




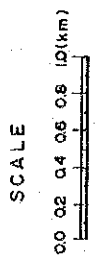
PROJECT LIST

-  THE UPPER NAMIKOKWE IRRIGATION PROJECT
-  THE LOWER NAMIKOKWE IRRIGATION PROJECT
-  THE MTANDAMULA REHABILITATION PROJECT

THE LOWER NAMIKOKWE IRRIGATION PROJECT

THE UPPER NAMIKOKWE IRRIGATION PROJECT

THE MTANDAMULA REHABILITATION PROJECT



LEGEND










-  HEADWORK
-  BIFURCATION
-  ROAD CROSSING
-  MAIN CANAL (NM - MC - 1)
-  BRANCH CANAL (NM - BC - 1,2,3)
-  TERTIARY CANAL
-  DRAINAGE CANAL
-  ROAD
-  INTAKE GATE

Figure 3.3.4
Proposed Layout for
Three Projects in the Namikokwe River Basin

THE REPUBLIC OF MALAWI
 FEASIBILITY STUDY ON BWANJE VALLEY
 SMALLHOLDER IRRIGATION DEVELOPMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

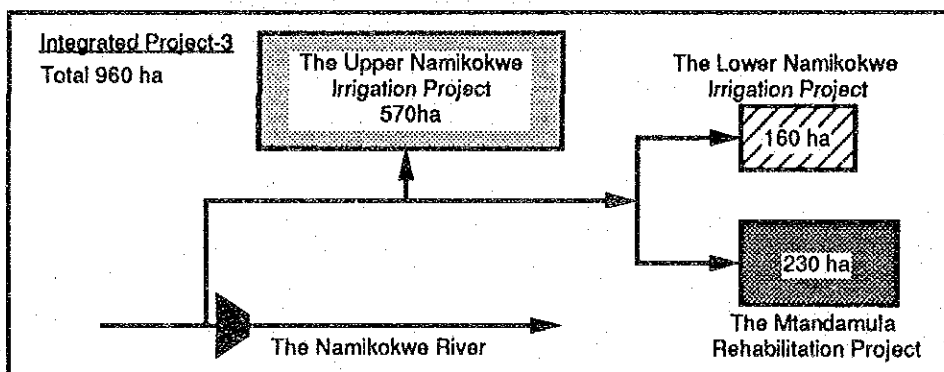
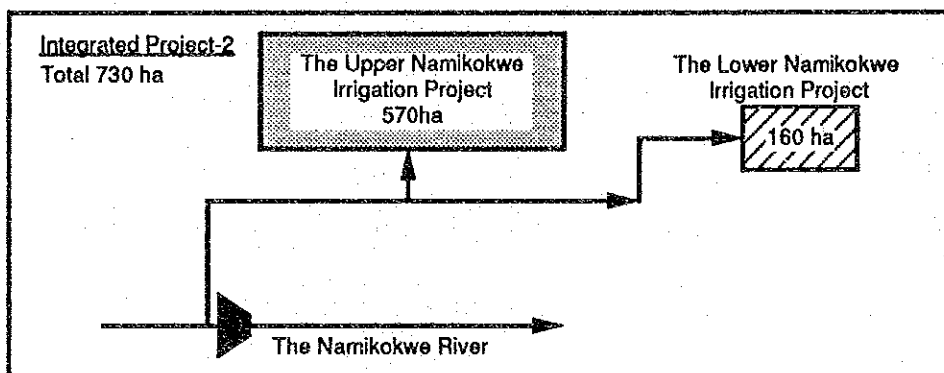
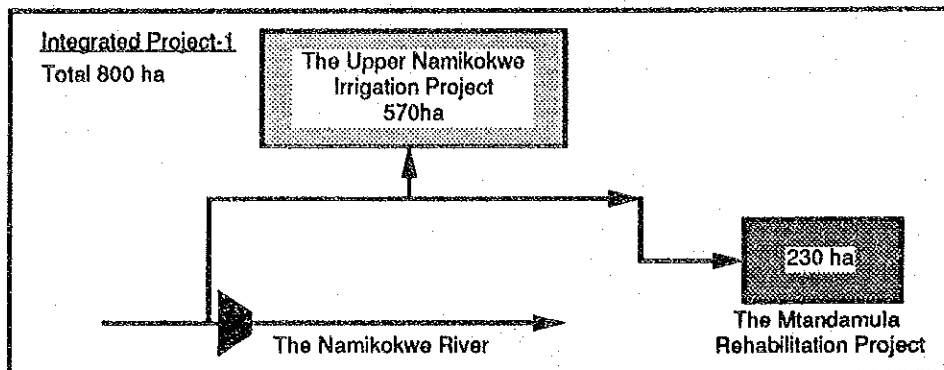
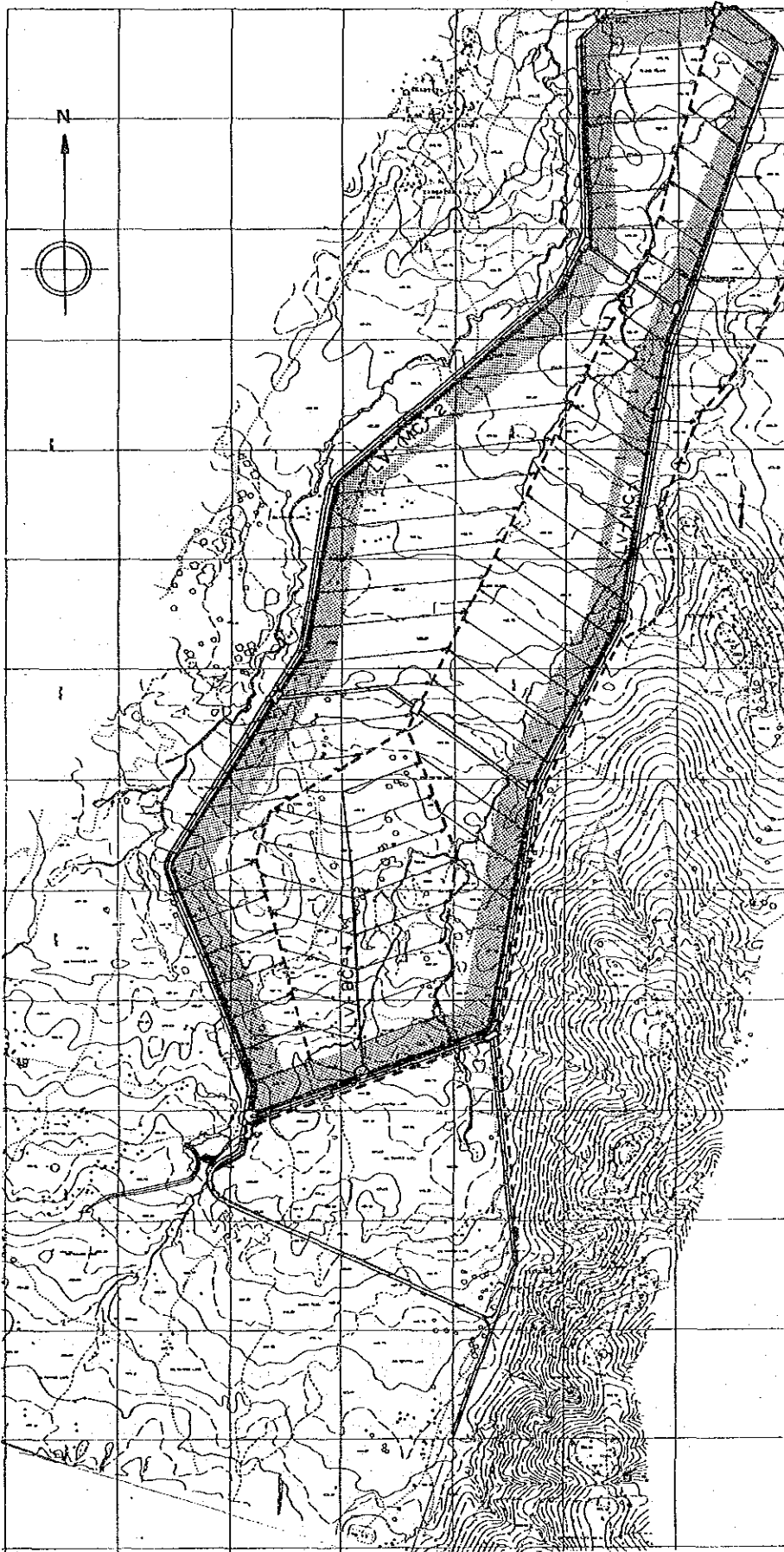


Figure 3.3.5 Schematic Alignment of Integrated Projects in the Namikokwe River Basin

THE REPUBLIC OF MALAWI
FEASIBILITY STUDY ON BWANJE VALLEY
SMALLHOLDER IRRIGATION DEVELOPMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY



LEGEND

- ▲ HEADWORK
- SIFURCATION
- ROAD CROSSING
- MAIN CANAL (LV-MC-1,2)
- - - BRANCH CANAL (LV-BC-1)
- TERTIARY CANAL
- DRAINAGE CANAL
- ROAD
- ▨ IRRIGATION AREA

SCALE

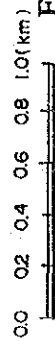


Figure 3.3.6

Proposed Layout for the Lower Livulezi Irrigation Project

THE REPUBLIC OF MALAWI

FEASIBILITY STUDY ON BHWANE VALLEY
SMALLHOLDER IRRIGATION DEVELOPMENT PROJECT

JAPAN INTERNATIONAL COOPERATION AGENCY

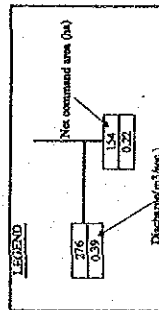
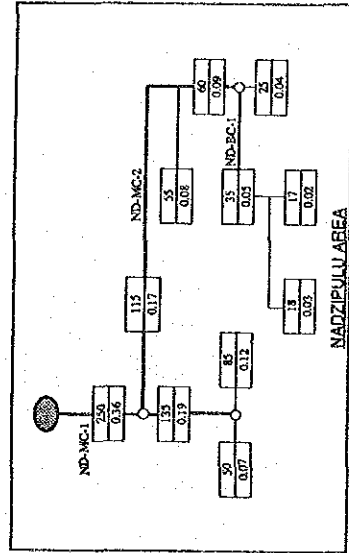
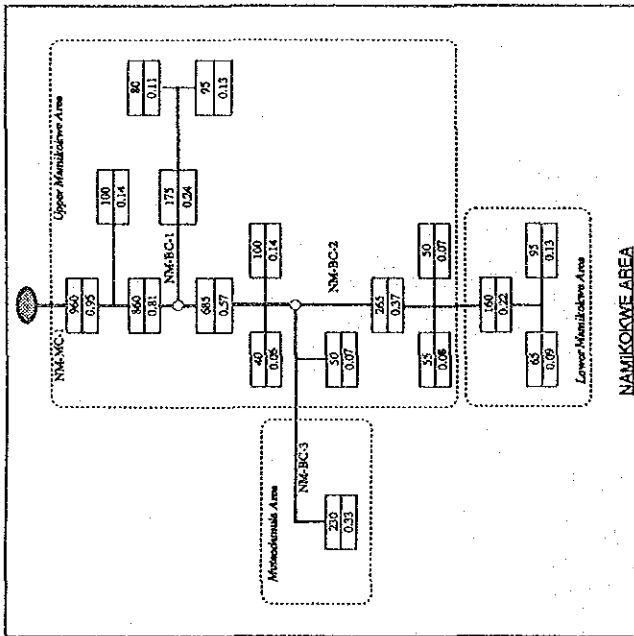
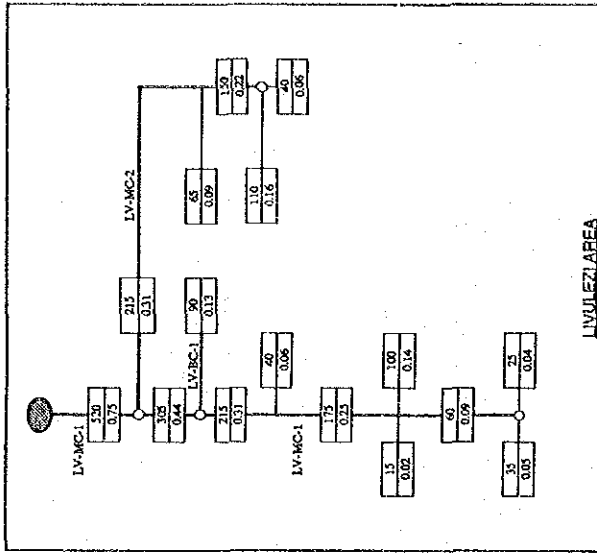


Figure 3.3.7 Irrigation Diagram

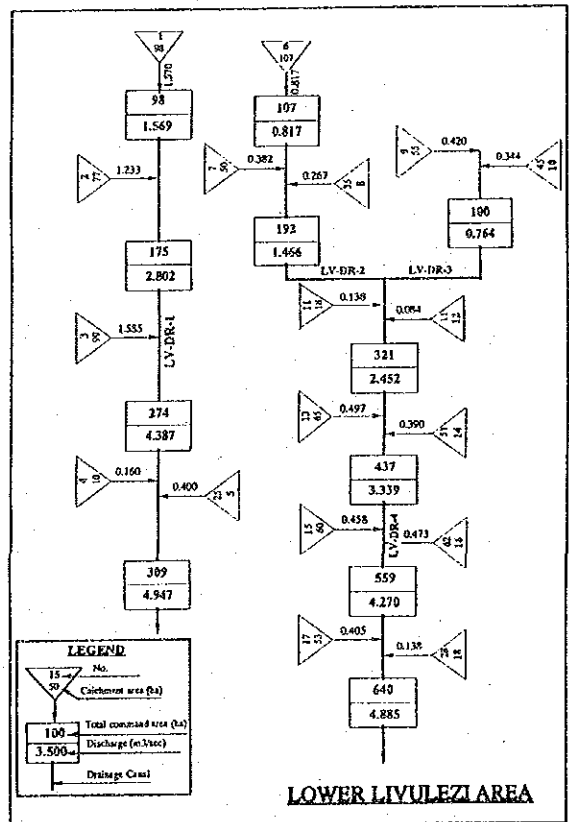
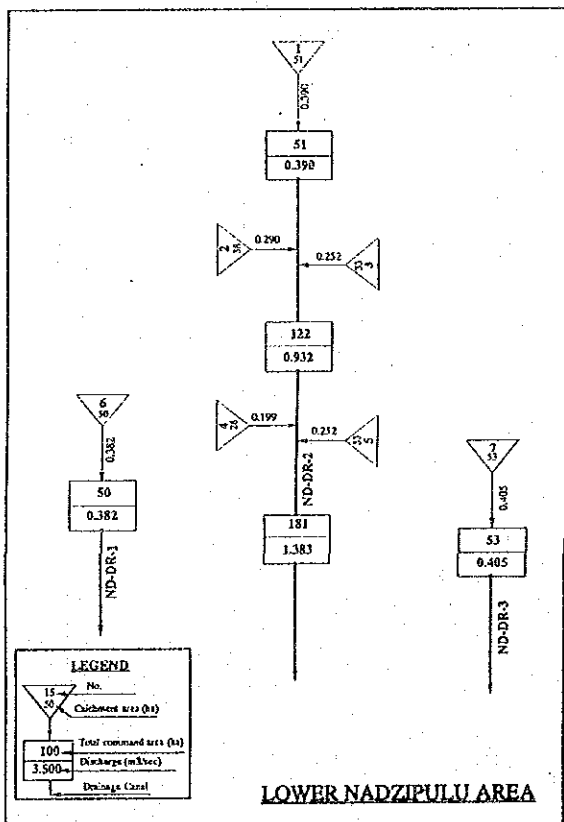
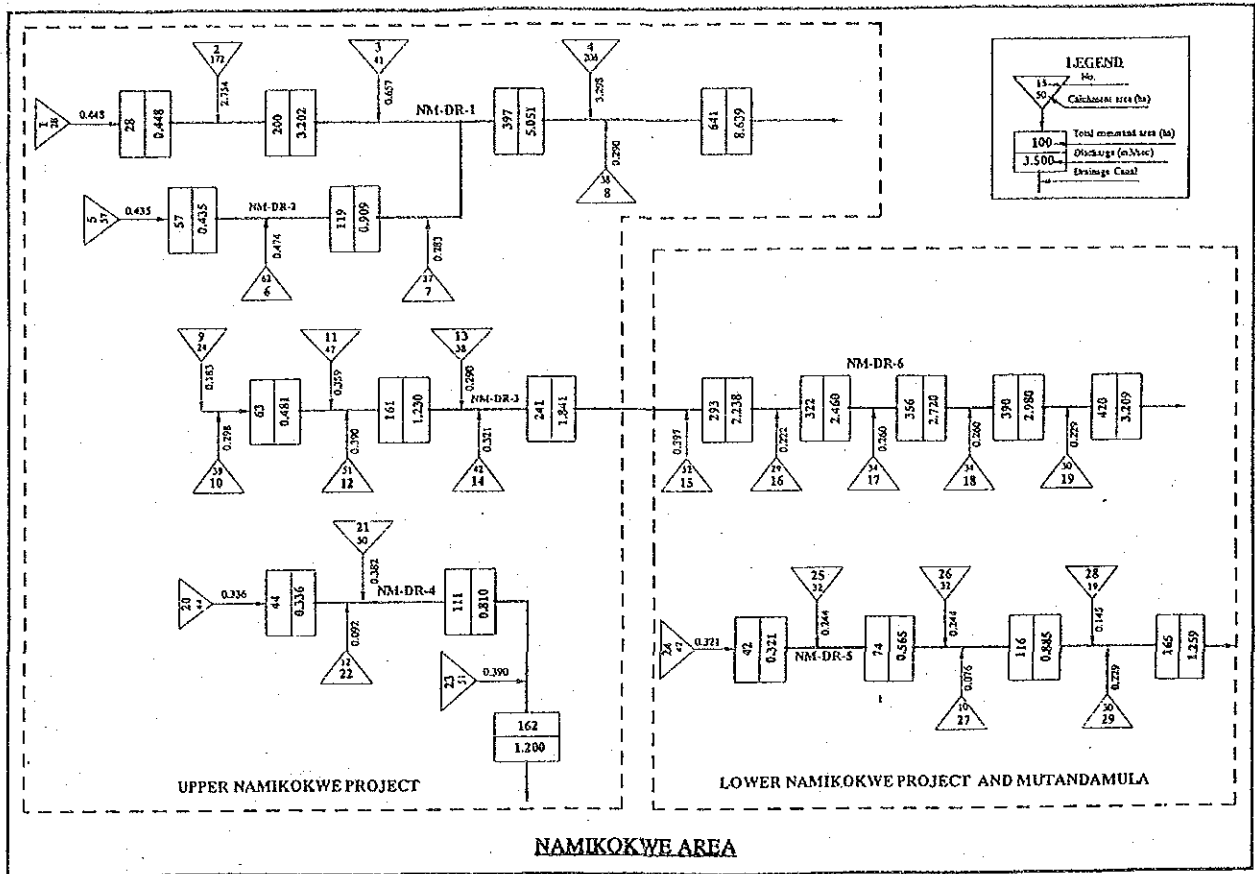


