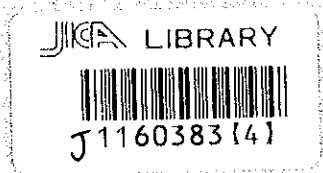


Japan International
Cooperation Agency

Ministry of Lands and Agriculture
Republic of Zimbabwe

THE FEASIBILITY STUDY
ON
THE LOWER MUNYATI RIVER BASIN
AGRICULTURAL DEVELOPMENT PROJECT
IN
THE REPUBLIC OF ZIMBABWE

Volume - III
DRAWINGS



November 2000

Nippon Koei Co., Ltd.
Kokusai Kogyo Co., Ltd.

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Japan International
Cooperation Agency
(JICA)

Ministry of Lands and Agriculture
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**THE FEASIBILITY STUDY
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**Volume – III
- DRAWINGS -**

NOVEMBER 2000

Nippon Koei Co., Ltd.
Kokusai Kogyo Co., Ltd.



1160383 [4]

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Volume III DRAWINGS

Feasibility Study

Lower Munyati River Basin Agricultural Development Project






Volume II Drawings

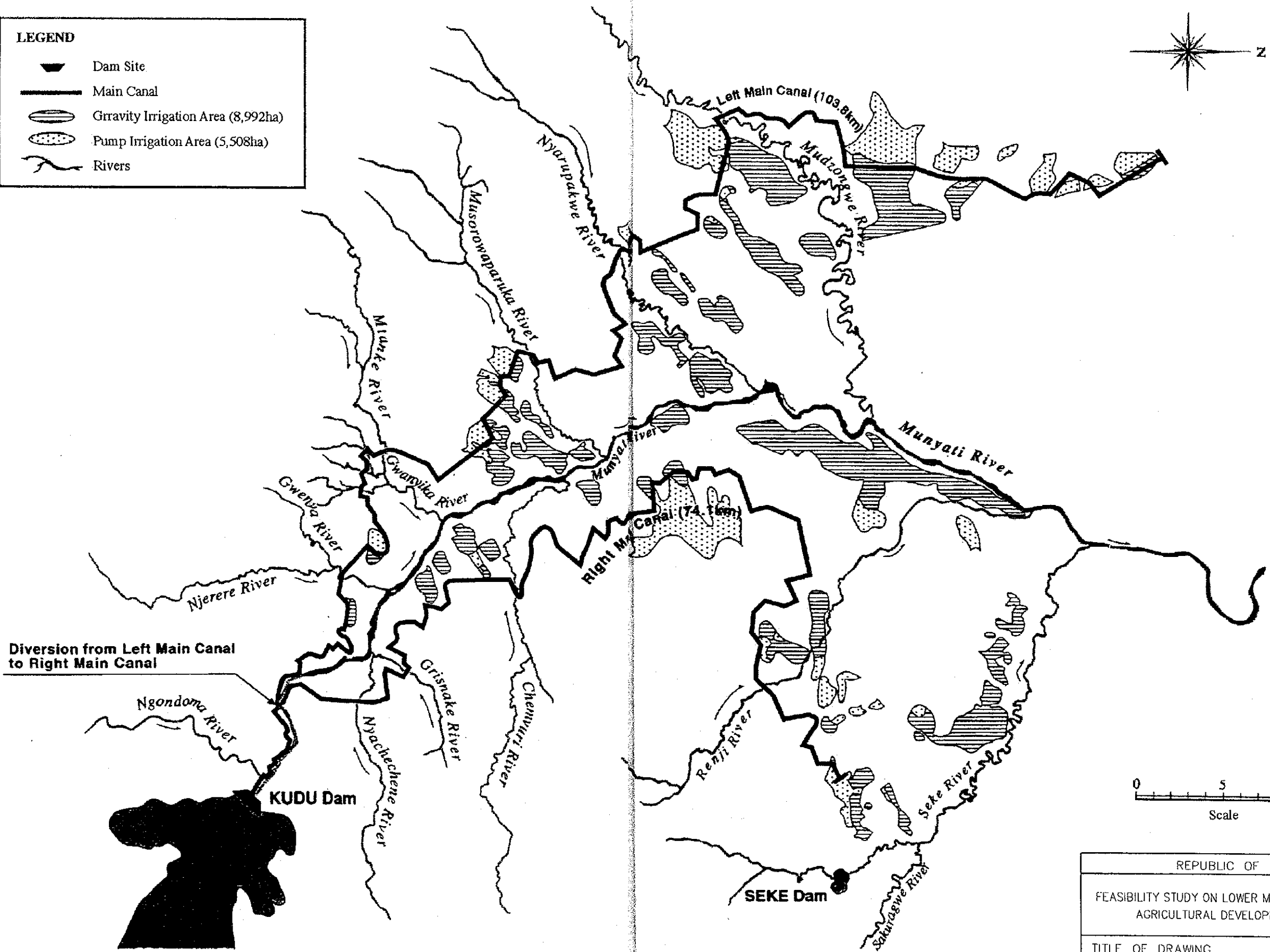
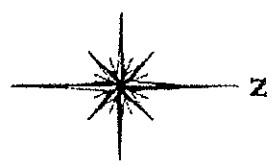
List of Drawings

Plate No.	Drawing No.	Title of Drawing
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78	4008	BOX CULVERT
79	4009	TYPICAL CROSS SECTION OF SECONDARY CANAL
80	4010	PUMP STATION (PUMP IRRIGATION)

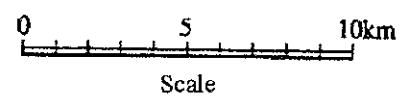
Plate No.	Drawing No.	Title of Drawing
V. PILOT PROJECT		
81	5001	GENERAL PLAN OF PILOT PROJECT
82	5002	PLAN OF NYARUPAKWE DAM
83	5003	PROFILE OF NYARUPAKWE DAM AXIS
84	5004	TYPICAL CROSS SECTION OF NYARUPAKWE DAM
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88	5008 - 5009	PROFILE OF IRRIGATION CANAL (1/2 - 2/2)
90	5010	LAYOUT OF PILOT IRRIGATION AREA

LEGEND

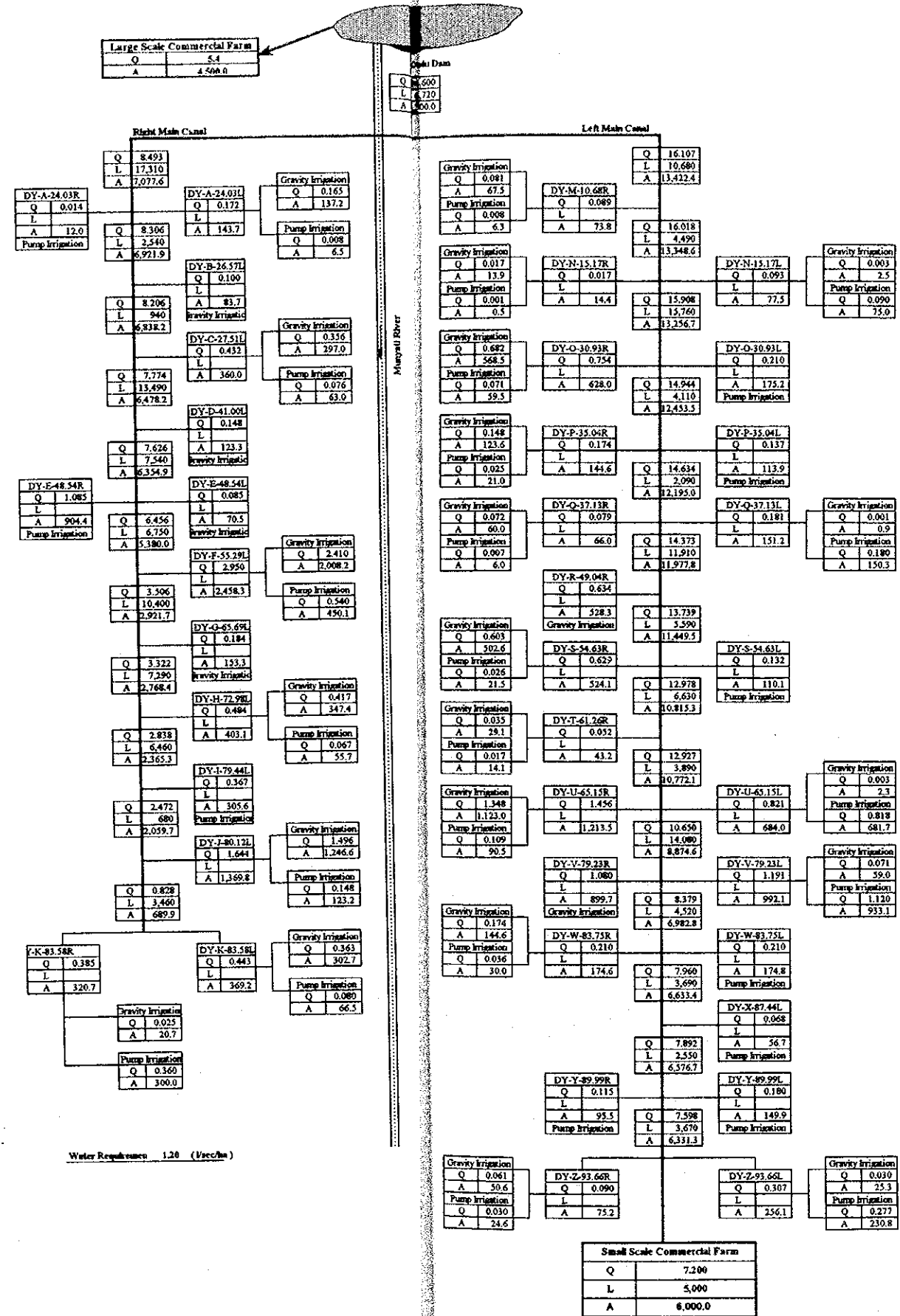
-  Dam Site
-  Main Canal
-  Gravity Irrigation Area (8,992ha)
-  Pump Irrigation Area (5,508ha)
-  Rivers



Diversion from Left Main Canal to Right Main Canal

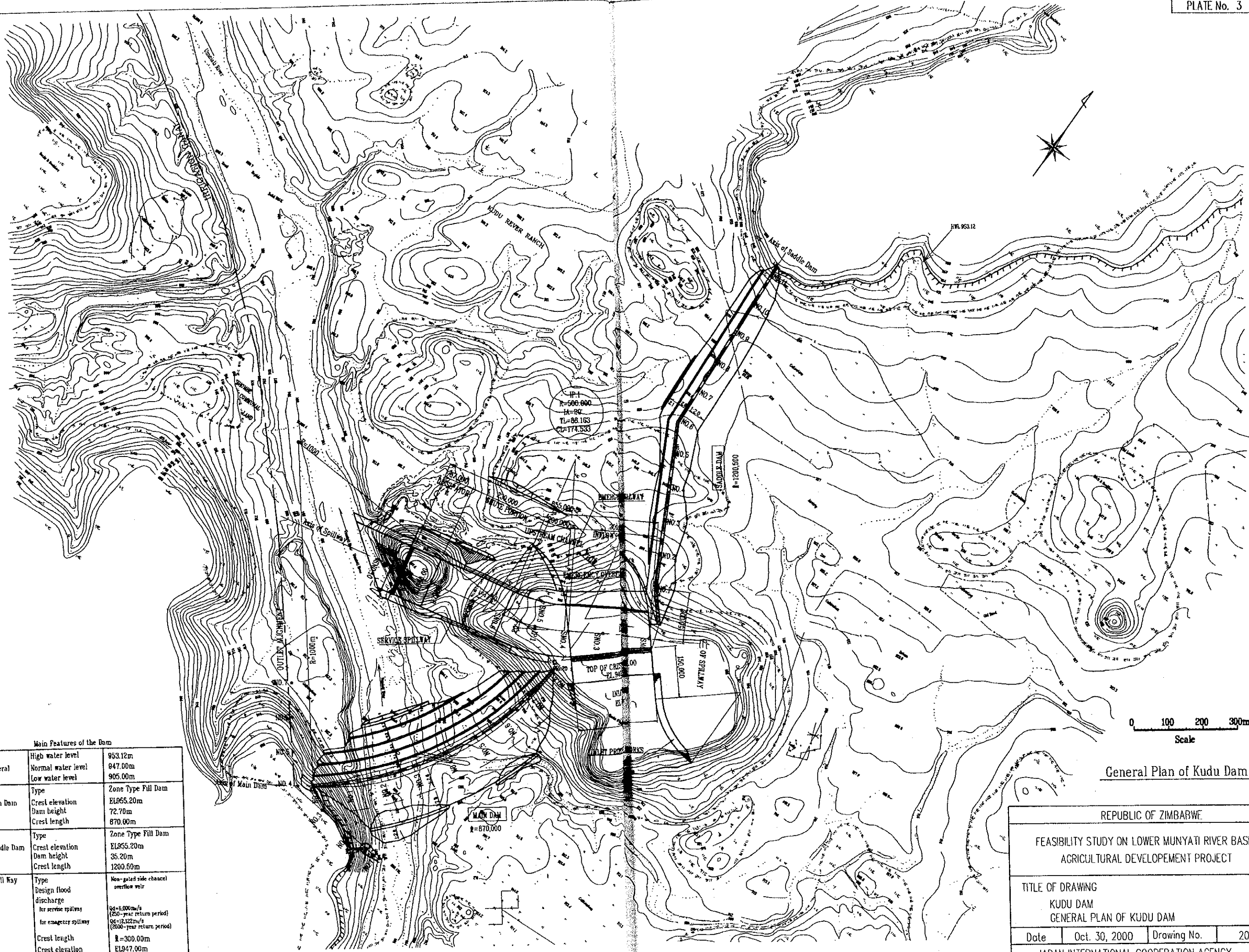


REPUBLIC OF ZIMBABWE			
FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASING AGRICULTURAL DEVELOPMENT PROJECT			
TITLE OF DRAWING GENERAL GENERAL LAYOUT OF THE PROJECT			
Date	Oct. 30, 2000	Drawing No.	1001
JAPAN INTERNATIONAL COOPERATION AGENCY			



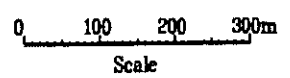
Note
 Q: Discharge (m³/s)
 L: Length (m)
 A: Irrigation Area (ha)
 (Unit Water Requirement 1.20 l/sec/ha)

REPUBLIC OF ZIMBABWE			
FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASING AGRICULTURAL DEVELOPMENT PROJECT			
TITLE OF DRAWING GENERAL IRRIGATION DIAGRAM			
Date	Oct. 30, 2000	Drawing No.	1002
JAPAN INTERNATIONAL COOPERATION AGENCY			



