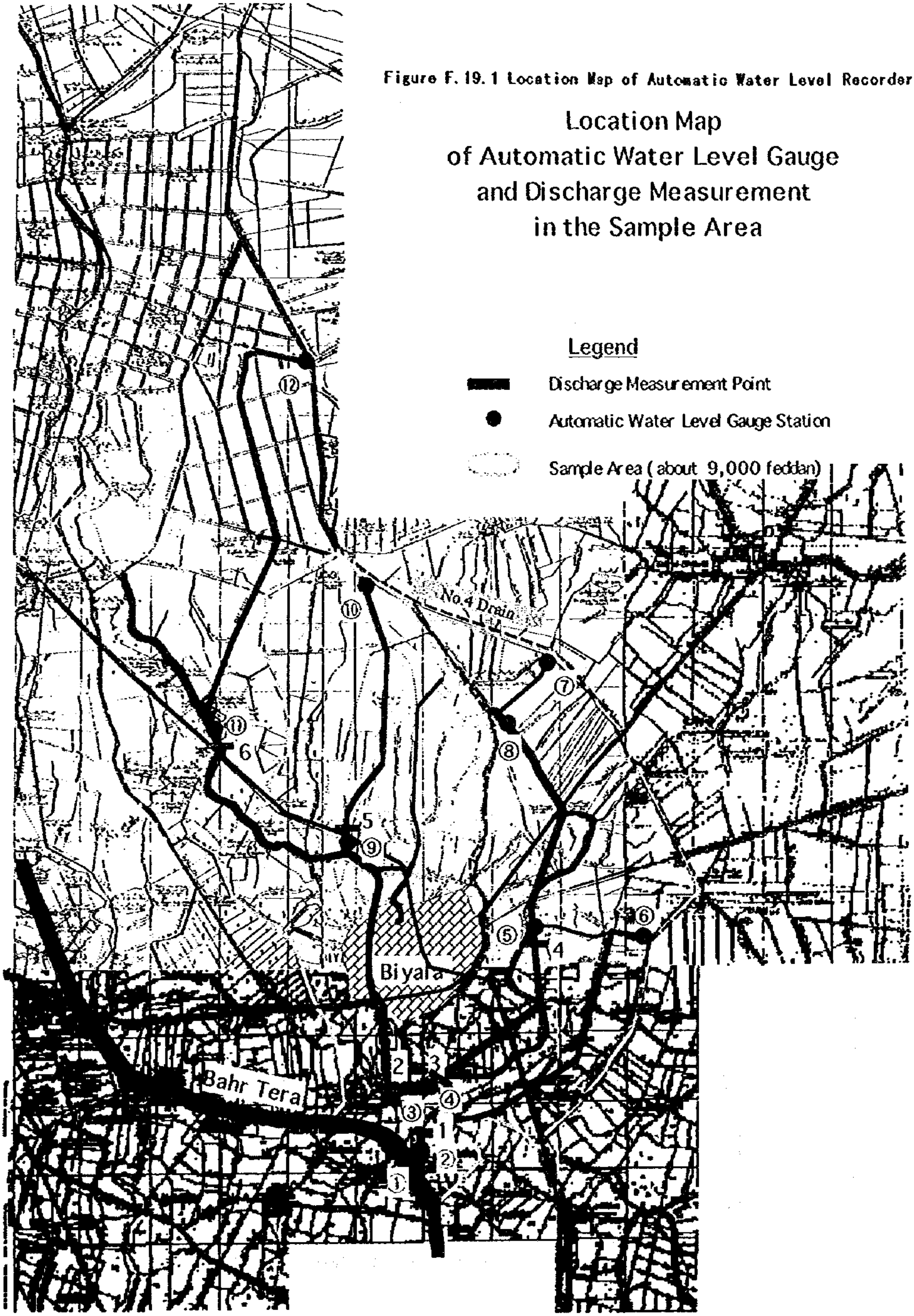


Figure F. 19. 1 Location Map of Automatic Water Level Recorders

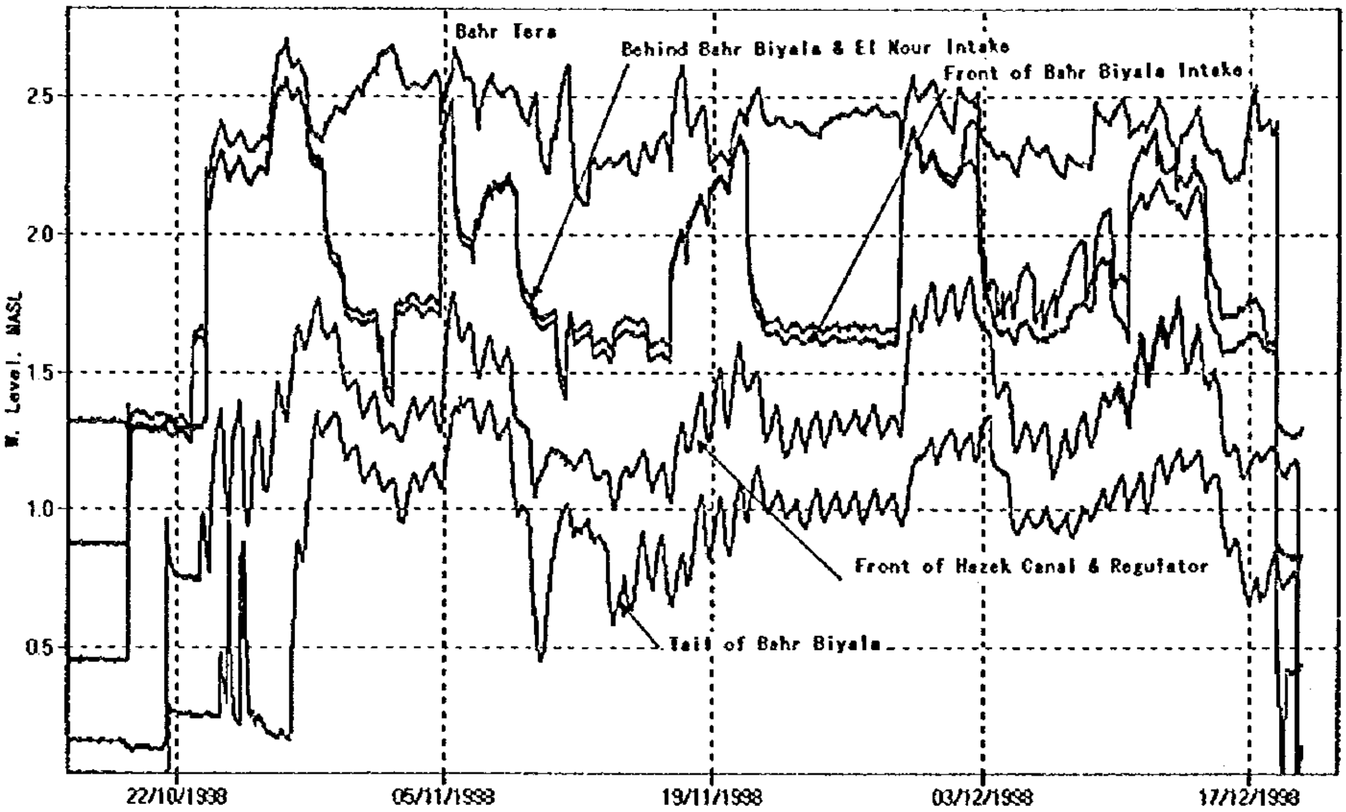


Figure F.19.3 Water Level Records for Bahr Biyala Related Canals

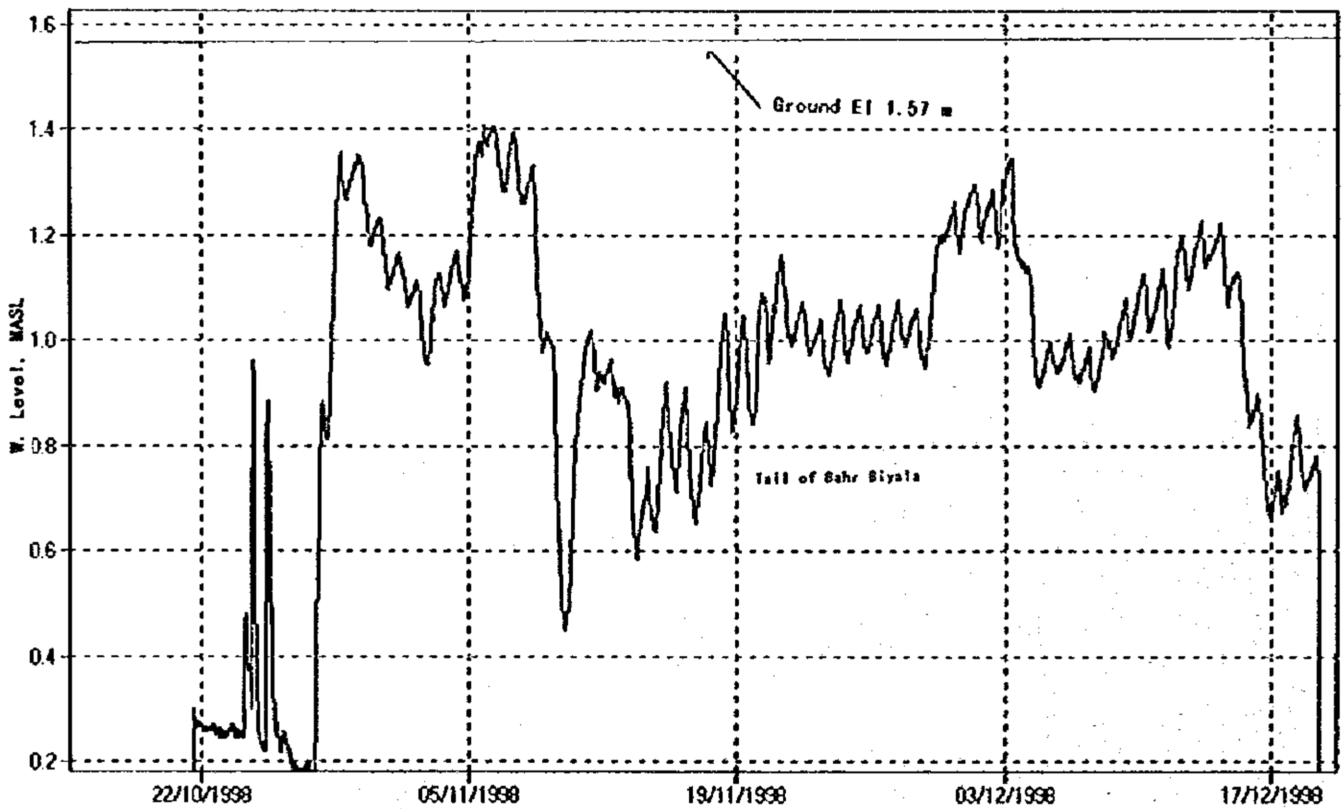


Figure F.19.4 Water Level Records at the Tail of Bahr Biyala

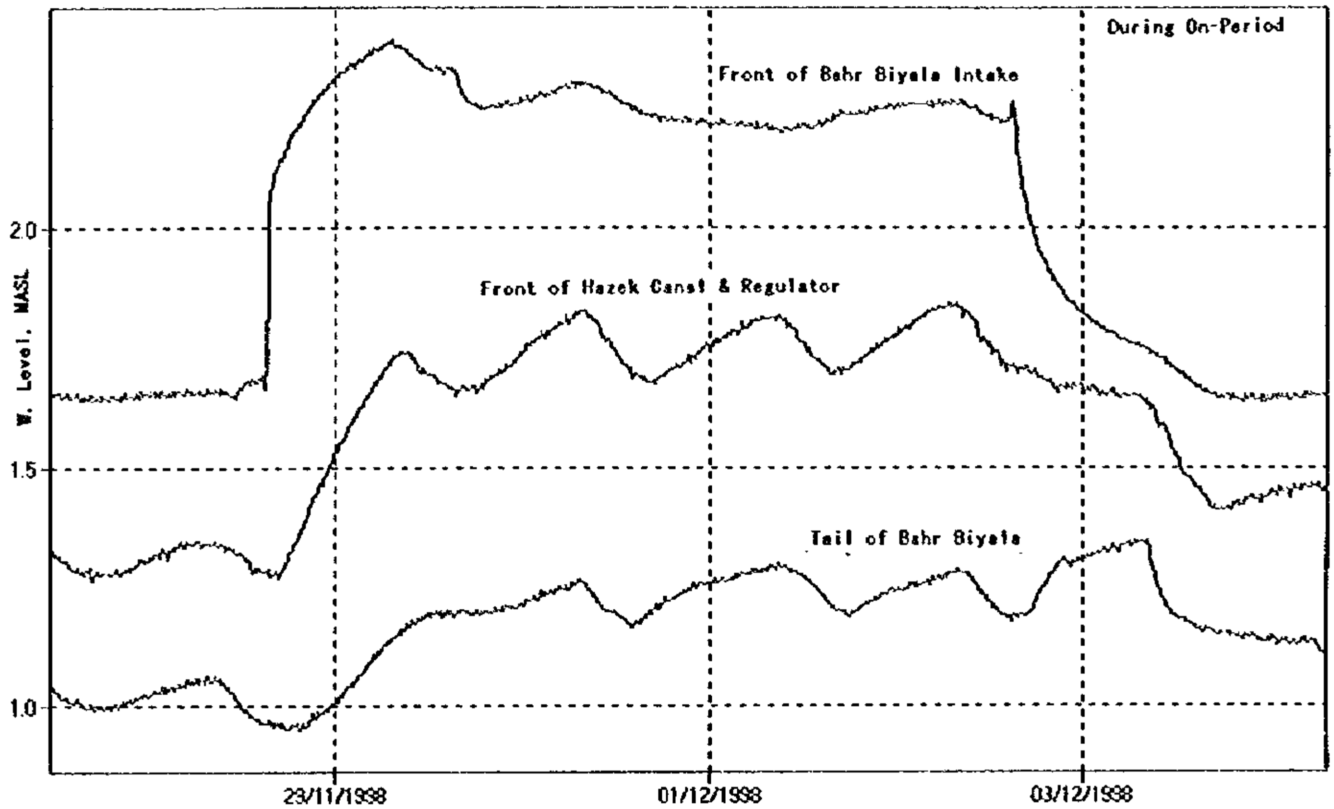


Figure F.19.5 Water Level Records for Bahr Biyal Canal during an On-period Only

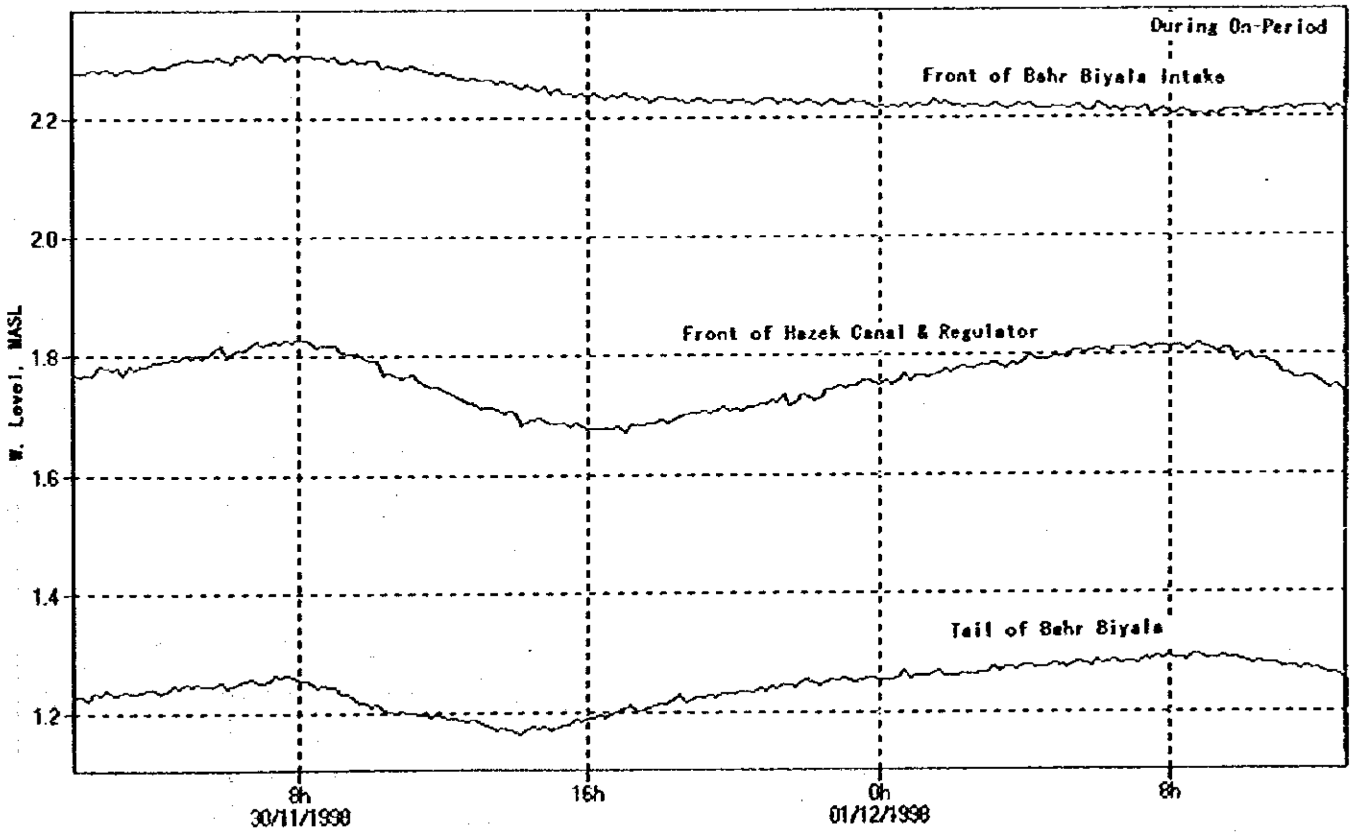


Figure F.19.6 Water Level Records for Bahr Biyal Canal during an On-period Only

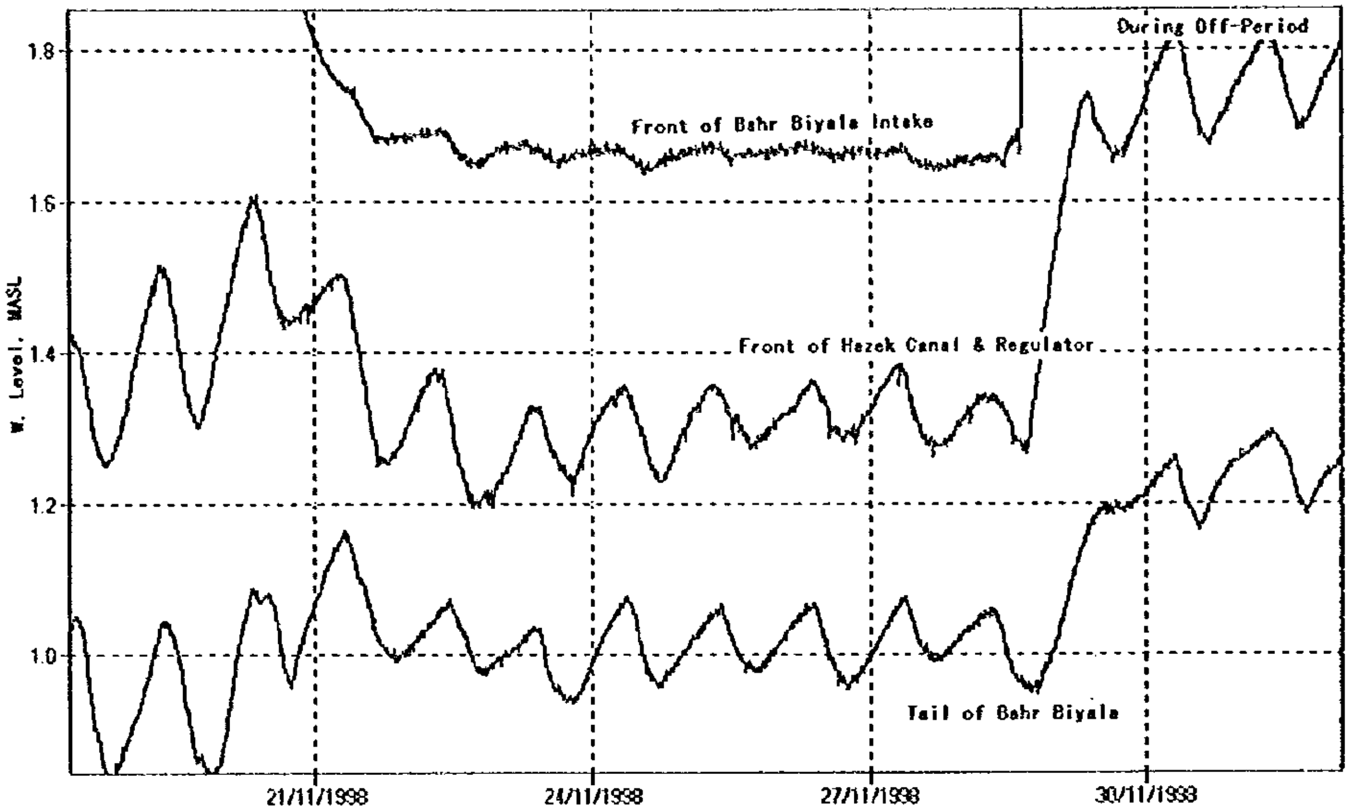


