

Japan International Cooperation Agency (JICA)
The Ministry of Public Works and Regional Planning
The Municipality of Bucharest
Romania

No. 11

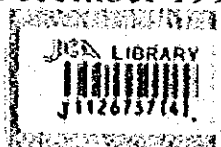
The Study on the Solid Waste Management System
for Bucharest Municipality in Romania

Final Report

Volume 6

Basic Design Drawings for
the Planned Sanitary Landfill Sites
in Balaceanca, Cretuleasca and Glina

December 1995



EX Corporation

Yachiyo Engineering Co., Ltd.

SSS
JR
95 150(210)



1126737 (4)

Drawing List

1. Glina Final Disposal Site

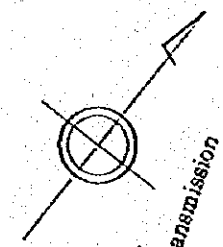
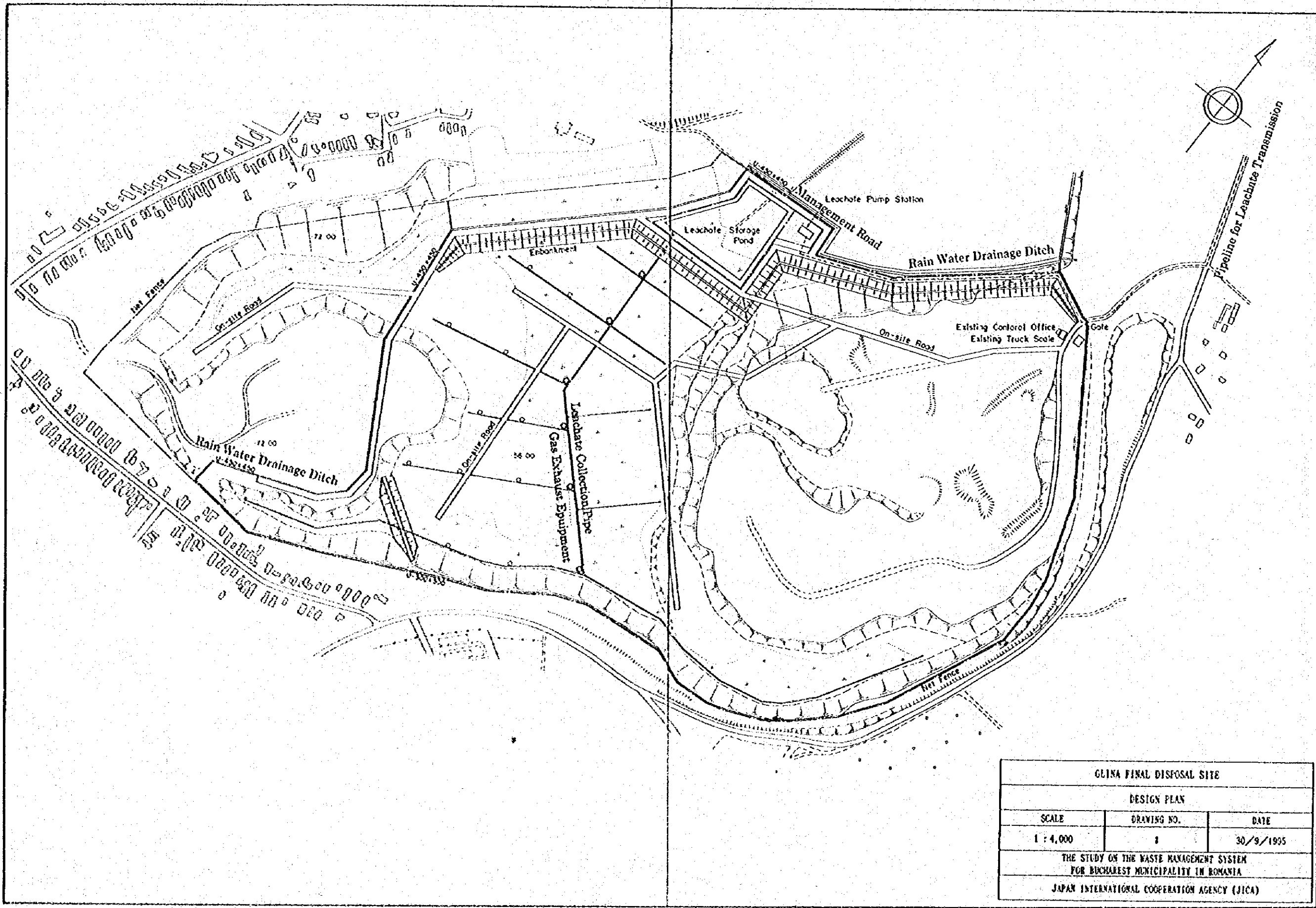
Drawing No.	Name
1	DESIGN PLAN
2	CROSS SECTION (1)
3	CROSS SECTION (2)
4	CROSS SECTION (3)
5	CROSS SECTION (4)
6	CROSS SECTION (5)
7	CROSS SECTION (6)
8	CROSS SECTION (7)
9	CROSS SECTION (8)
10	FACILITY STRUCTURE (1)
11	FACILITY STRUCTURE (2)
12	FACILITY STRUCTURE (3)
13	FACILITY STRUCTURE (4)
14	FACILITY STRUCTURE (5)
15	FACILITY STRUCTURE (6)

2. Balaceanca Final Disposal Site

Drawing No.	Name
16	DESIGN PLAN
17	CROSS SECTION (1)
18	CROSS SECTION (2)
19	CROSS SECTION (3)
20	CROSS SECTION (4)
21	FACILITY STRUCTURE (1)
22	FACILITY STRUCTURE (2)
23	FACILITY STRUCTURE (3)
24	FACILITY STRUCTURE (4)
25	FACILITY STRUCTURE (5)
26	FACILITY STRUCTURE (6)

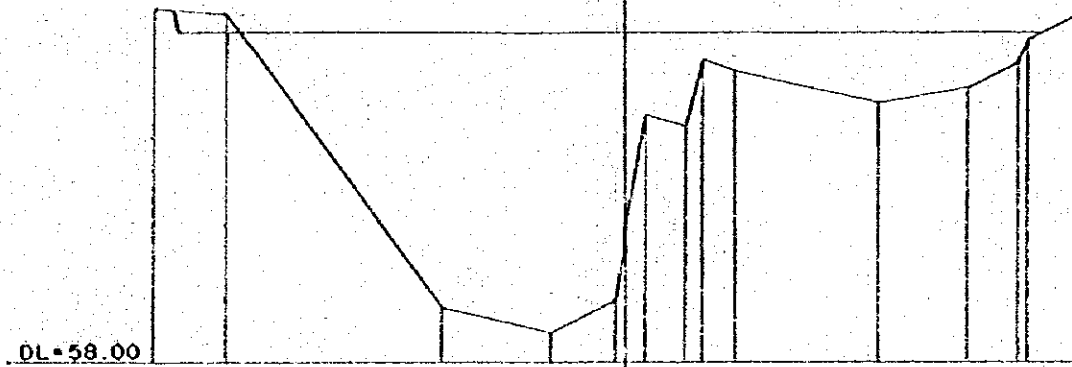
3. Cretuleasca Final Disposal Site

Drawing No.	Name
27	DESIGN PLAN
28	CROSS SECTION (1)
29	CROSS SECTION (2)
30	FACILITY STRUCTURE (1)
31	FACILITY STRUCTURE (2)
32	FACILITY STRUCTURE (3)
33	FACILITY STRUCTURE (4)
34	FACILITY STRUCTURE (5)
35	FACILITY STRUCTURE (6)
36	FACILITY STRUCTURE (7)
37	FACILITY STRUCTURE (8)

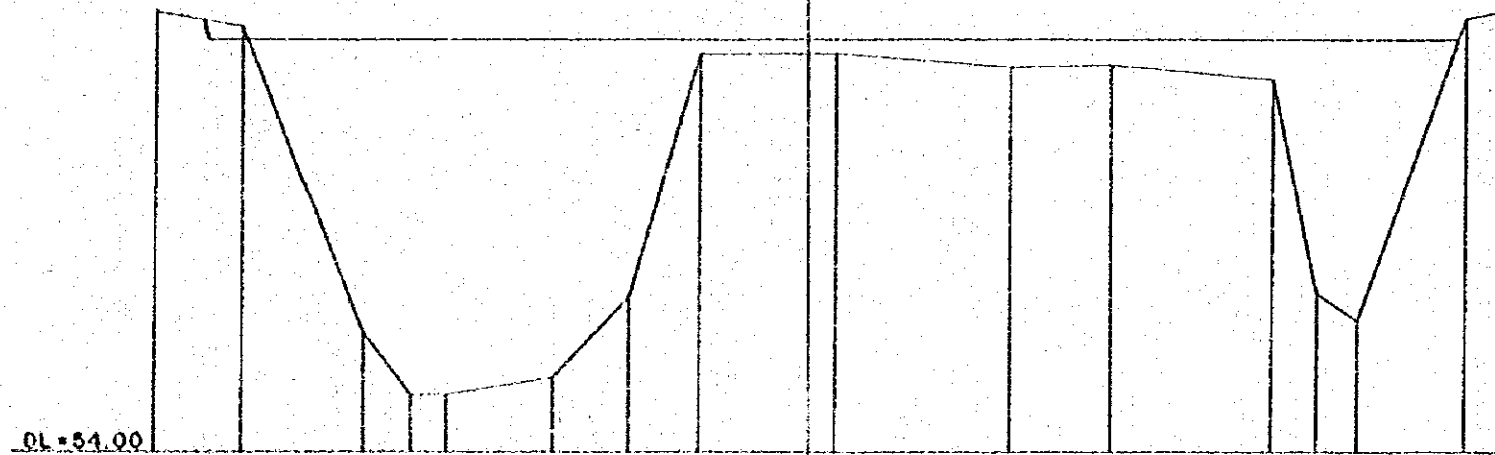


GUINA FINAL DISPOSAL SITE		
DESIGN PLAN		
SCALE	DRAWING NO.	DATE
1 : 4,000	1	30/9/1995
THE STUDY OF THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

Cross section drawing 1

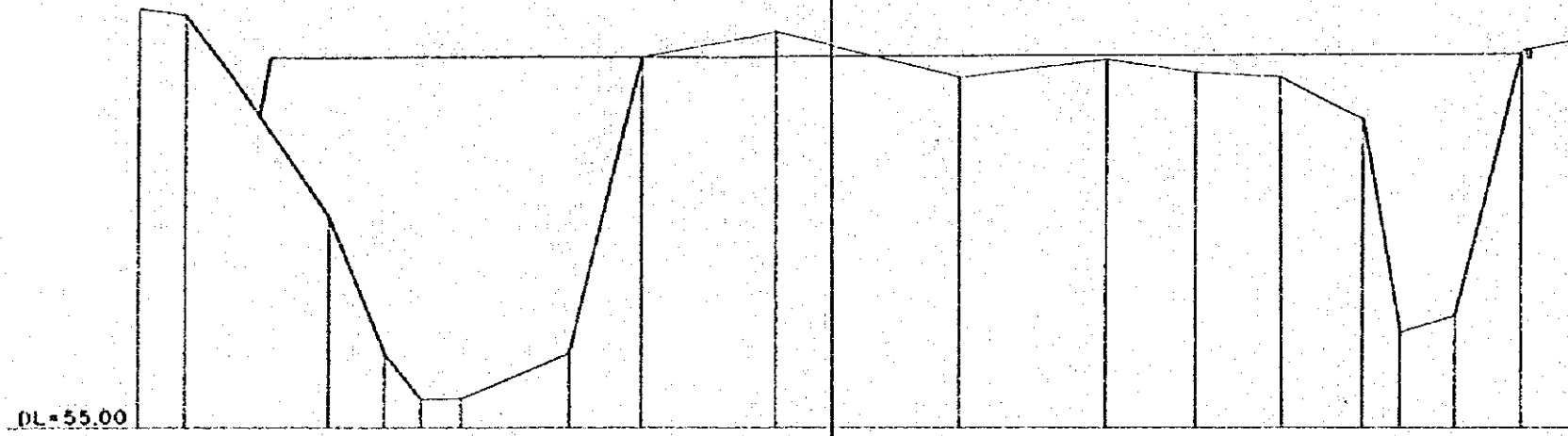


Cross section drawing 2

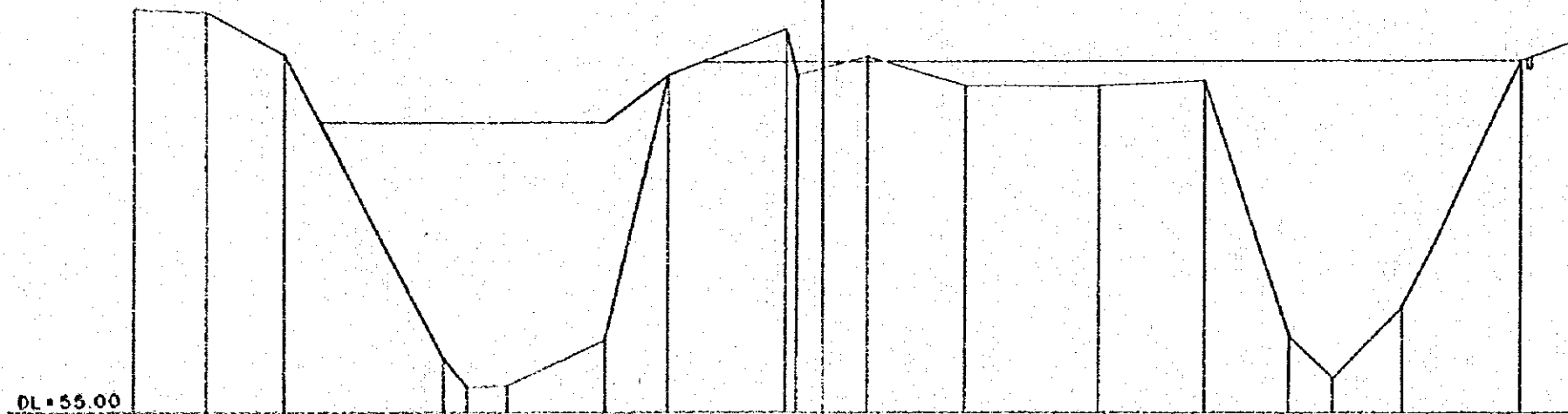


GLINA FINAL DISPOSAL SITE		
CROSS SECTION (1)		
SCALE	DRAWING NO.	DATE
H=1:2,000 V=1:200	2	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

