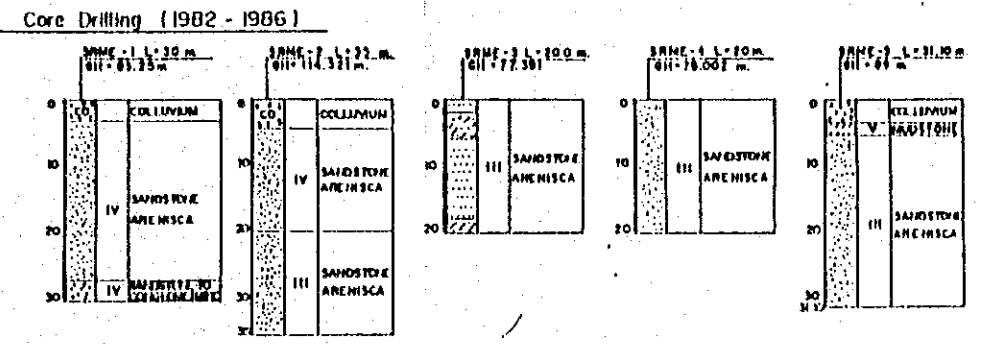
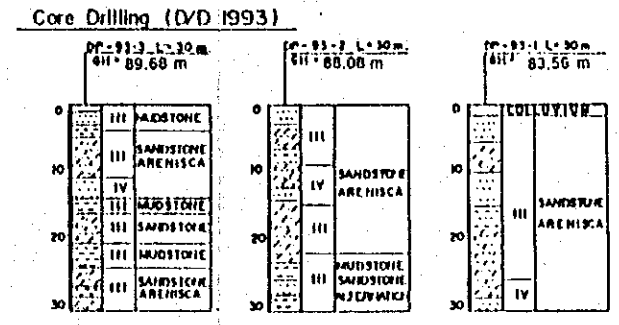
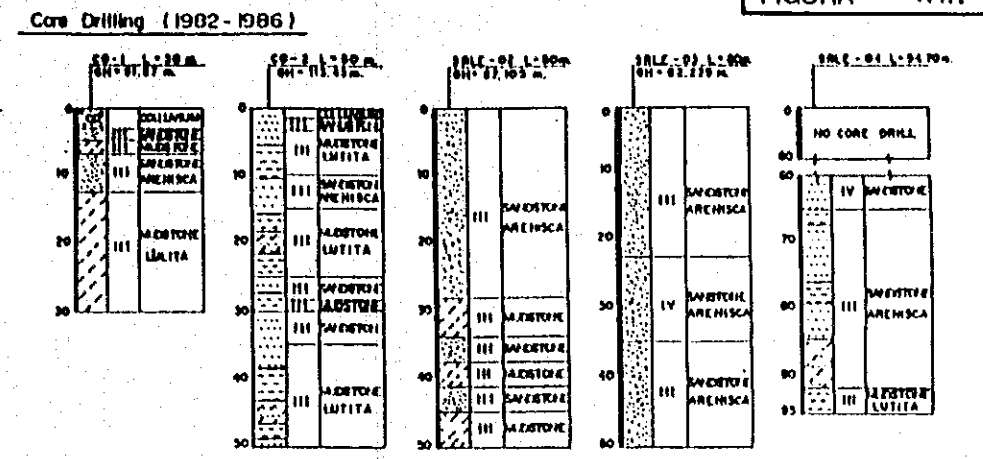
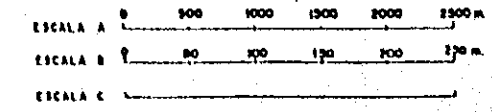
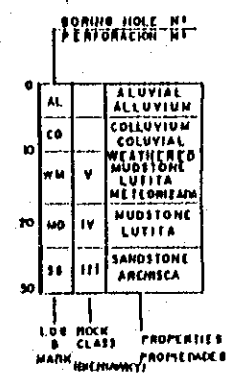


SYMBOL	FORMATION	LITHOLOGY	QUATERNARY
Qc	ALUVIUM	SANDY-MUD-SH. ARENA - ARCILLA-LIMO	QUATERNARY
QAL	COLLUVIUM	MUD WITH BOUNDED ANGRULAR BOULDER CLASSIFIED AS SANDSTONE IN MATURE LIMO-ARCILLA-ARENA	QUATERNARY
B	BORROM	SANDSTONE MEDIUM TO COARSE GRAIN VOLCANIC AND METAMORPHIC SANDSTONE	TERTIARY (PLIOCENE)
O	ONZOLE	MUDSTONE LUTITA/LIMOLITA SANDSTONE ARENISCA	TERCIARIO (MIOCENE)

SYMBOL	FORMATION	PROPERTIES
QAL	ALUVIUM	ALLUVIUM ALUVIAL
QcB	COLLUVIUM	COLLUVIUM (COLLUVIAL) - SURFACE BORROM FORMATION - BASE ROCK
QcO	COLLUVIUM	COLLUVIUM (COLLUVIAL) - SURFACE ONZOLE FORMATION - BASE ROCK
OC	OUT CROPS	OUT CROPS AFLORAMIENTOS
—	CONTACT	GEOLOGICAL CONTACT CONTACTO GEOLOGICO



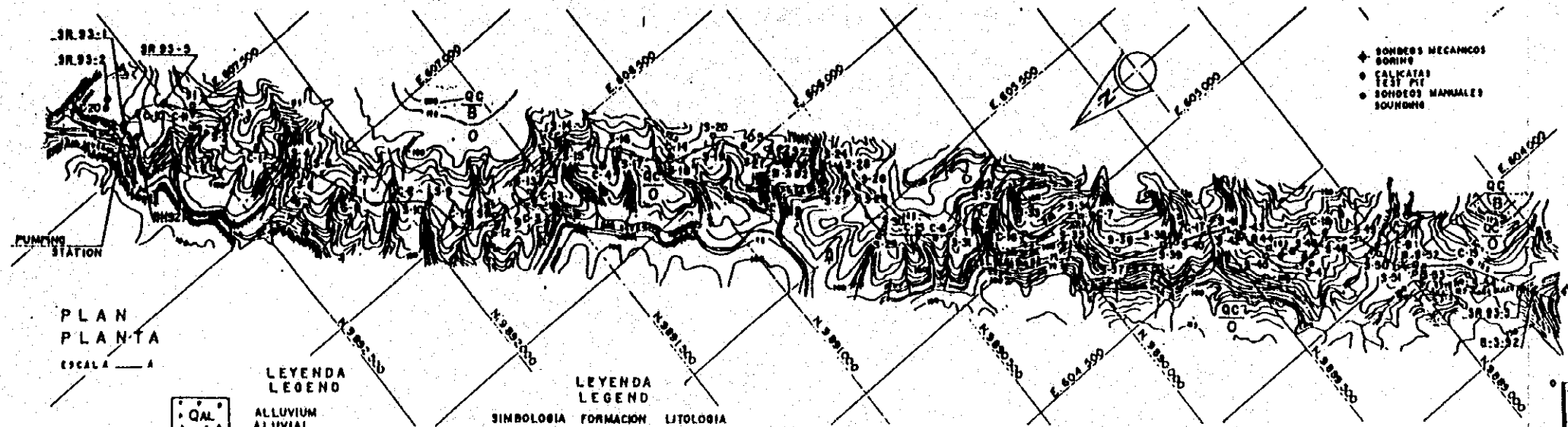
REG. TIME FORMATION	ROCK TYPE	PROPERTIES
QUATERNARY	FINE SOIL	RIVER AND TRIBUTARY DEPOSIT. SILTY SOIL WITH SOME GRAVELS
QUATERNARY	FINE SOIL	TALUS DEPOSIT. SILTY SOIL WITH A LITTLE AMOUNT OF BOULDER.
TERTIARY	MUDSTONE I	MAINLY MUDSTONE. STRATIFIED WITH VERY FINE SANDSTONE. HORIZONTAL BEDDING. SOFT ROCK.
TERTIARY	SANDY MUDSTONE	MAINLY SANDY MUDSTONE INTERLAIN WITH FINE SANDSTONE SOFT ROCK
TERTIARY	SANDSTONE	FINE SANDSTONE PARTLY COARSE S.S. AND CONGLOMERATE



GOBIERNO DE LA REPUBLICA DEL ECUADOR
 CENTRO DE REHABILITACION DE MANABI (CRM)
 ESTUDIO DE DISEÑO DETALLADO DE LOS ESQUEMAS
 DE TRASFASE DE AGUA PARA LAS CUENCAS DE
 LOS RIOS CHONE Y PORTOVIEJO
 AGENCIA DE COOPERACION INTERNACIONAL DEL JAPON

TITULO
 MAPA GEOLOGICO DEL AREA DEL PROYECTO
 (TUNEL DE DERIVACION DAULE-PERIPA ~ LA
 ESPERANZA)

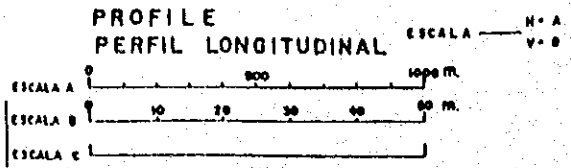
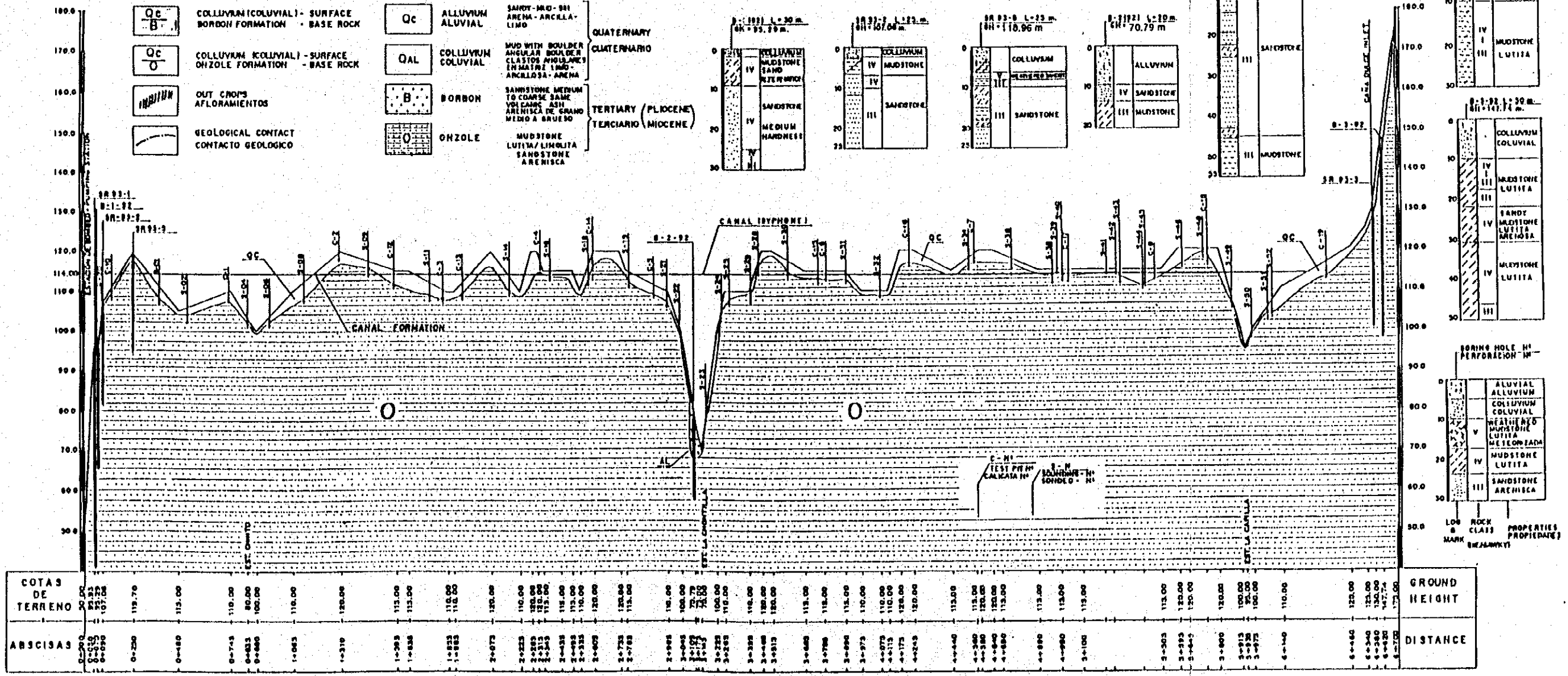
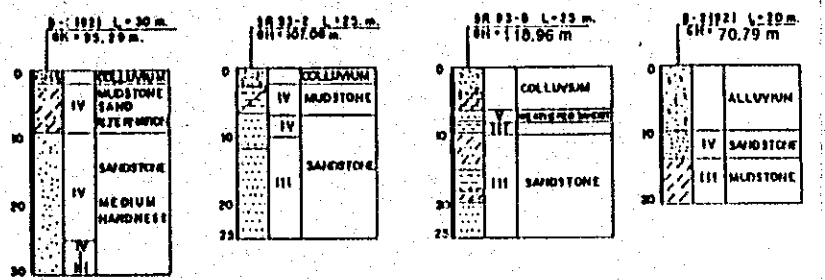
FIGURA 1.4.2



PLAN PLANTA
ESCALA 1:5000

QUATERNARY	ALLUVIAL	FINE SOIL	RIVER AND INDIARY DEPOSIT, SILTY SOIL WITH SOME GRAVELS
	COLLUVIAL	FINE SOIL	TALUS DEPOSIT, SILTY SOIL WITH A LITTLE AMOUNT OF BOULDERS.
TERTIARY	ONZOLE FORMATION	MUDSTONE	MAINLY MUDSTONE, STRATIFIED WITH VERY FINE SANDSTONE, HORIZONTAL BEDDING SOFT ROCK.
		SANDY MUDSTONE	MAINLY SANDY MUDSTONE, INTERLAID WITH FINE SANDSTONE, SOFT ROCK.
	SANDSTONE	FINE SANDSTONE, PARTLY COARSE S.S. AND CONGLOMERATE.	

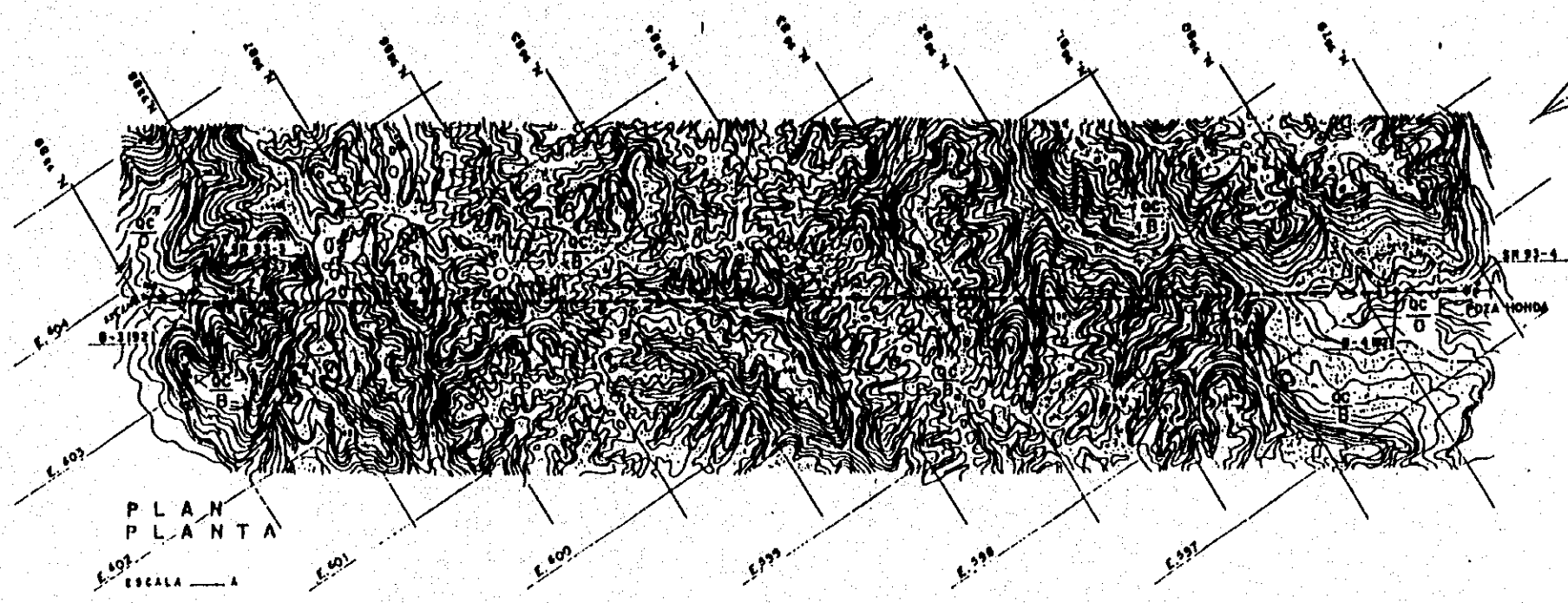
LEYENDA LEGEND		SIMBOLOGIA FORMACION COLUMN SECTION FORMATION		LITOLOGIA LITHIOLOGY	
	ALLUVIUM ALUVIAL		ALLUVIUM ALUVIAL	SANDY-MUD-981 ARENA-ARCILLA-LIMO	QUATERNARIO
	COLLUVIUM (COLLUVIAL) - SURFACE		COLLUVIUM COLUVIAL	MUD WITH BOULDER ANGULAR, BOULDER CLASTIC, MUDS, MUDS IN MATRIX LIMO-ARCILLA-S-ARENA	TERTIARIO (PLIOCENE) TERCARIO (MIOCENE)
	COLLUVIUM (COLLUVIAL) - SURFACE ONZOLE FORMATION - BASE ROCK		BORBON	SANDSTONE MEDIUM TO COARSE GRAIN, VOLCANIC ASH, ARCHIECA DE GRANO MEDIO A GUAISO	
	OUT CROPS AFLORAMIENTOS		ONZOLE	MUDSTONE LUTITA/LIMOLITA SANDSTONE ARENISCA	
	GEOLOGICAL CONTACT CONTACTO GEOLOGICO				



