

WATER & SANITION

Deterioration in this sector has manifested itself most seriously in the decrease in quantities & Quality of portable water and in inadequate sanitation for the population both of which have contributed to sharp increases in the incidence of water - born diseases .

There are 210 water treatment plants and 1200 compact water treatment units , and thousands kilometers of transmission pipes of different kinds . also there are 36 boosting station .

There are (10) sewage treatment networks with treatments plants that partailly serve (10) provincial capitals of centre / southern Iraq , all these are near stand still and dispose raw domestic sewage to to the river directly , in addition to that there are (520) sewage lifting station and storme water pumping station .

The immediate need for complete rehabilitation totalling to 600 million dollars . in addition to 300 million dollar to complete the unfinished projects to serve 1.8 million inhabitants .

The garbage collecting had been neglected due to the shortage of allocations and this sector needs alone 100 million to purches spare parts and new equipment .

GENERAL ESTABLISHMENT FOR WATER AND SEWERAGE REQUIREMENT

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SECTION 27	Water Testing Equipments	L.S
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SECTION 29	UPVC pipes and fittings	1500 km
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SECTION 33	Spare parts for 14 m3/hr compact units No(500) unit	L.S
SECTION 34	Lifting crane	48
SECTION 35	Trailer with lorry	70
SECTION 36	Fork lifting loader	85
SECTION 37	Cares for transporting employeres	30
SECTION 38	Double cabinet pick up	30
SECTION 39	Spare parts for cars , lorrys & tankers cranes, lifting loader	L.S
SECTION 40	Spare parts for chlorinators (W&T , portcel)	L.S
SECTION 41	Dumpers	35
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SECTION 43	Tyers - Different size	3000
SECTION 44	Computers with printers and accesries	L.S

SECTION 1

Horizontal Split Case Pumps

- Complete electrical horizontal split case pumps with motors, starters, spare parts as mentioned below
- Impeller of bronze, shaft of stainless steel.
- Squirrel cage motor, 3 Ph., 400 V, 50 Hz., IP55, Class F insulation coupled to the pump on steel frame.
- Starter must be (star- delta) starter for motor above (7.5) KW., below must be (D.O.L) starter.
- Motor rating must be (10%) more power required.
- Each starter must be steel cabinet IP 56 contain :-
 - One) Main isolating switch with main fuses.
 - Two) Contactors overload relay, timer
 - Three) phase failure
 - Four) (Ammeter, Voltmeter with selector switch indicating lamps, push button- all on front of cabinet.
- Spare parts for each pump
 - One) Impeller
 - Two) Shaft sleeve
 - Three) Casing wear ring
 - Four) Set of Ball Bearing (for motor and pump)

Code	Governorate		Project Name	Q m3/h	H mt.	Qty	Motor	
	Code no.	Name					Type	R.P.M
03-02-00001	6	Diala	Muqdadiya (WT old)	200	10	2	S.C	1450
03-02-00002		Diala	Al-Khalis B. S. T.	750	40	2	S.C	1500
03-02-00003	9	Anbar	New Ramadi W.T.P	1000	100	1	S.C	1500
03-02-00004			New Ramadi W.T.P	1050	20	2	S.R	1500
03-02-00005			Old Ramadi W.T.P	300	70	3	S.C	1500
03-02-00006			Old Ramadi W.T.P	300	15	3	S.C	1500
03-02-00007			Heet-Kubaisa W.T.P	100	60	1	S.C	1500
03-02-00008			Haditha W.T.P	100	80	2	S.C	1500
03-02-00009			Haditha W.T.P	100	60	2	S.C	1500
03-02-00010			Al-Qaeim W.T.P	150	20	3	S.C	1500
03-02-00011			Al-Qaeim W.T.P	150	80	3	S.C	1500
03-02-00012			Kubaisa W.T.P.	150	160	1	S.C	1500
03-02-00013			Kubaisa W.T.P.	350	60	1	S.C	1500
03-02-00014			Hadetha haqlaneyya W.T.P.	500	44	1	S.C	1500
03-02-00015			Al-Ramady New wtp	300	60	1	S.C	1500
03-02-00016			Al-Kerma Unified w.t.p.	700	40	1	S.C	1500
03-02-00017			West Desert w.t.p.	750	20	1	S.C	1500
03-02-00018			West Desert w.t.p.	600	200	1	S.C	1500
03-02-00019	8	Baghdad	Nahrawan P.S	300	150	2	S.C	1500
03-02-00020			Rashedya w.t.p.	1000	25	2	S.C	1500
03-02-00021			Rashedya w.t.p.	450	55	1	S.C	1500
03-02-00022			Rashedya w.t.p.	195	60	1	S.C	1500
03-02-00023			Rashedya w.t.p.	150	58	1	S.C	1500
03-02-00024			Rashedya w.t.p.	735	40	1	S.C	1500
03-02-00025			Rashedya w.t.p.	600	7.6	1	S.C	1500
03-02-00026			Al-Nehrewan B. S.T	500	120	3	S.C	1500
03-02-00027	10	Wasit	Al-Hay (W.T.P)	450	50	1	S.C	1450
03-02-00028			Al-Sowerah (W.T.P)	450	80	1	S.C	1450

Code	Governorate		Project Name	Q m3/h	H mt.	Qty	Motor	
	Code no.	Name					Type	R.P.M
03-02-00029			Wasit w.t.p.	80	20	1	S.C	1500
03-02-00030			Al-Besher w.t.p.	60	20	1	S.C	1500
03-02-00031			Al-Besher w.t.p.	50	65	1	S.C	1500
03-02-00032	16	Thiqar	Suq Al-Sheyok (Raw water P.S)	500	70	3	S.C	1450
03-02-00033			Shatt Al-Kasser (Raw water P.S)	300	60	3	S.C	1450
03-02-00034			Nassriya unified	700	20	2	S.C	900
03-02-00035			Al-Refae w.t.p.	300	20	2	S.C	1500
03-02-00036			Al-Proteen w.t.p.	120	50	2	S.C	1500
03-02-00037			Al-Qalaa w.t.p.	420	75	2	S.C	1500
03-02-00038	14	Qadisyah	Shameyh (old)	200	40	1	S.C	1450
03-02-00039			Diwaneyah (old)	300	15	1	S.C	1450
03-02-00040			Diwaneyah (old)	360	36	1	S.C	1450
03-02-00041			Diwaneyah (old)	105	60	1	S.C	1450
03-02-00042			Qamas (New)	285	30	1	S.C	1450
03-02-00043			Hamza (New) W.T.P	735	15	4	S.C	1500
03-02-00044	18	Basrah	Boosting station (ABO Skhir) compacted unit	1000	80	7	S.C	1500
03-02-00045			Seahan W.S.S	210	20	2	S.C	1500
03-02-00046			Seahan W.S.S	400	75	2	S.C	1500
03-02-00047			Al-Baradheya	400	60	2	S.C	1500
03-02-00048			Al-Jubella old	900	65	2	S.C	1500
03-02-00049			Oum Qasser w.t.p.	470	120	3	S.C	1500
03-02-00050	13	Najaf	New&old ALQaldissia W.T.P	70	20	2	S.C	1500
03-02-00051			Al-Najaf -kufa w.t.p.	1580	20	1	S.C	1500
03-02-00052			Al-Najaf -kufa w.t.p.	2278	60	1	S.C	1500
03-02-00053			Al-Najaf -kufa w.t.p.	580	12	1	S.C	1500
03-02-00054			Al-menathera w.t.p.	250	60	1	S.C	1500
03-02-00055			Al-menathera w.t.p.	300	30	1	S.C	1500
03-02-00056			Al-Hayderya w.t.p.	120	35	1	S.C	1500
03-02-00057	7	Salah Al-Deen	Tikrit (old) W.T.P	212	25	2	S.R	1500
03-02-00058			Tikrit (new) W.T.P	800	41	3	S.R	1500
03-02-00059			Al-uoja W.T.P	120	80	4	S.R	1500
03-02-00060			Eshaki -Yathrib	360	102	2	S.R	1500
03-02-00061			Eshaki -Yathrib	420	82	1	S.R	1500
03-02-00062			Balad (old) T.P	250	20	2	S.R	1500
03-02-00063			Balad (new) T.P	250	20	3	S.R	1500
03-02-00064			Balad (old) T.P	250	45	2	S.R	1500
03-02-00065			Al-Dor W.T.P	270	30	2	S.C	1500
03-02-00066			Al-Dor W.T.P	260	50	2	S.C	1500
03-02-00067			Al-Dhuloiyah	200	30	2	S.C	1500
03-02-00068			Al-Dhuloiyah	250	20	2	S.C	1500
03-02-00069			Samara w.t.p.	750	60	4	S.C	1500
03-02-00070			Samara Raw w.t.p.	450	50	2	S.C	1500
03-02-00071			Braujly w.t.p.	150	80	1	S.C	1500
03-02-00072			Old Tooz -w.t.p.	180	80	1	S.C	1500
03-02-00073			Sleman Beek	50	60	1	S.C	1500
03-02-00074			New dour w.t.p.	284	23	1	S.C	1500

Code	Governorate		Project Name	Q m3/h	H mt.	Qty	Motor	
	Code no.	Name					Type	R.P.M
03-02-00075			New dour w.t.p.	260	60	1	S.C	1500
03-02-00076			Old dour w.t.p.	150	40	1	S.C	1500
03-02-00077			Old dour raw w.t.p.	800	120	1	S.C	1500
03-02-00078	12	Karbala	Karbala sewage	100	20	2	S.C	1500
03-02-00079			Al-Gadwal Al-Garbi W.T.P	60	30	1	S.C	1500
03-02-00080			Hendia Qadem W.T.P	120	60	4	S.C	2400
03-02-00081			Khairat W.T.P	150	20	3	S.C	1450
03-02-00082			Khairat W.T.P	120	45	2	S.C	1450
03-02-00083			Khairat W.T.P	60	20	2	S.C	2900
03-02-00084			Khairat W.T.P	60	45	2	S.C	2900
03-02-00085			Al-Hur compact unit	60	45	2	S.C	3000
03-02-00086			Al-Hur compact unit	60	20	2	S.C	1450
03-02-00087			Hussaineya C.U	60	20	4	S.C	1500
03-02-00088			Hussaineya C.U	60	45	4	S.C	2900
03-02-00089			Al-Uroba B. station	1200	40	1	S.C	1500
03-02-00090			Kerbela B.S.	1000	50	1	S.C	1500
03-02-00091			Al-Hindea w.t.p.	735	20	1	S.C	1500
03-02-00092			Al-Hindea w.t.p.	445	46	1	S.C	1500
03-02-00093	2	Nenewa	Mosul (old left)	900	15	8	S.C	1500
03-02-00094			Makhmoor W.S.S	205	200	2	S.C	1500
03-02-00095			Alewah Makhmoor (P.S)	205	200	2	S.C	1500
03-02-00096			Makhmoor W.S.S (old)	100	175	2	S.C	1500
03-02-00097			Qaraj W.S.S	250	160	2	S.C	1500
03-02-00098			Deabaka W.S.S	75	190	2	S.C	2900
03-02-00099			Al-Bo Saif W.S.S (new)	150	150	2	S.C	2900
03-02-000100			Zummar	250	225	2	S.C	2900
03-02-000101			Al-mousel right bank	1440	33	2	S.C	1500
03-02-000102			Al-mousel right bank	1380	48	2	S.C	1500
03-02-000103			Al-mousel right bank	1380	88	2	S.C	1500
03-02-000104			Abo -Maria Boosting	250	200	2	S.C	1500
03-02-000105			Abo -Maria Boosting	540	123	2	S.C	1500
03-02-000106			Abo -Maria Boosting	240	147	2	S.C	1500
03-02-000107			Abo -Maria Boosting	90	102	2	S.C	1500
03-02-000108			Aska mousel w.t.p.	850	115	2	S.C	1500
03-02-000109			Sarma Village	100	120	1	S.C	1500
03-02-000110			Al-lajeen Village	100	120	1	S.C	1500
03-02-000111			Old Muosel left bank wtp.	960	60	1	S.C	1500
03-02-000112			Al-qoush	260	183	1	S.C	1500
03-02-000113			Al-qoush B.	143	150	1	S.C	1500
03-02-000114			Al-qoush B.	90	178	1	S.C	1500
03-02-000115			Al-Hamdanya w.t.p	900	165	1	S.C	1500
03-02-000116			Bashika WTP	540	135	1	S.C	1500
03-02-000117			Al-hather W.T.P.	275	190	1	S.C	1500
03-02-000118			Al-Kuar Village	90	100	1	S.C	1500
03-02-000119	5	Al-Tameem	Kirkuk W.T.P.	100	45	1	S.C	1500
03-02-000120			Alton Copry W.T.P.	500	70	2	S.C	1500
03-02-000121			Alton Copry W.T.P.	250	70	2	S.C	1500
03-02-000122			Daqooq C.U.	60	60	2	S.C	1500
03-02-000123	15	Muthana	Al-Kuder	300	20	1	S.C	1500
03-02-000124			Al-Kuder	216	50	1	S.C	1500

Code	Governorate		Project Name	Q m3/h	H mt.	Qty	Motor	
	Code no.	Name					Type	R.P.M
03-02-000125			New Rumatha	810	15	2	S.C	1500
03-02-000126	17	Meisan	Al-Umara Almuahd	550	40	2	S.C	1500
03-02-000127			Al-Umara Almuahd	600	20	2	S.C	1500
03-02-000128			Almusharah W.T.P.	150	40	1	S.C	1500
03-02-000129			Al-Umara C.U.	200	50	6	S.C	1500
03-02-000130			Al-Umara sewage station	1200	20	1	S.C	1500
TOTAL						240		

SECTION 2

SEWAGE SUBMERSIBLE PUMPS

Electrical sewage submersible pump open impeller complete with motor of 400 V, 50 HZ, IP 68, class F insulation, and 2 no. floating switches with (20) m cable. power cable of 50m length,

- D.O.L starter for rating up to 5 K.W. and star-delta starter for rating more than 5 K.W. and spare parts per pump as mentioned below. the pump must be suitable for 15 time start stop per day.

- Starter must contain :-

One) Main isolating switch with main fuses.

Two) Contactor, overload relay, timer.

Three) Phase failure.

Four) On front of steel cabinet, IP 56 indication lamp and push button, ammeter with selector switch, voltmeter with selector switch.

Five) Sensor, relays for start stop

- Spare parts for each pump

One) Set of Ball Bearing

Two) (2) set of mechanical seal

Three) Set of (o) ring

Four) Set of cable land seal

- Motor power must equal (rated power + 10%)

Code	Governorate Name	Project Name	Capacity (m3/h)	Head (m)	Qty
03-02-00131	Anbar	Ramadi storm water P .S	250	30	3
03-02-00132		Ramadi storm water P .S	250	30	3
03-02-00133		Haditha W.T.P	500	70	1
03-02-00134		Falloja W.T.P	500	70	1
03-02-00135		West desert W.T.P	500	70	2
03-02-00136	Babil	Hilla Sewage Station	350	20	1
03-02-00137		Hilla Sewage Station	100	15	4
03-02-00138		Babel sewage station	60	12	4
03-02-00139		Babel storm station	450	20	4
03-02-00140	Baghdad	Abo Graib Sewage T.P.	150	15	2
03-02-00141		Mahmodia sewage station	100	15	4
03-02-00142		Sewerage Mahmodia	180	15	4
03-02-00143		Sewerage Al-jeser station	300	20	4
03-02-00144		Abo -Graib sewage	300	20	2
03-02-00145		Abo- Graib Masriah	300	15	2
03-02-00146		Al-madain w.t.p.	60	15	2
03-02-00147		Al-madain w.t.p.	20	15	2
03-02-00148		Al-Yousfia sewage	84	15	2
03-02-00149		Al-Yousfia storm	180	15	3
03-02-00150		Al-Rashdya w.t.p	30	15	4
03-02-00151	Basrah	Al-Aabbasiya, AL-Idara sewage stations & Abo-Skher P.S	400	25	8
03-02-00152		Abo-Skher raw water P.S	1000	15	7
03-02-00153	Diala	Baquba sewage station	60	20	2
03-02-00154		Khalis (sindiya) W.T.P	120	30	2
03-02-00155		Baquba sewage	350	20	3

