

資料編

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資料 1 - 1 協議議事録 (昭和63年 7月)

THE MINUTES OF DISCUSSIONS ON
THE BASIC DESIGN STUDY ON
THE PROJECT FOR RECONSTRUCTING
THE VICTORIA BRIDGE IN
THE DEMOCRATIC SOCIALIST REPUBLIC OF
SRI LANKA

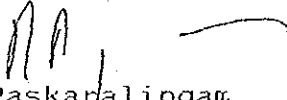
In response to the request of the Government of the Democratic Socialist Republic of Sri Lanka, the Government of Japan decided to conduct a basic design study on the Project for Reconstructing the Victoria Bridge (hereinafter referred to as "the Project"), and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA"). JICA sent the Basic Design Study Team headed by Mr. Shoichi Saeki, Director, Structure and Bridge Dept., Public Works Research Institute, Ministry of Construction to carry out the study from July 9 to August 4, 1988.

The Japanese Team had a series of discussions on the Project with the officials concerned of Sri Lanka, and conducted the field survey at the Project Site.

As a result of the study, both parties agreed to recommend to their respective Government authorities that the major points of understanding reached between them, attached herewith, should be examined towards the realization of the Project.

July 15, 1988


Shoichi Saeki
Leader,
Basic Design Study Team,
JICA


R. Paskaralingam,
Chairman,
Road Development Authority and
Secretary, Ministry of Highways

ATTACHMENT

1. Objective of the Project

The objective of the Project is to reconstruct the Victoria Bridge close to the existing old bridge in order to smoothen and improve the safety of the traffic flow.

2. Implementing Body

Ministry of Highways is responsible for the implementation of the Project.

3. Construction Site of the Project

The Construction site of the Project is down side of existing Victoria Bridge located at the Kelani River, eastern part of Colombo City as shown in Annex I.

4. Outline of the Project is as follows.

- (1) New Victoria Bridge
length: About 240m
carriage way width: 7.5m
pedestrian way width: 3.0m
- (2) Approach road: About 350m (total length of both sides including some improvement work of existing roads)

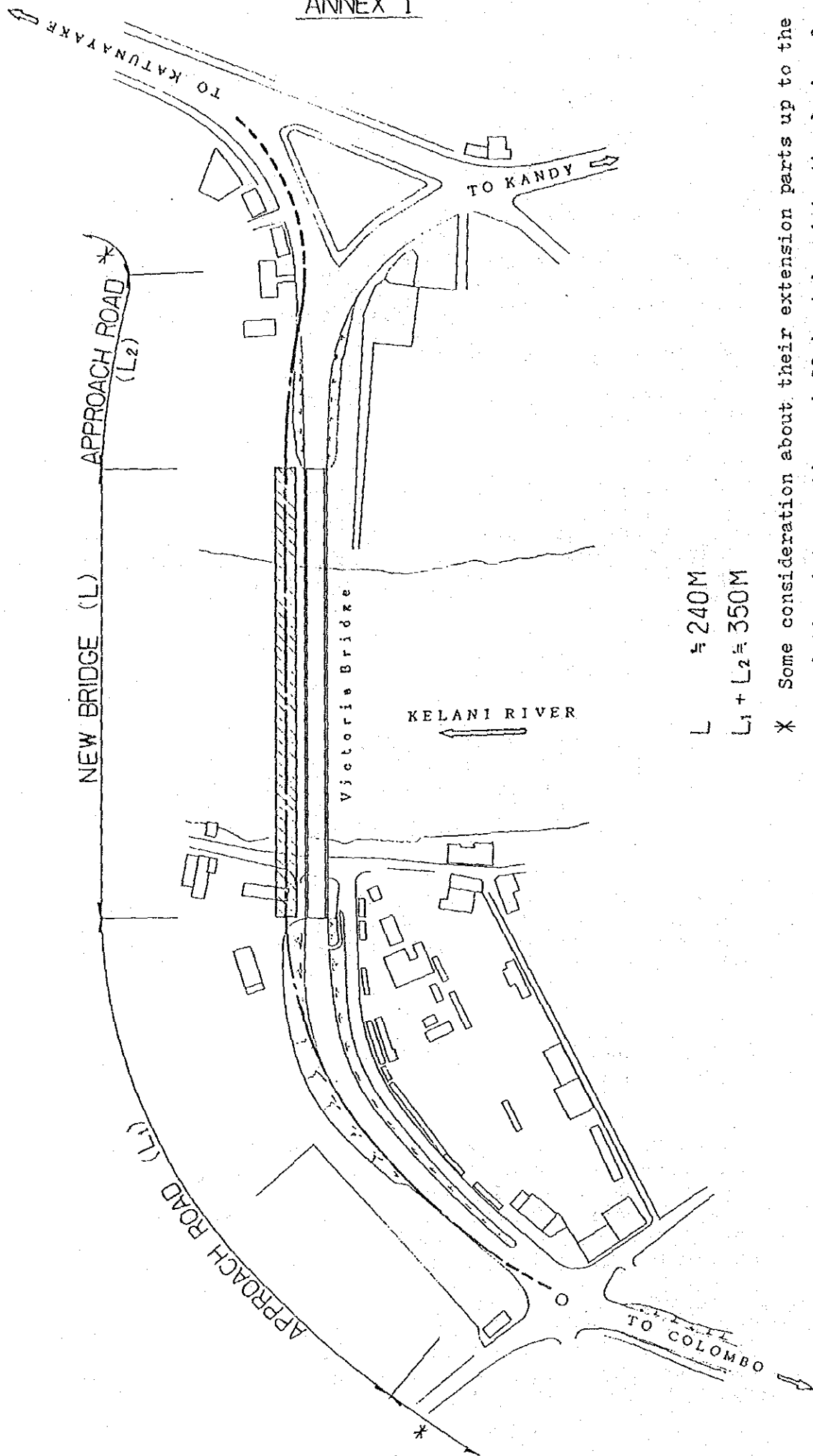
5. The Government of the Democratic Socialist Republic of Sri Lanka will take the necessary measures listed in Annex II on condition that the Grant Aid by the Government of Japan is extended to the Project.

6. Both sides confirmed that the Japanese Study Team explained the Japanese Grant Aid Programme and the Sri Lanka side understood it.

7. Sri Lanka side insisted on the necessity that the number of the lanes of new Victoria Bridge be increased to four or more in the future in accordance with the growth of traffic flow. Japanese Study Team understood the future necessity. Both sides agreed that the Basic Design for the Project should not interrupt the above possibility.

8. Sri Lanka side mentioned the second stage cooperation of additional bridge (2 or 4 lanes) construction to Japanese team and the team promised to report their expectations to the Government of Japan.

ANNEX I



L ≈ 240M

L₁ + L₂ ≈ 350M

* Some consideration about their extension parts up to the existing intersections shall be taken into the design for their smooth continuity.

ANNEX II

Necessary measures to be taken by the Government of the Democratic Socialist Republic of Sri Lanka.


1. To secure land necessary for the execution of the Project and provide enough space for such construction as temporary offices, working area, stockyard and others.
2. To ensure that river area necessary for the construction of the facilities be freely accessible.
3. To provide necessary facilities for construction such as electricity, water supply, telephone and other incidental facilities up to the Project site.
4. To ensure prompt unloading, tax exemption, customs clearance at ports of disembarkation in Sri Lanka and prompt internal transportation, to be paid under the Grant, therein of the products purchased under the Grant.
5. To exempt Japanese nationals from customs duties, international taxes and other fiscal levies which may be imposed in Sri Lanka with respect to the supply of the products and services under the verified contracts.
6. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into Sri Lanka and stay herein for the performance of their work.
7. To maintain and use properly and effectively the facilities constructed provided under the Grant Aid.
8. To vacate all existing buildings inside the Project site (see ANNEX-I) and clean the site by the start of the Project.

THE MINUTES OF DISCUSSIONS ON
THE BASIC DESIGN STUDY ON
THE PROJECT FOR RECONSTRUCTING
THE VICTORIA BRIDGE IN
THE DEMOCRATIC SOCIALIST REPUBLIC OF
SRI LANKA

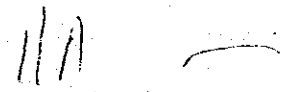
In response to the request of the Government of the Democratic Socialist Republic of Sri Lanka, the Government of Japan decided to conduct a basic design study of the Project for Reconstructing the Victoria Bridge (hereinafter referred to as 'the Project'), and entrusted the Japan International Co-operation Agency (hereinafter referred to as 'JICA'). JICA sent the Basic Design Study Team headed by Mr. Shoichi Saeki, Director, Structure and Bridge Dept., Public Works Research Institute, Ministry of Construction to carry out the study from July 9 to August 4, 1988.

As a result of the study, JICA prepared a draft report and despatched a team headed by Mr. Shoichi Saeki to explain and discuss it from September 24 to October 2, 1988.

Both parties had a series of discussions on the report and agreed to recommend to their respective Governments that the major points of understandings reached between them on September 29, 1988, attached herewith should be examined towards the realization of the Project.



Shoichi Saeki
Leader
Basic Design Study Team
Japan International
Co-operation Agency



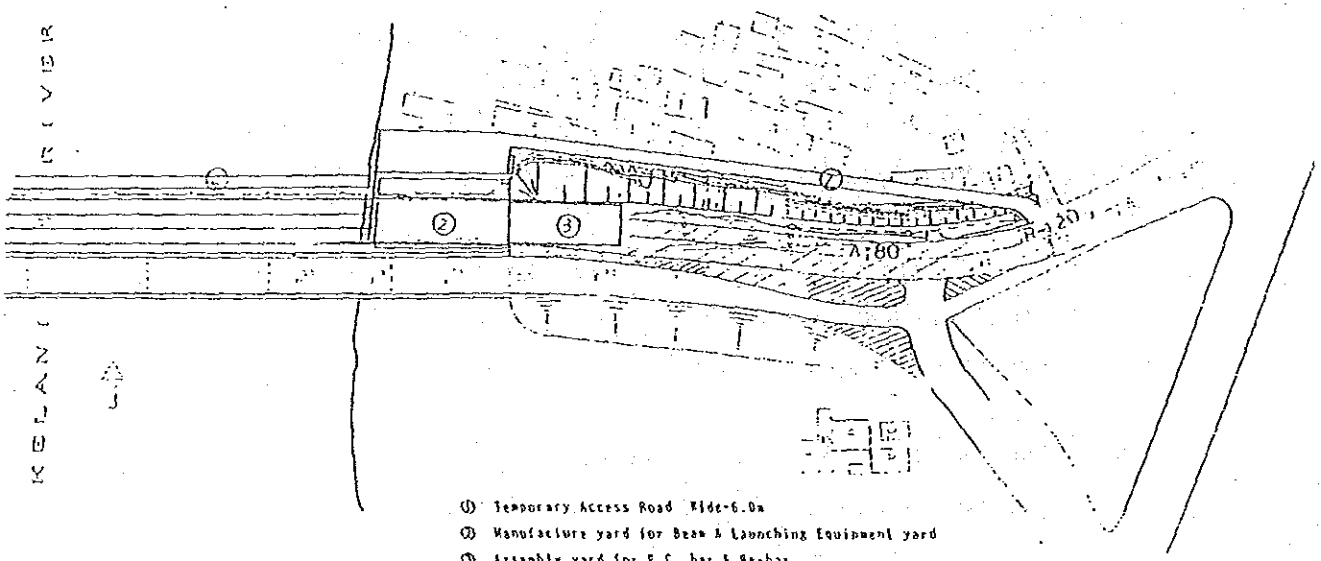
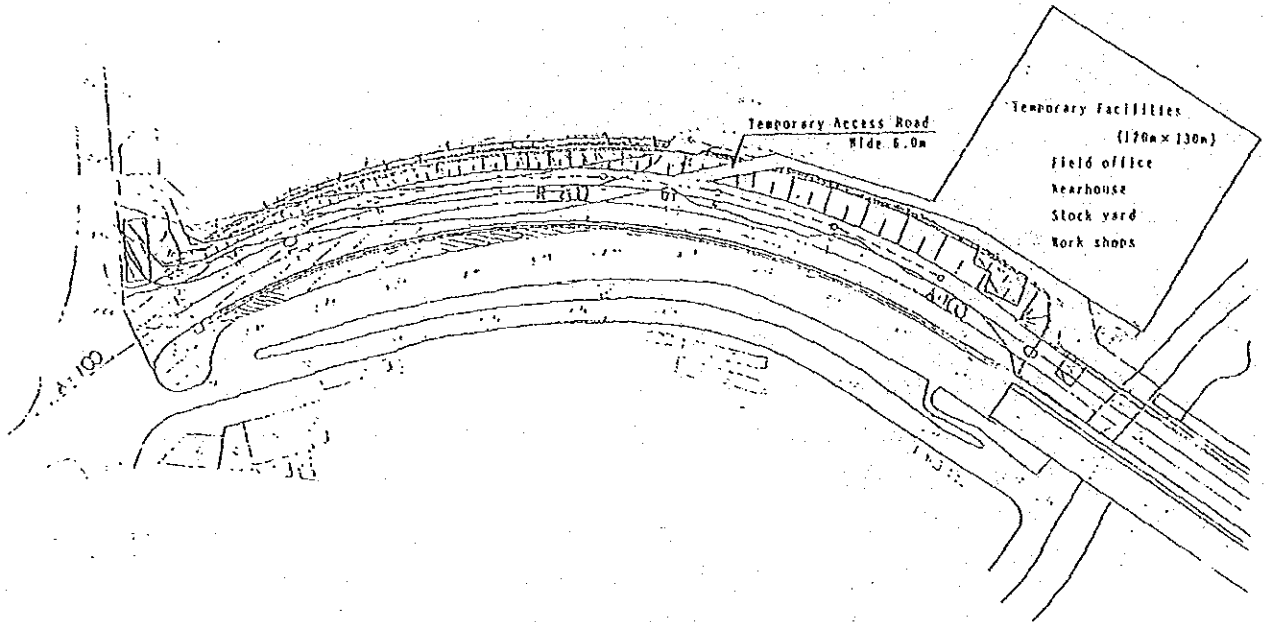
R. Paskaralingam
Chairman
Road Development Authority
and Secretary, Ministry of
Highways

29th September, 1988

ATTACHMENT

1. The Government of Sri Lanka agreed in principle to the basic design proposed in the Draft Final Report.
2. The Government of Sri Lanka has reconfirmed the Minutes of the meetings held from 11th to 15th July, 1988 and signed on 15th July, 1988.
3. The Government of Sri Lanka assured the provision of the necessary budget for the adequate works such as site clearance, etc. for the project execution and the personnel services, maintenance and operation expenses for the new bridge.
4. The Government of Sri Lanka has agreed to be responsible for the undertaking of works as shown in Annex I, such as provision of power and water supply to the site, space for workshop, etc.
5. The Government of Sri Lanka has agreed to obtain the right-of-way for the Project and report the situation to the Embassy of Japan in Sri Lanka by the end of November, 1988.
6. The Final Report (10 copies in English) will be submitted to the Government of Sri Lanka in November, 1988.