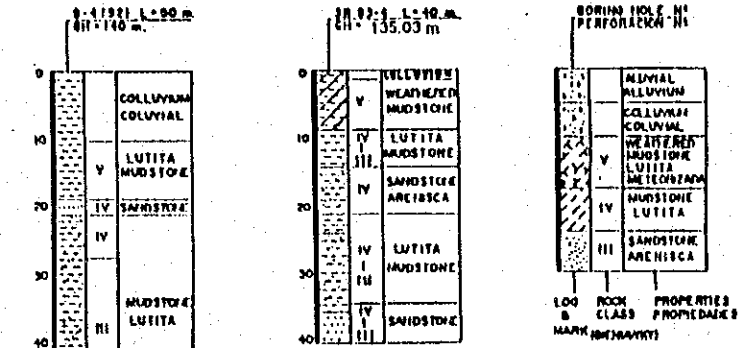
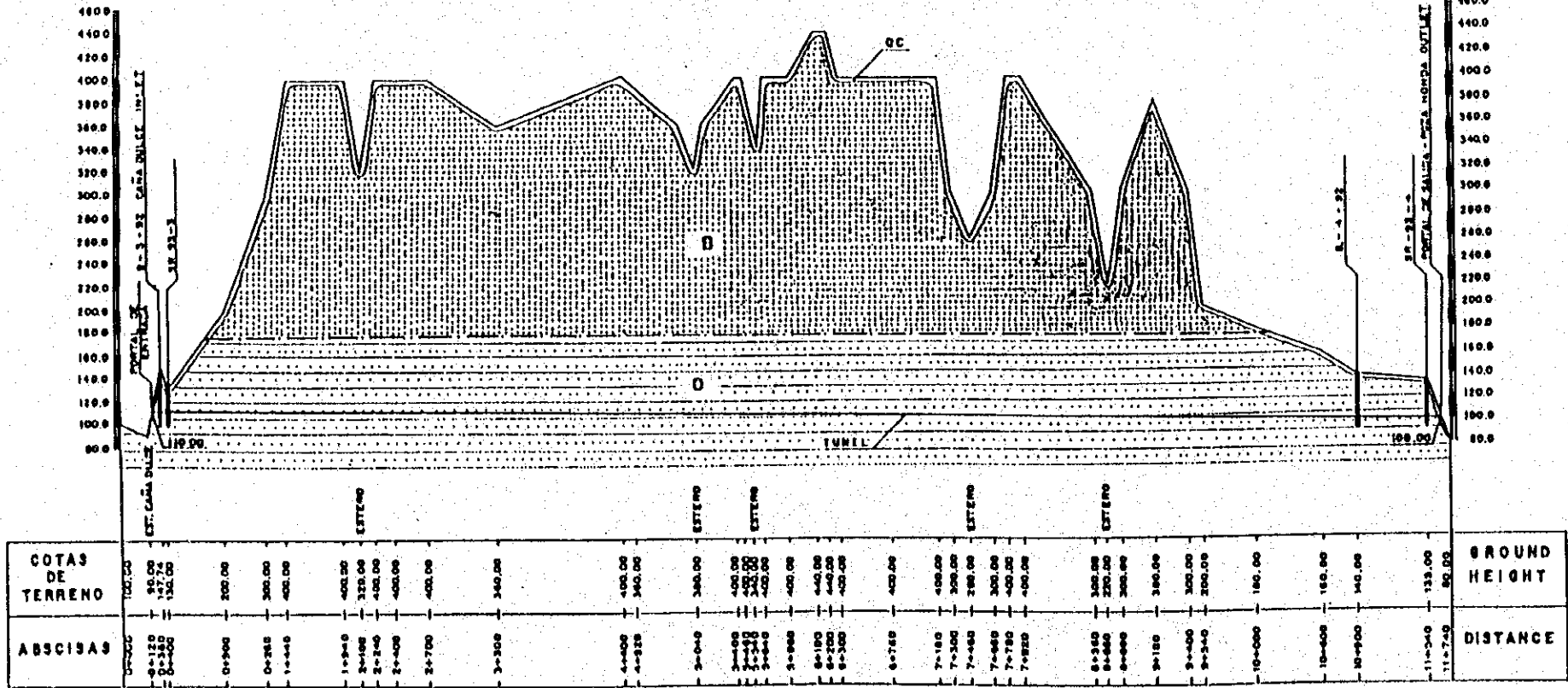
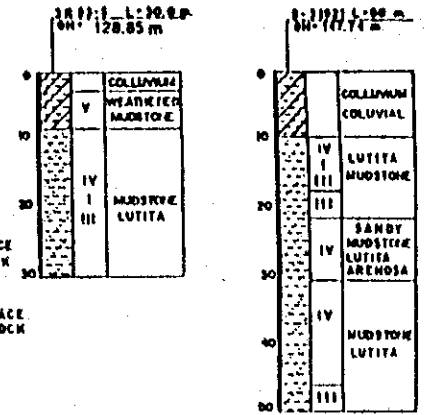
Gobierno de la Republica del Ecuador
 Centro de Rehabilitacion de Manabi (CRM)
 Estudio de Diseño Detallado de los Esquemas
 de Tránsito de Agua para las Cuenecas de
 los Rios Chone y Portoviejo
 AGENCIA DE COOPERACION INTERNACIONAL DEL JAPON

TITULO
 MAPA GEOLOGICO DEL AREA DEL PROYECTO
 (ESTACION DE BOMBEO Y CANAL ABIERTO
 SEVERINO)

FIGURA 1.4.3



- LEYENDA**
LEGEND
- ALLUVIUM ALUVIAL
 - COLLUVIUM (COLUVIAL) - SURFACE BORBON FORMATION - BASE ROCK
 - COLLUVIUM (COLUVIAL) - SURFACE ONZOLE FORMATION - BASE ROCK
 - OUT CROPS AFLORAMIENTOS
 - GEOLOGICAL CONTACT CONTACTO GEOLOGICO

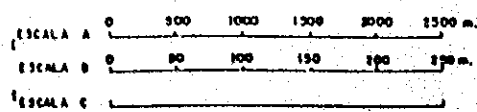


PROFILE
PERFIL LONGITUDINAL

ESCALA A
H = A
V = B

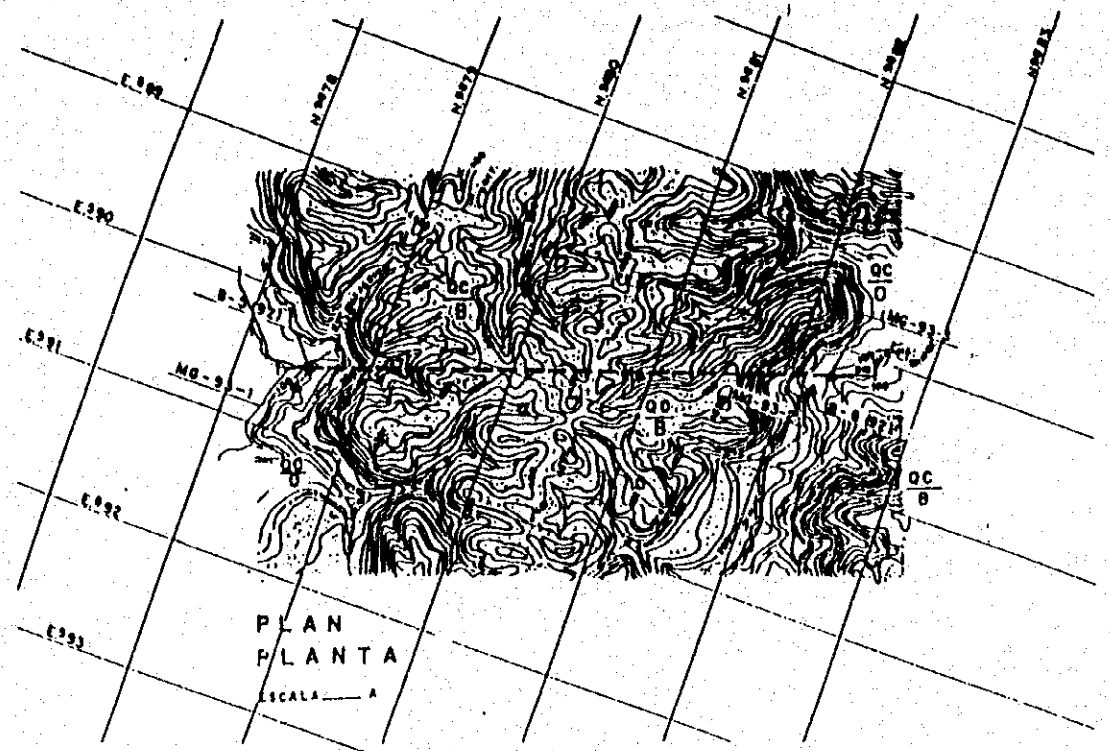
- LEYENDA**
LEGEND
- | | | | |
|------------------|----------------------|--------|--------|
| ALLUVIUM ALUVIAL | COLLUVIUM COLUVIAL | BORBON | ONZOLE |
| QUATERNARY | TERTIARIO (PLIOCENE) | | |
- LITOLOGIA**
LITHOLOGY
- SANDY MUD-SH
 - ARENA - ARCILLA - LIMO
 - MUD WITH BOLLDER
 - ARENA AN BOLLDER
 - CLASTOS ARENILLAS
 - EN SANDRE LIMO - ARCILLASA - ARENA
 - SANDSTONE MEDIUM TO COARSE SAND
 - ARCILLASCA EN SANDRE
 - MUDSTONE LUTITA / MUDSTONE

SED TIME FORMATION	ROCK TYPE	PROPERTIES
QUATERNARY	ALLUVIAL	RIVER AND TRIBUTARY DEPOSIT. SILTY SOIL WITH SOME GRAVELS
QUATERNARY	COLLUVIAL	TALUS DEPOSIT. SILTY SOIL WITH A LITTLE AMOUNT OF BOULDERS.
TERTIARY	MUDSTONE	MAINLY MUDSTONE. STRATIFIED WITH VERY FINE SANDSTONE. HORIZONTAL BEDDING. SOFT ROCK.
TERTIARY	SANDY MUDSTONE	MAINLY SANDY MUDSTONE INTERLAID WITH FINE SANDSTONE SOFT ROCK
TERTIARY	SANDSTONE	FINE SANDSTONE PARTLY COARSE S.S. AND CONGLOMERATE

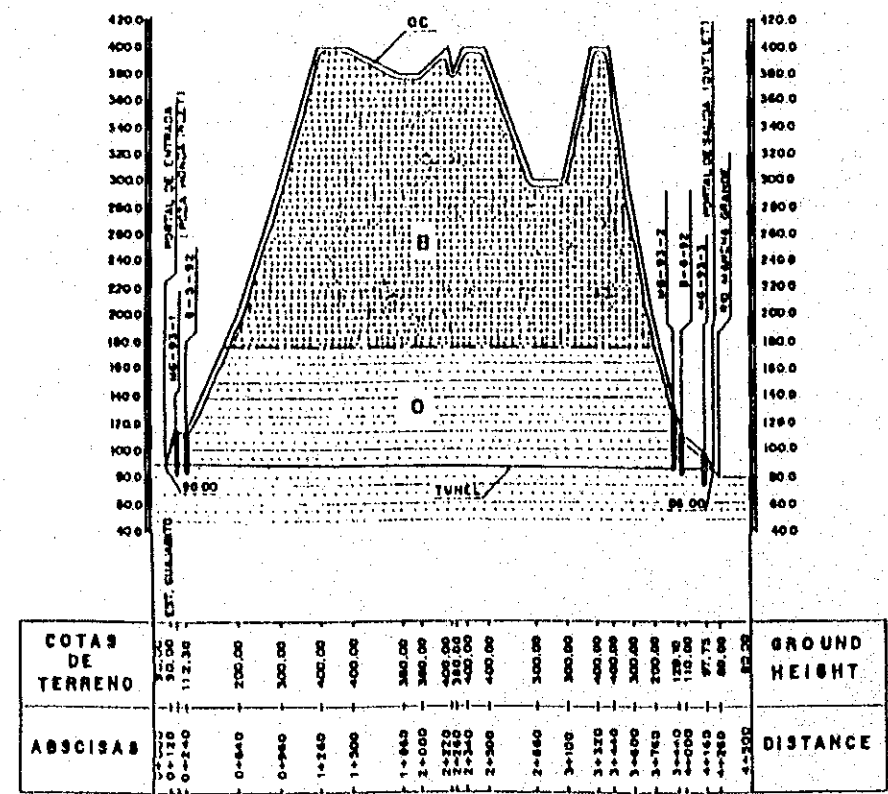
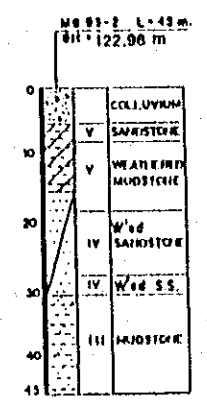
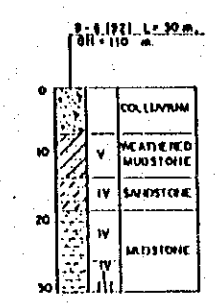
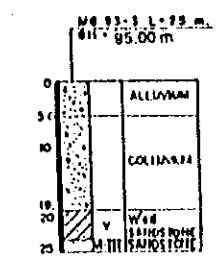
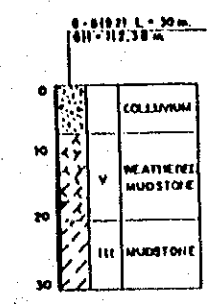
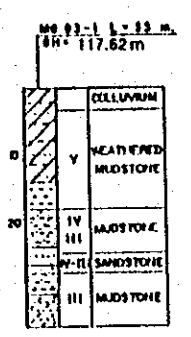


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CENTRO DE REHABILITACION DE MANABI (CRM)
ESTUDIO DE DISEÑO DETALLADO DE LOS ESQUEMAS
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AGENCIA DE COOPERACION INTERNACIONAL DEL JAPON

TITULO
MAPA GEOLOGICO DEL AREA DEL PROYECTO
(TUNEL DE DERIVACION LA ESPERANZA ~
POZA HONDA)

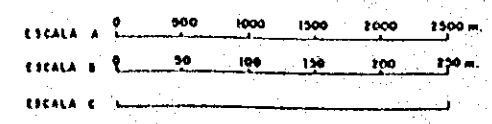
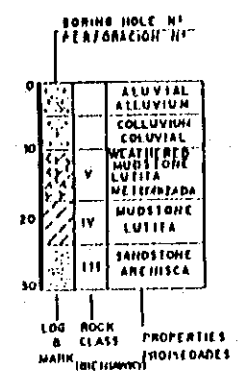


- LEYENDA**
LEGEND
- ALLUVIUM ALUVIAL
 - COLUVIUM (COLUVIAL) - SURFACE BORBON FORMATION - BASE ROCK
 - COLUVIUM (COLUVIAL) - SURFACE ONZOLE FORMATION - BASE ROCK
 - OUT CROPS AFLORAMIENTOS
 - GEOLOGICAL CONTACT CONTACTO GEOLOGICO



- LEYENDA**
LEGEND
- | SIMBOLOGIA | FORMACION | LITOLOGIA | PERIODO |
|------------|-------------------|--|---------------------|
| Qc | ALLUVIUM ALUVIAL | SANDY-MUD-SH1 ARENA-ARCILLA-LIMO | QUATERNARY |
| QAL | COLUVIUM COLUVIAL | MUD WITH BOULDER SANDS OR BOULDER CLASTOS ANGULARES EN MATARE LIMO-ARCILLOSA-ARENA | QUATERNARIO |
| B | BORBON | SANDSTONE MEDIUM TO COARSE GRAINE VOLCANIC ASH ARENOSA DE GRANO MEDIO A GRUESO | TERTIARY (PLIOCENE) |
| O | ONZOLE | MUDSTONE LUTITA/LIMOLITA SANDSTONE ARENISCA | TERTIARIO (MIOCENE) |

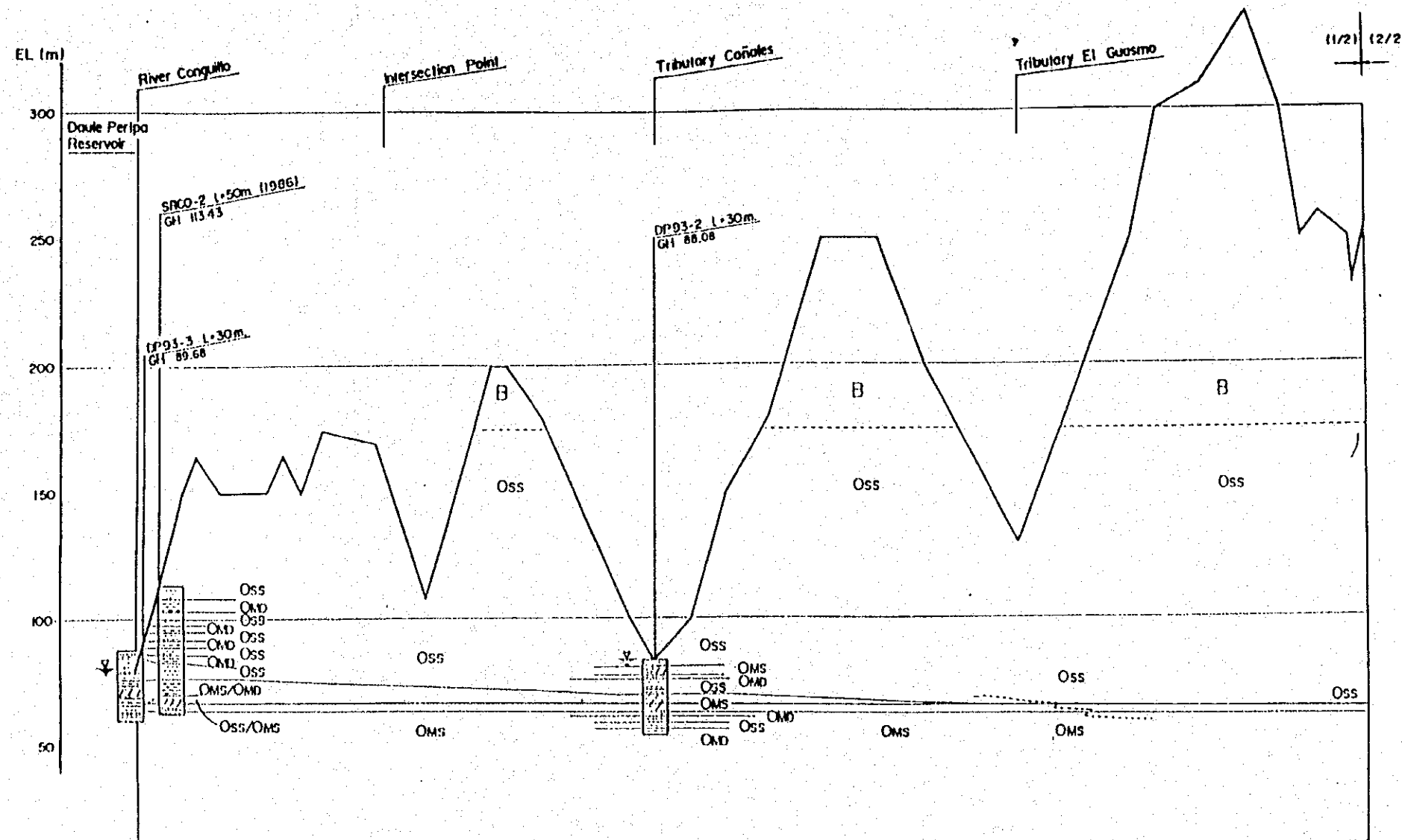
BED TIME FORMATION	ROCK TYPE	PROPERTIES
QUATERNARY ALLUVIAL	FINE SOIL	RIVER AND TERNITARY DEPOSIT. SILTY SOIL WITH SOME GRAVELS
COLUVIAL	FINE SOIL	TALUS DEPOSIT. SILTY SOIL WITH A LITTLE AMOUNT OF BOULDERS.
TERTIARY ONZOLE FORMATION	MUDSTONE	MAINLY MUDSTONE. STRATIFIED WITH VERY FINE SANDSTONE. HORIZONTAL BEDDING. SOFT ROCK.
	SANDY MUDSTONE	MAINLY SANDY MUDSTONE INTERLAID WITH FINE SANDSTONE. SOFT ROCK
	SANDSTONE	FINE SANDSTONE PARTLY COARSE S.S. AND CONGLMERATE