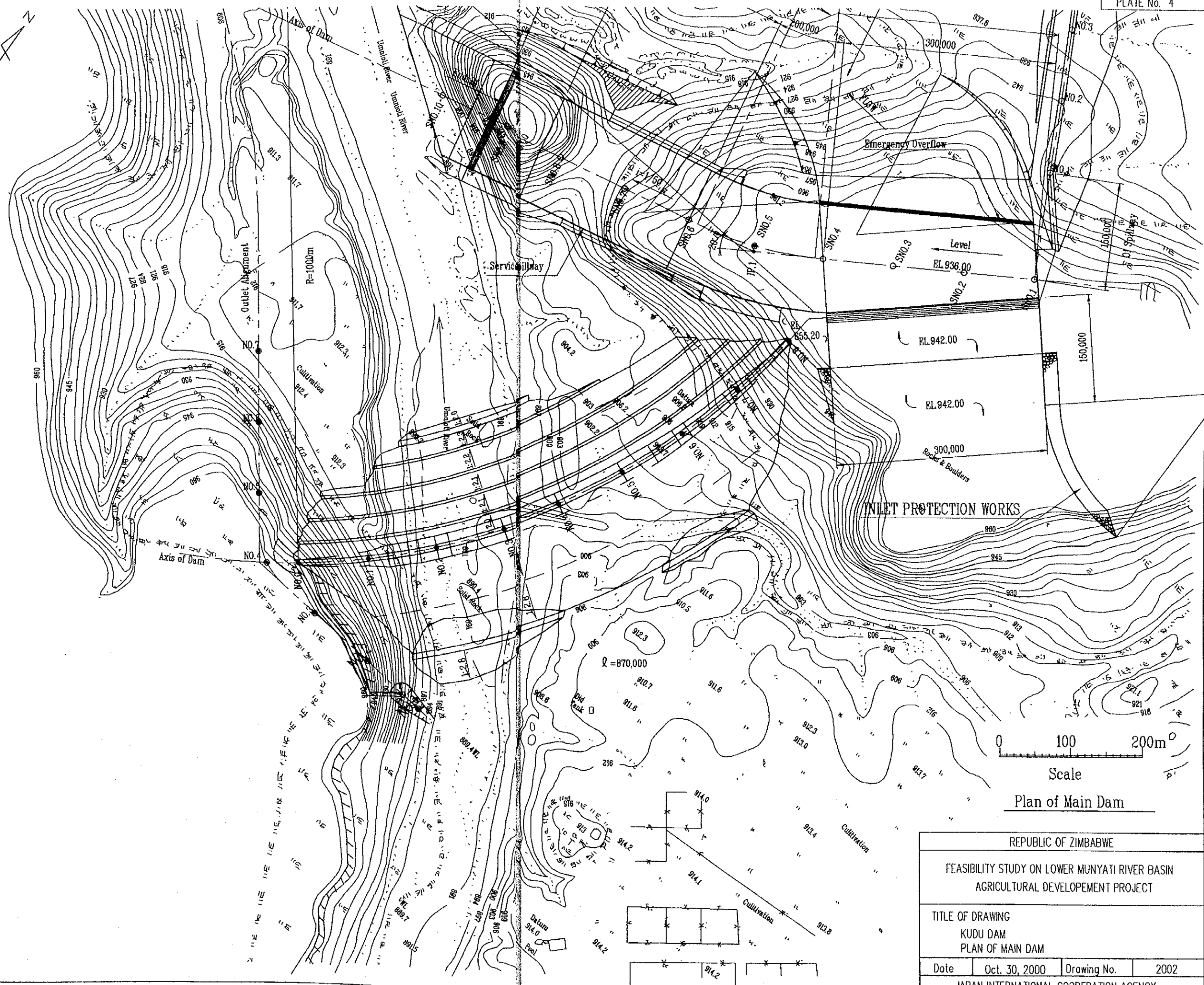
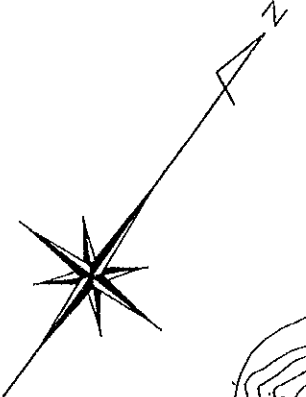
Main Features of the Dam

General	High water level	953.12m
	Normal water level	947.00m
	Low water level	905.00m
Main Dam	Type	Zone Type Fill Dam
	Crest elevation	EL955.20m
	Dam height	72.70m
	Crest length	870.00m
Saddle Dam	Type	Zone Type Fill Dam
	Crest elevation	EL955.20m
	Dam height	35.20m
	Crest length	1200.50m
Spill Way	Type	Non-gated side channel overflow weir
	Design flood discharge	
	for service spillway	Qd=8,000m ³ /s (250-year return period)
	for emergency spillway	Qd=12,122m ³ /s (2000-year return period)
	Crest length	R=300.00m
	Crest elevation	EL947.00m



General Plan of Kudu Dam

REPUBLIC OF ZIMBABWE			
FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN AGRICULTURAL DEVELOPEMENT PROJECT			
TITLE OF DRAWING KUDU DAM GENERAL PLAN OF KUDU DAM			
Date	Oct. 30, 2000	Drawing No.	2001
JAPAN INTERNATIONAL COOPERATION AGENCY			

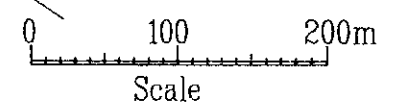
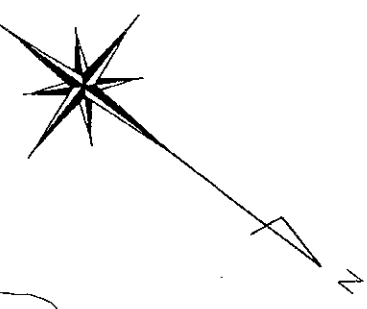
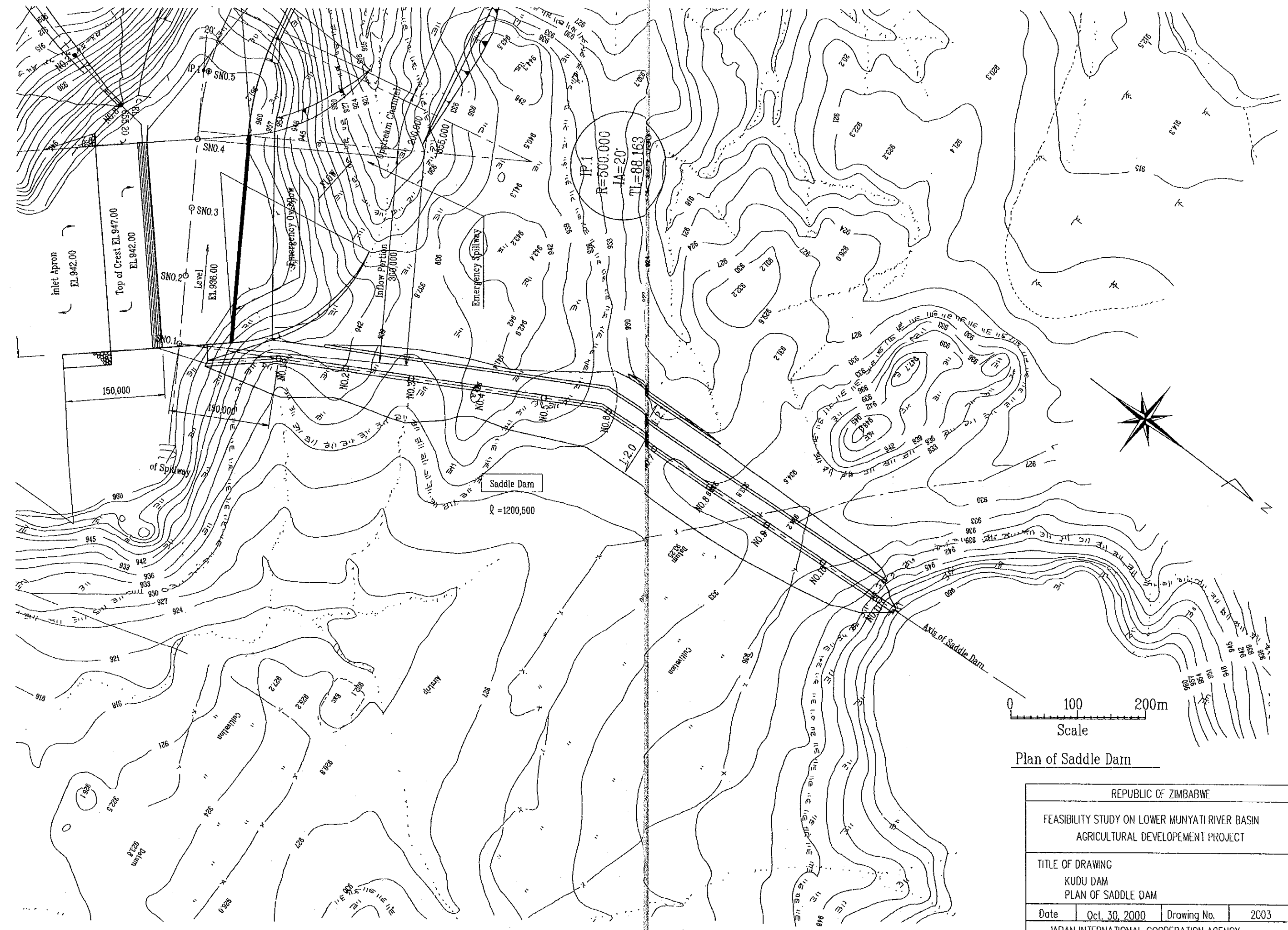


0 100 200m

Scale

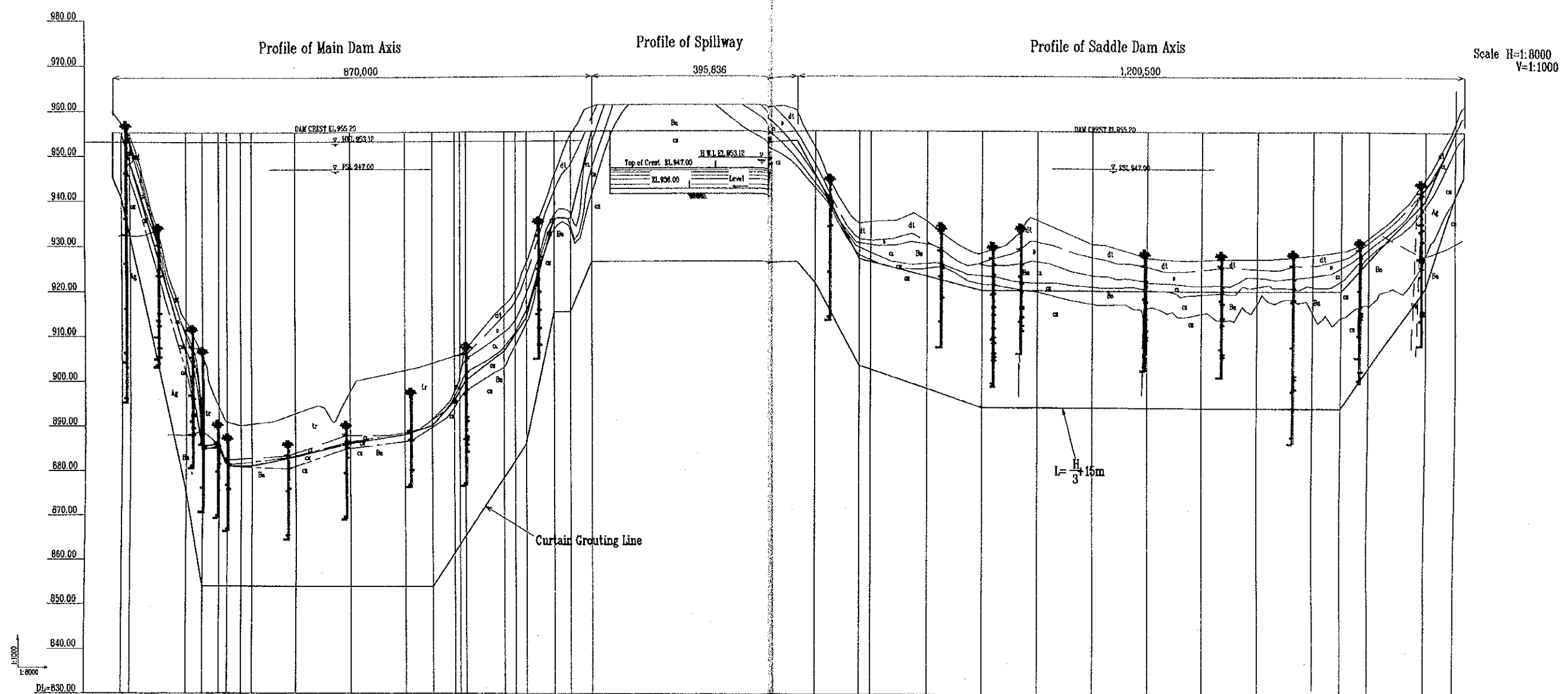
Plan of Main Dam

REPUBLIC OF ZIMBABWE			
FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN AGRICULTURAL DEVELOPEMENT PROJECT			
TITLE OF DRAWING KUDU DAM PLAN OF MAIN DAM			
Date	Oct. 30, 2000	Drawing No.	2002
JAPAN INTERNATIONAL COOPERATION AGENCY			



Plan of Saddle Dam

REPUBLIC OF ZIMBABWE			
FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN AGRICULTURAL DEVELOPMENT PROJECT			
TITLE OF DRAWING KUDU DAM PLAN OF SADDLE DAM			
Date	Oct. 30, 2000	Drawing No.	2003
JAPAN INTERNATIONAL COOPERATION AGENCY			



PLAN	Dam Crest EL	Core Trench EL	Original Ground EL	Total Distance (m)	Distance (m)	Station No.
	955.200	955.200	857.528	15.000	15.000	0
	955.200	948.948	854.480	0.000	0.000	0
		908.000	813.354	100.000	100.000	1
		885.000	805.780	30.000	30.000	1+30.00
		885.000	804.271	10.000	10.000	1+40.00
		881.000	803.900	15.000	15.000	1+55.00
		881.000	801.000	20.000	20.000	2
		881.000	800.319	20.000	20.000	2+20.00
		882.441	803.000	200.000	100.000	3
		881.000	807.514	100.000	100.000	4
		888.000	802.398	500.000	100.000	5
		880.000	803.696	500.000	50.000	5+50.00
		885.500	805.457	500.000	40.000	5+90.00
		887.718	805.820	500.000	100.000	6
		890.000	808.850	500.000	10.290	6+10.29
		898.500	818.782	800.000	80.710	6+90.00
		910.000	820.000	700.000	20.000	7
		914.000	828.115	720.000	20.000	7+20.00
		906.000	846.459	770.000	50.000	7+70.00
		908.000	854.421	800.000	30.000	8
		905.200	860.521	840.000	40.000	8+40.00
		955.200	855.200	0.000	0.000	9
		928.363	855.200	0.000	0.000	9
		927.000	854.681	90.000	80.000	1+18.00
		928.363	855.159	100.000	20.000	1
		923.142	855.423	300.000	100.000	2
		920.000	858.319	300.000	100.000	3
		920.000	855.550	400.000	100.000	4
		920.000	860.294	500.000	100.000	5
		920.000	872.305	600.000	100.000	6
		920.000	878.879	700.000	100.000	7
		920.000	887.140	800.000	100.000	8
		920.000	897.971	900.000	100.000	9
		920.000	928.790	950.000	50.000	9+10.00
		928.637	931.675	1000.000	50.000	10
		940.000	944.897	1100.000	100.000	11
		955.200	957.151	1150.000	53.000	11+53.00

- Legend**
- | | |
|---|---------------------------------|
| (G1) Topsoil/residual soil/talus deposit (Vp: ~0.5km/s) | (D) D class (Vp: 0.5~1.0km/s) |
| (G2) Terrace deposit (Vp: ~0.8km/s) | (CL) CL class (Vp: 1.0~1.5km/s) |
| (G3) Conglomerate | (CM) CM class (Vp: 1.5~3.0km/s) |
| (G4) Argillite | (CH) CH class (Vp: 3.0~ km/s) |
| (G5) Basaltic rocks | |
| (G6) Dyke rock | |
- The figure of parenthesis shows the seismic velocity.