Cross section drawing 3

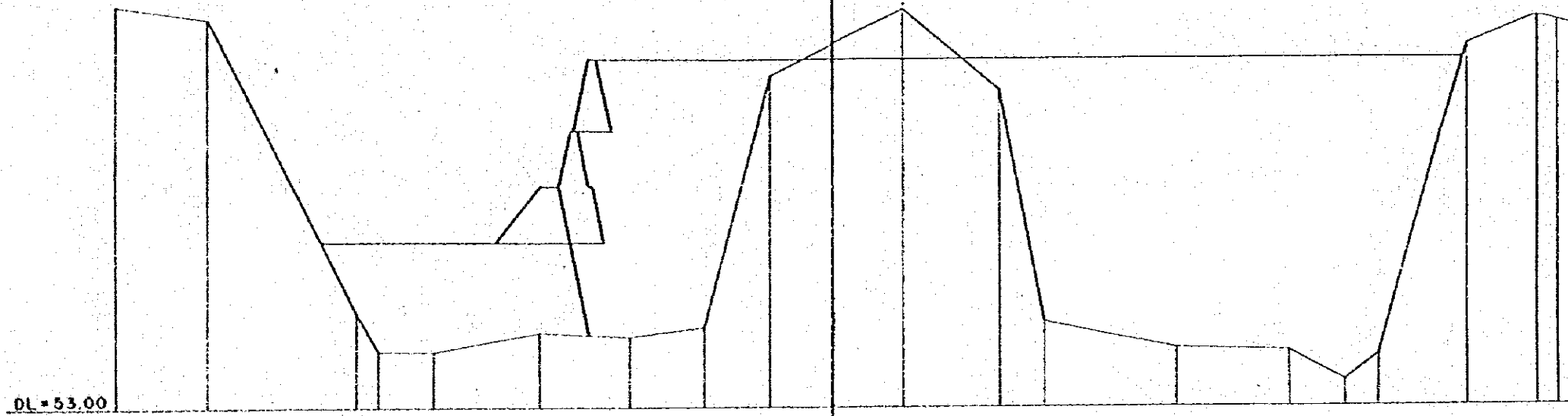


Cross section drawing 4

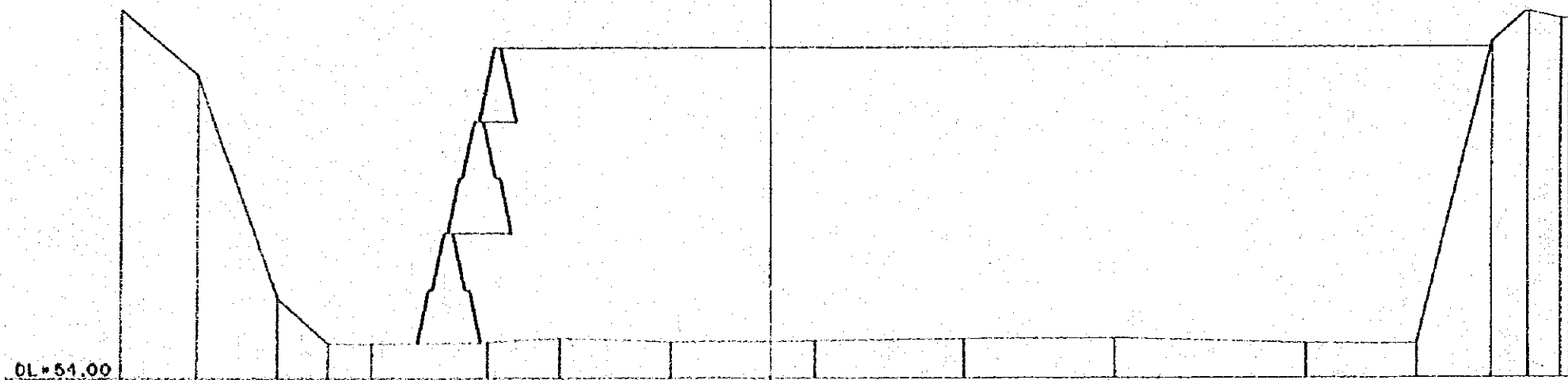


GLINA FINAL DISPOSAL SITE		
CROSS SECTION (2)		
SCALE	DRAWING NO.	DATE
H = 1 : 2,000 V = 1 : 200	3	30/9/1995
THE STUDY OF THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

Cross section drawing 5

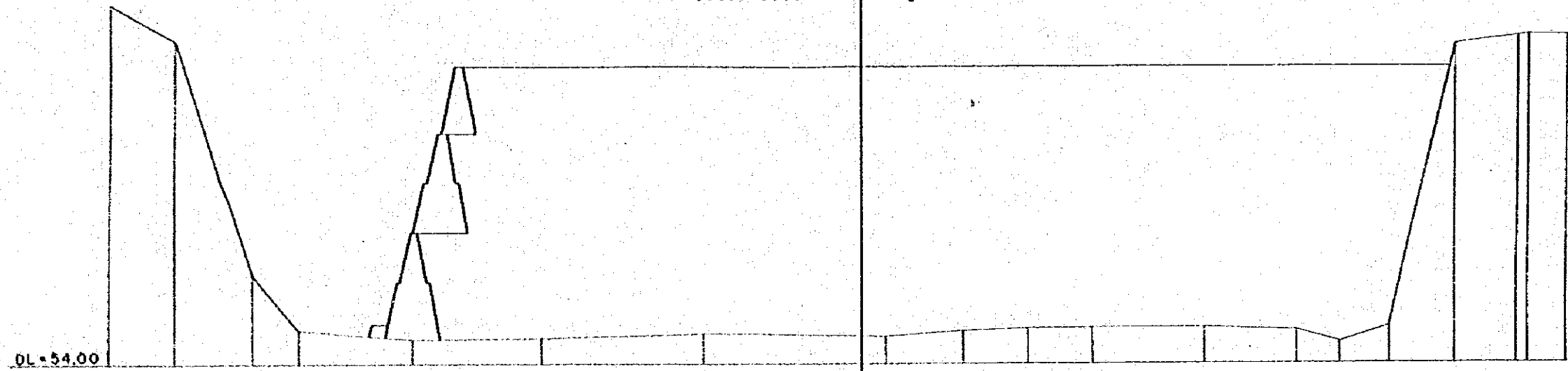


Cross section drawing 6

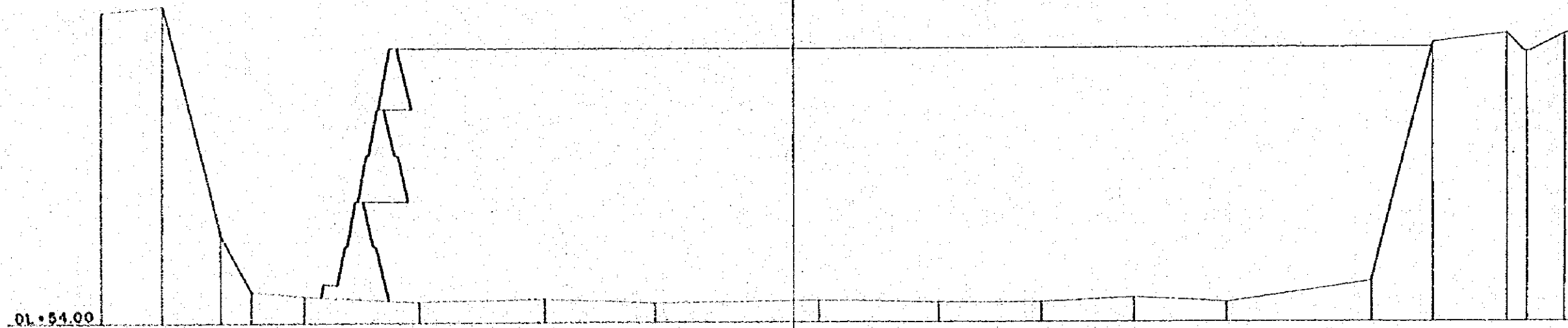


GLINA FINAL DISPOSAL SITE		
CROSS SECTION (3)		
SCALE	DRAWING NO.	DATE
H=1:2,000 V=1:200	4	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

Cross section drawing 7

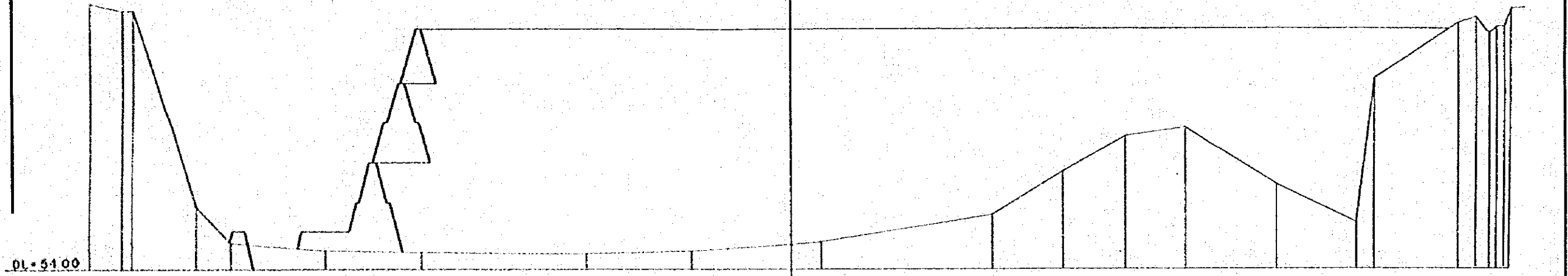


Cross section drawing 8

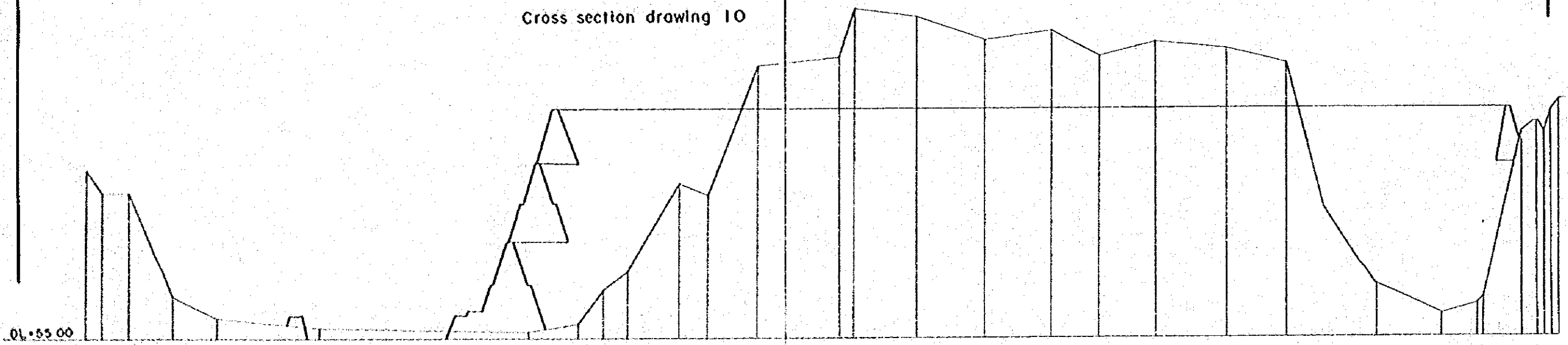


GLINA FINAL DISPOSAL SITE		
CROSS SECTION (4)		
SCALE	DRAWING NO.	DATE
H = 1 : 2,000 V = 1 : 200	5	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

Cross section drawing 9

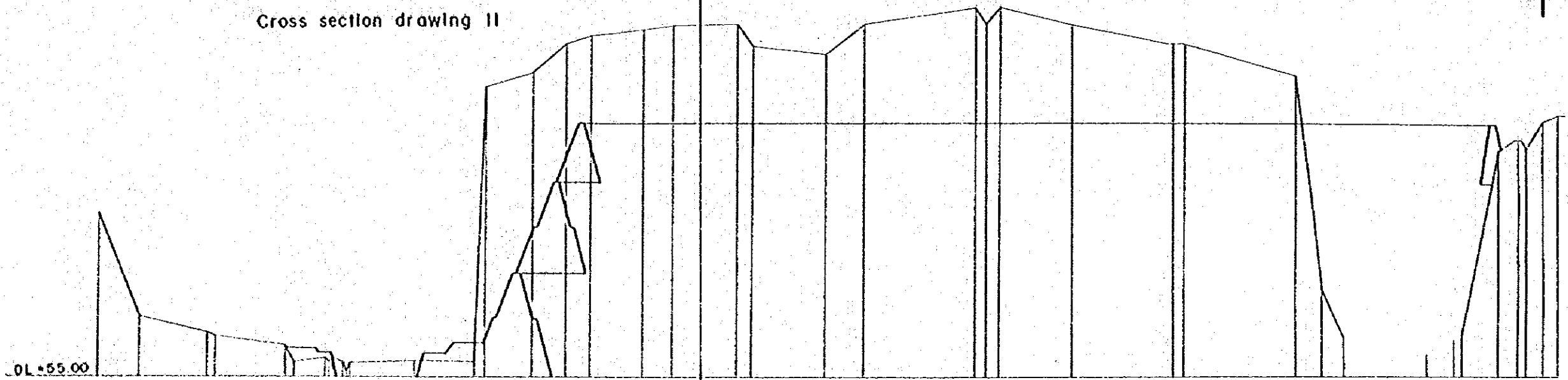


Cross section drawing 10

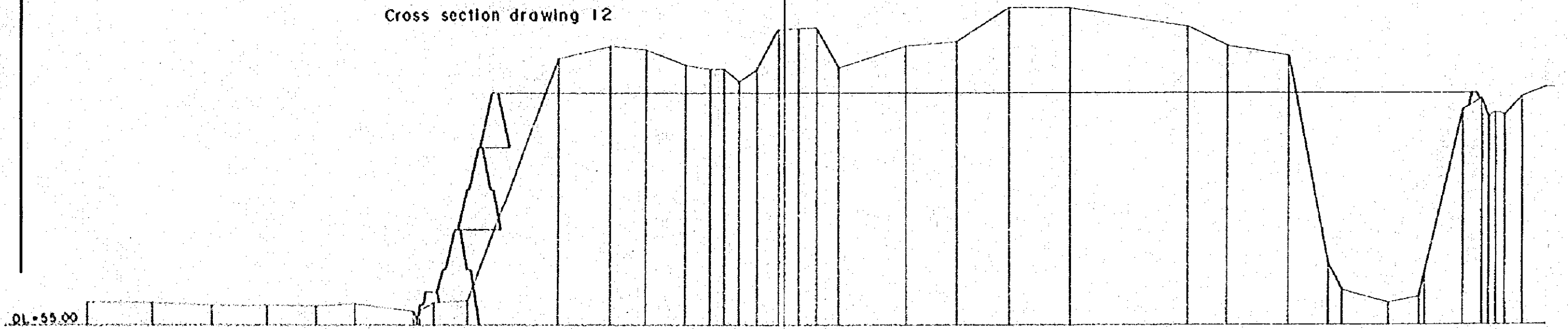


GLINA FIKAL DISPOSAL SITE		
CROSS SECTION (5)		
SCALE	DRAWING NO.	DATE
H=1:2,000 V=1:200	6	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

Cross section drawing 11

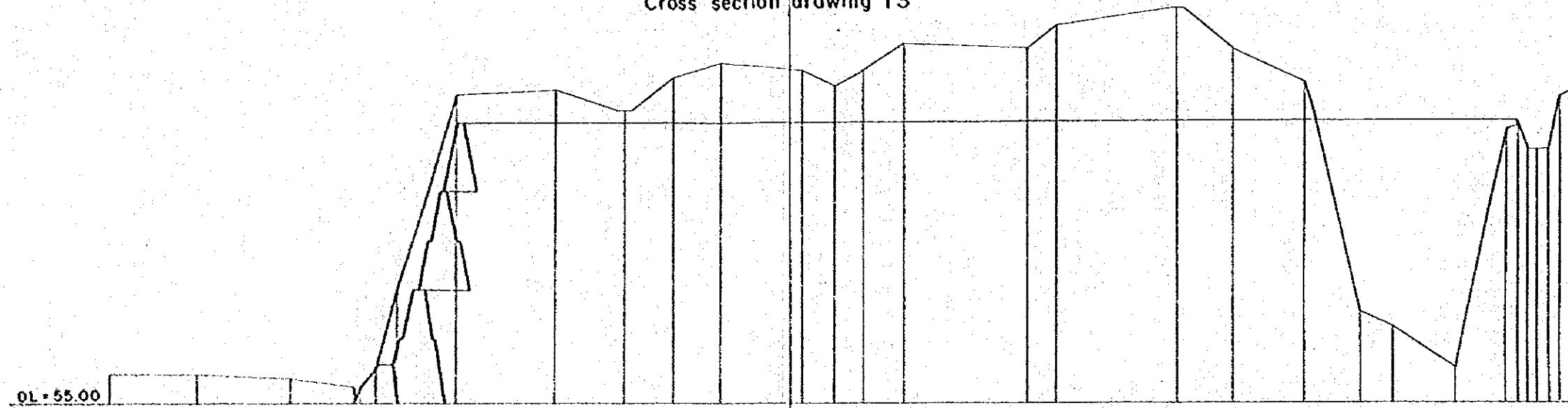


Cross section drawing 12

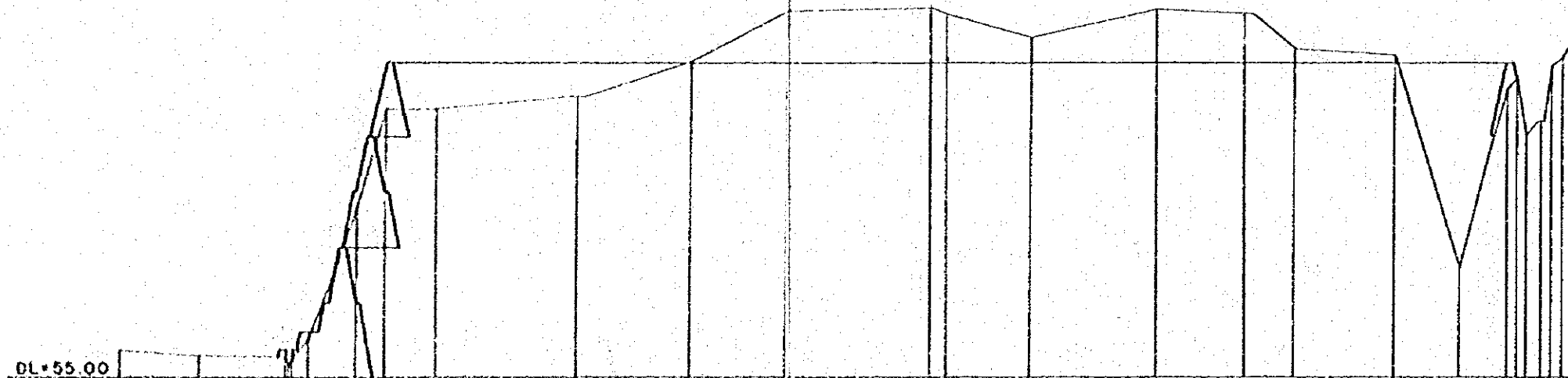


GLINA FINAL DISPOSAL SITE		
CROSS SECTION (6)		
SCALE	DRAWING NO.	DATE
H = 1 : 2,000 V = 1 : 200	?	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

