

Appendix 13-4 Capital Dredging Volume along Beheiry/Nobaria Canal

Capital dredging of for inland waterway improvement (Component A-1) in the scheme of master plan is roughly estimated based on cross sectional profiles obtained at 1 km interval along Beheiry/Nobaria canal by the Study Team. The likely volume of capital dredging for a case of navigable waterway having 2 m water depth and 35 m width to allow permissible draft of 1.6 m at minimum water level is estimated 355 thousands m³ as presented herein below.

Table A13.4.1 Capital Dredging Volume along Beheiry/Nobaria Canal

Sector	Section No	Area (m ²)	Length (m)	Volume (m ³)	Sector	Section No	Area (m ²)	Length (m)	Volume (m ³)	
Sector 1	1-41	0	-	0	Sector 6	179	10.349	-	-	
Sector 2	42-80	0	-	0		180	13.801	1000	12,075	
Sector 3	81-108	0	-	0		181	29.083	1000	21,442	
Sector 4	109					182	2.172	1000	15,628	
						183	1.175	1000	1,674	
	136	0	-	0		184	4.946	1000	3,061	
	137	9.325	1000	4,663		185	0.831	1000	2,889	
	138	1.244	1000	5,285		186	2.319	1000	1,575	
	V4			9,947		187	6.397	1000	4,358	
Sector 5	139	0.546	-	-		188	7.918	1000	7,158	
	140	15.898	1000	8,222		189	6.068	1000	6,993	
	141	10.854	1000	13,376		190	4.044	1000	5,056	
	142	0.273	1000	5,564		191	-	-	-	
	143	3.224	1000	1,749		192	0	2000	4,044	
	144	1.267	1000	2,246		193	0	1000	0	
	145	3.018	1000	2,143		194	1.278	1000	639	
	146	11.91	1000	7,464		195	-	-	-	
	147	1.942	1000	6,926		196	0	2000	1,278	
	148	0.593	1000	1,268		197	3.332	1000	1,666	
	149	5.171	1000	2,882		198	0.709	1000	2,021	
	150	2.592	1000	3,882	199	2.786	1000	1,748		
	151	2.942	1000	2,767	200	0	1000	1,393		
	152	7.412	1000	5,177	V6			94,695		
	153	1.367	1000	4,390						
	154	8.105	1000	4,736						
	155	5.682	1000	6,894						
	156	2.788	1000	4,235						
157	0.43	1000	1,609							
158	1.427	1000	929							
									Total	355,410

159	0.629	1000	1,028
160	2.89	1000	1,760
161	4.344	1000	3,617
162	2.548	1000	3,446
163	12.771	1000	7,660
164	3.41	1000	8,091
165	6.881	1000	5,146
166	5.265	1000	6,073
167	4.552	1000	4,909
168	8.694	1000	6,623
169	5.774	1000	7,234
170	9.867	1000	7,821
171	4.964	1000	7,416
172	13.143	1000	9,054
173	14.173	1000	13,658
174	13.085	1000	13,629
175	11.233	1000	12,159
176	14.216	1000	12,725
177	14.311	1000	14,264
178	21.7	1000	18,006
V5			250,768

Remarks:

(1) Beheiry Canal : Section 1-80 km

Sector 1: Sections 1-41 (km)

Sector 2: Sections 42 -80 (km)

(2) Nobaria Canal : Section 81-200 km

Sector 3: Sections 81- 108 (km)

Sector 4: Sections 109 -138 (km)

Sector 5: Sections 139- 178 (km)

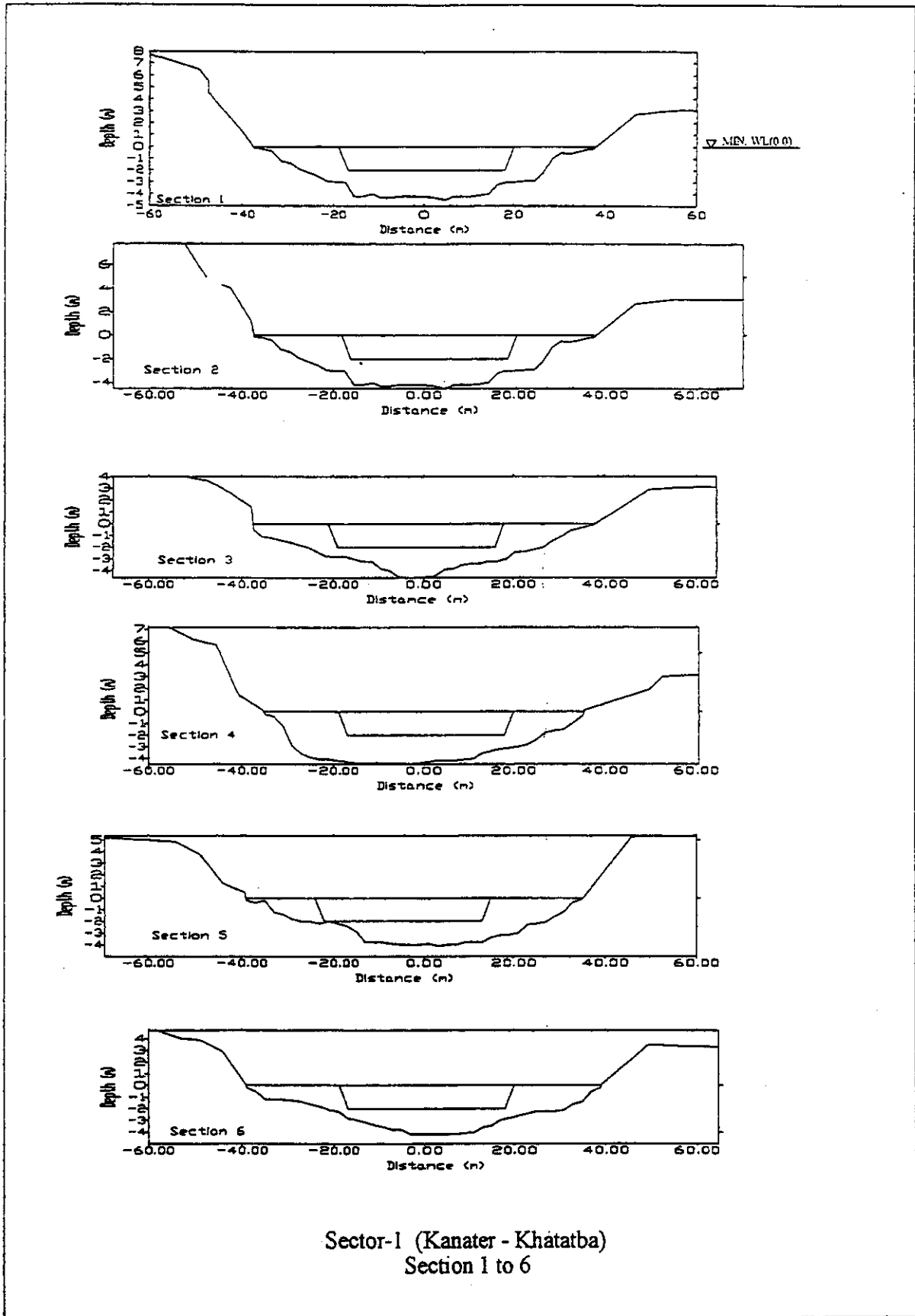
Sector 6: Sections 179 -200 (km)

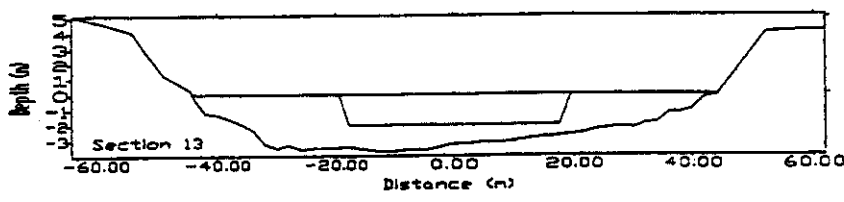
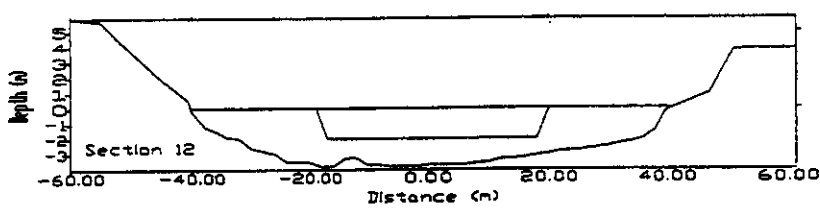
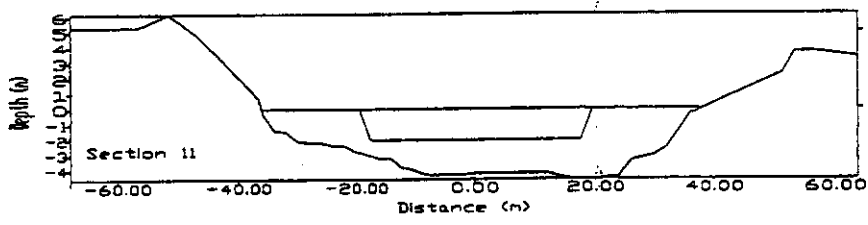
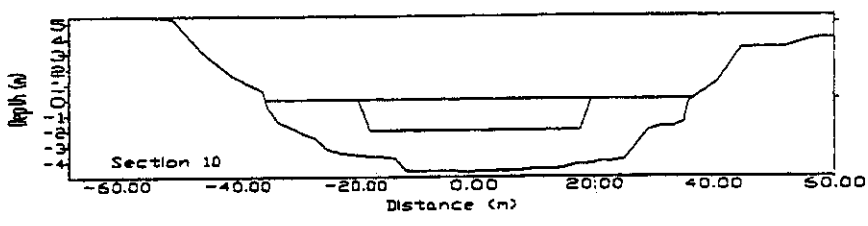
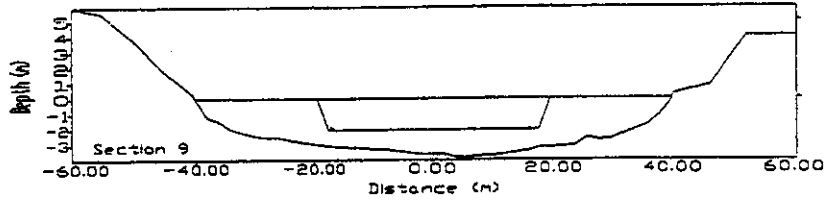
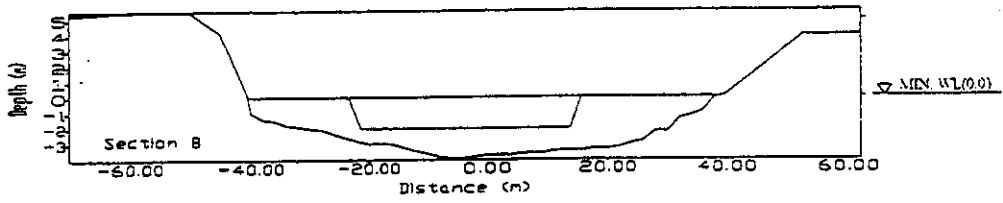
(3) Requirements for Navigable Waterway

Width of Fairway =35 m

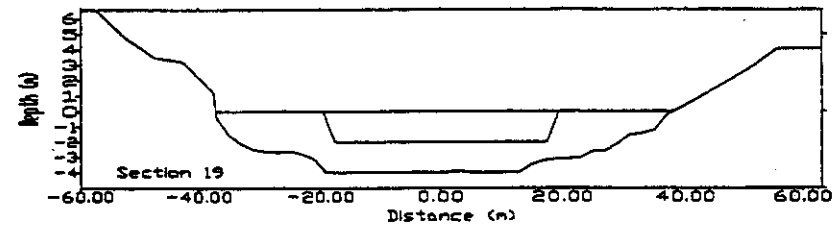
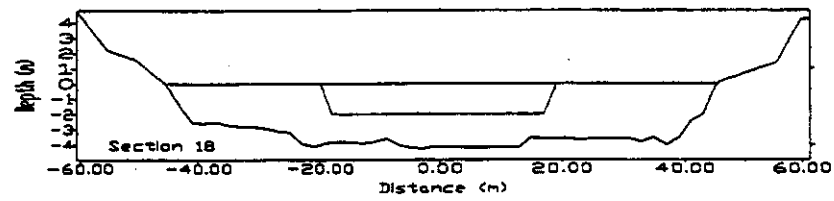
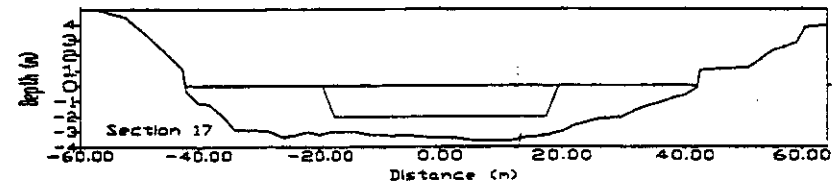
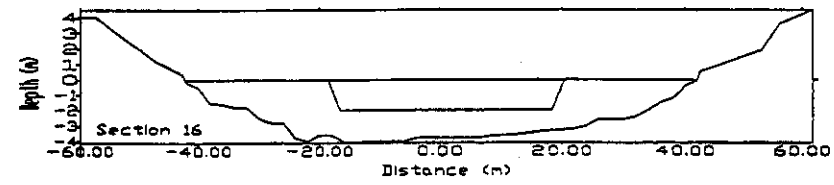
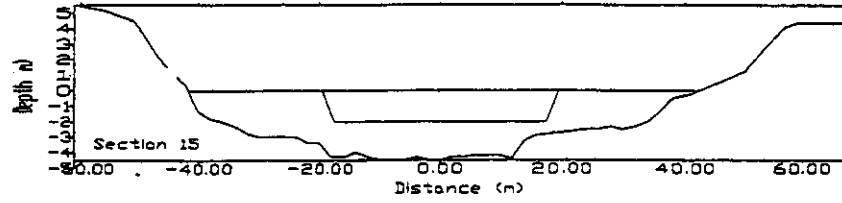
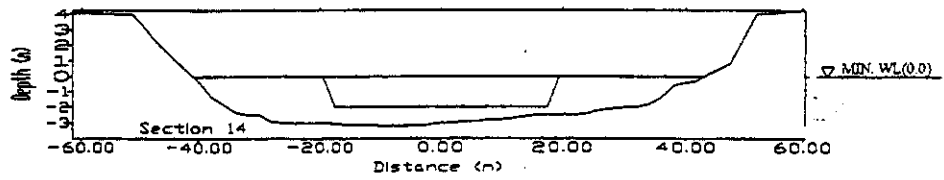
Depth of Water =2.0 m