Figure F.19.7 Water Level Records for Bahr Biyal Canal during an Off-period Only

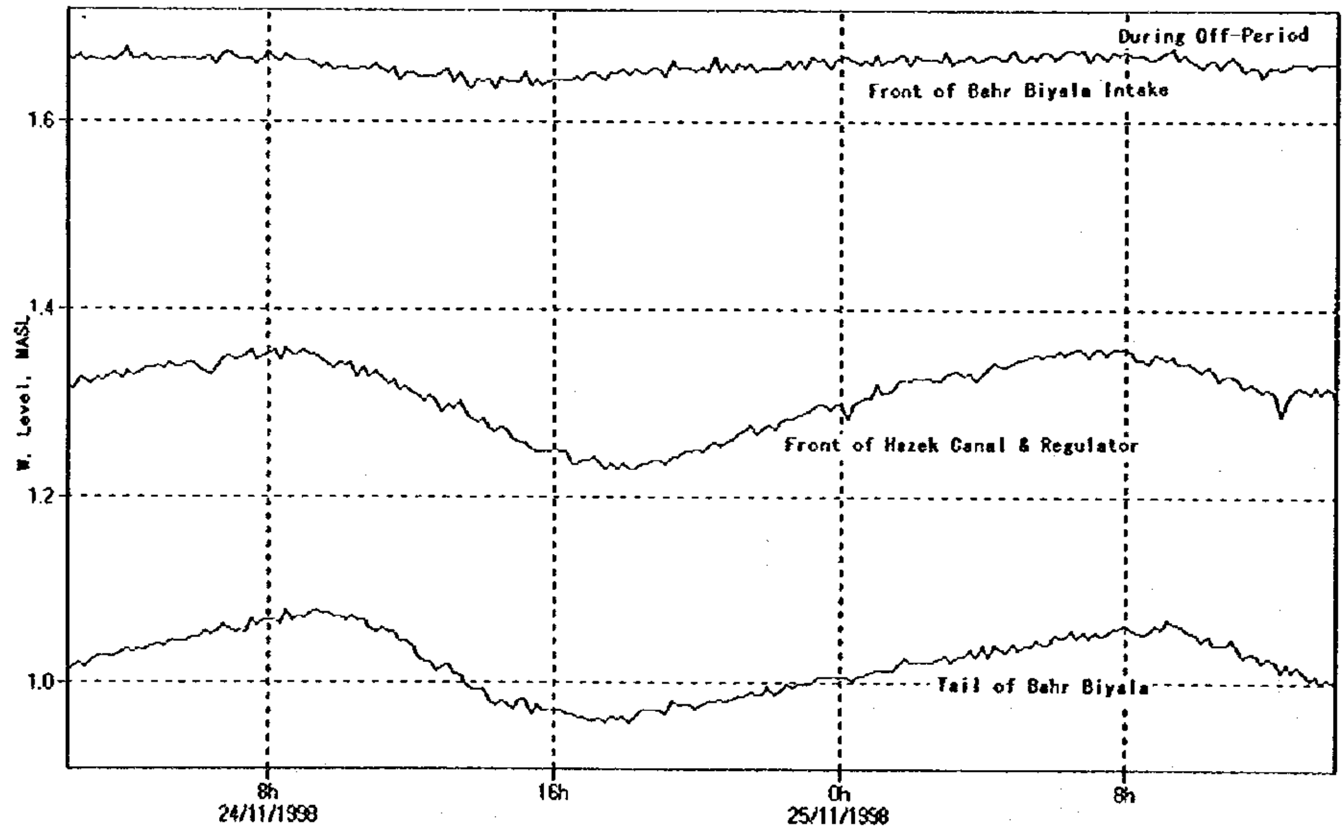


Figure F.19.8 Water Level Records for Bahr Biyal Canal during an Off-period Only

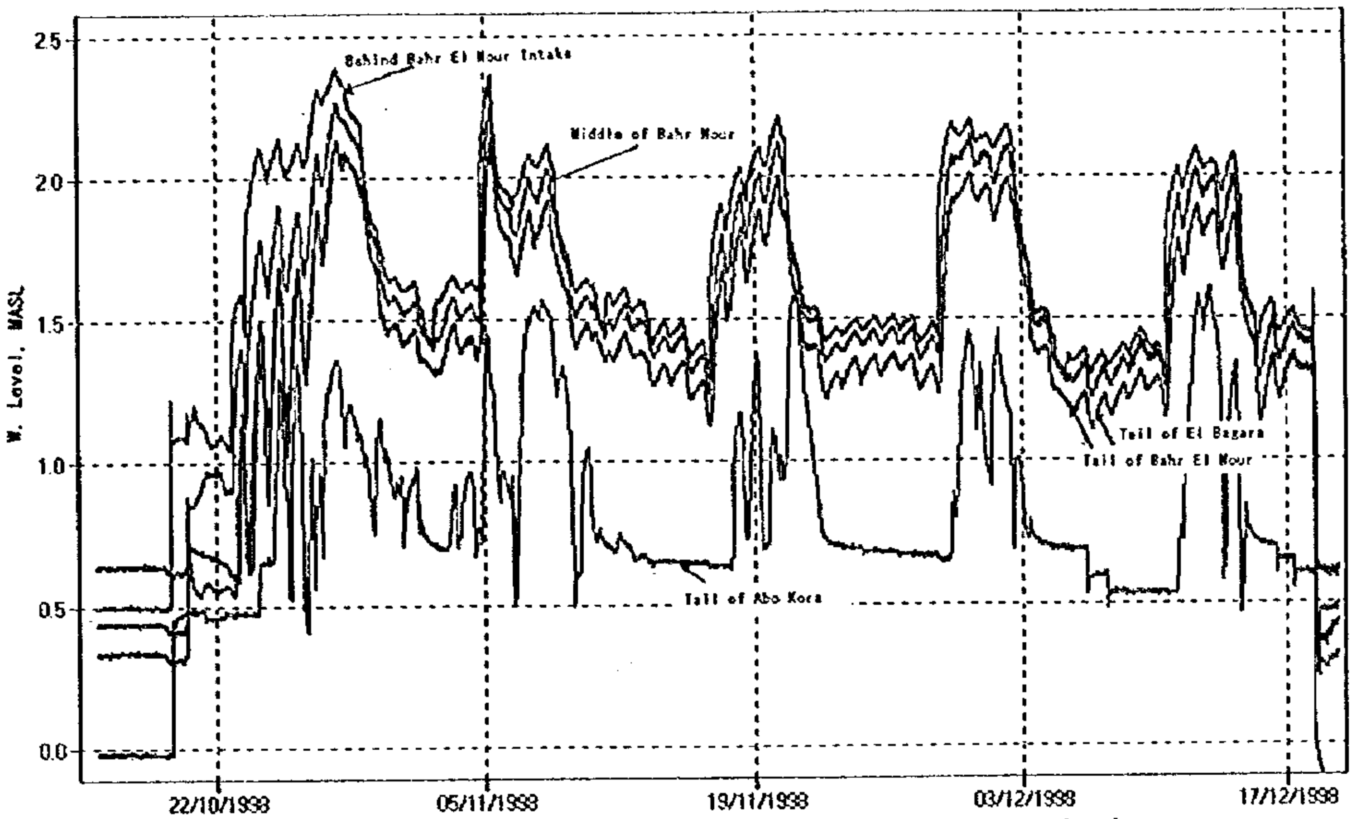


Figure F.19.9 Water Level Records for Bahr El Nour Related Canals

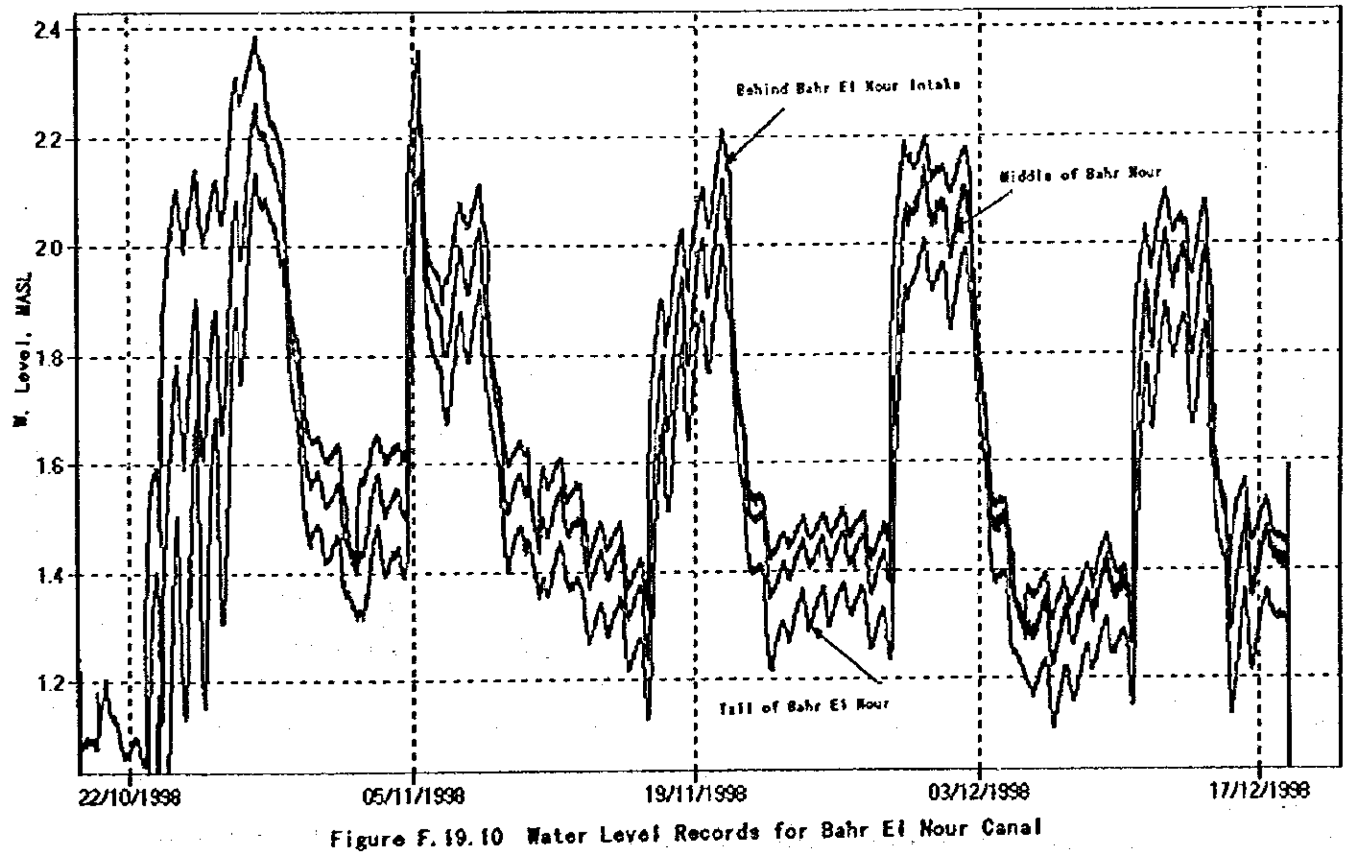


Figure F.19.10 Water Level Records for Bahr El Nour Canal

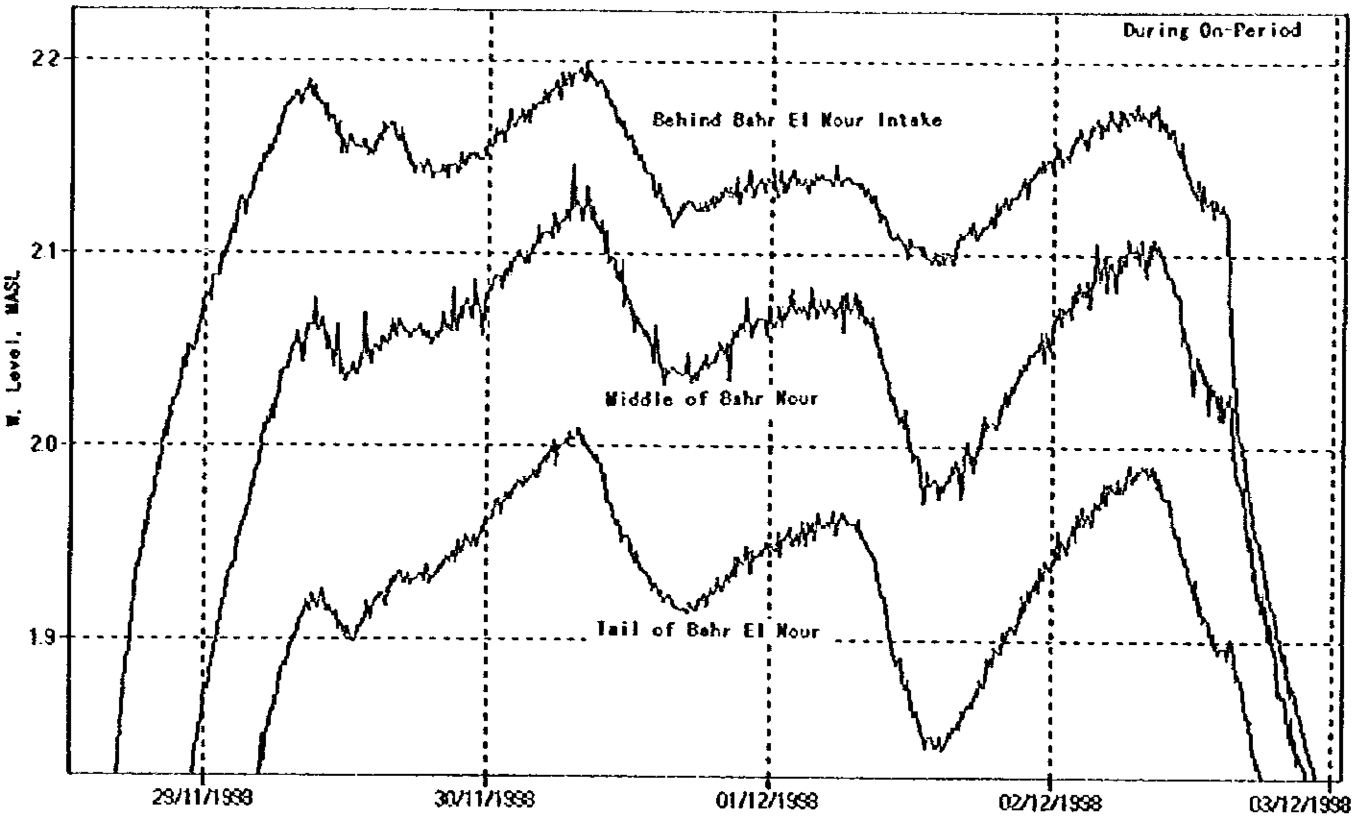


Figure F.19.11 Water Level Records for Bahe El Nour Canal during an On-period Only

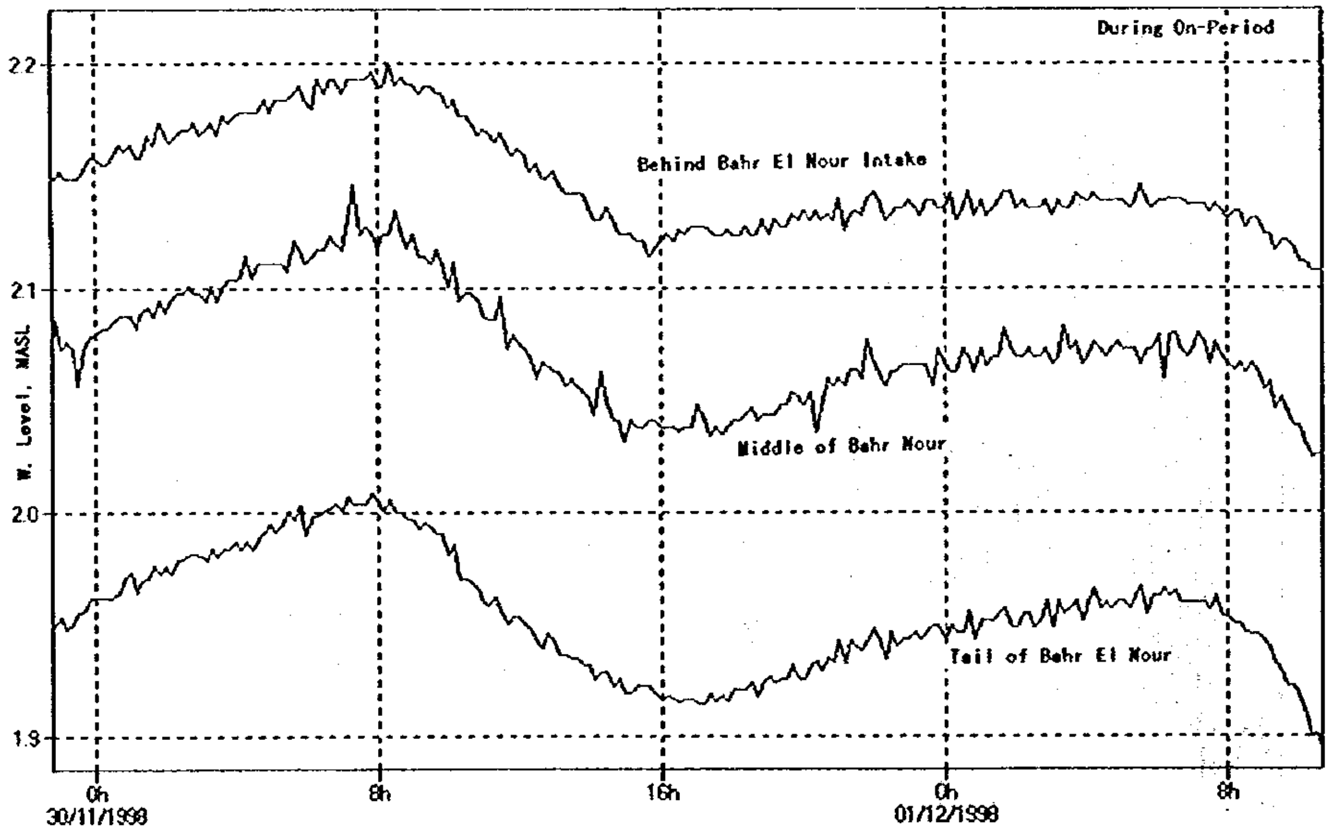


Figure F.19.12 Water Level Records for Bahe El Nour Canal during an On-period Only