REPUBLIC OF ZIMBABWE

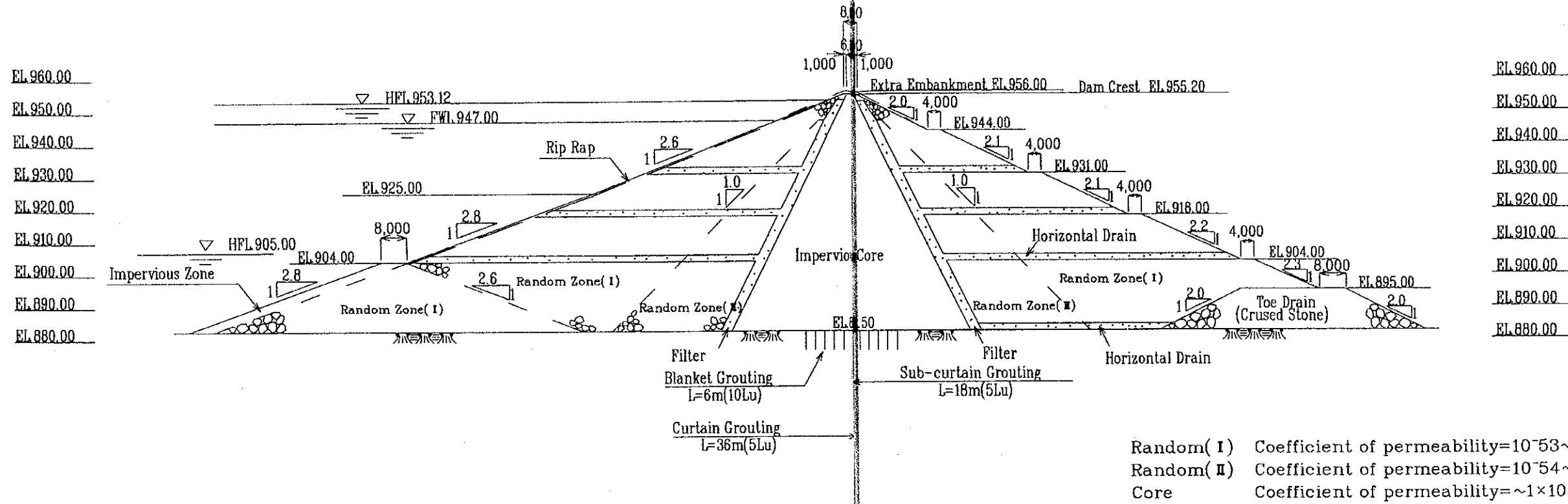
FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN
AGRICULTURAL DEVELOPEMENT PROJECT

TITLE OF DRAWING
KUDU DAM
PROFILE OF DAM AXIS

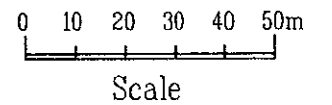
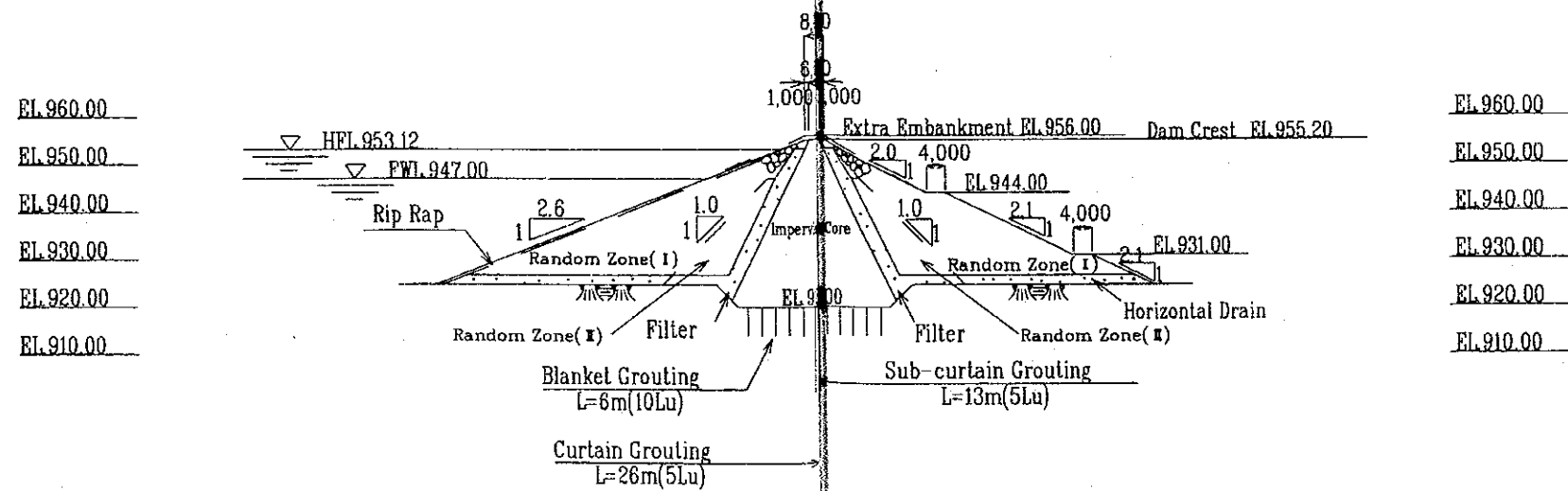
Date	Oct. 30, 2000	Drawing No.	2004
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JAPAN INTERNATIONAL COOPERATION AGENCY

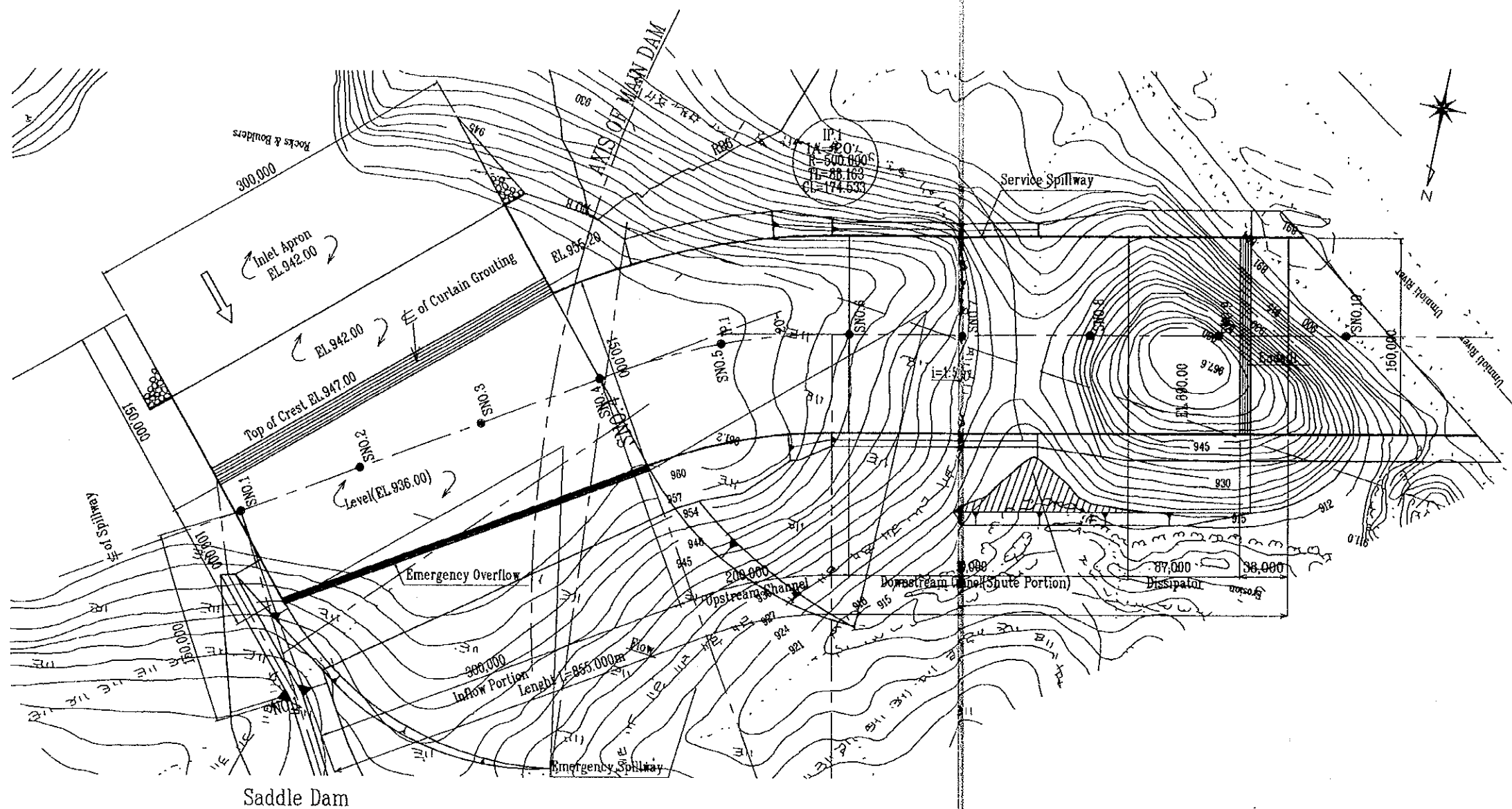
Typical Cross Section of Main Dam



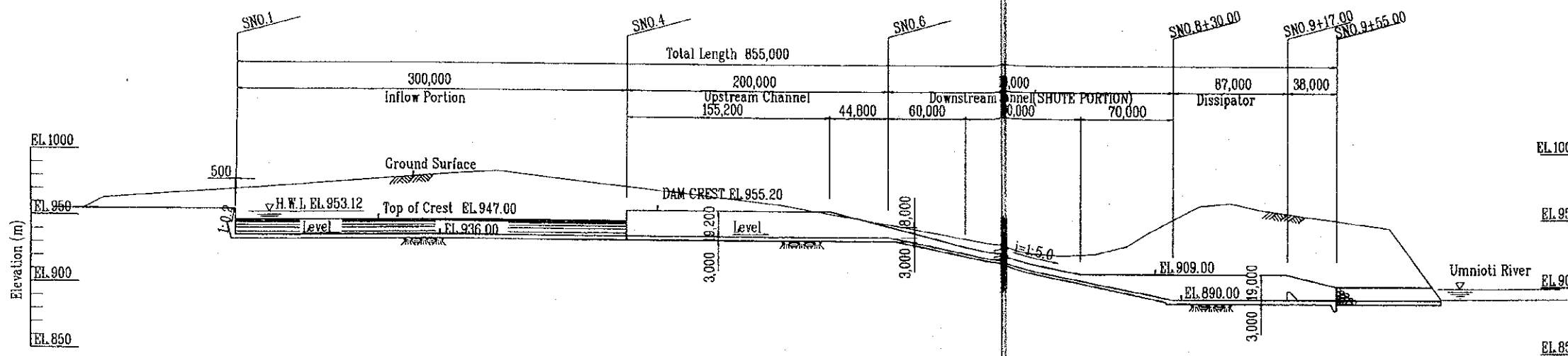
Typical Cross Section of Saddle Dam



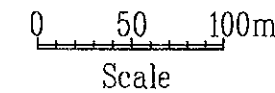
REPUBLIC OF ZIMBABWE			
FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN AGRICULTURAL DEVELOPEMENT PROJECT			
TITLE OF DRAWING KUDU DAM TYPICAL CROSS SECTION OF MAIN DAM AND SADDLE DAM			
Date	Oct. 30, 2000	Drawing No.	2005
JAPAN INTERNATIONAL COOPERATION AGENCY			



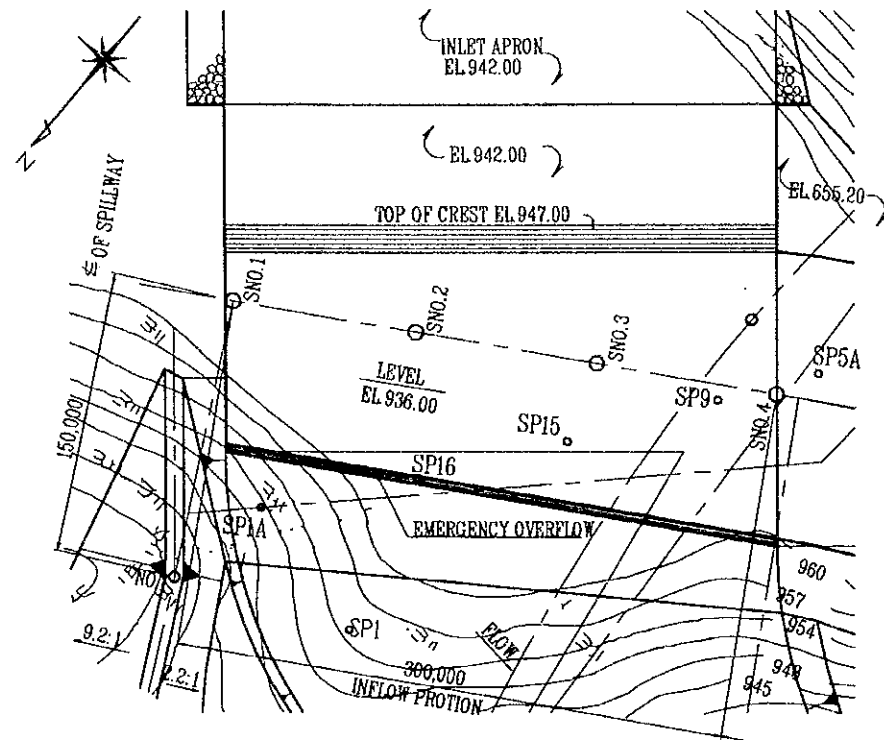
PLAN



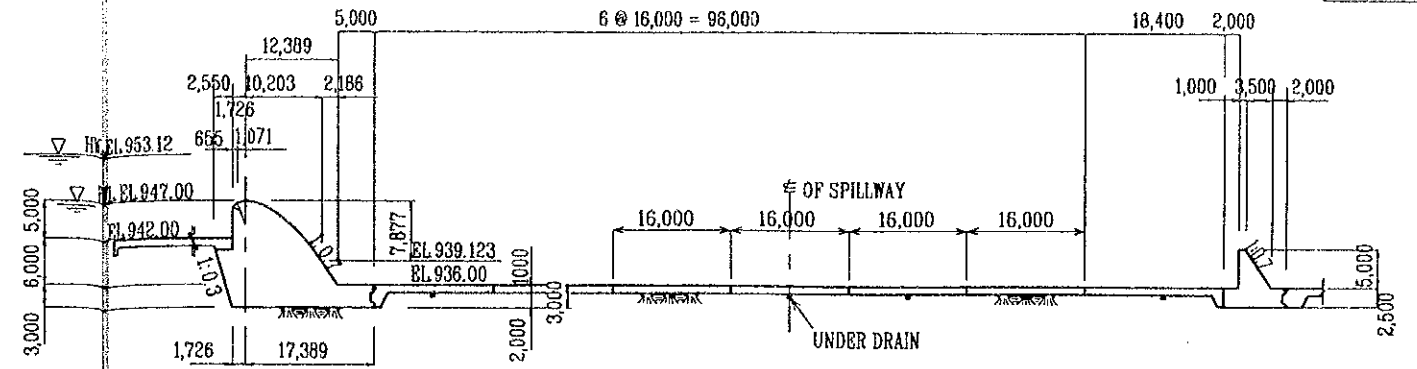
PROFILE



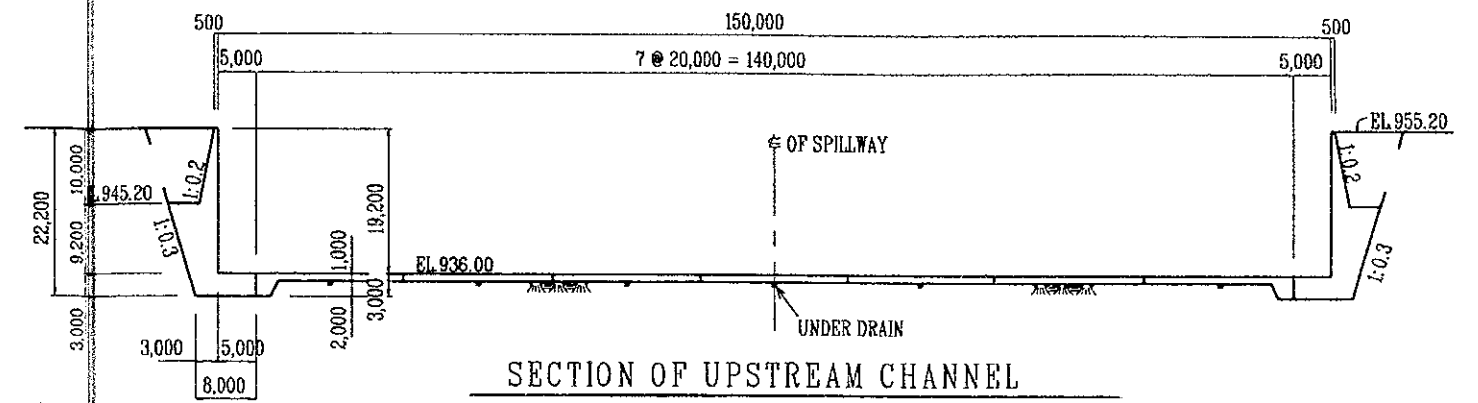
REPUBLIC OF ZIMBABWE			
FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN AGRICULTURAL DEVELOPEMENT PROJECT			
TITLE OF DRAWING KUDU DAM SPILLWAY (1/2)			
Date	Oct. 30, 2000	Drawing No.	2006
JAPAN INTERNATIONAL COOPERATION AGENCY			