(2) Nobaria Canal : Section 81-200 km

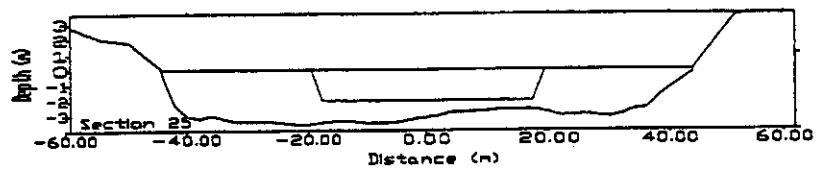
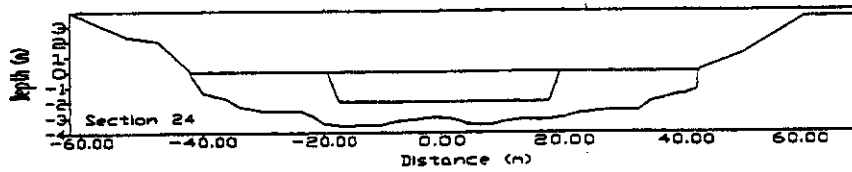
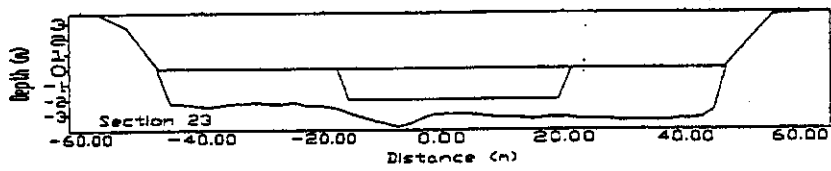
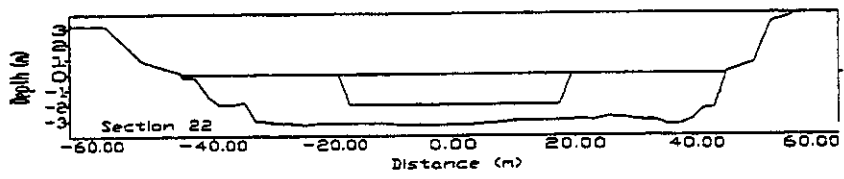
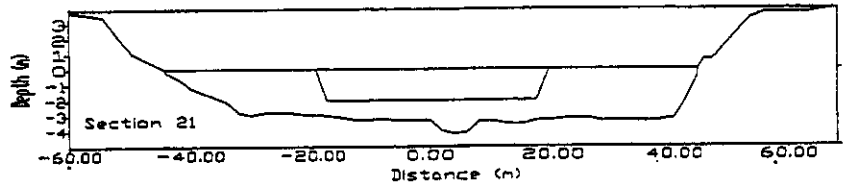
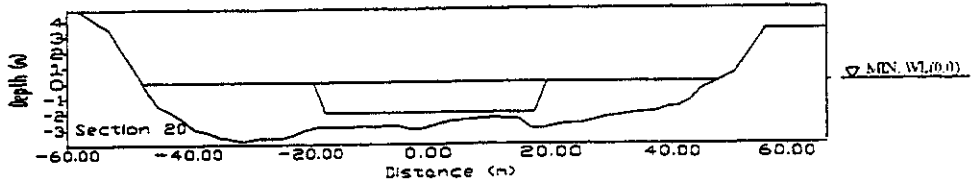




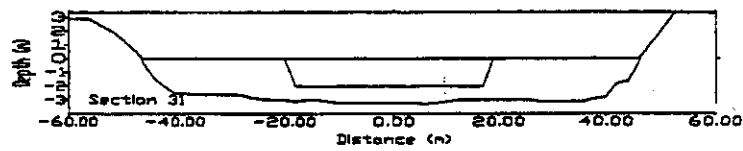
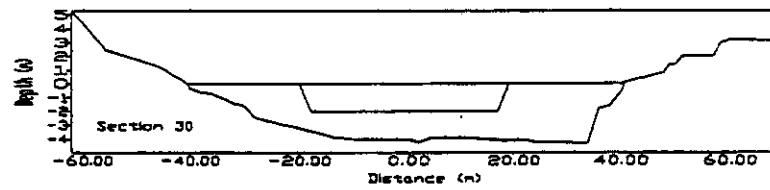
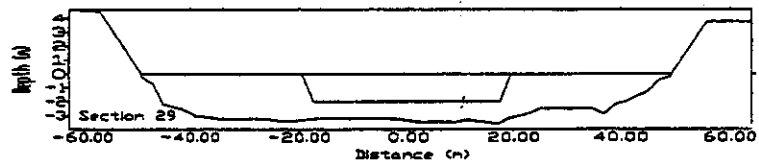
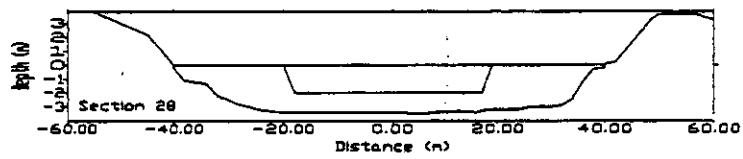
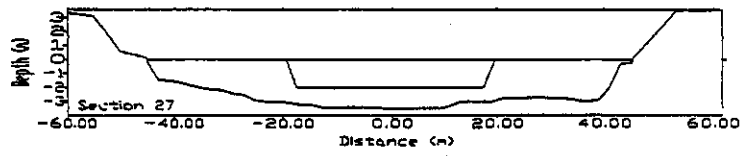
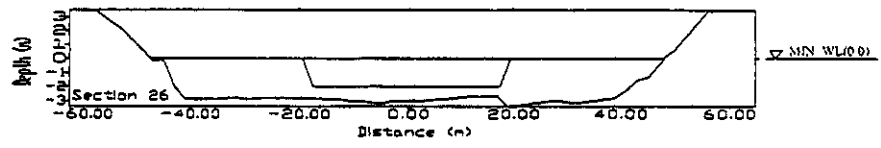
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Section 8 to 13



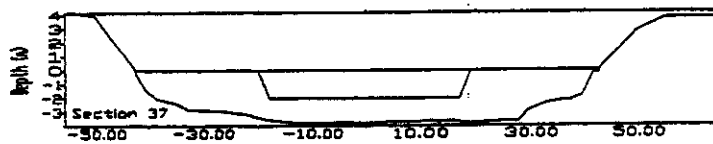
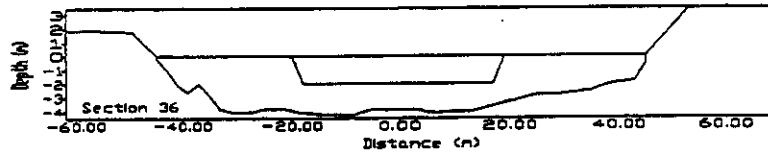
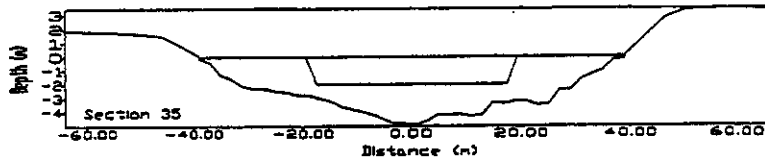
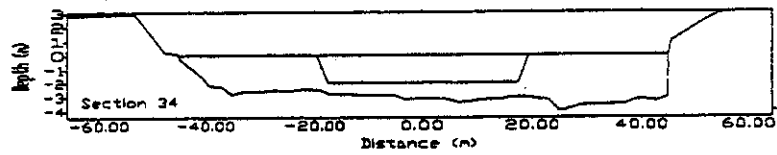
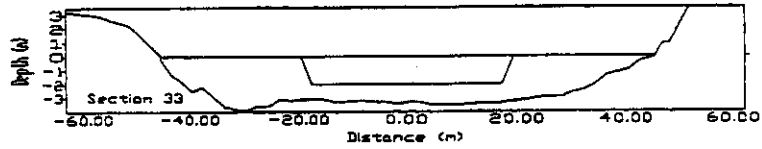
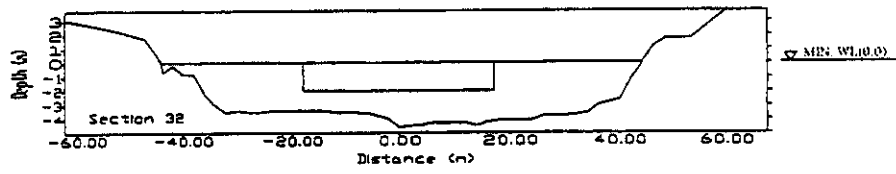
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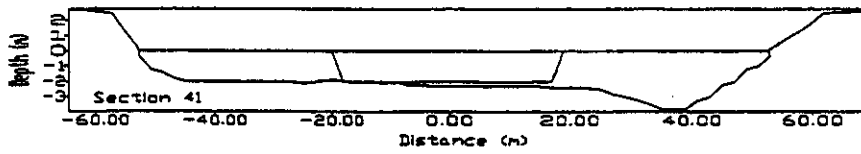
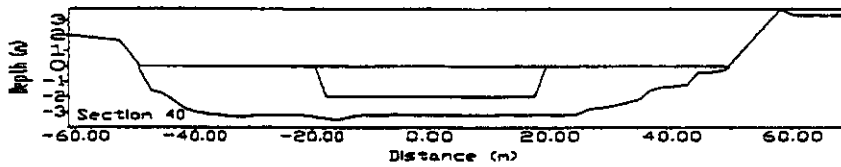
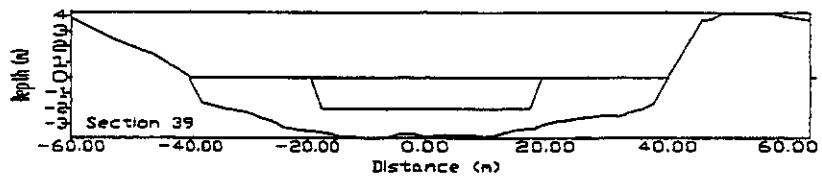
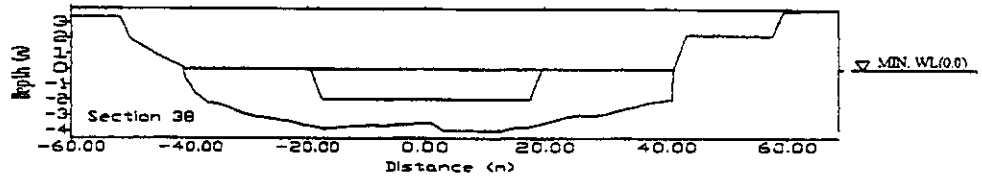
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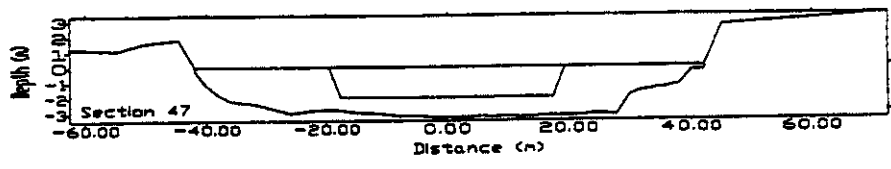
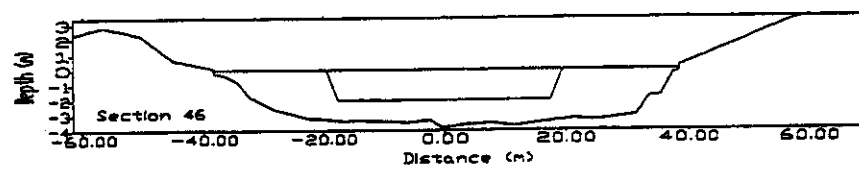
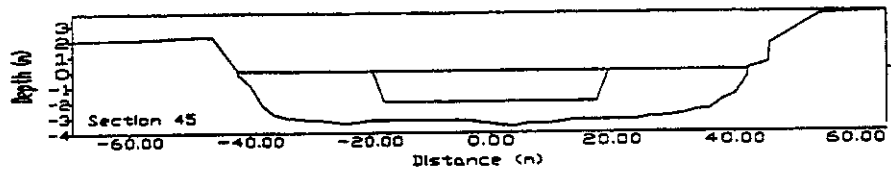
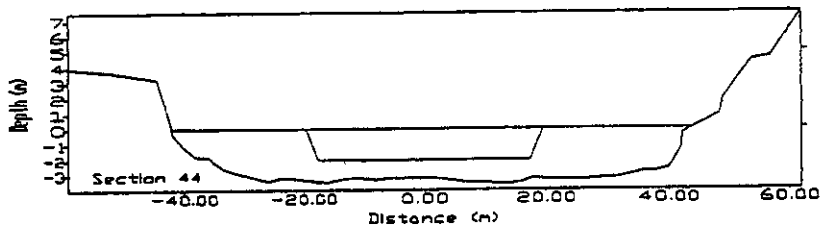
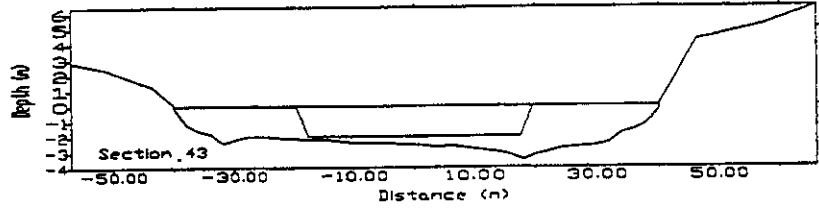
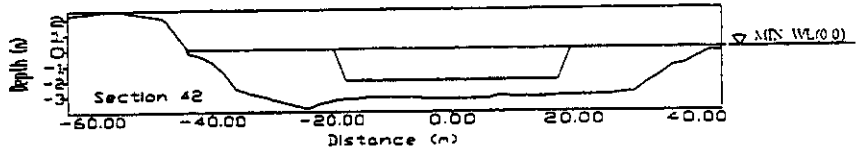
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Section 26 to 31