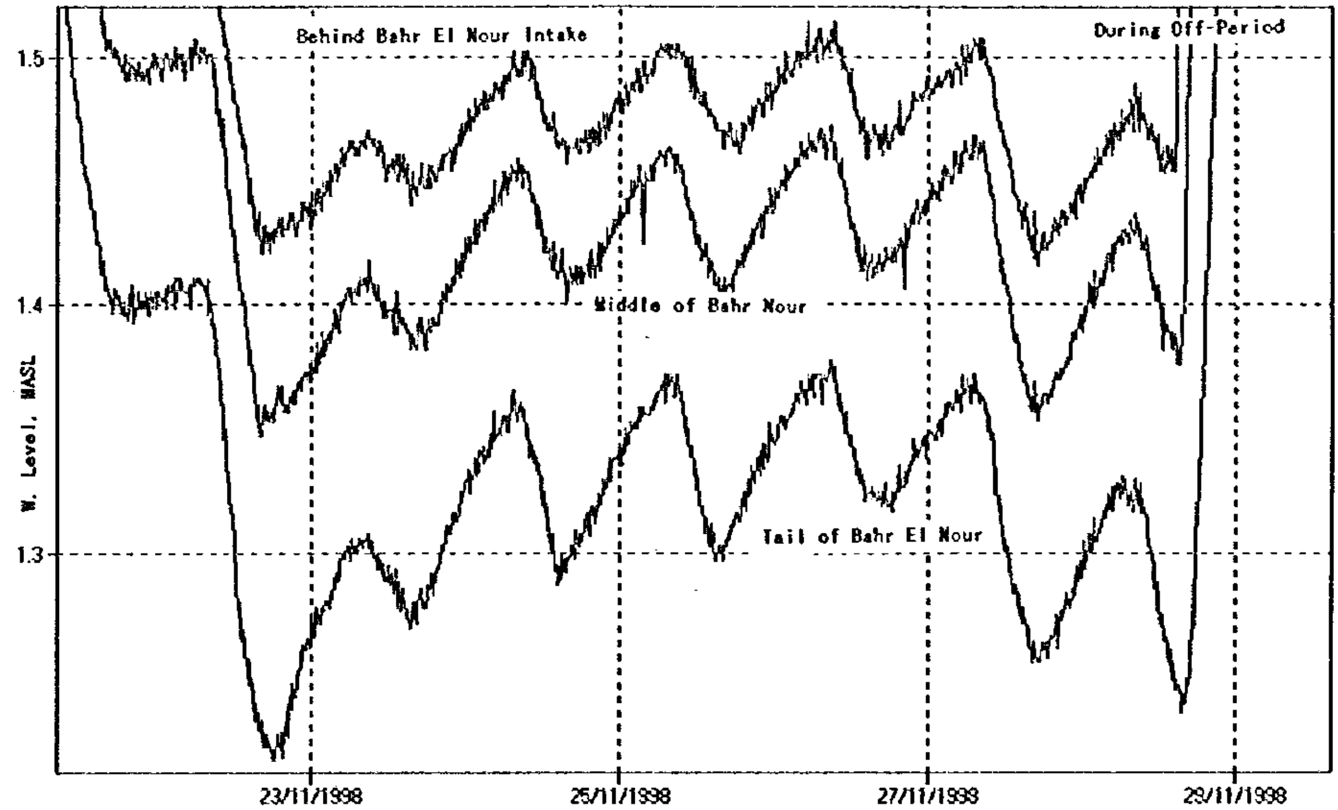


Figure F.19.13 Water Level Records for Bahe El Nour Canal during an Off-period Only

Figure F.19.14 Water Level Records for Bahe El Nour Canal during an Off-period Only

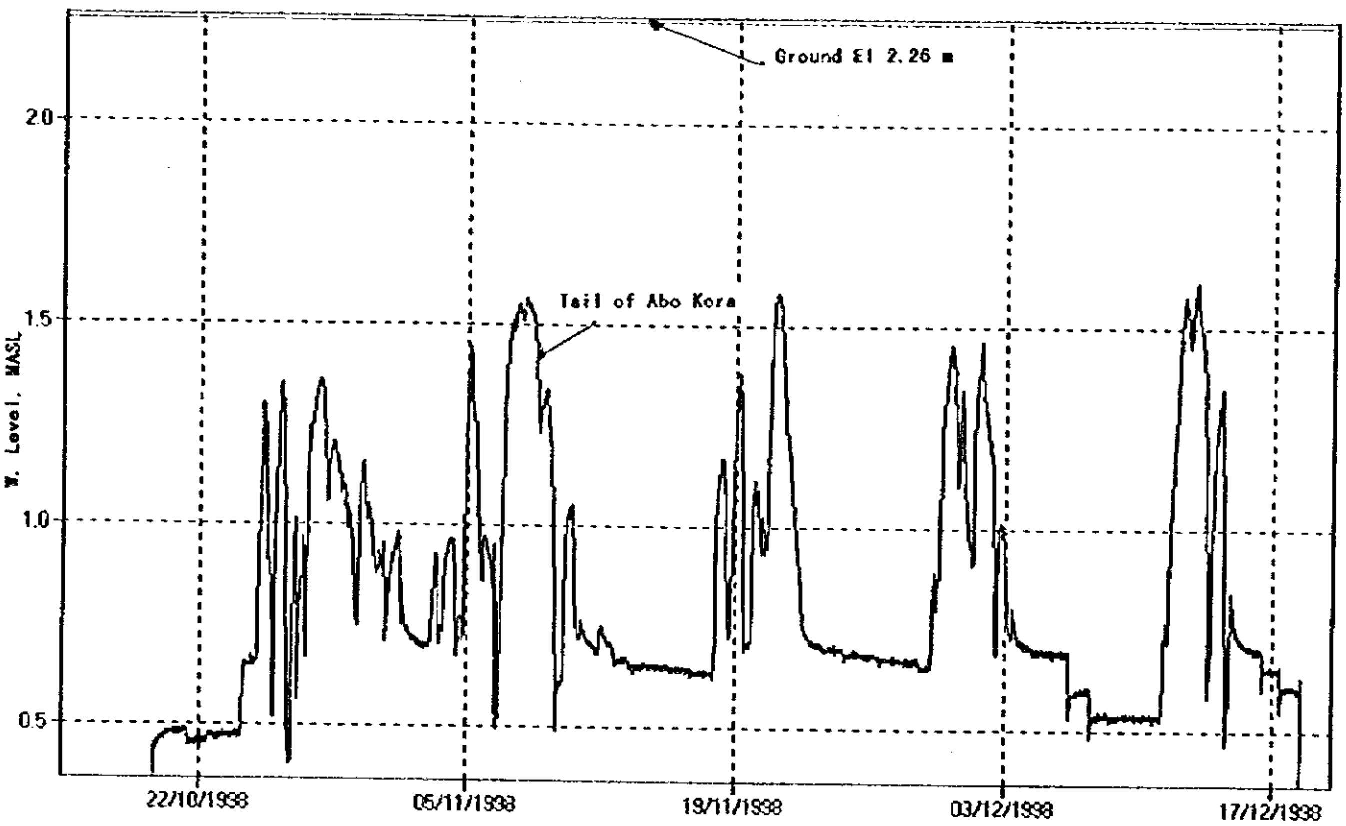


Figure F.19.15 Water Level Records at the Tail of Meska Abo Kora

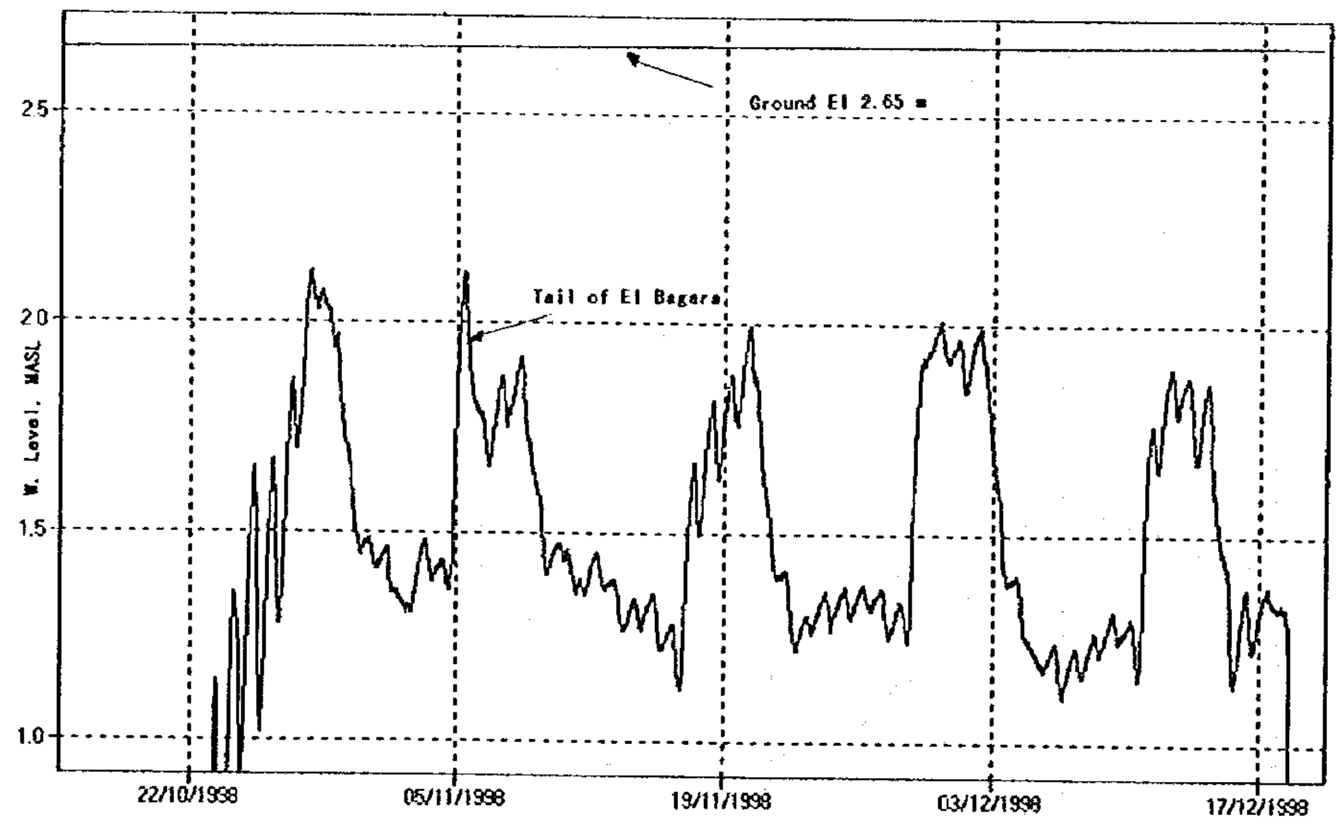


Figure F.19.16 Water Level Records at the Tail of Meska El Bagara

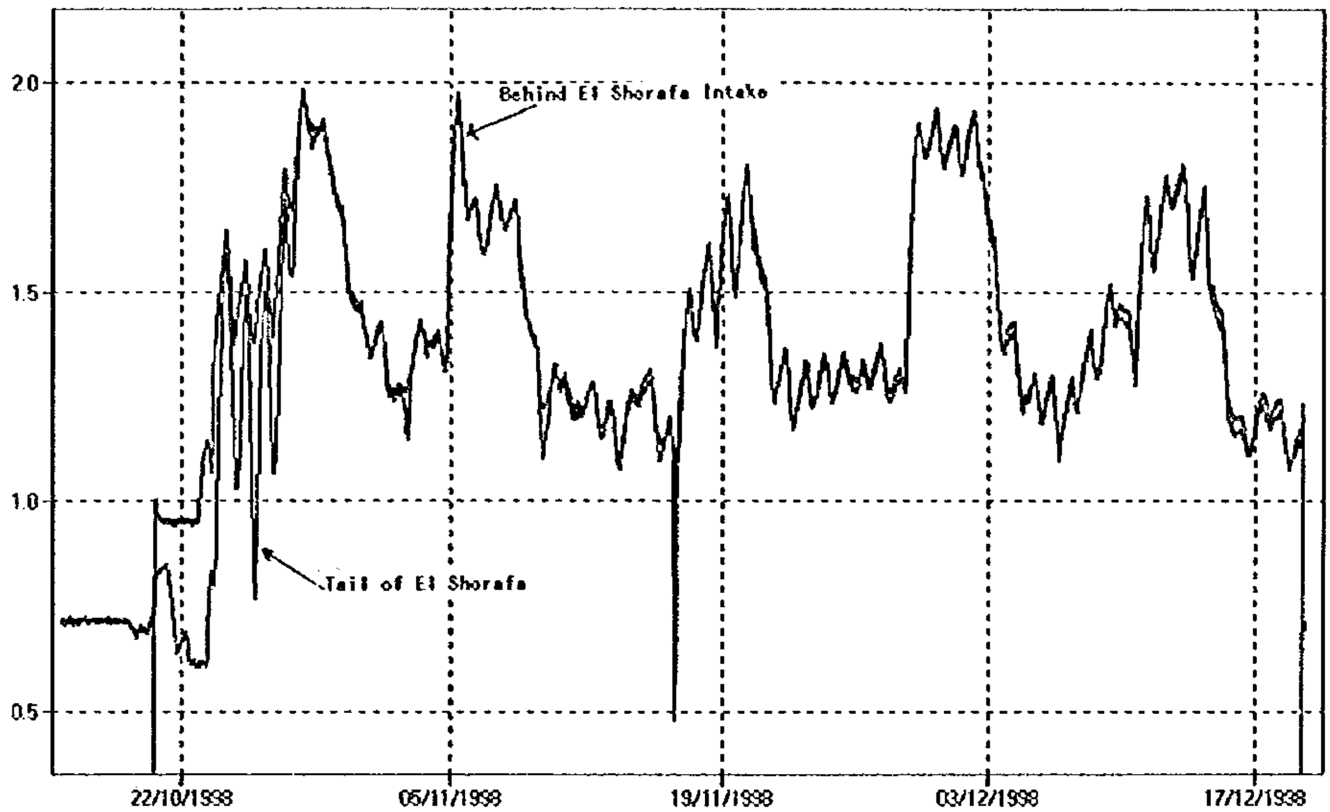


Figure F.19.17 Water Level Records for El Shorafa Canal

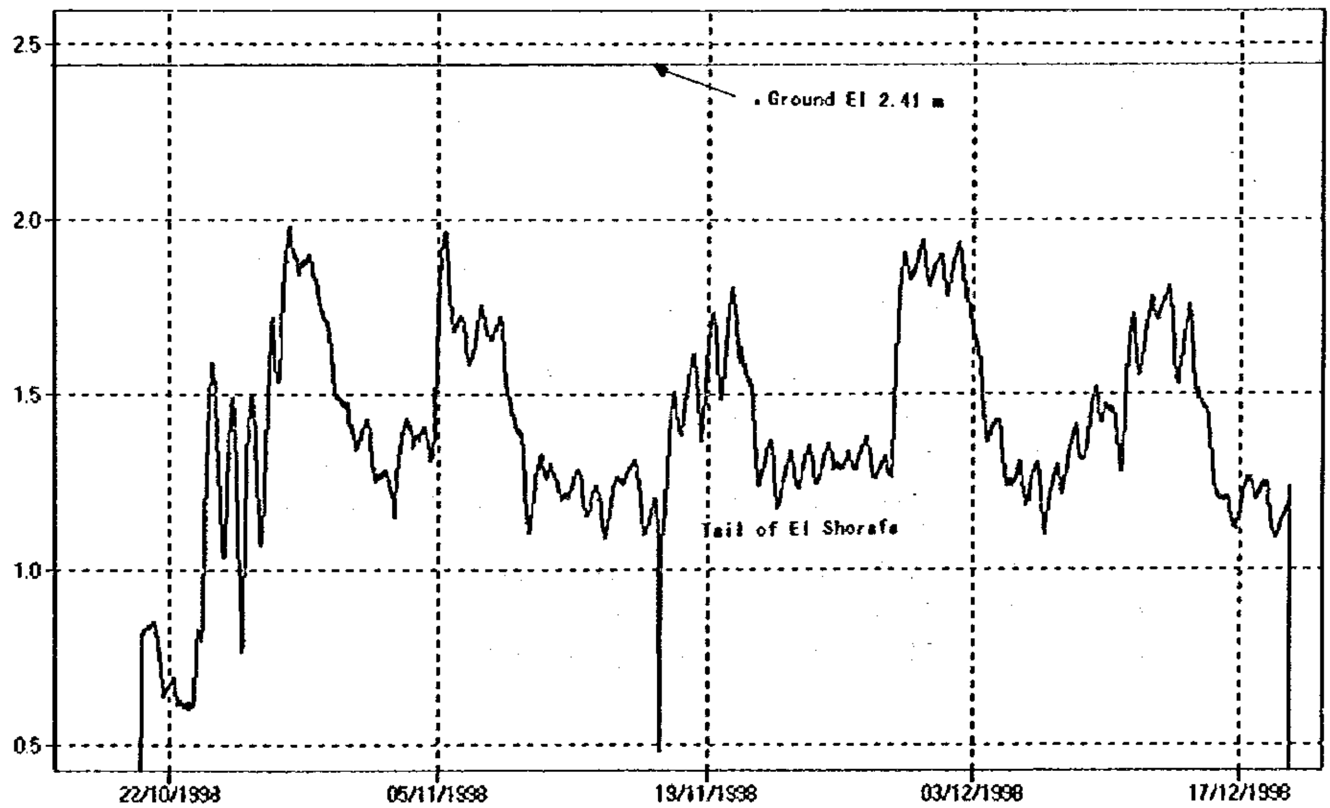


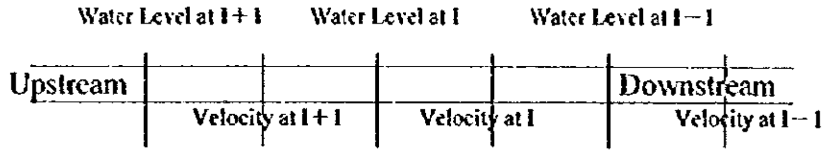
Figure F.19.18 Water Level Records at the Tail of El Shorafa

F.20 Unsteady Flow Simulation for Bahr Biyala Command Area

An unsteady flow simulation is carried out for Bahr Biyala command area. The objectives are; 1) to simulate the present conditions under rotational irrigation and to identify the problem incurred, and 2) to simulate the continuous flow to be introduced in future in line with one point lifting pump instead of current individual liftings and to verify the merit or otherwise identify the demerit accompanied if any.

