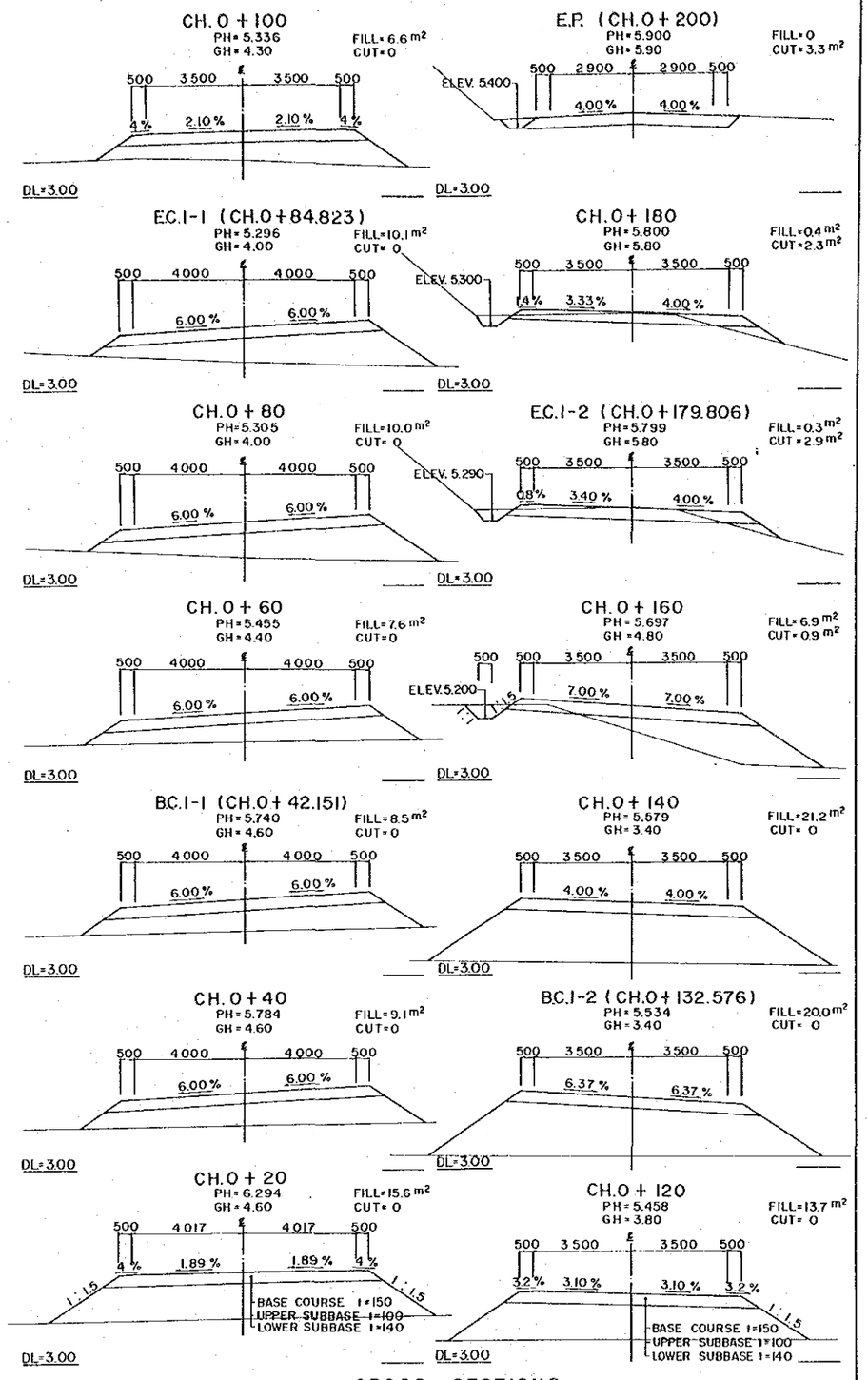
LONGITUDINAL SECTION





DETAILS OF INTERSECTION
Scale 1:400

NOTE: BITUMINOU SURFACE TREATMENT AND MARKING SHALL BE TERMINATED AT CH.0+20 ON THE APPROACH ROAD AT THE INTERSECTION.



CROSS SECTIONS
Scale 1:100

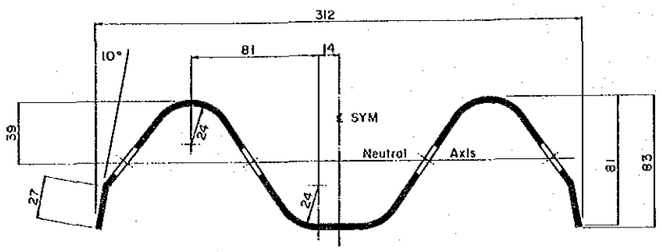
REV.	AMENDMENTS	BY	APP'D	DATE	SURVEY: JICA; Date; VERTICAL DATUM: MEAN SEA LEVEL; HORIZONTAL DATUM; SURVEY BOOK NR.8	DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY; J. Yanai, Principal, 25 Sep. 1989, Date	DRAWN: K.E.; CHECKED; DESIGNED: A. Magabi; CHECKED: T. Kawakami

RECOMMENDED: PROJECT ENGINEER; PRINCIPAL ENGINEER
APPROVED: 24.10.89; EXECUTIVE ENGINEER; pas(ts) SECRETARY

SCALES: AS SHOWN

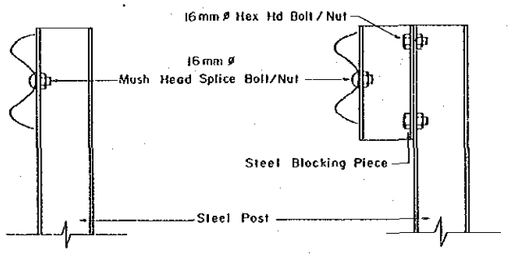
SHEET 12 OF 281 | PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY (BEREINA-MALALAUA SECTION)
INTERSECTION CH.33+425
PLAN, LONGITUDINAL & CROSS SECTIONS
PAPUA NEW GUINEA DEPARTMENT OF WORKS | DRAWING No. A1/ 87771

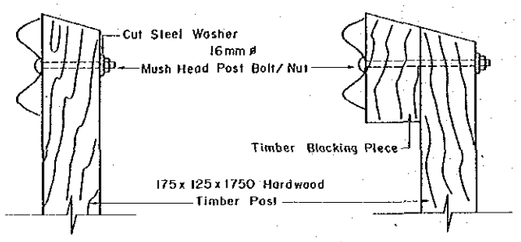


T mm	A mm²	Z x 10³ mm³		I x 10⁶ mm⁴		Wt/m kg
2·7	1284	H22·45	V80·30	H0·9615	V12·49	10·29

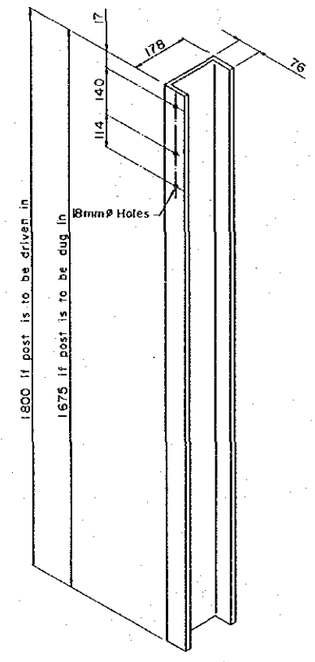
DIMENSIONS AND PHYSICAL PROPERTIES OF GUARDRAIL



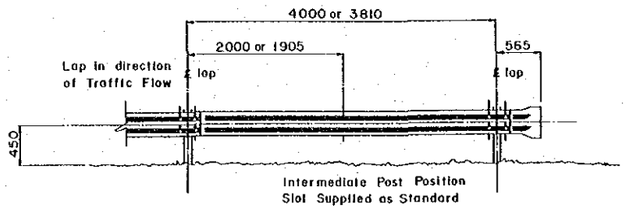
STEEL POST AS NORMALLY SUPPLIED WITH GUARDRAIL



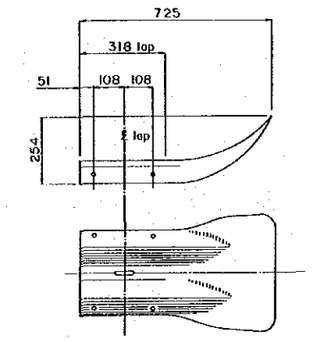
ALTERNATIVE TIMBER POSTS



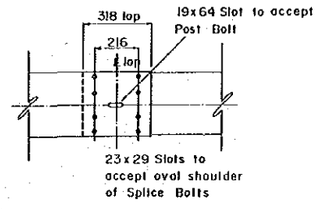
STANDARD POSTS



INSTALLATION



STANDARD TERMINAL SECTION



RAIL SPLICE

NOTES

1. Guardrail to be installed as per manufacturers recomendations and to the specification.
2. Where the guardrail is galvanized the following paint treatment shall be applied
   a) Pretreat with "Dulux Lithoform N° 2" or approved equivalent.
   b) 1 coat of "Dulux PI Primer" or approved equivalent to a dry film thickness of 50 microns.
   c) 2 coats of "Dulux Duraclor" or approved equivalent to a dry film thickness of 38 microns per coat.
3. Where the guardrail is not galvanized the paint treatment shall be 2b anb 2c above.
4. Guardrail posts shall be treated in accordance with the specification.

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK No.S:

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal — 25 Sep. 1989 Date

DRAWN: K. E.
CHECKED:
DESIGNED: A. Magaro
CHECKED: T. Kawakami

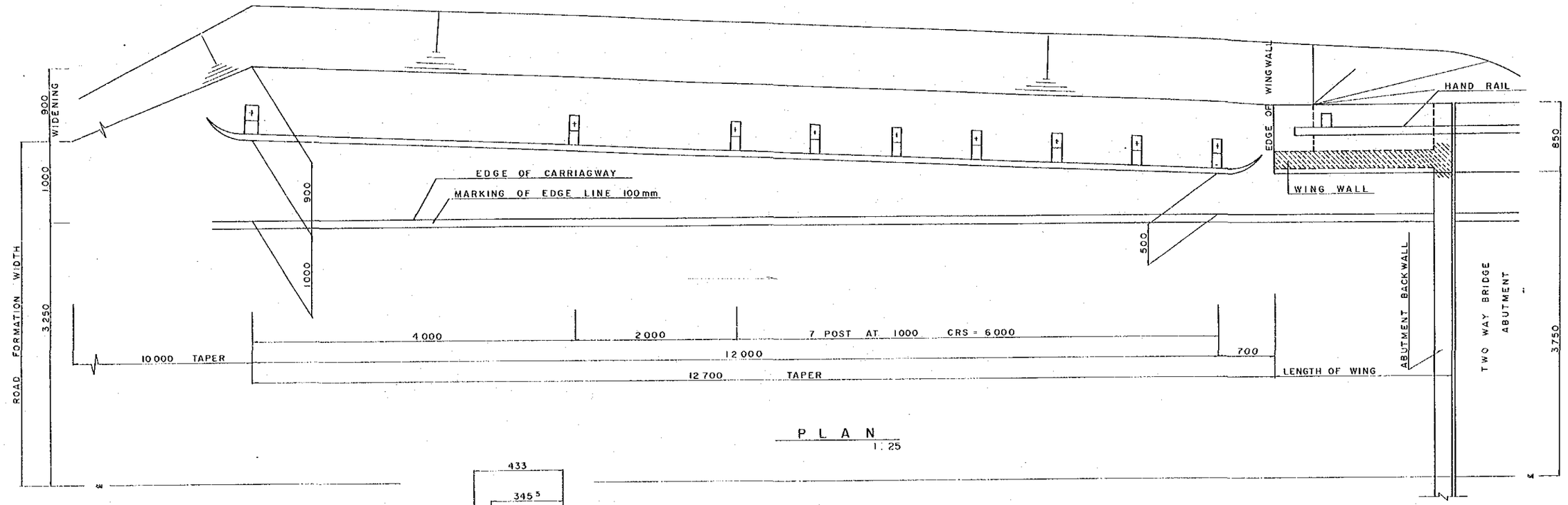
PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 21.10.89 — for SECRETARY

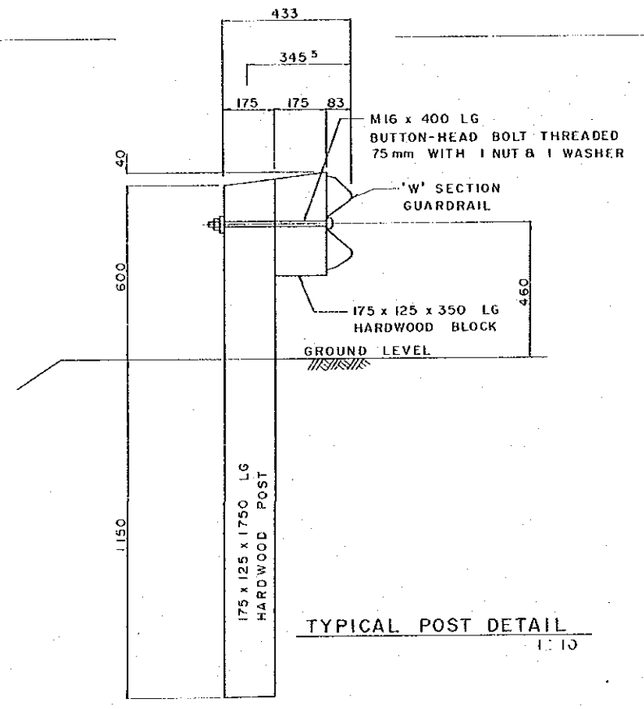
SCALES

SHEET 13 OF 281
PROJECT No. S.C. 120-33-81-1/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
STANDARD GUARDRAIL
PAPUA NEW GUINEA DEPARTMENT OF WORKS
DRAWING No. A1/ 87772
REV.



PLAN
1:25



TYPICAL POST DETAIL
1:10

TOTAL QUANTITIES PER BRIDGE

BRIDGE	GUARDRAIL			
	ONE SECTION LENGTH (m)	TOTAL		
		POSTS (NO) *	4m LENGTHS OF GUARDRAIL (NO)	GUARDRAIL END SECTIONS (NO)
TWO WAY BRIDGE	12	36	12	8

* INCLUDES BLOCKS & MIG BOLTS

NOTES

1 All GUARDRAILS ARE TO BE GALVANIZED
NO PAINTING REQUIRED UNLESS SPECIFIED OTHERWISE

2 GUARDRAIL POSTS SHALL BE SUPPLIED AND TREATED IN ACCORDANCE WITH THE SPECIFICATION, CLAUSE 8.2.2.

3 ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED

REV	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM
SURVEY BOOK NOS

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Herbert — Principal — 25 Sep. 1989 — Date

DRAWN: K.E.
CHECKED: C. Zeki
DESIGNED: A. Magabie
CHECKED: T. Kawakami

PROJECT ENGINEER
EXECUTIVE ENGINEER

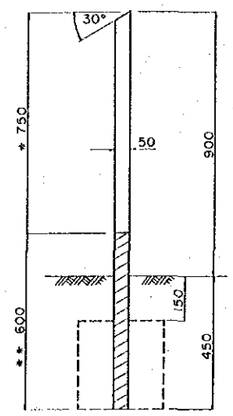
RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24.10.89 — for SECRETARY

SCALES: AS SHOWN
SHEET 11 OF 281
PROJECT No. S.C. 120-33-811/A

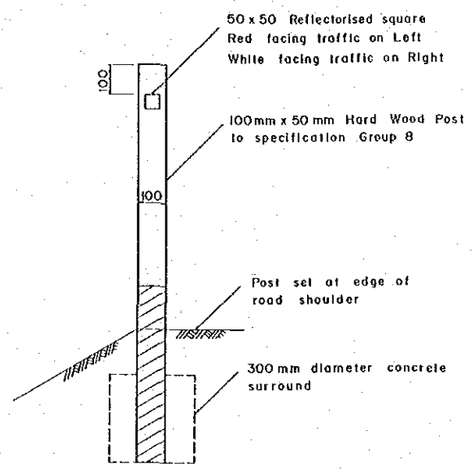
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY (BEREINA-MALALAUA SECTION)
GUARDRAIL DETAILS
(APPROACH FOR TWO WAY BRIDGE)
PAPUA NEW GUINEA
DEPARTMENT OF WORKS
DRAWING No. A1 87773

* Upper 750 mm to be primed and painted with 1 coat of white undercoat and 1 coat of white enamel

** Lower 600 mm to be treated with 3 liberal coats of Creosote (3 hours drying time between coats)



SIDE VIEW
1 : 10



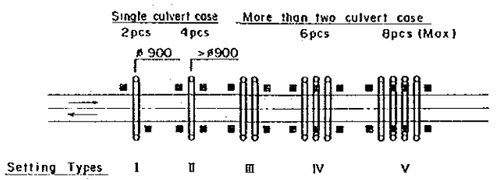
VIEW FROM APPROACHING TRAFFIC
1 : 10

SPACING OF ROAD EDGE GUIDE POSTS

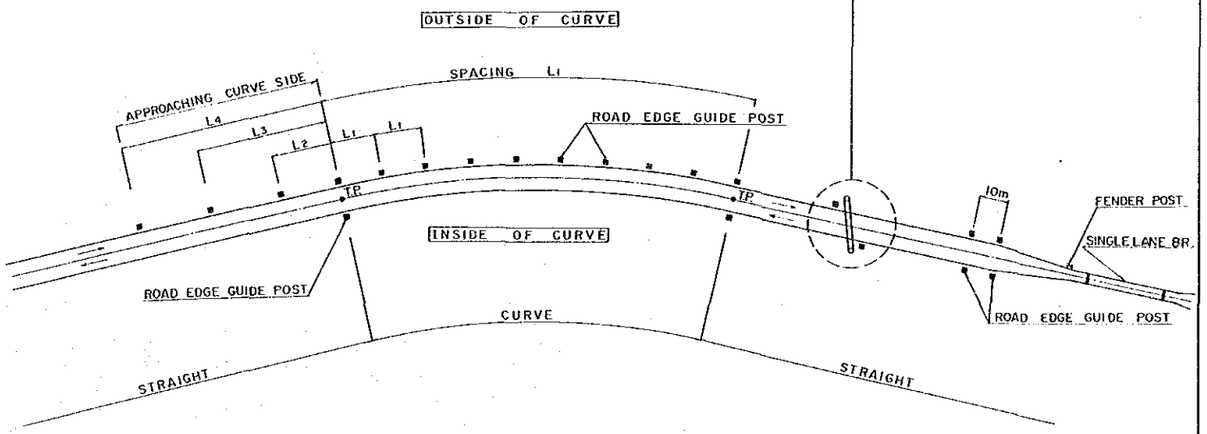
SPACING ON OUTER EDGE OF THE CURVES

RADIUS		SPACING ON OUTSIDE OF CURVE L1	DISTANCE FROM TP ON APPROACH L2	L3	L4	TYPE OF SETTING SPACING
30		6	8	18	30	
31	50	8	10	25	40	
51	100	10	12	30	50	
101	200	12	15	35	60	A
201	300	15	20	45	70	B
301	400	20	30	60	—	C
401	500	30	40	—	—	D
501	600	40	60	—	—	E
601	1000	60	—	—	—	F
1001	2000	100	—	—	—	G
OVER	2000	—	—	—	—	

1. CURVES
   INSIDE OF CURVES
   To be placed at tangent points (TP)
   OUTSIDE OF CURVES
   To be placed at tangent points at even intervals around the curve and at approaches to curves as set out in the table.
2. PIPE CULVERTS
   At inlet and outlets on the approach side of the less than 900ϕ single culvert
   Multiple culverts and/or more than 900ϕ single culverts to be placed as figure below.
3. SINGLE LANE BRIDGE
   In pairs at commencement of taper in width of formation and 10m. before.



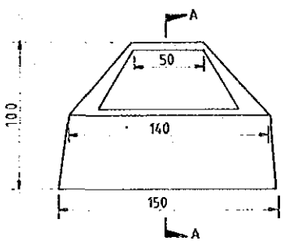
AT PIPE CULVERTS
N.T.S



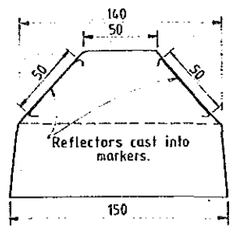
LOCATION OF ROAD EDGE GUIDE POSTS
1 : 1000

NOTES

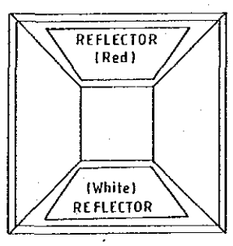
1. Scale 1:2 unless shown otherwise.
2. Markers to be painted with two coats of road paint (WHITE.)
3. Concrete Grade 15
4. Reflectors to be coated aluminium colours conforming to Australian Standard AS 1743 1975
5. All dimensions in millimetres
6. Spacing of road edge guide markers on straights, crests inside of curves culverts and bridges shall be in accordance with AS 1742 Part 2 - 1982
7. Spacing of road edge guide markers on on outside of curves shall be as set out in the tabe below.
8. To be placed at tangent point on both sides.



