

FEASIBILITY STUDY OF BANGKOK SEWERAGE SYSTEM PROJECT

(SUB - ZONE 2 - A)

IN

KINGDOM OF THAILAND

VOLUME III

DRAWINGS

JULY 2525 (1982)

JAPAN INTERNATIONAL COOPERATION AGENCY

SDS

~~82-114~~
82-114 (3/3)

FEASIBILITY STUDY
OF
BANGKOK SEWERAGE SYSTEM PROJECT
(SUB-ZONE 2-A)
IN
KINGDOM OF THAILAND

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Guide to the Reports

The Reports consist of the following:

- VOLUME I : SUMMARY REPORT
- VOLUME II : MAIN REPORT
- VOLUME III : DRAWINGS

VOLUME III
DRAWINGS

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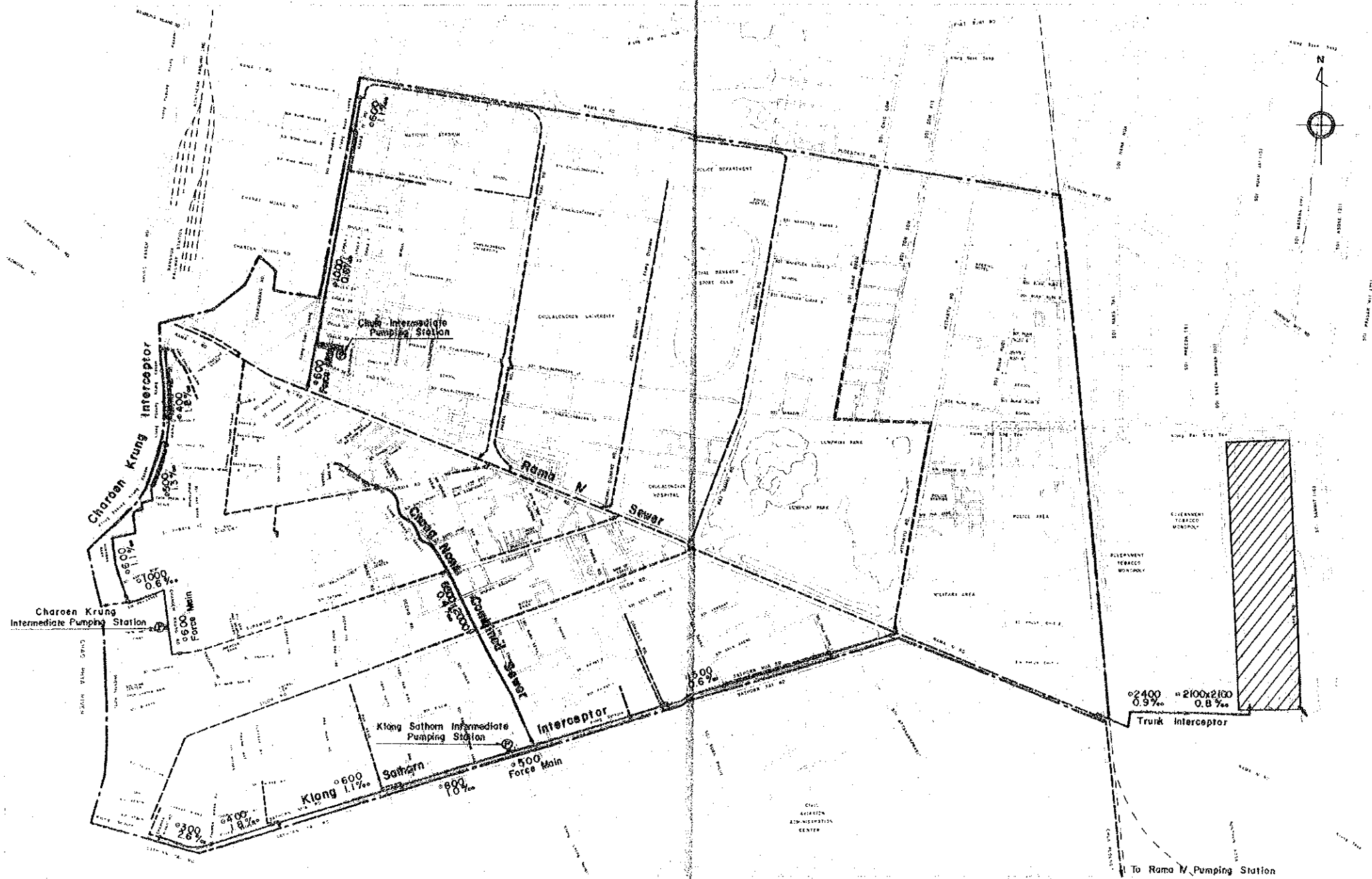
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No. 13757

122
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受入 月日	84. 9. 24
登録No.	09867
	122 61.8 SDS



SCALE 1: 10,000

- LEGEND**
- Boundary of Study Area
 - Proposed Sewer
 - - - Existing Sewer
 - ⊙ Proposed Intermediate Pumping Station
 - ⊙ Proposed Treatment Plant
 - ⊙ Sewer Diameter in mm
 - 1.0% Slope (VERT. 1 : HORT. 1000)

FEASIBILITY STUDY FOR BANGKOK SEWERAGE SYSTEM PROJECT (SUB-ZONE 2-A) IN KINGDOM OF THAILAND	
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PLAN OF PROPOSED SEWERAGE SYSTEM	FIGURE 1

SCALE 1: 5,000



- LEGEND**
- Boundary of Study Area
 - Proposed Sewer
 - - - Existing Sewer
 - (P) Proposed Intermediate Pumping Station
 - ▨ Proposed Treatment Plant
 - 400 Diameter (mm)
 - 1.8 Sewer Slope (%)
 - 295 Length (m)
 - ▭ Tributary Area
 - Diversion Chamber
 - Type I Manhole
 - Type II Manhole
 - Type N Manhole
 - Special Manhole

FEASIBILITY STUDY FOR BANGKOK
SEWERAGE SYSTEM PROJECT (SUB-ZONE 2-A)
IN KINGDOM OF THAILAND

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TOKYO, JAPAN

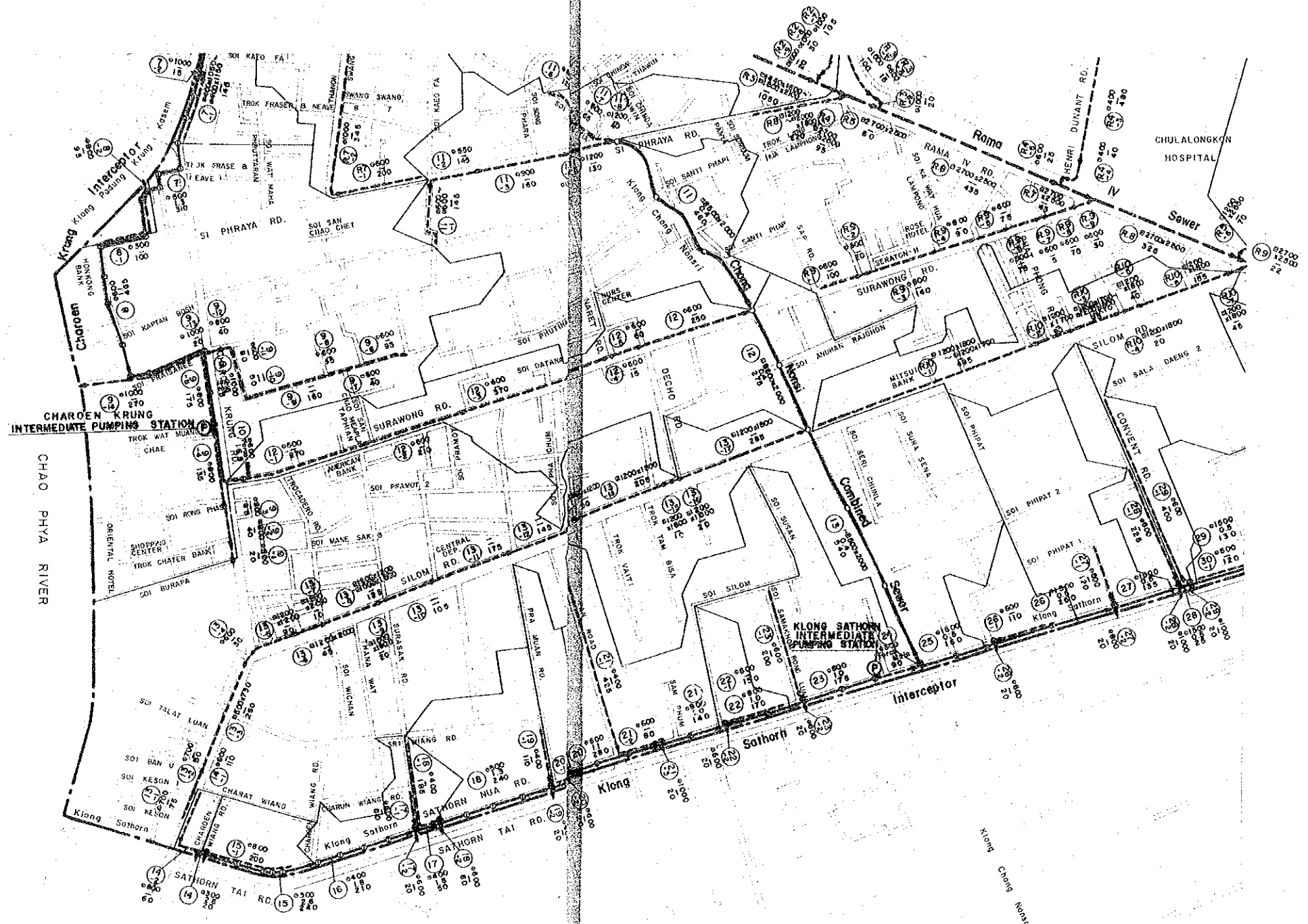
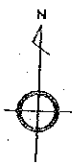
PLAN OF PROPOSED SEWERAGE SYSTEM **FIGURE 2**



SCALE 1: 5,000

- LEGEND**
- Boundary of Study Area
 - Proposed Sewer
 - - - Existing Sewer
 - (P) Proposed Intermediate Pumping Station
 - [Hatched Box] Proposed Treatment Plant
 - 400 Sewer Diameter (mm)
 - 1.8 No. Slope (‰)
 - 295 Length (m)
 - △ Tributary Area
 - Diversion Chamber
 - Type I Manhole
 - Type II Manhole
 - Type III Manhole
 - Type IV Manhole
 - Special Manhole.

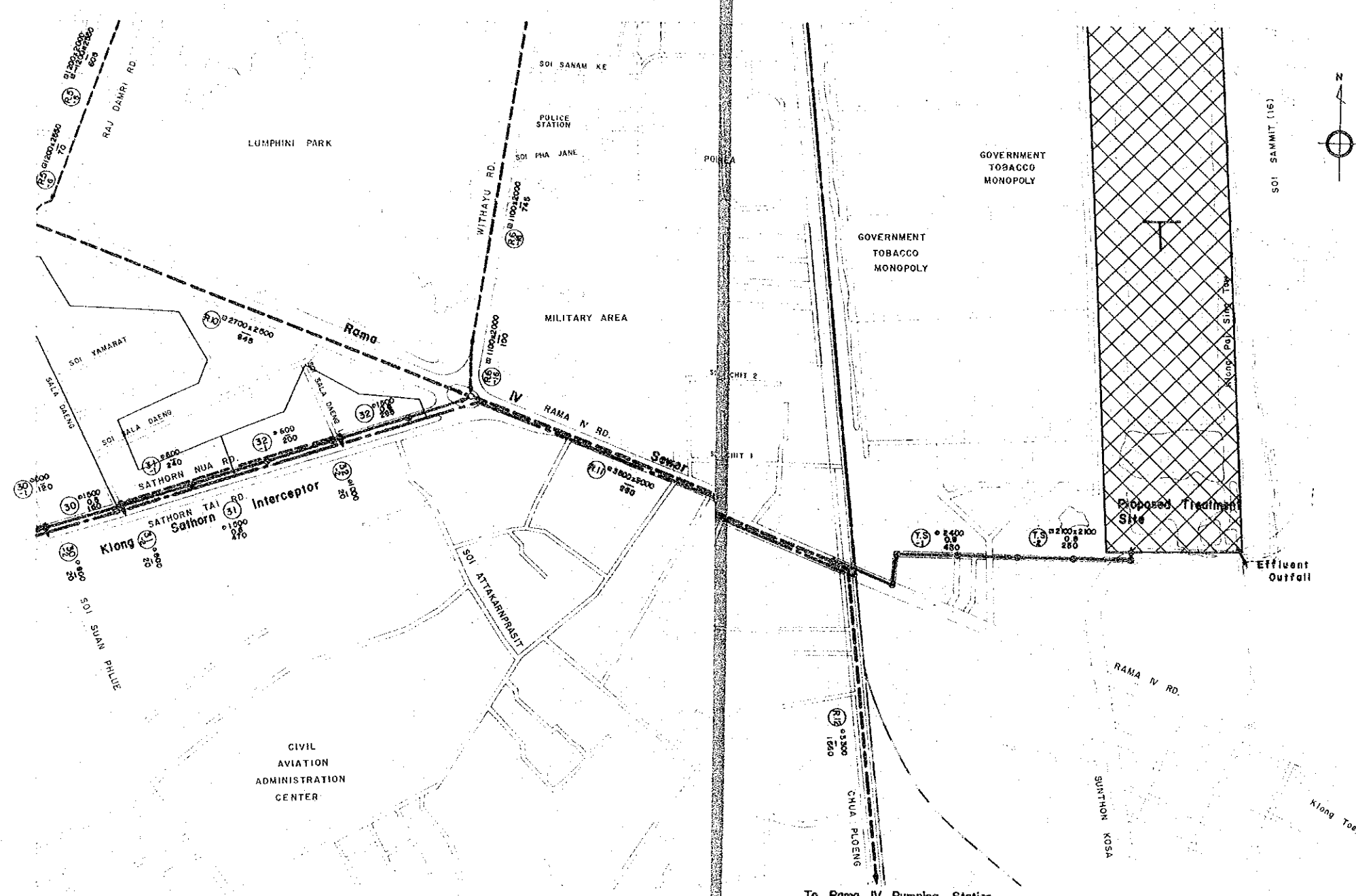
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PLAN OF PROPOSED SEWERAGE SYSTEM	FIGURE 3



SCALE 1:5,000

- LEGEND**
- Boundary of Study Area
 - Proposed Sewer
 - - - Existing Sewer
 - Ⓟ Proposed Intermediate Pumping Station
 - ▨ Proposed Treatment Plant
 - 400 Diameter (mm)
 - ⑤ 1.8 No. Slope (%)
 - 295 Length (m)
 - ▨ Tributary Area
 - Diversion Chamber
 - ⊙ Type I Manhole
 - ⊙ Type II Manhole
 - ⊙ Type III Manhole
 - ⊙ Type N Manhole
 - Special Manhole

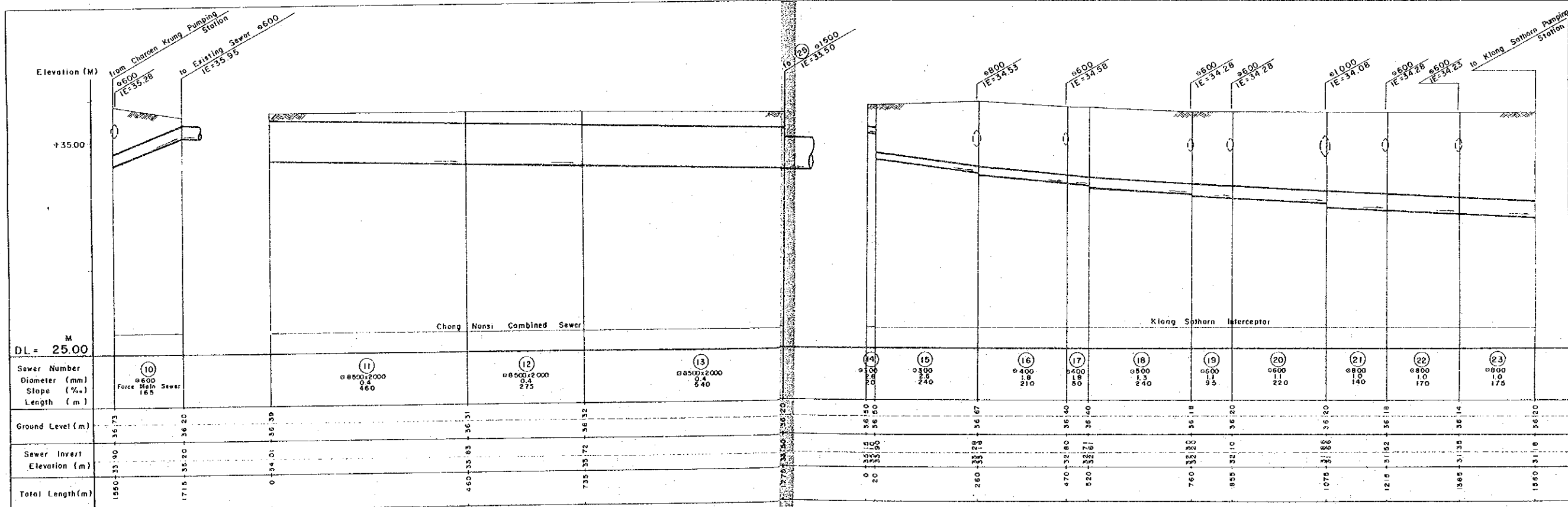
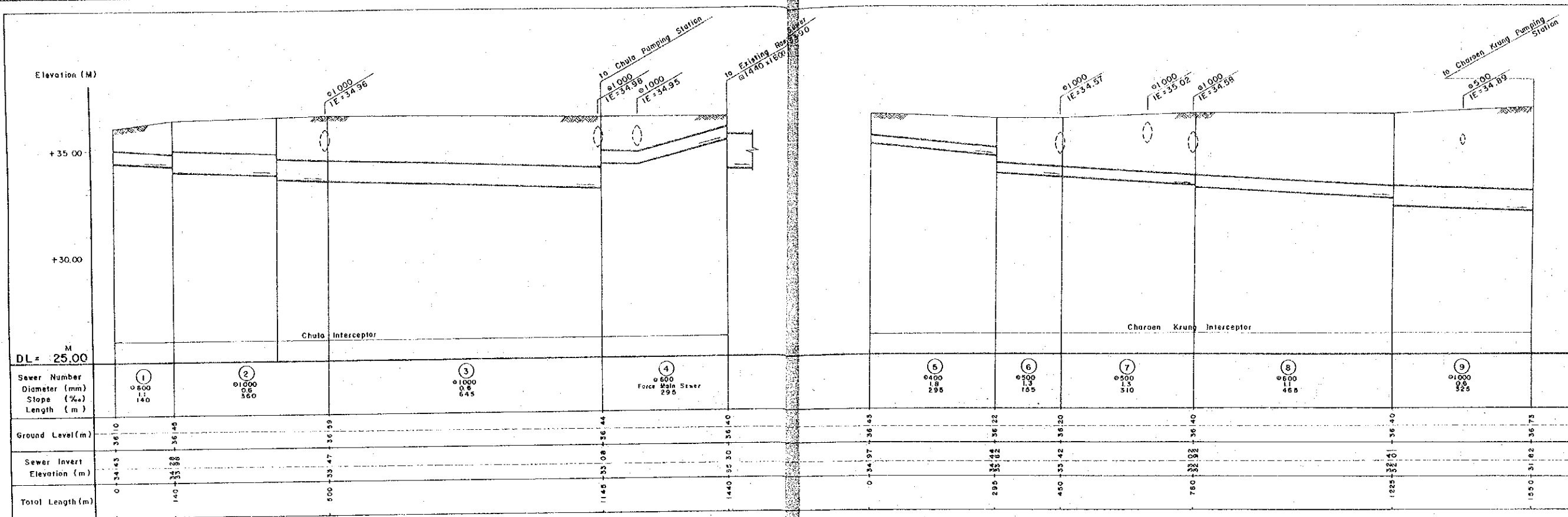
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PLAN OF PROPOSED SEWERAGE SYSTEM	FIGURE 4



SCALE 1 : 5,000

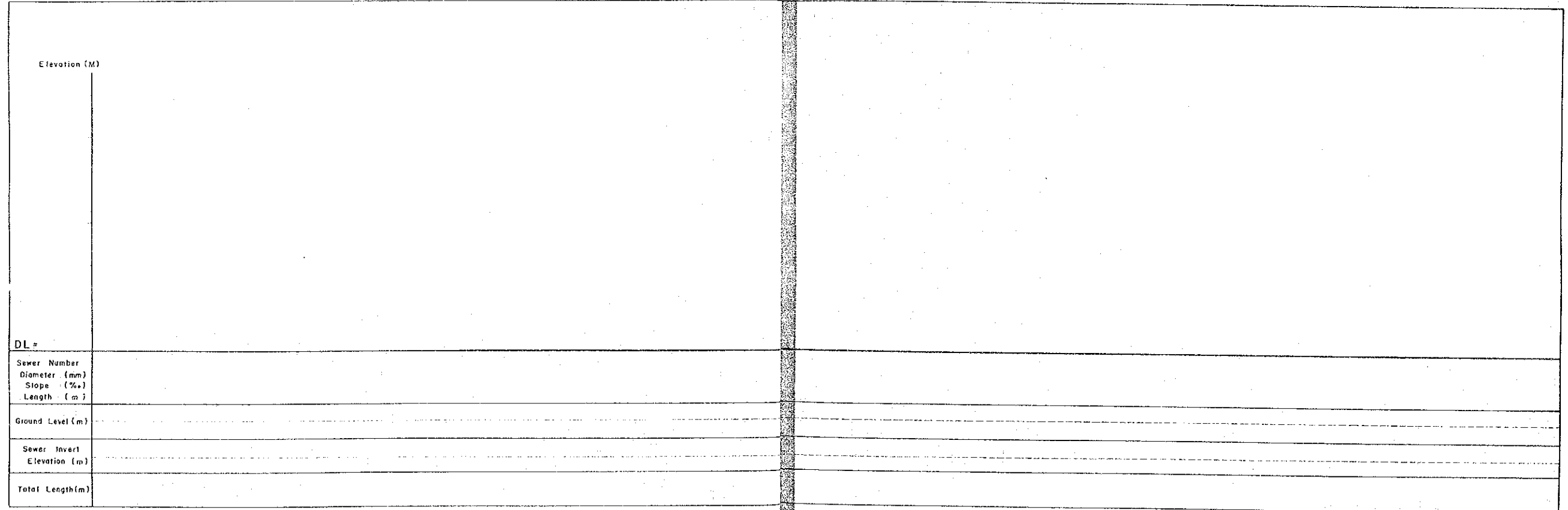
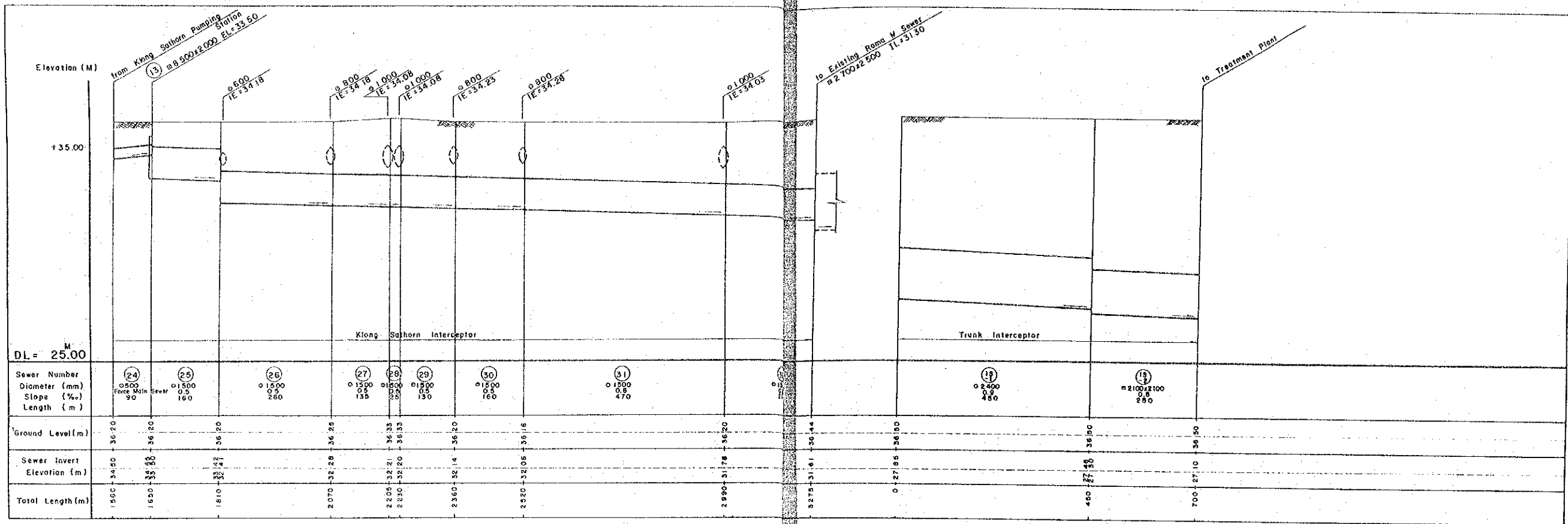
- LEGEND**
- Boundary of Study Area
 - Proposed Sewer
 - - - Existing Sewer
 - (P) Proposed Intermediate Pumping Station
 - ▨ Proposed Treatment Plant
 - 400 Diameter (mm)
 - 5 1.8 Sewer Slope (%)
 - 295 Length (m)
 - ▭ Tributary Area
 - Diversion Chamber
 - Type I Manhole
 - Type II Manhole
 - Type III Manhole
 - Type IV Manhole
 - Special Manhole