GOBIERNO DE LA REPUBLICA DEL ECUADOR
CENTRO DE REHABILITACION DE MANABI (CRM)
ESTUDIO DE DISEÑO DETALLADO DE LOS ESQUEMAS
DE TRAYASE DE AGUA PARA LAS CUENCAS DE
LOS RIOS CHONE Y PORTOVIEJO
AGENCIA DE COOPERACION INTERNACIONAL DEL JAPON

TITULO
MAPA GEOLOGICO DEL AREA DEL PROYECTO
(TUNEL DE DERIVACION POZA HONDA ~
MANCHA GRANDE)

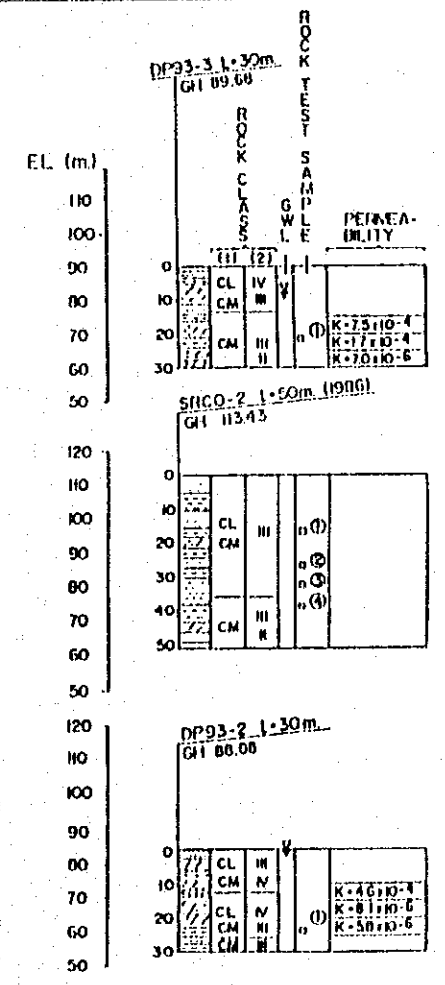
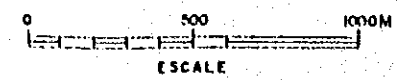
FIGURA 1.5.1(1/2)



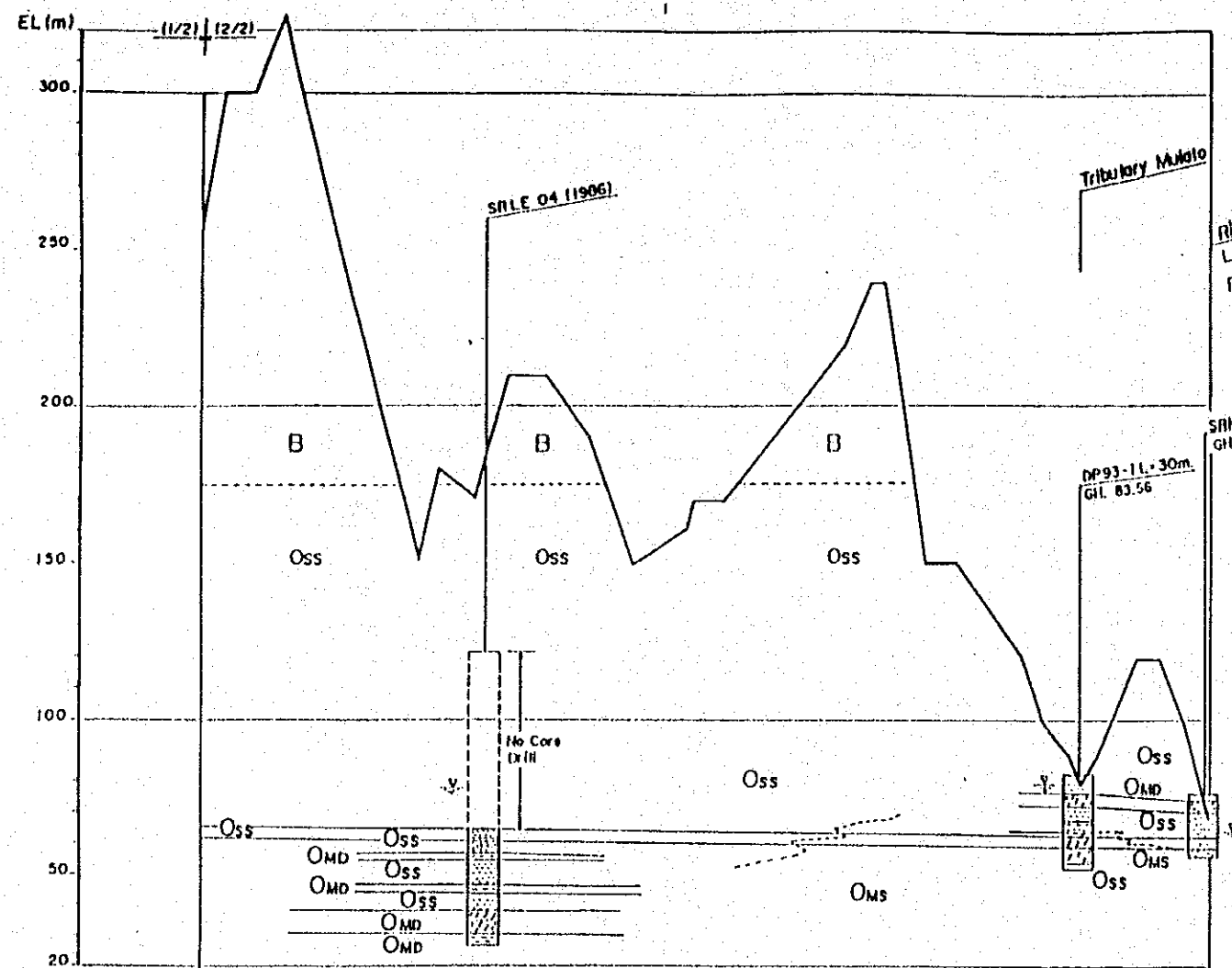
SYMBOL	GEO-TIME		ROCK TYPE	PROPERTIES
	FORMATION	PERIOD		
Al	QUATERNARY	Alluvium	Soil with gravels	River deposit
Co		Colluvium	Fine soil with debris	Secondary deposit and transported soil.
Wms	TERTIARY	Barban	Soil	Completely weathered. Loose and soft.
B			Weathered SS and M	Discoloured, fractured. Loose.
Oms			Sandstone	Mainly sandstone. Massive rock.
Oss	NEOGENE	Formation	Muddy Sandstone	Lithologically complex of fine sand & mud with silt fossils.
Oms			Sandy Mudstone	Stratified partly approx. 1 cm. in interval. Massive rock.
Oss	Onzole	Sandstone	Motly fine grain interbedding thin coarse sandstone or conglomerate.	Massive rock.
Oms			Mudstone	Homogeneous layer with 0.5 m. to 2m. in thickness. Massive rock.

ROCK TYPE	Oss/Oms	Oms	Oms	Oms	Oss
ROCK TYPE	Sandstone and Muddy sandstone	Muddy sandstone	Muddy sandstone	Muddy sandstone	Fine sandstone
ROCK CLASSIFICATION	III CL (2) IV-III	CM III-II	CL IV	CM III-II	CM III-II
Wave VELOCITY (km/sec)					
ENGINEERING PROPERTIES	Slightly weathered qu = 30 Es = 10,000 C = 2.5 θ = 35	Moderately cemented. Massive. qu = 50 Es = 15,000 C = 5 θ = 40	Slightly weathered, loose. qu = 30 Es = 10,000 C = 2.5 θ = 35	Relatively well cemented. Massive. qu = 50 Es = 20,000 C = 5 θ = 40	Relatively well cemented. Massive. qu = 50 Es = 20,000 C = 5 θ = 40

Notes: (1) Japanese Standard (2) Denikowski's Classification.
 qu : Uniaxial Compressive Strength (kg/cm²). C : Cohesion (kg/cm²)
 Es : Static Elastic Modulus (kg/cm²). θ : Internal Angle of Friction (degree)



GOBIERNO DE LA REPUBLICA DEL ECUADOR CENTRO DE REHABILITACION DE MANABI (CRM) ESTUDIO DE DISEÑO DETALLADO DE LOS ESQUEMAS DE TRÁNSITO DE AGUA PARA LAS CUENCAS DE LOS RIOS CHONE Y PORTOVIEJO AGENCIA DE COOPERACION INTERNACIONAL DEL JAPON	TITULO PERFIL GEOLOGICO DEL TUNEL DE DERIVACION (1/5) DAULE PERIPA-LA ESPERANZA (1/2)
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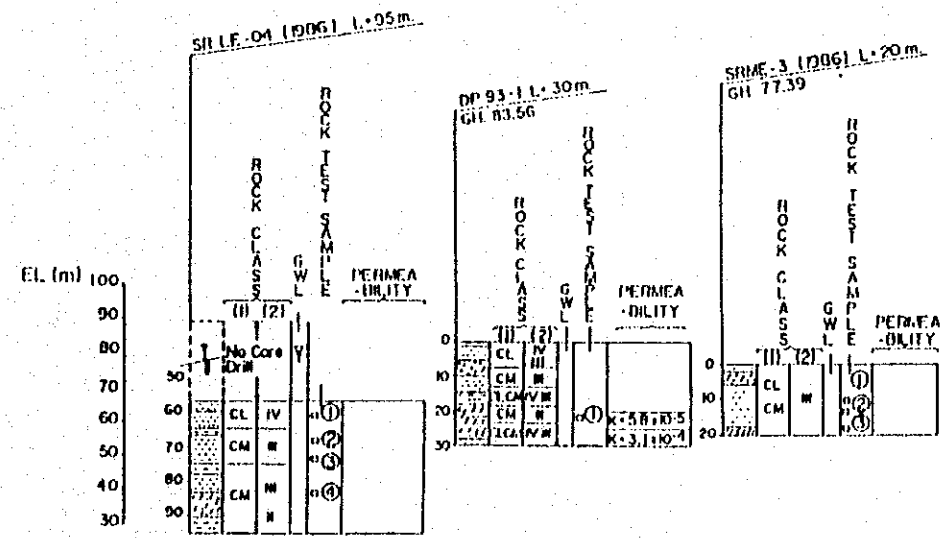
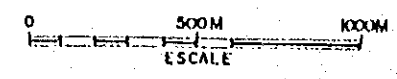


LEGEND

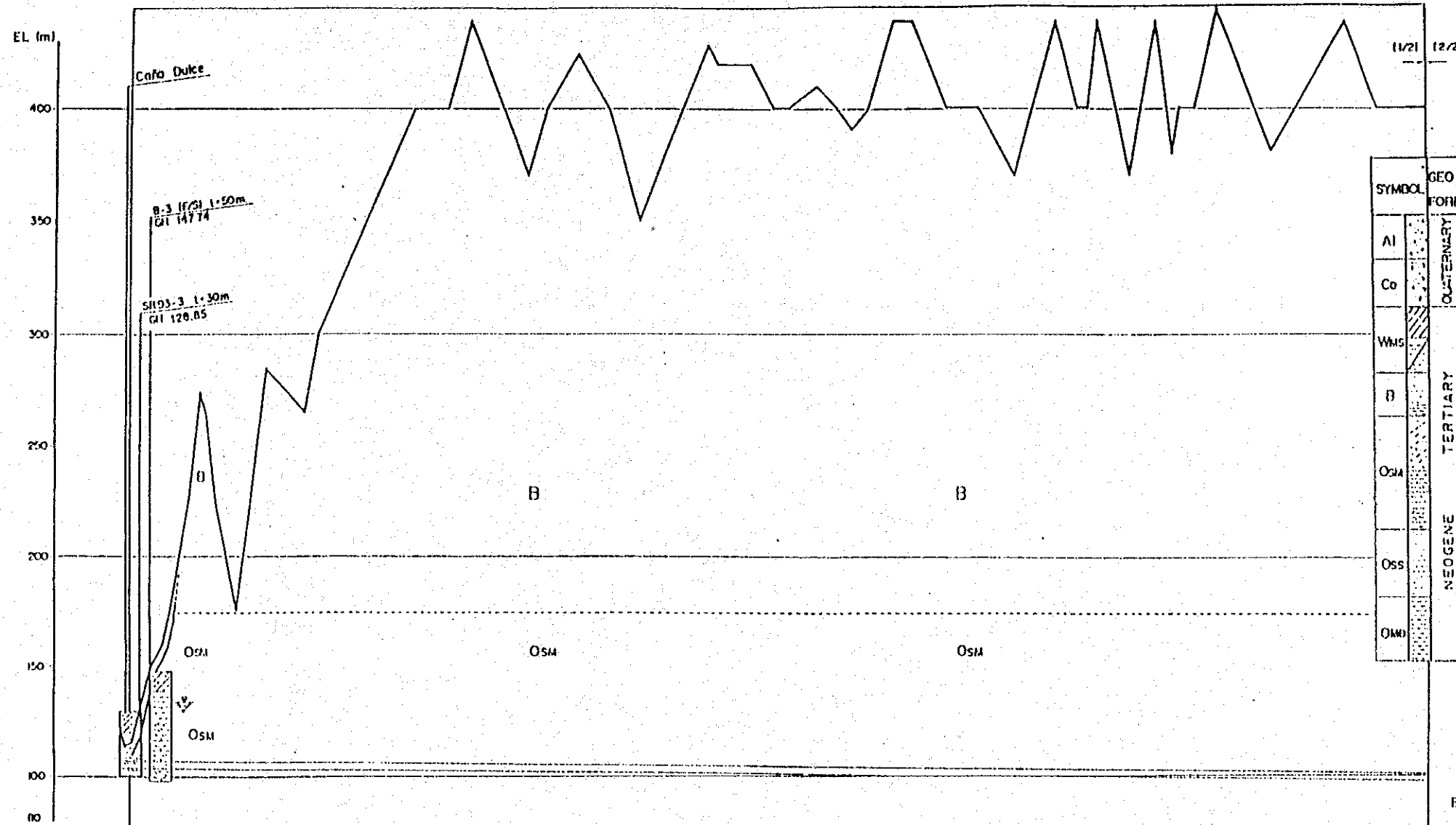
SYMBOL	GEO - TIME FORMATION	ROCK TYPE	PROPERTIES
AI	QUATERNARY	Alluvium Soil with gravels	River deposit
Co		Colluvium Fine soil with debris	Secondary deposit and transported soil.
WMS		Soil	Completely weathered. Loose and soft.
B	TERTIARY	Weathered SS and Md	Discoloured, fractured. Loose.
Oms		Borbon Muddy Sandstone Sandy Mudstone	Mainly sandstone. Massive rock. Lithologically complex of fine sand B mud with shell fossils. Stratified partly approx. 1 cm. in interval. Massive rock.
Oss		Formation Sandstone	Mainly fine grain. Interbedding thin coarse sandstone or conglomerate. Massive rock.
OMD	NEOGENE	Mudstone	Homogeneous layer with 0.5 m. to 2m. in thickness. Massive rock.

DISTANCE	5000	5500	6000	6500	7000	7500	8000
ROCK TYPE	Oss Fine sandstone		Oms Muddy sandstone	Oms Muddy s.s.	Oss Fine sandstone		
ROCK CLASSIFICATION (1)	CM		CM	CL	CL-CM		
ROCK CLASSIFICATION (2)	III-II		II-II	IV	IV-III		
P Wave VELOCITY (m/sec)							
ENGINEERING PROPERTIES	Relatively well cemented Massive qu = 50 Es = 20,000 C = 5 θ = 40		Moderately cemented Massive qu = 50 Es = 15,000 C = 5 θ = 40	Loose Much ground water qu = 30 Es = 10,000 C = 2.5 θ = 35	Slightly weathered qu = 30 Es = 10,000 C = 2.5 θ = 35		

Note
 (1) Japanese Standard. (2) Denikashi's Classification
 qu = Uniaxial Compressive Strength (kg/cm²) C = Cohesion (kg/cm²)
 Es = Static Elastic Modulus (kg/cm²) θ = Internal Angle of Friction (degrees)



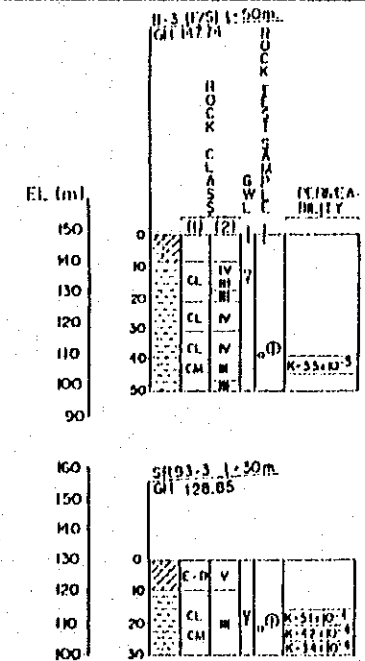
GOBIERNO DE LA REPUBLICA DEL ECUADOR CENTRO DE REHABILITACION DE MANABI (CRM) ESTUDIO DE DISEÑO DETALLADO DE LOS ESQUEMAS DE TRASFASE DE AGUA PARA LAS CUENCAS DE LOS RIOS CHONE Y PORTOVIEJO	TITULO PERFIL GEOLOGICO DEL TUNEL DE DERIVACION (2/5) DAULE PERIPA-LA ESPERANZA (2/2)
AGENCIA DE COOPERACION INTERNACIONAL DEL JAPON	



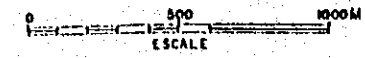
LEGEND

SYMBOL	GEO-TIME FORMATION	ROCK TYPE	PROPERTIES
Al	QUATERNARY	Alluvium	Soil with gravels
Co		Colluvium	Soil with debris
WMS	TERTIARY	Weathered SS and M	Soil Completely weathered, loose and soft
B		Sandstone	Muddy sandstone Massive rock.
OSM	NEOGENE	Mudstone	Lithologically complex of fine sand B mud with shell fossils. Stratified partly approx. 1 cm in interval. Massive rock.
OSM		Sandstone	Muddy fine grain, interbedded thin coarse sandstone or conglomerate. Massive rock.
OSM	NEOGENE	Mudstone	Homogeneous layer with OS m to 2m in thickness Massive rock.
OSM		Mudstone	

