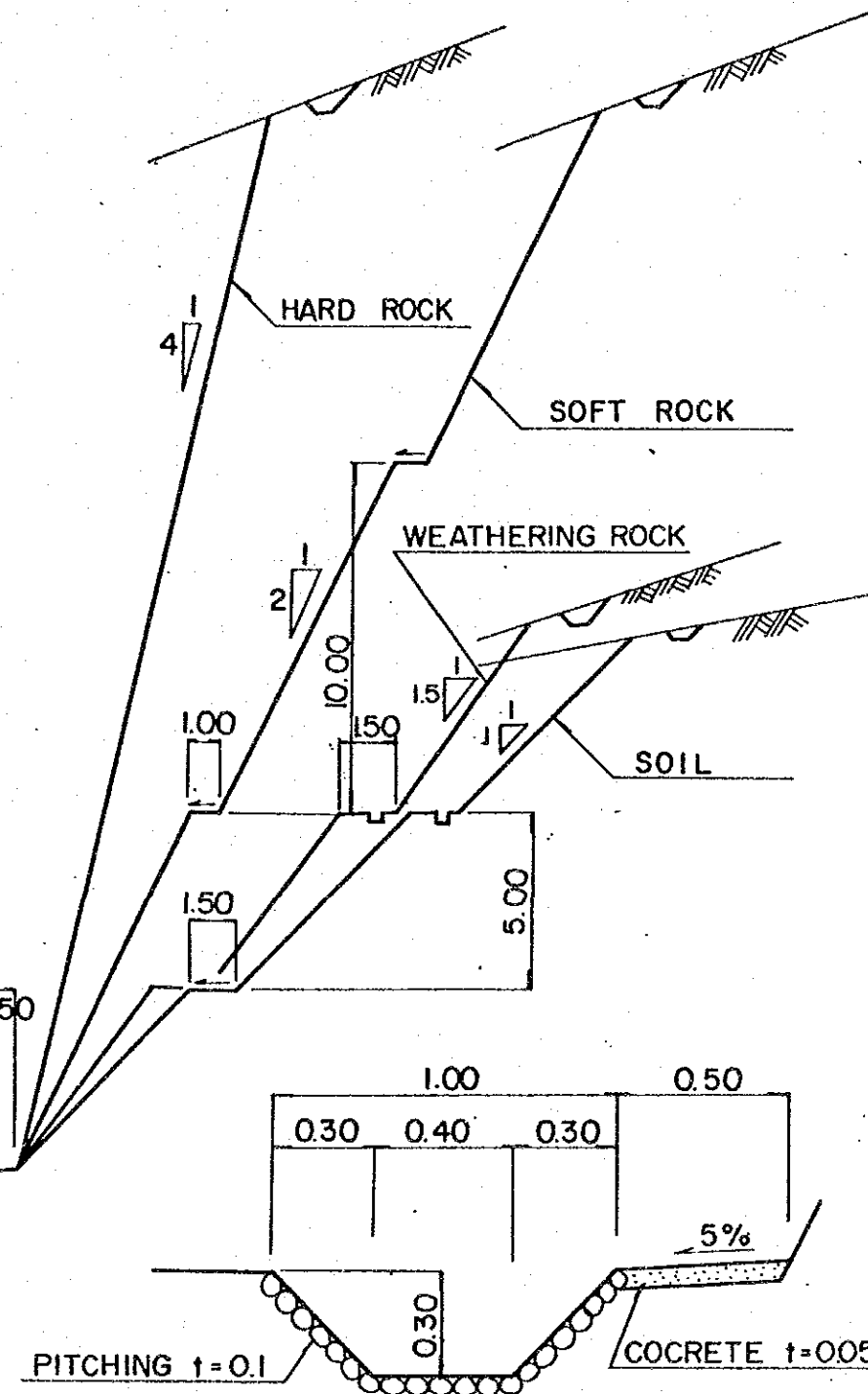
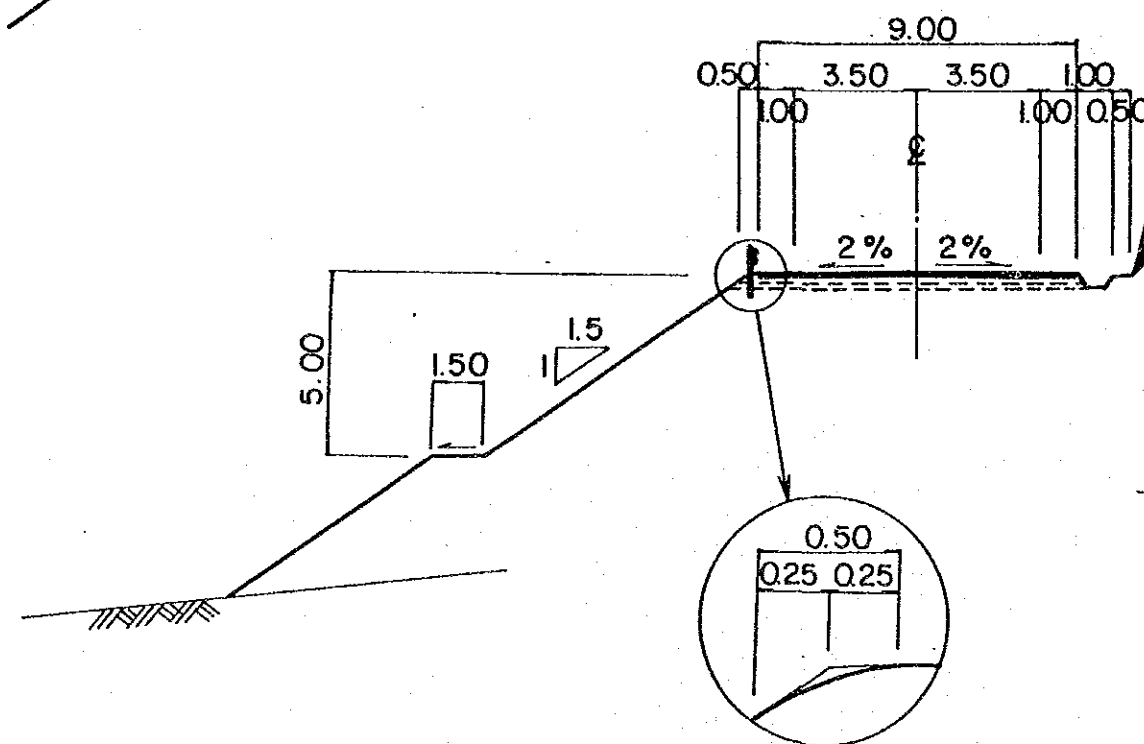
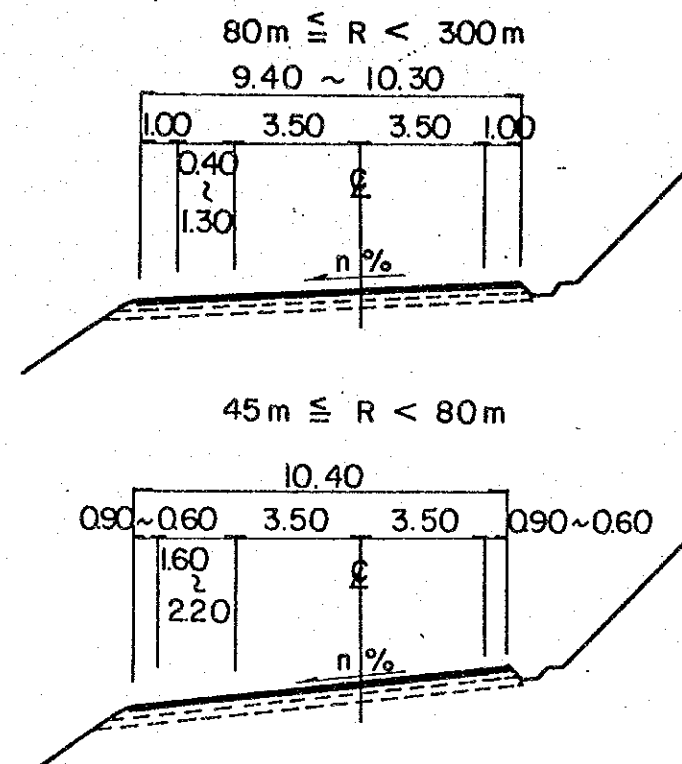


TYPICAL CROSS SECTION (I)

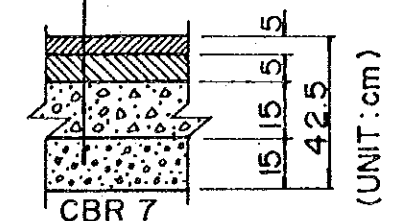
WIDENING OF CURVED SECTION



ROADSIDE DRAINAGE

ASPHALT PAVEMENT

SURFACE COURSE
BINDER COURSE
BASE COURSE(CBR 80)
SUBBASE COURSE(CBR30)



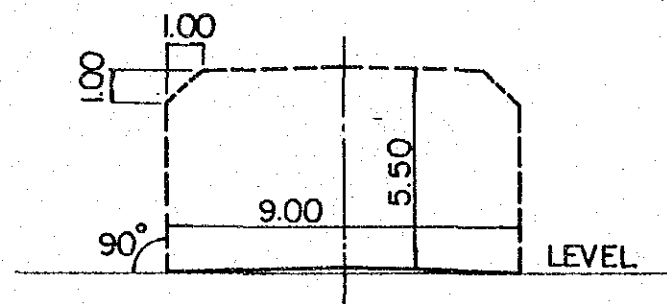
UNIT: m

TYPICAL CROSS SECTION (I)

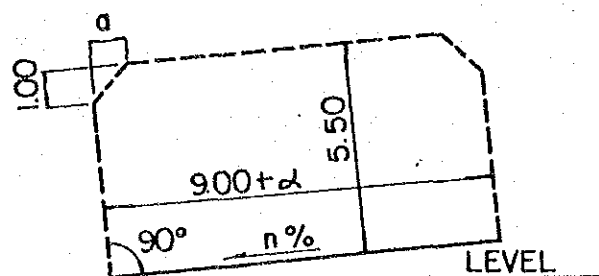
TYPICAL CROSS SECTIONS (2)

CLEARANCES

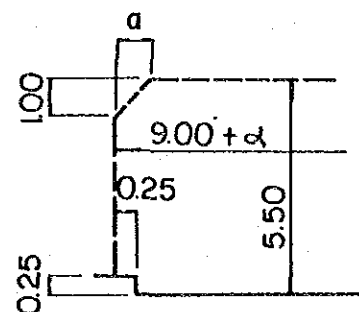
SECTION OF EARTH WORK AND BRIDGES LESS THAN 50M
NORMAL SECTION



SECTION OF SUPERELEVATION



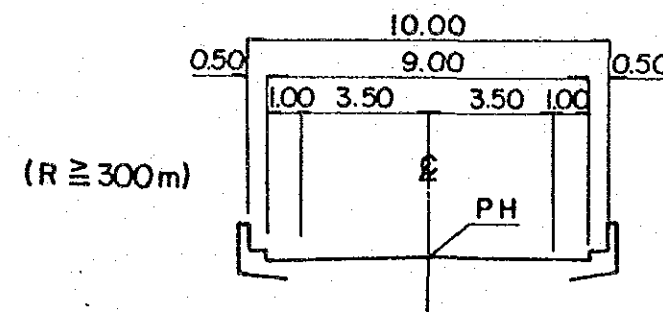
BRIDGES MORE THAN 50M AND TUNNELS



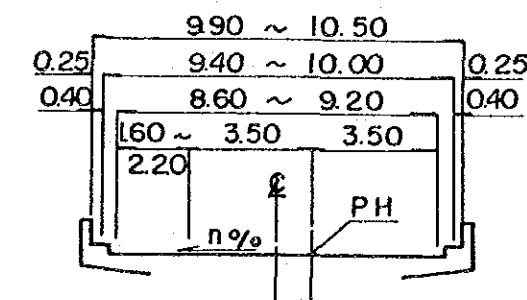
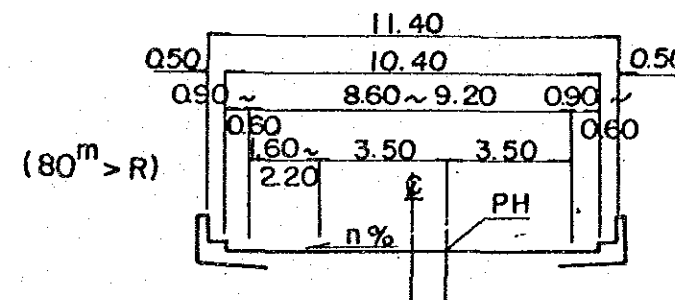
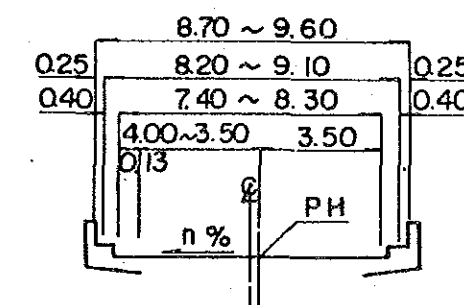
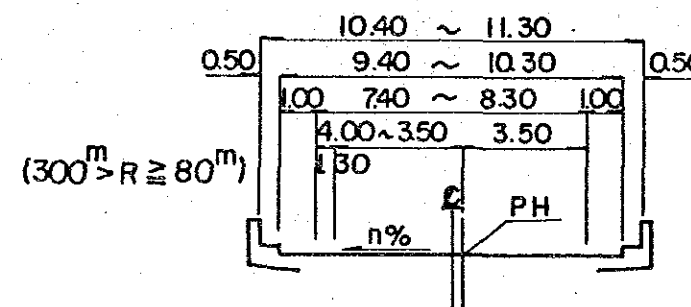
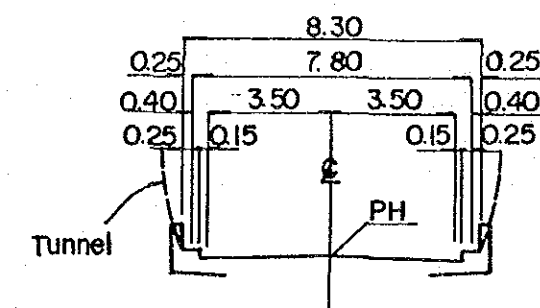
α : WIDTH OF SHOULDERS

BRIDGES AND TUNNELS

BRIDGES LESS THAN 50M

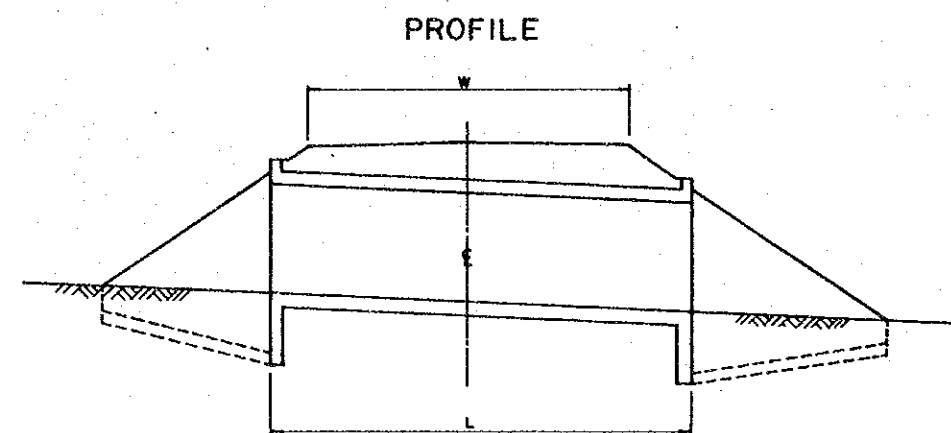
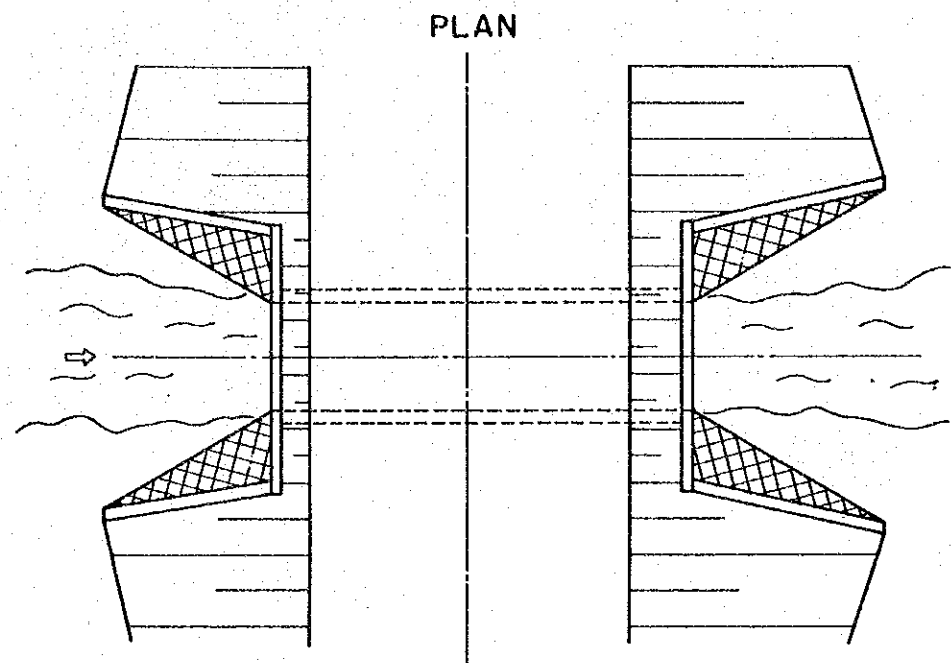


BRIDGES MORE THAN 50M AND TUNNELS



UNIT : m

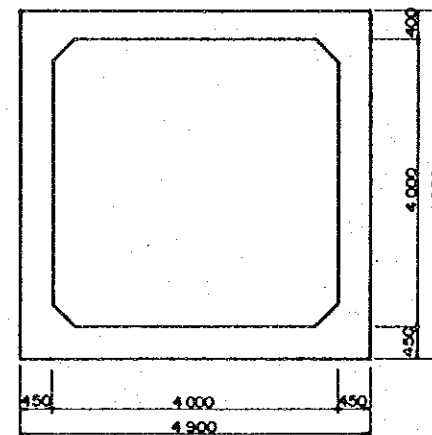
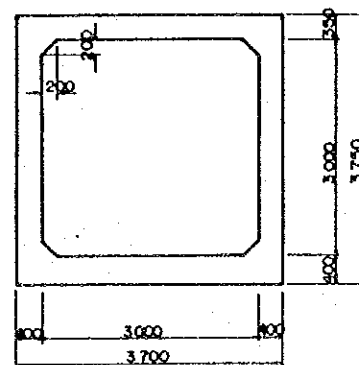
CULVERT BOX S = 1/100



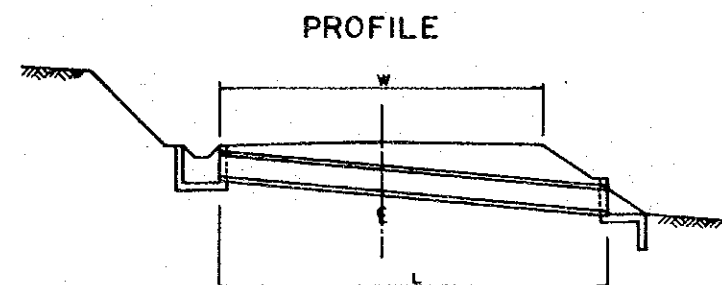
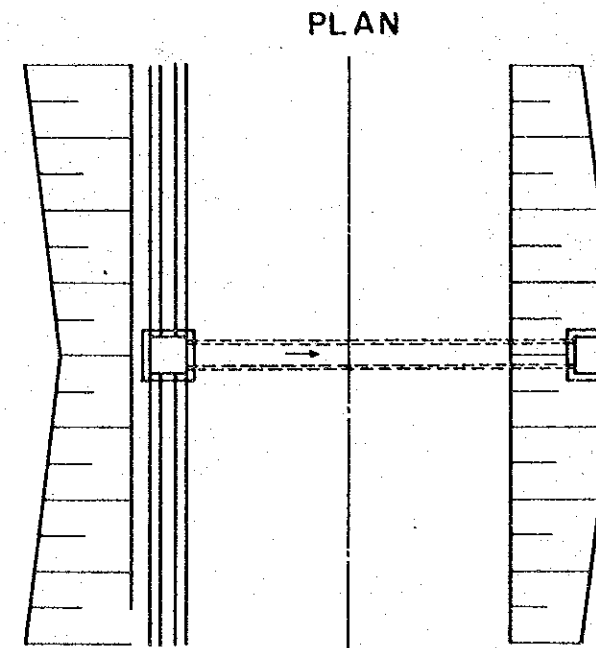
CROSS SECTION S = 1/50

300 x 300

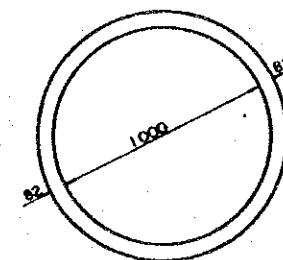
400 x 400



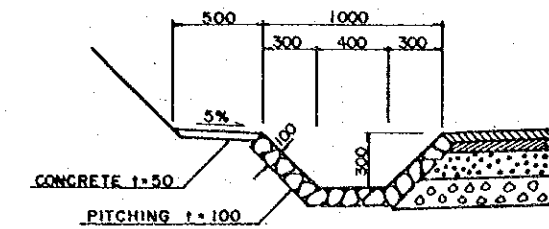
CULVERT PIPE S = 1/100



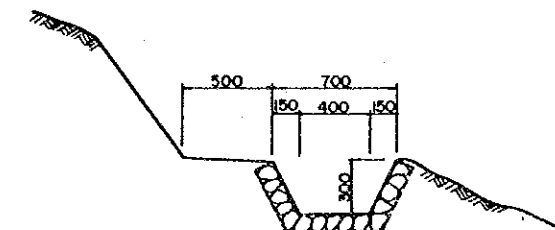
CROSS SECTION



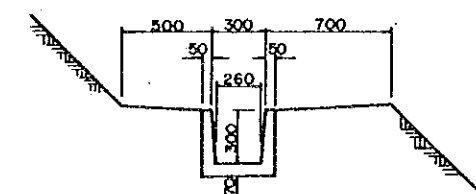
ROADSIDE DRAINAGE S = 1/20



TOP OF SLOPE DRAINAGE S = 1/20

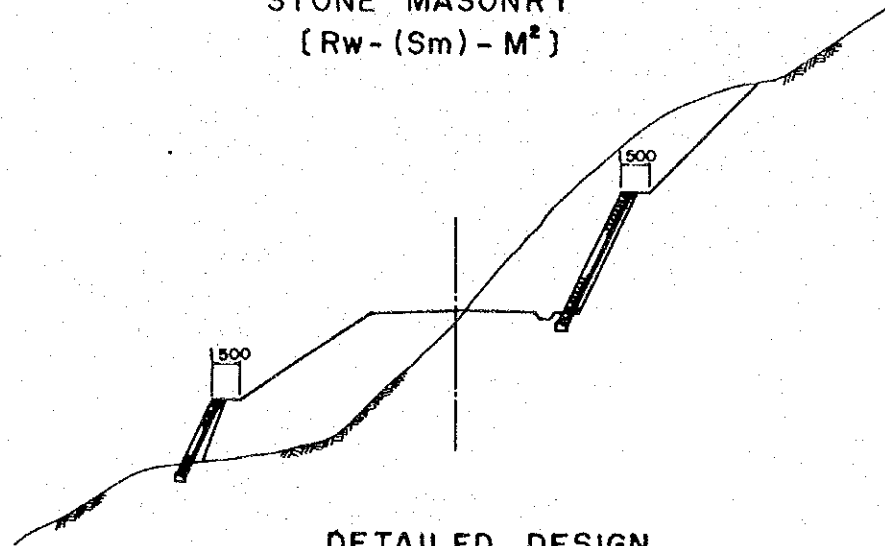


DRAIN DITCH ON BERM S = 1/20



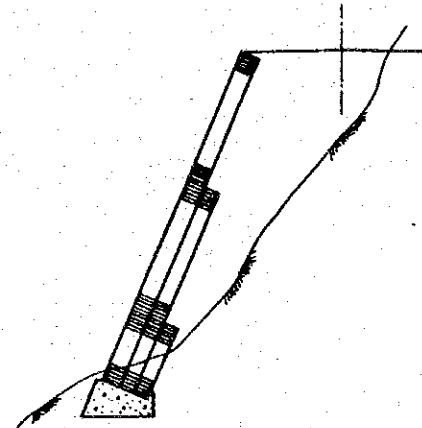
RETAINING WALLS

STONE MASONRY
[Rw - (Sm) - M²]

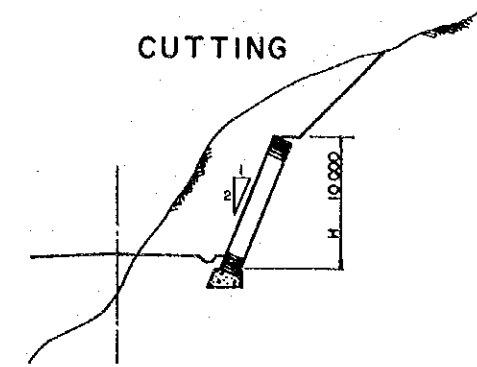


GRID TYPE RETAINING WALLS
[Rw - (Gr) - M²]

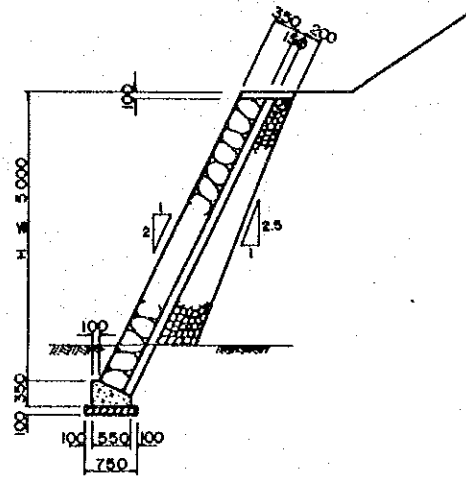
EMBANKMENT



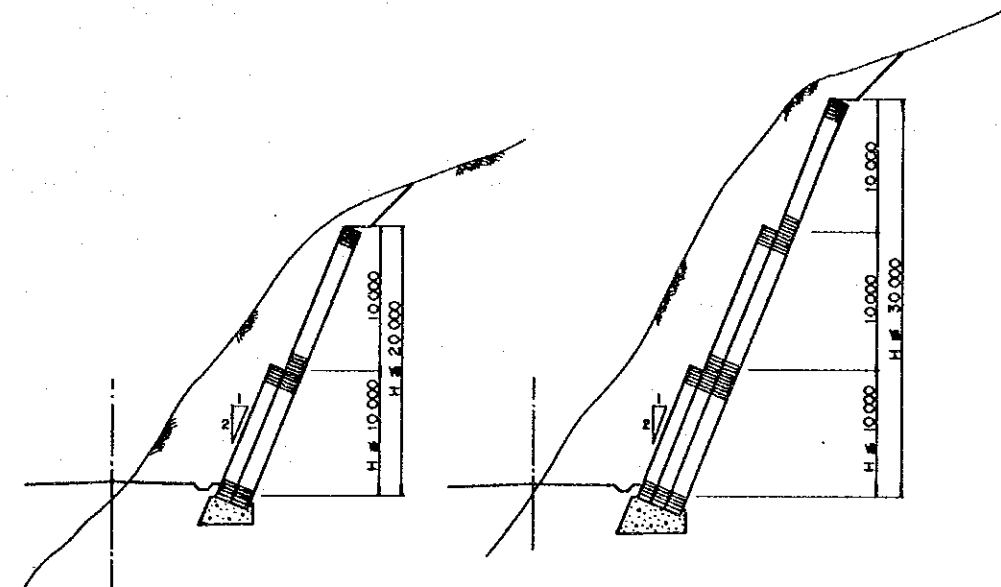
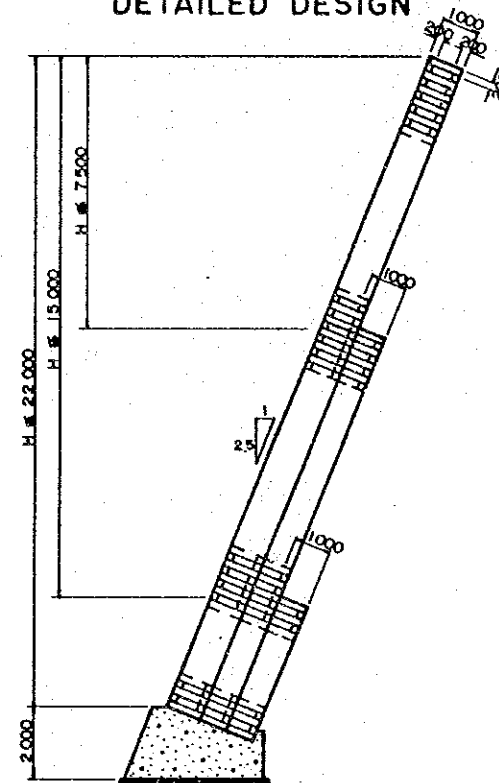
CUTTING