Cross section drawing 13

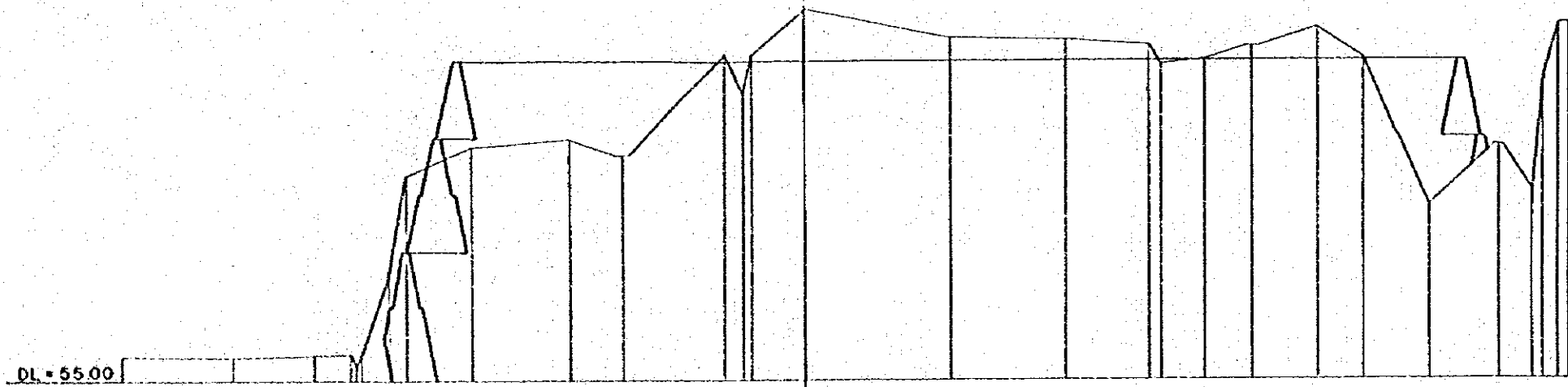


Cross section drawing 14



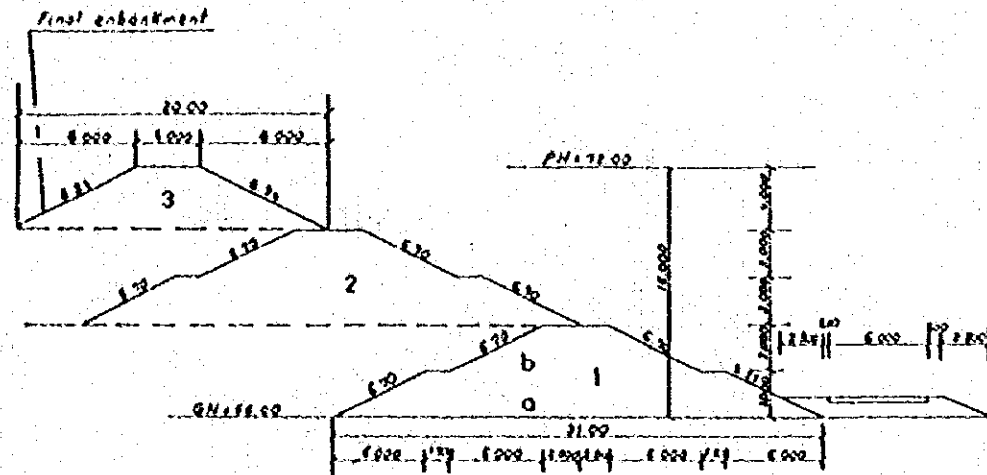
GLINA FINAL DISPOSAL SITE		
CROSS SECTION (7)		
SCALE	DRAWING NO.	DATE
H = 1 : 2,000 V = 1 : 200	8	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

Cross section drawing 15

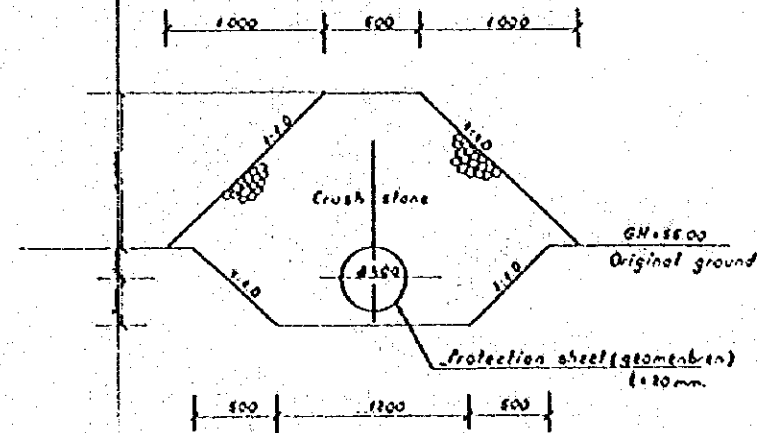


GLINA FINAL DISPOSAL SITE		
CROSS SECTION (8)		
SCALE	DRAWING NO.	DATE
H=1:2,000 V=1:200	9	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

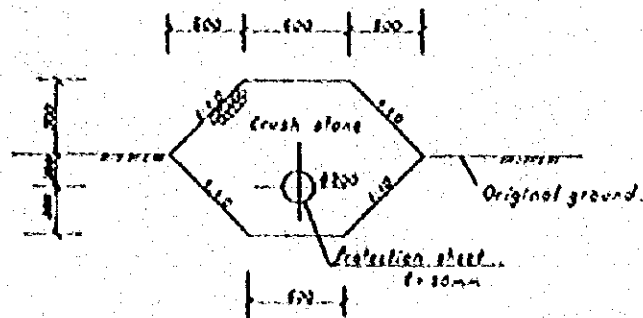
ENBANKMENT WORK
SCALE 1:300



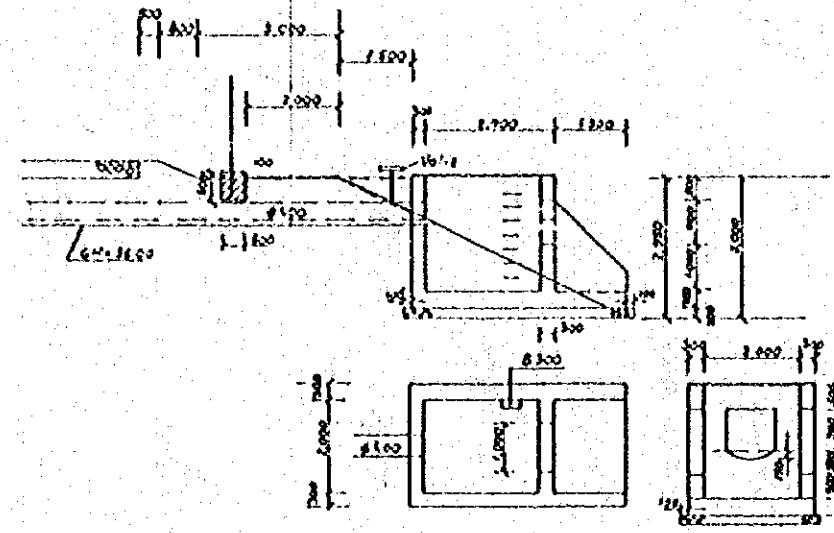
LEACHATE COLLECTION PIPE (MAIN PIPE)
SCALE 1:30



LEACHATE COLLECTION PIPE (BRANCH PIPE)
SCALE 1:30

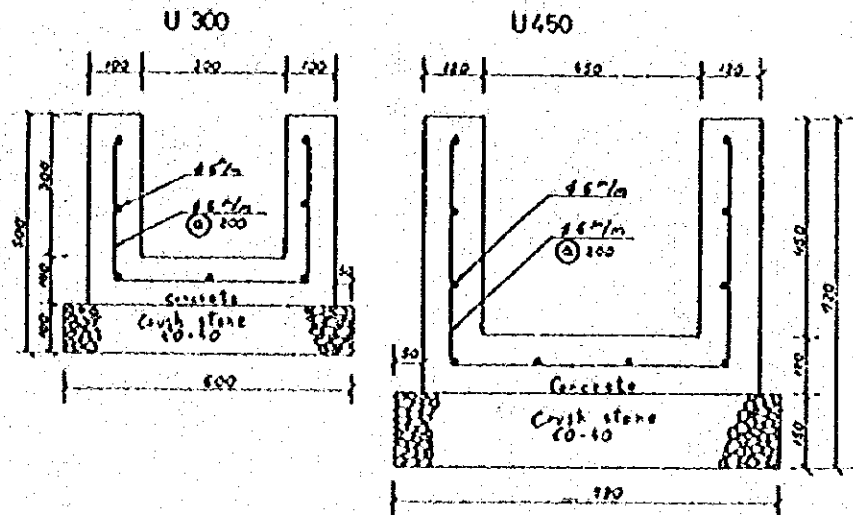


DRAINAGE PIT
SCALE 1:10

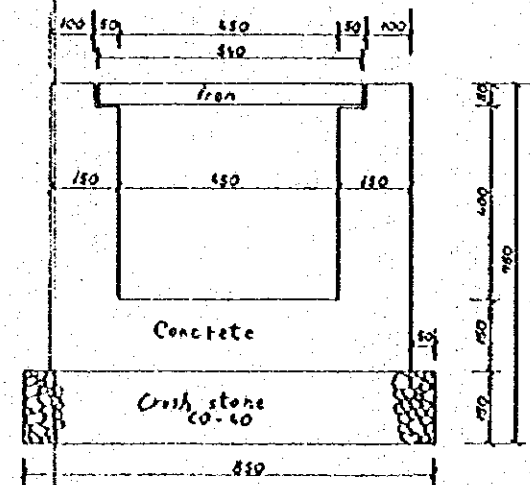


GLINA FINAL DISPOSAL SITE		
FACILITY STRUCTURE (1)		
SCALE	DRAWING NO.	DATE
As shown	10	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

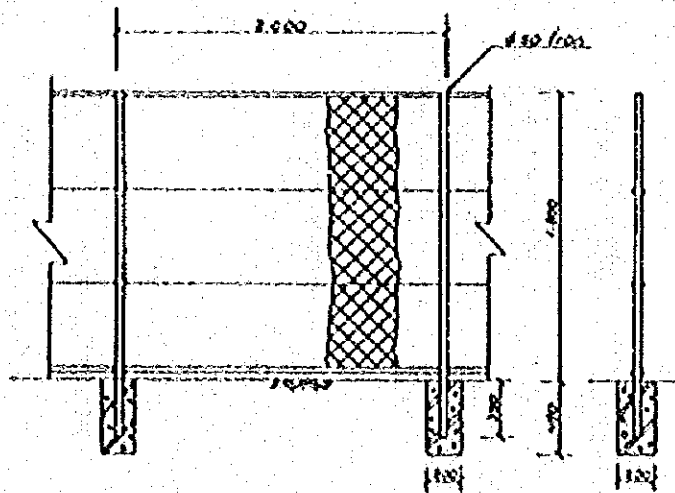
„U” TYPE DRAINAGE DITCH
SCALE 1:10



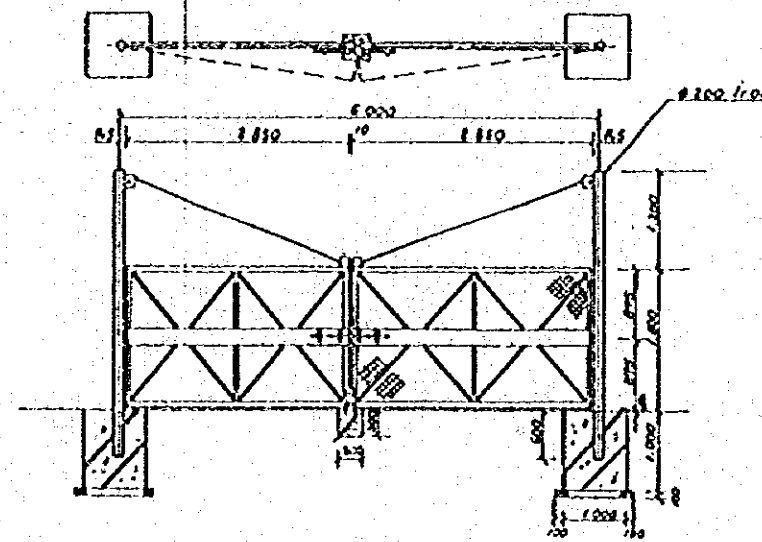
MANHOLE
SCALE 1:10



NET FENCE
SCALE 1:30



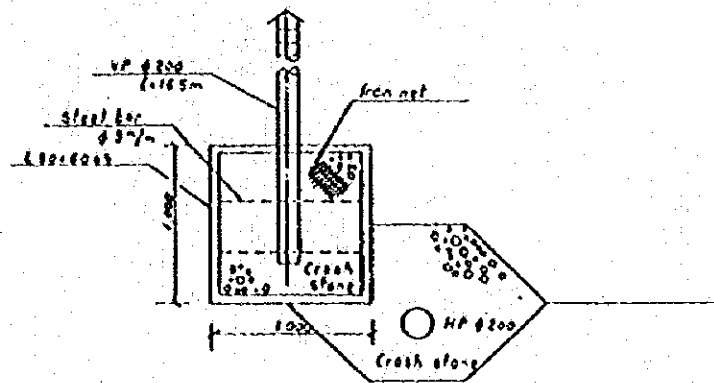
GATE
SCALE 1:60



GLINA FINAL DISPOSAL SITE		
FACILITY STRUCTURE (2)		
SCALE	DRAWING NO.	DATE
As shown	11	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

