ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION

OPTION 4a - PHASE I CONSTRUCTION PACKAGES

Package 1 - Zaqra Wastewat	er Pump Stations	Package 2 - Reinforcment & Rehabilita Networks	ntion of Existing	Package 3 - Expantion of Collection Zarqa	n Networks in	Package 4 - Collection Networks for Sukhneh Zone		
West Zarqa PS System		West Zarqa PS System		West Zarqa PS System				
West Zarqa PS	5,986,405	Reinforcement of Existing Neworks	4,715,155	Expansion of Collection Networks	10,247,411			
		Rehabilitation of Existing Sewers	1,534,100					
East Zarqa PS System		East Zarqa PS System		East Zarqa PS System				
Upgrading of EZPS	2,109,000	Reinforcement of Existing Neworks	624,252	Expansion of Collection Networks	4,425,101			
		Rehabilitation of Existing Neworks	828,660					
Sukhneh PS System						Sukhneh PS System		
Sukhneh PS	2,167,000					Expansion of Collection Networks in Sukhneh	10,811,362	
Pumping Main	4,012,800					House Connections and Sundry Items	1,445,196	
						Trunk Lines	4,204,612	
Total Capital Cost	14,275,205	Total Capital Cost	7,702,167	Total Capital Cost	14,672,512	Total Capital Cost	16,461,169	
Preliminaries	285,504	Preliminaries	154,043	Preliminaries	293,450	Preliminaries	329,223	
Engineering	856,512	Engineering	462,130	Engineering	880,351	Engineering	987,670	
Land acquisition	475,000	Land acquisition	-	Land acquisition	1,025,000	Land acquisition	500,000	
Environmental	188,146	Environmental	101,514	Environmental	193,383	Environmental	216,957	
Contingencies	2,855,041	Contingencies	1,540,433	Contingencies	2,934,502	Contingencies	3,292,234	
Total Cost	18,935,409	Total Cost	9,960,287	Total Cost	19,999,199	Total Cost	21,787,254	

EXPANSION AND REINFORCEMENT OF ZARQA WASTEWATER SYSTEMS OPTION 4a - PHASE I MPLEMENTATION PLAN CASH FLOW SCHEDULE

								201	.2					
Priority No.	Description of Works	Estimated Cost	1	2	3	4	5	6	7	8	9	10	11	12
1	West Zarqa PS System													
1.1	West Zarqa PS	5,986,405	598,641			359,184	359,184	359,184	359,184	359,184	359,184	359,184	359,184	359,184
1.1	Reinforcement of Existing Neworks	4,715,155	471,515	212,182	212,182	212,182	212,182	212,182	212,182	212,182	212,182	212,182	212,182	212,182
1.1	Rehabilitation of Existing Sewers	1,534,100	153,410				345,173	345,173	345,173	345,173				
1.2	Expansion of Collection Networks	10,247,411		1,024,741			354,718	354,718	354,718	354,718	354,718	354,718	354,718	354,718
	Subtotal (West Zarqa System)	22,483,071	1,223,566	1,236,923	212,182	571,366	1,271,257	1,271,257	1,271,257	1,271,257	926,084	926,084	926,084	926,084
2	East Zarqa PS System													
2.1	Upgrading of EZPS	2,109,000.00		210,900		189,810	189,810	189,810	189,810	189,810	189,810	189,810	189,810	189,810
2.2	Reinforcement of Existing Neworks	624,252		62,425	112,365	112,365	112,365	112,365	112,365				·	·
2.3	Rehabilitation of Existing Neworks	828,660		82,866		124,299	124,299	124,299	124,299	124,299	124,299			
2.4	Expansion of Collection Networks	4,425,101		442,510			199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130
	Subtotal (East Zarqa System)	7,987,013		798,701	112,365	426,474	625,604	625,604	625,604	513,239	513,239	388,940	388,940	388,940
3	Sukhneh PS System													
3.1	Sukhneh PS	2,167,000			216,700			216,700	216,700	216,700	216,700	216,700	216,700	216,700
3.1	Pumping Main	4,012,800			401,280				300,960	300,960	300,960	300,960	300,960	300,960
3.1	Trunk Lines	2,477,038			247,704				185,778	185,778	185,778	185,778	185,778	185,778
	Subtotal	8,656,838			865,684	0	0	216,700	703,438	703,438	703,438	703,438	703,438	703,438
3.1	Expansion of Collection Networks in Sukhneh	10,811,362				1,081,136			810,852	810,852	810,852	810,852	810,852	810,852
3.1	House Connections and Sundry Items	1,445,196						144,520					108,390	108,390
3.2	Trunk Lines	1,727,574			172,757									155,482
	Subtotal	13,984,131			172,757	1,081,136	0	144,520	810,852	810,852	810,852	810,852	919,242	1,074,723
	Subtotal (Sukhneh System)	22,640,969			1,038,441	1,081,136	0	361,220	1,514,290	1,514,290	1,514,290	1,514,290	1,622,680	1,778,161
	Total Capital Costs	53,111,053	1,223,566	2,035,624	1,362,989	2,078,977	1,896,861	2,258,080	3,411,151	3,298,785	2,953,613	2,829,314	2,937,704	3,093,185
	Preliminaries	1,062,221	265,555	265,555	265,555	265,555								
	Engineering	3,186,663	318,666	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896
	Land acquisition	2,000,000	2,000,000											
	Environmental	700,000	200,000	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241
	Total Contingencies	10,622,211	244,713	407,125	272,598	415,795	379,372	451,616	682,230	659,757	590,723	565,863	587,541	618,637
	Total Works	70,682,148	4,252,501	2,824,442	2,017,279	2,876,465	2,392,371	2,825,834	4,209,519	4,074,680	3,660,473	3,511,314	3,641,382	3,827,960

EXPANSION AND REINFORCEMENT OF ZARQA WASTEWATER SYSTEMS OPTION 4a - PHASE I MPLEMENTATION PLAN CASH FLOW SCHEDULE

							20	13					
Priority No.	Description of Works	1	2	3	4	5	6	7	8	9	10	11	12
1	West Zarqa PS System												
1.1	West Zarqa PS	359,184	359,184	359,184	359,184	359,184	359,184						
1.1	Reinforcement of Existing Neworks	212,182	212,182	212,182	212,182	212,182	212,182	212,182	212,182	212,182			
1.1	Rehabilitation of Existing Sewers												
1.2	Expansion of Collection Networks	354,718	354,718	354,718	354,718	354,718	354,718	354,718	354,718	354,718	354,718	354,718	354,718
	Subtotal (West Zarqa System)	926,084	926,084	926,084	926,084	926,084	926,084	566,900	566,900	566,900	354,718	354,718	354,718
2	East Zarga PS System												
2.1	Upgrading of EZPS	189,810											
2.2	Reinforcement of Existing Neworks												
2.3	Rehabilitation of Existing Neworks												
2.4	Expansion of Collection Networks	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130
	Subtotal (East Zarqa System)	388,940	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130
3	Sukhneh PS System												
3.1	Sukhneh PS	216,700	216,700										
3.1	Pumping Main	300,960	300,960	300,960	300,960	300,960	300,960						
3.1	Trunk Lines	185,778	185,778	185,778	185,778	185,778	185,778						
	Subtotal	703,438	703,438	486,738	486,738	486,738	486,738	0	0	0	0	0	0
3.1	Expansion of Collection Networks in Sukhneh	810,852	810,852	810,852	810,852	810,852	810,852						
3.1	House Connections and Sundry Items	108,390	108,390	108,390	108,390	108,390	108,390	108,390	108,390	108,390	108,390		
3.2	Trunk Lines	155,482	155,482	155,482	155,482	155,482	155,482	155,482	155,482	155,482			
	Subtotal	1,074,723	1,074,723	1,074,723	1,074,723	1,074,723	1,074,723	263,871	263,871	263,871	108,390	0	0
	Subtotal (Sukhneh System)	1,778,161	1,778,161	1,561,461	1,561,461	1,561,461	1,561,461	263,871	263,871	263,871	108,390	0	0
	Total Capital Costs	3,093,185	2,903,375	2,686,675	2,686,675	2,686,675	2,686,675	1,029,901	1,029,901	1,029,901	662,237	553,848	553,848
	Preliminaries												
	Engineering	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896
	Land acquisition							, i					
	Environmental	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241
	Total Contingencies	618,637	580,675	537,335	537,335	537,335	537,335	205,980	205,980	205,980	132,447	110,770	110,770
	Total Works	3,827,960	3,600,188	3,340,148	3,340,148	3,340,148	3,340,148	1,352,019	1,352,019	1,352,019	910,823	780,755	780,755