Code	Governorate Name	Project Name	Capacity (m3/h)	Head (m)	Qty
03-02-00156		Al-Khalis sewage	30	15	4
03-02-00157		Kanain w.t.p	30	25	2
03-02-00158		Balad rooz w.t.p	60	20	1
03-02-00159		Kanain sewage	200	20	2
03-02-00160	Kerbala	Abu Hashim sewage station	120	20	2
03-02-00161		AL-Muthanna sewage station	120	20	2
03-02-00162		Intisar sewage station	100	20	2
03-02-00163		Iskan sewage station	120	20	2
03-02-00164		Kerbala sewage T.P.	60	10	1
03-02-00165		Maamalji sewage station	60	20	2
03-02-00166		Project 7. W.T.P	60	20	6
03-02-00167		Project 7. W.T.P	150	25	2
03-02-00168		Safi qadem	100	15	2
03-02-00169		Mamalagi .P	150	20	2
03-02-00170		Ain tamor	100	20	2
03-02-00171		Al-Aroba	60	20	2
03-02-00172		Groung storage tanks	100	20	2
03-02-00173		Gadwal Al-Gerbi	30	20	1
03-02-00174		Hendia qadem	50	15	1
03-02-00175		Sewage pump station	150	25	2
03-02-00176		Husseineya W.S.S	60	20	4
03-02-00177		Husseineya W.S.S	100	15	4
03-02-00178		Husseineya W.S.S	150	25	2
03-02-00179	Missan	AL -Islan sewage station	450	40	2
03-02-00180		AL-Rafidain sewage station	60	20	2
03-02-00181		Ali Al- Sharqi sewage station	300	20	2
03-02-00182		Amara Main Drainage station	500	20	1
03-02-00183		Amara sewage station butaira	300	15	1
03-02-00184		Amara sewage station Al-Risala	185	20	4
03-02-00185		Amara sewage station Al-Uruba	200	20	4
03-02-00186		Peripheral sewage station	60	10	3
03-02-00187		Aqua compact unit	225	20	2
03-02-00188		Compact unit 50m ³ /j	60	30	2
03-02-00189		Verise sewage station	120	20	4
03-02-00190		Verise sewage station	60	20	2
03-02-00191		Ali sharqi sewage station	150	20	2
03-02-00192	Ninewa	Mousel sewage station	1000	20	2
03-02-00193		Mosul Trunk main	600	12	4
03-02-00194		Mosul kharazi Trunk main	600	12	4
03-02-00195		Domiz sewage	100	15	2
03-02-00196		Domiz Faida sewage	100	10	2
03-02-00197		Domiz Senjar sewage	100	10	2
03-02-00198	Qadissia	Al-furat pump station	350	25	1
03-02-00199		Al-Jazair pump station	350	25	1
03-02-00200		Al-hadhra pump station	250	25	1
03-02-00201		Al-Jazair pump station	250	25	1
03-02-00202		Al-Uruba pump station	250	25	1
03-02-00203		Shamia (New) W.T.P	100	20	3
03-02-00204		Shamia (old) W.T.P	100	20	3
03-02-00205	Thiqar	Al-Bakr sewage station	150	30	1
03-02-00206		Al-Iskan sewage station	154	7	4

Code	Governorate Name	Project Name	Capacity (m3/h)	Head (m)	Qty
03-02-00207		Al-Iskan Al-Sinayee station	137	20	2
03-02-00208		Al-Shatra (1) sewage station	50	10	2
03-02-00209		Nassiriya sewage T.P.	330	10	2
03-02-00210		Nassiriya sewage station Al-Tabu	60	10	2
03-02-00211		Peripheral sewage station	250	15	2
03-02-00212		Peripheral sewage station	150	17	2
03-02-00213		Residential building station	54	20	2
03-02-00214		Sewage (P.S)	90	20	12
03-02-00215		Sewage (P.S)	60	10	12
03-02-00216		Sewage (P.S.)	33	20	4
03-02-00217		Sewage (P.S.)	50	10	2
03-02-00218		Sewage (P.S)	80	15	3
03-02-00219		Nassirya storm station	140	20	10
03-02-00220		Nassiryasewage station	400	20	3
03-02-00221		Compact unit	60	20	10
03-02-00222	Wasit	Al-Hora sewage station	225	20	2
03-02-00223		Kut sewage station	125	20	3
03-02-00224		Kut sewage station	60	20	10
03-02-00225		Peripheral sewage station	250	20	2
03-02-00226		Peripheral sewage station	75	20	3
03-02-00227		Peripheral sewage station	150	20	4
03-02-00228		Veriase sewage station	250	20	3
03-02-00229		Veriase sewage station	150	20	4
03-02-00230		Sewira sewage station	400	20	2
03-02-00231		Compact units	60	20	4
03-02-00232		Compact units	14	20	4
03-02-00233		Veriase w.t.p	20	15	2
03-02-00234	Muthana	Sewage pumping station	60	20	3
03-02-00235		Sewage pumping station	120	20	3
03-02-00236		Sewage pumping station	180	20	3
03-02-00237		Shuhada Sewage pumping station (Submersible)	300	20	2
03-02-00238		Siwad Al-MajeedShuhada Sewage pumping station (Submersible)	150	18	2
03-02-00239		Dhijirya Sewage pumping station (Submersible)	150	20	2
03-02-00240		Dur Iskan Sewage pumping station (Submersible)	60	20	2
03-02-00241		DWS Sewage pumping station (Submersible)	250	20	2
03-02-00242		Gumrug Sewage pumping station (Submersible)	100	20	2
03-02-00243		Hai Al-Askari Sewage pumping station (Submersible)	200	20	2
03-02-00244		Hai Al-Askari Sewage pumping station (Submersible)	150	20	2
03-02-00245		Hai Al-Dhubath Sewage pumping station (Submersible)	150	20	2
03-02-00246		Hai Al-Makarim Sewage pumping station (Submersible)	100	20	2
03-02-00247		Hai Al-Mualimin Sewage pumping station (Submersible)	100	20	2

Code	Governorate Name	Project Name	Capacity (m3/h)	Head (m)	Qty
03-02-00248		Hai Al-Risala Sewage pumping station (Submersible)	100	20	2
03-02-00249		Hai Al-Shuhada Sewage pumping station (Submersible)	150	18	2
03-02-00250		Hai Al-Umal Sewage pumping station (Submersible)	200	20	2
03-02-00251		Hai Nadhim Sewage pumping station (Submersible)	100	20	2
03-02-00252		Ibn Al-Nafis Sewage pumping station (Submersible)	140	20	2
03-02-00253		Iskan Sewage pumping station (Submersible)	200	30	2
03-02-00254		Kadhim Al-Yasiri Sewage pumping station (Submersible)	200	25	2
03-02-00255		Kishla Sewage pumping station (Submersible)	100	20	2
03-02-00256		Old Malaab Sewage pumping station (Submersible)	100	20	2
03-02-00257		Ola Project Sewage pumping station (Submersible)	200	18	2
03-02-00258		Residential Buildings Sewage pumping station-2 (Submersible)	100	20	2
03-02-00259		Residential Buildings Sewage pumping station-1 (Submersible)	150	20	2
03-02-00260		Al-Gharbi Sewage pumping station (Submersible)	140	20	2
03-02-00261		Al- Haydarya Sewage pumping station (Submersible)	70	20	2
03-02-00262		Residential Buildings Sewage pumping station (Submersible)	100	20	2
03-02-00263		Al-Sharki Sewage pumping station (Submersible)	140	20	2
03-02-00264		Al-Sikak Main Sewage pumping station (Submersible)	200	20	2
03-02-00265		Al-Sikak Sewage pumping station (3 nos.) (Submersible)	100	20	6
03-02-00266		Al-Wagfa Sewage pumping station (3 nos.) (Submersible)	150	18	2
03-02-00267		Sewage compact units (2 nos.)	120-150	20	3
03-02-00268		Sewage compact units (2 nos.)	60	15	1
03-02-00269	Taameem	Kirkuk domez	225	12	4
03-02-00270		Kirkuk raw water pump	100	12	2
03-02-00271		Kirkuk raw water pump	150	20	2
03-02-00272		Al-Ton kobry w.t.p	250	25	4
03-02-00273		Sewage station	120	20	6
03-02-00274	Slah Al-deen	Tikrit sewage	212	15	2
03-02-00275		Tikrit sewage	150	15	2
03-02-00276		Balad sewage station	250	30	2
03-02-00277		Balad sewage station	120	30	2
03-02-00278		Al-Duluiey new WSS.	250	30	2
03-02-00279		New balad WSS.	20	15	2
03-02-00280		Ishaki yathrip	20	15	2

Code	Governorate Name	Project Name	Capacity (m3/h)	Head (m)	Qty
03-02-00281		Baije sewage station	250	30	4
03-02-00282		Baije sewage station	100	20	2
03-02-00283		Baije sewage station	50	20	2
03-02-00284	Najaf	Al-manathira W.P	30	20	2
03-02-00285		Al-Haydareya W.P	30	20	2
03-02-00286		Unified Najaf-kufa W.P	30	20	3
Total					428

SECTION 3

Cesspit Jetting Units

Code	Description	Qty.
03-02-00287	<p>High pressure Water Jetting unit of 10000 liters capacity jetting unit Each unit must be supplied with heavy duty hydraulic (25 mm × 80 m) wire braided hose, standard equipment like tool box, warning beacon, work lamp and anti-freeze system, control panel at rear of machine counting, pressure gauges. tachometer, hour recorder, ..., etc.The chassis shall be supplied from aqualified company .Three piston high pressure pump (130 kg/m²) max. pressure and up to (325 liter/min)Hydrostatically driven hose drum (2×100 m) high pressure hose (min 25 mm) Three spraying nozzles (30, 35 and 45 angle)Small hose drum (with 25 m of 12.5 mm high pressure hose with hand spray gun must be supplied (1 no.)Standing tube for hydrant joint (1 no.)Angle brace (2 nos.)Filling hose (20 m)Drilling braces (2 nos.)Retriever (2 nos.)Drilling rod (3 m)Four wheel rear axil with electric safety hand lamp (5) nos., (3 sets) cover lifter, (6 nos.) shovel, (6 nos.) sweeping brushes, first aid box, Amber rotating beacon (2 nos.), flashing beacon (2 nos.), complete tool box, special tools.A list of spare parts must be submitted with the offer to be approved by GEWS for the lorry and jetting pump.- Type . 6 cylinder deisel operated .- power : 140 BHP (140 KW) at 2600 rpm .</p>	30

SECTION 4

DIESEL GENERATOR

Description

- Out diesel generator inside container

The generating set shall be designed to have net rating output as mentioned in enclosed table under the following site conditions:-

* Ambient temperature 55° C in the shade

* Altitude above sea level 200 meters

* Relative humidity 60 %

- Every generator set shall be able to run at 10% overload for a period of one hour after working on full load for 12 continuous hours, the results shall be within the normal limits of the working condition of the set.
- The generator shall be designed for 50 Hz., 3-phase, 0.8 p.f, generated voltage shall be 400 V., diesel generator of rating up to (250) KVA, must be portable type on tyers and for rating more than 250 KVA, type must be skid mounted and also inside container.

Description of engine and auxiliaries

- The engine, must be of medium speed, vertical or V-type 4-stroke, water cooled, compression ignition, diesel engine directly coupled to the alternator on a common base.
- The RPM of the generator shall be 1500.
- Each engine shall be fitted with a suitable heavy duty oil bath air filter suitable for use in dusty atmospheres and tropical climates.
- every engine shall be fitted with following meters:-
 - * lubricating oil pressure meter.
 - * water temperature meter.
 - * exhaust gas temperature meter.
 - * charging battery ammeter.

Cooling system

every engine shall be radiator water - cooled the radiator shall be designed for tropical climate at an ambient temperature of 55 C in the shade.

Starting system

The generator shall be designed for manual / auto starting and it is preferred to be electrical by electric starter and set of alkaline batteries.

Control and warning system

each engine shall have protections against faulty operation and abnormal conditions by means of system of relays, pressure and thermal sensors.

Alternator

The generated voltage of the alternators must be 400V,AC and the winding shall be of class F.

Switchboard

- The switchboard shall be of sheet steel clad totally enclosed, dust and vermin proof, and it must be manufactured from thick gauge zinc coated sheet steel.
- A manually operated change-over (transfer) switch shall be included with the switch gear for the purpose of supplying electricity either from the mains or from the generating set and to safely prevent the two system operating together.

Cabling

(50)m. length of suitable size of low tension cable (1000) v, copper armoured type should be supplied with each generator set.

Fuel system

- The fuel system for every engine shall consist of fuel transfer pump. Fuel service tank shall be of such capacity sufficient of 8 hours operation on fuel load, fuel injection pump with all inter connecting pipings, fitting and filters.
- A hand operating semirotary pump with necessary piping for filling the service tank of every generating set from the bulk storage tanks shall be included.
- Bulk storage tanks for fuel shall be supplied and it shall be of capacities sufficient for (7) days full load operation for diesel generator of rating (250) KVA, and above.

Spare parts

Spare parts as mentioned in the list attached must be supplied for each diesel generator set in addition to any other necessary spares recommended by supplier.

Code	Governorate name	Project name	Rating KVA	Qty.
03-02-00288	Anbar	Al- Walled water project	250	1
03-02-00289	Anbar	New Ramadi W.T.P.	2000	1
03-02-00290	Anbar	Qarma Unified W.T.P	600	1
03-02-00291	Anbar	Barona W.T.P.	500	1
03-02-00292	Anbar	Old Al- Qaeim W.T.P	600	1
03-02-00293	Anbar	Thibaha well	100	2
03-02-00294	Anbar	Al- Baker	400	1
03-02-00295	Anbar	New Falluja	1750	1
03-02-00296	Mothana	Al-Salman W.T	250	3
03-02-00297	Mothana	Al-Khadar W.T	500	1
03-02-00298	Mothana	Beseyah W.T	100	1
03-02-00299	Mothana	Al-Iskan W.T.P	50	1
03-02-00300	Mothana	Al-Warkaa W.T.P	650	1
03-02-00301	Mothana	Al-Malaab sewage (B.S)	50	1
03-02-00302	Mothana	Al-Najmeiy W.T.P	100	1
03-02-00303	Mothana	New Unified W.T.P.	1500	1
03-02-00304	Mothana	Sewage station	50	2
03-02-00305	Mothana	Sewage station	125	2
03-02-00306	Mothana	Compact Unite	30	4
03-02-00307	Qadessiya	Dewaniya (S.T.P)	1000	1
03-02-00308	Qadessiya	Al-Shafeaya (P.S)	500	1
03-02-00309	Qadessiya	Al-Saleheya (P.S)	300	1
03-02-00310	Qadessiya	Diwaniya Unified W.T.P	1650	1
03-02-00311	Qadessiya	Diwaniya Boosting city	1650	1
03-02-00312	Qadessiya	Alin W.T.P	75	1
03-02-00313	Qadessiya	Sadir Al- Daghara Villiage W.T.P.	400	1
03-02-00314	Qadessiya	Al- Salahya Boosting Station	150	1
03-02-00315	Qadessiya	Al- Hamza W.T.P. (new) (LLP)	300	1
03-02-00316	Qadessiya	Compact Unit 50 m ³ /h	75	12
03-02-00317	Qadessiya	Compact Unit 14 m ³ /h	30	10
03-02-00318	Qadessiya	Diwaniya Sewage plant	1250	1
03-02-00319	Qadessiya	Sewage pump stations	50	5
03-02-00320	Qadessiya	Storm pump stations	200	3
03-02-00321	Wasit	Al-Kut (W.T.P)	650	1
03-02-00322	Wasit	Al-Nuamaneya (W.T.P)	300	1
03-02-00323	Wasit	Al-AEzza (com.unit)	200	1
03-02-00324	Wasit	Hai Al-Jamaheer (unit)	200	1
03-02-00325	Wasit	Al-Ezza (W.T.P)	200	1
03-02-00326	Wasit	Jassan (W.T.P)	150	1
03-02-00327	Wasit	Al-Zubaideya (W.T.P)	150	1
03-02-00328	Wasit	Al-Karama	200	1

Code	Governorate name	Project name	Rating KVA	Qty.
03-02-00329	Wasit	sewage pump station	62	1
03-02-00330	Wasit	Al- Hay (W.T.P)	750	1
03-02-00331	Wasit	Al- Ahrar (W.T.P)	250	1
03-02-00332	Wasit	Al- Suwaira (W.T.P)	1000	1
03-02-00333	Wasit	Al-Nuamaneya (W.T.P)	600	1
03-02-00334	Wasit	Al- Dubony (W.T.P)	200	1
03-02-00335	Wasit	Zein -Al- Qaws C. U.	250	1
03-02-00336	Wasit	Al- Mowafakiyah plant	250	1
03-02-00337	Wasit	Old Al- Aziziya (W.T.P)	300	1
03-02-00338	Wasit	Wasit (W.T.P)	200	1
03-02-00339	Wasit	Al- Dhnok- Badra (W.T.P)	450	1
03-02-00340	Wasit	Jassan (W.T.P)	300	1
03-02-00341	Wasit	Al-Zubaideya (W.T.P)	250	1
03-02-00342	Wasit	Al-Basairh (W.T.P)	200	1
03-02-00343	Wasit	Al- Samadan & Almantsiarn (W.T.P)	200	1
03-02-00344	Wasit	Al- Hafraiyy (W.T.P)	200	1
03-02-00345	Wasit	sewage pump station	650	4
03-02-00346	Wasit	sewage pump station	30	5
03-02-00347	Najaf	Najaf sewage plant	1000	1
03-02-00348	Najaf	Raw water treatment plant	2000	1
03-02-00349	Najaf	Al-Kufa water treatment	1250	1
03-02-00350	Najaf	Al-Hiadria W.T.P.	200	1
03-02-00351	Najaf	Sewage station pump	75	1
03-02-00352	Najaf	Al-Wafa station pump	100	1
03-02-00353	Najaf	Manithra Compact Unite	250	1
03-02-00354	Najaf	Compact Unite 50 m ³ /h	75	10
03-02-00355	Najaf	Compact Unite 14 m ³ /h	30	10
03-02-00356	Karbala	Al-Khairat	200	1
03-02-00357	Karbala	Al-Gahes	200	1
03-02-00358	Karbala	Ain Tamor	400	1
03-02-00359	Karbala	Hendia sewerage	100	1
03-02-00360	Karbala	Al-Gadwal Al-Garbi	300	1
03-02-00361	Karbala	Al-Hur	100	1
03-02-00362	Karbala	Sewage P.S	550	1
03-02-00363	Karbala	Main Substation	250	2
03-02-00364	Karbala	Hussaineya	200	1
03-02-00365	Karbala	Al- Hendia W.T.P.	250	1
03-02-00366	Karbala	Al-Saliha W.T.P.	150	1
03-02-00367	Karbala	Al-Hendia sewerage station	150	2
03-02-00368	Karbala	Project No. (7) low lift	300	1
03-02-00369	Karbala	Project No. (7) high lift	500	1
03-02-00370	Karbala	Compact Unite 50 m ³ /h	75	9
03-02-00371	Karbala	Compact Unite 14 m ³ /h	30	10
03-02-00372	Basrah	sewage pump station (9)	200	1
03-02-00373	Basrah	sewage pump station (Hussain)	40	1
03-02-00374	Basrah	sewage pump station (24)	500	1
03-02-00375	Basrah	Al-Labani (W.T.P)	750	1
03-02-00376	Basrah	Muhaila C.U. complex	500	1
03-02-00377	Basrah	Muhagran C.U. No. 2	250	1
03-02-00378	Basrah	Hamdan C.U.	125	1
03-02-00379	Basrah	Hamdan clarify (W.T.P)	330	1