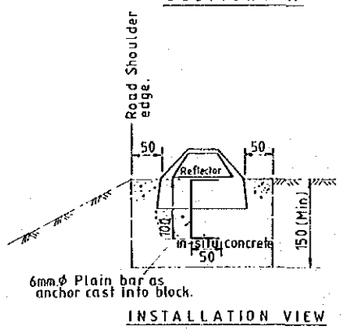
ELEVATION



SECTION A-A



PLAN



INSTALLATION VIEW

RADIUS	SPACING ON OUTSIDE OF CURVES
30	6
31 50	8
51 100	10
101 200	12
201 300	15
301 400	20
401 500	30
501 600	40
601 1000	60
1001 2000	100
OVER 2000	150

ROAD EDGE MARKERS
1:5

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NO.S:

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal — Date

DRAWN: K.E.
CHECKED:
DESIGNED: A. Nagabi
CHECKED: T. Kawakami

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24.10.85
SECRETARY

SCALES: AS SHOWN

SHEET 15 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION

ROAD EDGE GUIDE POST & ROAD EDGE MARKERS

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1 / 87774

REV.

SCHEDULE OF ROAD EDGE GUIDE POST

CURVES

CURVE NO	CHAINAGE		SETTING TYPE	QUANTITY (NOS)			
	BEGINNING OF CURVE	END OF CURVE		APPROACH SIDE	TANGENT POINT	OUTSIDE OF CURVE	TOTAL
1	0+263.711	0+525.943	B	3	4	17	24
2	0+957.956	1+283.508	B	3	4	21	28
3	1+636.959	1+898.655	C	2	4	13	19
4	2+142.689	2+384.591	C	2	4	12	18
5	2+571.086	2+722.205	C	2	4	7	13
6	3+623.539	4+051.170	F	0	4	7	11
7	4+286.097	4+679.866	F	0	4	6	10
8	4+774.965	5+003.045	D	1	4	7	12
9	5+098.342	5+448.676	E	1	4	8	13
10	5+650.165	5+956.831	E	1	4	7	12
11	6+192.009	6+610.443	F	0	4	6	10
12	7+461.859	7+865.661	B	3	4	26	33
13	7+997.580	8+358.748	C	2	4	18	24
14	8+785.088	9+136.429	C	2	4	17	23
15	9+499.361	9+654.804	D	1	4	5	10
16	9+970.112	10+240.334	F	0	4	4	8
17	10+709.747	11+001.253	F	0	4	4	8
18	11+561.776	11+781.093	F	0	4	3	7
19	12+808.364	13+032.189	F	0	4	3	7
20	13+367.921	13+685.535	G	0	4	3	7
22	14+940.006	15+235.337	C	2	4	14	20
23	15+512.537	15+840.627	C	2	4	16	22
24	16+600.768	17+113.827	D	1	4	17	22
25	17+505.221	17+782.889	F	0	4	4	8
26	18+795.869	19+158.038	F	0	4	6	10
27	19+462.984	19+724.183	B	3	4	17	24
28	20+281.209	20+664.881	D	1	4	12	17
29	21+207.968	21+428.192	D	1	4	7	12
31	22+784.722	23+098.556	C	2	4	15	21
32	23+626.747	23+872.668	B	3	4	16	23
33	24+242.610	24+517.243	F	0	4	4	8
34	24+662.948	24+880035	B	3	4	14	21
35	25+033.688	25+391.146	B	3	4	23	30
36	25+708.261	25+877.065	C	2	4	8	14
37	26+136.799	26+324.452	A	3	4	15	22
38	27+460.637	27+709.667	B	3	4	16	23
39	27+805.062	28+038.031	B	3	4	15	22
40	28+532.690	28+800.686	B	3	4	17	24
41	28+886.549	29+242.627	B	3	4	23	30
42	29+344.019	29+543.081	C	2	4	9	15
43	30+337.297	30+617.992	D	1	4	9	14
44	30+978.455	31+230.978	C	2	4	12	18
45	31+629.921	31+929.182	C	2	4	14	20
46	32+137.620	32+426.816	B	3	4	19	26
47	32+544.848	32+691.313	D	1	4	4	9
48	32+951.558	33+234.300	C	2	4	14	20

PIPE CULVERTS

REF. NO.	CHAINAGE	DIA. OF PIPE (m/m)	NO. OF BARRELS	TYPE OF SETTING	REMARKS
1	0 + 520	900	1	I	
2	0 + 865	1 500	3	IV	
3	1 + 200	900	1	I	
4	1 + 495	900	1	I	
5	1 + 875	1 200	1	II	
6	2 + 303	1 200	1	II	
7	2 + 446	1 500	1	II	
8	2 + 762	900	1	I	
9	3 + 045	1 800	1	II	
10	3 + 457	1 500	1	II	
11	3 + 775	2 100	1	II	
12	3 + 965	2 100	2	III	
13	4 + 225	900	1	I	
14	4 + 450	1 200	1	II	
15	4 + 717	900	1	I	
16	4 + 950	2 100	1	II	
17	5 + 165	900	1	I	
18	5 + 275	900	1	I	
19	5 + 520	2 100	3	IV	
20	5 + 670	900	1	I	
21	6 + 015	2 100	1	II	
22	6 + 175	1 800	1	II	
23	6 + 745	1 200	1	II	
24	6 + 908	1 200	1	II	
25	7 + 125	2 100	4	V	
26	7 + 650	2 100	1	II	
27	7 + 840	1 200	1	II	
28	8 + 350	1 500	1	II	
29	8 + 755	1 200	1	II	
30	9 + 155	2 100	2	III	
31	9 + 238	2 100	1	II	
32	9 + 425	900	1	I	
33	9 + 699	2 100	2	III	
34	10 + 312	2 100	2	III	
35	10 + 563	2 100	1	II	
36	11 + 043	1 800	1	II	
37	11 + 202	1 200	1	II	
38	11 + 545	1 800	2	III	
39	11 + 915	900	1	I	
40	12 + 333	900	1	I	
41	12 + 760	2 100	1	II	
42	13 + 045	2 100	1	II	
43	13 + 344	900	1	I	
44	13 + 425	900	1	I	
45	13 + 702	1 800	2	III	
46	13 + 845	900	1	I	
47	13 + 925	900	1	I	
48	14 + 386	900	1	I	
49	14 + 869	2 100	1	II	
50	15 + 184	900	1	I	

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM
SURVEY BOOK NO.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Martin — Principal — 25 Sep. 1989 — Date

DRAWN: K.E.
CHECKED: C.Z.A.
DESIGNED: A Magallo
CHECKED: T. Kaneko

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED 24 Jan. 89: for (T) SECRETARY

SCALES

SHEET 16 OF 281
PROJECT No. S.C. 120-33-811/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
SCHEDULE OF ROAD EDGE GUIDE POST
CH. 0+000 – CH. 33+500 1/2

PAPUA NEW GUINEA DEPARTMENT OF WORKS
DRAWING No. A1 87775
REV.

SCHEDULE OF ROAD EDGE GUIDE POST

PIPE CULVERTS

REF. NO.	CHAINAGE	DIA. OF PIPE (m/m)	NO. OF BARRELS	TYPE OF SETTING	REMARKS
51	15 + 442	1 800	1	II	
52	15 + 786	1 200	1	II	
53	15 + 948	900	1	I	
54	16 + 356	2 100	6	V	
55	16 + 450	2 100	6	V	
56	16 + 925	900	1	I	
57	17 + 016	900	1	I	
58	17 + 243	1 200	1	II	
59	17 + 457	1 500	1	II	
60	17 + 537	1 500	1	II	
61	17 + 821	900	1	I	
62	18 + 092	2 100	3	IV	
63	18 + 475	1 200	1	II	
64	18 + 650	1 200	1	II	
65	18 + 898	900	1	I	
66	19 + 274	2 100	1	II	
67	19 + 789	1 200	1	II	
68	20 + 005	1 800	2	III	
69	20 + 330	1 200	1	II	
70	20 + 677	2 100	2	III	
71	21 + 155	1 200	1	II	
72	21 + 369	900	1	I	
73	21 + 454	900	1	I	
74	21 + 716	2 100	3	IV	
75	22 + 087	900	1	I	
76	22 + 444	1 800	1	II	
77	22 + 761	1 200	1	II	
78	23 + 085	2 100	1	II	
79	23 + 659	2 100	1	II	
80	24 + 091	2 100	3	IV	
81	24 + 517	900	1	I	
82	24 + 773	900	1	I	
83	24 + 965	900	1	I	
84	25 + 169	900	1	I	
85	25 + 480	2 100	1	II	
86	25 + 965	2 100	2	III	
87	26 + 080	2 100	2	III	
88	26 + 314	900	1	I	
89	26 + 600	2 100	2	III	
90	26 + 992	2 100	1	II	
91	27 + 187	900	1	I	
92	27 + 335	900	1	I	
93	27 + 493	900	1	I	
94	27 + 835	2 100	3	IV	
95	28 + 161	1 200	1	II	
96	28 + 334	900	1	I	
97	28 + 720	2 100	2	III	
98	28 + 867	2 100	1	II	
99	29 + 200	1 200	1	II	
100	29 + 505	1 800	2	III	

PIPE CULVERTS

REF. NO.	CHAINAGE	DIA. OF PIPE (m/m)	NO. OF BARRELS	TYPE OF SETTING	REMARKS
101	29 + 654	900	1	I	
102	29 + 900	2 100	1	II	
103	30 + 112	900	1	I	
104	30 + 405	2 100	1	II	
105	30 + 523	2 100	1	II	
106	30 + 713	1 500	1	II	
107	30 + 910	900	1	I	
108	31 + 204	2 100	3	IV	
109	31 + 625	900	1	I	
110	32 + 035	900	1	I	
111	32 + 275	900	1	I	
112	32 + 425	900	1	I	
113	32 + 775	2 100	2	III	
114	32 + 950	2 100	1	II	

SIDE DITCH PIPE CULVERTS

REF. NO.	CHAINAGE	DIA. OF PIPE (m/m)	NO. OF BARRELS	TYPE OF SETTING	REMARKS
1001	33 + 348	900	1	I	LHS 80m.
1002	33+410 ~ 33+440	900	1	I	LHS

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK NO.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — Principal — 25 Sep. 1969 Date

DRAWN: K.E. — CHECKED — DESIGNED: A. Magaki — CHECKED: T. Kawakami

PROJECT ENGINEER — EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER

APPROVED 2t. 10. 83 — 585(11) — SECRETARY

SCALES

SHEET 17 OF 281

PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES

TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION

SCHEDULE OF ROAD EDGE GUIDE POST

CH. 0+000 — CH. 33+500 2/2

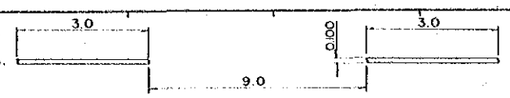
PAPUA NEW GUINEA DEPARTMENT OF WORKS

DRAWING No. A1/ 87776

REV.

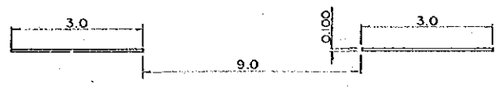
(1) SEPARATION LINE

To Separate opposing traffic movements. Overtaking or right turning movements may be made across it in both directions. On multi lane roads, the line segment to gap proportions may be reversed to distinguish the separation line from lane lines.



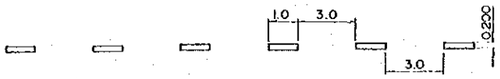
(2) LANE LINES

To indicate the portion of the road assigned to a single file of vehicles moving in one direction. Overtaking and right turning movements may be made across it.



(3) CONTINUITY LINE

To indicate the edge of that portion of a carriageway assigned to through traffic, and which is intended to be crossed by traffic turning at an intersection, or entering or leaving an auxiliary lane at its start or finish.

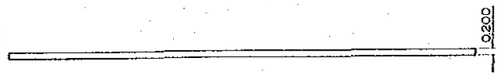


(4) LANE LINES

To separate lanes of traffic moving in the same direction, where lane changing is prohibited.

(5) TRANSITION LINES

To deflect vehicles laterally at points at which:
(a) the width of the carriageway changes to a greater or lesser number of lanes ; or
(b) Traffic has to negotiate median traffic islands, safty zones, or obstructions on the road.



(6) EDGE LINES

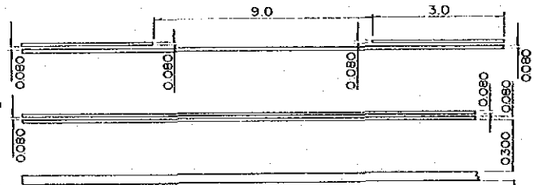
To delineate the outer edge of the travelled way.

(7) ONE WAY BARRIER LINE

To take the place of a single separation line where overtaking is permitted in one direction only.

(8) TWO WAY BARRIER LINE

To take the place of single separation line where overtaking is not permitted in either direction.



(9) STOP LINES

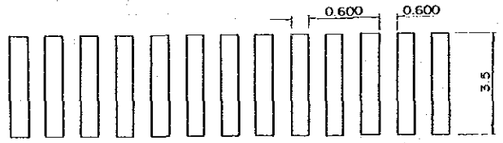
To indicate the point behind which vehicles are legally required to stop.

(10) HOLDING LINES

To indicate the safe position for a vehicle to be held at a "Give Way" sign.

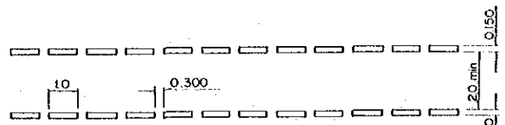
(11) PEDESTRIAN CROSSING

To indicate a full time pedestrian priority crossing. The bars are placed parallel with the ℄ of the Road.



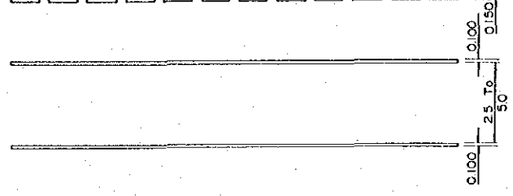
(12) CROSSWALK MARKINGS

To be used in conjunction with midblock or intersection signals to define pedestrian crossing.



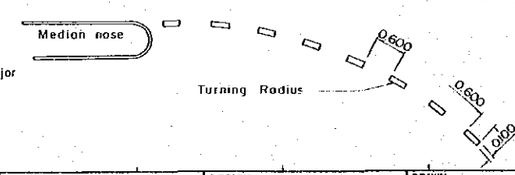
(13) PART TIME PEDESTRIAN CROSSING MARKING

To indicate crossings which operate only part time e.g. school crossing

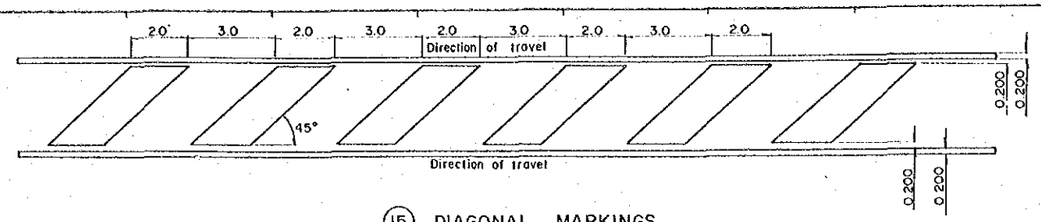


(14) TURN LINES

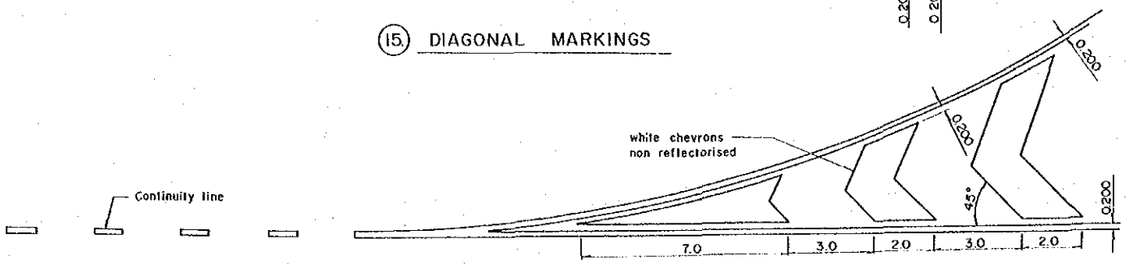
To indicate the proper course to be followed by turning vehicles at major or complex intersections.



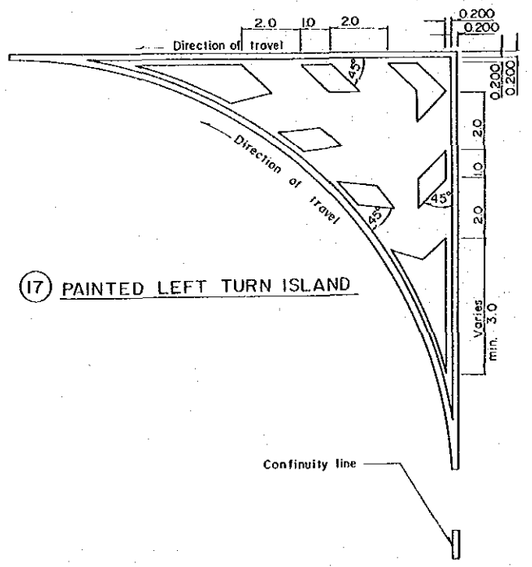
(15) DIAGONAL MARKINGS



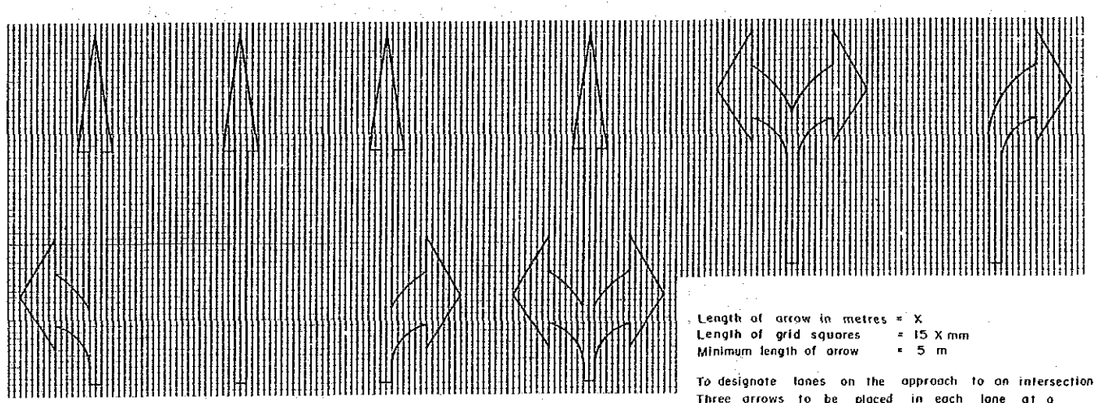
(16) WHITE CHEVRON MARKING



(17) PAINTED LEFT TURN ISLAND



(18) PAVEMENT ARROWS



Length of arrow in metres = X
Length of grid squares = 15 X mm
Minimum length of arrow = 5 m

To designate lanes on the approach to an intersection Three arrows to be placed in each lane at a Spacing of 25m

NOTES

A. COLOUR : The colour of the pavement marking shall be white, except for the alternative uses of yellow specified below.
(i) The unbroken portion of barrier lines, and
(ii) Parking lines to indicate areas whose use is restricted.
Where yellow is used, The colour shall be Golden yellow, colour N 356 in A.S.K 185, colours for specific purposes.

B. REFLECTORS : Self cleansing reflective pavement markers should be used in conjunction with painted pavement markings and mountable type kerbing. Reflectors should be spaced at 12m. intervals in lit areas, and 24m intervals in unlit areas.