EXPANSION AND REINFORCEMENT OF ZARQA WASTEWATER SYSTEMS OPTION 4a - PHASE I MPLEMENTATION PLAN CASH FLOW SCHEDULE

				201	4		
Priority No.	Description of Works	1	2	3	4	5	
1	West Zarqa PS System						
1.1	West Zarqa PS						
1.1	Reinforcement of Existing Neworks						
1.1	Rehabilitation of Existing Sewers						
1.2	Expansion of Collection Networks	354,718	354,718	354,718	354,718	354,718	354,718
	Subtotal (West Zarqa System)	354,718	354,718	354,718	354,718	354,718	354,71
2	East Zarqa PS System						
2.1	Upgrading of EZPS						
2.2	Reinforcement of Existing Neworks						
2.3	Rehabilitation of Existing Neworks						
2.4	Expansion of Collection Networks						
	Subtotal (East Zarqa System)	0	0	0	0	0	
3	Sukhneh PS System			+			
3.1	Sukhneh PS						
3.1	Pumping Main						
3.1	Trunk Lines						
	Subtotal	0	0	0	0	0	
3.1	Expansion of Collection Networks in Sukhneh						
3.1	House Connections and Sundry Items						
3.2	Trunk Lines						
	Subtotal	0	0	0	0	0	
	Subtotal (Sukhneh System)	0	0	0	0	0	
	Total Capital Costs	354,718	354,718	354,718	354,718	354,718	354,71
	Preliminaries						
	Engineering	98,896	98,896	98,896	98,896	98,896	98,89
	Land acquisition						
	Environmental	17,241	17,241	17,241	17,241	17,241	17,24
	Total Contingencies	70,944	70,944	70,944	70,944	70,944	70,94
	Total Works	541,800	541,800	541,800	541,800	541,800	541,80

No.	Item			Unit	Quantity	Unit Cost	Total Cost
						(JD)	(JD)
1	West Zarga PS System						
1.1	Collection Networks						
1.1.1	Expansion of Collection Networks						
Α	Collection networks for expansion areas	Dia. (mm)					
	Hai al-Qamar	200		m	3,764	100.00	376,396.9
	Hai Umm Bayadhah	200		m	21,494	100.00	2,149,361.5
	Hai al-Dweik	200		m	13,224	100.00	1,322,373.8
	Hai al-Falah	200		m	13,804	100.00	1,380,390.0
	Hai al-Razi	200		m	1,958	100.00	195,780.2
	Hai al-Rasheed al-Shamali	200		m	15,710	100.00	1,571,022.2
	Hai al-Jraiba	200		m	3,834	100.00	383,438.0
			Subtotal				7,378,762.6
В	Collection networks for filling gaps						
	Hai Ramzi	200		m	3,059	100.00	305,910.0
	Hai al-Zawahreh	200		m	1,404	100.00	140,360.0
	Hai al-Qadessiyah	200		m	9,469	100.00	946,880.0
	Hai Ja'far al-Tayyar	200		m	2,098	100.00	209,770.0
	Hai al-Malek Talal	200		m	481	100.00	48,056.8
	Hai al-Jundi	200	6 1	m	478	100.00	47,763.1
_	Harra Carrantina		Subtotal				1,698,739.9
С	House Connections	150		m	10,893	80.00	871,440.2
	House connection pipe	150	Subtotal	m	10,893	80.00	871,440.2 871,440.2
D	Trunk Lines		Subtotal			 	6/1,440.2
U	TIGHK LINES			 			
			Subtotal			 	0.0
Е	Sundry items				0.0		
	Sundry items for encasement and other construction						
	collection network costs			3%	298,468.2		
					,		
	Total expansio				10,247,411.0		
1.1.2	Reinforcement of Existing Neworks						
Α	Replacement of main lines						
	Replacement of main lines	200		m	330	120.00	39,600.0
	Main lines in Hai al-Zawahreh and other						
	miscellaneous areas to replace existing 200 mm	300		m	1,628	156.00	253,968.0
	Main line in Hai Awajan to replace existing 300						
	mm line	400		m	661	200.40	132,464.4
	Main collector trunk in Wadi Zarqa to replace	=00			=00	251.00	4======
	existing 400 mm line	500		m	590	264.00	155,760.0
	Main collector trunk in russeifa to replace existing	800			325	380.40	422 620 0
	800 mm line with increased gradient	800		m	325	380.40	123,630.0
	Replace part of the exisitng 500 mm trunk runs from Hai Awjan al-Shamali to Hai al-Nuzha with					 	
	900 mm	900		m	6,235	423.90	2,643,016.5
	Replace part of the exisitng 1000 mm trunk in	300		111	0,233	423.50	2,043,010.3
	Wadi Zarqa with increased gradient 1000 mm	1000		m	280	489.00	136,920.0
	Main collector trunk to WZPS to replace existing	1000			200	103.00	150,520.0
	1000 mm line	1300		m	61	662.10	40,388.1
			Subtotal				3,525,747.0
В	Additional main lines						
	New 400 mm trunk in Hai Awajan and Hai Umm	400		m	300	167.00	50,100.0
	Jaradh						
	New 900 mm trunk sewer in Wadi Zarqa	900		m	2,510	353.25	886,657.5
		-					
	New 1000 mm trunk sewer in Wadi Zarqa	1000		m	620	407.50	252,650.0
	1		Subtotal		1	1	1,189,407.5
	Total reinforcement of m					ļ	4,715,154.5

	Haya to Sukhneh - Phase I		1		
No.	ltem	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
1.1.3	Dehabilitation of Existing Course				
A.1.3	Rehabilitation of Existing Sewers		-	 	
А	Replacement of blocked sewers		425	150.00	67.060.00
	in Zarqa Refugee Camp 300	m	435	156.00	67,860.00 183.300.00
	in Iskan Tadweer al-Hadari 300 in Hai al-Zawahreh 300	m	1,175 340	156.00 156.00	183,300.00 53,040.00
		m	365	156.00	56,940.00
	in Hai al-Jabal al-Abyad 300 in Hai al-Nuzha 300	m	165	156.00	25,740.00
	Various sewers in Hettein Camp 300	m m	1,500	156.00	234,000.00
	Subtotal	1111	1,500	150.00	620,880.00
В	Replacement of sewers that are in private properties			+ +	020,880.00
ь	in Hai Ramzi 200	m	120	120.00	14,400.00
	in Hai Hussein 200	m	105	120.00	12,600.00
	in Hai al-Dhubbat 200		315	120.00	37,800.00
	in Hai al-Dhubbat 200 in Hai al-Thawra al-Arabiyah al-Kubra 200	m m	600	120.00	72,000.00
	in Hai al-Thawra al-Arabiyah al-Kubra 300	m	595	156.00	92,820.00
	in Hai al-Zawahreh 200	m	185	120.00	22,200.00
	Hai al-Jabal al-Shamali 300	m	800	156.00	124,800.00
	Subtotal	111	800	150.00	376,620.00
С	Raising of deep sewers		1		370,020.00
	in Hai al-Rasheed al-Shamali 300	m	1,350	156.00	210,600.00
	III Hai ai-Nasileeu ai-Shallall	111	1,330	130.00	210,000.00
	Raising of manhole covers	No.	800	120.00	96,000.00
	Subtotal	140.	000	120.00	306,600.00
D	Cleaning of sewers			t t	300,000.00
	cleaning of sewers using bucket machine	m	0	22.00	0.00
	Subtotal			22.00	0.00
Е	Rehabilitation of Hitteen Camp Pumping Station				
	Refurbishment of pumps and screens	LS	1	230,000.00	230,000.00
	Subtotal			1	230,000.00
	Total Rehabilitation of Sewers in West Zarga system				1,534,100.00
	Total Collection Networks in West Zarqa system				16,496,665.52
1.2	Conveyance Systems				
1.2.1	Trunk Lines				
					0.00
	Total Trunk Lines in West Zarga System				0.00
1.2.2	Pumping Mains				
	from WZPS to As-Samra WwTP 700	m	0	814.00	0.00
	Total Pumping Mains in West Zarqa System				0.00
1.2.3	Pumping Stations				
	WZPS 5,200 [m³/hr]	LS	1	5,986,405	5,986,405.00
	Total Pumping Stations in West Zarqa System				5,986,405.00
	Total Conveyance Systems in West Zarqa System				5,986,405.00
	Total West Zarga System				22,483,070.52