F.20.1 Hydraulic Modeling of the Bahr Biyala Command Area

With reference to the topographic survey that had been carried out during Phase II survey, the Bahr Biyala command area is modeled. The model is composed of 327 meshes, including dummy nodes, each of which has both water level and velocity nodes as shown below;



There are 7 gates presently in the command area that had been undertaken in this simulation, and the dimensions are as below;

No.; From To	Name	Kind	Base El.m	Width	Number
38 → 90	El Agamy	Intake	1.035	2.0	1
37 → 65	Bahr El Nour	-do-	0.785	3.0	1
36 → 35	Bahr Biyala	-do-	1.100	2.0	2
28 → 187	Tahweelah B. Biyala	-do-	1.105	1.2	1
27 → 161	El Shorafa	-do-	-0.065	1.5	1
18 → 46	Hazek	-do-	-0.130	1.5	1
18 → 17	Biyala extension	Regulator	-0.135	1.5	1

With the introduction of the one-point lifting pump, the present Meskas will be buried (big ones will remain even in future), and the modeling is done by excluding the meshes that correspond to the Meskas. The modeling information is shown in the following tables and figures:

Figure F.20.1	Simulation Model for the Present Condition (Case 1)
Figure F.20.2	Simulation Model for the Plan (Meska Omitted) (Case 2)
Figure F.20.3	Simulation Model for the Plan with Automatic Gate (Case 2A)
Figure F.20.4	Simulation Model for the Plan with Automatic Gate (Case 2B4) Automatic gate location is different from case 2A.
Table F.20.1	Mesh Modeling Base Data (Present Condition) (7 sheets)
Table F.20.2	Meska Dimensions (2 sheets)
Table F.20.3	Mesh Modeling Base Data (the Plan) (3 sheets)

F.20.2 Simulation Case

Simulation study is carried out for the cases of; 1) present condition, 2) planned condition without automatic check gate (downstream water level constant gate), and 3) planned condition with the automatic check gate. The simulation period is to be 10 days in June that requires the maximum irrigation water. Also, minimum requirement is checked with the irrigation water of 1.02 cu.m/s at October. The water requirement and the case are as below;

Present; 8.69 cu.m/s (Max. only) (See Table F.18.3)
Planned; 6.16 cu.m/s (Max.)
1.02 cu.m/s (Min.) (See Table F.18.3)

Case	Irrigation	Meska	Check Gate	Q, cu.m/s	C'dition	Sim. Period
Case1	Rotation	As the present	No	8.69	present	10 days in July
Case2	Continuous	Abolished*	No	6.16	Planed	10 days in July
Case2'	Continuous	-do-	No	1.02	Planned	10 days in October
Case2A&2B	Continuous	-do-	Yes	6.16	planned	10 days in July

Note; * Large Meskas are to remain.

(1) Flow Input to the Model

There is a small mixing pumping station at the tail of Bahr Biyala. The pump lifts the drainage water from Drain No.4 into Bahr Biyala, and works 10 hours per day during peak period with a discharge of 1.0 cu.m/s (0.417cu.m/s per 24 hours). Therefore, in order to know the discharge from the intake of Bahr Biyala, this 1.0 cu.m/s (0.417 per day) discharge has to be subtracted from the discharges of 8.69 and 6.16 cu.m/s shown in above table;

Present (Case1);
from Bahr Biyala intake (8.69-0.417) x 2 = 16.546 cu.m/s (first 5 days only)
from Bahr Biyala tail 1.0 x 10/24 = 0.417 cu.m/s (converted into 24 operation for the simplification)

Plan(in July, Case2);
from Bahr Biyala intake 6.16 – 0.417 = 5.743 cu.m/s (continuous)
from Bahr Biyala tail 1.0 x 10/24 = 0.417 cu.m/s (converted into 24 operation for the simplification)

Plan(in October, Case2');
from Bahr Biyala intake 1.02 cu.m/s (continuous)
from Bahr Biyala tail 0.0 (no supply)

(2) Outflow from the Model

Outflow from the model is the pumping from Meskas and canals onto the fields by the farmers, and the pumping is modeled on basis of sine curve as shown below;

Present (Upstream, Case1);

First 5 days; $Q = (1.0 + SIN((T\text{-}6)\pi/12)) \times 1.7 \times 8.69 \times a / A$

Last 5 days; $Q = (1.0 + SIN((T\text{-}6)\pi/12)) \times 0.5 \times 8.69 \times a / A$

Present (Downstream, Case1);

First 5 days; $Q = (1.0 + SIN((T\text{-}10)\pi/12)) \times 1.7 \times 8.69 \times a / A$

Last 5 days; $Q = (1.0 + SIN((T\text{-}10)\pi/12)) \times 0.5 \times 8.69 \times a / A$

Where;

6 & 10;	4 (10-6) hours difference between up and downstream areas
1.7 / 0.5;	adjustment factor
8.69;	design outflow, cu.m/s
a;	command area by the node concerned, feddan
A;	total irrigation area of Bahr Biyala; 14,380 feddan

Whole command area for Bahr Biyala is divided into 2 areas as upstream ad downstream, and the peak of the pumping is assumed, with reference to the field condition, to have 4 hours difference between the upstream and downstream. Adjustment factors 1.7 and 0.5 were decided in such way of; 1) With the factor of 1.7, high water levels in the canals within Bahr Biyala are to be almost equal at the last day of the first 5 days, and 2) With the factor of 0.5, canals within Bahr Biyala are to have almost 0 storage.

Plan (Upstream & Downstream, Case2, 2', 2A&2B);

In July; $Q = (1.0 + \alpha \times SIN((T\text{-}6)\pi/12)) \times 6.16 \times a / A$

In Oct; $Q = (1.0 + \alpha \times SIN((T\text{-}6)\pi/12)) \times 1.02 \times a / A$

Where;

6;	the peak is to show up at noon with this 6
α ;	maximum sine factor, 0.5 applied
6.16;	design outflow in July, cu.m/s
1.02;	design outflow in October, cu.m/s
a;	command area by the node concerned, feddan
A;	total irrigation area of Bahr Biyala; 14,380 feddan

Pumping pattern is assumed to be same between upstream and downstream areas, therefore only one pumping pattern is employed over the Bahr Biyala command area. Factor α is to be 0.5 in this study, which means maximum pumping shown at noon is 150% of the average and minimum pumping is 50% of the average.

(3) Roughness Coefficient

Roughness coefficient is estimated by using current measurement results done on Bahr Tera. The coefficient on Bahr Tera ranges between 0.024 and 0.028 (refer to Table F.17.4). With reference to the value, this simulation undertakes 0.03 taking into consideration poor maintenance condition than that of Bahr Tera.

(4) Automatic Gate Modeling

An automatic gate, downstream water level constant type, is modeled as; 1) there is a buffer of 0.05 m each at upstream and downstream of the gate, 2) when the downstream water level at the gate goes down 0.05 m, the gate starts opening with a speed of 1 cm/min, and 3) when the downstream water level goes up 0.05 m, the gate starts closing with a speed of 1 cm/min.

F.20.3 Simulation Results

(1) Case1 (Present Condition)

- Under present condition (rotational irrigation), it takes about 6 hours that the water discharged fills canals at upstream area of Bahr Biyala, while takes 24 hours or more to have the canals at downstream area of Bahr Biyala filled (see Figure F.20.5).
- Under present condition, water levels at downstream of Bahr Biyala fluctuates widely since discharge coming from upstream area cannot keep pace with the pumping done by farmers due to the time lag to reach. The low water level shown at the downstream area of Bahr Biyala makes it difficult to supply water into Meskas and canals branching from Bahr Biyala (refer to Figure F.20.5).
- Under present condition, water levels at tails of representative canals and Meskas fluctuate more widely than those shown in Figure F.20.5. Meska Rab El Fashool (No. 137) often dries up since enough water cannot be delivered into the Meska because of the fluctuation in Bahr Biyala canal (see Figure F.20.6).
- Present condition's hydrograph reveals that the water in Bahr El Nour canal starts reverse-flowing after the discharge from Bahr Biyala intake stopped. This is because that the Nour's capacity is relatively large comparing to other canals, therefore the reserved volume is easily withdrawn by Bahr Biyala (refer to Figure F.20.7).
- Present condition's hydrographs reveal that the water at around tail of Meskas and canals is flowing very unstable running forward and backward. Water management under this situation is very difficult, and the farmers would face difficulty to lift enough and stable water from the Meska (refer to Figure F.20.8).
- Present condition's hydraulic profile along Bahr Biyala fluctuates widely, giving difficulty to water management and making difficult to supply enough water to Meska and canals downward. While, Bahr Nour's hydraulic profile does not fluctuate so much because of the large capacity of the canal. After the discharge is stopped, the water level in Bahr Nour goes down quickly, and this can be explained by backward flow from Bahr El Nour into Bahr Biyala (Figures F.20.9 & F.20.10).
- Reservation in canals are at maximum such as; 230,000 cu.m in Bahr Biyala, 130,000 cu.m in Bahr El Nour, 35,000 cu.m in El Agamy, 230,000 cu.m in Meskas and canals other than aforementioned at upstream of Bahr Biyala, 140,000 cu.m in Meskas and canals other than aforementioned at downstream of Bahr Biyala, and as much as 270,000 cu.m will be lost by

burying Meskas accompanied with one-point lifting pump (see Figure F.20.11)

(2) Case2 (Continuous flow of max. 6.16 cu.m/s, Existing gates fully opened, Meska abolished)

- With the continuous flow of maximum of 6.16 cu.m/s, the water level fluctuates with a range of 0.4 m only, and this does not seem to create any noticeable problem. However, when looking into the water level at the tail of Bahr Biyala (No.3), the water level is gradually raising up. This is because that some Meskas from Bahr Biyala cannot in-taken enough water, maybe because of the high bed level elevation, so that excess water goes to the downstream of Bahr Biyala (see Figures F.20.12, F.20.13, F.20.14, F.20.15).
- Though the hydrograpfs do not give any problem, the hydrograpf at the intake of Bahr Nour performs very uniquely, showing reverse sine curve to the others. This shows unstable flow at around the intake of Bahr El Nour, incurred by unevenness of the bed level there (Figure F.20.13).

(3) Case2' (Continuous flow of min. 1.02 cu.m/s, Existing gates fully opened & Operated, Meska abolished)

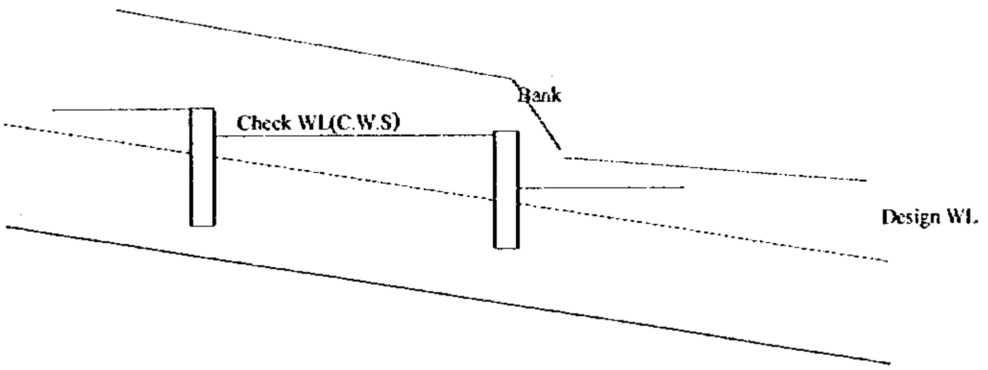
- First, a simulation was made with the continuous flow of 1.02 cu.m/s and existing gates fully opened. This case revealed that the water level at the downstream of Bahr Biyala were raising up as observed in Figure F.20.12 but very sharply. This was caused by the fact that Meskas and canals from Bahr Biyala could not take enough water since the water level in the Bahr Biyala remained low. This suggests that check gates be required.
- Secondary, with trial operations of the existing gates, several simulations were conducted. A simulation with the following gate operation revealed that the water level at the downstream of Bahr Biyala still did not stop raising up. This is because Meskas and canals from Bahr Biyala could not take enough water from Bahr Biyala because of the low water level in the Bahr Biyala. Also, since existing gate behaves as a gate keeping upstream water level constantly, the water level downstream of the gate often goes down quickly, making difficult that the farmers around take enough water (see Figures F.20.16, F.20.17, F.20.18, F.20.19).

No.: Fr → to	Name	Opening, m
38 → 90	El Agamy	0.100
37 → 65	Bahr El Nour	0.060
36 → 35	Bahr Biyal	0.150
28 → 129	Tahweelah Bahr Biyala	Full open
27 → 119	El Shorafa	Full open
18 → 46	Hazek	0.060
18 → 17	Extension of Bhar Biyala	0.060

- Above results suggests that a automatic gate be required in order to raise water level in the Bahr Biyala during low water period of winter, so that Meskas and canals branching from Bahr Biyala can easily take enough water, and also to give enough water to downstream. This can be done with an automatic downstream water level control gate like Avio-Avis Gate.

(4) Case2A&2B (Continuous flow of max. 6.16 cu.m/s, With automatic checkgates, Meska abolished)

- Location of check gate is decided in considering; 1) the canal bank elevation and the profile, 2) flow variation, 3) boundary of maintenance, and so on.



- Two check gates are planned on Bahr Biyala and the locations are to be in between; mesh No.17 & No.18 and mesh No.28 & No.29, check WLs of which are El. 1.5 m and El. 1.9 m respectively (See Figures F.20.20, F.20.21).
- Check gate on Bahr El Nour could be installed ether in between mesh No.55 and No.56 or the upstream of Bahr El Nour (in between mesh No.71 and No.56). The check WL is to be 2.0m. The former case is named Case2A and the latter Case2B (Figure F.20.22 and F.20.23).
- With the introduction of the gate keeping downstream water level constantly, the effect of pumping (outflow from the model) move to upstream area of the Bahr Biyala irrigation system. The water levels in the upstream of Bahr Biyala fluctuate within a rainge; 1.85 to 2.45 m at mesh No.29 to No.39, No.56 to No.65, and No.73 to No.78 for Case2A, and 1.85 to 2.60 m at mesh No.29 and No.39 for Case2B. The difference between the cases of Case 2A and 2B is not big with a mere 0.15 m only. Therefore, both cases are acceptable in terms of the simulation results but Case2A (check gate on Bahr El Nour is in the middle and not at the upstream) is preferred since the upstream is to have sluice gate (existing one) in order to measure the flow by using gate formula (see Figures F.20.24 to F.20.31).
- The hydrogaphs fluctuate periodically, and the flow at the intake of Bahr El Nour often goes backward. This would make difficult to measure the inflow volume into Bahr El Nour (Figure F.20.25 and F.20.29).
- The water level profile along Bahr Biyala does not give any problem, having enough water levels thanks to the downstream water level constant gate. The water level along Bahr El Nour does not give any problem either (see Figures F.20.26, F.20.27, F.20.30 and F.20.31).

Figure F.20.1 Simulation Model for Present Condition (Case 1)

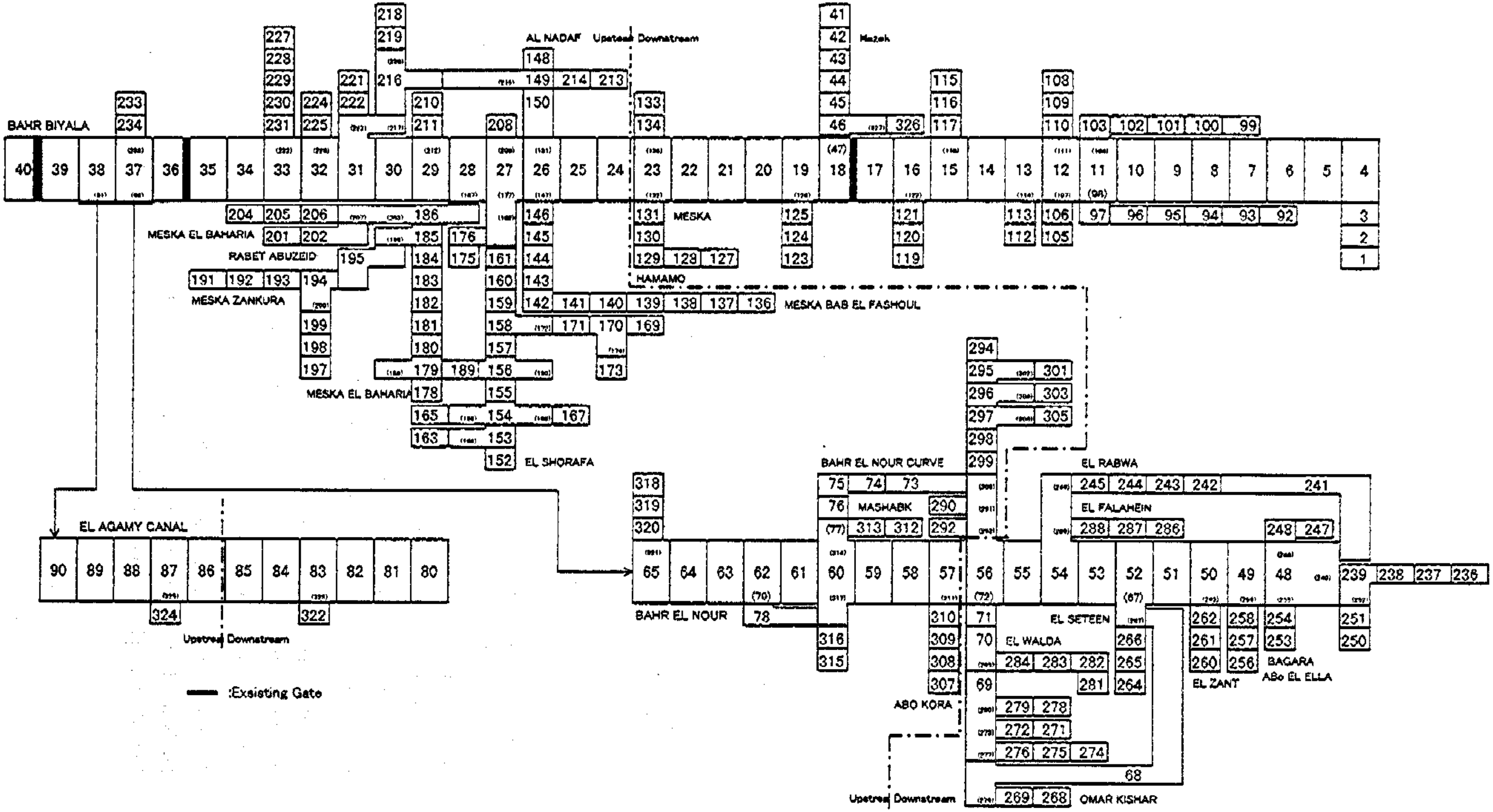


Figure F.20.2 Simulation Model for the Plan (Meskas Omitted) (Case 2)

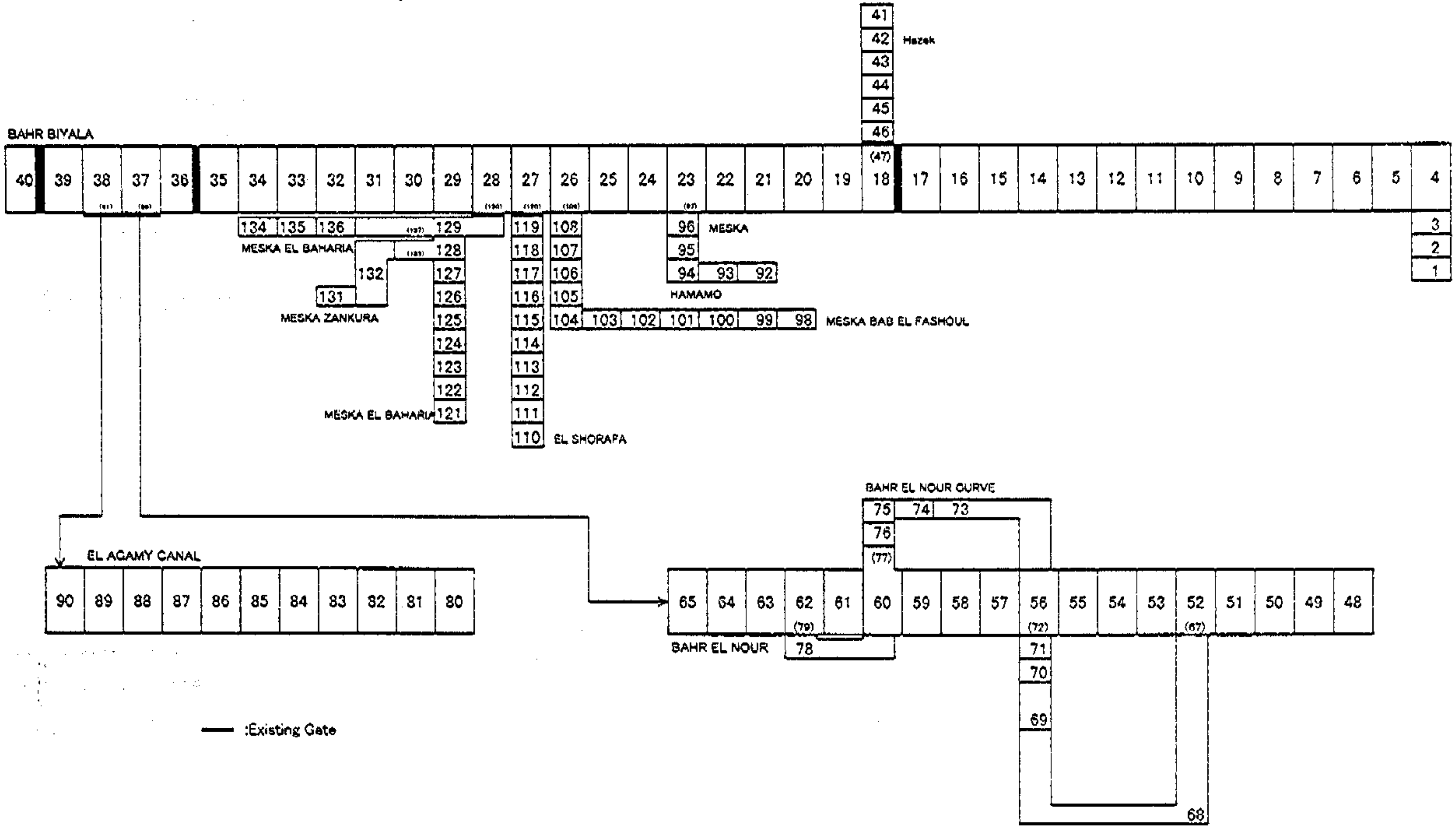


Figure F.20.3 Simulation Model for the Plan (Meskas Omitted) with Automatic Check Gate (Case 2A)