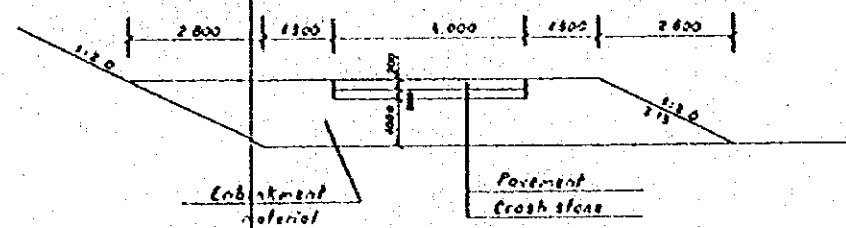
GAS EXHAUST EQUIPMENT ON BRANCH PIPE

SCALE 1:30



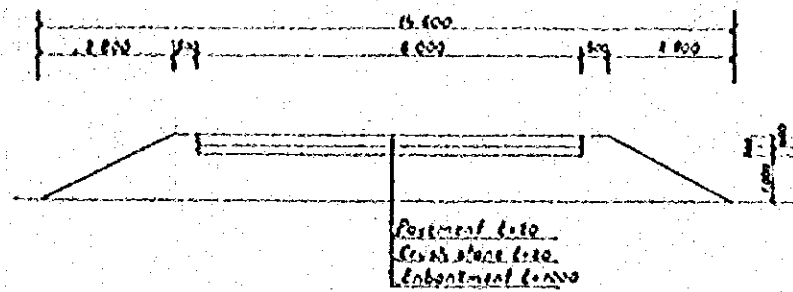
ROAD CONSTRUCTION WORK

SCALE 1:100



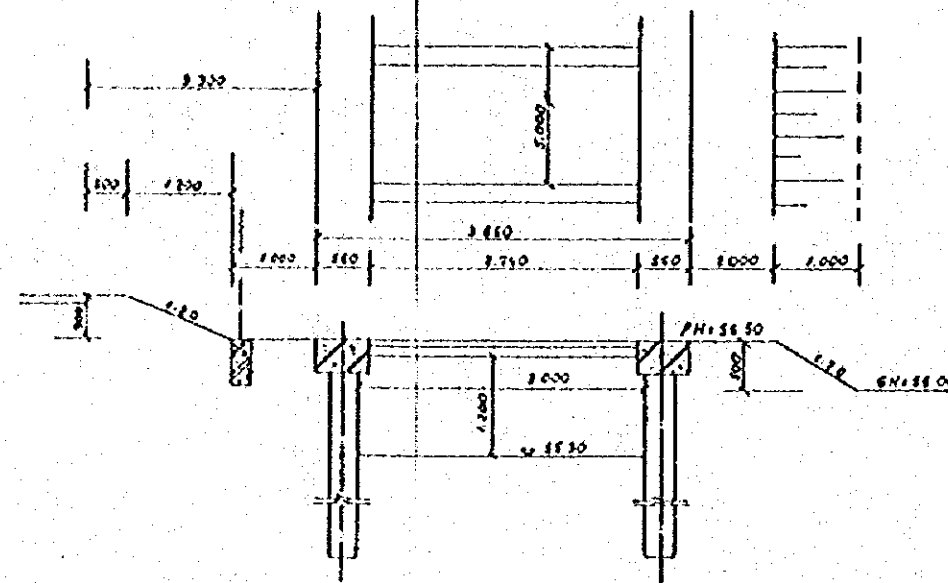
ON-SITE ROAD

SCALE 1:100



EXISTING DRAINAGE DITCH IMPROVEMENT WORK

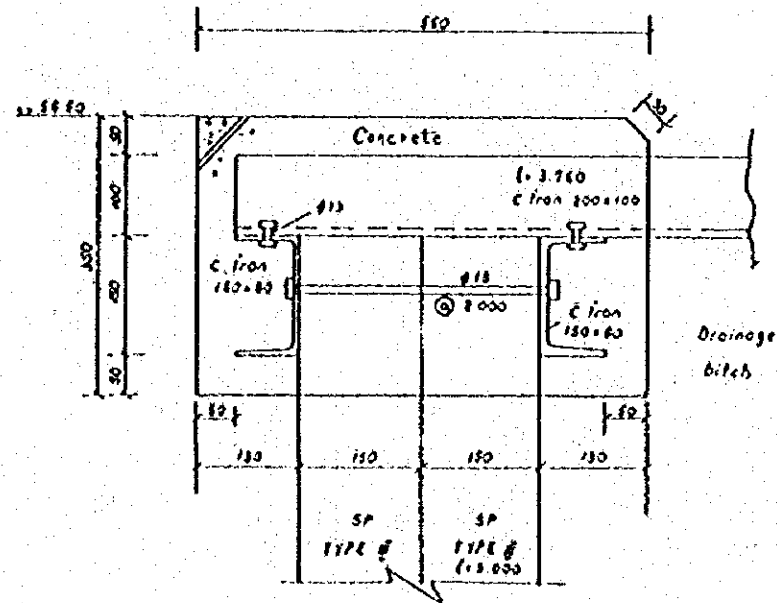
SCALE 1:10



GLINA FINAL DISPOSAL SITE		
FACILITY STRUCTURE (4)		
SCALE	DRAWING NO.	DATE
As shown	13	30/9/1995
THE STUDY OF THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

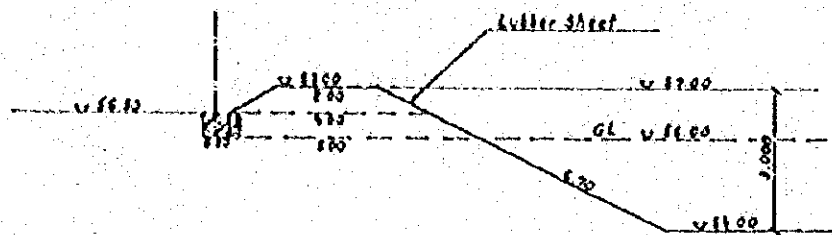
DETAIL STRUCTURE OF DITCH WALL ROAD

SCALE 1:60



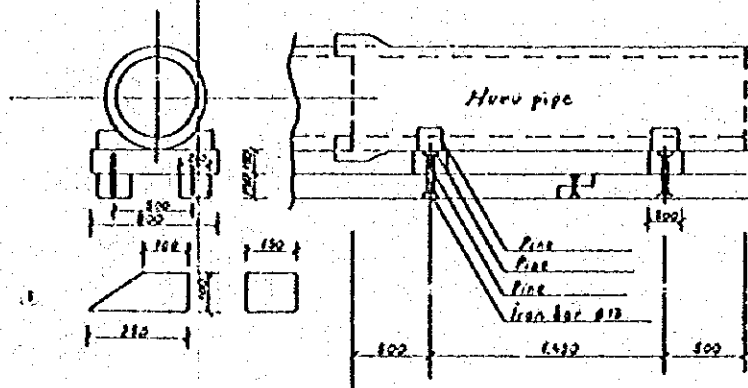
LEACHATE STORAGE POND

SCALE 1:100



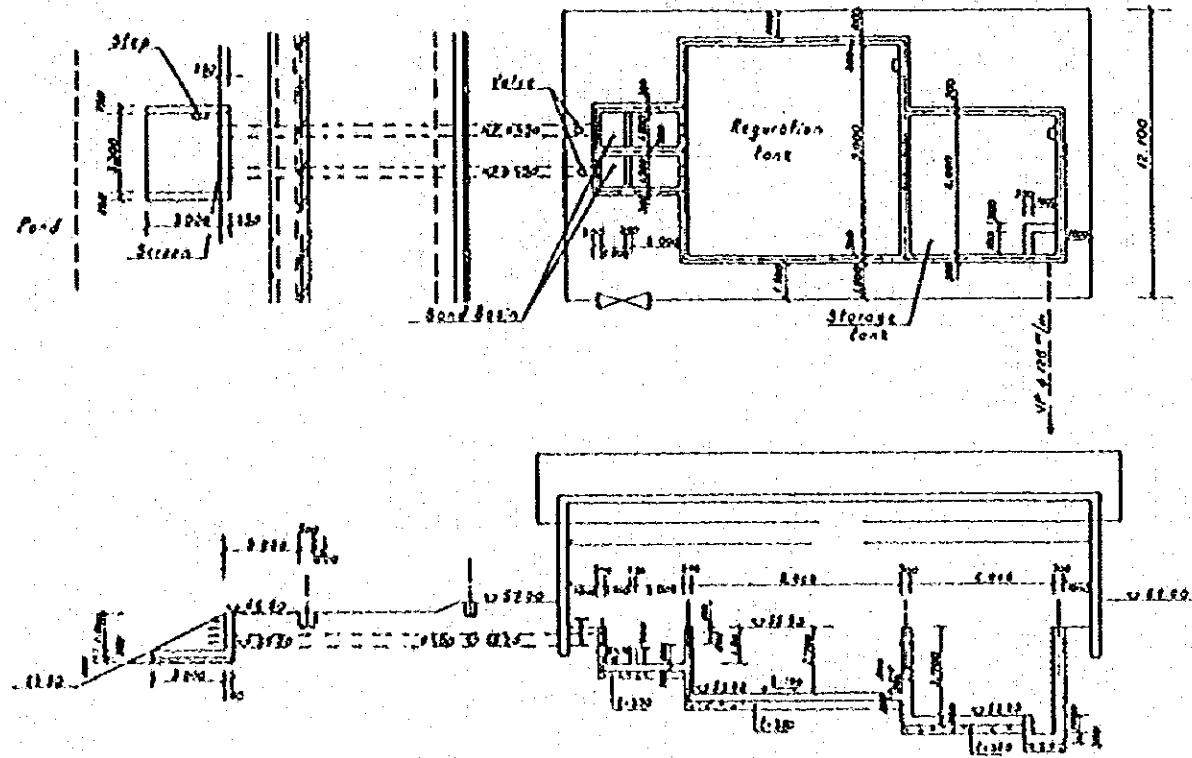
LEACHATE PUMP STATION

SCALE 1:30

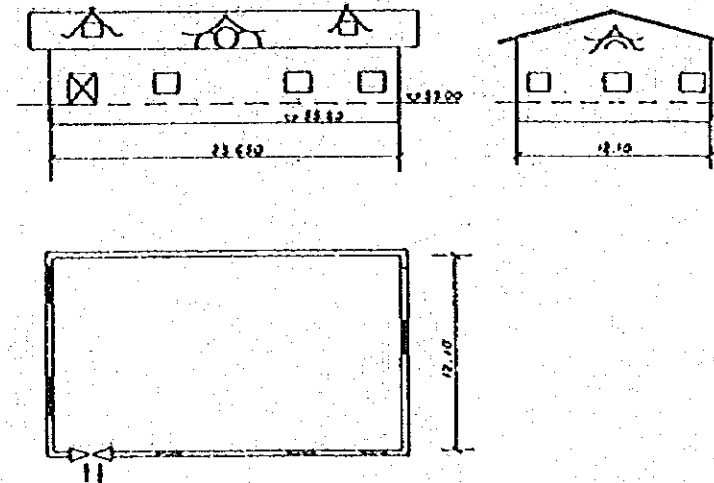


GLINA FIKAL DISPOSAL SITE		
FACILITY STRUCTURE (5)		
SCALE	DRAWING NO.	DATE
As shown	14	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

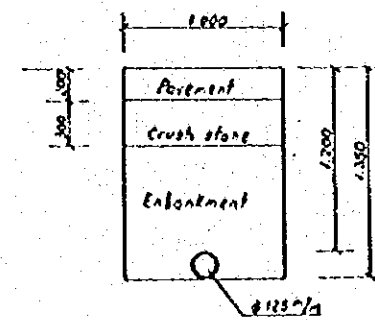
LEACHATE PUMP STATION
SCALE 1:20



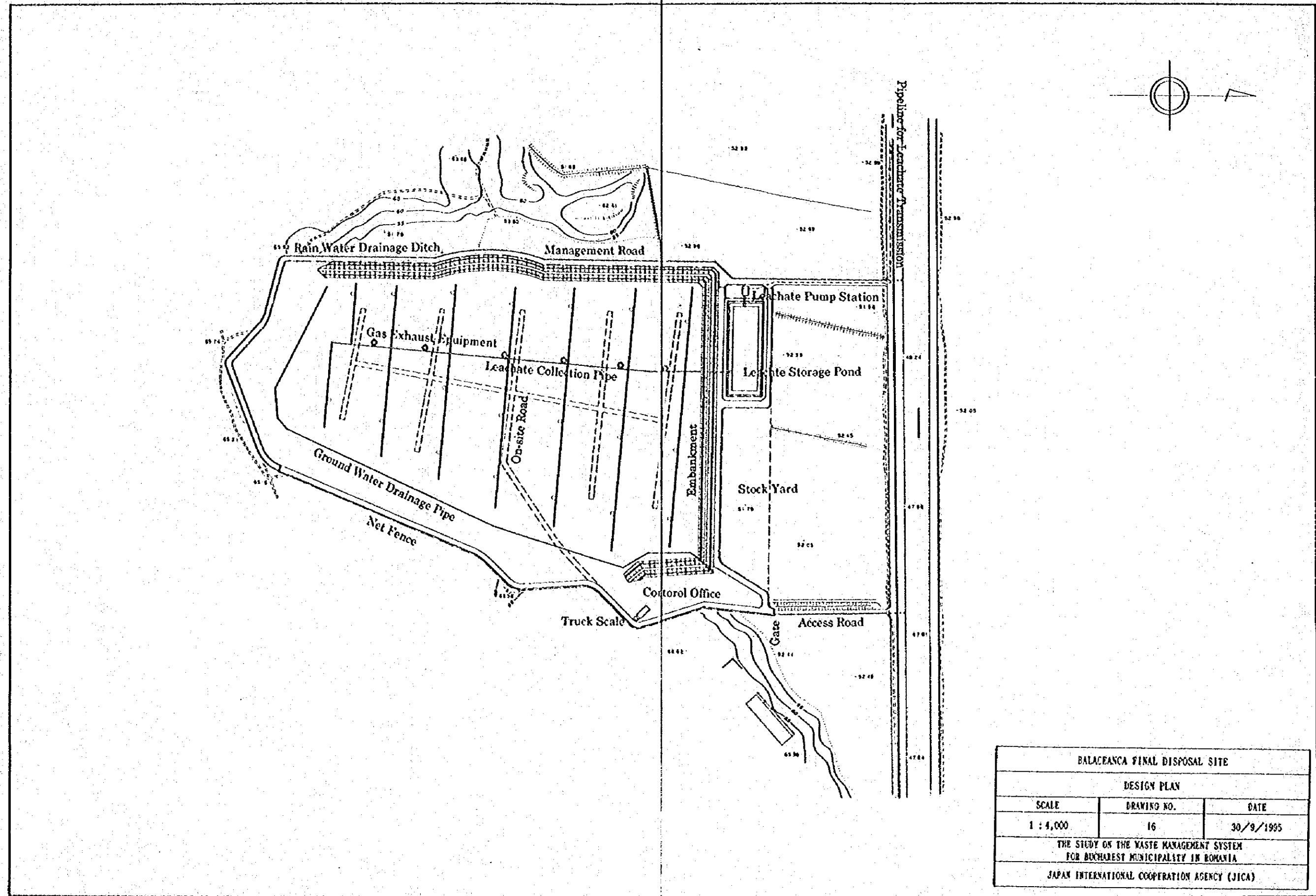
BUILDING WORK
SCALE 1:300



PIPE LINE
SCALE 1:30

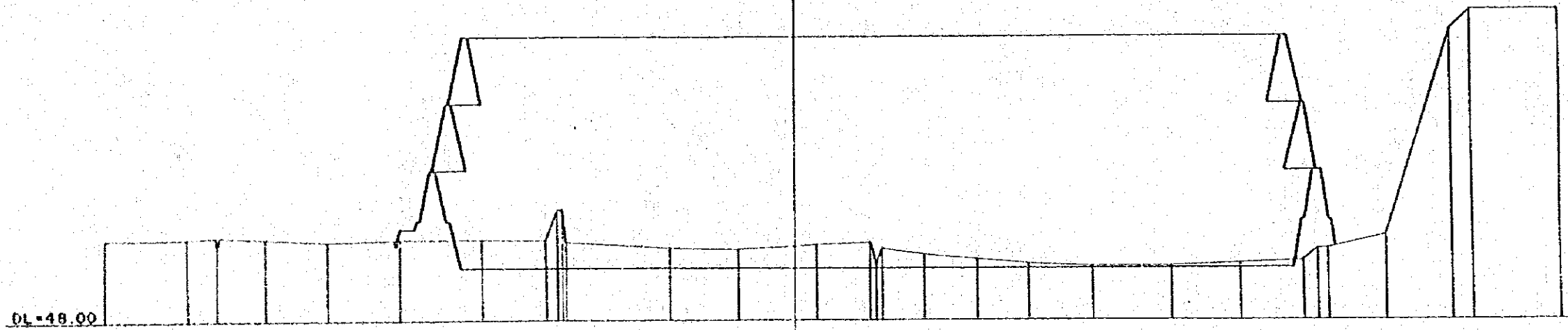


GLINA FINAL DISPOSAL SITE		
FACILITY STRUCTURE (6)		
SCALE	DRAWING NO.	DATE
As shown	15	30/9/1995
THE STUDY OF THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