Subtotal Subtotal	2.1	2,742,410.0 2,742,410.0 127,270.0 157,995.2 285,265.2 290,656.8 290,656.8 144,300.0 111,723.0 139,920.0 977,883.0
Collection Networks Collection Networks Collection Networks Collection networks for expansion areas Dia. (mm)	2.1 Collection Networks	2,742,410.0 127,270.0 157,995.2 285,265.2 290,656.8 290,656.8 144,300.0 111,723.0 139,920.0 581,940.0 977,883.0
2.1.1 Expansion of Collection Networks	2.1.1 Expansion of Collection Networks	2,742,410.0 127,270.0 157,995.2 285,265.2 290,656.8 290,656.8 144,300.0 111,723.0 139,920.0 581,940.0 977,883.0
A Hall-betarwi	A Collection networks for expansion areas Dia. (mm) Hai al-Batrawi 200 m 27,424 100.00	2,742,410.0 127,270.0 157,995.2 285,265.2 290,656.8 290,656.8 144,300.0 111,723.0 139,920.0 581,940.0 977,883.0
Hal al-Batrawi 200	Hai al-Batrawi 200	2,742,410.0 127,270.0 157,995.2 285,265.2 290,656.8 290,656.8 144,300.0 111,723.0 139,920.0 581,940.0 977,883.0
Subtotal Collection networks for filling gaps	Subtotal Subtotal	2,742,410.0 127,270.0 157,995.2 285,265.2 290,656.8 290,656.8 144,300.0 111,723.0 139,920.0 581,940.0 977,883.0
B	B Collection networks for filling gaps	127,270.0 157,995.2 285,265.2 290,656.8 290,656.8 144,300.0 111,723.0 139,920.0 581,940.0 977,883.0
Hai al-Hastrawi	Hai al-Batrawi 200 m 1,273 100.00 Hai al-Hashemeyah al-Janoubiyah 200 m 1,580 100.00 C House Connections	157,995.2 285,265.2 290,656.8 290,656.8 144,300.0 111,723.0 581,940.0 977,883.0
Hai al-Hashemeyah al-Janoubiyah 200	Hai al-Hashemeyah al-Janoubiyah 200 m 1,580 100.00	157,995.2 285,265.2 290,656.8 290,656.8 144,300.0 111,723.0 581,940.0 977,883.0
Subtotal Subtotal	C House Connections Subtotal	285,265.2 290,656.8 290,656.8 144,300.0 111,723.0 139,920.0 581,940.0 977,883.0
House Connections	C House Connections House connection pipe 150 3,633 80.00 D Subtotal 5ubtotal 1,110 130.00 Hai Batrawi trunk 400 m 669 167.00 500 m 636 220.00 600 m 2,196 265.00 E Sundry items Subtotal 5ubtotal E Sundry items for encasement and other construction costs at 3% of cost of collection network costs 3% Total expansion of collection networks 3%	290,656.8 290,656.8 144,300.0 111,723.0 139,920.0 581,940.0 977,883.0
House connection pipe	House connection pipe 150 3,633 80.00	290,656.8 144,300.0 111,723.0 139,920.0 581,940.0 977,883.0
D Trunk Lines 300	Subtotal	290,656.8 144,300.0 111,723.0 139,920.0 581,940.0 977,883.0
D Trunk Lines 300	D Trunk Lines 300 m 1,110 130.00	144,300.0 111,723.0 139,920.0 581,940.0 977,883.0
Hai Batrawi trunk	Hai Batrawi trunk	111,723.0 139,920.0 581,940.0 977,883.0
Hal Batrawi trunk	Hai Batrawi trunk 400 m 669 167.00 500 m 636 220.00 600 m 2,196 265.00 Subtotal E Sundry items Sundry items for encasement and other construction costs at 3% of cost of collection network costs Total expansion of collection networks	139,920.0 581,940.0 977,883.0 128,886.4
Hal satrawit frunk	Subtotal E Sundry items Sundry items Sundry items for encasement and other construction costs at 3% of cost of collection network costs Collection network costs Collection networks C	139,920.0 581,940.0 977,883.0 128,886.4
Sundry items Sundry items Sundry items Sundry items for encasement and other construction costs at 3% of cost of collection network costs Sundry items for encasement and other construction costs at 3% of cost of collection network costs 33%	E Sundry items Sundry items Sundry items for encasement and other construction costs at 3% of cost of collection network costs Total expansion of collection networks	581,940.0 977,883.0 128,886.4
E Sundry items Sundry items Sundry items Sundry items for encasement and other construction costs at 3% of cost of collection network costs 3% 128,886 Total expansion of collection networks 4,425,101 2.1.2 Reinforcement of Existing Neworks 4,425,101 2.1.2 Reinforcement of Existing Neworks 4,425,101 2.1.2 Reinforcement of main trunks Replacement of main trunks Replacement of 200 mm sewers in Hail Batrawi 300 mm 1,047 156,00 163,332 replacement of 200 mm sewers in Hail Batrawi 300 mm 2,300 200,40 460,920 graph of the main trunks Subtotal 2,300 200,40 460,920 Total reinforcement of main trunks in East Zarqa 624,252 Rehabilitation of Existing Neworks	E Sundry items Sundry items Sundry items for encasement and other construction costs at 3% of cost of collection network costs Total expansion of collection networks	977,883.0 128,886.4
E Sundry items Sundry items for encasement and other construction costs at 3% of cost of collection network costs 3% 128,886	Sundry items for encasement and other construction costs at 3% of cost of collection network costs Total expansion of collection networks	128,886.4
Collection network costs	Collection network costs 3% Total expansion of collection networks	
Total expansion of collection networks	Total expansion of collection networks	
2.1.2 Reinforcement of Existing Neworks		4,425,101.4
2.1.2 Reinforcement of Existing Neworks		4,425,101.4
A Replacement of main trunks	2.1.2 Reinforcement of Existing Neworks	
A Replacement of main trunks	2.1.2 Reinforcement of Existing Neworks	
replacement of 200 mm sewers in Hai Batrawi 300 m 1,047 156.00 163,332 replacement of 200 mm in al-Karameh and al-Aqsa Streets sewers 400 m 2,300 200.40 460,920 Aqsa Streets sewers 400 m 2,300 200.40 460,920 Total reinforcement of main trunks in East Zarqa 624,252 Total reinforcement of main trunks in East Zarqa 624,252 Total Rehabilitation of Existing Neworks A Replacement of blocked sewers 1,250 120.00 150,000 in Hashemeyiah (two lines) 200 m 4,620 120.00 59,400 in Hai al-Iskan (replacement of network) 200 m 4,620 120.00 554,400 B Replacement of sewers that are in private properties in Hashemeyiah 300 m 185 156.00 28,860 C Raising of deep sewers Subtotal 28,860 C Raising of deep sewers No. 300 120.00 36,000 Total Rehabilitation of Sewers in East Zarqa system 5,878,013 Total Collection Networks in East Zarqa system 0 2.2.2 Trunk Lines Total Collection Networks in East Zarqa System 0 2.2.2 Trunk Lines Total Pumping Mains in East Zarqa System 0 2.2.3 Total Pumping Stations Upgrading of EZPS 3,000 (m³/hr) LS 1 2,109,000 2,109,000 Total Conveyance Systems in East Zarqa System 2,109,000 2,109,000 Total Conveyance Systems in East Zarqa System 2,109,000 2,109,000 Total Conveyance Systems in East Zarqa System 2,109,000 2,109,000 Total Conveyance Systems in East Zarqa System 2,109,000 2,109,000 Total Conveyance Systems in East Zarqa System 2,109,000 2,109,000 Total Conveyance Systems in East Zarqa System 2,109,000 2,109,000 Total Conveyance Systems in East Zarqa System 2,109,000 2,109,000	ELILE INCHIOCOCHICILO I EXISTING NEWOLKS	
replacement of 200 mm in al-Karameh and al- Aqsa Streets sewers 400	A Replacement of main trunks	
Agsa Streets sewers	replacement of 200 mm sewers in Hai Batrawi 300 m 1,047 156.00	163,332.0
Subtotal G24,252	replacement of 200 mm in al-Karameh and al-	
Total reinforcement of main trunks in East Zarqa 624,252	Agsa Streets sewers 400 m 2,300 200.40	460,920.0
1.1.2 Rehabilitation of Existing Neworks		624,252.0
Replacement of blocked sewers	Total reinforcement of main trunks in East Zarqa	624,252.0
Replacement of blocked sewers		
in Eskan al-Hashemeyiah 200 m 1,250 120.00 150,000 in Hashemeyiah (two lines) 200 m 495 120.00 59,400 in Hashemeyiah (two lines) 200 m 4,620 120.00 554,400 Subtotal 763,800 B Replacement of sewers that are in private properties in Hashemeyiah 300 m 185 156.00 28,860 C Raising of deep sewers Raising of manhole covers No. 300 120.00 36,000 Total Rehabilitation of Sewers in East Zarqa system 328,660 Total Collection Networks in East Zarqa system 5,878,013 2.2 Conveyance Systems Total Trunk Lines in East Zarqa System 0 814.00 0 Total Pumping Mains in East Zarqa System 0 814.00 0 Total Pumping Stations in East Zarqa System 0 2,109,000 Total Pumping Stations in East Zarqa System 0 2,109,000 Total Conveyance Systems in East Zarqa System 0 2,109,000 Total Conveyance Systems in East Zarqa System 0 2,109,000		
In Hashemeyiah (two lines) 200 m 495 120.00 59,400 In Hai al-Iskan (replacement of network) 200 m 4,620 120.00 554,400 B Replacement of sewers that are in private properties		
in Hai al-Iskan (replacement of network) 200 m 4,620 120.00 554,400 B Replacement of sewers that are in private properties in Hashemeyiah 300 m 185 156.00 28,860 C Raising of deep sewers Raising of manhole covers No. 300 120.00 36,000 Total Rehabilitation of Sewers in East Zarqa system 828,660 Total Collection Networks in East Zarqa system 5,878,013 2.2 Conveyance Systems Total Trunk Lines in East Zarqa System 0 Total Trunk Lines in East Zarqa System 0 2.2.2 Pumping Mains from EZPS to AS-Samra WwTP 700 m 0 814.00 0 Total Pumping Mains in East Zarqa System 0 Upgrading of EZPS 3,000 [m³/hr] Upgrading of EZPS 3,000 [m³/hr] Upgrading of EZPS 3,000 [m³/hr] Total Pumping Stations in East Zarqa System 2,109,000 Total Conveyance Systems in East Zarqa System 2,109,000		
B Replacement of sewers that are in private properties in Hashemeyiah 300 m 185 156.00 28,860 C Raising of deep sewers Raising of manhole covers No. 300 120.00 36,000 Total Rehabilitation of Sewers in East Zarqa system 828,660 Total Collection Networks in East Zarqa system 5,878,013 C Conveyance Systems Total Trunk Lines in East Zarqa System 0 814.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
B Replacement of sewers that are in private properties in Hashemeyiah 300 m 185 156.00 28,860 28,860 C Raising of deep sewers		
in Hashemeyiah 300 m 185 156.00 28,860 C Raising of deep sewers Raising of manhole covers No. 300 120.00 36,000 Subtotal 36,000 Total Rehabilitation of Sewers in East Zarqa system 828,660 Total Collection Networks in East Zarqa system 5,878,013 C.2 Conveyance Systems Total Trunk Lines Total Trunk Lines in East Zarqa System 0 Total Trunk Lines in East Zarqa System 0 2.2.2 Pumping Mains from EZPS to AS-Samra WwTP 700 m 0 814.00 0 Total Pumping Mains in East Zarqa System 0 Upgrading of EZPS 3,000 [m³/hr] LS 1 2,109,000 2,109,000 Total Pumping Stations in East Zarqa System 2,109,000 Total Conveyance Systems in East Zarqa System 2,109,000		763,800.0
C Raising of deep sewers No. 300 120.00 36,000 Raising of manhole covers No. 300 120.00 36,000 Subtotal Subtotal Subtotal Sewers in East Zarqa system	<u> </u>	20.000.0
C Raising of deep sewers No. 300 120.00 36,000 2.2 Raising of manhole covers Subtotal Subtotal 36,000 2.2 Total Collection Networks in East Zarqa system 5,878,013 2.2.1 Trunk Lines Total Trunk Lines in East Zarqa system 5,878,013 2.2.2 Pumping Mains Total Trunk Lines in East Zarqa System 0 2.2.2 Pumping Mains from EZPS to AS-Samra WwTP 700 m 0 814.00 0 2.2.3 Pumping Stations Upgrading of EZPS 3,000 [m³/hr] LS 1 2,109,000 Total Pumping Stations in East Zarqa System 2,109,000 Total Conveyance Systems in East Zarqa System 2,109,000		
Raising of manhole covers		20,000.0
Subtotal 36,000 Total Rehabilitation of Sewers in East Zarqa system 55,878,013 2.2 Conveyance Systems Trunk Lines Total Trunk Lines in East Zarqa System 0 Total Trunk Lines in East Zarqa System 0 2.2.2 Pumping Mains from EZPS to AS-Samra WwTP 700 m 0 814.00 0 Total Pumping Mains in East Zarqa System 0 2.2.3 Pumping Stations Upgrading of EZPS 3,000 [m³/hr] LS 1 2,109,000 2,109,000 Total Pumping Stations in East Zarqa System 2,109,000 Total Conveyance Systems in East Zarqa System 2,109,000		36,000,0
Total Rehabilitation of Sewers in East Zarqa system Total Collection Networks in East Zarqa system 2.2. Conveyance Systems Trunk Lines Total Trunk Lines in East Zarqa System Total Trunk Lines in East Zarqa System Total Pumping Mains Total Pumping Mains in East Zarqa System Description Total Pumping Mains in East Zarqa System Upgrading of EZPS Total Pumping Stations Total Pumping Stations in East Zarqa System Total Conveyance Systems in East Zarqa System Z,109,000		
Total Collection Networks in East Zarqa system 5,878,013		
2.2	rotal neliabilitation of sewers in East Early System	020,000.0
2.2	Total Collection Networks in East Zarga system	5.878.013.4
Z.2.1 Trunk Lines 0 Total Trunk Lines in East Zarqa System 0 Z.2.2 Pumping Mains from EZPS to AS-Samra WwTP 700 m 0 814.00 0 Total Pumping Mains in East Zarqa System 0 814.00 0 2.2.3 Pumping Stations 0 2,109,000 Upgrading of EZPS 3,000 [m³/hr] LS 1 2,109,000 2,109,000 Total Pumping Stations in East Zarqa System 7,109,000 2,109,000 2,109,000		
Z.2.1 Trunk Lines 0 Total Trunk Lines in East Zarqa System 0 Z.2.2 Pumping Mains from EZPS to AS-Samra WwTP 700 m 0 814.00 0 Total Pumping Mains in East Zarqa System 0 814.00 0 2.2.3 Pumping Stations 0 2,109,000 Upgrading of EZPS 3,000 [m³/hr] LS 1 2,109,000 2,109,000 Total Pumping Stations in East Zarqa System 7,109,000 2,109,000 2,109,000	2.2 Conveyance Systems	
Total Trunk Lines in East Zarqa System	224 Todding	
Total Trunk Lines in East Zarqa System 2.2.2 Pumping Mains from EZPS to AS-Samra WwTP 700 Total Pumping Mains in East Zarqa System Upgrading of EZPS 3,000 Total Pumping Stations Total Pumping Stations in East Zarqa System Total Pumping Stations in East Zarqa System Total Pumping Stations in East Zarqa System Total Conveyance Systems in East Zarqa System 2,109,000 Total Conveyance Systems in East Zarqa System 2,109,000		0.0
2.2.2 Pumping Mains m 0 814.00 0 Total Pumping Mains in East Zarqa System 0 814.00 0 2.2.3 Pumping Stations 0 Upgrading of EZPS 3,000 [m³/hr] LS 1 2,109,000 2,109,000 Total Pumping Stations in East Zarqa System 2,109,000 2,109,000 Total Conveyance Systems in East Zarqa System 2,109,000	Total Trunk Lines in East Zarga System	0.0
from EZPS to AS-Samra WwTP 700 m 0 814.00 0 Total Pumping Mains in East Zarqa System Upgrading of EZPS 3,000 [m³/hr] LS 1 2,109,000 2,109,000 Total Pumping Stations in East Zarqa System Total Pumping Stations in East Zarqa System Total Conveyance Systems in East Zarqa System 2,109,000		3.0
Total Pumping Mains in East Zarqa System 2.2.3 Pumping Stations Upgrading of EZPS Total Pumping Stations in East Zarqa System Total Conveyance Systems in East Zarqa System	1 0	0.0
2.2.3 Pumping Stations 3,000 [m³/hr] LS 1 2,109,000 2,109,000 Total Pumping Stations in East Zarqa System 2,109,000 Total Conveyance Systems in East Zarqa System 2,109,000		0.0
Upgrading of EZPS 3,000 [m³/hr] LS 1 2,109,000 2,109,000 Total Pumping Stations in East Zarqa System 2,109,000 Total Conveyance Systems in East Zarqa System 2,109,000		
Total Pumping Stations in East Zarqa System 2,109,000 Total Conveyance Systems in East Zarqa System 2,109,000		2,109,000.0
Total Conveyance Systems in East Zarqa System 2,109,000		2,109,000.0
	1 0 1 1	2,109,000.0
Total Fact Targe System 7 007 043		,,
10tai East Zarqa System 7,987,013	Total East Zarqa System	<u>7,987,013</u> .