C. MESSAGES ON PAVEMENTS : To conform to section 7.5.3 of A.S.1742 part I 1975

D. PAVEMENT MARKING PAINT : To conform to Specification Clause 8.3

E. DIMENSION : All dimensions are in metres unless otherwise stated.

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM
SURVEY BOOK NO.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Yukio, Principal — 25 Sep. 1989, Date

DRAWN: K.E.
CHECKED
DESIGNED: A. Magalo
CHECKED: T. Kawakami

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24.6.89 — SECRETARY

SCALES

SHEET 18 OF 281
PROJECT No. S.C. 120-33-81-1/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY (BEREINA-MALALAUA SECTION)
PAVEMENT MARKINGS

PAPUA NEW GUINEA
DEPARTMENT OF WORKS
DRAWING No. A1/ 87777
REV

CENTER LINE

SEPARATION LINE

BEGINNING CH.	END CH.	LENGTH (m)
0+000	1+540	1540
1+905	2+035	130
2+345	2+480	135
2+810	3+140	330
3+245	3+322	77
3+427	4+710	1283
4+815	4+910	95
5+015	5+660	645
5+950	7+345	1395
7+450	7+550	100
7+655	7+910	255
8+220	8+750	530
9+085	9+400	315
9+525	9+635	110
9+750	9+965	215
10+215	10+665	450
10+770	10+920	150
11+025	14+105	3080
14+445	14+930	485
15+365	15+505	140
15+845	16+615	770
17+215	18+735	1520
19+070	19+430	360
19+725	20+405	680
20+665	21+170	505
21+485	22+445	960
22+550	22+670	120
23+080	23+240	160
23+345	23+390	45
23+495	23+695	200
23+800	23+845	45
23+950	24+280	330
24+530	25+080	550
25+440	25+615	175
25+920	26+295	375
26+400	26+495	95
26+600	27+460	860
27+760	27+835	75
27+940	28+060	120
28+165	28+245	80
28+350	28+490	140
28+595	28+840	245
29+185	29+265	80
29+370	29+450	80
29+555	30+940	1385
31+245	31+640	395
31+945	32+085	140
32+530	33+010	480
33+305	33+500	195
TOTAL LENGTH 22 625		

ONE WAY BARRIER LINE

BEGINNING CH.	END CH.	LENGTH (m)	BEGINNING CH.	END CH.	LENGTH (m)
1+540	1+710	170	1+760	1+905	145
2+035	2+185	150	2+190	2+345	155
2+480	2+675	195	2+675	2+810	135
3+140	3+245	105	3+322	3+427	105
4+710	4+815	105	4+910	5+015	105
5+660	5+805	145	5+805	5+950	145
7+345	7+450	105	7+550	7+655	105
7+910	8+085	175	8+085	8+220	135
8+750	8+895	145	8+940	9+085	145
9+400	9+525	125	9+635	9+750	115
9+965	10+090	125	10+090	10+215	125
10+665	10+770	105	10+920	11+025	105
14+105	14+250	145	14+300	14+445	145
14+930	15+075	145	15+200	15+365	165
15+505	15+650	145	15+700	15+845	145
16+615	16+760	145	16+975	17+215	240
18+735	18+880	145	18+925	19+070	145
19+430	19+575	145	19+640	19+725	85
20+405	20+535	130	20+535	20+665	130
21+170	21+325	155	21+325	21+485	160
22+445	22+550	105	22+670	22+780	110
22+780	22+935	155	22+935	23+080	145
23+240	23+345	105	23+390	23+495	105
23+695	23+800	105	23+845	23+950	105
24+280	24+405	125	24+405	24+530	125
25+080	25+225	145	25+305	25+440	135
25+615	25+760	145	25+775	25+920	145
26+295	26+400	105	26+495	26+600	105
27+460	27+555	95	27+615	27+760	145
27+835	27+940	105	28+060	28+165	105
28+245	28+350	105	28+490	28+595	105
28+840	28+985	145	29+040	29+185	145
29+265	29+370	105	29+450	29+555	105
30+940	31+085	145	31+100	31+245	145
31+640	31+785	145	31+800	31+945	145
32+085	32+230	145	32+375	32+530	155
33+010	33+100	90	33+160	33+305	145
TOTAL LENGTH 4 875			TOTAL LENGTH 4 905		

TWO WAY BARRIER LINE

BEGINNING CH.	END CH.	LENGTH (m)
1+710	1+760	50
2+185	2+190	5
8+895	8+940	45
14+250	14+300	50
15+075	15+200	125
15+650	15+700	50
16+760	16+975	215
18+880	19+925	45
19+575	19+640	65
25+225	25+305	80
25+760	25+775	15
27+555	27+615	60
28+985	29+040	55
31+085	31+100	15
31+785	31+800	15
32+230	32+375	145
33+100	33+160	60
TOTAL LENGTH 1095		

EDGE LINE

LEFT

BEGINNING CH.	END CH.	LENGTH (m)
0+000	0+242	242
0+286	0+426	140
0+473	33+402	32929
33+448	33+500	52
TOTAL LENGTH 33 363		

RIGHT

BEGINNING CH.	END CH.	LENGTH (m)
0+000	0+171	171
0+217	33+350	33133
TOTAL LENGTH 33 304		

INTERSECTION PAVEMENT MARKING

INTERSECTION	HOLDING LINE	CONTINUITY LINE	SEPARATION LINE	EDGE LINE
CH. 0+200	28	18	17	57
CH. 0+260	25	19	17	56
CH. 1+450	23	24	17	57
CH. 33+425	23	23	17	57
TOTAL LENGTH	99	84	68	227

NOTE : THE DETAILS OF THE INTERSECTION PAVEMENT MARKING ARE SHOWN ON THE DRAWINGS OF INTERSECTIONS.

REV	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM
SURVEY BOOK No.9

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal — 25 Sep.1989 — Date

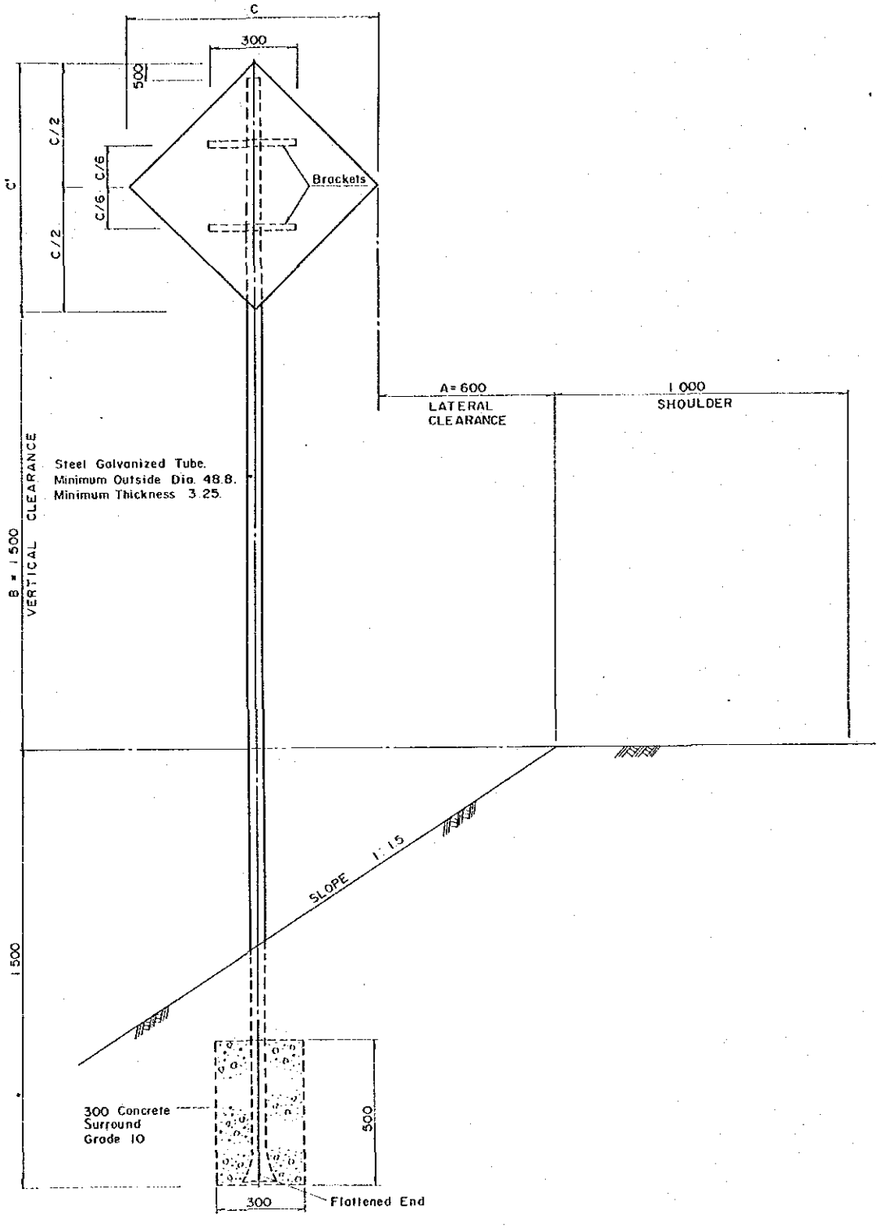
DRAWN: K.E.
CHECKED
DESIGNED
CHECKED
PROJECT ENGINEER
EXECUTIVE ENGINEER
RECOMMENDED — PRINCIPAL ENGINEER
APPROVED 24.10.89 — FAS(TS) SECRETARY

SCALES

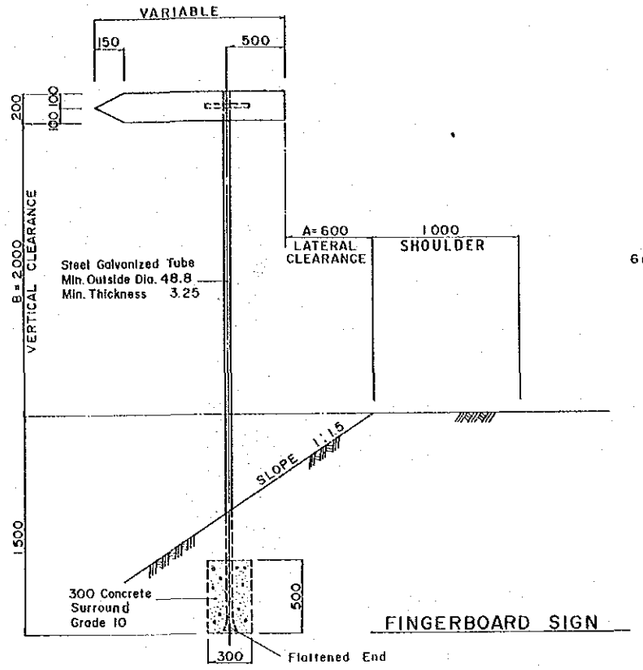
SHEET 19 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
SCHEDULE OF PAVEMENT MARKINGS
CH. 0+000 — CH. 33+500

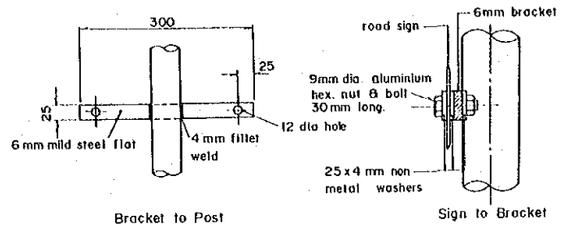
PAPUA NEW GUINEA DEPARTMENT OF WORKS
DRAWING No. A1/ 87778



REGULATORY SIGN, WARNING SIGN



FINGERBOARD SIGN



FIXING DETAILS

INTERSECTION DIRECTION SIGN

NOTES

1. For dimensions A and B refer to AS1742 Part 2 Appendix C Section 2.3
2. Positioning and size of signs shall be in accordance with AS1742 and AS1743
3. Dimension C is dependant on type and size specified.
4. Paint treatment of unprotected metal surfaces Shall be as follows:- one coat Dulux P1 primer. plus two coats of Dulux Durecior in in coastal areas or two coats of Dulux Ferrodor in non coastal areas. All sufaces to be treated should be dry, clean and free from loose material.
5. All dimensins are in millimetres unless otherwise stated.

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NOS

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal — 25 Sep. 1989 Date

DRAWN: K.E.
CHECKED
DESIGNED: A. Mkgatio
CHECKED: T. Kawakami

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24.10.89 — FAS(19) — SECRETARY

SCALES

SHEET 20 OF 281

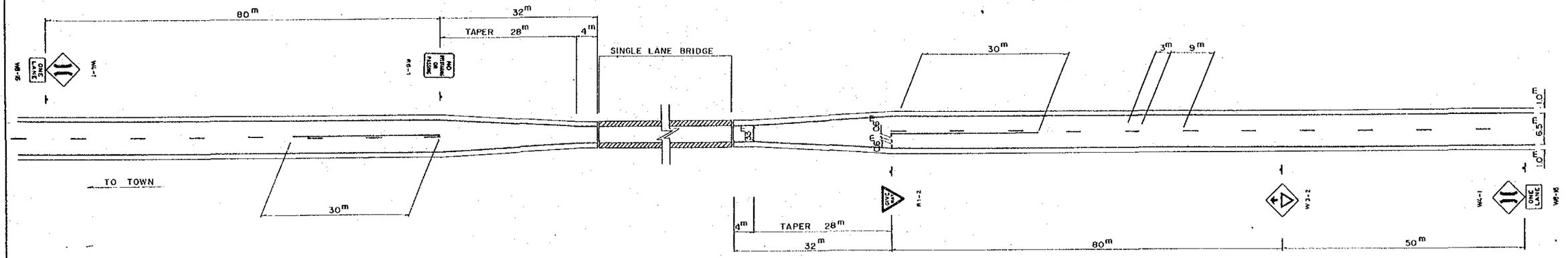
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY (BEREINA-MALALAUA SECTION)
ROAD SIGNS

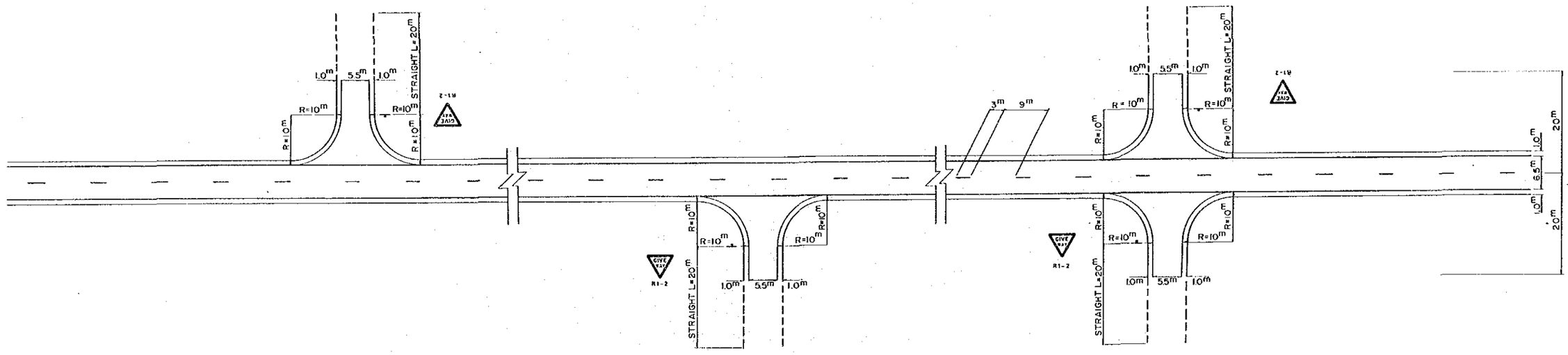
PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1/ 87779

FLY



APPROACH FOR SINGLE LANE BRIDGE



CONNECTION WITH SMALL TRACKS

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK No.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Yorkin — Principal — 25 Sep. 1989 — Date

DRAWN: K.E.
CHECKED: e.Z.A.
DESIGNED: A. Mazabo
CHECKED: T. Kawakami

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER
APPROVED 24.10.89 — for SECRETARY

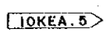
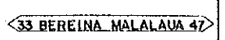
SCALES: 0 10 20 30 m — 1 : 400

SHEET 21 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY (BEREINA-MALALAUA SECTION)
ROAD SIGN FOR BRIDGE APPROACH AND INTERSECTION

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1 / 87780

	INTERSECTION DIRECTION SIGN			FINGER BOARD			FINGER BOARD			GIVE WAY			SCHOOL		
SIGN															
TYPE	G 2			G3 – 1			G3 – 2			R1 – 2A			W6 – 4A		
SIZE	1920 x 470			1260 x 200			2600 x 200			750			600 x 600		
LOCATION	0 + 120	L	I	0 + 210	R	I	0 + 200	L	I	0 + 195	R	I	33 + 480	L	I
	0 + 340	R	I	0 + 250	L	I	0 + 260	R	I	0 + 265	L	I			
	1 + 350	L	I	1 + 440	L	I	1 + 450	R	I	1 + 460	L	I			
	1 + 550	R	I	14 + 210	R	I	14 + 200	L	I	1 + 550	L(80m)	I			
	33 + 325	L	I	33 + 415	L	I	33 + 425	R	I	14 + 195	R	I			
										33 + 430	L	I			
QUANTITY	5			5			5			6			1		

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK Nº.5

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal — 25 Sep. 1989 Date

DRAWN: K.E.
CHECKED: C. [illegible]
DESIGNED: A. Nagawa
CHECKED: T. Kawakami

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER
APPROVED 24.10.89 — SECRETARY

SCALES

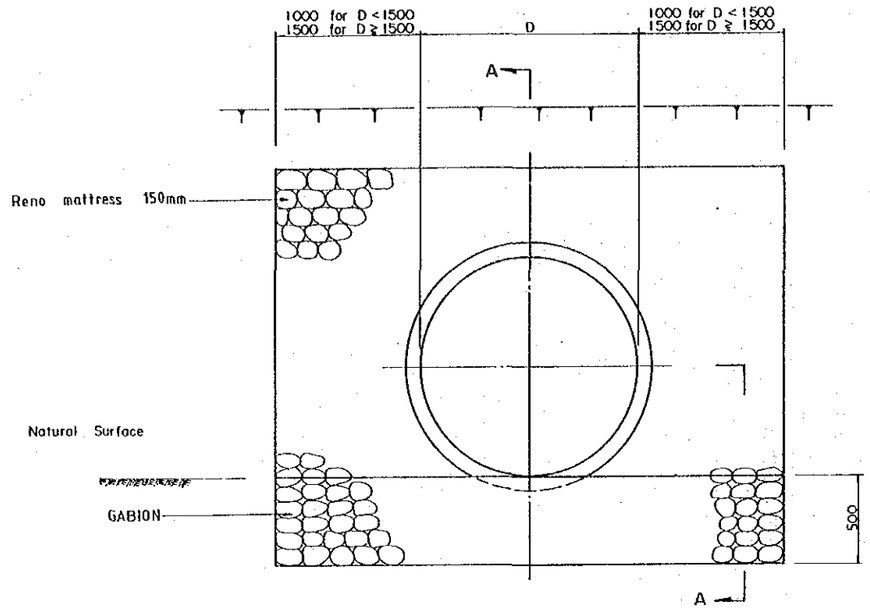
SHEET 22 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
SCHEDULE OF ROAD SIGNS
CH. 0+000 – CH. 33+500

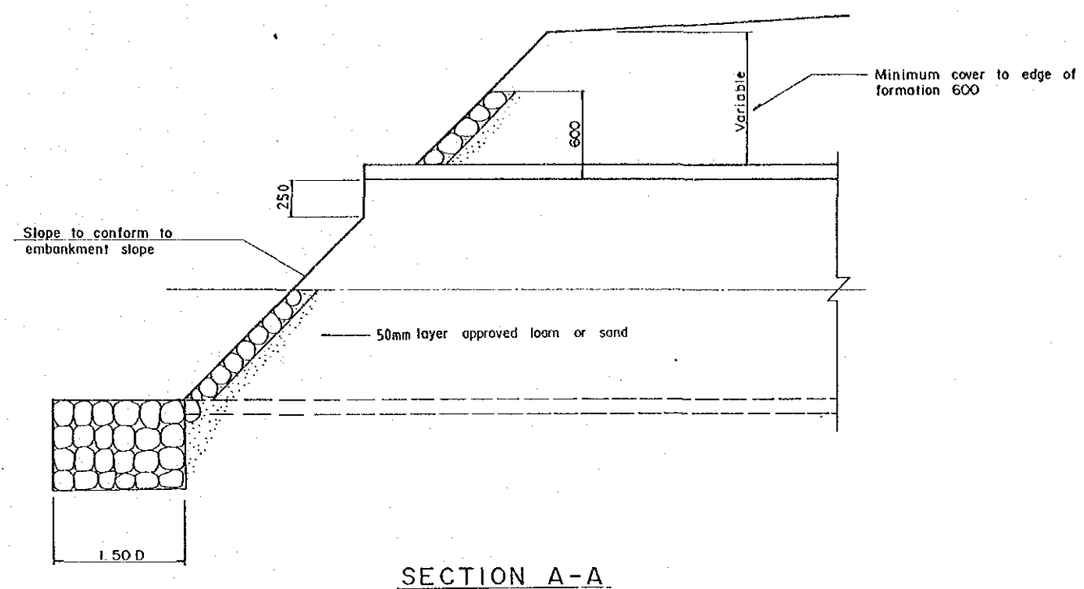
PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1/ 87781

REV.