Figure 3.3.8 Drainage Diagram

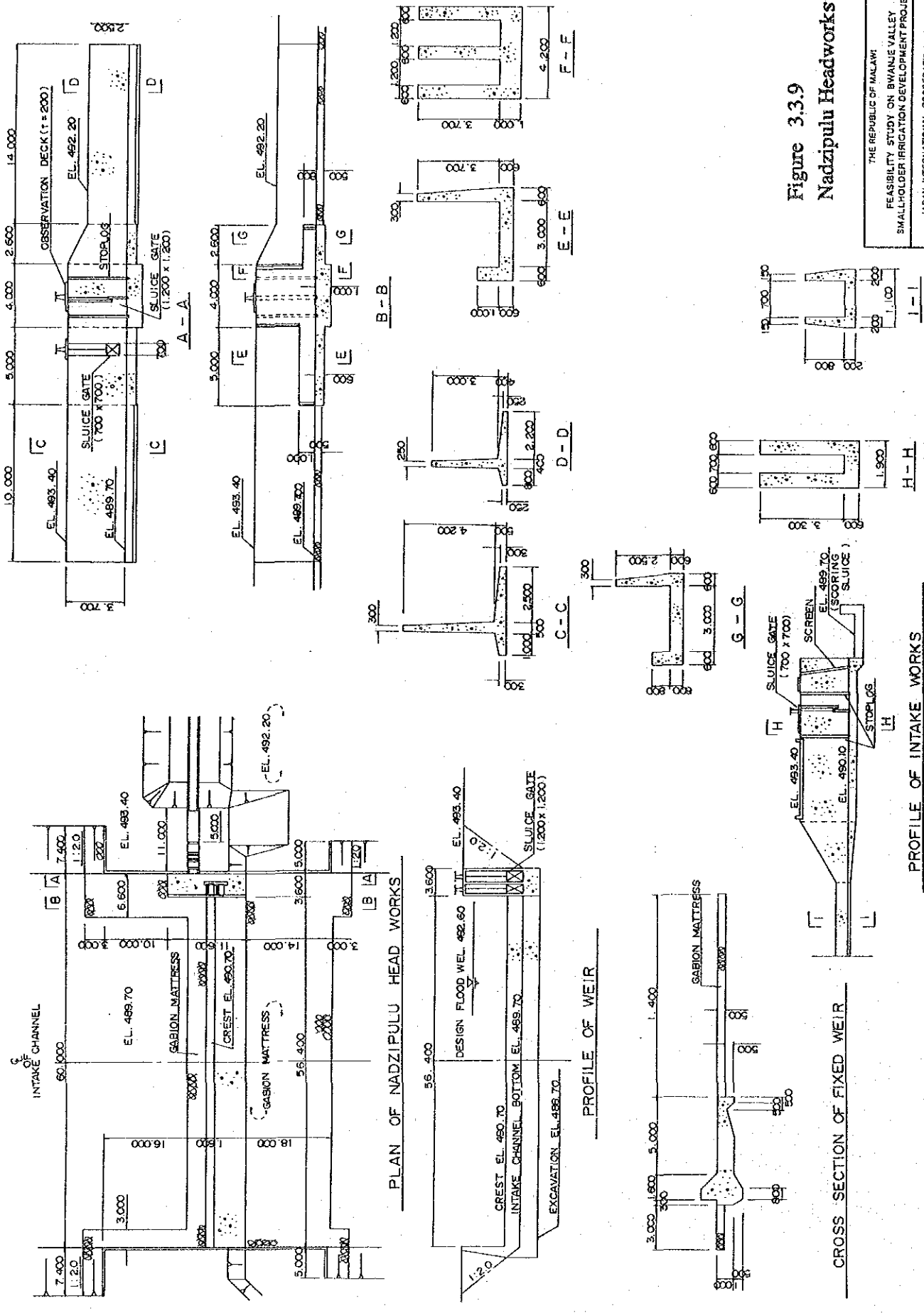


Figure 3.3.9
Nadzipulu Headworks

THE REPUBLIC OF MALAWI
FEASIBILITY STUDY ON BWANJE VALLEY
SMALLHOLDER IRRIGATION DEVELOPMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY

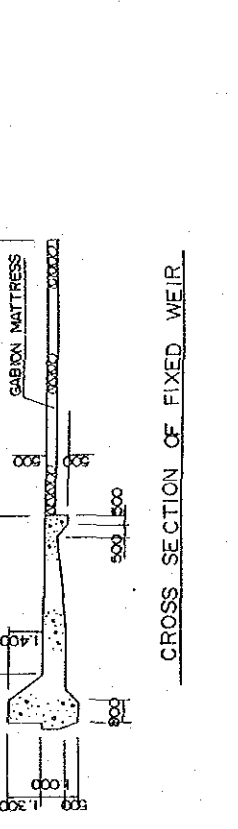
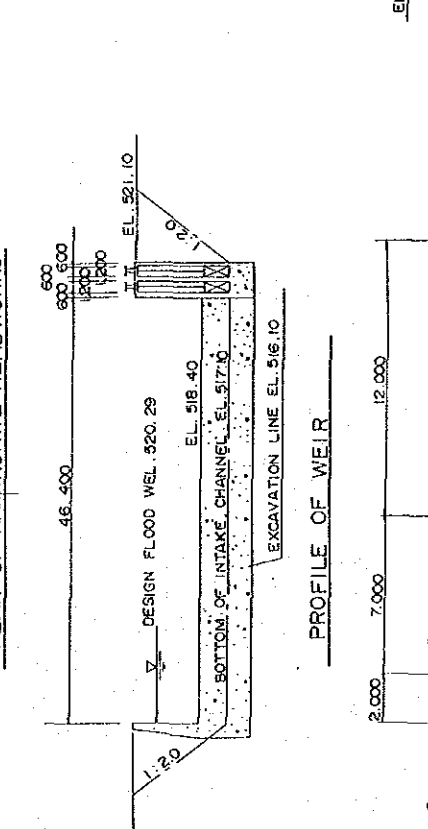
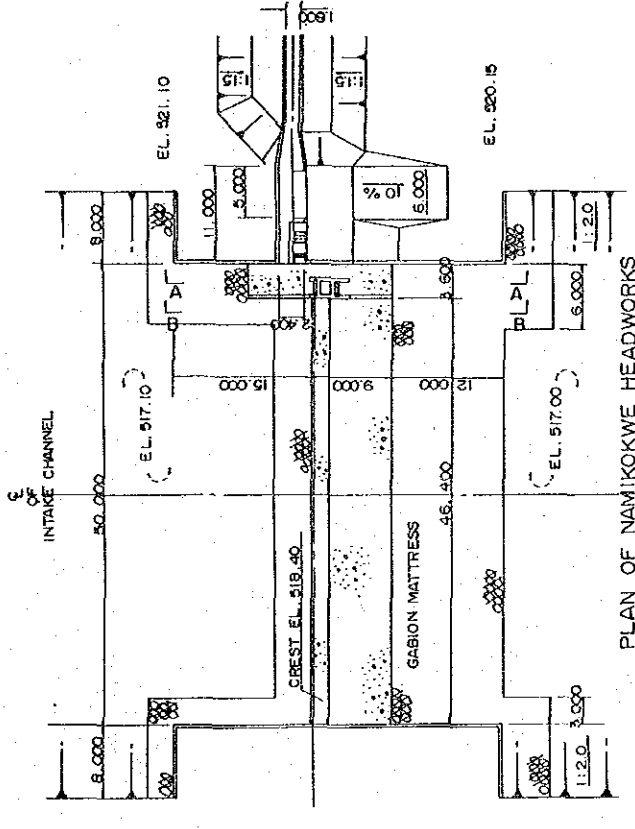
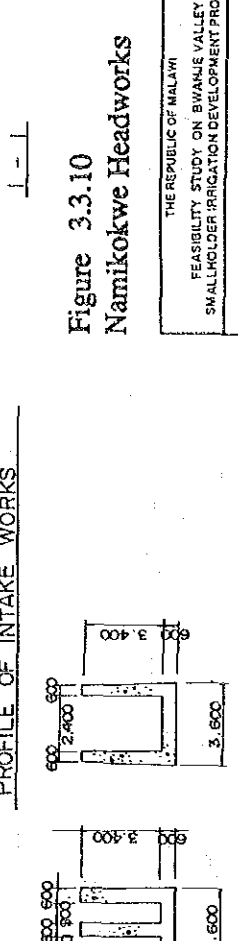
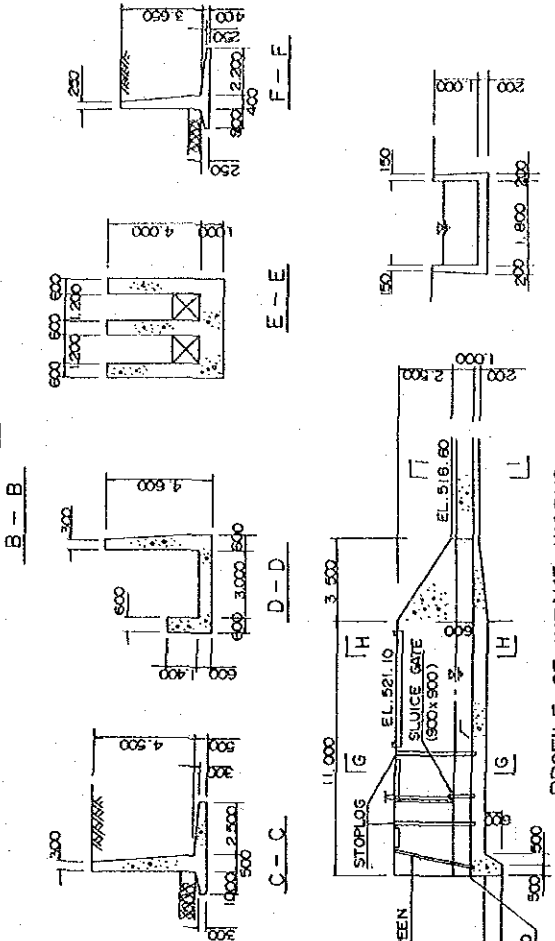
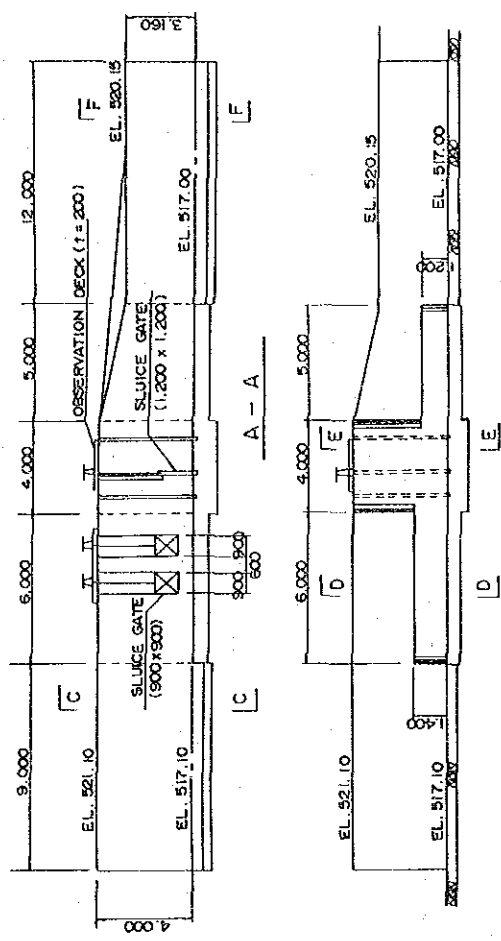


Figure 3.3.10
Namikokwe Headworks

THE REPUBLIC OF MALAWI
FEASIBILITY STUDY ON BWANJE VALLEY
SMALLHOLDER IRRIGATION DEVELOPMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY

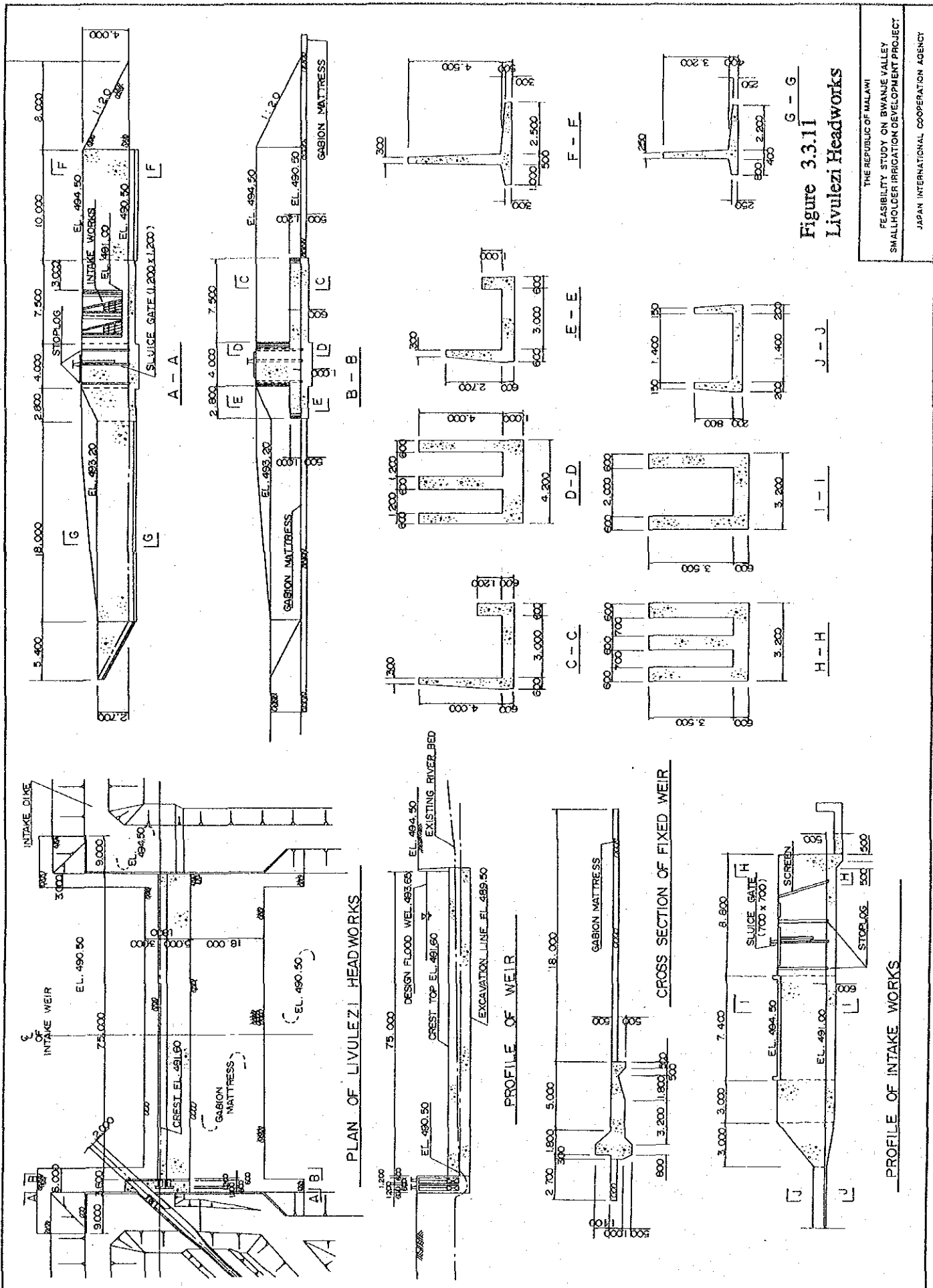


Figure 3.3.11
Livulezi Headworks

THE REPUBLIC OF MALAWI
FEASIBILITY STUDY ON BWANJE VALLEY
SMALLHOLDER IRRIGATION DEVELOPMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY

Figure 3.3.12 Profile of ND-MC-1 (1/2)

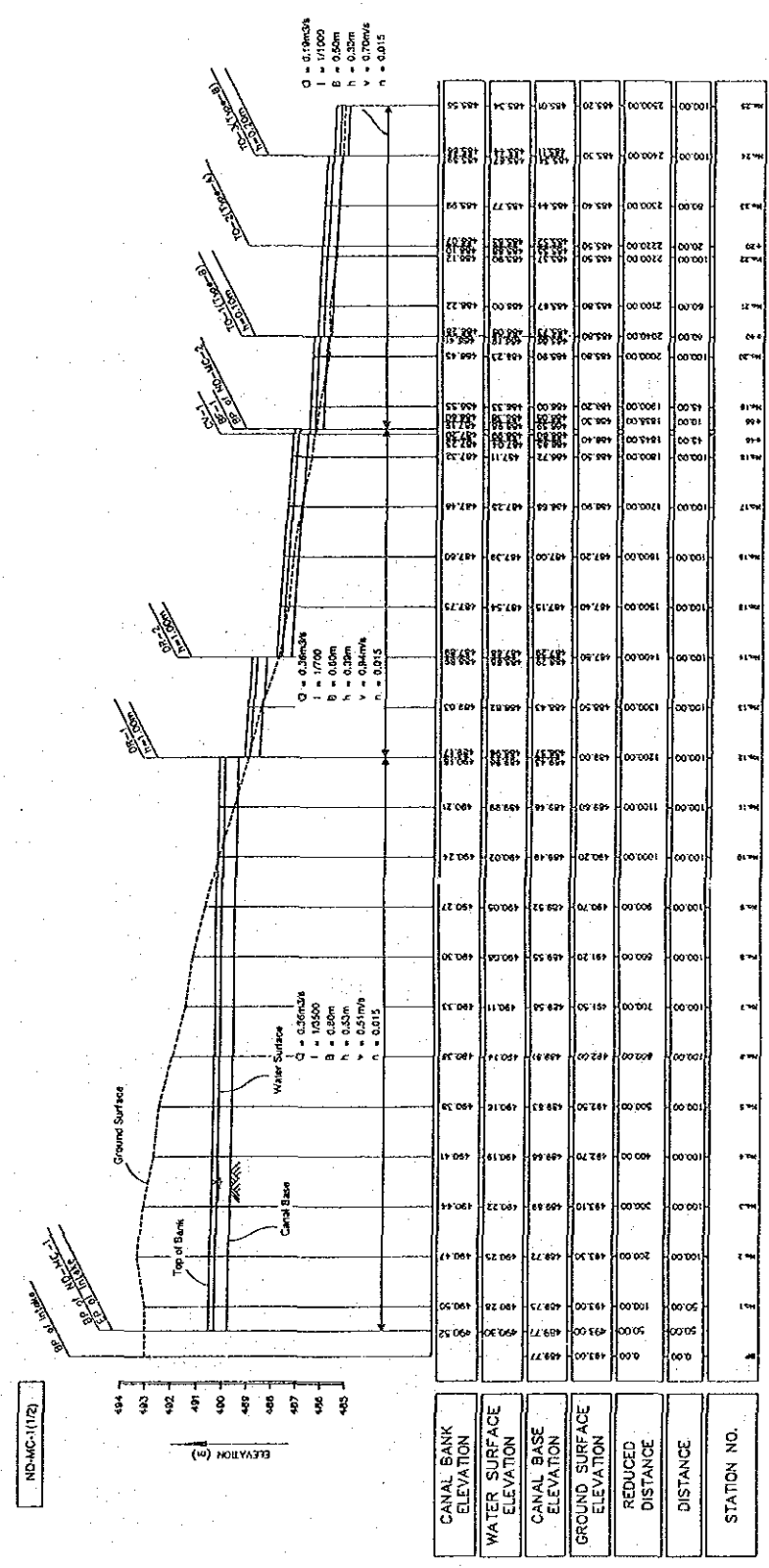


Figure 3.3.13 Profile of ND-MC-1 (2/2)

