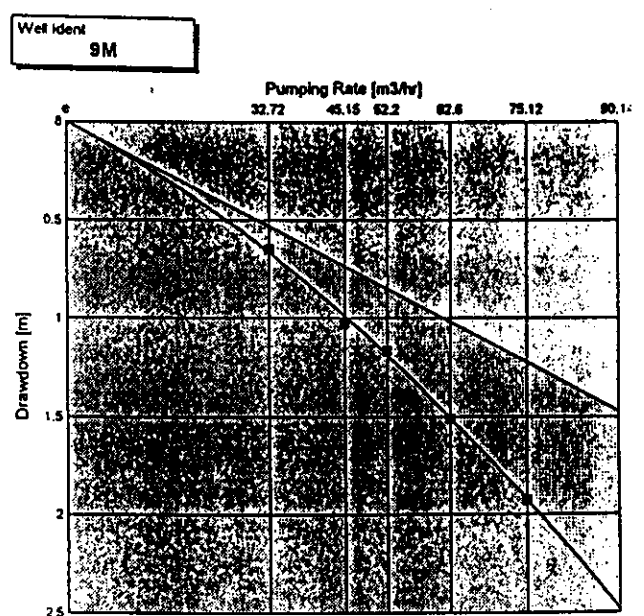
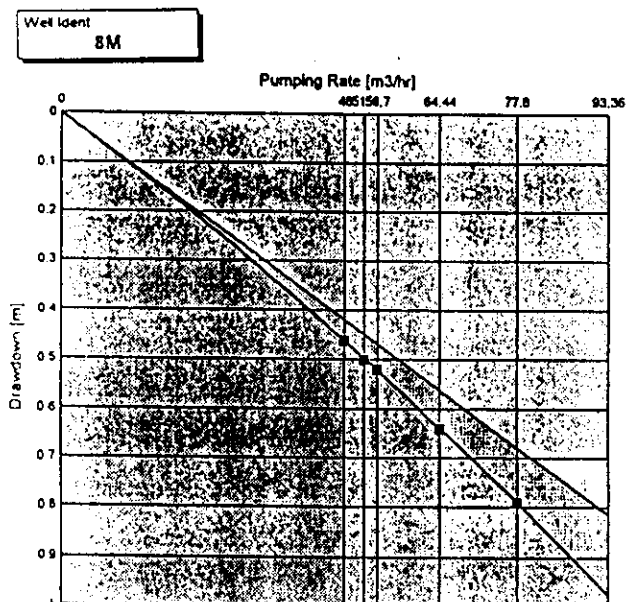
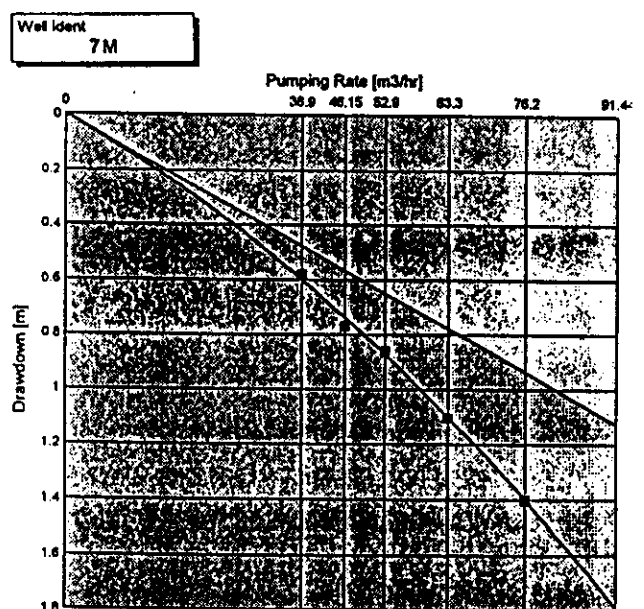