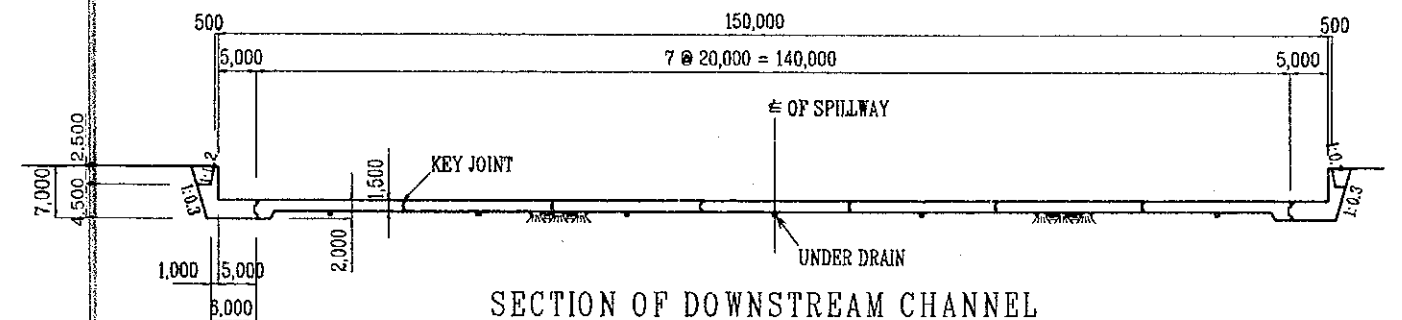
PLAN OF INFLOW PORTION
SCALE 1:4000



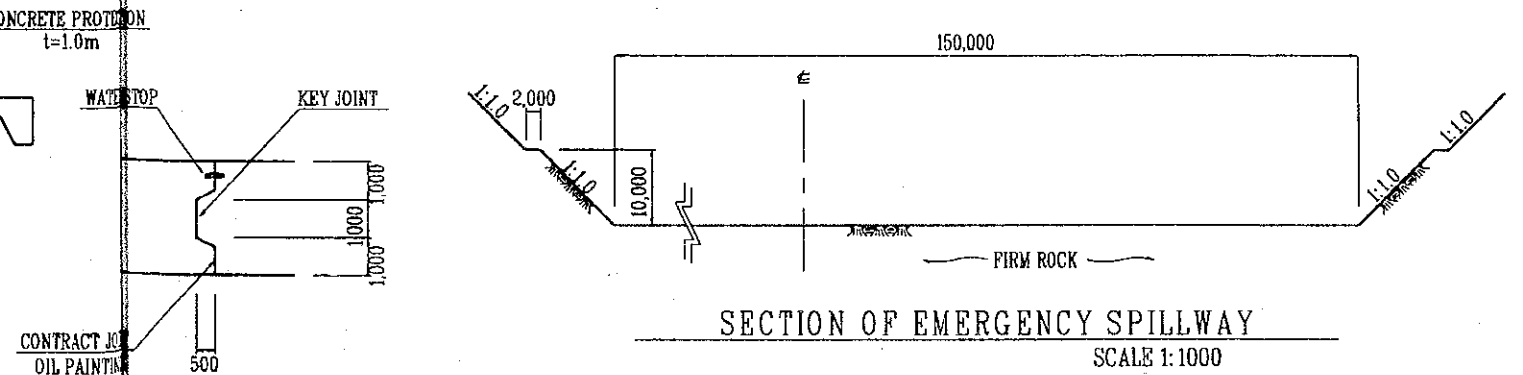
SECTION OF INFLOW PORTION
SCALE 1:1000



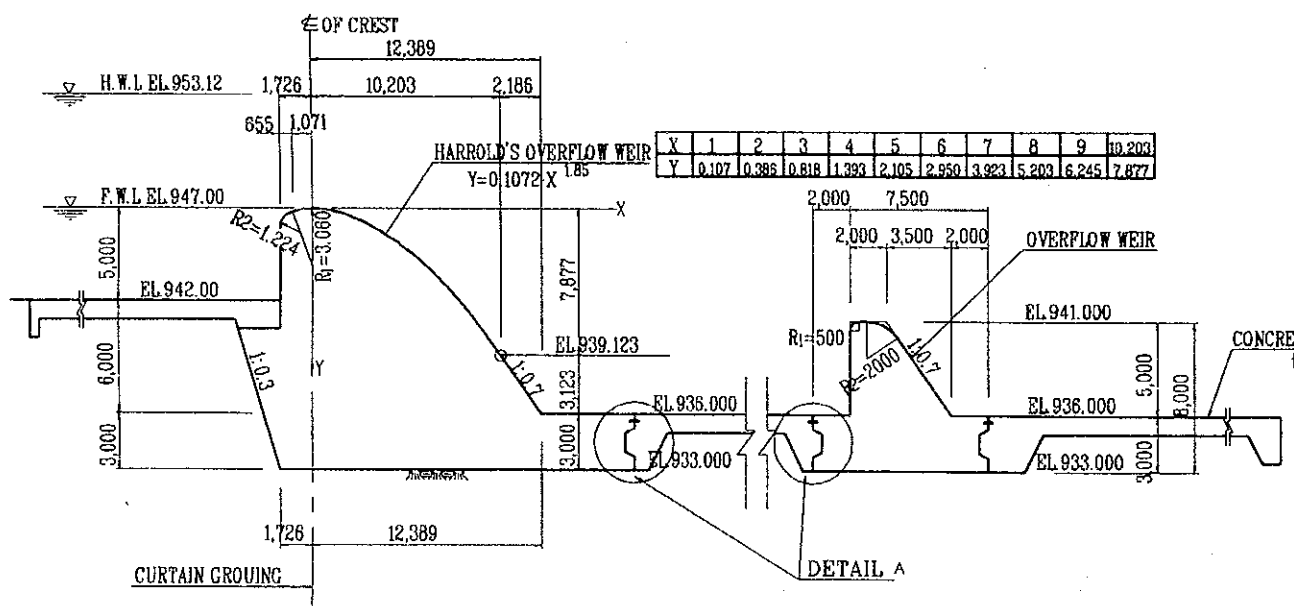
SECTION OF UPSTREAM CHANNEL
SCALE 1:1000



SECTION OF DOWNSTREAM CHANNEL
SCALE 1:1000

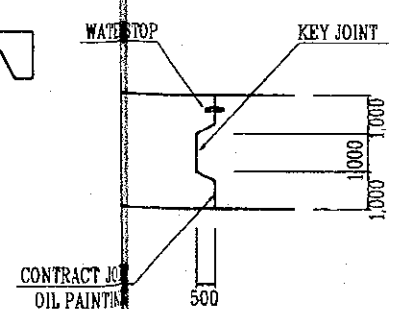


SECTION OF EMERGENCY SPILLWAY
SCALE 1:1000



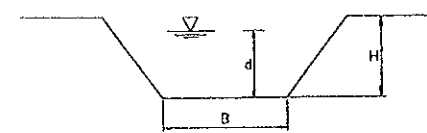
SERVICE OVERFLOW WEIR EMERGENCY OVERFLOW WEIR

SECTION OF OVERFLOW
SCALE 1:400

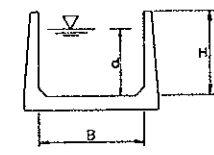


DETAIL A
SCALE 1:200

REPUBLIC OF ZIMBABWE			
FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN AGRICULTURAL DEVELOPEMENT PROJECT			
TITLE OF DRAWING KUDU DAM SPILLWAY (2/2)			
Date	Oct. 30, 2000	Drawing No.	2007
JAPAN INTERNATIONAL COOPERATION AGENCY			

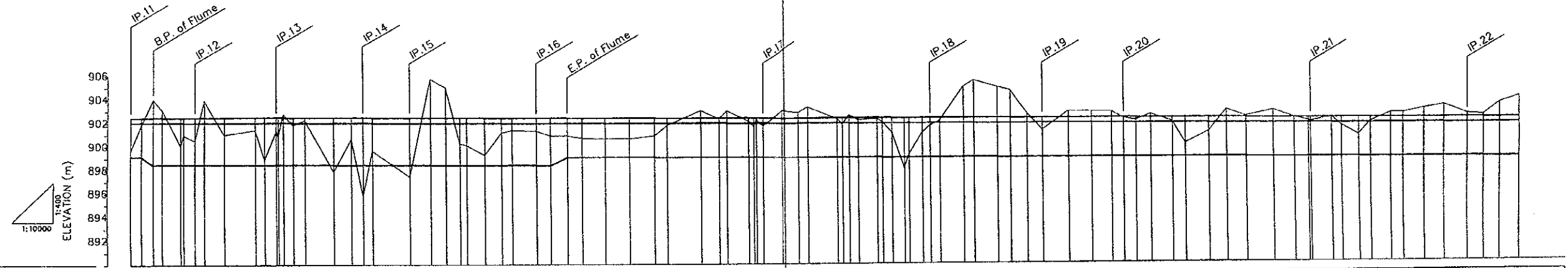


Canal Type : L-T-1
 B = : 4700
 H = : 3300
 d = : 2864



Canal Type : L-F-1
 B = : 7000
 H = : 4200

Typical Cross Section



CANAL TYPE	HL=879.00 m		HL=2,325.00 m	
	L-F-1		L-T-1 Q=24.600 m ³ /s	
CANAL BANK ELEVATION	902.474	902.471	902.038	902.035
WATER SURFACE ELEVATION	902.485	902.029	902.023	902.019
CANAL BASE ELEVATION	899.174	898.476	898.476	898.469
GROUND SURFACE ELEVATION	899.570	898.171	898.476	898.469
REDUCED DISTANCE	2987.00	3010.00	3000.00	3144.00
DISTANCE	39.00	23.00	65.00	42.00
STATION No.	2+987	3+010	3+035	3+054

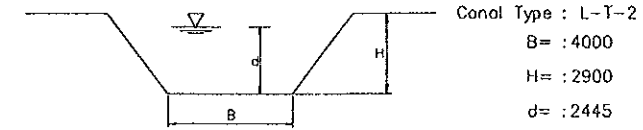
REPUBLIC OF ZIMBABWE

FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN
 AGRICULTURAL DEVELOPMENT PROJECT

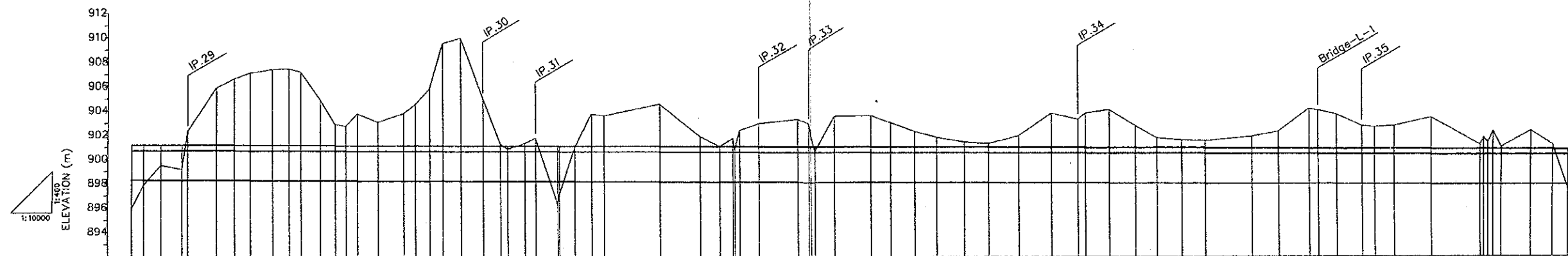
TITLE OF DRAWING
 MAIN IRRIGATION CANAL
 PROFILE OF LEFT MAIN CANAL (2/35)
 (STA. No.2+987 - STA. No.5+941m)

Date Oct. 30, 2000 Drawing No. 3002

JAPAN INTERNATIONAL COOPERATION AGENCY



Typical Cross Section



CANAL TYPE	L-T-2		T-L-2																																																																	
CANAL BANK ELEVATION	901.210	901.206	901.201	901.192	901.184	901.179	901.174	901.167	901.162	901.159	901.153	901.149	901.145	901.142	901.136	901.128	901.124	901.116	901.111	901.104	901.097	901.088	901.082	901.077	901.071	901.068	901.051	901.039	901.033	901.029	901.027	901.021	901.010	901.003	900.997	900.986	900.980	900.973	900.967	900.959	900.951	900.942	900.933	900.922	900.915	900.907	900.901	900.893	900.886	900.872	900.864	900.855	900.842	900.847	900.837	900.832	900.822	900.809	900.796	900.790	900.786							
WATER SURFACE ELEVATION	900.755	900.751	900.746	900.737	900.729	900.724	900.719	900.712	900.707	900.704	900.698	900.694	900.690	900.687	900.681	900.673	900.669	900.665	900.661	900.656	900.649	900.642	900.637	900.633	900.626	900.622	900.613	900.596	900.584	900.578	900.574	900.572	900.566	900.555	900.548	900.542	900.542	900.531	900.525	900.518	900.512	900.504	900.496	900.487	900.478	900.469	900.463	900.452	900.446	900.438	900.431	900.417	900.409	900.400	900.397	900.392	900.385	900.382	900.377	900.367	900.354	900.349	900.341	900.335	900.331			
CANAL BASE ELEVATION	898.310	898.306	898.301	898.292	898.284	898.279	898.274	898.267	898.262	898.259	898.253	898.249	898.245	898.242	898.236	898.228	898.224	898.220	898.216	898.211	898.204	898.197	898.192	898.188	898.187	898.177	898.171	898.168	898.151	898.139	898.133	898.128	898.127	898.121	898.110	898.103	898.097	898.086	898.080	898.073	898.067	898.059	898.051	898.042	898.033	898.024	898.015	898.007	898.001	897.993	897.986	897.972	897.964	897.955	897.952	897.947	897.940	897.937	897.932	897.922	897.909	897.896	897.890	897.886				
GROUND SURFACE ELEVATION	895.930	897.896	899.542	899.386	905.910	906.640	907.120	907.400	907.470	907.210	904.950	902.890	902.750	903.780	903.090	903.820	904.510	905.840	909.530	909.950	905.020	900.890	901.310	901.739	899.362	900.979	903.721	903.581	904.512	901.865	901.072	900.758	902.368	902.928	903.272	902.890	903.594	902.982	902.262	901.782	901.390	901.258	901.900	903.744	903.737	904.051	902.726	901.714	901.554	901.490	901.849	902.282	904.148	903.992	903.665	902.741	902.630	902.721	903.408	901.153	901.780	902.318	900.987	902.348	901.190	897.612		
REDUCED DISTANCE	8933.00	8957.00	8994.00	9038.00	9108.00	9145.00	9178.00	9223.00	9258.00	9282.00	9322.00	9352.00	9374.00	9398.00	9441.00	9494.00	9518.00	9548.00	9575.00	9611.00	9656.00	9708.00	9744.00	9766.00	9812.00	9847.00	9882.00	9908.00	10022.00	10104.00	10145.00	10177.00	10187.00	10228.00	10306.00	10334.00	10392.00	10467.00	10508.00	10557.00	10602.00	10658.00	10706.00	10770.00	10837.00	10893.00	10958.00	11012.00	11057.00	11108.00	11156.00	11252.00	11308.00	11373.00	11391.00	11429.00	11482.00	11508.00	11548.00	11626.00	11728.00	11735.00	11745.00	11755.00	11772.00	11832.00	11877.00	11908.00
DISTANCE	33.00	24.00	37.00	45.00	58.00	37.00	33.00	45.00	35.00	24.00	40.00	30.00	22.00	24.00	43.00	53.00	24.00	30.00	27.00	36.00	45.00	35.00	22.00	45.00	32.00	35.00	26.00	114.00	82.00	41.00	25.00	10.00	80.00	28.00	41.00	75.00	41.00	49.00	45.00	56.00	50.00	62.00	67.00	56.00	50.00	54.00	45.00	51.00	48.00	96.00	56.00	65.00	18.00	38.00	53.00	26.00	40.00	78.00	102.00	7.00	17.00	60.00	45.00	31.00				
STATION No.	8+933	8+957	8+994	8+938	9+108	9+145	9+178	9+223	9+258	9+282	9+322	9+352	9+374	9+398	9+441	9+494	9+518	9+548	9+575	9+611	9+656	9+708	9+744	9+766	9+812	9+847	9+882	9+908	10+022	10+104	10+145	10+177	10+187	10+228	10+308	10+334	10+392	10+467	10+508	10+557	10+602	10+658	10+708	10+770	10+837	10+898	10+958	11+012	11+057	11+108	11+156	11+252	11+308	11+373	11+391	11+429	11+482	11+508	11+548	11+626	11+728	11+735	11+745	11+772	11+832	11+877	11+908	