Code	Governorate name	Project name	Rating KVA	Qty.
03-02-00380	Basrah	Al- Mudaina C.U.	175	1
03-02-00381	Basrah	Basrah Sewage Station (C)	1000	1
03-02-00382	Babel	Babel W.T.P. new (pump station)	1250	1
03-02-00383	Babel	Babel W.T.P. new (raw water pump)	450	1
03-02-00384	Babel	New - Musab W.T.P.	2000	1
03-02-00385	Babel	Old - Musab W.T.P.	300	1
03-02-00386	Babel	Al- Kifl W.T.P.	200	1
03-02-00387	Babel	Al-Shomaly W.T.P.	200	1
03-02-00388	Babel	Al- Mahaweel W.T.P.	300	1
03-02-00389	Babel	Al- Hashimiyah W.T.P.	180	1
03-02-00390	Babel	Compact Unit 50 m ³ /h	50	10
03-02-00391	Babel	Compact Unit 14 m ³ /h	30	10
03-02-00392	Babel	Al-Qadisiya W.T.P.	75	1
03-02-00393	Babel	Raw water W.T.P.	250	1
03-02-00394	Babel	Sewage Pump Station	75	3
03-02-00395	Babel	Compact Unit 100 m ³ /h	100	2
03-02-00396	Nenewah	Al-Shoora	400	1
03-02-00397	Nenewah	Mekmoor (New) WSS	650	1
03-02-00398	Nenewah	Al-Selameya (Hamdaneya)	1250	1
03-02-00399	Nenewah	Al-Hamdaneya (center)	650	1
03-02-00400	Nenewah	Al-Sandoqy trunksewer	320	1
03-02-00401	Nenewah	Qaraj W.T.P.	400	1
03-02-00402	Nenewah	Badosh W.T.P.	250	1
03-02-00403	Nenewah	Rabia a W.T.P.	75	1
03-02-00404	Nenewah	Rabia a well	30	1
03-02-00405	Nenewah	New Al-Quer W.T.P.	400	1
03-02-00406	Nenewah	New Al-Quer W.T.P. (low lift)	120	1
03-02-00407	Nenewah	Senjer well	30	1
03-02-00408	Nenewah	Senjer W.T.P.	100	1
03-02-00409	Nenewah	Al-Shekhan W.T.P.	75	1
03-02-00410	Nenewah	New Al-Shekhan W.T.P.	150	1
03-02-00411	Nenewah	Al-Shekhan well	30	1
03-02-00412	Nenewah	Al-Baiaj W.T.P.	75	1
03-02-00413	Nenewah	Al-Baiaj well	30	1
03-02-00414	Nenewah	Al-Somode W.T.P.	250	1
03-02-00415	Nenewah	Faida / Domiz W.T.P.	120	1
03-02-00416	Nenewah	Faida / Domiz well	30	1
03-02-00417	Nenewah	Mousel Boosting station	150	1
03-02-00418	Nenewah	Tel -Al-Rman Boosting	150	1
03-02-00419	Nenewah	Makhmor W.T.P. old	425	1
03-02-00420	Nenewah	Alewha Boosting City	625	1
03-02-00421	Nenewah	Al-Qoush W.T.P. Unified	1000	1
03-02-00422	Nenewah	Mousel city Boosting	650	1
03-02-00423	Nenewah	Sad Saddam Compact Unite	650	1
03-02-00424	Nenewah	Win W.T.P.	250	1
03-02-00425	Nenewah	Telkaf Compact Unite	100	2
03-02-00426	Nenewah	Al-Hather W.T.P.	1250 / 11KV	1
03-02-00427	Nenewah	Al-Hamdanya W.T.P. Unified	2000	1
03-02-00428	Nenewah	Al-Khthra Boosting station	630	1
03-02-00429	Nenewah	Mousel Boosting station (sun)	630	1

Code	Governorate name	Project name	Rating KVA	Qty.
03-02-00430	Nenewah	Al-Karaze Boosting	350	1
03-02-00431	Nenewah	Al-Tameem Boosting	630	1
03-02-00432	Nenewah	Al-Zenjelly Boosting	250	1
03-02-00433	Nenewah	Al-Dwassa Boosting	400	1
03-02-00434	Nenewah	Old Taleifer and extersion	1250	2
03-02-00435	Nenewah	Aske mousel /Boosting station	1000	2
03-02-00436	Salah Al-Deen	Balad WSS New	630	1
03-02-00437	Salah Al-Deen	Al-Dhuloeya	125	1
03-02-00438	Salah Al-Deen	Balad sewage	125	1
03-02-00439	Salah Al-Deen	Al-Shariqia W.T.P.	630	2
03-02-00440	Salah Al-Deen	Compact Unit 50m ³ /h	75	2
03-02-00441	Salah Al-Deen	Tulol - Al- Baj W.T.P.	500	1
03-02-00442	Salah Al-Deen	Compact Unite	100	3
03-02-00443	Salah Al-Deen	Al-Oaja W.T.P.	400	1
03-02-00444	Salah Al-Deen	Sewage station	50	6
03-02-00445	Salah Al-Deen	Old Tuz - W.T.P.	350	1
03-02-00446	Salah Al-Deen	Compact Unite 50m ³ /h No. 5	250	1
03-02-00447	Salah Al-Deen	Compact Unite 50m ³ /h No. 3	75	10
03-02-00448	Salah Al-Deen	Compact Unite 14m ³ /h	30	5
03-02-00449	Salah Al-Deen	Al-Dor W.T.P.	450	1
03-02-00450	Salah Al-Deen	Samaira W.T.P.	1000	1
03-02-00451	Salah Al-Deen	Old Balad W.T.P.	125	1
03-02-00452	Salah Al-Deen	Al- Duliaha W.T.P	200	1
03-02-00453	Salah Al-Deen	Al-Fairs W.T.P.	250	1
03-02-00454	Salah Al-Deen	Al-Fairs Sewage pump station	125	2
03-02-00455	Salah Al-Deen	Tariama W.T.P.	250	1
03-02-00456	Salah Al-Deen	Beji sewage station	100	2
03-02-00457	Salah Al-Deen	Al-Abaiaji W.T.P.	250	1
03-02-00458	Salah Al-Deen	Al-Alam W.T.P.	250	1
03-02-00459	Salah Al-Deen	New Balad W.T.P.	400	1
03-02-00460	Mesian	Main draing station	200	1
03-02-00461	Mesian	Ali sharqi W.T.P.	200	1
03-02-00462	Mesian	Al-Adil W.T.P.	300	1
03-02-00463	Mesian	Al-Hwafaith Compact unite	120	2
03-02-00464	Mesian	Al-Wahida Compact unite	150	2
03-02-00465	Mesian	Al-Amaira sewage station	500	1
03-02-00466	Mesian	Linsiduilal Building station	120	1
03-02-00467	Mesian	Al majer Compact unite	120	1
03-02-00468	Mesian	Al-uriba sewage station	80	1
03-02-00469	Mesian	Amair W.T.P.	1000	1
03-02-00470	Baghdad	Al-Yousifia Villiage W.T.P.	200	1
03-02-00471	Baghdad	Al-Yousifia W.T.P.	200	1
03-02-00472	Baghdad	Al-Muhmoiday sewage station	50	4
03-02-00473	Baghdad	Al-Nahrawan W.T.P.	750	1
03-02-00474	Tameem	Al-Toon cipri W.T.P.	300	1
03-02-00475	Tameem	Al-Reath W.T.P.	250	1
03-02-00476	Tameem	Taza W.T.P.	150	1
03-02-00477	Tameem	Al-Abassia W.T.P.	150	1
03-02-00478	Tameem	Daqooq W.T.P.	100	1
03-02-00479	Tameem	Domeiz Sewage station	250	1
03-02-00480	Tameem	Sadiam Sewage station	50	1

Code	Governorate name	Project name	Rating KVA	Qty.
03-02-00481	Tameem	Different well	50	10
03-02-00482	Diala	Baquba W.T.P.	1250	1
03-02-00483	Diala	Baquba station	1000	1
03-02-00484	Diala	Kalias W.T.P.	1250	1
03-02-00485	Diala	Kalias station	1250	1
03-02-00486	Diala	Saif - saad station & Ahaliay	750	2
03-02-00487	Diala	Al-Mainsory W.T.P.	1000	1
03-02-00488	Diala	JalaLaw W.T.P. (H.L)	600	1
03-02-00489	Diala	JalaLaw W.T.P. (L.L)	400	1
03-02-00490	Diala	Kanana W.T.P.	600	1
03-02-00491	Diala	Al Sainday W.T.P.	600	1
03-02-00492	Diala	Sewage station	100	1
03-02-00493	Diala	Compact Unite 50 m ³ /h	75	5
03-02-00494	Diala	Compact Unite 14 m ³ /h	30	5
03-02-00495	Diala	Old Al-Manisory W.T.P.	300	1
03-02-00496	Diala	Abad - Al Hamed W.T.P.	600	1
03-02-00497	Thiqar	Al-Nasiria W.T.P.	3000	1
03-02-00498	Thiqar	Shat Al-Kaser station	250	1
03-02-00499	Thiqar	Old Nasiria W.T.P.	500	1
03-02-00500	Thiqar	Sewage station	150	1
03-02-00501	Thiqar	Compact Unite 50 m ³ /h	75	10
03-02-00502	Thiqar	Compact Unite 14 m ³ /h	30	10
03-02-00503	Thiqar	Al-Qraaf W.T.P.	100	1
03-02-00504	Thiqar	Al-Raifia W.T.P.	400	1
03-02-00505	Thiqar	Storm - station	50	10
03-02-00506	Thiqar	Al-Fajer W.T.P.	100	1
03-02-00507	Thiqar	Al-Hamar W.T.P.	60	1
03-02-00508	Thiqar	Al-Qharaf compact unit	180	1
03-02-00509	Thiqar	Al-Fthelia compact unit	60	1
03-02-00510	Thiqar	Proteen W.T. (sooq al shukh)	120	1
03-02-00511	Thiqar	Al-Fa r C. U.	60	1
TOTOAL				400

SECTION 5

Circuit breaker

- Air circuit breaker moulded case of 380 V. 50 Hz. 3 phase, with thermal overload, magnetic short circuit. and earth leakage protection and single phasing protection for circuit breaker rating from (630) A and breaking capacity as mentioned in the list below:-

- Circuit breaker from 2000 A and above must be draw able type and rating below that must be of fixed type.

Code	Gov. name	Project name	Rating(A)	Qty.	breaking capacity (KA)
03-02-00512	Anbar	New falluja W.S.S	2500	1	80
03-02-00513		West desert W.T.P	1600	5	80
03-02-00514		Ramadi (New) W.T.P	160	5	30
03-02-00515		New Haditha W.T.P	800	3	50
03-02-00516		New Haditha W.T.P	630	2	50
03-02-00517	Babil	Saddat AL-Hindiya W.S.S	1000	2	80
03-02-00518		Compact units	100	20	30
03-02-00519		Compact units	150	30	30
03-02-00520		Compact units	250	10	30
03-02-00521		Compact units	300	16	30
03-02-00522		Compact units	400	6	30
03-02-00523		Compact units	500	6	50
03-02-00524		Compact units	25	89	5
03-02-00525		AL-Musayab unifed W.T.P	200	3	30
03-02-00526		AL-Musayab unified W.T.P	100	3	30
03-02-00527		AL-Musayab unified W.T.P	630	3	50
03-02-00528		New Hilla W.T.P	10	20	5
03-02-00529		NEw Hilla W.T.P	6	20	5
03-02-00530	Baghdad	Preussag C.U (14 NO)	100	10	30
03-02-00531		Emec C.U	100	10	30
03-02-00532		Emec C.U	60	50	20
03-02-00533		AL-Jissr B.S	100	2	30
03-02-00534		New Rashdiya W.T.P	630	1	50
03-02-00535		AL-Madain uniefied W.T.P	100	2	30
03-02-00536		Bafag C.U 70unit	25	25	5
03-02-00537	Basrah	AL-Hussein Quarter B.S	630	1	50
03-02-00538		Sihan W.T.P	1250	2	80
03-02-00539		AL-Mudaina(old) W.T.P	60	2	20
03-02-00540		AL-Shuwaiba / AL-Jubaila	1600	1	80
03-02-00541		AL-Faiha W.T.P	25	1	5
03-02-00542		AL-Suwailih C.U (Local)	160	1	30
03-02-00543		shalhat AL-Hassan	100	1	30
03-02-00544		The (25) AQUA C.U	3200	2	100
03-02-00545		AL-Mudaina C.U (Local)	250	1	30
03-02-00546		AL-Zuwayn C.U (Local)	250	2	30
03-02-00547		Khor al-zubair W.T.P	63	1	20
03-02-00548		Khor al-zubair W.T.P	250	1	30
03-02-00549		Muhaila C.U (complex)	1000	2	80
03-02-00550		Muhaila C.U (complex)	150	2	30
03-02-00551		Basrah unified W.T.P	1000	2	80
03-02-00552		AL-Bradhiya W.T.P	80	3	20
03-02-00553		AL-Bradhiya W.T.P	250	3	30

Code	Gov. name	Project name	Rating(A)	Qty.	breaking capacity (KA)
03-02-00554		AL Suwaip (old) W.T.P	100	3	30
03-02-00555		Shattal Arab unified	400	1	50
03-02-00556		Fao Boosting station	630	4	50
03-02-00557		1/4 million gallon /day C.U preussag 3NO	100	1	30
03-02-00558		1/4 million gallon /day (Local) C.U	100	3	30
03-02-00559		AL-Izz C.U complex	1000	2	80
03-02-00560		AL-Izz C.U complex	100	4	30
03-02-00561		AL-Jubaila	630	2	50
03-02-00562		AL-Jubaila	500	2	50
03-02-00563		AL-Jubaila	100	5	30
03-02-00564		AL-Jubaila	50	2	20
03-02-00565		AL-Labani W.T.P	1000	1	80
03-02-00566		AL-Suwaiba C.U complex AQUA	160	4	30
03-02-00567		AL-Suwaiba C.U complex AQUA	100	6	30
03-02-00568		shatt al-arb unified	250	1	30
03-02-00569		AL-Qurna complex	500	1	50
03-02-00570	Diala	Abo said W.T.P	1500	2	80
03-02-00571		Khanaqin W.S.S	100	2	30
03-02-00572		Mandili W.S.S	400	1	30
03-02-00573		Mandili W.S.S	200	2	30
03-02-00574		Baquba W.S.S+Boosting stalen	630	2	50
03-02-00575		Khanaqin W.S.S	700	1	50
03-02-00576		Khanaqin W.S.S	150	5	30
03-02-00577		Emec compact unit	50	5	20
03-02-00578		Emec compact unit	100	5	30
03-02-00579		Emec compact unit	125	5	30
03-02-00580		AL-Mansooriyu W.T.P	275	2	30
03-02-00581		AL-Mansooriyu W.T.P	400	2	30
03-02-00582		Baladrooz W.T.P (new)	630	1	50
03-02-00583		Baladrooz W.T.P (new)	100	2	30
03-02-00584		Khalis (sindiya) W.T.P	600	1	50
03-02-00585	Kerbala	Project 7 W.T.P	2000	1	80
03-02-00586		Project 7 W.T.P	3150	2	100
03-02-00587		AL-Hawra Boosting station	50	1	20
03-02-00588		Kerbela sew .T. plant	250	2	30
03-02-00589		Kerbela sew .T. plant	125	6	30
03-02-00590		Kerbela sew .T. plant	400	1	30
03-02-00591		Kerbela sew .T. plant	125	2	30
03-02-00592		Hai AL-Hussain W.T.P	400	2	30
03-02-00593		Girif Albu Amir	50	1	20
03-02-00594		Unified hindyah W.T.P	50	2	20
03-02-00595		Unified hindyah W.T.P	630	1	50
03-02-00596		Compact units	32	6	10
03-02-00597		Compact unIts	60	2	20
03-02-00598		Kerbela sew. treatment plant	1000	2	80
03-02-00599		P2 sew pumping station	400	2	50
03-02-00600		P2 sew pumping station	1000	1	80
03-02-00601		P3 sew pumping station	400	1	50
03-02-00602		P5 sew pumping station	125	1	30
03-02-00603		Kerbela sew T.P	630	1	50