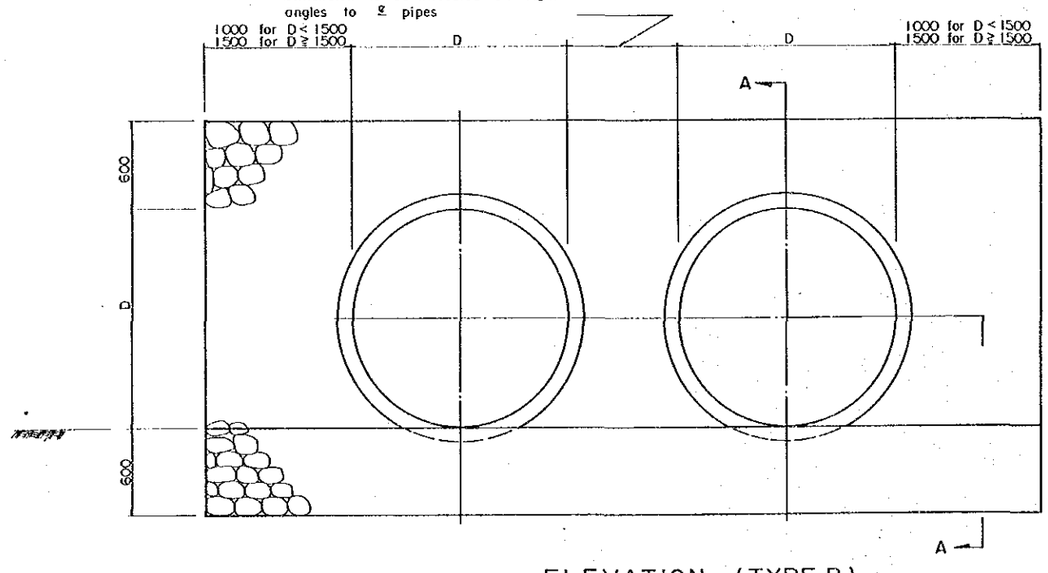


ELEVATION (TYPE A)

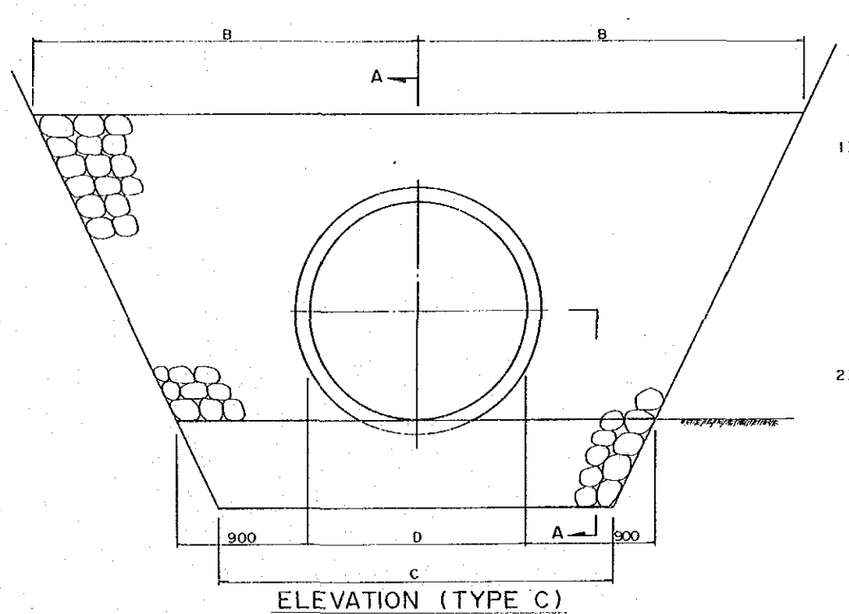


SECTION A-A

D/2 for pipes < 1800 dia.
1200mm for pipes > 1800 dia.
Dimension to be measured at right angles to ℄ pipes



ELEVATION (TYPE B)



ELEVATION (TYPE C)

STANDARD NOTES

1) Each elevation type shown on the drawing, shall be used on the following conditions;

Type A) Singular Culverts

Type B) Multiple Culverts

Type C) To be used when in steep narrow gullies and Distance B measured D+600mm above pipe invert is less than 3D. When B is greater than 3D standard rectangular protection works shall be used.

2) Reno mattress shall be applied in accordance with Specification Clause 18-1 Gabions and Reno Mattress

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NO.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal — 25 Sep. 1989 Date

DRAWN
CHECKED
DESIGNED
CHECKED

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER
APPROVED 24.10.89 — SECRETARY

SCALES: N·T·S·

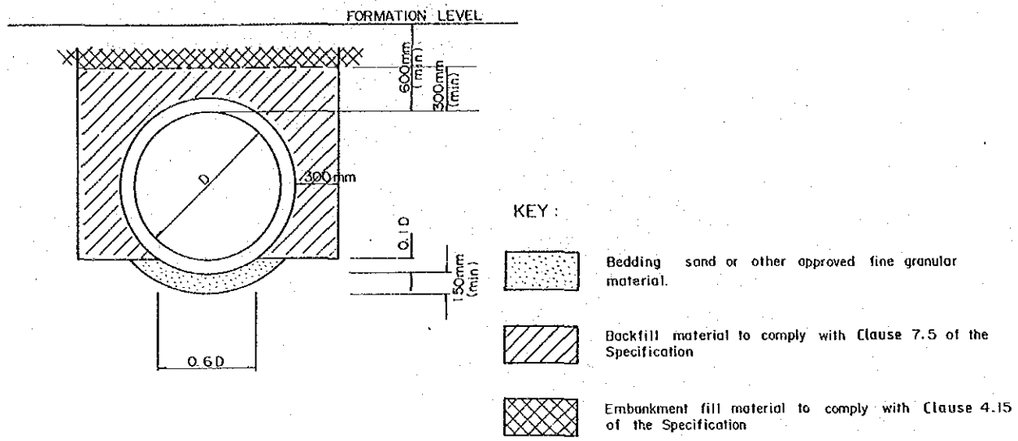
SHEET 23 OF 281

PROJECT No. S.C. 120-33-814/A

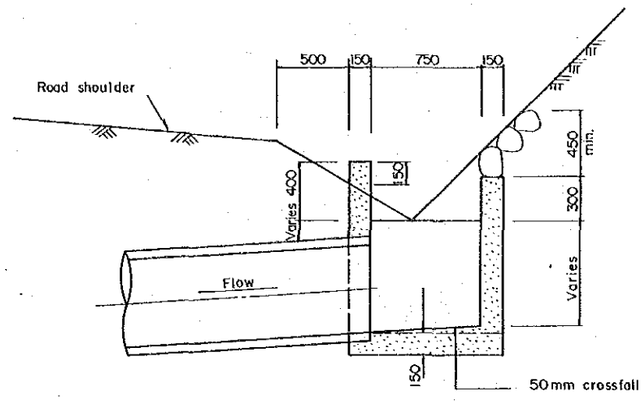
CENTRAL GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
STANDARD CULVERT HEADWALLS

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1 87782

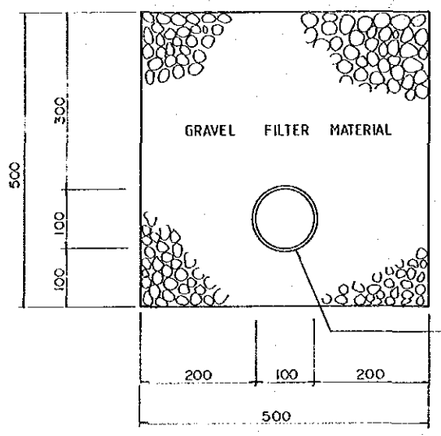


CULVERT BEDDING

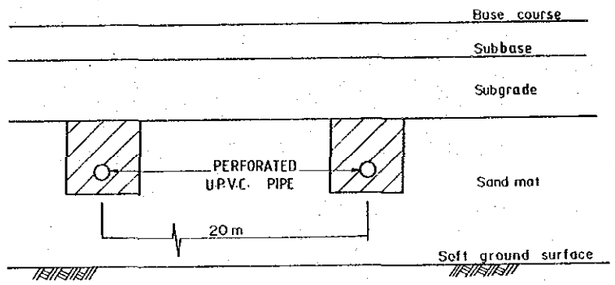


SECTION B-B

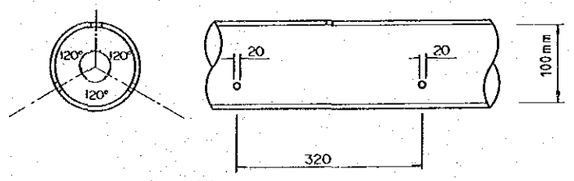
TYPE 'C' - CONCRETE
TYPE 'D' - MASONRY



TYPICAL CROSS SECTION OF SUBSOIL DRAIN

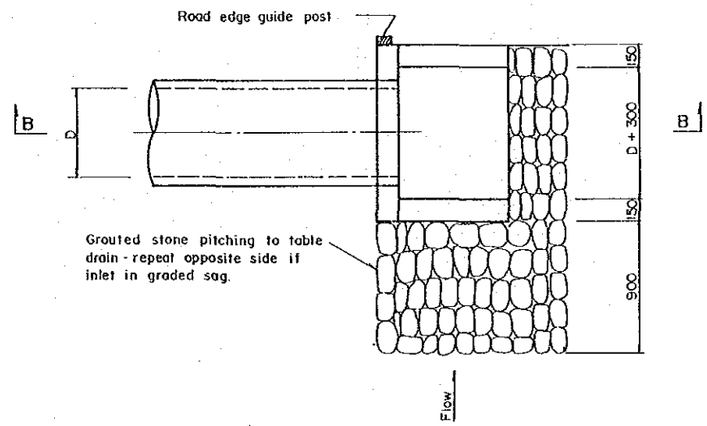


LOCATION OF SUBSOIL DRAIN



DETAIL OF PERFORATED U-P.V.C. PIPE

SUBSOIL DRAIN



PLAN

STANDARD INLET PIT 600-900 DIA

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM
SURVEY BOOK NO.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Malcuits — Principal — 25 Sep. 1989 — Date

DRAWN
CHECKED
DESIGNED
CHECKED

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER
APPROVED 21.10.89 — SECRETARY

SCALES: AS SHOWN

SHEET 24 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CULVERT BEDDING, SUBSOIL DRAIN AND STANDARD INLET PIT

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1 87783
REV.

CULVERT SCHEDULE

REF NO	CHAINAGE	TYPE	NO OF PIPES	DIA	SKEW ANGLE IN DEGREES	DISTANCE MEASURED ALONG PIPE FROM ROAD		FINISHED ROAD ℄ LEVEL	INLET / OUTLET STRUCTURE	REMARKS
						LHS	RHS			
1	0 + 520	CSP	1	900	+30°	8.196	8.018	10.200	Type A	
2	0 + 865		3	1500	-30°	7.824	8.048	11.235	Type B	
3	1 + 200	CSP	1	900		8.341	8.355	13.183	Type A	
4	1 + 495	CSP	1	900		9.955	12.775	22.165	Type A	
5	1 + 875	CSP	1	1200		10.263	12.211	15.523	Type A	
6	2 + 303	CSP	1	1200	-30°	15.090	16.412	17.835	Type A	
7	2 + 446	CSP	1	1500	+12°	8.629	8.902	14.069	Type A	
8	2 + 762	CSP	1	900		9.228	10.703	18.760	Type A	
9	3 + 045	CSP	1	1800		9.353	9.783	14.880	Type A	
10	3 + 457	CSP	1	1500		8.162	8.529	14.715	Type A	
11	3 + 775	CSP	1	2100		7.104	6.640	13.499	Type A	
12	3 + 965	CSP	2	2100		10.088	9.685	14.710	Type B	
13	4 + 225	CSP	1	900		7.821	8.854	16.790	Type A	
14	4 + 450	CSP	1	1200		13.740	15.169	18.590	Type A	
15	4 + 717	CSP	1	900	- 30°	11.430	12.912	18.755	Type A	
16	4 + 950	CSP	1	2100		12.041	11.520	16.373	Type A	
17	5 + 165	CSP	1	900		8.027	10.750	19.062	Type A	
18	5 + 275	CSP	1	900		10.763	13.119	19.015	Type A	
19	5 + 520	CSP	3	2100	- 22°	7.792	7.887	17.300	Type B	
20	5 + 670	CSP	1	900	+17°	10.088	10.229	18.093	Type A	
21	6 + 015	CSP	1	2100		6.556	6.602	16.340	Type A	
22	6 + 175	CSP	1	1800	+ 30°	7.346	7.665	14.176	Type A	
23	6 + 745	CSP	1	1200	+ 30°	8.664	9.061	16.818	Type A	
24	6 + 988	CSP	1	1200	+ 20°	8.142	8.270	18.945	Type A	
25	7 + 125	CSP	4	2100		7.126	7.150	20.315	Type B	
26	7 + 650	CSP	1	2100		8.896	8.082	16.478	Type A	
27	7 + 840	CSP	1	1200		7.253	7.359	17.535	Type A	
28	8 + 350	CSP	1	1500		6.082	6.854	13.324	Type A	
29	8 + 755	CSP	1	1200		9.657	10.423	21.065	Type A	
30	9 + 155	CSP	2	2100	+ 21°	7.879	8.111	16.481	Type B	
31	9 + 238	CSP	1	2100		6.739	6.827	16.176	Type A	
32	9 + 425	CSP	1	900		6.392	6.576	17.376	Type A	
33	9 + 699	CSP	2	2100	+ 24°	8.224	8.481	17.240	Type B	
34	10 + 312	CSP	2	2100	- 30°	8.248	8.485	23.282	Type B	
35	10 + 563	CSP	1	2100	- 20°	7.546	8.096	22.746	Type A	
36	11 + 043	CSP	1	1800		7.901	8.118	15.443	Type A	
37	11 + 202	CSP	1	1200		8.245	8.849	16.595	Type A	
38	11 + 545	CSP	2	1800		9.719	9.817	19.156	Type B	
39	11 + 915	CSP	1	900		7.412	7.717	20.575	Type A	
40	12 + 333	CSP	1	900	-16°	13.871	16.725	20.271	Type A	

NOTES

1) General
The Culvert Schedule contains all of CSP pipes to be installed in accordance with the standard drawing details (Drawing No. A1/87782, A1/87783).

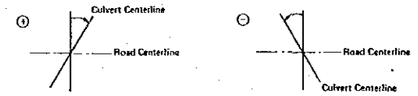
2) Chainage
The chainage given for each culvert is the chainage at the intersection of the culvert centerline with the designed road centerline. Where multiple culverts occur the chainage given refers to the intersection between the designed road centerline and the centerline of the multiple system.

3) Type
Refers to the type of pipe:
CSP : Corrugated Steel Pipe

4) Number of Pipes
Indicates the number of proposed pipes at the chainage given in Column (2).

5) Diameter
Indicates the diameter of proposed culverts.

6) Skew Angle in Degrees
The angle of skew should be determined as follows:



7) Distance Measured Along Pipe From Road
This refers to the length of the pipe to be installed to both the left hand side (LHS) and the right hand side (RHS) of designed road centerline, measured along the centerline of the culvert. LHS and RHS is that when viewed in the direction of increasing chainage. The total culvert length is obtained by adding the LHS length to the RHS length.

8) Finished Road Center Level
Refers to the proposed finished road level of the culvert chainage at the designed road centerline.

9) Inlet/Outlet Structure
Refers to the type of culvert shown on the standard drawing details[Drawing No. A1/87782].

10) Inlet/Outlet Invert Level
Pipe Culverts should be installed on the ground level except when being directed.

11) Culverts at Intersections and Feeder Roads
Ref. No. 1001 – 1002:
These culvers shall be installed on the feeder road derived from the at-grade intersection (CH. 33 + 425).
The chainage given for each culvert is the chainage at the intersection of the culvert centerline with the feeder roads centerline.
Ref. No. 1003 – 1010:
These culverts shall be installed on at-grade intersections as shown on the drawing at each culvert location. The chainage given for each culvert indicates the location for inlet/outlet.

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK No.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — Principal — 25 Sep. 1989 Date

DRAWN — CHECKED — DESIGNED — CHECKED

PROJECT ENGINEER — EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER

APPROVED 24.10.89 — for SECRETARY

SCALES

SHEET 25 OF 281

PROJECT No. S.C. 120-33-814/A

CENTRAL GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CULVERT SCHEDULE
CH 0 + 520 TO CH 12 + 333
PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1 87784

CULVERT SCHEDULE

REF NO	CHAINAGE	TYPE	NO OF PIPES	DIA	SKEW ANGLE IN DEGREES	DISTANCE MEASURED ALONG PIPE FROM ROAD		FINISHED ROAD ℄ LEVEL	INLET / OUTLET STRUCTURE	REMARKS
						LHS	RHS			
41	12 + 760	CSP	1	2100	- 30°	8.971	9.197	11.598	Type A	
42	13 + 045	CSP	1	2100		9.193	9.440	12.505	Type A	
43	13 + 344	CSP	1	900	+ 30°	11.835	13.343	15.196	Type A	
44	13 + 425	CSP	1	900		8.052	10.925	15.925	Type A	
45	13 + 702	CSP	2	1800		8.506	8.614	14.911	Type B	
46	13 + 845	CSP	1	900		8.465	8.693	13.673	Type A	
47	13 + 925	CSP	1	900		9.595	10.113	14.020	Type A	
48	14 + 386	CSP	1	900	- 10°	11.654	13.973	24.196	Type A	
49	14 + 869	CSP	1	2100		7.373	7.447	15.194	Type A	
50	15 + 184	CSP	1	900	+ 12°	8.704	9.877	21.433	Type A	
51	15 + 442	CSP	1	1800	- 30°	12.592	11.659	14.622	Type A	
52	15 + 786	CSP	1	1200	+ 30°	7.821	10.268	17.120	Type A	
53	15 + 948	CSP	1	900	- 20°	11.304	11.871	16.310	Type A	
54	16 + 356	CSP	6	2100		7.612	7.737	14.270	Type B	
55	16 + 450	CSP	6	2100		7.383	8.095	13.800	Type B	
56	16 + 925	CSP	1	900		7.525	8.240	17.050	Type A	
57	17 + 016	CSP	1	900	+ 12°	7.265	7.283	17.960	Type A	
58	17 + 243	CSP	1	1200		5.910	6.745	20.101	Type A	
59	17 + 457	CSP	1	1500	- 30°	12.466	13.251	19.472	Type A	
60	17 + 534	CSP	1	1500		9.676	10.581	19.164	Type A	
61	17 + 821	CSP	1	900		11.323	13.322	18.016	Type A	
62	18 + 092	CSP	3	2100	- 30°	8.858	8.740	10.634	Type B	
63	18 + 475	CSP	1	1200		8.417	8.519	11.150	Type A	
64	18 + 650	CSP	1	1200	+ 30°	12.971	13.175	12.453	Type A	
65	18 + 898	CSP	1	900		8.243	5.400	20.985	Type A	
66	19 + 274	CSP	1	2100	- 7°	8.373	8.421	11.111	Type A	
67	19 + 789	CSP	1	1200	+ 15°	12.493	12.821	12.755	Type A	
68	20 + 005	CSP	2	1800		8.971	9.117	11.234	Type B	
69	20 + 330	CSP	1	1200		15.134	14.655	14.300	Type A	
70	20 + 677	CSP	2	2100	+ 30°	10.241	10.279	10.810	Type B	
71	21 + 155	CSP	1	1200		11.264	11.321	11.834	Type A	
72	21 + 369	CSP	1	900		7.150	9.450	15.967	Type A	
73	21 + 454	CSP	1	900	- 20°	9.733	12.339	14.732	Type A	
74	21 + 716	CSP	3	2100		7.597	7.636	9.932	Type B	
75	22 + 087	CSP	1	900		9.056	9.619	10.674	Type A	
76	22 + 444	CSP	1	1800		13.144	13.112	13.358	Type A	
77	22 + 761	CSP	1	1200		8.762	11.183	18.012	Type A	
78	23 + 085	CSP	1	2100		8.782	10.270	10.867	Type A	
79	23 + 659	CSP	1	2100	+ 22°	8.885	8.015	9.445	Type A	
80	24 + 091	CSP	3	2100		7.321	7.415	11.766	Type B	

NOTES

1) General
The Culvert Schedule contains all of CSP pipes to be installed in accordance with the standard drawing details (Drawing No. A1/ 87782, A1/ 87783).

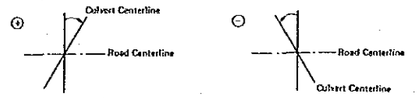
2) Chainage
The chainage given for each culvert is the chainage at the intersection of the culvert centerline with the designed road centerline. Where multiple culverts occur the chainage given refers to the intersection between the designed road centerline and the centerline of the multiple system.

3) Type
Refers to the type of pipe:
CSP : Corrugated Steel Pipe

4) Number of Pipes
Indicates the number of proposed pipes at the chainage given in Column (2).

5) Diameter
Indicates the diameter of proposed culverts.

6) Skew Angle in Degrees
The angle of skew should be determined as follows:



7) Distance Measured Along Pipe From Road
This refers to the length of the pipe to be installed to both the left hand side (LHS) and the right hand side (RHS) of designed road centerline, measured along the centerline of the culvert. LHS and RHS is that when viewed in the direction of increasing chainage. The total culvert length is obtained by adding the LHS length to the RHS length.

8) Finished Road Center Level
Refers to the proposed finished road level of the culvert chainage at the designed road centerline.

9) Inlet/Outlet Structure
Refers to the type of culvert shown on the standard drawing details(Drawing No. A1/ 87782).

10) Inlet/Outlet Invert Level
Pipe Culverts should be installed on the ground level except when being directed.

11) Culverts at Intersections and Feeder Roads
Ref. No. 1001 – 1002:
These culvers shall be installed on the feeder road derived from the at grade intersection (CH. 33 + 425).
The chainage given for each culvert is the chainage at the intersection of the culvert centerline with the feeder roads centerline.
Ref. No. 1003 – 1010:
These culverts shall be installed on at-grade intersections as shown on the drawing at each culvert location. The chainage given for each culvert indicates the location for inlet/outlet.