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PLAN OF PROPOSED SEWERAGE SYSTEM	FIGURE 5



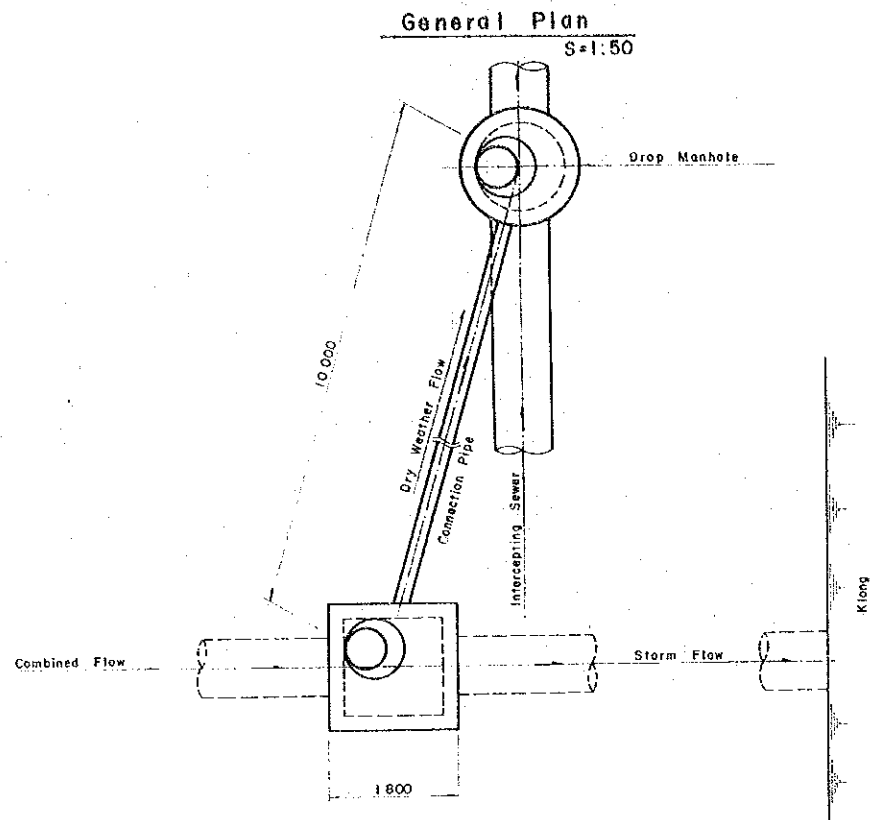
SCALE
 HORIZONTAL 1:5,000
 VERTICAL 1:100

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 JAPAN INTERNATIONAL COOPERATION AGENCY / NIHON SUIDO CONSULTANTS CO., LTD. TOKYO, JAPAN
 PROFILE OF PROPOSED SEWERS
 FIGURE 6



SCALE
 HORIZONTAL 1: 5,000
 VERTICAL 1: 100

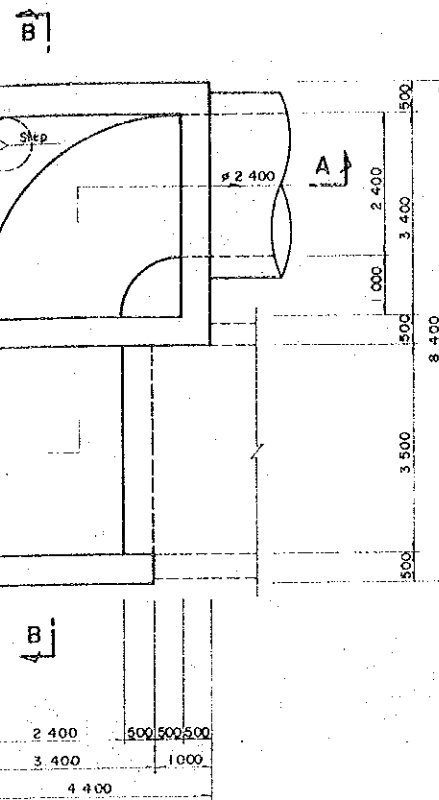
Diversion Chamber of Over-flow Weir Type



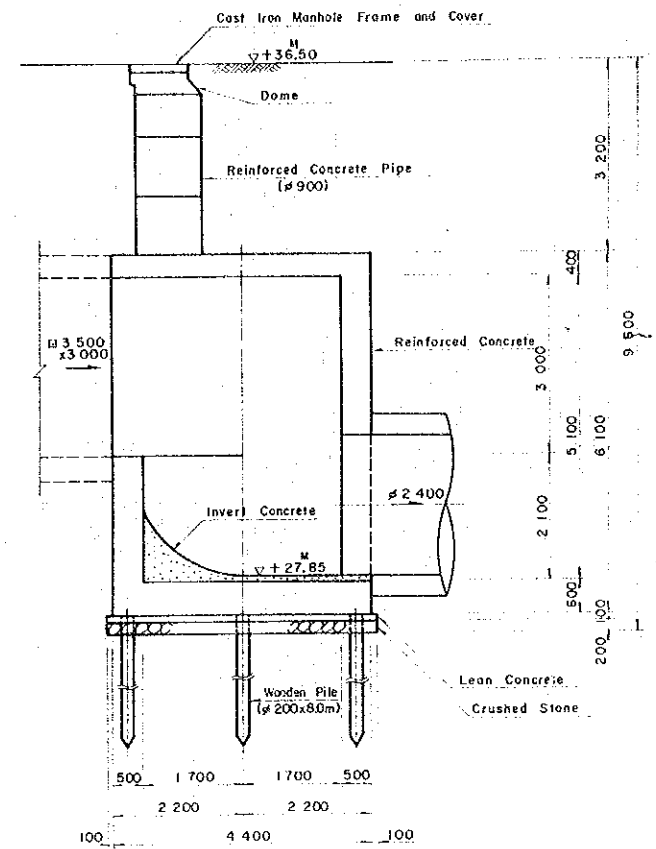
Diversion Chamber of Leaping Weir Type

S=1:60

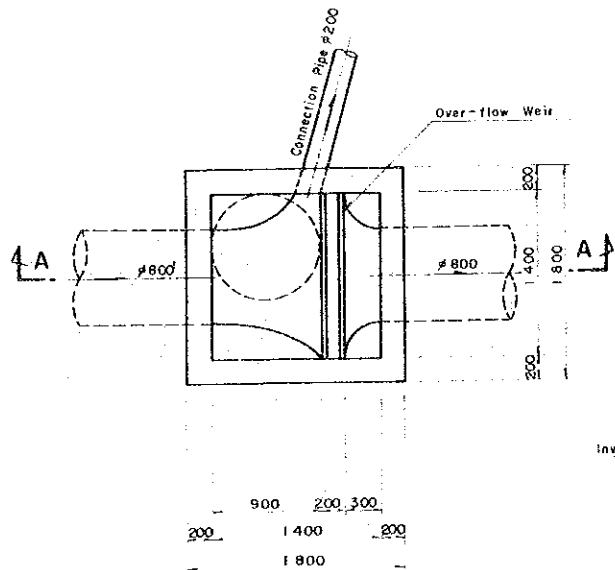
Plan



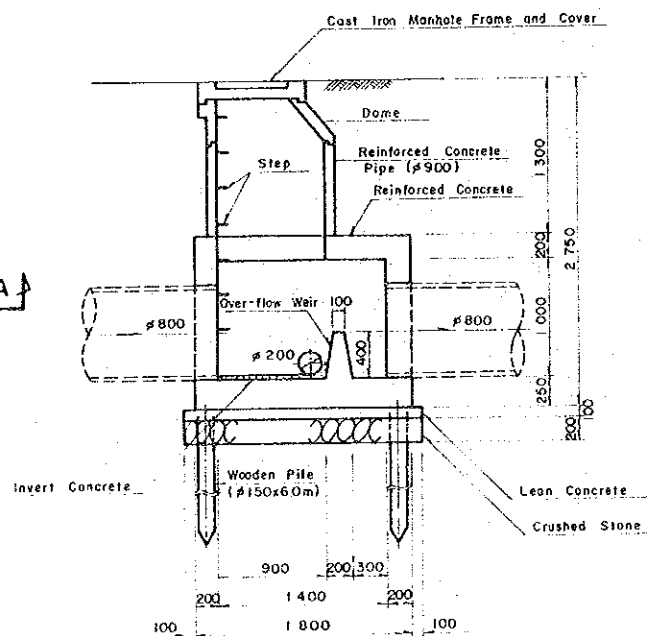
Section A-A



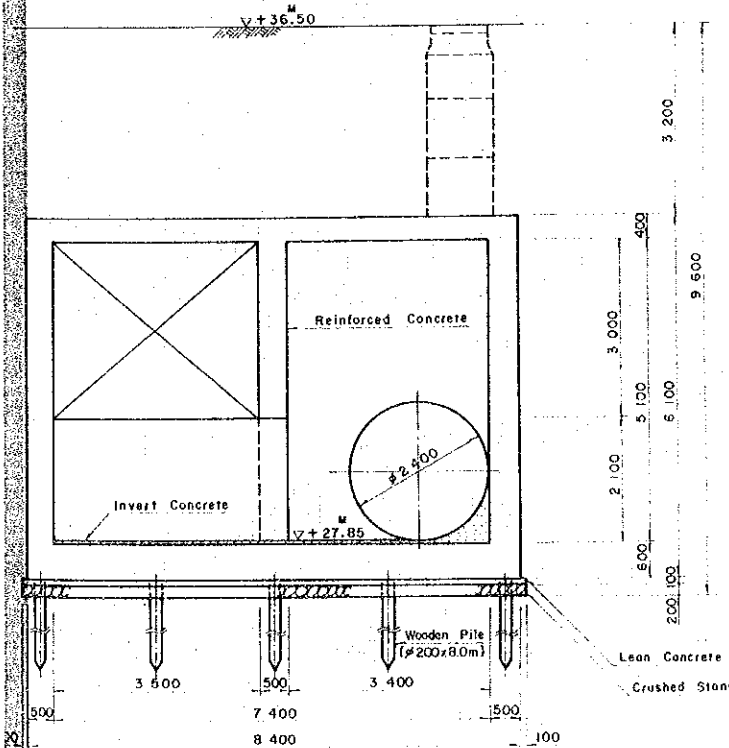
Plan
S=1:30



Section A-A
S=1:30



Section B-B



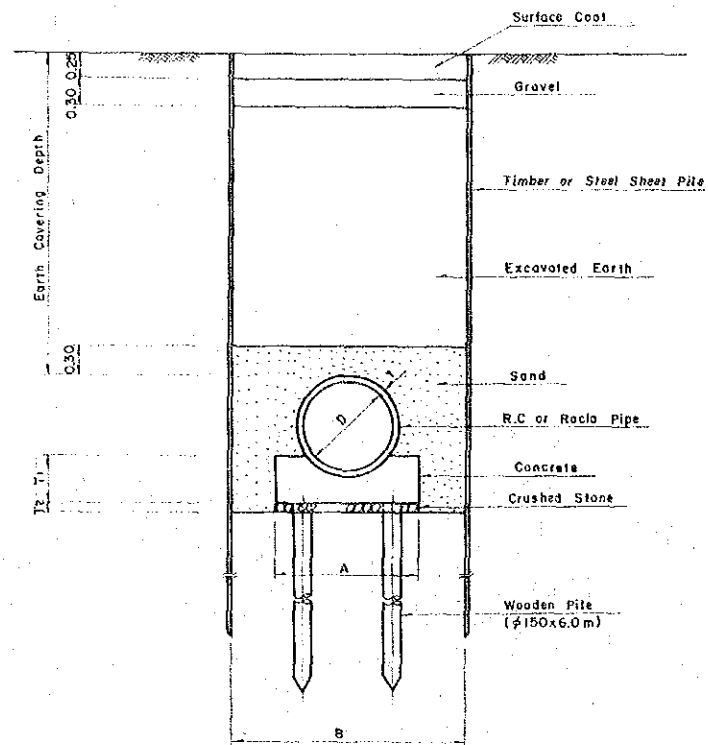
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TOKYO, JAPAN

STANDARDIZED STRUCTURES FOR SEWER FACILITIES
FIGURE 8

Typical Concrete Pipe Bedding in Trench

non scale

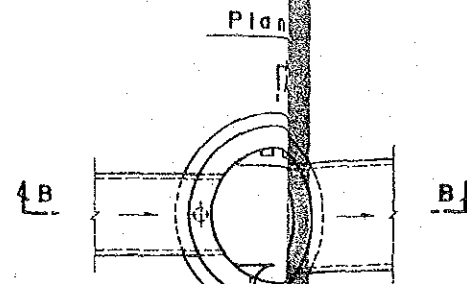


(unit : meter)

D	r	A	B	T ₁	T ₂
0.30	0.05	0.50	1.10	0.25	0.05
0.40	0.06	0.80	1.10	0.30	0.05
0.50	0.06	0.80	1.20	0.30	0.05
0.60	0.07	0.90	1.35	0.35	0.05
0.80	0.085	1.20	1.60	0.50	0.05
1.00	0.095	1.40	1.95	0.50	0.05
1.20	0.108	1.60	2.15	0.55	0.05
1.50	0.15	1.90	2.50	0.60	0.05

Manhole Structure

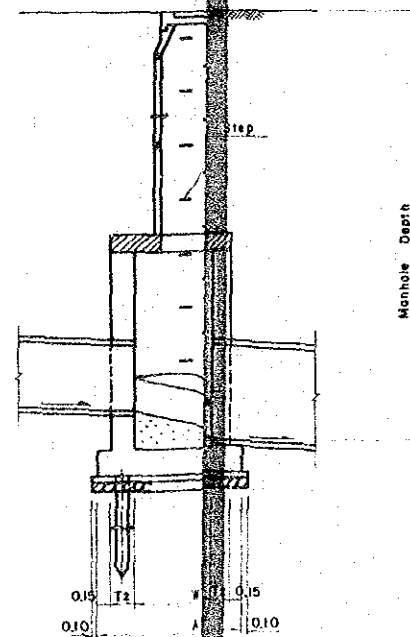
non scale



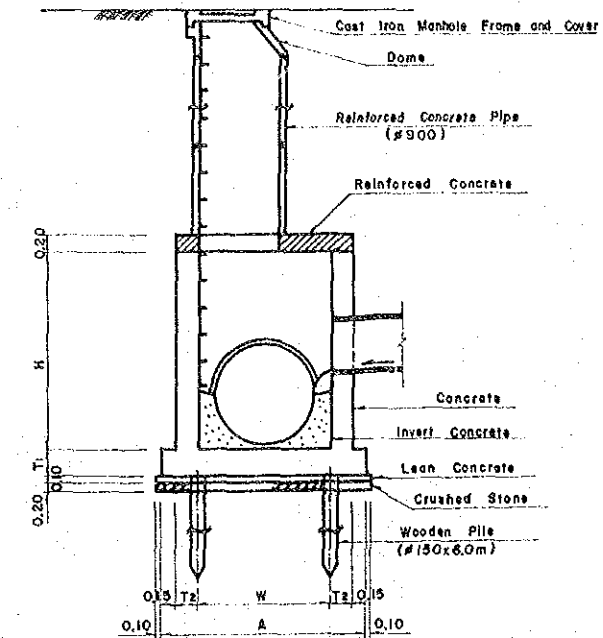
(unit : meter)

Type of Manhole	W	A	T ₁	T ₂
I	0.90	1.60	0.25	0.20
II	1.20	1.90	0.25	0.20
III	1.50	2.30	0.30	0.25
IV	1.80	2.60	0.30	0.25

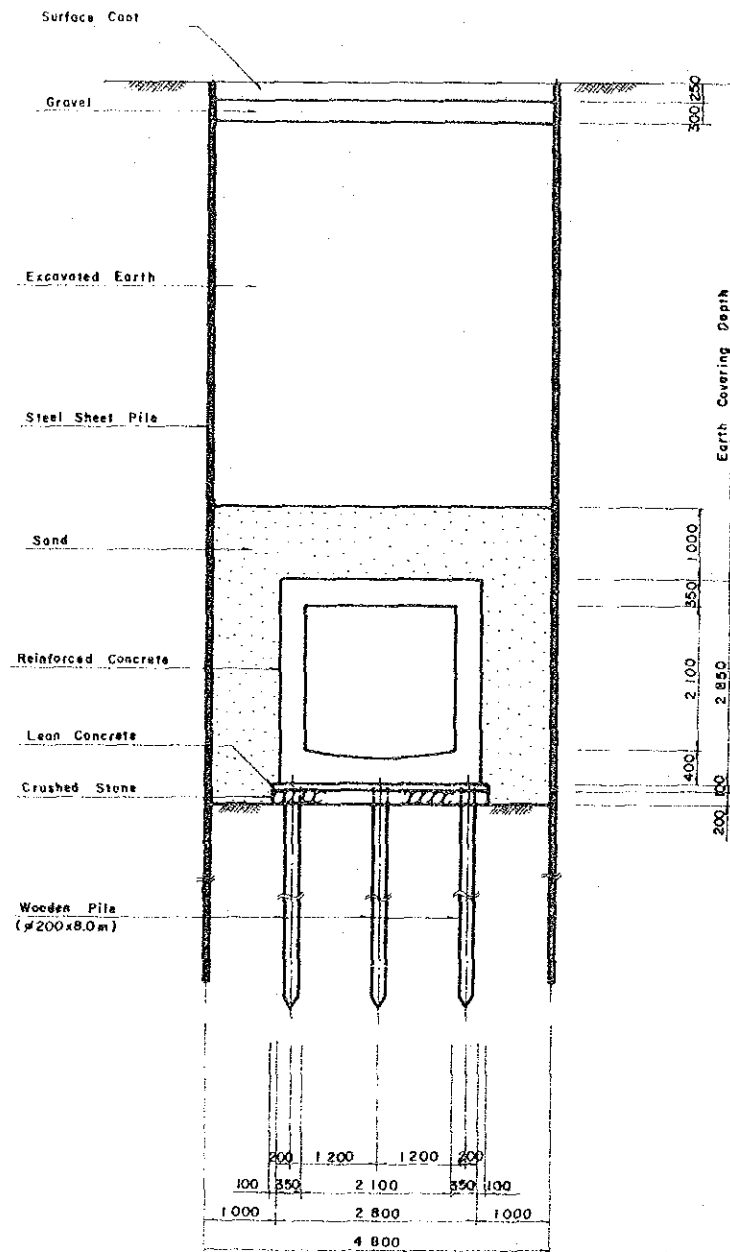
Section B



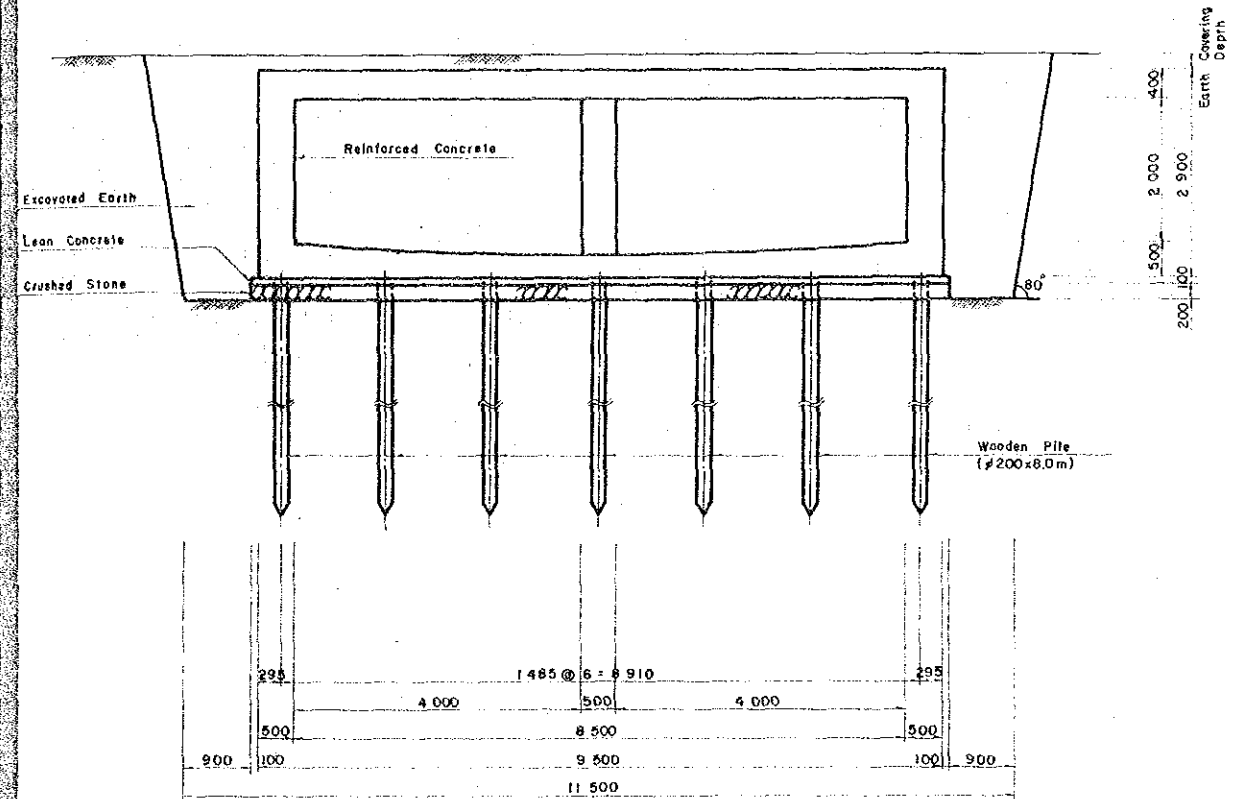
Section A-A



TRUNK INTERCEPTING SEWER
S=1:50



CHONG NONSI COMBINED SEWER
S=1:50



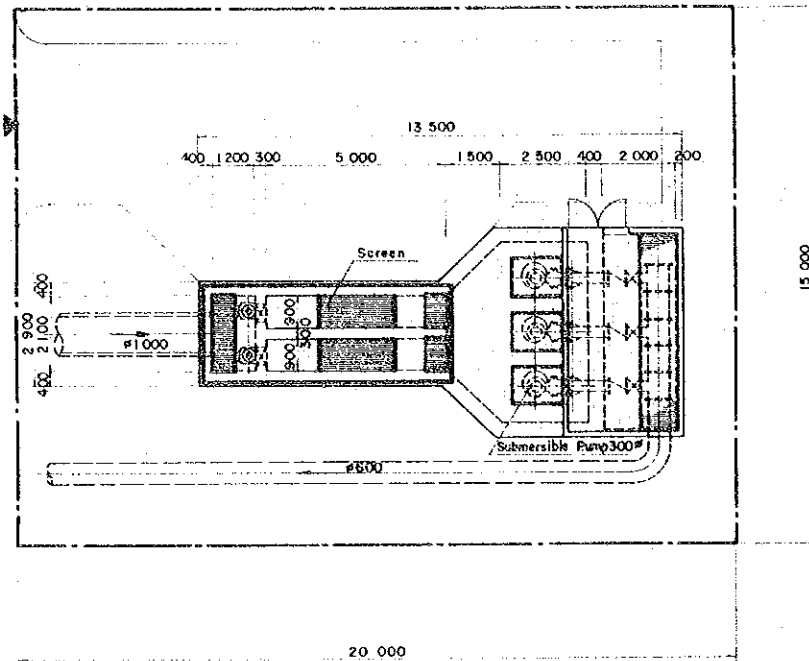
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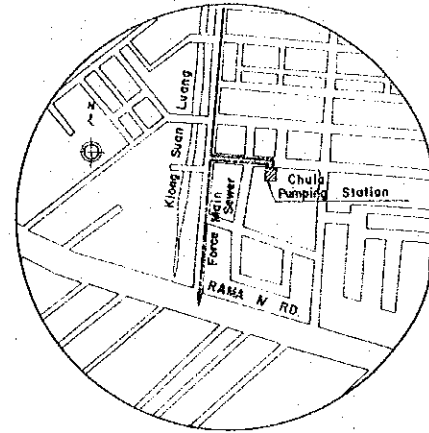
TRUNK INTERCEPTOR & CHONG NONSI COMBINED SEWER FIGURE 10