No.	Item		Unit	Quantity	Unit Cost	Total Cost
					(JD)	(JD)
3	Sukhneh System					
3.1	Collection Networks					
3.1.1	Expansion of Collection Networks					
A	Collection networks for expansion areas	Dia. (mm)				
	Sukhneh	200	m	24,393	100.00	2,439,335.0
	al-Salheyah	200	m	8,483	100.00	848,283.7
	Abu-Zeighan	200	m	0	100.00	0.0
	Ghareisa	201	m	0	100.00	0.0
	Umm Suleih	202	m	0	100.00	0.0
	Hai al-Bustan	200	m	0	100.00	0.0
	Hai Shomar	200	m	3,782	100.00	378,217.4
	Hai al-Hashemi	200	m	2,136	100.00	213,644.2
	Hai al-Jneineh	200	m	5,784	100.00	578,380.0
	Hai al-Jabr	200	m	7,659	100.00	765,942.0
	Hai al-Ameera Haya	200	m	23,111	100.00	2,311,126.0
	Hai Nassar Hai al-Ahmad	200 200	m	9,051	100.00 100.00	905,096.5
	Hai al-Anmad Hai al-Madinah al-Munawarah	200	m m	10,511 7,907	100.00	790,680.0
	Hai Makka al-Mukarramah	200	m	5,296	100.00	529,607.1
	Hai Waka ai-Wakai aman	Subtotal	- 111	3,230	100.00	10,811,361.9
В	House Connections	Subtotui				10,011,301.
	House connection pipe	150		12,974	80.00	1,037,890.7
		Subtotal		,-		1,037,890.7
С	Trunk Lines					
		300	m	697	130.00	90,610.0
	Hai al-Ameera Haya	400	m	1,064	167.00	177,688.0
	пагаг-Аптеета пауа	600	m	1,870	265.00	495,550.0
		700	m	1,804	278.00	501,512.0
		1			467.00	
	Hai Makka al-Mukarramah	400	m	602	167.00	100,534.0
		500	m	1,644	220.00	361,680.0
_		Subtotal				1,727,574.0
D	Sundry items			 		
	Sundry items for encasement and other constructi			201	407.204.6	
	collection network costs			3%	407,304.8	
				 	13,984,131.4	
	Total expansion			+	15,564,151.4	
3.2	Conveyance Systems					
3.2.1	Trunk Lines					
JILII	Sukhneh trunk from Hai Ameera Haya to Sukhneh	800	m	7,814	317.00	2,477,038.0
	PS			.,		_,,
	from Ghareisa to Sukhneh PS	300	m	0	130.00	
		Lines in Sukhneh System				2,477,038.0
3.2.2	Pumping Mains					
	from Sukhneh PS to EZPS	500	m	7,040	570.00	4,012,800.0
		Mains in Sukhneh System				4,012,800.0
3.2.3	Pumping Stations					
	Sukhneh PS	990 [m³/hr]	LS	1	2,167,000	2,167,000.0
	Total Pumping Sta	itions in Sukhneh System				2,167,000.0
	Total Conveyance Sys	stems in Sukhneh System				8,656,838.0
	1			1		