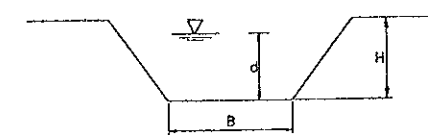
REPUBLIC OF ZIMBABWE

FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN
 AGRICULTURAL DEVELOPMENT PROJECT

TITLE OF DRAWING
 MAIN IRRIGATION CANAL
 PROFILE OF LEFT MAIN CANAL (4/35)
 (STA. No.8+933 – STA. No.11+908 m)

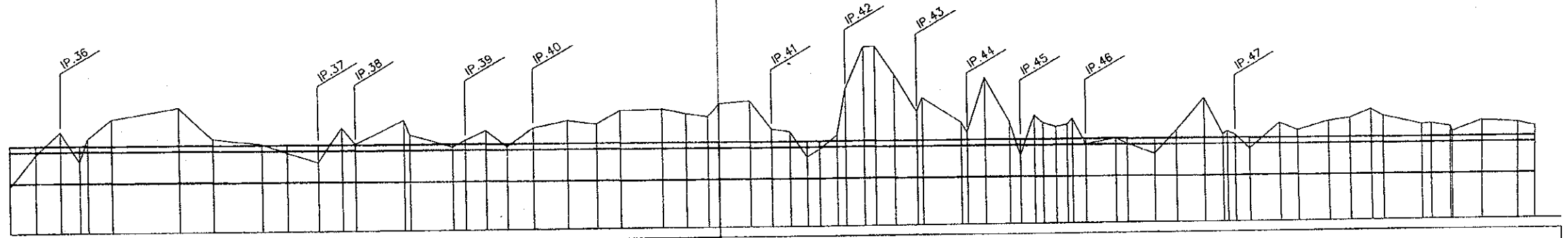
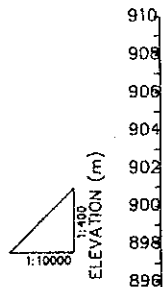
Date Oct. 30, 2000 Drawing No. 3004

JAPAN INTERNATIONAL COOPERATION AGENCY



Canal Type : L-T-2
 B = : 4000
 H = : 2900
 d = : 2445

Typical Cross Section



HL=5,285.00 m

L-T-2 Q=16.107 m³/s

CANAL TYPE	L-T-2	
CANAL BANK ELEVATION	900.786	900.404
WATER SURFACE ELEVATION	900.331	900.404
CANAL BASE ELEVATION	897.886	897.504
GROUND SURFACE ELEVATION	897.512	901.192
REDUCED DISTANCE	11908.00	14908.00
DISTANCE	31.00	34.00
STATION No.	11+908	14+908

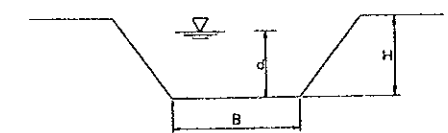
REPUBLIC OF ZIMBABWE

FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN
 AGRICULTURAL DEVELOPMENT PROJECT

TITLE OF DRAWING
 MAIN IRRIGATION CANAL
 PROFILE OF LEFT MAIN CANAL (5/35)
 (STA. No.11+908 - STA. No.14+908 m)

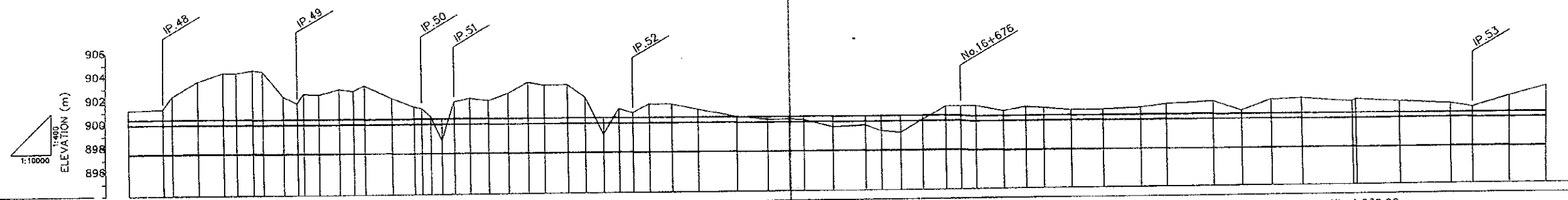
Date Oct. 30, 2000 Drawing No. 3005

JAPAN INTERNATIONAL COOPERATION AGENCY



Canal Type : L-T-2
 B= : 4000
 H= : 2900
 d= : 2445
 Canal Type : L-T-3
 B= : 4000
 H= : 2850
 d= : 2439

Typical Cross Section



STATION No.	DISTANCE	REDUCED DISTANCE	GROUND SURFACE ELEVATION	CANAL BASE ELEVATION	WATER SURFACE ELEVATION	CANAL BANK ELEVATION	CANAL TYPE
14+908	0.00	14908.00	901.192	897.504	899.949	900.404	T-L-2 Q=16.107 m³/s
14+981	73.00	14981.00	901.292	897.495	899.940	900.395	
15+000	19.00	15000.00	902.337	897.492	899.937	900.392	T-L-3 Q=16.108 m³/s
15+054	54.00	15054.00	903.626	897.486	899.931	900.386	
15+108	108.00	15108.00	904.352	897.479	899.924	900.379	T-L-3 Q=16.108 m³/s
15+135	135.00	15135.00	904.308	897.475	899.920	900.375	
15+170	170.00	15170.00	904.549	897.471	899.915	900.371	T-L-3 Q=16.108 m³/s
15+191	21.00	15191.00	904.441	897.468	899.913	900.368	
15+234	43.00	15234.00	902.327	897.463	899.908	900.363	T-L-3 Q=16.108 m³/s
15+278	87.00	15278.00	902.338	897.459	899.902	900.359	
15+308	117.00	15308.00	902.449	897.453	899.896	900.353	T-L-3 Q=16.108 m³/s
15+351	160.00	15351.00	902.903	897.448	899.893	900.348	
15+381	190.00	15381.00	902.746	897.444	899.885	900.344	T-L-3 Q=16.108 m³/s
15+404	213.00	15404.00	903.185	897.441	899.886	900.341	
15+460	269.00	15460.00	902.128	897.434	899.879	900.334	T-L-3 Q=16.108 m³/s
15+508	317.00	15508.00	901.361	897.428	899.873	900.328	
15+542	351.00	15542.00	900.547	897.423	899.868	900.323	T-L-3 Q=16.108 m³/s
15+566	375.00	15566.00	898.537	897.420	899.865	900.320	
15+592	401.00	15592.00	901.757	897.417	899.862	900.317	T-L-3 Q=16.108 m³/s
15+625	434.00	15625.00	902.050	897.413	899.858	900.313	
15+665	474.00	15665.00	901.832	897.408	899.853	900.308	T-L-3 Q=16.108 m³/s
15+708	517.00	15708.00	902.421	897.402	899.847	900.302	
15+749	558.00	15749.00	903.312	897.397	899.842	900.297	T-L-3 Q=16.108 m³/s
15+784	601.00	15784.00	903.054	897.393	899.838	900.293	
15+833	650.00	15833.00	903.109	897.386	899.831	900.286	T-L-3 Q=16.108 m³/s
15+869	686.00	15869.00	902.064	897.382	899.827	900.282	
15+908	725.00	15908.00	898.872	897.377	899.822	900.277	T-L-3 Q=16.108 m³/s
15+940	757.00	15940.00	901.051	897.373	899.818	900.273	
15+970	787.00	15970.00	900.672	897.369	899.814	900.269	T-L-3 Q=16.108 m³/s
16+004	821.00	16004.00	901.368	897.365	899.810	900.265	
16+052	869.00	16052.00	901.370	897.359	899.804	900.259	T-L-3 Q=16.108 m³/s
16+108	925.00	16108.00	900.923	897.351	899.796	900.251	
16+191	1008.00	16191.00	900.276	897.341	899.786	900.241	T-L-3 Q=16.108 m³/s
16+255	1072.00	16255.00	898.981	897.333	899.778	900.233	
16+308	1125.00	16308.00	900.041	897.326	899.771	900.226	T-L-3 Q=16.108 m³/s
16+343	1160.00	16343.00	899.950	897.321	899.766	900.221	
16+404	1221.00	16404.00	899.309	897.314	899.759	900.214	T-L-3 Q=16.108 m³/s
16+474	1291.00	16474.00	899.434	897.305	899.750	900.205	
16+508	1325.00	16508.00	898.937	897.300	899.745	900.200	T-L-3 Q=16.108 m³/s
16+548	1365.00	16548.00	898.778	897.295	899.740	900.195	
16+596	1413.00	16596.00	899.859	897.289	899.734	900.189	T-L-3 Q=16.108 m³/s
16+644	1461.00	16644.00	900.939	897.283	899.728	900.183	
16+676	1493.00	16676.00	900.944	897.279	899.724	900.189	T-L-3 Q=16.108 m³/s
16+708	1525.00	16708.00	900.948	897.273	899.721	900.186	
16+765	1582.00	16765.00	900.470	897.268	899.647	900.058	T-L-3 Q=16.108 m³/s
16+812	1629.00	16812.00	900.808	897.263	899.642	900.053	
16+850	1667.00	16850.00	900.718	897.260	899.638	900.050	T-L-3 Q=16.108 m³/s
16+907	1724.00	16907.00	900.483	897.194	899.633	900.044	
16+975	1792.00	16975.00	900.524	897.189	899.627	900.038	T-L-3 Q=16.108 m³/s
17+055	1870.00	17055.00	900.635	897.181	899.620	900.031	
17+108	1923.00	17108.00	900.897	897.176	899.615	900.026	T-L-3 Q=16.108 m³/s
17+206	2021.00	17206.00	901.114	897.167	899.606	900.017	
17+267	2082.00	17267.00	900.299	897.161	899.600	900.011	T-L-3 Q=16.108 m³/s
17+330	2145.00	17330.00	901.193	897.155	899.594	900.005	
17+383	2198.00	17383.00	901.299	897.149	899.588	899.999	T-L-3 Q=16.108 m³/s
17+508	2323.00	17508.00	901.784	897.138	899.575	899.988	
17+598	2413.00	17598.00	900.932	897.130	899.569	899.980	T-L-3 Q=16.108 m³/s
17+708	2523.00	17708.00	900.723	897.120	899.559	899.970	
17+753	2568.00	17753.00	900.421	897.116	899.555	899.966	T-L-3 Q=16.108 m³/s
17+831	2646.00	17831.00	901.344	897.108	899.547	899.958	
17+908	2723.00	17908.00	902.144	897.101	899.540	899.951	T-L-3 Q=16.108 m³/s

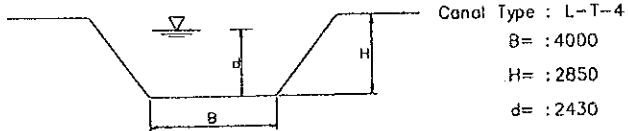
REPUBLIC OF ZIMBABWE

FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN
 AGRICULTURAL DEVELOPMENT PROJECT

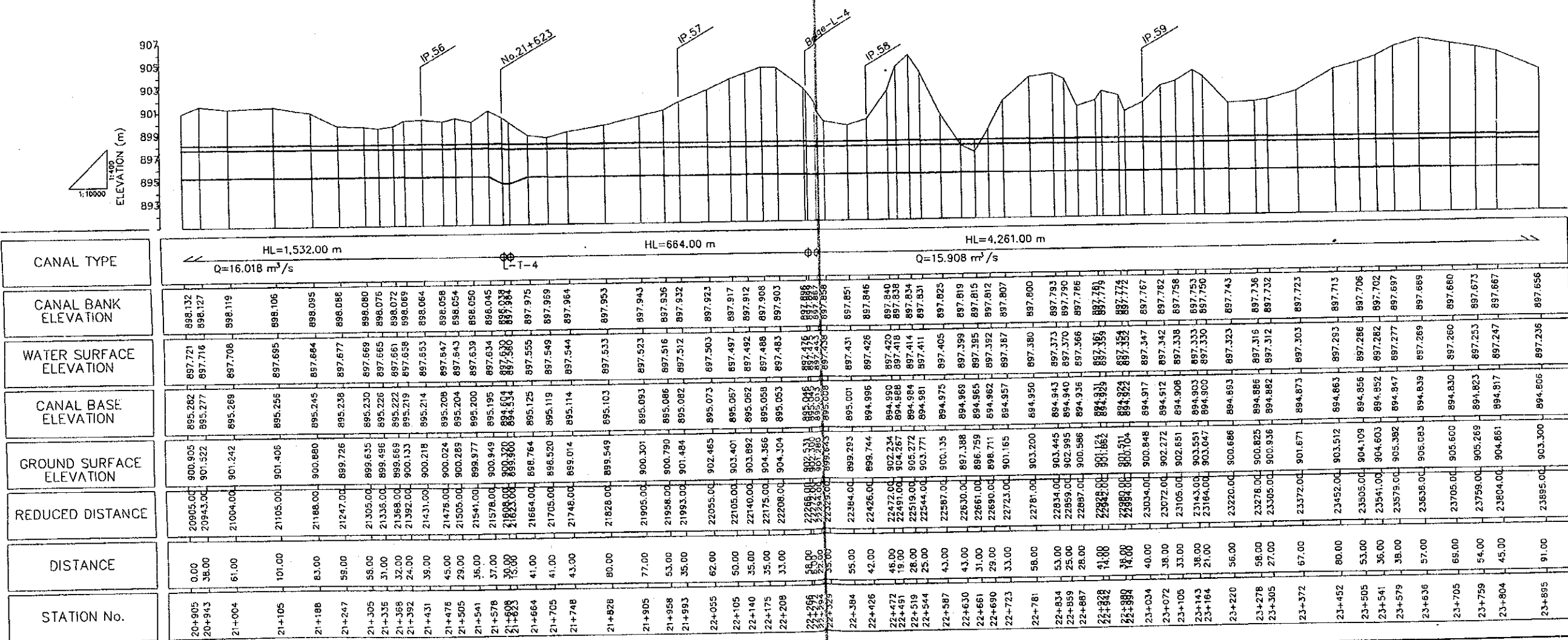
TITLE OF DRAWING
 MAIN IRRIGATION CANAL
 PROFILE OF LEFT MAIN CANAL (6/35)
 (STA. No.14+908 – STA. No.17+908 m)

Date	Oct. 30, 2000	Drawing No.	3006
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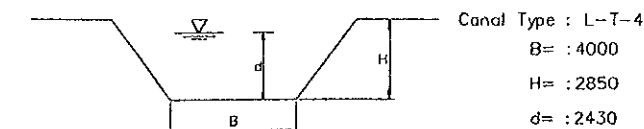
JAPAN INTERNATIONAL COOPERATION AGENCY



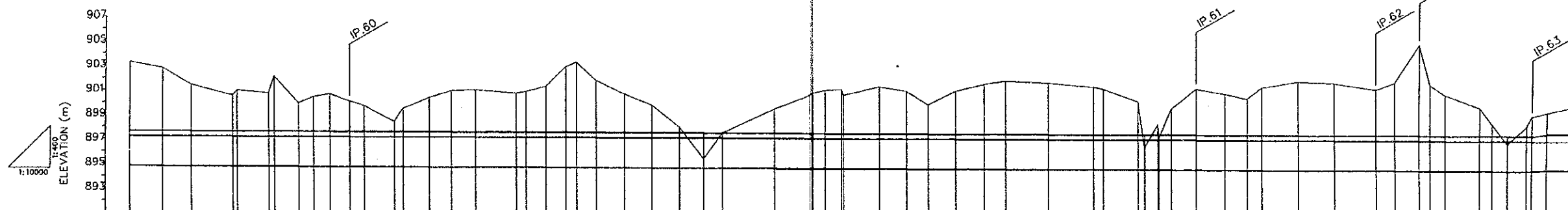
Typical Cross Section



REPUBLIC OF ZIMBABWE			
FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN AGRICULTURAL DEVELOPMENT PROJECT			
TITLE OF DRAWING MAIN IRRIGATION CANAL PROFILE OF LEFT MAIN CANAL (8/35) (STA. No.20+905 – STA. No.23+895 m)			
Date	Oct. 30, 2000	Drawing No.	3008
JAPAN INTERNATIONAL COOPERATION AGENCY			