CHULA PUMPING STATION

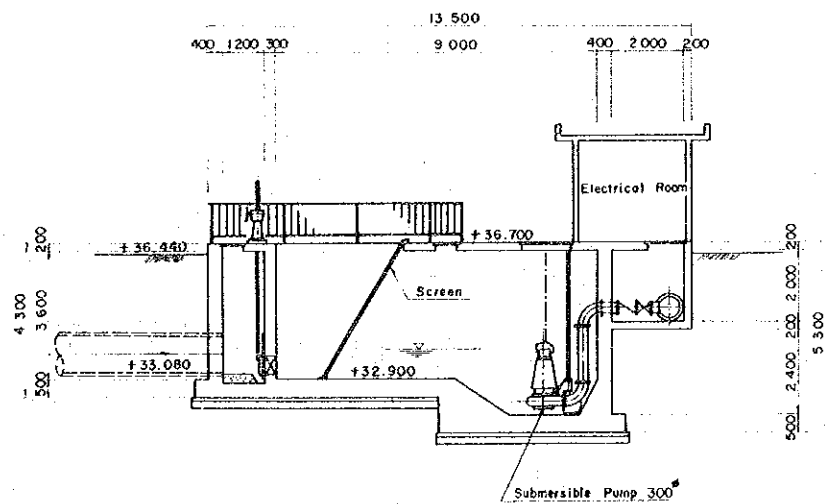
Plan
S=1:100



Location of Chula Pumping Station

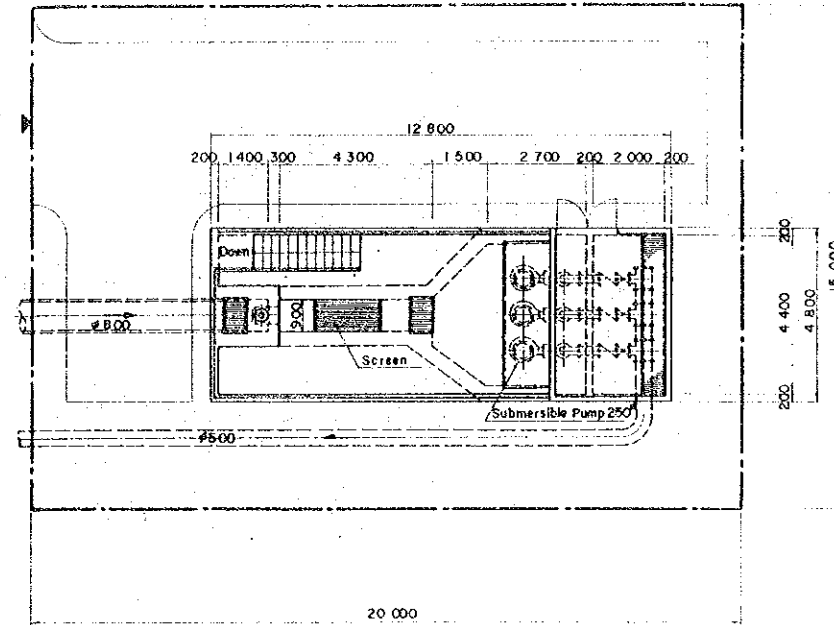


Section
S=1:100

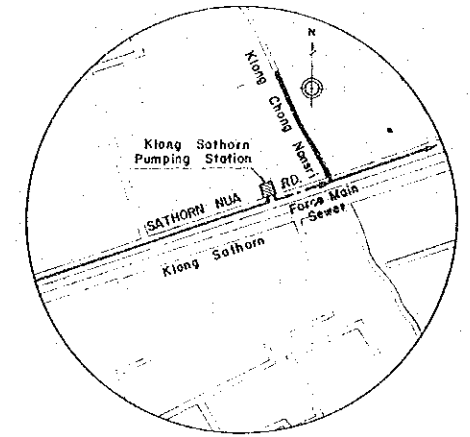


KLONG SATHORN PUMPING STATION

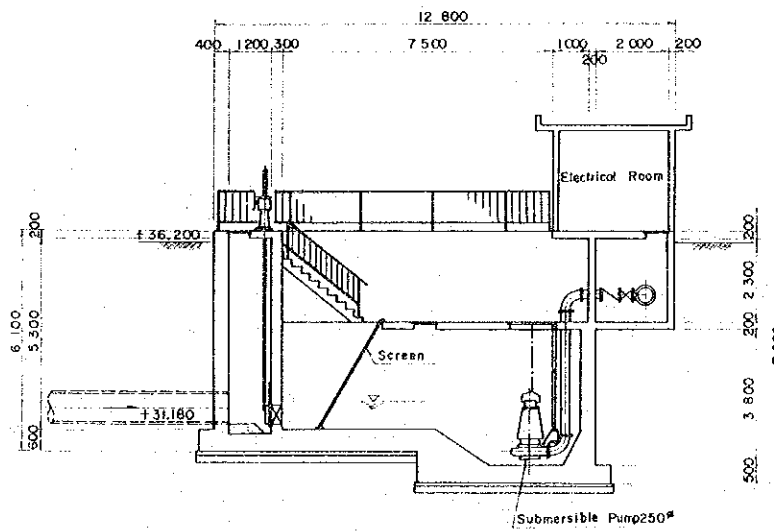
Plan
S=1:100



Location of Klong Sathorn Pumping Station

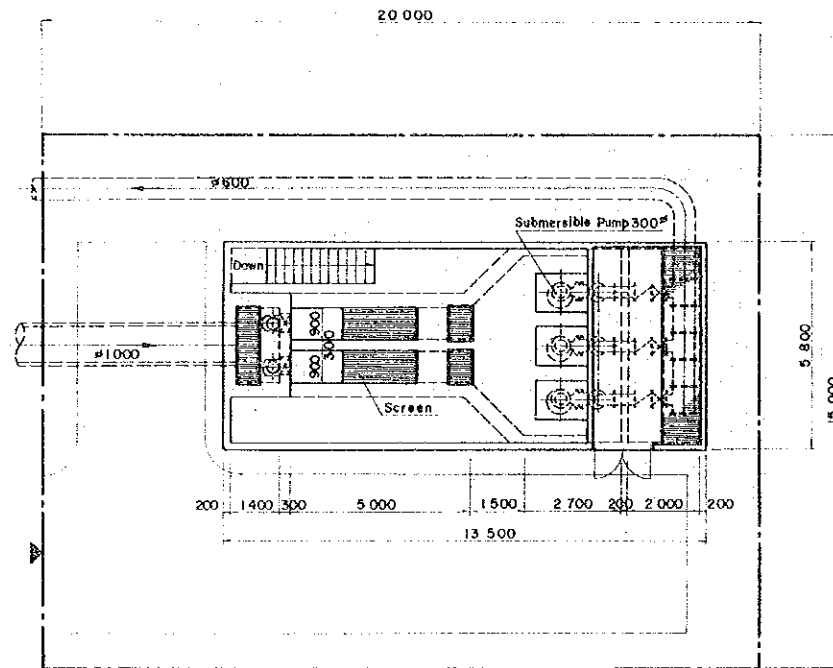


Section
S=1:100

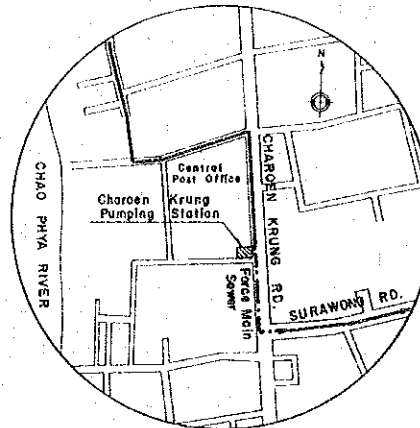


CHAROEN KRUNG PUMPING STATION

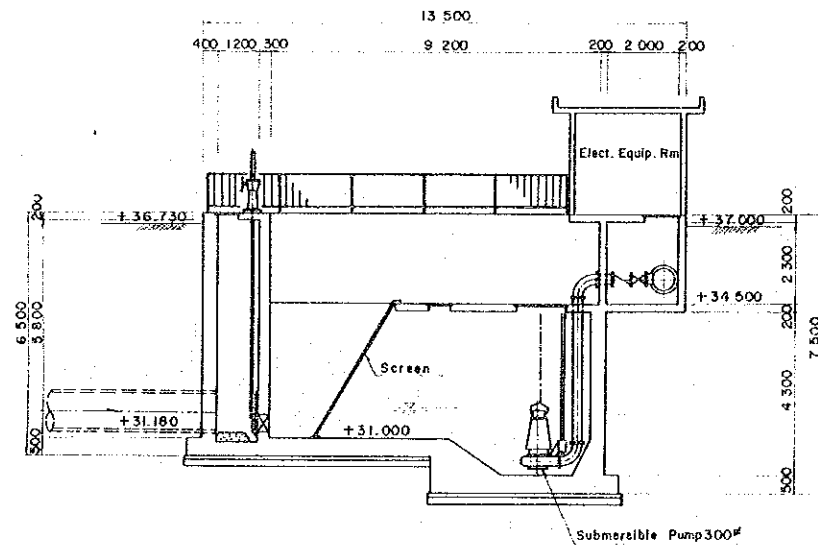
Plan
S=1:100



Location of Charoen Krung Pumping Station



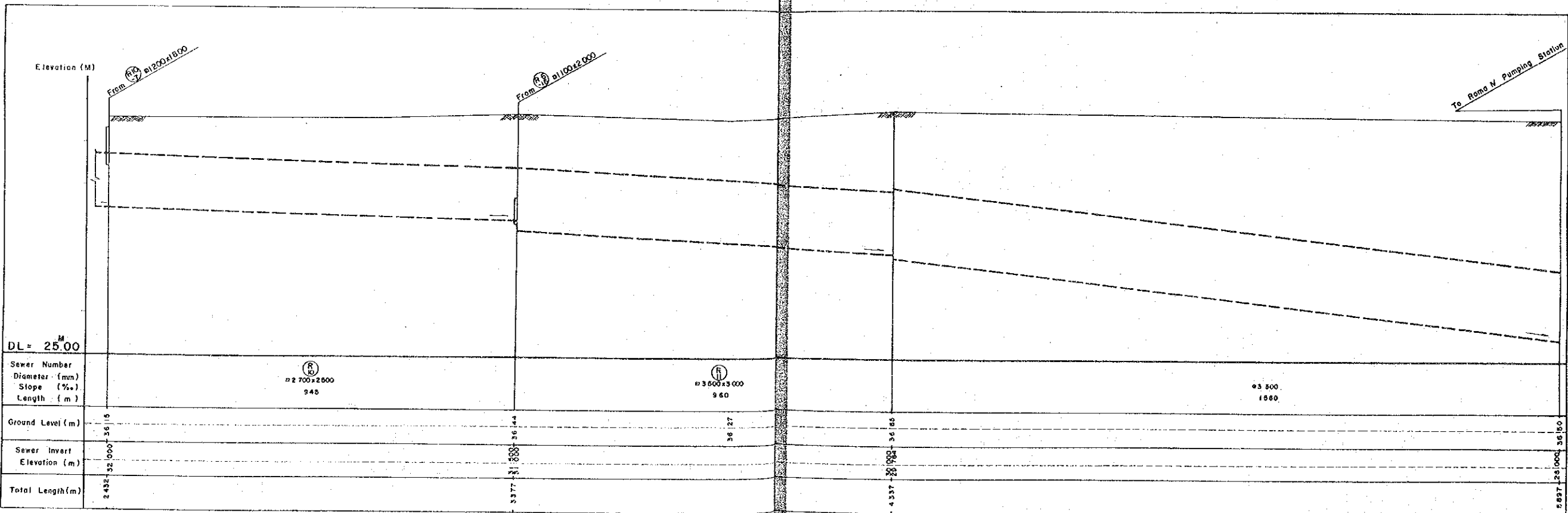
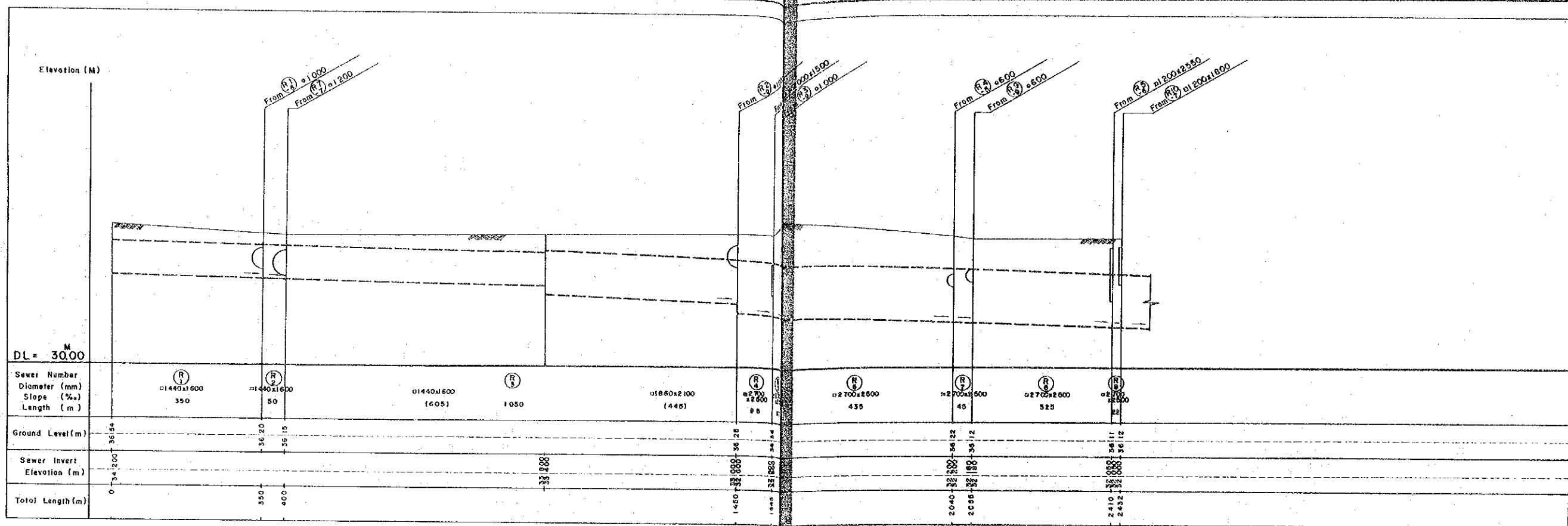
Section
S=1:100



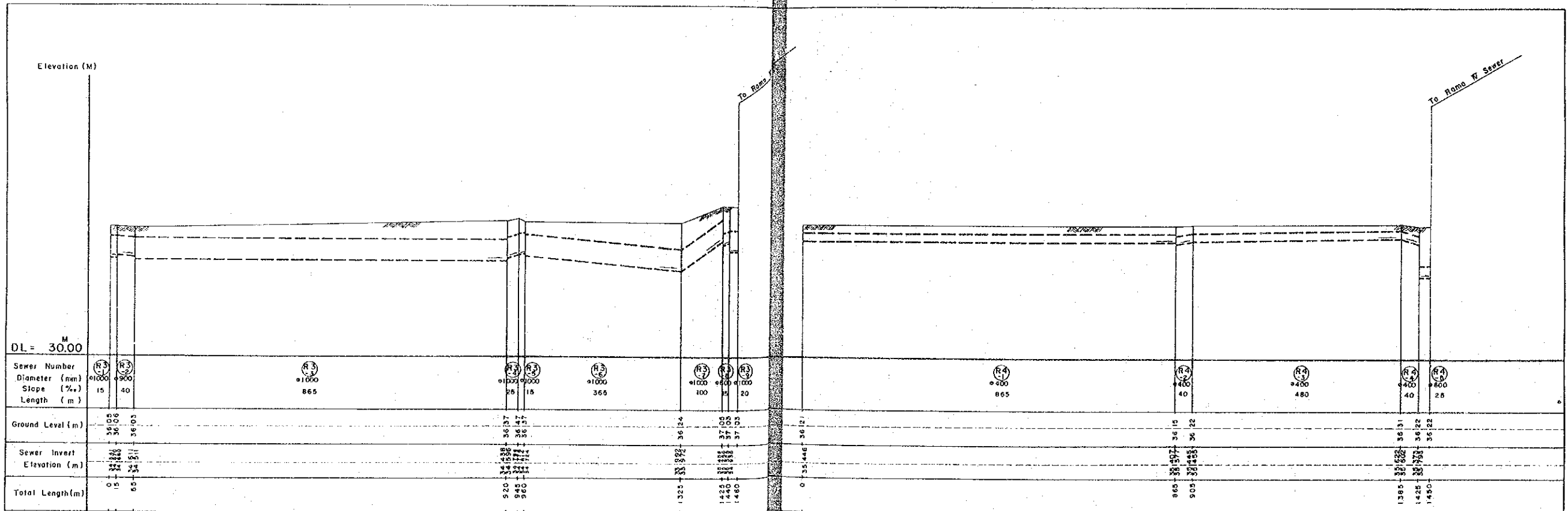
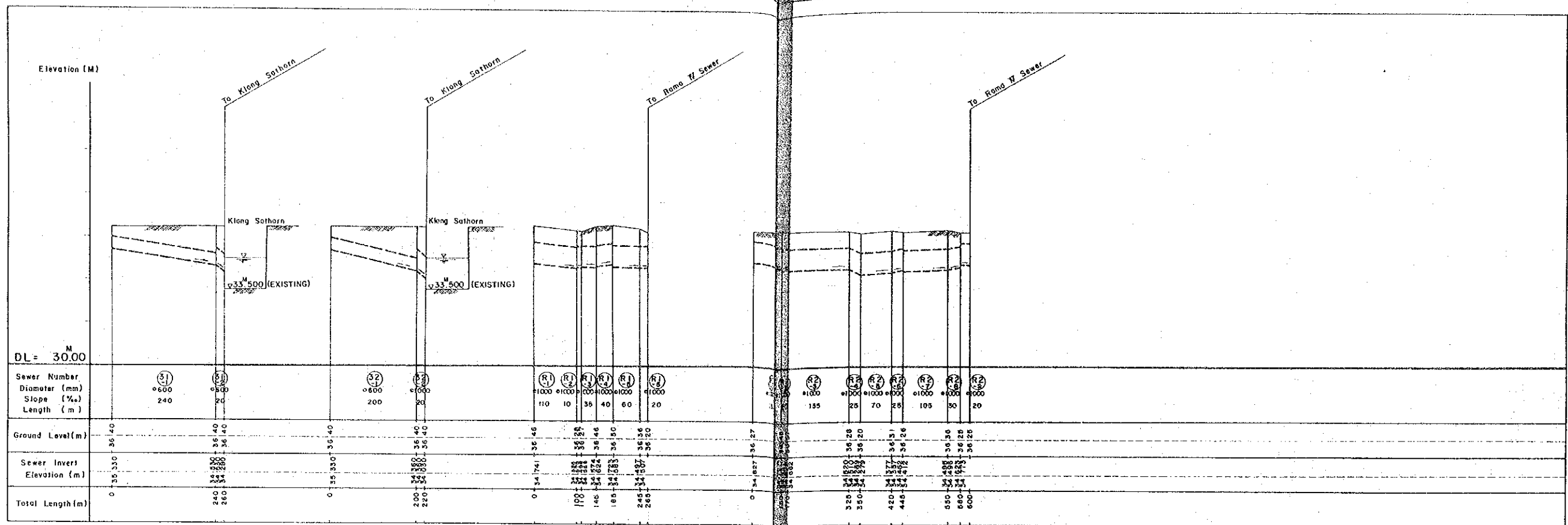
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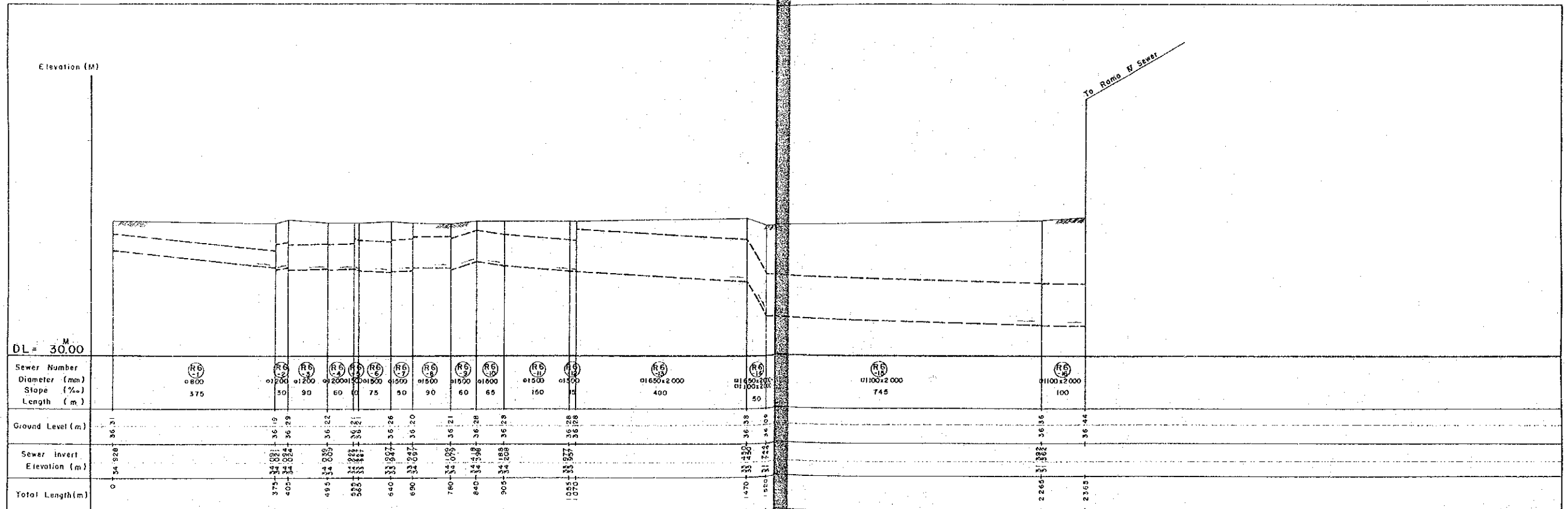
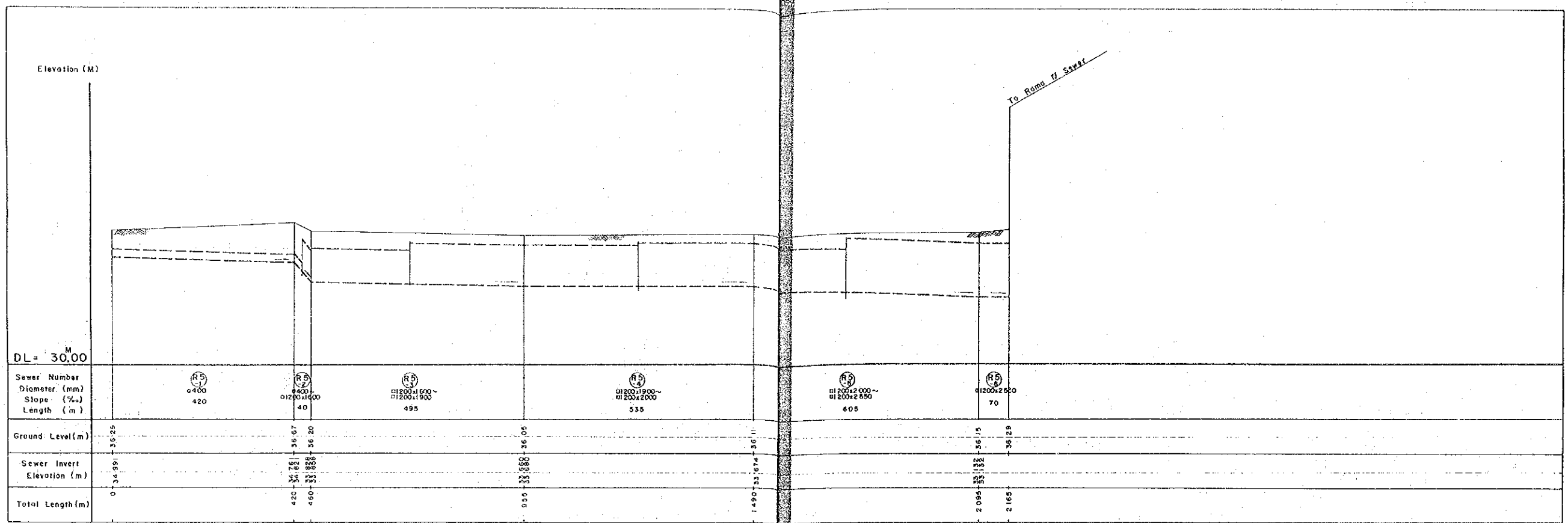
PLAN AND SECTION OF CHAROEN KRUNG PUMPING STATION
FIGURE 12