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK NO.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Hatachi, Principal — 25 Sep. 1989 Date

DRAWN — CHECKED — DESIGNED — CHECKED

PROJECT ENGINEER — EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER — APPROVED: 24.10.89, FOR SECRETARY

SCALES

SHEET 26 OF 281

PROJECT No. S.C. 120-33-814/A

CENTRAL GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CULVERT SCHEDULE
CH. 12 + 760 TO CH 24 + 091
PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1 87785

CULVERT SCHEDULE

REF NO	CHAINAGE	TYPE	NO OF PIPES	DIA	SKEW ANGLE IN DEGREES	DISTANCE ALONG PIPE MEASURED FROM ROAD		FINISHED ROAD ℄ LEVEL	INLET / OUTLET STRUCTURE	REMARKS
						LHS	RHS			
81	24 + 517	CSP	1	900	- 18°	6.447	8.637	20.347	Type A	
82	24 + 773	CSP	1	900		8.199	8.217	15.089	Type A	
83	24 + 965	CSP	1	900	- 30°	6.877	7.778	11.167	Type A	
84	25 + 169	CSP	1	900		7.643	11.746	11.648	Type A	
85	25 + 480	CSP	1	2100		8.625	8.797	8.861	Type A	
86	25 + 965	CSP	2	2100	+ 30°	10.717	11.076	12.544	Type B	
87	26 + 080	CSP	2	2100	+ 20°	8.020	8.122	12.310	Type B	
88	26 + 314	CSP	1	900		6.488	7.081	15.118	Type A	
89	26 + 600	CSP	2	2100		12.640	12.807	11.538	Type B	
90	26 + 992	CSP	1	2100		6.373	6.462	7.232	Type A	
91	27 + 187	CSP	1	900	+ 25°	8.207	9.438	9.057	Type A	
92	27 + 335	CSP	1	900		10.739	12.182	10.864	Type A	
93	27 + 493	CSP	1	900	+ 19°	7.745	11.560	16.609	Type A	
94	27 + 835	CSP	3	2100		10.490	10.002	10.752	Type B	
95	28 + 161	CSP	1	1200	+ 13°	9.291	10.247	14.334	Type A	
96	28 + 334	CSP	1	900	+ 23°	6.927	8.051	17.612	Type A	
97	28 + 720	CSP	2	2100		7.390	6.876	13.180	Type B	
98	28 + 867	CSP	1	2100	- 13°	6.674	8.430	14.730	Type A	
99	29 + 200	CSP	1	1200		7.503	9.645	16.125	Type A	
100	29 + 505	CSP	2	1800		6.588	6.431	15.210	Type B	
101	29 + 654	CSP	1	900	+ 10°	6.279	8.763	14.544	Type A	
102	29 + 900	CSP	1	2100		7.653	8.346	10.275	Type A	
103	30 + 112	CSP	1	900		5.466	7.009	7.141	Type A	
104	30 + 405	CSP	1	2100		7.493	7.291	11.847	Type A	
105	30 + 523	CSP	1	2100		7.999	7.863	11.706	Type A	
106	30 + 713	CSP	1	1500		6.171	7.045	11.136	Type A	
107	30 + 910	CSP	1	900	- 30°	7.030	8.051	10.185	Type A	
108	31 + 204	CSP	3	2100		6.808	7.665	7.539	Type B	
109	31 + 625	CSP	1	900	+ 30°	8.525	9.084	9.220	Type A	
110	32 + 035	CSP	1	1500		6.394	6.720	7.322	Type A	
111	32 + 275	CSP	1	900	+ 30°	7.978	11.714	12.050	Type A	
112	32 + 425	CSP	1	900		6.240	8.634	13.567	Type A	
113	32 + 775	CSP	2	2100		6.593	6.671	6.675	Type B	
114	32 + 950	CSP	1	2100		9.581	9.520	7.425	Type A	
1001	(0 + 85)	CSP	1	900		30.000		—	Type A	
1002	(0 +137)	CSP	1	900		13.500		—	Type A	

NOTES

1) General
The Culvert Schedule contains all pipes to be installed in accordance with the standard drawing details (Drawing No. A1/87782, A1/87783).

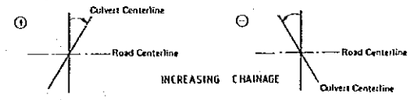
2) Chainage
The chainage given for each culvert is the chainage at the intersection of the culvert centerline with the designed road centerline. Where multiple culverts occur the chainage given refers to the intersection between the designed road centerline and the centerline of the multiple system.

3) Type
ALL culverts shall be constructed using corrugated steel pipes
CSP : Corrugated Steel Pipe

4) Number of Pipes
Indicates the number of proposed pipes at the chainage given in Column (2).

5) Diameter
Indicates the diameter of proposed culverts.

6) Skew Angle in Degrees
The angle of skew should be determined as follows:



7) Distance Measured Along Pipe From Road
This refers to the length of the pipe to be installed to both the left hand side (LHS) and the right hand side (RHS) of designed road centerline, measured along the centerline of the culvert. LHS and RHS is that when viewed in the direction of increasing chainage. The total culvert length is obtained by adding the LHS length to the RHS length.

8) Finished Road Center Level
REFERS TO THE CENTRELINE LEVEL OF THE FINISHED ROAD AT THE CULVERT CHAINAGE

9) Inlet/Outlet Structure
Refers to the type of culvert shown on the standard drawing details(Drawing No. A1/87782).

10) Inlet/Outlet Invert Level
Pipe Culverts should be installed on the ground level except where directed otherwise by the engineer

11) Culverts at Intersections and Feeder Roads
Ref. No. 1001 – 1002:
These culvers shall be installed on the feeder road derived from the at grade intersection (CH. 33 + 425).
The chainage given for each culvert is the chainage at the intersection of the culvert centerline with the feeder roads centerline.
Ref. No. 1003 – 1010:
These culverts shall be installed on at-grade intersections as shown on the drawing at each culvert location. The chainage given for each culvert indicates the location for inlet/outlet.

REV	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK No.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal 25 Sep. 1989 Date

DRAWN
CHECKED
DESIGNED
CHECKED

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED
PRINCIPAL ENGINEER
APPROVED 24.10.89
for SECRETARY

SCALES

SHEET 27 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CULVERT SCHEDULE
CH. 24+ 517 TO CH. 32+ 950 AND ON SIDE DITCH
PAPUA NEW GUINEA
DEPARTMENT OF WORKS
DRAWING No. A1 87786
REV

EARTHWORKS SCHEDULE CH. 0+000 - CH.33+500

NO.	WORK ITEM	SECTION UNIT	1 CH. 0 + 000 CH. 11 + 986 L = 11,986 m.	2 CH. 11 + 986 TAIENA Br. CH. 12 + 025 L = 39 m.	3 CH. 12 + 025 CH. 14 + 712 L = 2,687 m.	4 CH. 14 + 712 AGOBINO Br. CH. 14 + 755 L = 43 m.	5 CH. 14 + 755 CH. 16 + 098 L = 1,343 m.	6 CH. 16 + 098 UNGONGO Br. CH. 16 + 141 L = 43 m.	7 CH. 16 + 141 CH. 33 + 500 L = 17,359 m.	TOTAL CH. 0 + 000 WHOLE CH. 33 + 500	ROAD WORK	BRIDGE WORK
1	EXCAVATION											
	-1. TYPE A MATERIAL	m^3	—	—	—	—	—	—	952	952	952	—
	-2. TYPE B MATERIAL	m^3	149,941	—	58,771	—	30,207	—	342,368	581,287	581,287	—
	-3. TYPE C MATERIAL	m^3	—	—	—	—	—	—	—	—	—	—
	-4. TYPE D MATERIAL	m^3	77,534	—	24,188	—	11,069	—	113,922	246,713	246,713	—
	SUB TOTAL	m^3	227,475	—	82,959	—	41,276	—	477,242	828,952	828,952	—
2	EMBANKMENT (COMPACTED VOLUME)	m^3	213,522	721	59,661	502	36,041	869	432,869	744,185	742,093	2,092
3	SURPLUS MATERIAL (COMPACTED VOLUME)											
	-1. ROAD WAY	m^3	—	—	—	—	—	—	16,756	16,756	16,756	—
	-2. INTERSECTIONS	m^3	11,342	—	—	—	—	—	—	11,342	11,342	—
4	UNSUITABLE MATERIAL (Provisional)	m^3								13,500	13,500	—
5	EXCAVATION FOR STRUCTURAL FOUNDATIONS											
	-1. TYPE C MATERIAL	m^3	—	—	—	—	—	—	—	—	—	—
	-2. TYPE D MATERIAL	m^3	292	121	46	134	26	218	524	1,361	888	473
6	FILLING TO STRUCTURAL FOUNDATIONS	m^3	—	303	—	247	—	354	—	904	—	904
7	RENO MATTRESS											
	-1. TYPE A (t=150mm)	m^3	177	—	31	—	17	—	308	533	533	—
	-2. TYPE B (t=230mm)	m^3	—	32	—	46	—	61	—	139	—	139
8	GABION	m^3	486	20	77	24	43	22	873	1,545	1,479	66
9	EXCAVATION FOR INTERSECTIONS											
	-1. TYPE B MATERIAL	m^3	—	—	—	—	—	—	—	—	—	—
	-2. TYPE C MATERIAL	m^3	—	—	—	—	—	—	—	—	—	—
	-3. TYPE D MATERIAL	m^3	14,456	—	—	—	—	—	103	14,559	14,559	—
	SUB TOTAL	m^3	14,456	—	—	—	—	—	103	14,559	14,559	—
10	EMBANKMENT FOR INTERSECTIONS (COMPACTED VOLUME)	m^3	946	—	126	—	—	—	2,087	3,156	3,156	—

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK No.8

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Matsu, Principal — 25 Sep. 1989, Date

DRAWN: K.E. — CHECKED — DESIGNED: A. Nagashi — CHECKED: T. Kankami

PROJECT ENGINEER — EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER

APPROVED: 24.10.89, FOS(CS) SECRETARY

SCALES

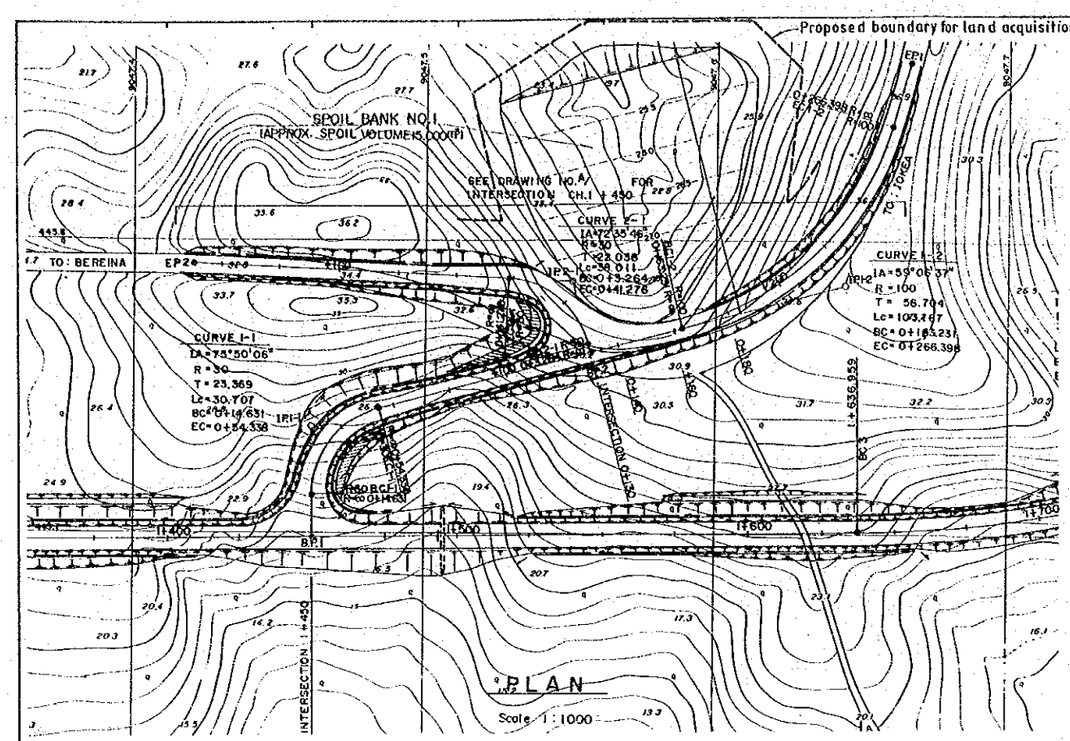
SHEET 28 OF 281

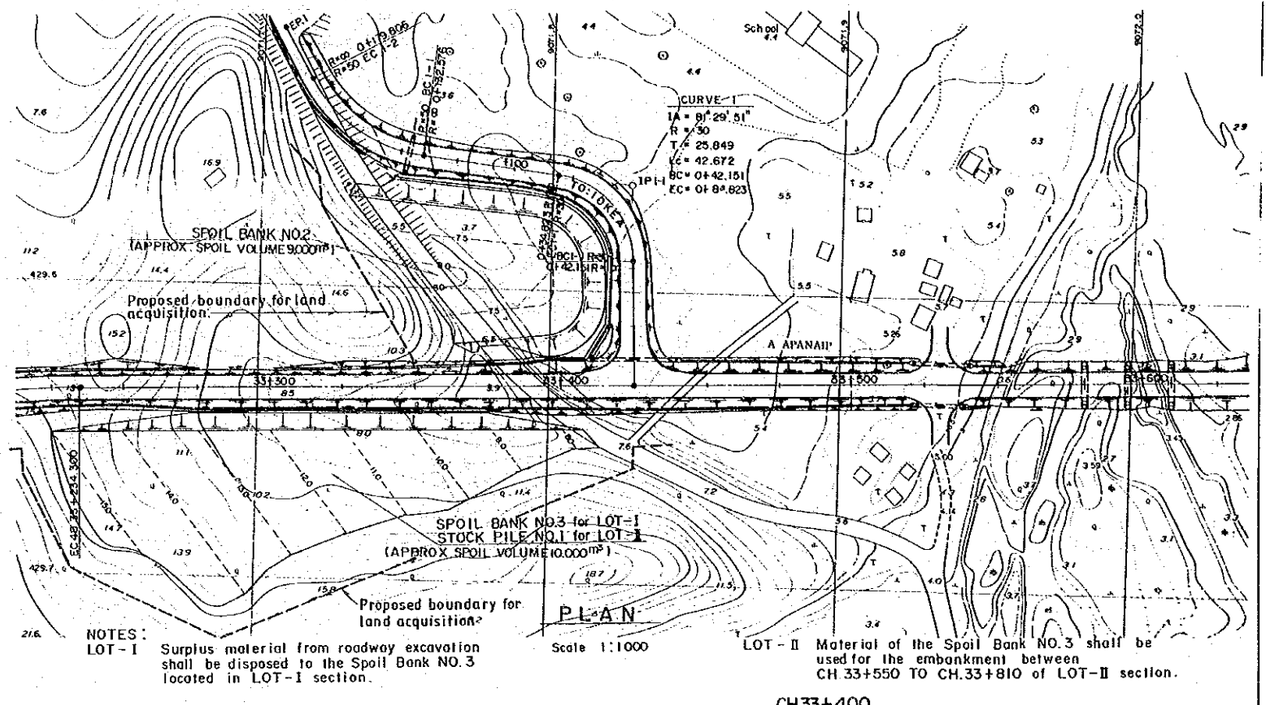
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
EARHWORKS SCHEDULE
CH.0+000 – CH.33+500
PAPUA NEW GUINEA DEPARTMENT OF WORKS

DRAWING No. A1/ 87787

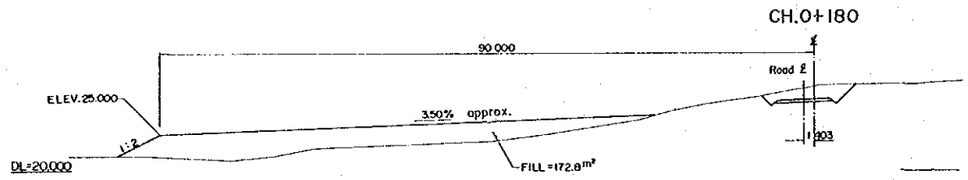
REV.

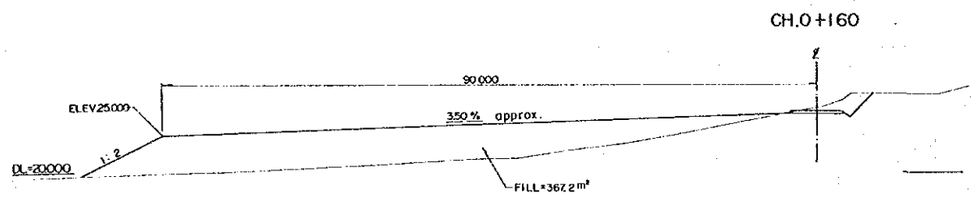


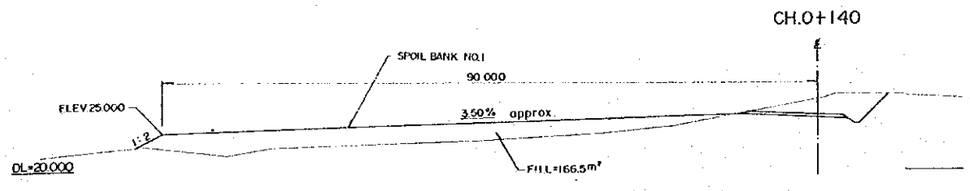


NOTES:
LOT-I Surplus material from roadway excavation shall be disposed to the Spoil Bank NO.3 located in LOT-I section.

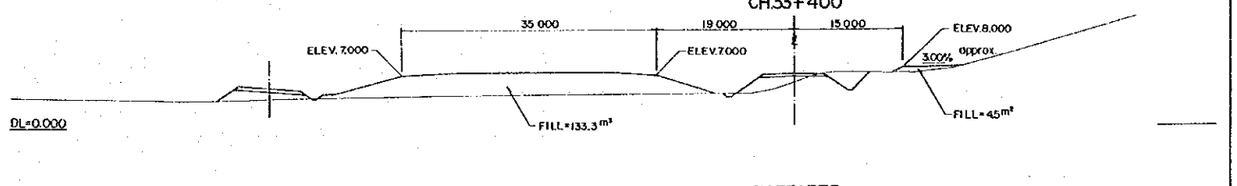
LOT-II Material of the Spoil Bank NO.3 shall be used for the embankment between CH.33+550 TO CH.33+810 of LOT-II section.

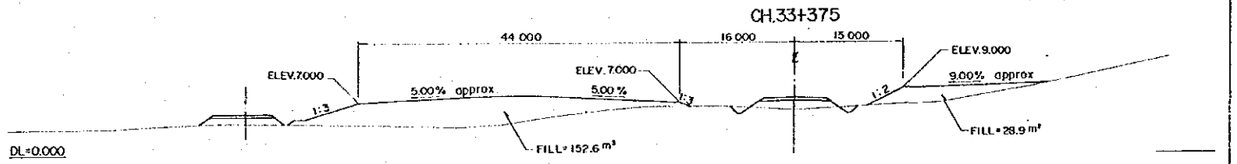


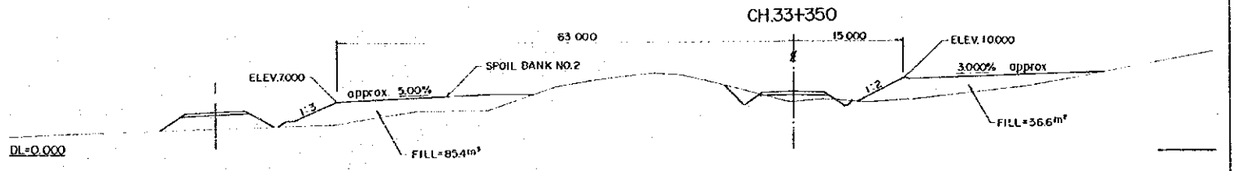


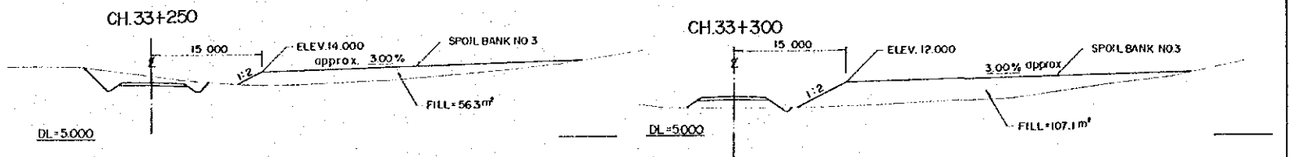


CROSS SECTIONS OF SPOIL BANK NO.1
Scale 1:400









CROSS SECTIONS OF SPOIL BANK NO.2 & NO.3
Scale 1:400

REV	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK No 5

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Yadid — 25 Sep. 1989 — Date — Principal