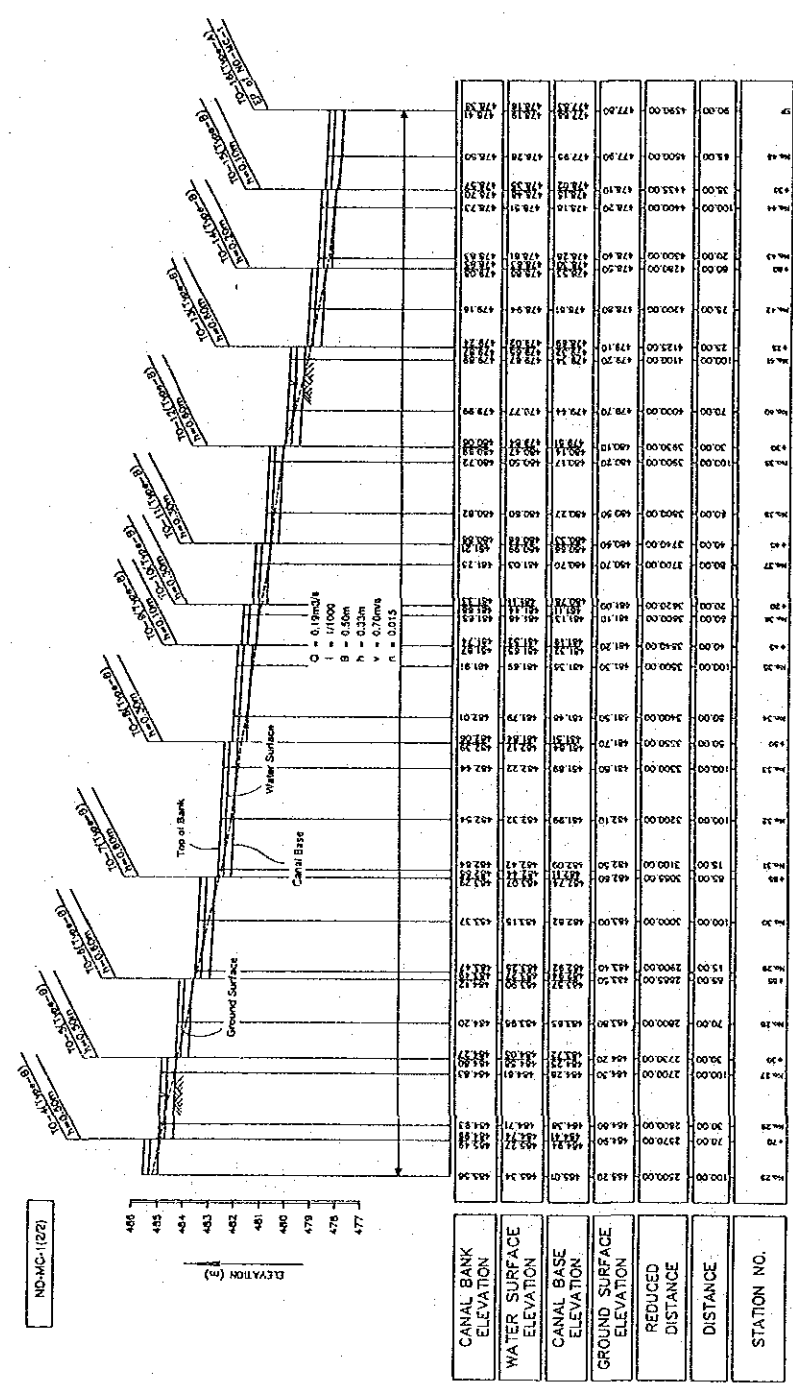


Figure 3.3.14 Profile of ND-MC-2

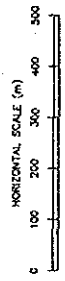
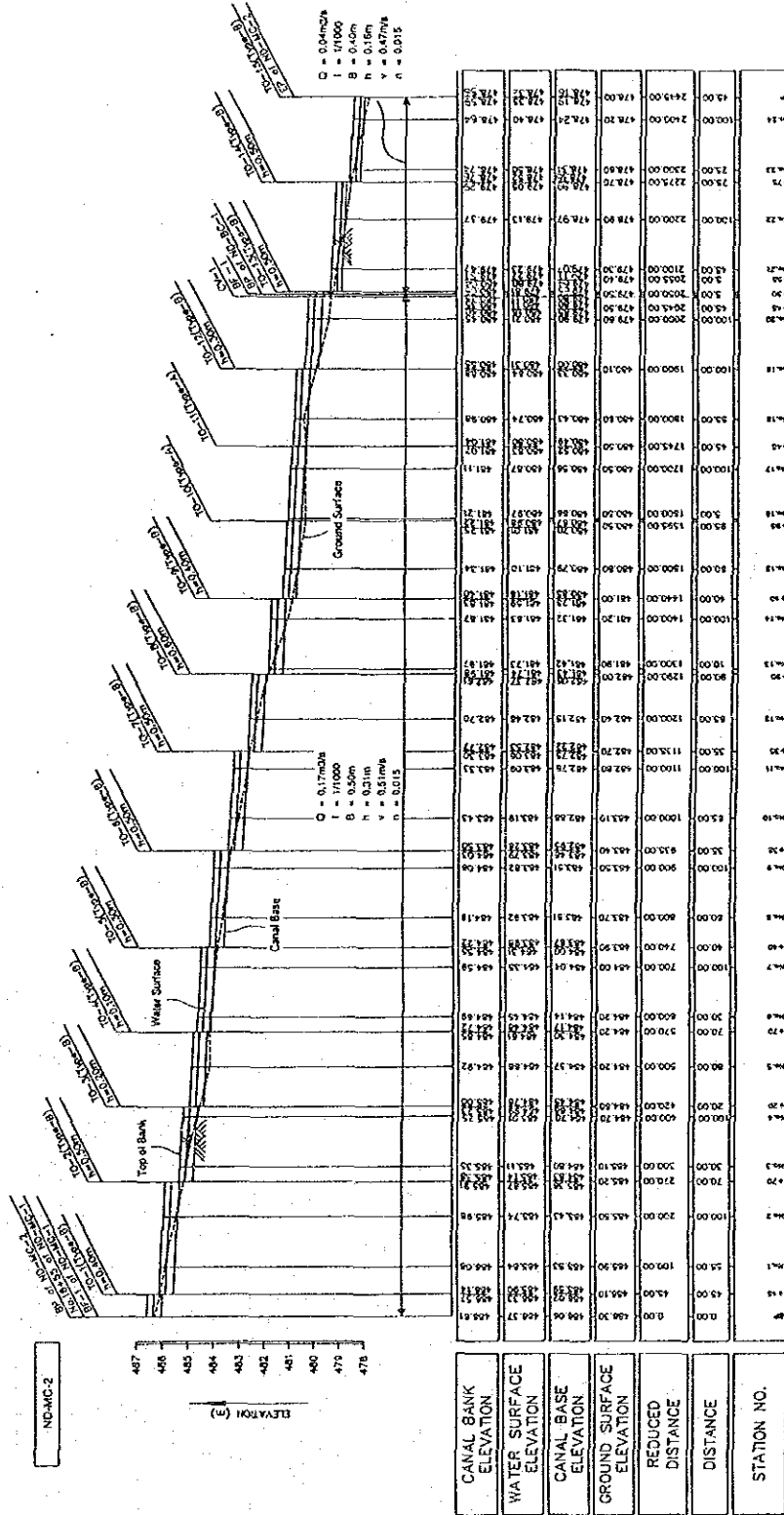
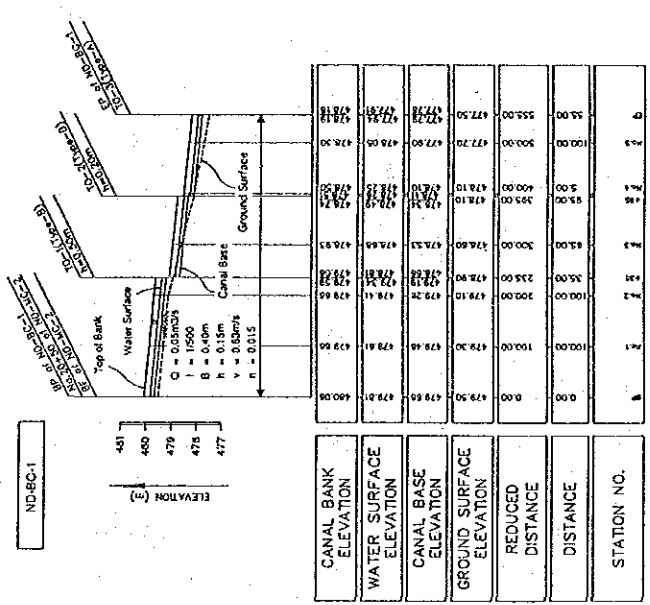


Figure 3.3.15 Profile of ND-BC-1



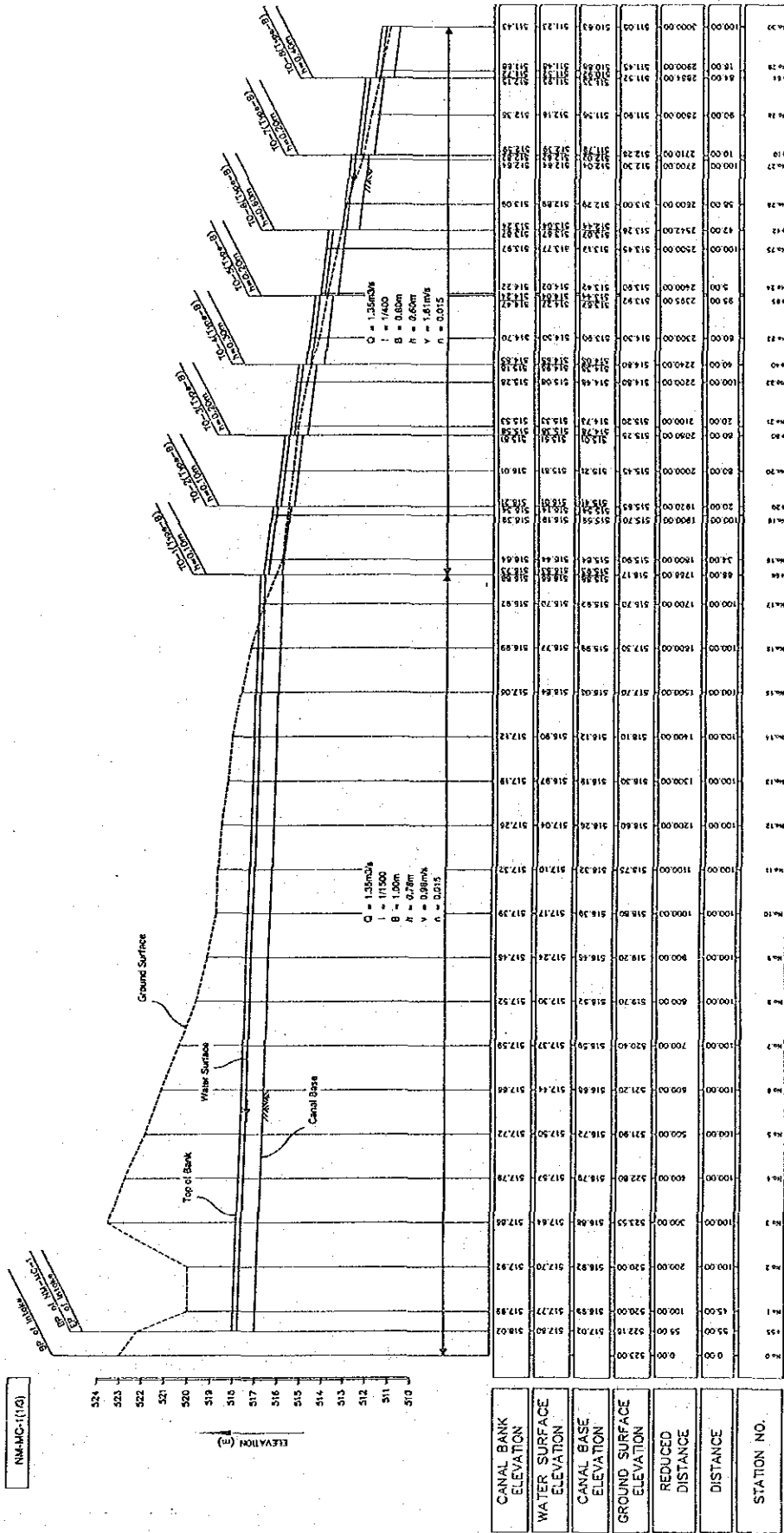


Figure 3.3.16 Profile of NM-MC-1 (1/3)

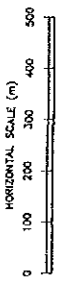


Figure 3.3.17 Profile of NM-MC-1 (2/3)

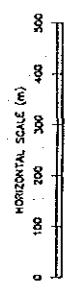
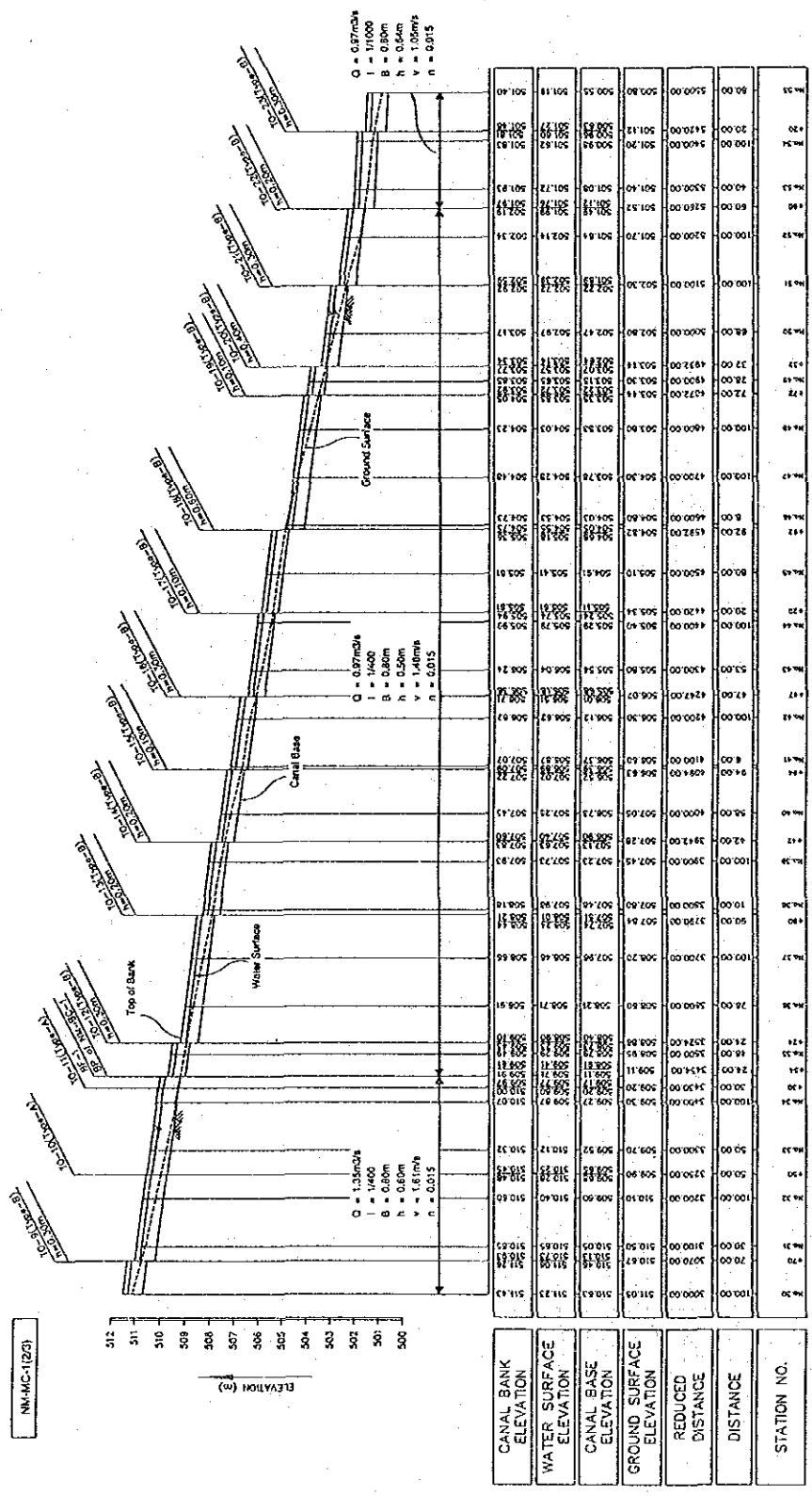


Figure 3.3.18 Profile of NM-MC-1 (3/3)