DISTANCE	0	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500
ROCK TYPE	OSM Sandy mudstone						OSM Sandy mudstone					
ROCK CLASSIFICATION	CL IV						CM III					
POISSON'S RATIO	2.0						2.5					
ENGINEERING PROPERTIES	Slightly weathered, soft qu = 30 Es = 10,000 C = 2.5 φ = 35						Relatively well cemented Massive qu = 50-70 Es = 20,000 C = 5 φ = 40					



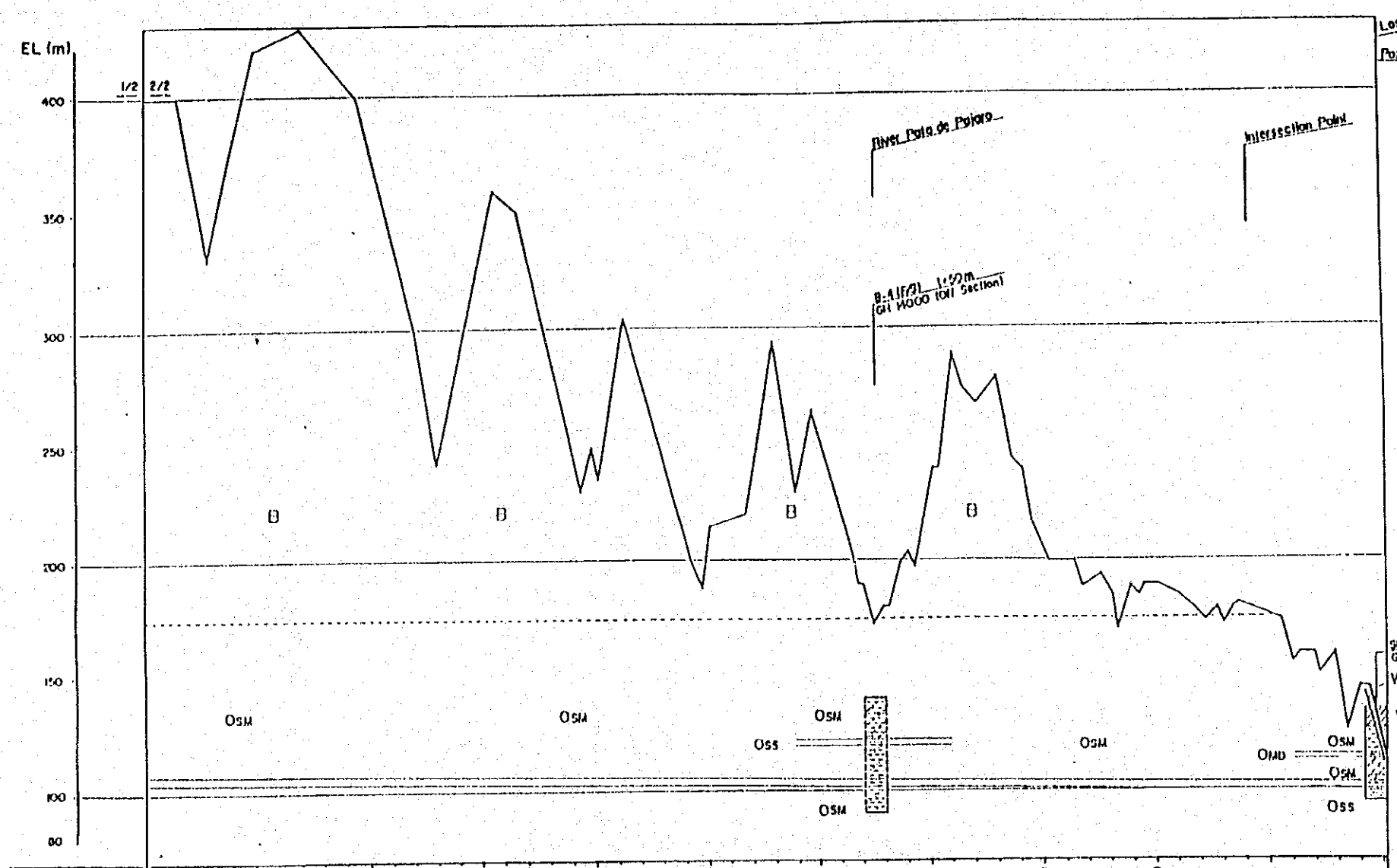
Note: qu : Uniaxial Compressive Strength (kgf/cm²), C: Cohesion (kgf/cm²)
 Es : Static Elastic Modulus (kgf/cm²), φ : Internal Angle of Friction (degrees)
 (1) Japanese Standard, (2) Rankine's Classification



GOBIERNO DE LA REPUBLICA DEL ECUADOR
 CENTRO DE REHABILITACION DE MANABI (CRM)
ESTUDIO DE DISEÑO DETALLADO DE LOS ESQUEMAS DE TRAYASE DE AGUA PARA LAS CUENCAS DE LOS RIOS CHONE Y PORTOVIEJO
 AGENCIA DE COOPERACION INTERNACIONAL DEL JAPON

TITULO
 PERFIL GEOLOGICO DEL TUNEL DE DERIVACION (3/5)
 LA ESPERANZA-POZA HONDA (1/2)

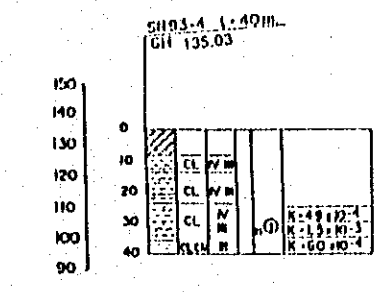
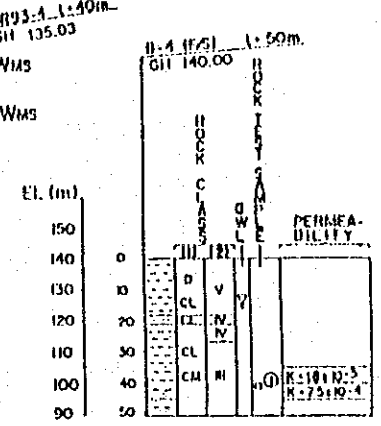
FIGURA 1.5.2(2/2)



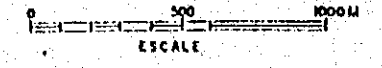
LEGEND

SYMBOL	GEO - TIME FORMATION	ROCK TYPE	PROPERTIES
AI	QUATERNARY	Alluvium	Soil with gravels
Co		Colluvium	Soil with debris
WMS	TERTIARY	Soil	Completely weathered, loose and soft
		Weathered SS and M	Discoloured, fractured, loose.
IJ	NEOGENE	Sandstone	Mainly sandstone, massive rock.
OSM		Sandy Mudstone	Lithologically complex of fine sand & mud with shell fossils. Stratified partly approx. 1 cm in interval. Massive rock.
OSS		Sandstone	Mainly fine gran. interbedding thin coarse sandstone or conglomerate. Massive rock.
OMD		Mudstone	Homogeneous layer with 0.5 m. to 2m. in thickness. Massive rock.

DISTANCE	ROCK TYPE	ROCK CLASSIFICATION (I)	ROCK CLASSIFICATION (II)	ENGINEERING PROPERTIES
6000 - 9000	OSM Sandy Mudstone	CM	III	Relatively well cemented Massive qu = 50 Es = 20,000 C = 5 φ = 40
9000 - 11500	OSM Sandy Mudstone	CM	IV	Slightly Weathered Soil qu = 30 Es = 10,000 C = 2.5 φ = 35



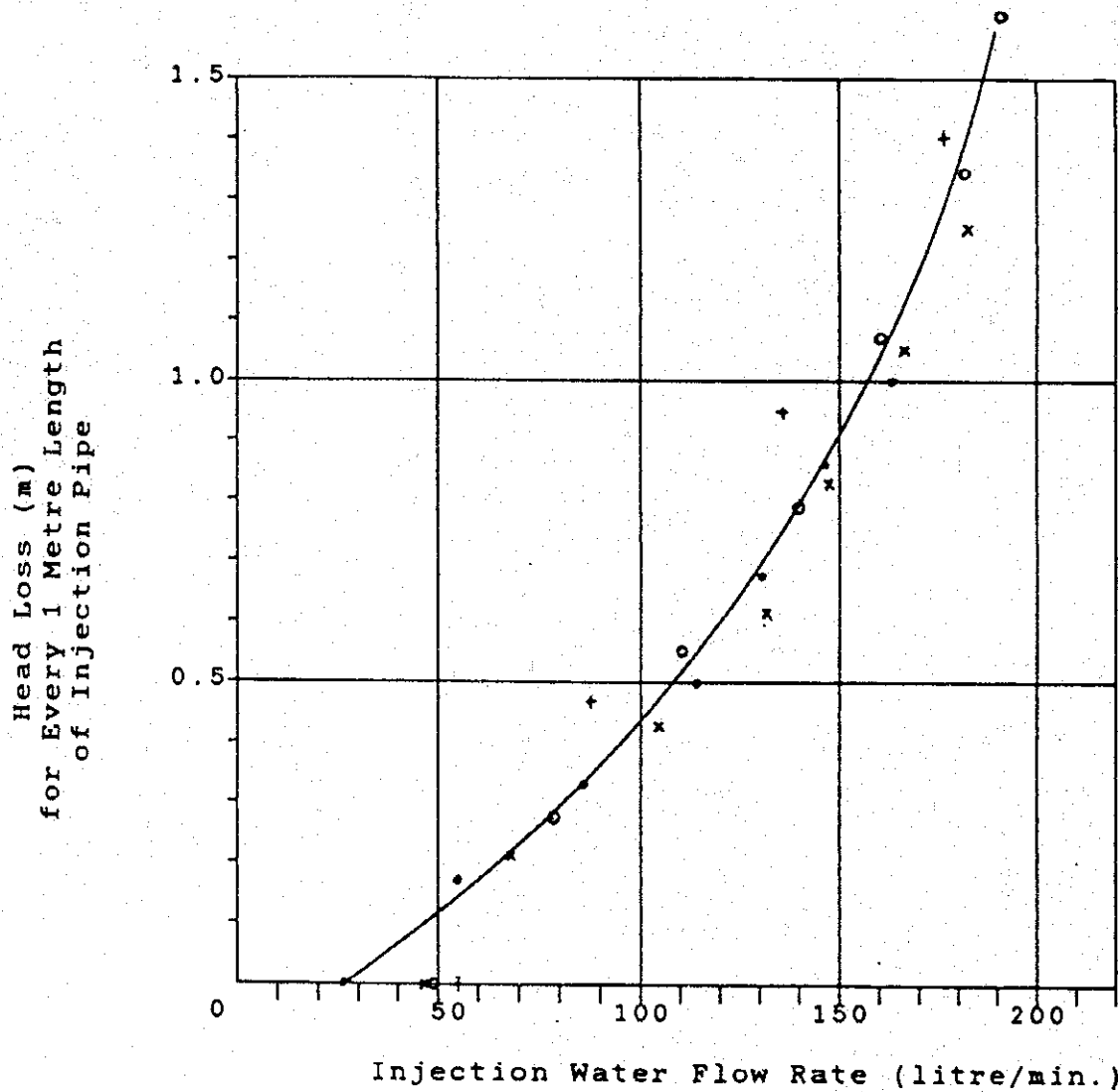
Note: (I) Japanese Standard, (II) Henrich's Classification
 qu : Uniaxial Compressive Strength (kg/cm²), C : Cohesion (kg/cm²)
 Es : Static Elastic Modulus (kg/cm²), φ : Internal Angle of Friction (degree)



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TITULO
 PERFIL GEOLOGICO DEL TUNEL DE DERIVACION (4/5)
 LA ESPERANZA - POZA HONDA (2/2)

FIGURA 1.5.3



LEGEND Test with injection pipe length of:
 + 10.8m, o 18.9m, x 24.3m, • 30.0m.

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 DE TRASVASE DE AGUA PARA LAS CUENCAS DE
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TITULO
 GRAFICO DE PERDIDAS DE CARGA
 POR FRICCIÓN VS. TASA DE FLUJO DE
 AGUA

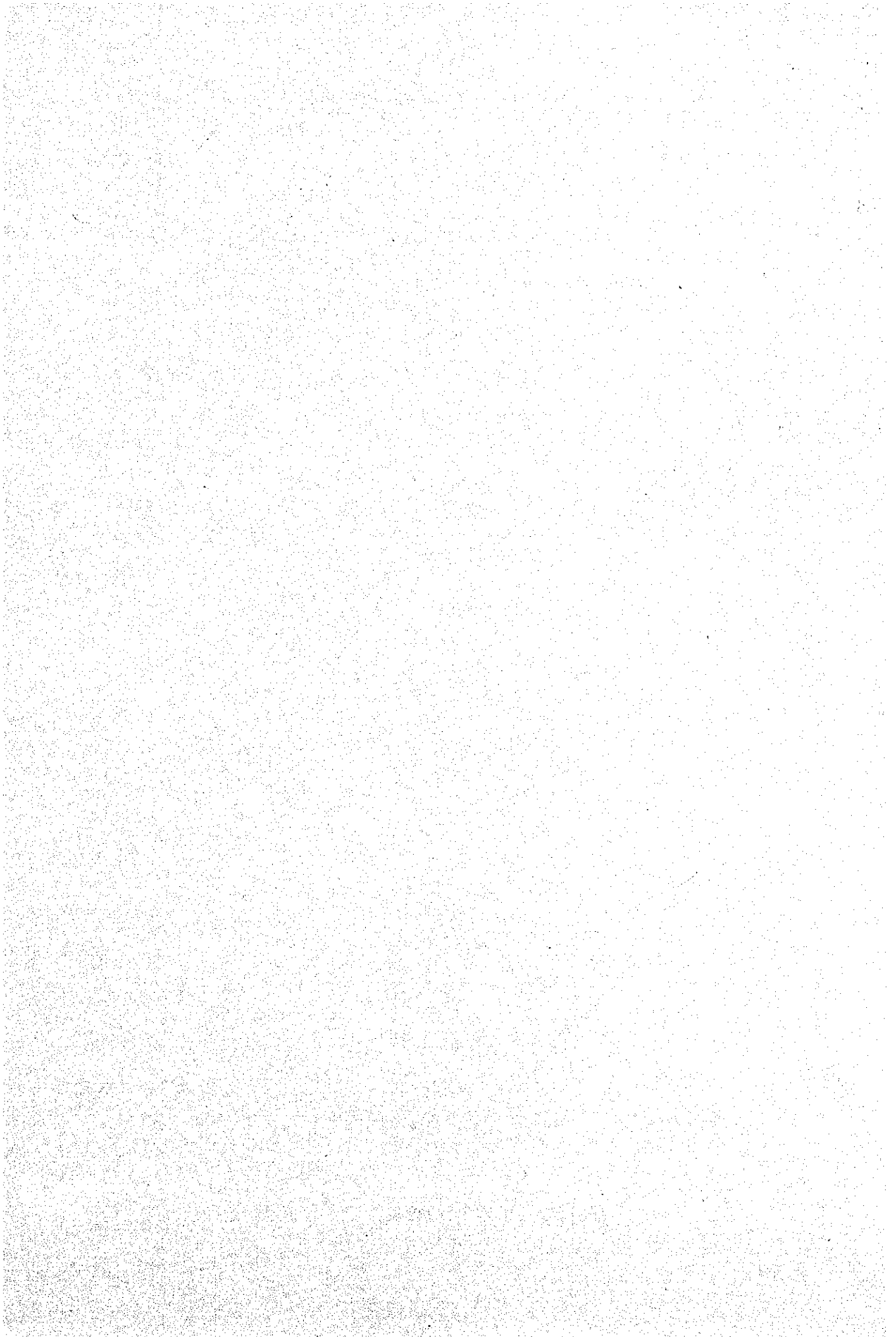
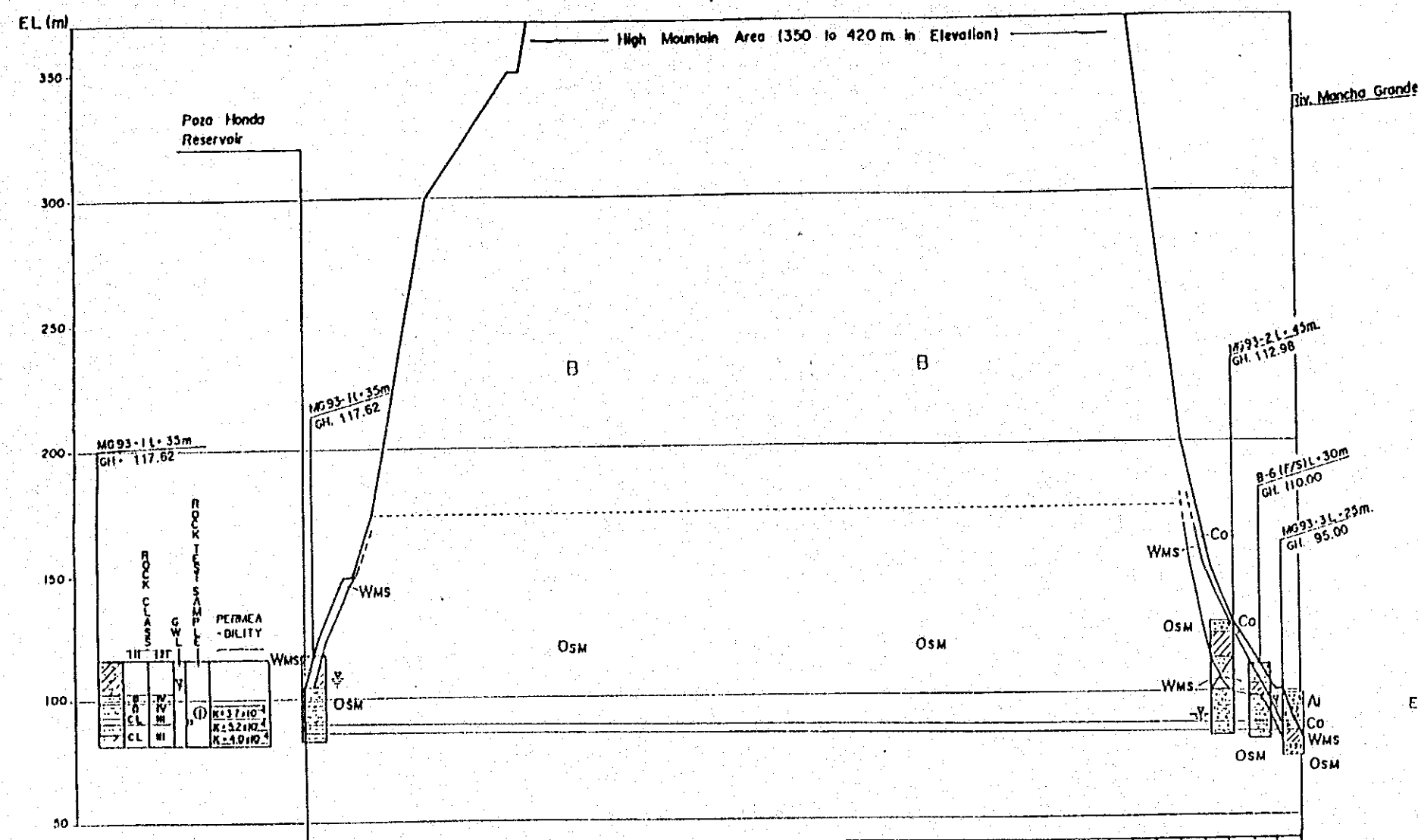
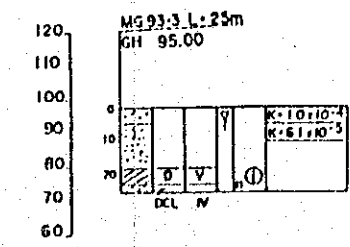
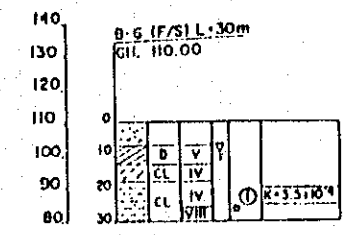
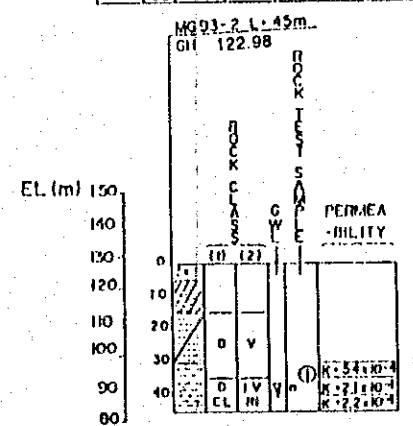