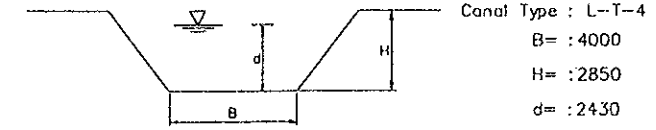


Typical Cross Section

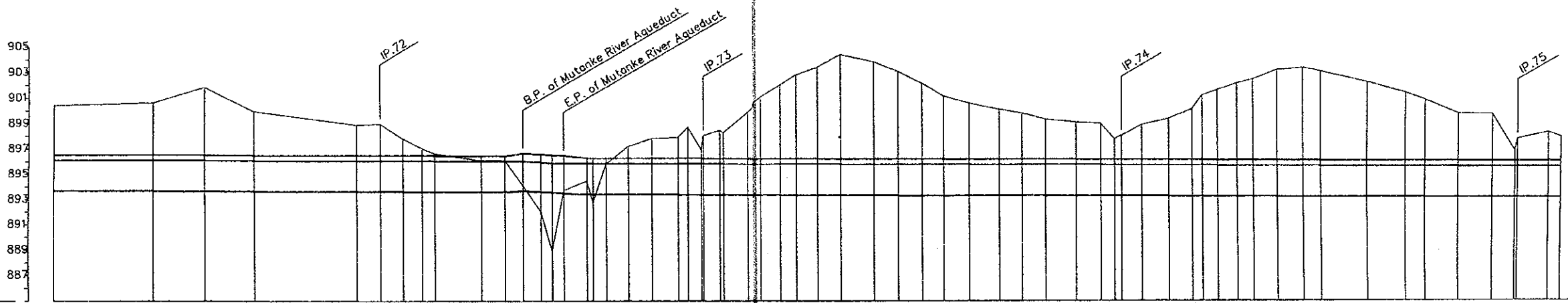
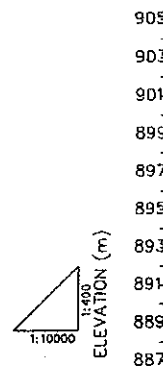


CANAL TYPE	HL = 4,261.00 m Q = 15.908 m ³ /s		HL = 394.00 m																																																											
CANAL BANK ELEVATION	897.656	897.647	897.639	897.629	897.619	897.611	897.607	897.602	897.597	897.594	897.586	897.583	897.577	897.571	897.564	897.553	897.553	897.546	897.540	897.537	897.532	897.525	897.517	897.510	897.504	897.499	897.485	897.475	897.469	897.464	897.454	897.447	897.441	897.434	897.427	897.421	897.410	897.398	897.395	897.385	897.381	897.377	897.363	897.357	897.353	897.343	897.334	897.323	897.316	897.315	897.283	897.272	897.257	897.252	897.245	897.235	897.235	897.229	897.214	897.204		
WATER SURFACE ELEVATION	897.236	897.227	897.219	897.209	897.199	897.191	897.187	897.182	897.177	897.174	897.166	897.163	897.157	897.151	897.144	897.133	897.131	897.126	897.120	897.117	897.112	897.105	897.097	897.090	897.084	897.079	897.072	897.065	897.055	897.049	897.044	897.034	897.027	897.021	897.014	897.007	897.001	896.990	896.978	896.975	896.965	896.961	896.957	896.951	896.943	896.937	896.933	896.923	896.914	896.903	896.898	896.891	896.889	896.885	896.882	896.872	896.863	896.832	896.825	896.815	896.809	896.794
CANAL BASE ELEVATION	894.806	894.797	894.789	894.779	894.769	894.761	894.757	894.752	894.747	894.744	894.736	894.733	894.727	894.721	894.714	894.703	894.701	894.696	894.690	894.687	894.682	894.675	894.667	894.660	894.654	894.649	894.642	894.635	894.625	894.619	894.614	894.604	894.597	894.591	894.584	894.577	894.571	894.560	894.548	894.545	894.536	894.531	894.527	894.521	894.513	894.507	894.503	894.493	894.484	894.473	894.468	894.461	894.429	894.422	894.407	894.402	894.395	894.385	894.385	894.379	894.454	
GROUND SURFACE ELEVATION	903.300	902.823	901.435	900.588	900.738	900.932	900.648	900.692	900.095	900.722	898.446	899.502	900.387	900.938	901.011	900.739	900.874	901.321	902.861	903.255	901.792	900.688	899.818	898.001	895.413	894.649	899.469	899.638	900.638	901.017	900.858	901.300	900.941	899.849	900.940	901.494	901.098	901.264	901.098	900.998	901.119	900.715	900.321	900.229	901.729	901.583	901.082	901.621	904.690	901.450	900.625	899.585	898.252	896.618	898.055	899.137	899.725					
REDUCED DISTANCE	23895.00	23962.00	24021.00	24105.00	24178.00	24241.00	24272.00	24305.00	24345.00	24374.00	24435.00	24453.00	24505.00	24551.00	24602.00	24685.00	24705.00	24745.00	24785.00	24807.00	24847.00	24905.00	24962.00	25018.00	25067.00	25105.00	25212.00	25289.00	25335.00	25375.00	25450.00	25505.00	25550.00	25605.00	25662.00	25705.00	25791.00	25885.00	25905.00	25978.00	26016.00	26033.00	26094.00	26152.00	26199.00	26229.00	26305.00	26380.00	26466.00	26505.00	26555.00	26577.00	26608.00	26680.00	26705.00	26737.00	26765.00	26815.00	26879.00			
DISTANCE	91.00	67.00	59.00	86.00	67.00	51.00	31.00	33.00	40.00	29.00	61.00	18.00	52.00	46.00	51.00	83.00	20.00	40.00	40.00	22.00	40.00	58.00	57.00	56.00	49.00	38.00	107.00	77.00	30.00	46.00	75.00	55.00	45.00	56.00	56.00	43.00	86.00	94.00	20.00	74.00	38.00	51.00	58.00	47.00	30.00	76.00	75.00	86.00	39.00	50.00	22.00	31.00	72.00	25.00	32.00	48.00	30.00	64.00				
STATION No.	23+895	23+962	24+021	24+107	24+174	24+241	24+272	24+305	24+345	24+374	24+435	24+453	24+505	24+551	24+602	24+685	24+705	24+745	24+785	24+807	24+847	24+905	24+962	25+018	25+067	25+105	25+212	25+289	25+335	25+375	25+450	25+505	25+550	25+606	25+662	25+705	25+791	25+885	25+905	25+978	26+016	26+043	26+094	26+152	26+199	26+229	26+305	26+380	26+466	26+505	26+555	26+577	26+608	26+680	26+705	26+737	26+765	26+815	26+879			

REPUBLIC OF ZIMBABWE			
FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN AGRICULTURAL DEVELOPMENT PROJECT			
TITLE OF DRAWING MAIN IRRIGATION CANAL PROFILE OF LEFT MAIN CANAL (9/35) (STA. No.23+895 - STA. No.26+879 m)			
Date	Oct. 30, 2000	Drawing No.	3009
JAPAN INTERNATIONAL COOPERATION AGENCY			



Typical Cross Section



CANAL TYPE	HL=1,073.00 m T-L-4		82.00 m Aqueduct T-L-4		Q=15908 m ³ /s		HL=2,421.00 m																																																			
CANAL BANK ELEVATION	896.542	896.514	896.500	896.487	896.459	896.453	896.446	896.441	896.438	896.425	896.419	896.614	896.539	896.492	896.236	896.231	896.228	896.219	896.213	896.210	896.206	896.202	896.195	896.183	896.179	896.174	896.168	896.159	896.153	896.147	896.142	896.135	896.127	896.121	896.115	896.107	896.101	896.098	896.094	896.078	896.075	896.071	896.066	896.062	896.056	896.049	896.044	896.033	896.023	896.018	896.009	896.001	895.997	895.987	895.984			
WATER SURFACE ELEVATION	896.122	896.094	896.080	896.067	896.039	896.033	896.026	896.021	896.018	896.005	895.999	895.994	895.919	895.872	895.814	895.811	895.806	895.799	895.793	895.783	895.780	895.766	895.762	895.757	895.749	895.763	895.759	895.754	895.748	895.739	895.733	895.727	895.722	895.715	895.707	895.701	895.695	895.687	895.681	895.681	895.678	895.658	895.655	895.651	895.646	895.642	895.636	895.629	895.624	895.589	895.581	895.574	895.567	895.564				
CANAL BASE ELEVATION	893.692	893.664	893.650	893.637	893.609	893.603	893.596	893.591	893.588	893.575	893.569	893.664	893.589	893.542	893.386	893.381	893.376	893.369	893.363	893.383	893.380	893.356	893.352	893.347	893.339	893.333	893.329	893.324	893.318	893.309	893.303	893.297	893.292	893.285	893.277	893.271	893.265	893.257	893.251	893.251	893.248	893.244	893.234	893.228	893.225	893.221	893.216	893.212	893.206	893.199	893.194	893.159	893.151	893.144	893.137	893.134		
GROUND SURFACE ELEVATION	900.430	900.630	901.620	899.930	898.860	898.964	897.772	897.043	896.599	896.062	896.093	894.089	892.039	888.929	894.459	895.783	897.157	897.793	897.878	898.678	898.892	898.892	898.892	898.892	901.979	902.738	903.342	904.327	903.772	903.013	902.086	901.093	900.539	900.041	899.738	899.268	899.013	898.915	897.996	897.996	900.065	901.150	901.569	902.110	902.430	903.147	903.323	900.823	899.747	899.567	898.952	898.278	897.903					
REDUCED DISTANCE	28800.00	30000.00	30103.00	30200.00	30400.00	30448.00	30495.00	30534.00	30558.00	30649.00	30695.00	30730.00	30766.00	30788.00	30812.00	30856.00	30895.00	30938.00	30986.00	31037.00	31086.00	31087.00	31087.00	31087.00	31263.00	31295.00	31338.00	31383.00	31448.00	31495.00	31542.00	31584.00	31636.00	31695.00	31740.00	31787.00	31847.00	31895.00	31935.00	31974.00	32028.00	32075.00	32095.00	32125.00	32164.00	32196.00	32244.00	32285.00	32330.00	32420.00	32495.00	32534.00	32600.00	32666.00	32719.00	32774.00	32798.00	
DISTANCE	58.00	200.00	103.00	97.00	200.00	48.00	47.00	39.00	24.00	91.00	46.00	35.00	38.00	22.00	24.00	42.00	44.00	47.00	51.00	19.00	4.00	4.00	4.00	42.00	32.00	43.00	45.00	65.00	47.00	47.00	42.00	52.00	58.00	45.00	47.00	60.00	48.00	41.00	39.00	54.00	27.00	20.00	30.00	39.00	32.00	48.00	51.00	35.00	90.00	75.00	39.00	66.00	66.00	46.00	59.00	24.00		
STATION No.	29+800	30+000	30+103	30+200	30+400	30+448	30+495	30+534	30+558	30+649	30+695	30+730	30+766	30+788	30+812	30+856	30+895	30+939	30+986	31+037	31+056	31+060	31+067	31+128	31+178	31+263	31+295	31+338	31+383	31+448	31+495	31+542	31+584	31+636	31+695	31+740	31+787	31+847	31+895	31+935	31+974	32+028	32+075	32+095	32+125	32+164	32+196	32+244	32+295	32+330	32+420	32+495	32+534	32+600	32+666	32+719	32+774	32+798

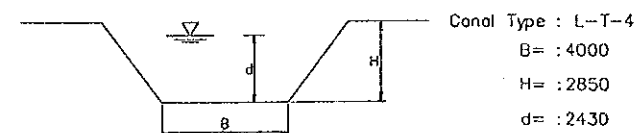
REPUBLIC OF ZIMBABWE

FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN
AGRICULTURAL DEVELOPMENT PROJECT

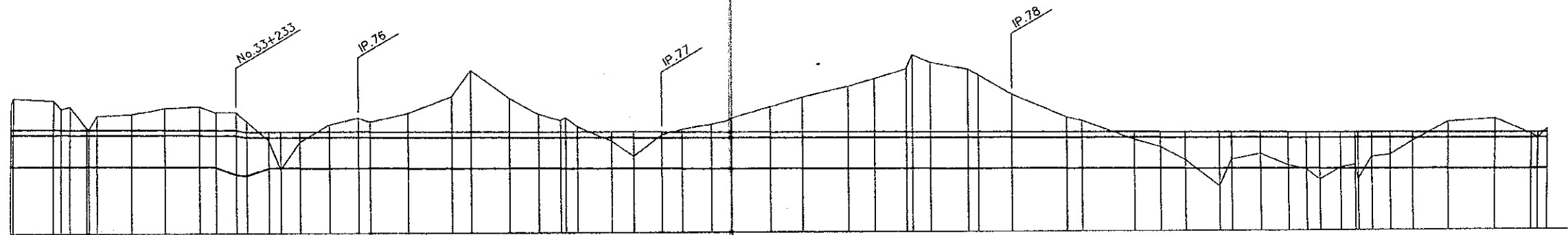
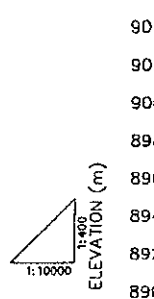
TITLE OF DRAWING
MAIN IRRIGATION CANAL
PROFILE OF LEFT MAIN CANAL (11/35)
(STA. No.29+800 – STA.32+798 m)

Date	Oct. 30, 2000	Drawing No.	3011
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JAPAN INTERNATIONAL COOPERATION AGENCY



Typical Cross Section



STATION No.	DISTANCE	REDUCED DISTANCE	GROUND SURFACE ELEVATION	CANAL BASE ELEVATION	WATER SURFACE ELEVATION	CANAL BANK ELEVATION	CANAL TYPE	Canal Parameters	
								HL	Q
32+802	24.00	32798.00	898.974	893.134	895.563	895.983	T-L-5	HL=2,421.00 m	Q=15.908 m ³ /s
32+800	78.00	32892.00	899.237	893.137	895.557	895.977			
32+897	17.00	32972.00	897.746	893.119	895.549	895.969			
32+894	73.00	32904.00	898.082	893.114	895.542	895.962			
33+030	66.00	33030.00	897.157	893.103	895.533	895.953			
33+095	65.00	33095.00	897.627	893.095	895.525	895.945			
33+161	66.00	33161.00	897.745	893.086	895.516	895.936			
33+193	32.00	33193.00	897.280	893.082	895.512	895.932			
33+233	40.00	33233.00	897.283	892.481	895.507	895.931			
33+253	20.00	33253.00	896.597	892.419	895.399	895.769			
33+295	42.00	33295.00	895.154	892.976	895.351	895.776			
33+318	23.00	33318.00	892.887	892.973	895.348	895.773			
33+395	37.00	33395.00	894.967	892.988	895.343	895.768			
33+413	58.00	33413.00	896.301	892.980	895.335	895.760			
33+470	57.00	33470.00	896.846	892.953	895.328	895.753			
33+493	23.00	33493.00	896.516	892.950	895.323	895.750			
33+565	72.00	33565.00	897.164	892.941	895.318	895.741			
33+649	84.00	33649.00	898.452	892.930	895.305	895.730			
33+686	37.00	33686.00	900.420	892.925	895.300	895.725			
33+761	75.00	33761.00	898.303	892.915	895.290	895.715			
33+818	57.00	33818.00	897.070	892.908	895.283	895.708			
33+891	40.00	33891.00	896.796	892.902	895.276	895.702			
33+893	22.00	33893.00	896.104	892.898	895.273	895.698			
33+959	66.00	33959.00	894.994	892.890	895.265	895.690			
34+001	42.00	34001.00	893.847	892.884	895.259	895.684			
34+055	54.00	34055.00	895.451	892.877	895.252	895.677			
34+083	38.00	34083.00	895.891	892.872	895.247	895.672			
34+151	58.00	34151.00	896.275	892.865	895.240	895.665			
34+293	82.00	34293.00	897.590	892.846	895.221	895.646	T-L-4	HL=6,643.00 m	Q=14,944 m ³ /s
34+356	63.00	34356.00	898.290	892.836	895.213	895.638			
34+443	87.00	34443.00	899.110	892.827	895.202	895.627			
34+493	50.00	34493.00	899.707	892.820	895.195	895.620			
34+556	61.00	34556.00	900.400	892.811	895.188	895.611			
34+600	35.00	34600.00	900.933	892.807	895.182	895.607			
34+673	71.00	34673.00	900.408	892.797	895.172	895.597			
34+693	20.00	34693.00	899.979	892.795	895.170	895.595			
34+758	65.00	34758.00	898.477	892.786	895.161	895.586			
34+864	106.00	34864.00	896.717	892.773	895.148	895.573			
34+893	29.00	34893.00	896.430	892.769	895.144	895.569			
34+994	101.00	34994.00	894.959	892.756	895.131	895.556			
35+046	52.00	35046.00	894.413	892.749	895.124	895.549			
35+093	47.00	35093.00	893.424	892.743	895.118	895.543			
35+159	66.00	35159.00	891.395	892.734	895.109	895.534			
35+183	24.00	35183.00	893.429	892.731	895.106	895.531			
35+239	56.00	35239.00	893.867	892.724	895.099	895.524			
35+293	54.00	35293.00	892.989	892.717	895.092	895.517			
35+328	35.00	35328.00	892.658	892.712	895.087	895.512			
35+354	26.00	35354.00	891.890	892.709	895.084	895.509			
35+395	41.00	35395.00	892.781	892.704	895.079	895.504			
35+436	50.00	35436.00	891.869	892.699	895.074	895.499			
35+457	27.00	35457.00	893.612	892.696	895.071	895.496			
35+493	36.00	35493.00	893.752	892.691	895.066	895.491			
35+537	44.00	35537.00	894.817	892.685	895.060	895.485			
35+606	69.00	35606.00	896.296	892.677	895.052	895.477			
35+693	87.00	35693.00	896.527	892.665	895.040	895.465			
35+791	92.00	35791.00	895.086	892.655	895.030	895.455			
35+791	16.00	35791.00	895.739	892.653	895.028	895.453			