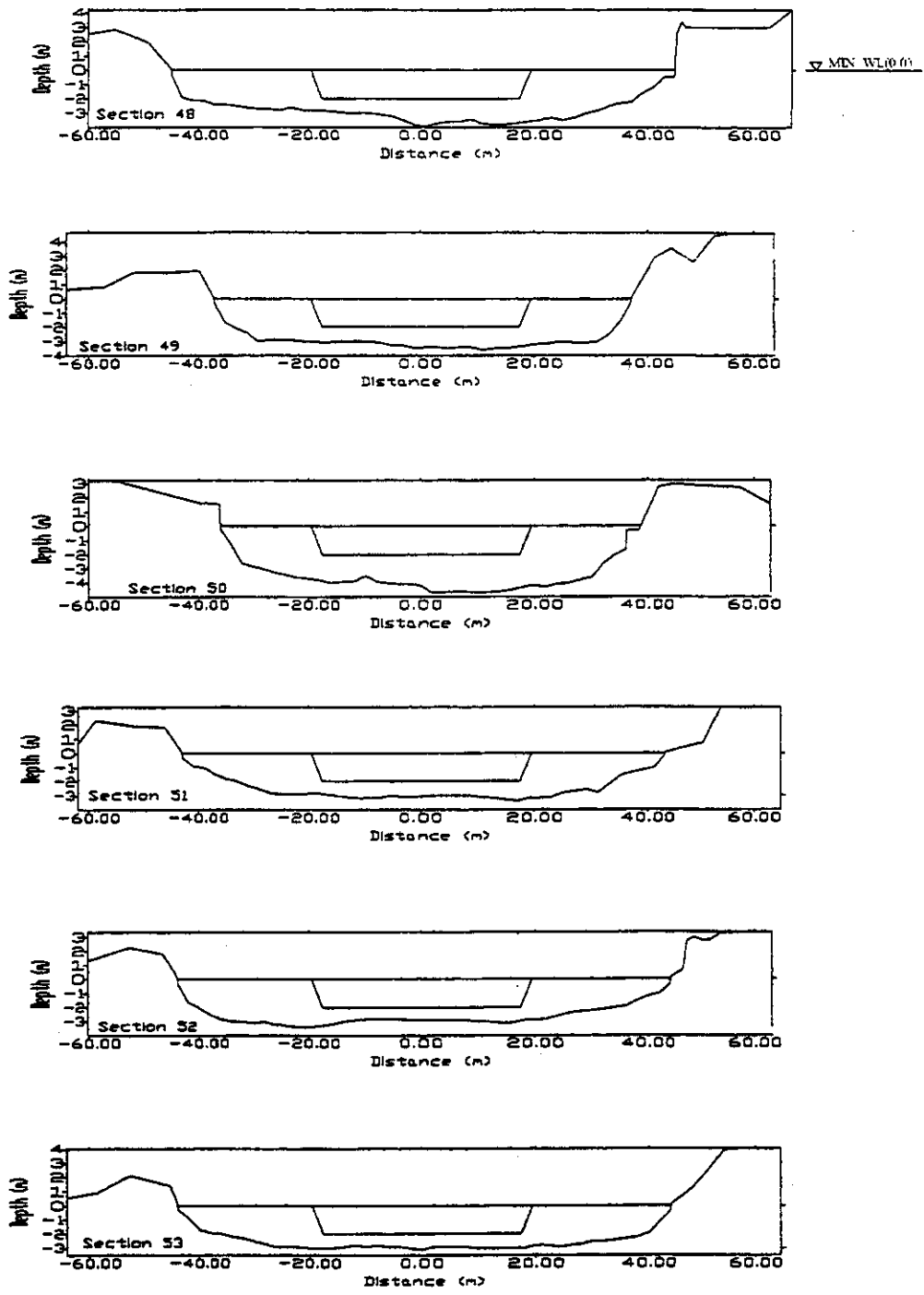
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Section 32 to 37



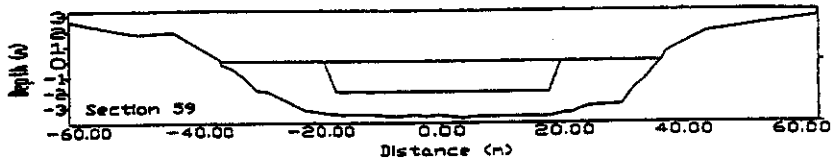
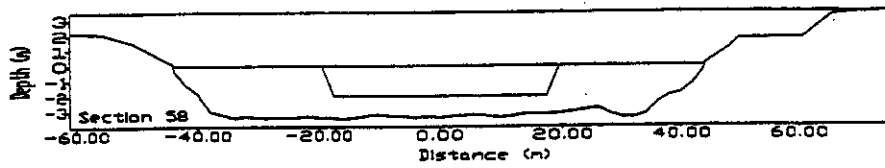
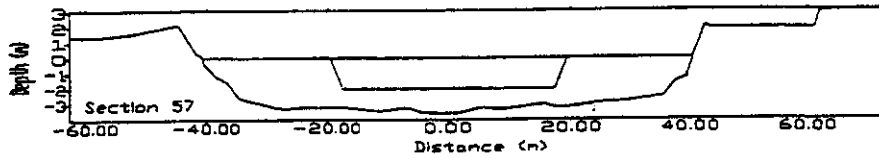
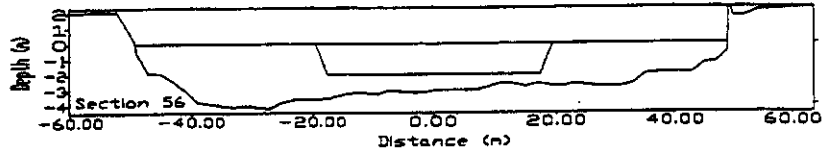
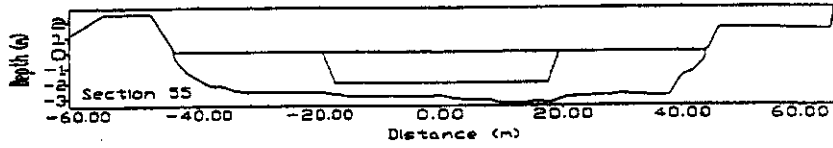
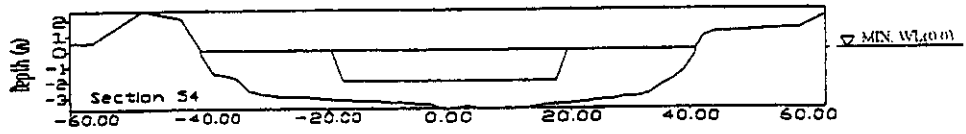
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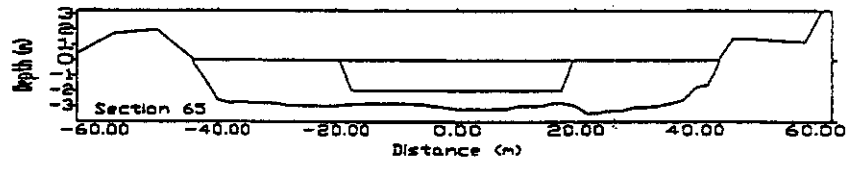
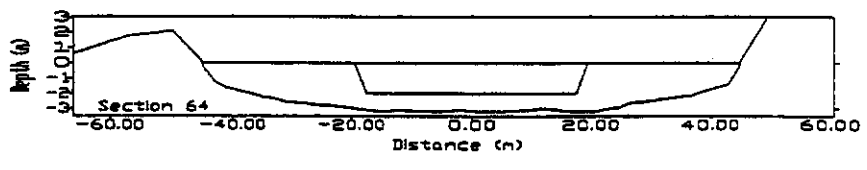
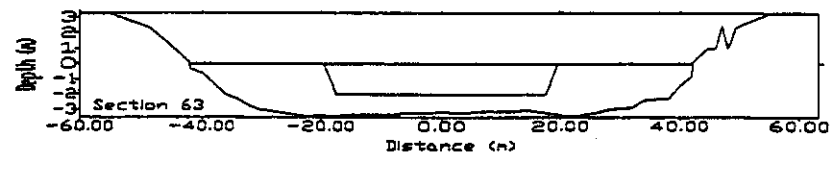
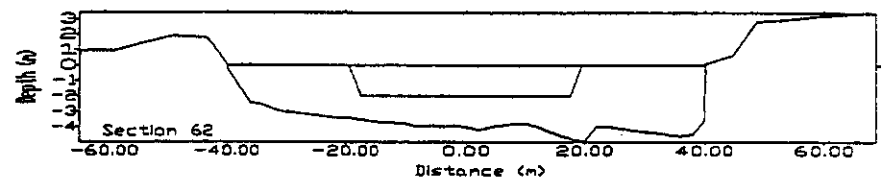
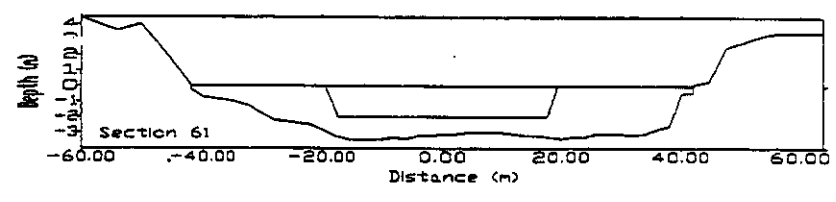
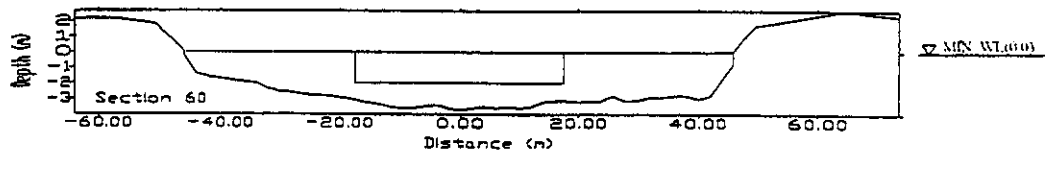
Sector-2 (Khatatba - Bolin)
Section 42 to 47



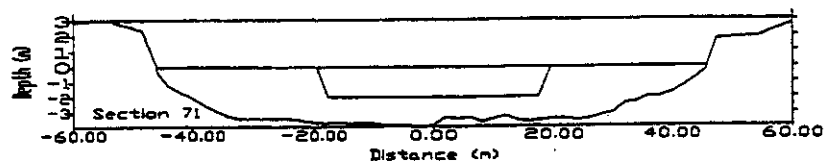
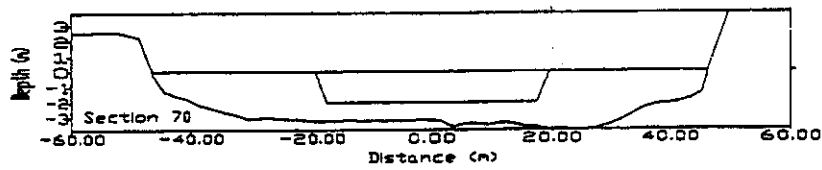
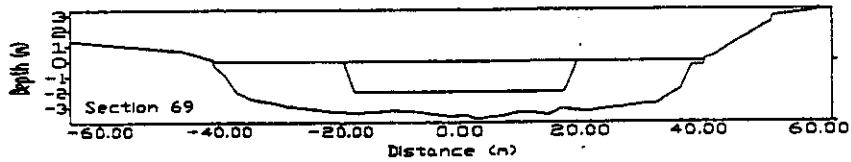
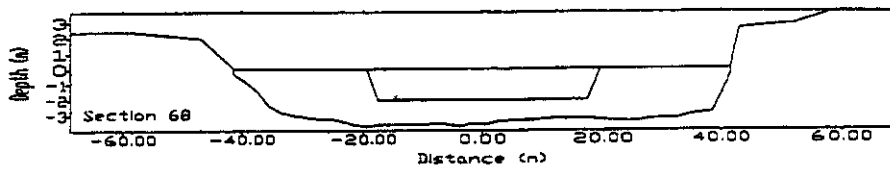
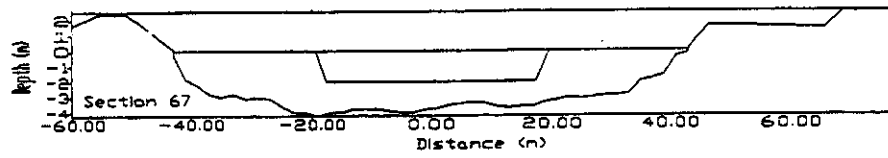
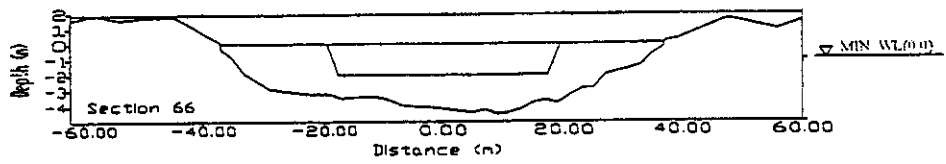
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Section 48 to 53



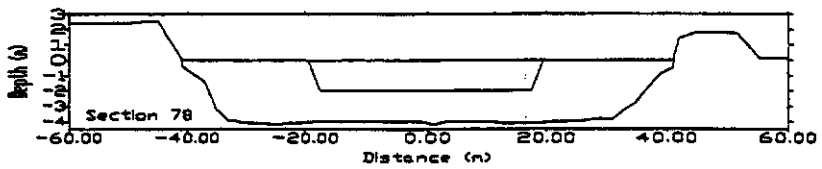
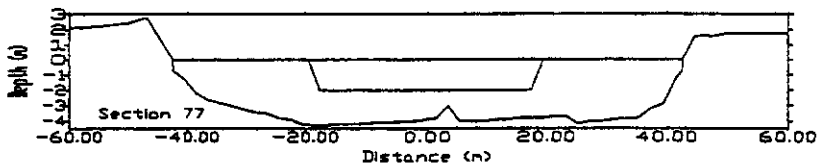
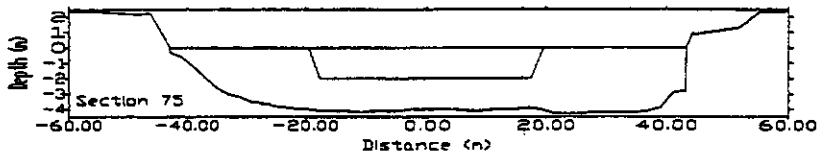
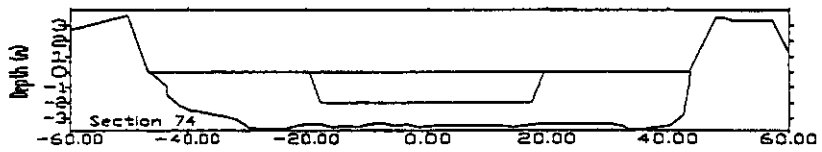
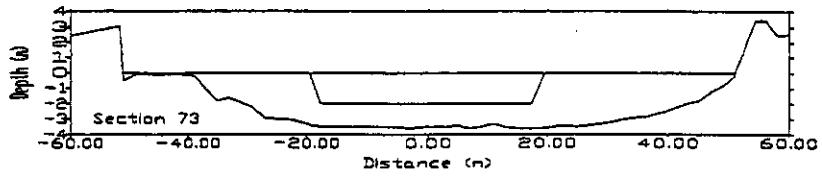
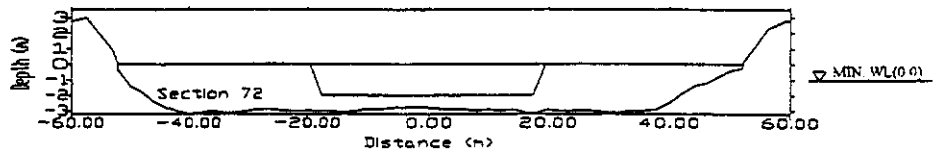
Sector-2 (Khatatba - Bolin)
Section 54 to 59