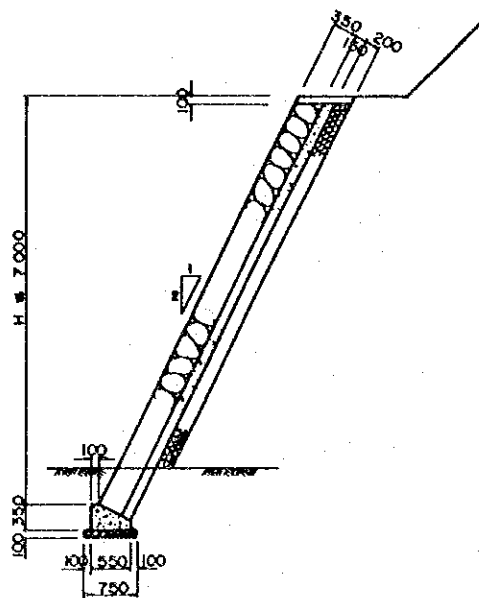
DETAILED DESIGN
EMBANKMENT



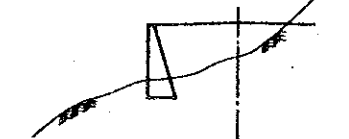
DETAILED DESIGN



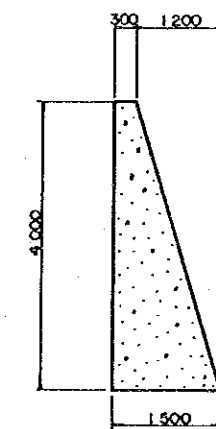
CUTTING



GRAVITY TYPE

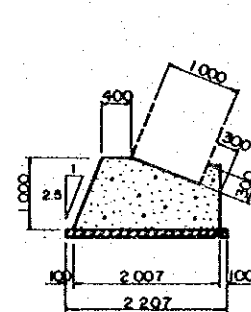


DETAILED DESIGN

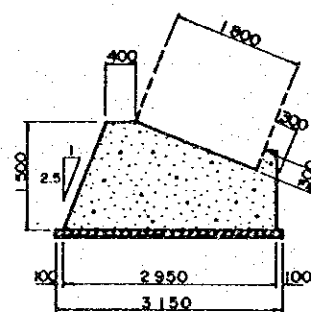


FOUNDATION

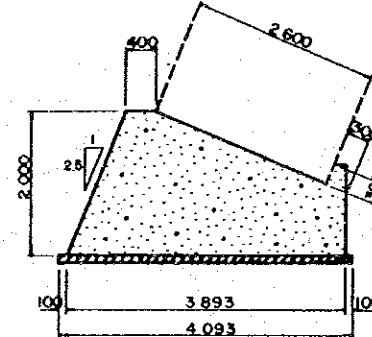
SINGLE



DOUBLE



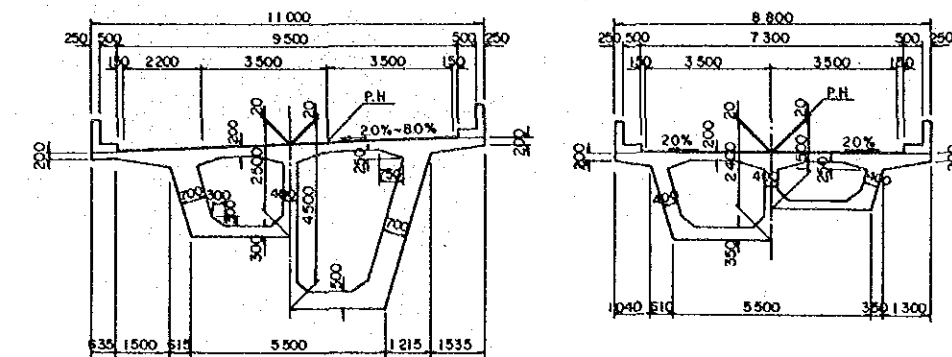
TRIPLE



SIDE VIEW S=1/500

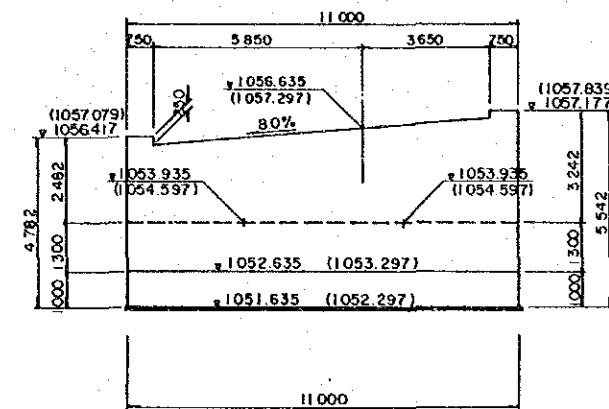
CROSS SECTION S=1/100

1-1 2-2 3-3 4-4



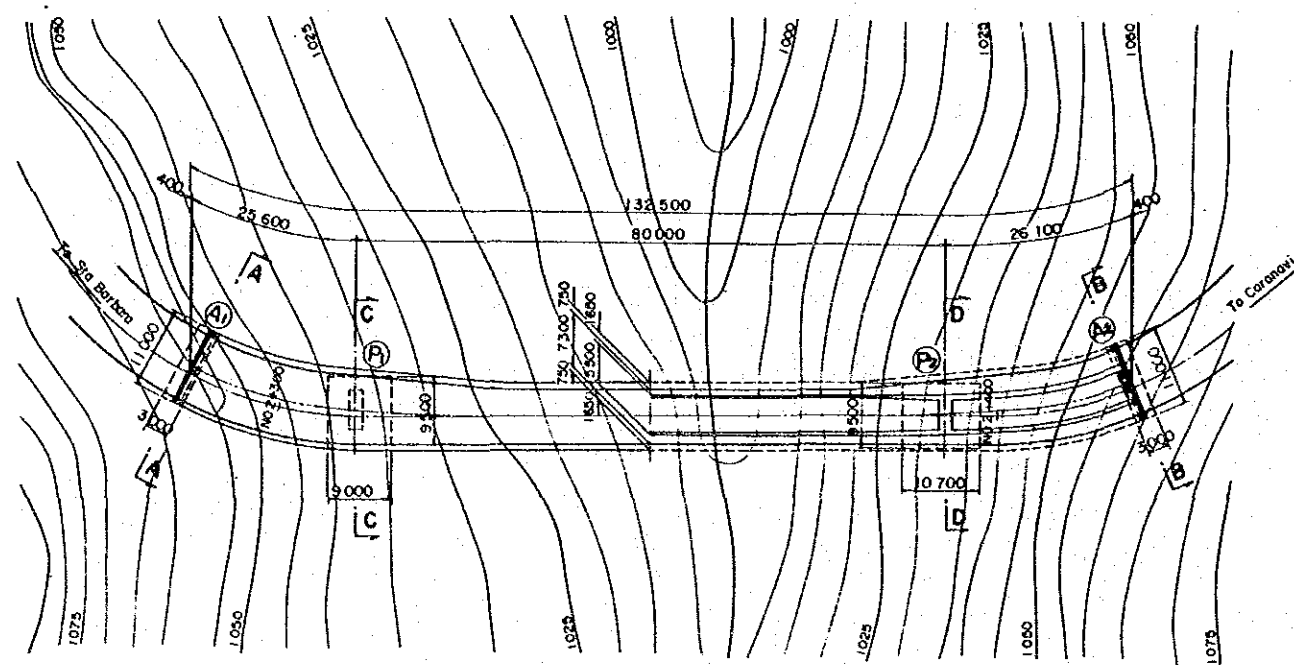
A-A (B-B)

C-C (D-D)



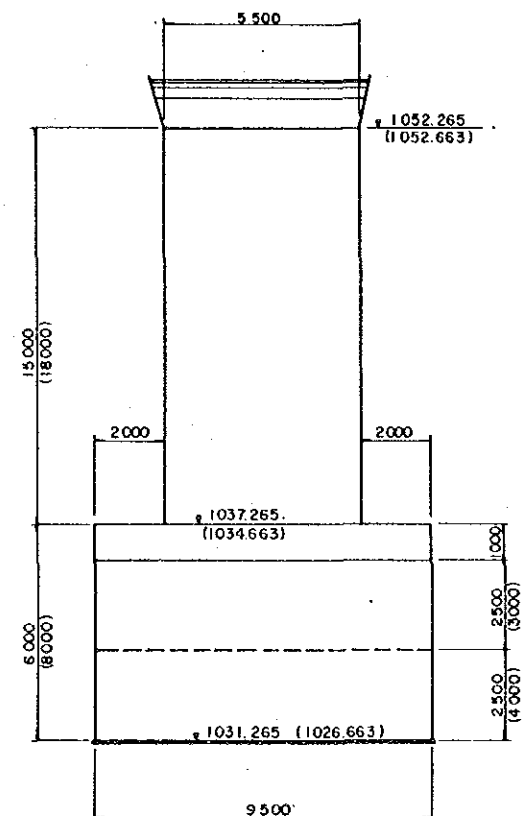
GRADIENT	1.0500%									
PROPOSED HIGHT	1056.50	1056.60	1056.635	1056.70	1056.765	1056.80	1056.90	1057.00	1057.10	1057.163
GROUND HIGHT	1058.20	1057.30	1057.50	1046.10	1036.20	1030.80	1018.20	1004.40	1020.00	1032.90
DISTANCE	20.000	20.000	6.900	13.100	12.900	7.100	20.000	20.000	20.000	12.900
STATION	NO. 2+260	+260	(A1)+296.9	+300	(P1)+312.9	+320	+340	+360	+380	(P2)+392.9
CURVE BAND	R = 50,000									

PLAN S=1/500

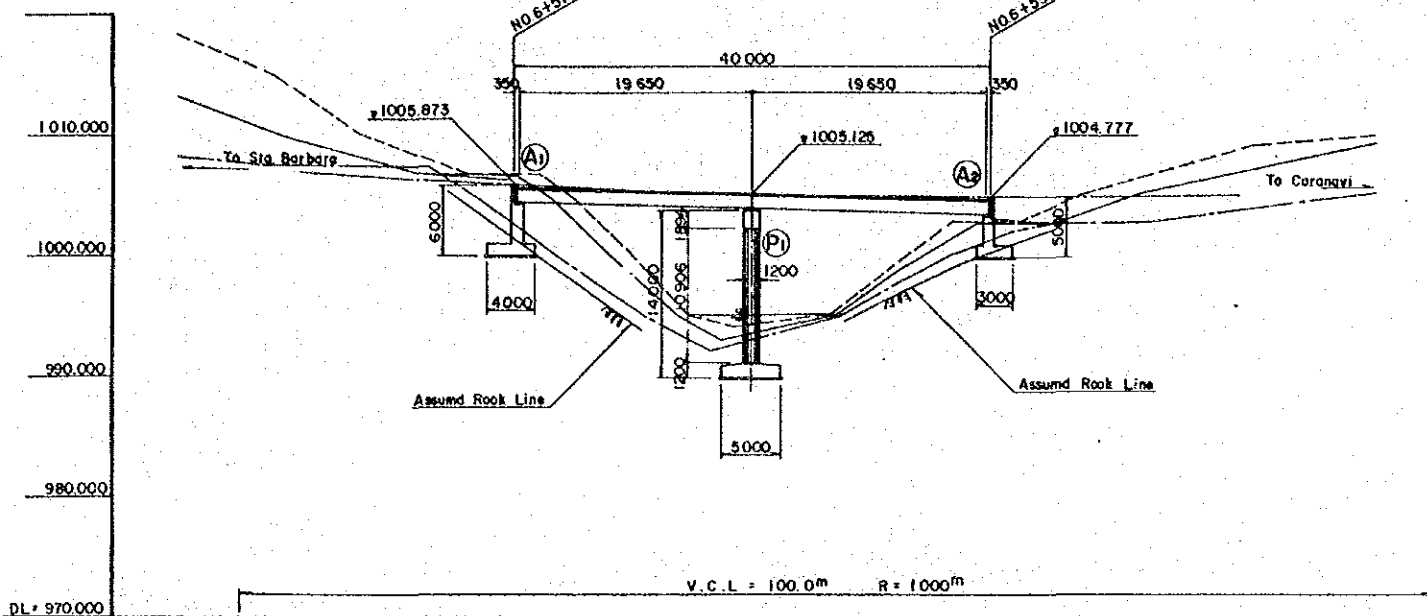


DESIGN CRITERIA

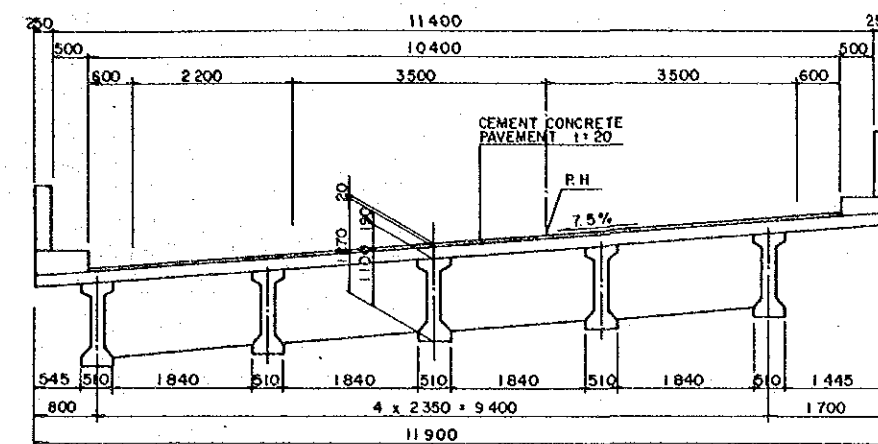
SUPERSTRUCTURE TYPE	PC BOX-SECTION GIRDER
SUBSTRUCTURE TYPE	SPREAD FOUNDATION
BRIDGE LENGTH	132.5m
SPAN LENGTH	25.6m+80.0m+26.1m
EFFECTIVE WIDTH	7.3m~9.5m
CROSS SLOPE	2.0~8.0% SUPERELEVATION
DESIGN VEHICLE	HS-20



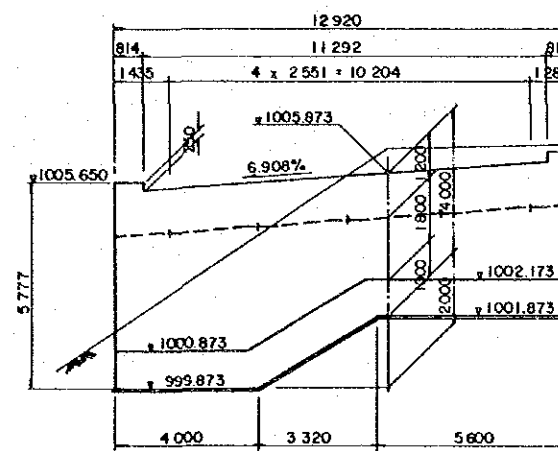
SIDE VIEW S = 1/300



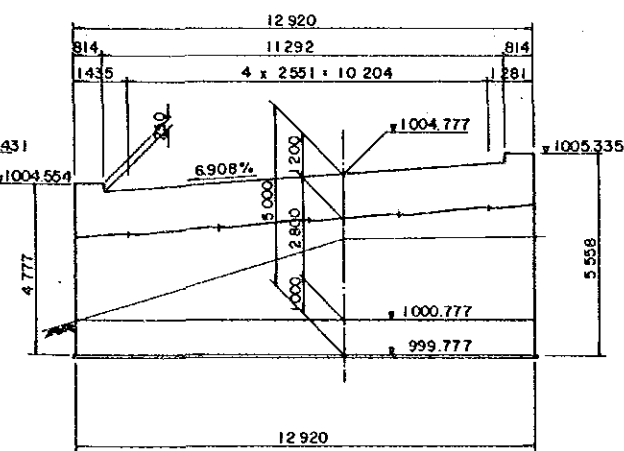
CROSS SECTION (D-D) S = 1/50



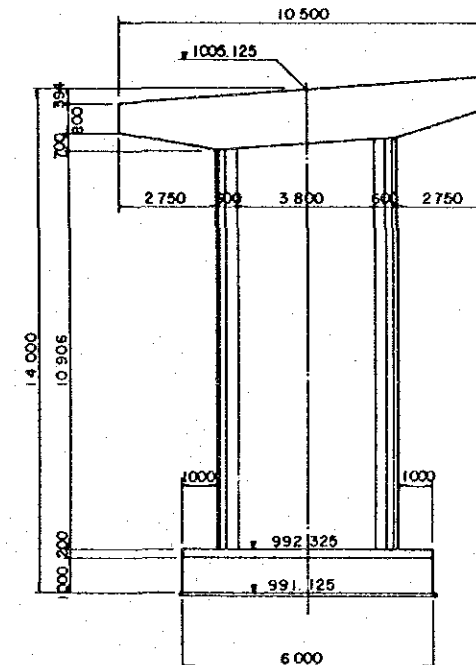
A-A CROSS SECTION S = 1/100



B-B CROSS SECTION S = 1/100



C-C CROSS SECTION S = 1/100

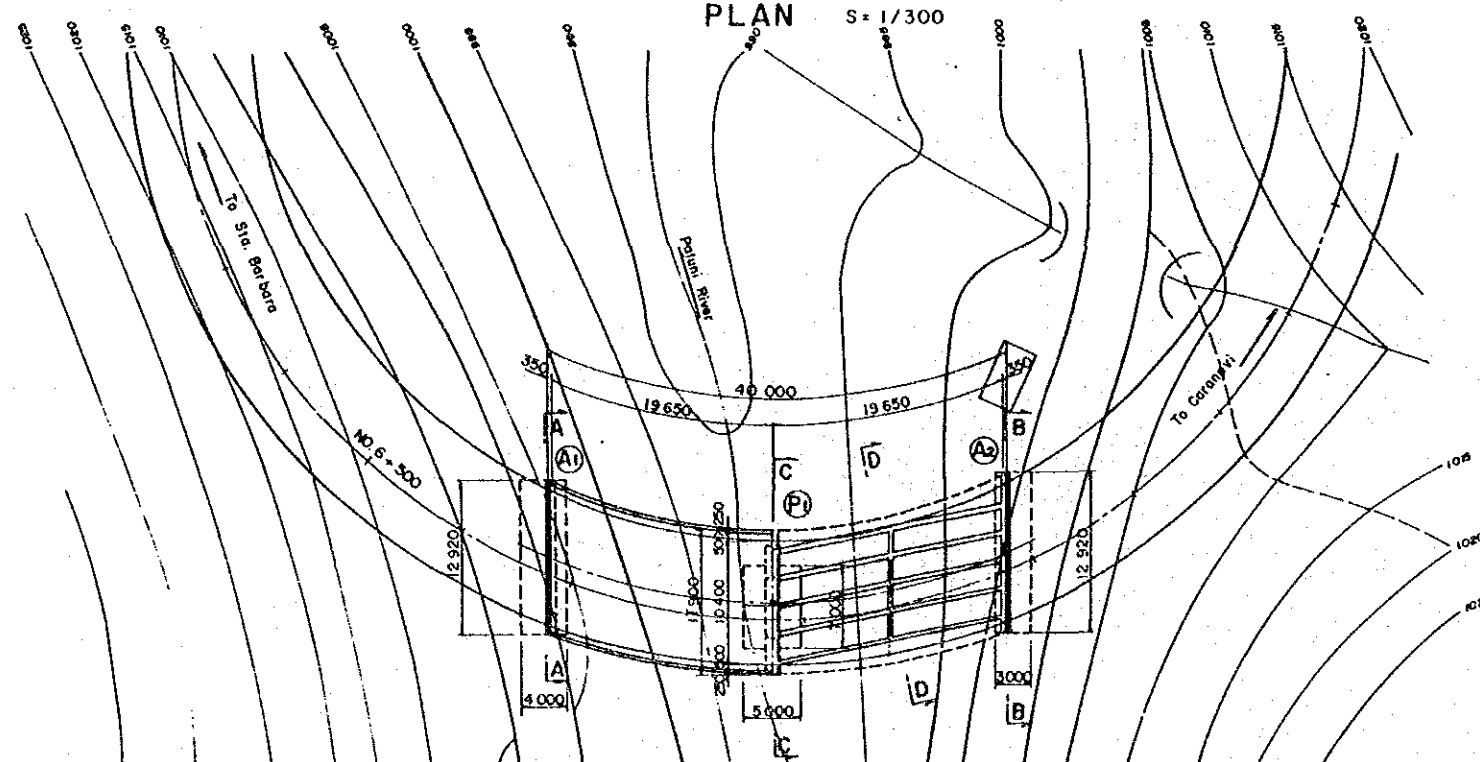


DESIGN CRITERIA

SUPERSTRUCTURE TYPE	PC I-SECTION GIRDER
SUBSTRUCTURE TYPE	SPREAD FOUNDATION
BRIDGE LENGTH	40.0 m
SPAN LENGTH	19.65 + 19.65 m
EFFECTIVE WIDTH	10.4 m
CROSS SLOPE	7.5 %
DESIGN VEHICLE	H5 - 20

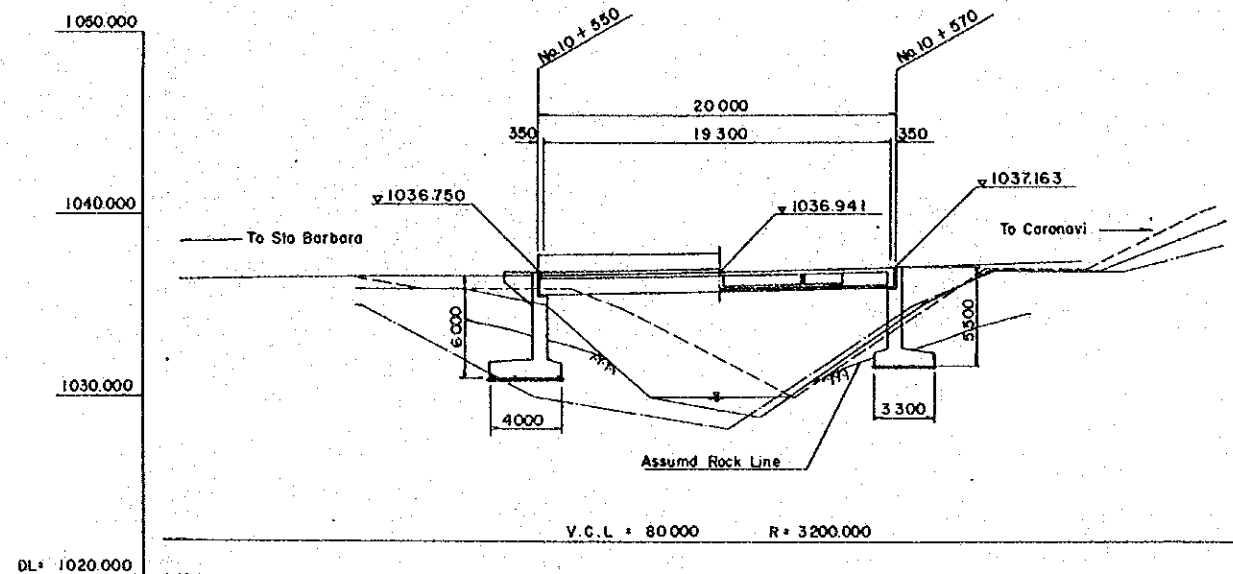
GRADIENT	i = 7.00 %							
PROPOSED HIGHT	1007.550	1006.863	1005.873	1005.763	1005.125	1005.063	1004.777	1004.863
GROUND HIGHT	1012.8	1009.7	1006.5	1005.4	993.3	994.5	995.4	1007.4
DISTANCE	0.000	10.000	17.600	2.400	17.600	2.400	2.600	17.600
STATION	NO. 6+490	+500	NO. 6+576	+320	NO. 6+576	+540	NO. 6+576	+580
CURVE BAND	R = 50 m							

PLAN S = 1/300



SIDE VIEW

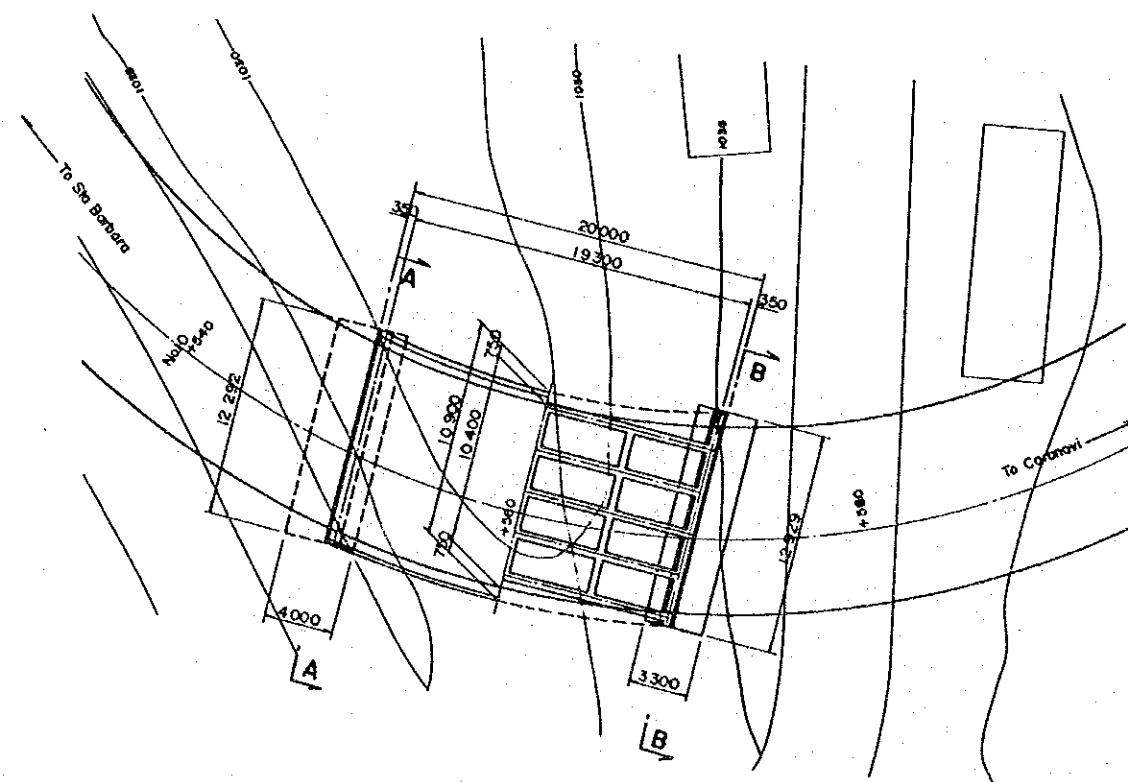
S = 1/200



GRADIENT	1:0.500%						1:3.000%
PROPOSED HIGHT	1036.463	1036.591	1036.750	1036.941	1037.163	1037.416	1037.700
GROUND HIGHT		1035.8	1035.1	1029.1	1033.9	1035.0	
DISTANCE	10 000	10 000	10 000	10 000	10 000	10 000	10 000
STATION	NO.10 +530	+	+550	+560	+570	+580	+590
CURVE BAND	R = 50,000						