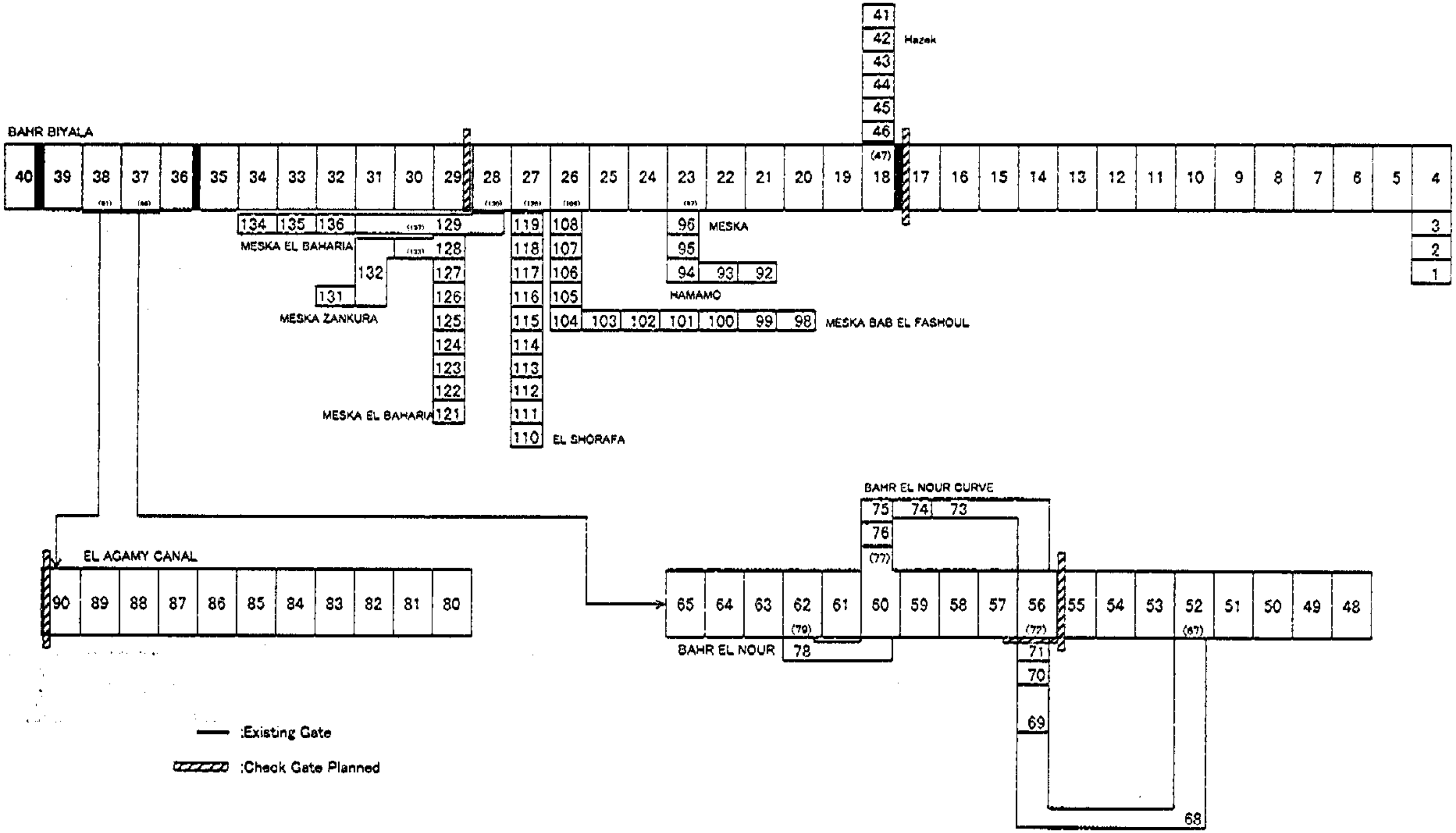


Figure F.20.4 Simulation Model for the Plan (Meskas Omitted) with Automatic Check Gate (Case 2B)

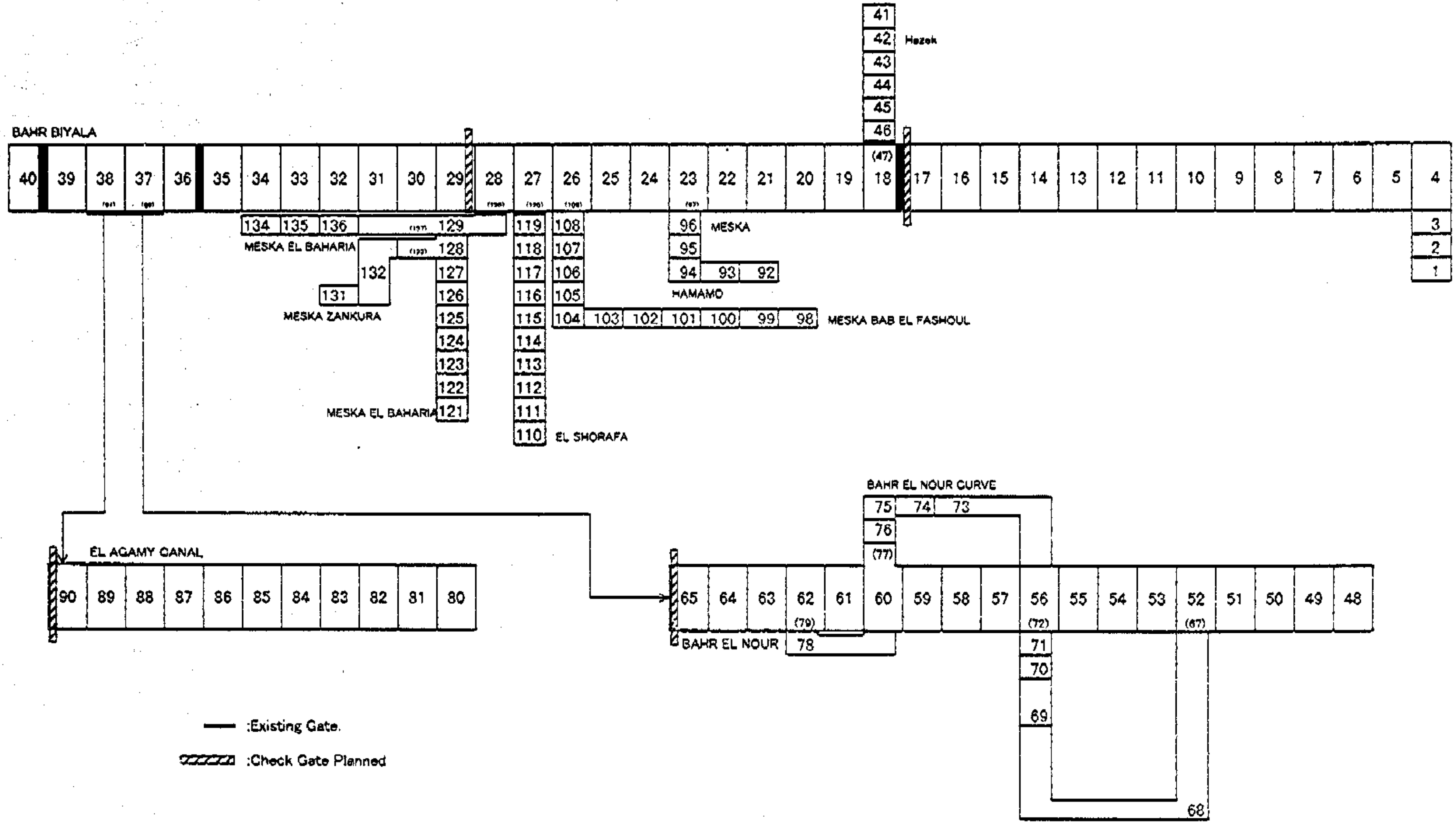


Table F.20.1 Mesh Modeling Base Data (Present Condition for Bahr Biyala)

No	Canal	Canal	Section	Topo Map		Remarks	Canal Section Distance					Elevation					Sec.	Z0	AR1	AR2	AR3	SH	AR4	AR5	RNS1	RNS2	SA
				Lng.	Sec.		X1	X2	X3	X4	X5	Y1	Y2	Y3	Y4	Y5	Type	EL. m	m	m	m	EL. m			0.03	0.03	ha
1						WL Boundary											II	0.00	999.00	999.00	0.10	0.00	999.00	999.00	0.03	0.03	
2	BAHR BIYALA	BAHR BIYALA	No. 297	21	140		-3.75	-1.41	0.00	1.41	3.75	1.67	0.11	-0.19	0.11	1.69	I	-0.19	0.00	0.00	0.30	1.67	4.70	1.49	0.03	0.03	61.53
3		BAHR BIYALA	No. 289	21	139		-4.65	-2.03	0.00	2.03	4.65	1.91	0.16	-0.59	0.11	1.74	I	-0.59	0.00	0.00	0.73	1.74	2.80	1.55	0.03	0.03	61.53
4		BAHR BIYALA	No. 281	20	139		-4.90	-1.24	0.00	1.24	4.90	2.19	0.17	0.03	0.11	1.87	I	0.03	0.00	0.00	0.11	1.87	12.18	1.95	0.03	0.03	61.53
5		BAHR BIYALA	No. 273	20	138		-4.90	-1.84	0.00	1.84	4.90	2.17	0.13	-0.12	0.13	2.18	I	-0.12	0.00	0.00	0.25	2.17	7.36	1.50	0.03	0.03	61.53
6		BAHR BIYALA	No. 265	20	137		-4.00	-1.15	0.00	1.15	4.00	2.03	0.13	0.07	0.13	2.15	I	0.07	0.00	0.00	0.06	2.03	19.17	1.46	0.03	0.03	0.00
7		BAHR BIYALA	No. 257	20	136		-4.05	-1.70	0.00	1.70	4.05	2.08	0.51	0.11	0.51	2.22	I	0.11	0.00	0.00	0.40	2.08	4.25	1.44	0.03	0.03	0.00
8		BAHR BIYALA	No. 249	20	135		-4.05	-2.13	0.00	2.13	4.05	2.13	0.51	0.26	0.41	2.18	I	0.26	0.00	0.00	0.20	2.13	11.36	1.13	0.03	0.03	0.00
9		BAHR BIYALA	No. 241	19	135		-4.00	-1.03	0.00	1.03	4.00	2.58	0.26	0.18	0.31	2.34	I	0.18	0.00	0.00	0.11	2.34	10.40	1.37	0.03	0.03	0.00
10		BAHR BIYALA	No. 233	19	134		-6.25	-3.45	0.00	3.45	6.25	2.17	0.30	0.40	0.45	2.08	II	0.38	6.90	0.00	0.00	2.08	0.00	1.61	0.03	0.03	0.00
11		BAHR BIYALA	No. 225	19	133		-4.65	-1.59	0.00	1.59	4.65	2.49	0.45	0.30	0.40	2.60	I	0.30	0.00	0.00	0.13	2.49	13.25	1.45	0.03	0.03	0.00
12		BAHR BIYALA	No. 217	19	132		-4.65	-1.62	0.00	1.62	4.65	2.52	0.50	0.20	0.35	2.26	I	0.20	0.00	0.00	0.23	2.26	8.10	1.54	0.03	0.03	33.96
13		BAHR BIYALA	No. 209	19	131		-4.65	-1.73	0.00	1.73	4.65	2.61	0.66	0.03	0.51	2.22	I	0.03	0.00	0.00	0.56	2.22	3.18	1.60	0.03	0.03	33.96
14		BAHR BIYALA	No. 201	18	131		-4.65	-2.03	0.00	2.03	4.65	2.41	0.66	0.36	0.46	2.33	I	0.36	0.00	0.00	0.20	2.33	13.53	1.45	0.03	0.03	33.96
15		BAHR BIYALA	No. 193	18	130		-5.75	-2.72	0.00	2.72	5.75	2.88	0.86	0.66	0.91	2.60	I	0.66	0.00	0.00	0.23	2.60	12.24	1.65	0.03	0.03	33.96
16		BAHR BIYALA	No. 185	18	129		-5.50	-2.37	0.00	2.37	5.50	3.00	0.91	0.66	0.86	3.12	I	0.66	0.00	0.00	0.23	3.00	10.67	1.44	0.03	0.03	33.96
17		BAHR BIYALA	No. 177	18	128		-5.65	-2.08	0.00	2.08	5.65	2.98	0.60	0.55	0.75	3.63	I	0.55	0.00	0.00	0.13	2.98	26.00	1.37	0.03	0.03	33.96
18		BAHR BIYALA	No. 169	18	127		-5.85	-1.95	0.00	1.95	5.85	3.00	0.40	-0.01	0.40	3.36	I	-0.01	0.00	0.00	0.41	3.00	4.76	1.41	0.03	0.03	50.95
19		BAHR BIYALA	No. 161	17	127		-6.00	-1.97	0.00	1.97	6.00	3.27	0.58	0.58	0.78	3.23	II	0.65	3.94	0.00	0.00	3.23	0.00	1.57	0.03	0.03	50.95
20		BAHR BIYALA	No. 153	17	126		-7.10	-2.05	0.00	2.05	7.10	3.44	0.58	0.53	0.93	3.67	I	0.53	0.00	0.00	0.23	3.44	23.06	1.80	0.03	0.03	50.95
21		BAHR BIYALA	No. 145	17	125		-5.75	-1.52	0.00	1.52	5.75	3.50	0.68	0.10	0.69	3.80	I	0.10	0.00	0.00	0.59	3.50	2.60	1.43	0.03	0.03	50.95
22		BAHR BIYALA	No. 137	17	124		-6.35	-3.14	0.00	3.14	6.35	2.93	0.79	0.47	0.72	3.59	I	0.47	0.00	0.00	0.29	2.93	11.19	1.31	0.03	0.03	50.95
23		BAHR BIYALA	No. 129	17	123		-6.25	-2.37	0.00	2.37	6.25	2.89	0.30	0.30	0.80	3.32	II	0.47	4.74	0.00	0.00	2.89	0.00	1.52	0.03	0.03	50.95
24		BAHR BIYALA	No. 121	16	123		-6.90	-3.83	0.00	3.83	6.90	2.75	0.70	0.55	0.65	3.61	I	0.55	0.00	0.00	0.13	2.75	31.92	1.27	0.03	0.03	30.66
25		BAHR BIYALA	No. 113	16	122		-7.00	-3.28	0.00	3.28	7.00	3.13	0.65	0.53	0.80	3.49	I	0.53	0.00	0.00	0.20	3.13	19.74	1.44	0.03	0.03	31.50
26		BAHR BIYALA	No. 105	16	121		-7.00	-3.10	0.00	3.10	7.00	3.20	0.60	0.41	0.56	3.29	I	0.41	0.00	0.00	0.17	3.20	18.49	1.46	0.03	0.03	5.16
27		BAHR BIYALA	No. 97	16	120		-7.50	-3.95	0.00	3.95	7.50	2.92	0.55	0.40	0.81	3.39	I	0.40	0.00	0.00	0.28	2.92	17.98	1.44	0.03	0.03	5.16
28		BAHR BIYALA	No. 89	16	119		-8.25	-4.85	0.00	4.85	8.25	2.68	0.41	0.51	0.46	3.11	II	0.46	9.70	0.00	0.00	2.68	0.00	1.39	0.03	0.03	5.16
29		BAHR BIYALA	No. 81	15	119		-8.65	-5.41	0.00	5.41	8.65	2.96	0.80	0.55	0.80	3.41	I	0.55	0.00	0.00	0.25	2.96	21.64	1.37	0.03	0.03	5.16
30		BAHR BIYALA	No. 73	15	118		-8.00	-4.73	0.00	4.73	8.00	3.10	0.80	0.85	0.67	3.95	II	0.77	9.46	0.00	0.00	3.10	0.00	1.21	0.03	0.03	5.16
31		BAHR BIYALA	No. 65	15	117		-5.65	-1.95	0.00	1.95	5.65	3.24	0.77	0.52	0.72	3.65	I	0.52	0.00	0.00	0.23	3.24	8.73	1.38	0.03	0.03	5.16
32		BAHR BIYALA	No. 57	15	116		-7.80	-4.58	0.00	4.58	7.80	3.34	1.19	1.03	1.59	4.23	I	1.03	0.00	0.00	0.36	3.34	18.40	1.36	0.03	0.03	5.16
33		BAHR BIYALA	No. 49	15	115		-7.80	-3.89	0.00	3.89	7.80	3.45	0.76	0.76	0.66	3.33	II	0.73	7.78	0.00	0.00	3.33	0.00	1.46	0.03	0.03	58.80
34		BAHR BIYALA	No. 41	14	115		-7.70	-3.46	0.00	3.46	7.70	3.69	0.86	0.81	0.96	3.69	I	0.81	0.00	0.00	0.10	3.69	46.13	1.53	0.03	0.03	50.40
35		BAHR BIYALA	No. 33	14	114		-7.25	-3.00	0.00	3.00	7.25	3.58	0.56	0.56	0.56	3.83	II	0.56	6.00	0.00	0.00	3.58	0.00	1.35	0.03	0.03	37.80
36		BAHR BIYALA	No. 25	14	113		-9.00	-5.48	0.00	5.48	9.00	3.60	1.25	1.03	1.15	3.92	I	1.03	0.00	0.00	0.17	3.60	35.29	1.38	0.03	0.03	36.12
37		BAHR BIYALA	No. 17	14	112		-9.50	-4.70	0.00	4.70	9.50	3.73	0.53	0.74	1.30	4.04	II	0.86	9.40	0.00	0.00	3.73	0.00	1.63	0.03	0.03	35.28
38		BAHR BIYALA	No. 9	14	111		-9.50	-5.89	0.00	5.89	9.50	3.32	0.91	0.65	0.61	3.84	II	0.72	11.78	0.00	0.00	3.32	0.00	1.31	0.03	0.03	51.24
39		BAHR BIYALA	No. 1	14	111		-8.68	-4.72	0.00	4.72	8.68	3.59	0.95	0.90	1.00	4.15	I	0.90	0.00	0.00	0.08	3.59	70.80	1.28	0.03	0.03	51.24
40		BAHR BIYALA				Q Boundary											II	0.00	999.00	999.00	0.10	0.00	999.00	999.00	0.03	0.03	0.00
41	HAZEK	HAZEK	No. 45	23	146		-5.00	-1.79	0.00	1.79	5.00	2.82	0.68	0.61	0.72	2.64	I	0.61	0.00	0.00	0.09	2.64	20.92	1.59	0.03	0.03	44.73
42		HAZEK	No. 37	22	145		-5.75	-2.60	0.00	2.60	5.75	2.84	0.74	0.58	0.74	2.85	I	0.58	0.00	0.00	0.16	2.84	16.25	1.50	0.03	0.03	44.73
43		HAZEK	No. 29	22	144		-5.50	-2.22	0.00	2.22	5.50	2.79	0.60	-0.02	0.60	2.77	I	-0.02	0.00	0.00	0.62	2.77	3.58	1.50	0.03	0.03	44.73
44		HAZEK	No. 21	22	144		-4.20	-0.92	0.00	0.92	4.20	2.85	0.66	0.36	0.71	2.34	I	0.36	0.00	0.00	0.33	2.34	2.85	1.75	0.03	0.03	54.67
45		HAZEK	No. 13	22	143		-4.20	-0.86	0.00	0.86	4.20	3.17	0.94	0.84	1.05	3.14	I	0.84	0.00	0.00	0.16	3.14	6.35	1.55	0.03	0.03	54.67
46		HAZEK	No. 5	22	142		-5.35	-2.29	0.00	2.29	5.35	2.95	0.91	0.83	1.04	3.14	I	0.83	0.00	0.00	0.15	2.95	19.76	1.48	0.03	0.03	54.67
47		HAZEK				18 Dummy											II	-0.01	0.00	0.00	0.41	3.00	4.76	1.41	0.03	0.03	0.00
48	BAHR EL NOUR	BAHR EL NOUR	No. 141	30	171		-5.90	-3.25	0.00	3.25	5.90	2.72	1.16	0.26	0.91	2.68	I	0.26	0.00	0.00	0.78	2.68	4.31	1.60	0.03	0.03	18.06
49		BAHR EL NOUR	No. 133	30	170		-3.05	-1.29	0.00	1.29	3.05	2.88	0.70	0.26	0.96	2.72	I	0.26	0.00	0.00	0.57	2.72	2.39	0.90	0.03	0.03	18.06
50		BAHR EL NOUR	No. 125	30	169		-5.60	-3.62	0.00	3.62	5.60	2.81	0.96	0.35	1.21	2.53	I	0.35	0.00	0.00	0.74	2.53	5.07	1.29	0.03	0.03	18.06