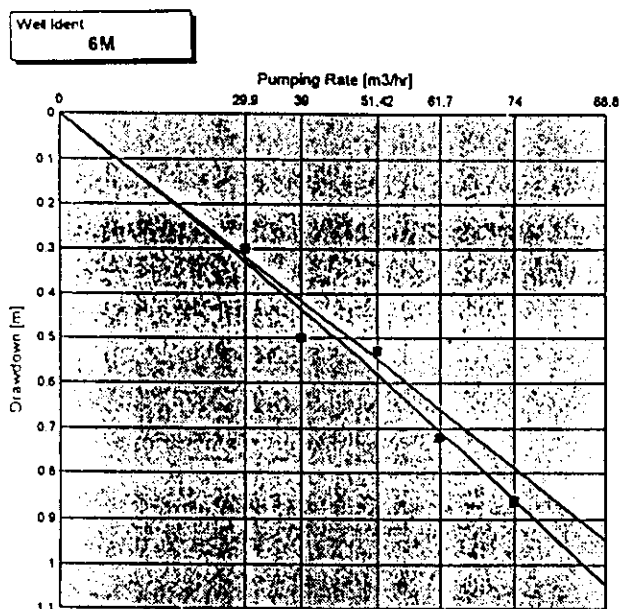
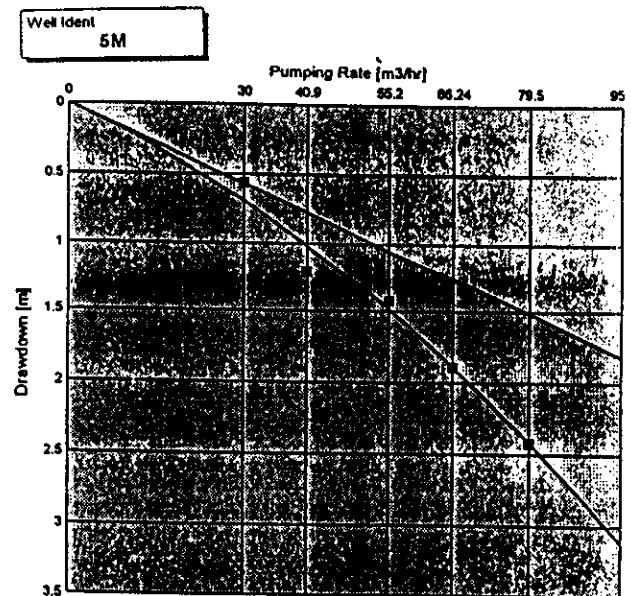
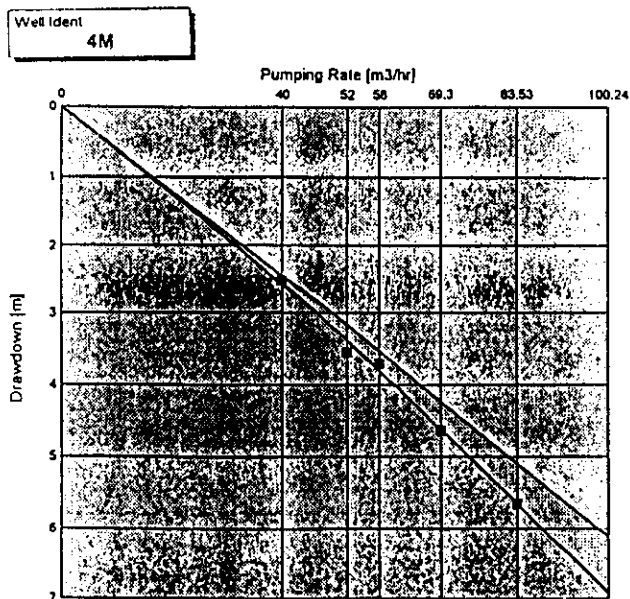