ANNEX I
(A) LOCATION

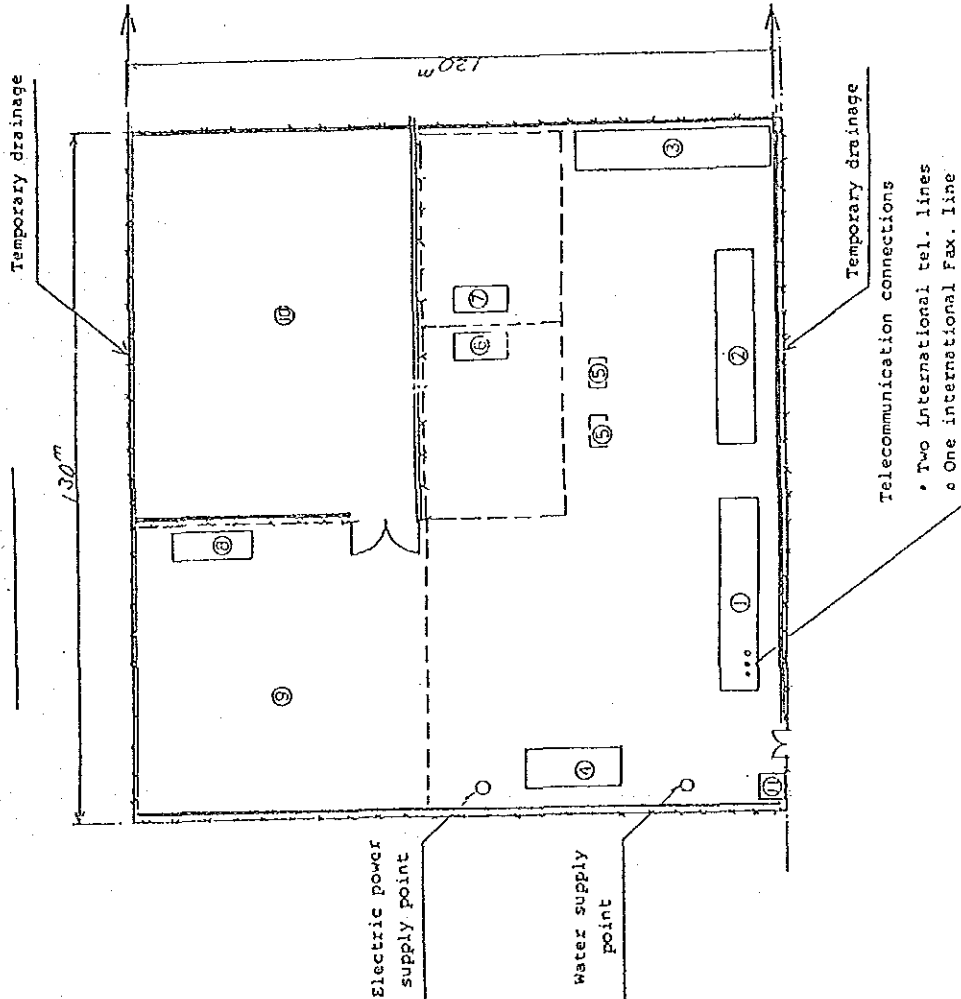


- ① Temporary Access Road Wide-6.0m
- ② Manufacture yard for beam & launching equipment yard
- ③ Assembly yard for P.C. bar & Re-bar
- ④ Temporary Jetty

SP

(B) Arrangement for Temporary Facilities

Left Bank Side



- | | | |
|----------------------------------|------------|------|
| ① Office | 7.2 x 21.6 | 1No |
| ② Warehouse | 7.2 x 21.6 | 1No |
| ③ Warehouse | 7.2 x 21.6 | 1No |
| ④ Office for Local subcontractor | 7.2 x 14.4 | 1No |
| ⑤ Container for Material & Tools | 5 x 10 | 2Nos |
| ⑥ Carpenter's shop | 5 x 10 | 1No |
| ⑦ Bar-bender's shop | 5 x 10 | 1No |
| ⑧ Repair shop | 15 x 5 | 1No |
| ⑨ Mortar Pool | 55 x 55 | |
| ⑩ Materials stock yard | 55 x 75 | |
| ⑪ Guard Box | 3.6 x 4.5 | 1No |

基本設計調査団の構成

(1) 基本設計現地調査

氏名	担当	所属
佐伯 彰一	団長	建設省
吉田 好孝	建設計画	本四公団
瀬戸 茂之	計画管理	JICA
猪股 俊司	橋梁計画	日本構造橋梁研究所
小宮 正久	橋梁設計	日本構造橋梁研究所
松本 公典	施工計画	日本構造橋梁研究所
山口 昌治	道路設計	日本構造橋梁研究所
孔井 順二	地質調査	国際航業

(2) ドラフト・ファイナル・レポート現地説明

氏名	担当	所属
佐伯 彰一	団長	建設省
猪股 俊司	橋梁計画	日本構造橋梁研究所
小宮 正久	橋梁設計	日本構造橋梁研究所
松本 公典	施工計画	日本構造橋梁研究所
山口 昌治	道路設計	日本構造橋梁研究所

調査実施日程(1回目)

調 査 実 施 日 程				
月 日	曜 日	行 程	調 査 業 務 内 容	
7/9	土	成 田→バンコク	佐伯団長、吉田、瀬戸、猪股 他 JBSIG 名、バンコク着	
/10	日	バンコク→コロンボ	佐伯団長、吉田、瀬戸、猪股 他 JBSIG 名、コロンボ着	
/11	月		日本大使館表敬、National Planning & External Resources表敬、Road Development Authority表敬	
/12	火		インセプションレポート及び無償資金協力システムの説明 ・協議、ビクトリア橋視察	
/13	水		ミニッツ内容協議、カルトラ橋視察、日本大使館説明	地質調査準備
/14	木		ミニッツ内容協議、External Resources 説明	"
/15	金		ミニッツ調印	" 測量調査準備
/16	土	コロンボ→バンコク	佐伯団長、吉田、瀬戸、バンコク着	
/17	日	バンコク→成 田	佐伯団長、吉田、瀬戸、成田着	地質調査開始 (Bor No.5)
/18	月		資料収集及び打合わせ	地 質 調 査
/19	火		生コン工場視察	"
/20	水		資料収集及び打合わせ	交 通 調 査 地質調査終了 (Bor No.5)
/21	木		SDCC視察、土木研究所視察 (State Development Construction Corporation)	交 通 調 査 平面・縦断測量
/22	金		資料収集及び打合わせ	平面・縦断測量
/23	土			平面・縦断測量
/24	日			深 浅 測 量

調 査 実 施 日 程				
月 日	曜 日	行 程	調 査 業 務 内 容	
7 / 25	月		資料収集及び打合わせ	地質調査開始 (Bor No.6)
/ 26	火		"	"
/ 27	水		"	"
/ 28	木	祭日		"
/ 29	金		資料収集及び打合わせ	地質調査終了 (Bor No.6)
/ 30	土			
/ 31	日		カルタラ橋視察	
8 / 1	月		日本大使館表敬	
/ 2	火		資料収集及び打合わせ	
/ 3	水	コロンボ→バンコク	猪股 他 JBSI 6名、バンコク着	
/ 4	木	バンコク→成 田	" 成田着	

面談者リスト

1. ROAD DEVELOPMENT AUTHORITY (R. D. A)

Mr. B. M. de Soysa

(General Manager)

Mr. G. S. Hattotuwegama

(Director/Engineering Services)

Dr. Asoka de Silva

(Deputy Director/Bridge Design)

Mrs. N. D. Peiris

(Assistant Director/Bridge Design)

Mr. M. G. S. Perera

(Deputy Director/Highway Design)

Mr. S. R. Somaskandan

(Senior Engineer/Highway Design)

2. MINISTRY OF HIGHWAYS

Mr. R. Paskaralingam

(Secretary/Highways)

Mr. D. J. Amarasinghe

(Addl Secretary/Highways)

3. DEPARTMENT OF EXTERNAL RESOURCES

Mr. M. A. Mohamed

(Director/External Resources)

Mr. S. Weeraparna

(Additional Director/External Resources)

4. URBAN DEVELOPMENT AUTHORITY

N. D. Dickson

(Director Planning)

5. 日本国大使館

特命全権大使 濱本康也

参事官 高田稔久

一等書記官 丸山和彦

6. JICAスリランカ事務所

所長 橋口次郎

所員 新野宏

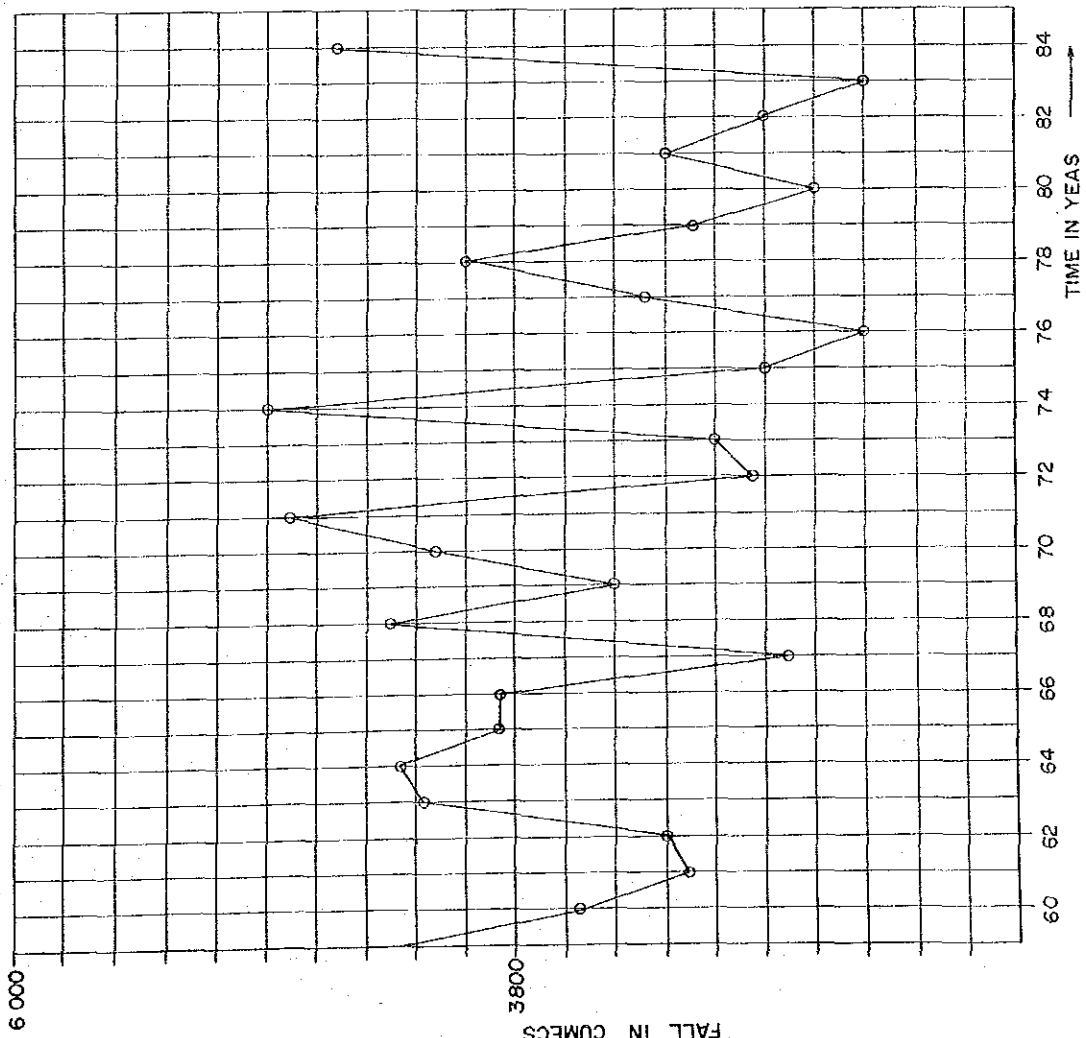


Fig VARIATION OF BASIN RAIN FALL (ANNUAL)