Table F.20.1 Mesh Modeling Base Data (Present Condition for Bahr Biyala)

No	Canal	Canal	Section	Topo Map Lng.	Topo Map Sec.	Remarks	Canal Section Distance X1	X2	X3	X4	X5	Elevation Y1	Y2	Y3	Y4	Y5	Sec. Type	Z0 EL.m	AR1 m	AR2 m	AR3 m	SH EL.m	AR4	AR5	RNS1 0.03	RNS2 0.03	SA ha
51		BAHR EL NOUR	No. 117	29	168		-5.00	-2.71	0.00	2.71	5.00	3.02	1.11	0.45	1.26	2.79	I	0.45	0.00	0.00	0.74	2.79	3.73	1.35	0.03	0.03	18.06
52		BAHR EL NOUR	No. 109	29	167		-6.80	-4.01	0.00	4.01	6.80	2.86	1.00	0.59	1.00	2.99	I	0.59	0.00	0.00	0.41	2.86	9.78	1.45	0.03	0.03	12.06
53		BAHR EL NOUR	No. 101	29	167		-7.20	-4.11	0.00	4.11	7.20	3.27	1.21	0.69	1.15	3.20	I	0.69	0.00	0.00	0.49	3.20	8.42	1.50	0.03	0.03	21.16
54		BAHR EL NOUR	No. 93	29	166		-7.20	-4.04	0.00	4.04	7.20	3.26	1.15	0.59	1.11	3.54	I	0.59	0.00	0.00	0.54	3.26	7.49	1.40	0.03	0.03	21.16
55		BAHR EL NOUR	No. 85	29	165		-5.65	-1.96	0.00	1.96	5.65	3.35	0.89	0.64	0.97	3.18	I	0.64	0.00	0.00	0.29	3.18	6.89	1.58	0.03	0.03	21.16
56		BAHR EL NOUR	No. 77	28	164		-8.40	-5.07	0.00	5.07	8.40	3.13	0.91	0.54	0.99	3.16	I	0.54	0.00	0.00	0.41	3.13	12.48	1.52	0.03	0.03	21.16
57		BAHR EL NOUR	No. 69	28	163		-7.30	-4.06	0.00	4.06	7.30	3.31	1.15	0.87	1.15	3.24	I	0.87	0.00	0.00	0.28	3.24	14.50	1.53	0.03	0.03	44.10
58		BAHR EL NOUR	No. 61	28	163		-7.90	-4.71	0.00	4.71	7.90	3.13	1.00	0.75	0.95	2.96	I	0.75	0.00	0.00	0.23	2.96	21.20	1.54	0.03	0.03	44.10
59		BAHR EL NOUR	No. 53	28	162		-7.65	-3.51	0.00	3.51	7.65	3.71	1.00	0.73	1.10	3.32	I	0.73	0.00	0.00	0.32	3.32	11.24	1.70	0.03	0.03	44.10
60		BAHR EL NOUR	No. 45	28	161		-6.55	-2.82	0.00	2.82	6.55	3.53	1.04	0.52	1.00	3.63	I	0.52	0.00	0.00	0.50	3.53	5.65	1.46	0.03	0.03	33.60
61		BAHR EL NOUR	No. 37	27	160		-7.50	-4.43	0.00	4.43	7.50	3.42	1.37	0.87	1.32	3.51	I	0.87	0.00	0.00	0.48	3.42	9.35	1.45	0.03	0.03	44.10
62		BAHR EL NOUR	No. 29	27	159		-7.50	-3.74	0.00	3.74	7.50	3.70	1.19	0.68	1.14	3.47	I	0.68	0.00	0.00	0.49	3.47	7.73	1.56	0.03	0.03	44.10
63		BAHR EL NOUR	No. 21	27	159		-6.65	-3.13	0.00	3.13	6.65	3.56	1.21	0.72	1.32	4.02	I	0.72	0.00	0.00	0.55	3.56	5.80	1.40	0.03	0.03	44.10
64		BAHR EL NOUR	No. 13	27	158		-8.50	-4.53	0.00	4.53	8.50	3.76	1.11	0.42	1.15	3.55	I	0.42	0.00	0.00	0.71	3.55	6.39	1.58	0.03	0.03	44.10
65		BAHR EL NOUR	No. 5	27	157		-8.10	-3.89	0.00	3.89	8.10	4.00	1.19	0.39	1.32	3.95	I	0.39	0.00	0.00	0.87	3.95	4.52	1.55	0.03	0.03	44.10
66		BAHR EL NOUR				37 Dummy											II	0.86	9.40	0.00	0.00	3.73	0.00	1.63	0.03	0.03	0.00
67	BAHR EL NOUR	BAHR EL NUR 3 CURVE				52 Dummy											II	0.59	0.00	0.00	0.41	2.86	9.78	1.45	0.03	0.03	0.00
68		BAHR EL NUR 3 CURVE	No. 31	26	156		-4.30	-1.11	0.00	1.11	4.30	3.09	0.96	0.76	1.06	2.90	I	0.76	0.00	0.00	0.25	2.90	4.63	1.62	0.03	0.03	21.16
69		BAHR EL NUR 3 CURVE	No. 23	26	155		-4.85	-1.69	0.00	1.69	4.85	3.10	0.99	0.71	0.91	2.79	I	0.71	0.00	0.00	0.24	2.79	7.24	1.59	0.03	0.03	21.16
70		BAHR EL NUR 3 CURVE	No. 15	26	154		-4.40	-1.70	0.00	1.70	4.40	2.96	1.16	0.86	1.21	3.09	I	0.86	0.00	0.00	0.33	2.96	5.26	1.47	0.03	0.03	21.16
71		BAHR EL NUR 3 CURVE	No. 7	26	153		-4.30	-0.97	0.00	0.97	4.30	3.33	1.11	0.76	1.06	3.03	I	0.76	0.00	0.00	0.33	3.03	3.00	1.60	0.03	0.03	21.16
72		BAHR EL NUR 2 CURVE				56 Dummy											II	0.54	0.00	0.00	0.41	3.13	12.48	1.52	0.03	0.03	0.00
73		BAHR EL NUR 2 CURVE	No. 27	25	152		-4.30	-1.17	0.00	1.17	4.30	3.26	1.17	0.92	1.02	3.31	I	0.92	0.00	0.00	0.18	3.26	8.19	1.43	0.03	0.03	21.74
74		BAHR EL NUR 2 CURVE	No. 19	25	151		-5.00	-1.57	0.00	1.57	5.00	3.41	1.12	0.97	1.22	3.19	I	0.97	0.00	0.00	0.20	3.19	8.37	1.62	0.03	0.03	21.74
75		BAHR EL NUR 2 CURVE	No. 11	25	151		-3.85	-0.52	0.00	0.52	3.85	3.49	1.27	1.12	1.27	3.42	I	1.12	0.00	0.00	0.15	3.42	3.47	1.52	0.03	0.03	21.74
76		BAHR EL NUR 2 CURVE	No. 3	25	150		-4.25	-0.86	0.00	0.86	4.25	3.58	1.32	0.98	1.12	3.42	I	0.98	0.00	0.00	0.24	3.42	4.34	1.49	0.03	0.03	21.74
77		BAHR EL NUR 2 CURVE				60 Dummy											II	0.52	0.00	0.00	0.50	3.53	5.65	1.46	0.03	0.03	0.00
78		BAHR EL NUR 1 CURVE	No. 11	24	148		-2.25	-0.98	0.00	0.98	2.25	3.54	1.42	1.37	1.42	3.53	I	1.37	0.00	0.00	0.05	3.53	19.60	0.60	0.03	0.03	33.60
79		BAHR EL NUR 1 CURVE				62 Dummy											II	0.68	0.00	0.00	0.49	3.47	7.73	1.56	0.03	0.03	0.00
80	EL ACAMY	GARD EL ACAMY	No. 85	13	109		-4.00	-3.03	0.00	3.03	4.00	2.51	1.86	1.49	1.84	2.89	I	1.49	0.00	0.00	0.36	2.51	8.42	1.21	0.03	0.03	27.87
81		GARD EL ACAMY	No. 77	12	108		-4.00	-2.23	0.00	2.23	4.00	2.89	1.71	1.34	1.76	3.09	I	1.34	0.00	0.00	0.40	2.89	5.67	1.42	0.03	0.03	27.87
82		GARD EL ACAMY	No. 69	12	107		-5.00	-2.24	0.00	2.24	5.00	3.37	1.53	1.24	1.56	3.19	I	1.24	0.00	0.00	0.31	3.19	7.36	1.60	0.03	0.03	27.87
83		GARD EL ACAMY	No. 61	12	107		-4.75	-2.94	0.00	2.94	4.75	2.77	1.56	1.16	1.51	2.79	I	1.16	0.00	0.00	0.38	2.77	7.88	1.45	0.03	0.03	27.87
84		GARD EL ACAMY	No. 53	12	106		-4.50	-2.03	0.00	2.03	4.50	3.18	1.53	0.99	1.56	2.96	I	0.99	0.00	0.00	0.56	2.96	3.66	1.63	0.03	0.03	27.87
85		GARD EL ACAMY	No. 45	12	105		-4.30	-1.99	0.00	1.99	4.30	3.01	1.47	1.06	1.46	2.95	I	1.06	0.00	0.00	0.41	2.95	4.91	1.53	0.03	0.03	27.87
86		GARD EL ACAMY	No. 37	11	104		-3.70	-0.78	0.00	0.78	3.70	3.32	1.37	0.92	1.37	3.26	I	0.92	0.00	0.00	0.45	3.26	1.73	1.52	0.03	0.03	27.87
87		GARD EL ACAMY	No. 29	11	103		-4.00	-1.69	0.00	1.69	4.00	3.01	1.47	0.97	1.47	3.19	I	0.97	0.00	0.00	0.50	3.01	3.38	1.42	0.03	0.03	27.87
88		GARD EL ACAMY	No. 21	11	103		-4.40	-1.70	0.00	1.70	4.40	3.22	1.42	0.97	1.39	3.29	I	0.97	0.00	0.00	0.44	3.22	3.91	1.46	0.03	0.03	27.87
89		GARD EL ACAMY	No. 13	11	102		-5.00	-2.29	0.00	2.29	5.00	3.31	1.50	1.20	1.48	3.36	I	1.20	0.00	0.00	0.29	3.31	7.91	1.47	0.03	0.03	27.87
90		GARD EL ACAMY	No. 5	11	101		-4.45	-1.56	0.00	1.56	4.45	3.66	1.73	1.38	1.73	3.71	I	1.38	0.00	0.00	0.35	3.66	4.46	1.48	0.03	0.03	27.87
91		GARD EL ACAMY				38 Dummy											II	0.72	11.78	0.00	0.00	3.32	0.00	1.31	0.03	0.03	0.00
92	BAHR BIYALA						-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	31.08
93							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	31.08
94							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	31.08
95							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	31.08
96							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	31.08
97							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	31.08
98						11 Dummy											II	0.30	0.00	0.00	0.13	2.49	13.25	1.45	0.03	0.03	0.00
99							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	31.08
100							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	31.08

Table F.20.1 Mesh Modeling Base Data (Present Condition for Bahr Biyala)

No	Canal	Canal	Section	Topo Map		Remarks	Canal Section Distance					Elevation					Sec.	Z0	AR1	AR2	AR3	SH	AR4	AR5	RNS1	RNS2	SA
				Lng.	Sec.		X1	X2	X3	X4	X5	Y1	Y2	Y3	Y4	Y5	Type	EL. m	m	m	m	EL. m			0.03	0.03	ha
101							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	31.08
102							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	31.08
103							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.51	6.37	0.88	0.03	0.03	31.08
104						11 Dummy											II	0.30	0.00	0.00	0.13	2.49	13.25	1.45	0.03	0.03	0.00
105							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	29.40
106							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	21.00
107						12 Dummy											II	0.20	0.00	0.00	0.23	2.26	8.10	1.54	0.03	0.03	0.00
108							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	33.60
109							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	42.00
110							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	50.40
111						12 Dummy											II	0.20	0.00	0.00	0.23	2.26	8.10	1.54	0.03	0.03	0.00
112							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	29.40
113							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	21.00
114						13 Dummy											II	0.03	0.00	0.00	0.56	2.22	3.18	1.60	0.03	0.03	0.00
115							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	50.40
116							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	33.60
117							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	21.00
118						15 Dummy											II	0.66	0.00	0.00	0.23	2.60	12.24	1.65	0.03	0.03	0.00
119							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	12.60
120							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.80
121							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	12.60
122						16 Dummy											II	0.66	0.00	0.00	0.23	3.00	10.67	1.44	0.03	0.03	0.00
123							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	23.10
124							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	18.90
125							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	15.54
126						19 Dummy											II	0.65	3.94	0.00	0.00	3.23	0.00	1.57	0.03	0.03	0.00
127		MESKA HAMAMO	No. 36	55	246		-0.75	-0.51	0.00	0.51	0.75	2.44	2.20	2.10	2.22	2.54	I	2.10	0.00	0.00	0.11	2.44	4.68	0.88	0.03	0.03	17.64
128		MESKA HAMAMO	No. 28	55	245		-2.00	-0.97	0.00	0.97	2.00	2.52	0.81	0.60	0.88	2.21	I	0.60	0.00	0.00	0.25	2.21	4.04	0.69	0.03	0.03	15.96
129		MESKA HAMAMO	No. 20	55	244		-1.75	-0.62	0.00	0.62	1.75	2.74	0.85	0.72	0.93	2.70	I	0.72	0.00	0.00	0.17	2.70	3.86	0.62	0.03	0.03	12.60
130		MESKA HAMAMO	No. 12	55	244		-2.50	-0.94	0.00	0.94	2.50	3.11	0.88	0.53	0.78	2.98	I	0.53	0.00	0.00	0.30	2.98	3.22	0.70	0.03	0.03	25.20
131		MESKA HAMAMO	No. 4	55	243		-2.00	-0.96	0.00	0.96	2.00	3.06	0.98	0.73	1.08	3.49	I	0.73	0.00	0.00	0.30	3.06	3.29	0.47	0.03	0.03	25.20
132		MESKA HAMAMO				23 Dummy											II	0.47	4.74	0.00	0.00	2.89	0.00	1.52	0.03	0.03	0.00
133							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	44.10
134							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	37.80
135						23 Dummy											II	0.47	4.74	0.00	0.00	2.89	0.00	1.52	0.03	0.03	0.00
136		BAB EL FASHOOL	No. 88	59	258		-2.90	-1.17	0.00	1.17	2.90	2.39	0.66	0.36	0.51	2.84	I	0.36	0.00	0.00	0.23	2.39	5.85	0.87	0.03	0.03	22.15
137		BAB EL FASHOOL	No. 80	58	257		-2.80	-1.09	0.00	1.09	2.80	2.46	0.75	0.45	0.90	2.45	I	0.45	0.00	0.00	0.38	2.45	3.03	1.05	0.03	0.03	22.15
138		BAB EL FASHOOL	No. 72	58	257		-2.50	-1.00	0.00	1.00	2.50	2.22	0.55	0.38	0.68	2.22	I	0.38	0.00	0.00	0.24	2.22	4.61	0.94	0.03	0.03	22.15
139		BAB EL FASHOOL	No. 64	58	256		-2.45	-1.07	0.00	1.07	2.45	2.33	0.60	0.40	0.55	2.32	I	0.40	0.00	0.00	0.18	2.32	6.24	0.79	0.03	0.03	22.15
140		BAB EL FASHOOL	No. 56	58	255		-1.25	-0.81	0.00	0.81	1.25	2.36	1.92	1.81	1.94	2.65	I	1.81	0.00	0.00	0.12	2.36	6.80	0.81	0.03	0.03	22.15
141		BAB EL FASHOOL	No. 48	58	254		-2.15	-0.89	0.00	0.89	2.15	2.52	0.84	0.72	0.85	2.77	I	0.72	0.00	0.00	0.13	2.52	7.13	0.70	0.03	0.03	22.15
142		BAB EL FASHOOL	No. 40	57	253		-2.00	-0.92	0.00	0.92	2.00	2.42	0.87	0.52	0.82	2.78	I	0.52	0.00	0.00	0.33	2.42	2.85	0.62	0.03	0.03	22.15
143		BAB EL FASHOOL	No. 32	57	253		-2.30	-0.95	0.00	0.95	2.30	2.73	0.66	0.37	0.87	3.04	I	0.37	0.00	0.00	0.40	2.73	2.59	0.64	0.03	0.03	22.15
144		BAB EL FASHOOL	No. 24	57	252		-3.10	-1.35	0.00	1.35	3.10	2.82	1.07	0.52	0.67	3.29	I	0.52	0.00	0.00	0.35	2.82	5.73	0.83	0.03	0.03	22.15
145		BAB EL FASHOOL	No. 16	57	251		-2.80	-1.15	0.00	1.15	2.80	2.68	1.03	0.78	0.88	3.09	I	0.78	0.00	0.00	0.18	2.68	8.05	0.87	0.03	0.03	22.15
146		BAB EL FASHOOL	No. 8	57	250		-2.75	-1.15	0.00	1.15	2.75	2.71	0.83	0.58	0.73	2.71	I	0.58	0.00	0.00	0.20	2.71	6.13	0.83	0.03	0.03	22.15
147		BAB EL FASHOOL				26 Dummy											II	0.41	0.00	0.00	0.17	3.20	18.49	1.46	0.03	0.03	0.00
148		EL NADAF	No. 24	48	225		-2.00	-0.94	0.00	0.94	2.00	2.71	1.39	1.22	1.39	2.82	I	1.22	0.00	0.00	0.17	2.71	5.53	0.77	0.03	0.03	8.40
149		EL NADAF	No. 16	48	224		-2.00	-1.09	0.00	1.09	2.00	2.59	1.45	1.37	1.57	2.88	I	1.37	0.00	0.00	0.14	2.59	9.54	0.75	0.03	0.03	21.00
150		EL NADAF	No. 8	48	223		-1.50	-0.76	0.00	0.76	1.50	2.78	0.92	0.72	0.87	2.81	I	0.72	0.00	0.00	0.18	2.78	4.43	0.39	0.03	0.03	23.10