FIGURA 1.5.4



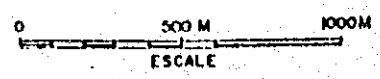
LEGEND

SYMBOL	GEO - TIME FORMATION	ROCK TYPE	PROPERTIES
AI	QUATERNARY Alluvium	Soil with gravels	River deposit
Co	QUATERNARY Colluvium	Fine soil with debris	Secondary deposit and transported soil
WMS	TERTIARY Barbon	Soil	Completely weathered. Loose and soft.
		Weathered S.S and Md	Discoloured, fractured Loose.
B	NEOGENE Formation	Sandstone	Mainly sandstone. Massive rock.
OSM		Muddy Sandstone Sandy Mudstone	Lithologically complex of fine sand & mud with shell fossils. Stratified partly approx. 1 cm. in interval. Massive rock.
Oss		Sandstone	Mainly fine grain. Interbedding thin coarse sandstone or conglomerate. Massive rock.
OMD	ONZOLE	Mudstone	Homogeneous layer with 0.5 m. to 2m. in thickness. Massive rock.



ROCK TYPE	OSM Sandy Mudstone		OSM Sandy Mudstone		OSM Sandy Mudstone
	ROCK CLASSIFICATION	(1) CL (2) III-IV	CL	CM III	CL-D IV
P-Wave VELOCITY (Km/sec)	2.0	2.5	2.0	1.2	
ENGINEERING PROPERTIES	Soft	Moderately cemented Massive	Slightly weathered Soil	Clayey soil with debris. Loose. Open excavation is considered.	
	qu = 30 Es = 10,000 C = 2.0 φ = 30	qu = 30 Es = 12,000 - 15,000 C = 5 φ = 40	qu = 30 Es = 10,000 C = 2.0 φ = 30		

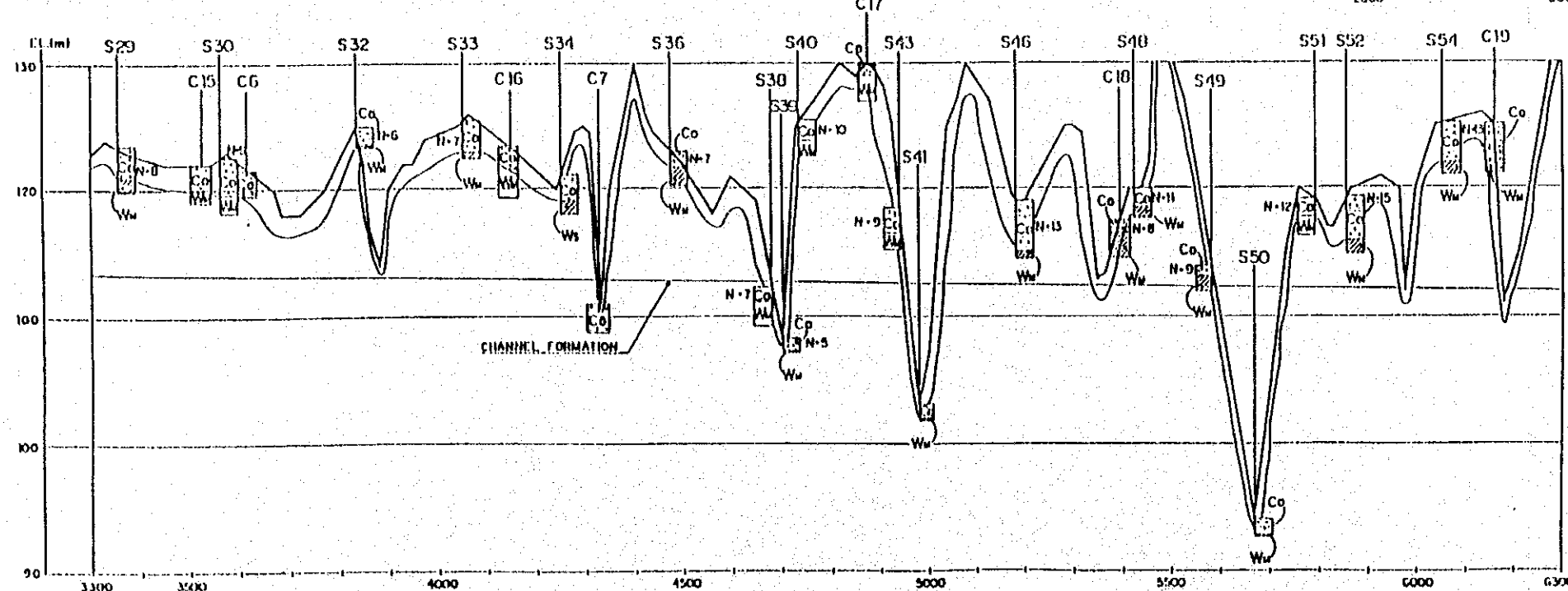
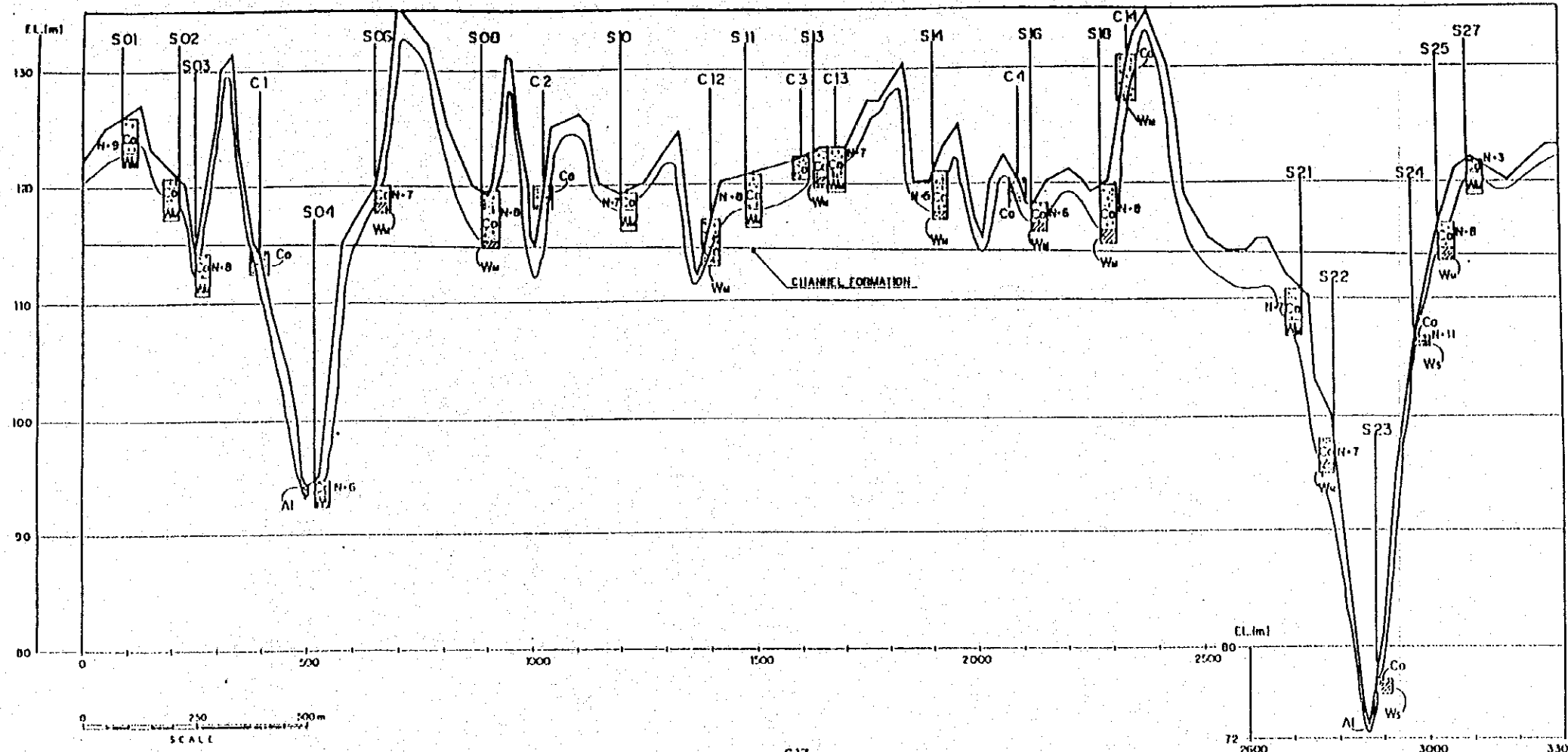
Note: (1) Japanese Standard, (2) Denkmals' Classification
 qu: Uniaxial Compressive Strength (kgf/cm²); C: Cohesion (kgf/cm²);
 Es: Static Elastic Modulus (kgf/cm²); φ: Internal Angle of Friction (degree)



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TITULO
 PERFIL GEOLOGICO DEL TUNEL DE
 DERIVACION (5/5)
 POZA HONDA-MANCHA GRANDE

FIGURA 1.5.5



LEGEND

Al	Alluvium	Clayey soil and gravels	River deposit
Co	Colluvium	Clayey soil and debris	Secondary deposit Transported soil
Ww Ws	Onrole Formation	Weathered Rock	Complex of sandy mudstone or muddy sandstone. Decomposed into fragments and soil

S01 ~ S 54
Sounding Log

C01 - C 19
TEST-PIT

Co N-9
N-Value
of
S.P.T

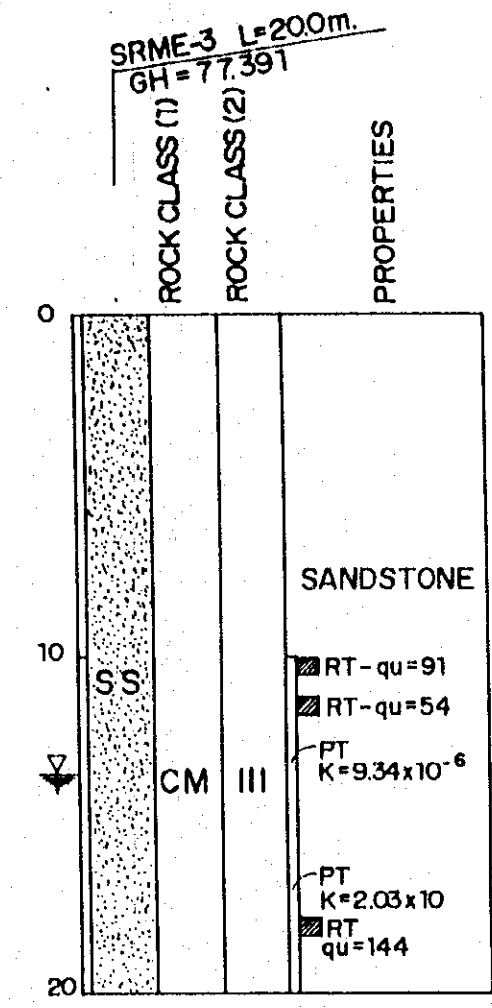
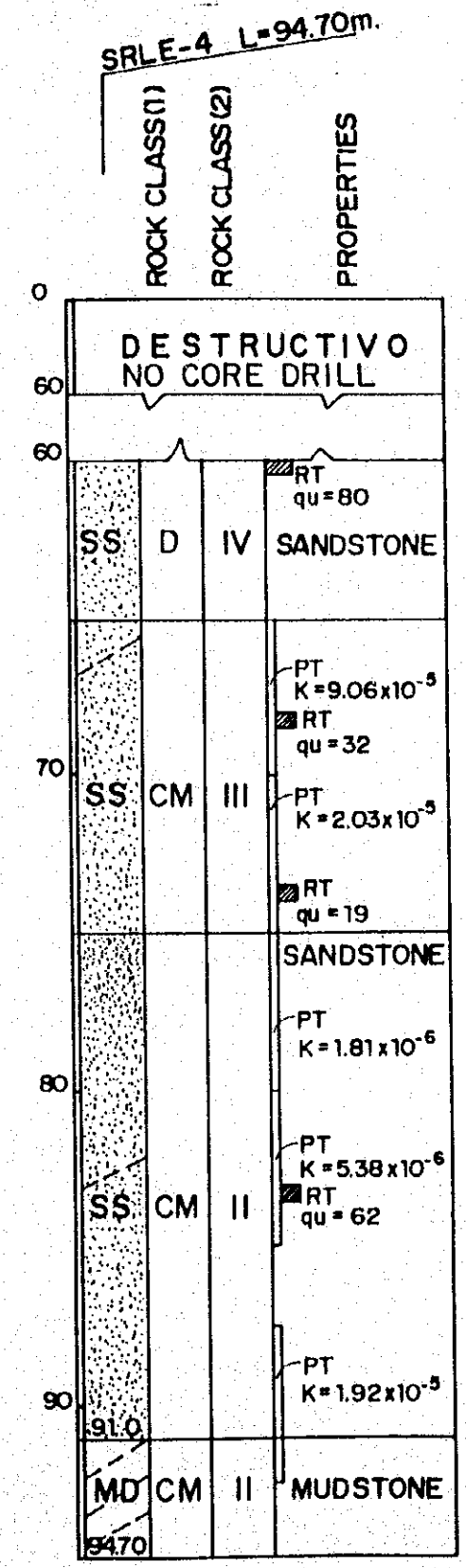
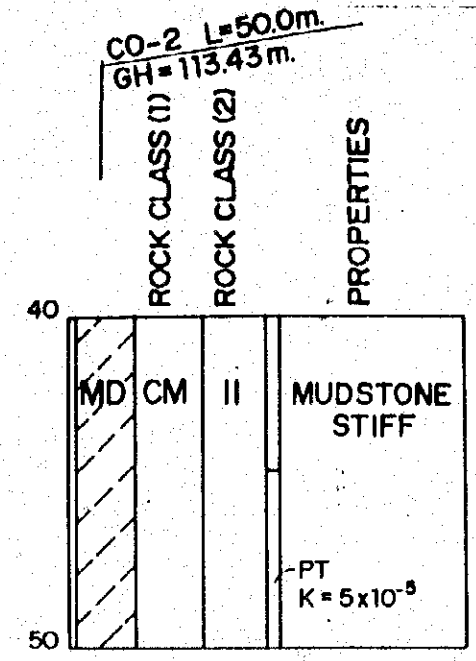
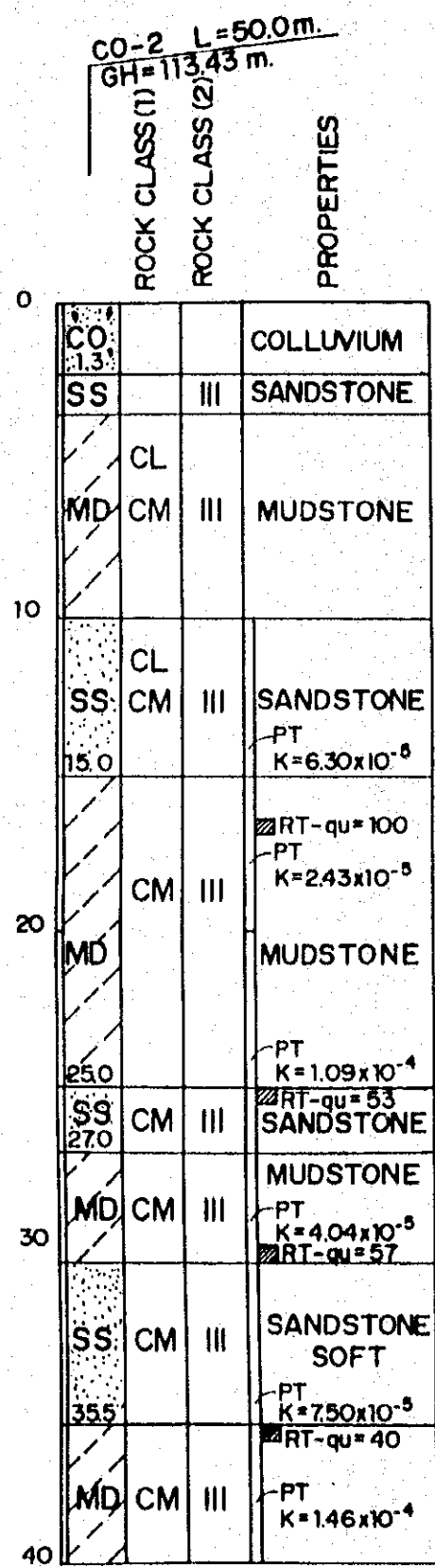
Ww