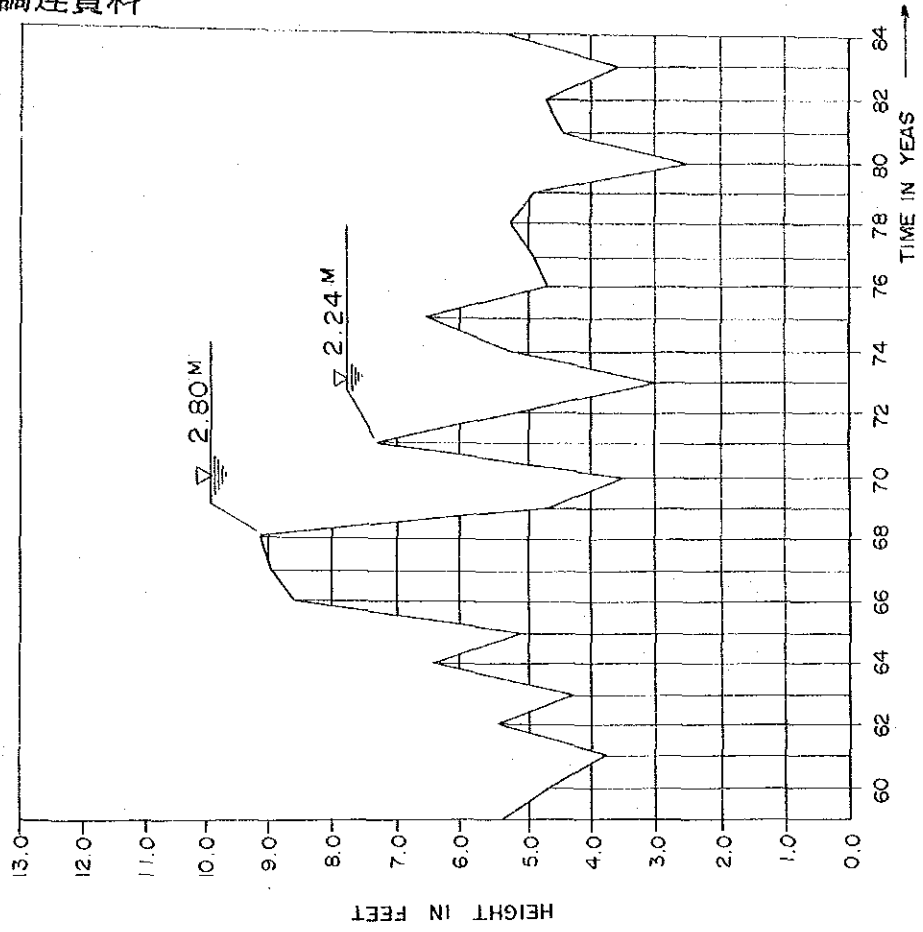
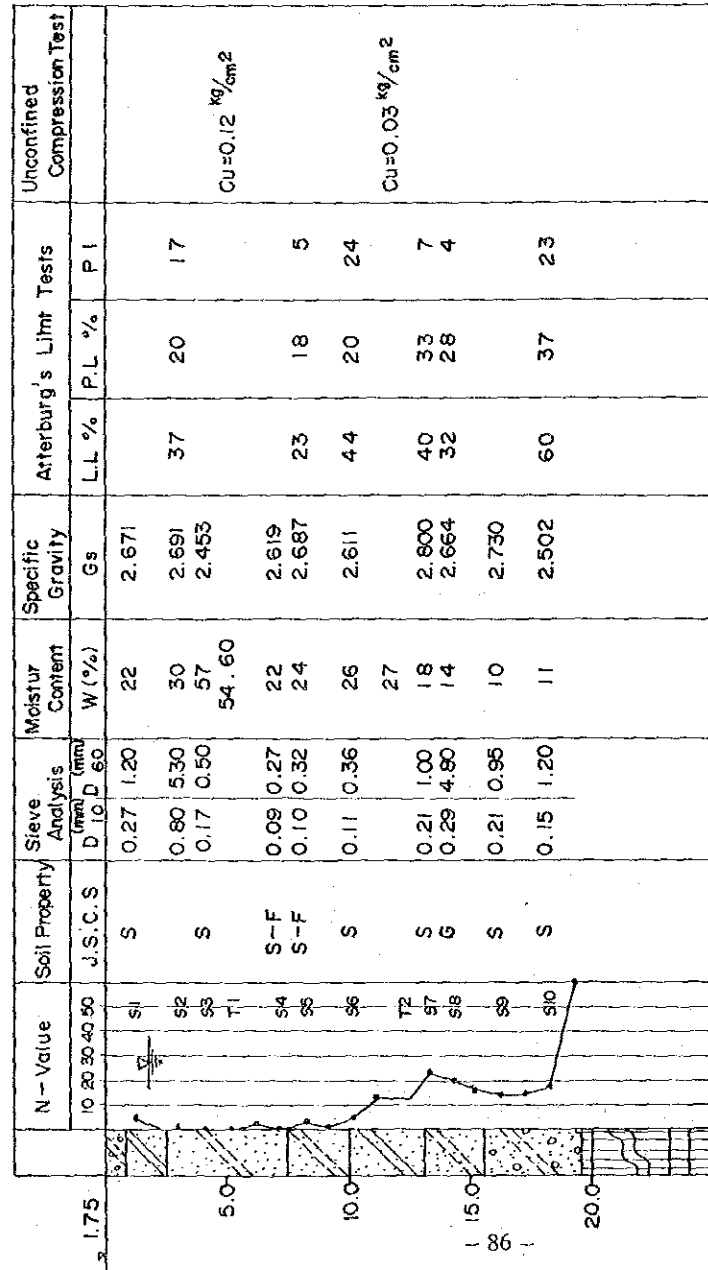
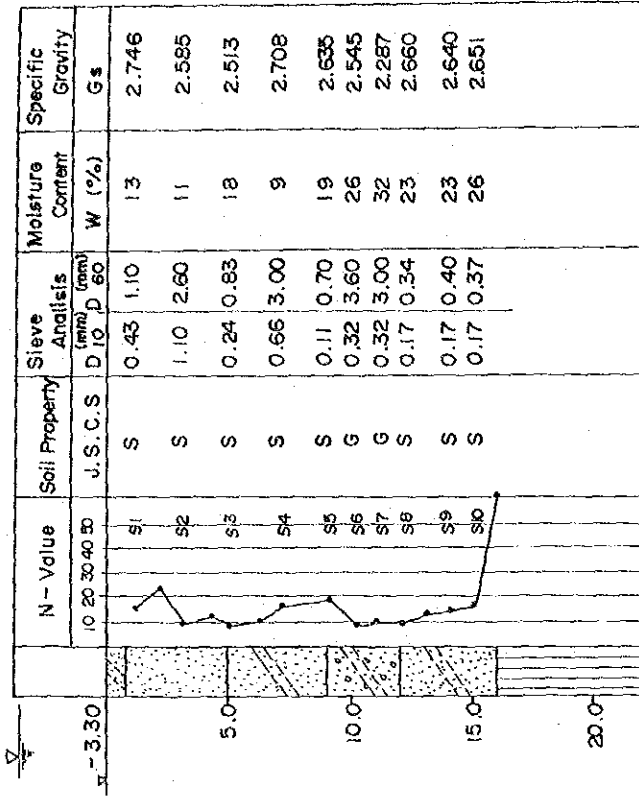


Fig VARIATION OF FLOOD LEVELS OF KELANIT GANGA AT NAGALAGAM STREET WITH TIME



N-Value : Standard Penetration Test J.S.C.S : Japan unified Soil Classification System

D₁₀ : Effective Grain Size D₆₀ :

W : Moisture Content (%) G_s : Specific Gravity

L.L : Liquid Limit (%) P.L : Plastic Limit (%)

P.I : Plasticity Index (%) S : Disturbed Samples

T : Undisturbed Samples

GROUP ENGINEERING LABORATORIES LTD

SOIL INVESTIGATION OF VICTORIA BRIDGE - KELANIYA

B.H. NO. 5

RESULTS OF MOISTURE CONTENT TESTS

<u>Depth (m)</u>	<u>Elevation</u>	<u>M.C. %</u>
1.00	+ 0.75	22
3.00	- 1.25	30
4.00	- 2.25	57
7.00	- 5.25	22
8.00	- 6.25	24
10.00	- 8.25	26
13.00	- 11.25	18
14.00	- 12.25	14
16.00	- 14.25	10
18.00	- 16.25	11

GROUP ENGINEERING LABORATORIS LTD

SOIL INVESTIGATION FOR RECONSTRUCTION OF VICTORIA BRIDGE

RESULTS OF SPECIFIC GRAVITY TESTS

B.H. NO. 5

<u>Depth (m)</u>	<u>Elevation</u>	<u>Specific Gravity</u>
1.00	+ 0.75	2.671
3.00	- 1.25	2.691
4.00	- 2.25	2.453
7.00	- 5.25	2.619
8.00	- 6.25	2.687
10.00	- 8.25	2.611
13.00	- 11.25	2.800
14.00	- 12.25	2.664
16.00	- 14.25	2.730
18.00	- 16.25	2.502

GROUP ENGINEERING LABORATORIES LTD

SOIL INVESTIGATION OF VICTORIA BRIDGE - KELANIYA

B.H.NO. 5

RESULTS OF ATTERBURG'S LIMIT TESTS :

<u>Depth (m)</u>	<u>Elevation</u>	<u>L.L. %</u>		<u>P.L. %</u>	<u>P.I. %</u>
1.00	+ 0.75	-	Non	Plastic	-
3.00	- 1.25	37		20	17
4.00	- 2.25	-	Non	Plastic	-
7.00	- 5.25	-	Non	Plastic	-
8.00	- 6.25	23		18	05
10.00	- 8.25	44		20	24
13.00	- 11.25	40		33	07
14.00	- 12.25	32		28	04
16.00	- 14.25	-	Non	Plastic	-
18.00	- 16.25	60		37	23

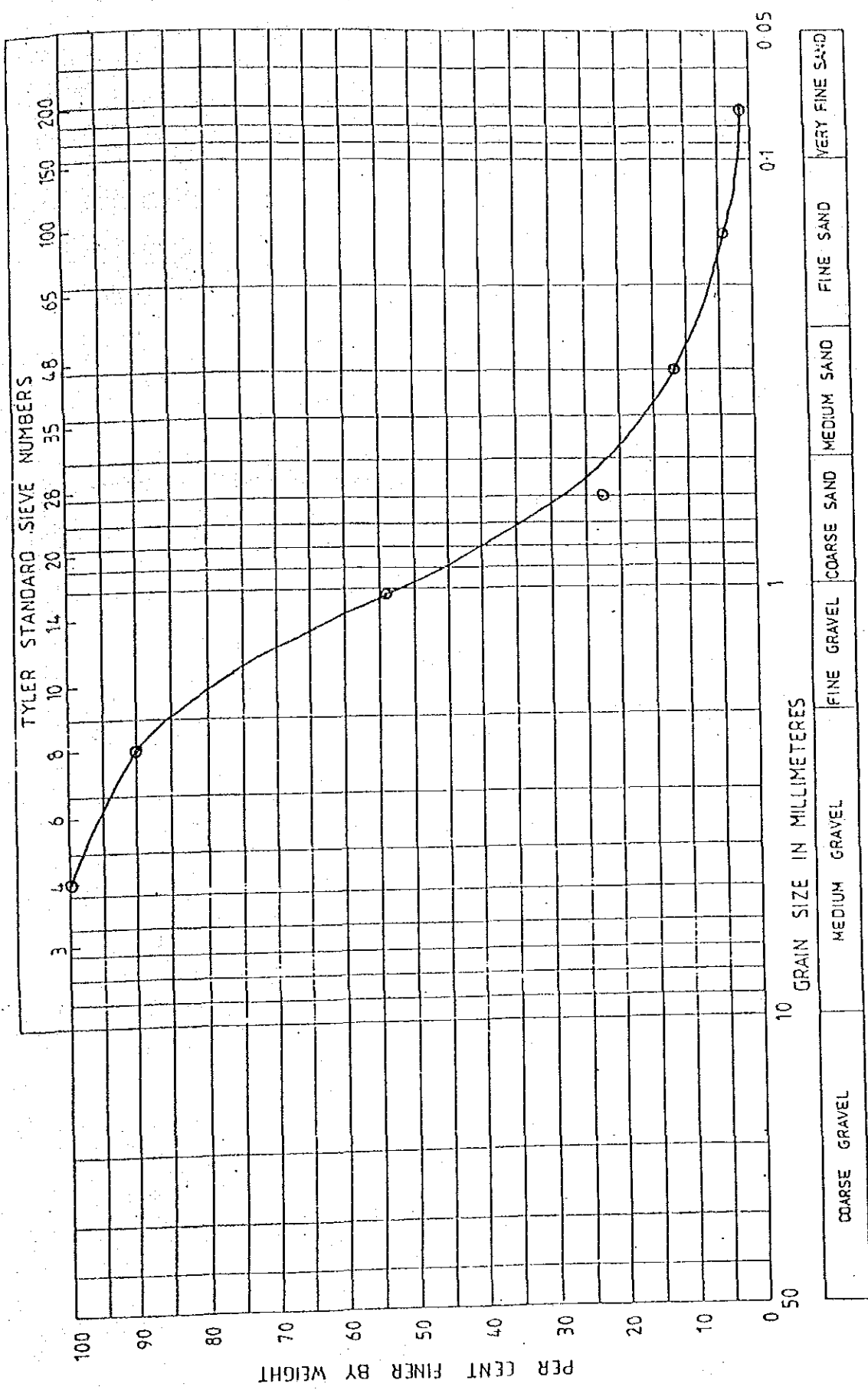
GROUP ENGINEERING LABORATORIES LTD

SOIL INVESTIGATION OF VICTORIA BRIDGE

B.H. NO. 5

RESULTS OF SIEVE ANALYSIS

<u>Depth (m)</u>	<u>Elevation</u>	<u>Remarks</u>
1.00	+ 0.75	Curve attached
3.00	- 1.25	- do -
4.00	- 2.25	- do -
7.00	- 5.25	- do -
8.00	- 6.25	- do -
10.00	- 8.25	- do -
13.00	-11.25	- do -
14.00	-12.25	- do -
16.00	-14.25	- do -
18.00	-16.25	- do -



PROJECT Re-Construction Victoria Bridge. BORING NO. 5 SAMPLE NO. _____

DEPTH 1 m ELEVATION _____ REMARKS _____

GRAIN SIZE DISTRIBUTION DIAGRAM

GROUP: ENGINEERING LABORATORIES, COLOMBO, SRI LANKA

GROUP ENGINEERING LABORATORIES LTD

SOIL INVESTIGATION FOR RECONSTRUCTION OF VICTORIA BRIDGE

RESULTS OF UNCONFINED COMPRESSION TEST

BOREHOLE NO. 5

DEPTH 5.00 m

TEST NO. 1+ 2

Sample Description :- Clayey, silty fine sand.
Black in colour.