SCALE
 HORIZONTAL 1: 5,000
 VERTICAL 1: 100



SCALE
 HORIZONTAL 1: 5,000
 VERTICAL 1: 100



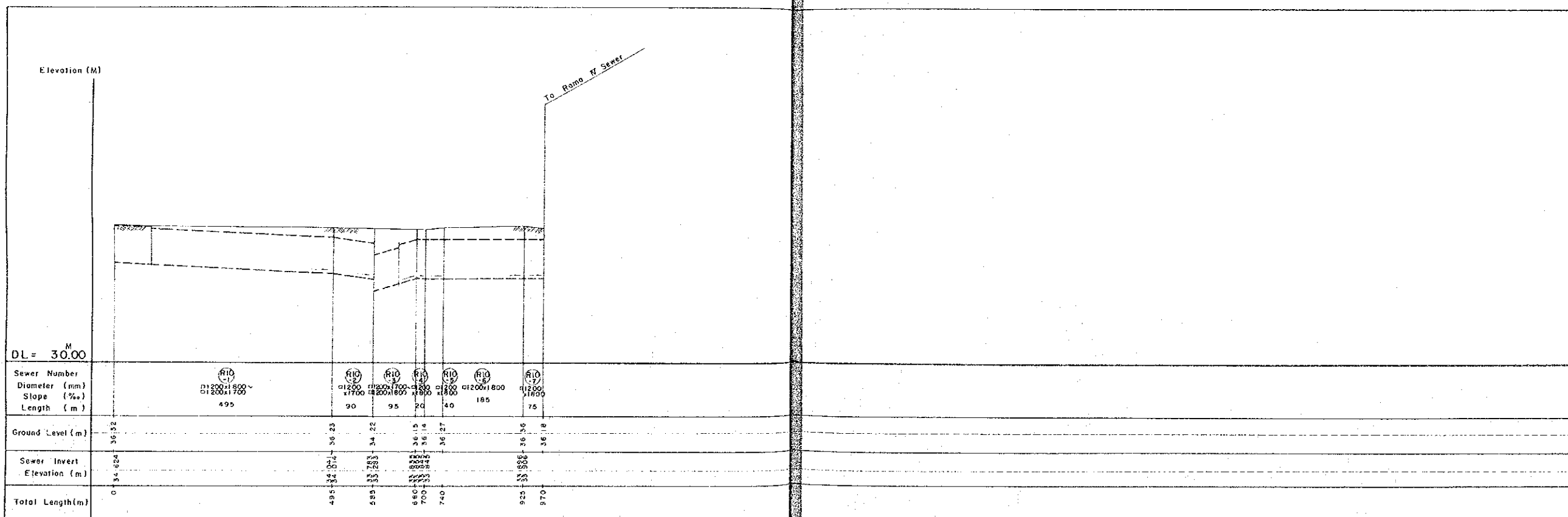
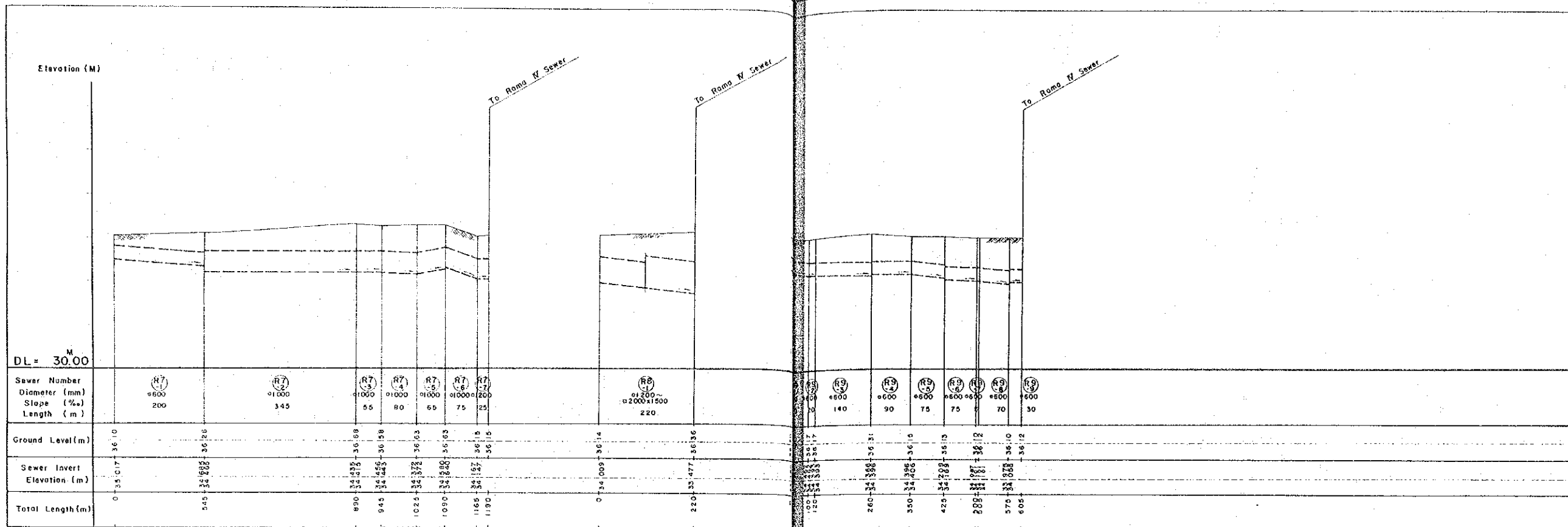
SCALE
 HORIZONTAL 1: 5,000
 VERTICAL 1: 100

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 IN KINGDOM OF THAILAND

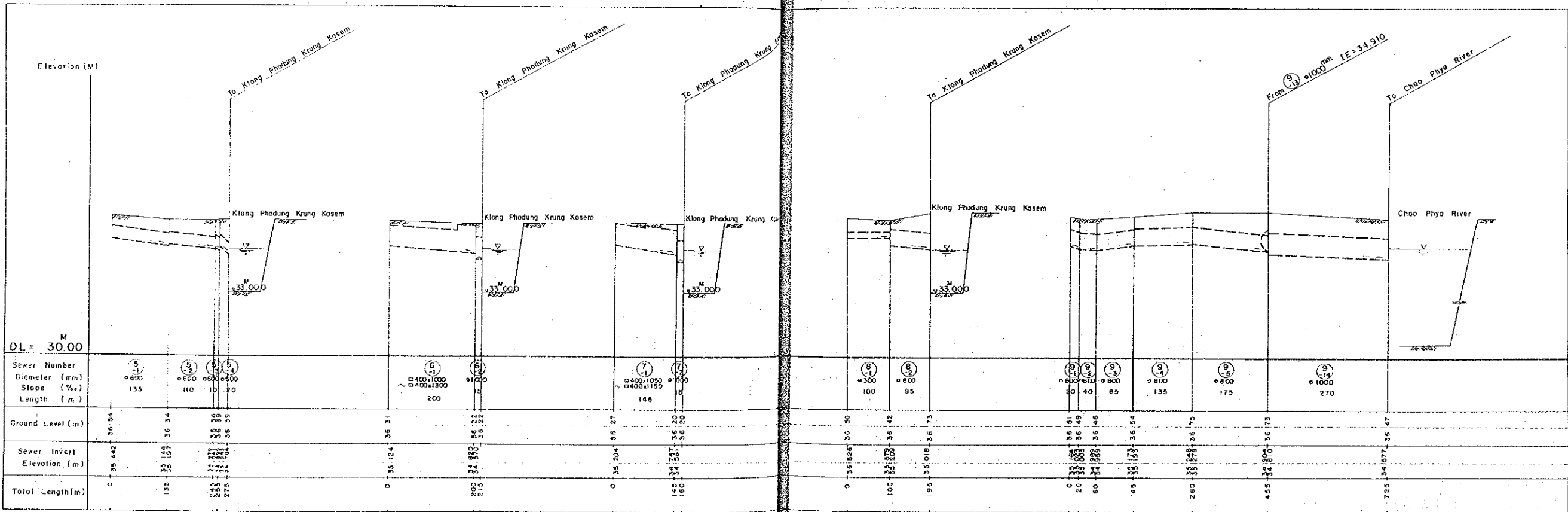
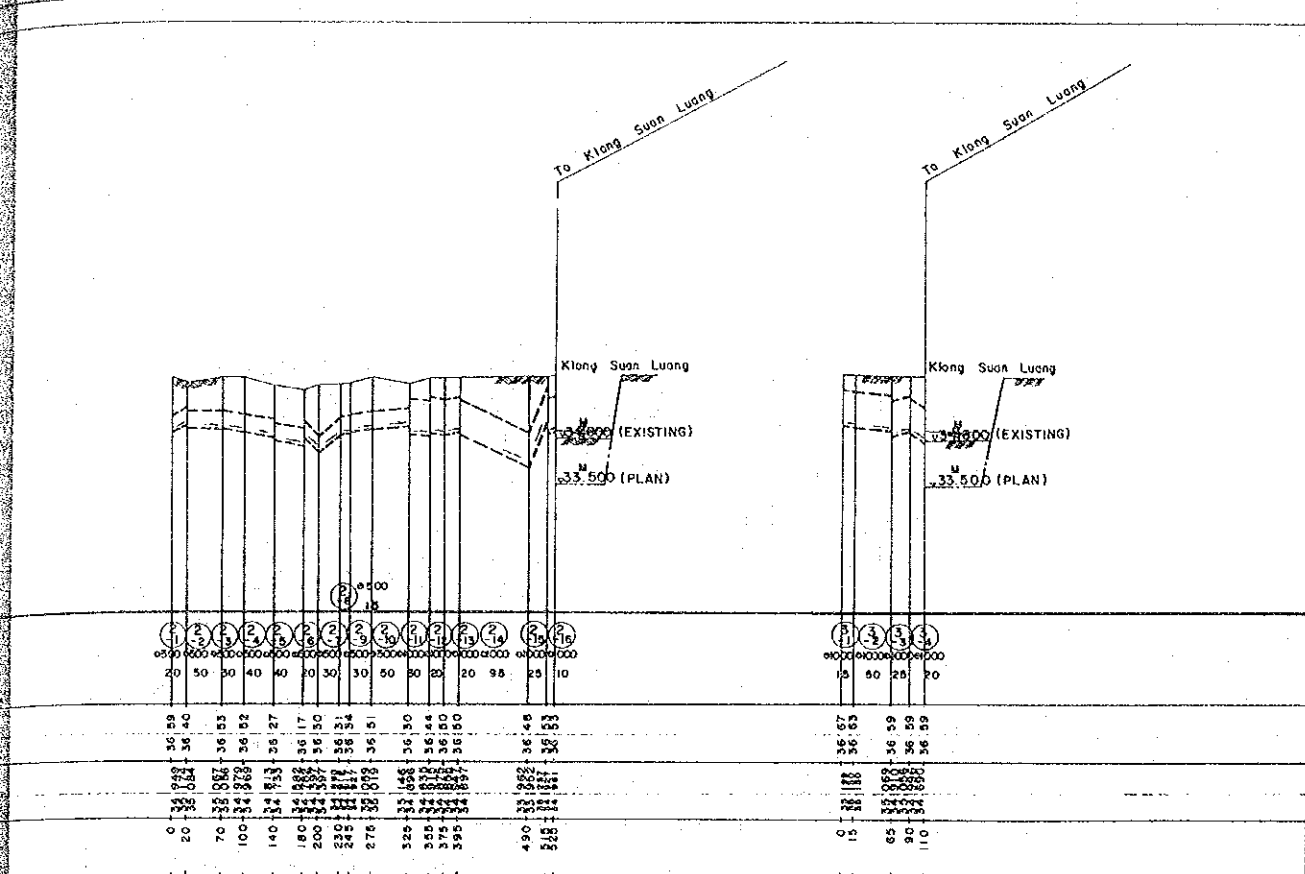
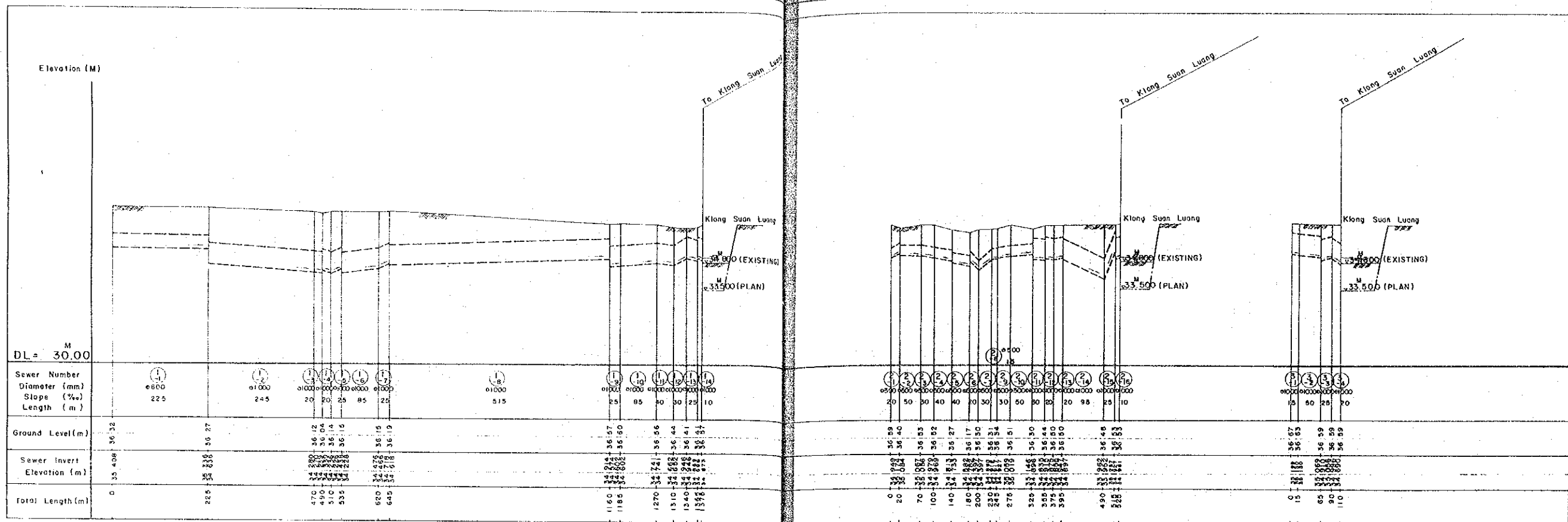
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 TOKYO, JAPAN

PROFILE OF EXISTING SEWERS

FIGURE 15



SCALE
 HORIZONTAL 1: 5,000
 VERTICAL 1: 100



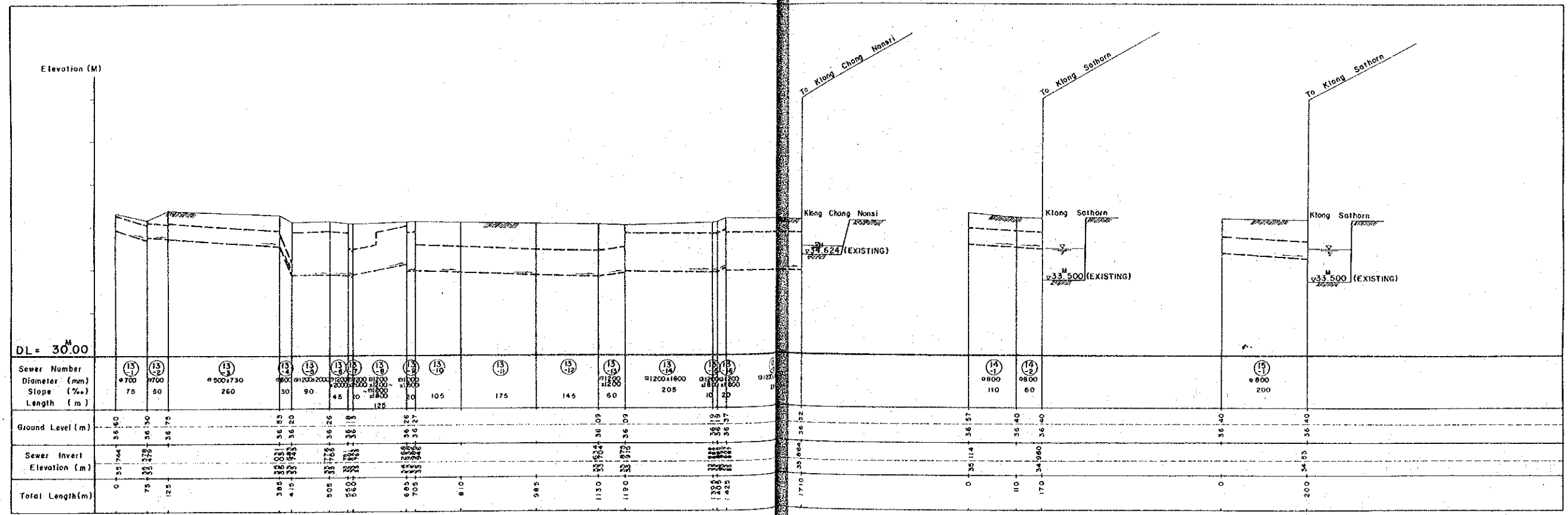
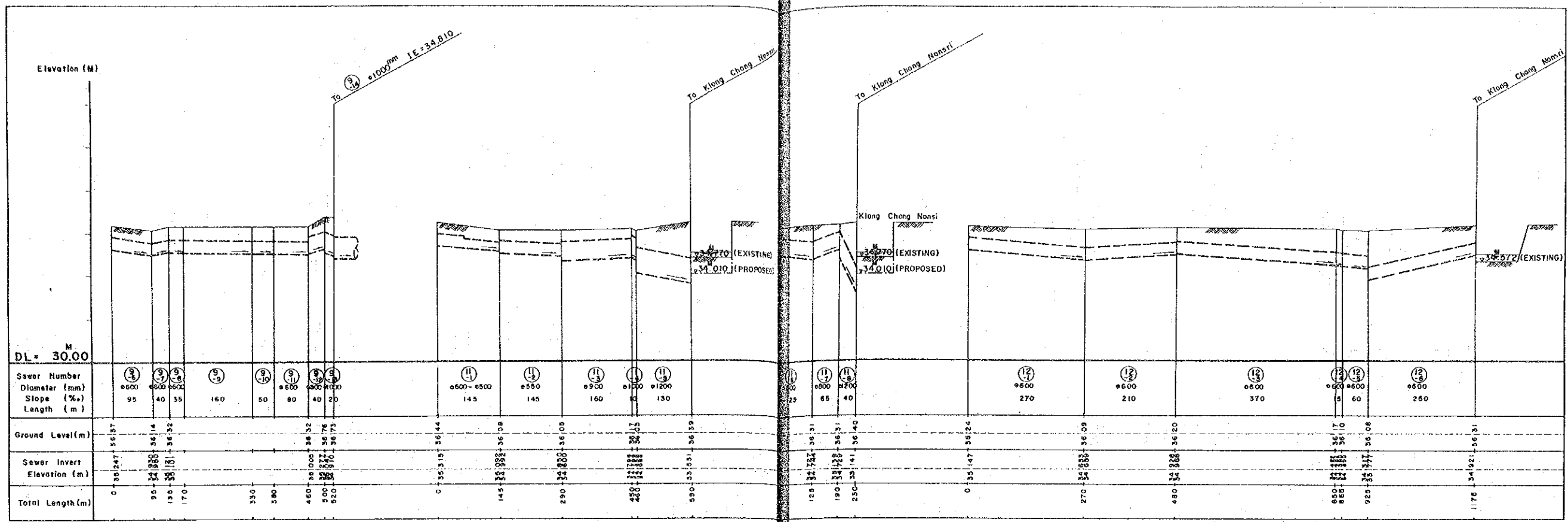
SCALE
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 VERTICAL 1 : 100

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 IN KINGDOM OF THAILAND

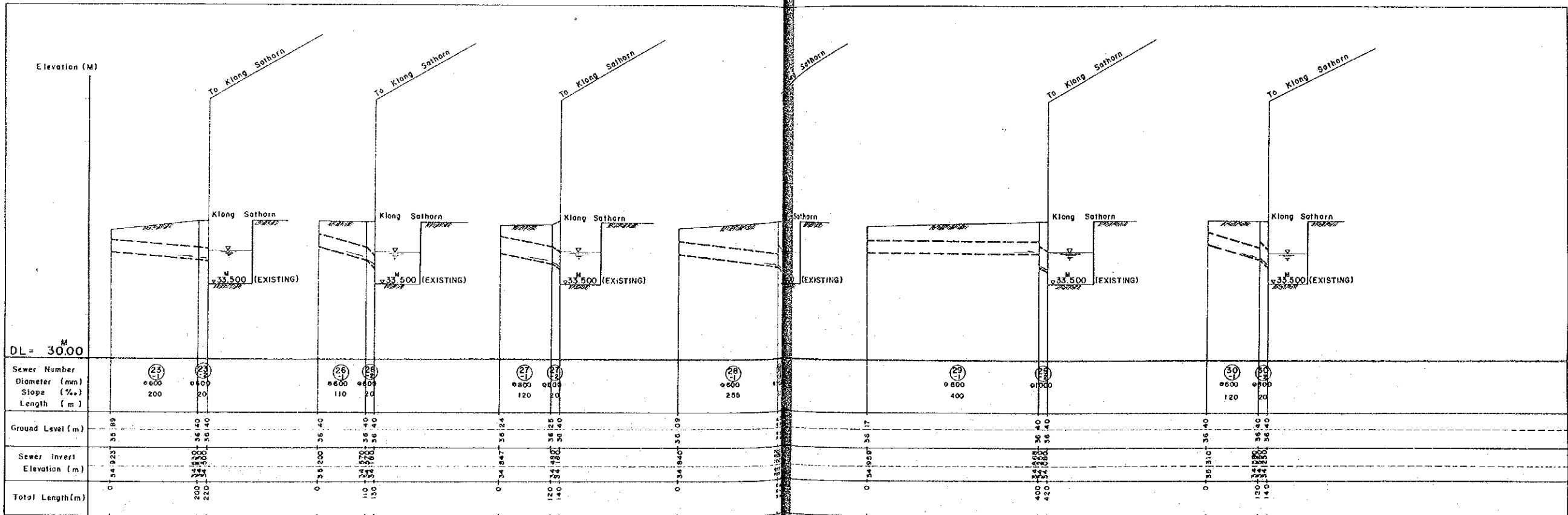
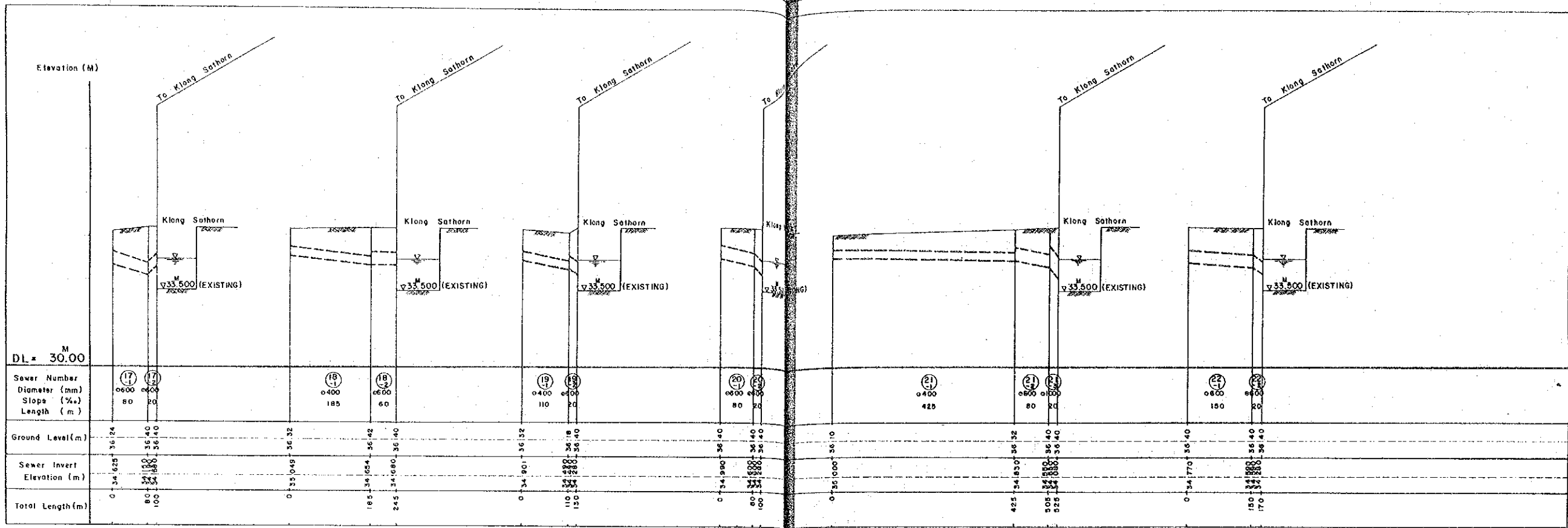
JAPAN INTERNATIONAL COOPERATION AGENCY
 NIPPON KAIWA CONSULTANTS CO., LTD
 TOKYO, JAPAN