No.	ltem	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
	Total				53,111,053.43
6	Other Costs				
6.1	Preliminaries			2%	1,062,221.07
6.2	Engineering			6%	3,186,663.23
6.3	Land acquisition	LS		LS	2,000,000.00
6.4	Environmental				
	Environmental Monitoring (Air, Water and soil)	LS		LS	450,000.00
	Environmental Rehabilitation	LS		LS	140,000.00
	Training and capacity Building	LS		LS	110,000.00
	Subtotal				700,000.00
	Total Other Costs				6,948,884.2
7	Contingencies				
				20%	10,622,210.69
	Total Contingencies				10,622,210.6
	Total Zarga Wastewater Reinforcement and Expansion				70,682,148.4

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION SUMMARY OF CAPITAL COST

Option 4a - Phase I: Summary of Capital Costs (JD)

		Collection	Networks			Co	nveyance Syste	ms		
System	Expansion	Reinforcement	Rehabilitation	Sub-total	Trunk mains	Pumping mains	Pumping stations	Local WwTPs	Sub-total	Total
West Zarqa System	10,247,411	4,715,155	1,534,100	16,496,666	0	0	5,986,405	0	5,986,405	22,483,071
East Zarqa System	4,425,101	624,252	828,660	5,878,013	0	0	2,109,000	0	2,109,000	7,987,013
Sukhneh System	13,984,131	0	0	13,984,131	2,477,038	4,012,800	2,167,000	0	8,656,838	22,640,969
		Total Colle	ection Networks	36,358,810			Total Conv	eyance Systems	16,752,243	53,111,053

Grand Total	70,682,148
Contingencies at 20%	10,622,211
Environmental	700,000
Land Acquisition	2,000,000
Engineering at 6%	3,186,663
Preliminaries at 2%	1,062,221

No.	tem	•	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
					(טנ)	(טנ)
1	West Zarqa PS System					
1.1.2 R	Reinforcement of Existing Neworks				1	
Α	Replacement of main lines				1	
	Main lines in Hitteen camp to replace existing					
Phase 2	200 mm lines	300	m	382	156.00	59,592.00
	Main collector trunk in russeifa to replace existing					
Phase 2	700 mm line	800	m	1,450	380.40	551,580.00
	Replace the 800 mm trunk runs in Hai al-Arateqa					
Phase 2	with 900 mm	900	m	1,025	423.90	434,497.50
		Subtot	al			1,045,669.50
	Total reinforcement of ma	nin trunks in West Zard	да			1,045,669.50
1.1.3 R	Rehabilitation of Existing Sewers					
D	Cleaning of sewers					
	cleaning of sewers using bucket machine	m	150,000	22.00	3,300,000.00	
		al			3,300,000.00	
	Total Rehabilitation of Sewe	m			3,300,000.00	
	Total Collection Networl	m			4,345,669.50	
1.2	Conveyance Systems					
1.2.2 P	Pumping Mains					
fı	rom WZPS to As-Samra WwTP	700	m	19,430	814.00	15,816,020.00
	Total Pumping Mair	ns in West Zarqa System	m			15,816,020.00
1.2.3 P	Pumping Stations					
V	NZPS	6,500 [m ³ /hr]	LS	1	2,215,762	2,215,762.00
	Total Pumping Station	ns in West Zarqa Syste	m			2,215,762.00
		•				
	Total Conveyance System	is in West Zarqa Syste	m	0		18,031,782.00
	<u>-</u>					
	Tota	al West Zarga Syster	m			22,377,451.50