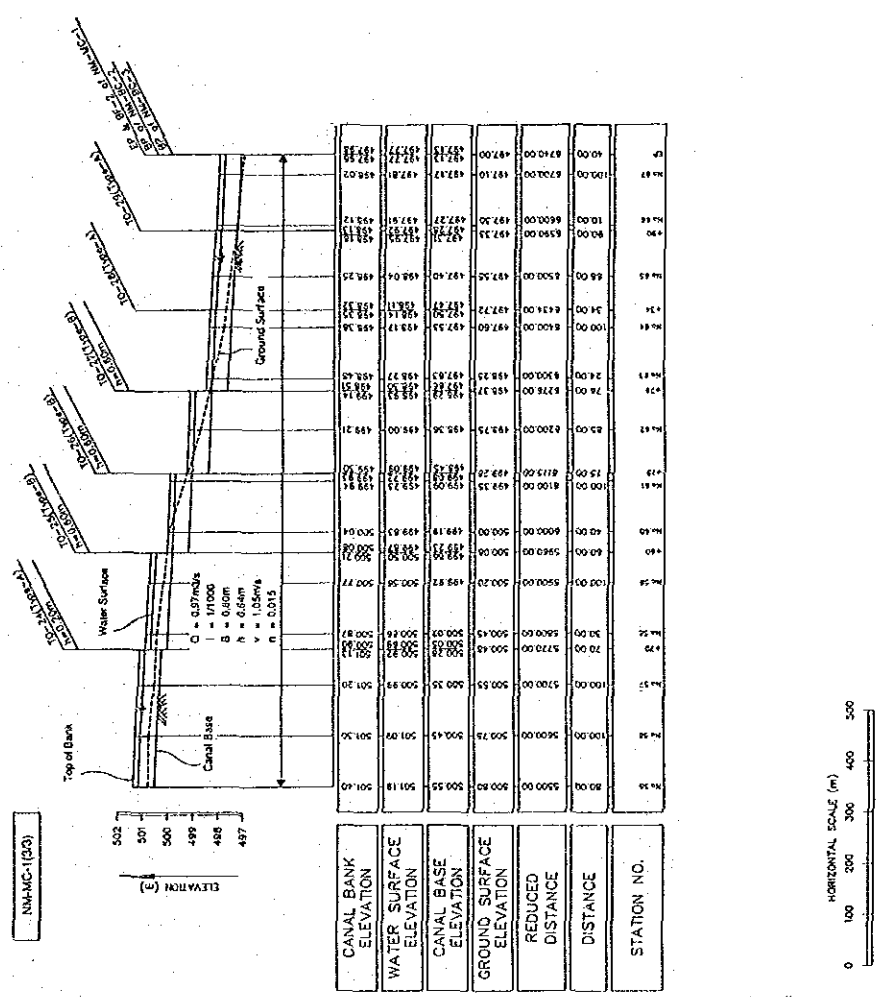


Figure 3.3.19 Profile of NM-BC-1

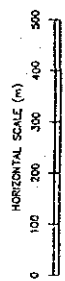
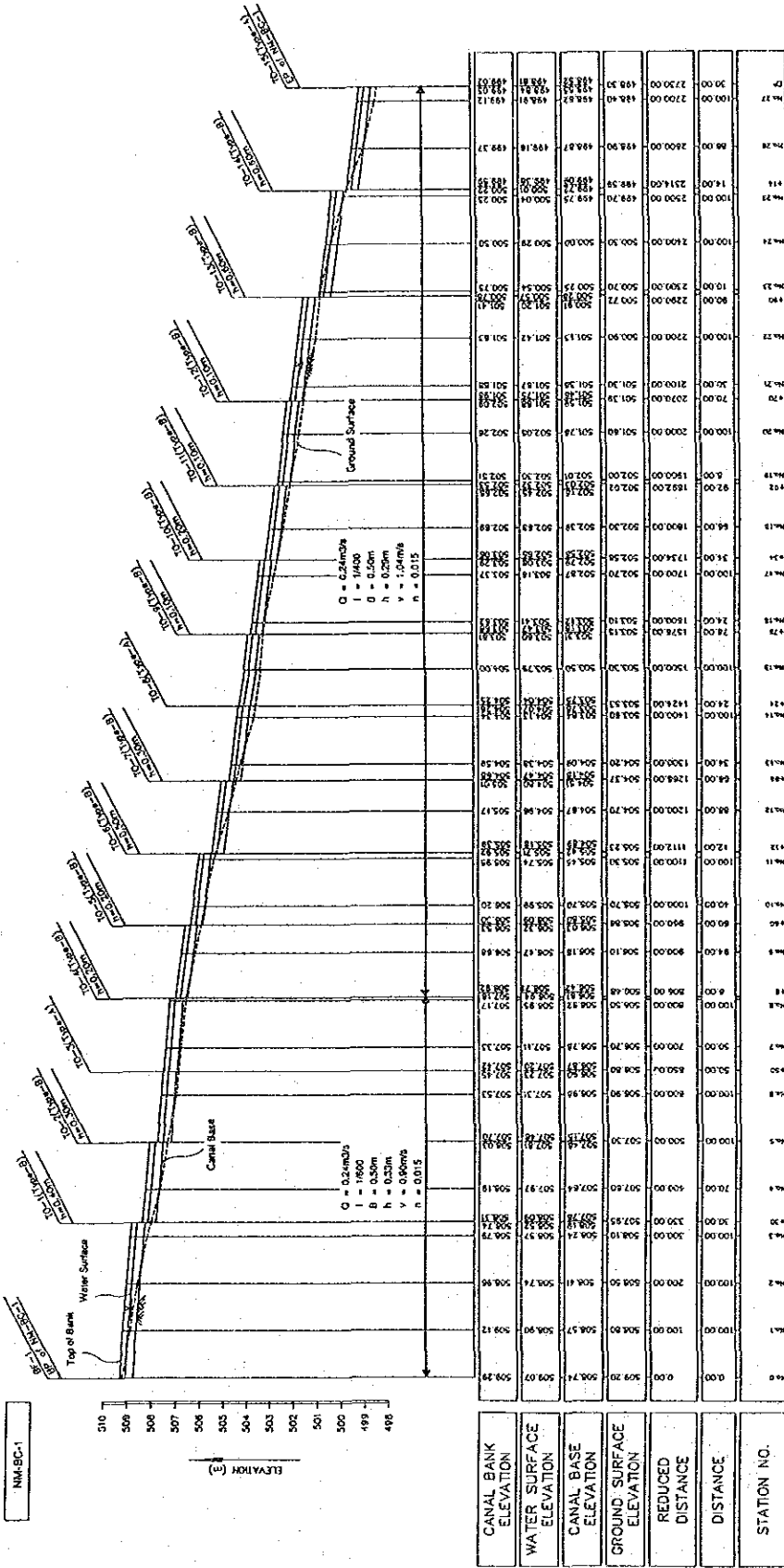


Figure 3.3.20 Profile of NM-BC-2 (1/2)

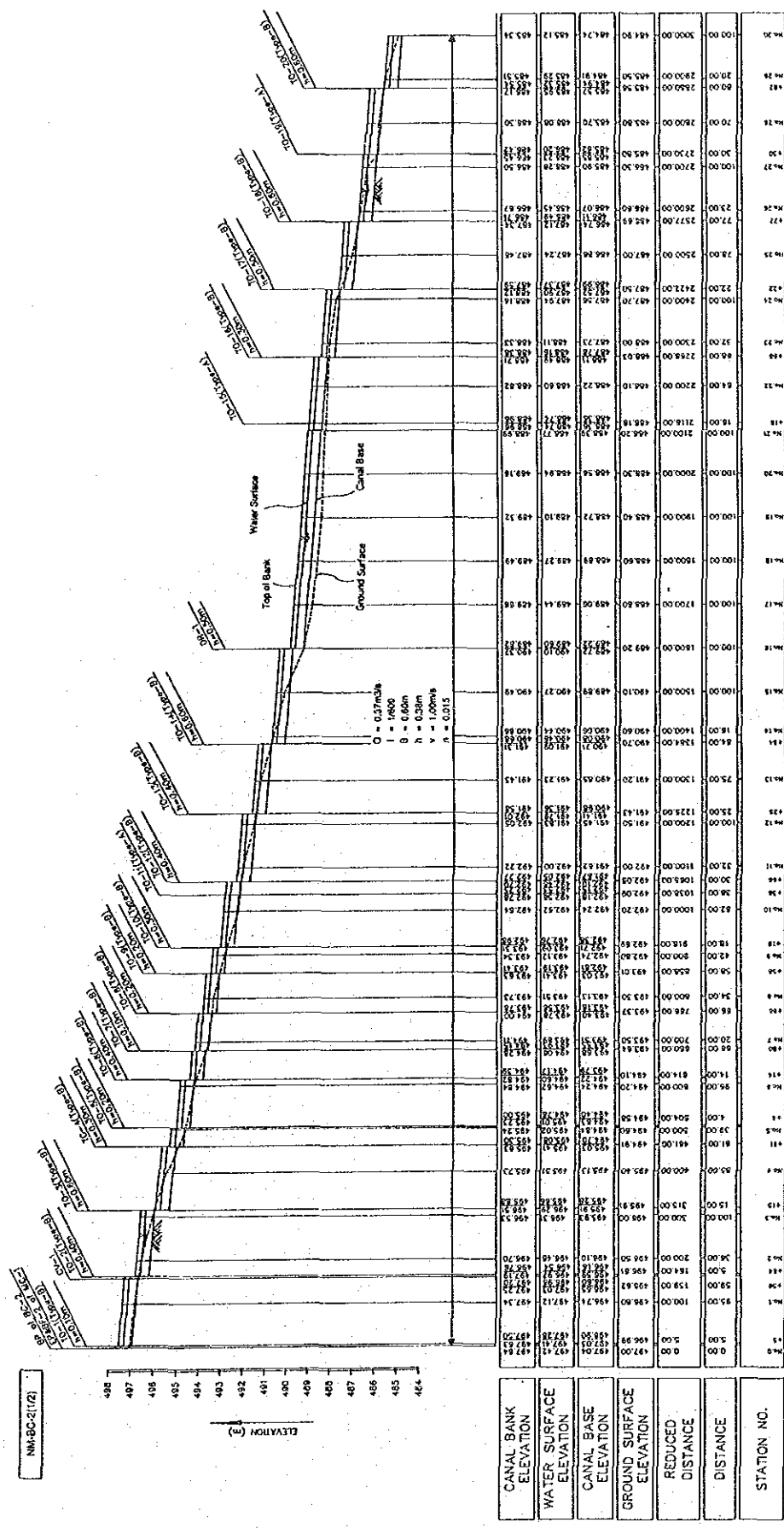
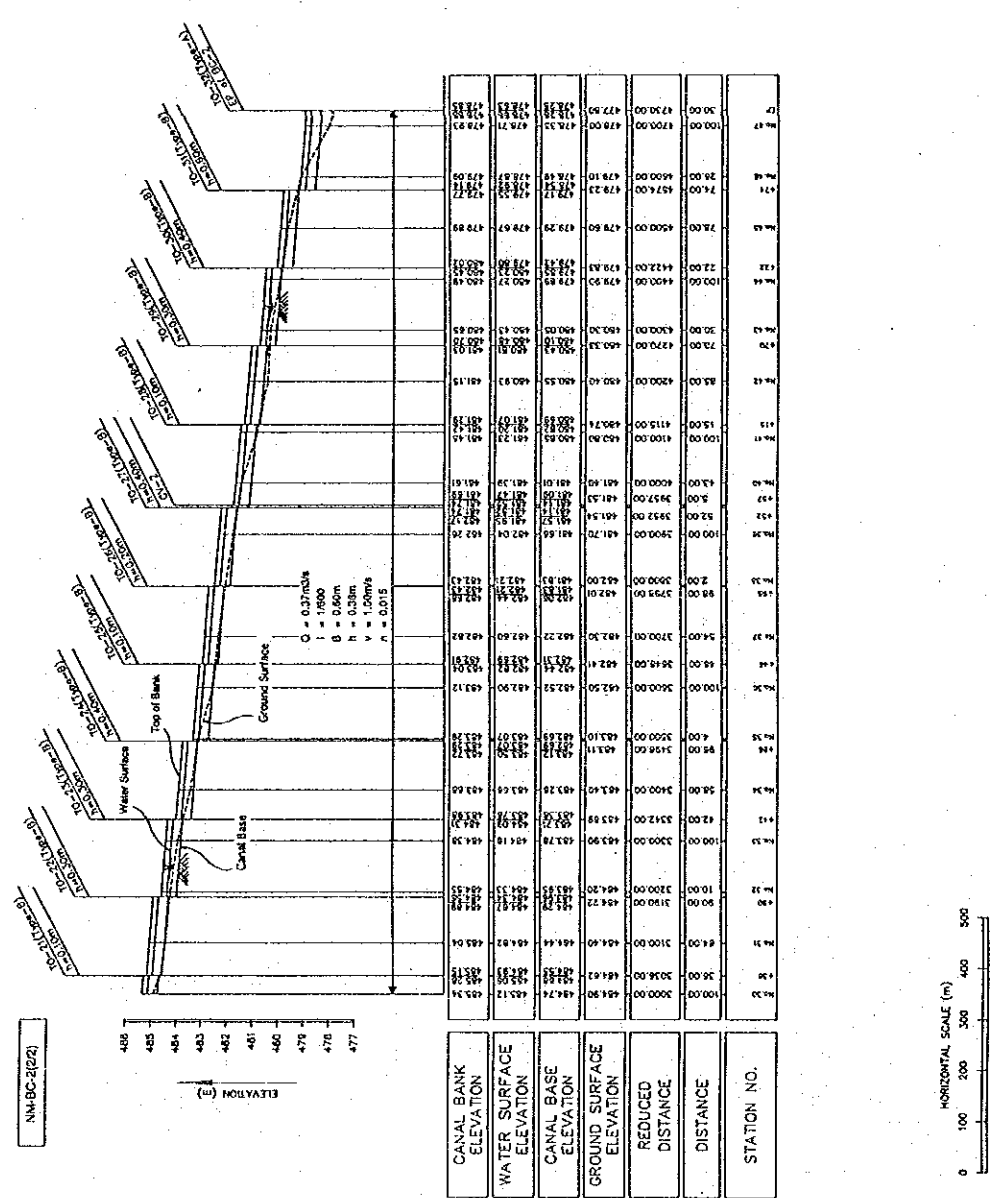


Figure 3.3.21 Profile of NM-BC-2 (2/2)



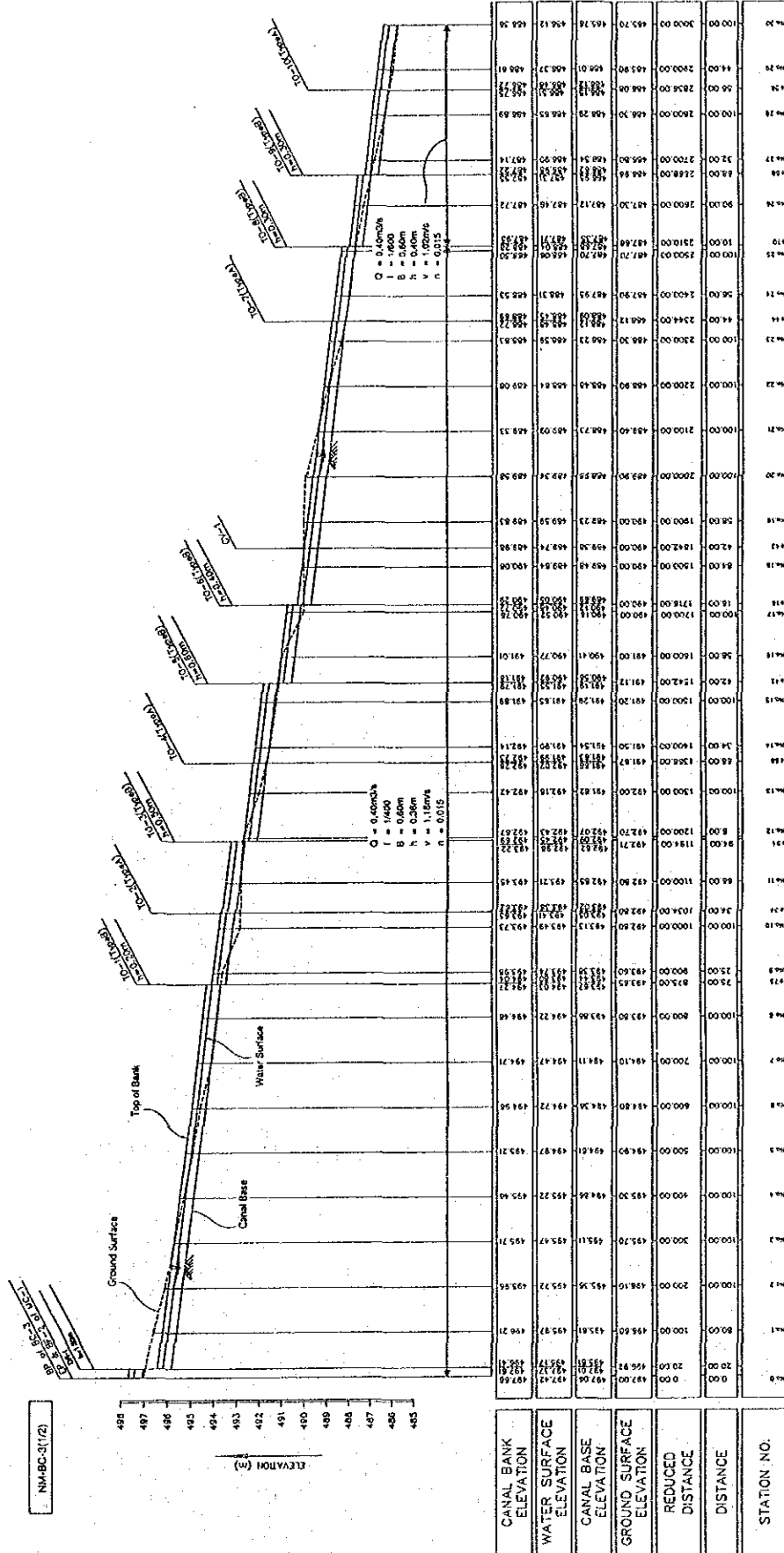


Figure 3.3.22 Profile of NM-BC-3 (1/2)

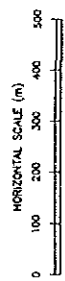
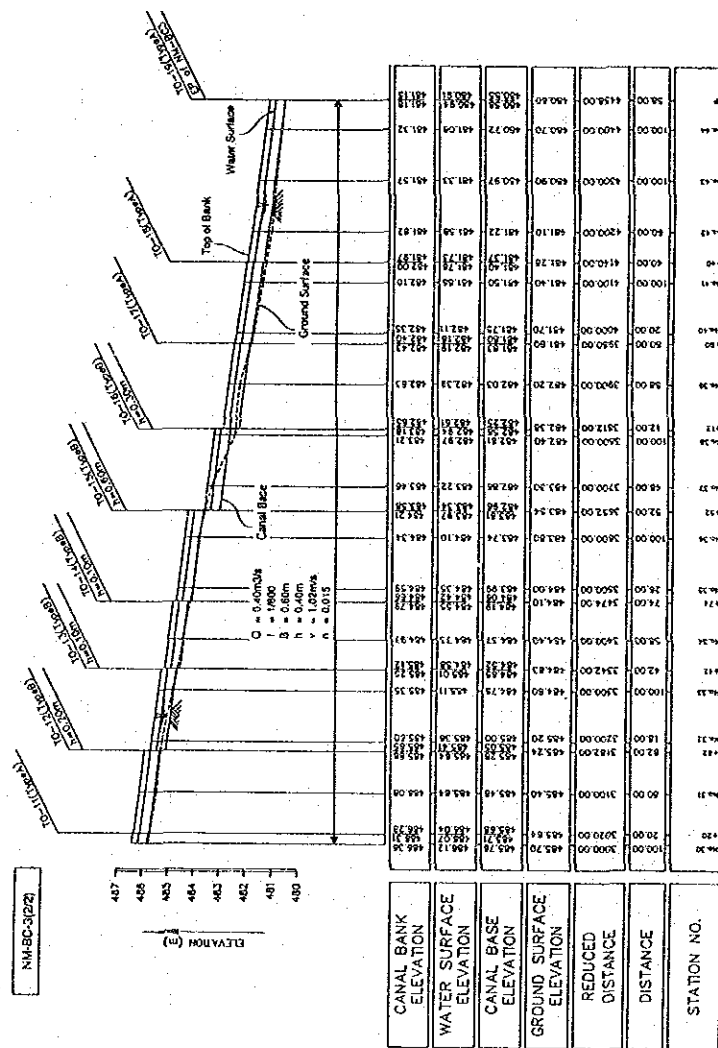