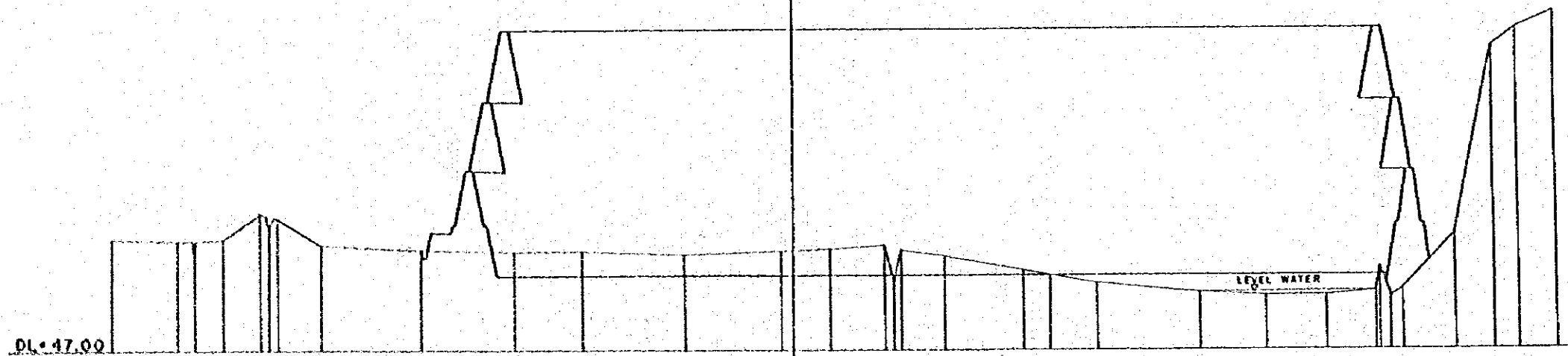


BALACEANCA FINAL DISPOSAL SITE		
DESIGN PLAN		
SCALE	DRAWING NO.	DATE
1 : 4,000	16	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

Cross section drawing 4

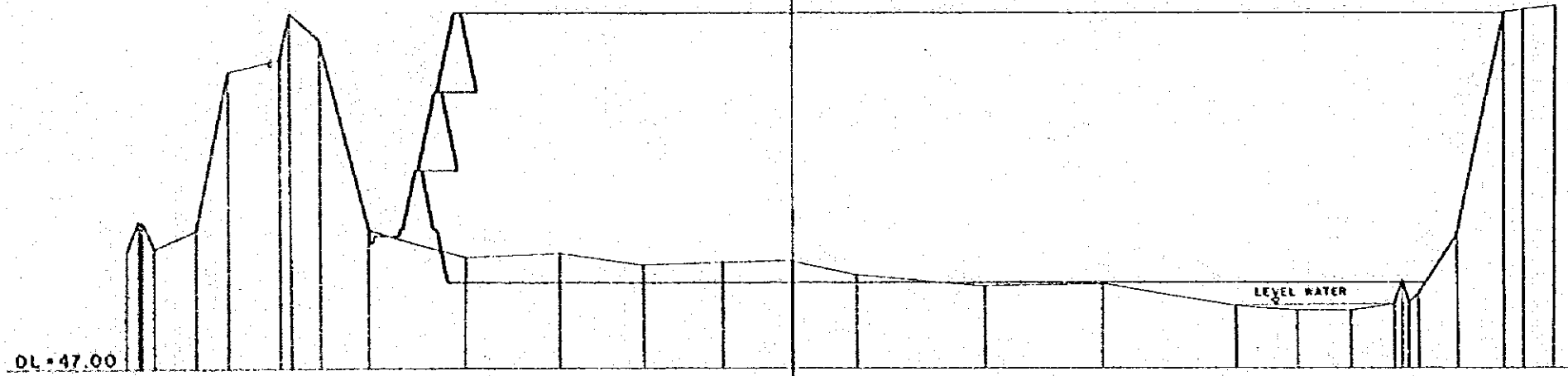


Cross section drawing 5

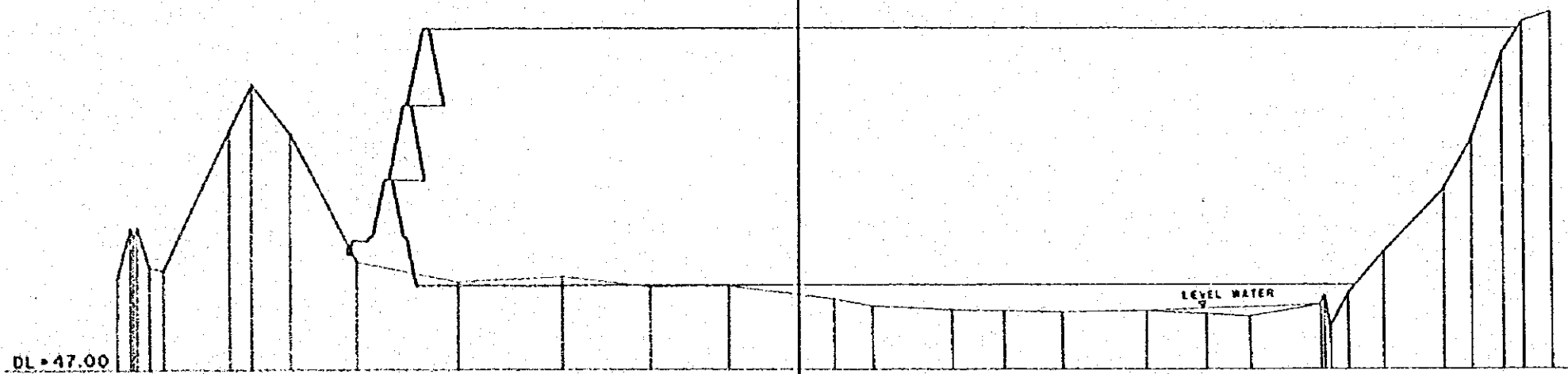


BALACEANCA FINAL DISPOSAL SITE		
CROSS SECTION (1)		
SCALE	DRAWING NO.	DATE
H = 1 : 2,000 V = 1 : 200	17	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

Cross section drawing 6

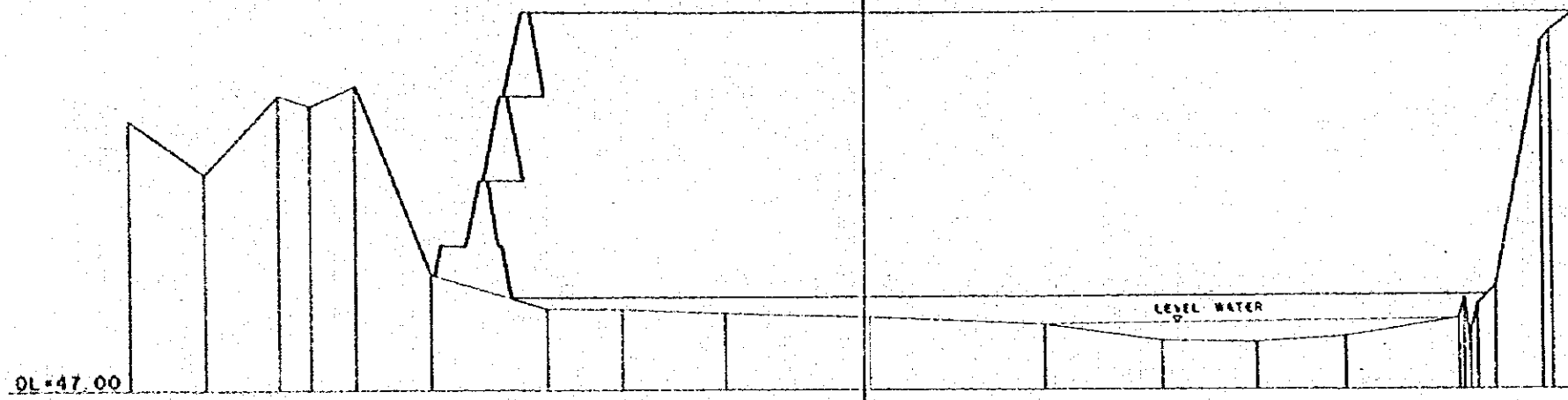


Cross section drawing 7

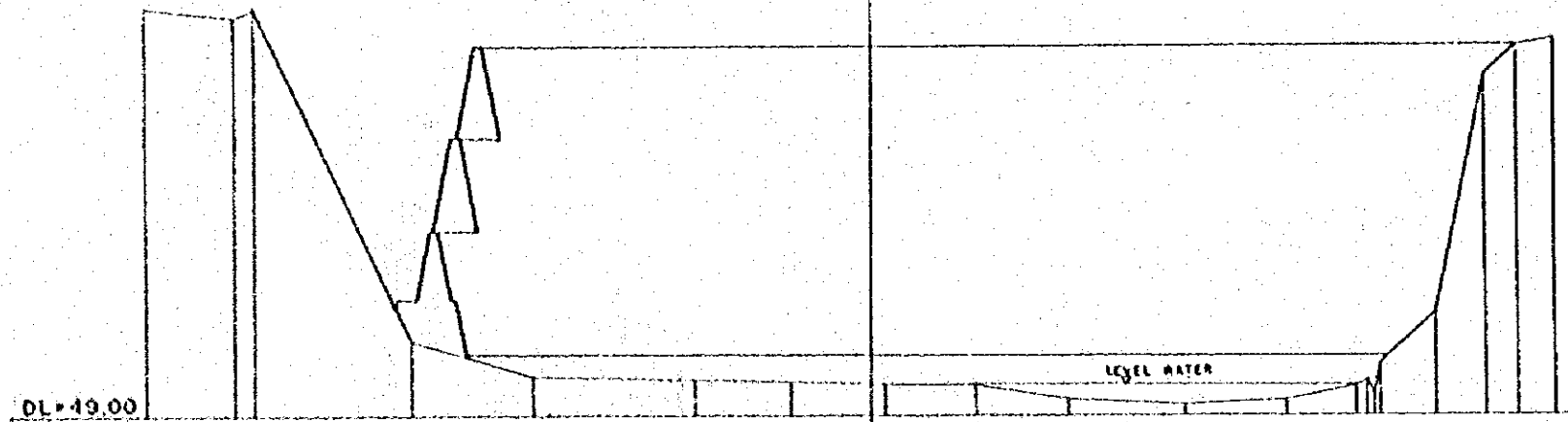


BALACEANCA FINAL DISPOSAL SITE		
CROSS SECTION (2)		
SCALE	DRAWING NO.	DATE
H=1:2,000 V=1:200	18	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

Cross section drawing 8

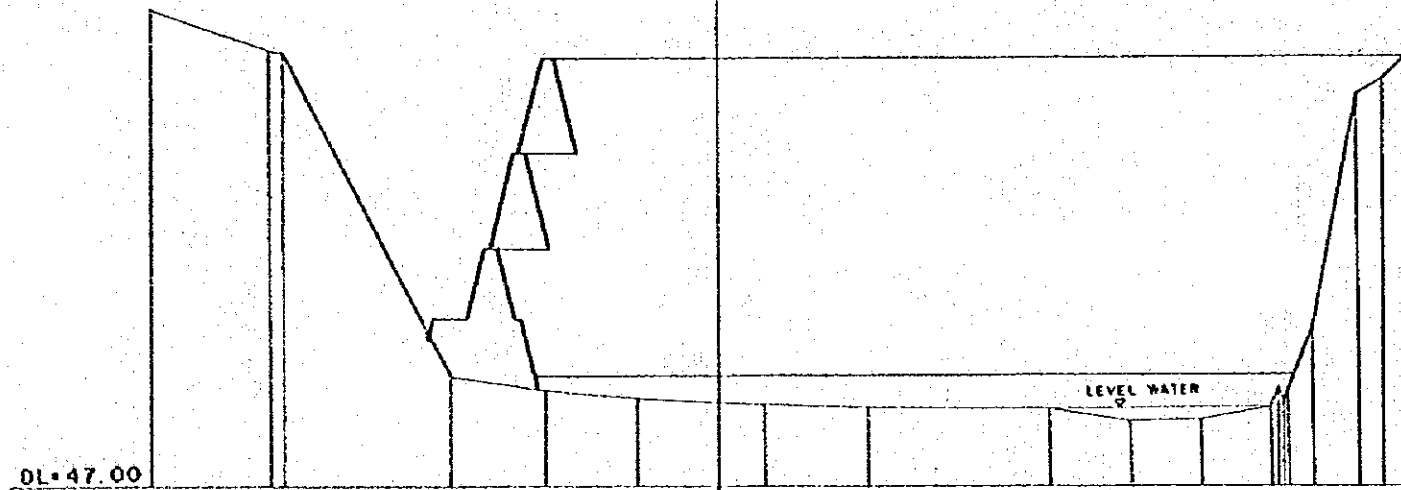


Cross section drawing 9



BALACEANCA FINAL DISPOSAL SITE		
CROSS SECTION (3)		
SCALE	DRAWING NO.	DATE
H=1 : 2,000 V=1 : 200	19	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

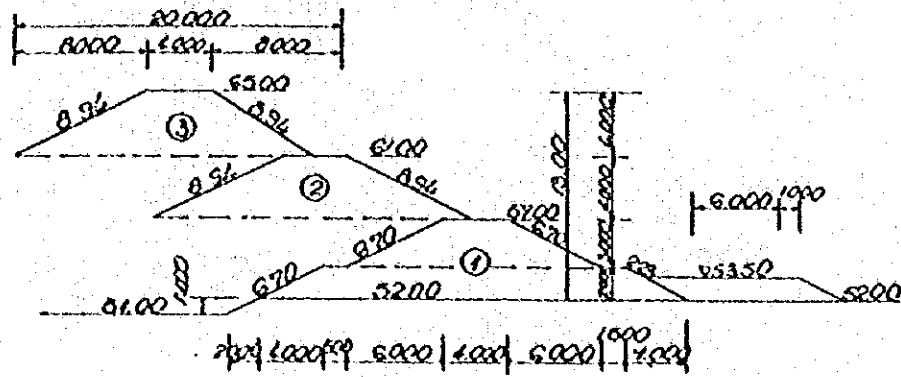
Cross section drawing 10



BALACEANCA FINAL DISPOSAL SITE		
CROSS SECTION (4)		
SCALE	DRAWING NO.	DATE
H=1:2,000 V=1:200	20	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