Code	Gov. name	Project name	Rating(A)	Qty.	breaking capacity (KA)
03-02-00604		sewage	1800	1	80
03-02-00605		sewage	1000	2	80
03-02-00606		sewage	800	1	50
03-02-00607		sewage	400	2	50
03-02-00608		sewage	150	2	30
03-02-00609		Al-Uroba P.S	400	4	50
03-02-00610		Safi Qadem	800	1	50
03-02-00611		Hussenya	80	3	20
03-02-00612		Hussenya	100	2	30
03-02-00613	Missan	AL-Butaira C.U	100	6	30
03-02-00614		AL-Karama	160	3	30
03-02-00615		AL-Muqatil C.U	80	3	20
03-02-00616		AL-Muqatil C.U	160	2	30
03-02-00617		AL-Karama C.U	100	8	30
03-02-00618		Kumait W.T.P	500	1	50
03-02-00619		Saddam general hospital	100	2	30
03-02-00620		Intermediary sew. Station	400	2	30
03-02-00621		Ali AL-Gharbi W.T.P	100	2	30
03-02-00622		1/4 million gallon / day C.U emec	100	2	30
03-02-00623		1/4 million gallon / day C.U emec	80	5	20
03-02-00624		1/4 million gallon / day C.U hydrotechnic	100	1	30
03-02-00625		1/4 million gallon / day C.U Local	100	1	30
03-02-00626		AL-Musharah(urban) W.T.P	250	1	30
03-02-00627		AL-Rafidain W.T.P	400	2	30
03-02-00628		AL-Rafidain W.T.P	630	1	50
03-02-00629		Kumait W.T.P	100	1	30
03-02-00630		AL-Adil W.T.P	1600	1	80
03-02-00631	ALMuthana	AL-Warka W.T.P	40	1	10
03-02-00632		AL-Mualak B.S	100	1	30
03-02-00633		AL-Kuder W.T.P	80	2	20
03-02-00634		AL-Kuder W.T.P	100	1	30
03-02-00635		AL-Kuder boosting station	200	1	30
03-02-00636		Samawa ground storage tank	400	5	30
03-02-00637		Old Rumaith W.T.P	630	5	50
03-02-00638		Old Rumaith W.T.P	200	1	30
03-02-00639	Najaf	AL-Waau S.pumping station	300	1	30
03-02-00640		Imarat sew. pumping station	250	1	30
03-02-00641		Iskan sewage pumping station	250	1	30
03-02-00642		AL-Ghadir sew.pumping station	200	1	30
03-02-00643		AL-Mishkab W.T.P	600	1	50
03-02-00644		AL-Mishkab	600	1	50
03-02-00645		AL-Mishkab	200	1	30
03-02-00646		AL-Mishkab	100	3	30
03-02-00647		AL-Manatira	200	4	30
03-02-00648		AL-Manatira	100	4	30
03-02-00649		Hai AL-Saad B.S	400	8	30
03-02-00650		Hai AL-Saad B.S	1500	1	80
03-02-00651		Hai AL-Saad B.S	400	3	30
03-02-00652		Unified najal kufa	250	3	30
03-02-00653		Unified najal kufa	300	3	30

Code	Gov. name	Project name	Rating(A)	Qty.	breaking capacity (KA)
03-02-00654		Unified najaf kufa	1500	1	80
03-02-00655		Unified najaf kufa	800	1	50
03-02-00656		Unified najaf kufa	400	1	30
03-02-00657		Unified najaf kufa	600	1	50
03-02-00658		Unified najaf kufa	200	1	30
03-02-00659		New Najaf-Kufa B.S	2500	8	80
03-02-00660		New Najaf-Kufa B.S	1600	4	80
03-02-00661		New Najaf-Kufa B.S	1200	3	80
03-02-00662		New Najaf-Kufa B.S	1000	1	80
03-02-00663		New Najaf-Kufa B.S	630	10	50
03-02-00664		New Najaf-Kufa B.S	400	3	30
03-02-00665		New Najaf-Kufa B.S	160	6	30
03-02-00666		New Najaf-Kufa B.S	100	3	30
03-02-00667		New Najaf-Kufa B.S	63	1	20
03-02-00668		New Najaf-Kufa T.P	1250	4	80
03-02-00669		Najaf sewage plant	2500	1	80
03-02-00670	Nenewa	Mosul W.T.P general requirment	400	2	30
03-02-00671		Mosul W.T.P general requirment	630	5	50
03-02-00672		Mosul W.T.P general requirment	150	10	30
03-02-00673		Mosul W.T.P general requirment	200	10	30
03-02-00674		Mosul W.T.P general requirment	250	10	30
03-02-00675		Mosul W.T.P general requirment	300	10	30
03-02-00676		Badosh WSS.	53	5	20
03-02-00677		Shikhan	100	10	30
03-02-00678		AL-Gaiyara	150	10	30
03-02-00679		Humam Al Alieal	200	10	30
03-02-00680		AL-Shoora W.SS	250	10	30
03-02-00681		AL-Shoora W.SS	300	10	30
03-02-00682		Hamdaney W.SS	1250	2	80
03-02-00683	Qadissia	AL-Hamza (old) W.T.P	630	2	50
03-02-00684		AL-Hamza (old) W.T.P	150	10	30
03-02-00685		Diwanyah W.T.P	160	2	30
03-02-00686		Diwanyah W.T.P	200	2	30
03-02-00687		Diwanyah sew. plant	630	3	50
03-02-00688		Diwanyah sew. plant	400	1	30
03-02-00689		Diwanyah sew. plant	2500	1	80
03-02-00690		Diwanyah sew. plant	125	6	30
03-02-00691		Diwanyah sew. plant	100	6	30
03-02-00692		Diwanyah sew. plant	150	6	30
03-02-00693		Afik water projct	630	1	50
03-02-00694		Uniefied shamyah W.T.P	1600	3	50
03-02-00695		Uniefied shamyah W.T.P	1250	1	50
03-02-00696		Uniefied shamyah W.T.P	400	1	30
03-02-00697		New & old AL-Budair W.T.P	250	1	30
03-02-00698	Salah Aldeen	Ishaqi & yathrib W.S.S	1200	2	50
03-02-00699		Tikrit W.S.S (2 nd stage)	1000	1	50
03-02-00700		Tikrit W.S.S (2 nd stage)	400	1	30
03-02-00701		Balad W.S.S	630	1	50
03-02-00702		Ishaki-Yathrib unified	60	2	20
03-02-00703		Tikret W.S.S (2nd stage)	630	2	50

Code	Gov. name	Project name	Rating(A)	Qty.	breaking capacity (KA)
03-02-00704		Tikret W.S.S (1st stage)	250	1	30
03-02-00705		Ishaki -Yathrib unified	400	2	30
03-02-00706		Ishaki -Yathrib unified	100	2	30
03-02-00707		Ishaki -Yathrib unified	60	2	20
03-02-00708		Ishaki -Yathrib unified	300	11	30
03-02-00709		Ishaki -Yathrib unified	200	4	30
03-02-00710		Ishaki -Yathrib unified	150	4	30
03-02-00711		Ishaki -Yathrib unified	50	3	20
03-02-00712	Thiqar	AL-Fuhoud W.T.P	250	3	30
03-02-00713		AL-Fuhoud W.T.P	100	4	30
03-02-00714		AL-Islah	400	1	30
03-02-00715		AL-Islah	100	3	30
03-02-00716		1/4 million gallon / day C.U emec	100	1	30
03-02-00717		1/4 million gallon / day C.U passavan	100	2	30
03-02-00718		Bafag C.U	25	5	5
03-02-00719		AL-Nasr W.T.P	100	2	30
03-02-00720		AL-Nasr W.T.P	63	1	20
03-02-00721		Iskan AL-Sinayee lifting station	65	4	20
03-02-00722		Iskan AL-Sinayee lifting station	250	4	30
03-02-00723		AL-Iskan AL-Sinayee sew.T.P	16	2	5
03-02-00724		AL-Iskan AL-Sinayee sew.T.P	10	2	5
03-02-00725		Qalaat sukkur W.T.P	1000	2	80
03-02-00726	Wasit	AL-Mazraa W.T.P	80	1	20
03-02-00727		AL-Karama C.U	250	2	30
03-02-00728		AL-Nasir C.U	350	2	30
03-02-00729		AL-Hay W.T.P	100	4	30
03-02-00730		Zain AL-Qaws	250	1	30
03-02-00731		AL-Aziziya W.T.P	300	2	30
03-02-00732		AL-Aziziya W.T.P	200	1	30
03-02-00733		AL-Aziziya W.T.P	160	3	30
03-02-00734		AL-Aziziya W.T.P	100	5	30
03-02-00735		Kut W.T.P	350	4	30
03-02-00736		Kut W.T.P	250	2	30
03-02-00737		Kut W.T.P	1250	1	80
03-02-00738		AL-Suwaira W.T.P	1000	1	80
03-02-00739		Sheikh saad W.T.P	80	3	20
03-02-00740		Sheikh saad W.T.P	100	3	30
03-02-00741		AL-Hay W.T.P	200	2	30
03-02-00742		AL-Zubaidiya	250	1	30
03-02-00743		Um sunayam	400	1	30
03-02-00744		AL-Ahrar	600	1	50
03-02-00745		1/4 million gallon / day hydrotechnic	150	2	30

Total Qty.	937
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SECTION 6

STARTERS

Electric starter star delta(S.D) or direct on line (D.O.L) according to the rating (KW or A) as mentioned below contain the following:

1- Star delta starter metal cabinet, IP56 contain:-

One) main isolating switch with fuses.

Two) 3 contactors, overload relay, timer.

Three) Phase failure.

Four) On front of cabinet,(three) indication lamp and push button, ammeter with selector switch, volt- meter with selector switch.

2- Direct-on-line starter metal cabinet, IP56 contain:-

One) Main isolating switch with fuses.

Two) contactor, overload relay, timer.

Three) Phase failure.

Four) On front of cabinet,(three) indication lamp and push button, ammeter, volt meter with selector switch..

Code	Governorate		Project name	Starters Type	Rating	Qty.
	Code No.	name				
03-02-00746	09	Anbar	Emec compact Units (15 no.)	S-D	5.00 KW	15
03-02-00747		=	Hydrantechnic Compact Units (local) (18 no.)	S-D	5.00 KW	9
03-02-00748		=	New Haditha W.S.S	S-D	100.0 A	5
03-02-00749		=	= = =	S-D	60.00 A	5
03-02-00750	11	Babil	General Item for Compact Units	S-D	150.0 A	15
03-02-00751	08	Baghdad	Al-Madain (unifeid) WTP.	S-D	100.0 A	6
03-02-00752	18	Basrah	1/4 million gallon per day CUs (local) (12 units)	S-D	15.00 KW	12
03-02-00753		=	= = = = = = = =	S-D	35.00 A	12
03-02-00754		=	1/4 million gallon per day CUs (Preussag) (3 no.)	S-D	22.00 KW	6
03-02-00755		=	Al-Faiha W.T.P	S-D	30.00 A	4
03-02-00756		=	Al-Nashwa unified W.T.P	DOL	10.00 A	4
03-02-00757		=	Al-Qurna unified W.T.P	S-D	45.00 KW	8
03-02-00758		=	Fao Boosting Station	S-D	57.00 KW	4
03-02-00759		=	= = =	S-D	30.00 KW	2
03-02-00760		=	Shattal Arab unified W.T.P	DOL	12.00 A	4
03-02-00761	06	Diala	Al-Mansooriya W.T.P (old)	S-D	50.00 A	4
03-02-00762		=	Hydrantechnic Compact Unit (local) (14 no)	S-D	42.00 A	12
03-02-00763		=	= = = = = = =	S-D	36.00 A	12
03-02-00764		=	= = = = = = =	S-D	63.00 A	10
03-02-00765		=	Kanaan W.T.P	S-D	250.0 A	2
03-02-00766		=	Muqdadiyah W.T.P (old)	S-D	50.00 A	4
03-02-00767		=	Qara Tappa W.T.P	S-D	60.00 A	4
03-02-00768	12	Kerbala	Girif Abu Amir or Jadwal Al-Gharbi Project W.T.P	S-D	100.0 A	4
03-02-00769			AL-Hur C.U	S-D	100 A	2
03-02-00770	15	Al-Muthana	Al-Kuder Water Project W.T.P	S-D	45.00 KW	4
03-02-00771		=	= = = =	S-D	18.50 KW	6
03-02-00772		=	Al-Mualak Boosting Station	S-D	55.00 KW	4
03-02-00773		=	Al-Warka Water Project	S-D	75.00 A	4
03-02-00774		=	= = =	S-D	90.00 A	3
03-02-00775		=	= = =	S-D	60.00 A	4
03-02-00776		=	= = =	S-D	80.00 A	2

Code	Governorate		Project name	Starters Type	Rating	Qty.
	Code No.	name				
03-02-00777	13	Al-Najaf	Compact unit (Emec) (10 No.)	S-D	45.00 A	16
03-02-00778			Al-Manathira	S-D	125 A	2
03-02-00779			Al-Haydaryah	S-D	35 A	2
03-02-00780			Unified Najaf-Kufa	S-D	65 A	3
03-02-00781			Najaf sewage plant	S-D	250 A	5
03-02-00782			Najaf sewage plant	S-D	30 A	5
03-02-00783			Najaf sewage plant	D.O.L	6 A	4
03-02-00784			Najaf sewage plant	S-D	150 A	2
03-02-00785			Najaf sewage plant	S-D	60 A	2
03-02-00786	14	Qadissia	Diwanyah Sewage Project SP/TP	DoI	10.00 A	5
03-02-00787		=	= = = =	S-D	200.0 KW	4
03-02-00788	16	Thiqar	Al-Shatra W.T.P	DOL	1.00 KW	4
03-02-00789		=	Nasseriah Unified W.T.P	DOL	2.00 KW	6
03-02-00790	10	Wasit	Al-Aziziya W.T.P	S-D	12.00 KW	4
03-02-00791		=	= =	S-D	21.00 KW	2
03-02-00792		=	Al-Samideen wal Muntasireen C.U (local)	S-D	7.50 KW	5
03-02-00793		=	= = = =	S-D	22.00 KW	6
03-02-00794		=	Al-Suwaira W.T.P	S-D	55.00 KW	4
03-02-00795		=	Sheikh Saad W.T.P	S-D	11.00 KW	4
03-02-00796		Salah Al-deen	Bigi Al-Sainya unified	S-D	500 A	4
03-02-00797			Bigi Al-Sainya unified	S-D	350 A	3
03-02-00798			Bigi Al-Sainya unified	S-D	250 A	3
03-02-00799			Balad old WSS	S-D	45 A	3
03-02-00800			Balad old WSS	S-D	65 A	2
03-02-00801			Al-Dhuloiya (old) WSS	S-D	100 A	2
03-02-00802			Al-Dhuloiya (New) WSS	S-D	63 A	2

Total

296

SECTION 7

ELECTRICAL MOTORS

Electrical motor of IP55, class F insulation, 400 V, 0.8p.f, 50 Hz., complete with star-delta starter for squirrel cage motor and slip ring starter for slip ring motor. Motors should be horizontal (B3) except item 536 which should be vertical (B5)

- Complete star-delta starter (in side metal cabinet IP 56) for each motor must be supplied and each one contains the following equipment :-

One) Main isolating switch with fuses

Two) contactors, overload relay, timer.

Three) Phase failure.

Four) On front of the starter cabinet, there must be :- (three) indication lamp and push button, ammeter with selector switch, voltmeter with selector switch.

- Motors in item 528, 532 must be of 3.3 K.V.

- Item 537 must be slip ring motor, IP 55, with slip ring starter contain above items in addition to resistor bank.

Code	Governorate		Project Name	Motor Type	Rating (KW)	R.P.M	Qty.
	Code No.	Name					
03-02-00803		Anbar	West Desert W.T.P	S.C	250	3000	1
03-02-00804		Missan	Adil W.T.P	S.C	55	2950	1
03-02-00805		Wasit	Kut W.T.P	S.C	120	1500	1
03-02-00806			Kut W.T.P	S.C	50	1500	1
03-02-00807			Al-Hay W.T.P	S.C	90	1500	1
03-02-00808			Sheek Saad W.T.P	S.C	38	1500	1
03-02-00809		Baghdad	Nahrawan poosting station	S.C	90	1450	2
03-02-00810			Mahmodiya boosting station	S.C	160	1500	2
03-02-00811			Mahmodiya W.T.P	S.C	75	1500	2
03-02-00812		Diala	Jalawlaa W.T.P	S.C	59	1500	3
03-02-00813			Mansoriya W.T.P	S.C	150	1500	2
03-02-00814			Abo Sida W.T.P	S.C	22	1500	2
03-02-00815			Baquba P.S	S.C	182	1500	2
03-02-00816			Khalis	S.C	75	1500	4
03-02-00817		Qadisiya	Al-Hamza W.T.P (new)	S.C	45	1000	6
03-02-00818			Al-Hamza W.T.P (new)	S.C	37	1000	3
03-02-00819			Diwaniya W.T.P	S.C	250	1480	2
03-02-00820			Diwaniya W.T.P	S.C	90	1480	4
03-02-00821			Diwaniya W.T.P	S.C	75	1480	6
03-02-00822		Najaf	New Najaf water treatment plant (Voltage for motor& starter must be 3.3 K.V)	S.C	476	1500	4
03-02-00823			Najaf sewage plant	S.C	1.5	900	1
03-02-00824			Najaf sewage plant	S.C	4	900	1
03-02-00825			Unified Najaf Kufa W.T.P	S.C	310	1500	1
03-02-00826		Taamem	Kurkuk W.T.P (Voltage for motor& starter must be 3.3 K.V)	S.C	1100	1500	4

Code	Governorate		Project Name	Motor Type	Rating (KW)	R.P.M	Qty.
	Code No.	Name					
03-02-00827		Salah al-Deen	Samaraa W.S.S (new)	S.C	160	1485	6
03-02-00828			Samaraa W.S.S (new)	S.C	152	1500	6
03-02-00829			Samaraa W.S.S (new)	S.C	33.5	1500	2
03-02-00830		Basrah	Basrah sewage station	V/ S.C	132	980	4
03-02-00831		Karbala	Project 7 W.T.P	S.R	90	1450	1
03-02-00832			Khairat	S.C	20	1450	2
			Total		78		

SECTION 8

CHLORINE BOOSTING PUMPS

Vertical pump type, running At 2900 R.P.M complete with shaft, impeller, vans made from stainless steel complete with motor, 400 V, 50 Hz, 3 Phase, IP 55, Class F insulation with (D.O.L) starter, B5.