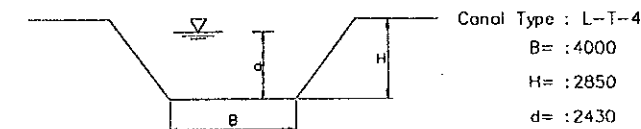
REPUBLIC OF ZIMBABWE

FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN
AGRICULTURAL DEVELOPMENT PROJECT

TITLE OF DRAWING
MAIN IRRIGATION CANAL
PROFILE OF LEFT MAIN CANAL (12/35)
(STA. No. 32+798 - STA. No. 35+791m)

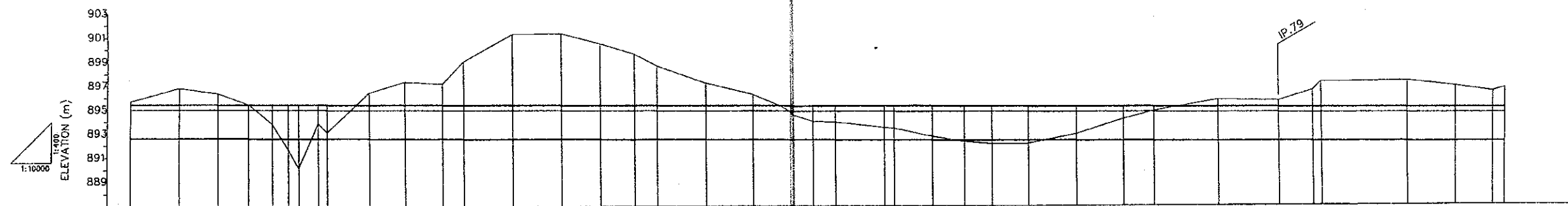
Date	Oct. 30, 2000	Drawing No.	3012
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JAPAN INTERNATIONAL COOPERATION AGENCY



Typical Cross Section

Canal Type : L-T-4
 B = : 4000
 H = : 2850
 d = : 2430



CANAL TYPE	T-L-5																																							
	HL = 6,602.00 m Q = 14.944 m ³ /s																																							
CANAL BANK ELEVATION	895.453	895.439	895.429	895.421	895.414	895.410	895.407	895.402	895.400	895.388	895.378	895.368	895.362	895.349	895.336	895.325	895.316	895.310	895.297	895.284	895.273	895.264	895.258	895.245	895.242	895.232	895.224	895.216	895.206	895.193	895.181	895.172	895.155	895.138	895.129	895.126	895.103	895.090	895.080	895.077
WATER SURFACE ELEVATION	895.028	895.014	895.004	894.996	894.989	894.985	894.982	894.977	894.975	894.963	894.953	894.943	894.937	894.924	894.911	894.900	894.891	894.885	894.872	894.859	894.848	894.839	894.833	894.820	894.817	894.807	894.799	894.791	894.781	894.768	894.756	894.747	894.730	894.713	894.704	894.701	894.678	894.665	894.655	894.652
CANAL BASE ELEVATION	892.653	892.639	892.629	892.621	892.614	892.610	892.607	892.602	892.600	892.598	892.578	892.568	892.562	892.549	892.536	892.525	892.516	892.510	892.497	892.484	892.473	892.464	892.458	892.445	892.442	892.432	892.424	892.416	892.406	892.393	892.381	892.372	892.355	892.338	892.328	892.326	892.303	892.290	892.280	892.277
GROUND SURFACE ELEVATION	895.739	896.836	896.392	895.471	893.839	891.725	890.199	893.876	893.120	896.434	897.299	897.135	898.955	901.212	901.296	900.441	899.592	898.605	897.182	896.235	894.816	893.993	893.940	893.499	893.431	892.735	892.305	892.112	892.138	892.926	894.157	894.816	895.777	895.676	896.560	896.449	896.743	896.449	896.449	896.449
REDUCED DISTANCE	35791.00	35893.00	35974.00	36037.00	36087.00	36120.00	36141.00	36181.00	36200.00	36289.00	36366.00	36446.00	36493.00	36594.00	36693.00	36774.00	36845.00	36893.00	36995.00	37093.00	37179.00	37245.00	37293.00	37395.00	37415.00	37493.00	37599.00	37618.00	37693.00	37794.00	37893.00	37957.00	38093.00	38221.00	38293.00	38311.00	38483.00	38592.00	38688.00	38693.00
DISTANCE	18.00	102.00	81.00	63.00	50.00	33.00	21.00	40.00	19.00	89.00	77.00	80.00	47.00	101.00	99.00	81.00	71.00	48.00	102.00	98.00	85.00	67.00	48.00	102.00	20.00	78.00	66.00	58.00	75.00	101.00	99.00	64.00	136.00	128.00	72.00	18.00	182.00	99.00	76.00	25.00
STATION No.	35+791	35+893	35+974	36+037	36+087	36+120	36+141	36+181	36+200	36+289	36+366	36+446	36+493	36+594	36+693	36+774	36+845	36+893	36+995	37+093	37+179	37+245	37+293	37+395	37+415	37+493	37+559	37+618	37+693	37+794	37+893	37+957	38+093	38+221	38+293	38+311	38+493	38+592	38+688	38+693

REPUBLIC OF ZIMBABWE

FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN
 AGRICULTURAL DEVELOPMENT PROJECT

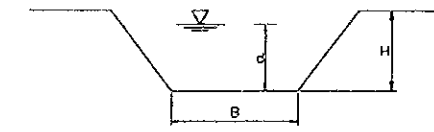
TITLE OF DRAWING
 MAIN IRRIGATION CANAL
 PROFILE OF LEFT MAIN CANAL (13/35)
 (STA. No.35+791 - STA. No.38+693 m)

Date	Oct. 30, 2000	Drawing No.	3013
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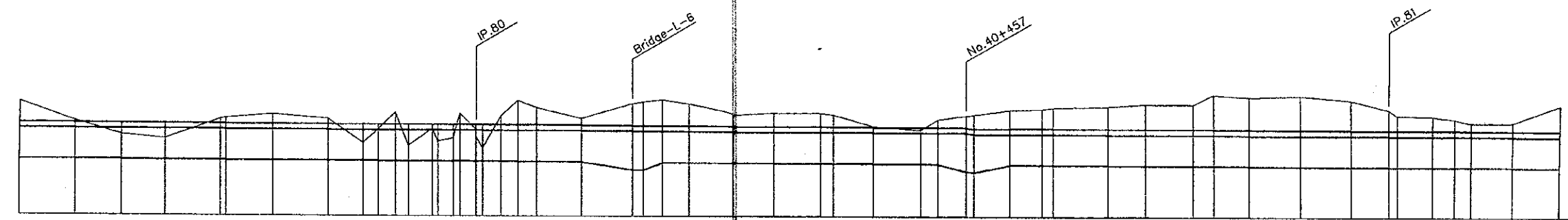
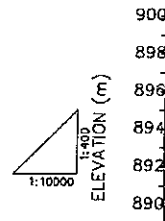
JAPAN INTERNATIONAL COOPERATION AGENCY

Canal Type : L-T-5
 B = :3900
 H = :2800
 d = :2375

Canal Type : L-T-6
 B = :3900
 H = :2800
 d = :2351



Typical Cross Section



CANAL TYPE	HL=6,602.00 m T-L-5 Q=14.944 m ³ /s																	HL=649.00 m L-6 Q=14.634 m ³ /s																																	
CANAL BANK ELEVATION	895.077	895.063	895.051	895.040	895.023	895.013	894.999	894.991	894.987	894.983	894.979	894.974	894.957	894.952	894.948	894.936	894.912	894.876	894.855	894.844	894.841	894.831	894.820	894.816	894.805	894.879	894.855	894.844	894.841	894.831	894.820	894.816	894.805	894.782	894.753	894.745	894.742	894.728	894.719	894.707	894.702	894.693	894.680	894.667	894.658	894.656	894.647	894.641	894.637	894.627	894.615
WATER SURFACE ELEVATION	894.552	894.538	894.526	894.515	894.502	894.588	894.574	894.566	894.562	894.558	894.554	894.549	894.532	894.527	894.523	894.511	894.489	894.465	894.430	894.419	894.416	894.406	894.395	894.391	894.384	894.373	894.304	894.296	894.286	894.283	894.279	894.270	894.258	894.253	894.244	894.231	894.218	894.209	894.207	894.198	894.192	894.188	894.178	894.166							
CANAL BASE ELEVATION	892.277	892.263	892.251	892.240	892.223	892.213	892.199	892.191	892.187	892.183	892.179	892.174	892.157	892.152	892.148	892.136	891.562	891.526	892.055	892.044	892.041	892.031	892.020	892.016	891.442	891.953	891.945	891.942	891.928	891.919	891.907	891.902	891.893	891.880	891.867	891.858	891.856	891.847	891.841	891.837	891.827	891.815									
GROUND SURFACE ELEVATION	896.743	895.236	894.205	893.886	895.486	895.749	895.428	893.563	894.586	895.894	893.390	893.686	895.641	896.851	896.267	895.489	896.600	896.750	895.906	895.884	895.794	894.903	894.630	895.436	895.780	896.135	896.247	896.345	896.450	896.632	896.606	896.247	895.826	895.770	895.519	895.231	895.254	897.008	896.247	895.826	895.770	895.519	895.231	895.254	896.621						
REDUCED DISTANCE	38693.00	38801.00	38893.00	38976.00	39093.00	39184.00	39293.00	39391.00	39423.00	39448.00	39483.00	39524.00	39567.00	39603.00	39624.00	39780.00	39876.00	39898.00	40180.00	40268.00	40283.00	40369.00	40459.00	40493.00	40527.00	40631.00	40693.00	40714.00	40820.00	40893.00	40995.00	41025.00	41093.00	41192.00	41293.00	41365.00	41382.00	41450.00	41493.00	41524.00	41601.00	41693.00									
DISTANCE	25.00	108.00	92.00	83.00	106.00	91.00	109.00	68.00	30.00	32.00	25.00	46.00	35.00	33.00	36.00	87.00	96.00	22.00	87.00	86.00	25.00	76.00	90.00	34.00	55.00	69.00	62.00	21.00	106.00	73.00	92.00	40.00	68.00	99.00	101.00	72.00	17.00	66.00	43.00	31.00	77.00	92.00									
STATION No.	38+693	38+801	38+893	38+976	39+093	39+184	39+293	39+361	39+391	39+423	39+448	39+493	39+524	39+557	39+693	39+780	39+876	39+898	40+180	40+268	40+293	40+369	40+459	40+493	40+542	40+631	40+693	40+714	40+820	40+893	40+995	41+025	41+093	41+192	41+293	41+365	41+382	41+450	41+493	41+524	41+601	41+693									

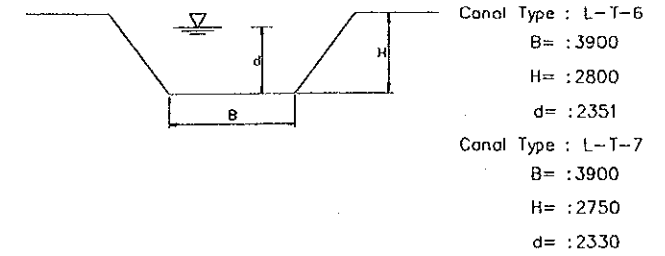
REPUBLIC OF ZIMBABWE

FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN
 AGRICULTURAL DEVELOPMENT PROJECT

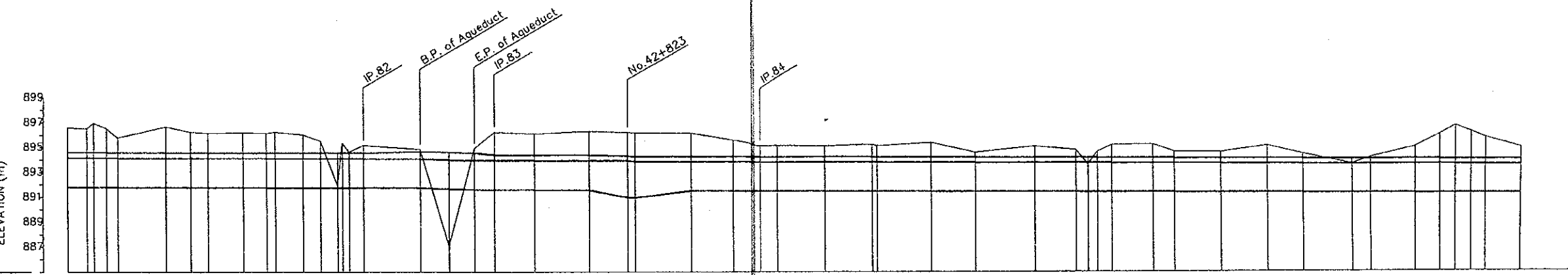
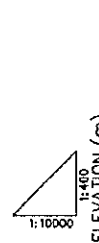
TITLE OF DRAWING
 MAIN IRRIGATION CANAL
 PROFILE OF LEFT MAIN CANAL (14/35)
 (STA. No.38+693 - STA. No.41+693 m)

Date	Oct. 30, 2000	Drawing No.	3014
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JAPAN INTERNATIONAL COOPERATION AGENCY



Typical Cross Section



CANAL TYPE	T-L-6 Q=14.634 m ³ /s ³		110.00 m Aqueduct T-L-6		HL=308.00 m		T-L-7 Q=14.373 m ³		HL=2,194.00 m	
	CANAL BANK ELEVATION	894.615	894.608	894.615	894.608	894.615	894.608	894.615	894.608	894.615
WATER SURFACE ELEVATION	894.166	894.159	894.166	894.159	894.166	894.159	894.166	894.159	894.166	894.159
CANAL BASE ELEVATION	891.815	891.808	891.815	891.808	891.815	891.808	891.815	891.808	891.815	891.808
GROUND SURFACE ELEVATION	896.521	896.514	896.521	896.514	896.521	896.514	896.521	896.514	896.521	896.514
REDUCED DISTANCE	41693.00	41723.00	41723.00	41753.00	41753.00	41783.00	41783.00	41813.00	41813.00	41843.00
DISTANCE	92.00	94.00	94.00	96.00	96.00	98.00	98.00	100.00	100.00	102.00
STATION No.	41+693	41+737	41+737	41+773	41+773	41+809	41+809	41+845	41+845	41+881