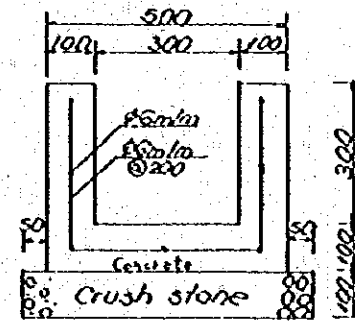
EMBANKMENT WORK

Scale 1:300



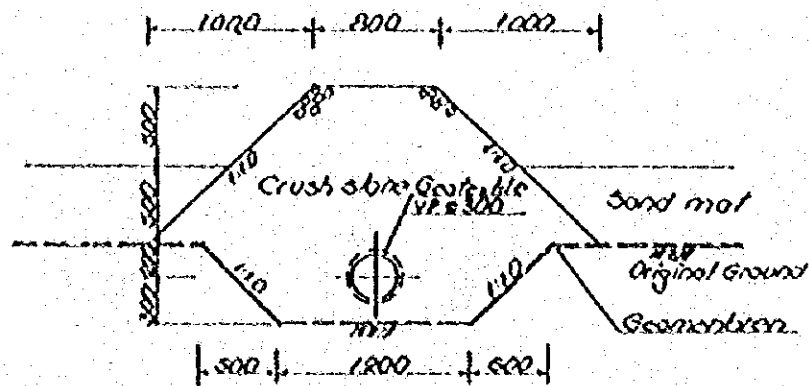
U TYPE DRAINAGE DITCH CONSTRUCTION WORK

Scale 1:10



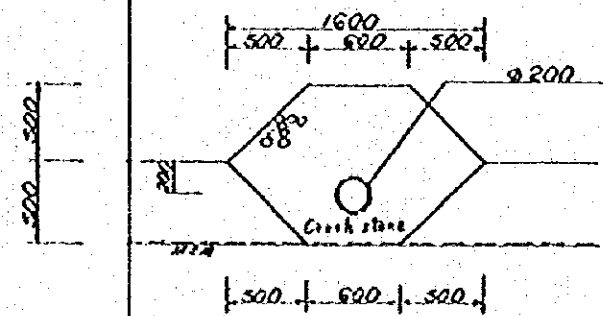
LEACHATE COLLECTION PIPE (MAIN PIPE)

Scale 1:30



LEACHATE COLLECTION PIPE (BRANCH PIPE)

Scale 1:30



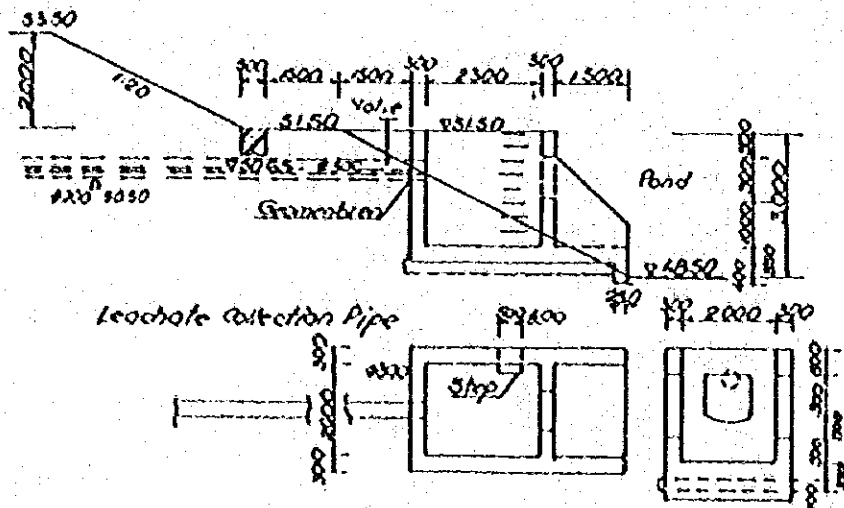
BALACEANCA FINAL DISPOSAL SITE

FACILITY STRUCTURE (1)

SCALE	DRAWING NO.	DATE
As shown	21	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

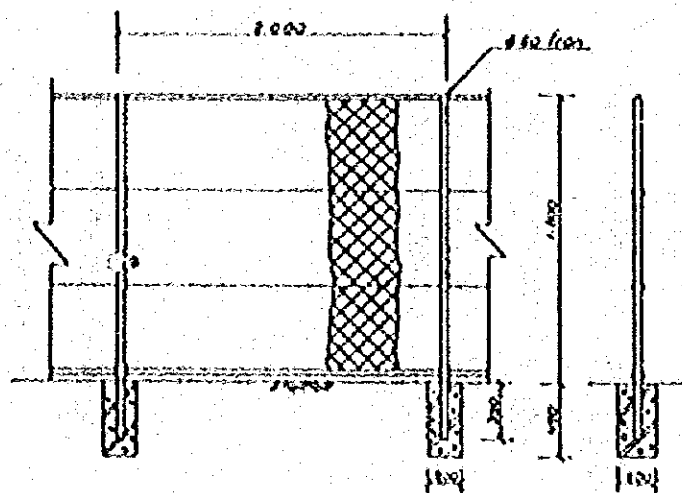
DRAINAGE PIT

Scale 1:100



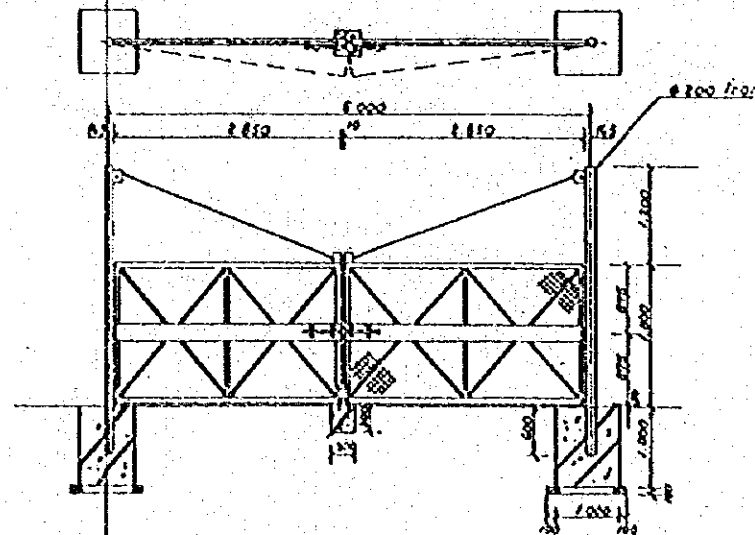
NET FENCE

SCALE 1:30



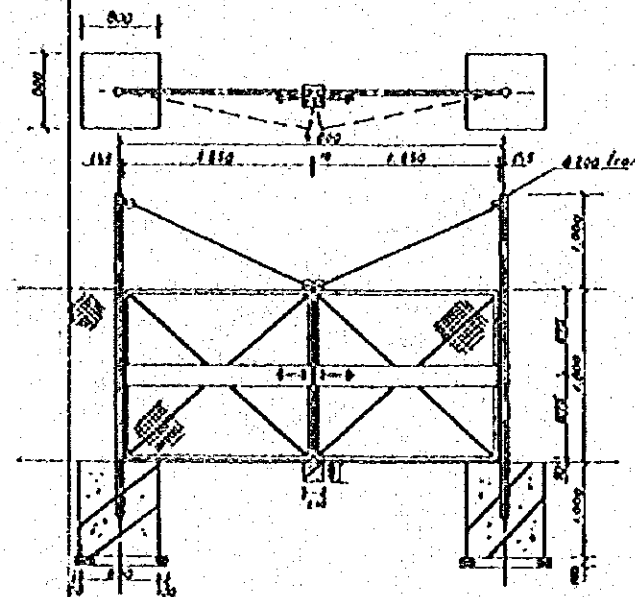
GATE

SCALE 1:60



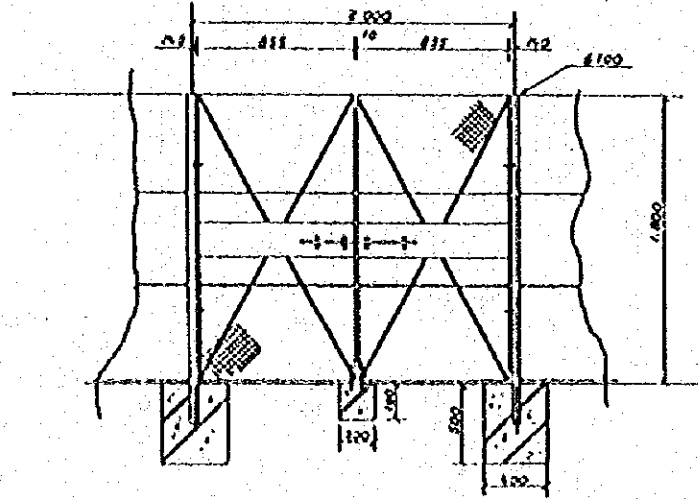
GATE (LEACHATE PUMP STATION)

SCALE 1:50

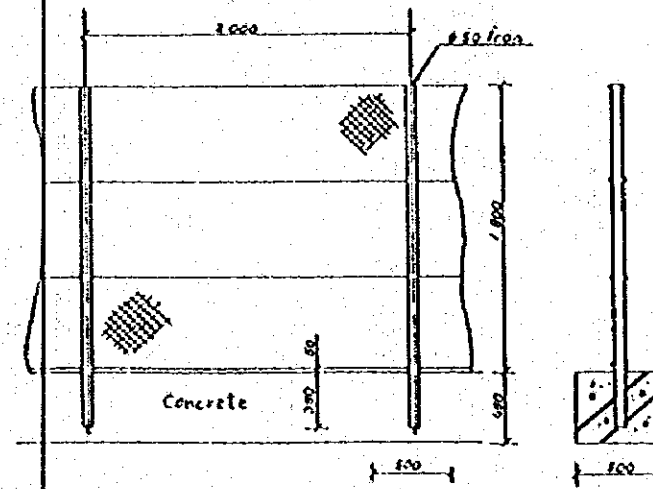


BALACEANCA FINAL DISPOSAL SITE		
FACILITY STRUCTURE (2)		
SCALE	DRAWING NO.	DATE
As shown	22	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

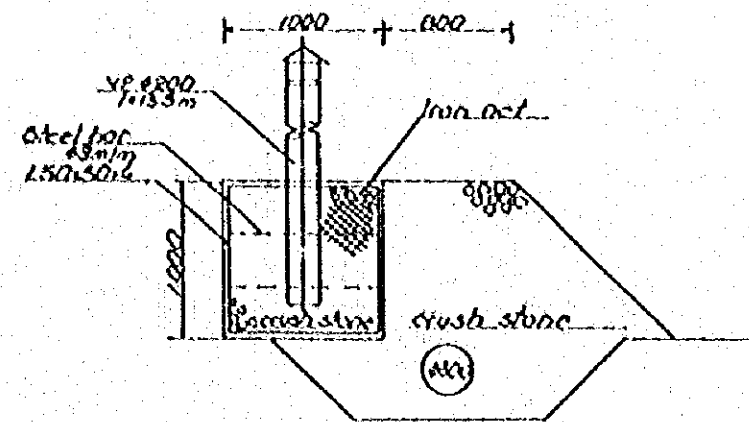
GATE (LEACHATE STORAGE POND)
SCALE 1:30



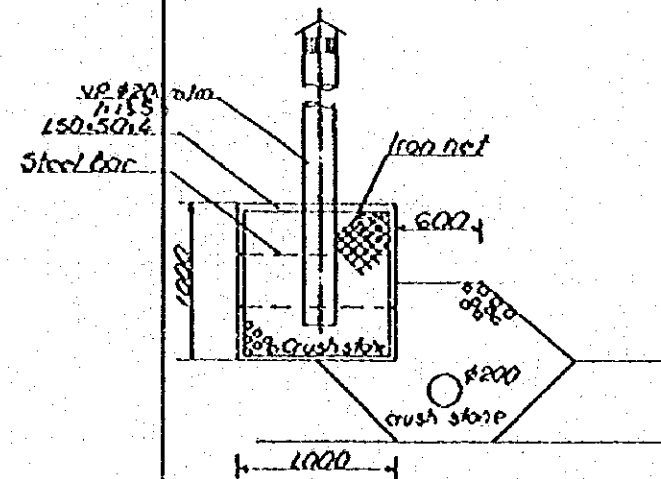
FENCE FOUNDATION
SCALE 1:30



GAS EXHAUST EQUIPMENT ON MAIN PIPE
Scale 1:30

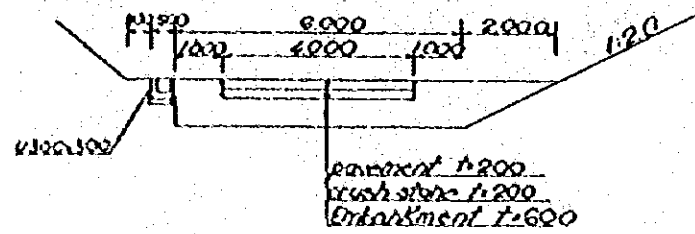


GAS EXHAUST EQUIPMENT ON BRANCH LINE
Scale 1:30

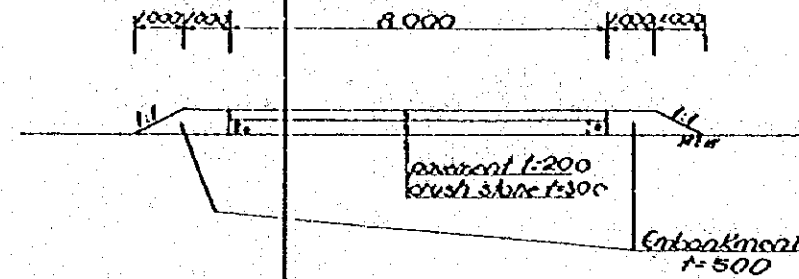


BALACANCA FINAL DISPOSAL SITE		
FACILITY STRUCTURE (3)		
SCALE	DRAWING NO.	DATE
As shown	23	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

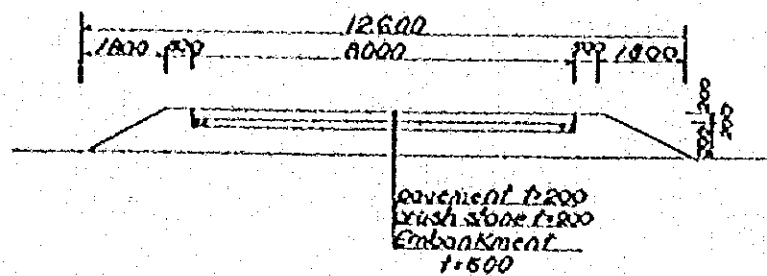
ROAD CONSTRUCTION WORK
Scale 1:100



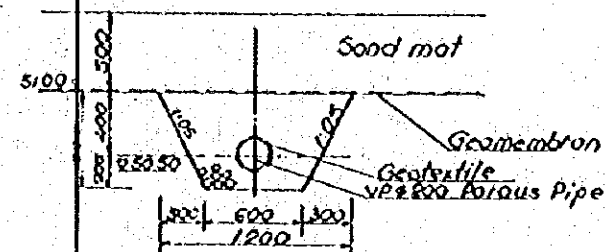
ACCESS ROAD CONSTRUCTION WORK
Scale 1:100