Table F.20.1 Mesh Modeling Base Data (Present Condition for Bahr Biyala)

No	Canal	Canal	Section	Topo Map		Remarks	Canal Section Distance					Elevation					Sec.	Z0	AR1	AR2	AR3	SH	AR4	AR5	RNS1	RNS2	SA
				Lng.	Sec.		X1	X2	X3	X4	X5	Y1	Y2	Y3	Y4	Y5	Type	EL. m	m	m	m	EL. m			0.03	0.03	ha
151		EL NADAF				26 Dummy	0.00	0.00	0.00								II	0.41	0.00	0.00	0.17	2.20	18.49	1.46	0.03	0.03	0.00
152		EL SHRFA	No. 80	40	205		-3.50	-1.65	0.00	1.65	3.50	2.54	0.62	0.31	0.71	2.61	I	0.31	0.00	0.00	0.36	2.54	4.72	0.97	0.03	0.03	22.02
153		EL SHRFA	No. 72	40	205		-4.60	-2.35	0.00	2.35	4.60	3.01	0.56	0.31	0.64	2.81	I	0.31	0.00	0.00	0.29	2.81	8.26	0.98	0.03	0.03	22.02
154		EL SHRFA	No. 64	40	204		-3.50	-2.17	0.00	2.17	3.50	3.23	0.84	0.61	0.77	3.10	I	0.61	0.00	0.00	0.20	3.10	11.50	0.56	0.03	0.03	22.02
155		EL SHRFA	No. 56	40	203		-5.60	-1.94	0.00	1.94	5.60	3.03	0.40	-0.11	0.25	2.69	I	-0.11	0.00	0.00	0.44	2.69	4.60	1.45	0.03	0.03	22.02
156		EL SHRFA	No. 48	40	202		-4.90	-2.22	0.00	2.22	4.90	2.47	0.76	0.24	0.72	2.51	I	0.24	0.00	0.00	0.50	2.47	4.45	1.53	0.03	0.03	22.02
157		EL SHRFA	No. 40	39	201		-4.60	-1.84	0.00	1.84	4.60	2.86	0.76	0.37	0.73	2.57	I	0.37	0.00	0.00	0.38	2.57	4.91	1.41	0.03	0.03	22.02
158		EL SHRFA	No. 32	39	201		-4.75	-1.75	0.00	1.75	4.75	2.46	0.62	0.40	0.64	2.64	I	0.40	0.00	0.00	0.23	2.46	7.62	1.57	0.03	0.03	22.02
159		EL SHRFA	No. 24	39	200		-3.75	-1.46	0.00	1.46	3.75	3.29	0.68	0.48	0.70	2.89	I	0.48	0.00	0.00	0.21	2.89	6.97	0.96	0.03	0.03	30.38
160		EL SHRFA	No. 16	39	199		-4.65	-1.82	0.00	1.82	4.65	2.70	0.92	0.82	0.77	2.66	II	0.84	3.64	0.00	0.00	2.66	0.00	1.54	0.03	0.03	30.38
161		EL SHRFA	No. 8	39	198		-4.50	-2.22	0.00	2.22	4.50	2.81	0.70	0.69	0.81	3.00	I	0.69	0.00	0.00	0.07	2.81	120.25	1.06	0.03	0.03	30.38
162		EL SHRFA				27 Dummy	0.00	0.00	0.00								II	0.40	0.00	0.00	0.28	2.92	17.98	1.44	0.03	0.03	0.00
163		EL SHRFA					-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	12.60
164		EL SHRFA				153 Dummy	0.00	0.00	0.00								II	0.31	0.00	0.00	0.29	2.81	8.26	0.98	0.03	0.03	0.00
165		EL SHRFA					-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	12.60
166		EL SHRFA				154 Dummy	0.00	0.00	0.00								II	0.61	0.00	0.00	0.20	3.10	11.50	0.56	0.03	0.03	0.00
167		EL SHRFA					-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	12.60
168		EL SHRFA				154 Dummy	0.00	0.00	0.00								II	0.61	0.00	0.00	0.20	3.10	11.50	0.56	0.03	0.03	0.00
169		EL SHRFA					-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	17.64
170		ABOU ABD EL NABE	No. 16	49	227		-1.90	-0.70	0.00	0.70	1.90	2.79	1.08	0.90	0.97	2.45	I	0.90	0.00	0.00	0.13	2.45	6.94	0.76	0.03	0.03	17.64
171		ABOU ABD EL NABE	No. 8	49	226		-1.70	-0.77	0.00	0.77	1.70	2.60	1.27	0.77	0.89	2.41	I	0.77	0.00	0.00	0.31	2.41	3.98	0.66	0.03	0.03	17.64
172		ABOU ABD EL NABE				158 Dummy	0.00	0.00	0.00								II	0.40	0.00	0.00	0.23	2.46	7.62	1.57	0.03	0.03	0.00
173							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.80
174						170 Dummy											II	0.90	0.00	0.00	0.13	2.45	6.94	0.76	0.03	0.03	0.00
175							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.80
176							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.80
177						27 Dummy											II	0.40	0.00	0.00	0.28	2.92	17.98	1.44	0.03	0.03	0.00
178		MESKA EL BAHARIA (A)	No. 61	37	193		-2.15	-0.82	0.00	0.82	2.15	2.72	0.54	0.50	0.52	2.37	I	0.50	0.00	0.00	0.03	2.37	30.75	0.66	0.03	0.03	19.16
179		MESKA EL BAHARIA (A)	No. 53	37	192		-2.30	-1.04	0.00	1.04	2.30	2.04	0.59	0.54	0.62	2.33	I	0.54	0.00	0.00	0.06	2.04	16.90	0.80	0.03	0.03	19.16
180		MESKA EL BAHARIA (A)	No. 45	37	191		-3.00	-1.28	0.00	1.28	3.00	2.12	0.43	0.40	0.42	2.12	I	0.40	0.00	0.00	0.03	2.12	53.33	1.01	0.03	0.03	19.16
181		MESKA EL BAHARIA (A)	No. 37	36	190		-3.00	-1.08	0.00	1.08	3.00	2.27	0.35	0.35	0.35	1.92	II	0.35	2.16	0.00	0.00	1.92	0.00	1.11	0.03	0.03	19.16
182		MESKA EL BAHARIA (A)	No. 29	36	189		-2.00	-0.64	0.00	0.64	2.00	2.56	0.54	0.52	0.53	2.42	I	0.52	0.00	0.00	0.02	2.42	48.00	0.70	0.03	0.03	19.16
183		MESKA EL BAHARIA (A)	No. 21	36	189		-3.00	-0.66	0.00	0.66	3.00	2.85	0.53	0.51	0.52	2.54	I	0.51	0.00	0.00	0.02	2.54	49.50	1.08	0.03	0.03	19.16
184		MESKA EL BAHARIA (A)	No. 13	36	188		-2.45	-0.83	0.00	0.83	2.45	2.80	0.50	0.48	0.49	2.41	I	0.48	0.00	0.00	0.02	2.41	62.25	0.77	0.03	0.03	19.16
185		MESKA EL BAHARIA (A)	No. 5	36	187		-4.95	-1.80	0.00	1.80	4.95	3.04	0.96	0.94	0.95	2.55	I	0.94	0.00	0.00	0.02	2.55	135.00	1.74	0.03	0.03	31.74
186		MESKA EL BAHARIA (B)	No. 7	38	194		-3.80	-0.97	0.00	0.97	3.80	3.66	0.83	0.64	0.87	3.37	I	0.64	0.00	0.00	0.21	3.37	4.66	1.07	0.03	0.03	31.74
187		MESKA EL BAHARIA (A)				28 Dummy											II	0.46	9.70	0.00	0.00	2.68	0.00	1.39	0.03	0.03	0.00
188		UONES ABOU RAKHA				179 Dummy											II	0.54	0.00	0.00	0.06	2.04	16.90	0.80	0.03	0.03	0.00
189		UONES ABOU RAKHA	No. 8	50	229		-3.60	-2.04	0.00	2.04	3.60	2.63	1.07	0.51	0.84	2.73	I	0.51	0.00	0.00	0.45	2.63	4.91	0.91	0.03	0.03	19.16
190		UONES ABOU RAKHA				156 Dummy											II	0.24	0.00	0.00	0.50	2.47	4.45	1.53	0.03	0.03	0.00
191		MESKA ZANKURA	No. 47	34	182		-1.65	-0.68	0.00	0.68	1.65	2.20	0.58	0.30	0.58	2.23	I	0.30	0.00	0.00	0.28	2.20	2.43	0.59	0.03	0.03	22.37
192		MESKA ZANKURA	No. 39	34	181		-1.65	-0.62	0.00	0.62	1.65	2.07	0.48	0.43	0.53	2.20	I	0.43	0.00	0.00	0.08	2.07	9.30	0.63	0.03	0.03	22.37
193		MESKA ZANKURA	No. 31	33	181		-2.05	-0.79	0.00	0.79	2.05	2.31	0.63	0.33	0.63	2.28	I	0.33	0.00	0.00	0.30	2.28	2.63	0.76	0.03	0.03	22.37
194		MESKA ZANKURA	No. 23	33	180		-2.00	-0.93	0.00	0.93	2.00	2.11	0.68	0.43	0.73	2.38	I	0.43	0.00	0.00	0.28	2.11	3.41	0.70	0.03	0.03	22.37
195		MESKA ZANKURA	No. 15	33	179		-2.10	-0.98	0.00	0.98	2.10	2.47	0.98	0.53	0.88	2.67	I	0.53	0.00	0.00	0.40	2.47	2.49	0.69	0.03	0.03	24.47
196		MESKA ZANKURA	No. 7	33	178	185 Dummy	-2.15	-1.10	0.00	1.10	2.15	2.53	1.13	0.88	1.13	2.90	I	0.94	0.00	0.00	0.25	2.53	4.40	0.67	0.03	0.03	0.00
197		MESKA ZANKURA					-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	20.27
198		MESKA ZANKURA					-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	22.37
199		MESKA ZANKURA					-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	22.37
200		MESKA ZANKURA				194 Dummy											II	0.43	0.00	0.00	0.28	2.11	3.41	0.70	0.03	0.03	0.00

Table F.20.1 Mesh Modeling Base Data (Present Condition for Bahr Biyala)

No	Canal	Canal	Section	Topo Map		Remarks	Canal Section Distance					Elevation					Sec.	Z0	AR1	AR2	AR3	SH	AR4	AR5	RNS1	RNS2	SA
				Lng.	Sec.		X1	X2	X3	X4	X5	Y1	Y2	Y3	Y4	Y5	Type	EL. m	m	m	m	EL. m			0.03	0.03	ha
201		RABAA ABOU ZEID	No. 16	47	221		-2.35	-0.89	0.00	0.89	2.35	2.74	0.91	0.71	0.86	2.42	I	0.71	0.00	0.00	0.18	2.42	5.19	0.87	0.03	0.03	31.74
202		RABAA ABOU ZEID	No. 8	47	220		-2.25	-0.91	0.00	0.91	2.25	2.97	1.06	0.96	1.15	2.93	I	0.96	0.00	0.00	0.15	2.93	6.94	0.73	0.03	0.03	31.74
203		RABAA ABOU ZEID				186 Dummy											II	0.64	0.00	0.00	0.21	3.37	4.66	1.07	0.03	0.03	0.00
204		MESKA EL BAHARIA (B)	No. 31	38	197		-2.35	-0.73	0.00	0.73	2.35	2.90	1.55	1.48	1.60	2.90	I	1.48	0.00	0.00	0.10	2.90	8.26	1.22	0.03	0.03	31.74
205		MESKA EL BAHARIA (B)	No. 23	38	196		-3.60	-0.81	0.00	0.81	3.60	3.08	1.22	1.07	1.17	3.18	I	1.07	0.00	0.00	0.13	3.08	6.75	1.44	0.03	0.03	31.74
206		MESKA EL BAHARIA (B)	No. 15	38	195		-4.05	-1.20	0.00	1.20	4.05	2.87	0.97	0.72	0.97	3.26	I	0.72	0.00	0.00	0.25	2.87	4.80	1.37	0.03	0.03	31.74
207		MESKA EL BAHARIA (B)				186 Dummy											II	0.64	0.00	0.00	0.21	3.37	4.66	1.07	0.03	0.03	0.00
208							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	8.40
209						27 Dummy											II	0.40	0.00	0.00	0.28	2.92	17.98	1.44	0.03	0.03	0.00
210							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	4.20
211							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	10.50
212						29 Dummy											II	0.55	0.00	0.00	0.25	2.96	21.64	1.27	0.03	0.03	0.00
213							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	18.90
214							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	27.30
215						149 Dummy											II	1.37	0.00	0.00	0.14	2.59	9.54	0.75	0.03	0.03	0.00
216							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	37.80
217						31 Dummy											II	0.52	0.00	0.00	0.23	3.24	8.78	1.38	0.03	0.03	0.00
218							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	8.40
219							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	14.28
220						216 Dummy											II	0.94	0.00	0.00	0.25	2.53	4.40	0.67	0.03	0.03	0.00
221							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	18.06
222							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	15.96
223						31 Dummy											II	0.52	0.00	0.00	0.23	3.24	8.78	1.38	0.03	0.03	0.00
224							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	19.74
225							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	15.96
226						32 Dummy											II	1.03	0.00	0.00	0.36	3.34	18.40	1.36	0.03	0.03	0.00
227							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	25.20
228							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	23.52
229							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	19.32
230							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.80
231							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	12.60
232						33 Dummy											II	0.73	7.78	0.00	0.00	3.33	0.00	1.46	0.03	0.03	0.00
233							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.80
234							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	10.50
235						37 Dummy											II	0.86	9.40	0.00	0.00	3.73	0.00	1.63	0.03	0.03	0.00
236	BAHR EL NOUR	HOAD 25	No. 28	56	249		-2.50	-0.92	0.00	0.92	2.50	2.52	0.70	0.58	0.70	2.79	I	0.58	0.00	0.00	0.12	2.52	7.67	0.81	0.03	0.03	16.31
237		HOAD 25	No. 20	56	248		-2.85	-1.30	0.00	1.30	2.85	2.04	0.49	0.37	0.50	2.24	I	0.37	0.00	0.00	0.13	2.04	10.42	0.95	0.03	0.03	16.31
238		HOAD 25	No. 12	56	248		-3.00	-1.37	0.00	1.37	3.00	2.47	0.84	0.73	0.81	2.60	I	0.73	0.00	0.00	0.10	2.47	14.79	0.96	0.03	0.03	16.31
239		HOAD 25	No. 4	56	247		-2.70	-1.00	0.00	1.00	2.70	2.45	0.75	0.58	0.71	2.90	I	0.58	0.00	0.00	0.15	2.45	6.79	0.89	0.03	0.03	16.31
240		HOAD 25				48 Dummy											II	0.26	0.00	0.00	0.78	2.68	4.31	1.60	0.03	0.03	0.00
241		EL FALAHEIN	No. 36	54	242		-2.70	-1.25	0.00	1.25	2.70	2.31	0.86	0.75	0.80	2.13	I	0.75	0.00	0.00	0.08	2.13	18.18	1.05	0.03	0.03	8.40
242		EL FALAHEIN	No. 28	54	241		-2.25	-0.94	0.00	0.94	2.25	2.21	0.90	0.80	0.95	2.23	I	0.80	0.00	0.00	0.13	2.21	7.83	1.01	0.03	0.03	8.40
243		EL FALAHEIN	No. 20	54	240		-1.75	-0.85	0.00	0.85	1.75	2.27	0.88	0.68	0.73	2.43	I	0.68	0.00	0.00	0.13	2.27	10.63	0.59	0.03	0.03	8.40
244		EL FALAHEIN	No. 12	54	240		-2.25	-0.98	0.00	0.98	2.25	2.63	0.81	0.61	0.71	2.54	I	0.61	0.00	0.00	0.15	2.54	7.35	0.70	0.03	0.03	8.40
245		EL FALAHEIN	No. 4	54	239		-2.00	-0.92	0.00	0.92	2.00	2.74	1.19	1.15	1.20	2.82	I	1.15	0.00	0.00	0.04	2.74	20.70	0.68	0.03	0.03	8.40
246		EL FALAHEIN				54 Dummy											II	0.59	0.00	0.00	0.54	3.26	7.49	1.40	0.03	0.03	0.00
247							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	15.96
248							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	15.96
249						48 Dummy											II	0.26	0.00	0.00	0.78	2.68	4.31	1.60	0.03	0.03	0.00
250							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.31

Table F.20.1 Mesh Modeling Base Data (Present Condition for Bahr Biyala)