- Cabinet of the starter must be made from steel, IP 56 contain the following

One) Main isolating switch, with main fuses

Two) Contactor, overload relay, timer

Three) Ammeter, indicating lamp, push button on front of the cabinet .

- Spare parts for each pump must be supplied include:-

One) Set of ball Bearing (for pump and motor)

Two) One impeller (of each type)

Code	Governorate		Project Name	Capacity (m ³ /h)	Head (m)	Qty
	Code No.	Name				
03-02-00833		Anbar	Hydrantechnic Compact Unit (local) (18 no.)	12	80	20
03-02-00834		Baghdad	Al Madaain W.T.P. (Old)	20	80	4
03-02-00835		Basrah	1/4 Million gallon per day CU's (EMEC) (2 Units)	2	80	4
03-02-00836			1/4 Million gallon per day CU's (Hydrotechnik) (2 Units)	25	80	4
03-02-00837			1/4 Million gallon per day CU's (Local) (12 Units)	2	80	20
03-02-00838			1/4 Million gallon per day CU's (Preussag) (3 no.)	2	80	6
03-02-00839			Al Bradhiya W.T.P.	30	70	2
03-02-00840			Al Faiha W.T.P.	8	80	4
03-02-00841			Al Jubaila C.U. Complex (AQUA - 5 no.)	8	110	8
03-02-00842			Al Jubaila W.T.P	10	80	4
03-02-00843			Al Mudaina (old) W.T.P.	15	70	2
03-02-00844			Al Mudaina C.U. (Local)	8	80	4
03-02-00845			Al Qurna C.U. Complex (AQUA - 2 no.)	8	80	2
03-02-00846			Al Shuwaiba C.U. Complex (AQUA, 4 no.)	20	80	8
03-02-00847			Al Suwailih C.U. (Local)	8	80	2
03-02-00848			Al Suwaip (old) W.T.P.	8	80	4
03-02-00849			Al Zuwayn C.U. (Local)	8	80	4
03-02-00850			Basrah unified W.T.P.	25	70	2
03-02-00851			Fao Boosting Station	15	80	2
03-02-00852			Khor al Zubair WTP	20	80	4
03-02-00853			Muhaila C.U. Complex (AQUA, 3 no.)	15	80	5
03-02-00854			Shattal Arab unified W.T.P.	20	80	2
03-02-00855			Sihan W.T.P.	20	80	2
03-02-00856		Diala	Baquba W.S.S. + Boosting Station	12	80	6
03-02-00857			EMEC Compact Units (15 no.)	2	80	18
03-02-00858			Hydrantechnic Compact Unit (local) (14 no.)	2	80	18
03-02-00859		Kerbala	Ain Altamir Station WP/BS No. 2	2	80	4
03-02-00860			Al Hawra Boosting Station No. 1 WP/BS	3	105	4
03-02-00861			Governorate Compact Units (Emec) WP/CU (5 no.)	2	80	10
03-02-00862		Missan	1/4 Million gallons/day (Emec) CU's (21 no.)	2	80	30
03-02-00863			Al Adil W.T.P.	30	80	2
03-02-00864			Al Azair W.T.P.	8	80	2
03-02-00865			Al Kahla W.T.P.	8	80	2
03-02-00866			Al Musharah (urban) W.T.P.	4	80	4

Code	Governorate		Project Name	Capacity (m ³ /h)	Head (m)	Qty
	Code No.	Name				
03-02-00867			Al Salam W.T.P.	8	80	4
03-02-00868			Amara unified W.T.P.	20	80	2
03-02-00869		Muthana	Al Karama Boosting Station	2	80	4
03-02-00870			Al Kuder Boosting Station	2	80	4
03-02-00871			Al Mualak Boosting Station	4	60	4
03-02-00872			Al Salman and Busaiah Project	2	80	4
03-02-00873			Sewage Compact Units (2 no.)	3	60	4
03-02-00874			Water Compact Units (Emec) (6 no.)	2	80	10
03-02-00875		Najaf	Compact unit (Emec) (10 no.)	2	80	15
03-02-00876			Compact units (Preussag) (6 no.)	2	80	10
03-02-00877			AL-Manathira W.T	12	60	4
03-02-00878			AL-Mishkab W.T.P	12	60	4
03-02-00879			AL-Haydariyah W.P	12	60	4
03-02-00880			New najaf kufa B.S	16	60	8
03-02-00881			Water compact unit (Local) (4 no.)	2	80	8
03-02-00882		Ninewah	EMEC Compact Unit (18 no.)	2	80	13
03-02-00883			Makhmor W.T.P (new)	200	205	1
03-02-00884			Telaafrr W.T.P (old and extension	250	200	1
03-02-00885		Qadissia	Al Ain Water Project W.T.P.	2	80	2
03-02-00886			Al Gharib Water Project W.T.P.	2	80	2
03-02-00887			Al Hamza (Old) W.T.P.	12	80	2
03-02-00888			Diwanyah Sewage Project SP/TP	9	100	4
03-02-00889			Diwanyah Water Project W.T.P.	9	162	8
03-02-00890			Old shamiyah	4	80	4
03-02-00891		Salaheldin	EMEC Compact Units (52 no.)	20	80	34
03-02-00892		Thiqar	1/4 million gallon/day CU's (Emec) (7 no.)	2	80	6
03-02-00893			1/4 million gallon/day CU's (Hydrotechnik) (8 no.)	2	80	8
03-02-00894			1/4 million gallon/day CU's (Local) (9 no.)	5	80	10
03-02-00895			Al Bat'ha W.T.P.	8	80	2
03-02-00896			Al Dawayah W.T.P.	5	80	2
03-02-00897			Al Fuhoud W.T.P.	15	80	2
03-02-00898			Al Iskan Al Sinayee Sewage Treatment Plant	15	80	2
03-02-00899			Al Islah W.T.P.	2	80	2
03-02-00900			Al Refayi (Rural) W.T.P.	2	80	2
03-02-00901			Al Refayi (Urban) W.T.P.	5	80	2
03-02-00902			Nasseriah (Old) W.T.P.	15	80	2
03-02-00903			Nasseriah Sewage Treatment Plant	6	80	4
03-02-00904			Nasseriah Unified W.T.P.	8	80	4
03-02-00905			The 'Protein' WTP	2	80	2
03-02-00906		Wasit	1/4 million gallons/day CU's (Emec) - Scattered Units (12 no.)	2	80	8
03-02-00907			1/4 million gallons/day CU's (Hydrotechnic) - Scattered Units (7 no.)	2	80	6
03-02-00908			Al Bashayer W.T.P.	2	80	2
03-02-00909			Al Hay W.T.P.	25	80	2
03-02-00910			Al Izza C.U. Complex (Emec; 2 no., Hydrotechnik; 1 no., Preussag; 2 no.)	8	80	4
03-02-00911			Al Jamaheer C.U. Complex (Hydrotechnik, 4 no.)	2	80	4
03-02-00912			Al Karama (I) C.U. Complex (Emec; 1no, Hydrotechnik; 2 no., Preussag; 1 no.)	2	80	6

Code	Governorate		Project Name	Capacity (m ³ /h)	Head (m)	Qty
	Code No.	Name				
03-02-00913			Al Nasir C.U. Complex (Emec; 2 no., Hydrotechnik; 3 no.)	2	80	6
03-02-00914			Al Suwaira W.T.P.	25	80	2
03-02-00915			Al Zubaidiya W.T.P.	3	70	2
03-02-00916			Badra (Al Dahnouk) W.T.P.	10	80	4
03-02-00917			Kut W.T.P.	15	80	2
03-02-00918			Sheikh Saad W.T.P.	10	70	2
03-02-00919			Um Sunayem W.T.P.	2	70	2
03-02-00920			Wasit district W.T.P.	2	60	2
03-02-00921			Zain Al Qaws C.U. Complex (Emec; 1 no., Hydrotechnik; 3 no.)	2	80	2
03-02-00922		Babel	AL-Hasimia WTP	20	80	3
03-02-00923			AL- Kifil WTP	20	80	3
03-02-00924			AL-Sadia WTP	20	80	3
03-02-00925		Tameem	Verise WTP	20	80	6
Total						500

SECTION 9

Water Tankers

Code	Description	Qty.
03-02-00926	15000 litre (net capacity) water tanker complete with low pressure pump (10) m and (100) mm and (25) mm discharge valve with standard length hoses, reels and the items mentioned below:- 5 mm steel plate cylindrical to BS 4360 grade 430 .- 2 “ self priming pump - 3 nos.Spiral suction hoses (100×9) mm, (3) m long with quick shutting coupling- Hand rewined reel complete with 20 m of 25 mm hose and nozzle - 1 no. Standing tube for hydrant joining- 1 no. Filling hose (20) m long- 2 nos. Electric safety lamp- 1 no. First aid equipment- 2 nos. Hose trays- 2 nos. Flashing beacons- 1 no. Top manhole with cover and access ladder- 1 no. (150) mm Rear valve- 1set of spare parts for pump - 1 set of spare parts for lorry - clear plastic sight glass with colored ball .- 2 length soft lay flat canvas delivery hose - The chassis should be supplied from a qualified company .- Engine shall be 6 cylinder diesel operator .- Double axle 10 tyres & axle 6 * 4 .	200

SECTION 10
Cesspool Emptier Tankers

Code	Description	Qty.
03-02-00927	10000 litre cesspool emptier tanker and to be rised up to 45 and the back door of the tanker must be opened hydraulicaly complete with:- 1 no. Vacuum pump (500) m ³ /hr air capacity- 1 no. Fresh water container (0.5) m ³ - 3 nos. Spiral suction hoses (100×9) mm, (2) m long with quick shutting coupling- 1 no. Oil suction hose (50×9) mm, (20) m long- 1 no. Oil puddle sucking unit- 1 no. Standing tube for hydrant joining- 1 no. Filling hose (20) m long- 2 nos. Electric safety lamp- 2 Sets of cover lifter- 1 no. Bench bar- 3 nos. Shovel- 2 nos. Sweeping brush- 1 no. First aid equipment- 2 nos. Hose trays- 2 nos. Flashing beacons- 1 no. Top manhole with cover and access ladder- 1 no. (150) mm Rear valve- 1 set of spare parts for pump - 1 set of spare parts for lorry - Type : 6 cylinder deisel opereated .- Power : 140 B.H.P (140 KW) at 2600 rpm .- double axile (6 types) .- The chassis should be supplied from aqualified company .- The tank shall provided by safty system for stopping when the tank is filled .	60

SECTION 11
Portable Compressors

Code	Description	Qty.
03-02-00928	Compact and comparatively4 wheel compressor Power provided must be by water - cooledThe compressors must be suitable for the economic and typical working demands of multi-tool contract work360 ft/min complete with all accessories and spare parts for 2 years for each compressor and heavy duty breakers	15
03-02-00929	Ditto but 250 ft/min .	15
03-02-00930	Ditto but 175 ft/min .	15
Total		45

SECTION 12

Sewerage Diesel Pumps

Code	Description	Qty.
03-02-00931	Mobile sewage diesel pump Cast iron casing self priming, Clean out and impeller inspection covers open cast iron impeller handling spherical solids up to 40 mm in Diameter Replaceable cast iron wear plate Carbide / Tungsten Carbide Mechanical seal with Grease Lubrication Unit mounted on two wheeled site trailer with pneumatic tractor tread tiers with (150 L) fuel tank Set of spare parts as recommended by the manufacturer Q=120 m ³ /h, h=30 m	100
03-02-00932	Ditto but Q=250 m ³ /h, h=15 m .	30
Total		130

Notes :

- (20) m hose (reinforced) for switch and (50) m for delivery.
 - Diesel engine, running at 1500 r.p.m., and directly coupled to pump on a common base.
 - Diesel engine shall be air cooled radiator. The cooling fan shall be driven by an electrical motor or belt driven by the engine. (55 C⁰).
 - Spare parts for each pump and engine .
- One set of spare parts for each pump
- 1- Impeller
 - 2- shaft
 - 3- set ball bearing (pump)
 - 4- set shaft sleeve
 - 5- case gasket
- One set of spare parts for each engine
- 1- cylinder head over haul gasket (randl) 2 No.
 - 2- exhaust valve seat (6 No.)
 - 3- intake valve (2 No.)
 - 4- spring (6 No.)
 - 5- valve con (6 No.)
 - 6- piston ring set (2 No.)
 - 7- cylinder head cover gasket (8 No.)
 - 8- cam follower (4 No.)
 - 9- push rod (2 No.)
 - 10- air filter (4 No.)
 - 11- intake gasket (8 No.)

- 12- oil filter cartridge (8 No.)
- 13- (o) ring (1 No.)
- 14- belt (4 No.)
- 15- nozzle (12 No.)
- 16- fuel filter cartridge (8 No.)
- 17- injection pipe (2 No.)
- 18- exhaust gasket (12 No.)
- 19- exhaust manifold gasket (2 No.)
- 20- exhaust valve (4 No.)

SECTION 13 CLEANING EQUIPMENT

Code	Description	Qty.
03-02-00933	10 mm dia. flexible high tensile sewer rods 2 m long complete tow way-lock fast hardened and plated ferrules.	20000
03-02-00934	The same as item (1) but 1m long.	20000
03-02-00935	Double special drill 3" , 4" , 5" , 6" from every kind (30) pieces.	120
03-02-00936	Single special drill 3" , 4" from every kind (30) pieces.	60
03-02-00937	Anger steel bar 2" and 3" from every kind (20) pieces.	40
03-02-00938	Raincoat (plastic coat) for all sizes.	200
03-02-00939	Clothes with boots for sewerage workers for all sizes	150
03-02-00940	Masks for protection from chlorine gas	1000
03-02-00941	Spare nuts and coupling for item (1) and item (2) (one coupling) socket 2 nuts (nipple) per set.	1000
03-02-00942	Auger root cutter for pipes 100 mm, 150 mm, 200 mm, 300 mm, 400 mm, 500 mm, 600 mm, 700 mm, 800 mm, 900 mm, 1000 mm from every kind (20) pieces.	220
03-02-00943	Crown Root cutter (saw knife) for pipes as the same as item No (10) from every kind (20) pieces.	220
03-02-00944	Turning Handle (bar type) for item 1 and item 2 .	200
03-02-00945	Sewer bucket for pipes as the same sizes as item (13) from every kind (50) pieces	6000
03-02-00946	Pneumatic pipe closures for pipe from 300 mm , 500 mm , 700 mm , 900 mm , 1000 mm , 1200 mm , 1600 mm , 1800 mm from every kind (30) pieces.	240
03-02-00947	Magnetic manhole cover detector.	100
03-02-00948	Set of manhole plate form jack and surface hung roller 300 mm.	300
03-02-00949	Flashing lamps with charger.	1000
03-02-00950	Torch light with battery (with charger) (rechargeable water proof lamp) with charger caring case.	1000
03-02-00951	Safety belt	1000
03-02-00952	Respirators (face mask) for gases (H2S, CH4).	2000
03-02-00953	Spare filters for item (23) above.	4000
03-02-00954	Water - proof suits and coats set medium size 100set large size 150	2500
03-02-00955	Glovers (pairs)	10000
03-02-00956	Rubber plastic boots medium and large size (pairs).	1000
03-02-00957	Plastic rope (100) length for one package (ordinary rope).	200
03-02-00958	Steel rope from 10 mm to 15 mm for (100) length to one package (wire galvanized).	200
03-02-00959	Manhole cover lifting equipment.	300
03-02-00960	Manhole winch (Mobile sewer winch).	300
03-02-00961	Grab for lifting sewerage from manhole (round). 8" dia round bowl with 8 ft handle.	300
03-02-00962	Steel rocket head from 3" , 5" , 6" from every kind (50) pieces	150
03-02-00963	Rubber hose high pressure length 150 m for diameter 1.25 inch and 1 inch from every kind (50) units for cleaning sewers (sewer flashing hose)	100
03-02-00964	Circular brushes for cleaning dia. 200 mm 250 mm 300 mm 400 mm 500 mm 600 mm 800 mm 900 mm 1000 mm	40
03-02-00965	Iron chisel for (10) mm dia rods	300
03-02-00966	Auger borer	200
03-02-00967	Manhole cover hand keys and hooks	200
03-02-00968	Expanding pipe stoppers for dia 200 mm 300 mm 400 mm 500 mm 600 mm 700 mm 800 mm 900 mm 1000 mm	50
03-02-00969	Stone pickers 1.5 m handle 2.0 m handle 2.5 m handle 3.0 m handle	30