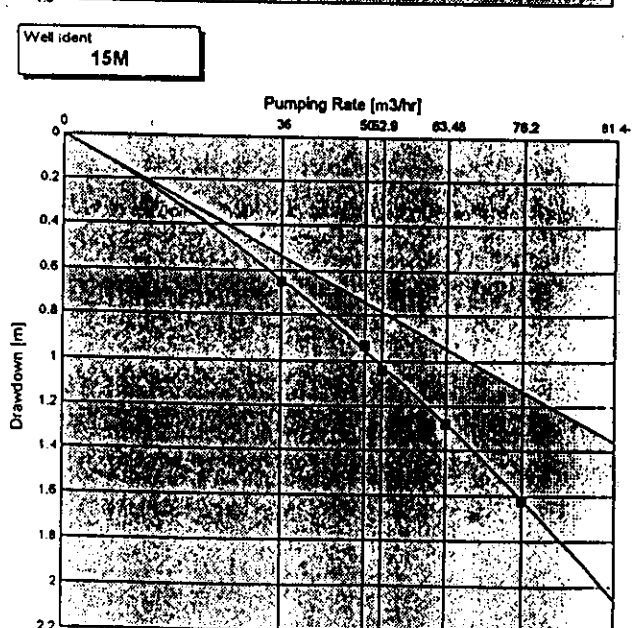
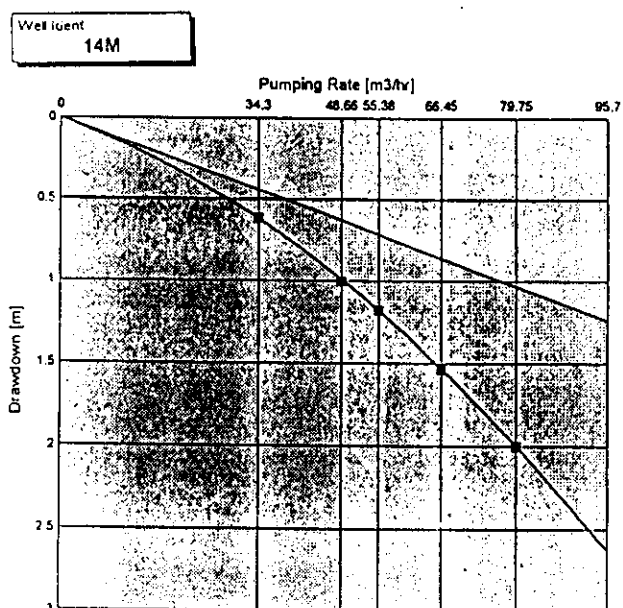
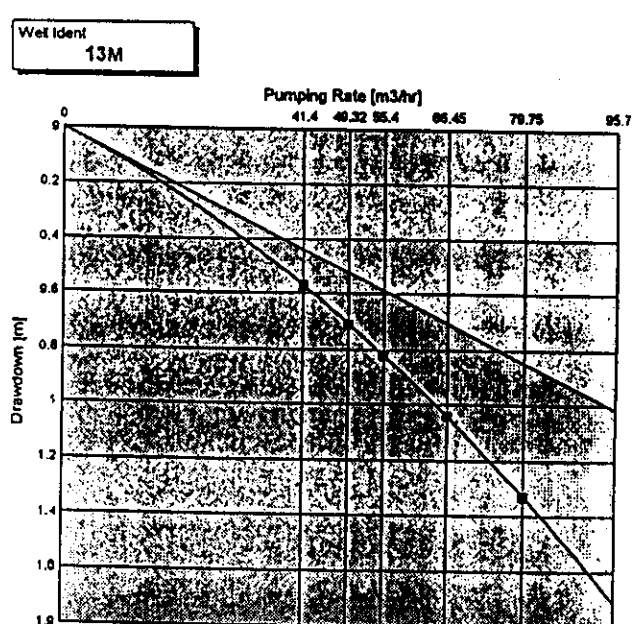