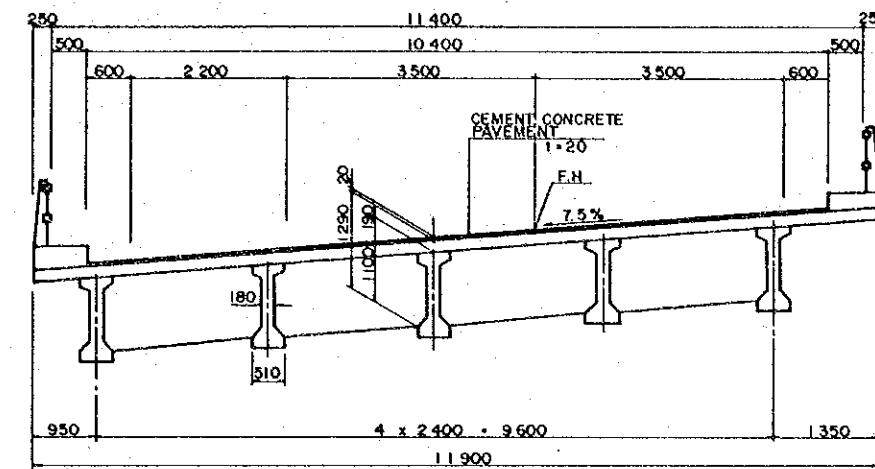
PLAN

S = 1/200



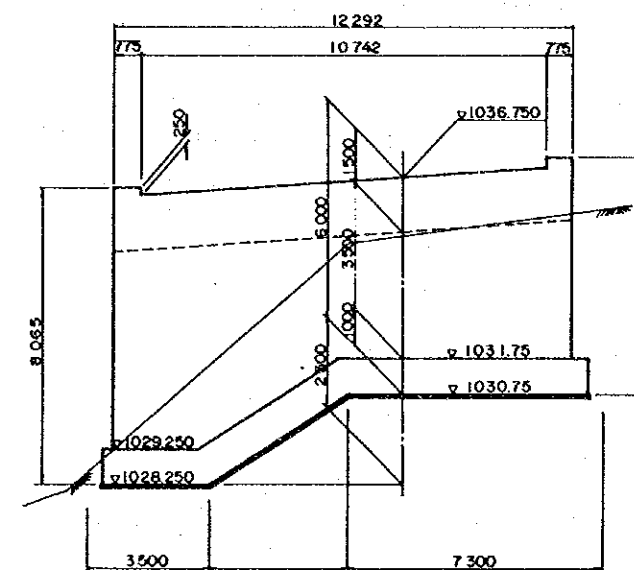
CROSS SECTION

S = 1/50



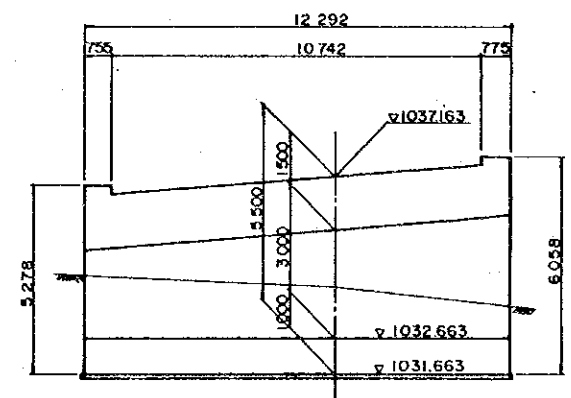
A-A CROSS SECTION

S = 1/100



B-B CROSS SECTION

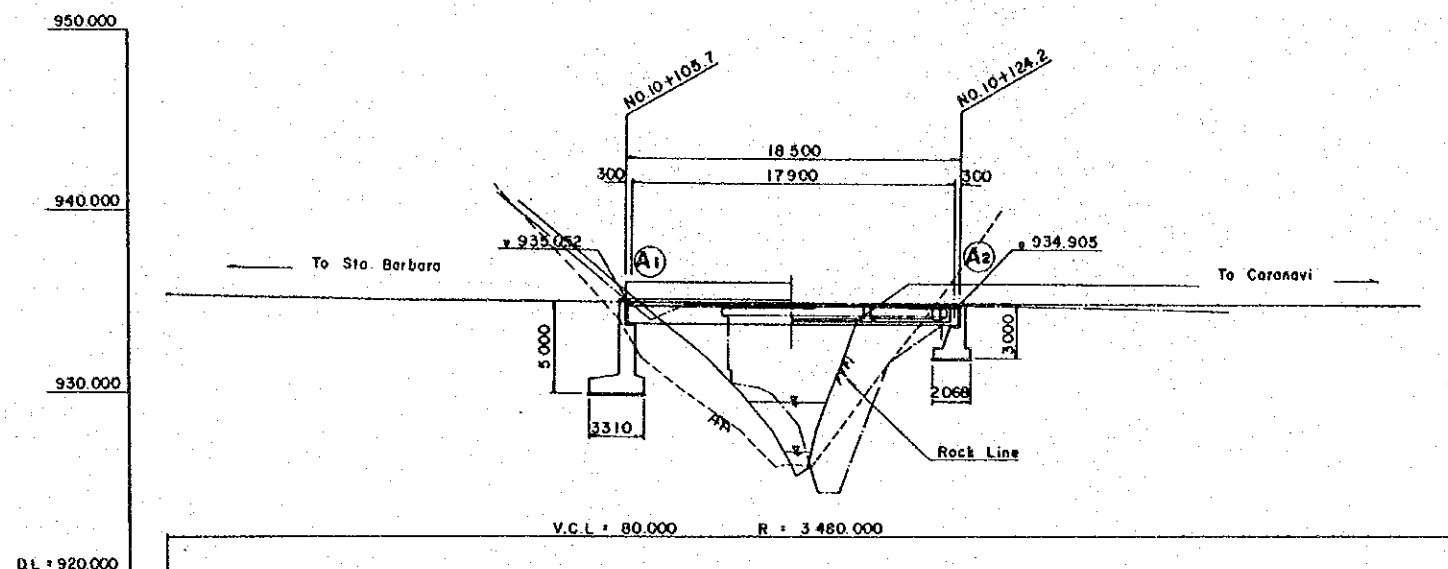
S = 1/100



DESIGN CRITERIA

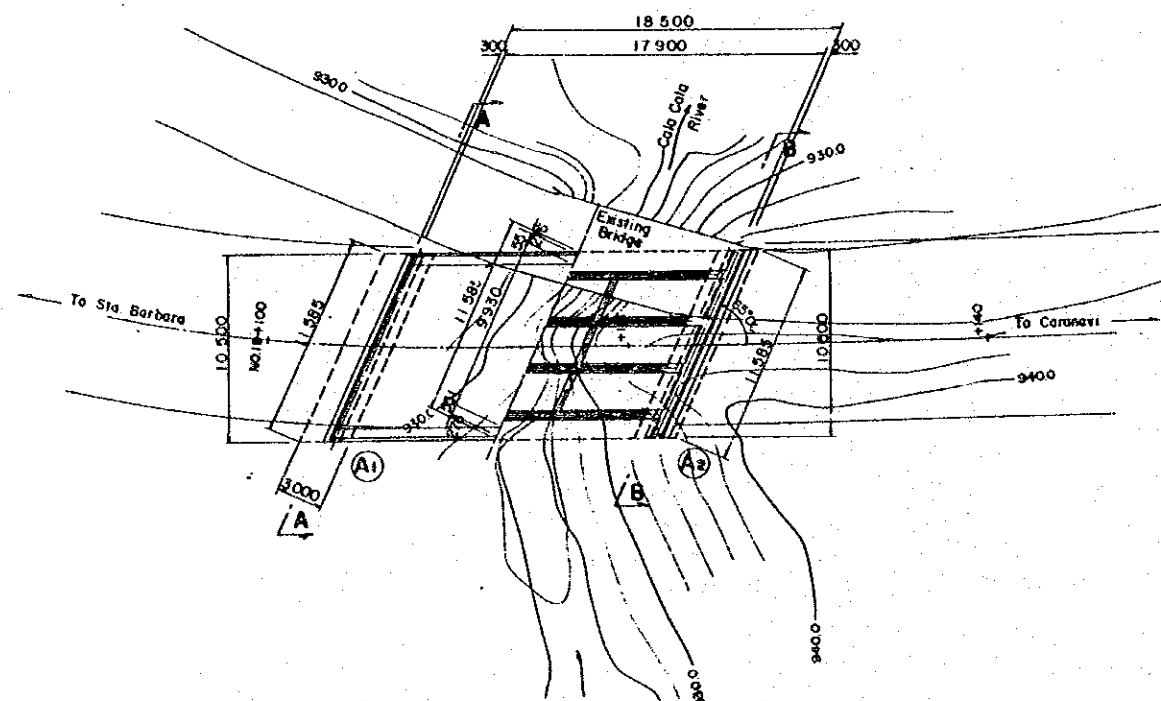
SUPERSTRUCTURE TYPE	PC I-SECTION GIRDER
SUBSTRUCTURE TYPE	SPREAD FOUNDATION
BRIDGE LENGTH	20.0m
SPAN LENGTH	19.3m
EFFECTIVE WIDTH	10.4m
CROSS SLOPE	7.5% SUPERELEVATION
DESIGN VEHICLE	HS-20

SIDE VIEW S = 1/200

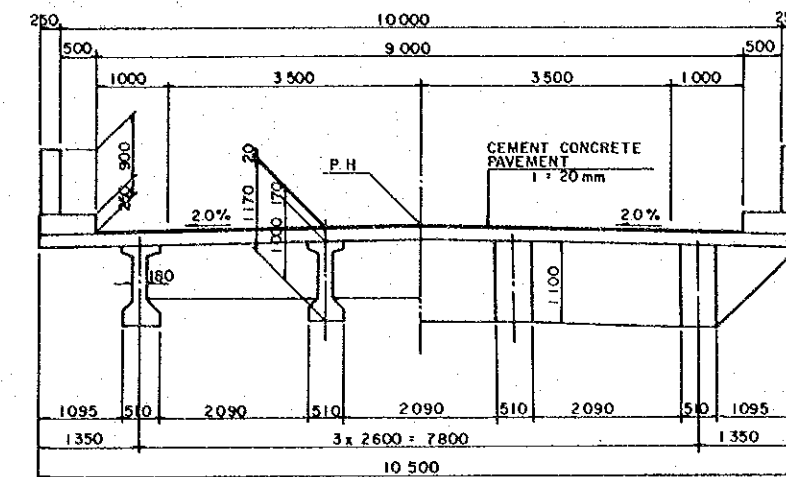


GRADIENT	$i = 1.800\%$									
PROPOSED HIGHT	935.420	935.254	935.118	935.052	935.029	934.930	934.905	934.879	934.858	934.864
GROUND HIGHT										
DISTANCE	10.000	10.000	10.000	5.700	4.300	10.000	4.200	8.800	10.000	10.000
STATION	+80	+90	+100	+105.7 (A1)	+110	+120	+124.2 (A2)	+130	+140	+150
CURVE BAND										

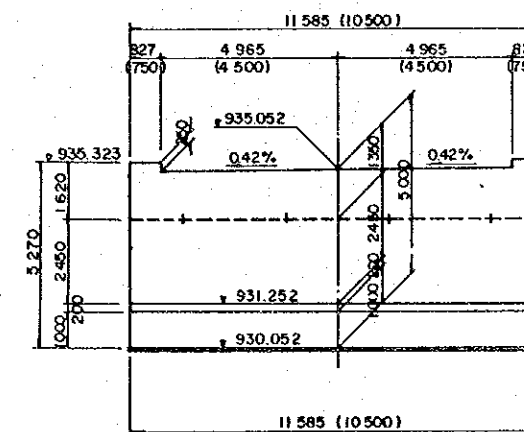
PLAN S = 1/200



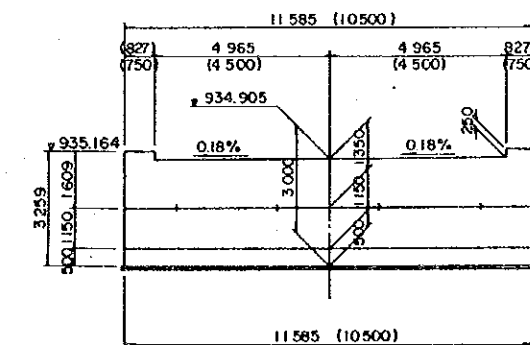
CROSS SECTION S = 1/50



A-A CROSS SECTION S = 1/100



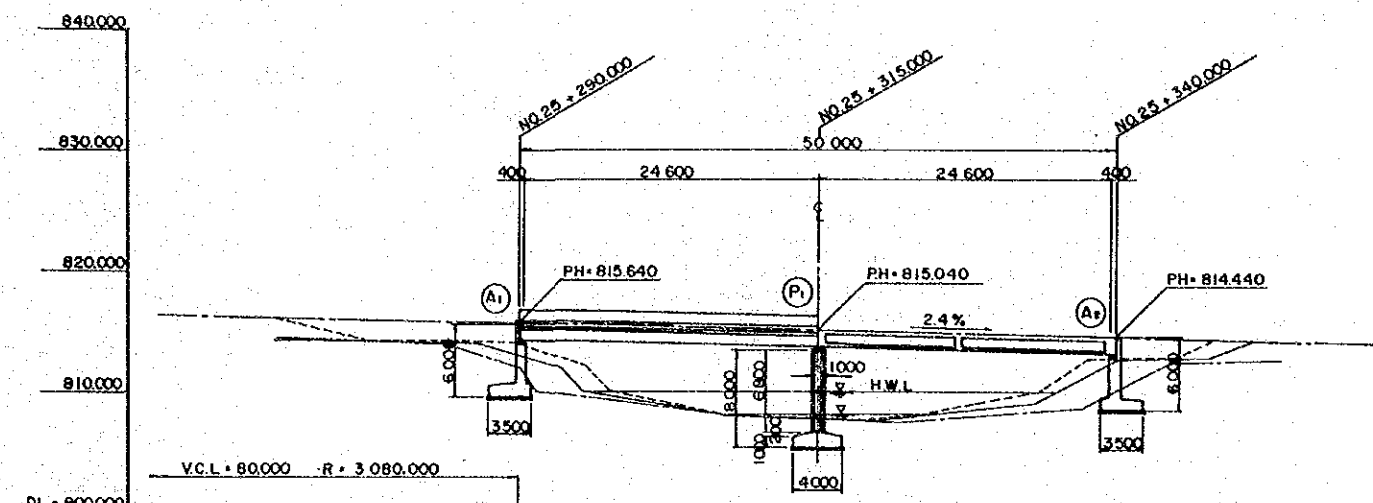
B-B CROSS SECTION S = 1/100



DESIGN CRITERIA

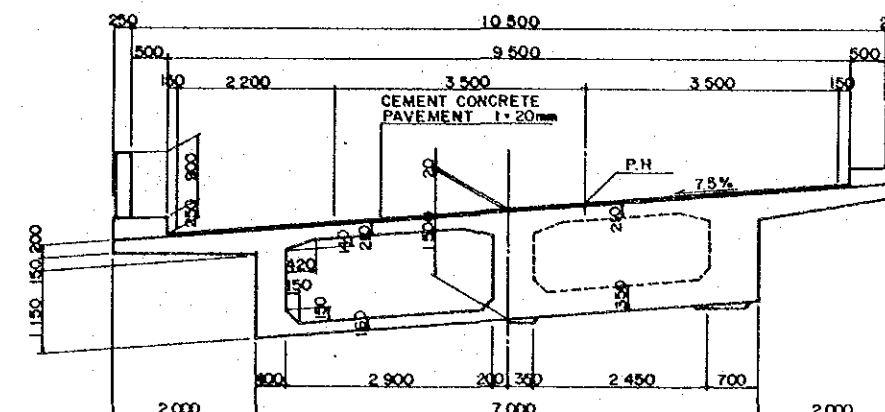
SUPERSTRUCTURE TYPE	PC I-SECTION GIRDER
SUBSTRUCTURE TYPE	SPREAD FOUNDATION
BRIDGE LENGTH	18.5 m
SPAN LENGTH	17.9 m
EFFECTIVE WIDTH	9.0m
CROSS SLOPE	2.0% SUPERELEVATION
DESIGN VEHICLE	HS-20

SIDE VIEW S=1/300

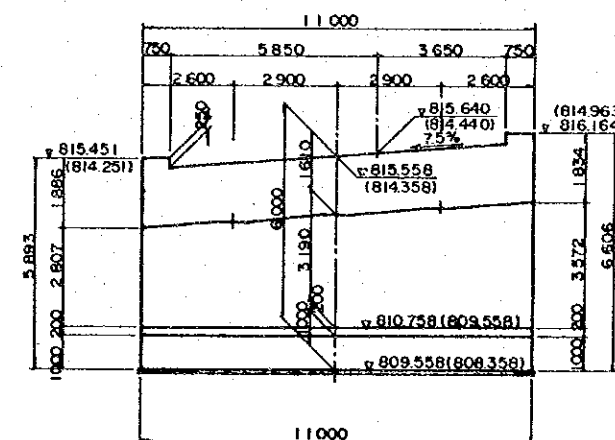


GRADIENT	i = 2.400%									
PROPOSED HIGHT	815.505	816.185	815.896	815.640	815.400	815.160	815.040	814.920	814.680	813.960
GROUND HIGHT	814.40	814.40	813.10	809.30	807.90	807.70	807.60	806.50	812.80	813.50
DISTANCE	10,000	10,000	10,000	10,000	10,000	5,000	5,000	10,000	10,000	10,000
STATION	NO. 25+260	+270	+280	+290 (A1)	+300	+310	+315 (P1)	+320	+330	+340 (A2)
CURVE BAND	R = 50,000									

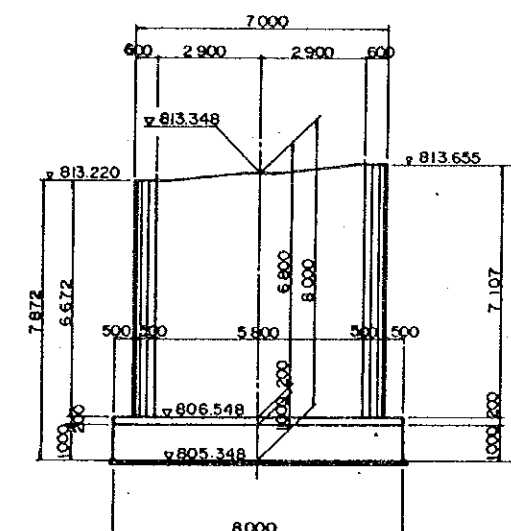
CROSS SECTION S=1/50



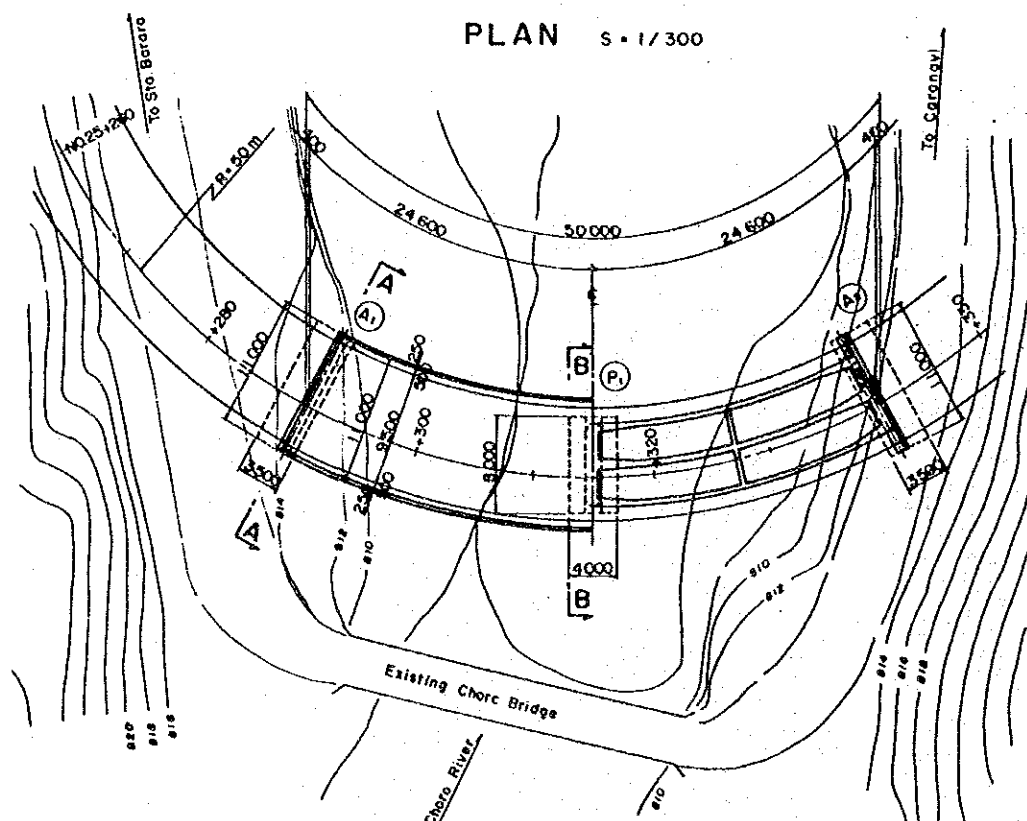
A-A CROSS SECTION S=1/100



B-B CROSS SECTION S=1/100



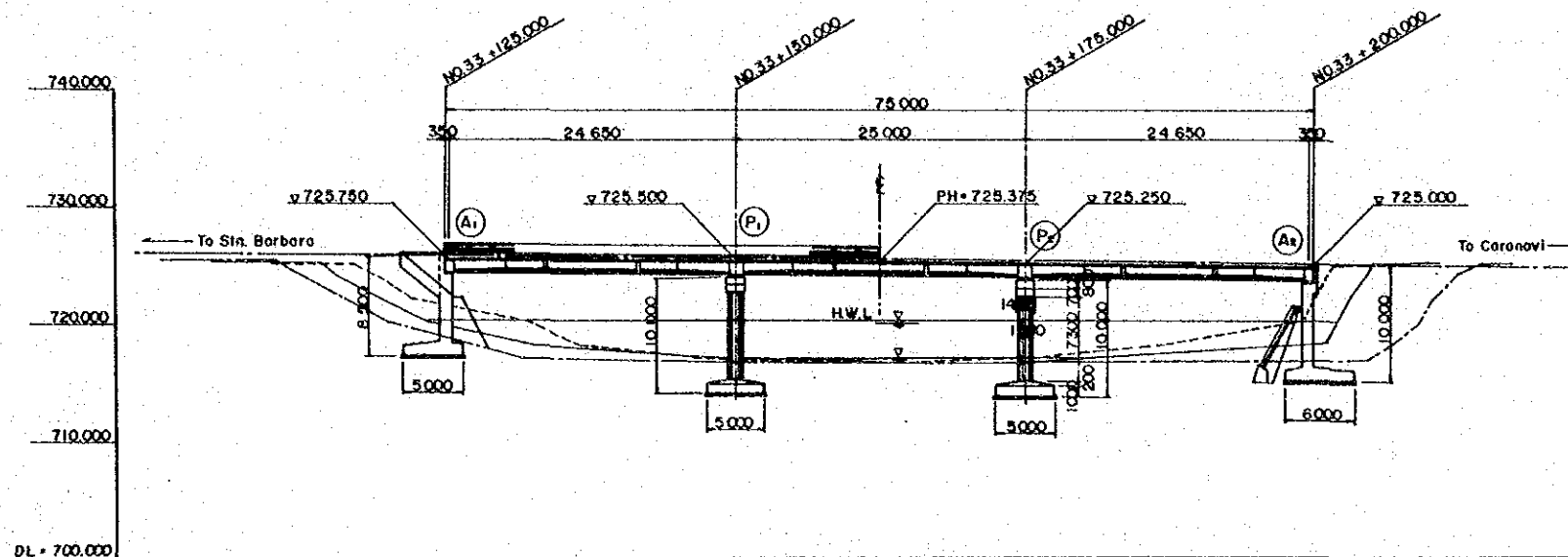
PLAN S=1/300



DESIGN CRITERIA

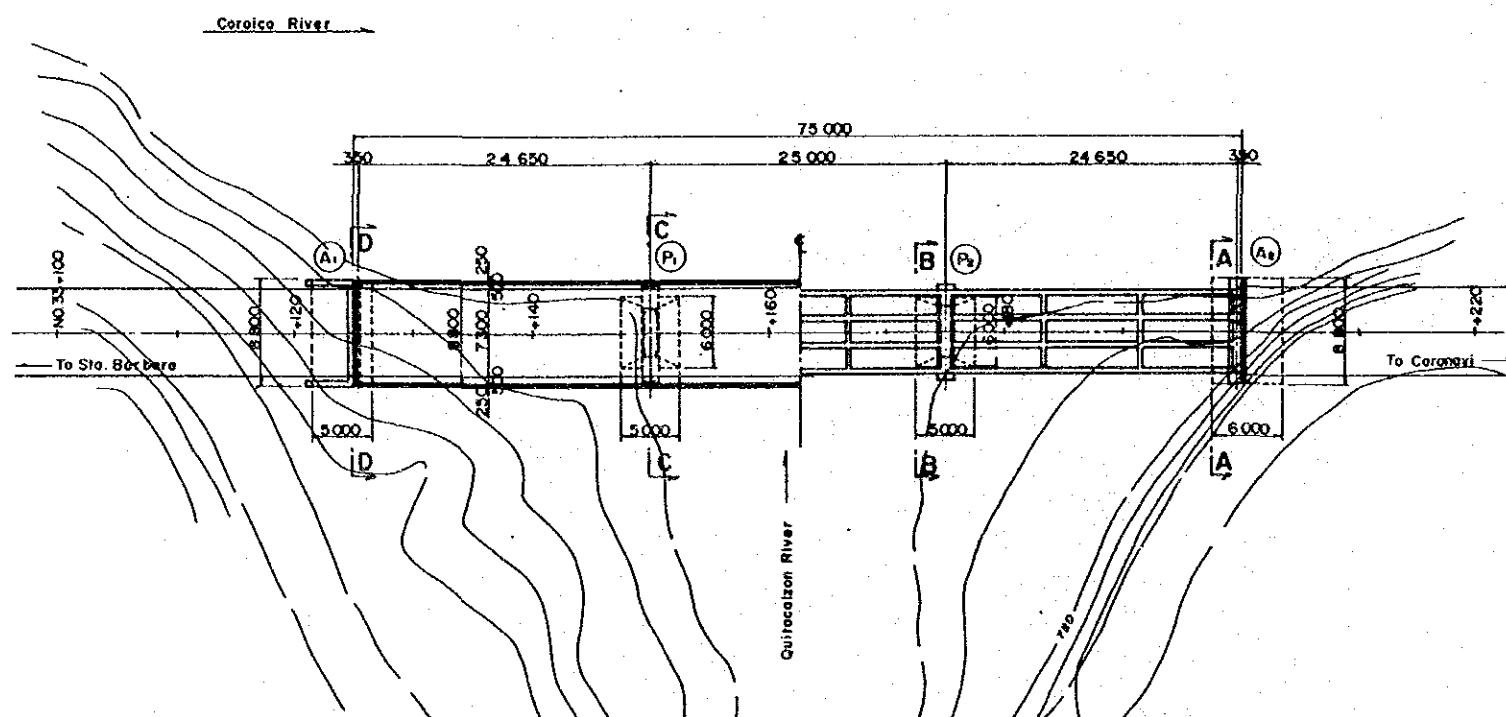
SUPERSTRUCTURE TYPE	PC BOX-SECTION GIRDER
SUBSTRUCTURE TYPE	SPREAD FOUNDATION
BRIDGE LENGTH	50.0m
SPAN LENGTH	24.6m + 24.6m
EFFECTIVE WIDTH	9.5m
CROSS SLOPE	7.5% SUPERELEVATION
DESIGN VEHICLE	HS-20

SIDE VIEW S = 1/300

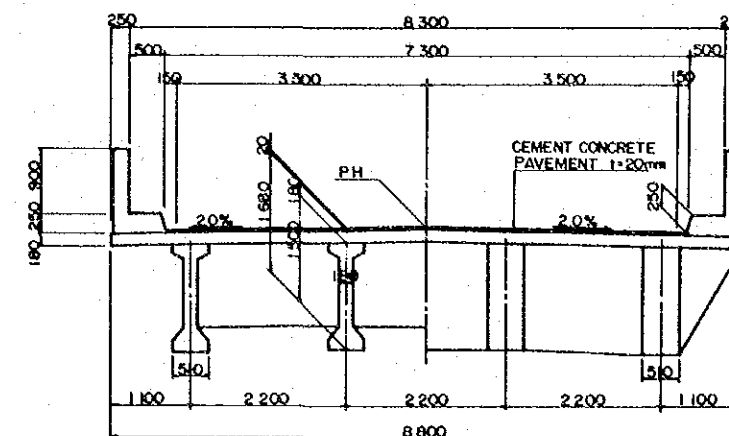


GRADIENT	-1.000%											
PROPOSED HIGHT	726,000	725,900	725,800	725,750	725,700	725,600	725,500	725,400	725,300	725,250	725,200	725,100
GROUND HIGHT		725,20	721,90	719,90	718,70	717,60	716,90	716,70	716,70	716,70	716,90	718,10
DISTANCE	10,000	10,000	10,000	5,000	5,000	10,000	10,000	10,000	10,000	5,000	5,000	10,000
STATION	NO. 33+100	+110	+120	(A1)+125	+130	+140	(P1)+150	+160	+170	(P2)+175	+180	(A2)+200
CURVE BAND	R = ∞											