		Test No. 1	Test No. 2
Unconfined Compressive Strength	lbs/in ²	3.25	3.84
	kN/m ²	22	26
Failure Strain %		10	11
Shear Stress	lbs/in ²	1.62	1.92
	kN/m ²	11	13
Moisture Content	%	54	60
Wet Density	lbs/ft ³	100.5	99.05
	Mg/m ²	1.608	1.584
Dry Density	lbs/ft ³	65	61.77
	Mg/m ²	1.039	0.988

GROUP ENGINEERING LABORATORIES LTD

SOIL INVESTIGATION FOR RECONSTRUCTION OF VICTORIA BRIDGE

RESULTS OF UNCONFINED COMPRESSION TEST

BOREHOLE NO. 5

DEPTH - 12 m

TEST NO. - 1

Sample Description :- Moist soft lateritic clay with fine sand. Brown in colour.

		Test No. 1
Unconfined Compressive Strength	lbs/in ²	0.85
	kN/m ²	6
Failure Strain %		6
Shear Stress	lbs/in ²	0.45
	kN/m ²	3
Moisture Content %		27
Wet Density	lbs/ft ³	128
	Mg/m ³	2.05
Dry Density	lbs/ft ³	98
	Mg/m ³	1.57

GROUP ENGINEERING LABORATORIES LTD

RE CONSTRUCTION OF VICTORIA BRIDGE - KELANIYA

RESULTS OF MOISTURE CONTENT TESTS

B.H.NO. 6

<u>Depth (m)</u>	<u>Elevation</u>	<u>Moisture Content%</u>
1.00	- 4.30	13
3.00	- 6.30	11
5.00	- 8.30	18
7.00	- 10.30	09
9.00	- 12.30	19
10.00	- 13.30	26
11.00	- 14.30	32
12.00	- 15.30	23
14.00	- 17.30	23
15.00	- 18.30	26

GROUP ENGINEERING LABORATORIES LTD

RECONSTRUCTION OF VICTORIA BRIDGE - KFLANIYA
RESULTS OF SPECIFIC GRAVITY TESTS

B.H.No. 6

<u>Depth (m)</u>	<u>Elevation</u>	<u>Specific Gravity</u>
1.00	- 4.30	2.746
3.00	- 6.30	2.585
5.00	- 8.30	2.513
7.00	- 10.30	2.708
9.00	- 12.30	2.635
10.00	- 13.30	2.545
11.00	- 14.30	2.287
12.00	- 15.30	2.660
14.00	- 17.30	2.640
15.00	- 18.30	2.651

GROUP ENGINEERING LABORATORIES LTD

SOIL INVESTIGATION OF VICTORIA BRIDGE

B.H.No. 6

RESULTS OF ATTERBURG LIMITS

<u>Depth (m)</u>	<u>Elevation</u>	<u>Remarks</u>
1.00	- 4.30	Non plastic
3.00	- 6.30	- do -
5.00	- 8.30	- do -
7.00	- 10.30	- do -
9.00	- 12.30	- do -
10.00	- 13.30	- do -
11.00	- 14.30	- do -
12.00	- 15.30	- do -
14.00	- 17.30	- do -
15.00	- 18.30	- do -

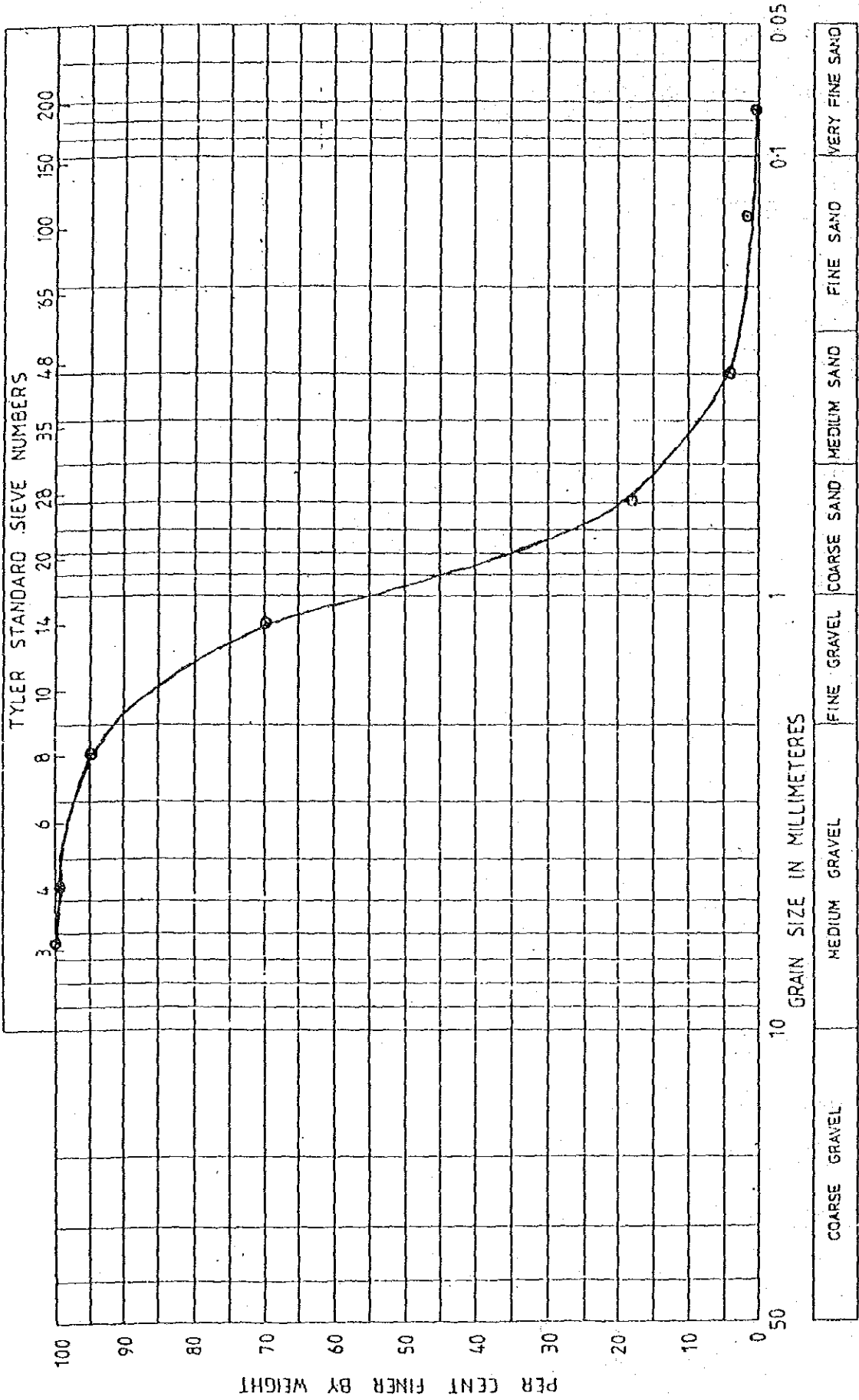
GROUP ENGINEERING LABORATORIES LTD

SOIL INVESTIGATION OF VICTORIA BRIDGE

B.H.No. 6

RESULTS OF SIEVE ANALYSIS

<u>Depth (m)</u>	<u>Elevation</u>	<u>Remarks</u>
1.00	- 4.30	Curve attached
3.00	- 6.30	- do -
5.00	- 8.30	- do -
7.00	- 10.30	- do -
9.00	- 12.30	- do -
10.00	- 13.30	- do -
11.00	- 14.30	- do -
12.00	- 15.30	- do -
14.00	- 17.30	- do -
15.00	- 18.30	- do -



PROJECT Reconstruction of Victoria Bridge - Kelonya Boring No. 6 SAMPLE NO. _____

DEPTH 1.00 m ELEVATION _____ REMARKS _____

GRAIN SIZE DISTRIBUTION DIAGRAM

GROUP: ENGINEERING LABORATORIES, COLOMBO, SRI LANKA

California bearing ratio test

(Basis BS 1377:1975)

Site J.P.C.
 Sample no. A-113 A1-2 (No. 111)
 Depth _____
 Specimen no. _____
 Description Levee Soil

Operator _____
 Date 02/10/87

Test on recompacted specimen:
 quantities required
 Dry density required 1.10 Mg/m³
 Moisture content required 21.0 %
 mass of soil required _____ g
 total mass of water required _____ g
 Existing mass of water in specimen _____ g
 mass of water to be added _____ g

Equipment
 Mould no. _____
 Size - length 177.8 - 619 mm
 diameter 152 mm
 Area (A) _____ cm²
 Volume of mould and baseplate _____ cm³
 Mass of baseplate _____ g
 Calibration _____

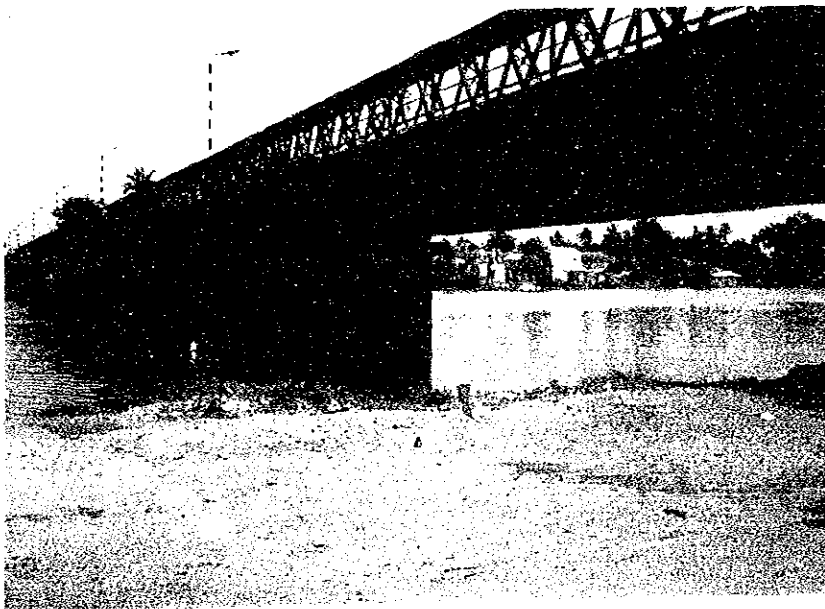
Test on undisturbed specimen
 unsoaked
 Mass of mould, baseplate and soil (m₁) _____ g
 Mass of mould and baseplate (m₂) _____ g
 Mass of soil (m - m₂) _____ g
 Final moisture content (if not soaked) (W₁) _____ %
 soaked
 Mass of mould, baseplate and soil after soaking (m₁) _____ g
 Mass of soil after soaking (m₁ - m₂) _____ g
 Final moisture content after soaking (W₂) _____ %

Method of compaction
 dynamic
 static
 quantities used
 Mass of mould, baseplate and wet soil (m₃) 1858.2 g
 Mass of mould and baseplate (m₂) 1413.7 g
 Mass of wet soil (m₃ - m₂) 444.5 g
 Final moisture content (W) _____ %
 Mass of mould, baseplate and soil after soaking (m₁) 1957.4 g
 Mass of soil after soaking (m₁ - m₂) 543.7 g

Density calculations
 unsoaked
 Bulk density (ρ) $\frac{m_3 - m_2}{V_m}$ _____ Mg/m³
 Dry density (ρ_d) $\frac{100 \rho}{100 + W_1}$ _____ Mg/m³
 soaked
 Bulk density (ρ) $\frac{m_1 - m_2}{V_m}$ _____ Mg/m³
 Dry density (ρ_d) $\frac{100 \rho}{100 + W_2}$ _____ Mg/m³