	Ameeran	ilaya to su	Killieli - Pila	36 11				
No.	Item			Unit	Quantity	Unit Cost (JD)	Total Cost (JD)	
2	East Zarqa PS System							
2.1	Collection Networks							
2.1.1	Expansion of Collection Networks							
D	Cleaning of sewers							
	cleaning of sewers using bucket machine			m	50,000	22.00	1,100,000.00	
			Subtotal				1,100,000.00	
	Total Rehabilitation of Sew	ers in East 2	arqa system				1,100,000.00	
	Total Collection Netwo		Zarqa system				1,100,000.00	
2.2	Conveyance Systems							
2.2.2	Pumping Mains							
	from EZPS to AS-Samra WwTP	700		m	6,473	814.00	5,269,022.00	
	Total Pumping Ma	ins in East Z	arqa System				5,269,022.00	
2.2.3	Pumping Stations							
	Upgrading of EZPS	4,692	[m ³ /hr]	LS	1	1,990,000	1,990,000.00	
	Total Pumping Station	ons in East Z	arqa System	•		1,990,000.00		
	Total Conveyance Syste	ms in East Z	arqa System				7,259,022.00	
	То	tal East Za	rqa System				8,359,022.00	

No.	Item		Unit	Quantity	Unit Cost	Total Cost
					(JD)	(JD)
3	Sukhneh System					
3.1	Collection Networks					
3.1.1	Expansion of Collection Networks					
Α	Collection networks for expansion areas	Dia. (mm)				
	Abu-Zeighan	200	m	16,629	100.00	1,662,870.00
	Ghareisa	201	m	4,969	100.00	496,870.00
	Umm Suleih	202	m	6,100	100.00	609,950.00
	Hai al-Bustan	200	m	5,793	100.00	579,343.60
		Subtotal				3,349,033.60
В	House Connections					
	House connection pipe	150		4,019	80.00	321,507.23
		Subtotal				321,507.23
D	Sundry items					
	Sundry items for encasement and other construc	tion costs at 3% of cost of				
	collection network costs				3%	110,116.22
	Total expans	ion of collection networks				3,780,657.05
3.2	Conveyance Systems					
	from Ghareisa to Sukhneh PS	300	m	5,784	130.00	751,920
	Total Trun	k Lines in Sukhneh System				751,920.00
	Total Conveyance Sy	ystems in Sukhneh System				751,920.00
		Total Sukhneh System				4,532,577.05

No.	Item	Unit	Quantity	Unit Cost	Total Cost
				(JD)	(JD)
4	Dhuleil System				
4.1	Collection Networks	+			
4.1.1	Expansion of Collection Networks				
A	Collection networks for expansion areas Dia. (mm)				
	Dhuleil town networks 200	m	71,813	100.00	7,181,251.00
	Subt		, , , , ,		7,181,251.00
В	House Connections				
	House Connections 150		8,618	80.00	689,400.10
	Subt	otal			689,400.10
С	Sundry items				
	Sundry items for encasement and other construction costs at 3% of cos	t of			
	collection network costs			3%	236,119.53
	Total expansion of collection netwo	orks			8,106,770.63
4.2	Conveyance Systems				
4.2.1	Trunk Lines				
7.2.1	from Dhuleil to Wadi Dhuleil PS 500	m	12,740	220.00	2,802,800
	Total Trunk Lines in Dhuleil Sys		12,740	220.00	2,802,800.00
4.2.2	Pumping Mains				_,
	from Wadi Dhuleil PS to As Samra WwTP 400	m	3,128	450.00	1,407,600
	Total Pumping Mains in Dhuleil Sys	tem	-, -		1,407,600.00
4.2.3	Pumping Stations				
	Wadi Dhuleil PS to As-Samra WwTP 678 [m³/h	ır] LS	1	1,610,000	1,610,000
	Total Pumping Stations in Dhuleil Sys	tem			1,610,000.00
	Total Conveyance Systems in Dhuleil Sys	tem			5,820,400.00
	Total Dhuleil Syst	om			13,927,170.63
	10tai Diluleii 3yst				13,321,170.0

No.	Item	Unit	Quantity	Unit Cost	Total Cost
				(JD)	(JD)
	Total				49,196,221.18
	Total				45,150,221.10
6	Other Costs				
6.1	Preliminaries			2%	983,924.4
6.2	Engineering			6%	2,951,773.2
6.3	Land acquisition	LS		LS	3,000,000.00
6.4	Environmental				
	Environmental Monitoring (Air, Water and soil)	LS		LS	750,000.00
	Environmental Rehabilitation	LS		LS	340,000.00
	Training and capacity Building	LS		LS	210,000.00
	Subtotal				1,300,000.00
	Total Other Costs				<u>8,235,697.69</u>
7	Contingencies				
	J			20%	9,839,244.2
	Total Contingencies				9,839,244.24
	Total Zarga Wastewater Reinforcement and Expansion				67,271,163.11

No.	Item			Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
1	West Zarqa PS System						
1.1	Collection Networks						
1.1.1	Expansion of Collection Networks						
Α	Collection networks for expansion areas	Dia. (mm)					
	Hai al-Qamar	200		m	3,764	100.00	376,396.9
	Hai Umm Bayadhah	200		m	21,494	100.00	2,149,361.50
	Hai al-Dweik	200		m	13,224	100.00	1,322,373.8
	Hai al-Falah	200		m	13,804	100.00	1,380,390.0
	Hai al-Razi	200		m	1,958	100.00	195,780.2
	Hai al-Rasheed al-Shamali	200		m	15,710	100.00	1,571,022.2
	Hai al-Jraiba	200		m	3,834	100.00	383,438.0
	Trai di Stalba	200	Subtotal		3,034	100.00	7,378,762.6
В	Collection networks for filling gaps		Subtotal				7,378,702.0
D	Hai Ramzi	200		m	3,059	100.00	305,910.0
	Hai al-Zawahreh	200		m	1,404	100.00	140,360.0
						ł	
	Hai al-Qadessiyah	200		m	9,469	100.00	946,880.0
	Hai Ja'far al-Tayyar	200		m	2,098	100.00	209,770.0
	Hai al-Malek Talal	200		m	481	100.00	48,056.80
	Hai al-Jundi	200		m	478	100.00	47,763.10
			Subtotal				1,698,739.9
С	House Connections						
	House connection pipe	150		m	10,893	80.00	871,440.2
			Subtotal				871,440.2
D	Trunk Lines						
			Subtotal				0.00
E	<u>Sundry items</u>						
	Sundry items for encasement and other construction						
	collection network costs					3%	298,468.28
	Total expansio	n of collecti	on networks				10,247,411.02
1.1.2	Reinforcement of Existing Neworks						
Α	Replacement of main lines						
	Replacement of main lines	200		m	330	120.00	39,600.00
	Main lines in Hitteen camp to replace existing				330	120.00	33,000.0
Phase 2	200 mm lines	300		m	382	156.00	59,592.0
T Huse Z	Main lines in Hai al-Zawahreh and other	300			302	150.00	33,332.0
	miscellaneous areas to replace existing 200 mm	300		m	1,628	156.00	253,968.0
	Main line in Hai Awajan to replace existing 300	300		111	1,028	130.00	233,308.00
	mm line	400		m	661	200.40	132,464.4
	Main collector trunk in Wadi Zarga to replace	400		m	001	200.40	132,404.4
	1	F00			F00	364.00	155 760 0
	existing 400 mm line	500		m	590	264.00	155,760.00
					225	200.40	122 626 6
	Main collector trunk in russeifa to replace existing	000				380.40	123,630.0
	800 mm line with increased gradient	800		m	325		
	800 mm line with increased gradient Main collector trunk in russeifa to replace existing						
Phase 2	800 mm line with increased gradient Main collector trunk in russeifa to replace existing 700 mm line	800		m m	1,450	380.40	551,580.00
Phase 2	800 mm line with increased gradient Main collector trunk in russeifa to replace existing 700 mm line Replace part of the exisitng 500 mm trunk runs						
Phase 2	800 mm line with increased gradient Main collector trunk in russeifa to replace existing 700 mm line Replace part of the exisitng 500 mm trunk runs from Hai Awjan al-Shamali to Hai al-Nuzha with	800			1,450	380.40	551,580.0
Phase 2	800 mm line with increased gradient Main collector trunk in russeifa to replace existing 700 mm line Replace part of the exisitng 500 mm trunk runs from Hai Awjan al-Shamali to Hai al-Nuzha with 900 mm						551,580.0
	800 mm line with increased gradient Main collector trunk in russeifa to replace existing 700 mm line Replace part of the exisitng 500 mm trunk runs from Hai Awjan al-Shamali to Hai al-Nuzha with 900 mm Replace the 800 mm trunk runs in Hai al-Arateqa	900		m m	1,450 6,235	380.40 423.90	551,580.0 2,643,016.5
	800 mm line with increased gradient Main collector trunk in russeifa to replace existing 700 mm line Replace part of the exisitng 500 mm trunk runs from Hai Awjan al-Shamali to Hai al-Nuzha with 900 mm Replace the 800 mm trunk runs in Hai al-Arateqa with 900 mm	800		m	1,450	380.40	551,580.0 2,643,016.5
	800 mm line with increased gradient Main collector trunk in russeifa to replace existing 700 mm line Replace part of the exisitng 500 mm trunk runs from Hai Awjan al-Shamali to Hai al-Nuzha with 900 mm Replace the 800 mm trunk runs in Hai al-Arateqa with 900 mm Replace part of the exisitng 1000 mm trunk in	900		m m	1,450 6,235 1,025	380.40 423.90 423.90	551,580.0 2,643,016.5 434,497.5
Phase 2	800 mm line with increased gradient Main collector trunk in russeifa to replace existing 700 mm line Replace part of the exisitng 500 mm trunk runs from Hai Awjan al-Shamali to Hai al-Nuzha with 900 mm Replace the 800 mm trunk runs in Hai al-Arateqa with 900 mm Replace part of the exisitng 1000 mm trunk in Wadi Zarqa with increased gradient 1000 mm	900		m m	1,450 6,235	380.40 423.90	551,580.0 2,643,016.5 434,497.5
	800 mm line with increased gradient Main collector trunk in russeifa to replace existing 700 mm line Replace part of the exisitng 500 mm trunk runs from Hai Awjan al-Shamali to Hai al-Nuzha with 900 mm Replace the 800 mm trunk runs in Hai al-Arateqa with 900 mm Replace part of the exisitng 1000 mm trunk in	900		m m	1,450 6,235 1,025	380.40 423.90 423.90	551,580.0 2,643,016.5 434,497.5
	800 mm line with increased gradient Main collector trunk in russeifa to replace existing 700 mm line Replace part of the exisitng 500 mm trunk runs from Hai Awjan al-Shamali to Hai al-Nuzha with 900 mm Replace the 800 mm trunk runs in Hai al-Arateqa with 900 mm Replace part of the exisitng 1000 mm trunk in Wadi Zarqa with increased gradient 1000 mm	900		m m	1,450 6,235 1,025	380.40 423.90 423.90	551,580.0 2,643,016.5