Figure 3.3.23 Profile of NM-BC-3 (2/2)



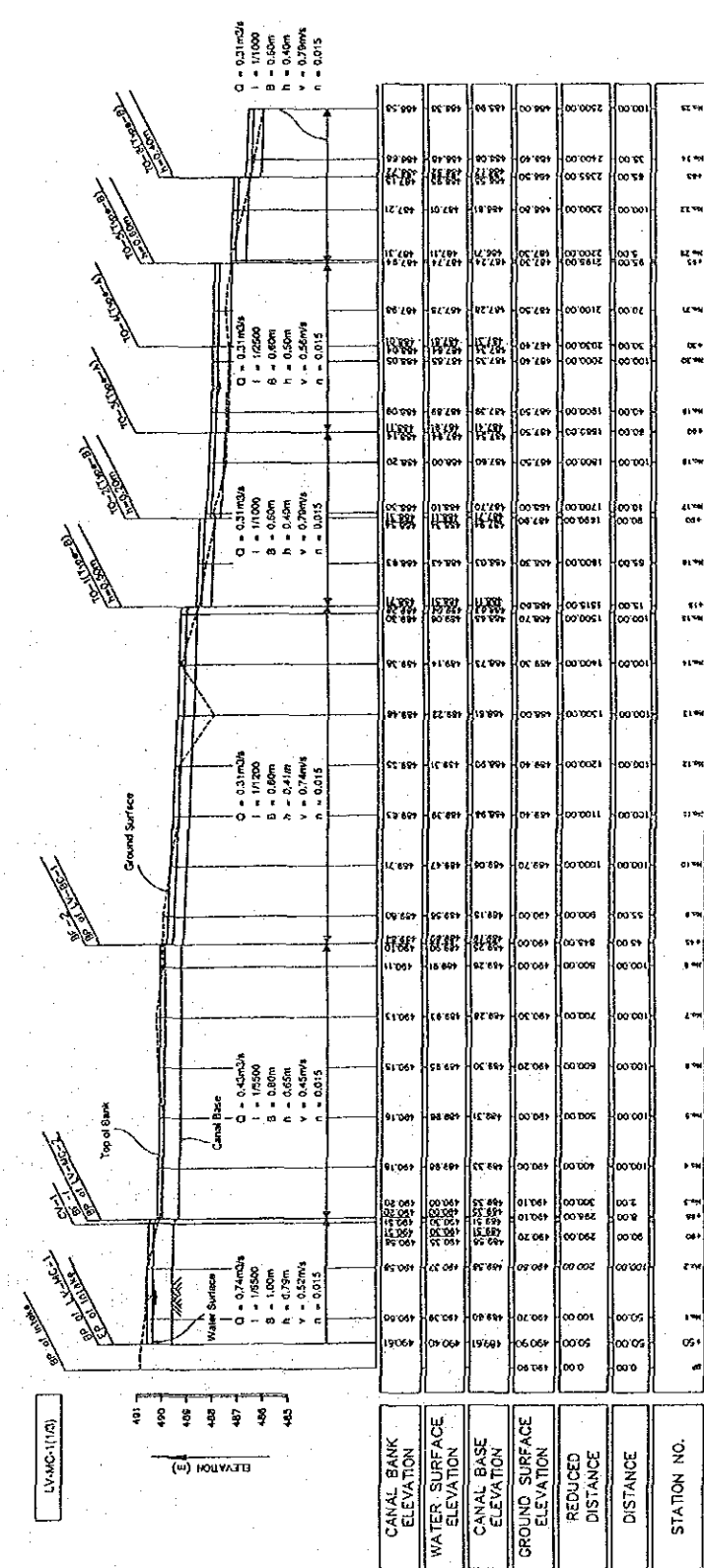


Figure 3.3.24 Profile of LY-MC-1 (1/3)

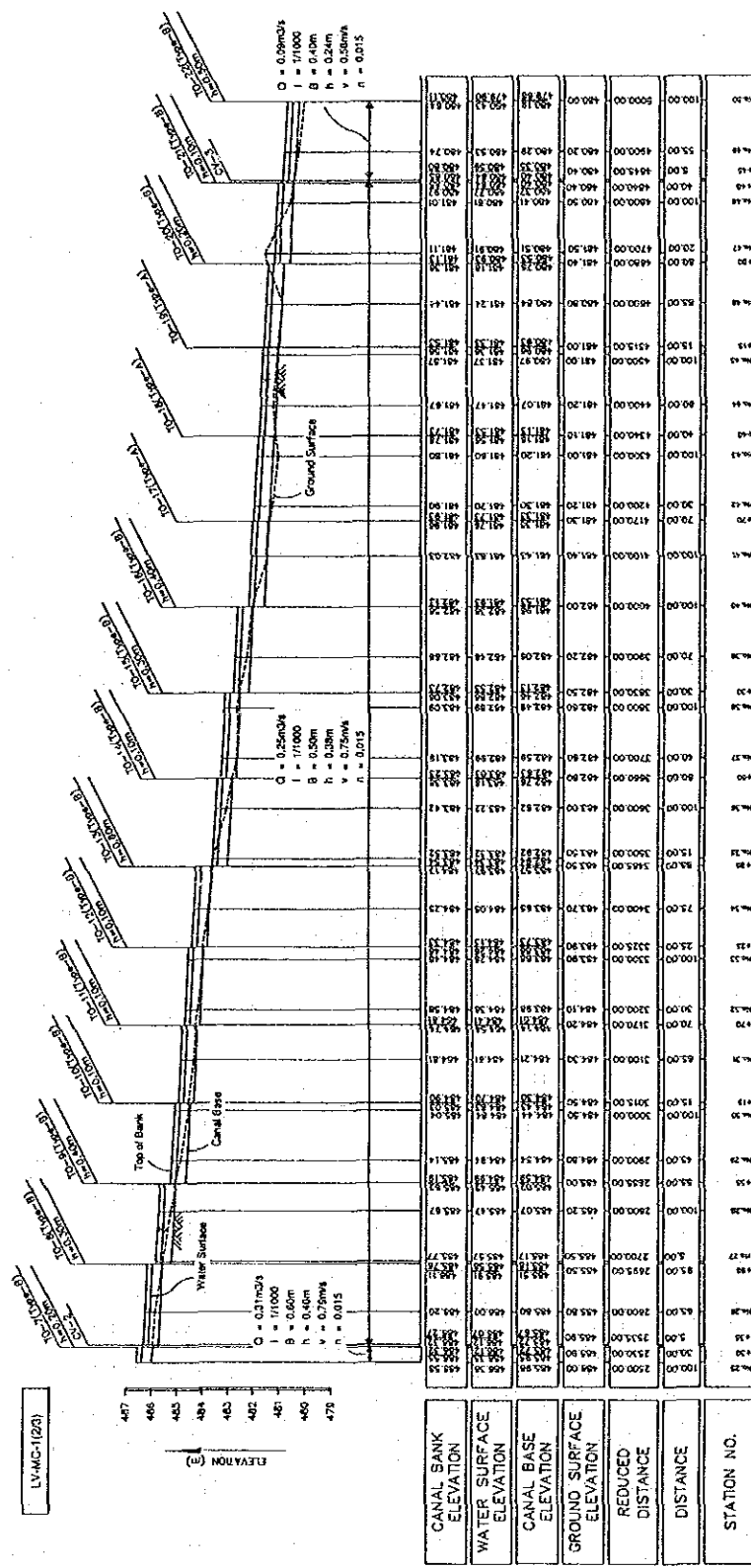


Figure 3.3.25 Profile of LV-MC-1 (2/3)

THE REPUBLIC OF MALAWI
 FEASIBILITY STUDY ON BWANJE VALLEY
 SMALLHOLDER IRRIGATION DEVELOPMENT PROJECT
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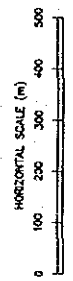


Figure 3.3.26 Profile of LV-MC-1 (3/3)

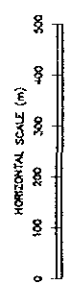
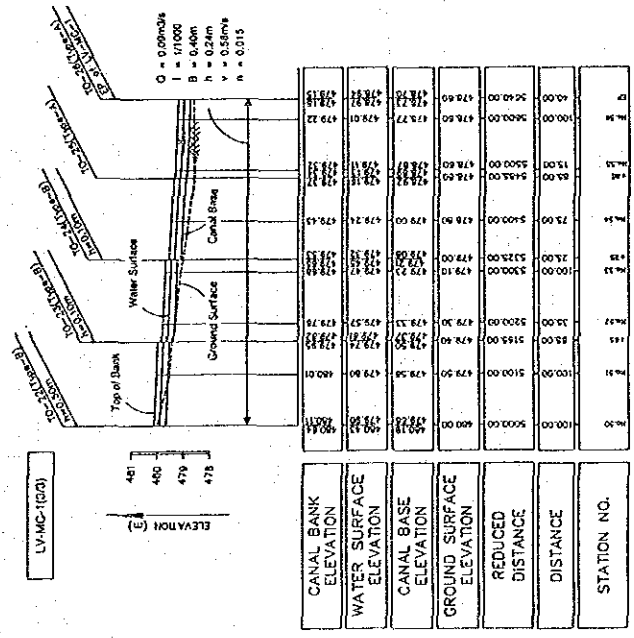


Figure 3.3.27 Profile of LV-MC-2 (1/3)

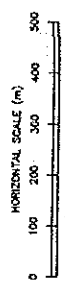
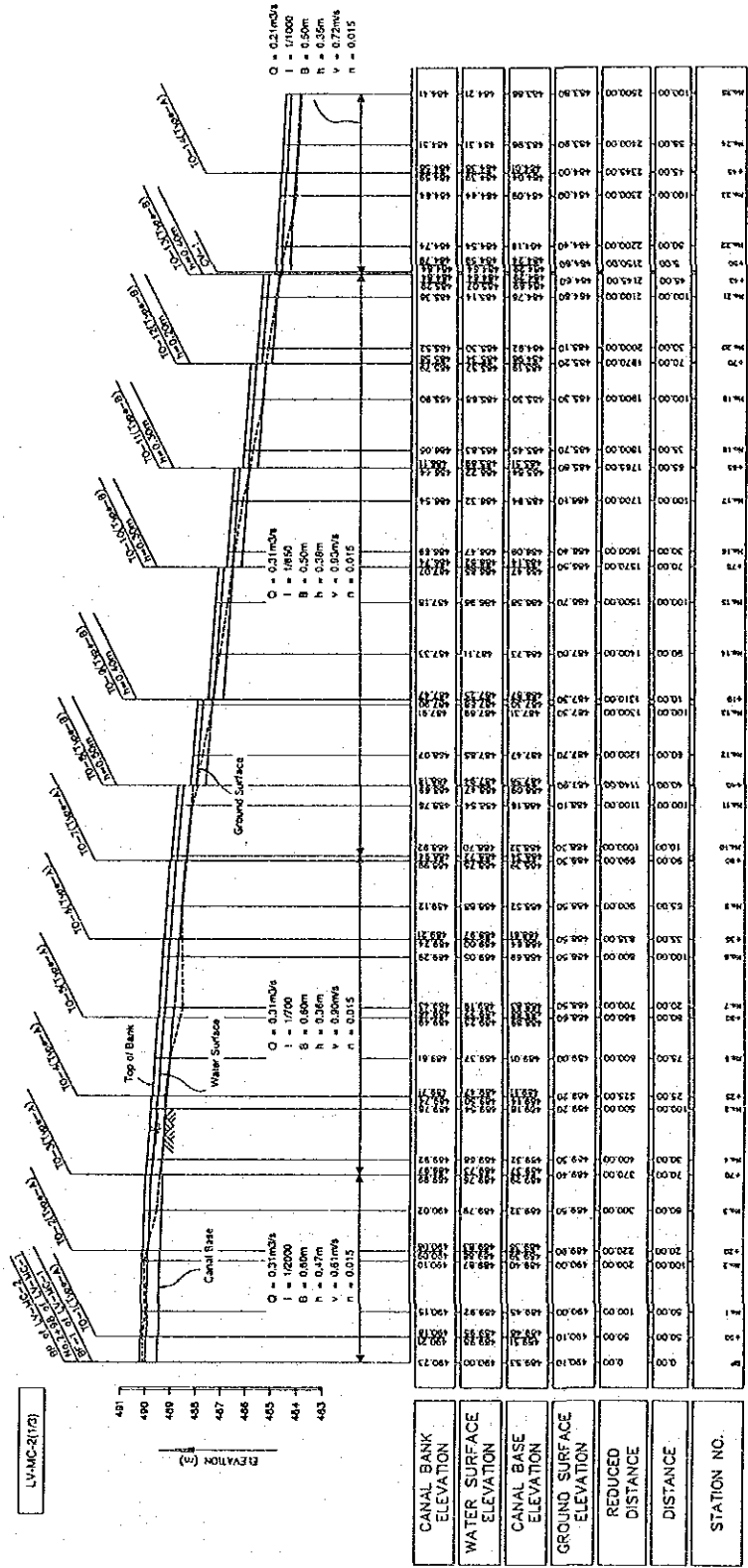
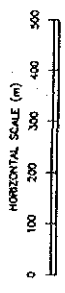
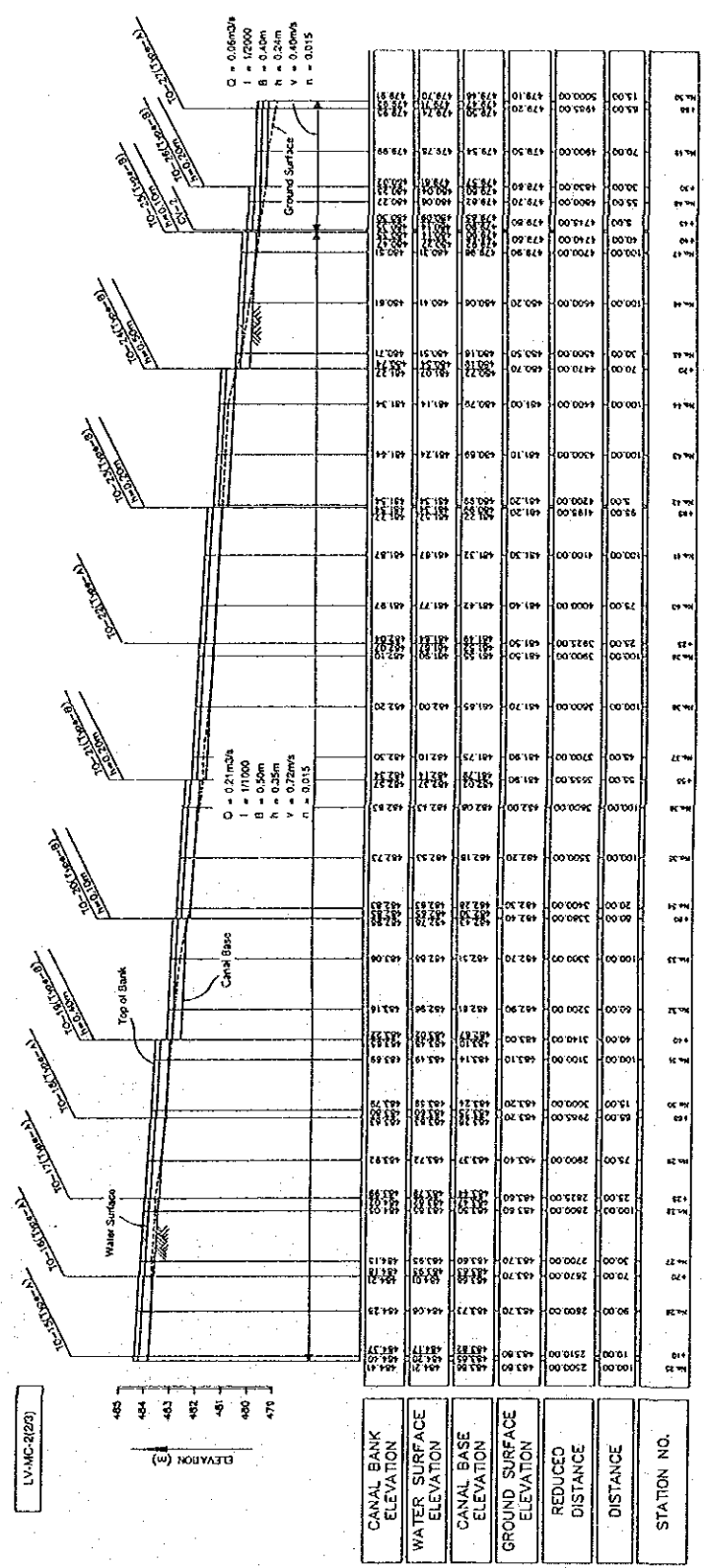


Figure 3.3.28 Profile of LV-MC-2 (2/3)



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 SMALLHOLDER IRRIGATION DEVELOPMENT PROJECT
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Figure 3.3.29 Profile of LV-MC-2 (3/3)