SECTION 14
BALL BEARING

Skf or Fag Ball bearing as mentioned below

Code	Gov. name	Project name	Ball Bearing no.	Qty.
03-02-00974	Nenewa	Mosul W.T.P.s general	7310	30
03-02-00975		Mosul W.T.P.S general	7214	10
03-02-00976		Mosul W.T.P.s general	630922	40
03-02-00977		Mosul W.T.P.s general	6411	40
03-02-00978		Mosul W.T.P.s general	RMS 15116	10
03-02-00979		Mosul W.T.P.S general	RMS 8	10
03-02-00980		Mosul W.T.P.S general	RMS 10	10
03-02-00981		Mosul W.T.P.S general	6322C3 or SKF Nu22EC	16
03-02-00982		Telaafar WTP (Unified)	7214	20
03-02-00983		Mosul unified W.S.S	Nu 322	6
03-02-00984		Mosul unified W.S.S	Nu 228	8
03-02-00985		Mosul unified W.S.S	6213	6
03-02-00986		Mosul unified W.S.S	Nu 213	6
03-02-00987		Mosul unified W.S.S	NU/NJ 314	6
03-02-00988		Mosul unified W.S.S	6314	4
03-02-00989		Shekhan W.S.S	7310	6
03-02-00990		Baaj W.S.S	7310	6
03-02-00991		Al-Hadra W.S.S	7314	6
03-02-00992		Al-Hadra W.S.S	7409	10
03-02-00993		Mosul left bank (old)	6411	10
03-02-00994		Qaraj W.S.S	2210	10
03-02-00995	Missan	Consumables	6305/2 Z	10
03-02-00996		Consumables	6307/2 Z	10
03-02-00997		Consumables	6315 /2 Z	10
03-02-00998		Consumables	6317 /2 Z	10
03-02-00999		Consumables	6220/2 Z	20
03-02-01000		Consumables	6309	10
03-02-01001		Consumables	6304	10
03-02-01002		Consumables	6410	20
03-02-01003		Consumables	6314	15
03-02-01004		Consumables	6311	20
03-02-01005		Consumables	6310	25
03-02-01006		Consumables	6305	15
03-02-01007		Consumables	6406	15
03-02-01008		Consumables	6307	10
03-02-01009	Wasit	Consumables	6307-2Z	10
03-02-01010		Consumables	7310	5
03-02-01011		Consumables	6206	5

Code	Gov. name	Project name	Ball Bearing no.	Qty.
03-02-01012		Consumables	6209	10
03-02-01013		Consumables	6210	5
03-02-01014		Consumables	6208	10
03-02-01015		Consumables	6305	10
03-02-01016		Consumables	6307	10
03-02-01017		Consumables	6308	15
03-02-01018		Consumables	6309	10
03-02-01019		Consumables	6310	20
03-02-01020		Consumables	6311	15
03-02-01021		Consumables	6312	10
03-02-01022		Consumables	6313	5
03-02-01023		Consumables	6314	10
03-02-01024		Consumables	7307	5
03-02-01025		Consumables	6406	5
03-02-01026		Consumables	6306	10
03-02-01027		Consumables	6305-2Z	5
03-02-01028		Consumables	6409	10
03-02-01029	Thiqar	Consumables	309	5
03-02-01030		Consumables	B6406	5
03-02-01031		Consumables	MH 6319	5
03-02-01032		Consumables	NTN 314	5
03-02-01033		Consumables	B7313	10
03-02-01034		Consumables	C3 6215	5
03-02-01035		Consumables	208	10
03-02-01036		Consumables	6305	10
03-02-01037		Consumables	6306	10
03-02-01038		Consumables	6307	10
03-02-01039		Consumables	6308	20
03-02-01040		Consumables	6309	10
03-02-01041		Consumables	6310	20
03-02-01042		Consumables	SKF 3318	2
03-02-01043		Consumables	SKF 2211	5
03-02-01044		Consumables	SKF 22320C	15
03-02-01045		Consumables	3318-953847	10
03-02-01046		Consumables	Nu 320/C3	10
03-02-01047		Consumables	Nu 318-954037	10
03-02-01048		Consumables	SKF 3216	10
03-02-01049		Consumables	SKF 3313	10
03-02-01050		Consumables	SKF 23026	10
03-02-01051		Consumables	SKF NU 220	10
03-02-01052		Consumables	SKF NU 218	10
03-02-01053		Consumables	SKF NU 318	10

Code	Gov. name	Project name	Ball Bearing no.	Qty.
03-02-01054		Consumables	6206/2 Z	15
03-02-01055		Consumables	6305/2 Z	10
03-02-01056		Consumables	6307/2Z	25
03-02-01057		Consumables	6209	5
03-02-01058		Consumables	7317	20
03-02-01059		Consumables	N 217	15
03-02-01060		Consumables	7411	5
03-02-01061		Consumables	6313	10
03-02-01062		Consumables	6315	10
03-02-01063		Consumables	2317	15
03-02-01064		Consumables	N320	15
03-02-01065		Consumables	3N20	10
03-02-01066		Consumables	1613 (2 track)	5
03-02-01067		Consumables	6205	20
03-02-01068		Consumables	6207	5
03-02-01069		Consumables	6208	10
03-02-01070		Consumables	6210	5
03-02-01071		Consumables	6316	15
03-02-01072		Consumables	6311	10
03-02-01073		Consumables	6312	10
03-02-01074		Consumables	6314	10
03-02-01075		Consumables	SKF NU 216	10
03-02-01076		Consumables	SKF 32318	10
03-02-01077		Consumables	SKF 6318	10
03-02-01078		Consumables	SKF 6320	10
03-02-01079	Basrah	Consumables	6306	30
03-02-01080		Consumables	6311	30
03-02-01081		Consumables	6314	30
03-02-01082		Consumables	6411	10
03-02-01083		Consumables	6304	20
03-02-01084		Consumables	3318	10
03-02-01085		Consumables	6305	20
03-02-01086		Consumables	6309	20
03-02-01087		Consumables	6312	20
03-02-01088		Consumables	6406	20
03-02-01089		Consumables	6308	30
03-02-01090		Consumables	6407	20
03-02-01091		Consumables	6218	10
03-02-01092		Consumables	6021	10
03-02-01093		Consumables	7314	10
03-02-01094		Consumables	6307	20
03-02-01095		Consumables	3313	10

Code	Gov. name	Project name	Ball Bearing no.	Qty.
03-02-01096		Consumables	6215	10
03-02-01097		Consumables	6413	10
03-02-01098		Consumables	6306	20
03-02-01099		Consumables	6315	20
03-02-01100		Consumables	6405	20
03-02-01101		Consumables	6208	20
03-02-01102		Consumables	6210	20
03-02-01103		Consumables	6318	10
03-02-01104		Consumables	6409	10
03-02-01105	Anbar	Rawa - Kalaa compact unit (C.U.type)	6305	5
03-02-01106		Rawa-Kalaa compact unit (C.U.type)	6317	5
03-02-01107		Old Heet and Hai Al-Baker	6209	4
03-02-01108		Old Heet and Hai Al-Baker	6310	12
03-02-01109		Old Heet and Hai Al-Baker	6308	4
03-02-01110		Ana W.T.P	6308	8
03-02-01111		Ana W.T.P	6309	8
03-02-01112		Haditha W.T.P	6306	4
03-02-01113		Haditha W.T.P	6307	4
03-02-01114		Haditha W.T.P	6315	10
03-02-01115		West Desirt	6410	20
03-02-01116		West Desirt	6321	20
03-02-01117		West Desirt	6317	4
03-02-01118		West Desirt	7410	10
03-02-01119		West Desirt	7317	4
03-02-01120		West Desirt	7321	10
03-02-01121		West Desirt	7410	10
03-02-01122	Qadissia	Storm Water station	NU 320	6
03-02-01123		Storm Water station	7316	6
03-02-01124		Compact Units (Emec)	6206	4
03-02-01125	Al-Muthana	Al-Karama B.S	RMS 14	6
03-02-01126		Al-Karama B.S	MJ 13/4"	6
03-02-01127		Hai Al-Siraai B.S	6308	6
03-02-01128		Hai Al-Siraai B .S	6406	6
03-02-01129		Al-Mualak and Al- Majedst.(2no)	6308	6
03-02-01130		Al-Mualak and Al-Majed st.(2no)	6406	6
03-02-01131		Al-Kuder B.S	6406	2
03-02-01132		Al-Kuder B.S	6308	2
03-02-01133		Old Rumitha water project	6312	6

Code	Gov. name	Project name	Ball Bearing no.	Qty.
03-02-01134		Old Rumitha water project	6308	4
03-02-01135		Old Rumitha water project	6319	4
03-02-01136		Old Rumitha water project	6406	2
03-02-01137		Old Rumitha water project	7310	2
03-02-01138		Old Rumitha water project	6313	6
03-02-01139		Old Rumitha water project	6305	2
03-02-01140		Al-Warkaa water project	RMS14,JM13/4"	12
03-02-01141		Al-Warkaa water project	6308	4
03-02-01142		Al-Warkaa water project	6406	4
03-02-01143		Al-Warkaa water project	6219	4
03-02-01144		Al-Warkaa water project	6305	4
03-02-01145		New Rumitha /Semawa	6308	10
03-02-01146	Kerbala	Various names compact unit (Bafag)wp/cu(29no)	6206	12
03-02-01147		Governorate compact unit (Emec) wp/cu(5 no)	6307	4
03-02-01148		Ginif Al-Bu Amir or Jadwal AlGharbi project WTP	6308	4
03-02-01149		Ginif Al-Bu Amir or Jadwal AlGharbi project WTP	7310	4
03-02-01150		Ginif Al-Bu Amir or Jadwal AlGharbi project WTP	6310	4
03-02-01151		Ginif Al-Bu Amir or Jadwal AlGharbi project WTP	4304	4
03-02-01152		Ginif Al-Bu Amir or Jadwal AlGharbi project WTP	6307	4
03-02-01153		Old Hindyah water project	6310	20
03-02-01154		Al-Khyrat water project wtp	6405	8
03-02-01155		Al-Khyrat water project wtp	6407	8
03-02-01156		Al-Khyrat water project wtp	6305	8
03-02-01157		Al-Khyrat water project wtp	6308	8
03-02-01158		Al-Khyrat water project wtp	6206	8
03-02-01159		Al-Khyrat water project wtp	6309	8
03-02-01160		Project No. 7 W.T.P.	6320	6
03-02-01161		Project No.7 W.T.P.	6314	6
03-02-01162		Project No .7 W.T.P.	MJ 2 1/2"	6
03-02-01163		Project No.7 W.T.P.	1209 K	20
03-02-01164		Project No .7 W.T.P.	6414	20
03-02-01165		Hai Al-Hussain water project	6311	10
03-02-01166		Hai Al-Hussain water project	7411	12
03-02-01167		AL-Uroba P.S	318 NU	6
03-02-01168		AL-Uroba P.S	6314	12

Code	Gov. name	Project name	Ball Bearing no.	Qty.
03-02-01169		AL-Uroba P.S	6316	6
03-02-01170		Hai AL-Hussain W.T.P	6411	8
03-02-01171		Hai AL-Hussain W.T.P	6317	6
03-02-01172		Gurf AL bo aamer W.T.P	6308	4
03-02-01173		gurf al bo aamer W.T.P	6310	8
03-02-01174		Gurf Al boaamer W.T.P	6307	4
03-02-01175		Khairat W.T.P	6309	6
03-02-01176		Khairat W.T.P	6305	4
03-02-01177		Khairat W.T.P	6209	4
03-02-01178		Khairat W.T.P	6408	2
03-02-01179		Husseneya C.U	6307	8
03-02-01180		Husseneya C.U	6305	4
03-02-01181		Husseneya C.U	6208	6
03-02-01182		Husseneya C.U	6206	6
03-02-01183	Diala	Al-Abara (AbdoHamid) W.T.P.	6306	10
03-02-01184		Al-Howaish W.T.P.	6305	10
03-02-01185		Al-Howaish W.T.P.	6306	10
03-02-01186		Al-Howaish W.T.P.	6209	10
03-02-01187		Al-Howaish W.T.P.	6205	10
03-02-01188		Khalis (Sindiya) W.T.P.	6313	10
03-02-01189		Khalis (Sindiya) W.T.P.	6309	10
03-02-01190		Khalis (Sindiya) W.T.P.	6308	10
03-02-01191		Al-Abara (Abdu Hamid) W.S.S.	6306	10
03-02-01192		Al-Abara (Abdu Hamid) W.S.S.	6305	10
03-02-01193		Al-Abara (Abdu Hamid) W.S.S.	MRS/15	10
03-02-01194		Mandili W.T.P.	1/11 MRG	4
03-02-01195		Mandili W.T.P.	6036	4
03-02-01196		Abo Saida	6309	10
03-02-01197		Abo Saida	6306	10
03-02-01198		Abo Saida	6311	10
03-02-01199		Abo Saida	6316	10
03-02-01200		Bafag compact units	6026	30
03-02-01201		Bafag compact units	6028	30
03-02-01202		Bafag compact units	6212	30
03-02-01203		Bafag compact units	6210	20
03-02-01204		Bafag compact units	6214	20
03-02-01205		Baquba W.S.S + B.S	6319	10
03-02-01206		Khan Beni Saad W.S.S	6312	10

Code	Gov. name	Project name	Ball Bearing no.	Qty.
03-02-01207		Khan Beni Saad W.S.S	6310	10
03-02-01208		Khan Beni Saad W.S.S	6318	10
03-02-01209		Khan Beni Saad W.S.S	6308	10
03-02-01210	Salah Al-Deen	Bafag compact units	6313	20
03-02-01211		Bafag compact units	6309	30
03-02-01212		Emec compact units (52 No)	6305	30
03-02-01213	Najaf	Compact units (Emec) 10	6210	4
03-02-01214		Compact units (Emec) 10	6310	4
03-02-01215		Compact units (Emec) 10	6312	4
03-02-01216		Compact units (Emec) 10	6308	4
03-02-01217		New and Old Al-Qadissia	6307	10
03-02-01218		water project Al-Qadissia	6305	10
03-02-01219		water project Al-Qadissia	6308	5
03-02-01220		Unified Najaf / Kufa water	6220	20
03-02-01221		Unified Najaf /Kufa water	6416	10
03-02-01222		Unified Najaf /Kufa water	1319k+H319	10
03-02-01223		Unified Najaf /Kufa	7314	10
03-02-01224		Unified Najaf /Kufa	6312	10
03-02-01225		Unified Najaf /Kufa	6306	10
03-02-01226		Unified Najaf /Kufa	6309	10
03-02-01227		New Najaf /Kufa	6315	20
03-02-01228		New Najaf /Kufa	315	10
03-02-01229		New Najaf /Kufa	315	10
03-02-01230		Compact units	6208	20
03-02-01231		Compact units	6309	20
03-02-01232		AL-Mishkab	6406	10
03-02-01233		AL-Mishkab	6206	10
03-02-01234		New and Old Al-Qadissia	6310	4
03-02-01235	Babil	General item for compact units	4305	80
03-02-01236		General item for compact units	6306	20
03-02-01237		General item for compact units	6303	20
03-02-01238		General item for compact units	6314	20
03-02-01239	Baghdad	Al-Madaain W.T.P. (old)	311	10
03-02-01240		Al-Madaain W.T.P. (old)	6214	10
03-02-01241		Al-Madaain W.T.P. (old)	6213	10
03-02-01242		New Rashdiya W.T.P.	6308	5
03-02-01243		New Rashdiya W.T.P.	6209	5
03-02-01244		New Rashdiya W.T.P.	6310	5
03-02-01245		New Rashdiya W.T.P.	6311	5
03-02-01246		New Rashdiya W.T.P.	6312	5
03-02-01247		New Rashdiya W.T.P.	6313	5
03-02-01248		New Rashdiya W.T.P.	N308 ECP	5

Code	Gov. name	Project name	Ball Bearing no.	Qty.
03-02-01249		New Rashdiya W.T.P.	N318 ECP	5
03-02-01250	Tameem	Different wells	7310	50
03-02-01251		Different wells	6310	50
03-02-01252		Different walls	6309	50
03-02-01253		Karkuk water supply	Nu 320 E	20
03-02-01254		Karkuk water supply	6320 C3	20
03-02-01255		Karkuk water supply	6220	7
03-02-01256		Karkuk water supply	NJ220	7
03-02-01257		Karkuk water supply	6228 C3	7
03-02-01258		Karkuk water supply	NU 228C3	14
03-02-01259		Karkuk water supply	K 2317 AC3	12
03-02-01260		Karkuk water supply	32313 A	8
03-02-01261		Karkuk water supply	NC 3028	8
03-02-01262		Karkuk water supply	6220	7
03-02-01263		Karkuk water supply	22336	7
TOTAL				3297

**SECTION 15
COMPACT UNIT**

Code	Cov.name	Project name .	capacitym3/ h	Qty
03-02-01264	Basrah	Abo-Skher boosting station	200	44
03-02-01265	Basrah	Abo-AL Khassib	200	8
03-02-01266	Basrah	Shuaba	200	7
03-02-01267	Basrah	Zubalr	200	9
03-02-01268	Messan	Amarah city	200	15
03-02-01269	Waset	Kute city	200	15
03-02-01270	Waset	Muaffaqa	200	7*
03-02-01271	Theqar	Nasseriah	200	15
03-02-01272	Theqar	Suq- AL sheyok	200	6**
03-02-01273	Anbar	Faluga	200	9
03-02-01274	Muthane	Rumetha	200	4
03-02-01275	Babil	AL- Hashmiya	200	3
03-02-01276		Mahaweel	200	3
03-02-01277	Salah AL-den	Tarmiah	200	3
03-02-01278		Hay AL-qadessiah	200	8*

** amended 26 August 99

* amended 6 August 99

SECTION 16

EQUIPMENT FOR WATER AND SEWAGE TREATMENT PLANTS

Complete electrical and mechanical equipment consist of different type of pumps, electrical switch boards , cables , pipes , trans,formers , diesel genarators , air blowers , chlorinators , scrapers ,,etc , for water treatment plant .