ESCALA A
SCALE A

ESCALA B
SCALE B

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DE TRAYASE DE AGUA PARA LAS CUENCAS DE
LOS RIOS CHONE Y PORTOVIEJO
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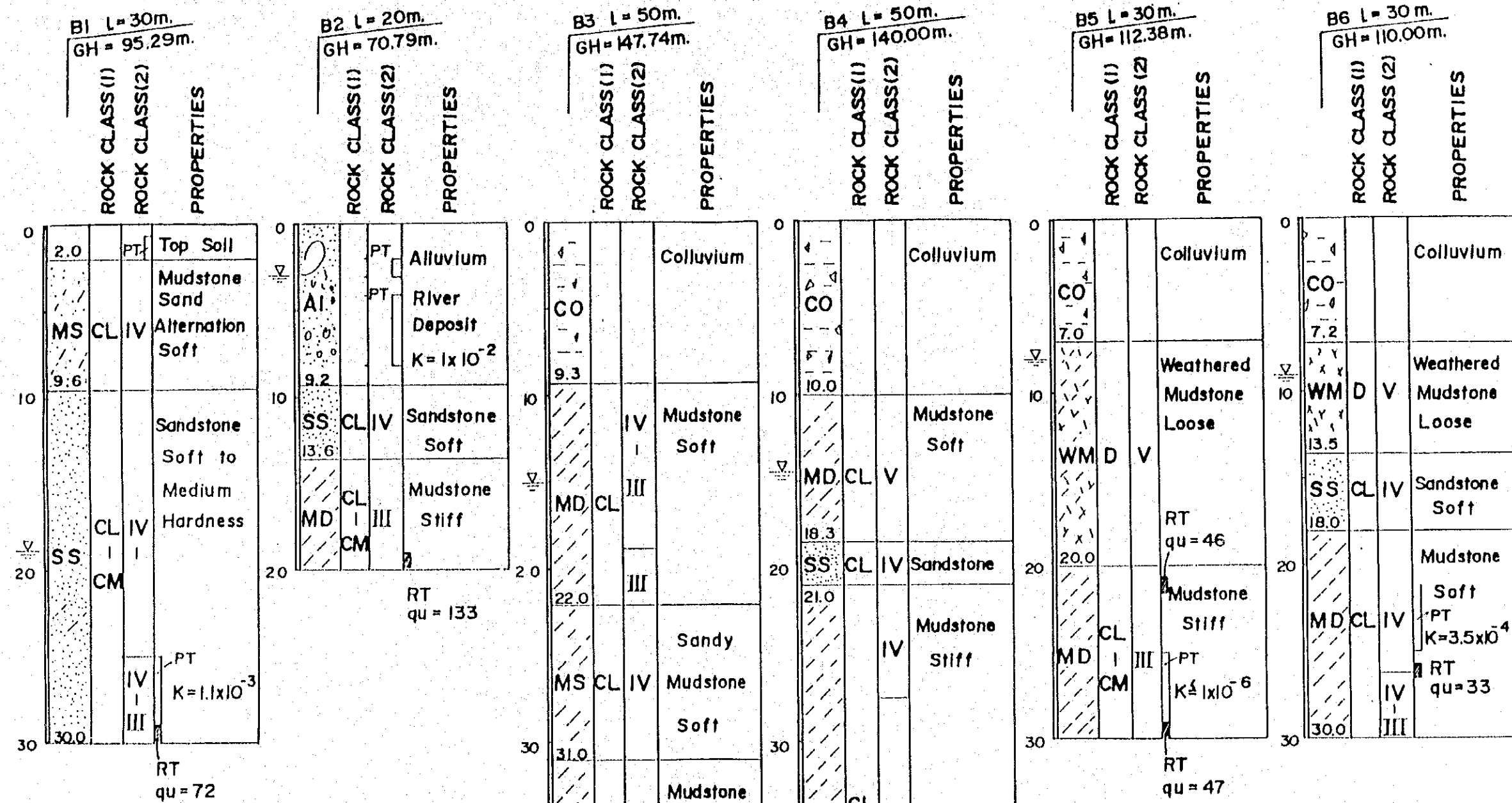
TITULO
PERFIL GEOLOGICO DEL CANAL
ABIERTO SEVERINO



LEGEND

AI	Alluvium	ROCK CLASS (1)
CO	Colluvium	Japanese Standard
WM	Weathered Mudstone	ROCK CLASS (2)
MD	Mudstone	Blenlawski's Classification
MS	Muddy Sandstone	PT. Permeability Test
SS	Sandstone	K: Coefficient (cm/sec)
∇	G.W.L.	RT. Rock Test
		qu: Compressive Strength (kgf/cm ²)

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AGENCIA DE COOPERACION INTERNACIONAL DEL JAPON	



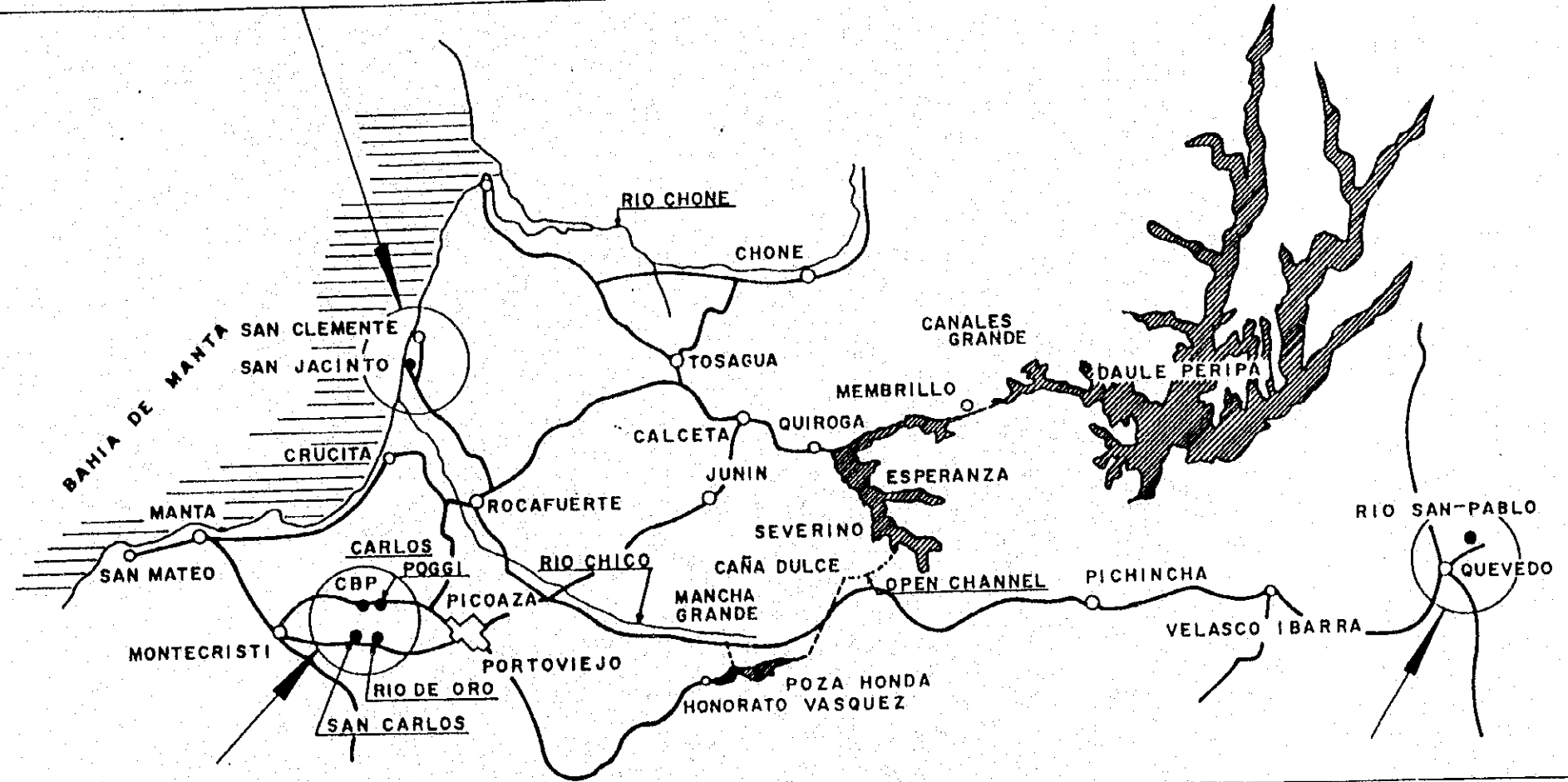
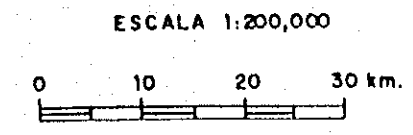
LEGEND

- | | | |
|-----------|---|-------------------|
| AI | Alluvium | ROCK CLASS (1) |
| CO | Colluvium | Japanese Standard |
| WM | Weathered Mudstone | ROCK CLASS (2) |
| MD | Mudstone | Bieniawski's |
| MS | Muddy Sandstone | Classification |
| SS | Sandstone | |
| ∇ | G.W.L. | |
| PT | Permeability Test | |
| K | Coefficient (cm/sec) | |
| RT | Rock Test | |
| qu | Compressive Strength (kgf/cm ²) | |

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AGENCIA DE COOPERACION INTERNACIONAL DEL JAPON	

FIGURA 2.3.1

From	To	via	Km
San Jacinto	Poza Honda Inlet	Portoviejo	95
	Poza Honda Outlet	Portoviejo	108
(Sea Sand)	Mancha Grande Outlet	Rocafuerte	63
	Membrillo Outlet	Calceta	118
	Canales Grande Inlet	Calceta	132
	Severino Pump station	R. fuerte/Delicias	126
	Open Channel	R. fuerte/Delicias	121



From	To	via	Km
CBP/C. Poggi	Poza Honda Inlet	Portoviejo	72
S. Carlos	Poza Honda Outlet	Portoviejo	59
	Mancha Grande Outlet	Rodeo	47
(Quarry)	Membrillo Outlet	R. fuerte/Calceta	104
	Canales Grande Inlet	R. fuerte/Calceta	107
	Severino P. Station	Rodeo/Delicias	79
	Open Channel	Rodeo/Delicias	74

From	To	via	Km
Quevedo	Poza Honda Inlet	Portoviejo	185
R.S. Pablo	Poza Honda Outlet	Portoviejo	193
	Mancha Grande Outlet	Pichincha	110
(River Sand)	Membrillo Outlet	Rocafuerte/Calceta	223
	Canales Grande Inlet	Rocafuerte/Calceta	237
	Severino Pump station	Delicias	95
	Open Channel	Delicias	100

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 DE TRASYASE DE AGUA PARA LAS CUENCAS DE
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TITULO
 DISTANCIA DE TRANSPORTE PARA
 LOS AGREGADOS DE HORMIGON

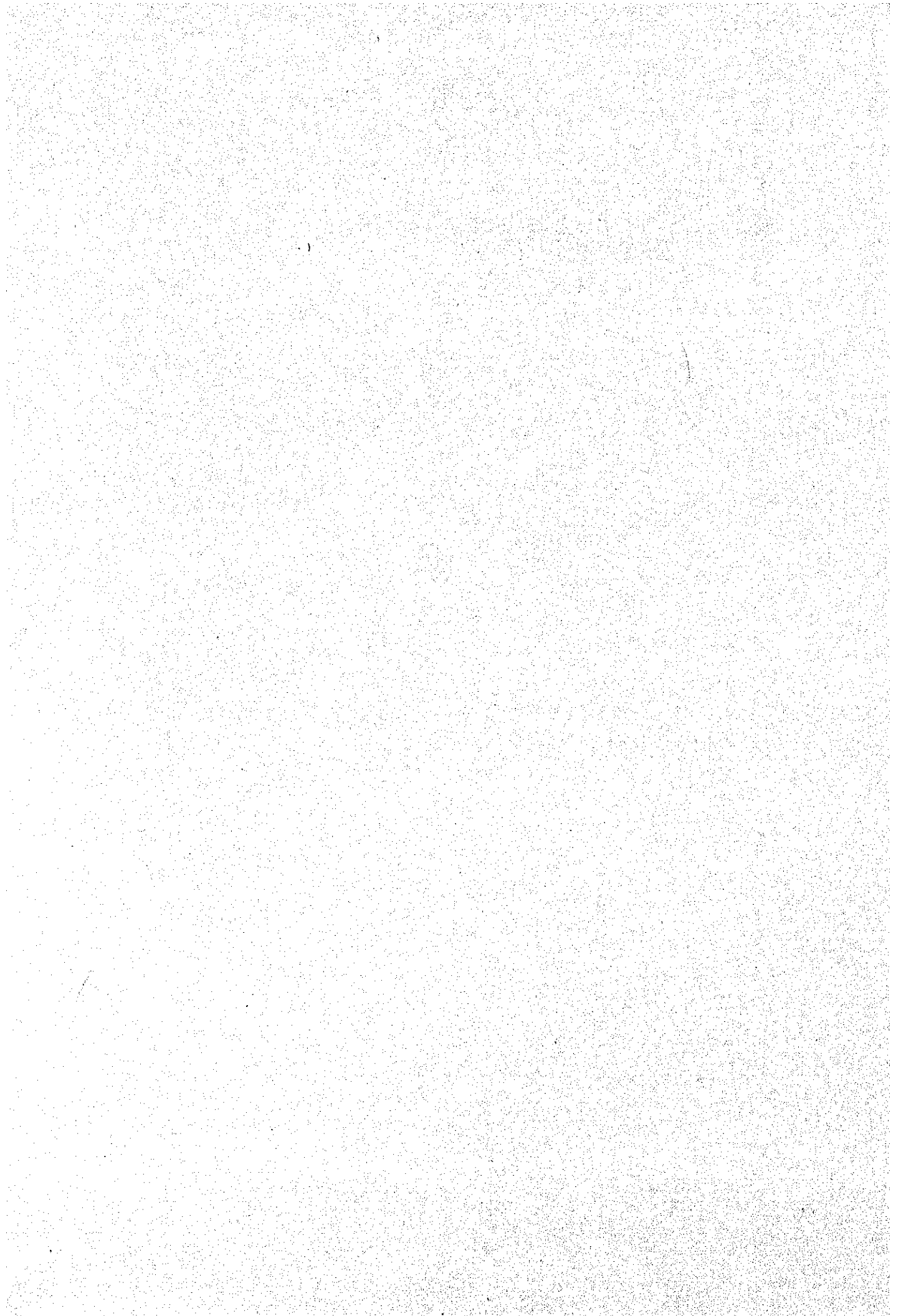
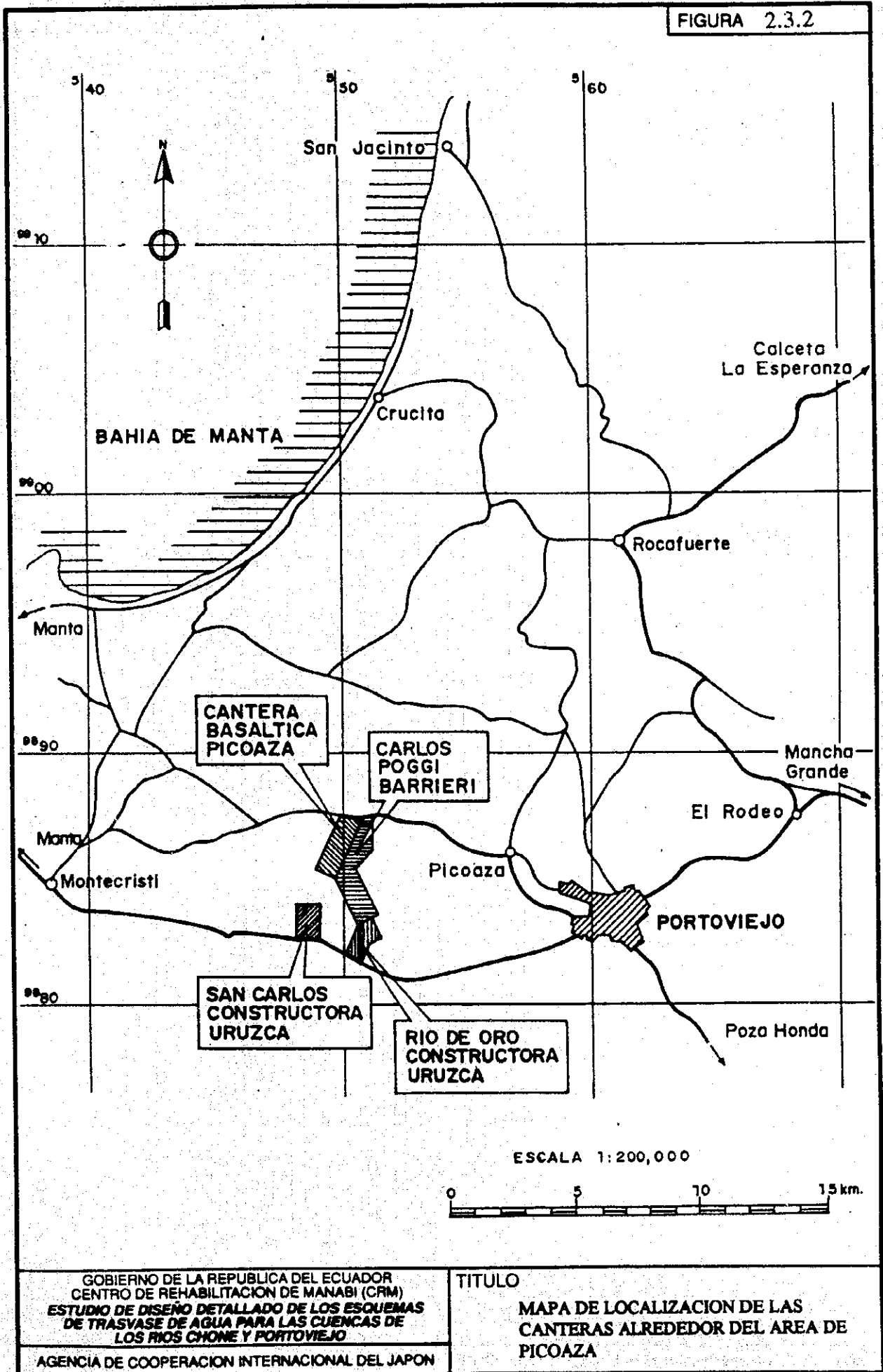