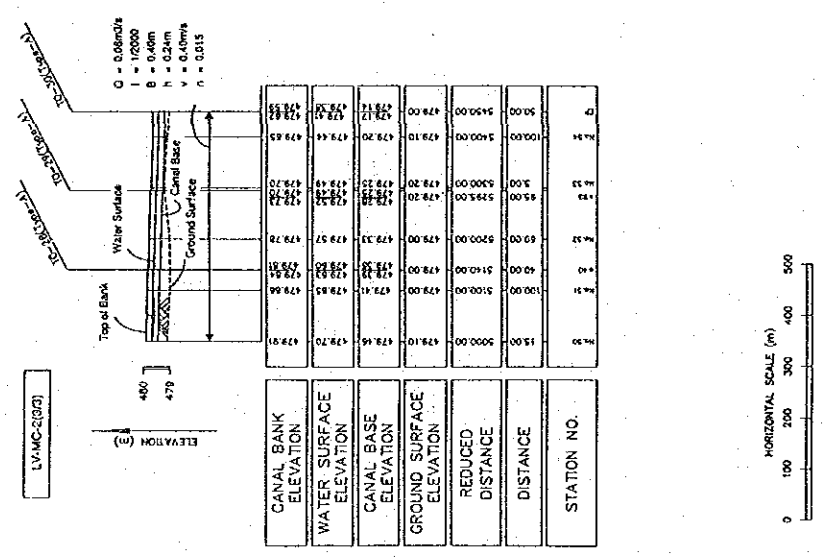
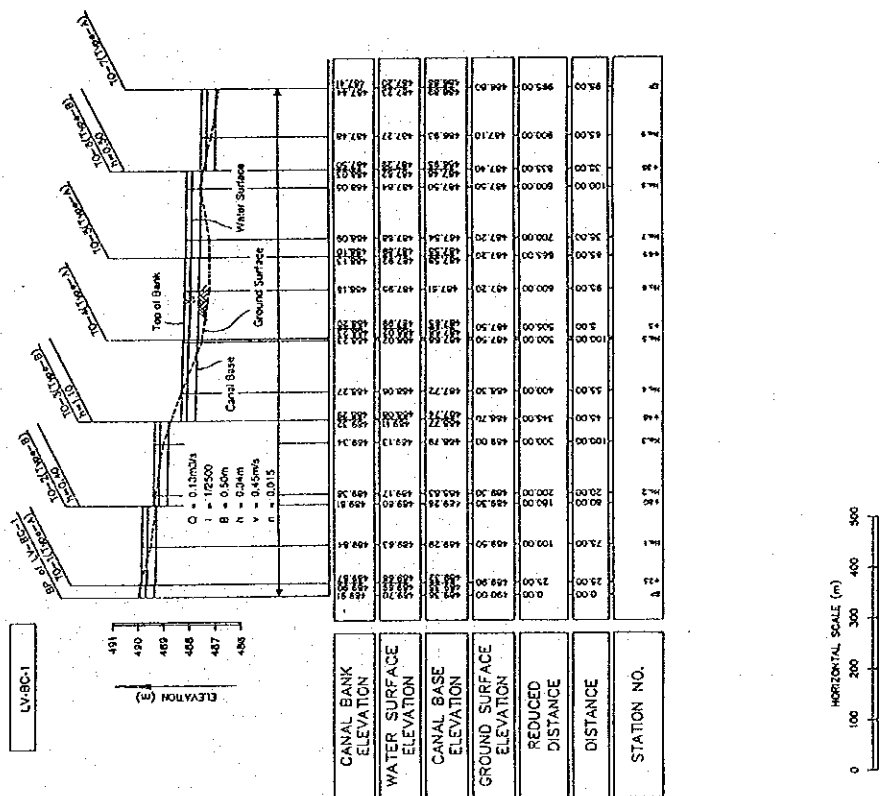
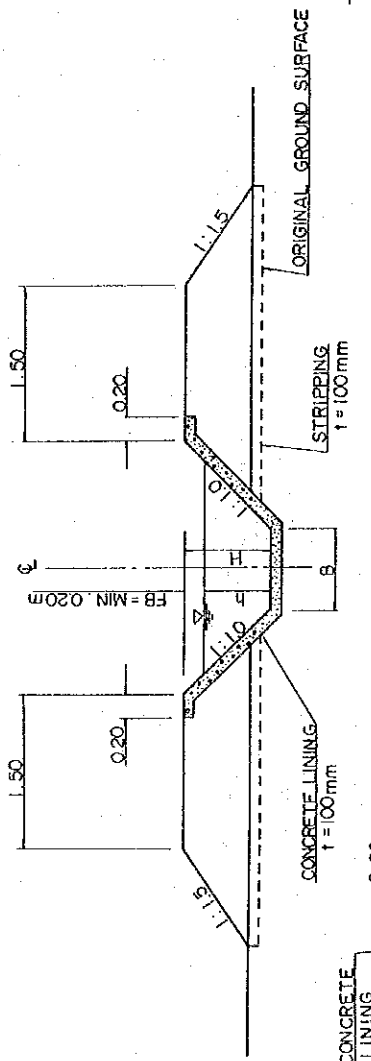


Figure 3.3.30 Profile of LV-BC-1

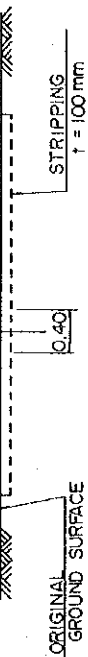


MAIN & BRANCH CANAL SCALE - A
(CONCRETE LINED CANAL)

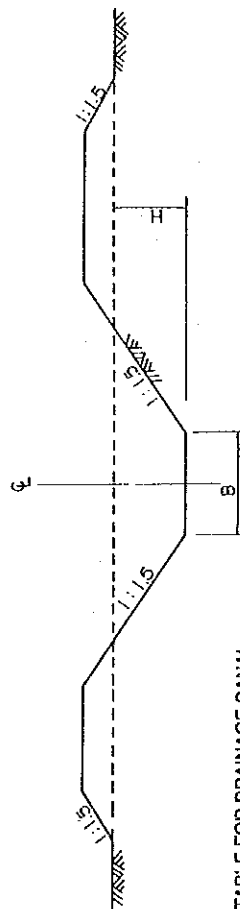


DIMENSION TABLE FOR MAIN & BRANCH IRRIGATION CANAL

Canal Type	B (m)	H (m)	Q (m ³ /sec)
A	1.00	1.00	0.74~1.35
B	0.80	0.70~0.85	0.36~1.35
C	0.60	0.55~0.70	0.31~0.40
D	0.50	0.50~0.60	0.13~0.31
E	0.40	0.40~0.45	0.04~0.09

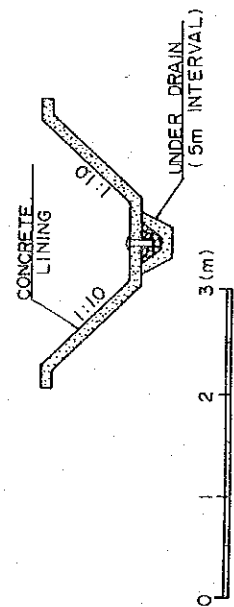


DRAIN SCALE - A



UNDER DRAIN SCALE - B

UNDER DRAIN ON LINED CANAL



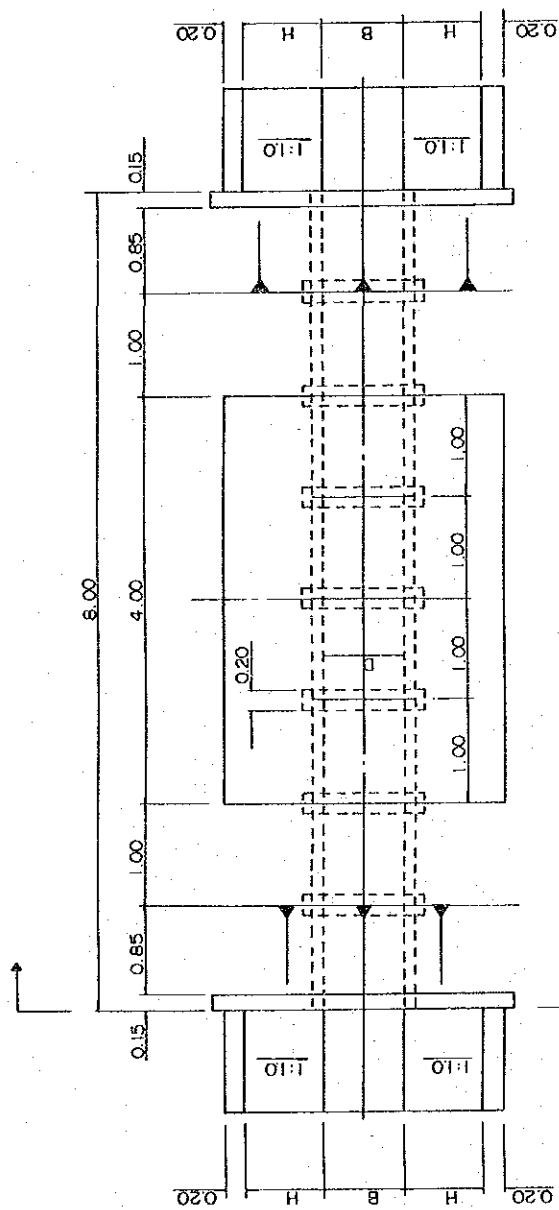
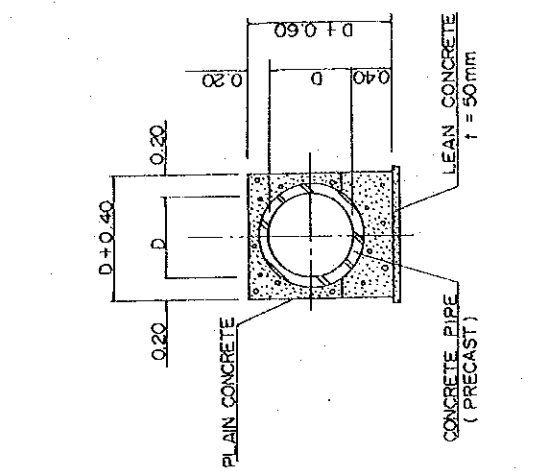
SCALE - A

SCALE - B

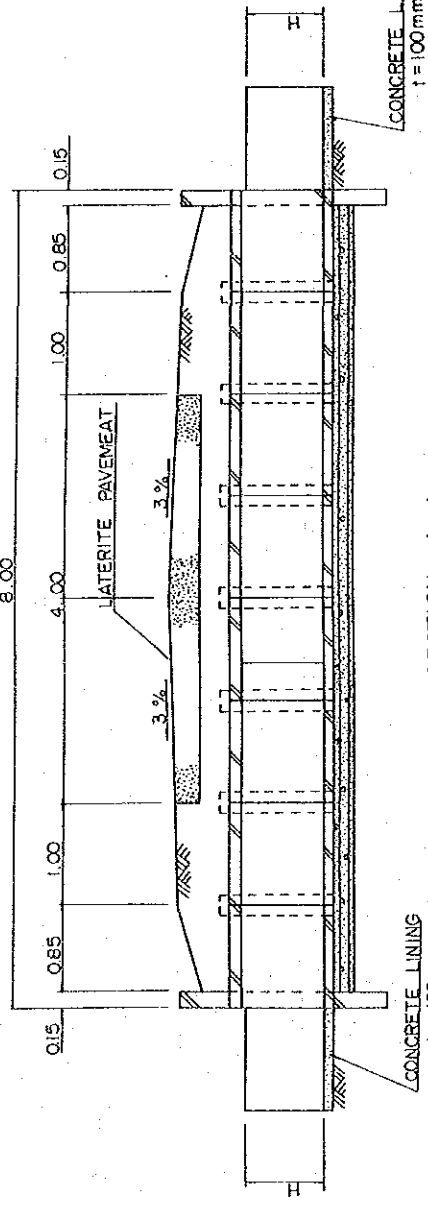
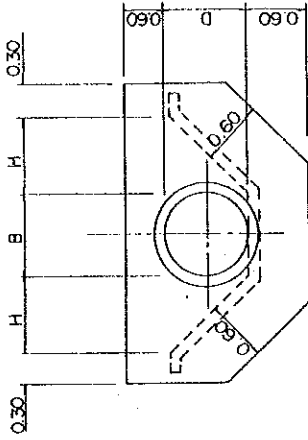
DIMENSION TABLE FOR DRAINAGE CANAL

Canal Type	B (m)	H (m)	Q (m ³ /sec)
A	2.60	1.70	5.00
B	2.40	1.65	4.50
C	2.00	1.50	3.50
D	1.70	1.45	3.00
E	1.50	1.35	2.50
F	1.20	1.10	1.50
G	1.00	0.90	1.00
H	0.70	0.65	0.40

Figure 3.3.31
Typical Cross Sections of Canals and Drains



PLAN
SCALE - A



SECTION A - A
SCALE - A

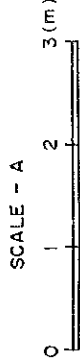


Figure 3.32 Culvert

THE REPUBLIC OF MALAWI
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SMALLHOLDER IRRIGATION DEVELOPMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY

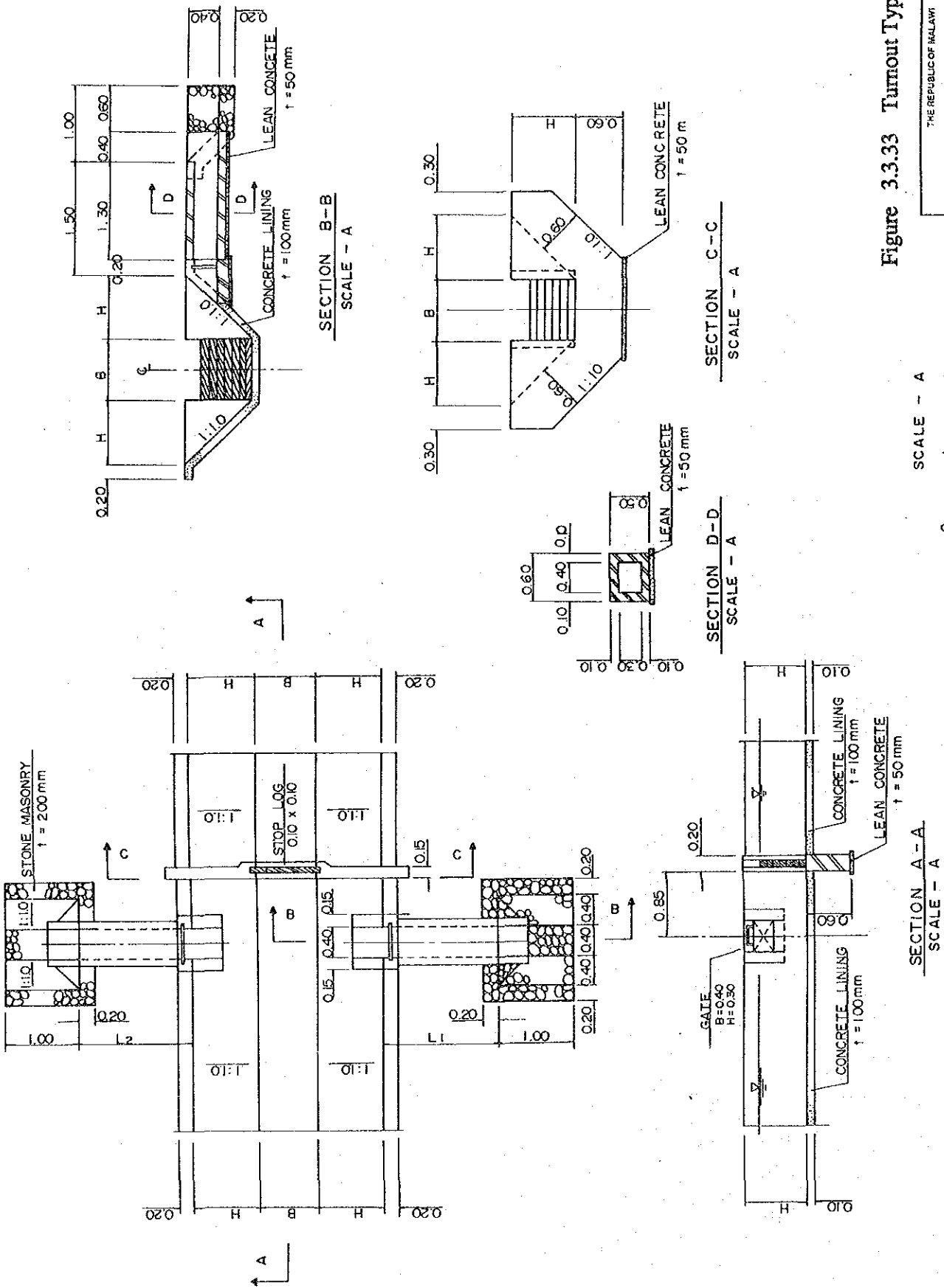


Figure 3.3.33 Turnout Type-A

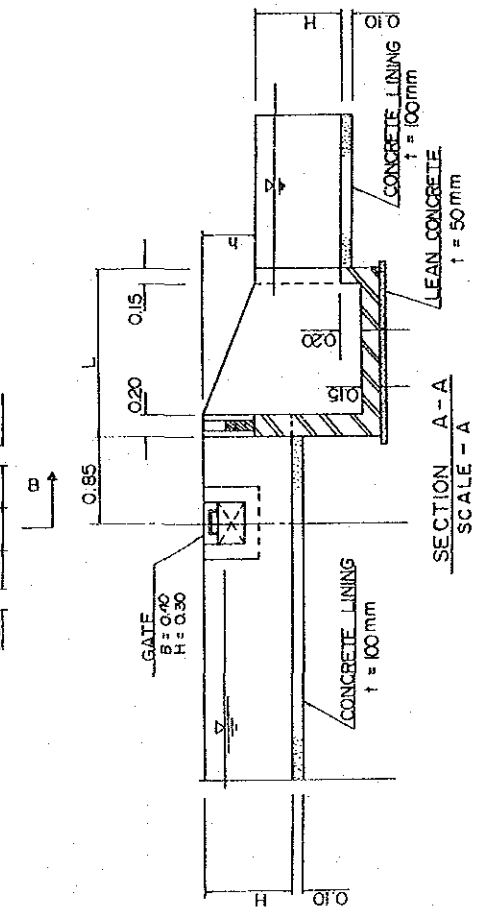
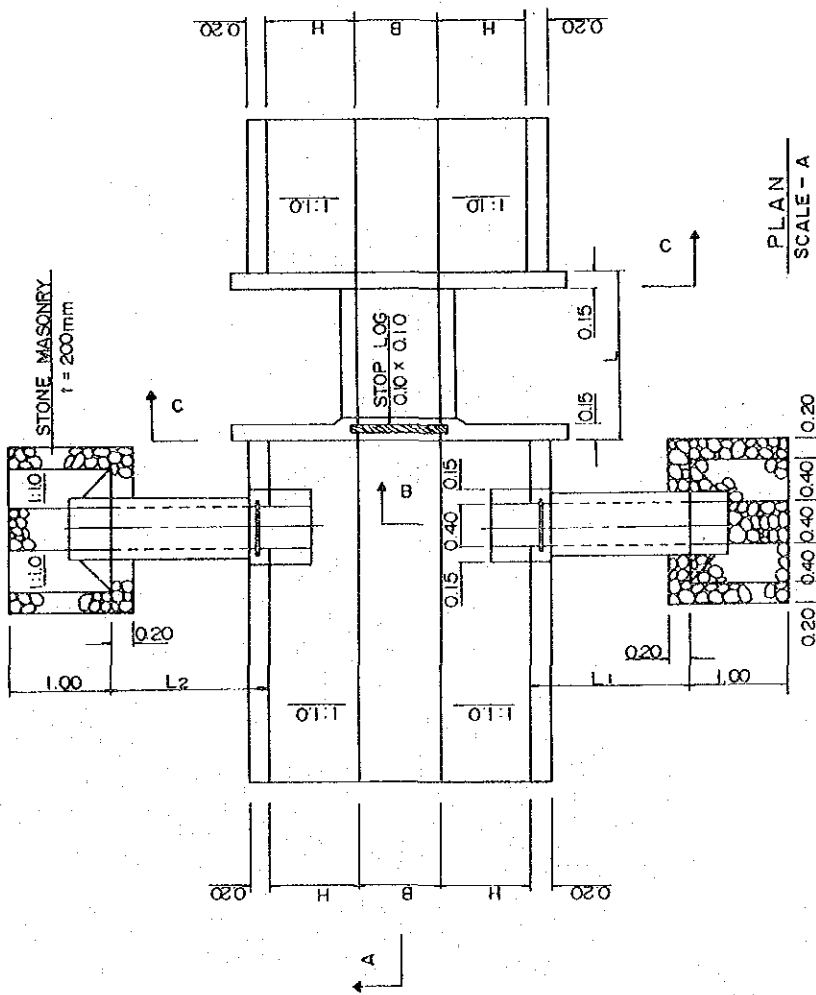
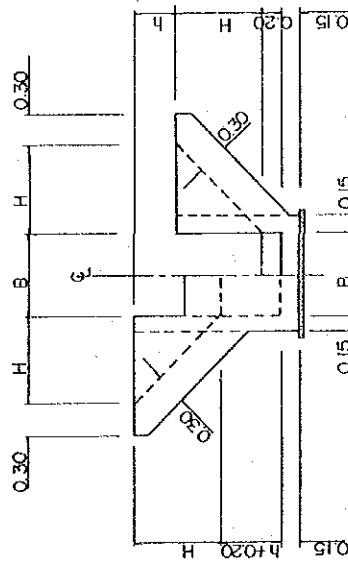
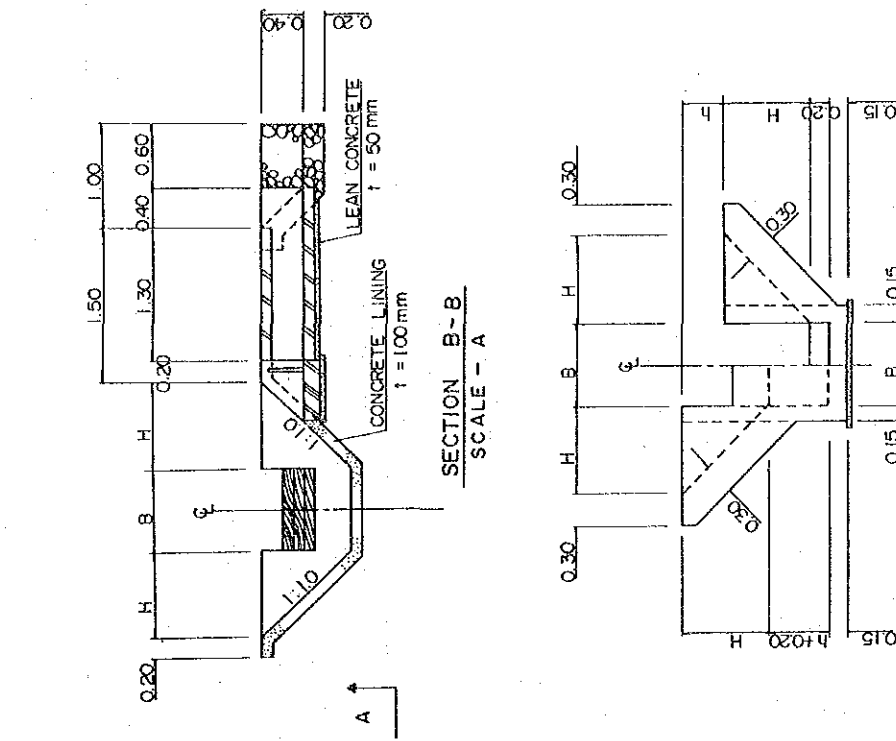