Code	Cov.name	Project name .	capacity m3/h	Qty.
03-02-01279	Baghdad	Abo-Gharib water treatment plant	1000	1
03-02-01280	Anbar	Rawa water treatment plant	1000	1
03-02-01281	Anbar	Al-Qaeem water treatment plant	1000	1
03-02-01282	Salah-Al-Deen	Al-ouja water treatment plant	1000	1
03-02-01283	Salah-Al-Deen	Tuz-Kufri water treatment plant	4000	1
03-02-01284	Salah-Al-Deen	Balad sewage treatment plant	390	1
03-02-01285	Salah-Al-Deen	AL-Qadisias W.T.P	3000	1
03-02-01286	Nenawa	Tal-Afar water treatment plant	8000	1
03-02-01287	Wasit	Al-Hai-Muafaqea water treatment plant	1500	1
			Total	8

NOTE : - All civil work for the above treatment plants had been Excuted

Ammendment for Al-Auja Unified water supply project :

- 1 - All pumping main should be ductile Iron K9 Iso 2531 insted of steel pipe for clause (5) item a , n , q , s
- 2 - The scope of supply dosnot includ suppling scraper Bridges . it is already erected .
- 3 - All motors of pumping set must be squirred cage , IP55 , class f Insulation , 3 phase 50 cucle , 400 V .
- 4 - All motors shall have 10% rating more than power required .
- 5- Motor of submersible must be IP68 .
- 6- Motor of flash mixer , Flocculater Alum mixer must be , IP68 , class f Insulation .
- 7- Phase failair (sequence) must be added to the switch boards .

SECTION 17
VACUME LOADER

No.	Description	QTY
03-02-01288	Suplying Vacum Loader for using in the sewer system . The Vacum Loader has avery larg air flow and the maximum lifting height of sludge 20m at least , the suction hose diameter 150 mm , The suction distances of more than 100 m . spare parts for 5 years to be supplied for the lorry , suction pumps , hoses and the other parts of the loader . Adetailed specification for the loader to be supplied with offer .	5

SECTION 18

Vertical Pump

Complete vertical pump (end suction) type with squirrel cage motor , 400 v, 3 ph, 50 hz, IP 55, class F insulation, B5 with star delta starter (for all items except code no. (00988,00994,01006) which are mix flow pump.

- Impeller for vertical pump must be cast iron, shaft must stainless steel.
- Suction pipe from the bottom, delivery pipe must be upper side
- code no. (00988,00994,01006) are mix flow pump, casing must be split at the suction flange, made from grained cast iron.
- Impeller, shaft must be stainless steel.
 - shaft bearing and seals should be water lubricated type.
- For both (vertical pump, mix flow pump) must supplied with all required fittings (adaptor) to suit the delivery and suction pipe with stand steel (base plate).
- For each pump must supplied with (star-delta) starter contain :-
 - One) - Main isolating switch with fuses.
 - Two) Contactors, overload relay, timer.
 - Three) Phase failure.
 - Four) On front of steel cabinet, IP 56 indication lamp and push button, amperemeter with selector switch, voltmeter with selector switch.
- Spare parts for each pump
 - a) Impeller
 - b) Shaft
 - Three) Set of ball bearing (pump and motor)
- Motor power must equal (rated power + 10%) .

Code	Gov. Name	Project Name	Q (m ³ /hr)	H (m)	R.P.M.	Shaft length (m)	Qty	Suc. dia.	Del. dia.
03-02-01289	Basrah	C Sewage lifting station	1100	30	1450	2.1	2	12"	10"
03-02-01290		Basrah Sewage T.P	180	7.2	720	4.9	2	6"	6"
03-02-01291		Basrah unified w.t.p.*	1025	20	1480	6.2	5		
03-02-01292		Sewage station No. 14	900	20	1450	2.3	2	12"	10"
03-02-01293		Sewage station No. 3	250	7	1450	1.75	2	8"	6"
03-02-01294		Sewage station No. 6	450	7	1450	2.25	2	10"	8"
03-02-01295		Sewage station No. 9	900	9	1450	2.25	1	12"	10"
03-02-01296		Sewage station No. 16 &17	3000	12	980	2.45	6	20"	20"
03-02-01297		The 25 AQUA CU.*	1025	15	1480	6.2	7		14"
03-02-01298	Thiqar	Area Sew. Station	500	10	970	5.1	4	10"	8"
03-02-01299		Nasseriah main sewage lifting stat.	1700	10	735	6.15	3	16"	14"
03-02-01300		Nasseriah main sewage lifting stat.	4000	10	585	4.6	1	24"	22"
03-02-01301		Nasseriah Sewa. T.P	250	20	970	7.2	2	10"	8"
03-02-01302		Nasseriah Sewa. T.P	1000	10	975	direct link (No shaft)	3	12"	10"
03-02-01303		Nasseriah Sewa. T.P	500	10	970	direct link (No shaft)	1	10"	8"
03-02-01304	Najaf	AL-Najaf sew. Project	1746	11.5	980		2		
03-02-01305		AL-Najaf sew. Project	90	12	960		3		
03-02-01306		AL-Najaf sew. Project	162	12.5	1450	motor	2		

Code	Gov. Name	Project Name	Q (m ³ /hr)	H (m)	R.P.M.	Shaft length (m)	Qty	Suc. dia.	Del. dia.
						direct coupled to the pump			
03-02-01307	AL-Muthana	ALQitar Boosting Station	100	34	2900		3		
03-02-01308		Intisar Boosting Station.	100	34	2900		2		
03-02-01309	Nenewa	AL-Mosul (left bank)* w.t.p.	2200	40	900	13.390	4	20"	20"
03-02-01310	Babil	Hilla sew. T.P	180	20	1500	motor direct coupled to the pump	2		
Total	61								

(*): mixflow pump

SECTION 19

Spare Part For Mosul & Kirkuk Water Treatment Plants

Spare part for mosul (left side) w.t.p			
Code		Item Description	Qty
03-02-01311	1.1	ASEA contactor, EH 9-10, Iec 158-1, Vdelta E 0660, AC3 220 , 380 V, Ith=25A, SK 812 003	2
03-02-01312	1.2	ASEA contactor, EH 6-22E, Iec 337-1, Vdelta E 0660, AC11 110-220 , 380 V, Ith=25A, SK 811 023	2
03-02-01313	1.3	ASEA flag relay, 5615 453-D, N=11000, D=0, 132 mm, R=460 OHM., RxsF 1, RK 271-003-AD	4
03-02-01314	1.4	ASEA relay, RASA 4, RK861-001-BA, u1=u2, 110-120, V/220-240 V, 50-60 HZ., Df2 HZ.	4
03-02-01315	1.5	Spare parts for vertical centrifugal pump, type HA 500/64-15, HALBERG registration No. PGG 14192/99-5, No. of relevant sectional drawing 127 5489-26-0104, Q=2200 m ³ /hr, H=40 m as per attached sheet. Supplier, HALBERG, Maschinen bau GmbH, Telex: 484833, SWEEDEN	
03-02-01316	1.5.1	Bear centre sleeve, 54.00, TM80, C4SN, D5143.180, I.No. 222040	8
03-02-01317	1.5.2	Bearing bush, 54.50, 109x127x100, SI-Carbid, L04.171.0292, I.No. 243760	100
03-02-01318	1.5.3	Deflector, 50.10, 100/146x16 Vltramid, E5172.316, I. No. 059652	4
03-02-01319	1.5.4	Impeller, 23.00, LA667x77, 1-4408, A6040.2271, I.No. 246943	8
03-02-01320	1.5.5	Shaft screw, 90.42, M10x20, A4-70, N050311 Din 427, I.No. 059942	200
03-02-01321	1.5.6	Shaft sleeve, 52.3, 91x109x100, SI-Carbid, L04.142.0134, I.No. 243757	150
03-02-01322	1.5.7	Shaft sleeve, 52.40, A86/95x170, 1-4021-05, E5164.1881, I.No. 019985	8
03-02-01323	Spare part for kirkuk w.t.p		
03-02-01324	2.1	Spare part for 8 screw pumps the capacity of each of them 2700 m ³ /hr, H=5.7 m, 34.6 r.p.m., 1110.6 r.p.m., manufacturer, for pump hubert stavoren, holland and the manufacturer, for motor Gruppo Industriale Ercoie Marelli Spa, ITALLY type B4C280 S4, Rating: 75kw, r.p.m 1480, valtage 400v, 50hz, IP 55, B3 weight 445 kg., and manufacturer, for gear box flender - GMBH Germany type redurex KZN 280	
03-02-01325	2.1.1	Complete gear box- Reduction ratio 32,098 speed in 1110.6 r.p.m., speed at 34.6 r.p.m, manufacturer, flender - GMBH Germany type redurex KZN 280, Asembly left hand effeciency at 100% load approx 97% direction of rotation out put shaft : clock wise, back stop build in pitch dia of V-beilt pully 400 × 300 mm, size : LW=3600 mm.	2 set
03-02-01326	2.1.2	Complete electric actuators with gear box for pipe 800 mm	3
03-02-01327	2.1.3	Complete lower bearing	8 set
03-02-01328	2.1.4	Complete upper bearing	2 set
03-02-01329	2.1.5	Gear box oil seal, for coupling side DF 55.70.8/1	32
03-02-01330	2.1.6	Lower bearing oil seal, type BA Duo 118 × 140 × 16 (with S.S. Springs)	32
03-02-01331	2.1.7	Upper bearing oil seal, type BA 170 × 200 × 15	32
	2.1.8	V-Belt pulley, pitch diameter 400 mm, profil 4 SPC, Bore 48H 7 with key way to DIN 6885/1	8
03-02-01332	2.1.9	V-Belt pulley, pitch diameter 300 mm, profil 4 SPC, Bore 75H 7 with key way to DIN 6885/1	8
03-02-01333	2.1.10	V- Belt size 3600 LW.	32
03-02-01334	2.2	Spare parts for treated water horizontal split case double entry, single stage pump, manufacturer - WORTHINGTON. SPA- ITALY. type 12 LN 29, 2520 m ³ /hr, H=114.5 m, the motor type CT 500Y4, 1100 KW, 1485 r.p.m., 3300V, 230.7 A, 50HZ., connection star	
03-02-01335	2.2.1	pump shaft	7
03-02-01336	2.2.2	shaft sleeve	14
03-02-01337	2.2.3	Impller	7
03-02-01338	2.2.4	sheet joint	14 set
03-02-01339	2.2.5	rubber coupling type A 400	7 set
03-02-01340	2.2.6	packing ring	12
03-02-01341	2.2.7	Pressure Gauge SC 0-25 for pump	7
03-02-01342	2.2.8	Rubber sleeve for pump	14

03-02-01343	2.2.9	Sleeve Nut (bronze) (locking nut)	14
03-02-01344	2.2.10	Soft packing, size 16 mm.	45 kg
03-02-01345	2.3	Batterfly non return valve D.P dia 880 mm pN 25 bar	2
03-02-01346	2.4	Batterfly valve dia 800 mm PN 25 bar	2

SECTION 20

Bore hole pump

Stainless steel submersible pump suitable for deep well complete with motor , 400 V, 50 HZ, 3 Phase, IP 68, Class F insulation and star- delta starter contain following:-

One) Main isolating switch, with main ruses

Two) Contactor, overload relay, timer

Three) Phase failure.

Four) On front of the starter steel cabinet, IP56, there must be :- (three) indication lamp and push button,ammeter with selector switch, voltmeter with selector switch.

- Each pump must be supplied with (100)m length plus another length equal to the head of the pump.

- Each pump must be supplied with set of spare parts as follow:-

a)Impeller

Two) (2) set of mechanical seal

Three) Ball bearing

Four) Set of (O) ring.

- Motor power must equal (rated power + 10%) .

Code	Gov. Name	Project name	Q (m ³ /hr)	H (m)	Qty	Casing
03-02-01347	Nenewah	Well in villages	25	120	10	6''
03-02-01348		Well in villages	35	120	10	6''
03-02-01349		Well in villages	35	180	6	8''
03-02-01350		Well in villages	25	200	6	8''
03-02-01351	Anbar	Rutba well	25	250	8	8''
03-02-01352		AL - Nikab well	25	250	3	8''
03-02-01353		AL- Walled well	25	370	4	10''
03-02-01354		AL- Walled well	25	400	1	10''
03-02-01355	Salahaldeen	Dozz well	30	60	3	8''
Total					51	

SECTION 21

Ductile Iron pipes & Fittings

Code	Description	Qty M.L
03-02-01356	Supplying (1000) mm dia. Ductile iron socket and spigot pipe class (K9) of tyton joint with rubber rings , according to the internat:onal standard (ISO - 2531) .	20000
03-02-01357	Ditto (800) mm dia.	40000
03-02-01358	Ditto (700) mm dia.	60000
03-02-01359	Ditto (600) mm dia.	60000
03-02-01360	Ditto (500) mm dia.	40000
03-02-01361	Ditto (400) mm dia.	20000
03-02-01362	Ditto (350) mm dia.	40000
03-02-01363	Ditto (300) mm dia.	110000
03-02-01364	Ditte (250) mm dia.	80000
03-02-01365	Ditte (200) mm dia.	30000
03-02-01367	Ditte (150) mm dia.	20000
03-02-01368	Duoble flanged butter fly valves with flanged sockets and spigot and surface boxes for diameters as below : A - 1000 mm dia B - 800 mm dia C - 700 mm dia D - 600 mm dia E - 500 mm dia	60 40 60 60 60
03-02-01269	Double kynatic air valves complete with surface box : 1st- 100 mm dia .	60
03-02-01370	Ductile Iron all flanged te complete as per specified : 1st- 800 mm dia body 250 mm dia branch . 2nd- 700 mm dia body 700 mm dia branch . 200 mm dia branch . 3rd- 600 mm dia body . 600 mm dia branch . 450 mm dia branch . 4th- 500 mm dia body . 450 mm dia branch . 350 mm dia branch . 5th- 450 mm dia body . 350 mm dia branch . 6th- 350 mm dia body 300 mm dia branch . 150 mm dia branch .	60 60 60 60 60 60 60 60 60 60 60
03-02-01371	Ductile Iron double flanged taper complete as per specified : One- (1000*500) mm dia	60

Code	Description	Qty M.L
03-02-01374	Supply pipe cutter (machine air motor equipment with a metal milling suitable to carry out the operation of pipe cutting 1st- (700) mm dia 2nd- (1000) mm dia	30 30
03-02-01375	Adapter (100*150) mm	200
03-02-01376	Adapter (200*250) mm	100
03-02-01377	Adapter (200*500) mm	50
03-02-01378	Adapter (300*400) mm	50
03-02-01379	Adapter (150*400) mm	50
03-02-01380	Adapter (200*100) mm	200
03-02-01381	Adapter (250*500) mm	50
03-02-01382	Adapter (200*150) mm	100
03-02-01383	Ductile spigot (100) mm	500
03-02-01384	Ductile spigot (150) mm	500
03-02-01385	Ductile spigot (300) mm	312
03-02-01386	Ductile spigot (350) mm	244
03-02-01387	Ductile spigot (400) mm	86
03-02-01388	Ductile spigot (450) mm	100
03-02-01389	Ductile spigot (500) mm	100
03-02-01390	Ductile spigot (600) mm	4

General Specification :

- 1- All materials supplied shall have be in accordance to international standard ISO -2531 class Kg for pipes , k14 for tees and k12 for fittings covering ductile iron pipes , (fitting and accessories including valve etc ...) .
- 2- The pipes shall have metallic zinc coating plus bituminous paint externally and lined internally with blast furnace cement mortar . Fitting should be bituminous paint internally and externally .
- 3- Fittings and valves shall be provided with (socket & spigot) flanged pieces with rubber rings and stainless bolts & nuts with washers .
- 4- Pipes and fittings shall subjected to all of the appropriate standard tests before dispatch from the place of manufacture and shall be suitable for storage and installation in Iraq .
- 5- The materials used for the Jointing gaskets shall be natural rubber or equivalent elastomer rubber it should be of an approved quality and be unaffected by the passage of water .
- 6- A 15% extra gaskets and rubber rings from the total requirement should be supplied .
- 7- All flanges should be according to (ISO 2531 p.n 16) .

SECTION 22

BACKHOE LOADER

Code	Description	Qty.
03-02-01391	Backhoe loaders, hydraulic excavators, telescopic loadalls, wheeled loaders and rough terrain fork lifts of specification as bollow	32

1- ENGIN

- Maximum power 80 HP (5, kw)
- Type naturally spirated director injection , 4 cycle diesel &4 cylinders .

2- Hydraulic system

- Type Sealed with heat exchanger double hydraulic speed control selector to optimize operating speed to the job at hand or increase available engine power during road transfers .
- Hydraulic pump delivery 144 L /min
- Max. operating pressure 197 bar

3 - LOADER

- Bucket at max. height 4285 mm
- Transport height 3810 mm
- Break out force 5750 kg
- lifting capacity at top height 3100 kg
- Rollback at ground 39
- Dump angle SAE 45

4 - Backhoe

- Bucket rotatson angle
 - speed hole 204
 - power hole 160

- Max. cutting height 5545 mm
- Max. dump height 3750 mm
- Max. digging depth 4605 mm
- Read from rear axle 6880 mm

5- Types

- Pear 16.9-28 (10 PR)
- Front 10.5/ 80-18 (10 PR)

6- Cab-

with maximum possible glass area for excellent visibility of work area easy walk - through two doors excess .

SECTION 23
TRAILER WITH CRAIN

code	Description	Qty
03-02-01392	Trailer (10) ton with (5) ton telescopic crane .	30

Trailer (10) ton with (50 ton telescope crane hydraulic operation . at out reach 5 m

- Hydraulic out reach (5) m
- Out reach lifting (3) mt
- Slewing angle (400)

The crane must be beyond the cabinet and should be double cabinet .

The Trailer should be dou,bl axle with 10 tyers siz of 1200*24 .

The chassis should have sides doors moving type .