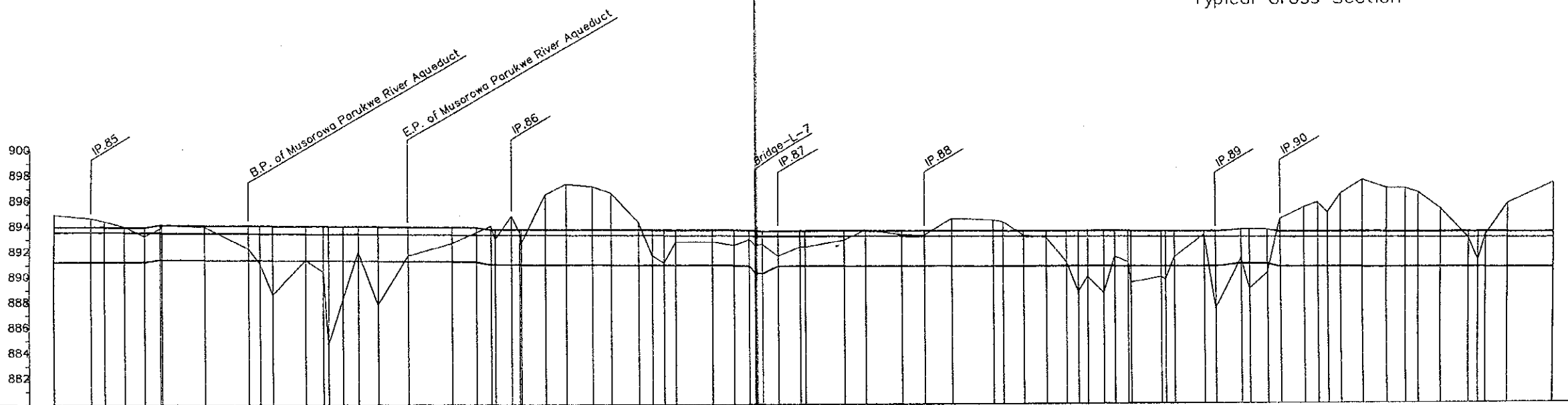
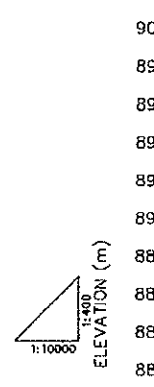
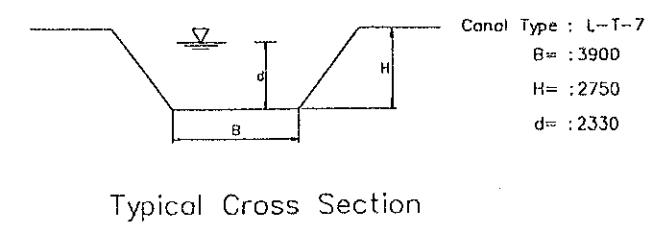
REPUBLIC OF ZIMBABWE

FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN
AGRICULTURAL DEVELOPMENT PROJECT

TITLE OF DRAWING
MAIN IRRIGATION CANAL
PROFILE OF LEFT MAIN CANAL (15/35)
(STA. No. 41+693 – STA. No. 44+647 m)

Date	Oct. 30, 2000	Drawing No.	3015
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JAPAN INTERNATIONAL COOPERATION AGENCY



CANAL TYPE	← T-L-7		T-L-7 →		T-L-7 →	
CANAL BANK ELEVATION	314.00 m		HL=698.00 m		HL=4,108.00 m	
WATER SURFACE ELEVATION	Q=14.373 m³/s					
44+647	894.995	891.243	894.980	891.243	894.980	891.243
44+720	893.985	891.235	894.577	891.235	894.577	891.235
44+747	893.981	891.231	894.456	891.231	894.456	891.231
44+788	893.975	891.225	894.029	891.225	894.029	891.225
44+829	893.969	891.219	893.269	891.219	893.269	891.219
44+869	893.963	891.213	892.811	891.213	892.811	891.213
44+947	893.957	891.207	894.016	891.207	894.016	891.207
45+033	893.951	891.201	892.336	891.201	892.336	891.201
45+056	893.945	891.195	891.149	891.195	891.149	891.195
45+081	893.939	891.189	890.661	891.189	890.661	891.189
45+147	893.933	891.183	891.429	891.183	891.429	891.183
45+182	893.927	891.177	890.719	891.177	890.719	891.177
45+221	893.921	891.171	890.299	891.171	890.299	891.171
45+251	893.915	891.165	892.034	891.165	892.034	891.165
45+289	893.909	891.159	891.314	891.159	891.314	891.159
45+347	893.903	891.153	891.741	891.153	891.741	891.153
45+433	893.897	891.147	892.712	891.147	892.712	891.147
45+482	893.891	891.141	893.561	891.141	893.561	891.141
45+516	893.885	891.135	893.076	891.135	893.076	891.135
45+552	893.879	891.129	892.528	891.129	892.528	891.129
45+592	893.873	891.123	891.911	891.123	891.911	891.123
45+619	893.867	891.117	890.517	891.117	890.517	891.117
45+660	893.861	891.111	890.997	891.111	890.997	891.111
45+710	893.855	891.105	890.988	891.105	890.988	891.105
45+747	893.849	891.099	890.630	891.099	890.630	891.099
45+800	893.843	891.093	890.974	891.093	890.974	891.093
45+827	893.837	891.087	891.746	891.087	891.746	891.087
45+851	893.831	891.081	891.170	891.081	891.170	891.081
45+874	893.825	891.075	892.798	891.075	892.798	891.075
45+947	893.819	891.069	892.812	891.069	892.812	891.069
45+990	893.813	891.063	892.527	891.063	892.527	891.063
46+023	893.807	891.057	893.019	891.057	893.019	891.057
46+066	893.801	891.051	892.200	891.051	892.200	891.051
46+100	893.795	891.045	891.708	891.045	891.708	891.045
46+153	893.789	891.039	892.498	891.039	892.498	891.039
46+229	893.783	891.033	892.913	891.033	892.913	891.033
46+270	893.777	891.027	893.695	891.027	893.695	891.027
46+343	893.771	891.021	893.335	891.021	893.335	891.021
46+388	893.765	891.015	893.280	891.015	893.280	891.015
46+443	893.759	891.009	894.571	891.009	894.571	891.009
46+524	893.753	891.003	894.468	891.003	894.468	891.003
46+543	893.747	890.997	894.328	890.997	894.328	890.997
46+583	893.741	890.991	893.288	890.991	893.288	890.991
46+629	893.735	890.985	893.093	890.985	893.093	890.985
46+668	893.729	890.979	891.158	890.979	891.158	890.979
46+692	893.723	890.973	888.794	890.973	888.794	890.973
46+711	893.717	890.967	890.019	890.967	890.019	890.967
46+743	893.711	890.961	888.707	890.961	888.707	890.961
46+765	893.705	890.955	891.571	890.955	891.571	890.955
46+791	893.699	890.949	888.152	890.949	888.152	890.949
46+858	893.693	890.943	888.997	890.943	888.997	890.943
46+885	893.687	890.937	891.498	890.937	891.498	890.937
46+943	893.681	890.931	893.307	890.931	893.307	890.931
46+985	893.675	890.925	887.560	890.925	887.560	890.925
47+017	893.669	890.919	891.412	890.919	891.412	890.919
47+034	893.663	890.913	888.356	890.913	888.356	890.913
47+069	893.657	890.907	890.295	890.907	890.295	890.907
47+085	893.651	890.901	894.531	890.901	894.531	890.901
47+143	893.645	890.895	895.428	890.895	895.428	890.895
47+171	893.639	890.889	895.839	890.889	895.839	890.889
47+190	893.633	890.883	893.017	890.883	893.017	890.883
47+216	893.627	890.877	896.486	890.877	896.486	890.877
47+259	893.621	890.871	897.542	890.871	897.542	890.871
47+306	893.615	890.865	896.947	890.865	896.947	890.865
47+343	893.609	890.859	896.896	890.859	896.896	890.859
47+388	893.603	890.853	896.573	890.853	896.573	890.853
47+412	893.597	890.847	895.289	890.847	895.289	890.847
47+466	893.591	890.841	893.023	890.841	893.023	890.841
47+505	893.585	890.835	893.282	890.835	893.282	890.835
47+543	893.579	890.829	895.681	890.829	895.681	890.829
47+633	893.573	890.823	897.301	890.823	897.301	890.823

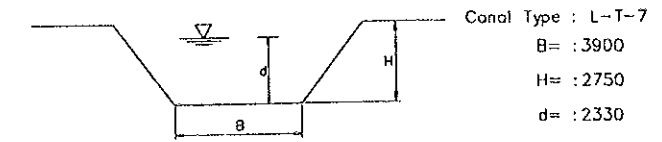
REPUBLIC OF ZIMBABWE

FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN
AGRICULTURAL DEVELOPMENT PROJECT

TITLE OF DRAWING
MAIN IRRIGATION CANAL
PROFILE OF LEFT MAIN CANAL (16/35)
(STA. No.44+647 - STA. No.47+633 m)

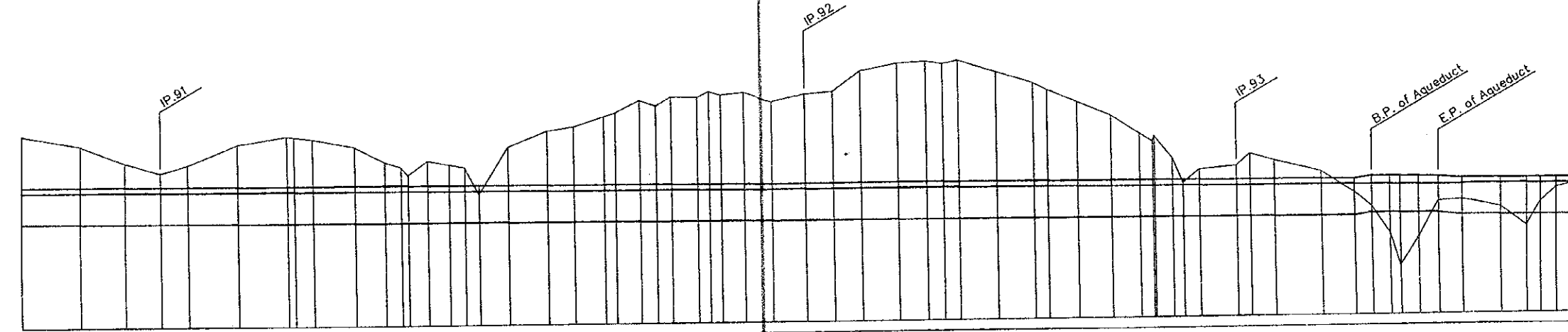
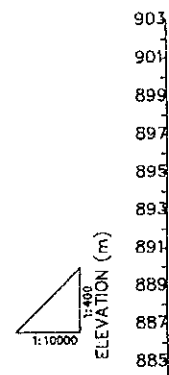
Date	Oct. 30, 2000	Drawing No.	3016
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JAPAN INTERNATIONAL COOPERATION AGENCY



Canal Type : L-T-7
 B = :3900
 H = :2750
 d = :2330

Typical Cross Section



CANAL TYPE	T-L-7 Q=14.373 m ³ /s		HL=4,108.00 m	124.00 m	HL=722.00 m																																																														
CANAL BANK ELEVATION	893.449	893.435	893.424	893.416	893.409	893.397	893.385	893.378	893.368	893.361	893.352	893.351	893.346	893.342	893.338	893.333	893.322	893.315	893.308	893.305	893.299	893.296	893.292	893.285	893.282	893.280	893.274	893.265	893.256	893.250	893.243	893.234	893.228	893.224	893.220	893.211	893.202	893.199	893.191	893.183	893.176	893.172	893.168	893.166	893.162	893.153	893.149	893.144	893.132	893.124	893.120	893.117	893.112	893.108	893.104	893.100	893.097	893.093	893.089	893.085	893.080	893.076	893.070	893.064	893.054	893.048	893.042
WATER SURFACE ELEVATION	893.029	893.015	893.004	892.996	892.989	892.977	892.963	892.958	892.948	892.941	892.936	892.931	892.926	892.922	892.918	892.911	892.902	892.895	892.888	892.885	892.879	892.876	892.872	892.865	892.862	892.860	892.854	892.845	892.836	892.830	892.823	892.814	892.808	892.804	892.800	892.791	892.782	892.779	892.771	892.763	892.755	892.752	892.748	892.746	892.742	892.733	892.729	892.724	892.712	892.704	892.700	892.697	892.693	892.689	892.685	892.680	892.674	892.668	892.663	892.659	892.654	892.648	892.642	892.636	892.628	892.622	
CANAL BASE ELEVATION	890.699	890.685	890.674	890.666	890.659	890.647	890.633	890.628	890.618	890.611	890.606	890.601	890.596	890.592	890.588	890.581	890.572	890.565	890.558	890.555	890.549	890.546	890.542	890.535	890.532	890.530	890.524	890.515	890.506	890.500	890.493	890.484	890.478	890.474	890.470	890.461	890.452	890.449	890.441	890.433	890.426	890.422	890.418	890.416	890.412	890.403	890.399	890.394	890.382	890.374	890.370	890.367	890.363	890.359	890.354	890.348	890.342	890.336	890.328	890.322	890.316	890.308	890.302	890.296	890.292		
GROUND SURFACE ELEVATION	897.301	895.508	895.229	894.439	895.023	896.550	897.895	896.880	896.292	895.122	894.767	895.186	894.915	894.679	892.700	896.174	897.330	897.614	898.343	898.589	899.520	899.090	899.723	899.674	900.097	899.838	900.041	899.330	899.828	899.998	901.470	901.388	902.120	901.935	902.158	901.262	900.464	899.932	899.033	898.000	896.678	896.426	896.226	896.007	895.815	895.924	894.186	895.073	894.531	893.988	892.114	891.045	889.048	888.515	888.706	891.370	891.514	890.310	889.495	891.233	890.304	890.298	890.298	890.292			
REDUCED DISTANCE	47633.00	47743.00	47826.00	47892.00	47943.00	48036.00	48130.00	48178.00	48257.00	48313.00	48365.00	48391.00	48431.00	48461.00	48488.00	48543.00	48617.00	48668.00	48722.00	48743.00	48789.00	48819.00	48847.00	48897.00	48920.00	48943.00	48988.00	49056.00	49121.00	49172.00	49223.00	49291.00	49343.00	49375.00	49404.00	49474.00	49543.00	49588.00	49624.00	49688.00	49743.00	49797.00	49803.00	49823.00	49854.00	49923.00	49949.00	49993.00	50080.00	50143.00	50175.00	50208.00	50228.00	50262.00	50299.00	50343.00	50414.00	50482.00	50487.00	50517.00	50543.00						
DISTANCE	90.00	110.00	83.00	66.00	51.00	93.00	35.00	79.00	56.00	32.00	36.00	40.00	30.00	27.00	55.00	74.00	49.00	56.00	21.00	46.00	30.00	28.00	50.00	23.00	43.00	70.00	65.00	51.00	51.00	68.00	52.00	32.00	29.00	70.00	69.00	25.00	56.00	64.00	55.00	36.00	37.00	20.00	31.00	69.00	26.00	44.00	87.00	63.00	32.00	33.00	20.00	34.00	37.00	44.00	71.00	46.00	25.00	30.00	26.00								
STATION No.	47+633	47+743	47+826	47+892	47+943	48+036	48+130	48+178	48+257	48+313	48+353	48+391	48+431	48+461	48+488	48+543	48+617	48+666	48+722	48+743	48+789	48+819	48+847	48+897	48+920	48+943	48+988	49+056	49+121	49+172	49+223	49+291	49+343	49+375	49+404	49+474	49+543	49+588	49+624	49+688	49+743	49+797	49+803	49+823	49+854	49+923	49+949	49+993	50+080	50+143	50+175	50+208	50+228	50+262	50+299	50+343	50+414	50+482	50+487	50+517	50+543						

REPUBLIC OF ZIMBABWE

FEASIBILITY STUDY ON LOWER MUNYATI RIVER BASIN
 AGRICULTURAL DEVELOPMENT PROJECT

TITLE OF DRAWING
 MAIN IRRIGATION CANAL
 PROFILE OF LEFT MAIN CANAL (17/35)
 (STA. No.47+633 - STA. No.50+543 m)

Date	Oct. 30, 2000	Drawing No.	3017
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JAPAN INTERNATIONAL COOPERATION AGENCY