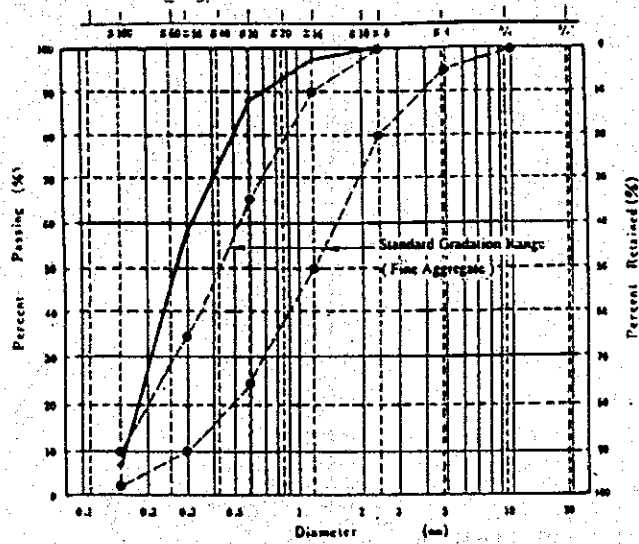
FIGURA 2.3.2



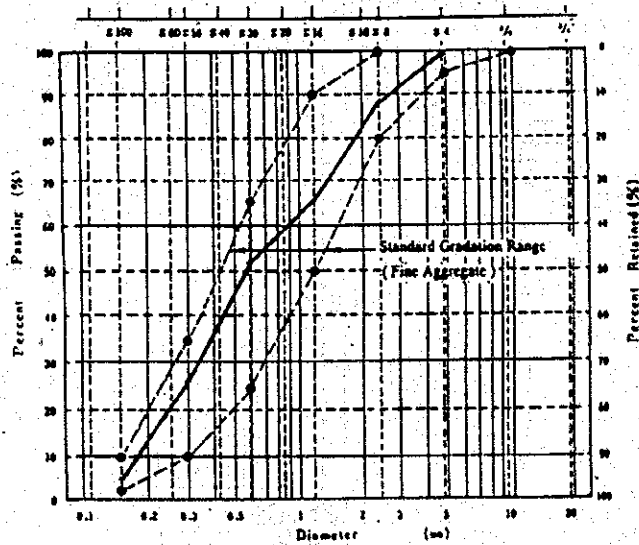
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TITULO
MAPA DE LOCALIZACION DE LAS
CANTERAS ALREDEDOR DEL AREA DE
PICOAZA

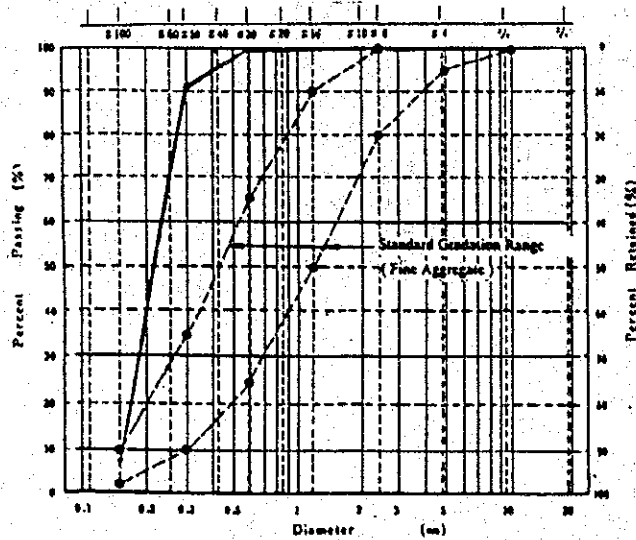
QUEVEDO SAND



PICOAZA SAND



SAN JACINTO SAND

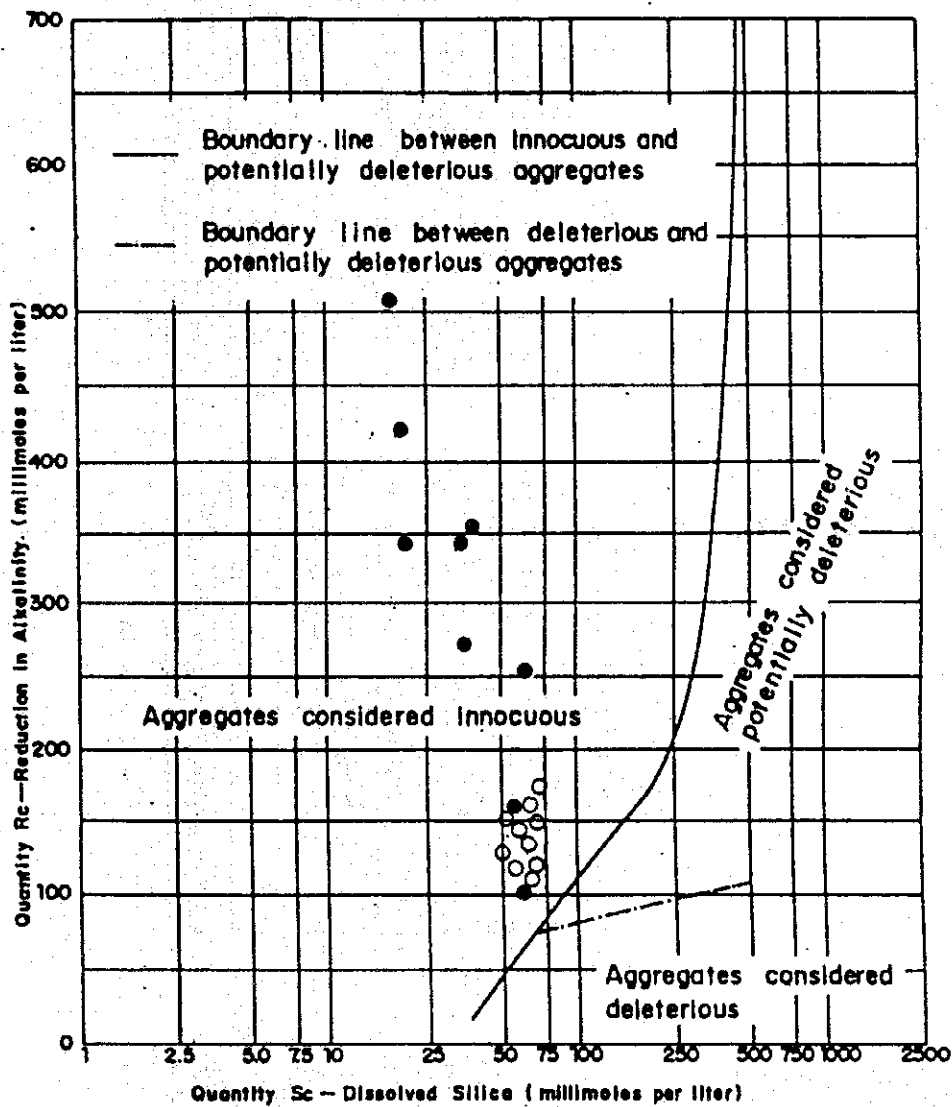


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 LOS RIOS CHONE Y PORTOVIEJO

TITULO

ANALISIS GRANULOMETRICO DE LOS
 AGREGADOS FINOS.

AGENCIA DE COOPERACION INTERNACIONAL DEL JAPON

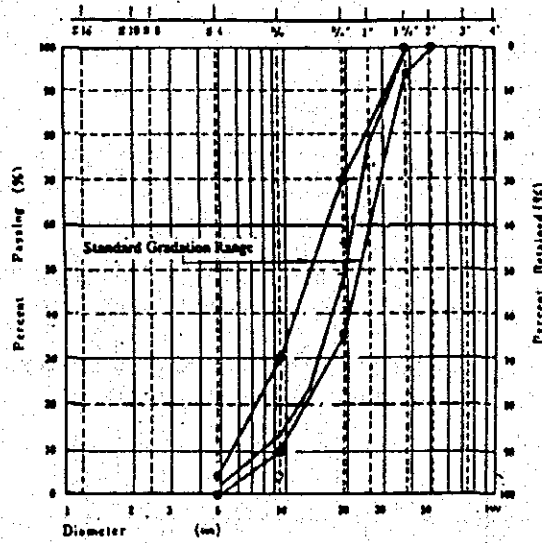


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 de Tránsito de Agua para las Cuencas de
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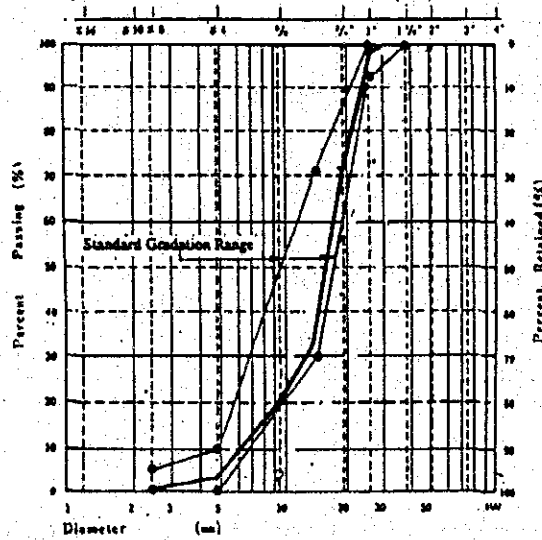
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AGENCIA DE COOPERACION INTERNACIONAL DEL JAPON

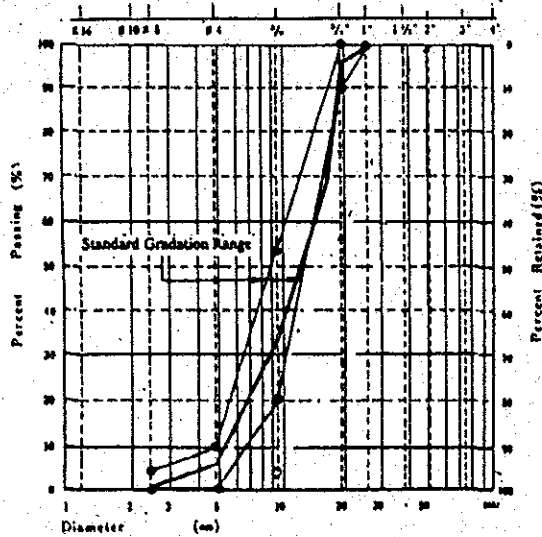
40 - 5 ■■ GRAVEL



25 - 5 ■■ GRAVEL



20 - 5 ■■ GRAVEL



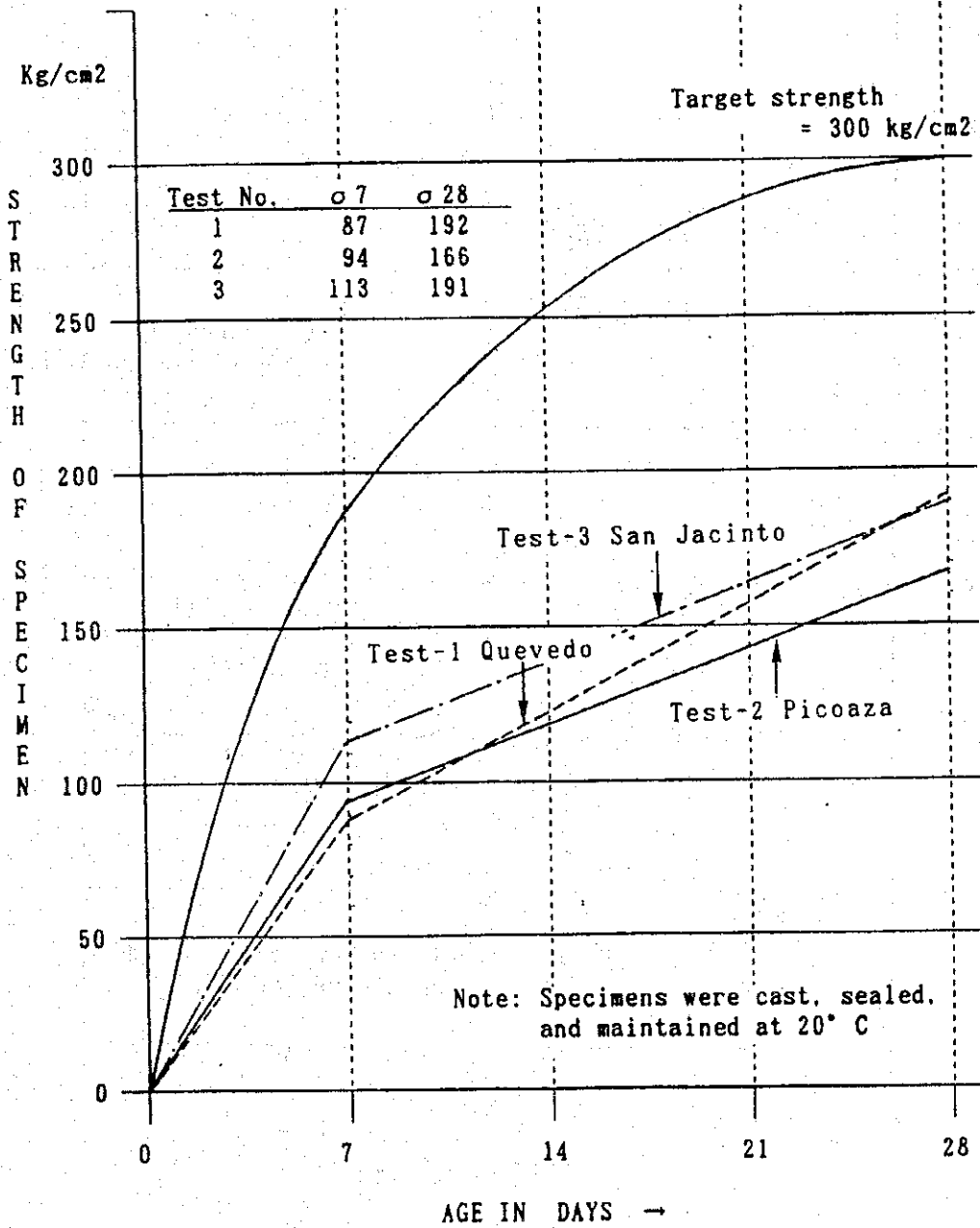
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TITULO

ANALISIS GRANULOMETRICO DE LOS
 AGREGADOS GRUESOS

Type A-1 Concrete



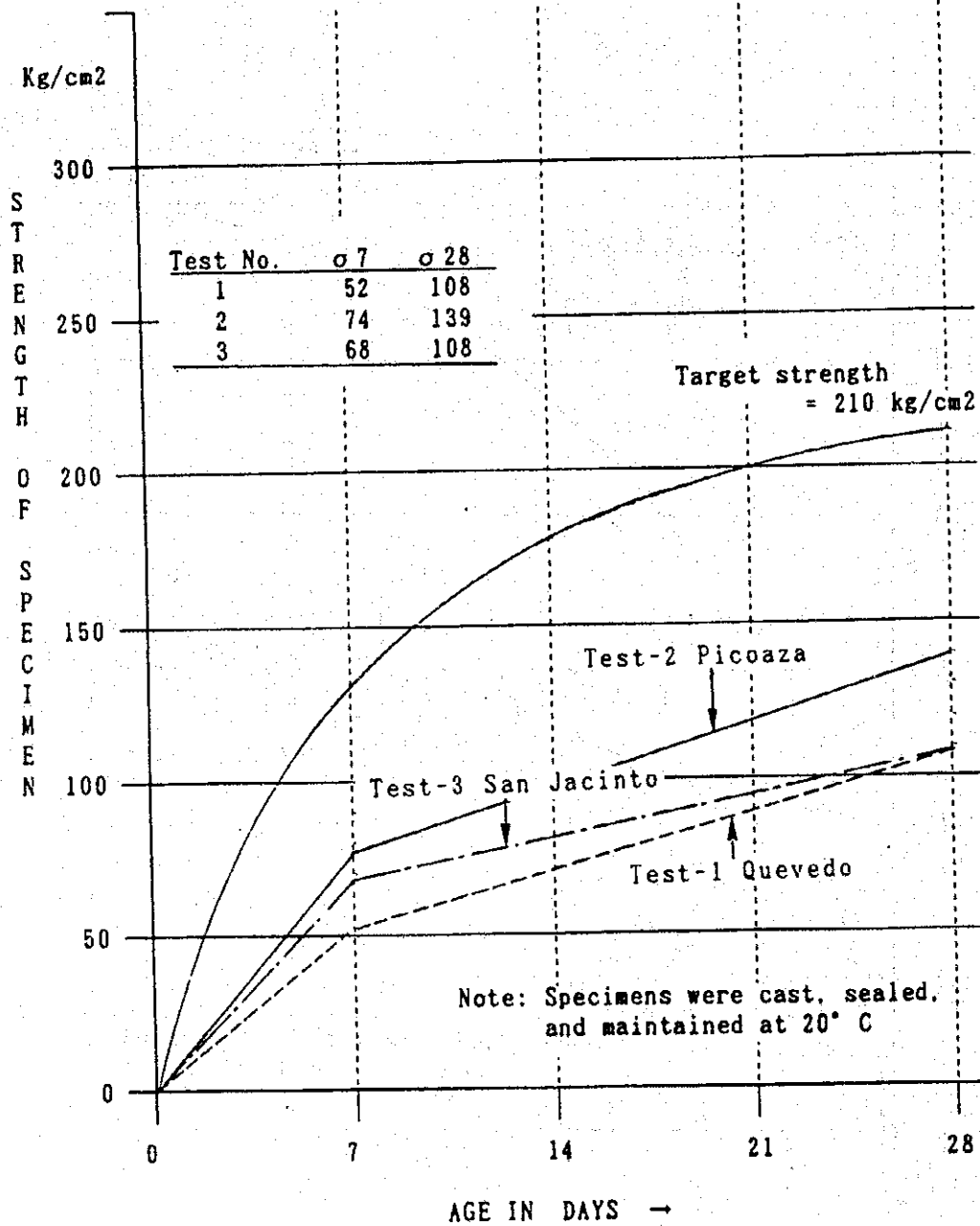
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 DE TRASVASE DE AGUA PARA LAS CUENCAS DE
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AGENCIA DE COOPERACION INTERNACIONAL DEL JAPON