DRAWN: K.E. — CHECKED — DESIGNED: A. Magano — CHECKED: T. Kawakami

PROJECT ENGINEER — EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER

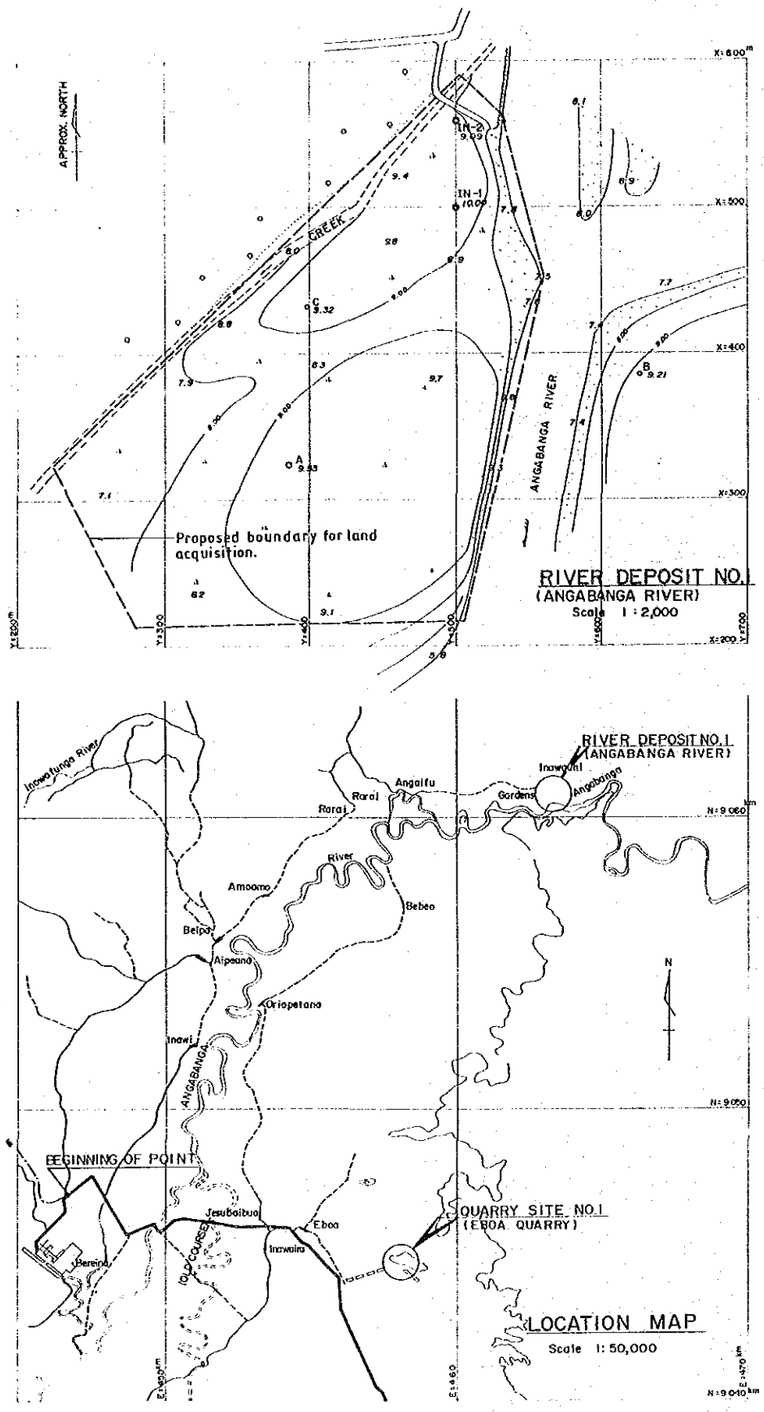
APPROVED 24.10.89 — FSG(TS) — SECRETARY

SCALES: AS SHOWN

SHEET 29 OF 281 — PROJECT No S.C. 120-33-814/A

CENTRAL GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
SPOIL BANK NO.1, 2 & 3 FOR LOT-II/STOCK PILE NO.1 FOR LOT II
PLAN & CROSS SECTIONS

PAPUA NEW GUINEA — DEPARTMENT OF WORKS — DRAWING No A1 87788



RIVER DEPOSIT NO.I
(ANGABANGA RIVER)
Scale 1 : 2,000

TRAVERSE POINT

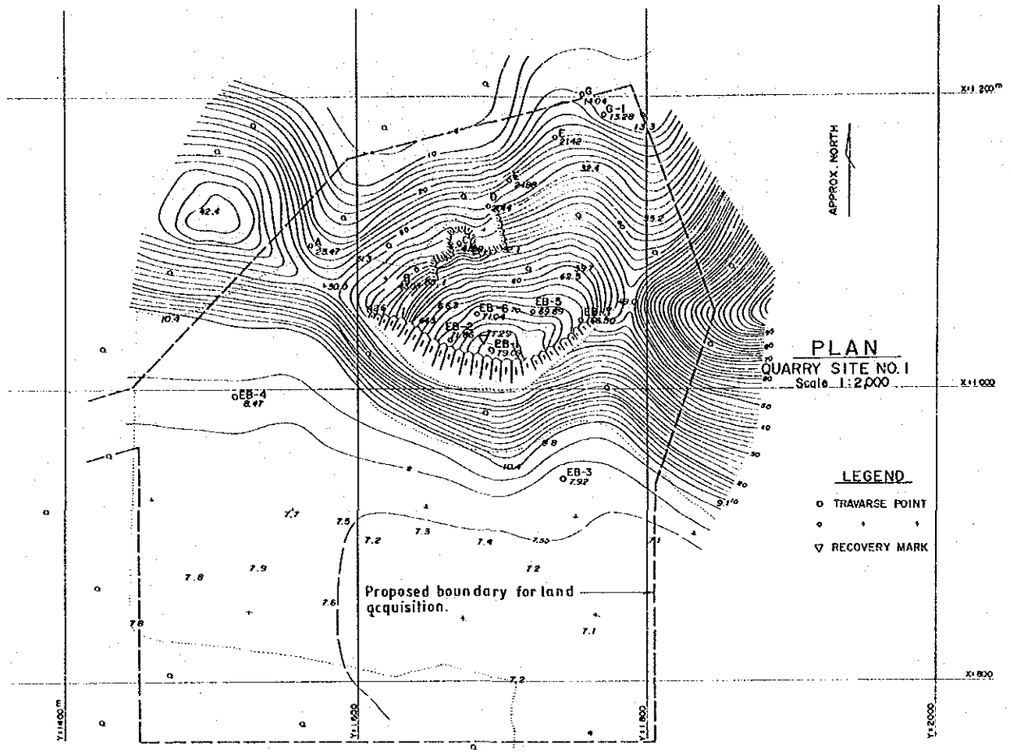
NO.	X (m)	Y (m)	R.H.(m)
IN-1	500.00	500.00	10.00
IN-2	559.60	500.00	9.09
A	324.83	385.20	9.53

NOTE ABOVE DATA REPRESENT ASSUMED COORDINATES AND HEIGHT.

RIVER DEPOSIT NO.I
(ANGABANGA RIVER)

QUARRY SITE NO.I
(EBOA QUARRY)

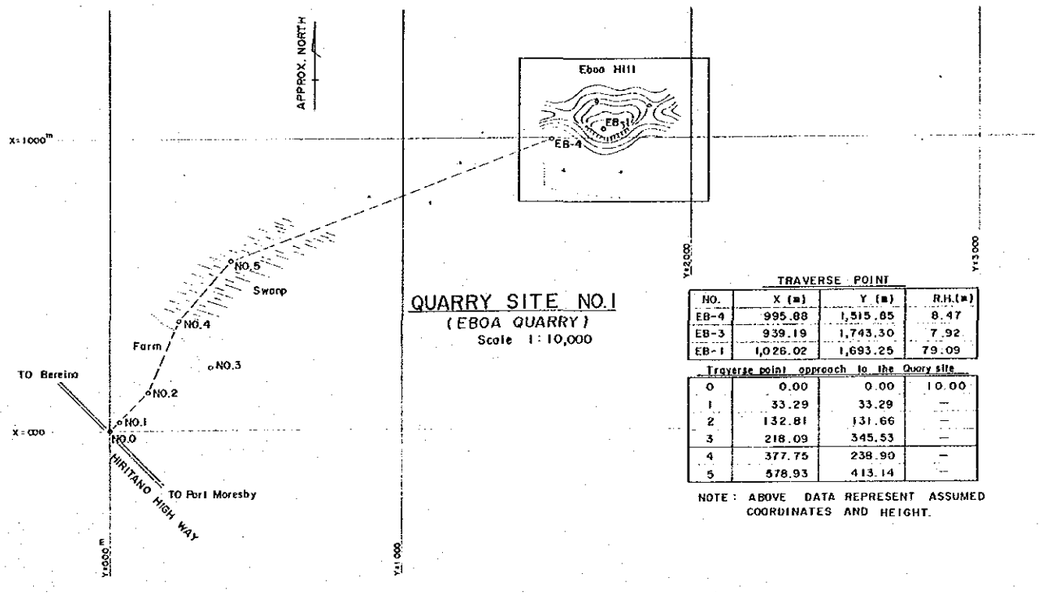
LOCATION MAP
Scale 1: 50,000



PLAN
QUARRY SITE NO.I
Scale 1:2,000

LEGEND
- TRAVARSE POINT
- RECOVERY MARK

Proposed boundary for land acquisition.



QUARRY SITE NO.I
(EBOA QUARRY)
Scale 1:10,000

TRAVERSE POINT

NO.	X (m)	Y (m)	R.H.(m)
EB-4	995.88	1,515.85	8.47
EB-3	939.19	1,743.30	7.92
EB-1	1,026.02	1,693.25	79.09

Traverse point approach to the Quary site

0	0.00	0.00	10.00
1	33.29	33.29	—
2	132.81	131.66	—
3	218.09	345.53	—
4	377.75	238.90	—
5	578.93	413.14	—

NOTE : ABOVE DATA REPRESENT ASSUMED COORDINATES AND HEIGHT.

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM
SURVEY BOOK NO.6

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Yakushin — Principal — 25 Sep. 1989 — Date

DRAWN: K.E.
CHECKED
DESIGNED: A. Magabe
CHECKED: P. Kaveleramo

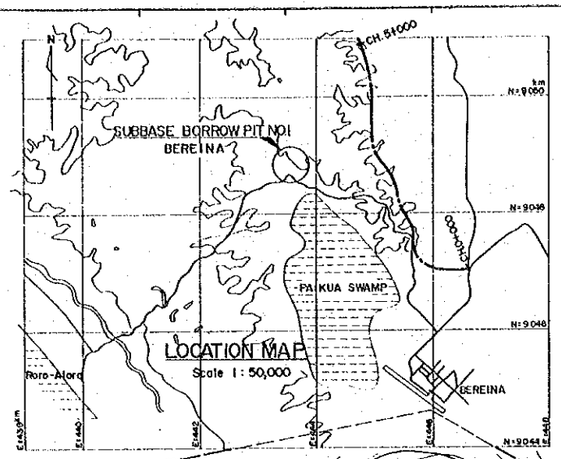
PROJECT ENGINEER
EXECUTIVE ENGINEER

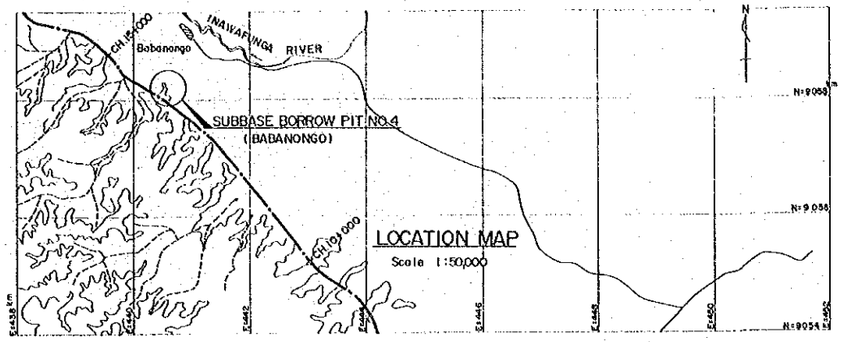
RECOMMENDED — PRINCIPAL ENGINEER
APPROVED 24.10.89 — SECRETARY

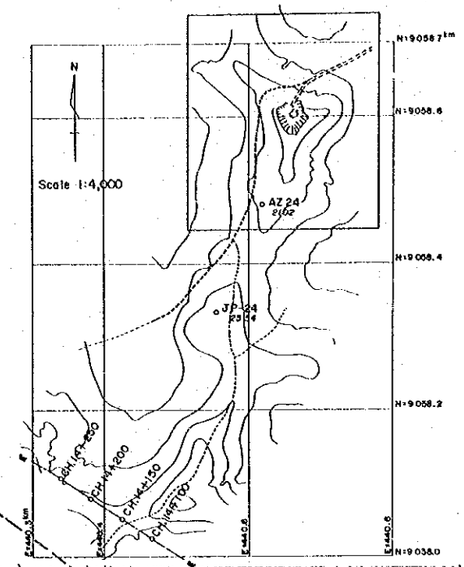
SCALES: AS SHOWN

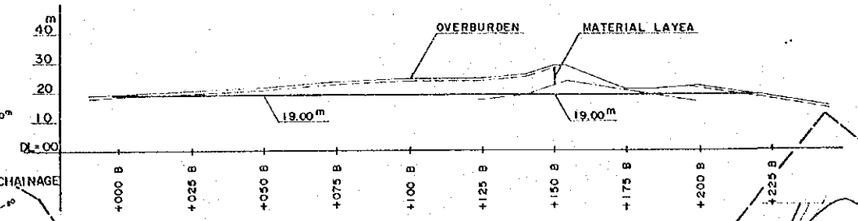
SHEET 30 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
RIVER DEPOSIT NO.I (ANGABANGA RIVER) AND
QUARRY SITE NO.I (EBOA QUARRY)
PAPUA NEW GUINEA
DEPARTMENT OF WORKS
DRAWING No. A1/ 87789
REV.

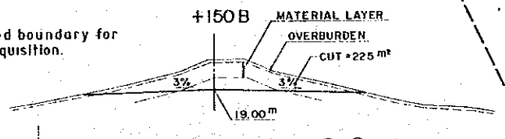








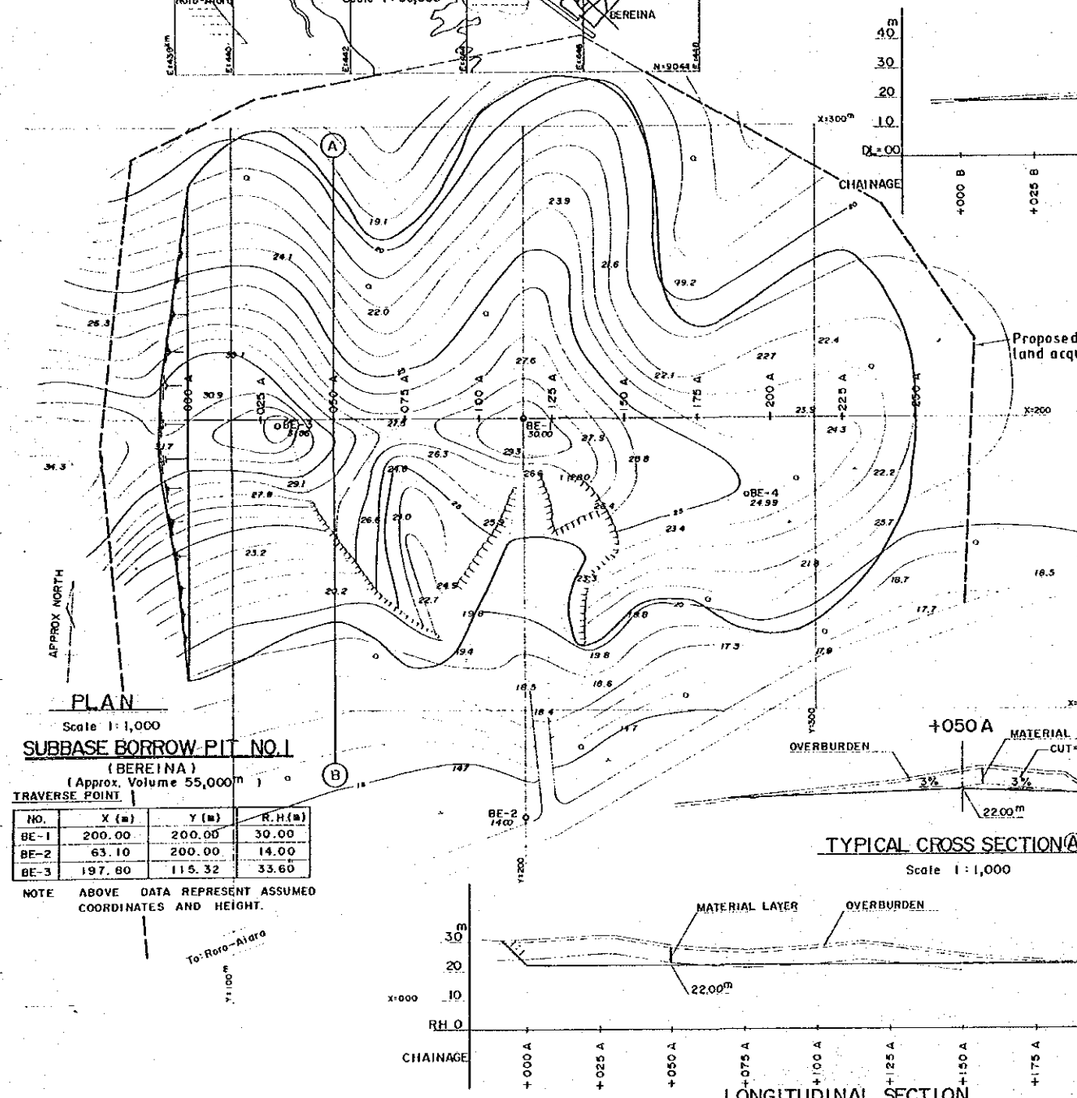
LONGITUDINAL SECTION
Scale 1:1,000



TYPICAL CROSS SECTION Ⓒ-Ⓓ
Scale 1:1,000

TRAVERSE POINT

NO.	NORTHING(m)	EASTING(m)	ELEV.(m)
AZ24	9,058,480.66	440,618.07	21.02
BA-1	9,058,573.66	440,652.04	29.41
BA-2	9,058,640.16	440,670.48	19.40



PLAN
Scale 1:1,000

SUBBASE BORROW PIT NO.1
(BEREINA)
(Approx. Volume 55,000m³)

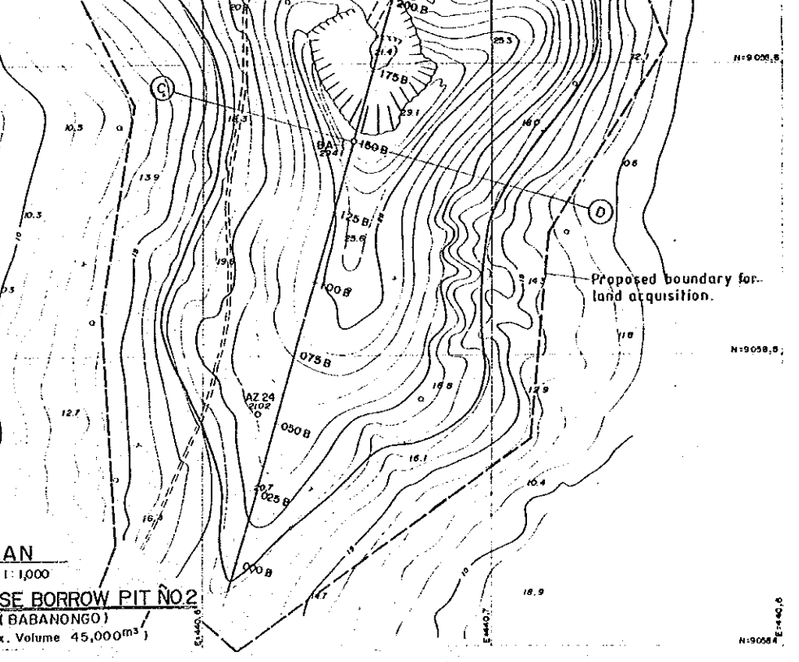
TRAVERSE POINT

NO.	X (m)	Y (m)	R.H.(m)
BE-1	200.00	200.00	30.00
BE-2	63.10	200.00	14.00
BE-3	197.80	115.32	33.60

NOTE ABOVE DATA REPRESENT ASSUMED COORDINATES AND HEIGHT.