		erah Haya to Sukhneh		1		
No.	Item		Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
В	Additional main lines					
	New 400 mm trunk in Hai Awajan and Hai Umm Jaradh	400	m	300	167.00	50,100.00
	New 900 mm trunk sewer in Wadi Zarqa	900	m	2,510	353.25	886,657.50
	New 1000 mm trunk sewer in Wadi Zarqa	1000	m	620	407.50	252,650.00
		Subtotal				1,189,407.50
	Total reinforcement of m	ain trunks in West Zarqa				5,760,824.00
1.1.3	Rehabilitation of Existing Sewers					
Α	Replacement of blocked sewers				+	
	in Zarqa Refugee Camp	300	m	435	156.00	67,860.00
	in Iskan Tadweer al-Hadari	300	m	1,175	156.00	183,300.00
	in Hai al-Zawahreh	300	m	340	156.00	53,040.00
	in Hai al-Jabal al-Abyad	300	m	365	156.00	56,940.00
	in Hai al-Nuzha	300	m	165	156.00	25,740.00
	Various sewers in Hettein Camp	300	m	1,500	156.00	234,000.00
		Subtotal		1 /		620,880.00
В	Replacement of sewers that are in private pro					,
	in Hai Ramzi	200	m	120	120.00	14,400.00
	in Hai Hussein	200	m	105	120.00	12,600.00
	in Hai al-Dhubbat	200	m	315	120.00	37,800.00
	in Hai al-Thawra al-Arabiyah al-Kubra	200	m	600	120.00	72,000.00
	in Hai al-Thawra al-Arabiyah al-Kubra	300	m	595	156.00	92,820.00
	in Hai al-Zawahreh	200	m	185	120.00	22,200.00
	Hai al-Jabal al-Shamali	300	m	800	156.00	124,800.00
		Subtotal				376,620.00
С	Raising of deep sewers					
	in Hai al-Rasheed al-Shamali	300	m	1,350	156.00	210,600.00
	Raising of manhole covers		No.	800	120.00	96,000.00
		Subtotal				306,600.00
D	Cleaning of sewers					
	cleaning of sewers using bucket machine		m	150,000	22.00	3,300,000.00
		Subtotal				3,300,000.00
E	Rehabilitation of Hitteen Camp Pumping Station	<u>on</u>				
	Refurbishment of pumps and screens		LS	1	230,000.00	230,000.00
		Subtotal				230,000.00
	Total Rehabilitation of Sewe	ers in West Zarqa system				4,834,100.00
	Total Collection Networ	ks in West Zarqa system				20,842,335.02
1.2	Conveyance Systems					
1.2.1	Trunk Lines					
						0.00
		es in West Zarqa System				0.00
1.2.2	Pumping Mains					
	from WZPS to As-Samra WwTP	700	m	19,430	814.00	15,816,020.00
122		ns in West Zarqa System		+		15,816,020.00
1.2.3	Pumping Stations	c.500 r3n. 1		+ _	0.202.107	0.202.467.55
	WZPS Total Dumping Statio	6,500 [m³/hr]	LS	1	8,202,167	8,202,167.00
	Total Pumping Statio	ns in West Zarqa System				8,202,167.00
	Total Conveyance Syster	ns in West Zarqa System				24,018,187.00
	Tot	al West Zarga System				44,860,522.02
	101	ai vvest zarya system	1		1	TT,000,322.02

No.	Item	eerah Haya to	Jukillieli	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)		
2	East Zarqa PS System								
2.1	Collection Networks								
2.1.1	Expansion of Collection Networks								
Α	Collection networks for expansion areas	Dia. (mm)							
	Hai al-Batrawi	200		m	27,424	100.00	2,742,410.0		
			Subtotal				2,742,410.0		
В	Collection networks for filling gaps								
	Hai al-Batrawi	200		m	1,273	100.00	127,270.0		
	Hai al-Hashemeyah al-Janoubiyah	200		m	1,580	100.00	157,995.2		
	Harris Connections		Subtotal		_		285,265.2		
С	House Connections	450			2.622	00.00	200 656		
	House connection pipe	150	Culturated		3,633	80.00	290,656.8		
D	Trunk Lines		Subtotal				290,656.8		
υ	<u>Trunk Lines</u>	200			1 110	120.00	144,300.0		
	_	300 400		m m	1,110 669	130.00 167.00	111,723.0		
	Hai Batrawi trunk	500			636	220.00	139,920.0		
	_	600		m	2,196	265.00	581,940.0		
		000	Subtotal	m	2,190	203.00	977,883.0		
E	Sundry items		Jubitital		+	+	311,063.0		
Е	Sundry items Sundry items for encasement and other construct	tion costs at 20	% of cost of		+	 			
	collection network costs	/6 OI COST OI			3%	128,886.4			
	Collection network costs					3/0	120,000.7		
	Total expansi				4,425,101.4				
	Total expans	ion or conectio	JII HELWOIKS				7,723,101.7		
2.1.2	Reinforcement of Existing Neworks								
A	Replacement of main trunks								
	replacement of 200 mm sewers in Hai Batrawi	300		m	1,047	156.00	163,332.0		
	replacement of 200 mm in al-Karameh and al-	300			1,047	150.00	103,332.0		
	Agsa Streets sewers	400		m	2,300	200.40	460.920.0		
	rigor on eath servers	400	Subtotal		2,300	200.40	624,252.0		
	Total reinforcement of	main trunks in					624,252.0		
							,		
1.1.2	Rehabilitation of Existing Neworks								
Α	Replacement of blocked sewers								
	in Eskan al-Hashemeyiah	200		m	1,250	120.00	150,000.0		
	in Hashemeyiah (two lines)	200		m	495	120.00	59,400.0		
	in Hai al-Iskan (replacement of network)	200		m	4,620	120.00	554,400.0		
			Subtotal				763,800.0		
В	Replacement of sewers that are in private pr	operties							
	in Hashemeyiah	300		m	185	156.00	28,860.0		
			Subtotal				28,860.0		
С	Raising of deep sewers								
	Raising of manhole covers			No.	300	120.00	36,000.0		
-			Subtotal				36,000.0		
D	Cleaning of sewers					<u> </u>			
	cleaning of sewers using bucket machine			m	50,000	22.00	1,100,000.0		
			Subtotal			120.00 150,000 120.00 59,400 120.00 554,400 763,800 156.00 28,860 28,860 120.00 36,000 36,000 1,100,000 1,100,000 1,928,660			
	Total Rehabilitation of Se	wers in East Za	arqa system				1,928,660.0		
	Total Collection Netw	orks in East Za	arqa system				6,978,013.4		
2.2	Conveyance Systems								
2.2.1	Trunk Lines								
							0.0		
	Total Trunk I	ines in East Za	ırqa System				0.0		
2.2.2	Pumping Mains								
	from EZPS to AS-Samra WwTP	700		m	6,473	814.00	5,269,022.0		
	Total Pumping N	lains in East Za	ırqa System				5,269,022.0		
2.2.3	Pumping Stations								
	Upgrading of EZPS	4,692	[m ³ /hr]	LS	1	4,099,000	4,099,000.0		
	Total Pumping Stat						4,099,000.0		
	Total Conveyance Syst		· ·				9,368,022.0		
	T	otal East Zar	ga System			1	16,346,035.4		