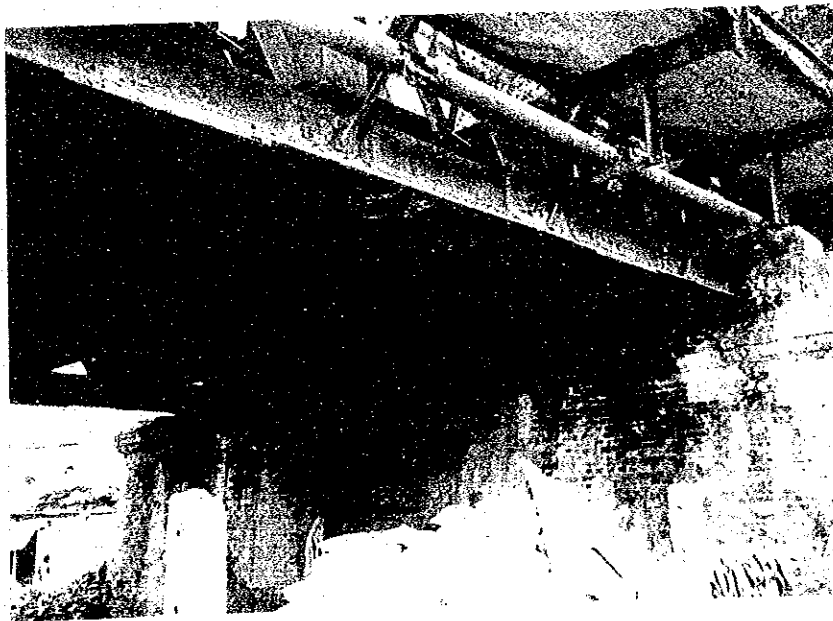
Victoria Bridge
全 景



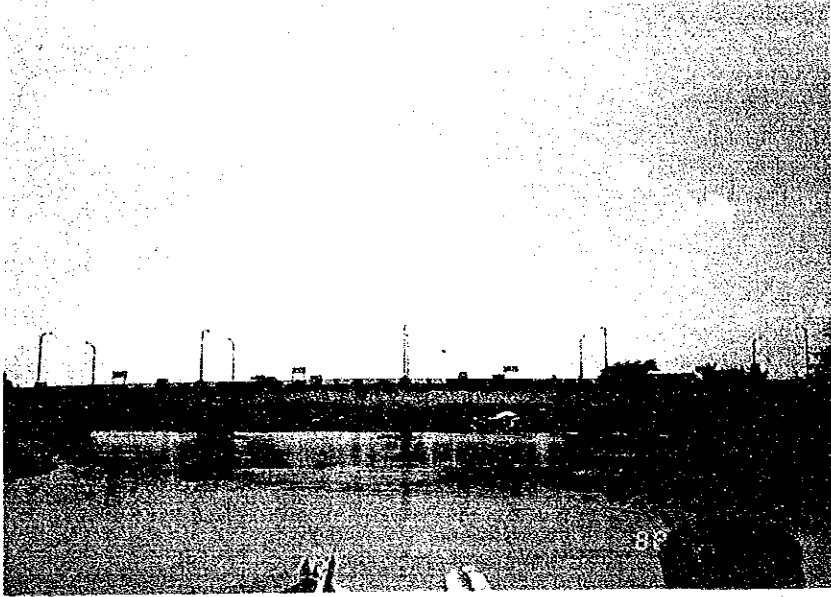
Victoria Bridge
全 景



Victoria Bridge A1 橋台
(Colombo側) の損傷状況



同 上



New Kelani Bridge

全景



New Kelani Bridge

交通状况

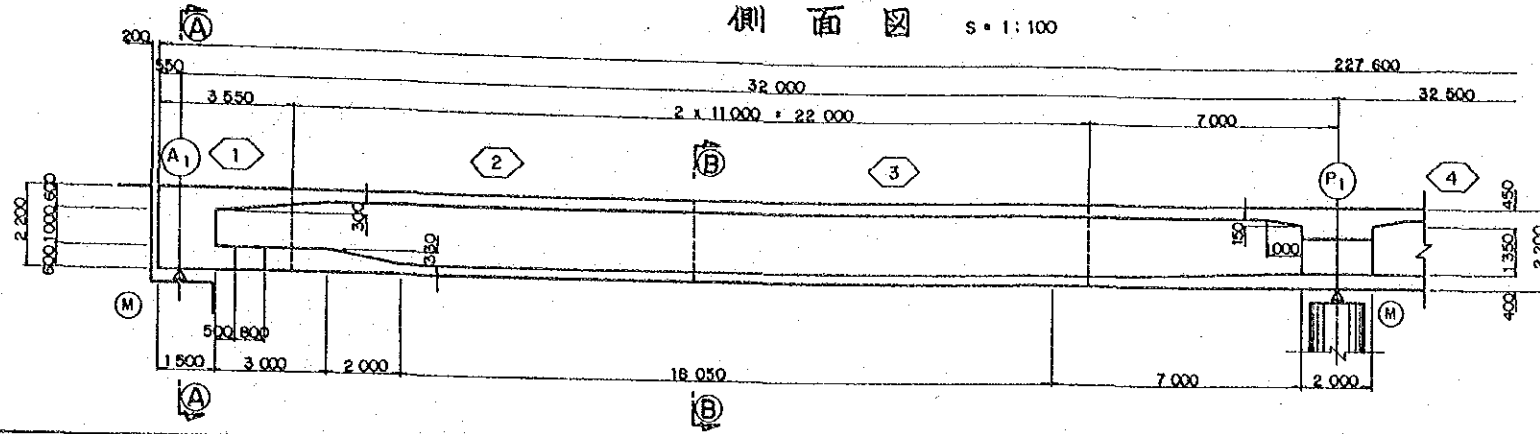
2. 1 図 面 集

図面リスト

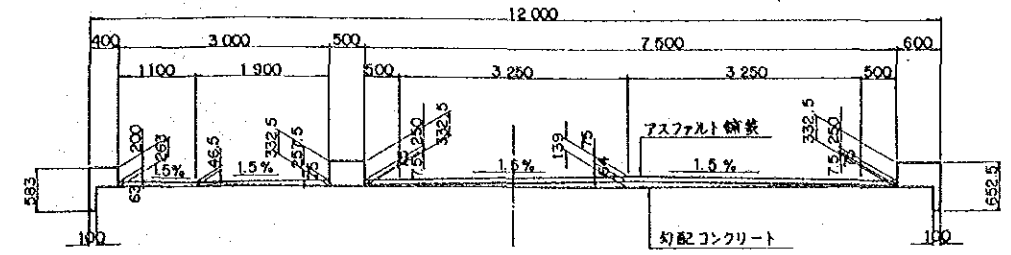
• 構造一般図（その1）、（その2）	109
• 主桁断面図	113
• 鋼材断面図	115
• 取付道路横断図	117
• 排水系統図	125
• 段階施工図（参考図）	127

構造一般図 (その1)

側面図 S=1:100

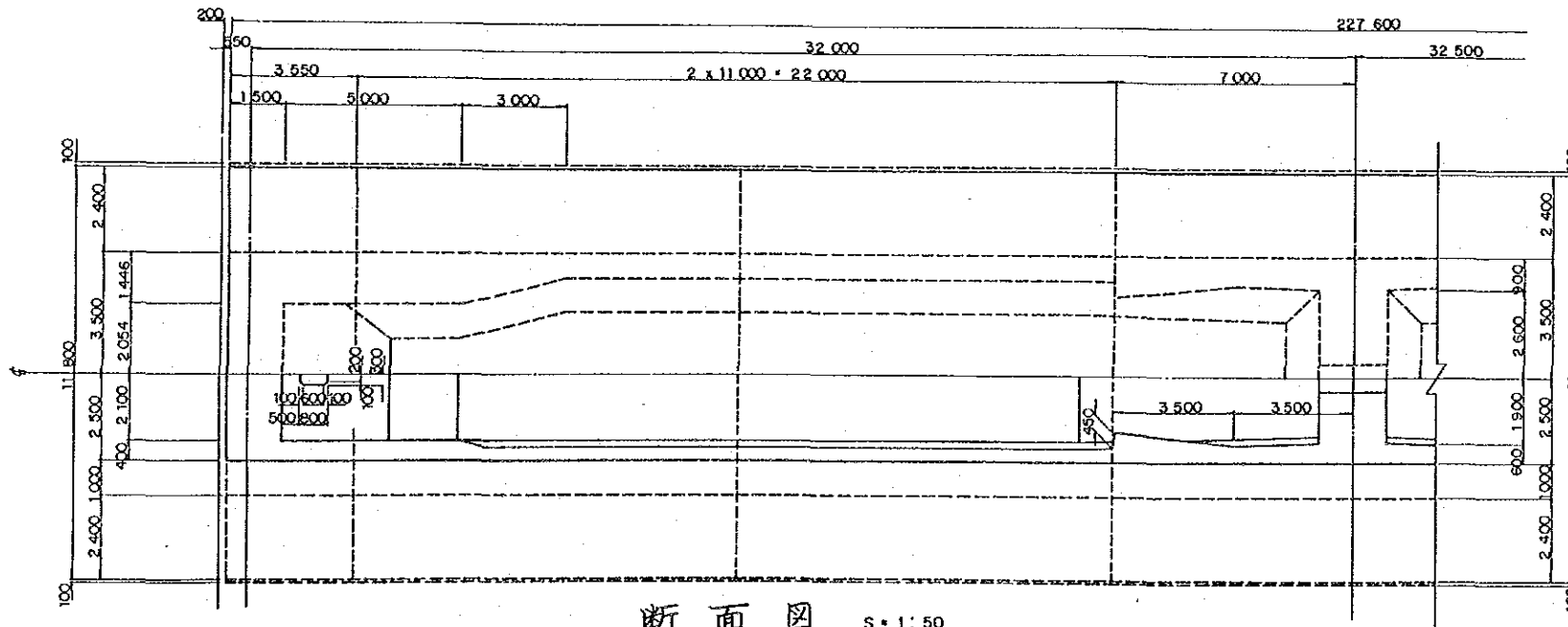


地覆詳細図 S=1:50

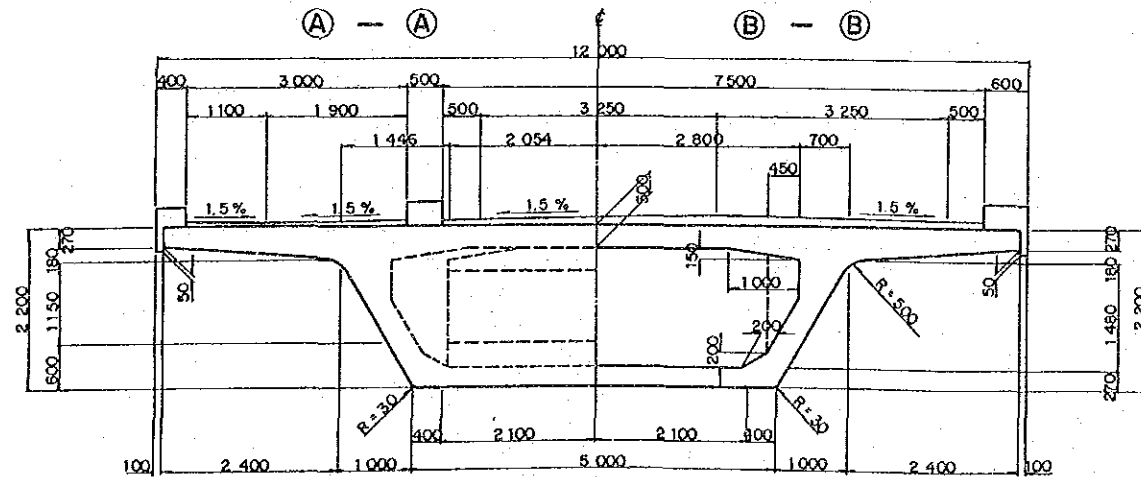


床版厚	600	395	300			300	450	450
ウェブ厚	1446		1446	400		400	429	600
下床版厚	600	600	270			270	289	400
桁高	2200							2200

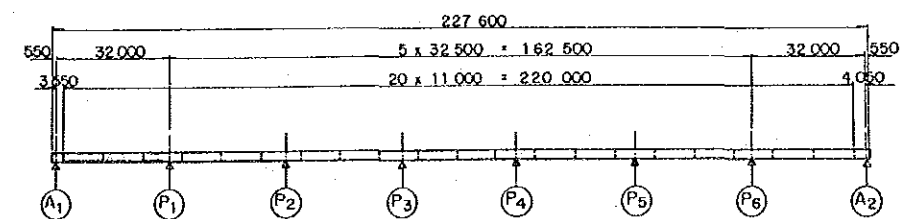
平面図 S=1:100



断面図 S=1:50

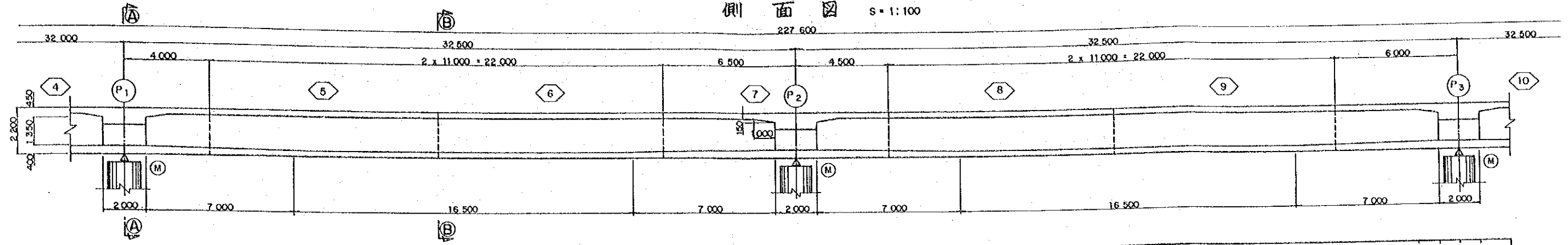


位置図



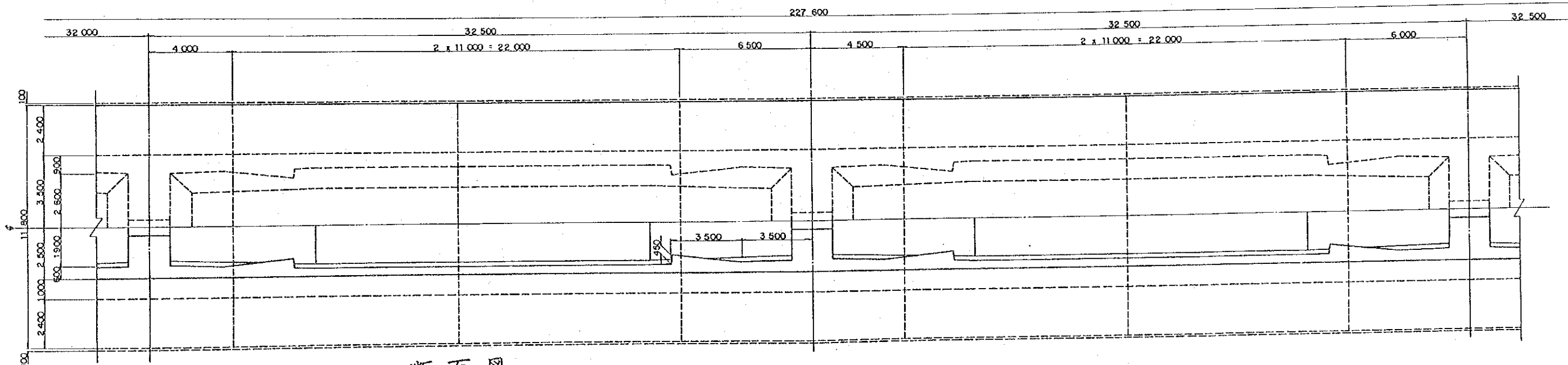
構造一般図 (その2)

側面図 S=1:100

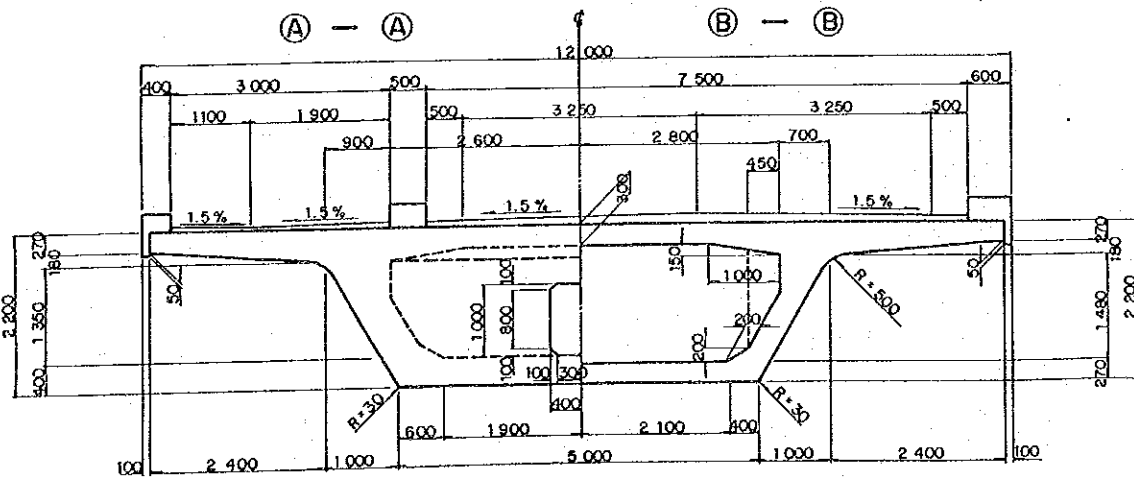


床版厚	450	450	300					300	450	450	300					300	450	450	
ウェブ厚	600	600	514	400			400	443	600	600	500	400				400	457	600	600
下床版厚	400	400	344	270			270	298	400	400	335	270			270	307	400	400	
桁高	2,200																		