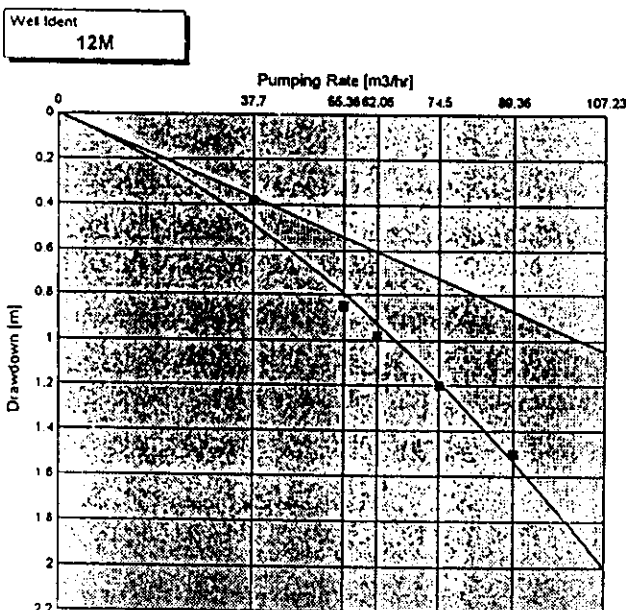
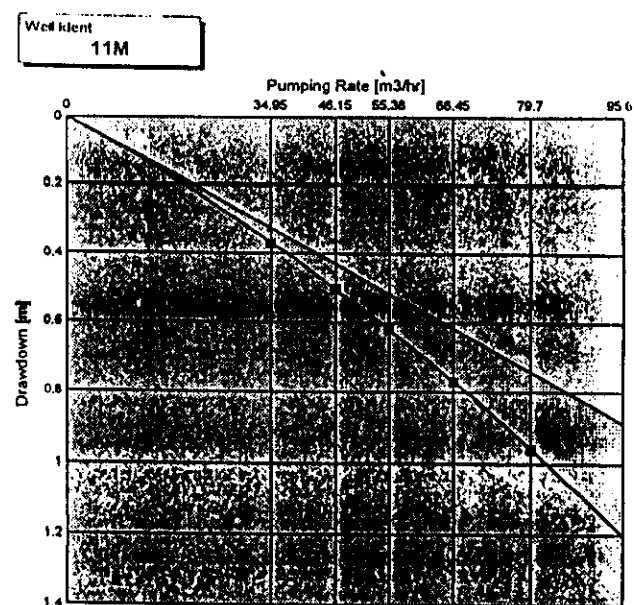
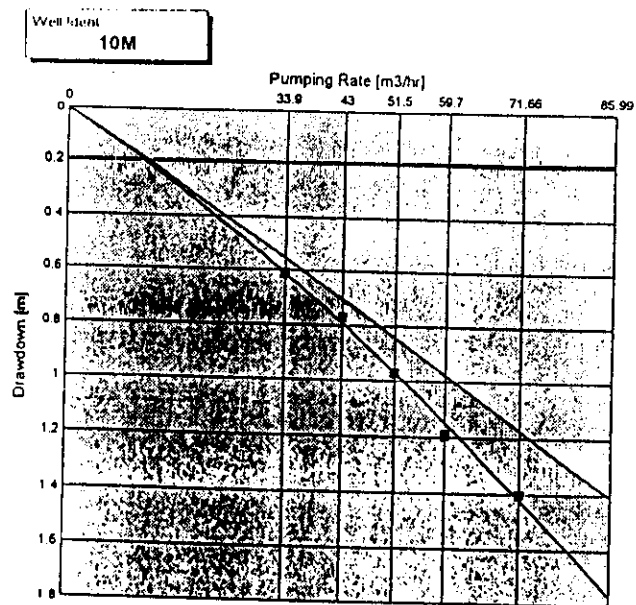