TYPICAL CROSS SECTION Ⓐ-Ⓑ
Scale 1:1,000

LONGITUDINAL SECTION
Scale 1:1,000



PLAN
Scale 1:1,000

SUBBASE BORROW PIT NO.2
(BABANONGO)
(Approx. Volume 45,000m³)

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NOS:

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Yoshida — Principal — 25 Sep. 1989 — Date

DRAWN: K.E.
CHECKED: C. Z[illegible]
DESIGNED: A. Magani
CHECKED: [illegible]

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: [illegible] — PRINCIPAL ENGINEER
APPROVED 24.10.85: [illegible] — FAS(I&) SECRETARY

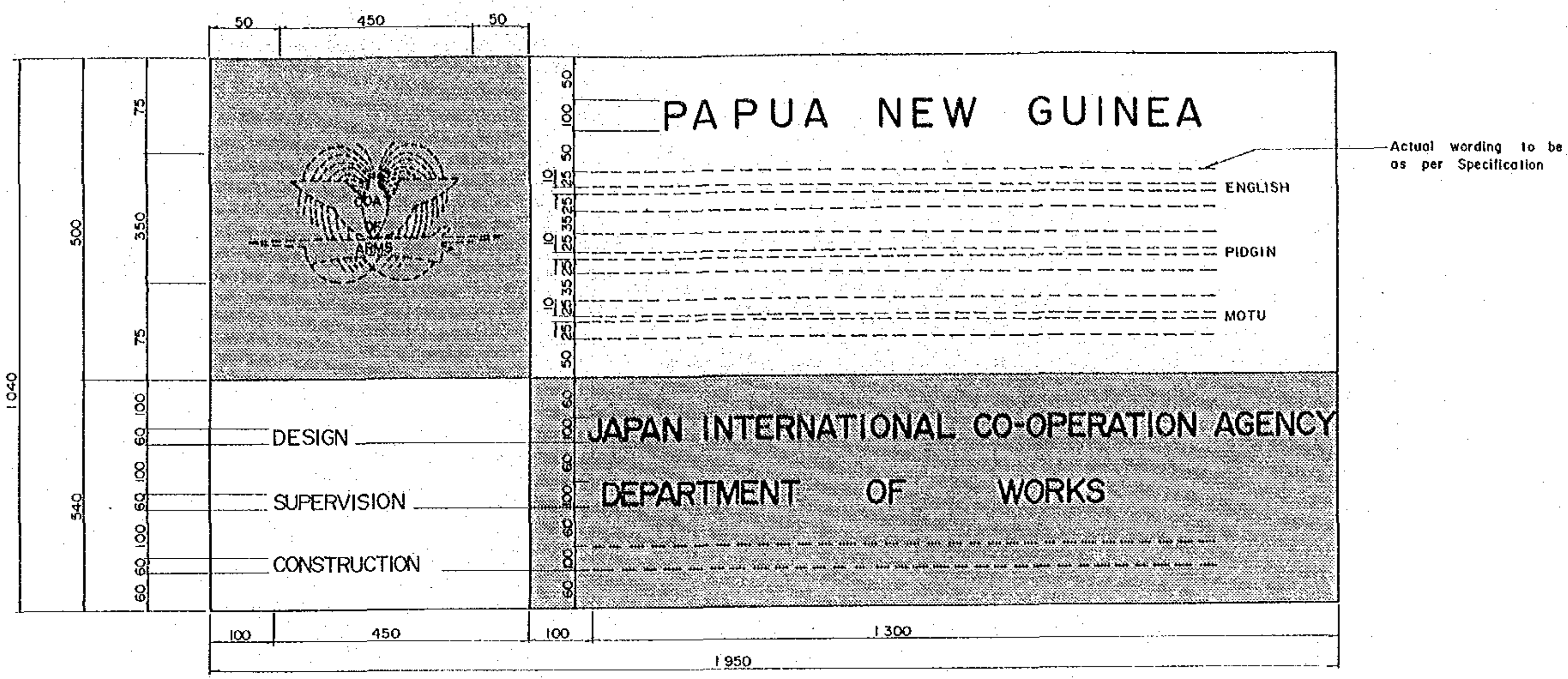
SCALES: AS SHOWN

SHEET 31 OF 281
PROJECT No. S.C. 120-33-814/A

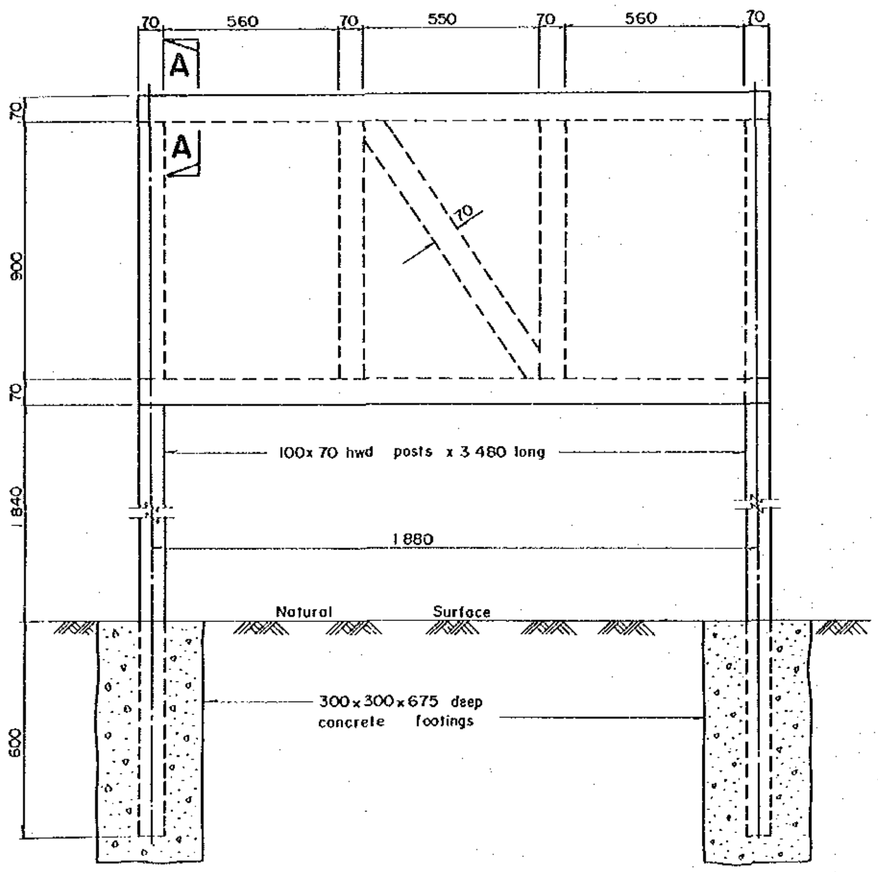
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
SUBBASE BORROW PIT NO.1 (BEREINA) AND NO.2 (BABANONGO)

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

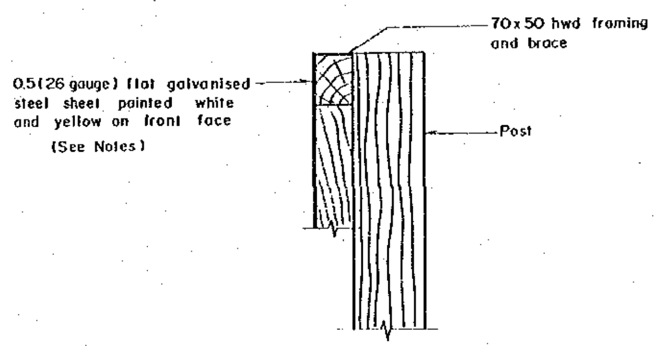
DRAWING No. A1/ 87790
REV.



LAYOUT OF NOTICE BOARD
N.T.S



DETAILS OF FRAME AND POSTS
N.T.S

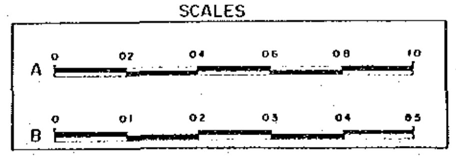


SECTION A-A
N.T.S

NOTES

1. All dimensions in MILLIMETRES.
2. Shaded areas to AS1433 10 D 43(Yellow)
3. Other areas, including frame and posts, shall be white.
4. Lettering shall be black.
5. Transfer of Coat of Arms to be supplied by the Department of Works.

SCALES



SURVEY	JICA
VERTICAL DATUM	MEAN SEA LEVEL
HORIZONTAL DATUM	
SURVEY BOOK No.	
DESIGN	JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Mahnks, Principal, 25 Sep. 1989
DRAWN	K. E.
CHECKED	C. Z.
DESIGNED	A. Magatso
CHECKED	T. Kawakami
PROJECT ENGINEER	
EXECUTIVE ENGINEER	
RECOMMENDED	PRINCIPAL ENGINEER
APPROVED	24.10.89, SECRETARY
SCALES	NOT TO SCALE
SHEET	32 OF 281
PROJECT No.	S.C. 120-33-814/A

CENTRAL / GULF PROVINCES

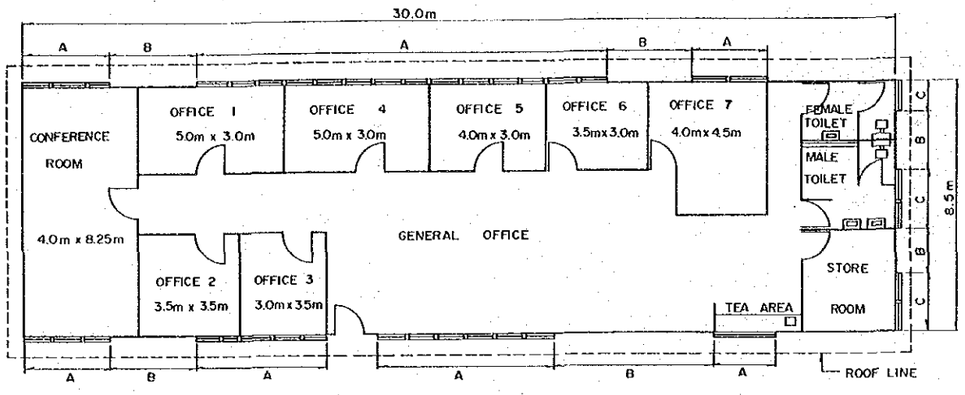
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION

PROJECT NOTICE BOARD

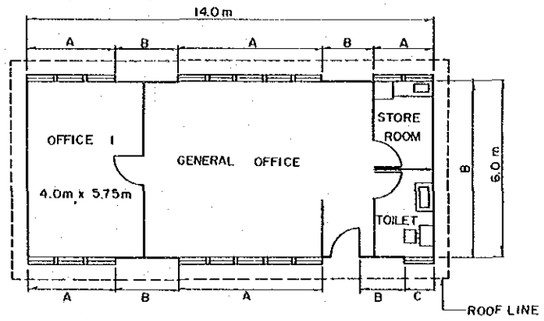
PAPUA NEW GUINEA DEPARTMENT OF WORKS

DRAWING No. A1/ 87791

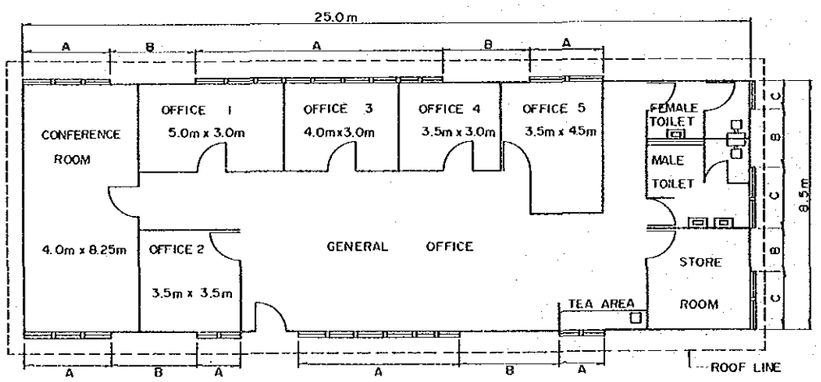
REV.	AMENDMENTS	BY	APP'D	DATE



TYPE 1



TYPE 3



TYPE 2

LEGENO

A — Clear gloss adjustable louvre windows
B — Bracing panel
C — Highset frosted gloss fixed louvre windows

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK No.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Yoshida — Principal — 25 Sep. 1989 — Date

DRAWN: K.E
CHECKED: C.E.A
DESIGNED: A. Magabia
CHECKED: T. Kawakami

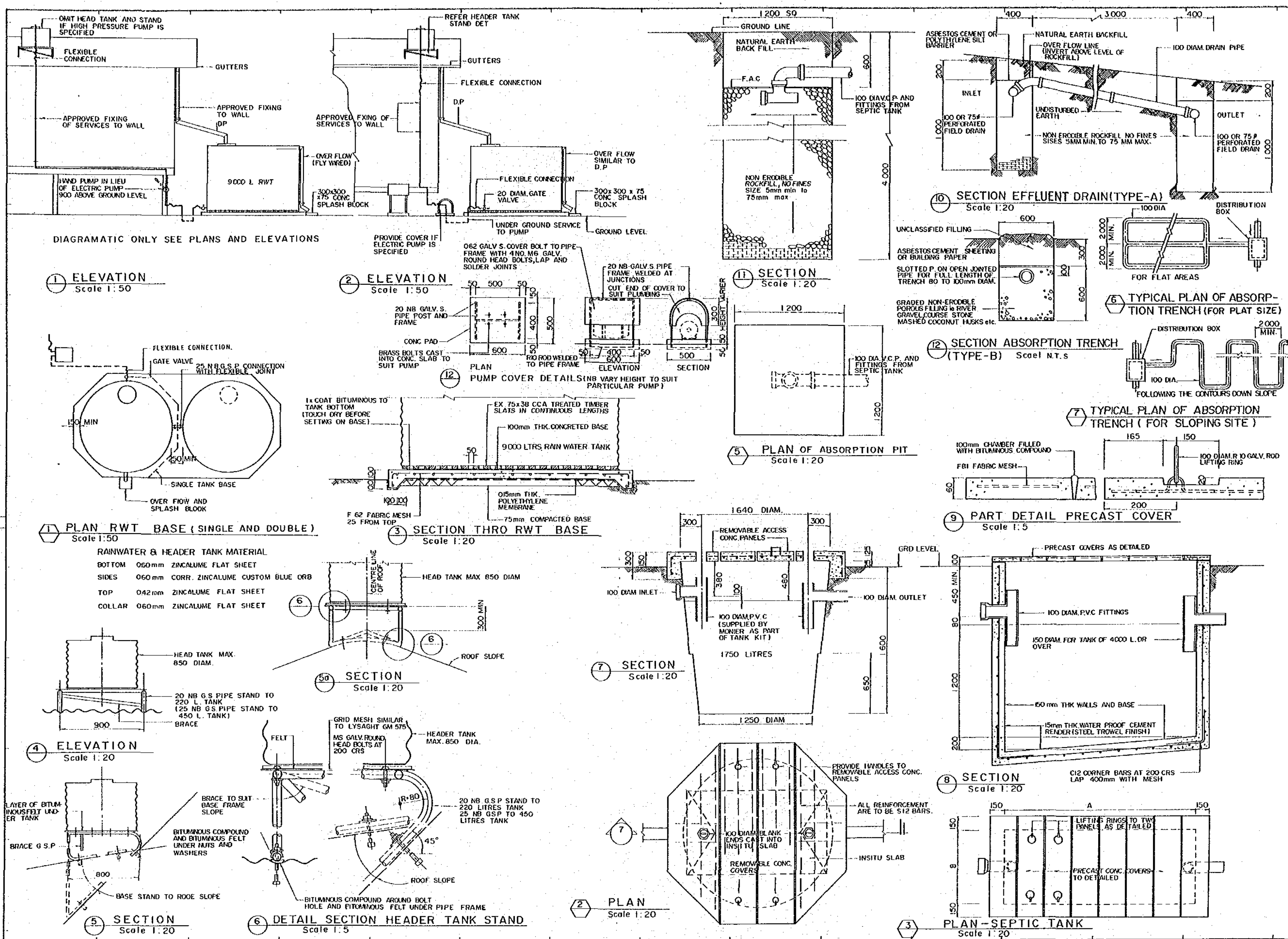
PROJECT ENGINEER: B. Kinetan
EXECUTIVE ENGINEER: [illegible]

RECOMMENDED: R. Mogg — PRINCIPAL ENGINEER
APPROVED: J. Leonard — 24.10.89 — FAS(T)P — SECRETARY

SCALES: 4 2 0 2 4 — 1 : 100

SHEET 33 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
ENGINEERS OFFICE ACCOMMODATION
PAPUA NEW GUINEA DEPARTMENT OF WORKS
DRAWING No. A1/ 87792
REV.



revisions

letter	date	details	
A	JAN83	ABSORPTION PIT ADDED	G.K
B	201083	PUMP COVER ADDED	nazareno
C	3-#-83	NOTES CHANGED	D.Smith
D	AUG84	LENGTH DIMENSION DELETED TO EFFLUENT DRAIN	G.Karo
E	FEB85	ROCKFILL SIZES NOTES ADDED TO EFFLUENT DRAIN	M.Halver-ava
F	SEP85	ABSORPTION TRENCH ALTERED TO TYPE A & B SLATS TO BASE OF TANK	M.CARGO
G	APR86	DET.6 TO HEADER TANK REVISED	G.K
H	5986	F18 CORRECTED TO F81 (DET. 9)	

notes

TABLE TO SEPTIC TANK

W.C. and/or URINAL WASTES

PERSON	VOLUME LITRES	DIMENSIONS A	DIMENSIONS B	MESH WALLS	MESH BASE
8 TO 12	2500	2400	800	F102	F102
13 TO 18	2600	2500	800	F102	F102
19 TO 23	3100	2700	900	F102	F102
24 TO 28	3400	2900	900	F102	F102
29 TO 33	3500	2700	1000	F102	F102
34 TO 38	3700	2900	1000	F102	F102

PERSON	VOLUME LITRES	DIMENSIONS A	DIMENSIONS B	MESH WALLS	MESH BASE
7	2200	2300	800	F102	F102
8 TO 12	4000	2800	1100	F102	F102
13 TO 18	4800	2900	1200	F102	F102
19 TO 23	5500	3300	1300	F81	F81
24 TO 28	6300	3500	1400	F81	F81
29 TO 28	7000	3600	1500	F81	F81
34 TO 38	7600	3700	1600	F81	F81
FOR 39	PERSON	OR OVER	REFER	DWG NO	A1/40447

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NO.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Yahiro — Principal — 25 Sep. 1989 — Date

DRAWN: K.E.
CHECKED: C. Z.
DESIGNED: A. Magalso
CHECKED: T. Kawakami
PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24.10.89 — SECRETARY

SCALES: AS SHOWN

SHEET 34 OF 281

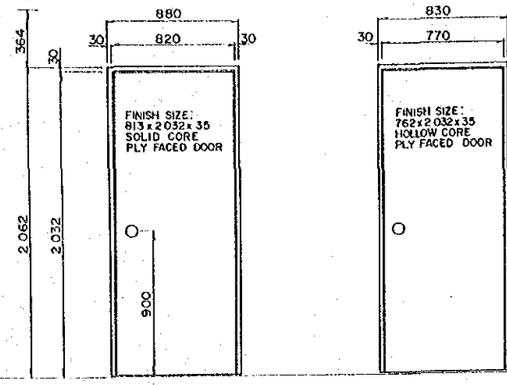
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
PLANS, ELEVATIONS SECTIONS AND DETAILS

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

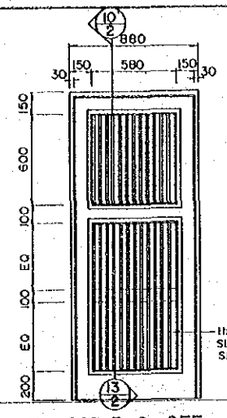
DRAWING No. A1/ 87793

revision letter	date	detail	approved
B	30/9/88	Bedrooms wardrobes details ranged.	DR
C	15/11/88	ZONE 3 & 4 / STRUCTURAL ENGINEER ADDED	

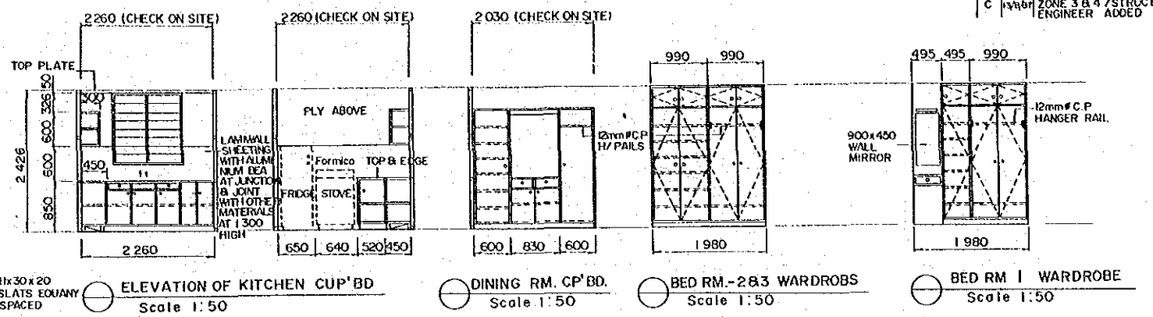


D1 / 1 DOOR 1 - 2 - OFF
Scale 1 : 20

D2 / 1 DOOR 2 - 5 - OFF
Scale 1 : 20



D3 / 1 DOOR 3 - 2 - OFF
Scale 1 : 20

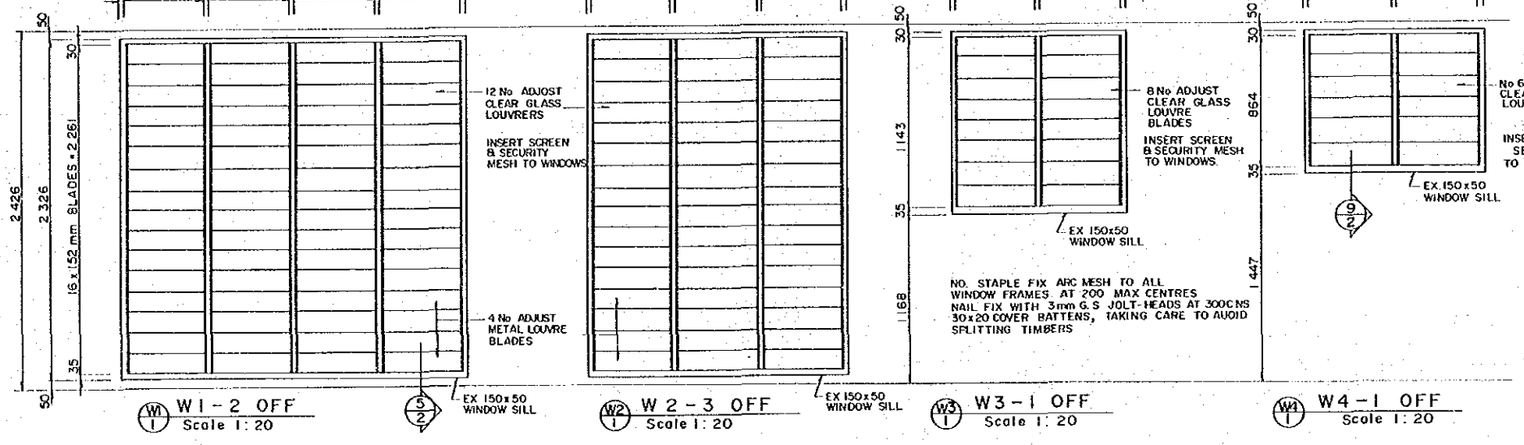


ELEVATION OF KITCHEN CUP'BD
Scale 1 : 50

DINING RM. CP'BD.
Scale 1 : 50

BED RM.-2&3 WARDROBS
Scale 1 : 50

BED RM 1 WARDROBE
Scale 1 : 50

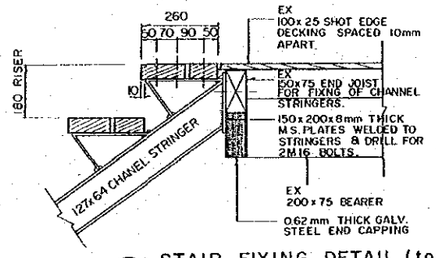


W1 / 1 W1 - 2 OFF
Scale 1 : 20

W2 / 1 W2 - 3 OFF
Scale 1 : 20

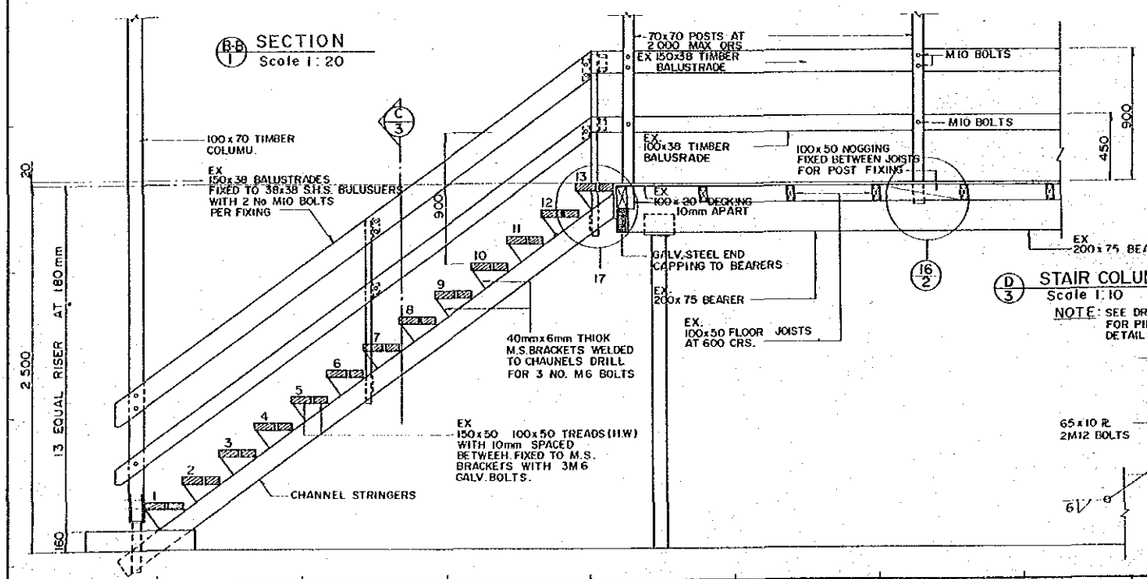
W3 / 1 W3 - 1 OFF
Scale 1 : 20

W4 / 1 W4 - 1 OFF
Scale 1 : 20



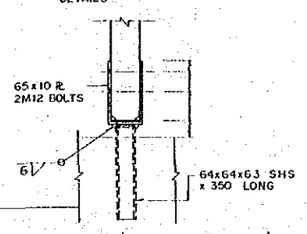
17 / 3 STAIR FIXING DETAIL (top)
Scale 1 : 10