A/-		erah Haya to Sukhneh	1114	O matitus	Unit Coat	Tatal Cast
No.	Item		Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
3	Sukhneh System					
3.1	Collection Networks					
3.1.1	Expansion of Collection Networks					
Α	Collection networks for expansion areas	Dia. (mm)				
	Sukhneh	200	m	24,393	100.00	2,439,335.0
	al-Salheyah	200	m	8,483	100.00	848,283.7
	Abu-Zeighan	200	m	16,629	100.00	1,662,870.0
	Ghareisa	201	m	4,969	100.00	496,870.0
	Umm Suleih	202	m	6,100	100.00	609,950.0
	Hai al-Bustan	200	m	5,793	100.00	579,343.6
	Hai Shomar	200	m	3,782	100.00	378,217.4
	Hai al-Hashemi	200	m	2,136	100.00	213,644.2
	Hai al-Jneineh	200	m	5,784	100.00	578,380.0
	Hai al-Jabr	200	m	7,659	100.00	765,942.0
	Hai al-Ameera Haya	200	m	23,111	100.00	2,311,126.0
	Hai Nassar	200	m	9,051	100.00	905,096.5
	Hai al-Ahmad	200	m	10,511	100.00	1,051,050.0
	Hai al-Madinah al-Munawarah	200	m	7,907	100.00	790,680.0
	Hai Makka al-Mukarramah	200	m	5,296	100.00	529,607.1
		Subtotal				14,160,395.5
В	House Connections					
	House connection pipe	150		16,992	80.00	1,359,397.9
		Subtotal				1,359,397.9
С	<u>Trunk Lines</u>					
		300	m	697	130.00	90,610.0
	Hai al-Ameera Haya	400	m	1,064	167.00	177,688.0
	<u>'</u>	600	m	1,870	265.00	495,550.0
		700	m	1,804	278.00	501,512.0
		400	m	602	167.00	100,534.0
	Hai Makka al-Mukarramah	500	m	1,644	220.00	361,680.0
		Subtotal		1,044	220.00	1,727,574.0
D	Sundry items	Subtotal				1,727,374.0
	Sundry items for encasement and other construction	ion costs at 3% of cost of				
	collection network costs	1011 60313 41 370 01 6031 01			3%	517,421.0
					3,0	017,1110
	Total expansion	on of collection networks				17,764,788.4
	·					•
3.2	Conveyance Systems					
3.2.1	Trunk Lines					
	Sukhneh trunk from Hai Ameera Haya to Sukhneh	800	m	7,814	317.00	2,477,038.0
	PS					
	from Ghareisa to Sukhneh PS	300	m	5,784	130.00	751,92
		Lines in Sukhneh System				3,228,958.0
3.2.2	Pumping Mains					
	from Sukhneh PS to EZPS	500	m	7,040	570.00	4,012,800.0
	1 0	Mains in Sukhneh System				4,012,800.0
3.2.3	Pumping Stations	200 / 3/1 -			2.46= 225	0.4
	Sukhneh PS	990 [m³/hr]	LS	1	2,167,000	2,167,000.0
	Total Pumping Sta	itions in Sukhneh System			-	2,167,000.0
	Tabal Carrier C	Annua in Culibra da Carr				0.400.750.0
	Total Conveyance Sys	stems in Sukhneh System				9,408,758.0
		Total Sukhneh System			+ +	27 172 EAC A
		iotai sukiilleli system		ı		<u>27,173,546.4</u>

No.	Item	Unit	Quantity	Unit Cost	Total Cost
				(JD)	(JD)
4	Dhuleil System				
	<u> </u>			+	
4.1	Collection Networks		-		
4.1.1	Expansion of Collection Networks				
Α	Collection networks for expansion areas Dia. (mm)		74.043	400.00	7 404 254 00
	Dhuleil town networks 200	m	71,813	100.00	7,181,251.00
В	Subtotal Lieuxa Connections				7,181,251.00
В	House Connections 150		0.610	80.00	COO 400 10
	House connections 150 Subtotal		8,618	80.00	689,400.10
С	7.1.1.1				689,400.10
	Sundry items Sundry items for encasement and other construction costs at 3% of cost of				
	collection network costs			3%	236,119.53
	Collection network costs			370	230,119.33
	Total expansion of collection networks				8,106,770.63
	·				
4.2	Conveyance Systems				
4.2.1	Trunk Lines				
	from Dhuleil to Wadi Dhuleil PS 500	m	12,740	220.00	2,802,800
	Total Trunk Lines in Dhuleil System				2,802,800.00
4.2.2	Pumping Mains				
	from Wadi Dhuleil PS to As Samra WwTP 400	m	3,128	450.00	1,407,600
	Total Pumping Mains in Dhuleil System				1,407,600.00
4.2.3	Pumping Stations				
	Wadi Dhuleil PS to As-Samra WwTP 678 [m ³ /hr]	LS	1	1,610,000	1,610,000
	Total Pumping Stations in Dhuleil System				1,610,000.00
	Total Conveyance Systems in Dhuleil System				5,820,400.00

No.	Item	Unit	Quantity	Unit Cost	Total Cost
				(JD)	(JD)
	Total				<u>102,307,274.61</u>
6	Other Costs				
6.1	Preliminaries			2%	2,046,145.49
6.2	Engineering			6%	6,138,436.48
6.3	Land acquisition	LS		LS	5,000,000.00
6.4	Environmental				
	Environmental Monitoring (Air, Water and soil)	LS		LS	1,200,000.00
	Environmental Rehabilitation	LS		LS	480,000.00
	Training and capacity Building	LS		LS	320,000.00
	Subtotal				2,000,000.00
	Total Other Costs				<u>15,184,581.97</u>
7	Contingencies				
				20%	20,461,454.92
	Total Contingencies				20,461,454.92
			•		
	Total Zarga Wastewater Reinforcement and Expansion				137,953,311.5

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION SUMMARY OF CAPITAL COST

Option 4a: Summary of Capital Costs (JD)

		Collection	Networks		Conveyance Systems					
System	Expansion	Reinforcement	Rehabilitation	Sub-total	Trunk mains	Pumping mains	Pumping stations	Local WwTPs	Sub-total	Total
West Zarqa System	10,247,411	5,760,824	4,834,100	20,842,335	0	15,816,020	8,202,167	0	24,018,187	44,860,522
East Zarqa System	4,425,101	624,252	1,928,660	6,978,013	0	5,269,022	4,099,000	0	9,368,022	16,346,035
Sukhneh System	17,764,788	0	0	17,764,788	3,228,958	4,012,800	2,167,000	0	9,408,758	27,173,546
Dhuleil System	8,106,771	0	0	8,106,771	2,802,800	1,407,600	1,610,000	0	5,820,400	13,927,171
		Total Colle	ection Networks	53,691,908	Total Conveyance Systems 48,615			48,615,367	102,307,275	

Grand Total	
Contingencies at 20%	20,461,455
Environmental	2,000,000
Land Acquisition	5,000,000
Engineering at 6%	6,138,436
Preliminaries at 2%	2,046,145