Table (5): Hydrogeological characteristics of the Miocene aquifer.

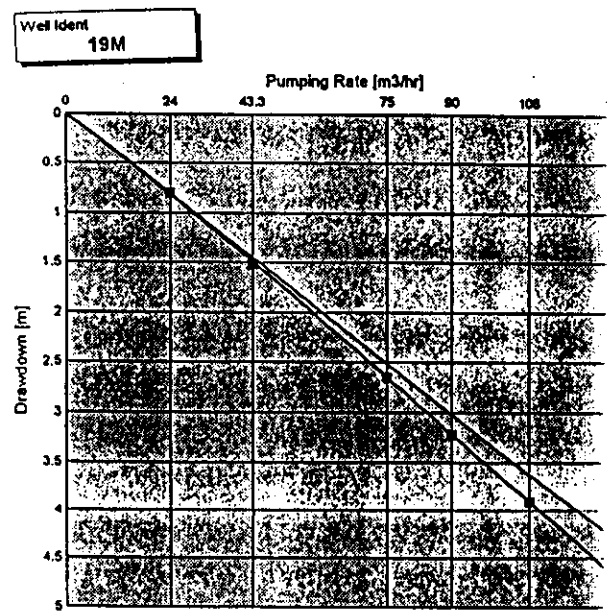
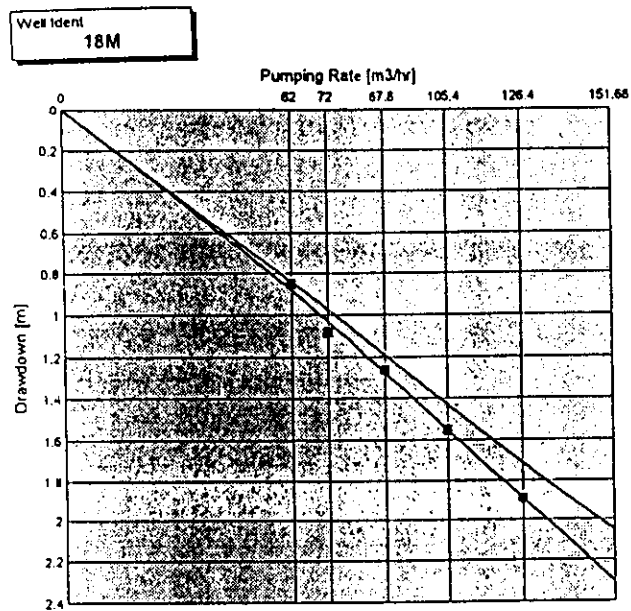
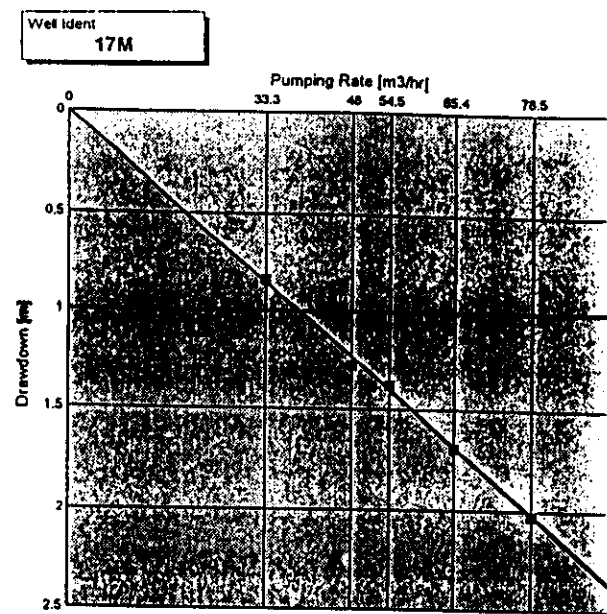
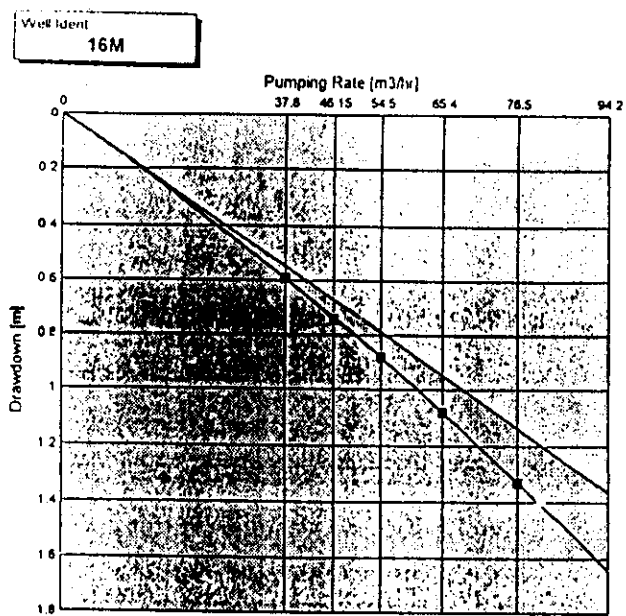
No. Well	Elevation above sea level	Depth to water	Static Water Level	Depth to top of aquifer	Depth to the bottom of aquifer	Thickness of aquifer
4M	88	87	1	87	287	200
5M	82.5	91	- 8.5	91	312	221
6M	88.5	92.45	- 3.95	92.45	309.45	217
7M	91	97.1	- 6.1	97.1	320.1	223
8M	90.5	95.3	- 4.8	95.3	323.3	228
9M	87	90.3	- 3.3	90.3	333.3	243
10M	85.5	92.8	-7.3	92.8	323.8	231
11M	84.2	87.8	- 3.6	87.8	324.8	237
12M	83.4	87.15	- 3.75	87.15	326.15	239
13M	84.25	89.42	- 5.17	89.42	315.42	226
14M	88.25	91.5	- 3.25	91.5	277.5	186
15M	85.25	97.2	- 11.95	97.2	292.2	195
16M	91.25	89.4	1.85	89.4	275.4	186
17M	99.25	96	3.25	96	288	192
18M	86.25	97.4	- 11.15	97.4	292.4	195
19M	92.25	105	- 12.75	105	289	184