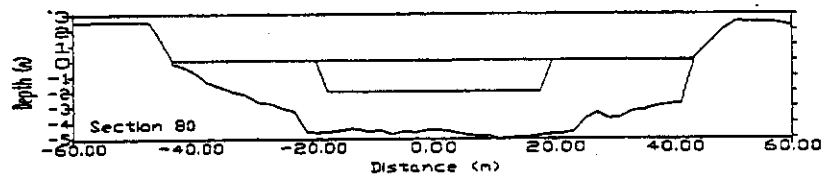
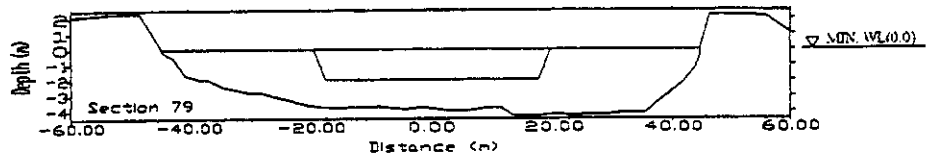
Sector-2 (Khatatba - Bolin)
Section 60 to 65



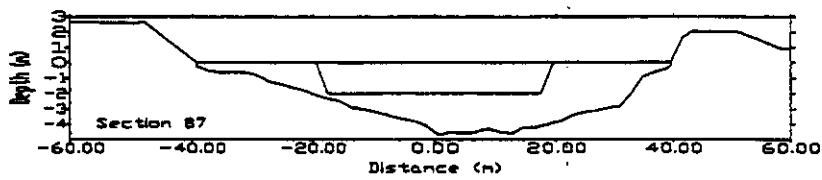
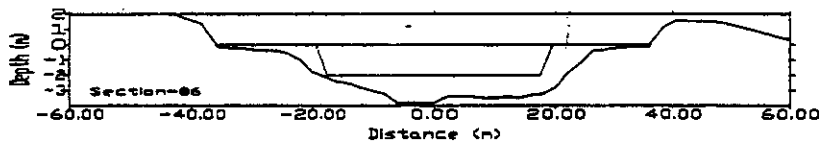
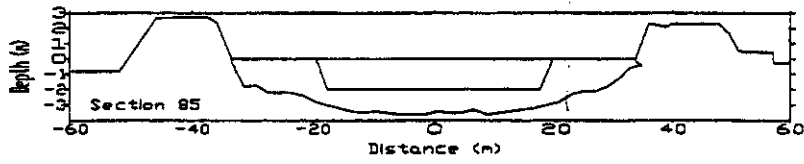
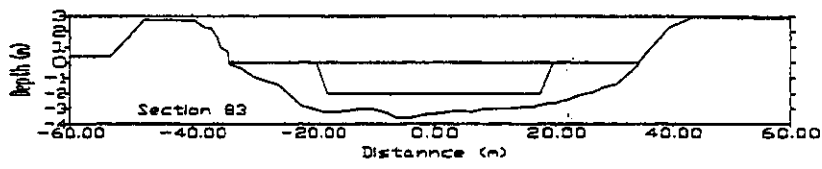
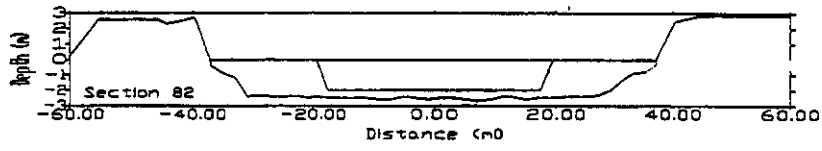
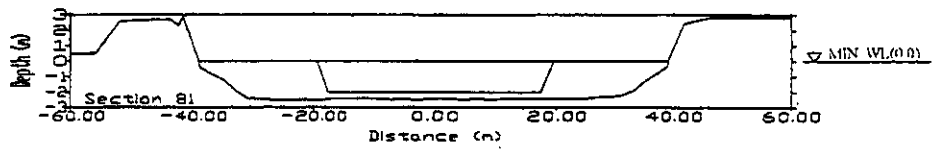
Sector-2 (Khatatba - Bolin)
Section 66 to 71



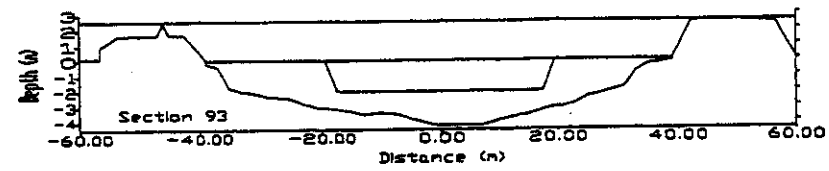
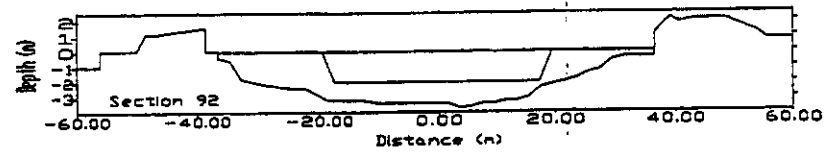
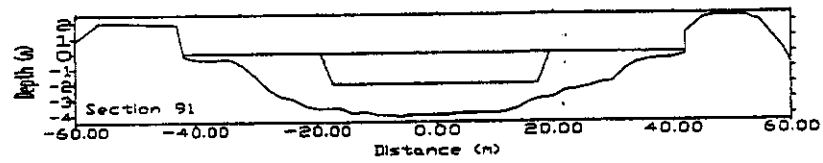
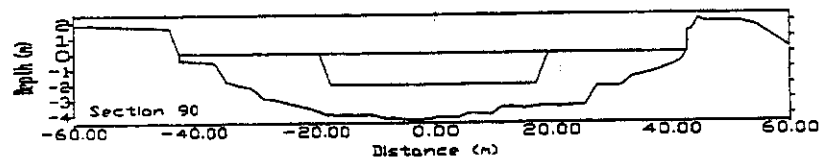
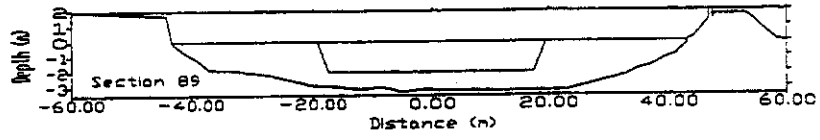
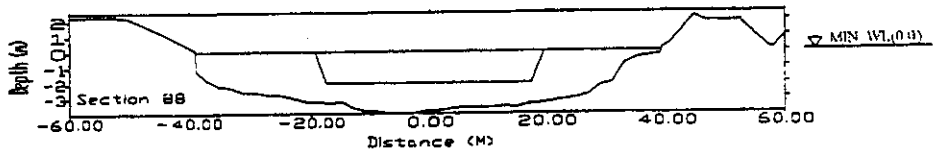
Sector-2 (Khatatba - Bolin)
Section 72 to 78



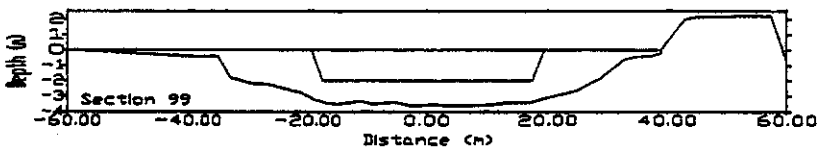
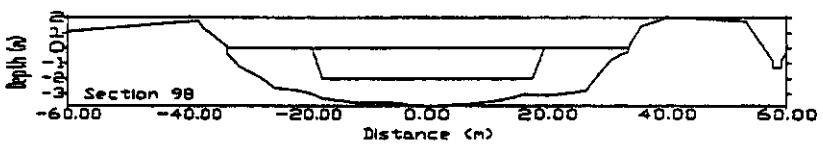
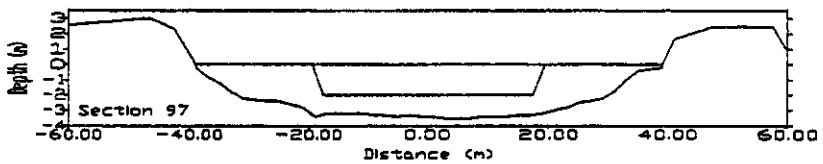
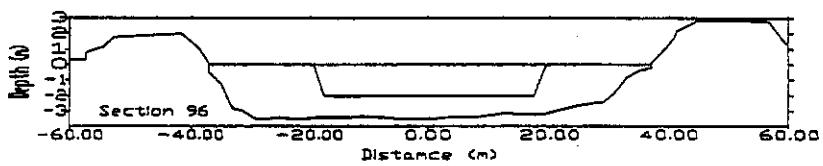
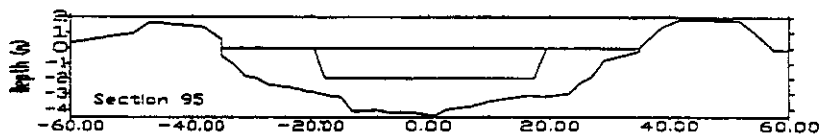
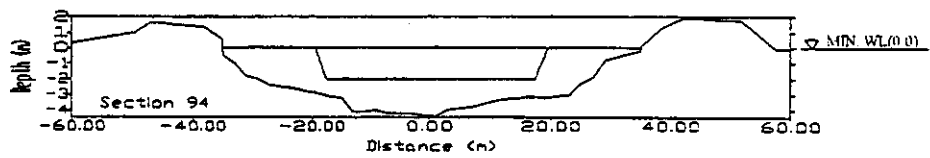
Sector-2 (Khatatba - Bolin)
Section 79 to 80



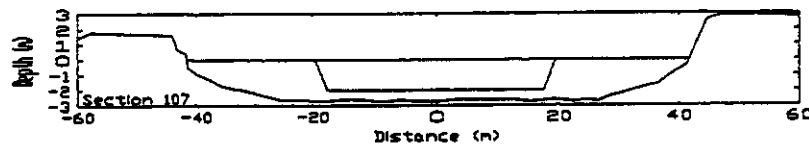
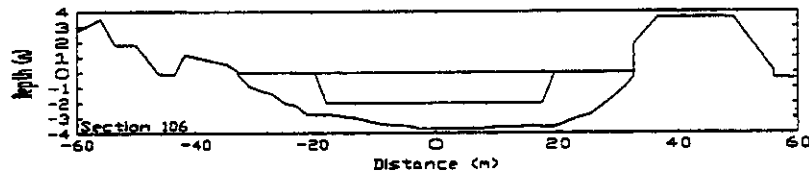
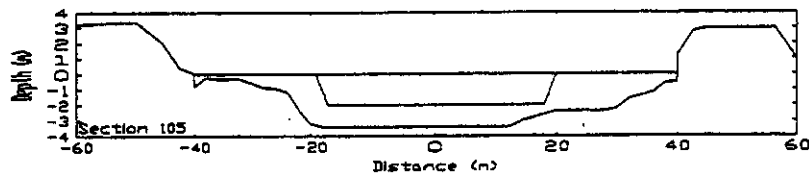
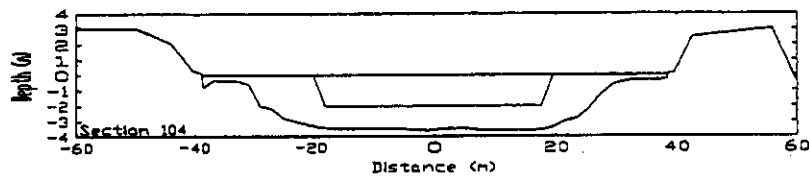
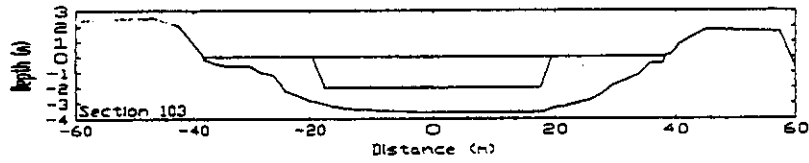
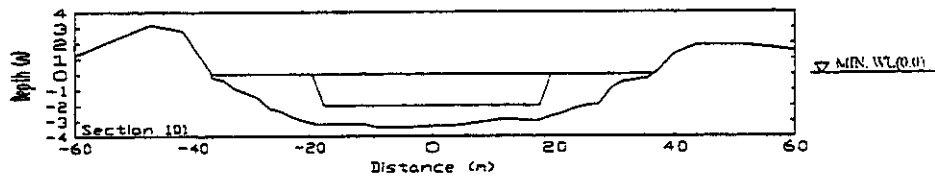
Sector-3 (Bolin - El Bostan)
Section 81 to 87



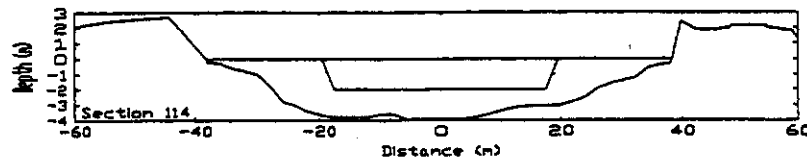
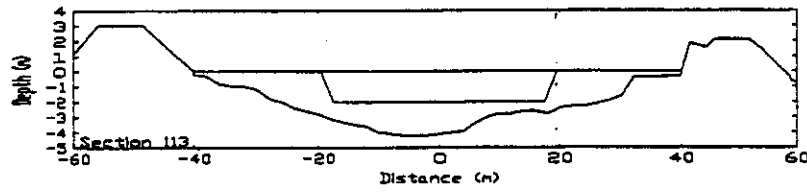
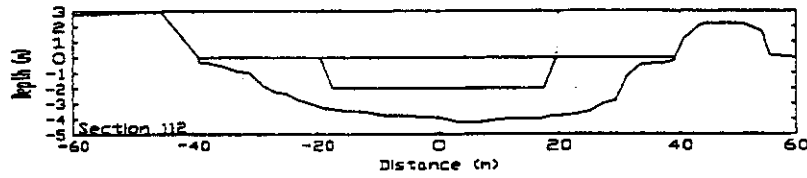
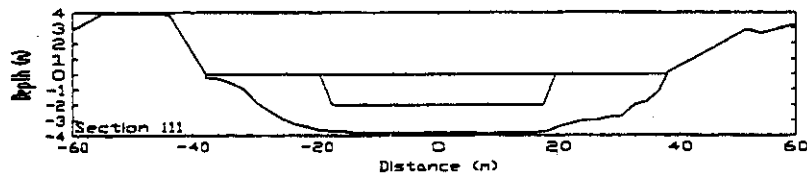
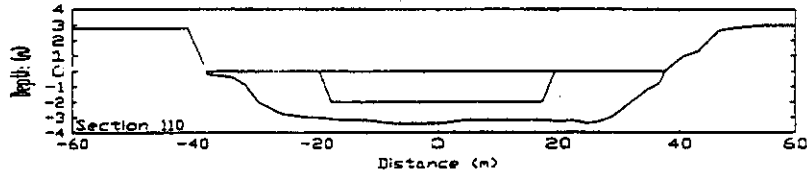
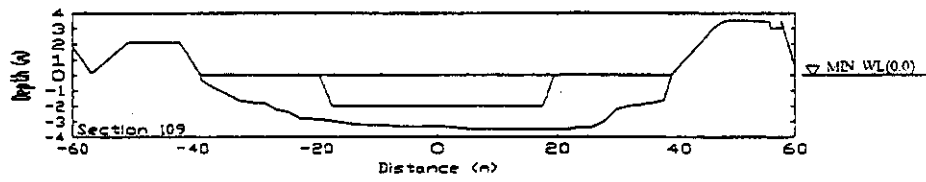
Sector-3 (Bolin - El Bostan)
Section 88 to 93