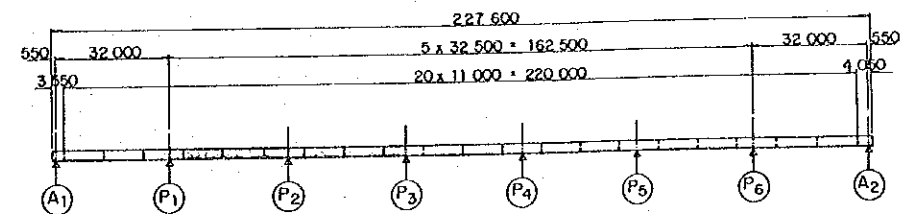
平面図 S=1:100



断面図 S=1:50



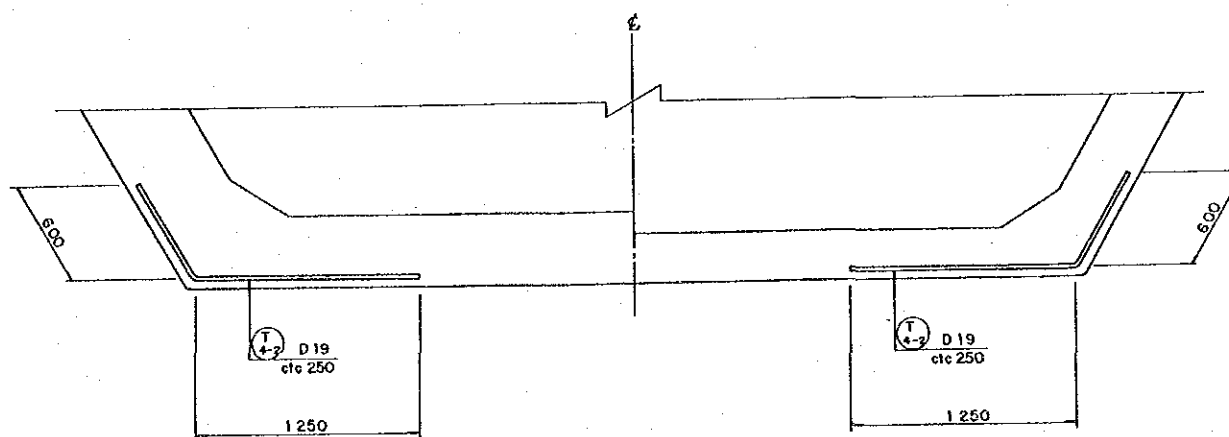
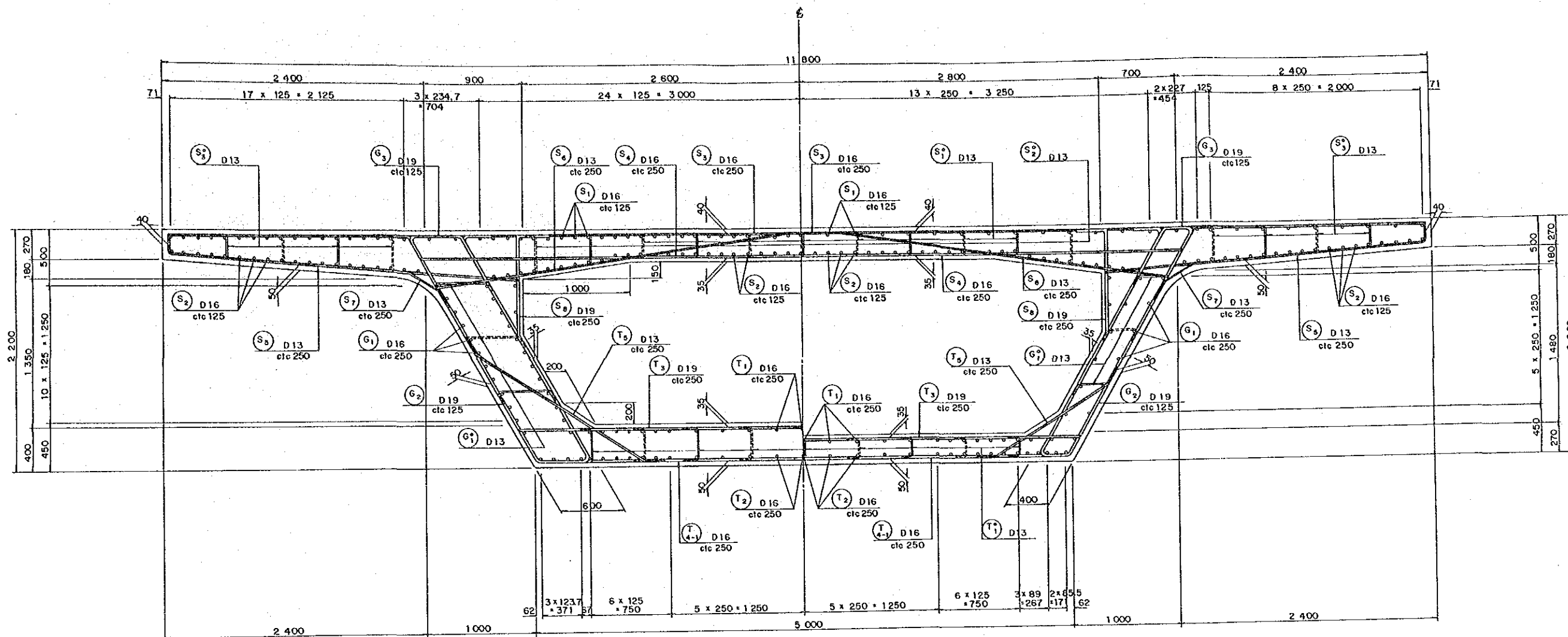
位置図