Figure 3.34 Turnout Type-B

SCALE - A



THE REPUBLIC OF MALAWI
FEASIBILITY STUDY ON BWANJE VALLEY
SMALLHOLDER IRRIGATION DEVELOPMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY

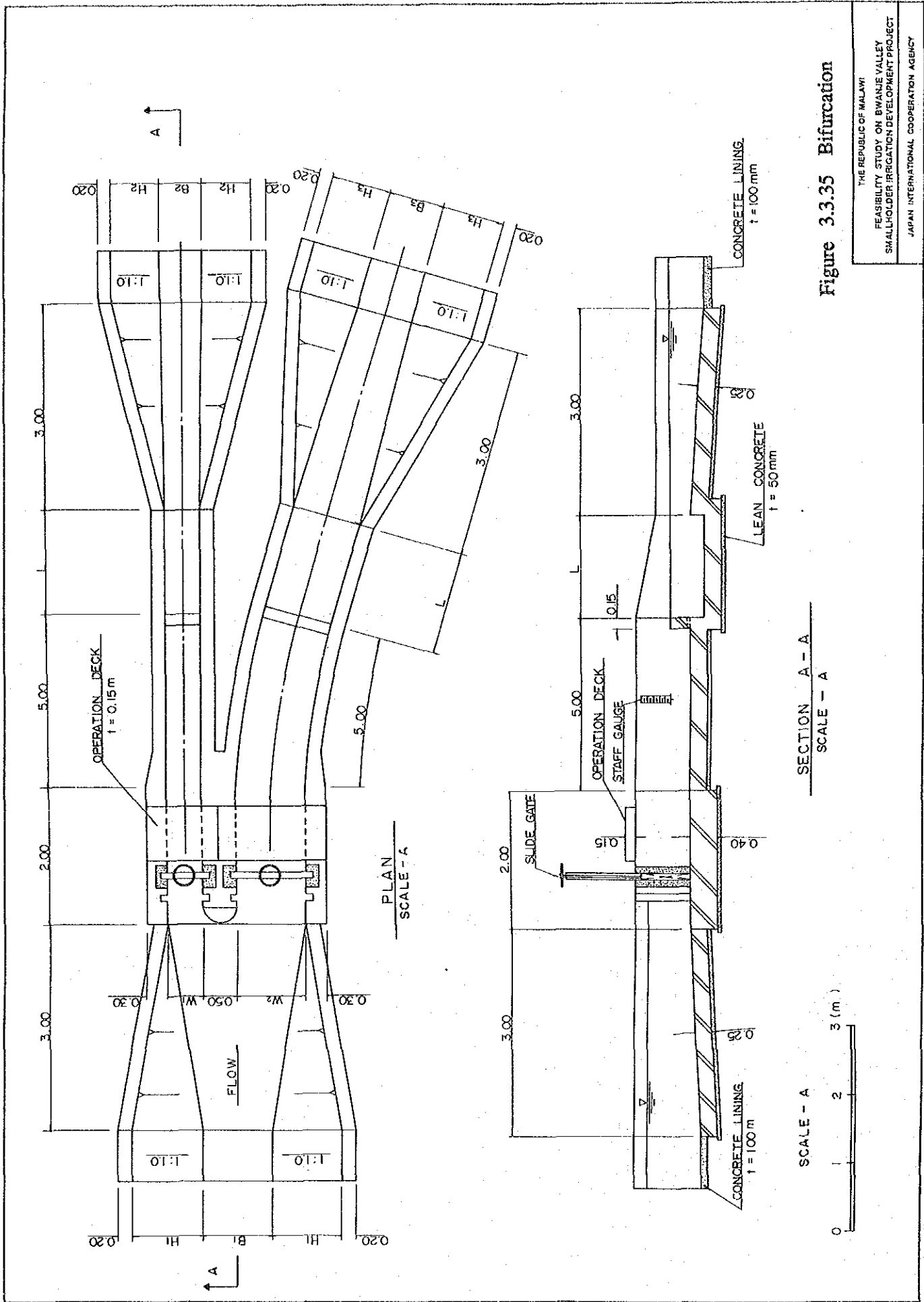


Figure 3.3.35 Bifurcation

THE REPUBLIC OF MALAWI
 FEASIBILITY STUDY ON BWANJE VALLEY
 SMALLHOLDER IRRIGATION DEVELOPMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

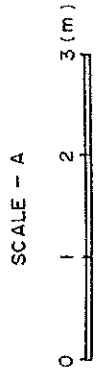
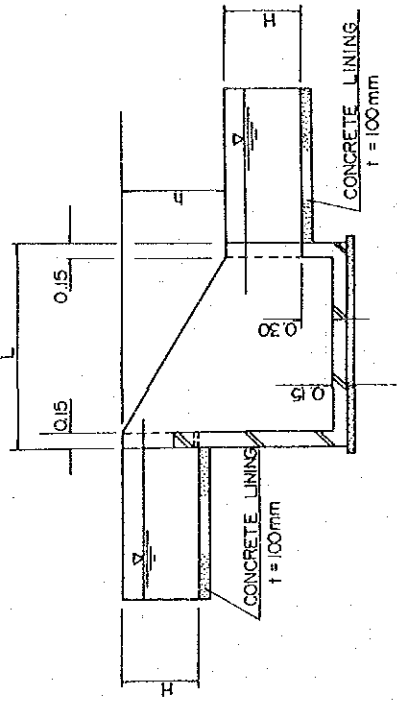
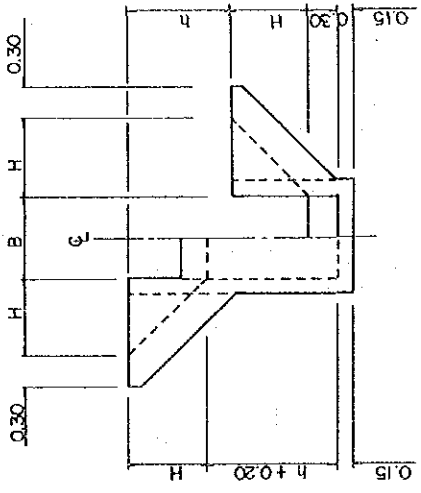
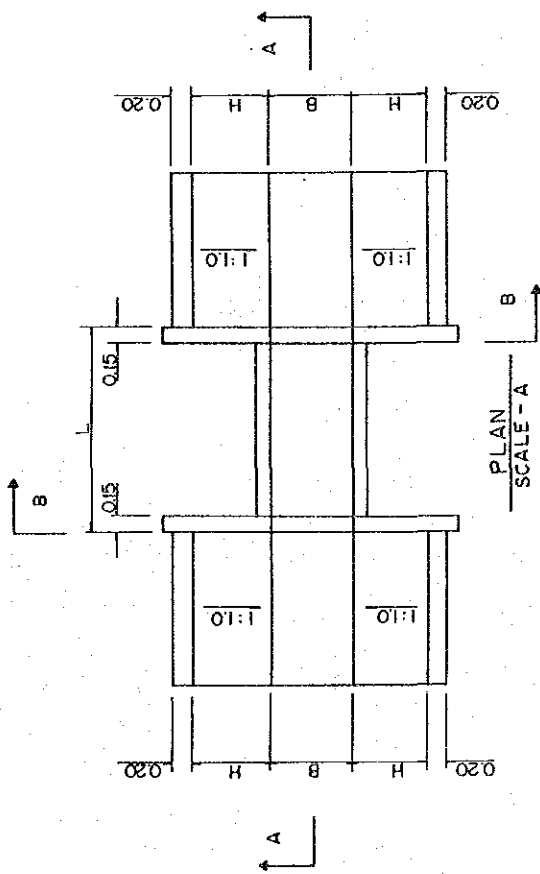


Figure 3.3.36 Drop

THE REPUBLIC OF MALAWI
 FEASIBILITY STUDY ON BWANJE VALLEY
 SMALLHOLDER IRRIGATION DEVELOPMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

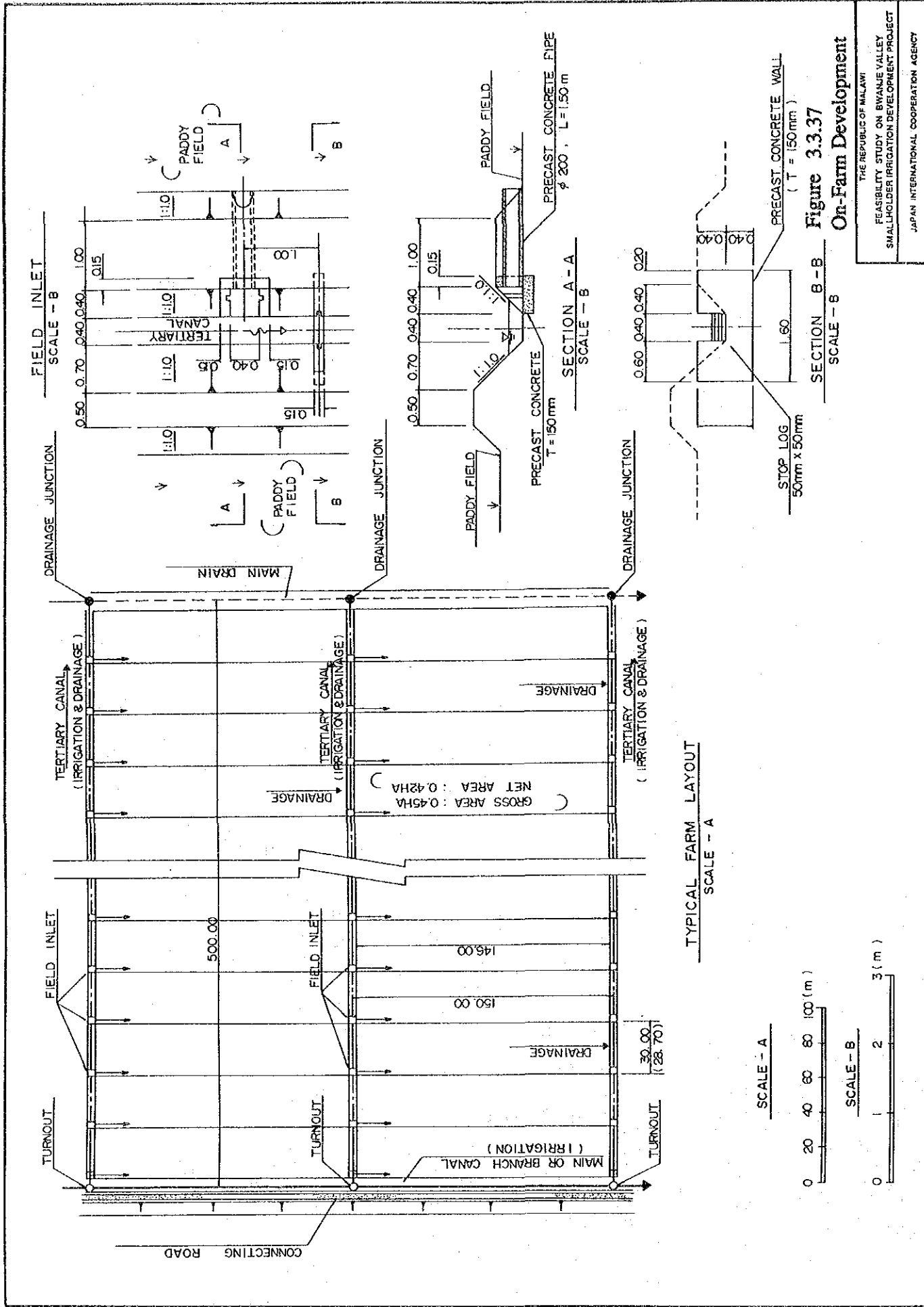
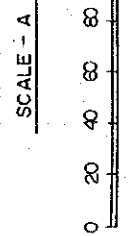


Figure 3.37
On-Farm Development

THE REPUBLIC OF MALAWI
FEASIBILITY STUDY ON BWANJE VALLEY
SMALLHOLDER IRRIGATION DEVELOPMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY