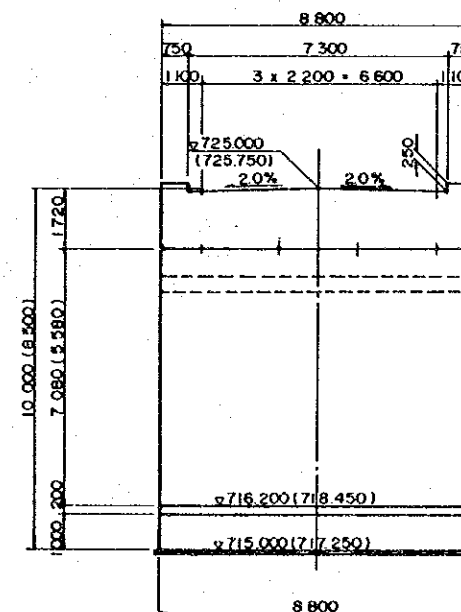
PLAN S = 1/300



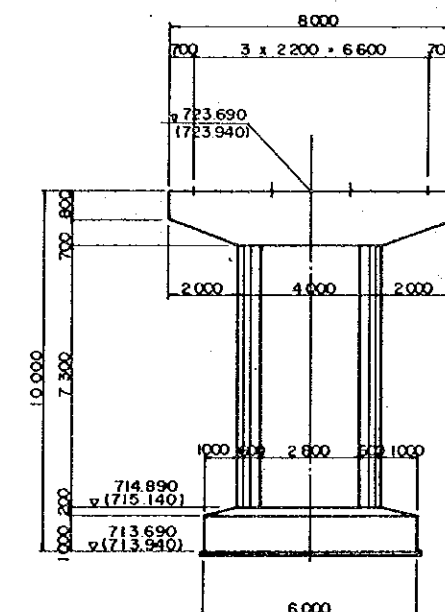
CROSS SECTION S = 1/50



A-A CROSS SECTION S = 1/100 (D-D)



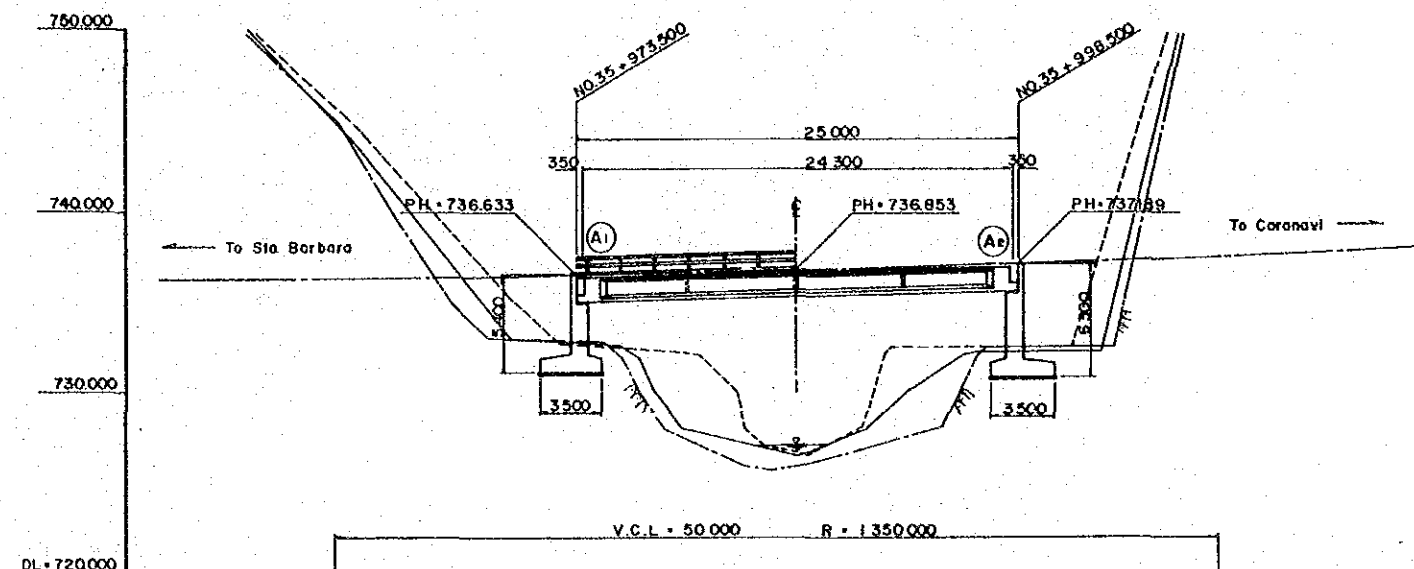
B-B CROSS SECTION S = 1/100 (C-C)



DESIGN CRITERIA

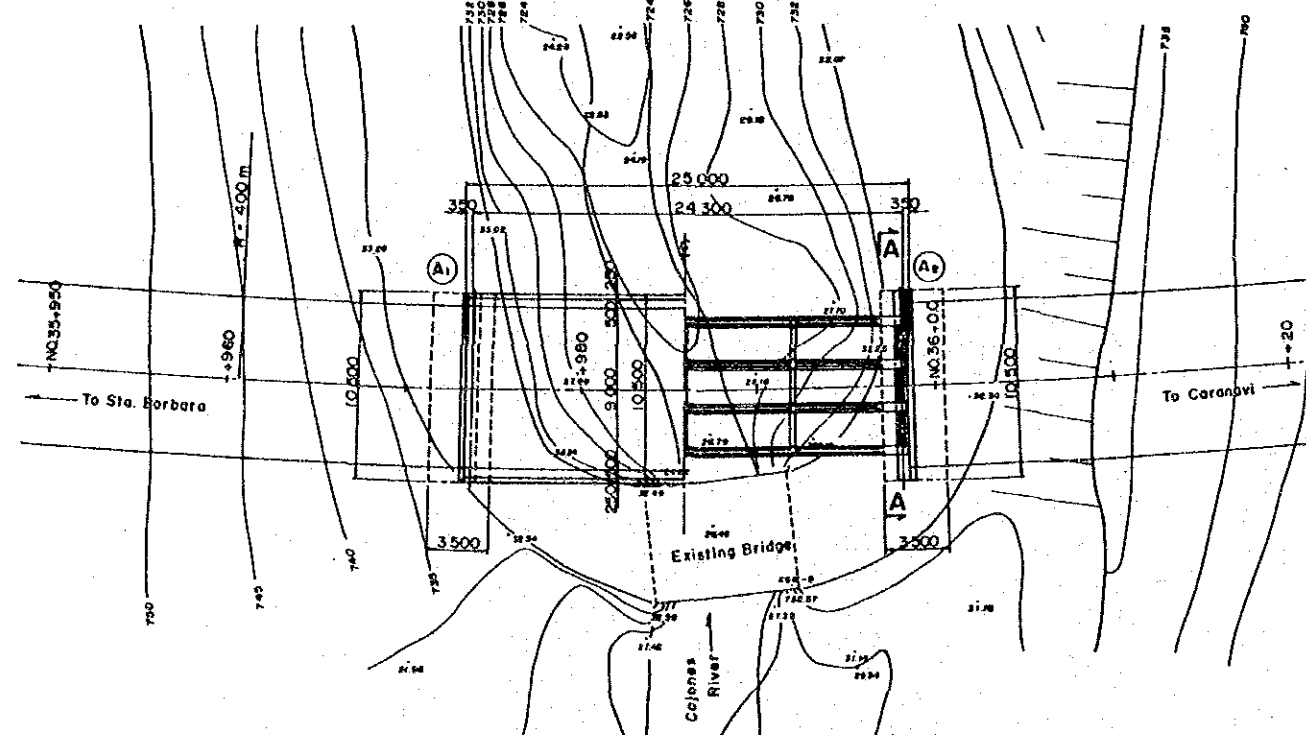
SUPERSTRUCTURE TYPE	PC I-SECTION GIRDER
SUBSTRUCTURE TYPE	SPREAD FOUNDATION
BRIDGE LENGTH	75.0m
SPAN LENGTH	24.65m + 25.00m + 24.65m
EFFECTIVE WIDTH	7.30m
CROSS SLOPE	2.0%
DESIGN VEHICLE	HS-20

SIDE VIEW S * 1 / 200

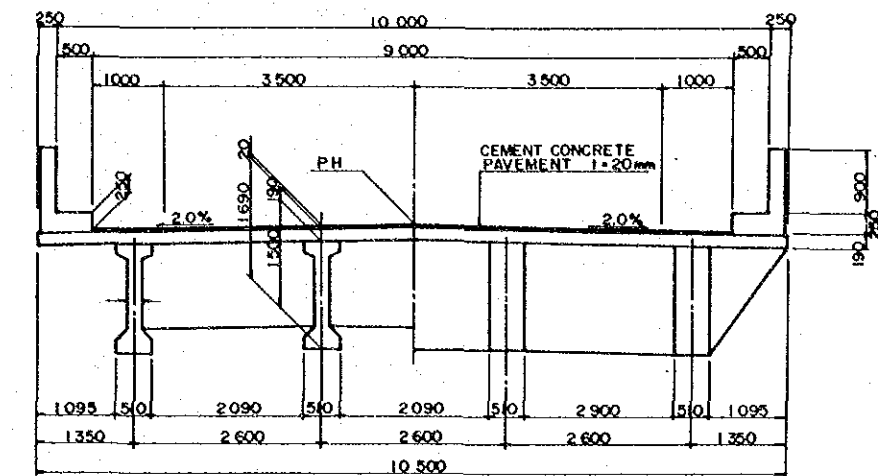


CURVE BAND	STATION	DISTANCE	GROUND HEIGHT	PROPOSED HEIGHT	GRADIENT
	NO. 35+950	10.000		736.495	
	+960	10.000	745.30	736.525	1.0300%
	+970	10.000	733.00	736.592	
	(A.S.) +973.5	3.500	732.80	736.632	
	+980	6.500	728.00	736.733	
	+985	5.000	726.80	736.851	736.600
	+990	5.000	728.00	736.948	
	(A.S.) NO. 36+00	8.500	732.30	737.189	
	36+0.0	1.500	732.30	737.237	1.0400%
	+10	10.000		737.600	
	+20	10.000		738.000	

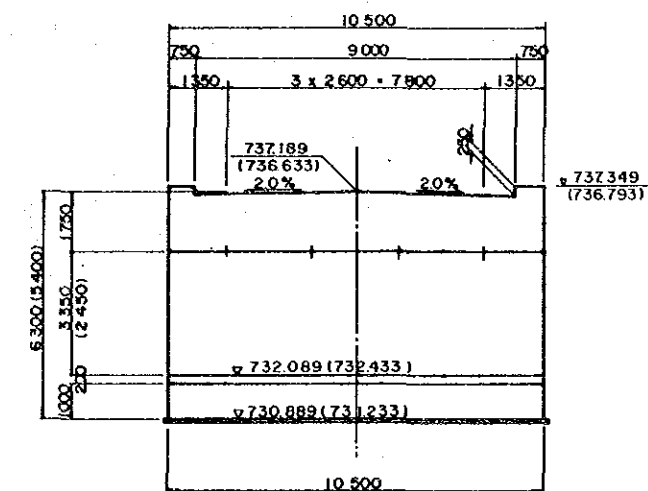
PLAN S - 1/200



CROSS SECTION S = 1/50



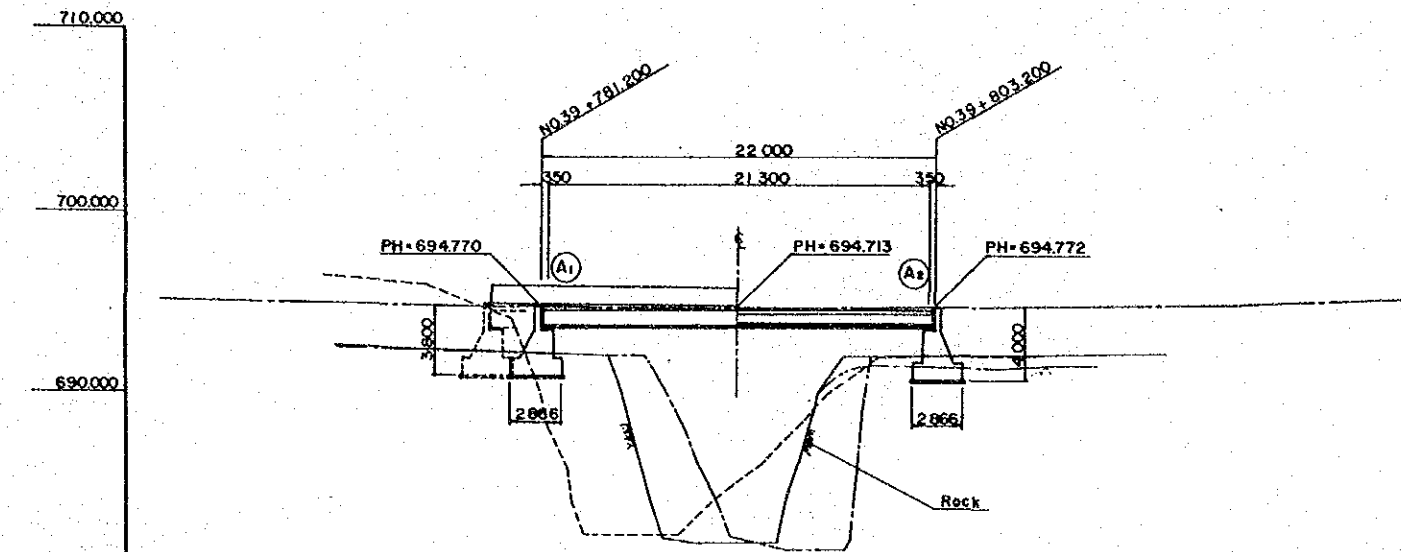
A-A CROSS SECTION S = 1/100



DESIGN CRITERIA

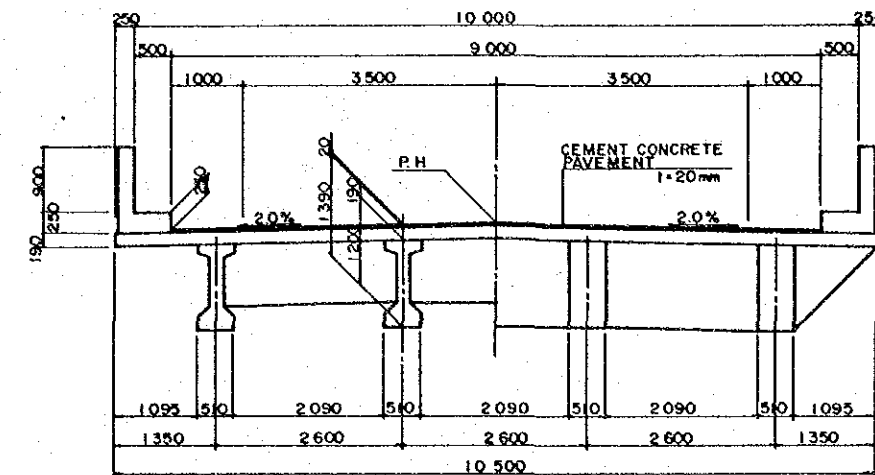
SUPERSTRUCTURE TYPE	PC I-SECTION GIRDER
SUBSTRUCTURE TYPE	SPREAD FOUNDATION
BRIDGE LENGTH	25.0m
SPAN LENGTH	24.3m
EFFECTIVE WIDTH	9.0 m
CROSS SLOPE	2.0 %
DESIGN VEHICLE	HS-20

SIDE VIEW S = 1/200

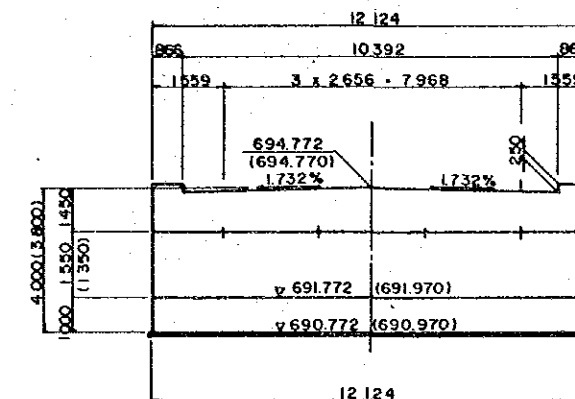


GRADIENT								
PROPOSED HIGHT	695.204	694.946	694.783	694.770	694.715	694.743	694.772	694.866
GROUND HIGHT		692.60	692.20	692.20	681.60	691.90	692.10	692.10
DISTANCE	10.000	10.000	10.000	1.200	8.800	10.000	3.200	6.800
STATION	NO.29+760	+770	+780	+781.200 (A1)	+790	+800	+803.200 (A2)	+810
CURVE BAND	R = ∞							

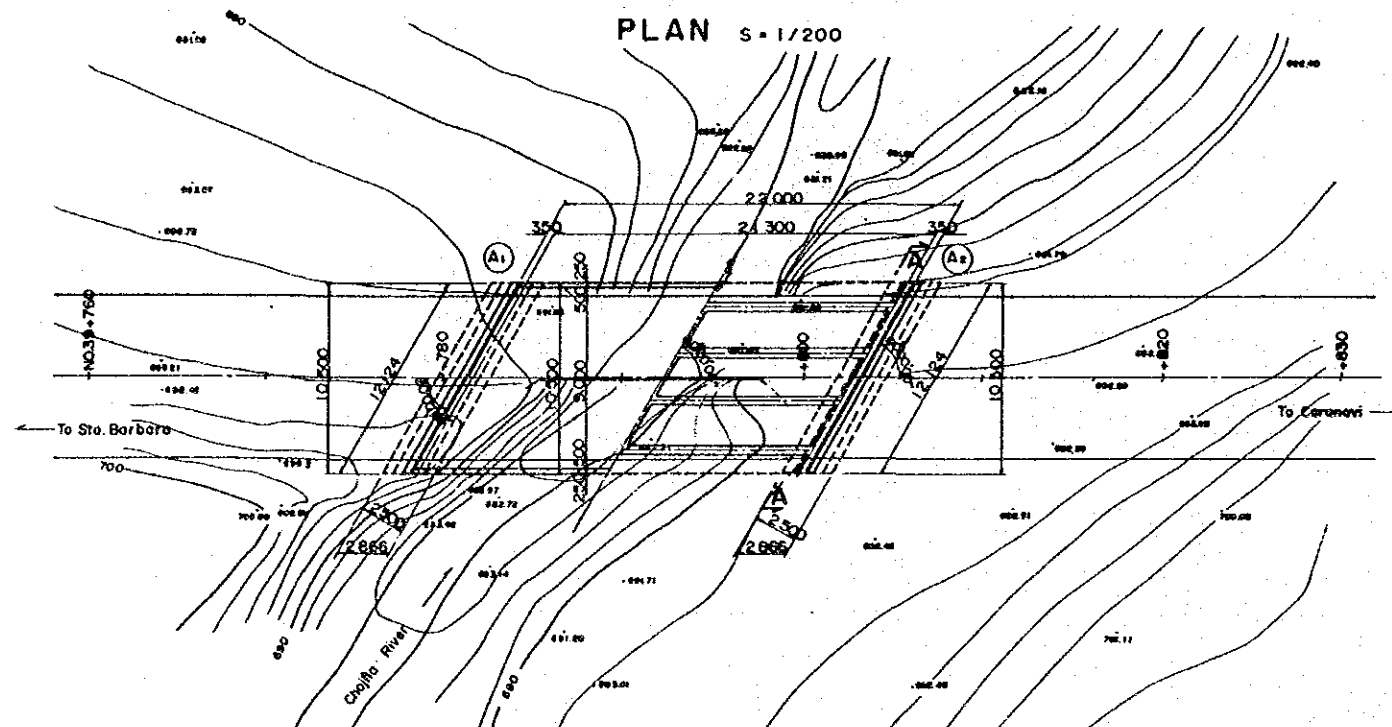
CROSS SECTION S = 1/50



A-A CROSS SECTION S = 1/100



PLAN S = 1/200

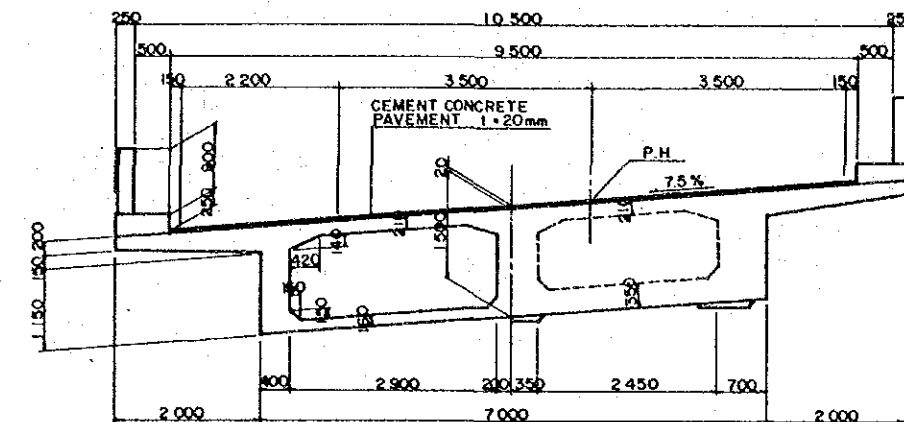
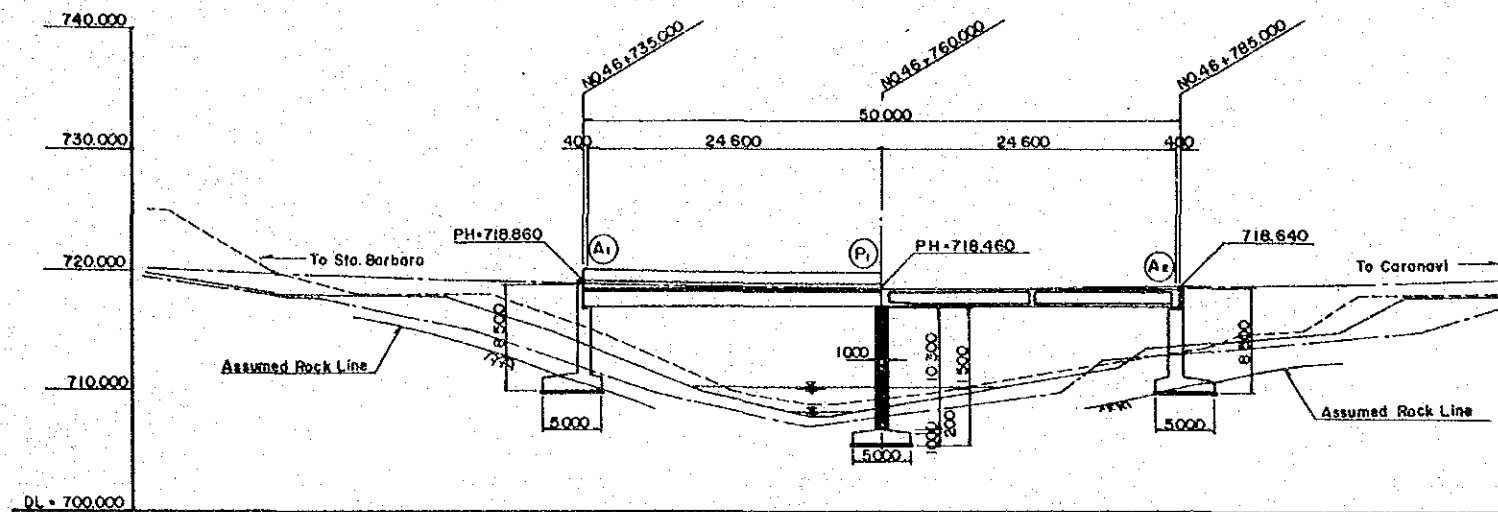


DESIGN CRITERIA

SUPERSTRUCTURE TYPE	PC BOX-SECTION GIRDER
SUBSTRUCTURE TYPE	SPREAD FOUNDATION
BRIDGE LENGTH	22.0m
SPAN LENGTH	21.3m
EFFECTIVE WIDTH	9.0m
CROSS SLOPE	2.0%
DESIGN VEHICLE	HS-20

SIDE VIEW S = 1/300

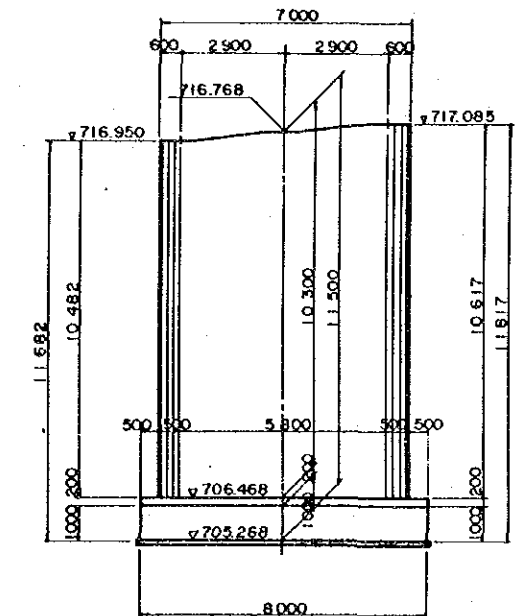
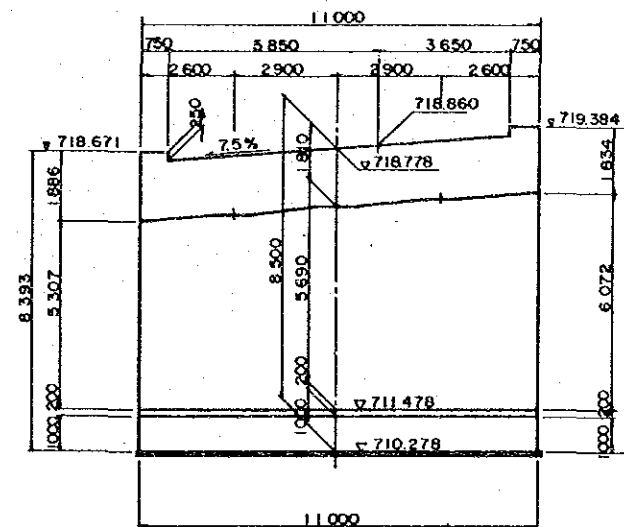
CROSS SECTION S = 1/50



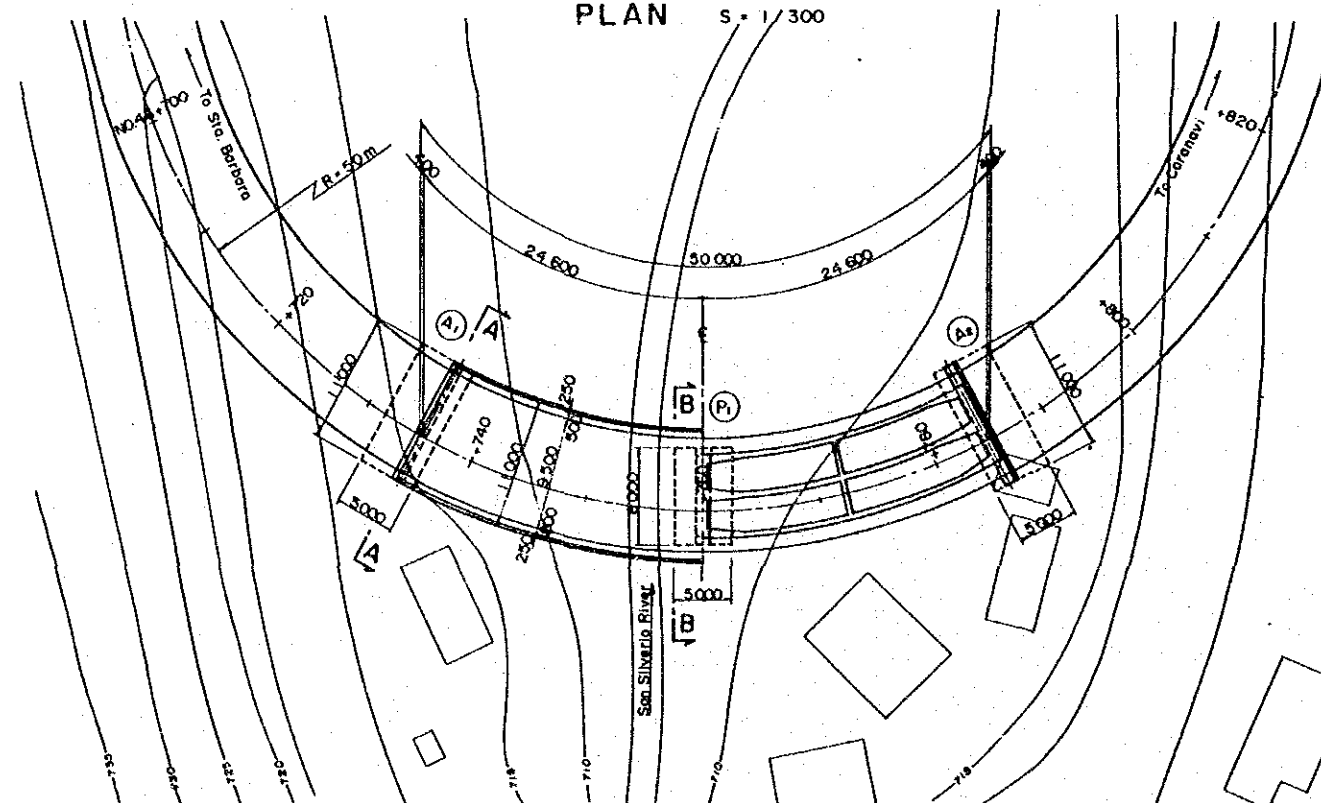
GRADIENT										
PROPOSED HIGHT	720,250	720,000	719,260	719,340	719,000	718,860	718,740	718,560	718,500	718,460
GROUND HIGHT	719,50	718,60	718,00	718,00	715,60	714,00	712,00	708,90	708,00	708,70
DISTANCE	10,000	5,000	5,000	10,000	10,000	5,000	5,000	10,000	10,000	5,000
STATION	NO. 46+700	+705	+710	+720	+730	+735 (A ₁)	+740	+750	+755	+760 (P ₁)
CURVE BAND	R = 50,000									