PROFILE OF EXISTING SEWERS

FIGURE 17

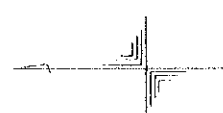


SCALE
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 VERTICAL 1: 100

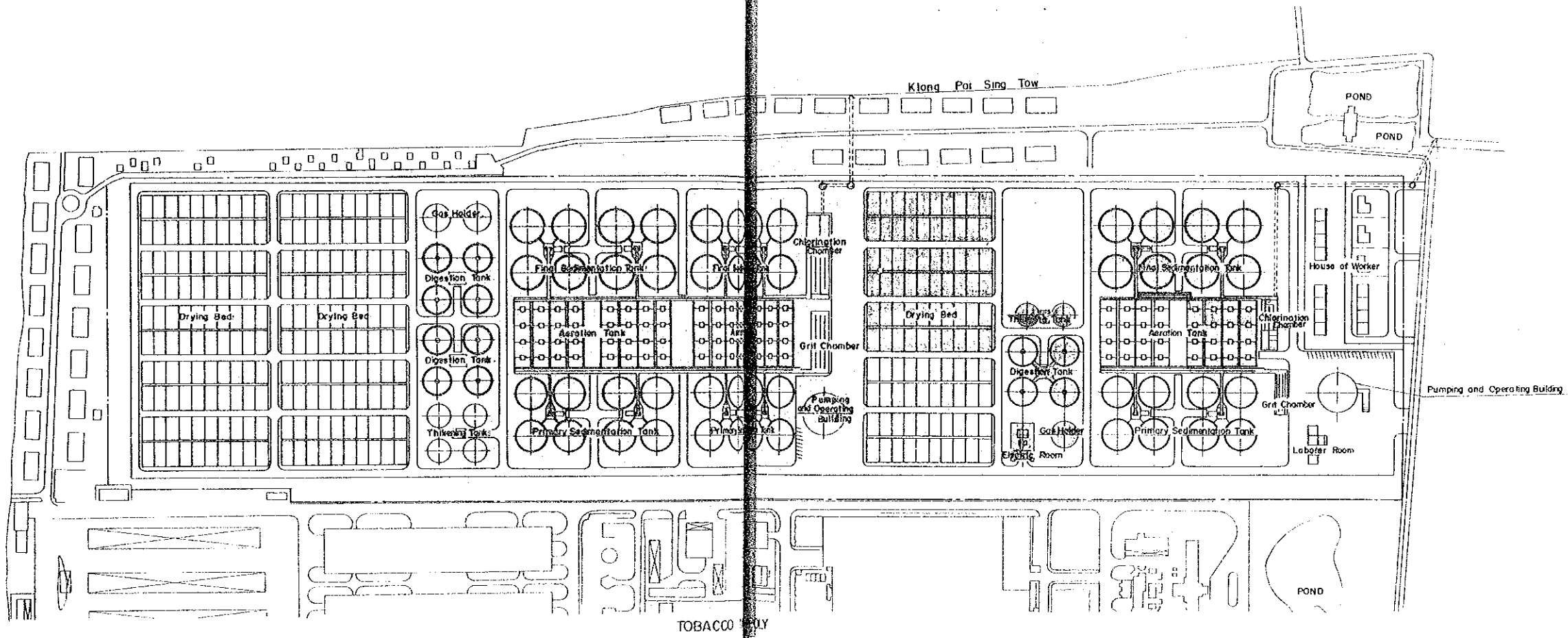
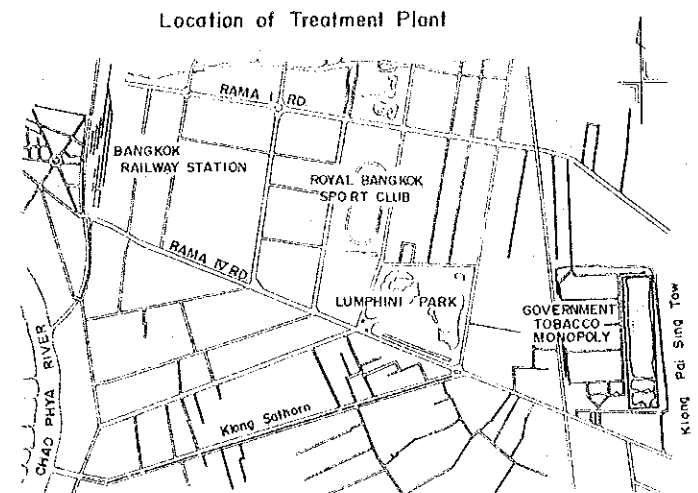


SCALE

HORIZONTAL 1:5,000
VERTICAL 1:100



Treatment Plant S-1-2000



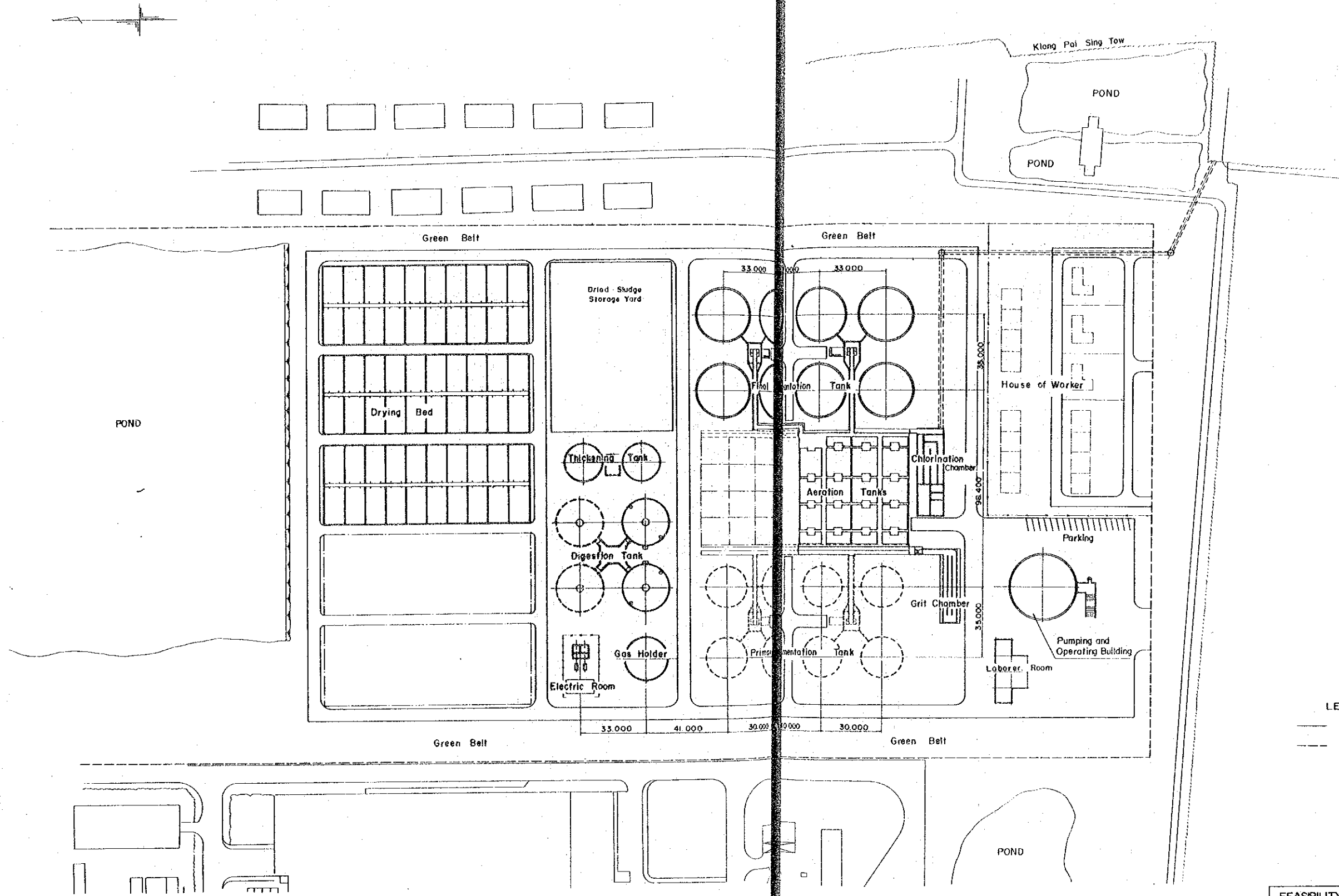
LEGEND
 □ First Stage

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TREATMENT PLANT, LAYOUT PLAN-I

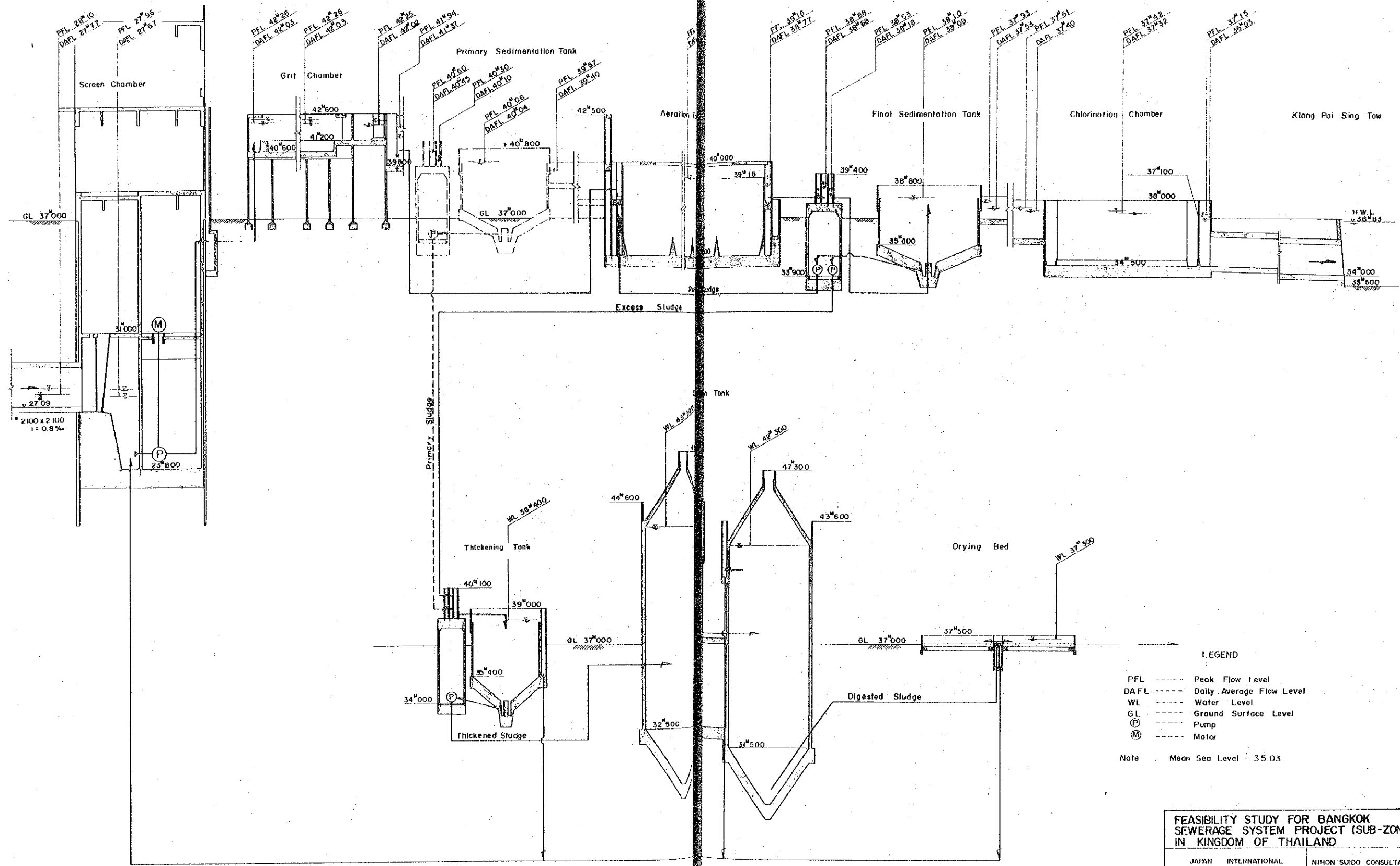
General Plan of Treatment Plant 1:200



FEASIBILITY STUDY FOR BANGKOK SEWERAGE SYSTEM PROJECT (SUB-ZONE 2-A) IN KINGDOM OF THAILAND		
JAPAN INTERNATIONAL COOPERATION AGENCY	NISHI SUDO CONSULTANTS CO., LTD. TOKYO, JAPAN	
TREATMENT PLANT, LAYOUT PLAN - 2	FIGURE 21	

Hydraulic Profile of The Treatment Plant

S · H = 1:500
V · H = 1:100



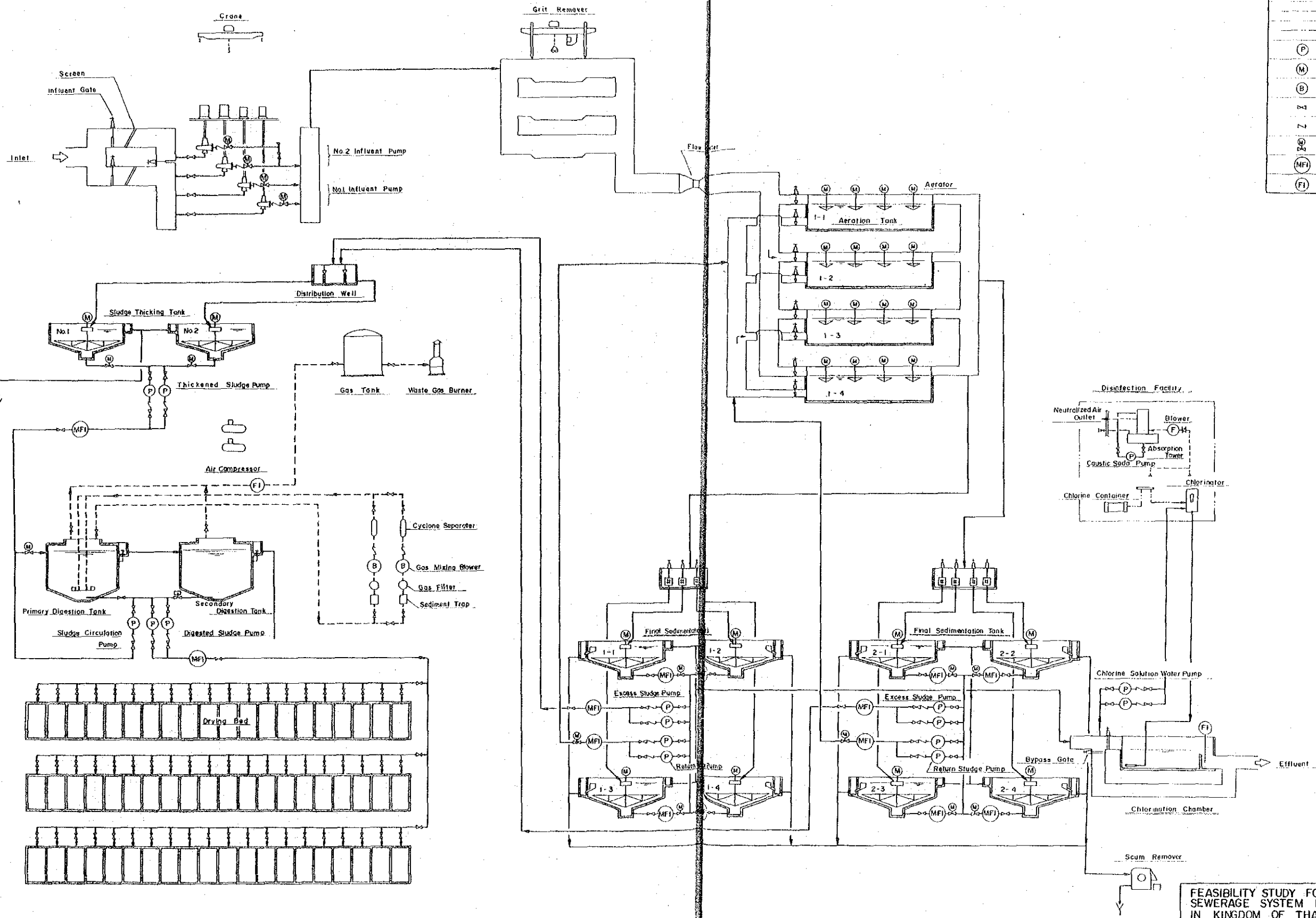
LEGEND

- PFL ----- Peak Flow Level
- DAFL ----- Daily Average Flow Level
- WL ----- Water Level
- GL ----- Ground Surface Level
- (P) ----- Pump
- (M) ----- Motor

Note : Mean Sea Level = 35.03

Legend

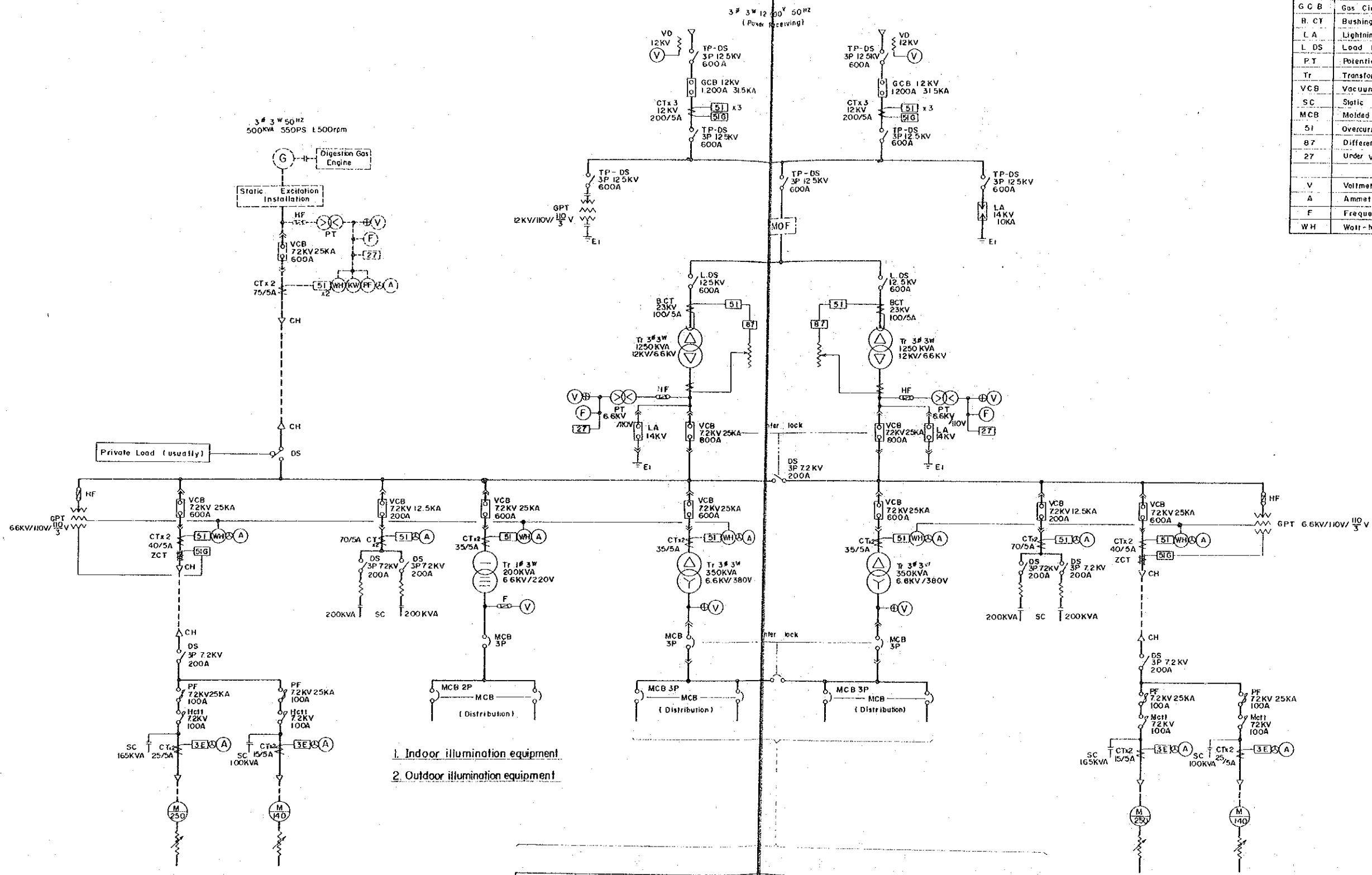
Mark	Name
—	Waste Water Pipe - Sludge Pipe
---	Air Pipe - Gas Pipe
- - -	Chlorine Gas Pipe
(P)	Pump
(M)	Motor
(B)	Blower
⋈	Manual Sluice Valve
∇	Check Valve
(M)	Motor Drive Sluice Valve
(MFI)	Magnetic Flow Meter
(FI)	Flow Meter



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FLOW DIAGRAM FIGURE 23

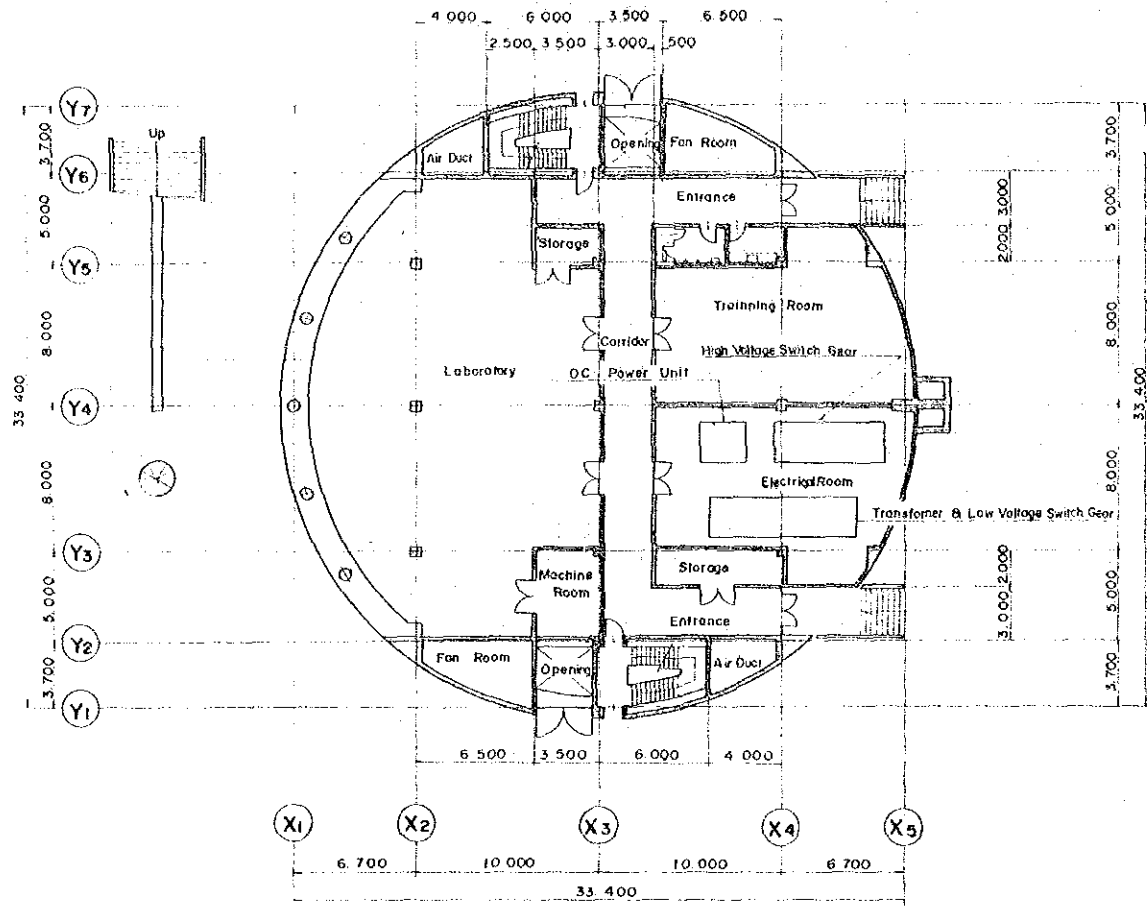


Legend	
Mark	Name
VD	Voltage Detector
TP-DS	Disconnecting Switch
G.C.B	Gas Circuit Breaker
B.C.T	Bushing Type Current Transformer
LA	Lightning Arrester
L.D.S	Load Disconnecting Switch
P.T	Potential Transformer
Tr	Transformer
VCB	Vacuum Circuit Breaker
SC	Static Capacitor
MCB	Molded Case Circuit Breaker
5I	Overcurrent Relay
B7	Differential Relay
27	Under Voltage Relay
V	Voltmeter
A	Ammeter
F	Frequency Meter
WH	Watt-hour Meter