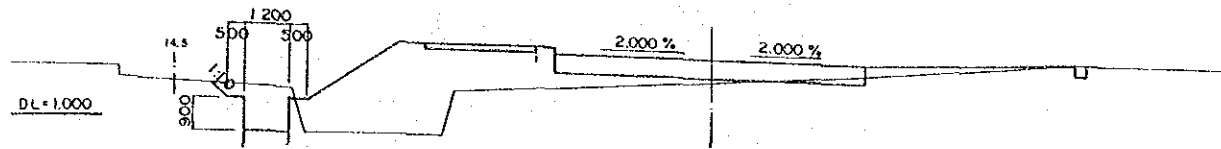
主桁断面図 5:1:20

柱頭部

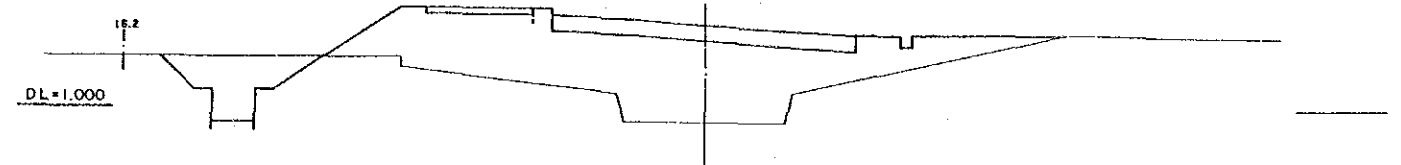
標準部



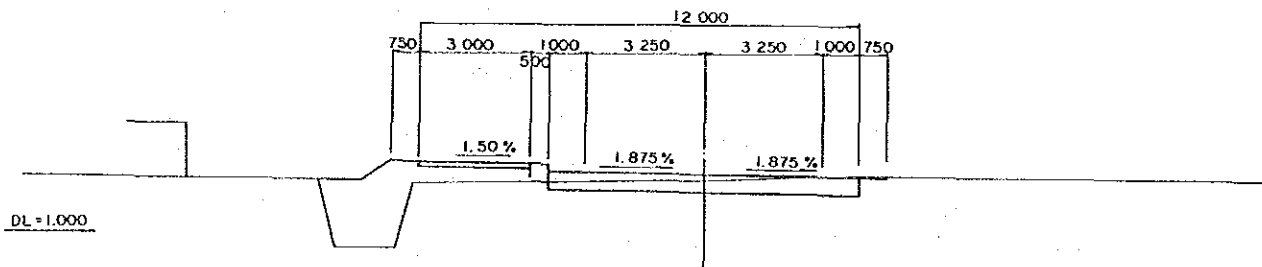
NO. - 11
GH = 2.15
FH = 2.790



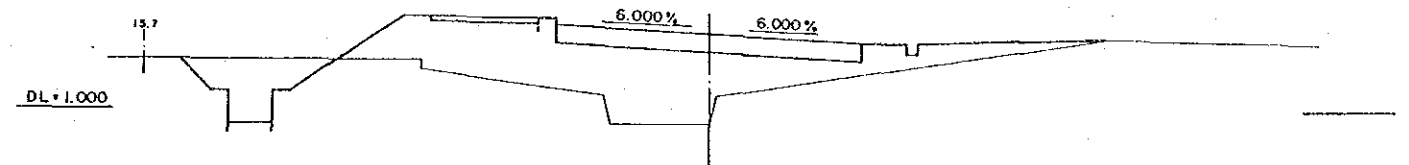
NO. - 8
GH = 0.60
FH = 3.310



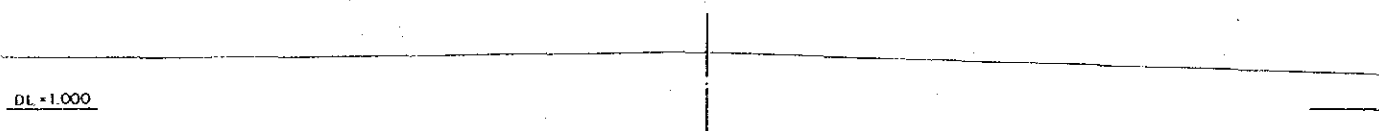
NO. - 12
GH = 2.50
FH = 2.670



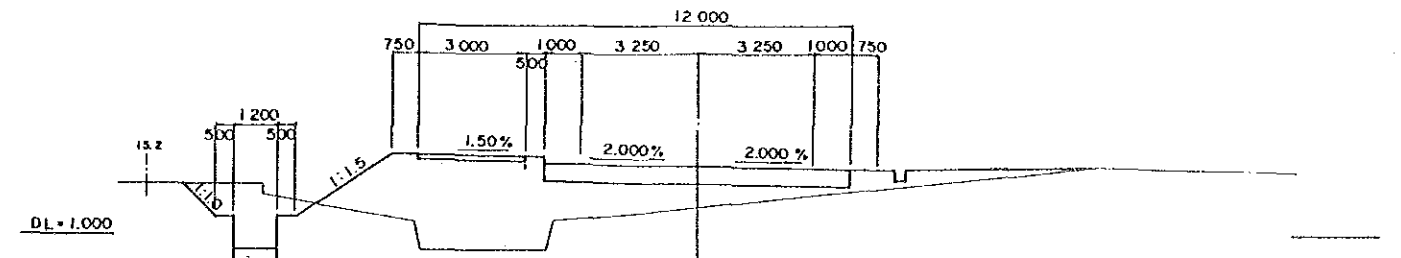
NO. - 9
GH = 0.60
FH = 3.070



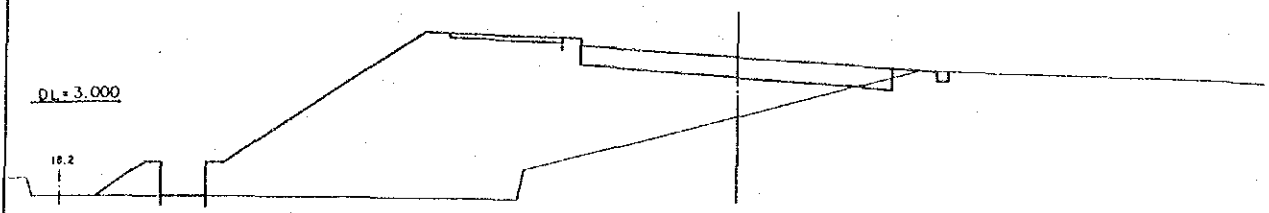
NO. - 13
GH = 2.55
FH = 2.550



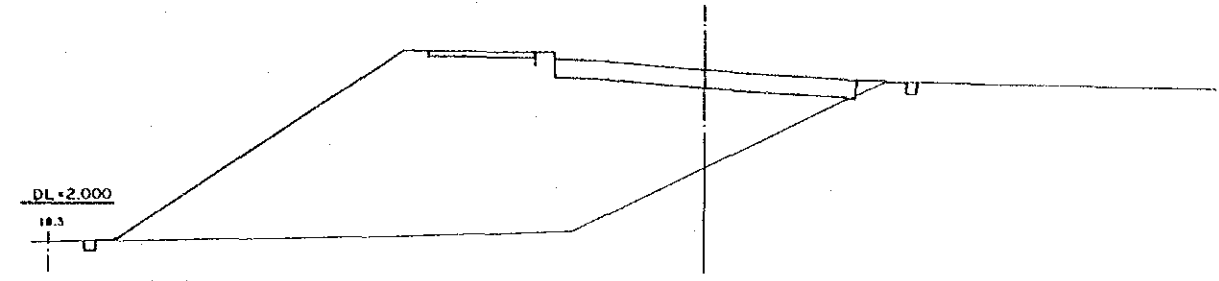
NO. - 10
GH = 1.75
FH = 2.910



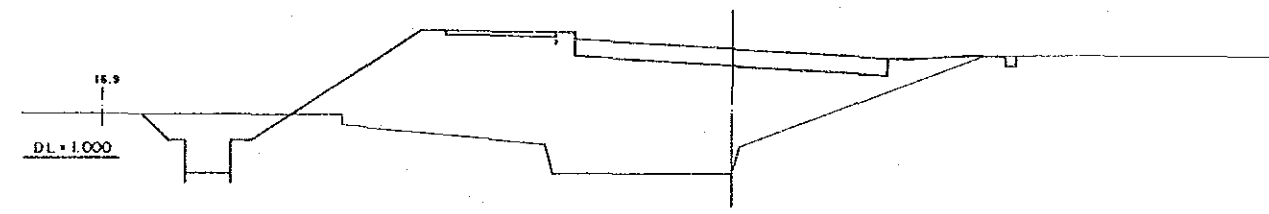
NO. - 5
GH = 2.90
FH = 4.470



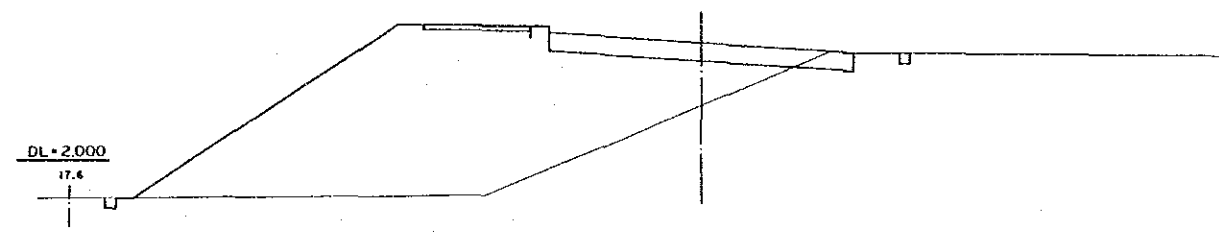
NO. - 2
GH = 3.10
FH = 5.79



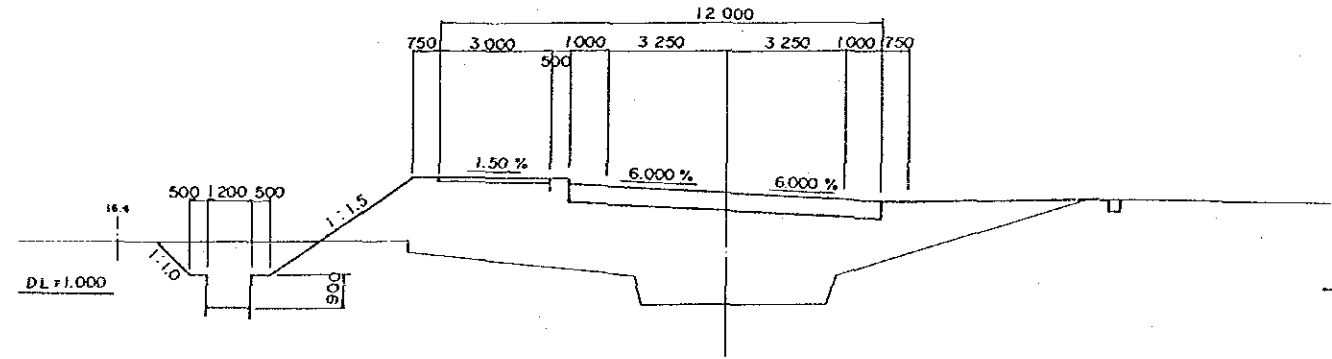
NO. - 6
GH = 0.59
FH = 4.030



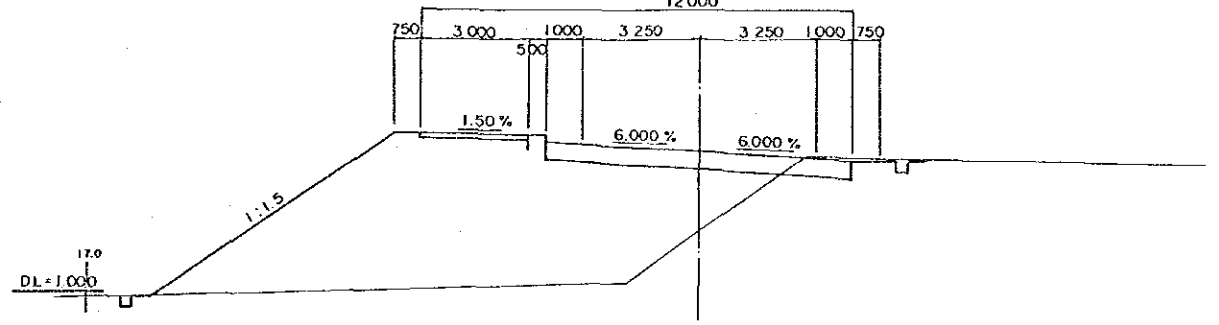
NO. - 3
GH = 3.60
FH = 5.350



NO. - 7
GH = 0.06
FH = 3.630

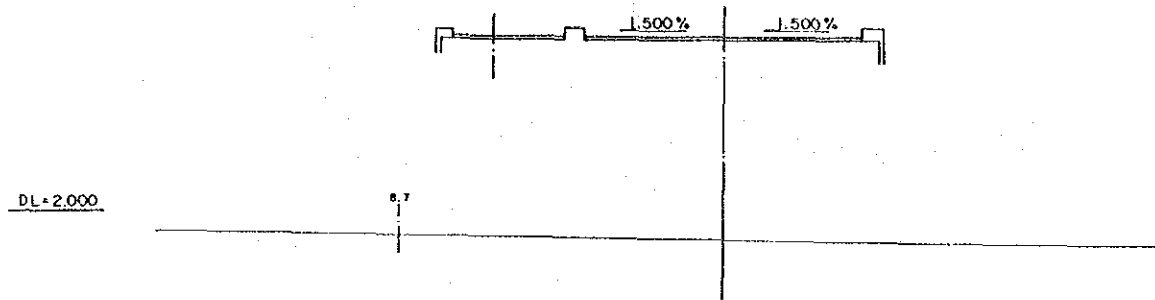


NO. - 4
GH = 2.70
FH = 4.910



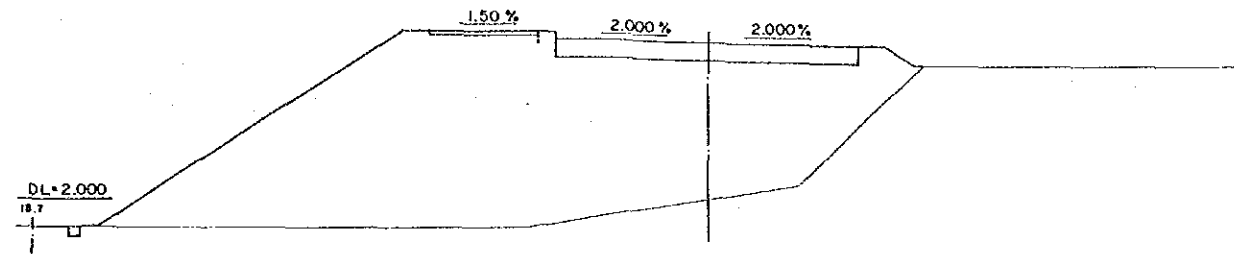
NO. 1

GH = 1.47
FH = 7.035



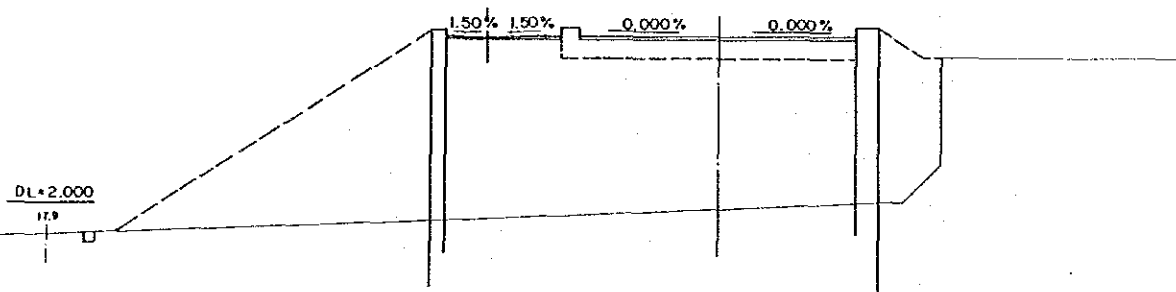
NO. 12

GH = 2.05
FH = 6.433



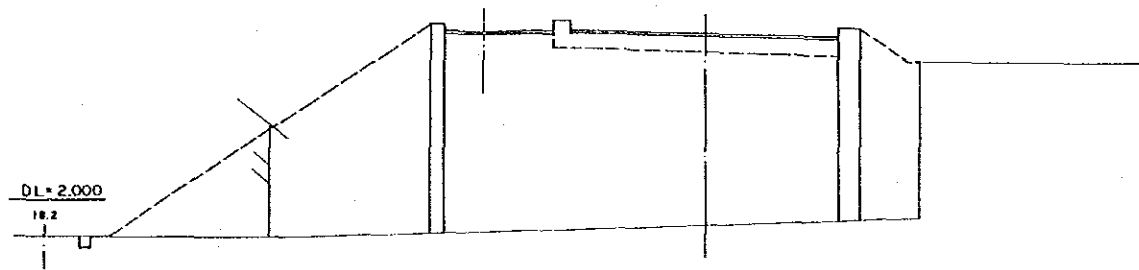
NO. 0

GH = 1.86
FH = 6.661



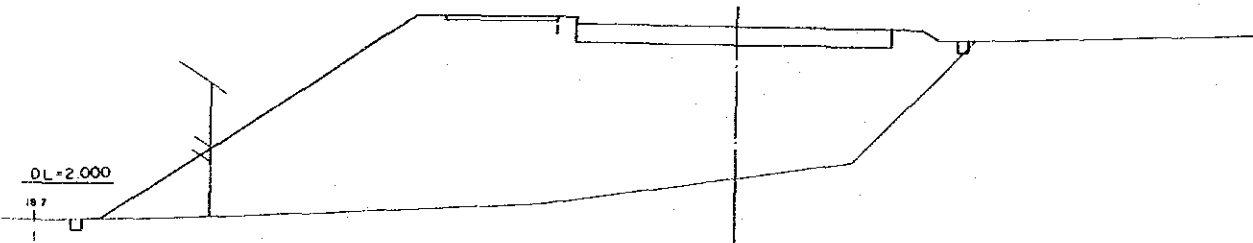
NO. 11 + 4.0

GH = 1.40
FH = 6.765



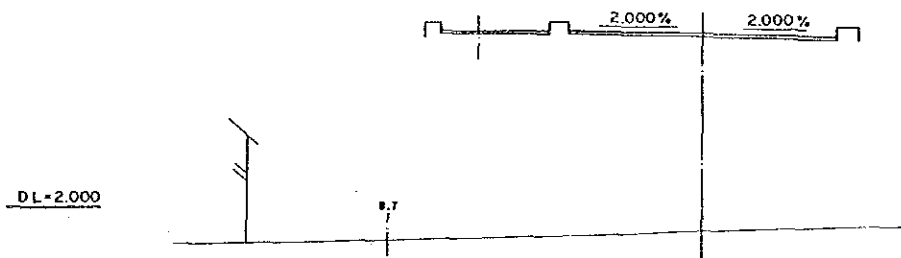
NO. - 1

GH = 2.05
FH = 6.230



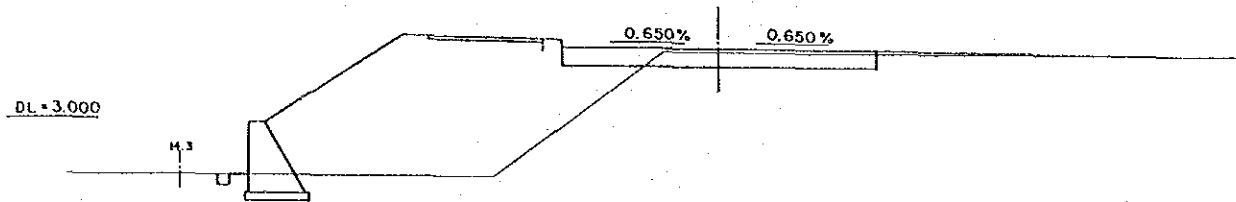
NO. 11

GH = 1.35
FH = 6.841