A-A CROSS SECTION S = 1/100

B-B CROSS SECTION S = 1/100



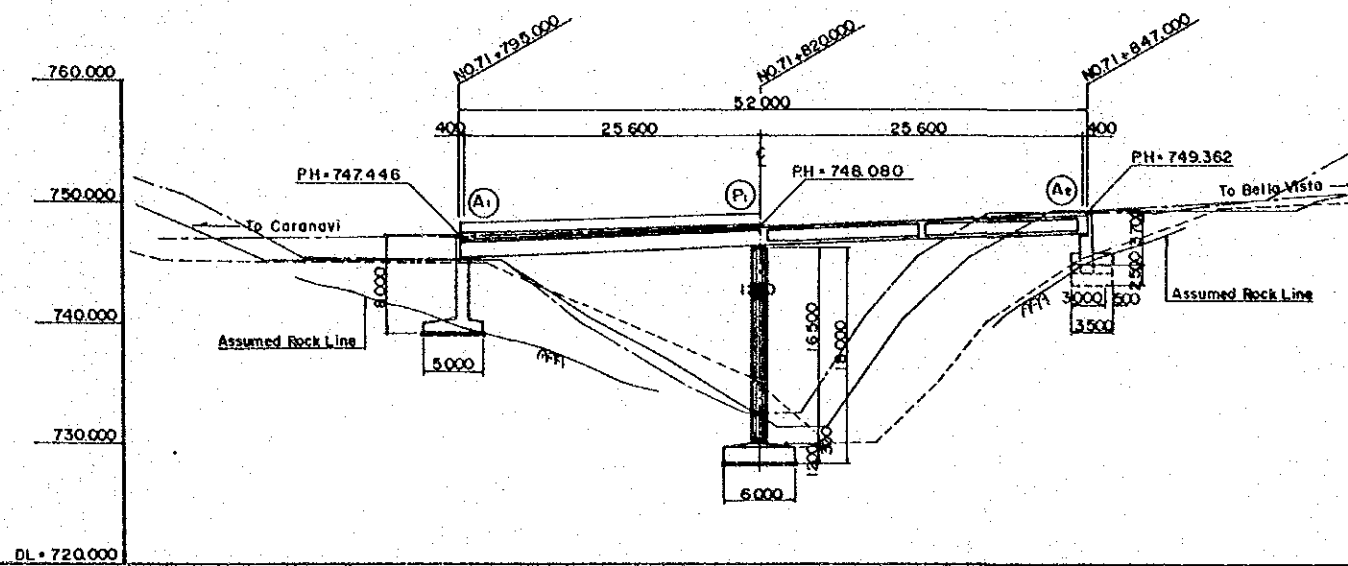
PLAN S = 1/300



DESIGN CRITERIA

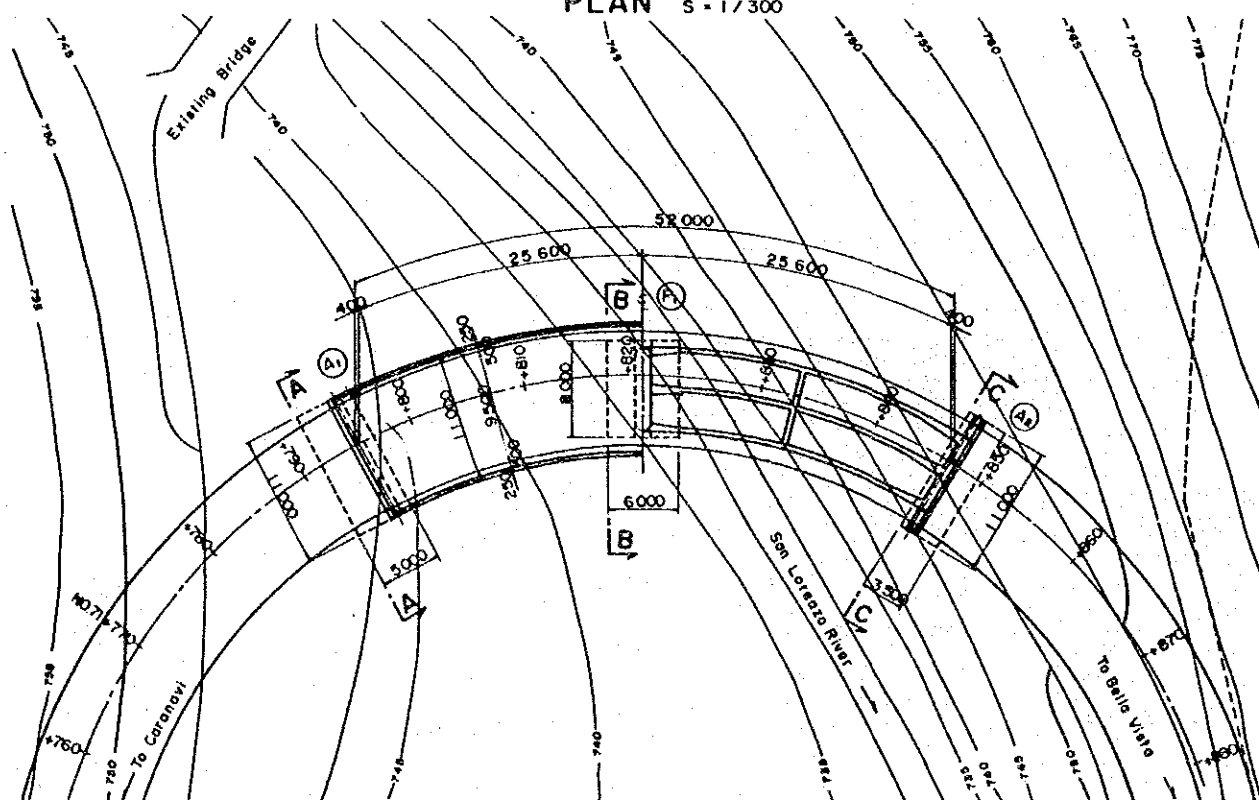
SUPERSTRUCTURE TYPE	PC BOX-SECTION GIRDER
SUBSTRUCTURE TYPE	SPREAD FOUNDATION
BRIDGE LENGTH	50.0m
SPAN LENGTH	24.6m + 24.6m
EFFECTIVE WIDTH	9.5m
CROSS SLOPE	7.5% SUPERELEVATION
DESIGN VEHICLE	HS-20

SIDE VIEW S=1/300

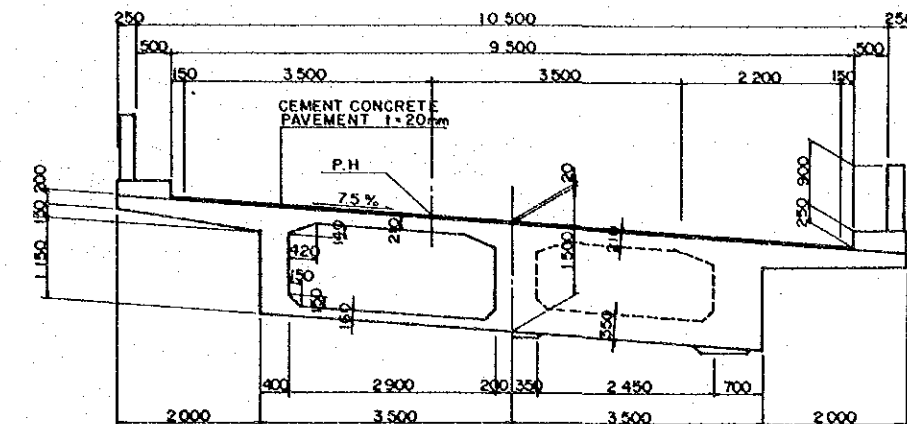


GRADIENT	1.500% V.C.L=100m R=1180m 7.000%									
PROPOSED HIGHT	747.343	747.320	747.383	747.446	747.530	747.633	748.080	748.483	748.970	750.900
GROUND HIGHT	749.50	745.40	745.50	745.50	744.60	738.60	732.50	737.40	747.00	749.90
DISTANCE	10.000	10.000	10.000	5.000	5.000	10.000	10.000	10.000	10.000	10.000
STATION	+770	+780	+790	+795 (A1)	+800	+810	+820 (P1)	+830	+840	+870
CURVE BAND	R=50.000									

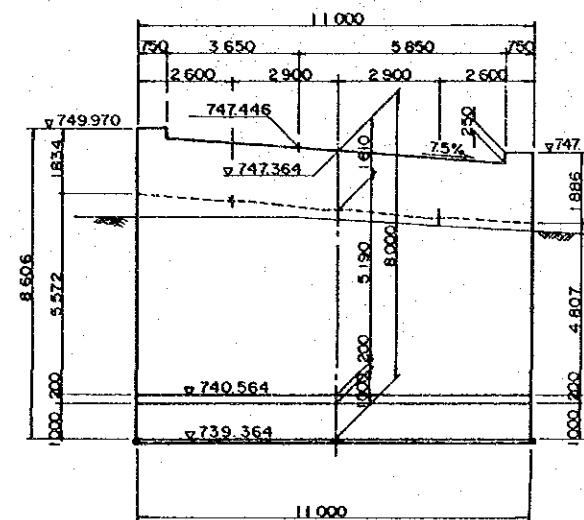
PLAN S=1/300



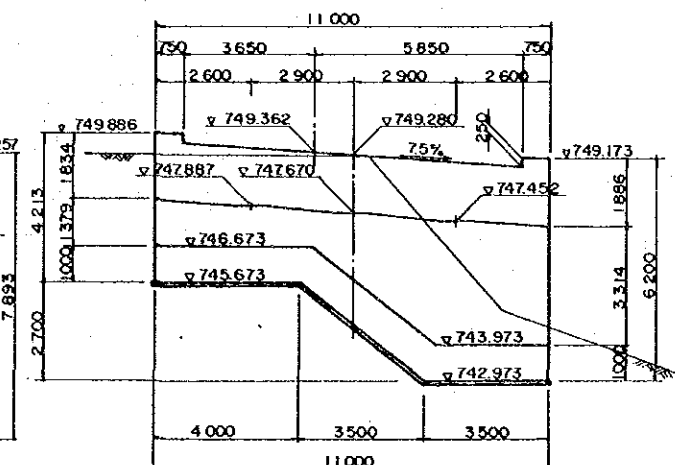
CROSS SECTION S=1/50



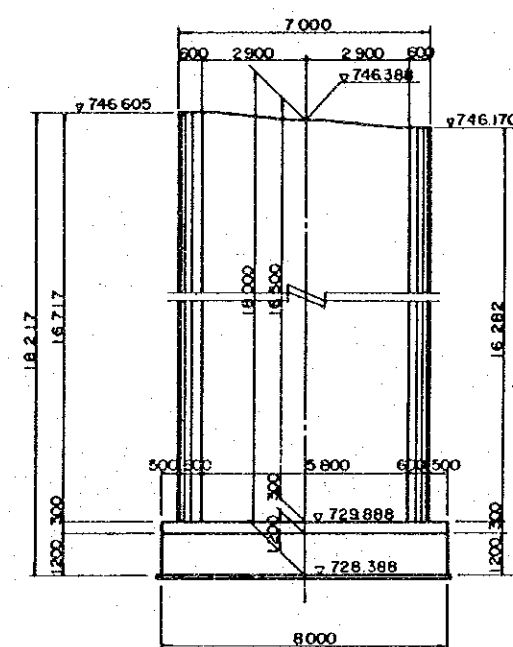
A-A CROSS SECTION S=1/100



C-C CROSS SECTION S=1/100



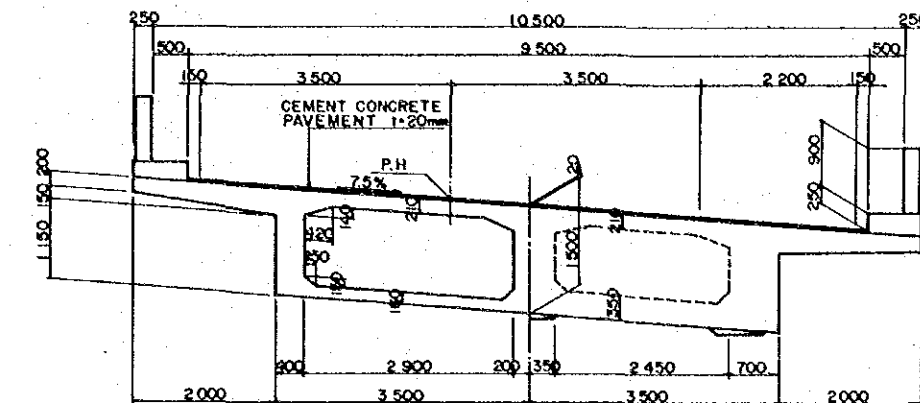
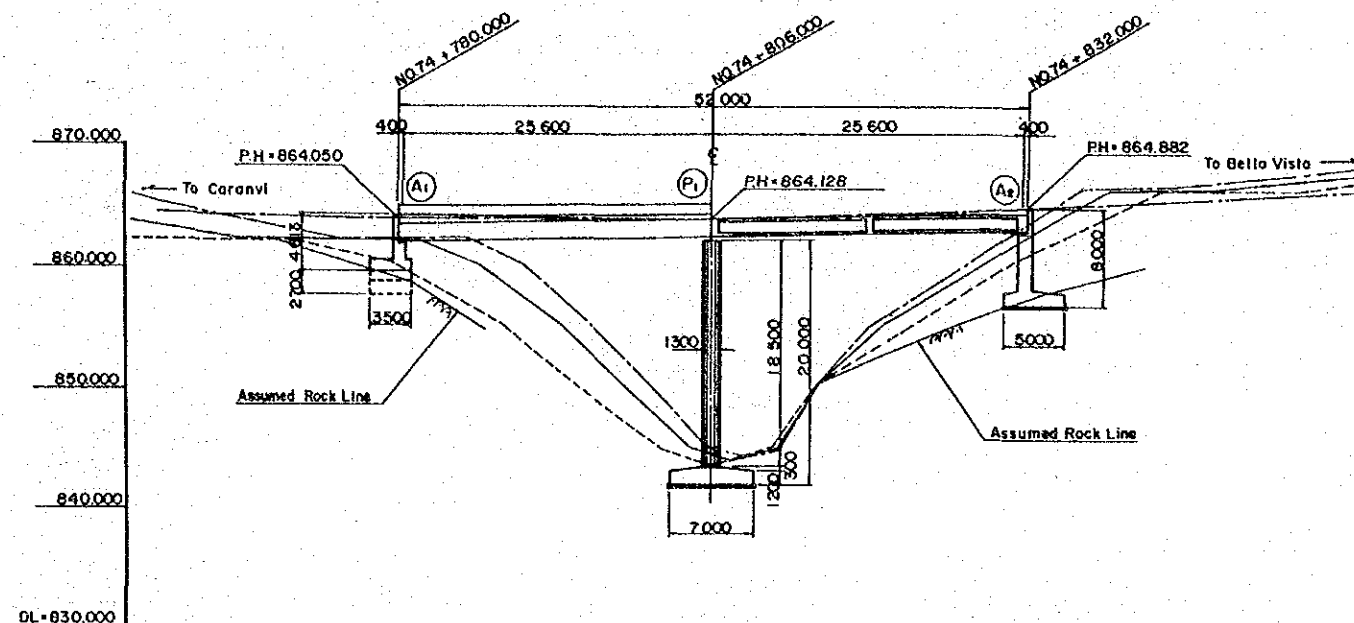
B-B CROSS SECTION S=1/100



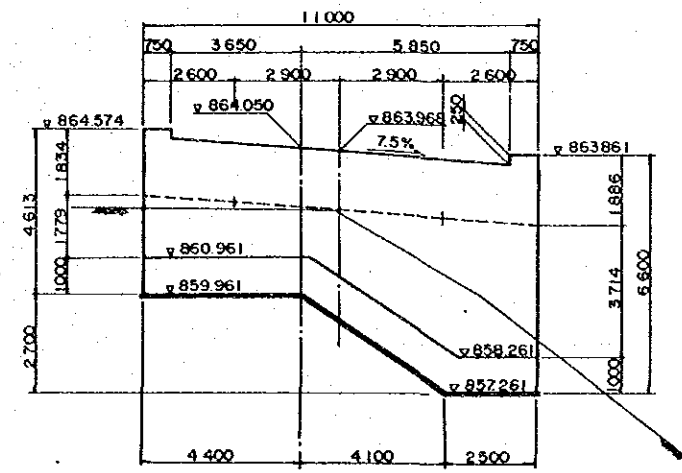
DESIGN CRITERIA

SUPERSTRUCTURE TYPE	PC BOX-SECTION GIRDER
SUBSTRUCTURE TYPE	SPREAD FOUNDATION
BRIDGE LENGTH	52.0m
SPAN LENGTH	25.65m + 25.65m
EFFECTIVE WIDTH	95m
CROSS SLOPE	7.5% SUPERELEVATION
DESIGN VEHICLE	HS-20

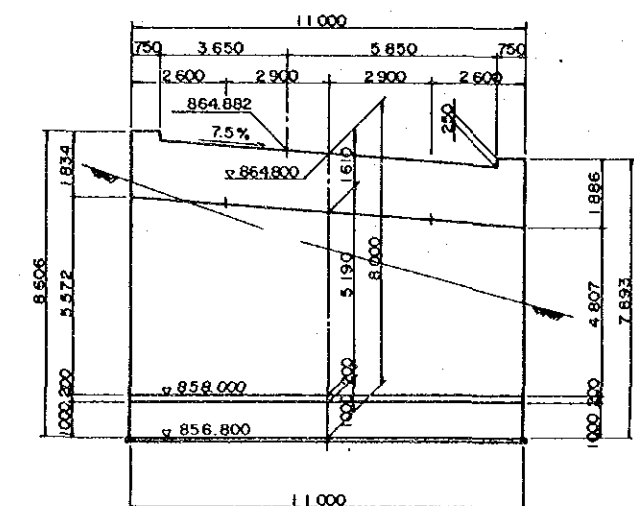
CROSS SECTION S = 1/50



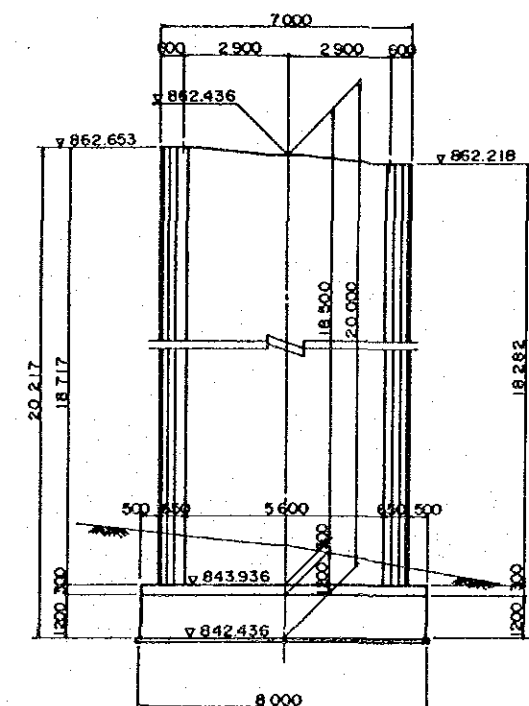
A-A CROSS SECTION S=1/100



C-C CROSS SECTION S=1/100



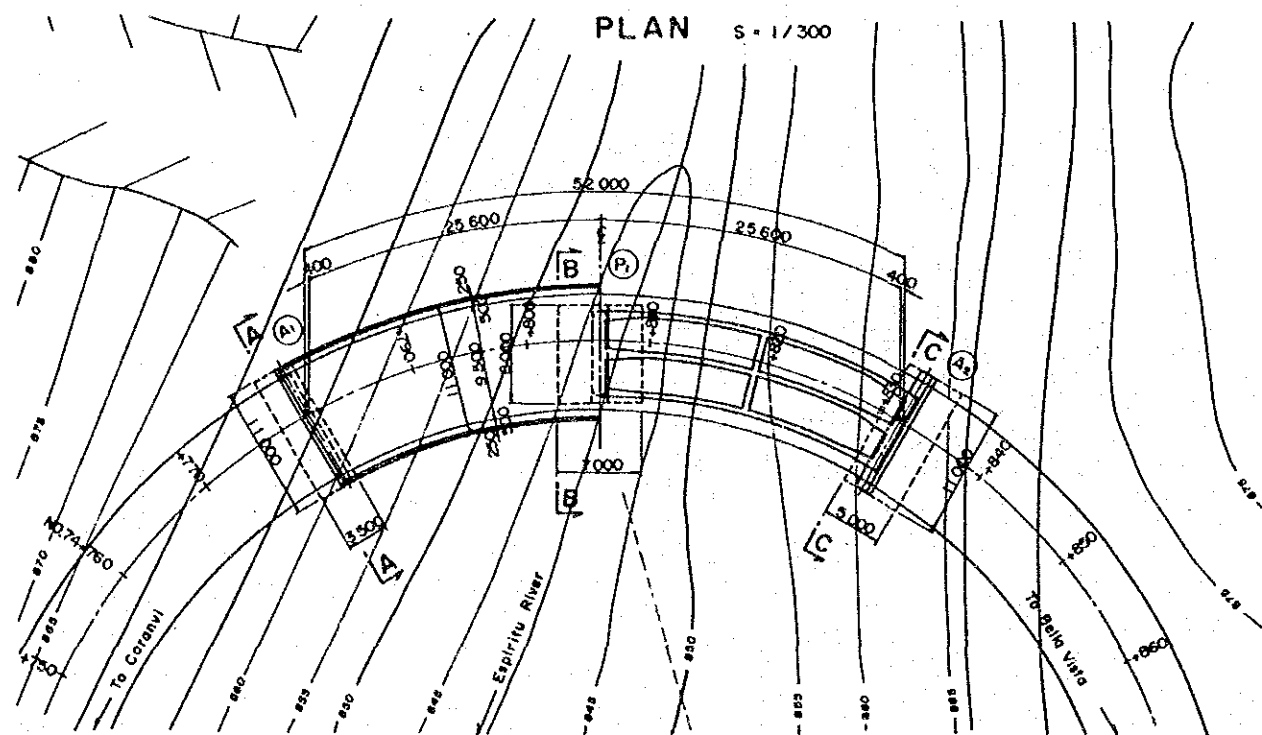
B-B CROSS SECTION S = 1/100



DESIGN CRITERIA

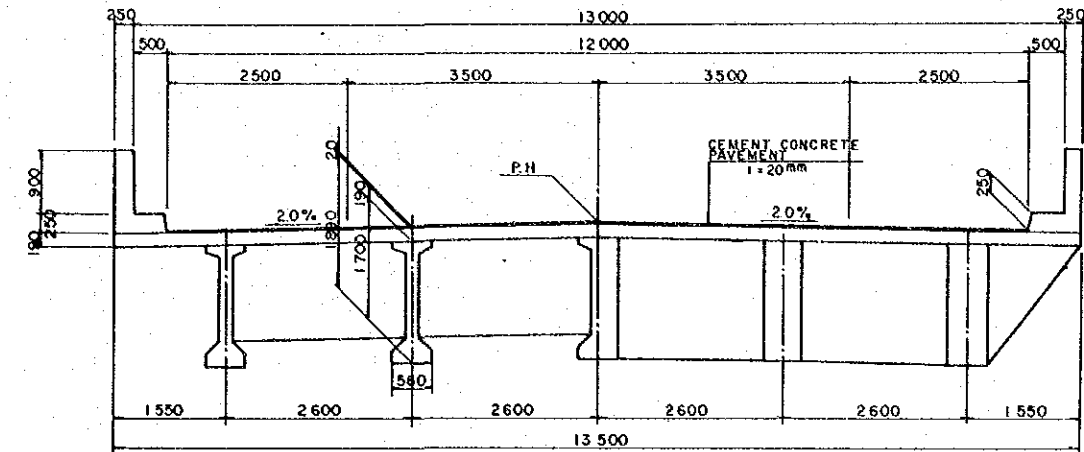
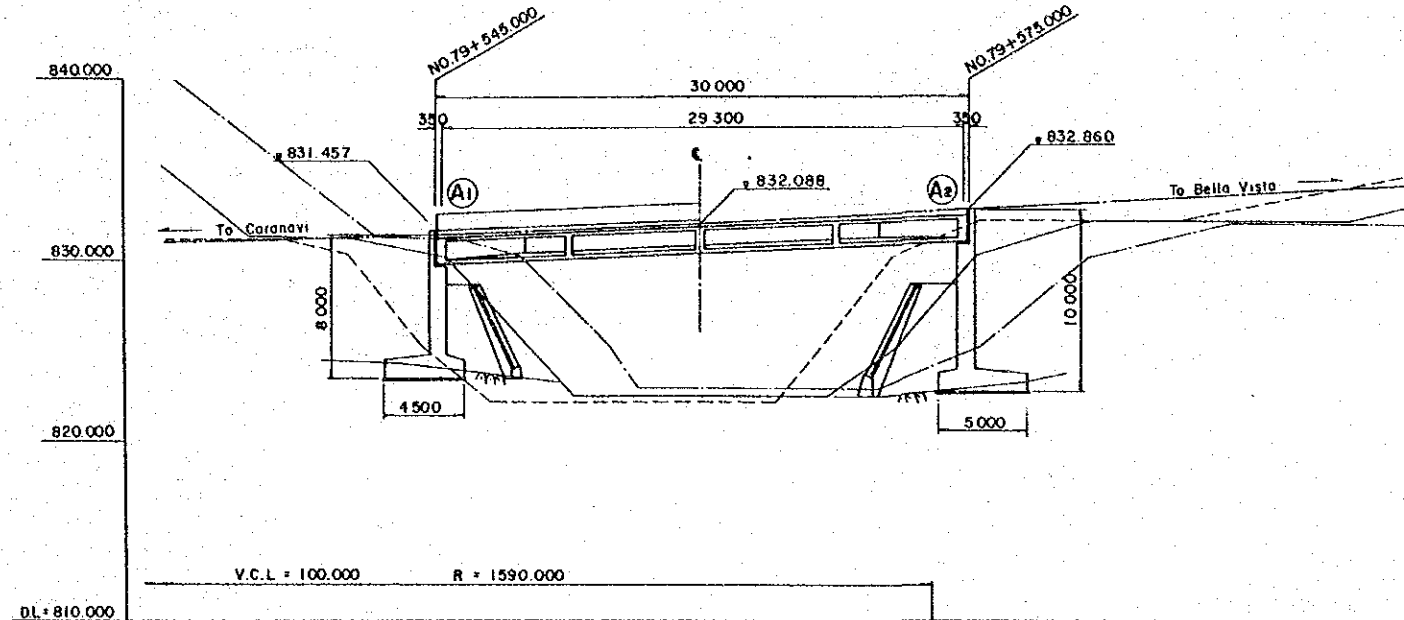
SUPERSTRUCTURE TYPE	PC I-SECTION GIRDER
SUBSTRUCTURE TYPE	SPREAD FOUNDATION
BRIDGE LENGTH	52.0m
SPAN LENGTH	25.6m + 25.6m
EFFECTIVE WIDTH	9.5m
CROSS SLOPE	7.5% SUPERELEVATION
DESIGN VEHICLE	HS-20