No	Canal	Canal	Section	Topo Map Lng.	Topo Map Sec.	Remarks	Canal Section Distance X1	X2	X3	X4	X5	Elevation Y1	Y2	Y3	Y4	Y5	Sec. Type	Z0 EL. m	AR1 m	AR2 m	AR3 m	SH EL. m	AR4	AR5	RNS1 0.03	RNS2 0.03	SA ha
251							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.31
252						239 Dummy											II	0.58	0.00	0.00	0.15	2.45	6.79	0.89	0.03	0.03	0.00
253		BACARA	No. 17	35	185		-2.85	-1.02	0.00	1.02	2.85	2.75	0.38	0.08	0.37	2.67	I	0.08	0.00	0.00	0.30	2.67	3.46	0.78	0.03	0.03	19.53
254		BACARA	No. 9	35	184		-3.50	-1.01	0.00	1.01	3.50	2.68	0.79	0.11	0.77	2.43	I	0.11	0.00	0.00	0.67	2.43	1.51	1.41	0.03	0.03	19.53
255		BACARA				48 Dummy											II	0.26	0.00	0.00	0.78	2.68	4.31	1.60	0.03	0.03	0.00
256		ABOU EL ELLA	No. 20	51	232		-2.65	-1.03	0.00	1.03	2.65	2.72	0.40	0.25	0.60	2.28	I	0.25	0.00	0.00	0.25	2.28	4.90	0.83	0.03	0.03	22.82
257		ABOU EL ELLA	No. 12	51	232		-2.60	-1.13	0.00	1.13	2.60	2.39	0.55	0.25	0.60	2.55	I	0.25	0.00	0.00	0.33	2.39	3.50	0.78	0.03	0.03	22.82
258		ABOU EL ELLA	No. 4	51	231		-2.50	-1.03	0.00	1.03	2.50	2.56	0.60	0.45	0.75	2.35	I	0.45	0.00	0.00	0.23	2.35	5.15	0.83	0.03	0.03	22.82
259		ABOU EL ELLA				49 Dummy											II	0.26	0.00	0.00	0.57	2.72	2.39	0.90	0.03	0.03	0.00
260		EL ZANT	No. 21	52	236		-1.40	-0.70	0.00	0.70	1.40	2.21	0.80	0.75	0.80	2.13	I	0.75	0.00	0.00	0.05	2.13	14.00	0.51	0.03	0.03	21.00
261		EL ZANT	No. 13	52	235		-1.50	-0.59	0.00	0.59	1.50	2.29	0.78	0.75	0.76	2.06	I	0.75	0.00	0.00	0.02	2.06	39.33	0.65	0.03	0.03	21.00
262		EL ZANT	No. 5	52	234		-1.50	-0.72	0.00	0.72	1.50	2.63	1.07	1.05	1.08	2.15	I	1.05	0.00	0.00	0.03	2.15	30.00	0.61	0.03	0.03	21.00
263		EL ZANT				50 Dummy											II	0.35	0.00	0.00	0.74	2.53	5.07	1.29	0.03	0.03	0.00
264		EL SETEEN	No. 24	45	218		-0.50	-0.22	0.00	0.22	0.50	2.23	1.84	1.83	1.85	2.43	I	1.83	0.00	0.00	0.02	2.23	16.50	0.60	0.03	0.03	14.00
265		EL SETEEN	No. 16	45	217		-2.25	-0.82	0.00	0.82	2.25	2.27	0.84	0.74	0.94	2.22	I	0.74	0.00	0.00	0.15	2.22	6.15	1.06	0.03	0.03	14.00
266		EL SETEEN	No. 8	45	216		-4.00	-1.50	0.00	1.50	4.00	2.56	0.89	0.74	0.89	3.83	I	0.74	0.00	0.00	0.15	2.56	10.00	1.17	0.03	0.03	14.00
267		EL SETEEN				52 Dummy											II	0.59	0.00	0.00	0.41	2.86	9.78	1.45	0.03	0.03	0.00
268		EL HAGAR (KISHAR)	No. 16	43	211		-2.90	-1.30	0.00	1.30	2.90	2.63	1.03	1.01	1.02	2.44	I	1.01	0.00	0.00	0.01	2.44	97.50	1.06	0.03	0.03	21.00
269		EL HAGAR (KISHAR)	No. 8	43	210		-2.25	-0.80	0.00	0.80	2.25	2.50	1.05	1.03	1.07	2.54	I	1.03	0.00	0.00	0.03	2.50	30.00	0.99	0.03	0.03	21.00
270		EL HAGAR (KISHAR)				68 Dummy	0.00	0.00	0.00								II	0.76	0.00	0.00	0.25	2.90	4.63	1.62	0.03	0.03	0.00
271							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	7.35
272							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	7.35
273						69 Dummy											II	0.71	0.00	0.00	0.24	2.79	7.24	1.59	0.03	0.03	0.00
274							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	11.20
275							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	11.20
276							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	11.20
277						69 Dummy											II	0.71	0.00	0.00	0.24	2.79	7.24	1.59	0.03	0.03	0.00
278							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	8.40
279							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	8.40
280						69 Dummy											II	0.71	0.00	0.00	0.24	2.79	7.24	1.59	0.03	0.03	0.00
281		EL WALDA	No. 27	42	209		-2.75	-1.07	0.00	1.07	2.75	2.33	0.25	0.21	0.22	2.53	I	0.21	0.00	0.00	0.03	2.33	66.88	0.77	0.03	0.03	13.65
282		EL WARDA	No. 19	42	208		-2.00	-0.56	0.00	0.56	2.00	2.47	0.54	0.51	0.52	1.95	I	0.51	0.00	0.00	0.02	1.95	37.33	0.88	0.03	0.03	13.65
283		EL WARDA	No. 11	42	208		-1.75	-0.64	0.00	0.64	1.75	2.67	0.59	0.56	0.58	2.63	I	0.56	0.00	0.00	0.02	2.63	26.67	0.54	0.03	0.03	13.65
284		EL WARDA	No. 3	42	207		-2.00	-0.80	0.00	0.80	2.00	2.81	1.01	0.81	1.01	2.40	I	0.81	0.00	0.00	0.20	2.40	4.00	0.76	0.03	0.03	13.65
285		EL WARDA				70 Dummy											II	0.86	0.00	0.00	0.33	2.96	5.26	1.47	0.03	0.03	0.00
286		EL RABWA	No. 19	53	238		-1.65	-0.66	0.00	0.66	1.65	2.75	1.03	0.95	1.03	2.53	I	0.95	0.00	0.00	0.08	2.53	8.25	0.62	0.03	0.03	12.38
287		EL RABWA	No. 16	53	238		-1.80	-0.78	0.00	0.78	1.80	2.56	1.28	1.20	1.30	2.57	I	1.20	0.00	0.00	0.09	2.56	8.77	0.80	0.03	0.03	12.88
288		EL RABWA	No. 8	53	237		-2.30	-0.99	0.00	0.99	2.30	2.60	1.29	1.18	1.26	3.03	I	1.18	0.00	0.00	0.10	2.60	10.69	0.87	0.03	0.03	12.88
289		EL RABWA				54 Dummy											II	0.59	0.00	0.00	0.54	3.26	7.49	1.40	0.03	0.03	0.00
290		AL MASHABK	No. 6	32			-2.00	-0.93	0.00	0.93	2.00	3.06	1.28	1.09	1.19	2.92	I	1.09	0.00	0.00	0.15	2.92	7.10	0.61	0.03	0.03	33.60
291		AL MASHABK				56 Dummy											II	0.54	0.00	0.00	0.41	3.13	12.48	1.52	0.03	0.03	0.00
292							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.80
293						56 Dummy											II	0.54	0.00	0.00	0.41	3.13	12.48	1.52	0.03	0.03	0.00
294							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.33
295							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.33
296							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.33
297							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.33
298							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.33
299							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.33
300						56 Dummy											II	0.54	0.00	0.00	0.41	3.13	12.48	1.52	0.03	0.03	0.00

Table F.20.1 Mesh Modeling Base Data (Present Condition for Bahr Biyala)

No	Canal	Canal	Section	Topo Map		Remarks	Canal Section Distance					Elevation					Sec.	Z0	AR1	AR2	AR3	SH	AR4	AR5	RNS1	RNS2	SA
				Lng.	Sec.		X1	X2	X3	X4	X5	Y1	Y2	Y3	Y4	Y5	Type	EL.m	m	m	m	EL.m			0.03	0.03	ha
301							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.33
302						295 Dummy											II	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	0.00
303							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.33
304						296 Dummy											II	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	0.00
305							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.33
306						297 Dummy											II	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	0.00
307		ABO KORA	No. 31	31	175		-3.00	-1.28	0.00	1.28	3.00	2.44	0.73	0.73	0.73	2.19	II	0.73	2.56	0.00	0.00	2.19	0.00	1.09	0.03	0.03	15.75
308		ABO KORA	No. 23	31	174		-3.00	-0.91	0.00	0.91	3.00	2.68	0.60	0.60	0.60	2.53	II	0.60	1.82	0.00	0.00	2.53	0.00	1.04	0.03	0.03	15.75
309		ABO KORA	No. 15	31	173		-2.90	-0.91	0.00	0.91	2.90	2.68	0.70	0.70	0.70	2.86	II	0.70	1.82	0.00	0.00	2.68	0.00	0.96	0.03	0.03	15.75
310		ABO KORA	No. 7	31	172		-2.40	-0.55	0.00	0.55	2.40	3.09	1.20	1.20	1.20	2.79	II	1.20	1.10	0.00	0.00	2.79	0.00	1.07	0.03	0.03	15.75
311		ABO KORA				57 Dummy											II	0.87	0.00	0.00	0.28	3.24	14.50	1.53	0.03	0.03	0.00
312							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	2.73
313							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	2.73
314						60 Dummy											II	0.52	0.00	0.00	0.50	3.53	5.65	1.46	0.03	0.03	0.00
315							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	21.00
316							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	21.00
317						60 Dummy											II	0.52	0.00	0.00	0.50	3.53	5.65	1.46	0.03	0.03	0.00
318							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	7.00
319							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.51	6.37	0.88	0.03	0.03	7.00
320							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	7.00
321						65 Dummy											II	0.39	0.00	0.00	0.87	3.95	4.52	1.55	0.03	0.03	0.00
322							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	8.40
323						83 Dummy											II	1.16	0.00	0.00	0.38	2.77	7.88	1.45	0.03	0.03	0.00
324							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	42.00
325						87 Dummy											II	0.97	0.00	0.00	0.50	3.01	3.38	1.42	0.03	0.03	0.00
326							-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61	I	0.69	0.00	0.00	0.17	2.61	6.37	0.88	0.03	0.03	16.80
327						46 Dummy											II	0.83	0.00	0.00	0.15	2.95	19.76	1.48	0.03	0.03	0.00

TOTAL AREA 6039.65 ha

Table F. 20. 2 Meska Dimensions

No.	Sec.	Topo. No. Lng.	Sec	Section Distance X1	X2	X3	X4	X5	Elevation Y1	Y2	Y3	Y4	Y5
127	No. 36	55	246	-0.75	-0.51	0.00	0.51	0.75	2.44	2.20	2.10	2.22	2.54
128	No. 28	55	245	-2.00	-0.97	0.00	0.97	2.00	2.52	0.81	0.60	0.88	2.21
129	No. 20	55	244	-1.75	-0.62	0.00	0.62	1.75	2.74	0.85	0.72	0.93	2.70
130	No. 12	55	244	-2.50	-0.94	0.00	0.94	2.50	3.11	0.88	0.53	0.78	2.98
131	No. 4	55	243	-2.00	-0.96	0.00	0.96	2.00	3.06	0.98	0.73	1.08	3.49
136	No. 88	59	258	-2.90	-1.17	0.00	1.17	2.90	2.39	0.66	0.36	0.51	2.84
137	No. 80	58	257	-2.80	-1.09	0.00	1.09	2.80	2.46	0.75	0.45	0.90	2.45
138	No. 72	58	257	-2.50	-1.00	0.00	1.00	2.50	2.22	0.55	0.38	0.68	2.22
139	No. 64	58	256	-2.45	-1.07	0.00	1.07	2.45	2.33	0.60	0.40	0.55	2.32
140	No. 56	58	255	-1.25	-0.81	0.00	0.81	1.25	2.36	1.92	1.81	1.94	2.65
141	No. 48	58	254	-2.15	-0.89	0.00	0.89	2.15	2.52	0.84	0.72	0.85	2.77
142	No. 40	57	253	-2.00	-0.92	0.00	0.92	2.00	2.42	0.87	0.52	0.82	2.78
143	No. 32	57	253	-2.30	-0.95	0.00	0.95	2.30	2.73	0.66	0.37	0.87	3.04
144	No. 24	57	252	-3.10	-1.35	0.00	1.35	3.10	2.82	1.07	0.52	0.67	3.29
145	No. 16	57	251	-2.80	-1.15	0.00	1.15	2.80	2.68	1.03	0.78	0.88	3.09
146	No. 8	57	250	-2.75	-1.15	0.00	1.15	2.75	2.71	0.83	0.58	0.73	2.71
148	No. 24	48	225	-2.00	-0.94	0.00	0.94	2.00	2.71	1.39	1.22	1.39	2.82
149	No. 16	48	224	-2.00	-1.09	0.00	1.09	2.00	2.59	1.45	1.37	1.57	2.88
150	No. 8	48	223	-1.50	-0.76	0.00	0.76	1.50	2.78	0.92	0.72	0.87	2.81
152	No. 80	40	205	-3.50	-1.65	0.00	1.65	3.50	2.54	0.62	0.31	0.71	2.61
153	No. 72	40	205	-4.60	-2.35	0.00	2.35	4.60	3.01	0.56	0.31	0.64	2.81
154	No. 64	40	204	-3.50	-2.17	0.00	2.17	3.50	3.23	0.84	0.61	0.77	3.10
155	No. 56	40	203	-5.60	-1.94	0.00	1.94	5.60	3.03	0.40	-0.11	0.25	2.69
156	No. 48	40	202	-4.90	-2.22	0.00	2.22	4.90	2.47	0.76	0.24	0.72	2.51
157	No. 40	39	201	-4.60	-1.84	0.00	1.84	4.60	2.86	0.76	0.37	0.73	2.57
158	No. 32	39	201	-4.75	-1.75	0.00	1.75	4.75	2.46	0.62	0.40	0.64	2.64
159	No. 24	39	200	-3.75	-1.46	0.00	1.46	3.75	3.29	0.68	0.48	0.70	2.89
160	No. 16	39	199	-4.65	-1.82	0.00	1.82	4.65	2.70	0.92	0.82	0.77	2.66
161	No. 8	39	198	-4.50	-2.22	0.00	2.22	4.50	2.81	0.70	0.69	0.81	3.00
170	No. 16	49	227	-1.90	-0.70	0.00	0.70	1.90	2.79	1.08	0.90	0.97	2.45
171	No. 8	49	226	-1.70	-0.77	0.00	0.77	1.70	2.60	1.27	0.77	0.89	2.41
178	No. 61	37	193	-2.15	-0.82	0.00	0.82	2.15	2.72	0.54	0.50	0.52	2.37
179	No. 53	37	192	-2.30	-1.04	0.00	1.04	2.30	2.04	0.59	0.54	0.62	2.33
180	No. 45	37	191	-3.00	-1.28	0.00	1.28	3.00	2.12	0.43	0.40	0.42	2.12
181	No. 37	36	190	-3.00	-1.08	0.00	1.08	3.00	2.27	0.35	0.35	0.35	1.92
182	No. 29	36	189	-2.00	-0.64	0.00	0.64	2.00	2.56	0.54	0.52	0.53	2.42
183	No. 21	36	189	-3.00	-0.66	0.00	0.66	3.00	2.85	0.53	0.51	0.52	2.54
184	No. 13	36	188	-2.45	-0.83	0.00	0.83	2.45	2.80	0.50	0.48	0.49	2.41
185	No. 5	36	187	-2.80	-0.70	0.00	0.70	2.80	3.04	0.96	0.94	0.95	2.55
186	No. 7	38	194	-3.80	-0.97	0.00	0.97	3.80	3.66	0.83	0.64	0.87	3.37
189	No. 8	50	229	-3.60	-2.04	0.00	2.04	3.60	2.63	1.07	0.51	0.84	2.73
191	No. 47	34	182	-1.65	-0.68	0.00	0.68	1.65	2.20	0.58	0.30	0.58	2.23
192	No. 39	34	181	-1.65	-0.62	0.00	0.62	1.65	2.07	0.48	0.43	0.53	2.20
193	No. 31	33	181	-2.05	-0.79	0.00	0.79	2.05	2.31	0.63	0.33	0.63	2.28
194	No. 23	33	180	-2.00	-0.93	0.00	0.93	2.00	2.11	0.68	0.43	0.73	2.38
195	No. 15	33	179	-2.10	-0.98	0.00	0.98	2.10	2.47	0.98	0.53	0.88	2.67
196	No. 7	33	178	-2.15	-1.10	0.00	1.10	2.15	2.53	1.13	0.88	1.13	2.90
201	No. 16	47	221	-2.35	-0.89	0.00	0.89	2.35	2.74	0.91	0.71	0.86	2.42
202	No. 8	47	220	-2.25	-0.91	0.00	0.91	2.25	2.97	1.06	0.96	1.15	2.93
204	No. 31	38	197	-2.35	-0.73	0.00	0.73	2.35	2.90	1.55	1.48	1.60	2.90
205	No. 23	38	196	-3.60	-0.81	0.00	0.81	3.60	3.08	1.22	1.07	1.17	3.18
206	No. 15	38	195	-4.05	-1.20	0.00	1.20	4.05	2.87	0.97	0.72	0.97	3.26
236	No. 28	56	249	-2.50	-0.92	0.00	0.92	2.50	2.52	0.70	0.58	0.70	2.79
237	No. 20	56	248	-2.85	-1.30	0.00	1.30	2.85	2.04	0.49	0.37	0.50	2.24
238	No. 12	56	248	-3.00	-1.37	0.00	1.37	3.00	2.47	0.84	0.73	0.81	2.60
239	No. 4	56	247	-2.70	-1.00	0.00	1.00	2.70	2.45	0.75	0.58	0.71	2.90

Table F. 20. 2 Meska Dimensions

No.	Sec.	Topo. No.		Section Distance					Elevation				
		Lng.	Sec	X1	X2	X3	X4	X5	Y1	Y2	Y3	Y4	Y5
241	No. 36	54	242	-2.70	-1.25	0.00	1.25	2.70	2.31	0.86	0.75	0.80	2.13
242	No. 28	54	241	-2.25	-0.94	0.00	0.94	2.25	2.21	0.90	0.80	0.95	2.23
243	No. 20	54	240	-1.75	-0.85	0.00	0.85	1.75	2.27	0.88	0.68	0.73	2.43
244	No. 12	54	240	-2.25	-0.98	0.00	0.98	2.25	2.63	0.81	0.61	0.71	2.54
245	No. 4	54	239	-2.00	-0.92	0.00	0.92	2.00	2.74	1.19	1.15	1.20	2.82
253	No. 17	35	185	-2.85	-1.02	0.00	1.02	2.85	2.75	0.38	0.08	0.37	2.67
254	No. 9	35	184	-3.50	-1.01	0.00	1.01	3.50	2.68	0.79	0.11	0.77	2.43
256	No. 20	51	232	-2.65	-1.03	0.00	1.03	2.65	2.72	0.40	0.25	0.60	2.28
257	No. 12	51	232	-2.60	-1.13	0.00	1.13	2.60	2.39	0.55	0.25	0.60	2.55
258	No. 4	51	231	-2.50	-1.03	0.00	1.03	2.50	2.56	0.60	0.45	0.75	2.35
260	No. 21	52	236	-1.40	-0.70	0.00	0.70	1.40	2.21	0.80	0.75	0.80	2.13
261	No. 13	52	235	-1.50	-0.59	0.00	0.59	1.50	2.29	0.78	0.75	0.76	2.06
262	No. 5	52	234	-1.50	-0.72	0.00	0.72	1.50	2.63	1.07	1.05	1.08	2.15
264	No. 24	45	218	-0.50	-0.22	0.00	0.22	0.50	2.23	1.84	1.83	1.85	2.43
265	No. 16	45	217	-2.25	-0.82	0.00	0.82	2.25	2.27	0.84	0.74	0.94	2.22
266	No. 8	45	216	-4.00	-1.50	0.00	1.50	4.00	2.56	0.89	0.74	0.89	3.83
268	No. 16	43	211	-2.90	-1.30	0.00	1.30	2.90	2.63	1.03	1.01	1.02	2.44
269	No. 8	43	210	-2.25	-0.80	0.00	0.80	2.25	2.50	1.05	1.03	1.07	2.54
281	No. 27	42	209	-2.75	-1.07	0.00	1.07	2.75	2.33	0.25	0.21	0.22	2.53
282	No. 19	42	208	-2.00	-0.56	0.00	0.56	2.00	2.47	0.54	0.51	0.52	1.95
283	No. 11	42	208	-1.75	-0.64	0.00	0.64	1.75	2.67	0.59	0.56	0.58	2.63
284	No. 3	42	207	-2.00	-0.80	0.00	0.80	2.00	2.81	1.01	0.81	1.01	2.40
286	No. 19	53	238	-1.65	-0.66	0.00	0.66	1.65	2.75	1.03	0.95	1.03	2.53
287	No. 16	53	238	-1.80	-0.78	0.00	0.78	1.80	2.56	1.28	1.20	1.30	2.57
288	No. 8	53	237	-2.30	-0.99	0.00	0.99	2.30	2.60	1.29	1.18	1.26	3.03
290	No. 6	32		-2.00	-0.93	0.00	0.93	2.00	3.06	1.28	1.09	1.19	2.92
307	No. 31	31	175	-3.00	-1.28	0.00	1.28	3.00	2.44	0.73	0.73	0.73	2.19
308	No. 23	31	174	-3.00	-0.91	0.00	0.91	3.00	2.68	0.60	0.60	0.60	2.53
309	No. 15	31	173	-2.90	-0.91	0.00	0.91	2.90	2.68	0.70	0.70	0.70	2.86
310	No. 7	31	172	-2.40	-0.55	0.00	0.55	2.40	3.09	1.20	1.20	1.20	2.79
Ave				-2.60	-1.05	0.00	1.05	2.60	2.61	0.86	0.69	0.85	2.61