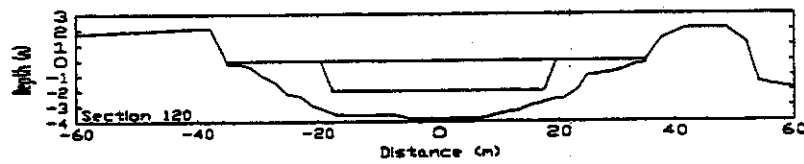
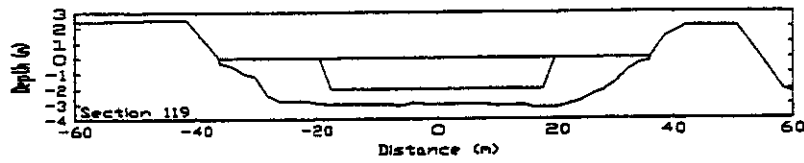
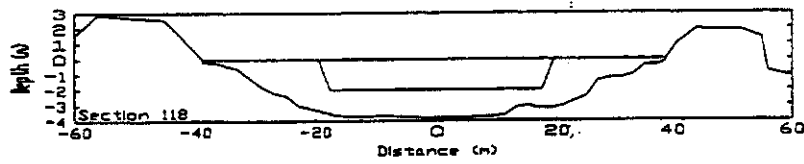
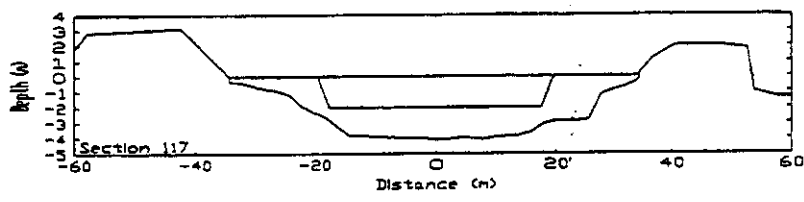
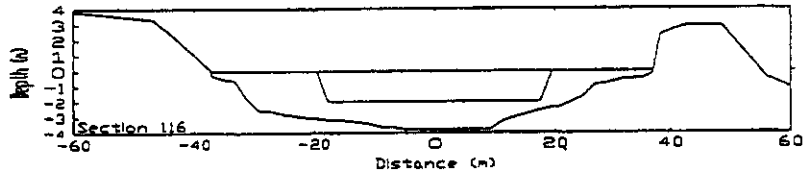
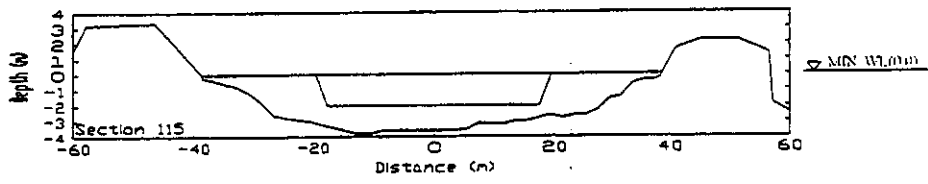
Sector-3 (Bolin - El Bostan)
Section 94 to 99



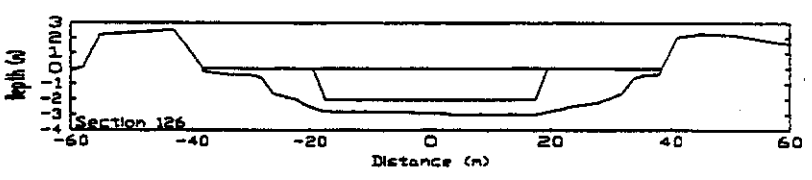
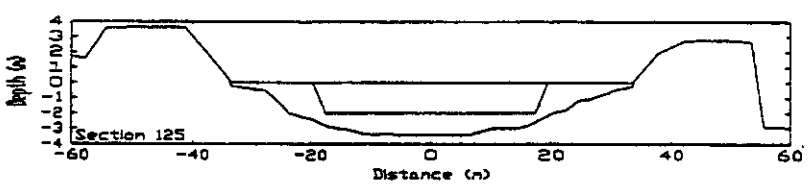
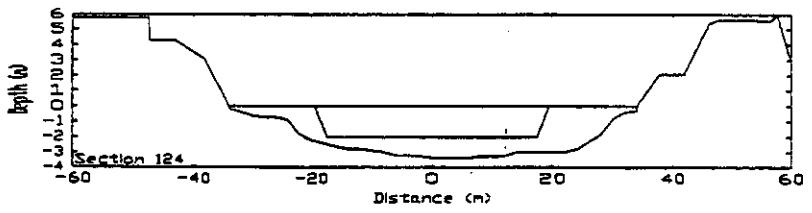
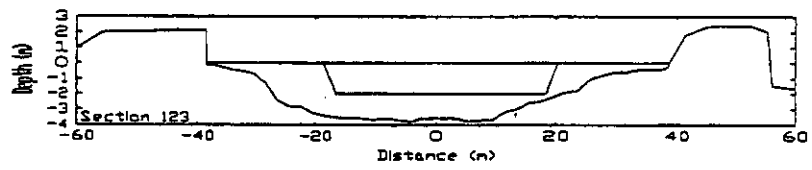
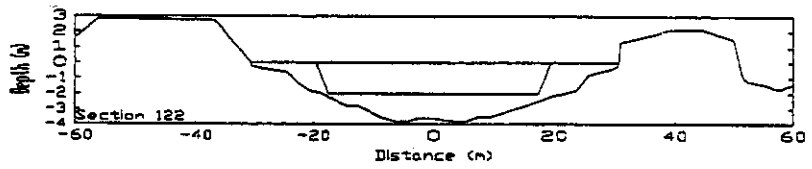
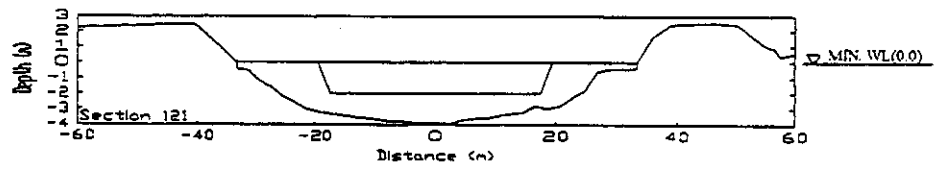
Sector-3 (Bolin - El Bostan)
Section 101 to 107



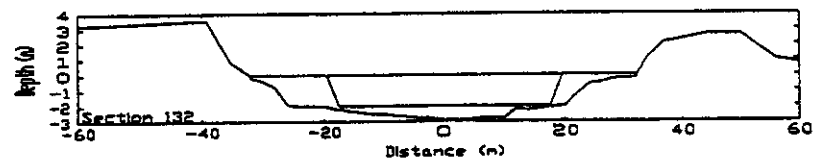
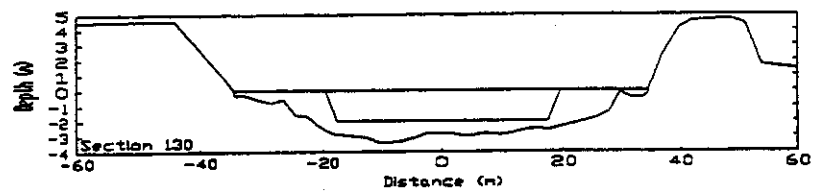
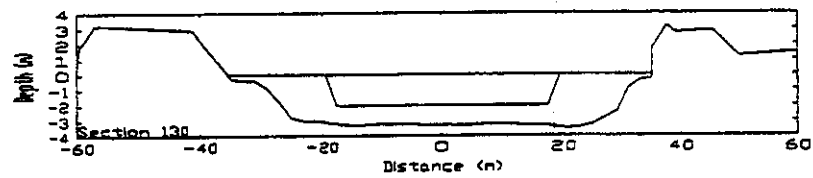
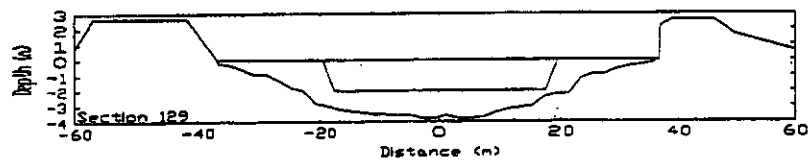
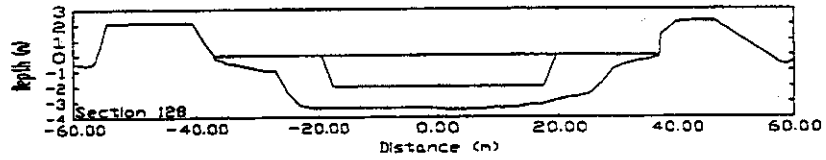
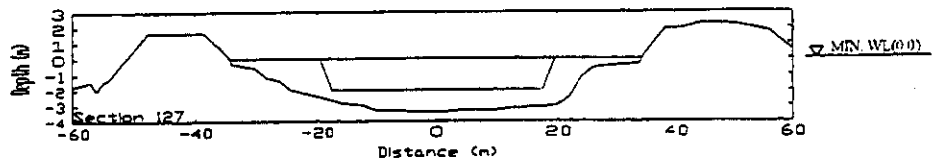
Sector-4 (El Bostan - Ganaklies)
Section 109 to 114



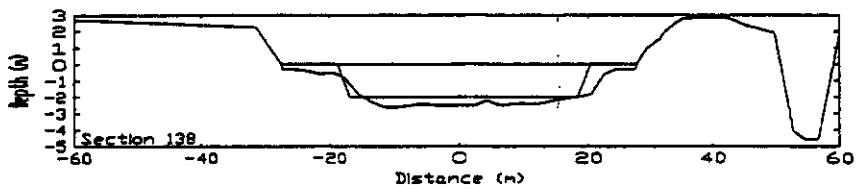
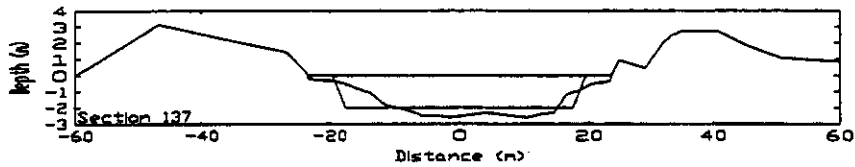
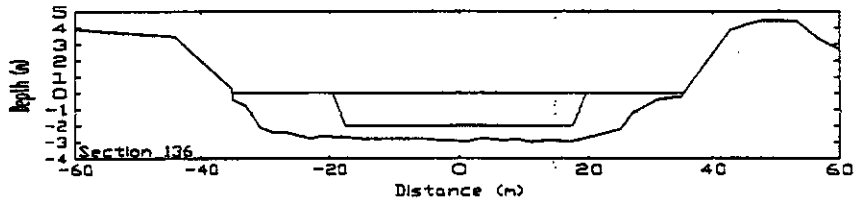
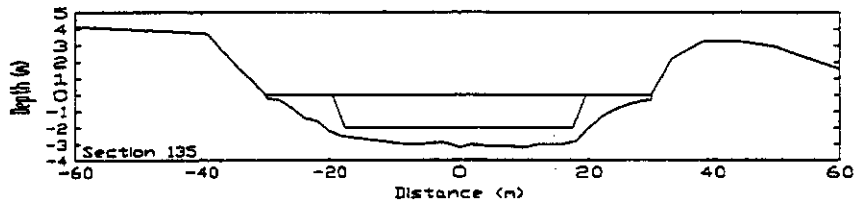
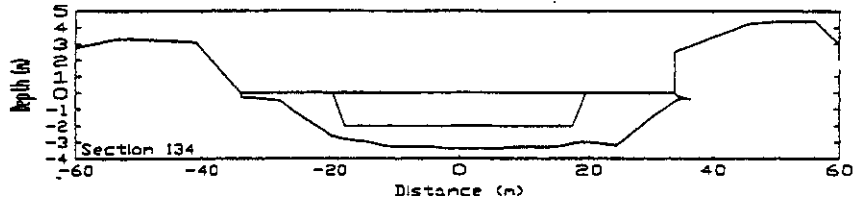
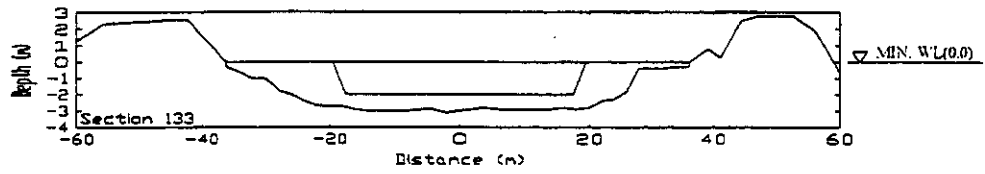
Sector-4 (El Bostan - Ganaklies)
Section 115 to 120