Graphical presentation of step pumping drawdown test at Tabark area using GWW software.



Graphical presentation of step pumping drawdown test at Tabark area using GWW software.



Graphical presentation of step pumping drawdown test at Tabark area using GWW software.

Table (6) Results of step drawdown tests of the Lower Miocene aquifer.

Well No.	Pumping Rate (m ³ /hr)	Aquifer loss	Well loss	Specific Capacity (m ² /hr)	Well Efficiency %
4M	40	2.44	0.13	16	97.7
	52	3.18	0.21	14.6	89.5
	58	3.54	0.26	15.63	95.5
	69.4	4.25	0.38	14.97	91.8
	83.53	5.1	0.55	14.78	90.3
	100.22	6.12	0.79	14.48	88.6
5M	30	0.57	0.13	53.6	100
	409	0.78	0.24	34.1	64.9
	55.2	1.05	0.44	38.6	73.5
	66.24	1.26	0.63	35.05	66.7
	79.5	1.51	0.91	32.85	62.5
	95.4	1.82	1.31	30.57	58.2
6M	29.9	0.32	0.01	99.67	100
	39	0.42	0.02	78	83.2
	51.42	0.55	0.03	97.02	100
	61.7	0.66	0.05	85.7	91.4
	74	0.79	0.07	86.05	91.9
	88.85	0.95	0.1	84.6	90.6
7M	38.9	0.48	0.12	67.07	82.4
	46.15	0.57	0.17	59.9	73.7
	52.9	0.65	0.22	61.5	75.6
	63.3	0.78	0.32	57.5	70.9
	76.2	0.94	0.46	54.4	66.9
	91.4	1.12	0.67	51.1	62.8
8M	48	0.42	0.04	104.3	91.1
	51.4	0.45	0.05	102.8	89.7
	53.7	0.47	0.05	103.3	90.2
	64.44	0.56	0.08	100.7	87.9
	77.8	0.68	0.11	98.5	86
	93.34	0.81	0.16	95.3	83.6
9M	32.72#	0.54	0.13	50.34	82.4
	45.45	0.74	0.25	43.83	71.8
	52.2	0.85	0.34	44.61	73
	62.6	1.02	0.49	41.45	67.9
	75.12	1.23	0.7	38.92	63.7
	90.15	1.48	1.01	36.35	59.4
10M	33.9	0.56	0.06	55.6	91
	43	0.7	0.09	55.8	91.5
	51.5	0.84	0.13	53.1	87
	59.7	0.98	0.17	50.17	82.2
	71.66	1.17	0.25	51.2	83.8
	85.99	1.41	0.35	48.86	79.9
11M	34.95	0.33	0.04	94.46	88
	46.15	0.43	0.07	92.3	86
	55.38	0.52	0.1	89.32	83.2
	66.45	0.62	0.15	86.3	80.4
	79.7	0.74	0.22	83.02	77.4
	95.7	0.89	0.31	79.7	74.1

The recommended pumping rate

Table (6) Continued.