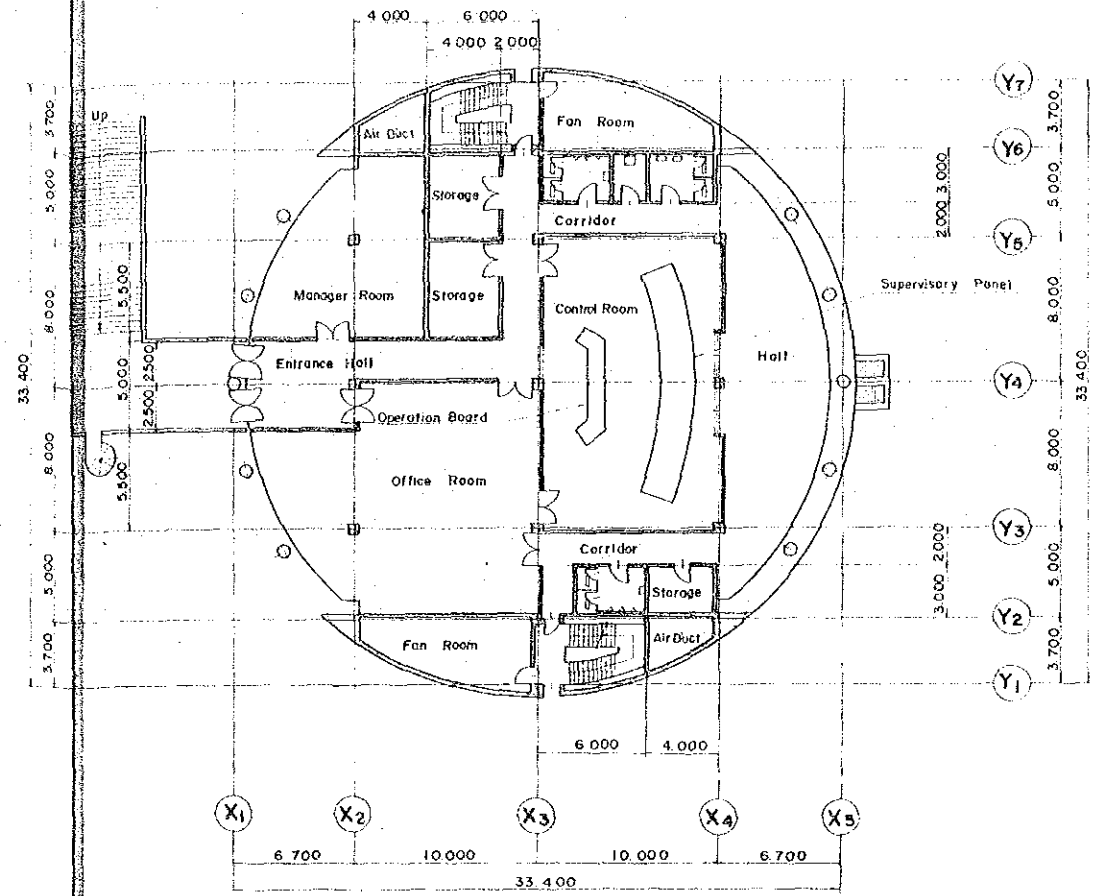
- 1. Indoor illumination equipment
- 2. Outdoor illumination equipment

Control Center	Equipment Name	Load Capacity	Control Center	Equipment Name	Load Capacity
C/C - 1	Influent Pump Equipment	100 KW	C/C - 5	Final Settling Tank Equipment	60 KW
C/C - 2	Grit Chamber Equipment	10 KW	C/C - 6	Digestion Equipment	25 KW
C/C - 4	Aeration Tank Equipment	240 KW	C/C - 7	Sludge Thickening Digestion Equipment	30 KW

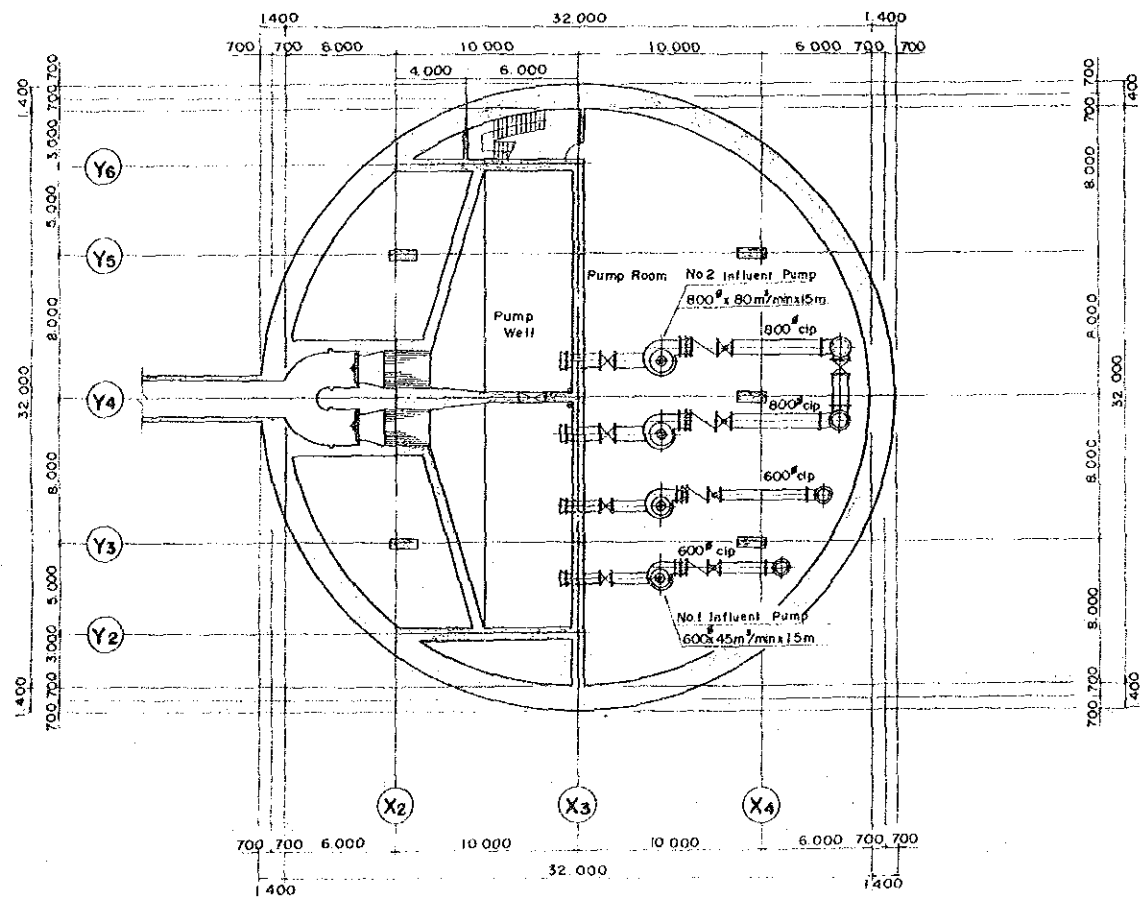
1st Floor Plan S=1:200



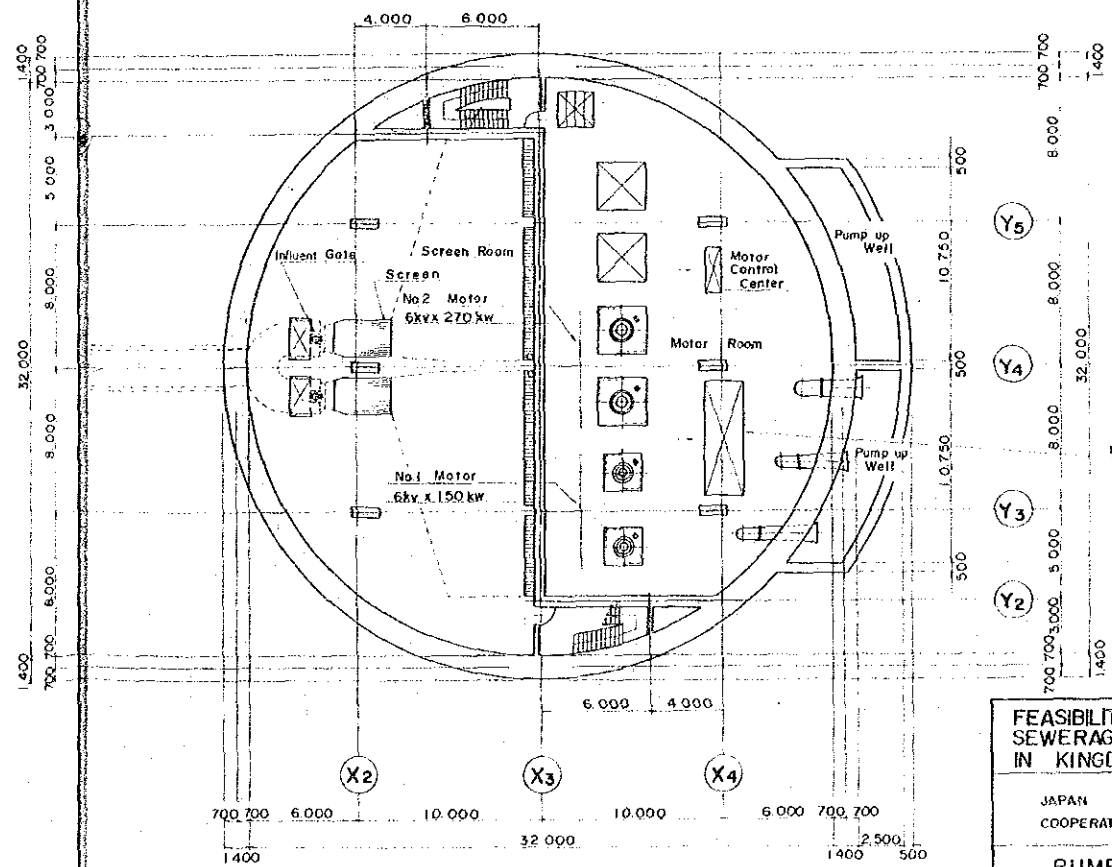
2nd Floor Plan S=1:200



B 2nd Floor Plan S=1:200



B 1st Floor Plan S=1:200

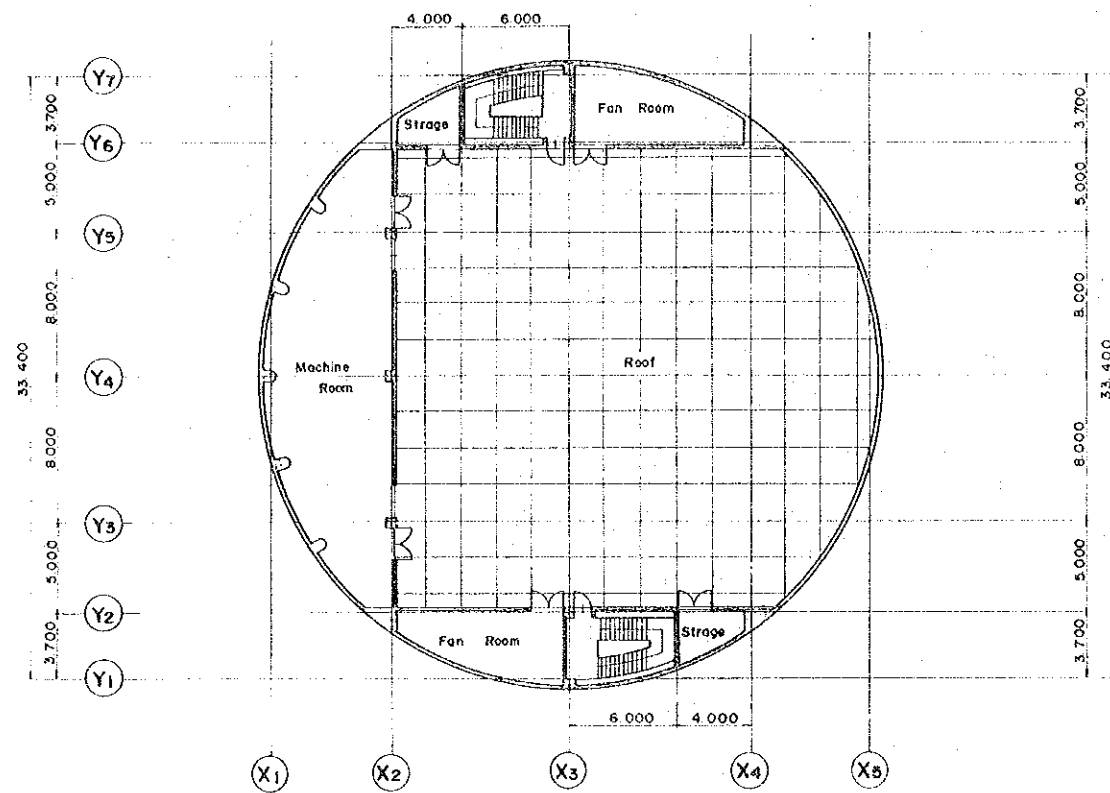


FEASIBILITY STUDY FOR BANGKOK SEWERAGE SYSTEM PROJECT (SUB-ZONE 2-A) IN KINGDOM OF THAILAND

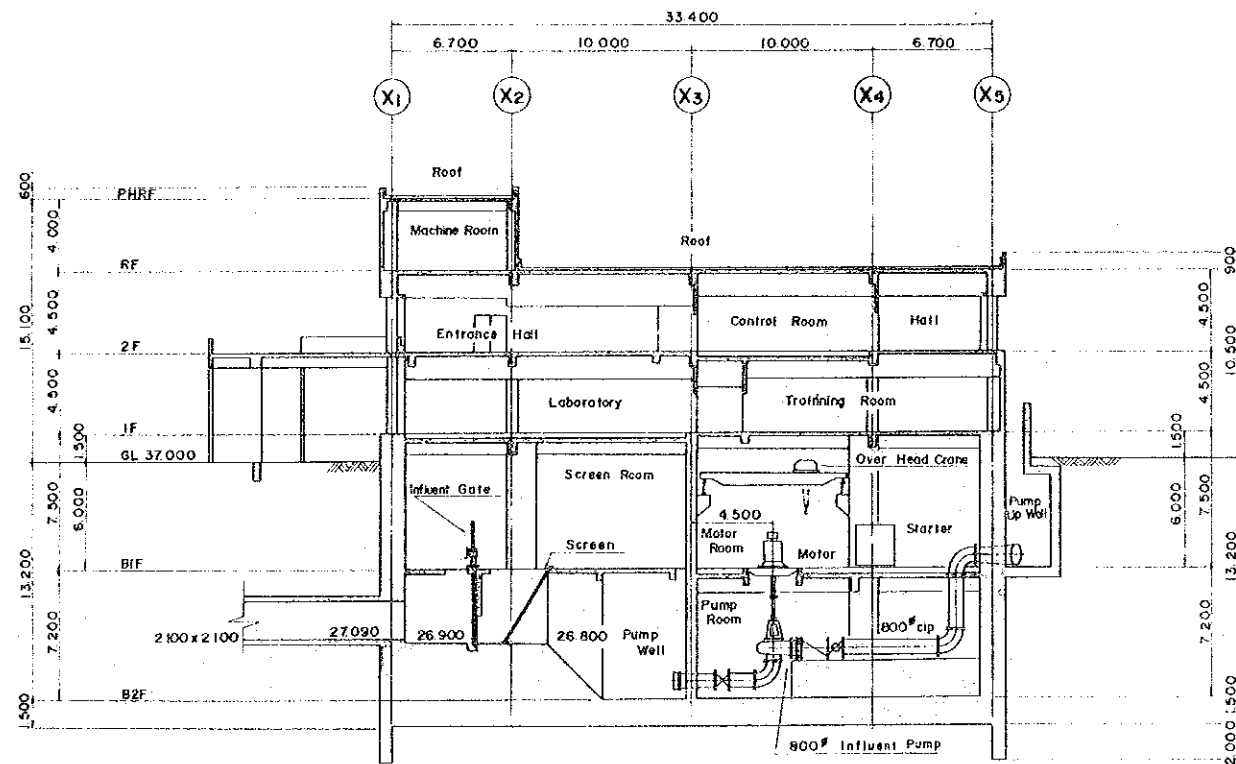
JAPAN INTERNATIONAL COOPERATION AGENCY NIPPON SUIDO CONSULTANTS CO., LTD. TOKYO, JAPAN

PUMPING AND OPERATING BUILDING, -1- FIGURE 25

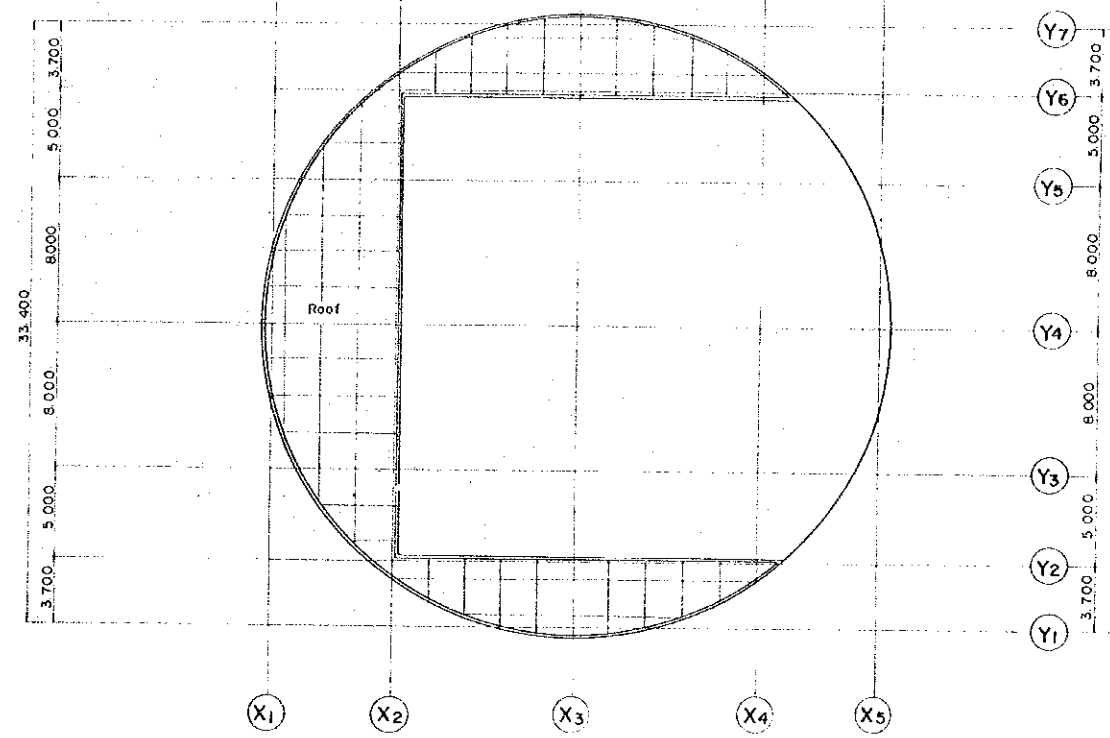
Pent House Floor Plan S=1:200



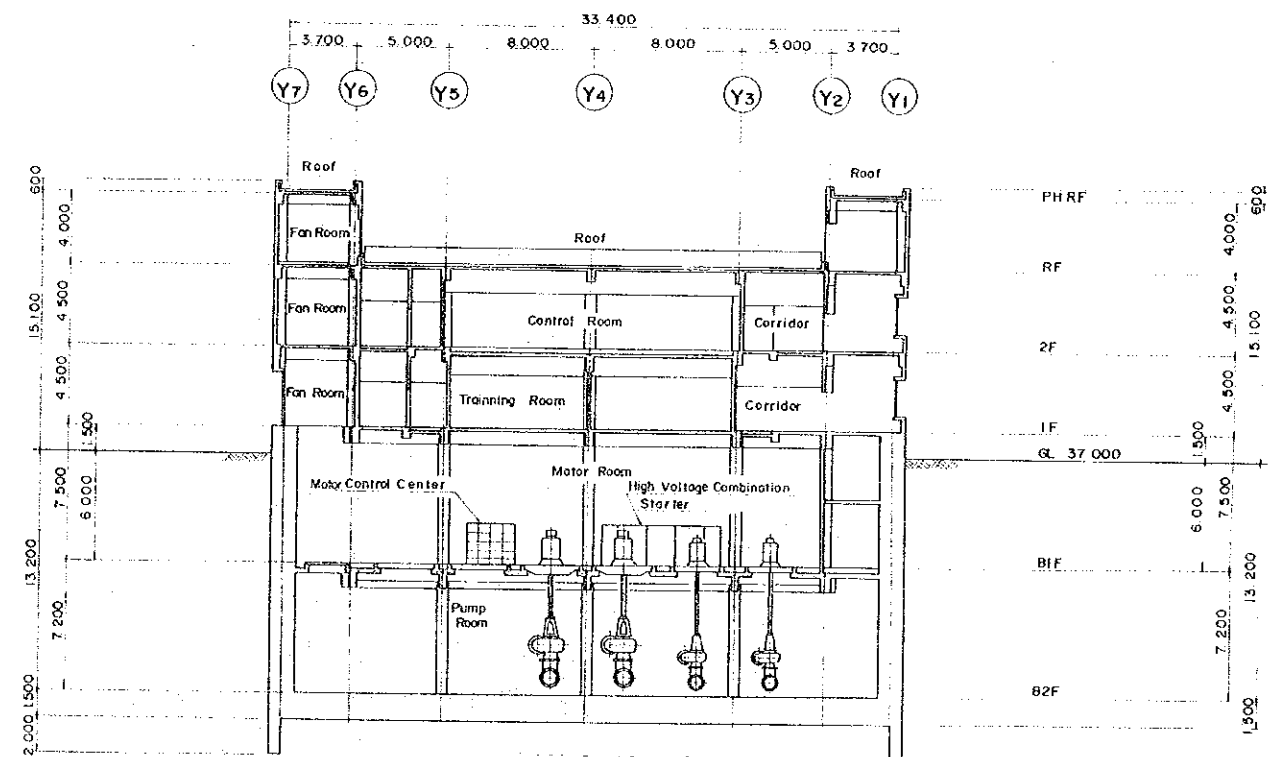
Section X - X S=1:200



Roof Floor Plan S=1:200



Section Y - Y S=1:200



No.2 Influent Pump No.1 Influent Pump
800φ 80mm/min 15m x 270kw 600φ 45mm/min 15m x 150kw