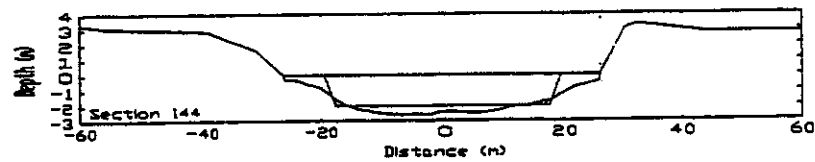
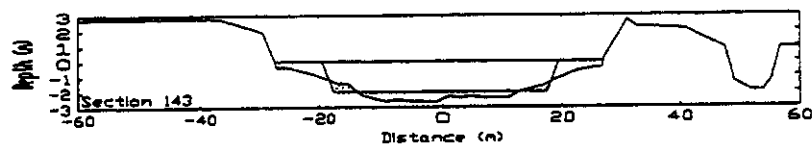
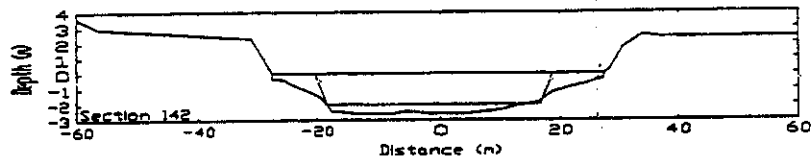
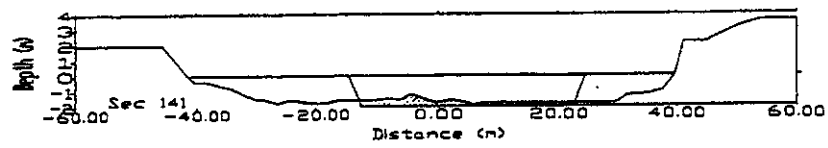
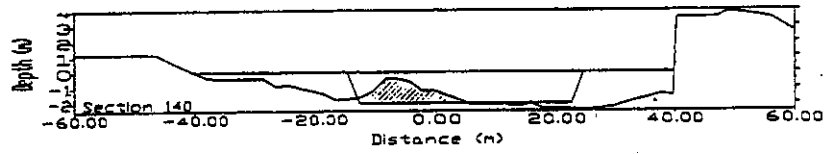
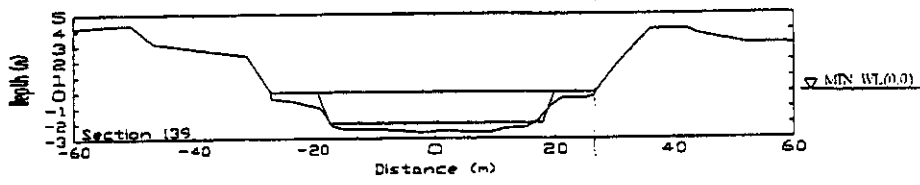
Sector-4: (El Bostan - Ganaklies)
Section 121 to 126



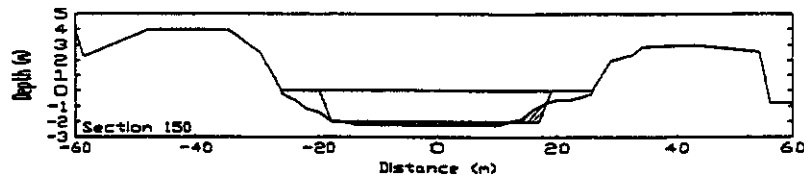
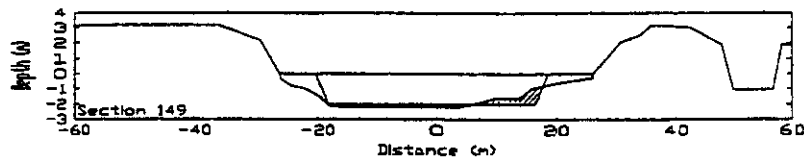
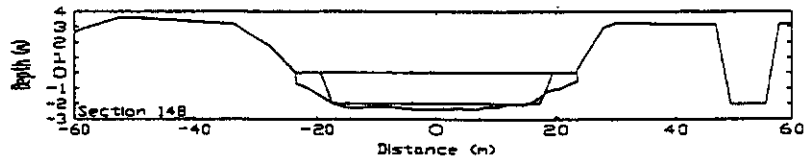
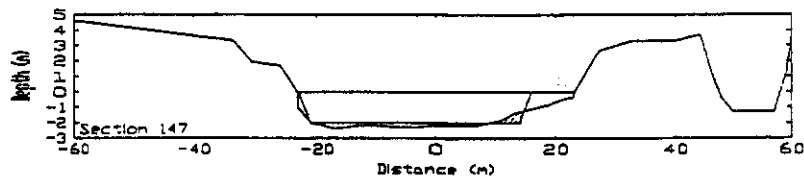
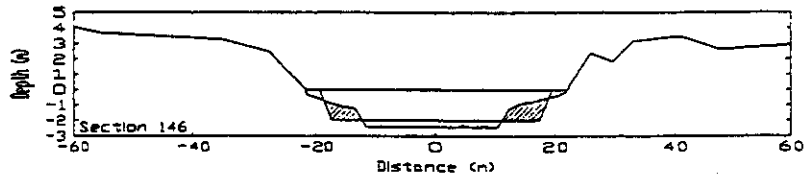
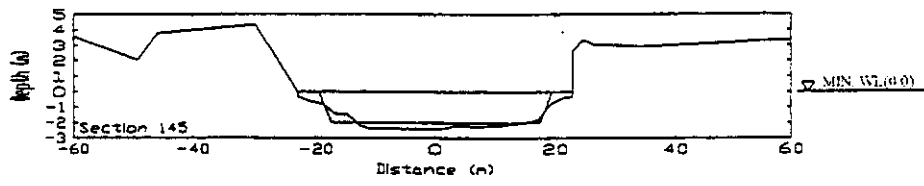
Sector-4 (El Bostan - Ganaklies)
Section 127 to 132



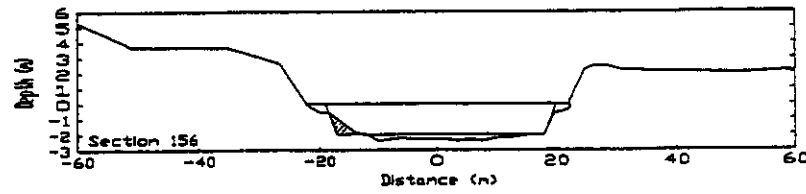
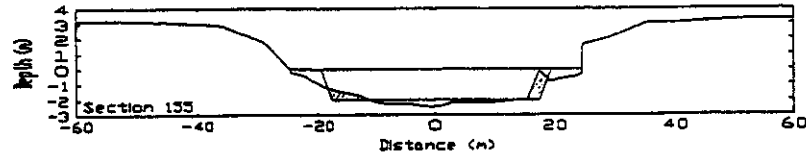
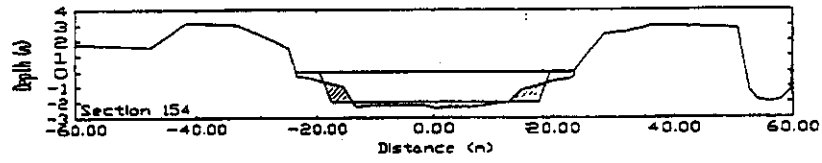
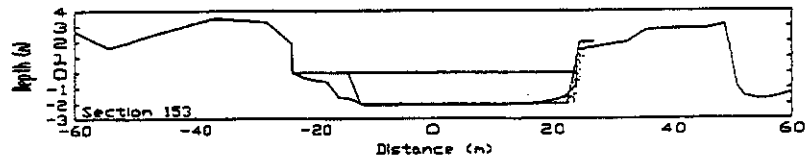
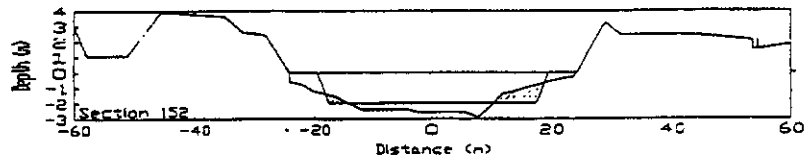
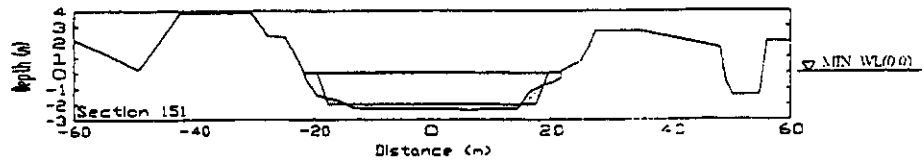
Sector-4 (El Bostan - Ganaklies)
Section 133 to 138



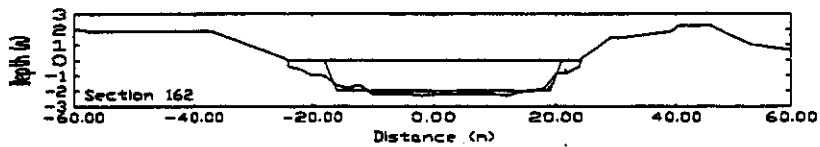
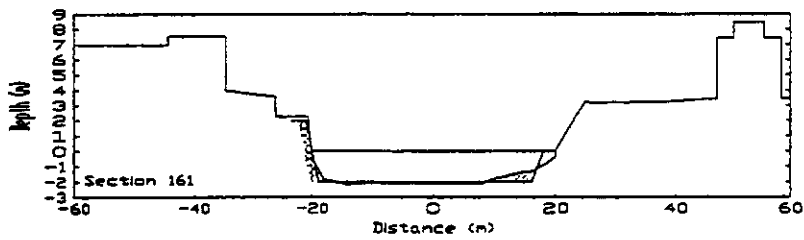
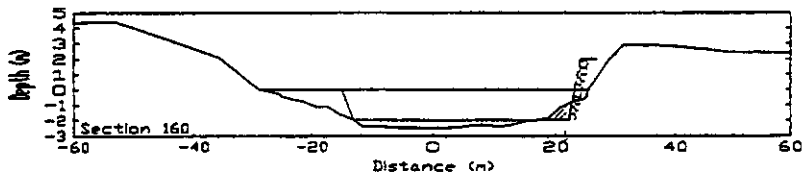
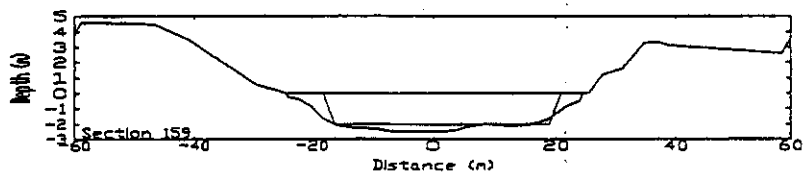
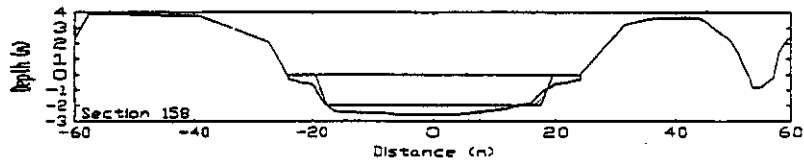
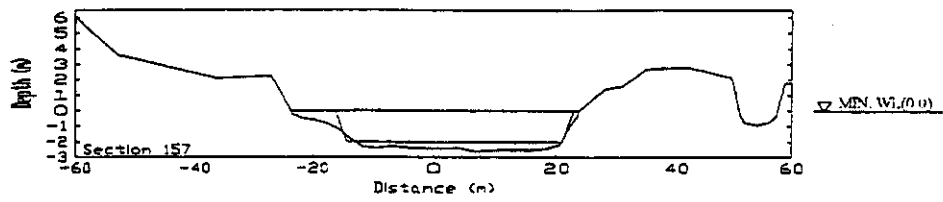
Sector-5 (Ganaklies - El Nahda)
Section 139 to 144



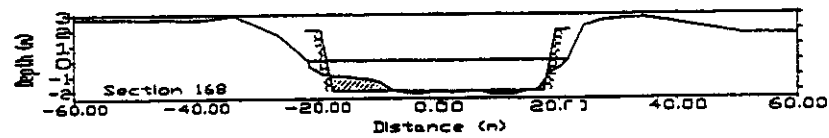
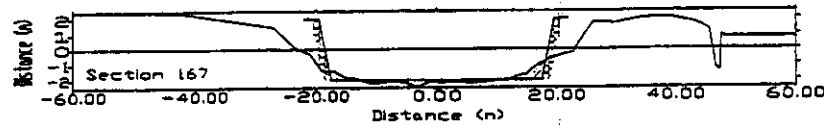
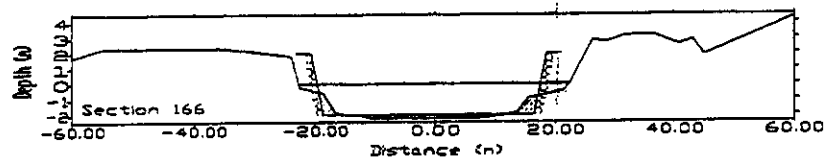
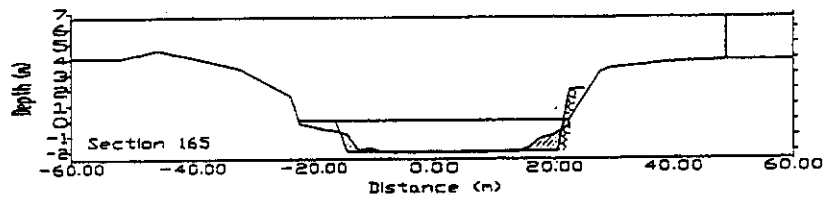
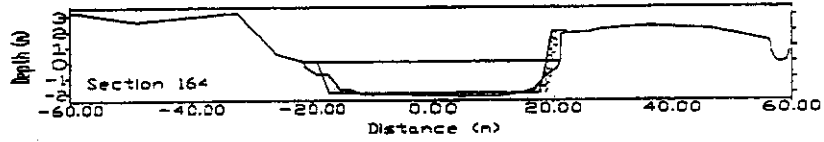
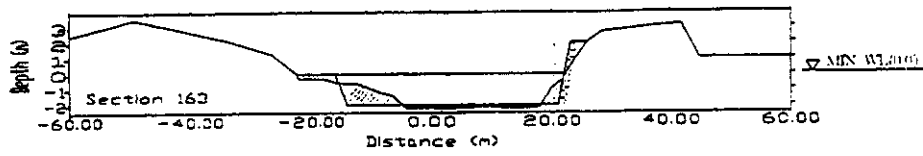
Sector-5 (Ganaklies - El Nahda)
Section 145 to 150