PLAN S = 1/300



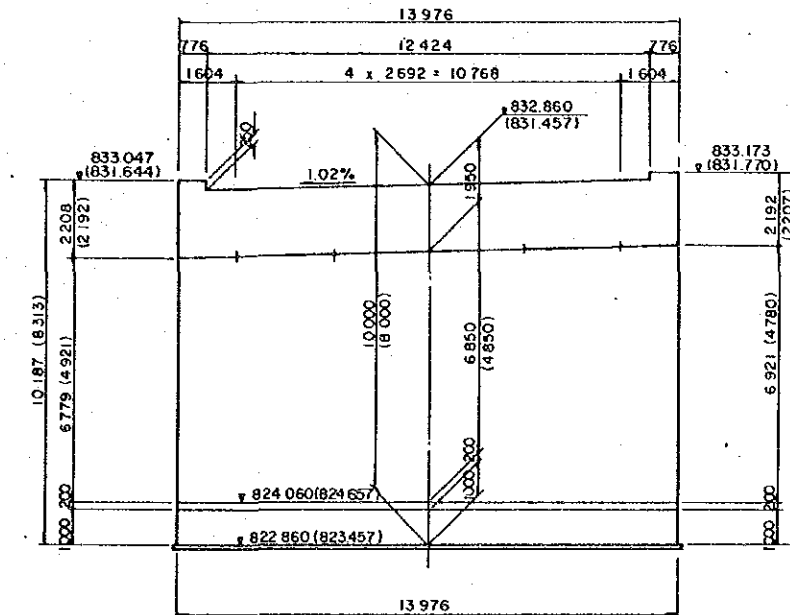
SIDE VIEW S = 1/200

CROSS SECTION S = 1/500



GRADIENT	$i = 5.500\%$									
PROPOSED HIGHT	830.967	831.278	831.457	831.652	832.088	832.568	832.750	832.860	833.135	834.235
GROUND HIGHT	835.20	831.30	830.30	825.60	822.40	824.40	827.50	829.60	831.50	832.20
DISTANCE	10.000	10.000	5.000	5.000	10.000	10.000	3.000	2.000	5.000	10.000
STATION	NO.79+330	+540	+545 (A ₁)	+550	+560	+570	+573	+575 (A ₂)	+580	+590
CURVE BAND	R = 60.000					R = 60.000				

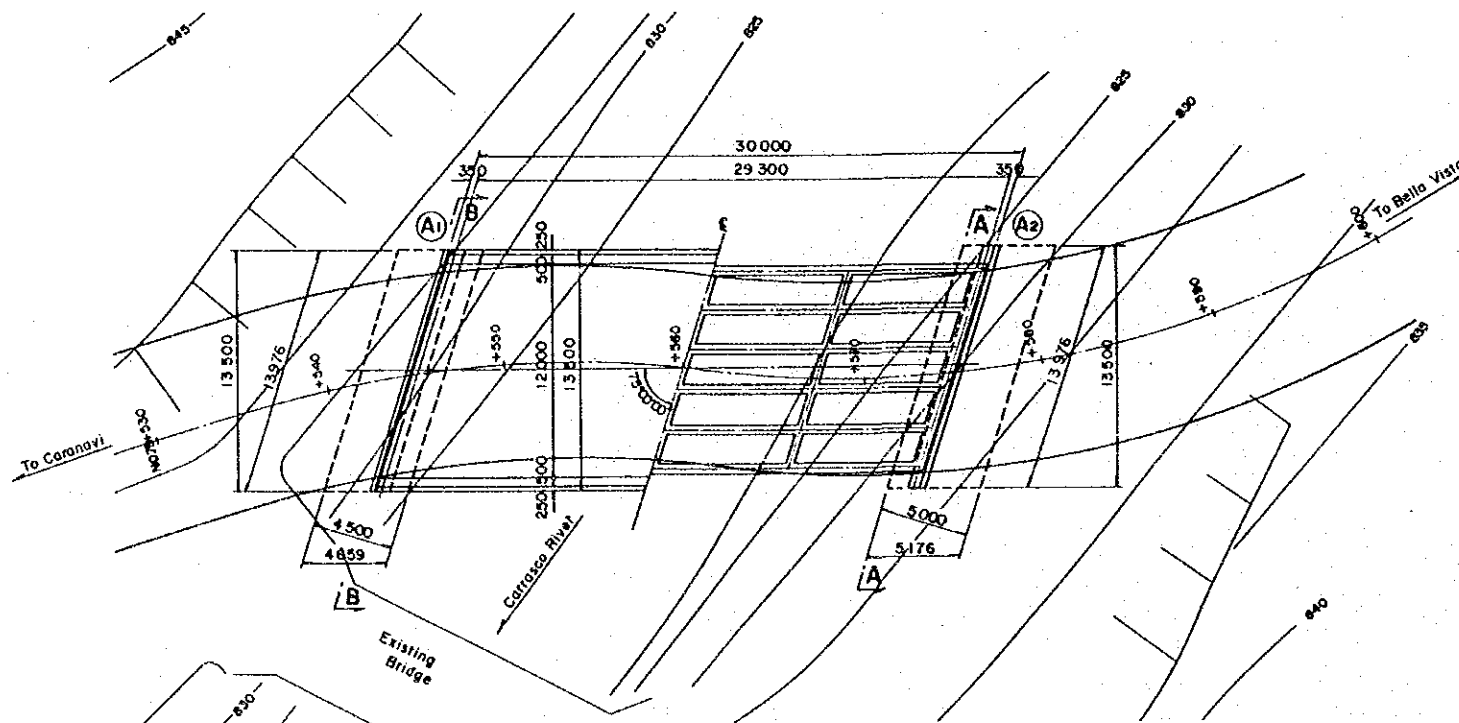
A-A CROSS SECTION S = 1/100
(B-B)



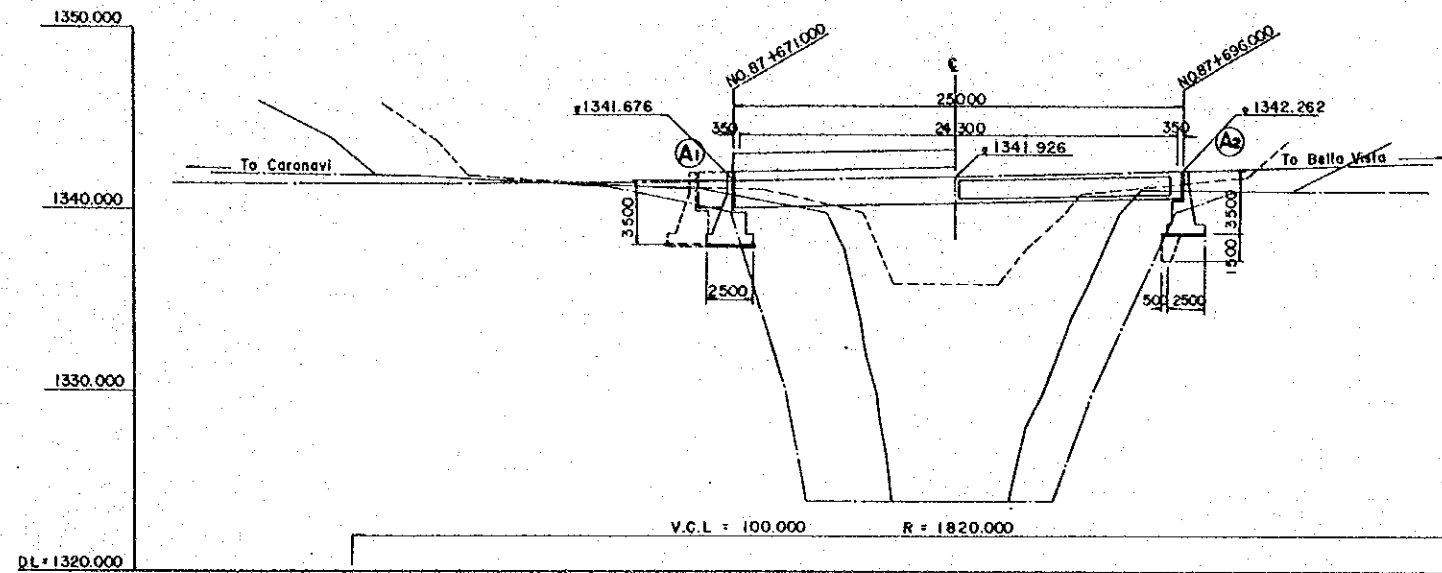
PLAN S = 1/200

DESIGN CRITERIA

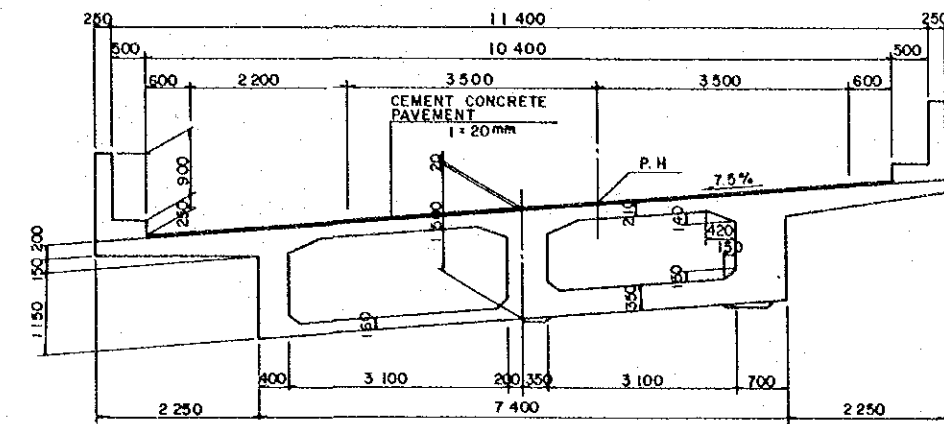
SUPERSTRUCTURE TYPE	PC I-SECTION GIRDER
SUBSTRUCTURE TYPE	SPREAD FOUNDATION
BRIDGE LENGTH	30.0 m
SPAN LENGTH	29.3 m
EFFECTIVE WIDTH	12.0 m
CROSS SLOPE	2.0%
DESIGN VEHICLE	H5-20



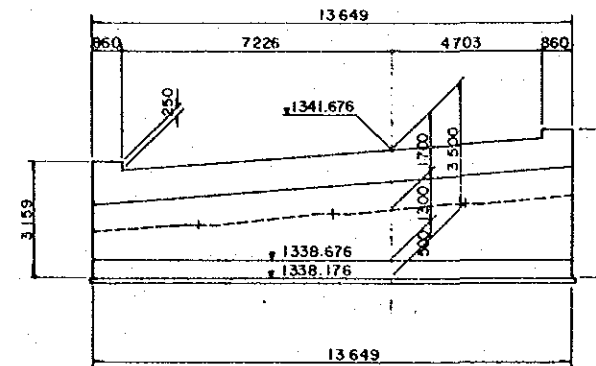
SIDE VIEW S=1/200



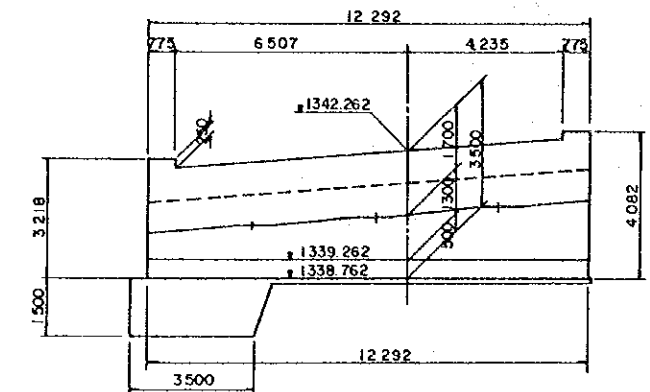
CROSS SECTION S=1/50



A-A CROSS SECTION S=1/100

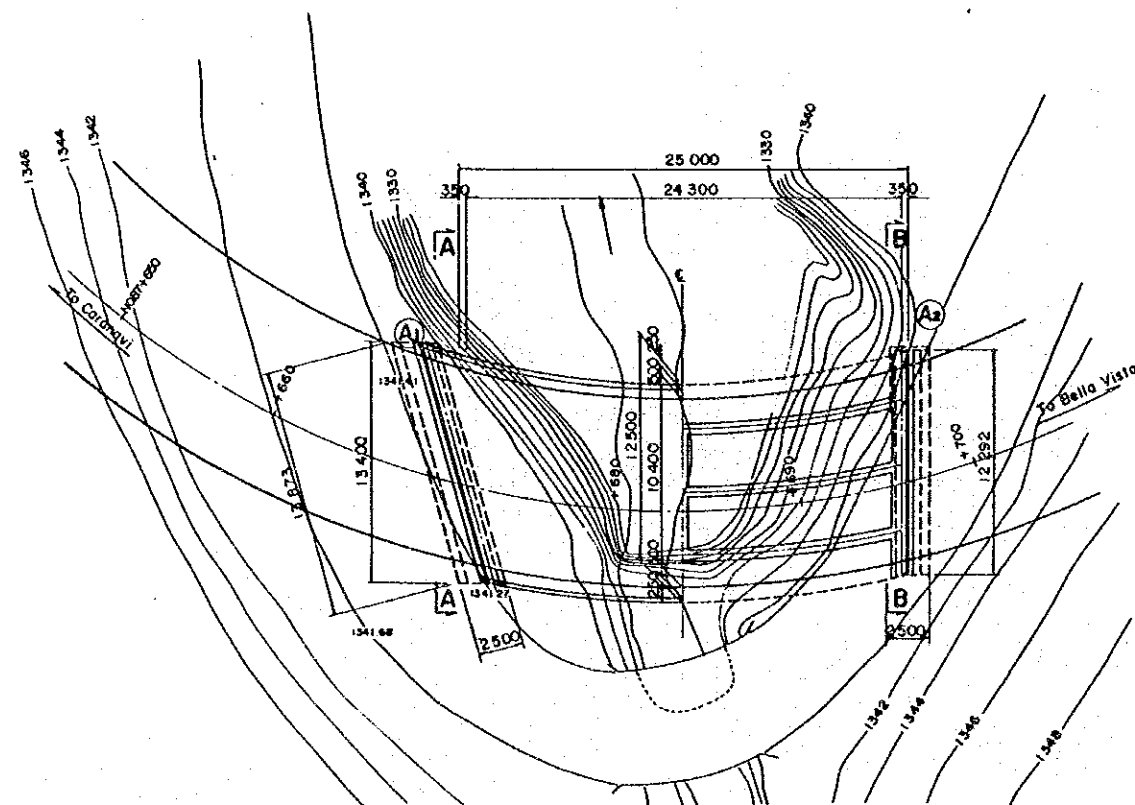


B-B CROSS SECTION S=1/100



GRADIENT	1:0.500%									
PROPOSED HIGHT	1341.400	1341.450	1341.528	1341.660	1341.676	1341.848	1341.926	1342.090	1342.262	1342.388
GROUND HIGHT		1343.00	1341.50	1341.10	1340.90	1324.00	1324.00	1334.50	1341.10	1341.10
DISTANCE	10.000	10.000	10.000	10.000	1.000	9.000	3.500	6.500	6.000	4.000
STATION	NO 87 +640	+650	+660	+670	+671 (A1)	+680	+683.5	+690	+696	+700
CURVE BAND	R = 50.000									

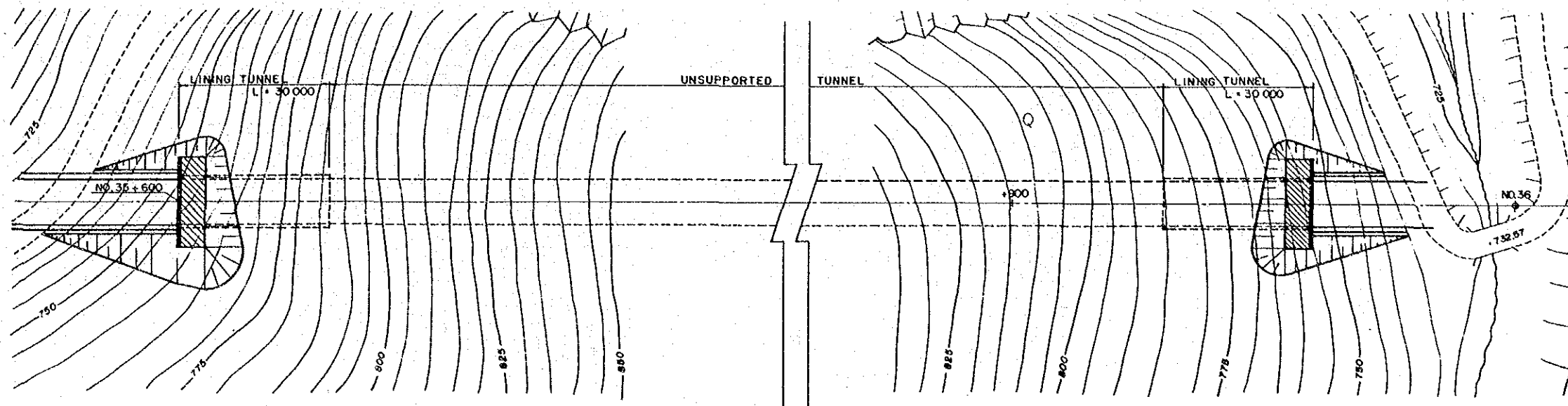
PLAN S=1/200



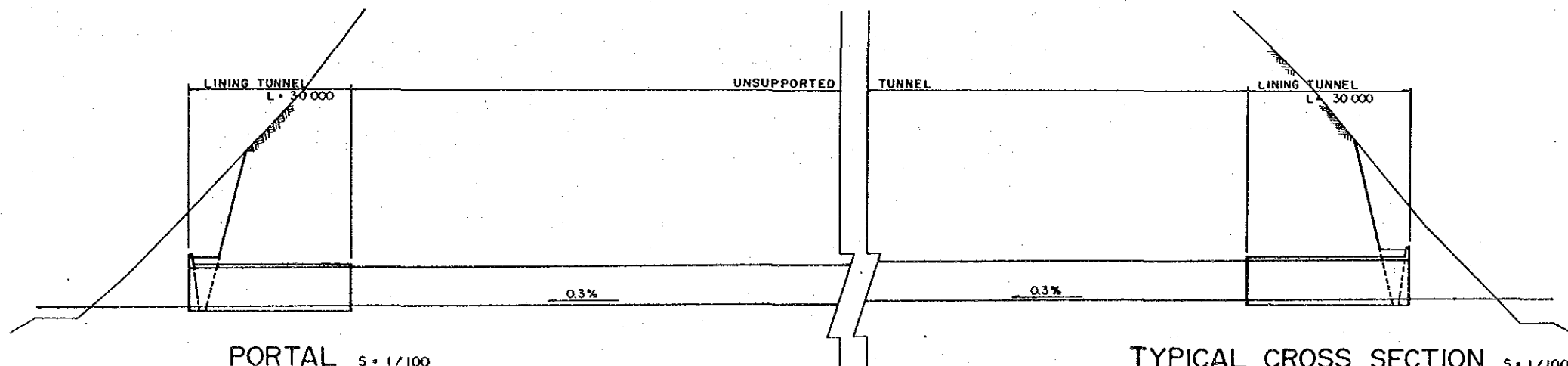
DESIGN CRITERIA

SUPERSTRUCTURE TYPE	PC BOX-SECTION GIRDER
SUBSTRUCTURE TYPE	SPREAD FOUNDATION
BRIDGE LENGTH	25.0m
SPAN LENGTH	24.3m
EFFECTIVE WIDTH	10.40m
CROSS SLOPE	7.5% SUPERELEVATION
DESIGN VEHICLE	HS-20

PLAN S = 1/500

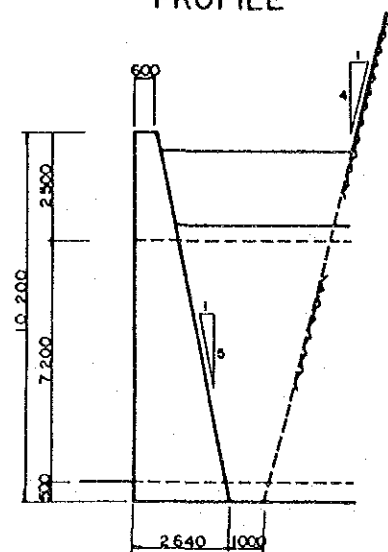


PROFILE S = 1/500

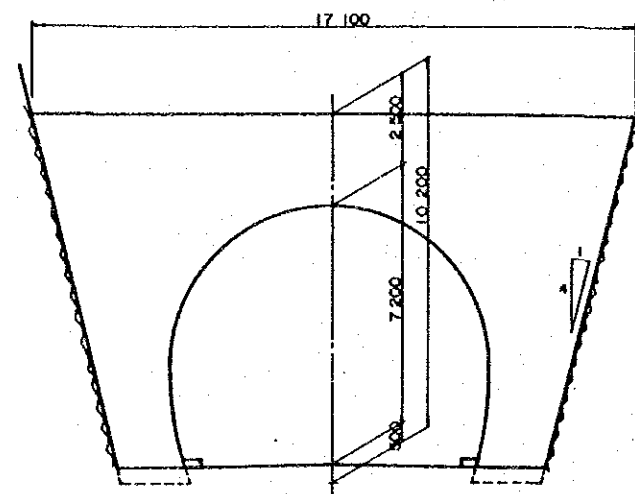


PORTAL S = 1/100

PROFILE

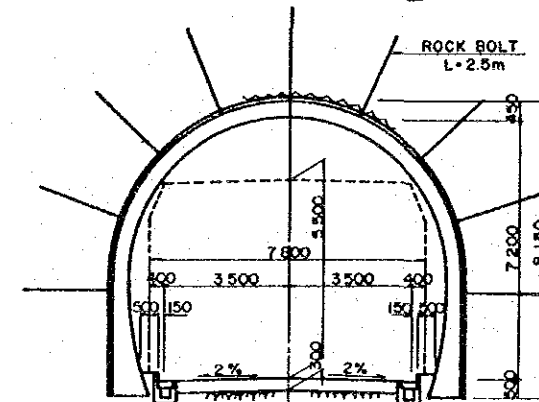


CROSS SECTION

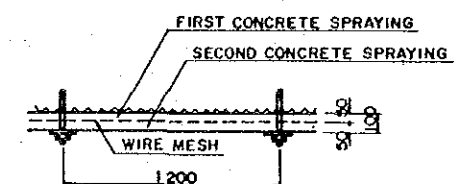
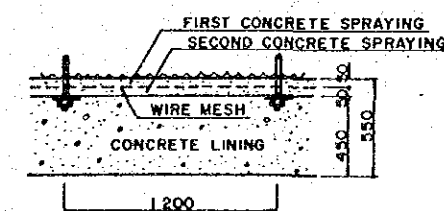
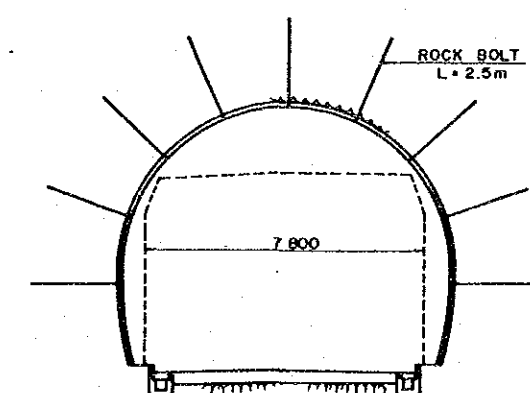


TYPICAL CROSS SECTION S = 1/100

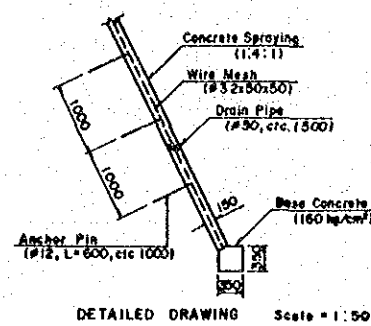
LINING TUNNEL



UNSUPPORTED TUNNEL



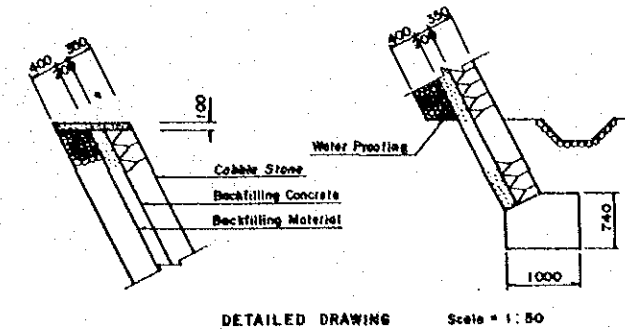
GENERAL VIEW OF TUNNEL



APPLICATION

Station		Slope Gradient	Area
Existing Alignment	New Alignment		
A + 2.3	No. 4+375	2.0 : 1	1 305 ^m
C + 2.8	No. 12+600	2.0 : 1	0
E + 1.1	No. 21+200	2.0 : 1	2 987
F + 4.3	No. 29+500	2.0 : 1	0
J + 5.9	No. 45+230	2.0 : 1	913
K + 0.8	No. 47+520	2.0 : 1	510
M + 1.2	No. 57+750	2.0 : 1	1 320
N + 1.4	No. 66+0	2.0 : 1	184
V + 0.2	No. 101+475	2.0 : 1	794

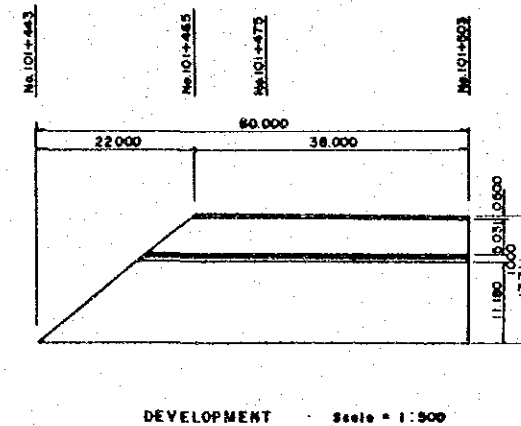
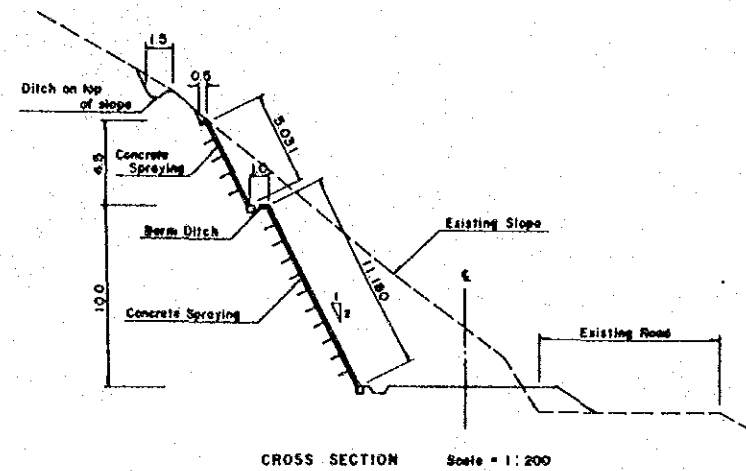
*** The quantity accounts in Slope Protection Work.**



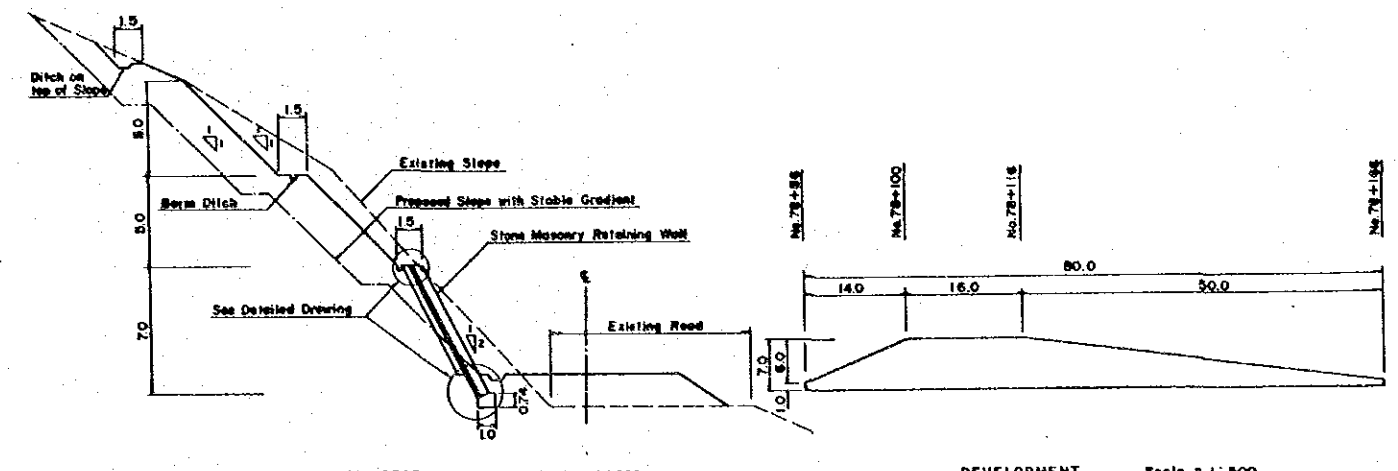
APPLICATION

Station		Gradient	Area
Existing Alignment	New Alignment		
L + 3.0	No.52+200	2.0 : 1	* m ²
P + 3.7	No.78+100	2.0 : 1	411
P + 4.9	No.79+500	2.0 : 1	* m ²

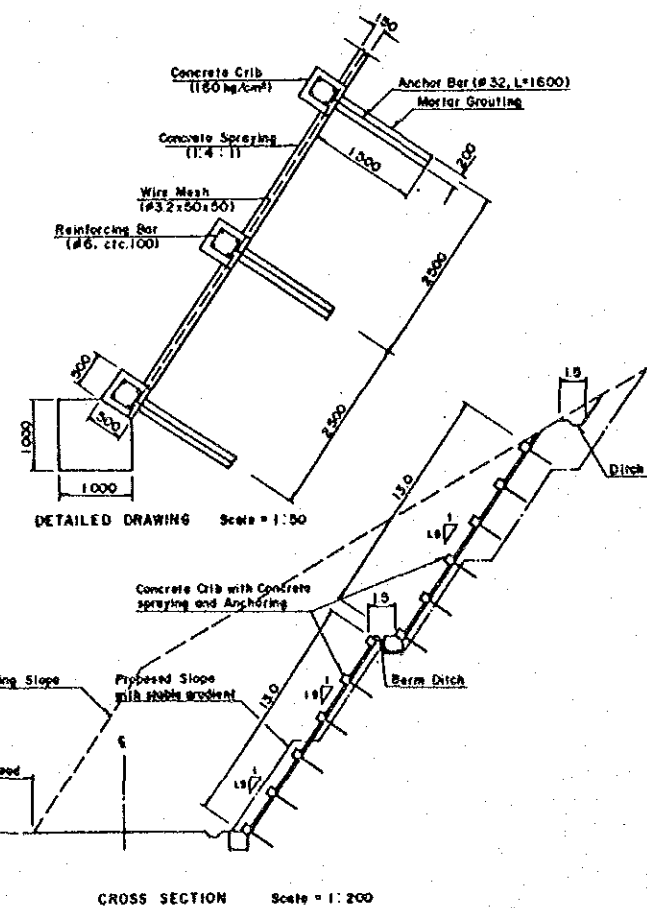
* The quantity accounts in Slope Protection Work.