ON-SITE ROAD CONSTRUCTION
Scale 1:100

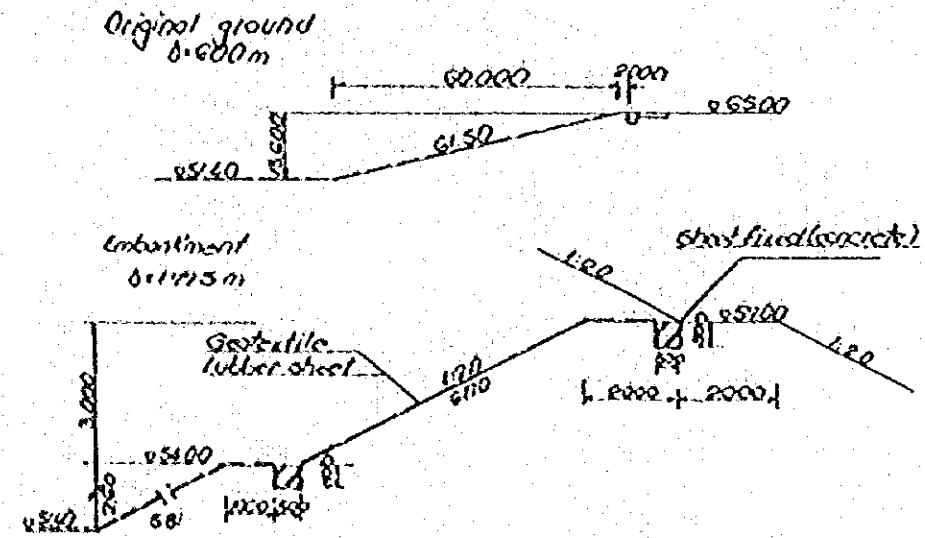


GROUND WATER COLLECTION SYSTEM
Scale 1:30

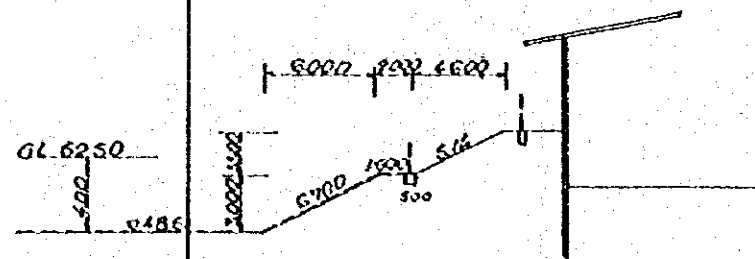


BALACEANCA FINAL DISPOSAL SITE		
FACILITY STRUCTURE (4)		
SCALE	DRAWING NO.	DATE
As shown	24	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

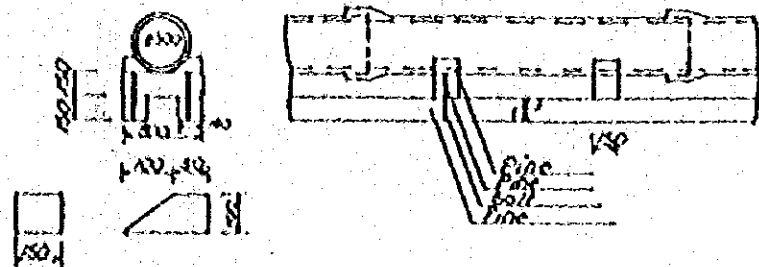
LINER
Scale 1:100



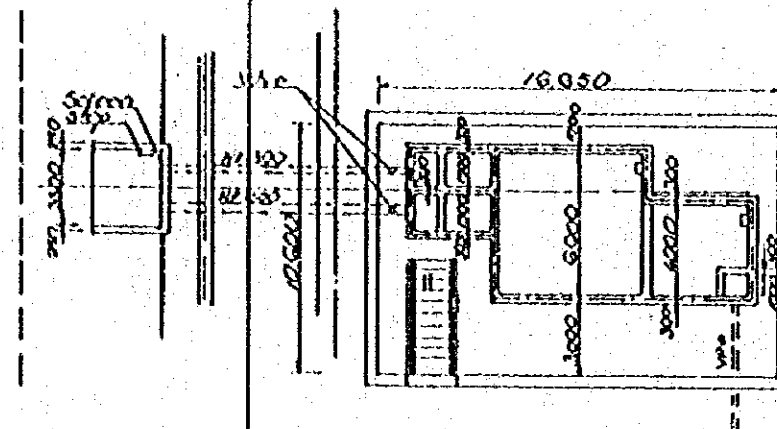
LEACHATE STORAGE POND
Scale 1:200



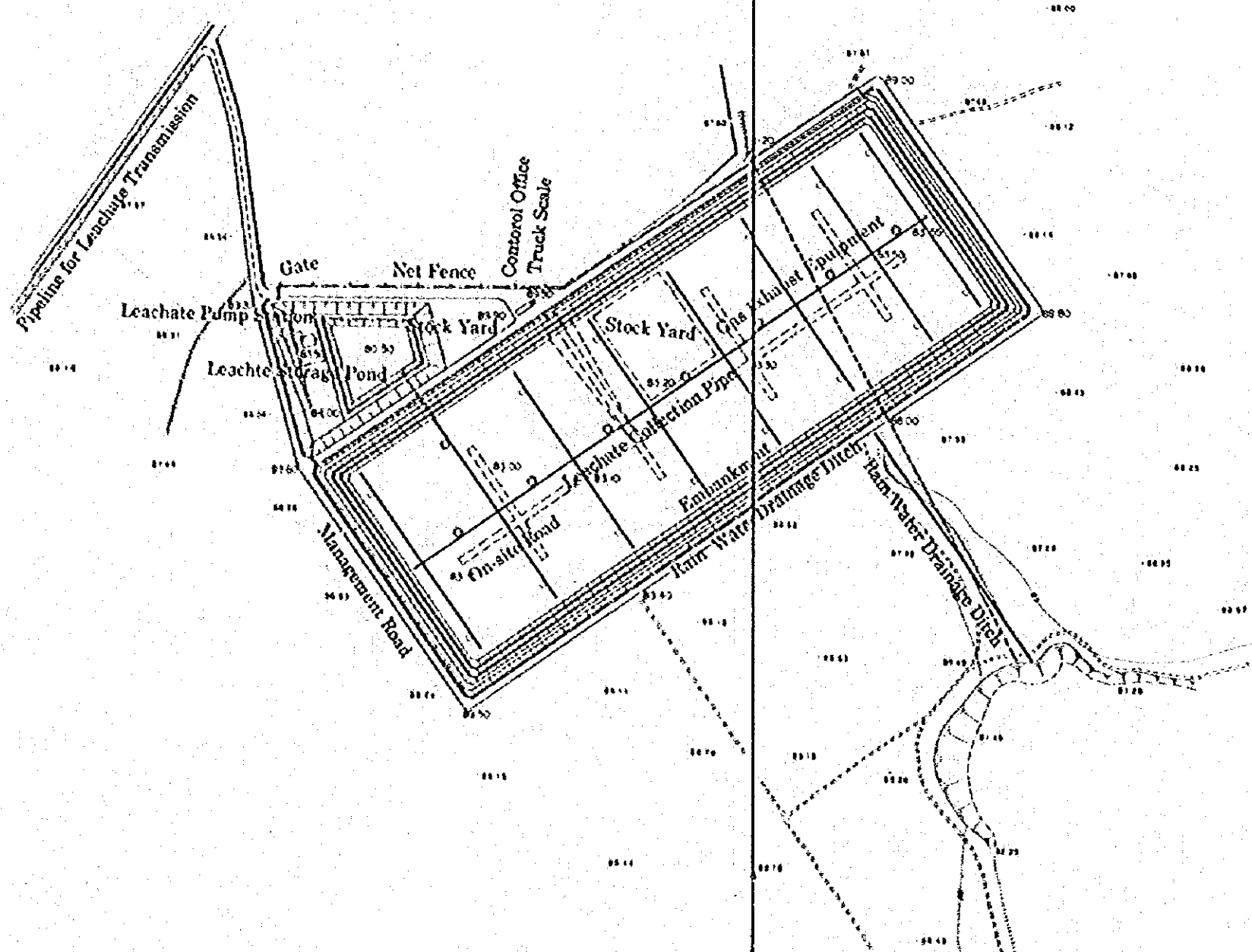
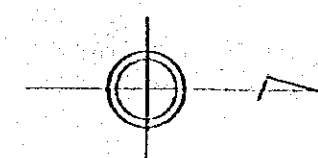
HUME PIPE - INSTALLMENT WORK (φ300mm)
Scale 1:30



DRAWING OF LEACHATE PUMP STATION
Scale 1:200

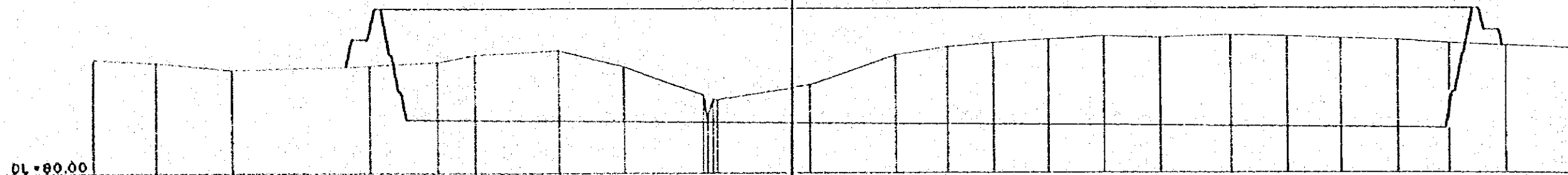


BALACEANICA FINAL DISPOSAL SITE		
FACILITY STRUCTURE (S)		
SCALE	DRAWING NO.	DATE
As shown	25	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

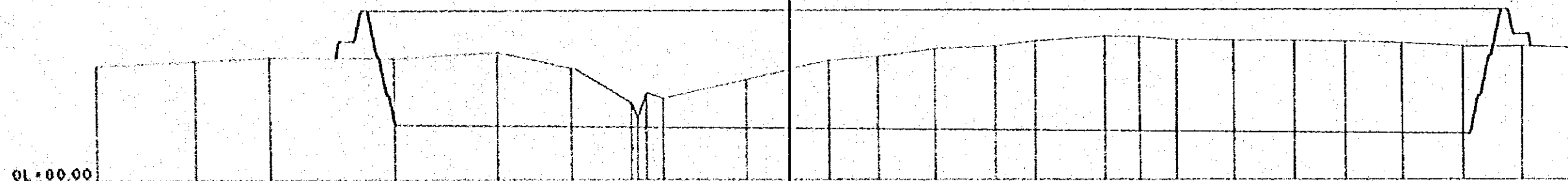


CRETLEASCA FINAL DISPOSAL SITE		
DESIGN PLAN		
SCALE	DRAWING NO.	DATE
1 : 4,000	27	30/9/1995
THE STUDY OF THE WASTE MANAGEMENT SYSTEM FOR BUCURESTI MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

Cross section drawing 5

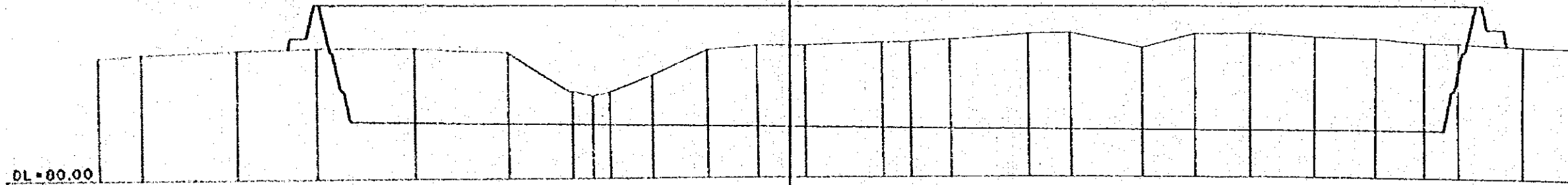


Cross section drawing 6



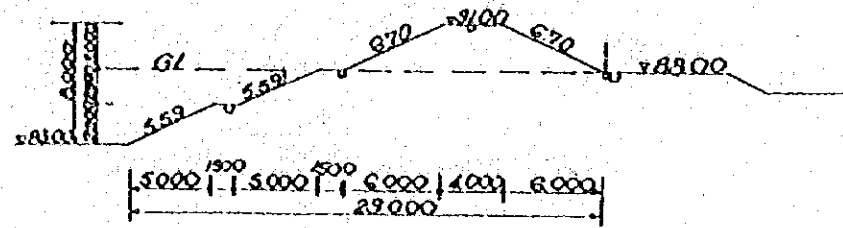
CRETULEASCA FINAL DISPOSAL SITE		
CROSS SECTION (1)		
SCALE	DRAWING NO.	DATE
H=1:2,000 V=1:200	28	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

Cross section drawing 7

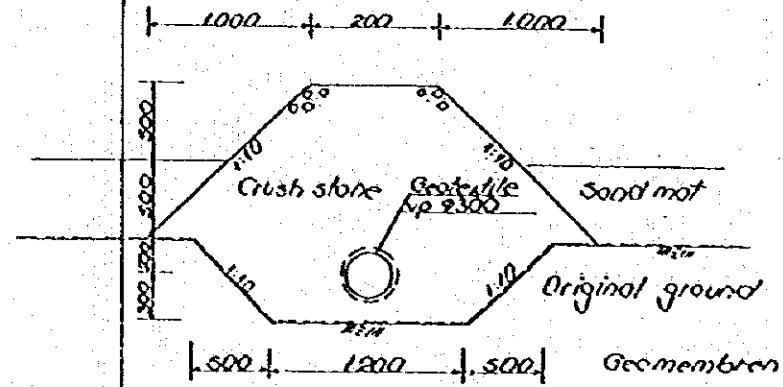


CRETLEASCA FINAL DISPOSAL SITE		
CROSS SECTION (2)		
SCALE	DRAWING NO.	DATE
H=1 : 2,000 V=1 : 200	29	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

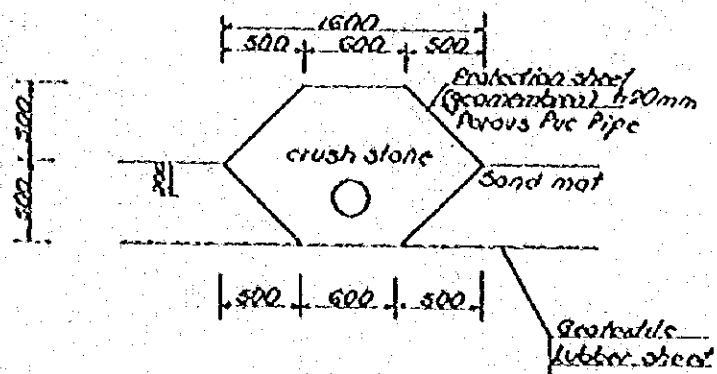
EMBANKMENT WORK
Scale 1:300



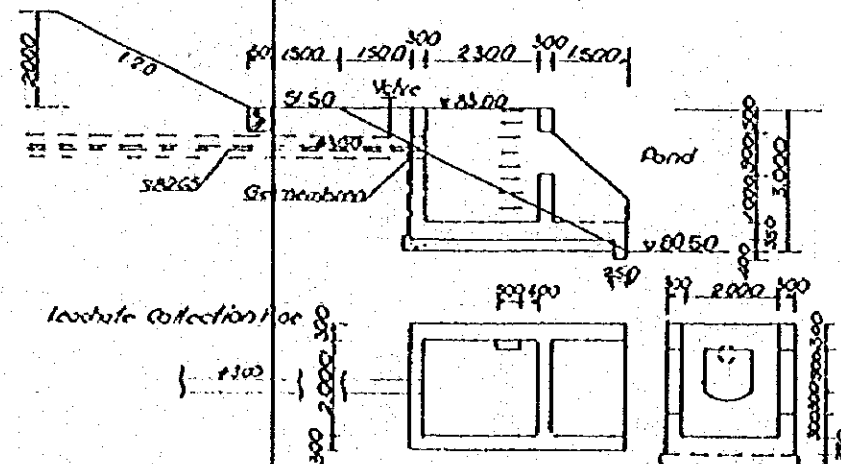
LEACHATE COLLECTION PIPE (MAIN PIPE)
Scale 1:30