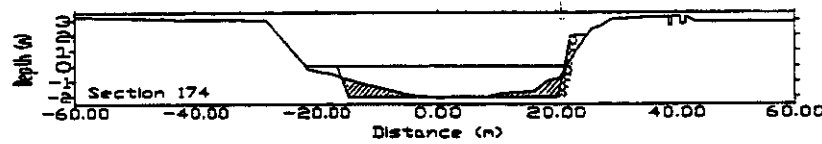
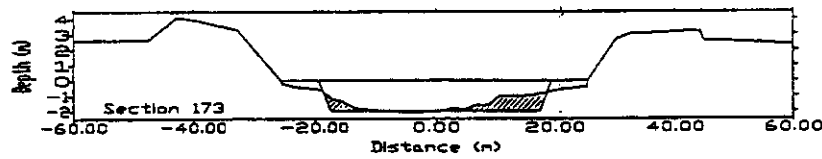
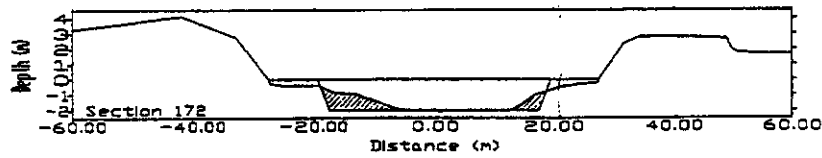
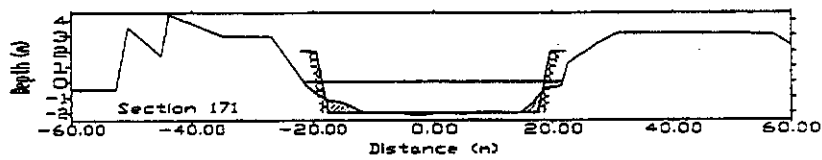
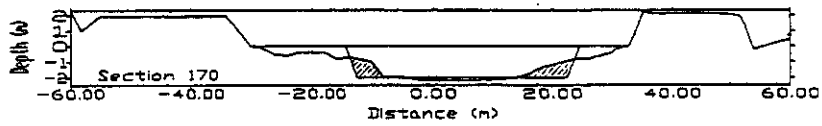
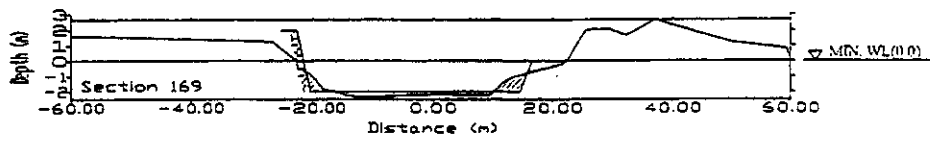
Sector-5 (Ganaklies - El Nahda)
Section 151 to 156



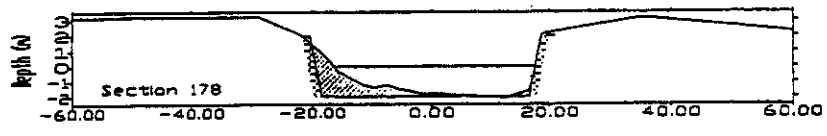
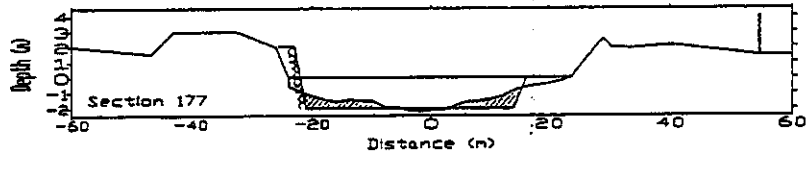
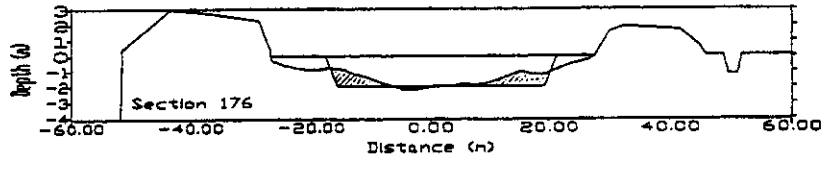
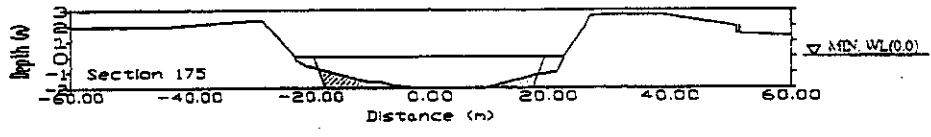
Sector-5 (Ganaklies - El Nahda)
Section 157 to 162



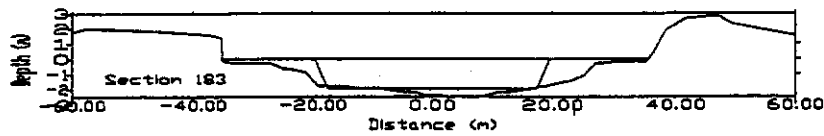
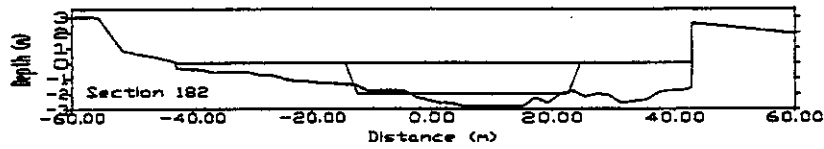
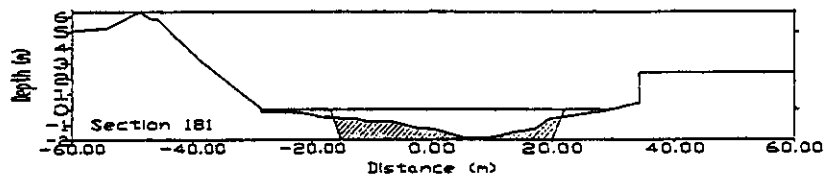
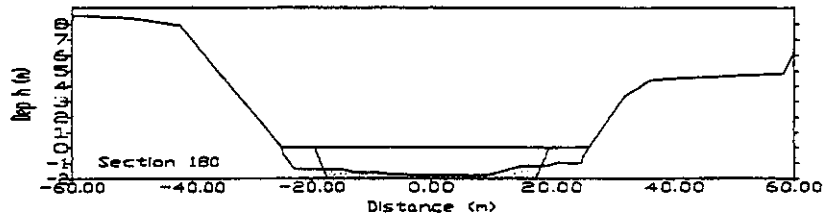
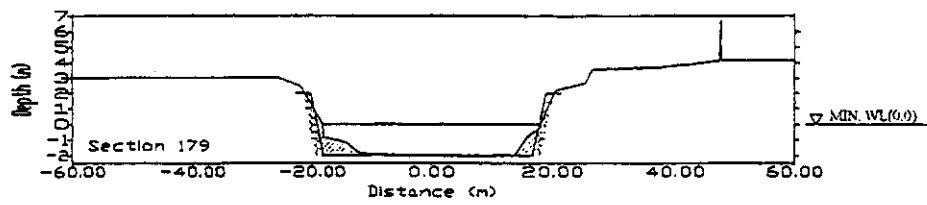
Sector-5 (Ganaklies - El Nahda)
Section 163 to 168



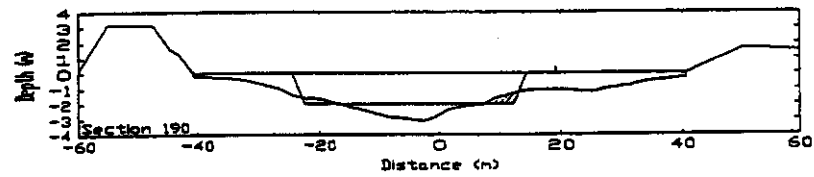
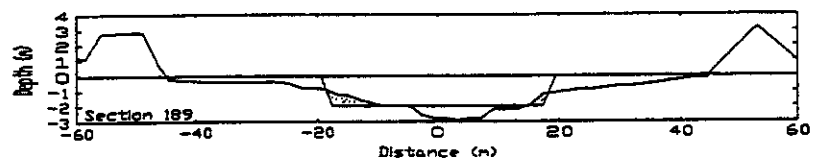
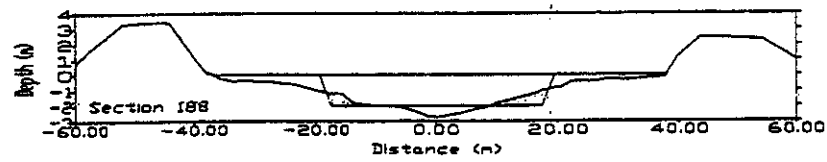
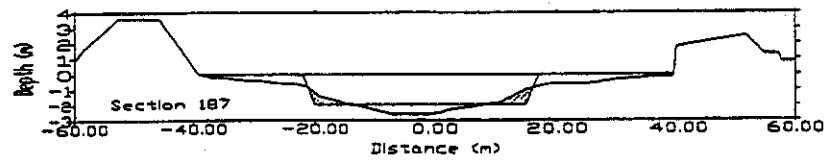
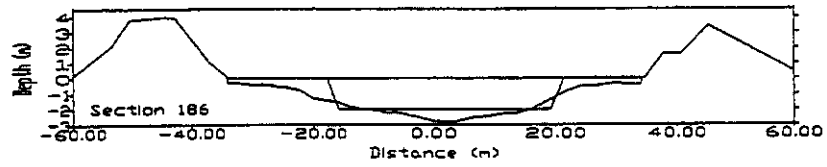
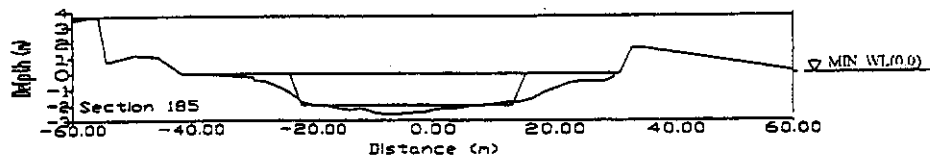
Sector-5 (Ganaklies - El Nahda)
Section 169 to 174



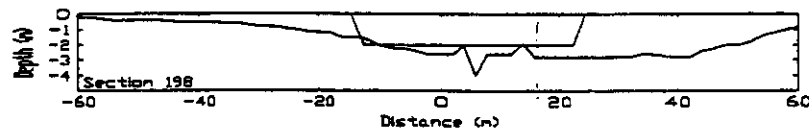
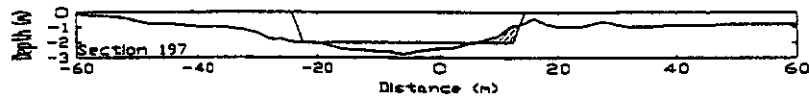
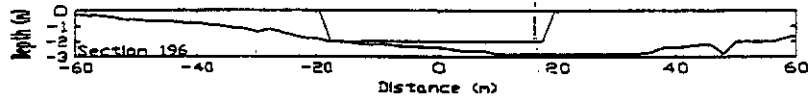
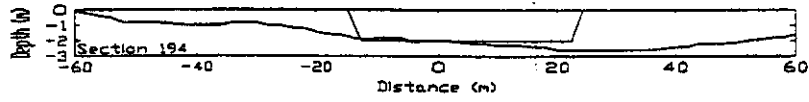
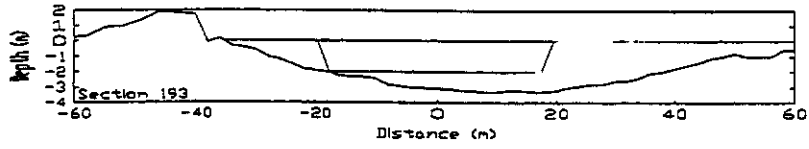
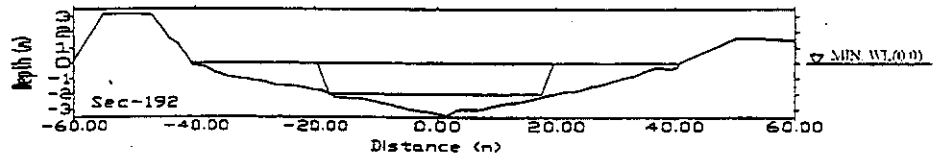
Sector-5 (Ganaklies - El Nahda)
Section 175 to 178



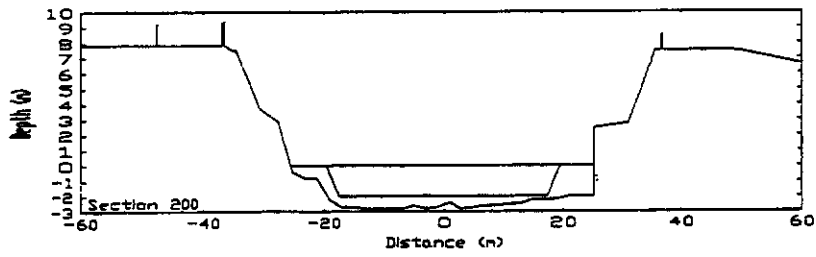
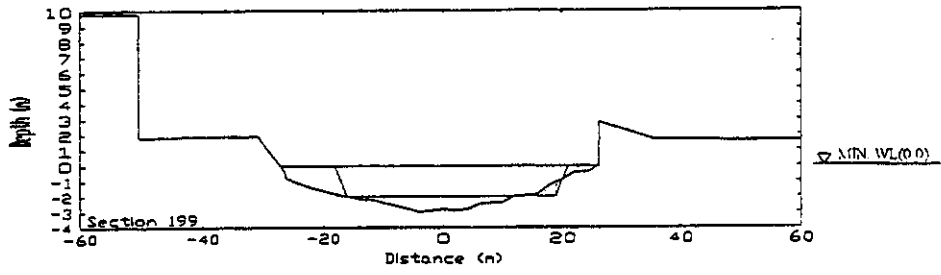
Sector-6 (El Nahda - Alex. Port)
Section 179 to 184



Sector-6 (El Nahda - Alex. Port)
Section 185 to 190



Sector-6 (El Nahda - Alex. Port)
Section 192 to 198



Sector-6 (El Nahda - Alex. Port)
Section 199 to 200

Table Economic Benefits of River Port Project Generated through Project Life (Short-Term Plan)