TYPICAL APPLICATION OF TYPE 1 COUNTERMEASURE (CONCRETE SPRAYING) (V+0.2/No.101+475)

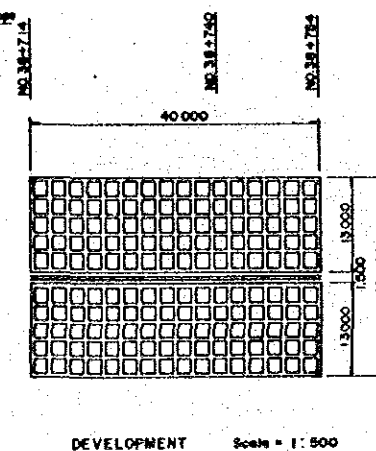


TYPICAL APPLICATION OF TYPE 2 COUNTERMEASURE (STONE MASONRY RETAINING WALL) (P+3.7/No.78+100)

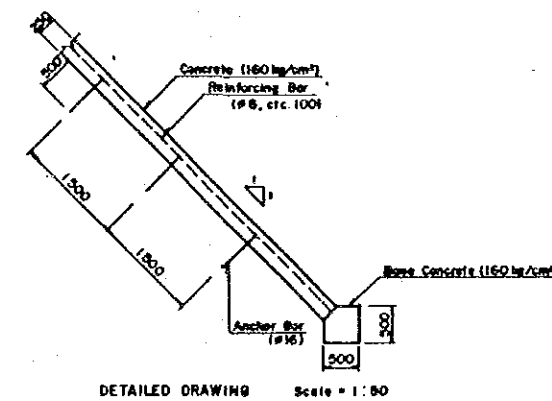


APPLICATION

Station			Slope Gradient	Area
Existing Alignment	New Alignment			
S + 0.8	NO. 0 + 700	1.5 : 1	240 m ²	
S + 2.3	NO. 2 + 200	1.5 : 1	400	
B + 1.9	NO. 8 + 100	2.0 : 1	520	
C + 0.4	NO. 10 + 900	1.5 : 1	685	
C + 2.6	NO. 12 + 780	2.0 : 1	782	
F + 4.2	NO. 29 + 500	1.5 : 1	1260	
I + 3.0	NO. 38 + 740	1.5 : 1	1040	
J + 4.9	NO. 44 + 400	1.5 : 1	1437	
L + 6.1	NO. 55 + 500	1.5 : 1	890	
N + 2.0	NO. 66 + 500	1.5 : 1	420	
P + 0.9	NO. 75 + 570	2.0 : 1	780	
P + 4.0	NO. 76 + 600	2.0 : 1	1300	
R + 1.8	NO. 84 + 350	1.5 : 1	1790	

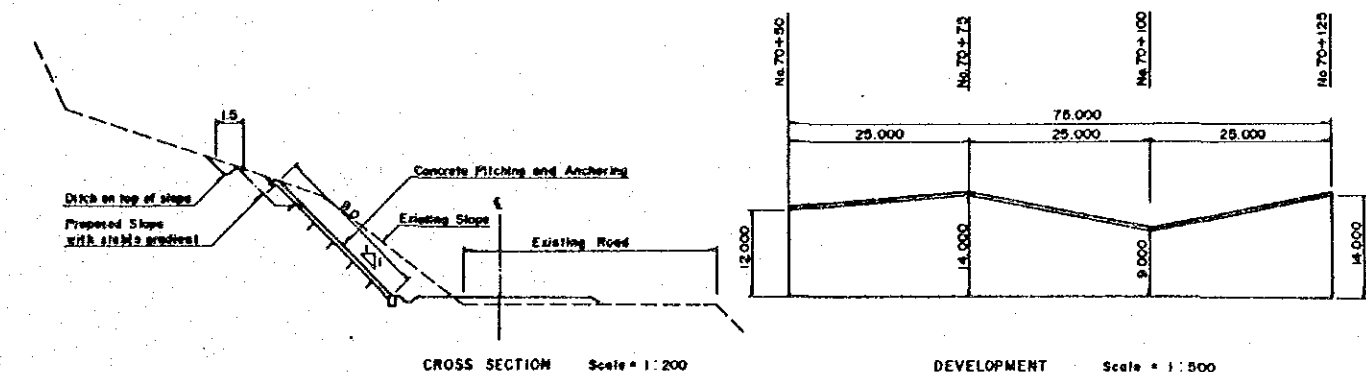


TYPICAL APPLICATION OF TYPE 3 COUNTERMEASURE (CONCRETE CRIB WITH CONCRETE SPRAYING AND ANCHORING) (I+3.0/No.38+740)

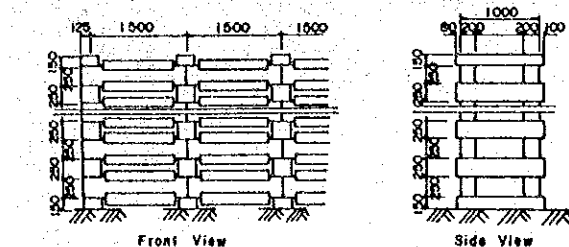
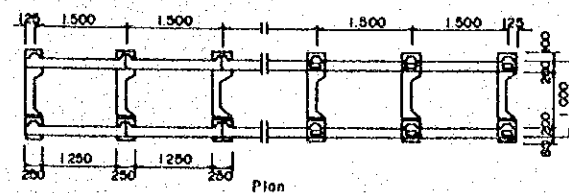


APPLICATION

Station		Slope Gradient	Area
Existing Alignment	New Alignment		
M + 1.6	No. 58+200	1.0 : 1	400 ^m
N + 4.7	No. 70+100	1.0 : 1	900
P + 3.6	No. 77+800	1.0 : 1	910

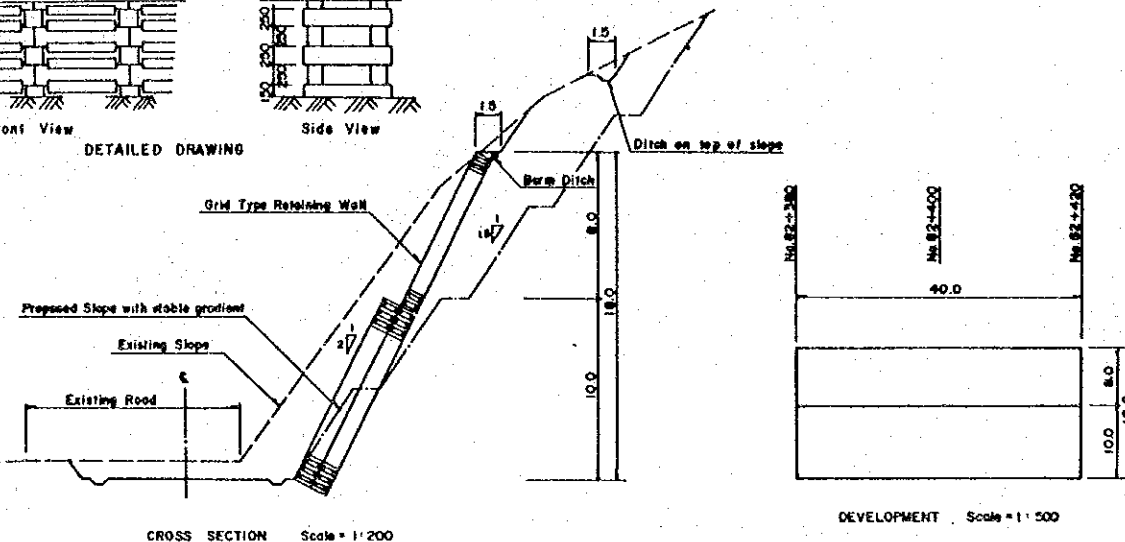


TYPICAL APPLICATION OF TYPE 5 COUNTERMEASURE (CONCRETE PITCHING AND ANCHORING) (N+4.7/No.70+100)

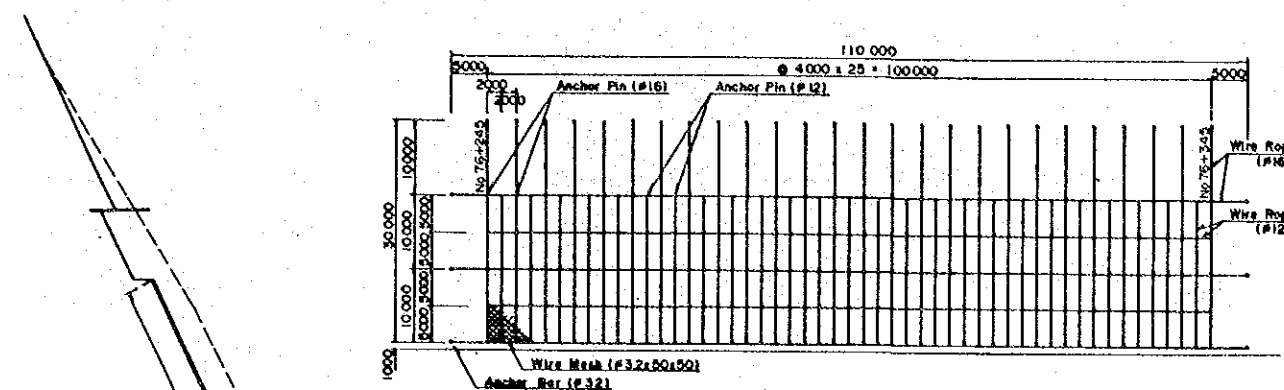


DETAILED DRAWING

APPLICATION			
Station	Slope Gradient	Area	
SB + 0.8	No. 0+700	2.0 : 1	3 354 m ²
H + 1.0	No. 33+700	2.0 : 1	1 252
I + 3.3	No. 38+30	3.3 : 1	2 493
H + 3.0	No. 68+440	2.0 : 1	872
O + 0.6	No. 80+350	2.0 : 1	2 012
R + 0.3	No. 82+400	2.0 : 1	715

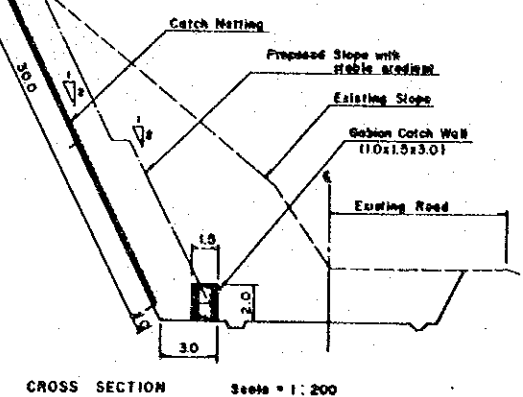


TYPICAL APPLICATION OF TYPE 6 COUNTERMEASURE (GRID TYPE CONCRETE RETAINING WALL) (R+0.3/No.82+400)



DEVELOPMENT Scale = 1:500

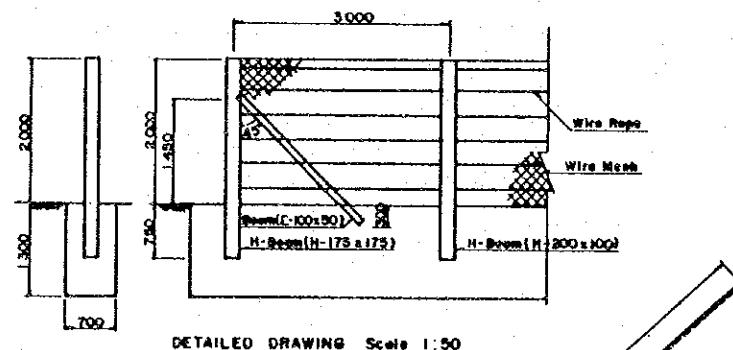
APPLICATION			
Station	Slope Gradient	Quantity	
Existing Alignment	New Alignment	Catch Netting	Gabion Catch Wall
H + 1.0	No.33+700	2.0 : 1	— m ² 42 m
P + 1.7	No.76+320	2.0 : 1	2,000 102



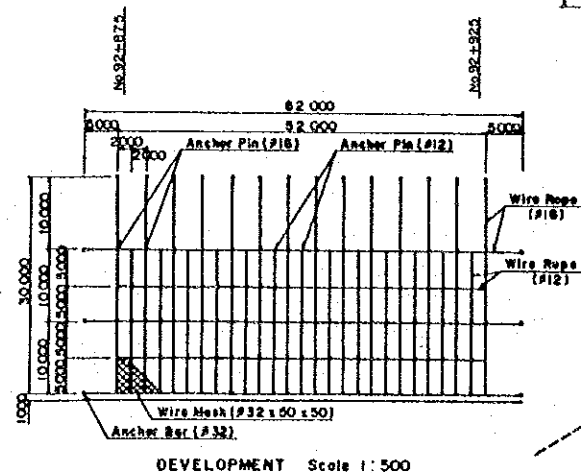
CROSS SECTION Scale = 1:200

TYPICAL APPLICATION OF TYPE 9/10 COUNTERMEASURE (CATCH NETTING + GABION CATCH WALL) (P+1.7/No.76+320)

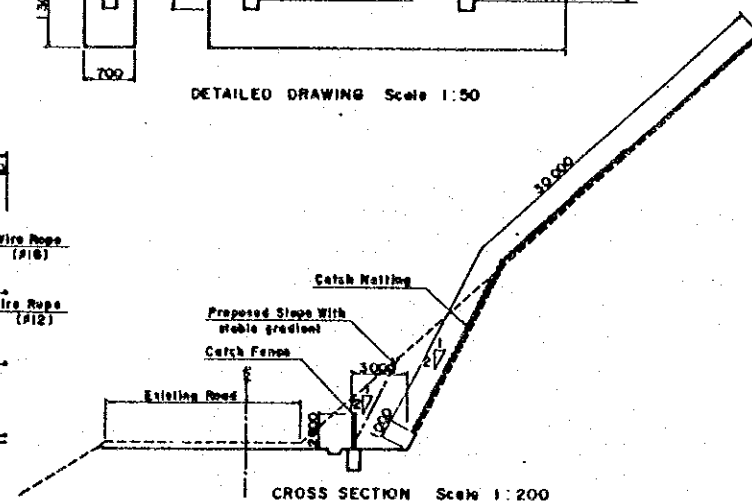
APPLICATION			
Station	Slope Gradient	Quantity	
Existing Alignment	New Alignment	Catch Netting	Catch Fence
C + 2.6	No.12+700	2.0 : 1	— m ² 81 m
H + 2.3	No.35+560	2.0 : 1	800 42
T + 2.5	No.92+900	2.0 : 1	1 040 84



DETAILED DRAWING Scale 1:50

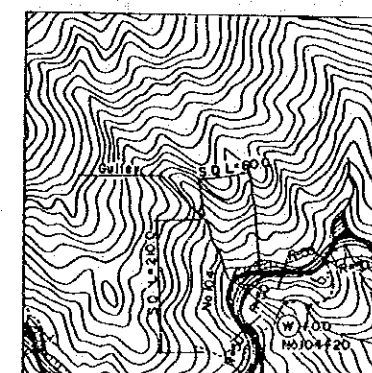


DEVELOPMENT Scale 1:500

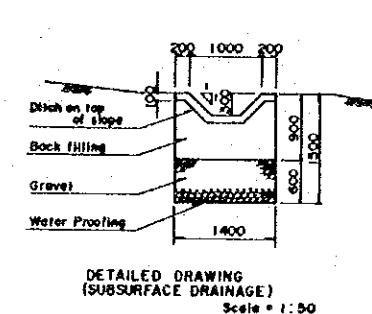


CROSS SECTION Scale 1:200

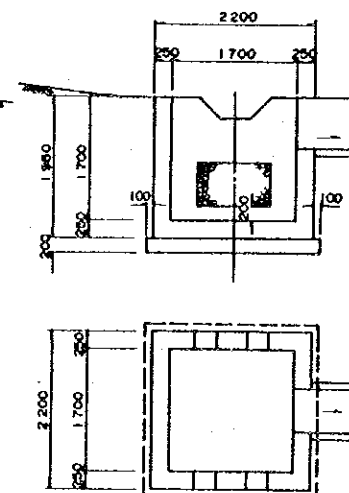
TYPICAL APPLICATION OF TYPE 9/11 COUNTERMEASURE (CATCH NETTING + CATCH FENCE) (T+2.5/No.92+900)



PLAN Scale = 1:5,000



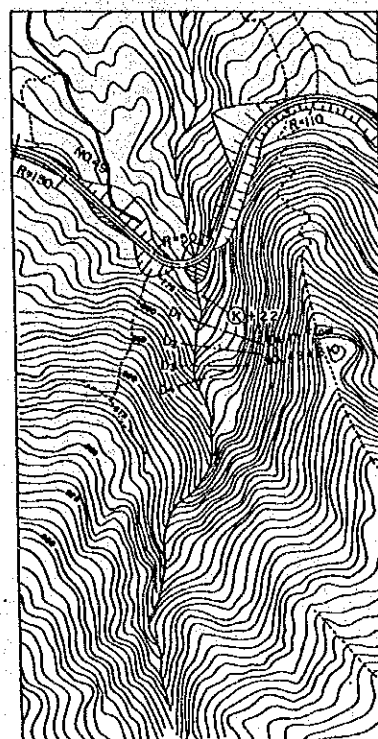
DETAILED DRAWING (SUBSURFACE DRAINAGE) Scale = 1:50



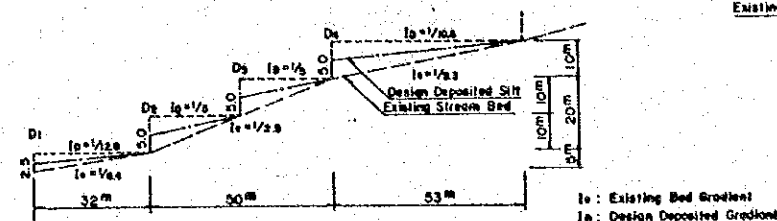
DETAILED DRAWING (GULLY) Scale = 1:50

APPLICATION		
Station	Length	
Existing Alignment	New Alignment	
W + 0.0	No.104+20	290 m
W + 0.3	No.104+670	270
W + 1.2	No.105+840	120
W + 3.0	No.107+500	330

TYPICAL APPLICATION OF TYPE 14 COUNTERMEASURE (SUBSURFACE DRAINAGE FOR LANDSLIDE) (W+0.0/No.104+20)

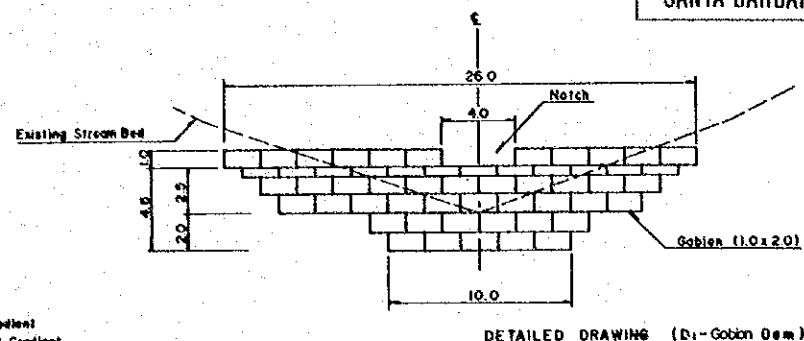
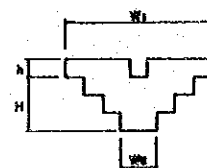


PLAN Scale = 1:5,000

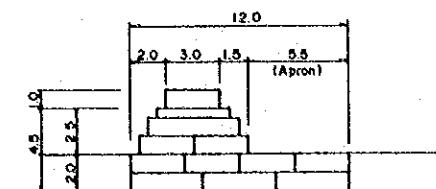


PROFILE Scale = 1:1,000

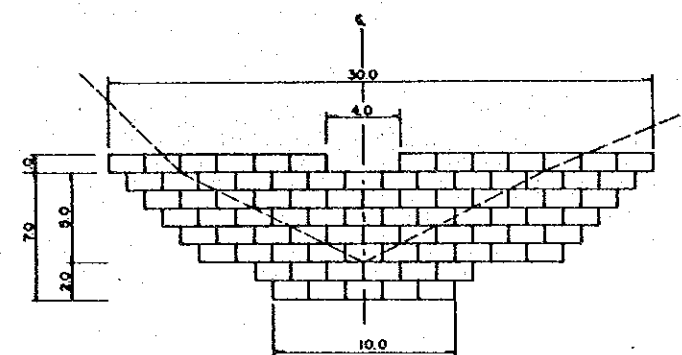
APPLICATION									
Station		Dam No.	Dimension (m)				Qty	Unit	
Existing Align.	New Align.		H	h	W ₁	W ₂			
K + 2.2	No. 49+210	D1	4.5	1.0	26.0	10.0	608		
		D2	7.0	1.0	30.0	10.0	1,152		
		D3	7.0	1.0	26.0	10.0	1,020		
		D4	7.0	1.0	32.0	10.0	984		
		Total						3,764	
N + 3.4	No. 68+820	—	7.0	1.0	46.0	10.0	1,274		
O + 1.2	No. 71+800	D1	9.5	1.0	29.0	8.0	1,369		
		D2	9.5	1.0	28.0	8.0	1,470		
		Total						2,839	
O + 3.1	No. 73+890	—	7.0	1.0	32.0	10.0	1,098		
V + 2.8	No. 103+190	—	9.5	1.0	48.0	12.0	2,179		



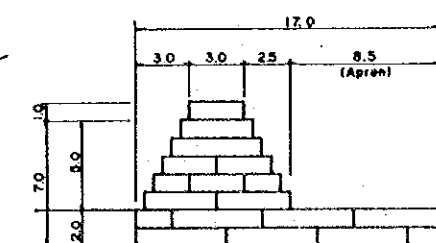
DETAILED DRAWING (D1 - Gabion Dam)



Scale = 1:200

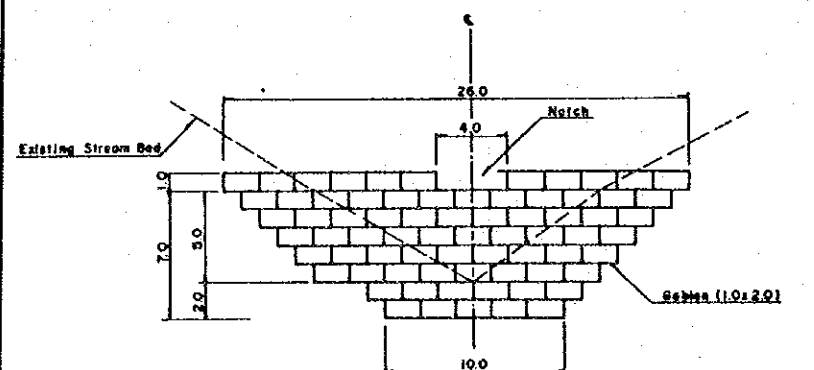


DETAILED DRAWING (D2 - Gabion Dam)

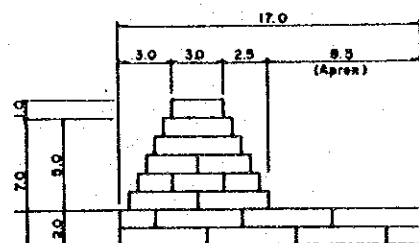


Scale = 1:200

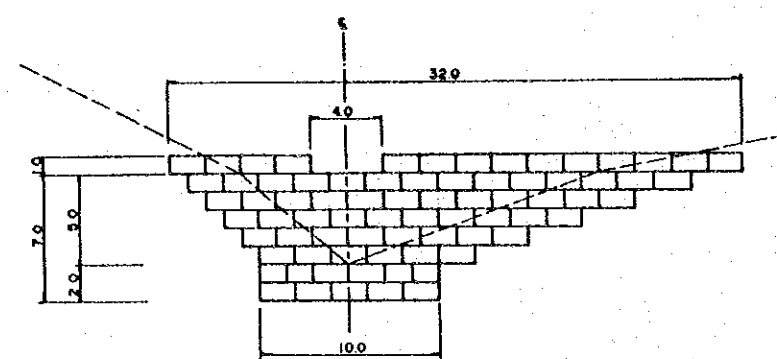
TYPICAL APPLICATION OF TYPE 15 COUNTERMEASURE (GABION DAM FOR DEBLIS / EARTH FLOW) - (1) (K+2.2 / No.49+210)



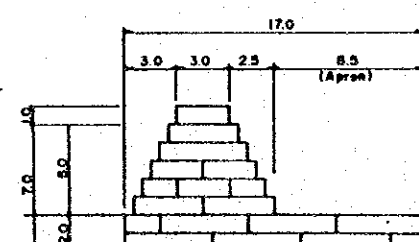
DETAILED DRAWING (D3 - Gabion Dam)



Scale = 1:200

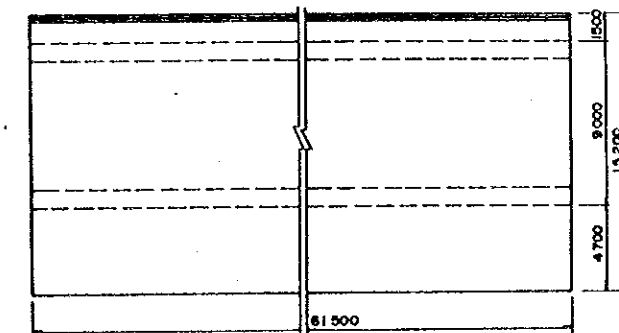


DETAILED DRAWING (D4 - Gabion Dam)

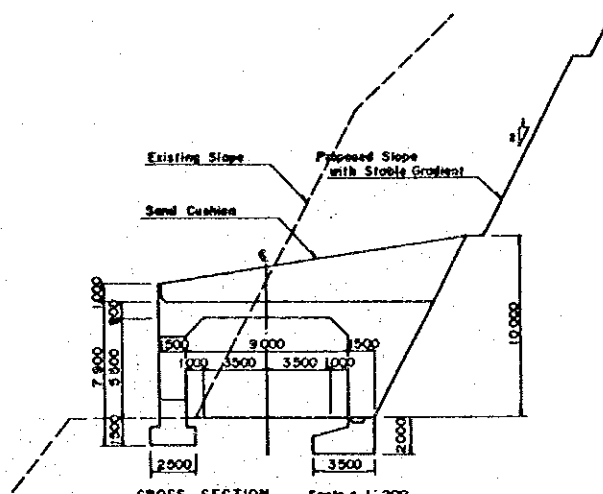


Scale = 1:200

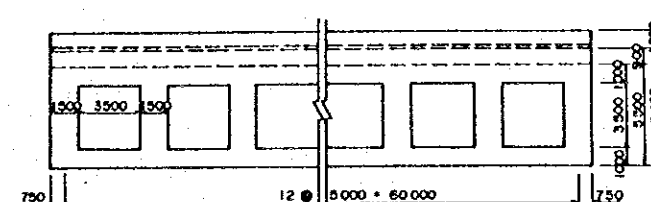
TYPICAL APPLICATION OF TYPE 15 COUNTERMEASURE (GABION DAM FOR DEBLIS / EARTH FLOW) - (2) (K+2.2 / No.49+210)



PLAN Scale = 1:200



CROSS SECTION Scale = 1:200



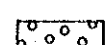
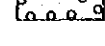