LEACHATE COLLECTION PIPE (BRANCH PIPE)
Scale 1:30

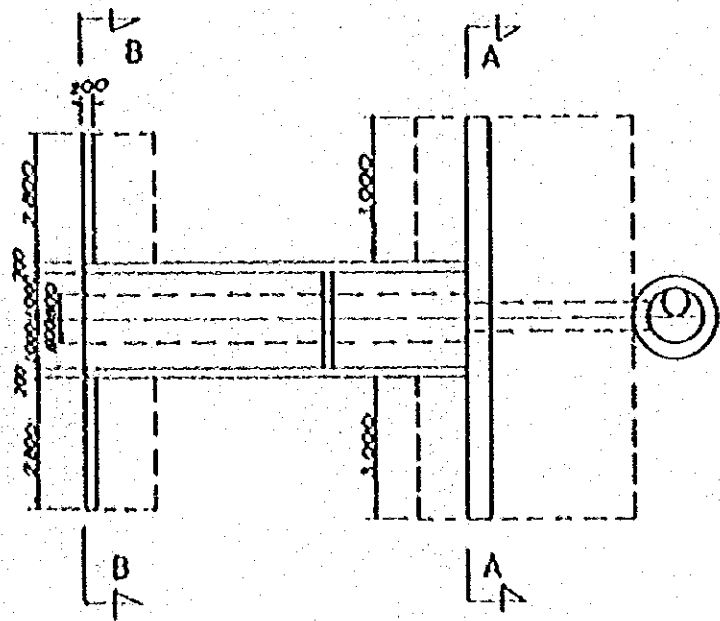
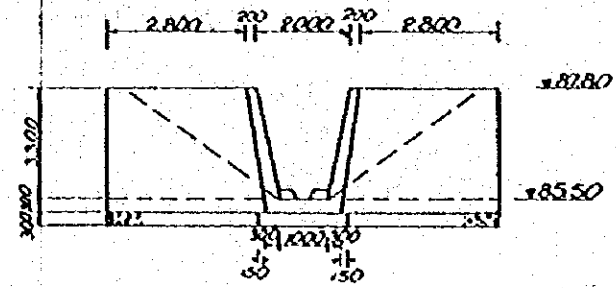
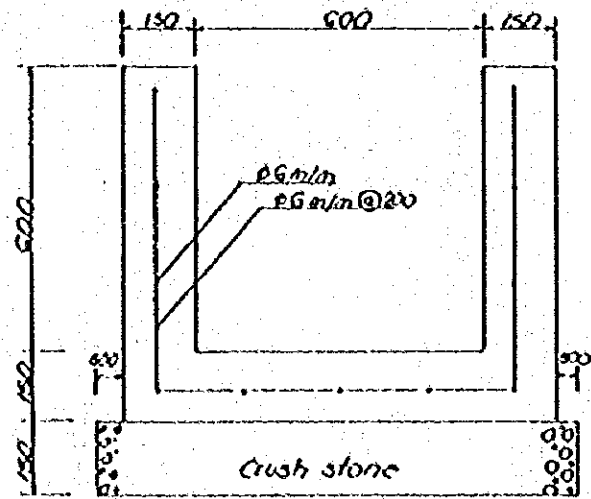


DRAINAGE PIT
Scale 1:100



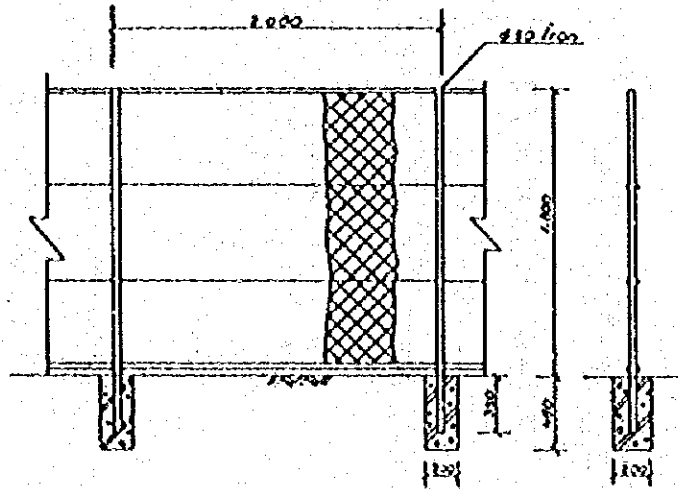
CRETULEASCA FINAL DISPOSAL SITE		
FACILITY STRUCTURE (1)		
SCALE	DRAWING NO.	DATE
As shown	30	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

Scale 1:30

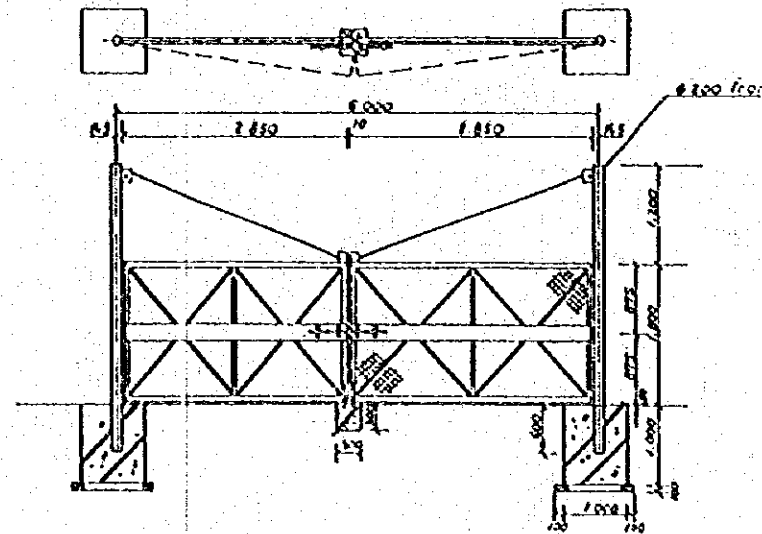


CRETULEASCA FINAL DISPOSAL SITE		
FACILITY STRUCTURE (3)		
SCALE	DRAWING NO.	DATE
As shown	32	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

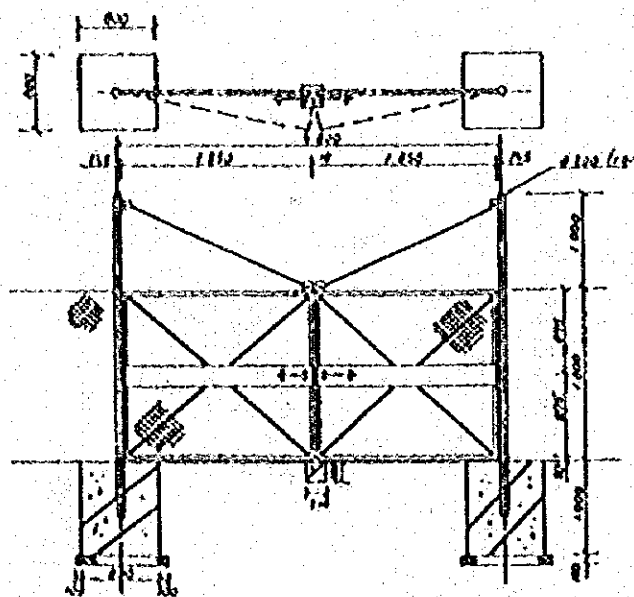
NET FENCE
SCALE 1:30



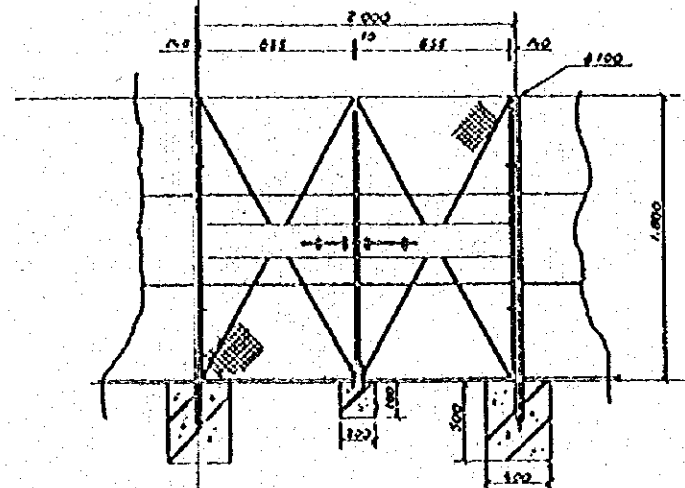
GATE
SCALE 1:60



GATE (LEACHATE PUMP STATION)
SCALE 1:50

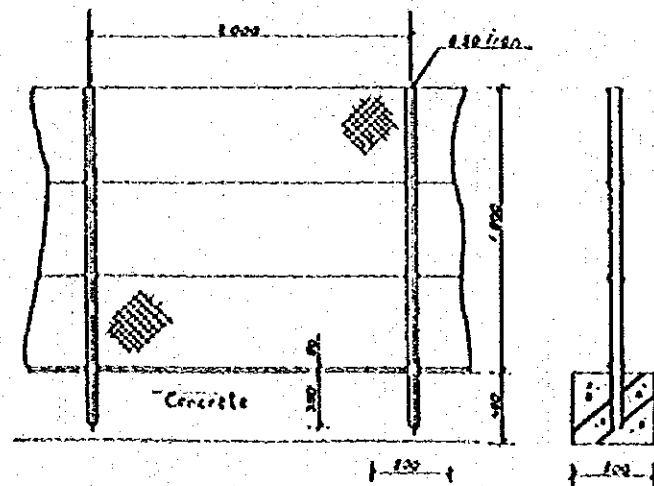


GATE (LEACHATE STORAGE POND)
SCALE 1:30

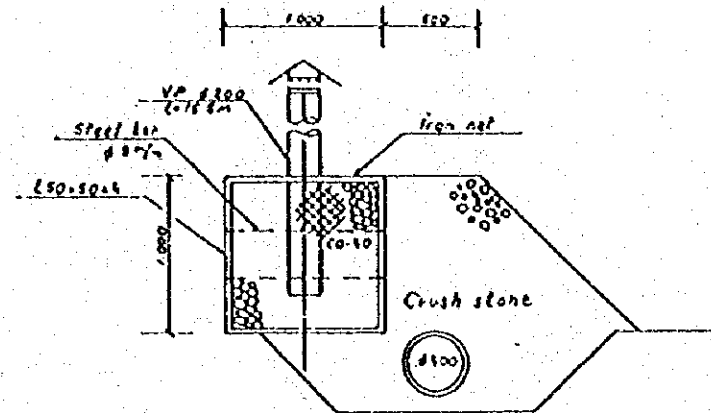


CRETULRASCA FINAL DISPOSAL SITE		
FACILITY STRUCTURE (4)		
SCALE	DRAWING NO.	DATE
As above	33	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

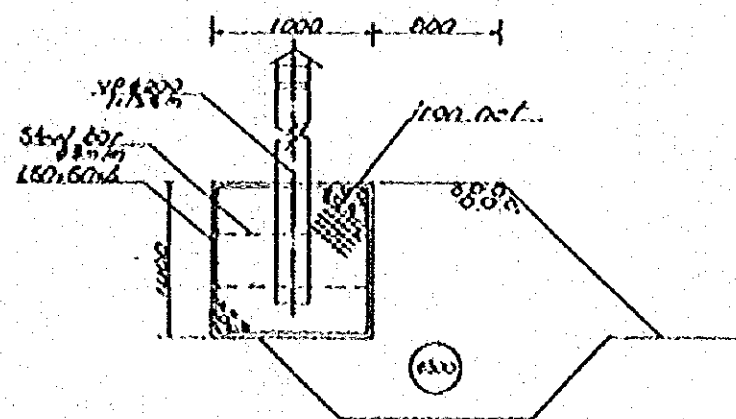
FENCE FOUNDATION
SCALE 1:30



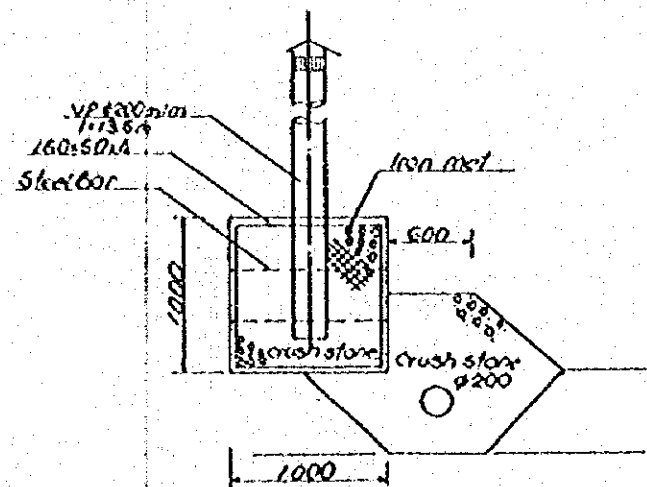
GAS EXHAUST EQUIPMENT ON MAIN PIPE
SCALE 1:30



GAS EXHAUST EQUIPMENT ON MAIN PIPE
Scale 1:30

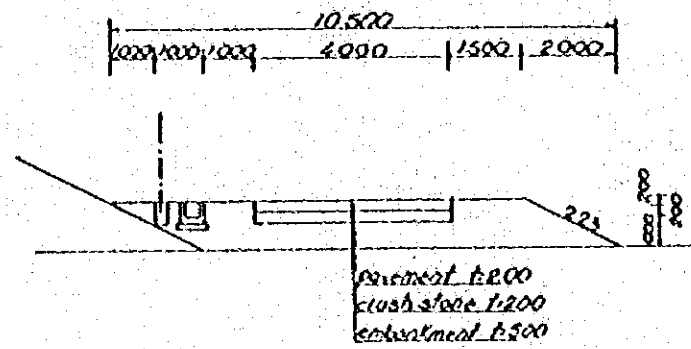


GAS EXHAUST EQUIPMENT ON BRANCH LINE
Scale 1:30

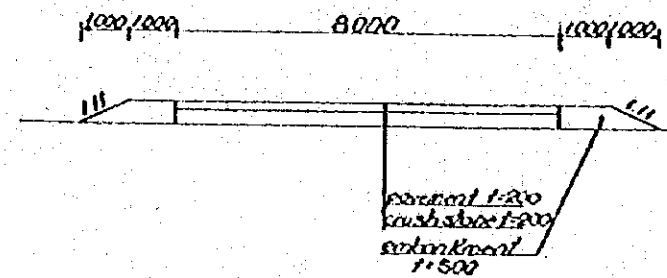


CRETULEASCA FINAL DISPOSAL SITE		
FACILITY STRUCTURE (5)		
SCALE	DRAWING NO.	DATE
As above	34	30/9/1995
THE STUDY OF THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

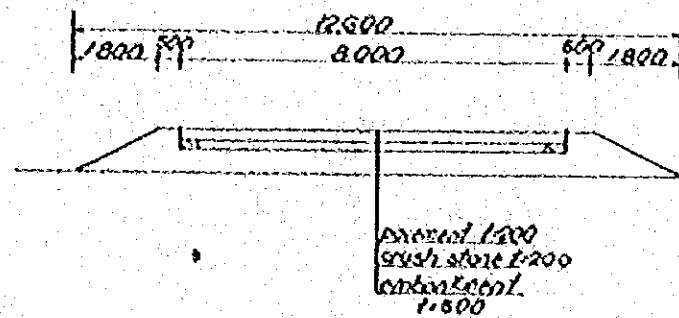
ROAD CONSTRUCTION WORK
Scale 1:100



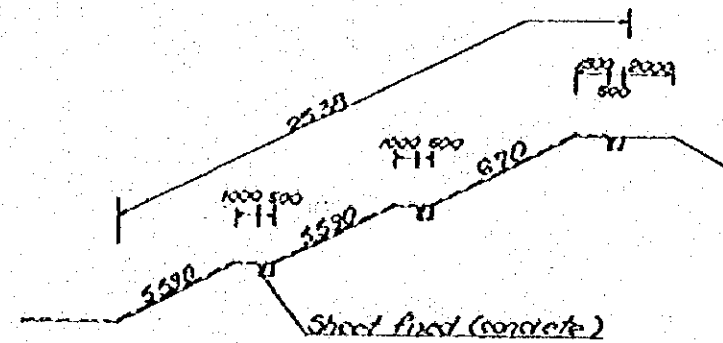
ACCESS ROAD CONSTRUCTION
Scale 1:100



ON SITE ROAD CONSTRUCTION
Scale 1:100



LINER
Scale 1:100



CRETULEASCA FINAL DISPOSAL SITE		
FACILITY STRUCTURE (6)		
SCALE	DRAWING NO.	DATE
As shown	35	30/9/1995
THE STUDY ON THE WASTE MANAGEMENT SYSTEM FOR BUCHAREST MUNICIPALITY IN ROMANIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		

JICA