EIRR = 10.50%

Year	Break-Bulk				Containers (Laden)				Benefit total '000US\$	Initial & re- investment '000US\$	Maintenance & Operation '000US\$	Cost total '000US\$	present value '000US\$	discount rate
	Alex -Cairo		Damietta -Cairo		Alex -Cairo		Damietta -Cairo							
	IWT '000MT	unit benefit US\$/MT	IWT '000MT	unit benefit US\$/MT	IWT '000TEU	unit benefit US\$/TEU	IWT '000TEU	unit benefit US\$/TEU						
2007									423			423	-423	1.000
2008									4,886			4,886	-4426	0.906
2009									10,289			10,289	-8442	0.821
2010	239	1.15	24	1.51	76	3.0	11	21.00	772	767	518	1,285	-381	0.743
2011	262	1.15	30	1.51	84	3.0	22	21.00	1,052	-837	509	-328	929	0.673
2012	286	1.15	36	1.51	92	3.0	32	21.00	1,333	-1,257	477	-780	1289	0.610
2013	309	1.15	42	1.51	99	3.0	43	21.00	1,613	-120	427	307	721	0.552
2014	332	1.15	48	1.51	107	3.0	53	21.00	1,893	1,153	423	1,576	159	0.500
2015	356	1.15	54	1.51	115	3.0	64	21.00	2,173	36	415	451	780	0.453
2016	356	1.15	54	1.51	115	3.0	64	21.00	2,173	108	417	525	677	0.411
2017	356	1.15	54	1.51	115	3.0	64	21.00	2,173	108	422	530	611	0.372
2018	356	1.15	54	1.51	115	3.0	64	21.00	2,173	0	427	427	588	0.337
2019	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-4,223	427	-3,796	1821	0.305
2020	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-1,314	429	-885	845	0.276
2021	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-1,314	429	-885	766	0.250
2022	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-1,314	429	-885	693	0.227
2023	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-1,314	429	-885	628	0.205
2024	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-740	429	-311	462	0.186
2025	356	1.15	54	1.51	115	3.0	64	21.00	2,173	0	429	429	294	0.169
2026	356	1.15	54	1.51	115	3.0	64	21.00	2,173	0	429	429	266	0.153
2027	356	1.15	54	1.51	115	3.0	64	21.00	2,173	0	429	429	241	0.138
2028	356	1.15	54	1.51	115	3.0	64	21.00	2,173	0	429	429	218	0.125
2029	356	1.15	54	1.51	115	3.0	64	21.00	2,173	5,359	429	5,788	-410	0.113
2030	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-1,314	429	-885	314	0.103
2031	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-1,314	429	-885	285	0.093
2032	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-1,314	429	-885	258	0.084
2033	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-1,314	429	-885	234	0.076
2034	356	1.15	54	1.51	115	3.0	64	21.00	2,173	33	429	462	118	0.069
2035	356	1.15	54	1.51	115	3.0	64	21.00	2,173	3,924	429	4,353	-137	0.063
2036	356	1.15	54	1.51	115	3.0	64	21.00	2,173	1,100	429	1,529	37	0.057
2037	356	1.15	54	1.51	115	3.0	64	21.00	2,173	477	429	906	65	0.051
2038	356	1.15	54	1.51	115	3.0	64	21.00	2,173	57	429	486	79	0.047
2039	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-1,296	429	-867	128	0.042
2040	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-194	429	235	74	0.038
2041	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-1,278	429	-849	105	0.035
2042	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-1,206	429	-777	93	0.031
2043	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-1,206	429	-777	84	0.028
2044	356	1.15	54	1.51	115	3.0	64	21.00	2,173	33	429	462	44	0.026
2045	356	1.15	54	1.51	115	3.0	64	21.00	2,173	36	429	465	40	0.023
2046	356	1.15	54	1.51	115	3.0	64	21.00	2,173	0	429	429	37	0.021
2047	356	1.15	54	1.51	115	3.0	64	21.00	2,173	0	429	429	33	0.019
2048	356	1.15	54	1.51	115	3.0	64	21.00	2,173	0	429	429	30	0.017
2049	356	1.15	54	1.51	115	3.0	64	21.00	2,173	5,359	429	5,788	-57	0.016
2050	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-1,314	429	-885	43	0.014
2051	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-1,314	429	-885	39	0.013
2052	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-1,314	429	-885	36	0.012
2053	356	1.15	54	1.51	115	3.0	64	21.00	2,173	-1,314	429	-885	32	0.011
2054	356	1.15	54	1.51	115	3.0	64	21.00	2,173	83	429	512	16	0.010
2055	356	1.15	54	1.51	115	3.0	64	21.00	2,173	0	429	429	15	0.009
2056	356	1.15	54	1.51	115	3.0	64	21.00	2,173	0	429	429	14	0.008
2057	356	1.15	54	1.51	115	3.0	64	21.00	2,173	0	429	429	12	0.007
2058	356	1.15	54	1.51	115	3.0	64	21.00	2,173	0	429	429	11	0.006
2059	356	1.15	54	1.51	115	3.0	64	21.00	2,173	0	424	424	10	0.006
												Total =		0.00

A14.1-2

Table Economic Benefits of Boulin Canal Creation Project Generated through Project Life (Short-Term Plan)

EIRR = 17.7%

Year	Raw phosphate from Sibaiya		Bulk cargo between Alex. and K.E. Zayat		Grease imported via Alex. Port		Benefit total US\$	investment Cost US\$	Maintenanc e & Cost US\$	Cost total US\$	present value US\$	discount rate
	IWT MT	unit benefit US\$/MT	IWT MT	unit benefit US\$/MT	IWT MT	unit benefit US\$/MT						
2006								601,528		601,528	-601,528	1.00
2007								66,836		66,836	-56,958	0.85
2008								5,962,745		5,962,745	-4,330,333	0.73
2009								-148,444		-148,444	91,870	0.62
2010	258,000	4.00	205,000	1.68	26,000	1.24	1,408,640	573,666	275,950	849,616	294,836	0.53
2011	265,000	4.00	210,600	1.68	26,400	1.24	1,446,544	-192,690	275,809	83,119	612,800	0.45
2012	272,000	4.00	216,200	1.68	26,800	1.24	1,484,448	-80,000	274,659	194,659	494,019	0.38
2013	279,000	4.00	221,800	1.68	27,200	1.24	1,522,352	-167,500	274,517	107,017	461,979	0.33
2014	286,000	4.00	227,400	1.68	27,600	1.24	1,560,256	-167,500	274,375	106,875	404,277	0.28
2015	293,000	4.00	233,000	1.68	28,000	1.24	1,598,160	-25,190	274,234	249,044	319,806	0.24
2016	300,000	4.00	238,600	1.68	28,400	1.24	1,636,064	-87,500	273,227	185,727	292,984	0.20
2017	307,000	4.00	244,200	1.68	28,800	1.24	1,673,968	-87,500	273,227	185,727	256,204	0.17
2018	314,000	4.00	249,800	1.68	29,200	1.24	1,711,872	-167,500	273,227	105,727	235,632	0.15
2019	321,000	4.00	255,400	1.68	29,600	1.24	1,749,776	-1,142,690	270,027	-872,663	327,864	0.13
2020	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-80,000	272,219	192,219	169,985	0.11
2021	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-160,000	272,219	112,219	152,124	0.09
2022	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-80,000	272,219	192,219	123,449	0.08
2023	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-80,000	272,219	192,219	105,202	0.07
2024	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-80,000	272,219	192,219	89,652	0.06
2025	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	0	272,219	272,219	72,570	0.05
2026	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	0	272,219	272,219	61,844	0.04
2027	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	0	272,219	272,219	52,703	0.03
2028	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	0	272,219	272,219	44,913	0.03
2029	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-654,000	272,219	-381,781	54,792	0.03
2030	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-80,000	272,219	192,219	34,339	0.02
2031	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-160,000	272,219	112,219	30,731	0.02
2032	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-80,000	272,219	192,219	24,938	0.02
2033	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-80,000	272,219	192,219	21,252	0.01
2034	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-5,085,000	272,219	-4,812,781	74,925	0.01
2035	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	822,150	272,219	1,094,369	6,707	0.01
2036	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	0	272,219	272,219	12,493	0.01
2037	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	54,810	272,219	327,029	10,261	0.01
2038	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	0	272,219	272,219	9,073	0.01
2039	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	2,281,000	272,219	2,553,219	-3,906	0.01
2040	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-80,000	272,219	192,219	6,937	0.00
2041	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-105,190	272,219	167,029	6,005	0.00
2042	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-80,000	272,219	192,219	5,038	0.00
2043	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-80,000	272,219	192,219	4,293	0.00
2044	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-80,000	272,219	192,219	3,659	0.00
2045	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	54,810	272,219	327,029	2,854	0.00
2046	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	0	272,219	272,219	2,524	0.00
2047	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	0	272,219	272,219	2,151	0.00
2048	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	0	272,219	272,219	1,833	0.00
2049	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-3,629,000	272,219	-3,356,781	5,302	0.00
2050	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-167,500	272,219	104,719	1,478	0.00
2051	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-247,500	272,219	24,719	1,320	0.00
2052	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-80,000	272,219	192,219	1,018	0.00
2053	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-167,500	272,219	104,719	915	0.00
2054	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-167,500	272,219	104,719	780	0.00
2055	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-87,500	272,219	184,719	633	0.00
2056	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-87,500	272,219	184,719	539	0.00
2057	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-87,500	272,219	184,719	460	0.00
2058	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	-87,500	272,219	184,719	392	0.00
2059	328,000	4.00	261,000	1.68	30,000	1.24	1,787,680	0	0	0	372	0.00
Total											0.00	

Appendix-14.2 Component of annual concession fee

(thousand LE)

Annual wage of officers	328
Cost of office equipments	28
Cost of infrastructures	1,411
Return of the borrowing	1,592
Others(Boat, car and etc.)	55
Royalty	1,191
Total	4,605

Note: Number of officers : 20

**APPENDIX 15-I MITIGATION MANAGEMENT PLAN
(A) Mitigation Management Plan – Alexandria Project**

Environmental element	Potential Negative Impacts	Mitigation Measures	Implementing Authority
Biology			
Fauna/Flora (construction)	*No negative impacts because water in the Lake and near the outlet of Nubaria Canal is heavily polluted by all kinds of contaminants that affect already the aquatic organisms.	*Prevent the discharge of different types of wastes water into the Lake and the canal.	Ministry of Interior Ministry of Defense EEAA
Biology			
Fauna/Flora (Operation)	*Increased the intensity and frequency of navigation may increase the rate of aquatic weed infestations along the waterways and the lake.	*Monitor the aquatic weed infestation. *Provide weed control measures.	Ministry of Water Resources and Irrigation
	*Highly contaminated water with oil and grease may hazard fish, benthic organisms and planktons. *Re-suspended sediment caused by navigations may increase water contamination that may hazard all living organisms especially in the lake.	*Control the navigation by installing strong law to include suitable shipping boats, speed and regulation that regulate shipping of all kinds of dangerous cargo. *Monitor water quality and the aquatic organism biodiversities.	RTA Ministry of Tourism
	*Accident caused by shipping boat may cause pollution to the water that may affect the aquatic habitats.	Speed limit laws should be imposed	RTA
	Salinity may increase within the water of the Lake and Canal as a result of increasing the intensity and frequency opening the locks, which may change the aquatic habitats.	*Monitor water quality. *Install more effective down stream pumps near the locks.	Ministry of Water Resources and Irrigation

Environmental element	Potential Negative Impacts	Mitigation Measures	Implementing Authority
Socio-Economy			
Population Composition	Gender imbalance in the truck loading/unloading society	Training them for the new jobs in barge loading/unloading and/or finding other jobs for them	RTA Ministry of transportation NGO
Income	Truck loading/unloading laborers losing jobs and income	Same as mentioned above	RTA Ministry of transportation NGO
	Truck owners/drivers losing business	Directing them to possible other locations with new business (e.g. New port east of Port-Said, Industrial area at Ain El-Sukhna, ... etc.)	Ministry of local development RTA Ministry of transportation
Economic Activities	No Expected Effects	_____	_____
Social Conditions	Deterioration in the truck loading/unloading society	Same as mentioned above	Ministry of local development RTA Ministry of transportation
Land Use and Land Tenure	No Expected Effects	_____	_____
Industry	No Expected Effects	_____	_____
Port Services	No Expected Effects	_____	_____

**APPENDIX 15-I MITIGATION MANAGEMENT PLAN
(B) Mitigation Management Plan – Boulin Project**

Environmental element	Potential Negative Impacts	Mitigation Measures	Implementing Authority
Socio-Economy			
Population Composition	Gender imbalance in the area (migration of males to find alternate sources of living)	Helping the owners/renters of dispossessed lands and affected agricultural laborers to resettle with their families in other locations.	Ministry of Agriculture (MOA) Ministry of Water Resources & Irrigation (MWRI) Ministry of Local Development (MLD)
	Inflow of strangers to the area because of newly needed facilities (Cafeteria, Restaurant, ... etc.)	Giving loans to some of the area's residents to help them start such kinds of newly needed businesses.	MLD
	Generation of illegal, unplanned, unhealthy services in the area (Cafeteria, Restaurant, ... etc.), that may also work in illegal drug trafficking	Same mentioned above	MLD Ministry of Interior (MOI)
Income	About 136 families will lose their income due to land dispossession (Owners and renters), an estimates of 680 persons, in addition to agricultural laborers that will lose employment opportunity.	Carefully studying each individual case to sufficiently compensate each family to successfully restart their lives in other locations, in addition to giving them loans to own lands if possible. It is possible to find lands for substitution at many locations in the newly reclaimed desert lands where many owners illegally leave their lands uncultivated to sell them for illegal housing construction.	MOA MWRI MLD RTA

	Temporary loss of income by land owners and land renters due to land usage during construction	Proper compensation for both land owners and land renters for these damages, including the possible rise in animal fodder due to importing it from outside the area at different prices	MOA MWRI MLD RTA
	Dispossession of about 35 houses, affecting about 70 families (about 700 persons).	Carefully studying each family, in view of land dispossession to properly compensate the affected families.	MOA MWRI MLD RTA
	4 fishermen, together with their families (about 20 persons) will lose their income due to scaring the fish away.	Properly compensating the affected families and helping them to restart their fishing profession at other locations.	MLD
Economic Activities	Farmers that will lose their income can only be farmers	Help them resettle at other locations to continue their lives as farmers (as mentioned above).	MLD MOA
	Fishermen that will lose their income can only be farmers	Help them resettle at other locations to continue their lives as fishermen (as mentioned above).	MLD MOA
Social Conditions	Family division	Proper compensation to resettle whole families.	MLD
Land Use and Land Tenure	Permanent dispossession of about 66 feddans	Proper compensation to owners, renters and laborers.	MLD MOA
	Possibility of escalating illegal housing construction	<p>Legal permission to affected families that will stay in the area to rebuild their houses.</p> <p>Legal permission to the needed new facilities (and well-planning them).</p> <p>Detailed survey to current buildings in the area, and regularly monitoring for any illegal construction.</p>	Ministry of Housing (MOH) MLD

Irrigation Facilities	Possible damage to the irrigation and drainage network	Direct compensation to the government	MWRI
	Possible damage to field distributors (Meskas) and irrigation lifters (Sakias).	Direct compensation to the land owners	MWRI RTA
Irrigation Water Use	No expected effects	_____	_____
Agricultural Practices	No expected effects	_____	_____
Fauna/Flora	*Increased sediment re-suspension may hazard fish larvae, benthic organisms and planktons.	*Removal and proper disposal of dredged material. *Prevent dumping the soil into the waterways.	TRA MLD

Potential impacts of inland waterways transport project at Bolin area (operation) and their Mitigation measures.

Environmental element	Potential Negative Impacts	Mitigation Measures	Implementing Authority
Fauna/Flora	*Increased the intensity and frequency of navigation may increase the rate of aquatic weed infestations along the waterways and the lake.	*Monitor the aquatic weed infestation. *Provide weed control measures.	MWRI
	*Highly contaminated water with oil and grease may hazard fish, benthic organisms and planktons. *Re-suspended sediment caused by navigations may increase water contamination that may hazard all living organisms especially in the lake. *Accident caused by shipping boat may cause pollution to the water that may affect the aquatic habitats.	*Control the navigation by installing strong law to include suitable shipping boats, speed and regulation that regulate shipping of all kinds of dangerous cargo. *Monitor water quality and the aquatic organism biodiversities.	RTA MWRI