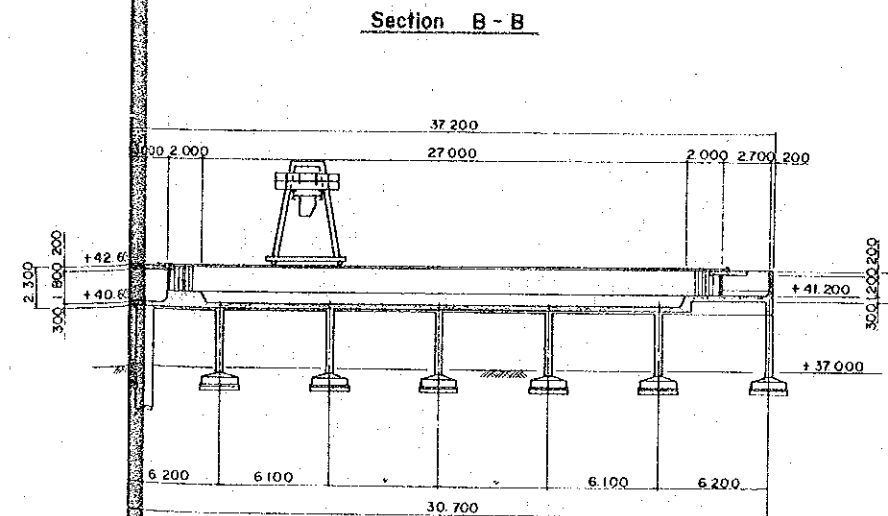
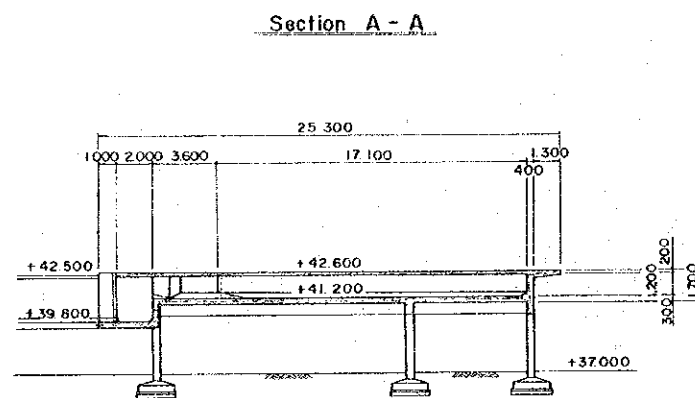
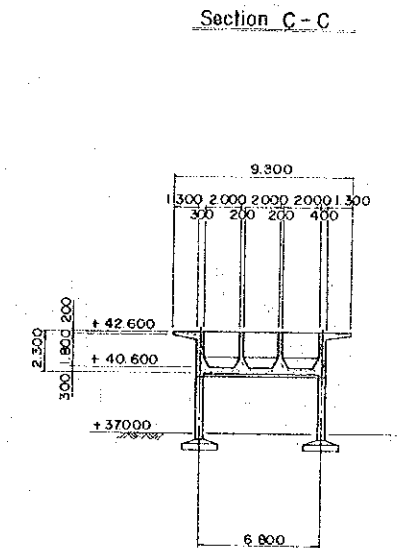
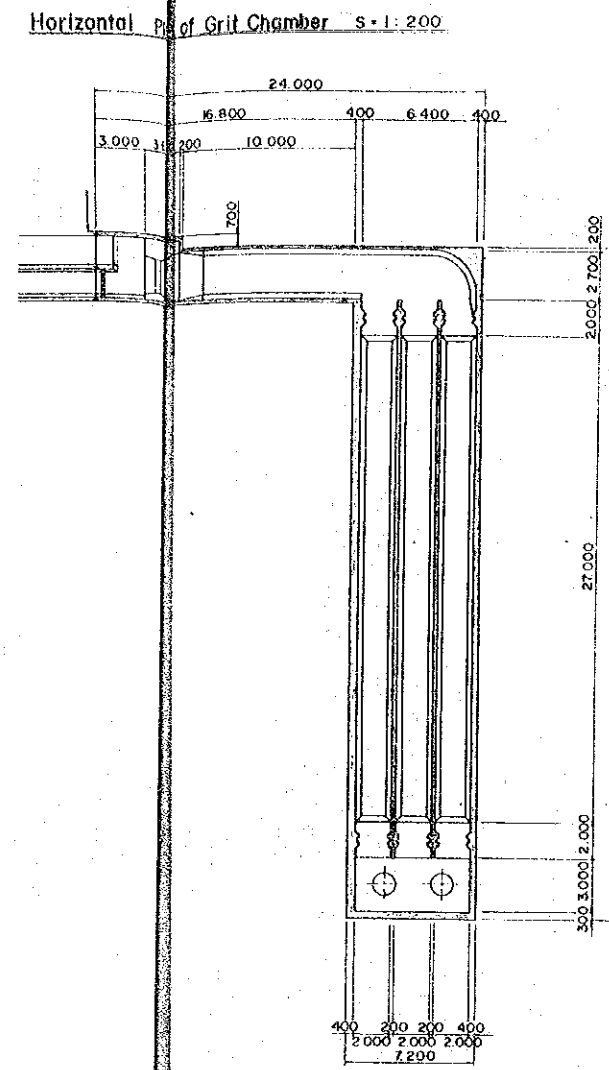
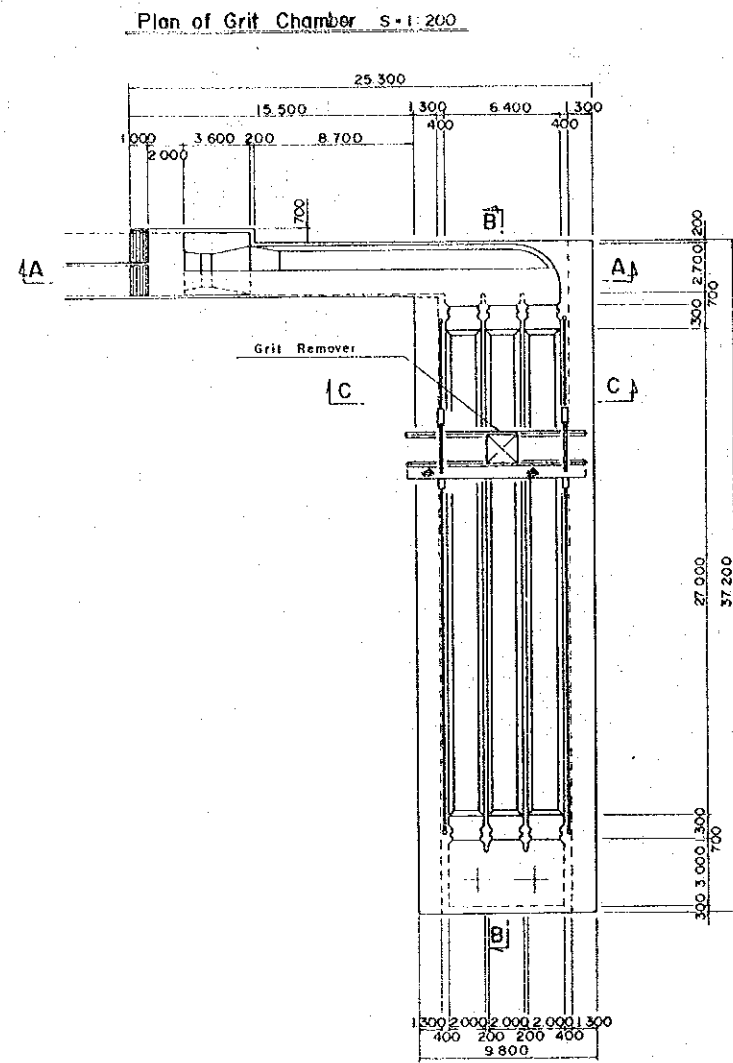
FEASIBILITY STUDY FOR BANGKOK
SEWERAGE SYSTEM PROJECT (SUB-ZONE 2-A)
IN KINGDOM OF THAILAND

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COOPERATION AGENCY

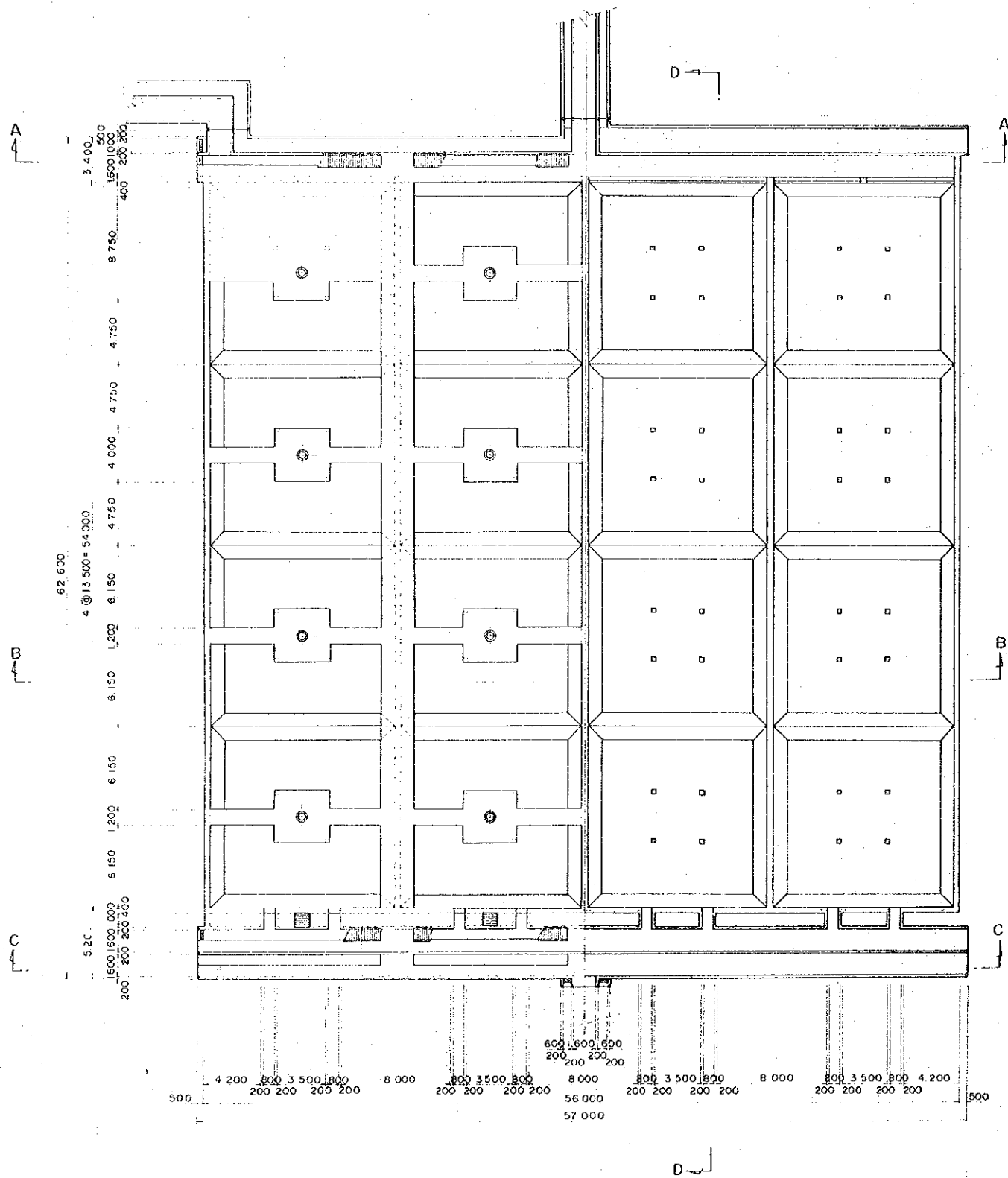
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TOKYO, JAPAN

PUMPING AND OPERATING
BUILDING, - 2 -

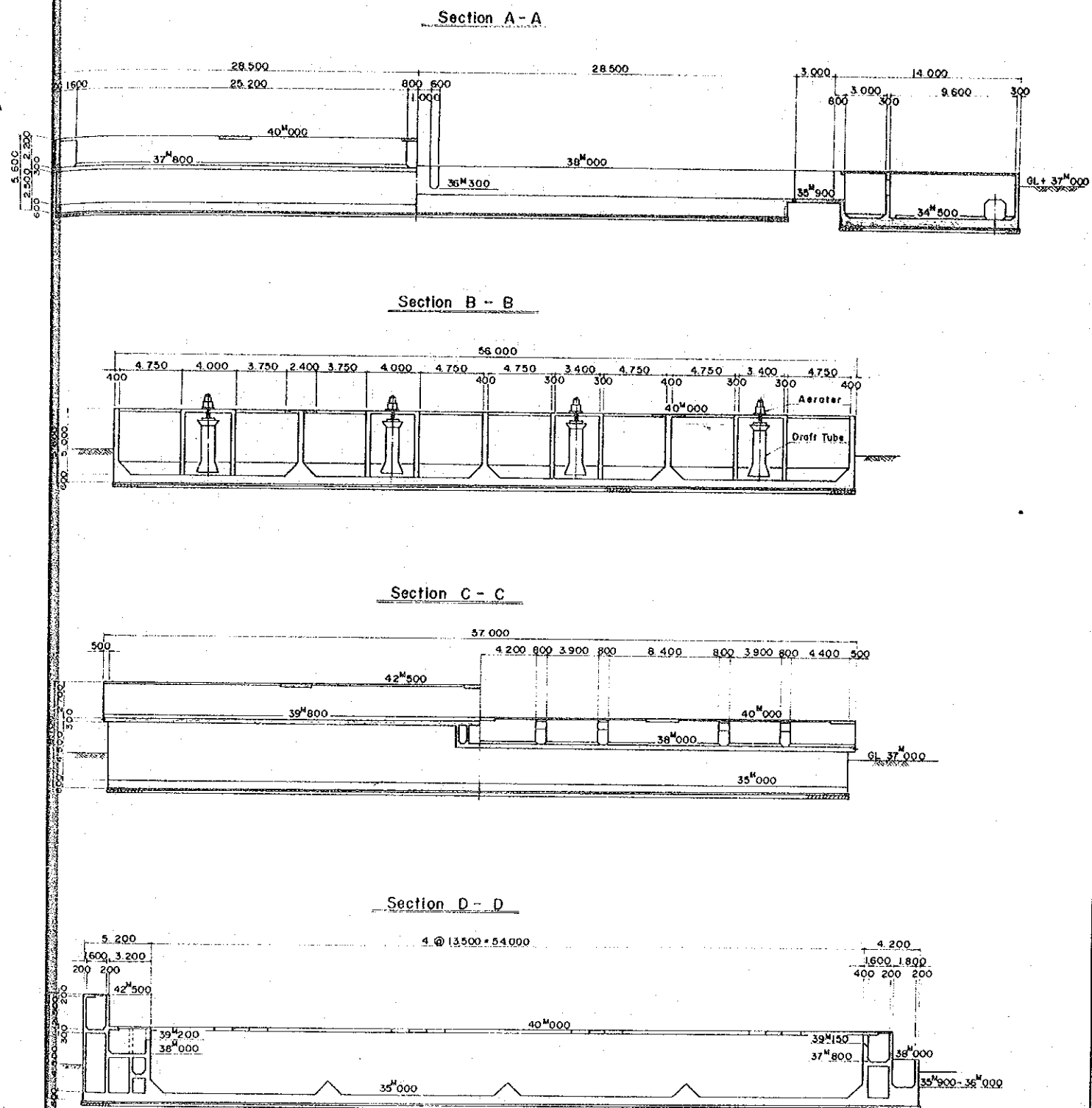
FIGURE
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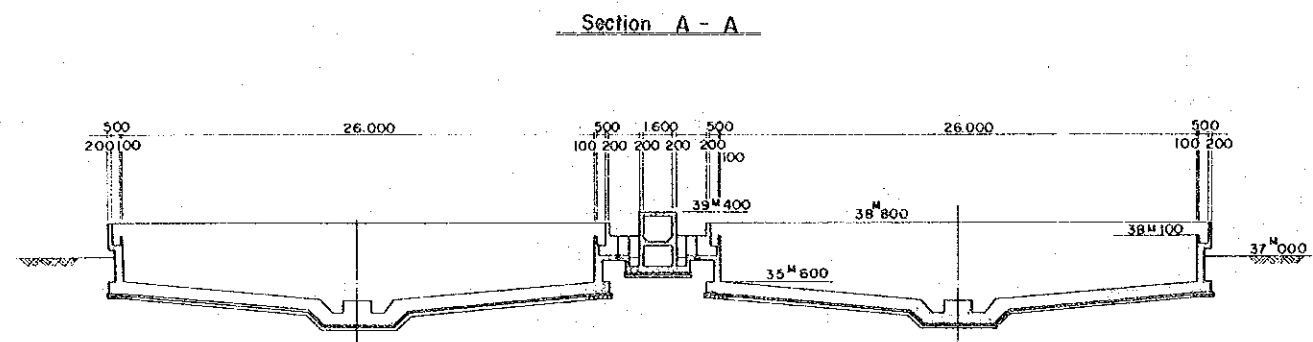
Plan of Aeration Tank s-l-200



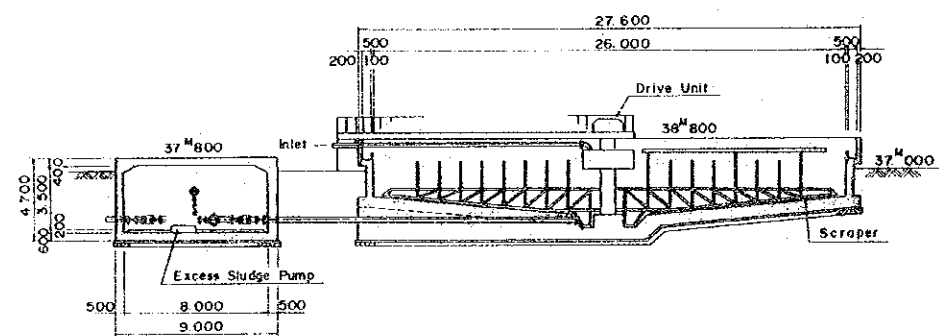
Section of Aeration Tank s-l-200



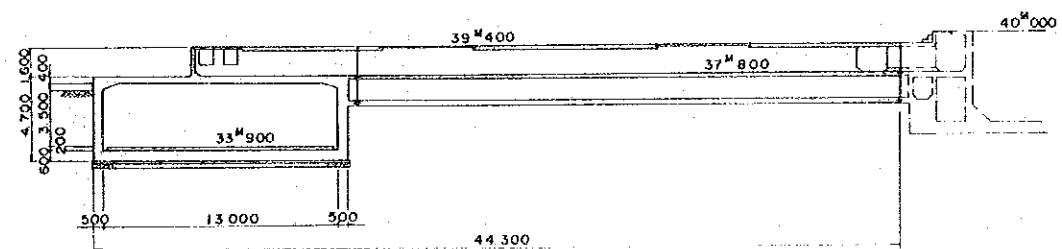
Section of Final Sedimentation Tank S-1:200



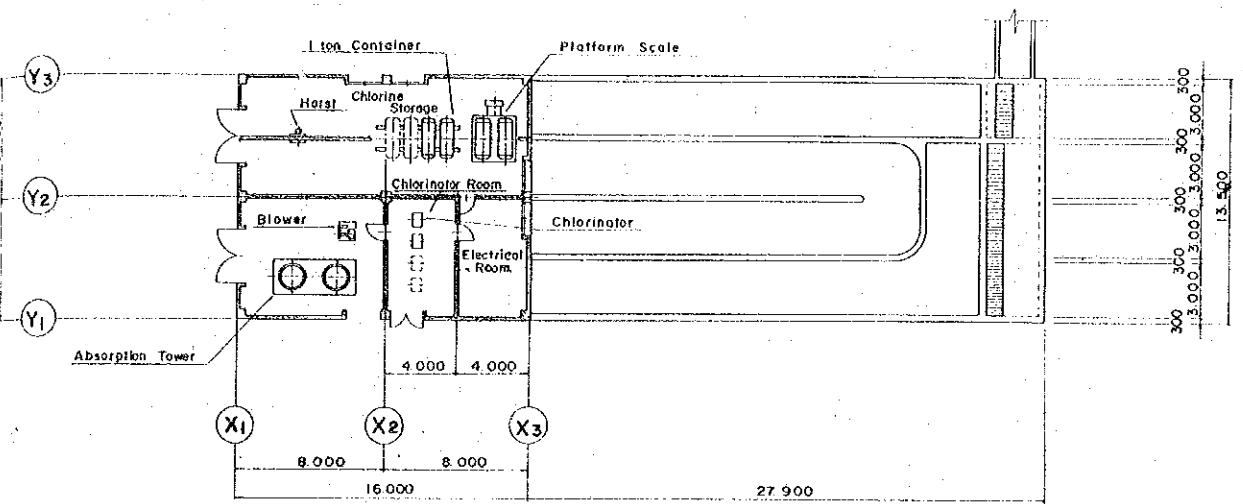
Section B-B



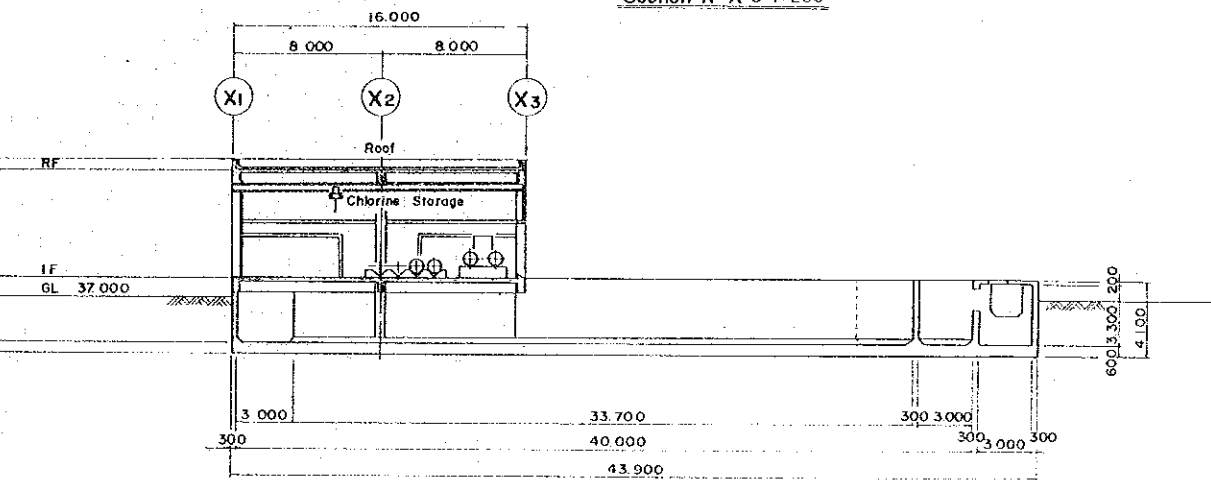
Section C-C



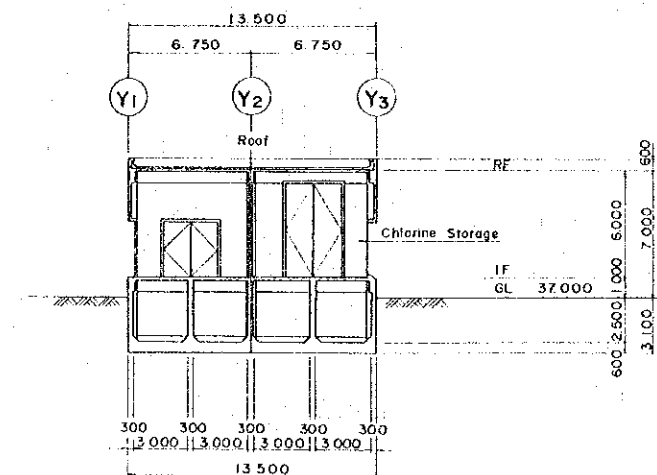
Plan of Chlorination Chamber S-1:200



Section X-X S-1:200



Section Y-Y S-1:200

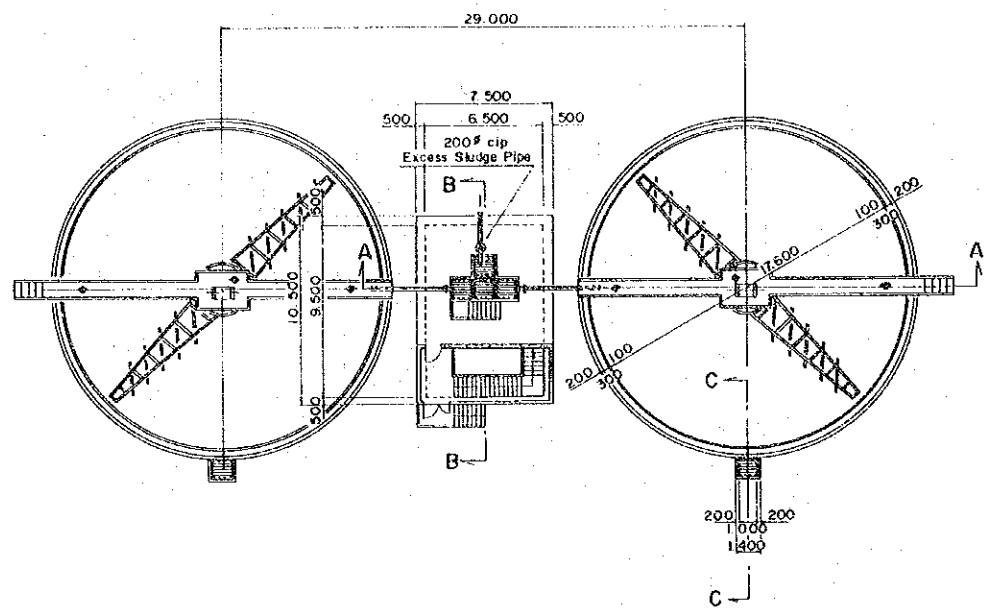


FEASIBILITY STUDY FOR BANGKOK SEWERAGE SYSTEM PROJECT (SUB-ZONE 2-A) IN KINGDOM OF THAILAND

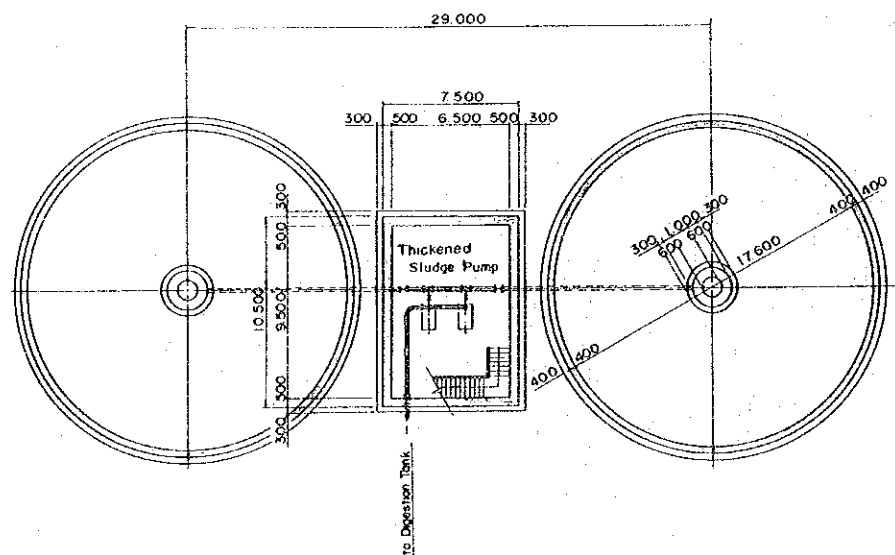
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SECTION OF FINAL SEDIMENTATION TANK, FIGURE PLAN AND SECTION OF CHLORINATION CHAMBER 29