TITULO

RESISTENCIA DEL HORMIGON VS.
 EDAD EN DIAS PARA EL HORMIGON
 TIPO A1

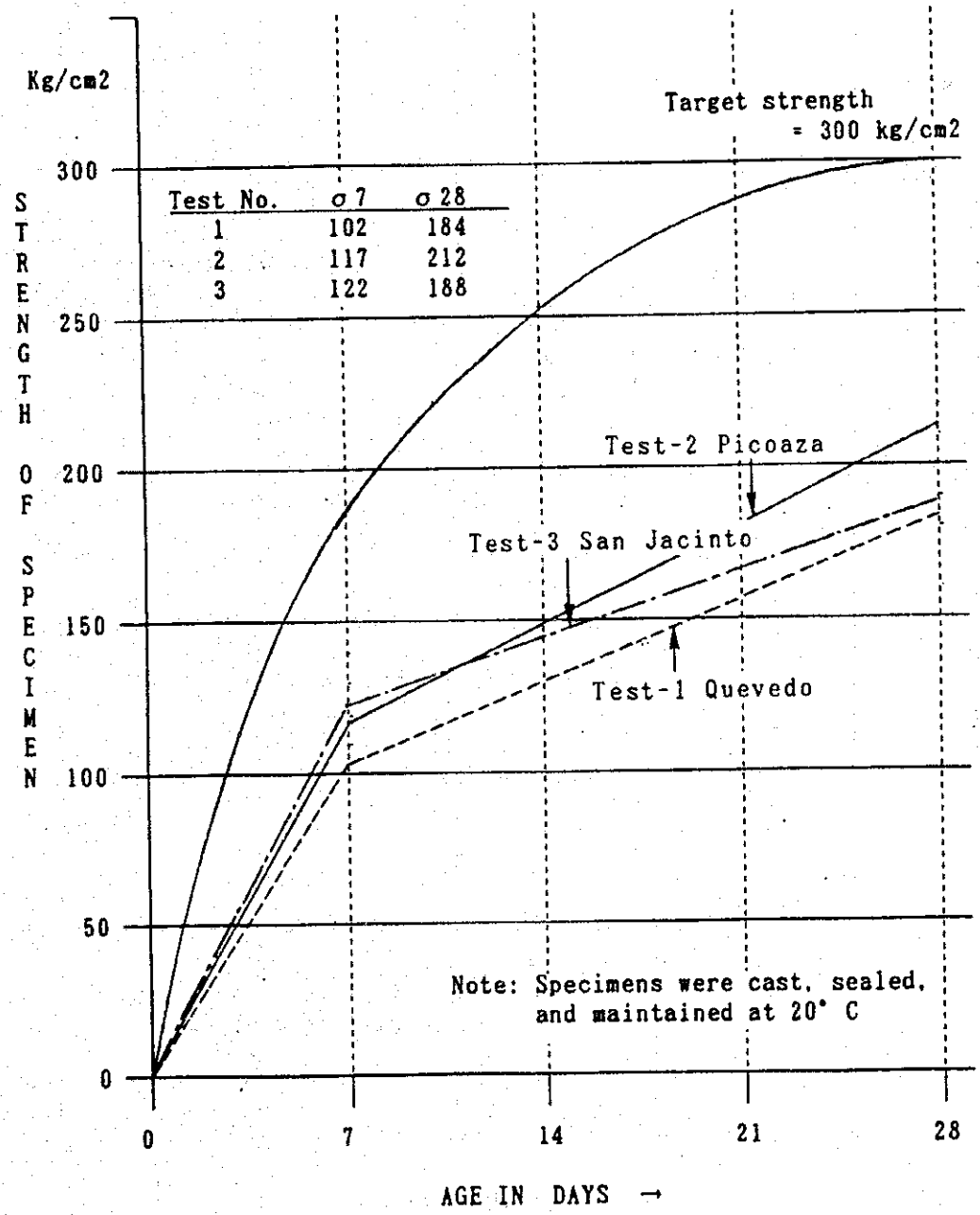
Type A-2 Concrete



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TITULO
 RESISTENCIA DEL HORMIGON VS.
 EDAD EN DIAS PARA EL HORMIGON
 TIPO A2

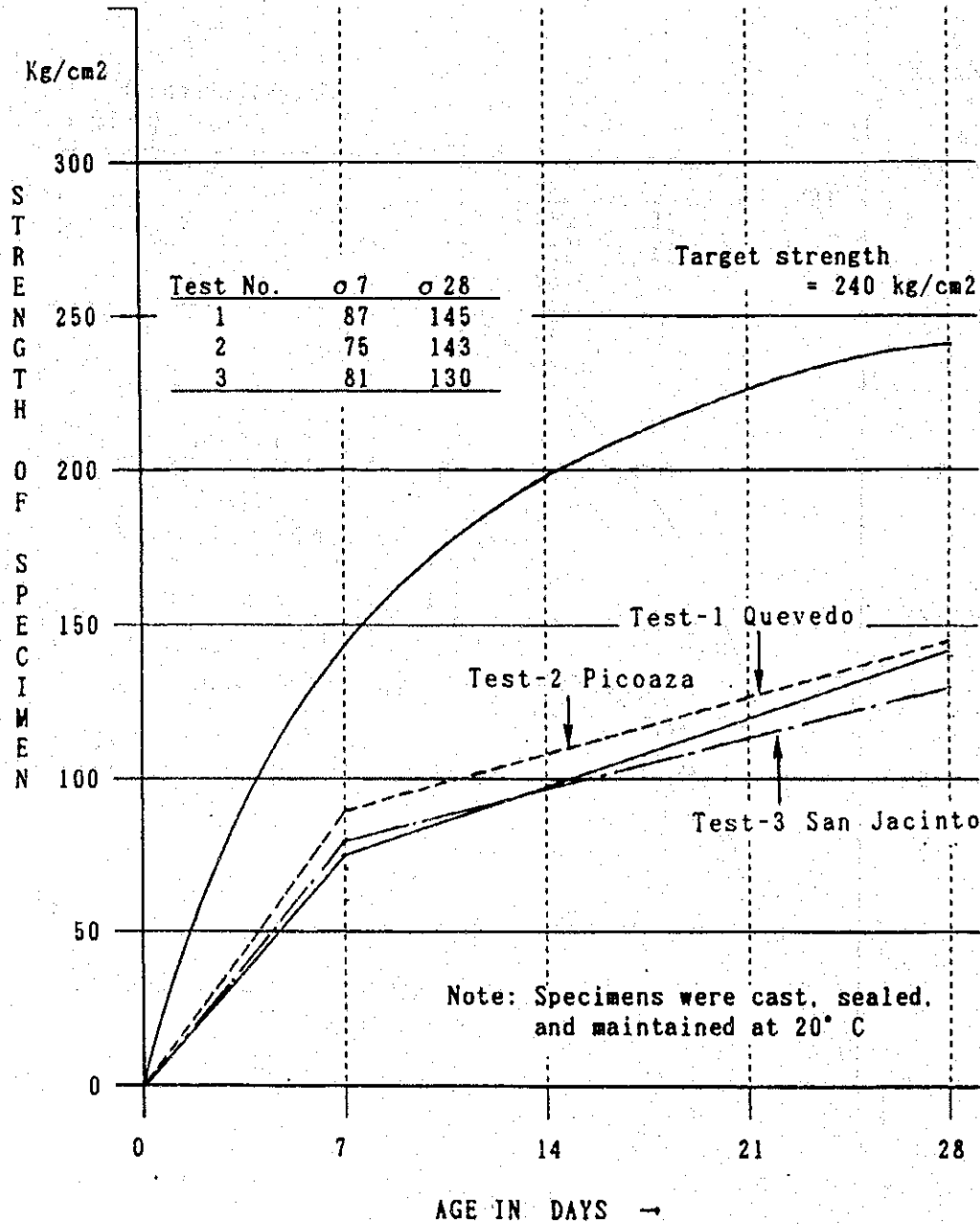
Type B-1 Concrete



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TITULO
 RESISTENCIA DEL HORMIGON VS.
 EDAD EN DIAS PARA EL HORMIGON
 TIPO B1

Type B-2 Concrete



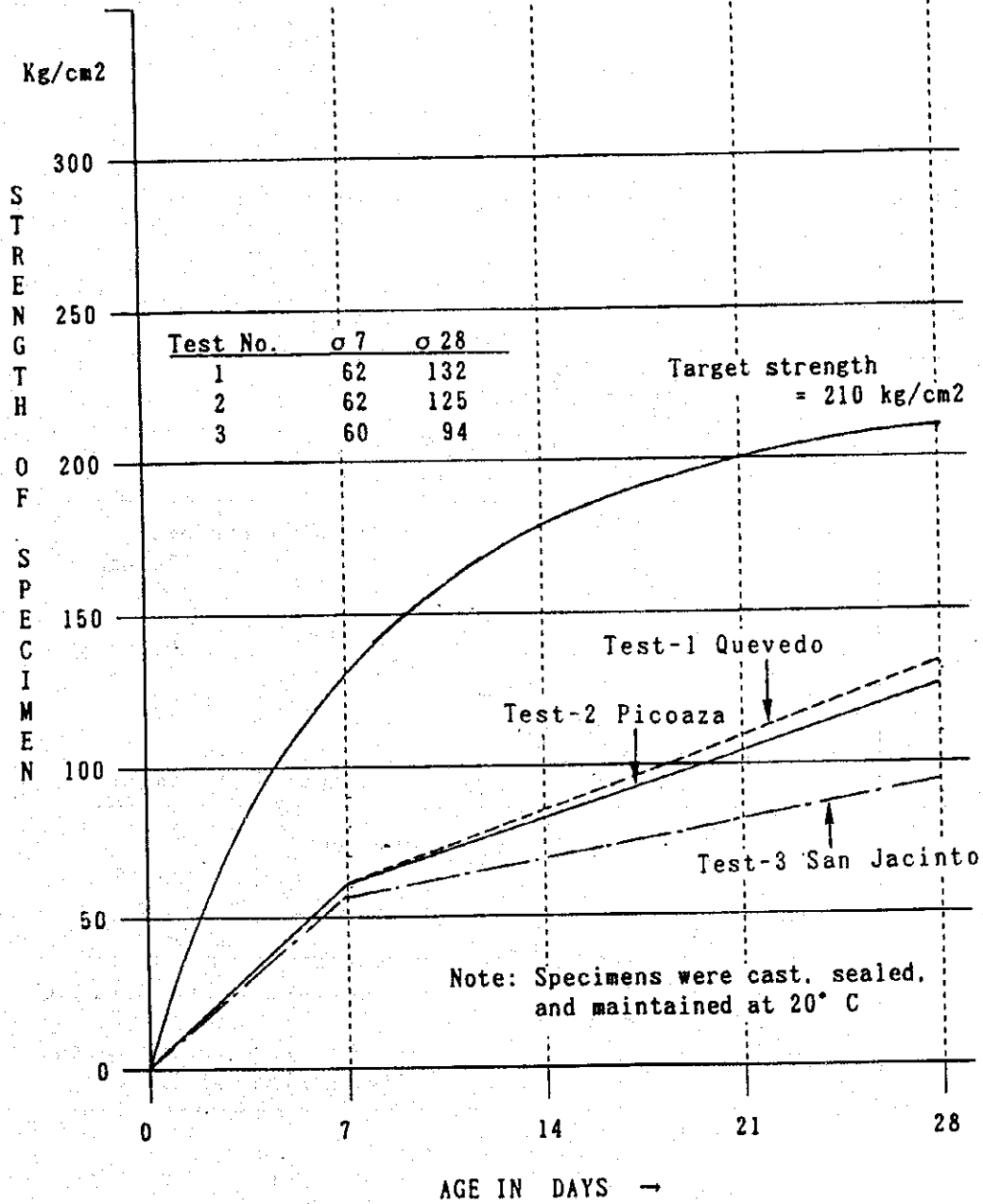
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 CENTRO DE REHABILITACION DE MANABI (CRM)
 ESTUDIO DE DISEÑO DETALLADO DE LOS ESQUEMAS
 DE TRAVASE DE AGUA PARA LAS CUENCAS DE
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TITULO

RESISTENCIA DEL HORMIGON VS.
 EDAD EN DIAS PARA EL HORMIGON
 TIPO B2

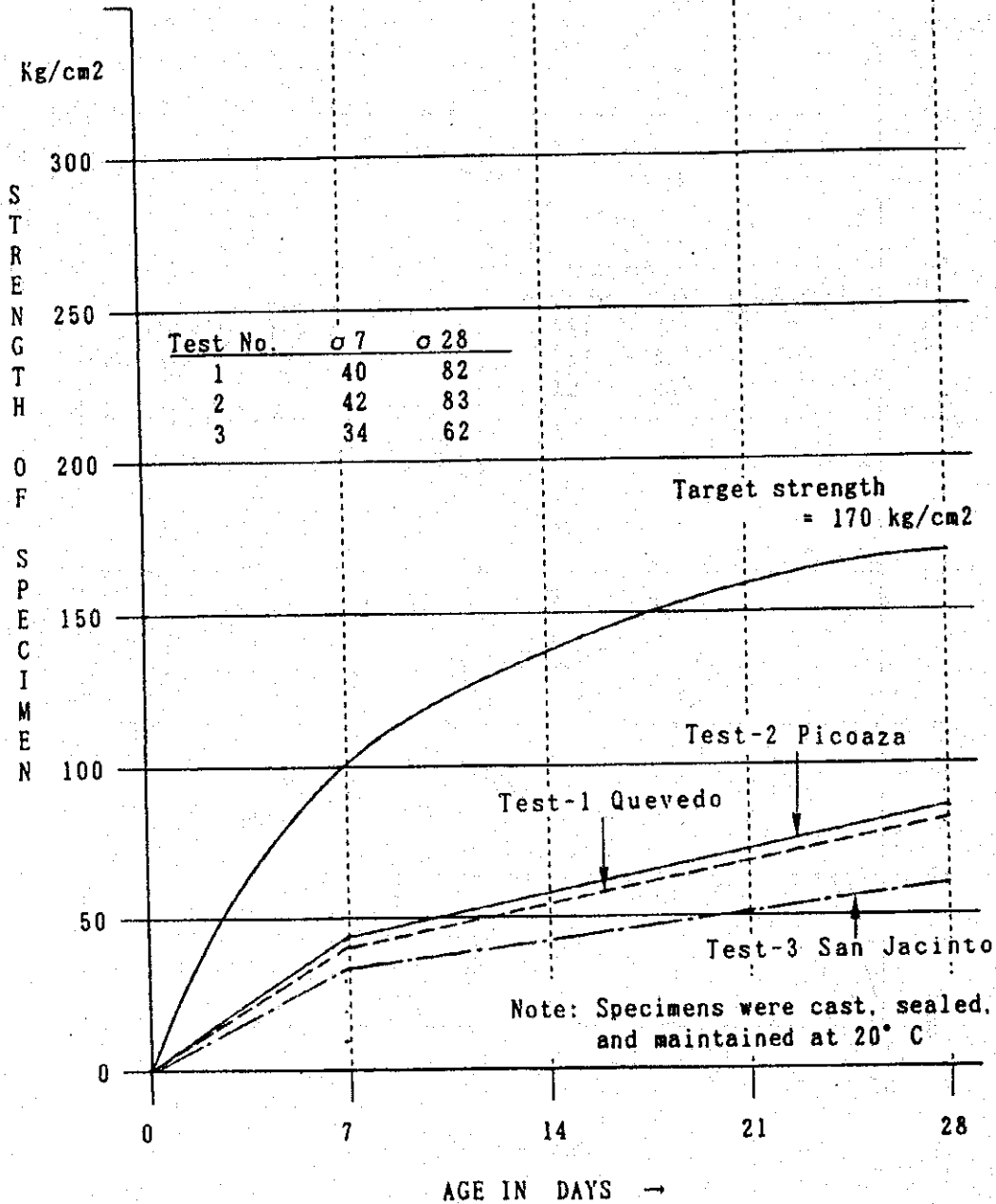
Type B-3 Concrete



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TITULO
 RESISTENCIA DEL HORMIGON VS.
 EDAD EN DIAS PARA EL HORMIGON
 TIPO B3

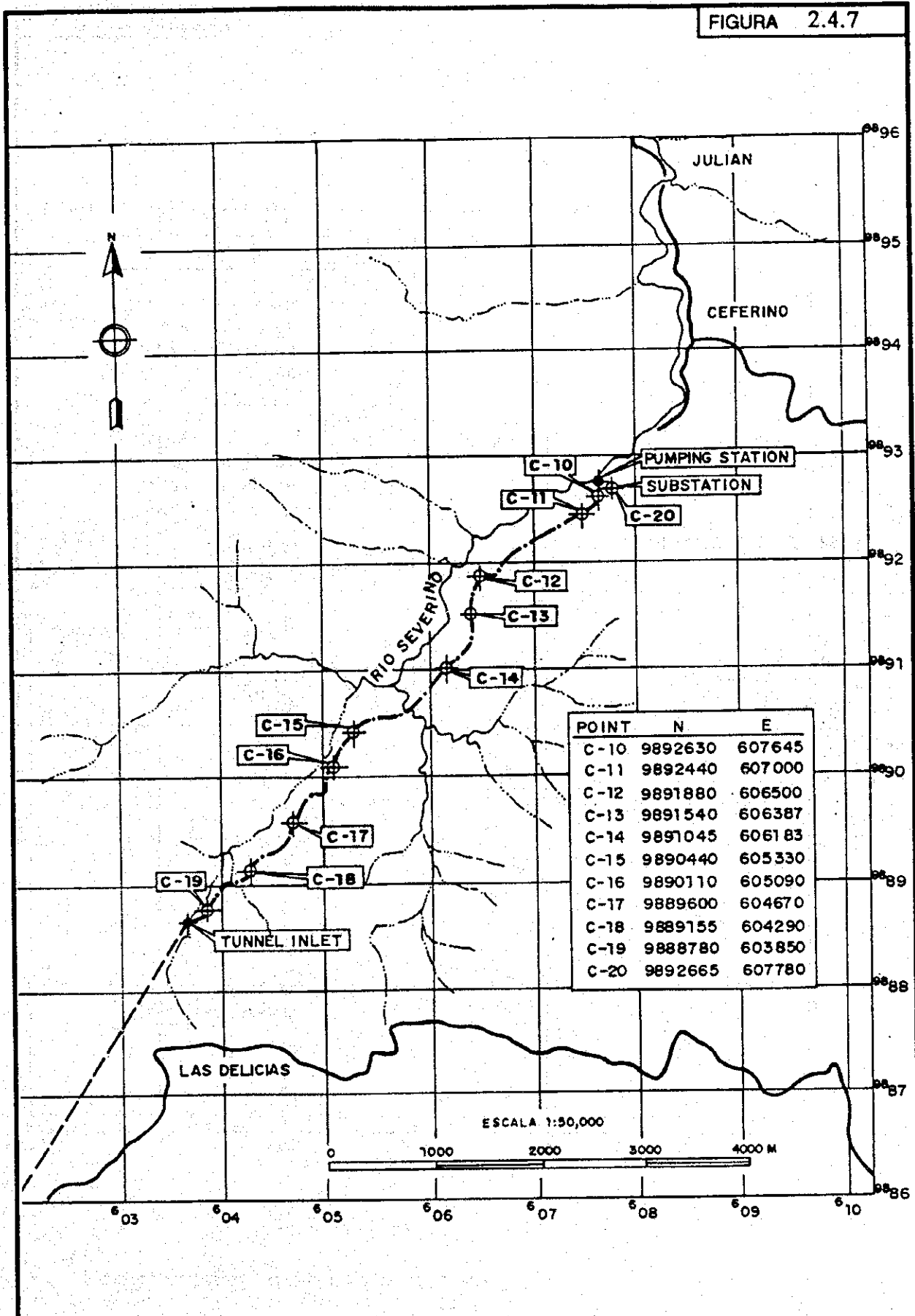
Type B-4 Concrete



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TITULO
 RESISTENCIA DEL HORMIGON VS.
 EDAD EN DIAS PARA EL HORMIGON
 TIPO B4

FIGURA 2.4.7



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AGENCIA DE COOPERACION INTERNACIONAL DEL JAPON

TITULO MAPA DE LOCALIZACION DE LAS
 CALICATAS ALREDEDOR DE LA
 ESTACION DE BOMBEO Y A LO LARGO
 DEL CANAL ABIERTO SEVERINO.

FIGURA 2.4.8