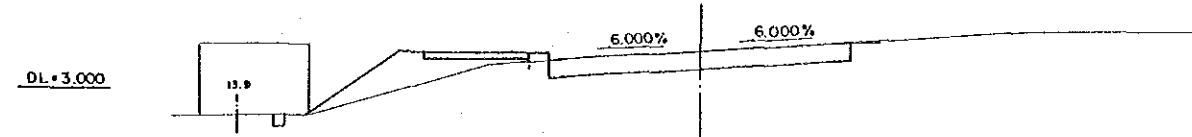
NO. 15

GH = 5.00
FH = 5.095



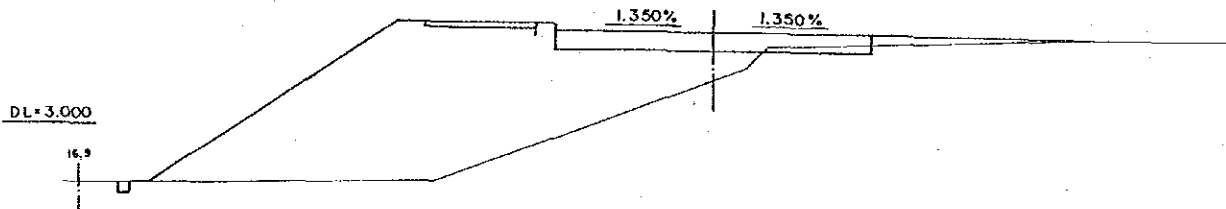
NO. 18

GH = 4.10
FH = 4.100



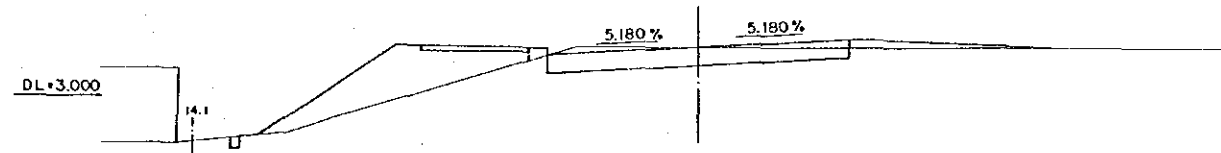
NO. 14

GH = 4.20
FH = 5.508



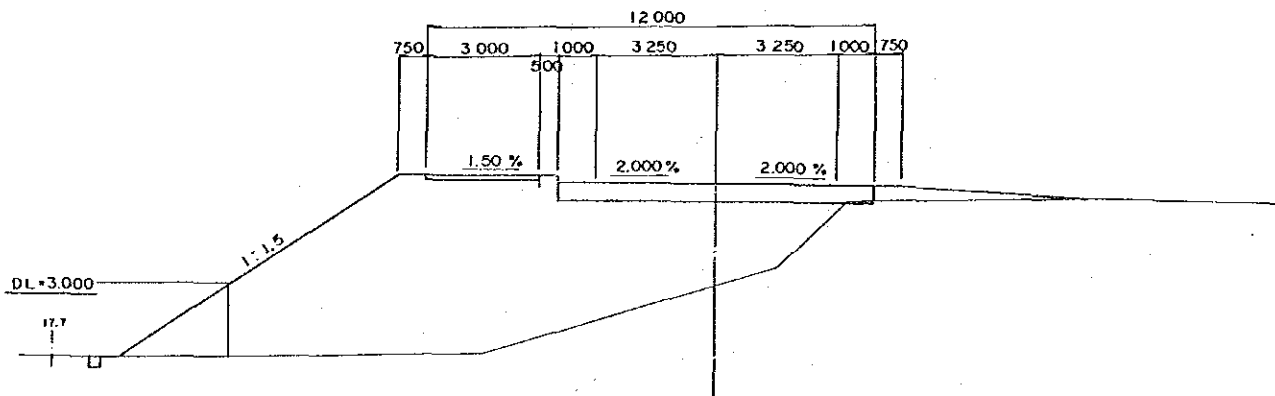
NO. 17

GH = 4.40
FH = 4.400



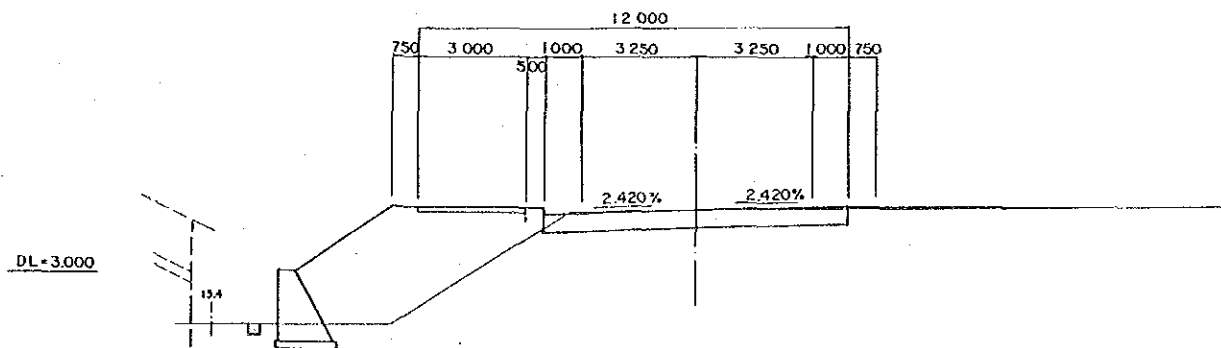
NO. 13

GH = 3.10
FH = 5.964

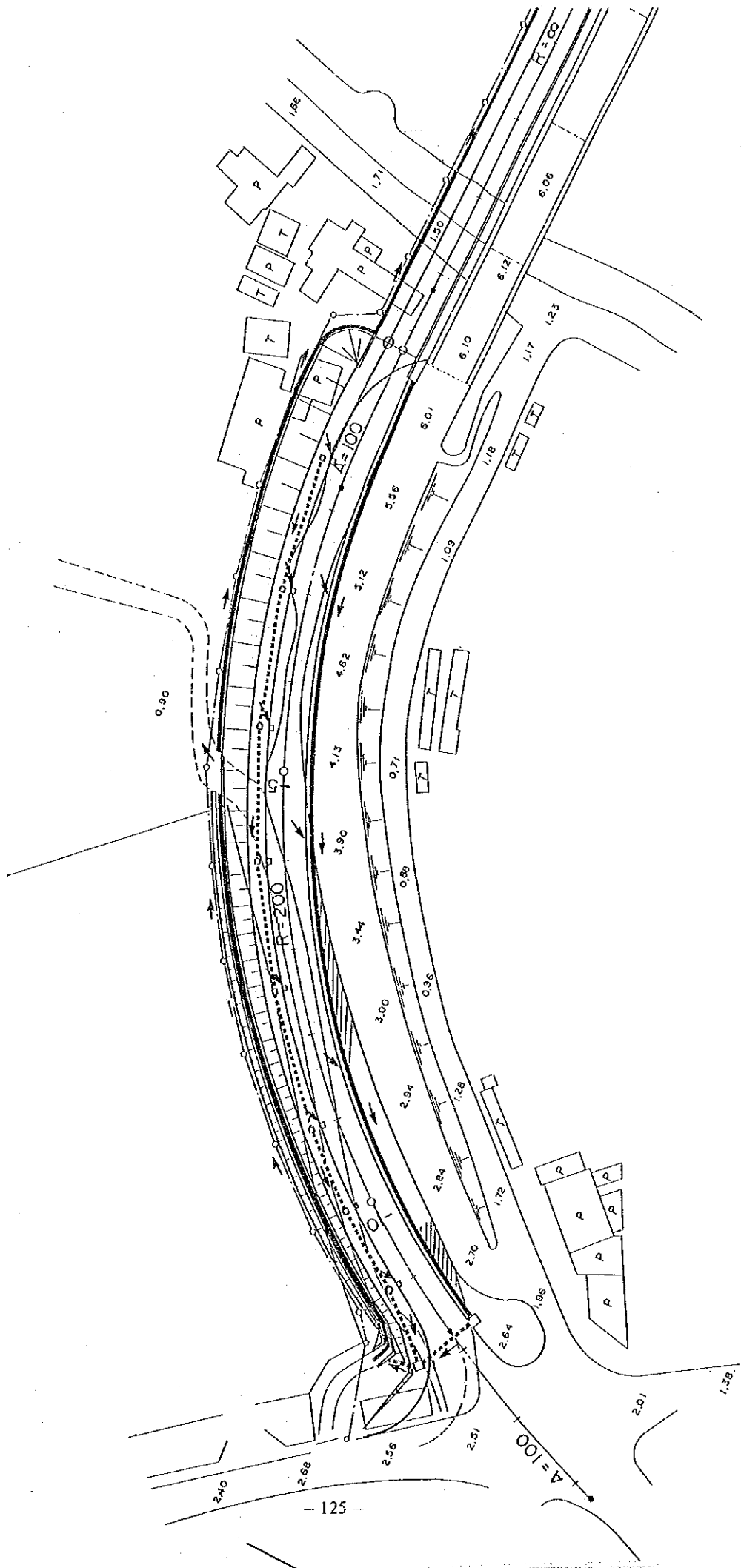


NO. 16

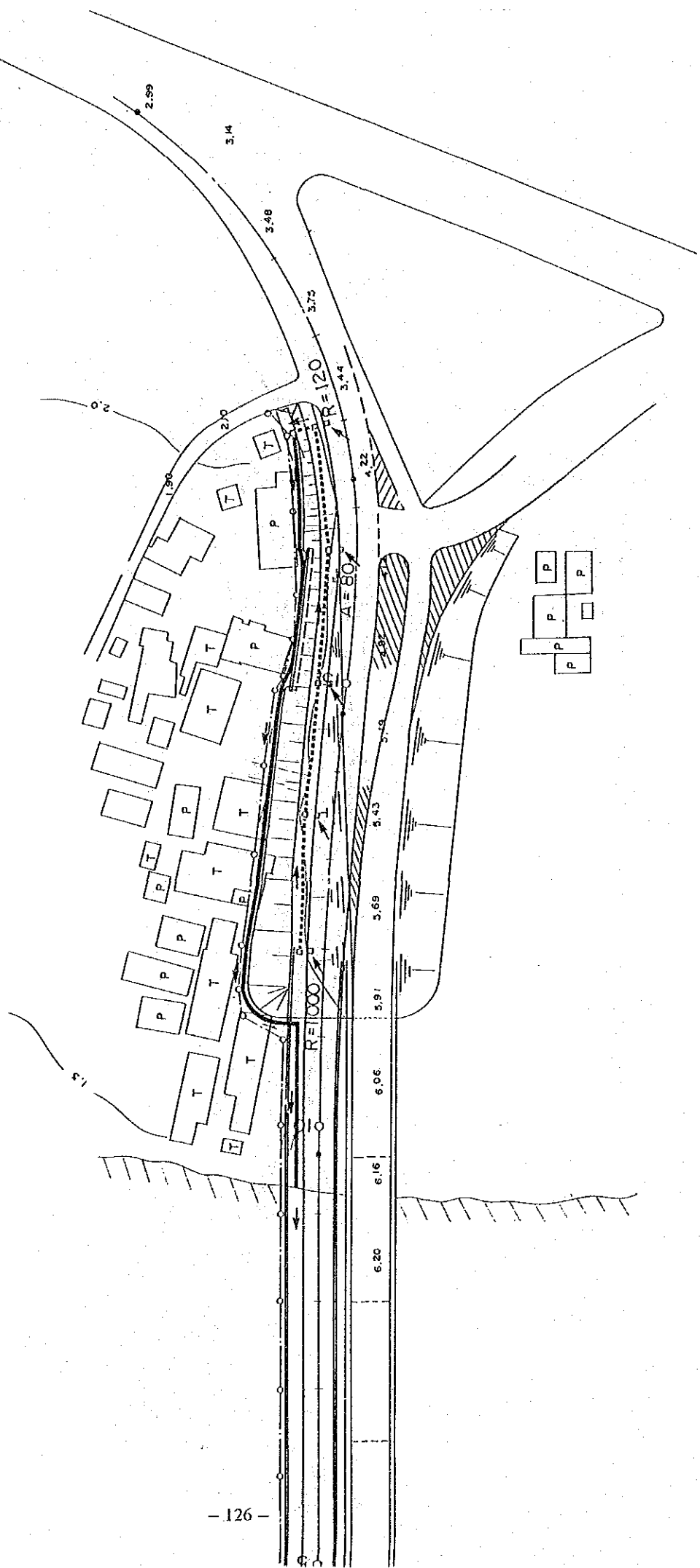
GH = 4.76
FH = 4.726



Proposed Drainage System Of The Approach Road (Colombo Side)

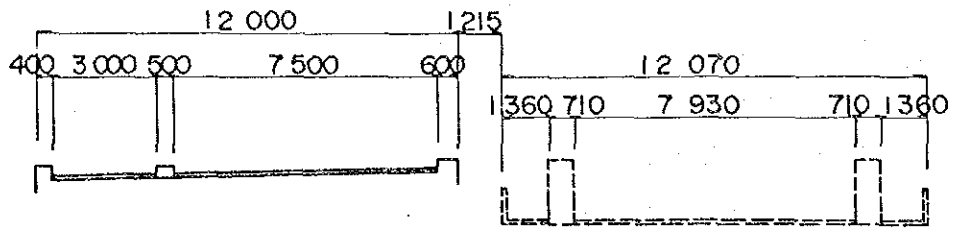


Proposed Drainage System Of The Approach Road (Peliyagoda Side)

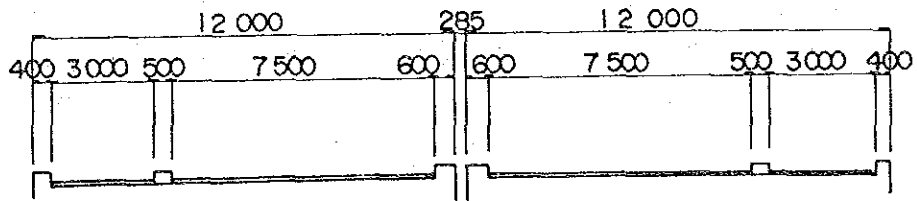


段階施工図

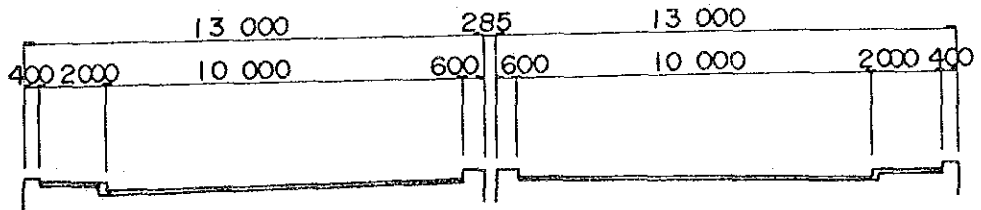
Phase I



Phase II



Phase III



2. 2 資料リスト

1. ANNUAL REPORT FOR THE YEAR 1986 (RDA)
2. " 1987 (")
3. BUDGET ESTIMATE-1989、1988、1987
4. DAYWORK RATES AND ELEMENTS
5. KALUTARA BRIDGES PROJECT SRILANKA
使用機材賃貸資料
6. コロンボ気象データ
7. コンクリート製品単価
9. MANUFACTURES ANALYSIS & TEST CERTIFICATE
10. UTILITY 平面図
11. DRAFT STANDARD SPECIFICATION FOR CONSTRUCTION AND MAINTENANCE OF ROADOS BRIDGES
12. SRI LANKA ROAD BRIDGE REHABILITATION PROJECT TENPER DOCUMENTS
13. SRI LANKA ROAD AND BRIDGE REHABILITATION PROJECT BILL OF QUANTITIES
(FINANCE BY THE INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT)
14. PUBLIC UTILITY SERVICE TO BE LAID ON BRIDGE

JICA