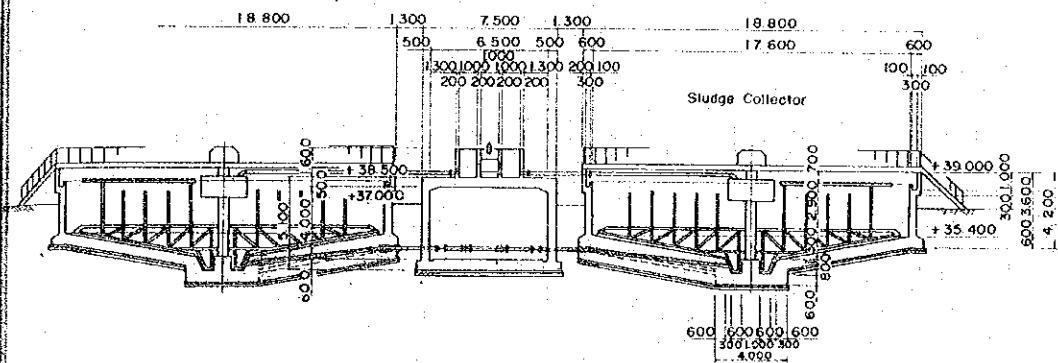
Plan of Thickening Tank s : 1 : 200



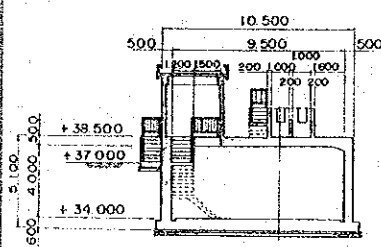
Horizontal Plan of Thickening Tank s : 1 : 200



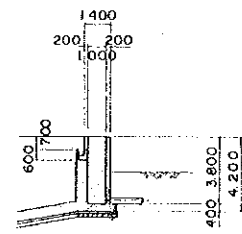
Section A - A



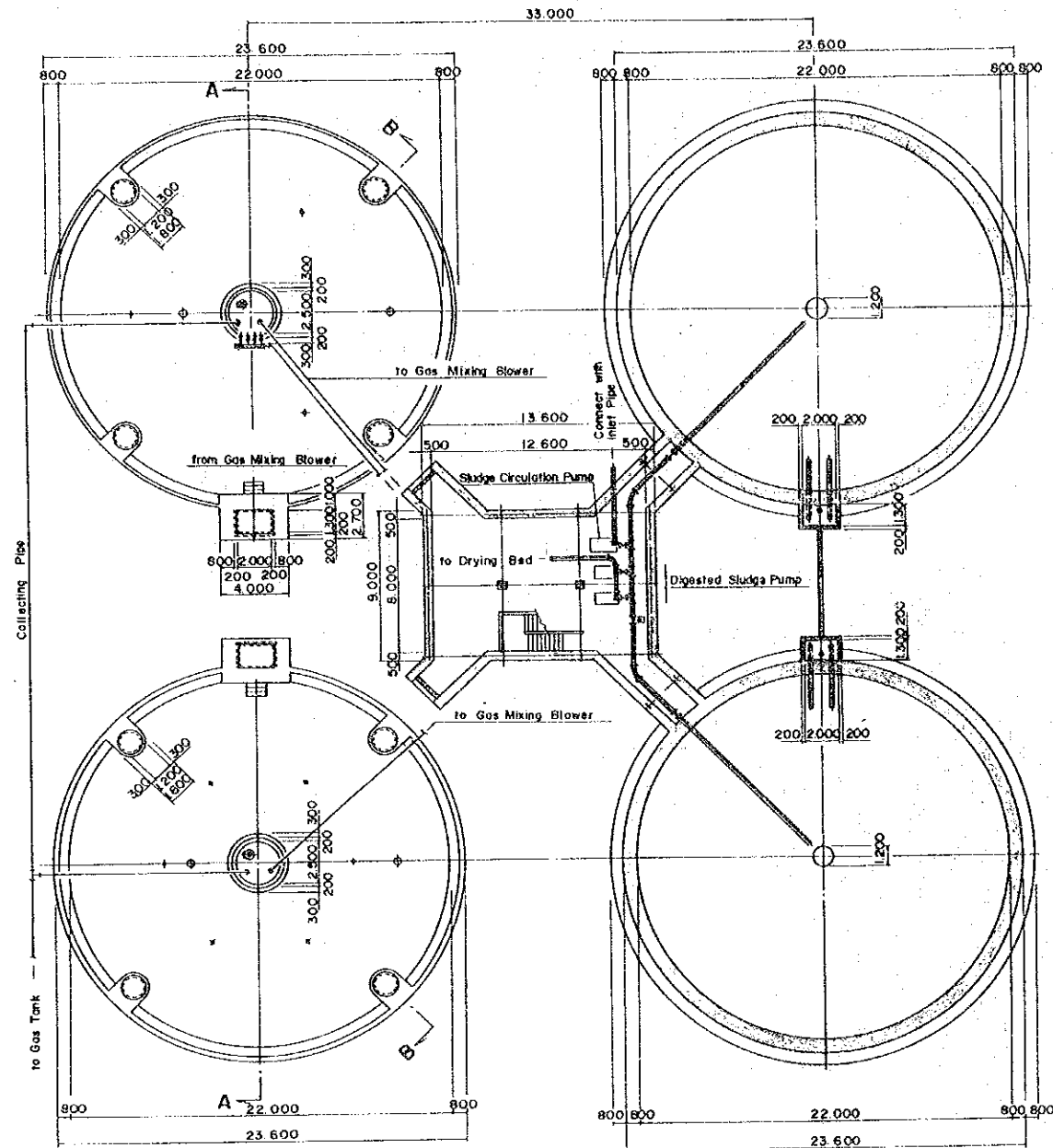
Section B - B



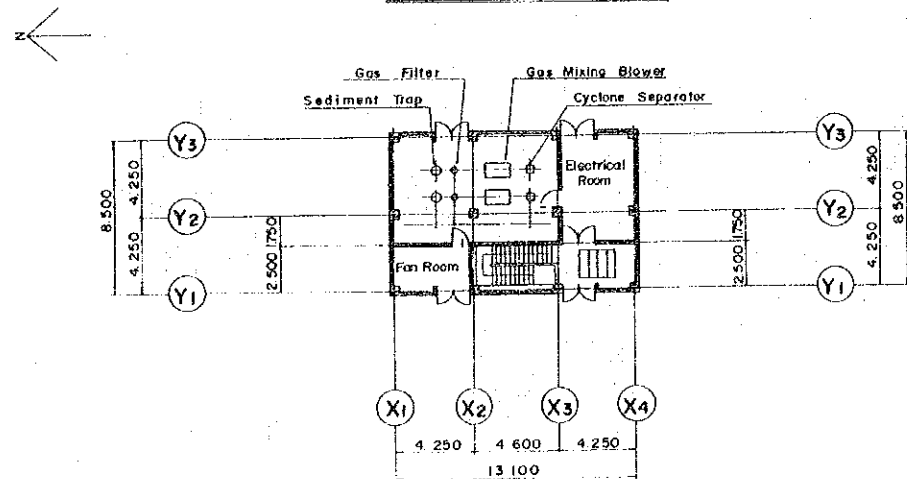
Section C - C



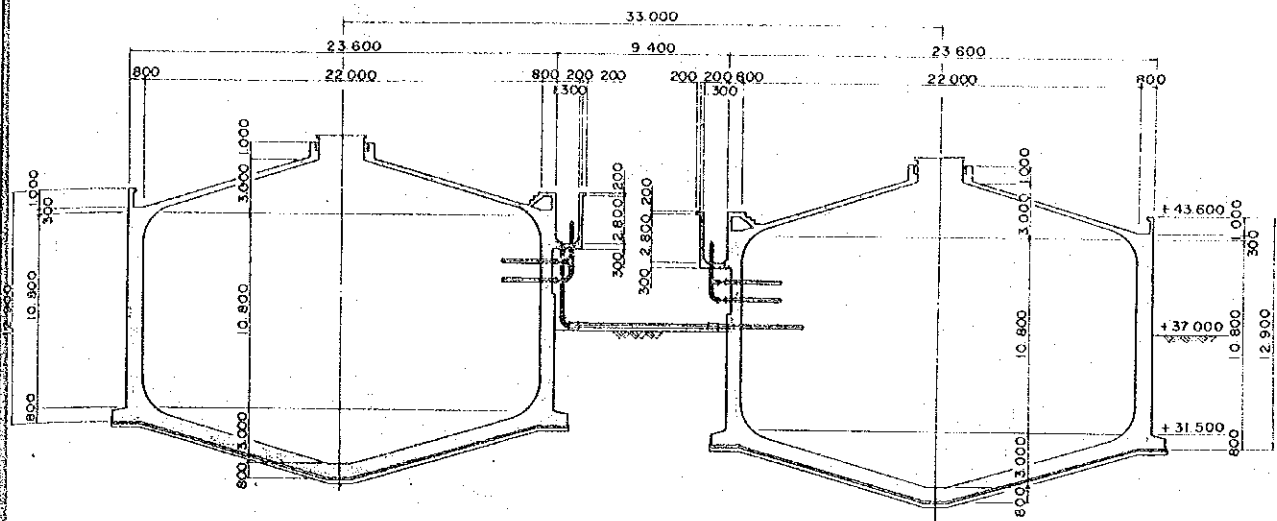
Plan of Digestion Tank S-1:200



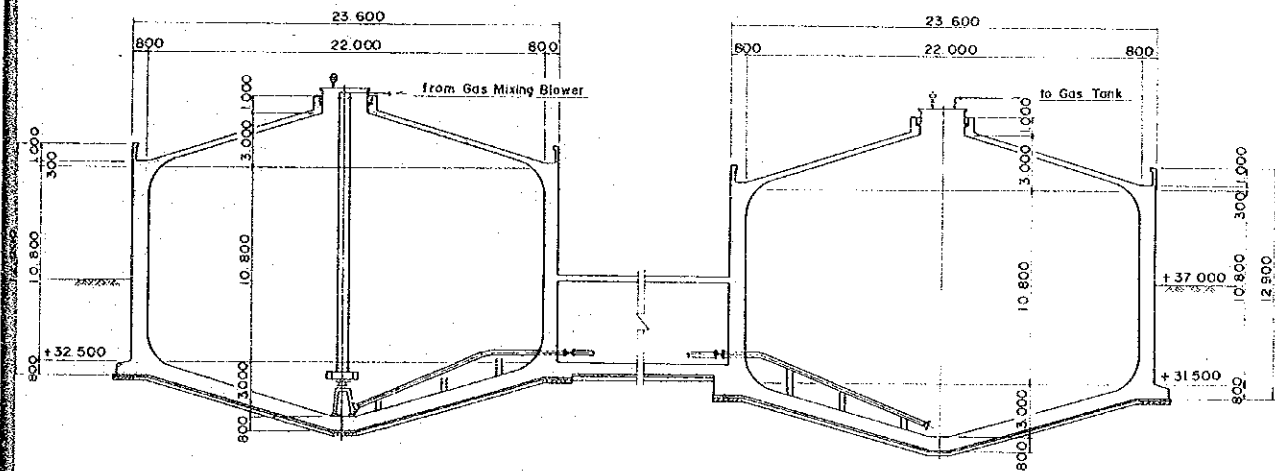
1st Floor Plan S-1:200



Section A-A



Section B-B



FEASIBILITY STUDY FOR BANGKOK
SEWERAGE SYSTEM PROJECT (SUB-ZONE 2-A)
IN KINGDOM OF THAILAND

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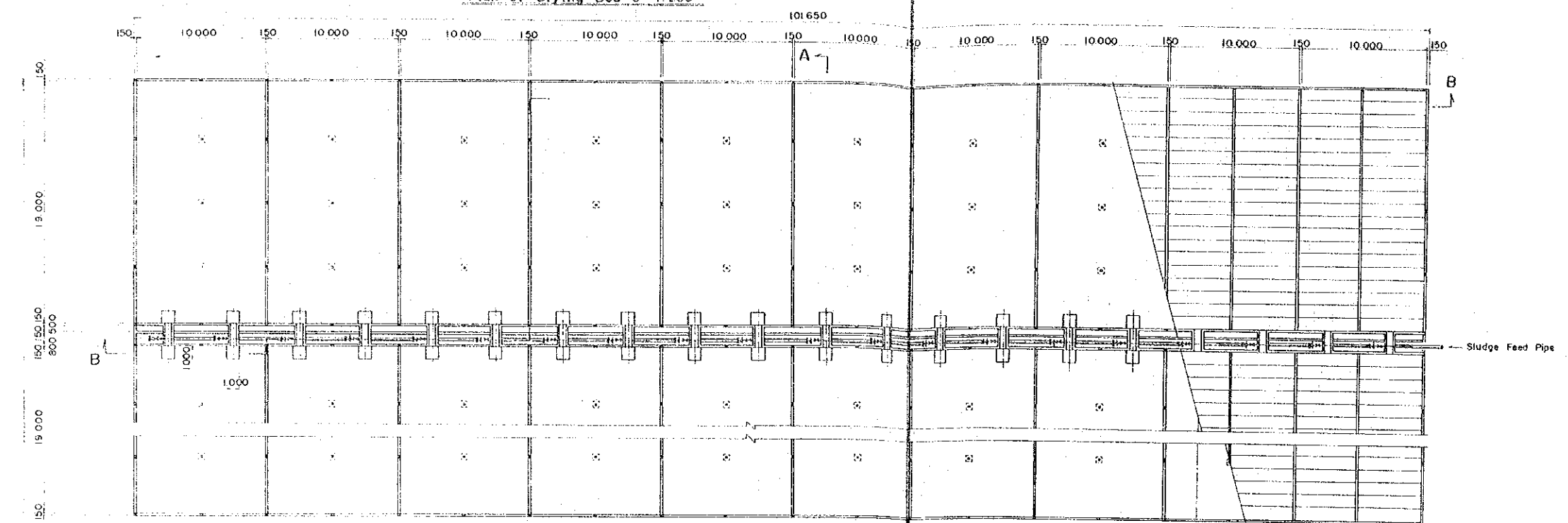
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PLAN AND SECTION OF DIGESTION TANK

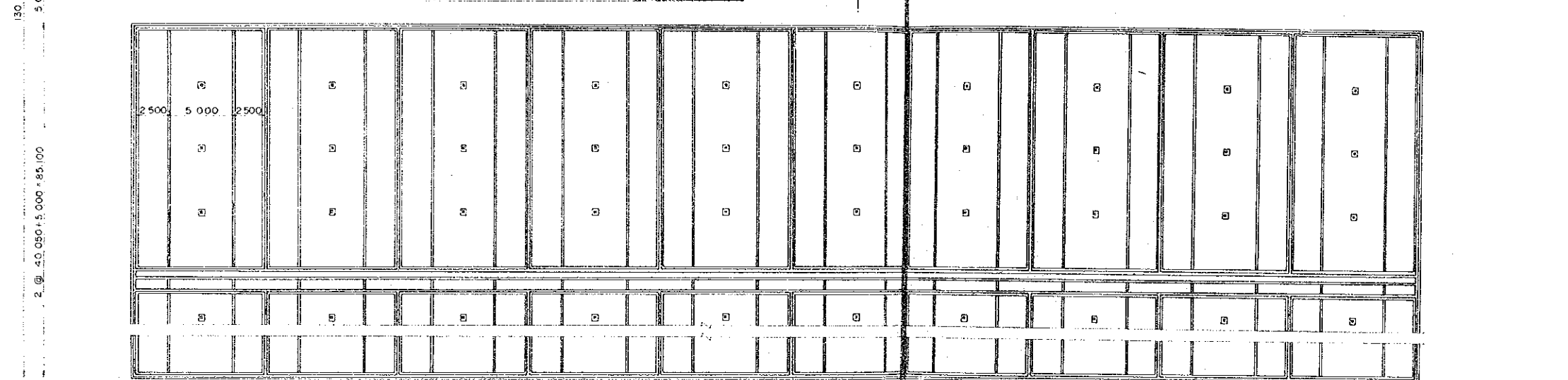
FIGURE

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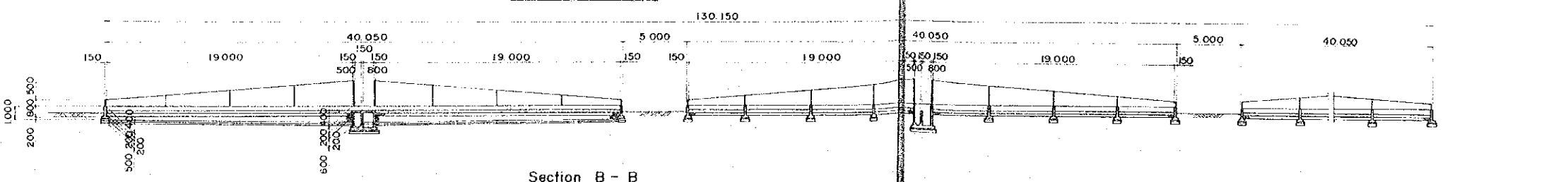
Plan of Drying Bed s = 1:200



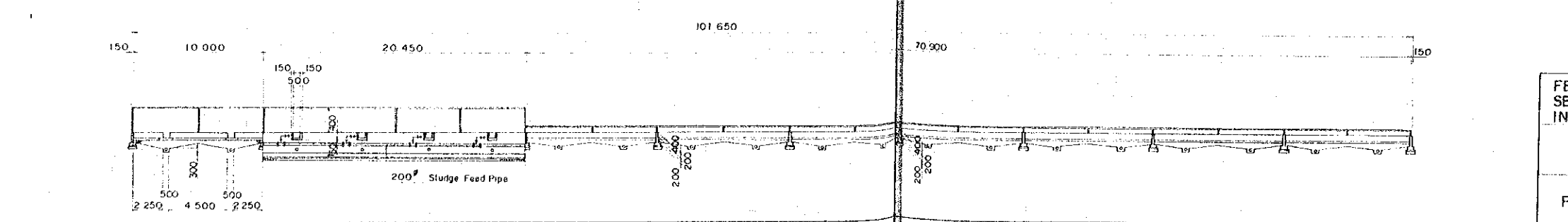
Horizontal Plan of Drying Bed s = 1:200



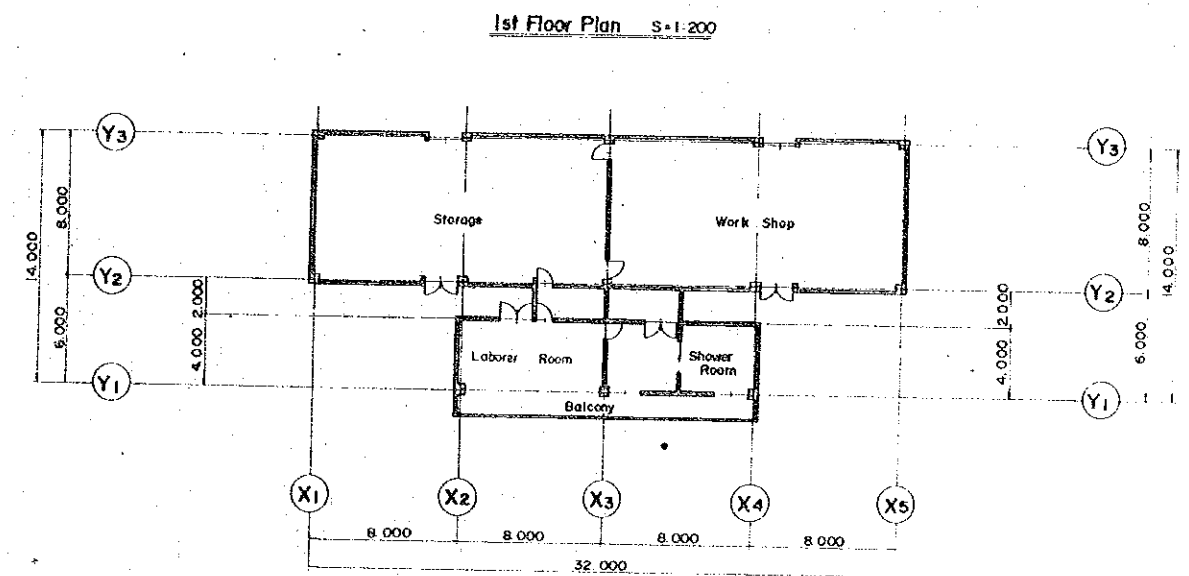
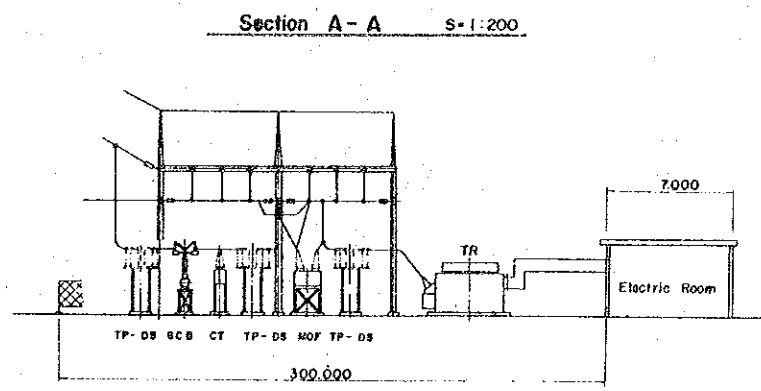
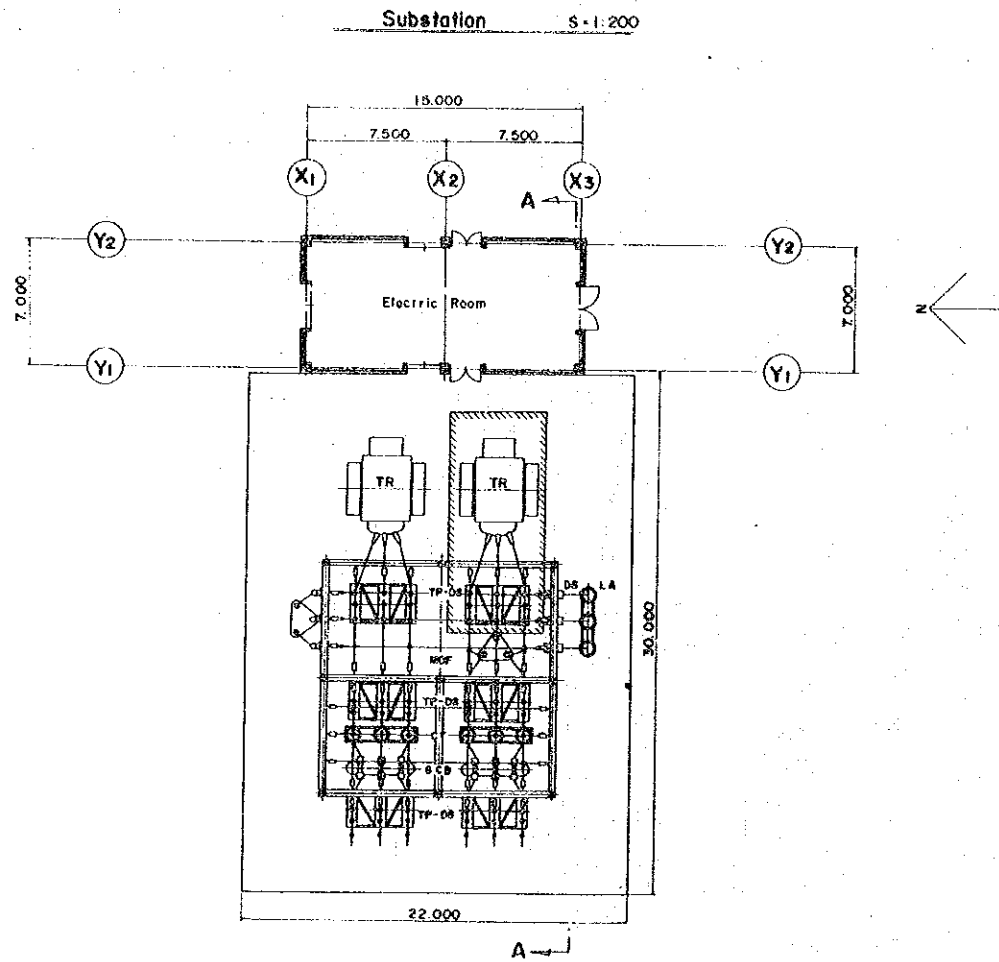
Section A - A



Section B - B



FEASIBILITY STUDY FOR BANGKOK SEWERAGE SYSTEM PROJECT (SUB-ZONE 2-A) IN KINGDOM OF THAILAND	
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PLAN AND SECTION OF DRYING BED	FIGURE 32



FEASIBILITY STUDY FOR BANGKOK
SEWERAGE SYSTEM PROJECT (SUB-ZONE 2-A)
IN KINGDOM OF THAILAND

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PLAN OF LABORER ROOM AND SUBSTATION FIGURE 33

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