B-B / 1 SECTION
Scale 1 : 20

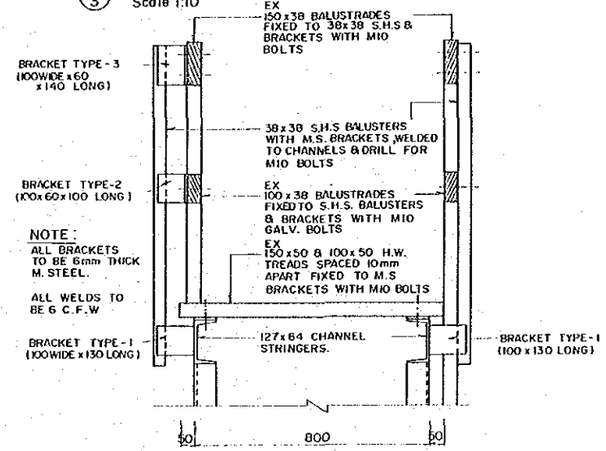


D / 3 STAIR COLUMN BASE DETAIL
Scale 1 : 10

NOTE: SEE DRAWING NO A1/40067 FOR PIER AND FOOTING DETAILS



C / 3 SECTION THRO' STAIR
Scale 1 : 10



SPECIFICATION CONTINUED

DRAINLAYER:
CONNECT TO RETICULATED SEWERAGE WHEN AVAILABVE AS PER A1/100229 A1/100

ELECTRICIAN:
COMPLETE WIRING AND INSTALL FITTINGS IN ACCORDANCE WITH SCHEDULE WHERE POWER AVAIBLE OR NOT.
SOLAR HEATER REFER TO PLUMBER

PAINTER:
PAINT THE FOLLOWING:
ALL EXPOSED FRAMING (OTHER THAN FLOOR FRAMING), WALLS & CEILING LINING: ALL JOINERY INCLUDING BOTH SIDES CUPBOARD DOORS.
NON GALV STEEL OTHER THAN ROOFING . DULUX TIMBER COLOUR (2 COATS) TO STAIR TREADS AND REAR LANDING, VERANDAH DECK, (POLY URETHANE) (2 COATS) TO MAIN FLOOR.

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM
SURVEY BOOK NO.9

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Hashida — Principal — 25 Sep. 1989 — Date

DRAWN: K.E
CHECKED: C.Z.A.
DESIGNED: A. Mazawa
CHECKED: T. Kawakami

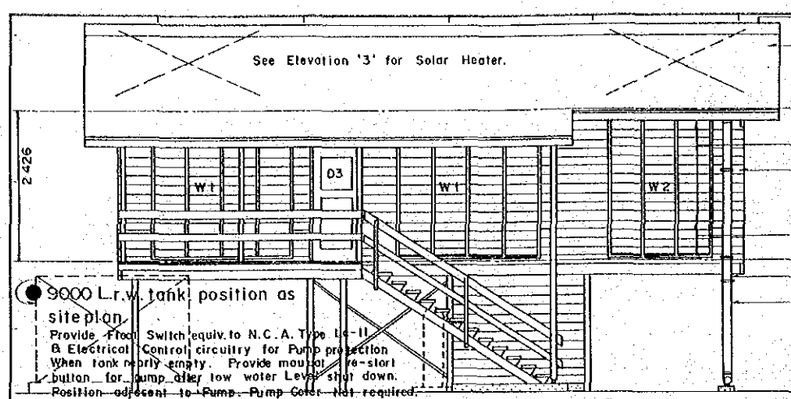
PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER
APPROVED 24.10.89 — SECRETARY

SCALES: AS SHOWN

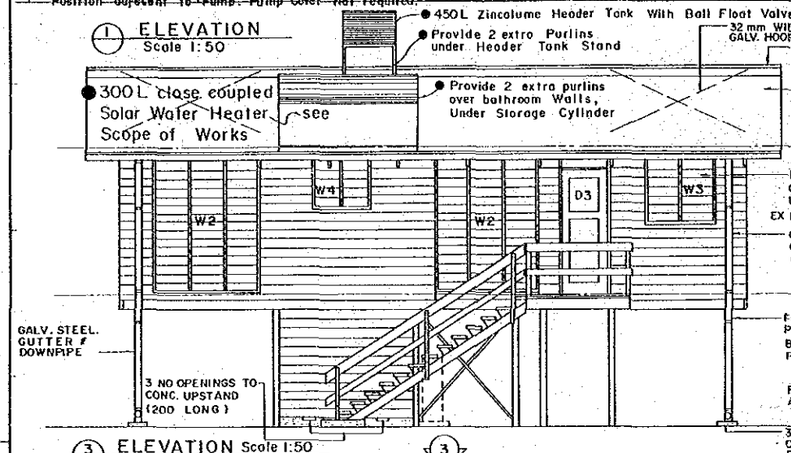
SHEET 35 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
DOOR & WINDOW SCHEDULE STAIR DETAILS, SECTION AND JOINERY ELEVATIONS
PAPUA NEW GUINEA
DEPARTMENT OF WORKS
DRAWING No. A1/ 87794
REV.

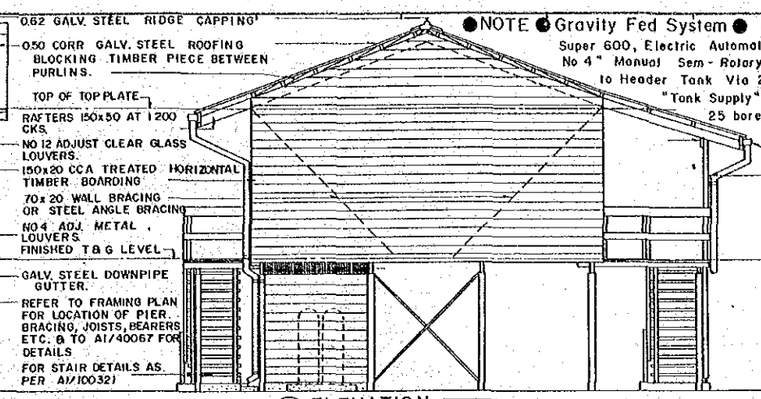


● 9000 L.r.w. tank position as site plan

Provide Float Switch equiv. to N.C.A. Type LC-11 & Electrical Control circuitry for Pump protection When tank nearly empty. Provide manual re-start button for pump after low water Level shut down. Position adjacent to Pump. Pump Cover not required.

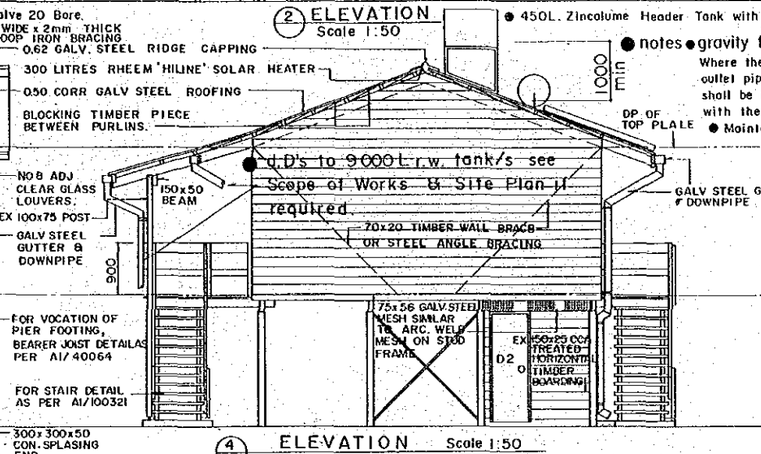


1 ELEVATION Scale 1:50



2 ELEVATION Scale 1:50

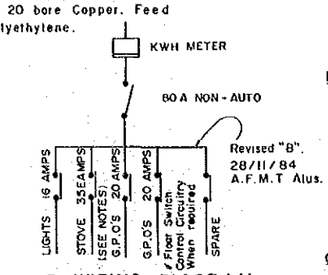
● NOTE ● Gravity Fed System ● Provide equivalent to :- PUMPS: "Southern Cross" Super 600, Electric Automatic Constant Water Pressure Pump. & "Simac No 4" Manual Sem-Rotary Pump - to by-poss Electric Pump. Both pumps to Header Tank Via 20 bore G.S. piping, & allow for "reducers" at pumps. "Tank Supply" to Feeds Service Line - 20 bore copper - to Hot Tank, 25 bore copper. Feeds Service Line 20 bore Copper. Feed Lines 12 bore Copper or Polyethylene.



● notes ● gravity fed Solar Water Heater ● See Scope of Works ●

Where the Solar Heater is gravity fed from a Header Tank, the inlet & outlet pipes, together with all related system fittings & accessories, shall be increased in diameter or adjusted as appropriate, in accordance with the Manufacturers Recommendations for gravity fed systems

● Maintain 1000 minimum vertical between Header Tank Outlet & Hot Cylinder Inlet. ● Consult Manufacturer for Maximum Lengths of all Feed Lines.



WIRING DIAGRAM WESTINGHOUSE LQ8FD

SYMBOL	FITTING DESCRITIONS
	1300mm CEILING FAN WITH REGULATOR FITTING WEATHERITE OR SIMILAR
	1x40 BATTEN FLUORESCENT FITTING H.P.P APPROVED TYPE
	1x20 BATTEN FLUORESCENT FITTING H.P.P APPROVED TYPE
	MAIN DISTRIBUTION BOARD WESTING HOUSE CIRCUIT BREAKER
X	SWITCH 10 AMP ONE WAY FLUSH APPROVED TYPE
	GP.O 10 AMP FLUSH APPROVED TYPE
M	METER BOX ELECT. COMMISSION SPECIFICATION
	35 AMP. ISOLATING SWITCH FOR STOVE MOUNTED 400

ELECTRICAL LEGEND

SPECIFICATIONS

REFER TECHNICAL SPECIFICATION FOR EACH TRADE.
WHERE STATED SEISMIC ZONES A & B ARE THOSE AREAS AS DETERMINED BY THE PAPUA NEW GUINEA BUILDING REGULATIONS 1971
WHERE STATED HIGHLANDS AREAS ARE THOSE 1,200 METERS OR MORE ABOVE SEA LEVEL COASTAL AREAS ARE THOSE BELOW.

EXCAVATOR

DRAWINGS ARE PREPARED FOR LEVEL SITE.
EXCAVATE UNLEVEL SITE FOR LEVEL BENCH TO PROVIDE 2 400 METRE MINIMUM.
CLEARANCE UNDER FLOOR JOISTS & 2100 MM MIN. BETWEEN BEARERS & LAUNDRY SLAB EXCAVATE 1800 MM BEYOND PERIMETER OF LAUNDRY WITH 25mm FALL AWAY

REMOVE SURPLUS EXCAVATED MATERIALS FROM SIDE OR SPREAD ON SIDE AS DIRECTED

CONCRETOR

PLACE REINFORCEMENT AND POUR CONCRETE FOR ALL ITEMS INDICATED AND INCLUDED IN SCOPE OF WORK. MONOLITHIC STEEL TROWEL FINISH TO FLOOR SLAB FOOTING TO CLOTHES HOIST SHALL BE 200x200x600 DEEP CONC. CONCRETE SHALL BE GRADE 20 REIFORCEMENT DESIGNATED F SHALL BE FABRIC CONFORMING TO AS 1304 AND R SHALL BE PLAIN ROUND BARS CONFOR MING AS 1302

METALWORKER

REFER DRAWING A1/40067 FOR SHEDULE OF PIERS AND BRACING PROVIDE WHERE DIRECTED GALV. STEEL ROTARY CLOTHES HOIST SIMILAR TO HILLS
FIT GALV. STEEL ARC WG23G4 SECURITY MESH TO ALL WINDOWS

CARPENTER & JOINTER

FRAME ALL COMPONENTS TO SIZES SHOWN AS INDICATED. TIMBER SHALL BE STRENGTH GROUP. F 11.

DOOR SCHEDULE

D-1 - 2032 x 813 x 35 20 OFF
D-2 - 2032 x 762 x 35 50 OFF
D3 - FLYWIRE DOOR 2032 x 813 x 30 - 20 OFF SIZES ARE OVERALL FRAME AND LINING

HARDWARE

HANG ALL DOORS ON 100mm BRASS BUTTS. FIT 100mm C.P CABIN HOOKS TO DOORS D1 & D2.
ALL LOCKS SHALL BE LOCKWOOD OR SIMILAR APPROVED IN SATIN CHROME FINISH.
D1 - 206 DEADLOCKING HIGH LATCH
D2 - 536 EXTERIOR DOOR ESCAPE DEAD LATCH.
D2 TO TOILET & SHOWER 506 PRIVACY LATCH.
FIT HILLS OR SIMILAR ALUMINIUM & P.V.C WEATHER SEALS TO DP.

FLYWIRE DOORS

'LOCKWOOD' 307 SCREEN DOOR LATCH & LOCK WOOD 402 PNEUMATIC DOOR CLOSERS TO D3.

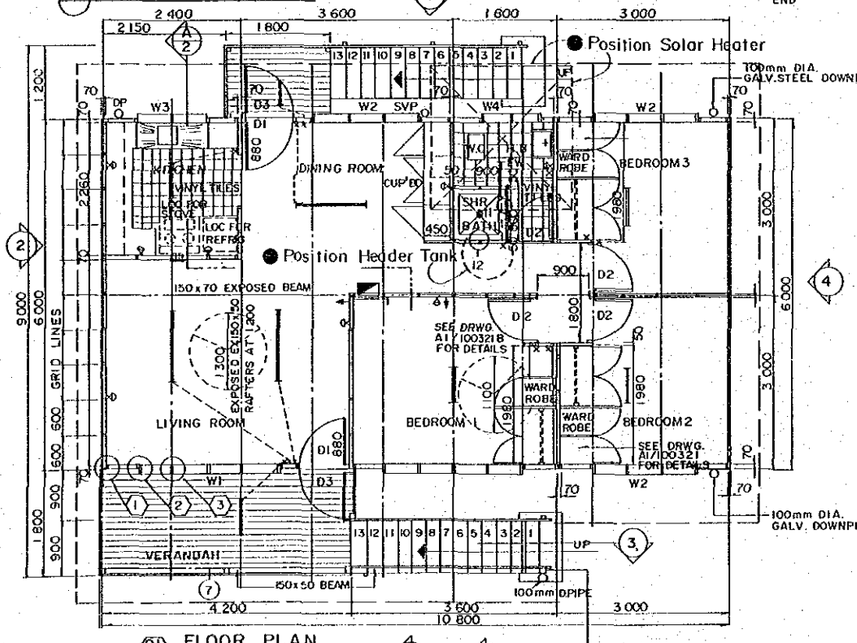
Revision B : 28/11/84 A.F.M.T alterations to Solar Water Heater & Header Tank. Storage Tank & H.W reticulation.

● **reticulate hot water to:-** Kitchen Sink Shower Wash Hond Bosin - Loundry Tub, for Mains Pressure and Gravity Fed Systems

● **solar heater type.** The solar Heater used shall be the same as that currently accepted by D.W. Plant and Transport Branchs Contract for supply of Solar Water Heaters. Contractor to comply fully with all installation recommendations of the Manufacturer.

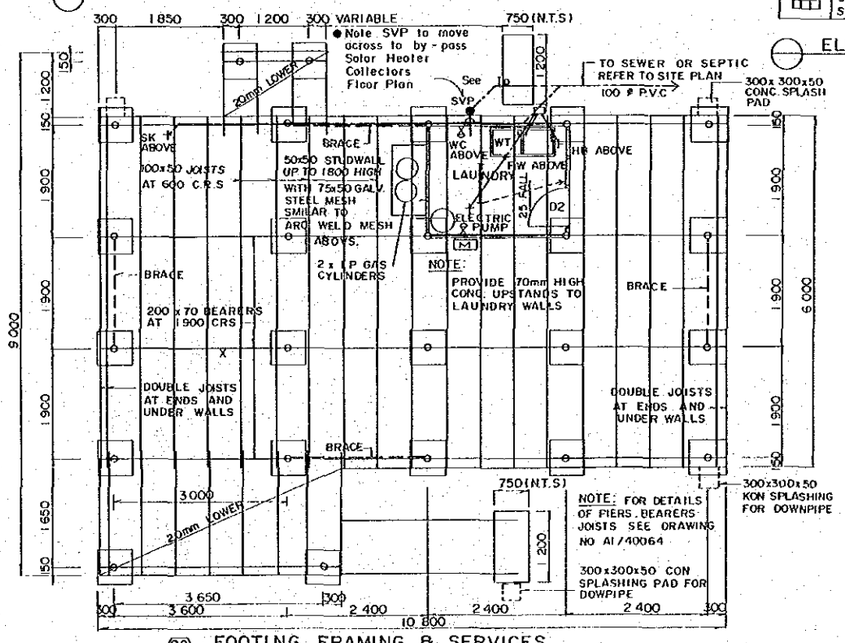
● **solar heater position.** The Solar Heater shall face Northerly. If the siting of the House faces the Bathroom to th Soth-then see Scope of Works for revisions for "Against Pitch Stand" or strengthening of rafters and purlins on opposite side.

● Provide "With Pitch" or "Against Pitch" or "Cross Pitch" Stands - all as recommended by the Manufacturer.



6/1 FLOOR PLAN Scale 1:50

EX. 100x25 TIMBER POST



6/2 FOOTING FRAMING & SERVICES Scale 1:50

● SERVICE LEGEND

S.K. - STAINLESS STEEL SINK
H.B. - HAND BASIN
SHR. - SHOWER TRAY
W.C. - WATER CLOSET
W.T. - WASH TROUGH
D.T. - DISCONNECTION TRAP
I.O. - INSPECTION OPENING
S.V.P. - SOIL VENT PIPE

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NO.

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Mitchell, Principal — 25 Sep. 1989 Date

DRAWN: K.E.
CHECKED: C.R.J.
DESIGNED: A. Magsie
CHECKED: T. Kawakami

PROJECT ENGINEER: W. Kinabo
EXECUTIVE ENGINEER:

RECOMMENDED: A. Magsie — PRINCIPAL ENGINEER
APPROVED: 24.10.89 T. Lemus — SECRETARY

SCALES: AS SHOWN
SHEET 36 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
PLANS, ELEVATIONS ELECTRICAL LEGEND AND WIRING DIAGRAM
PAPUA NEW GUINEA
DEPARTMENT OF WORKS
DRAWING No. A1/ 87795
REV.