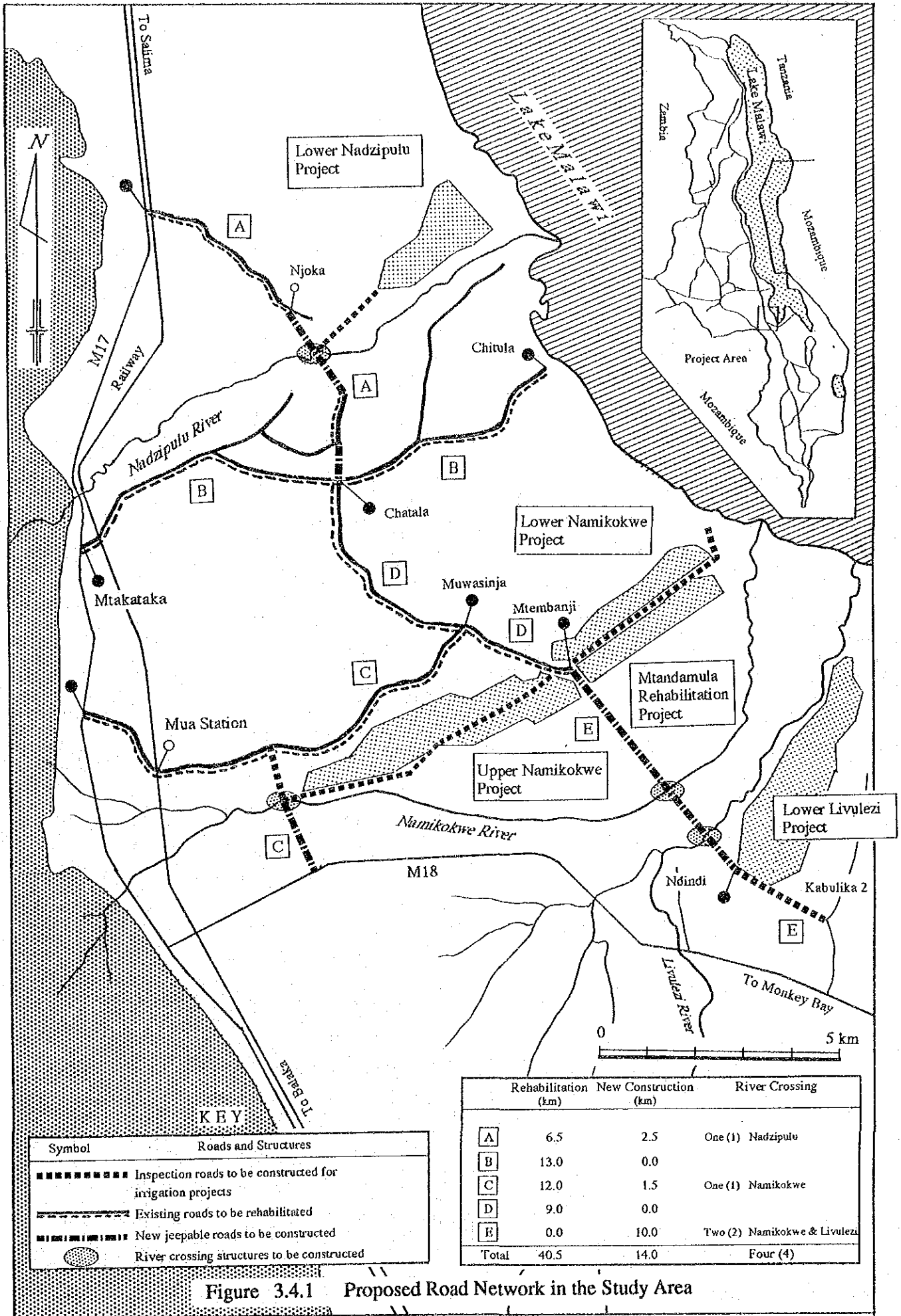


Figure 3.4.1 Proposed Road Network in the Study Area

Figure 3.6.1 General Layout of Bwanje Development Center

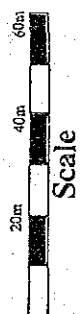
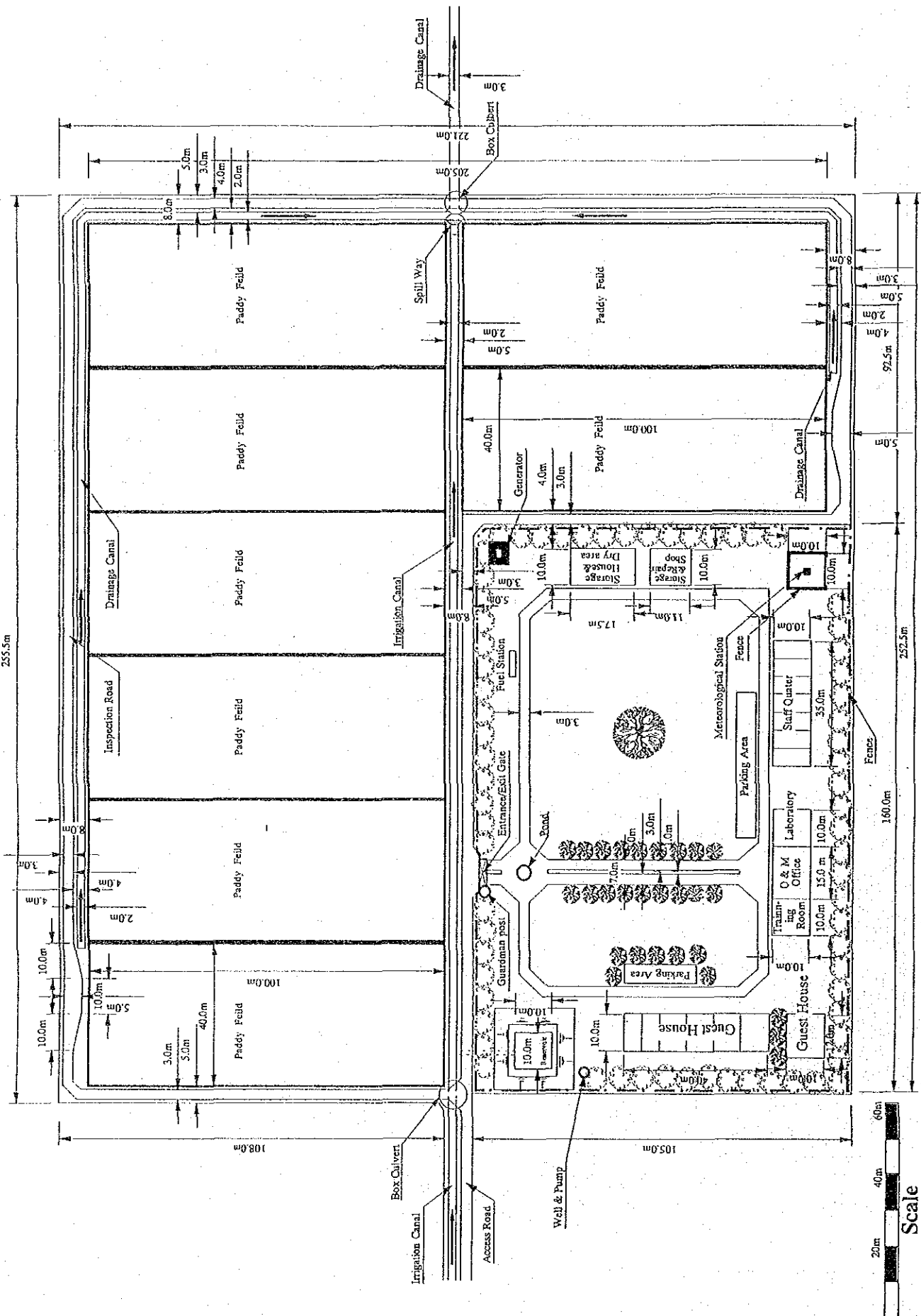


Figure 4.2.1 Implementation Schedule

(1) The Lower Nadzipulu Irrigation Project

Work Item	1 st. Year												2 nd. Year												3 rd. Yera															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36				
I. PREPARATORY WORKS																																								
1. Selection of Consultants	1	2																																						
2. Detailed Design Works			3	4	5	6	7	8																																
3. Tendering																																								
4. Mobilization for Implementation																																								
5. Land Compensation																																								
II. CONSTRUCTION WORKS																																								
1. Preparatory Works for Construction																																								
2. Head Works																																								
3. Irrigation Canal and Structures																																								
4. Drainage Canals and Structures																																								
5. Inspection Roads																																								
6. Connecting Road																																								
7. Road/Flood protection Dike																																								
8. Tertiary Development																																								
9. Rice Mill and Facilities																																								
III. PROCUREMENT WORKS																																								
1. Rice Mill and Related Facilities																																								

(2) The Namikokwe Integrated Irrigation Project

Work Item	1 st. Year												2 nd. Year												3 rd. Yera															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36				
I. PREPARATORY WORKS																																								
1. Selection of Consultants	1	2																																						
2. Detailed Design Works			3	4	5	6	7	8																																
3. Tendering																																								
4. Mobilization for Implementation																																								
5. Land Compensation																																								
II. CONSTRUCTION WORKS																																								
1. Preparatory Works for Construction																																								
2. Head Works																																								
3. Irrigation Canal and Structures																																								
4. Drainage Canals and Structures																																								
5. Inspection Roads																																								
6. Connecting Road																																								
7. Road/Flood protection Dike																																								
8. Tertiary Development																																								
9. Rice Mill and Facilities																																								
III. PROCUREMENT WORKS																																								
1. Rice Mill and Related Facilities																																								

(3) The Lower Livulezi Irrigation Project

Work Item	1 st. Year												2 nd. Year												3 rd. Yera															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36				
I. PREPARATORY WORKS																																								
1. Selection of Consultants	1	2																																						
2. Detailed Design Works			3	4	5	6	7	8																																
3. Tendering																																								
4. Mobilization for Implementation																																								
5. Land Compensation																																								
II. CONSTRUCTION WORKS																																								
1. Preparatory Works for Construction																																								
2. River Dredging																																								
3. River Crossing Structures on M18																																								
4. Head Works																																								
5. Irrigation Canal and Structures																																								
6. Drainage Canals and Structures																																								
7. Inspection Roads																																								
8. Connecting Road																																								
9. Road/Flood protection Dike																																								
10. Tertiary Development																																								
11. Rice Mill and Facilities																																								
III. PROCUREMENT WORKS																																								
1. Rice Mill and Related Facilities																																								

Figure 4.2.2 Flow Chart of Implementation

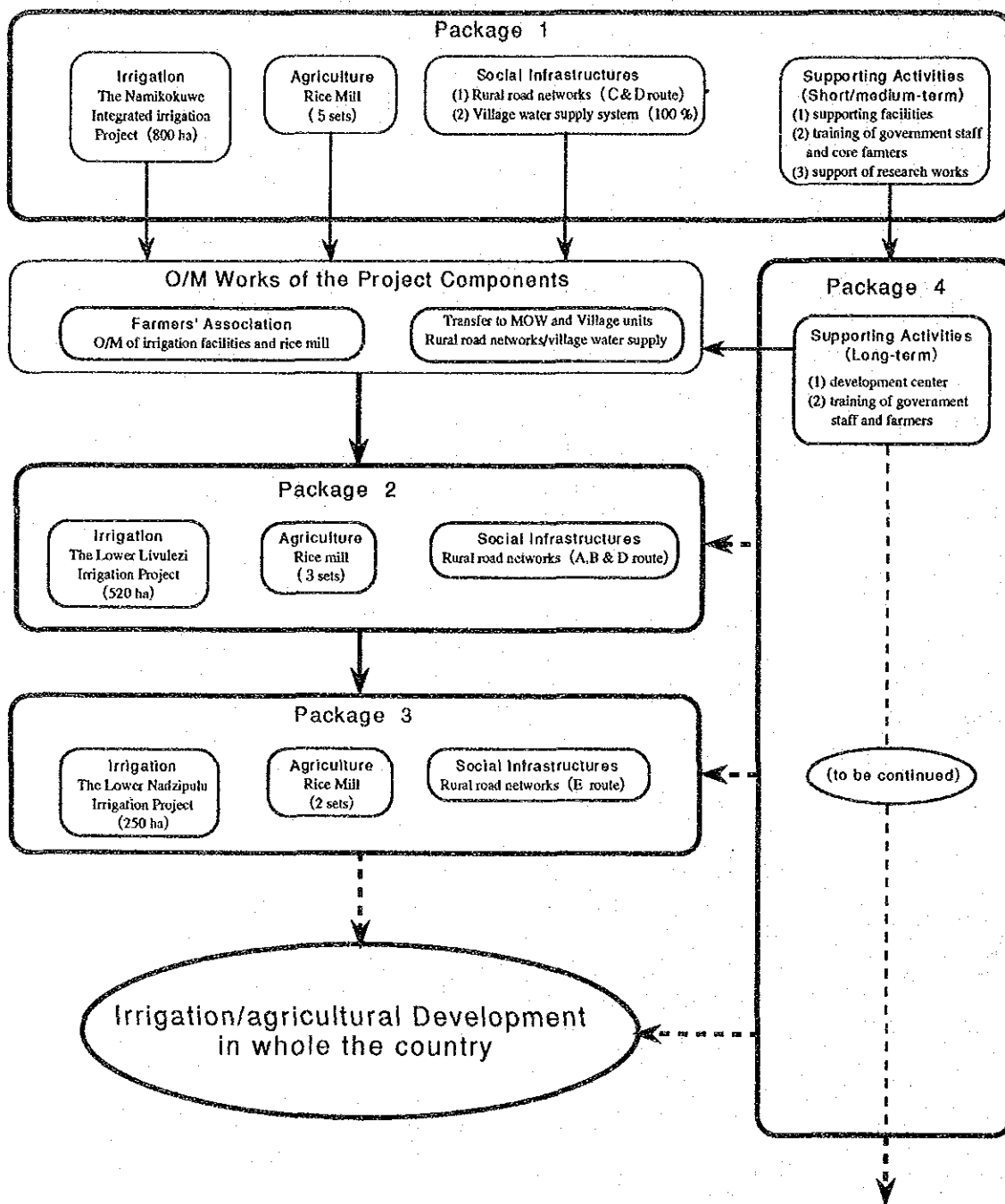


Figure 6.1.1 Organization Chart for Construction Stage

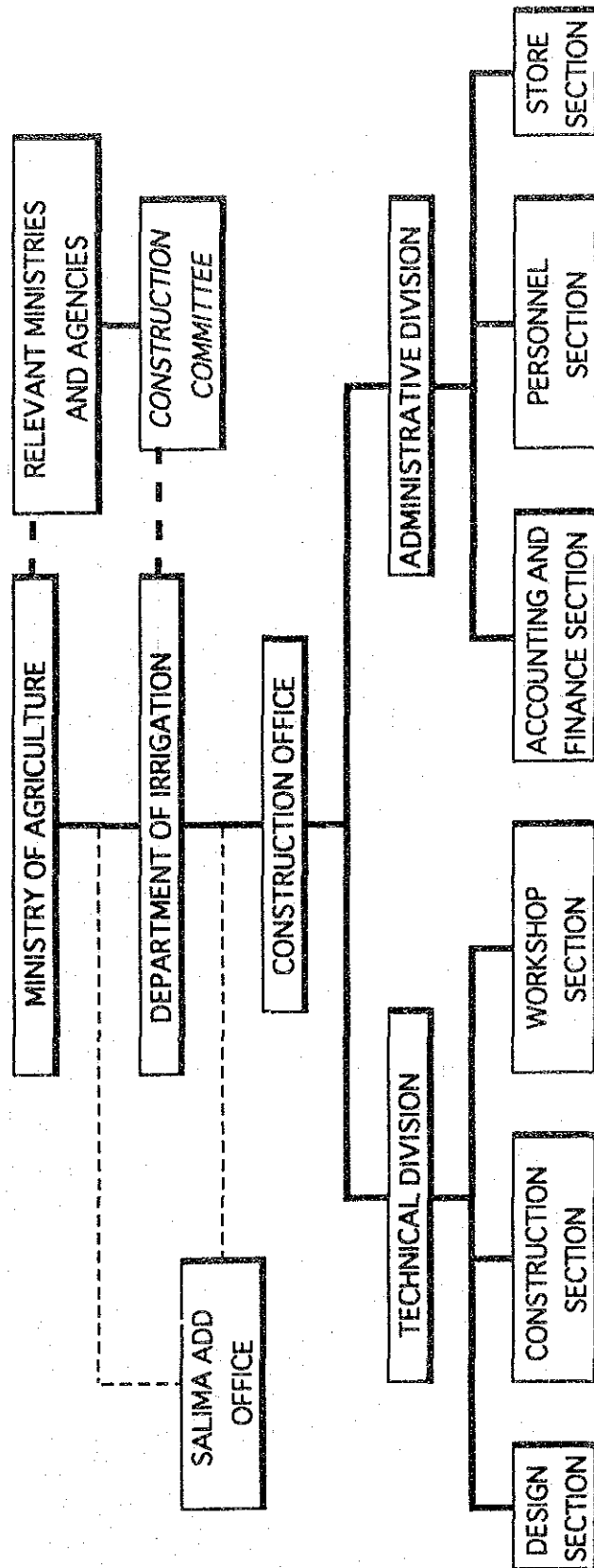


Figure 6.1.2 Organization Chart for Operation and Maintenance Works
(Irrigation Project, Rural Road and Village Water Supply)

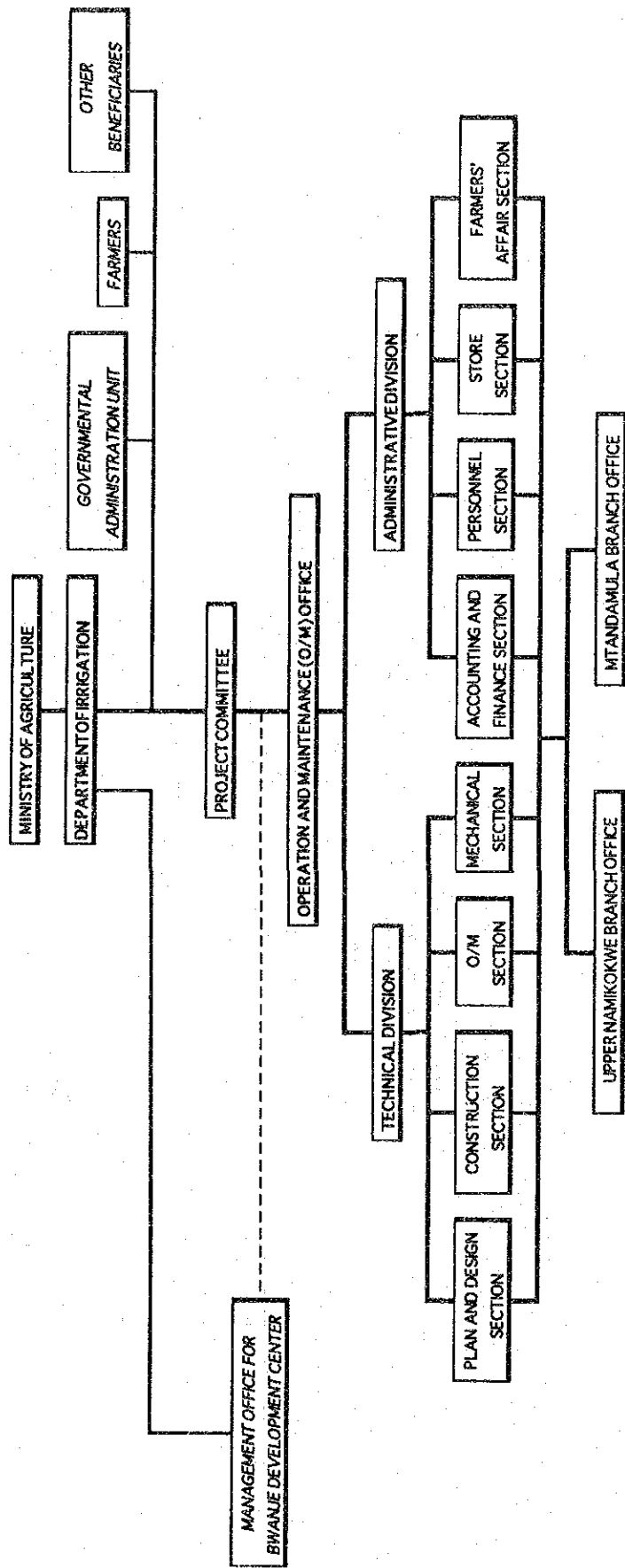
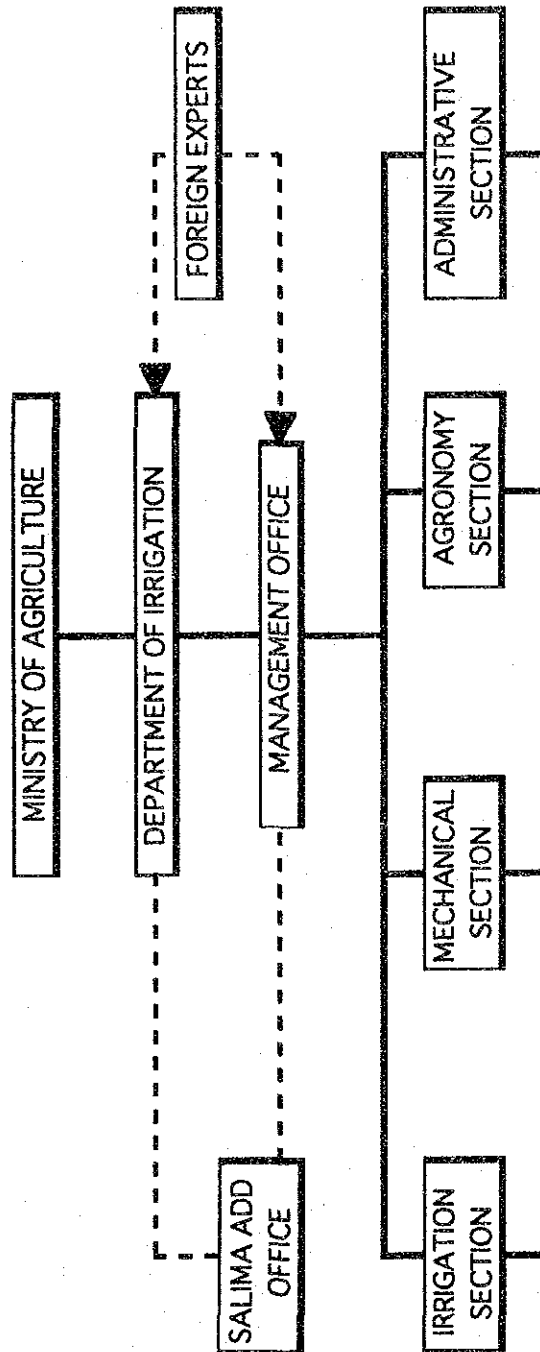


Figure 6.1.3 Organization Chart for Operation of Bwanje Development Centre



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