Well No.	Pumping Rate (m ³ /day)	Aquifer loss	Well loss	Specific Capacity (m ² /hr)	Well Efficiency %
12M	37.7#	0.37	0.12	99.2	96.9
	55.38	0.54	0.25	110.76	63.6
	63.06	0.61	0.32	63.32	61.8
	74.5	0.73	0.46	62.1	60.6
	89.36	0.87	0.66	59.4	58.2
	107.24	1.05	0.96	53.61	52.3
13M	41.4	0.44	0.13	72.63	77.2
	49.32	0.52	0.18	69.46	73.9
	55.4	0.59	0.23	67.56	71.9
	66.45	0.71	0.33	63.9	68
	79.75	0.85	0.48	59.96	63.8
	95.7	1.02	0.69	55.96	59.5
14M	34.3 #	0.45	0.18	55.32	71.9
	48.66	0.63	0.36	48.66	63.3
	55.38	0.72	0.46	46.93	61.1
	66.45	0.86	0.67	43.43	56.5
	79.75	1.04	0.96	39.87	51.9
	95.7	1.25	1.38	36.8	47.4
15M	36	0.54	0.11	55.4	82.4
	50	0.74	0.21	53.76	80
	52.9	0.79	0.23	50.86	75.7
	63.48	0.94	0.34	49.59	73.8
	76.2	1.13	0.49	47.04	69.9
	91.4	1.36	0.7	44.39	66
16M	37.8	0.55	0.04	64.07	92.8
	46.15	0.67	0.07	62.36	90.3
	54.5	0.79	0.09	61.93	89.7
	65.4	0.95	0.13	60.55	87.7
	78.5	1.14	0.19	59.02	85.5
	94.2	1.36	0.28	57.44	83.1
17M	33.3	0.84	0.01	39.64	100
	48	1.22	0.02	37.5	96.5
	54.5	1.38	0.02	39.5	100
	65.4	1.66	0.03	38.7	98
	78.5	1.99	0.04	38.66	97.9
	94.2	2.38	0.06	38.6	97.4
18M	62	0.84	0.04	72.94	98.9
	72	0.98	0.06	66.66	90.4
	87.8	1.19	0.08	69.68	94.5
	105.4	1.43	0.12	68	92.2
	126.4	1.71	0.18	66.88	90.7
	151.72	2.06	0.25	65.66	89.1
19M	24	0.81	0.01	30	100
	43.3	1.46	0.04	28.5	95.8
	75	2.52	0.13	28.3	95.1
	90	3.03	0.19	27.95	94
	108	3.63	0.28	27.62	92.8
	129.6	4.36	0.4	27.22	91.5

The recommended pumping rate

Table (8): Hydrogeological characteristics of the Oligo-Miocene aquifer.

No. Well	Elevation above sea level	Depth to water	Static Water Level	Depth to top of aquifer	Depth to the bottom of aquifer	Thickness of aquifer
2S	140	130	10	130	280	150
3S	120	128	-8	128	285	157
4S	142.5	130	12.5	130	285	155
5S	143	130	13	130	300	170
6S	140	130	10	130	300	170
7S	136	130	6	130	312	182
8S	128	128	0	128	295	167
9S	149	145	4	145	285	140
10S	165	160.6	4.4	160.6	293	132.4
11S	144.9	141	3.9	141	280	139
12S	146.9	143	3.9	143	280	137
13S	192	193.9	- 1.9	193.9	300	106.1
14S	195	197	- 2	197	300	103
15S	197.5	199.5	- 2	199.5	280	80.5
16S	197	199	- 2	199	360	161
17S	197	199	- 2	199	320	121
18S	185	186.9	-1.9	186.9	275	88.1
19S	183	184.9	- 1.9	184.9	300	115.1