SECTION 24
EQUIPMENT FOR BASRAH RAW WATER PUMP STATION

Code	Description	Qty
03-02-01393	33/11KV (2*17 MVA) Sub-Station	1
03-02-01394	Water Hammer System	7
03-02-01395	Cathodic protection for pumping main	5
Total	11	

studying and suppling equipment for Water Hammer protection of pumping mains Basrah (Abo-Skair) pump station .

The work includ the followings :

- 1 . Study and submitte calcolation with full details for water hammer protection for pumping mains and shall be ensured by cylindrical reservoir under pressure , vertically mounted fed by electrical air compressor . for the following pipes .

- 1 . Al-Hartha compact units (1200 mm d.I - 1219 mm - 1066mm - 914mm steel pipe) .
- 2 . Al-Basrah unified (1200 mm (ductile) - 1219 mm - 1066 mm 914 mm steel pipe) .
- 3 . Abo Al-Khasib (
- 4 . Al-Sheaba (800 mm - 600 mm ductile)
- 5 . Al-Bradheya (800 mm ductile) .
- 6 . Al-Jebela (1200 mm ductile) .

The capacity of the pumps as follows :

- 1 . Al-Hartha w.s.c 1500m3/hr & 60 m head , 6 no. (4 no.working and 2 standby) .
- 2 . Al-Basrah w.s.ch . 1500 m3/hr , 60 m head , 6 no. (4 no. working and 2 no. standby) .
- 3 . Abo Al-Khasib w.s.c. 550 m3/hr & 130 m head , 6 no. (4no. working and 2 standby).
- 4 . Al-Sheaba w.s.c 800m3/hr & 75 m head , 4no. (3 no. worling & 1 no.standby) .
- 5 . Al-Bradheya w.s.c 1100 m3/hr &45m head 3 no. (2 working and 2no. standby) .
- 6 . Al-Jebela w.s.c 1400 m3/hr & 30 m head , 4 no. (3 no working & 1 no standby) .

The following documents to be submitted :

- 1 . Calculations with details for the studying .
- 2 . Drawings showing all mechanical equip . and electrical .
- 3 . Erection drawings .
- 2 . Suppling the equipment that have been specified in the studying and mentioned in acomplete technical offer . price for the studying and for suppling the equipment to be mentioned seperatly .

Granty 18 mounth to be give to ensure the studying is right and the equipment to be supplied .

All Steel pipes to be under .

All Ductile pipes iso 2531 K9 .

SECTION 25
Garbage Collecting Vehicles with spare parts

Code	Description	Qty
03-02-01396	Garbage Collecting Vehicles of capacity 15 cu.mr.with spare parts	90
03-02-01397	Spare parts for Hino type KB422 as follows :	
	PART. No	Description
	11110-1292	Cylinder Head
	13216-1230	Piston
	11467-1180	liner
	04010-0160	Casket
	16100-1161	pump
	27020-1380	Al-ternater
	28100-1400	startor
	13011-1630	Ring
	13201-1280	Bearing
	13201-1300	Bearing
	13204-1101	Bearing
	13205-1130	Bearing
	13201-1170	Bearing
	11812-1020	Bush for camshaft
	11822-1020	Bush for camshaft
	11832-1020	Bush for camshaft
	11842-1020	Bush for camshaft
	11852-1020	Bush for camshaft
	11701-1161	Bearing
	11704-1161	Bearing
	11703-1161	Bearing
	1111202000	Vacum pump
	32210-1113	Bostart
	32200-1011	Repai kit
	31420-1060	Cylinder
	27700-1100	Regulater
	29100-1032	Comporeser
	22000-1011-220102440	Ing- Lump
	6061172300	Nozzel
	22104-1050	Element planjer
	31210-1171	Cover
	13400-1440	crankshaft
	31250-1040	Disk
	44310-1440	pump . Asy
	44260-1130	Rod

Specification :

The body must be rigid welded metallic structure made of high quality steel 4 mm thickness type of style E 36 in french standars . or BS 50 British .

The valume shall not less than 15 m³ .

Wear plate at 3mm thick is added to inside wall of the entry of the body .

The tail gate must be rigid welded mettalic structure it must be linked to the body by 2 large articulations located on the top part .

It includes the compacting system made of 3 articulated panels driven by 4 cylinders and shuld be also manually operated .

The happer is made of 6 mm thickness plate and of 2 m³ volume .

The hydraulic system should a hydraulic pump of not less than 135 cm³Lmin & 150 bar and of 190 leter of hydraulic tank .

The chassis should be supplied from aqualified company .

Type . 6 cylinder disel operated .

140 HP & 2600 lit/min

SECTION 26
Aluminium Sulphate

Code	Description	Qty
03-02-01398	Aluminium Sulphate in 50 Kg bags	26000 Ton

CHEMICAL COMPOSITION

Al₂O₃ total > 17%
Fe₂O₃ total < 0.75%
Free Al₂O₃ not less than 0.05%
Insoluble in water < 0.5%

PHYSICAL COMPOSITION

From : granular
Sieve analysis passing through
3 mm 100%
0.50 mm < 5%

PACKING : in suitable woven bags .

SECTION 27

Water Test Equipment

Code	Description	Qty
03-02-01399	Water Test Equipment as below :	
	Equipment and mterial needed for water testing to be used in all governorates laboratories as mentioned in table below:-	
	1- Accessories and spare parts for ratio -recording infr red spectrophotometer, model PYE -UNICAM, Pu 9706. Suppliers: 1)F.G. BODE & W. GMBH, Telex: 217600, HAMBURG/GERMANY.2) Herman Paulsen, Telex: 213564 helo d, Telfax: (040) 601 01 90 HAMBURG/GERMANY.3) KARL KOLB, Telex: 417981 kkoib d, FAX: (06 103) 65 31 01 /GERMANY.4) PYE- UNICAM Ltd., York Street, Cambridge, England CB1 2PX, Telex: 817331 PYUNICAM CAMBGE	
	1.1 Demountable sample cells with Kbr windows.	4
	1.2 Desiccator cabinet for storing IR cell+80 deg. C	1
	1.3 IR liquid sampling kit	1
	1.4 IR sample polishing kit	1
	1.5 Sealed liquid sampling cell, path length=1 cm.	4
	1.6 Spare pens, assorted colours	24
	2- Acid and splash proof arm protection, to cover region between gloves and sleeves.	20 pairs
	3- Basket, round, with handle, plastic coated wire, 180 mm dia. x 160 mm high.	30
	4 -Boiling stone, acid, alkali and solvent resistance	30 pkg
	5- Bottle, flat sides, aluminum screw cap, approx. capacity=200 ml	500
	6- Bottle, McCartney, approx. capacity=300 ml	200
	7- Cable drum, 10 meter cable, with 3 sockets	4
	8- Diaphragm pump for gases and liquids with stepless mechanical speed adjustment, delivery air 300-1200 ml/min.	2
	9- Disposable apron, acid-proof polyethylene	150
	10- Endo agar	5 kg
	11- Filter paper, round, 150 mm dia., grade whatman 42	100 pkt
	12 - Glove, Latex multipurpose with 5 fingers, heat, acid and alkali resistance, sizes medium and large	100 pairs
	13- High vaccum grease for ground glass stopcoks, cones and sockets	2 tubes
	14- Hydrochloric acid, cone., puriss	30 lit
	15- KOHLRAUSCH volumetric flask, with widened neck, for easy introduction of samples, vol. 50 ml.	200
	16- Laboratory conductivity meter, range 0.1 uS/cm to 199.9 mS/cm, accuracy +/-2 digits, model WTW LF 521 or any other model equivalent	15
	16.1 Conductivity cell with constant adjustable cell, factory set to 1.00/cm	30
	16.2 Conductivity simulator for checking and calibrating conductivity meter.	1
	17- Laboratory digital PH-meter, range 0.00-14.00 PH, accuracy +/- 0.01 PH +/- 1 digit for routine laboratory use, model WTW 530 or any other model equivalent.	15 tablets
	17.1 Buffer tables for PH 7.00	200 tablets
	17.2 Combination electrode for digital PH-meter (range 0.00-14.00 PH, model WTW 530 or equivalent)	30
	17.3 PH-simulator for testing PH-meter	1
	18- Mac conkey agar	2 kg

19- Mac conkey broth	50 kg
20- Nutrient agar	30 kg
21- Petri dish basket with handle for (10) petri dish 100× 20 mm	30
22- Petri dish insert holder, 170× 105 mm dis., stainless steel)	30
23- Petri dish sterilizing box, 175× 120 mm dia., stainless steel)	30
24- Pipette sterilizing box universal, 60 mm. dia., for storage and sterilizing of pipette from 280 to 420 mm. long.	30
25- Plate count agar	5 kg
26- Potassium Ferricyanide (Potassium hexacyanoferrate III), puriss	1 kg
27- PTFE lab tape, temperature resistance up to 250 degree C, chemically inert	12 tapes
28- Silicon grease, low viscosity	20 tubes
29- Silicon grease, medium viscosity	20 tubes
30- Stand with electrode holder	15
31- Standard German plug, single phase type withb side-earthing and straight cable outlet, shock proof, oil-and-acid-resistance, for 220 V, 16 A	20
32- Sulphuric acid, cone., puriss	30 lit
33- Transformer, vlotage output 3, 4.5, 6,9 and 12 V AC, current output 6 A continuous, 8 A maximum, different sockets, input 220 V, 50 HZ	3
34- Universal adhesive	6 tubes

SECTION 28
Chlorin Gas with Cylinder

Code	Description	Qty
03-02-01400	Supply and filling new Cylinders with chlorine gas	2000 ton
03-02-01401	Filling (1) ton and 50 Kg cylinders with chlorin gas	2000 ton
total		4000

NOTES

- 1 . Receiving the empty cylinders from the Establishment stores in Baghdad , loading , transporting them to plant .
- 2 . Testing and maintaining empty cylinder at the plant using spare parts according to the required specifications and carrying the necessary painting on the cylinders after cleaning .
- 3 . Filling them with 2000 ton (two thousand ton) chlorine gas of 99.9% purity as follow:
1440 ton in large cylinder will be filled not less than 900 Kg . each .
560 Ton in small cylinder will filled not less than 50 Kg . each .
- 4 . Supply and filling (2000) ton in new cylinders with chlorin gas capacity 1000 kg . for each cylinder .

SECTION 29

UPVC PIPES & FITTINGS

for maintenance of the networks in all Governarates in Iraq

Code	Description	Qty
03-02-01402	Supplying U.P.V.C pipes (225) mm dia. of tyton-joint with rubber rings. 10 bar	270000 (mr)
03-02-01403	Ditto but (160)mm. dia. 10 bar	400000 (mr)
03-02-01404	Ditto but (110)mm. dia. 10 bar	800000(mr)
	Supplying U.P.V.C pipes (300) mm dia. of tyton-joint with rubber rings. 6 bar	10000
	Supplying U.P.V.C pipes (400) mm dia. of tyton-joint with rubber rings. 6 bar	10000
	Supplying U.P.V.C pipes (500) mm dia. of tyton-joint with rubber rings. 6 bar	5000
	Supplying U.P.V.C pipes (600) mm dia. of tyton-joint with rubber rings. 6 bar	5000
03-02-01405	Leakage detector	40 (no.)
03-02-01406	1st- Johnson coupling 110 mm 2nd- Johnson coupling 160 mm 3rd- Johnson coupling 225 mm	20000 (no.) 10000 (no.) 10000 (no.)
03-02-01407	A- UPVC coupling 2 end sockets 110mm 2nd- UPVC coupling 2 end sockets 116mm 3rd- UPVC coupling 2 end sockets 225mm	20000 (no.) 10000 (no.) 10000 (no.)

GENERAL SPECIFICATIONS

1. All materials supplied in this contract shall have be in accordance to international standard ISO-R161 (10) and (6) bars and DIN 8061 , 8062 - 19532 for pipes and DIN 8063 - 19532 (16) bars for fittings.
2. Pipes and fittings shall be subjected to all of the appropriate standard tests before dispatch.
3. 10% extra gaskets and rubber rings from the total requirment should be supplied.

SECTION 30

CHLORINATROS for all Governarates

Code	Description	Qty
03-02-01408	WALL MOUNTED, 500 gm / h.	90
03-02-01409	WALL MOUNTED, 1000 gm / h.	60
03-02-01410	DITTO BUT 2000 gm / h.	70
03-02-01411	4000 FLOOR MOUNTED	90
03-02-01412	6000 FLOOR MOUNTED	70
03-02-01413	8000 FLOOR MOUNTED	40
03-02-01414	10000 FLOOR MOUNTED	60
03-02-01415	20000 FLOOR MOUNTED	20
TOTAL		500

SPECIFICATION

The gas chlorinators are to be of vaccume solution feed type for wall and floor mounting. The chlorine solution is to be feed in an enclosed main.

Generally in the suction pipe of high lift pump but may also used for feeding into open channel, assume injector water supply available at (15-100m) head of water.

The chlorinators are to be complete with the following accessories :-

- 20m solution delivery pipe made of high pressure rubber tubing has the same diameter of the injector.
- Sufficient gas relief tubing made of high pressure rubber tubing.
- 5 No. sets of hose clamps.
- 1 No. set of gaskets.
- 2 No. of auxiliary cylinder valve.
- 24 No. cylinder valve washer.
- Flexible cylinder connection 4ff and another 4m in length silver tube.
- 1 No. Injector strainer.
- Meter tube with float 1 on for each 3 on chlorinators.

SECTION 31

VEHICALS

Code	Description	Qty
03-02-01416	Pick up (one cabinet) (1.5-2) ton with spare parts as recomended by supplier .	10

SECTION 32

BLEACHING POWDER

- 1- Available chlorine (65-70%).
- 2- So Kg plastic drum capacity
- 3- Granule form

Code	Description	Qty
03-02-01417	Supply Bleaching Powder	1000 tons

SECTION 33

Spare parts for compact units

Code	Description	Qty
03-02-01418	Spare parts for compact units of 14 m3/hr of 500 units (bafac).	L.S

SECTION 34

Lifting crane

Code	Description	Qty
03-02-01419	Lifting crane two cabinet diesel enging, 1100 x 20 tyers size , 2 No. of battries , 135 am 4No. jack with spare parts .	
	capacity 20 ton	16
	capacity 30 ton	16
	capacity 50 ton	16

total

48

SECTION 35

Trailer with lorry

Code	Description	Qty
03-02-01420	2 carrier axles , diesel engine , powetr steering , pneumatic brackning double cabinet , 18 No. tyers ,with spare parts .	
	35 ton capacity	35
	20 ton capacity	35

total

70

SECTION 36

fork lift loader

Code	Description	Qty
03-02-01421	4 WD , diesle enging , hydrostactic transmission , with spare part.	
	2.5 ton capacity	50
	5 ton capacity	35

SECTION 37**Cars for transporting employeres**

Code	Description	Qty
03-02-01422	Benzin engine , manual gear , capacity 21 riders , with spare parts.	30

SECTION 38**Double cabinet pick up**

Code	Description	Qty
03-02-01423	2 ton cpacity banzin enging , power steering , 2WD aircondition , 4 doors , 2700cc 1998 model with spare parts.	30

SECTION 39**Spaer parts for caes , lorry , tanker, cranes , lifting loader**

Code	Description	Qty
03-02-01424	Spaer parts for cars , lorry , tanker, cranes , lifting loader	L.S

SECTION 40

Spaer parts for chlorinators (W&T , portocel)

Code	Description	Qty
03-02-01425	Spaer parts for chlorinators (W&T , portocel)	L.S

SECTION 41

Dumpers

Code	Description	Qty
03-02-01426	1 ton capacity diesle engine , with spare parts	35

SECTION 42

Battries

Code	Description	Qty
03-02-01427	Battries acid of:	
	60 am	400
	90 am	500
	135 am	1100
	180 am	1000
	total	3000

SECTION 43

Tyers

Code	Description	Qty
03-02-01428	Tyers with tubes and auxelaries size : 1200 x 20 1100 x 20 1000 x 20 900 x 20 750 x 16 700 x 16 650 x 16 650 x 14 185 x 14 195 x 14 700 x 15 600 x 8 600 x 10	500 500 500 300 300 100 200 250 50 50 200 25 25

total 3000

SECTION 44
COMPUTER COMPLETE WITH PRINTER

Code	Description	Qty.
03-02-01429	PC computer with the following specifications: - Processor: Pentium (P5), 133 MHz. with 512 KB cache - 16 MB RAM - (1) Super VGA accelerator card with 1 MB RAM - 14" Super VGA non-interlaced monitor with maximum resolution 1024×768 - (1) Hard disk 1.7 GB - (1) Floppy drive high density 3.5" - (1) Serial mouse (2 or 3 buttons) - (1) Arabic/English 101-102 keys keyboard for Windows95	60
	HP laser printer connected to the parallel port: - 600 dpi - 12-15 ppm - 2 MB RAM - (5) extra toners	60
	Ribbon cartridges for Epson LQ-1170 ESC/P2 printer	10
	Uninterruptable Power Supply, APC Back-UPS Pro 650 (or equivalent): - Input voltage 220-240 V - Output voltage 220 V - With voltage regulator	60
	HP Scanjet 4c scanner (or equivalent) with advanced OCR software for both Arabic and English languages	60
	Arabic/English word processor: - 15" paper capacity - 10-20 character pitch - Word processor formatting facilities - Arabic/English spell checker with not less than (120000) words dictionary - CRT display 80 characters × 25 lines - User dictionary up to (2000) words - (1) floppy drive for documents saving and retrieving	1
	Electrical type writer Arabic/English	1
	Floppy diskettes 3.5" H.D. (3M or Sony)	60 boxes
	Fanfold paper Letter size 8 ½" × 11" (double with self carbon)	10 boxes