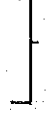
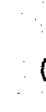



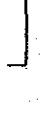
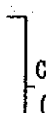
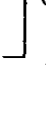

FRONT VIEW Scale = 1:200












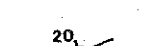
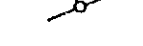




TYPICAL APPLICATION OF TYPE 17 COUNTERMEASURE (DEBLIS / EARTH FLOW SHED) (J+0.6 / No.40+300)

II GEOLOGICAL CONDITIONS

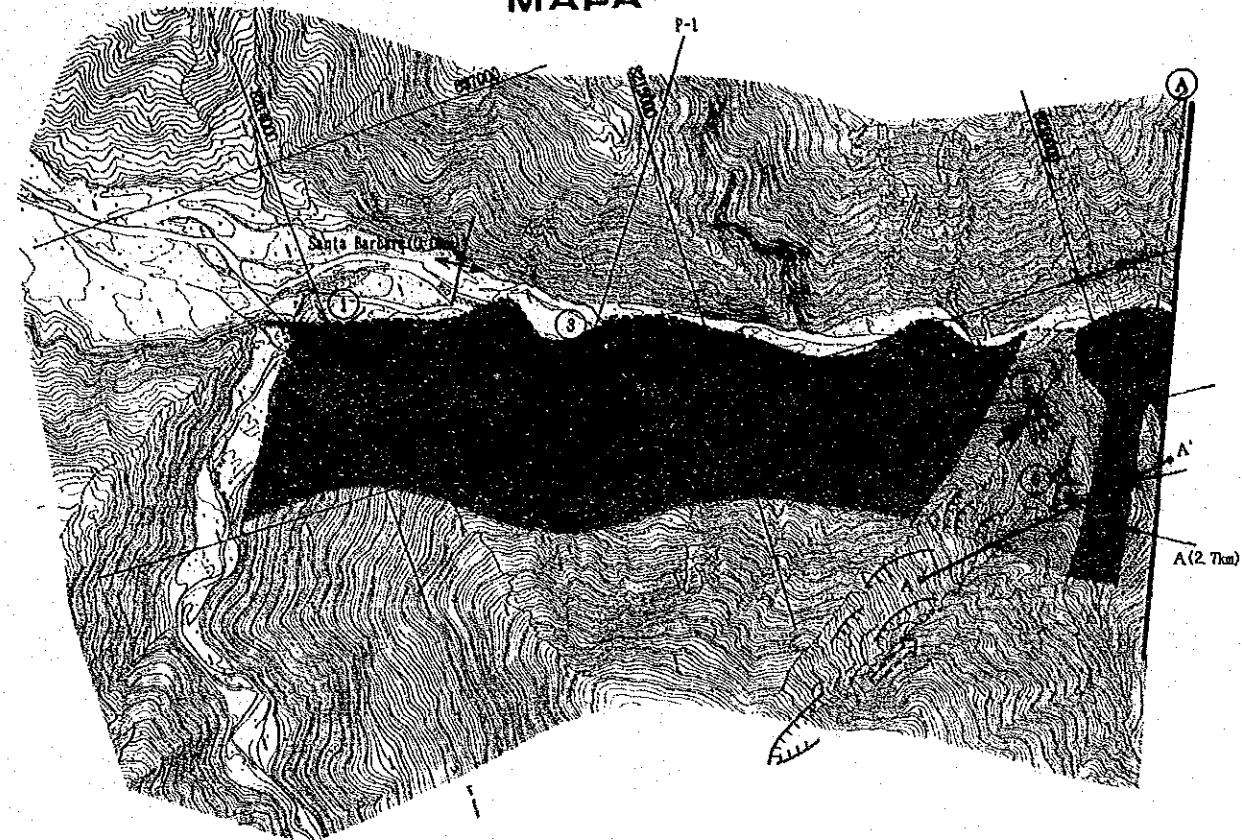
Symbol

-  : Talus Deposit (Detrito y coluvio)
-  : Debris Flow Deposit (Masamorra)
-  : Landslide Deposit (Deslizamiento)
-  : Terrace Deposit (Deposito de Terraza)
-  : Alternation of Sandstone and Mudstone (Intercaraciones de Arenisca y Limolita)
-  : Mudstone (Limolita)
-  : Sandstone (Arenisca)
-  : Conglomerate (Conglomerado)
-  : Sandstone (Arenisca)
-  : Limestone (Caliza)
-  : Sandstone (Arenisca)
-  : Mudstone (Limolita)
-  : Shale (Lutita)
-  : Alternation of Sandstone and Shale (Intercaraciones de Arenisca y Lutita)
-  : Slate (Pizarra)

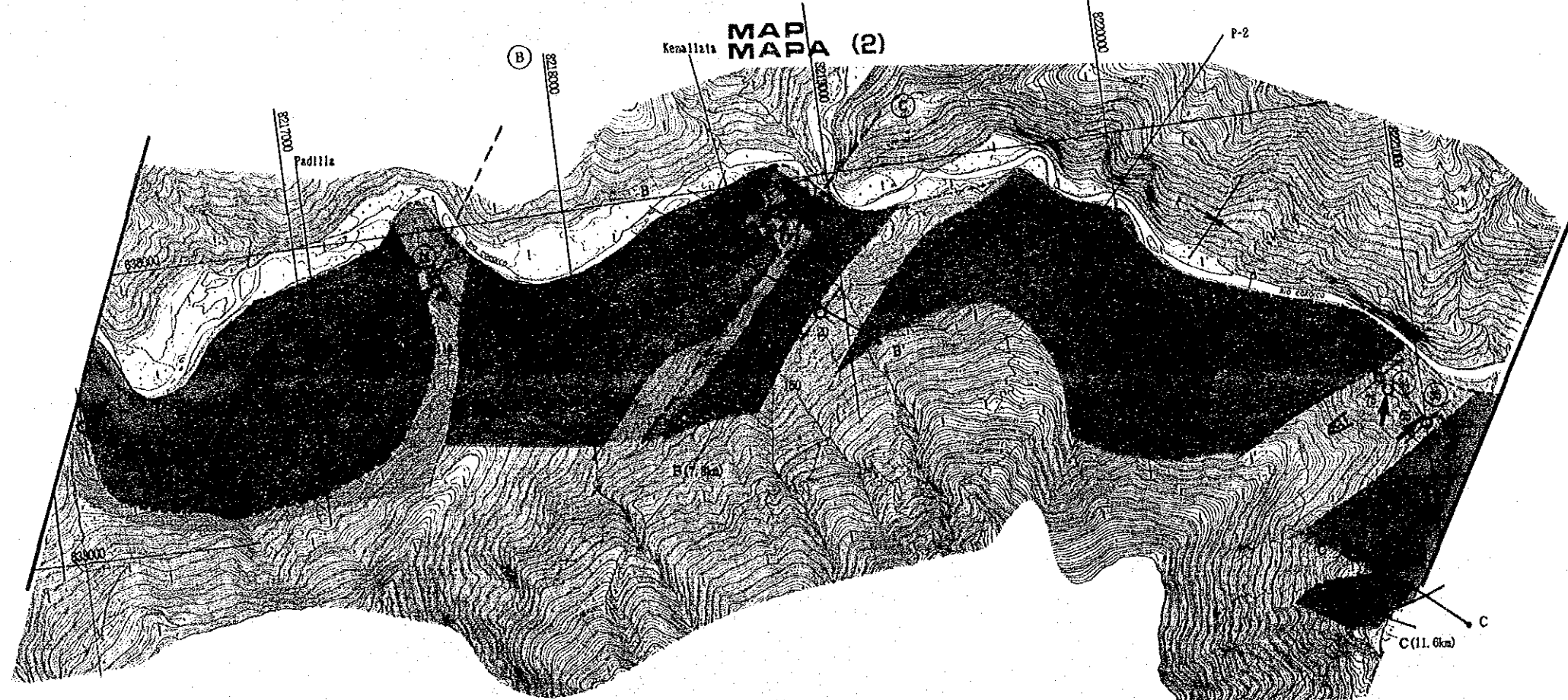
-  Holocene (Holoceno)
-  Pleistocene (Pleistoceno)
-  Miocene (Mioseno)
-  Cretaceous (Cretacico)
-  Ordovician (Ordovicico)
-  Quaternary (Cuaternario)
-  Tertiary (Terciario)
-  Mesozoic (Mesozoico)
-  Paleozoic (Paleozoico)

-  : Geological Boundary (Contacto Geológico)
-  : Anticlinal Axis (Eje Anticlinal)
-  : Synclinal Axis (Eje Sinclinal)
-  : Fault (Falla)
-  : Inferred Fault (Falla Inferida)
-  : Dip and Strike of Bed (Rumbo y Buzamiento de capa)
-  : Scarp of Slope Failure and Landslide (Talud de Derrumbe y Deslizamiento)
-  : Main crack of Landslide (Grieta Mayor de Deslizamiento)
-  : Flat Depositional Surface (Superficie plana de Deposito)
-  : Debris Flow (Masamorra)
-  : Outflow of Groundwater (Efusión de Aguas Subterráneas)
-  : Slope Failure and Landslide (Derrumbe y Deslizamiento)
-  : Point of Perforation (Punto de Perforacion)
-  : Marking of Distance (Marca de Distancia)
-  : Check Point of Investigation (Punto de chequeo de Investigacion)
-  : Village (Pueblo)
-  : Position of Geological cross section (Posición de sección Transversal Geológico)

MAP
MAPA (1)

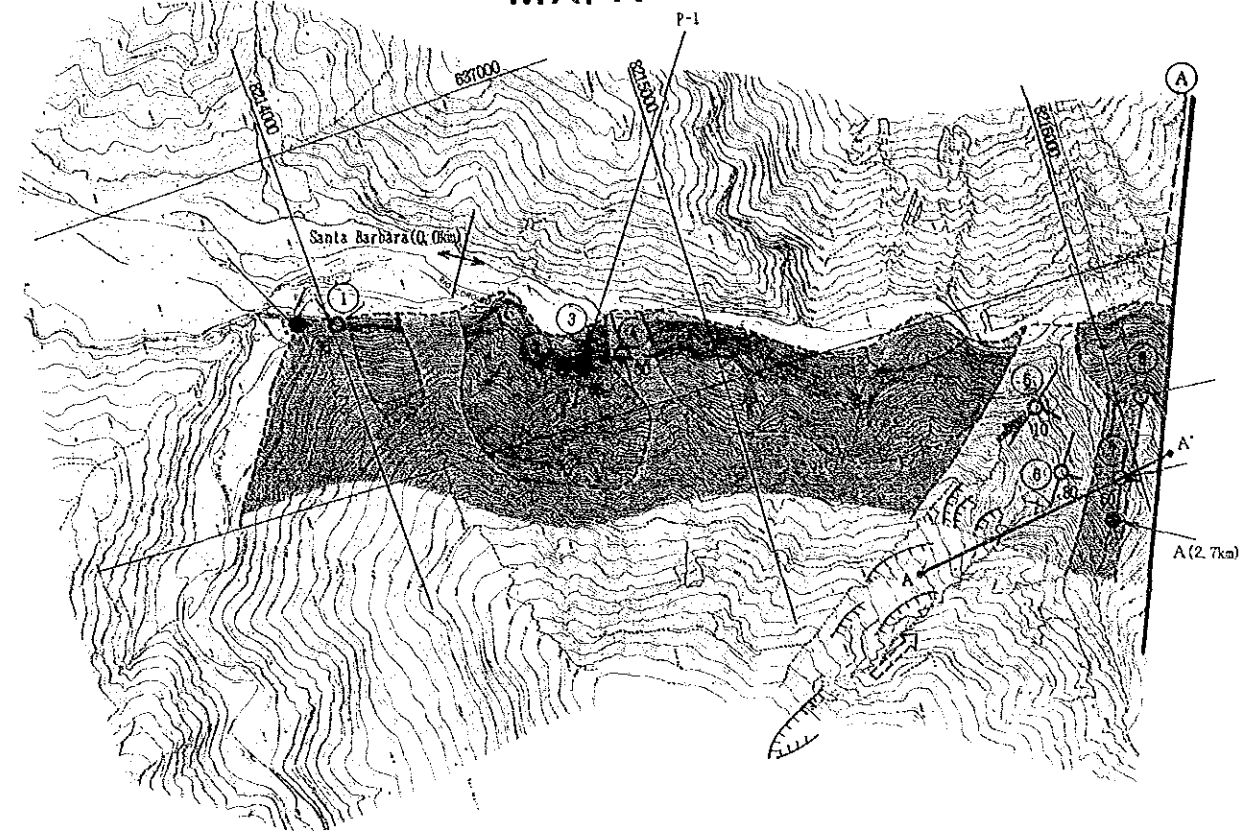


MAP
MAPA (2)

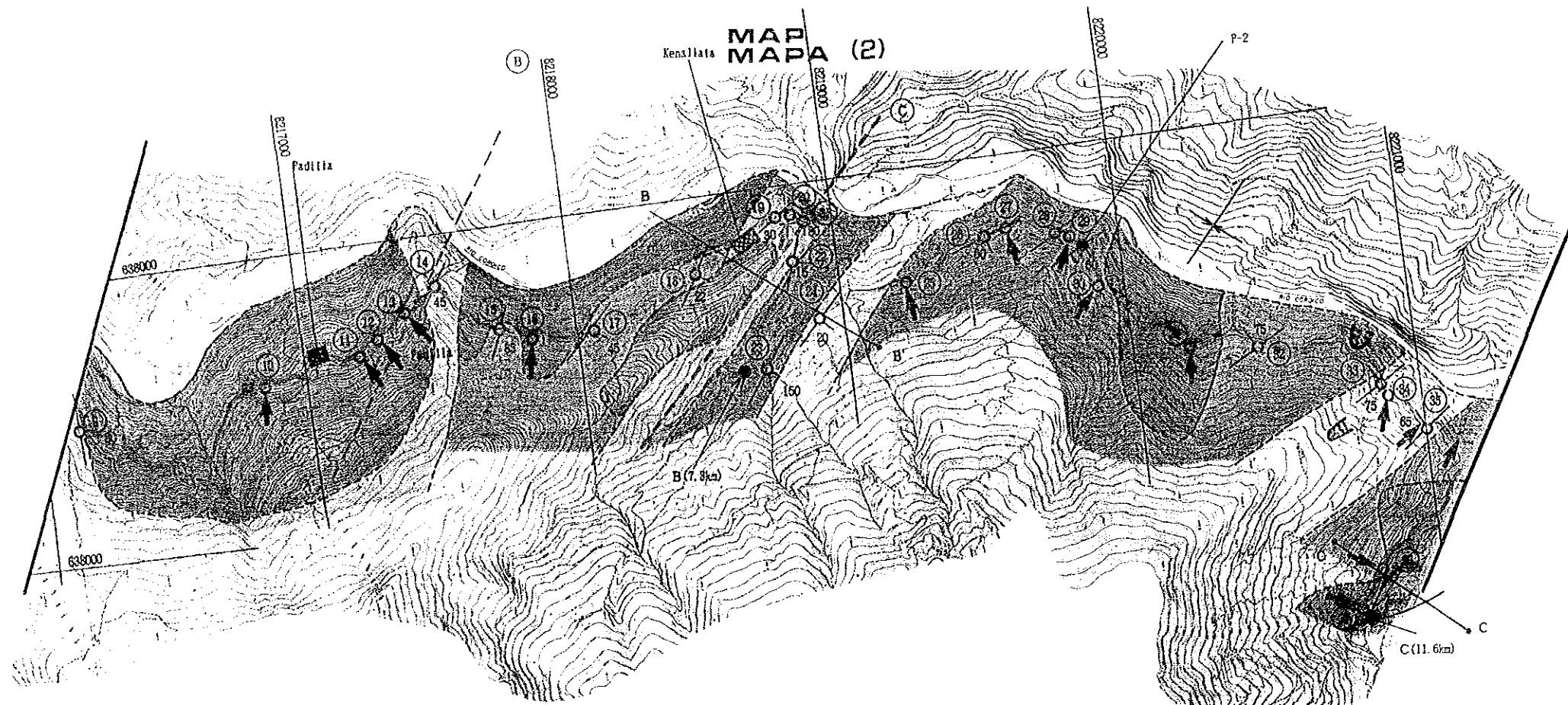


SCALE
ESCALA 0 250 500m

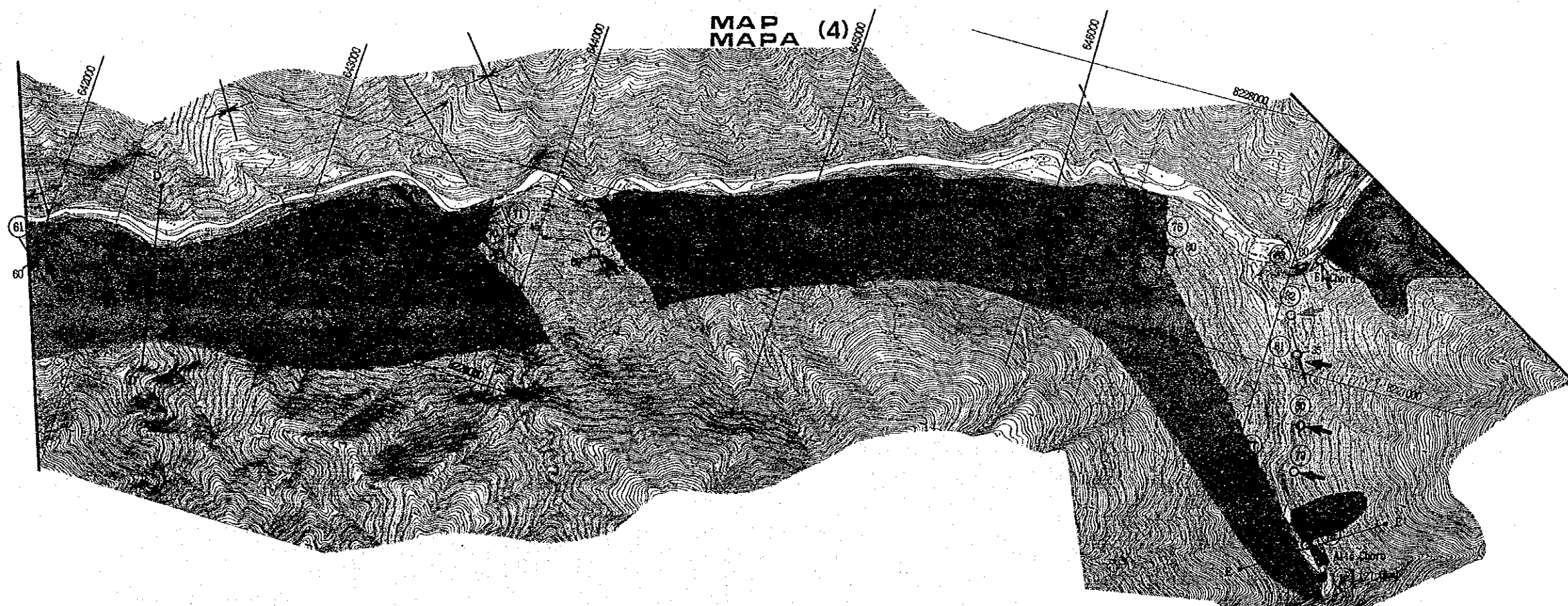
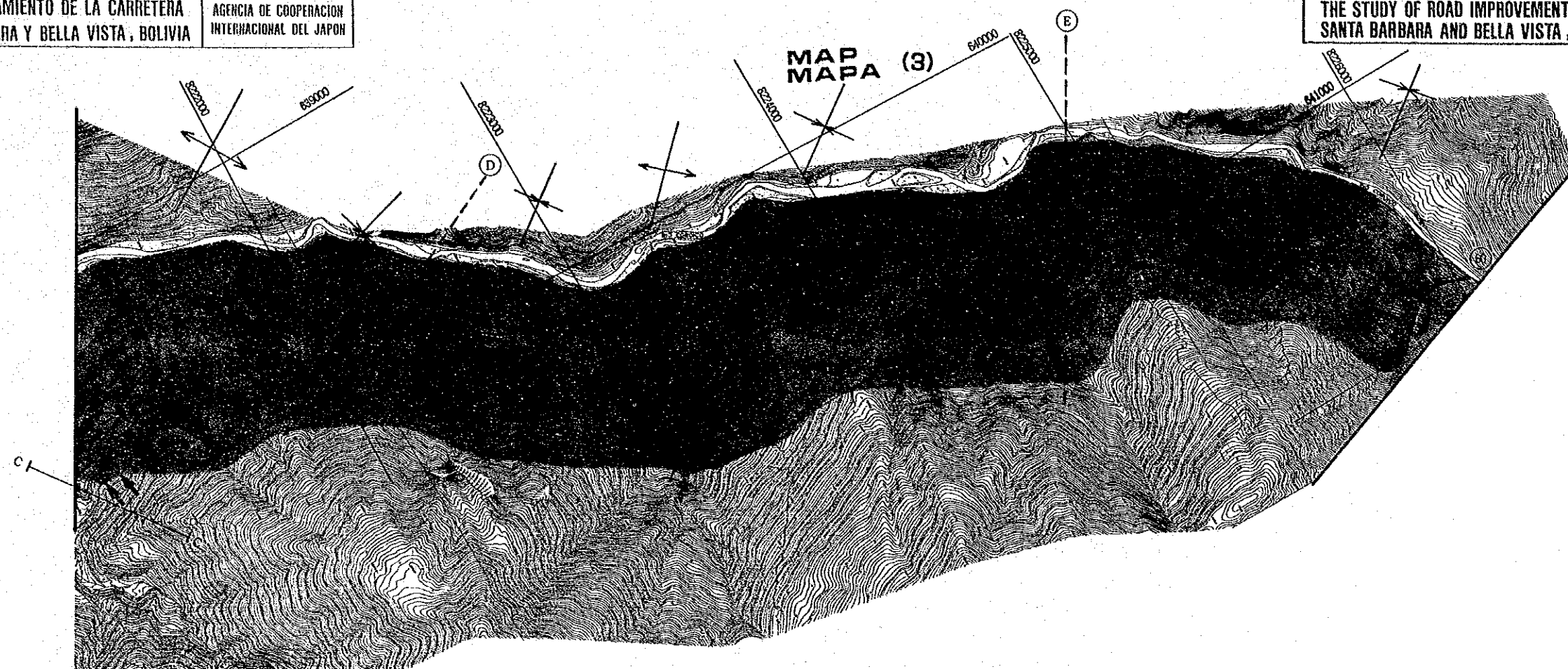
MAP
MAPA (1)



MAP
MAPA (2)



SCALE
ESCALA 0 250 500



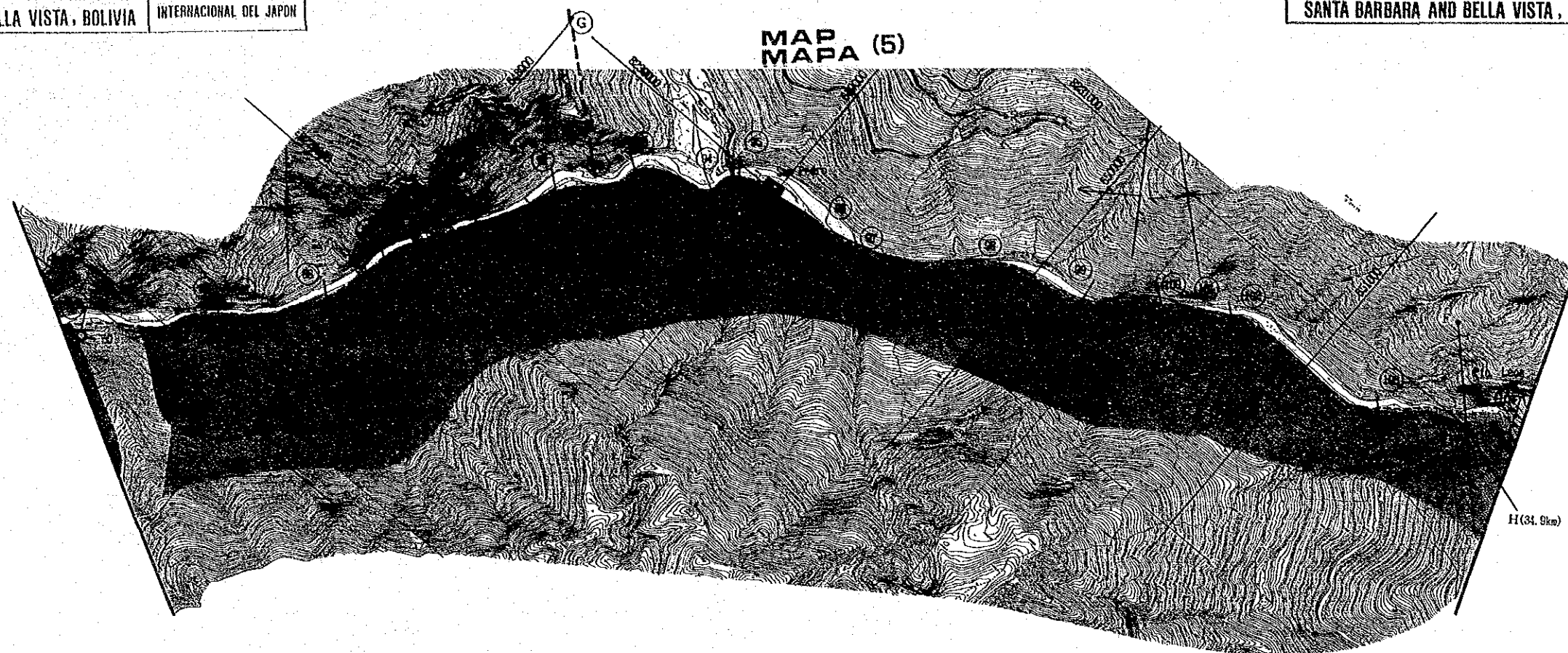
SCALE
ESCALA : 0 250 500m



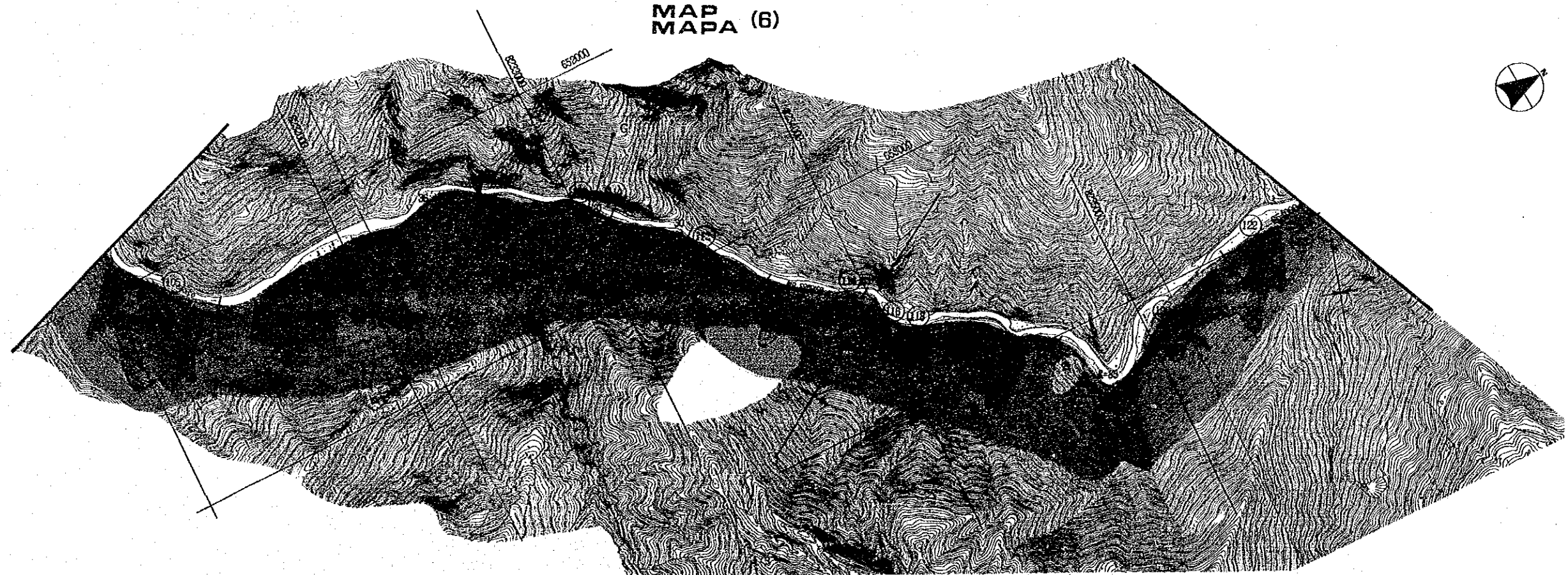
SCALE
ESCALA



MAP
MAPA (5)



MAP
MAPA (6)



SCALE
ESCALA : 0 250 500m