

SCOPE OF WORK

WATER STUDY

AL-KHATUNIYAH LAKE EXAMINATION

1. DEPTH MEASUREMENT

Either one of the following methodologies may be used:

- i. Automatic - Sonar method: a sonar equipped to a boat (preferred)
- ii. Semi-Automatic – Rope and sounder: using a rope tied to a sounder on a boat.
- iii. Manual - Rope and weight: using a rope tied to a weight on a boat.

All works shall be according to ASTM D5073-02:

Procedure A''' Manual Measurement. Page 6 through 11

Procedure B''' Electronic Sonic-Echo Sounding. Page 12 through 13

Procedure C''' Electronic Nonacoustic Measurement. Page 14 through 15

Figure 1.1. Shows the points of measurement that shall be collected during the survey. The distance between measurement points shall be measured and recorded, in addition to the distance between measurement axes. Table 1.1. shows the data that are required to be collected during the operation.

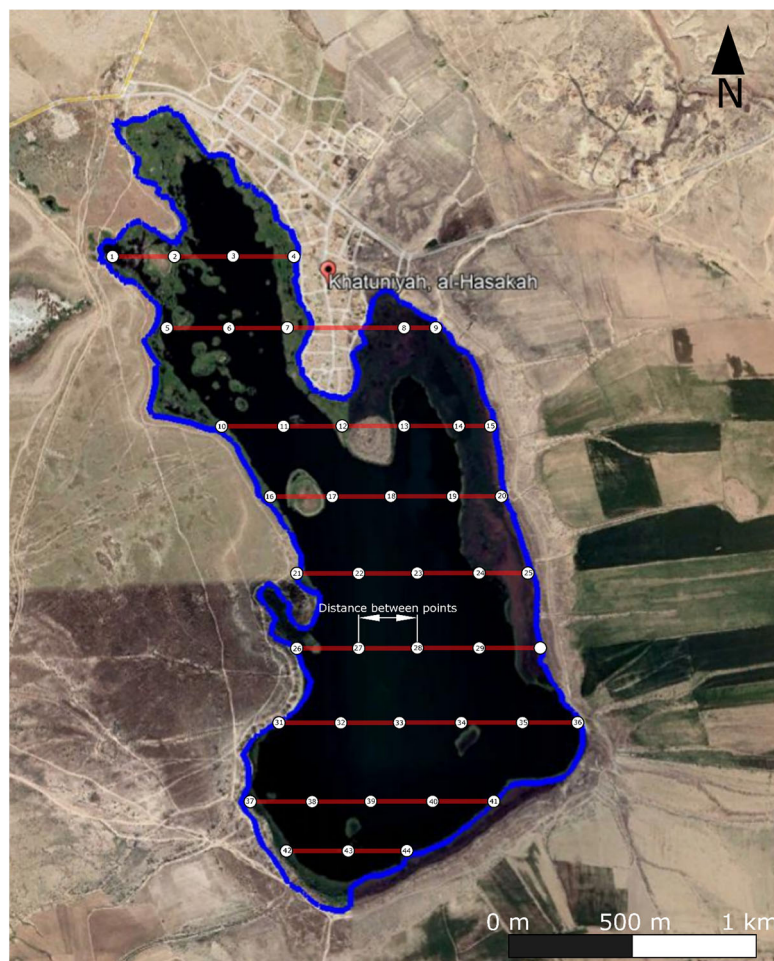


Figure 2.1 – Al-Khatuniyah lake point of measurements
Nine (9) measurement axes and forty-four (44) measurement points were allocated

Table 1.1 – Data collection sheet guideline

Coordinates N	Coordinates E	Measurment Axis	Measurment point	Depth	Distance between points	Distance
x.xxxxxx N	x.xxxxxx E	1	1	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	1	2	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	1	3	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	1	4	x.xx m		x.xx m
x.xxxxxx N	x.xxxxxx E	2	5	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	2	6	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	2	7	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	2	8	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	2	9	x.xx m		x.xx m
x.xxxxxx N	x.xxxxxx E	3	10	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	3	11	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	3	12	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	3	13	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	3	14	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	3	15	x.xx m		x.xx m
x.xxxxxx N	x.xxxxxx E	4	16	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	4	17	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	4	18	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	4	19	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	4	20	x.xx m		x.xx m
x.xxxxxx N	x.xxxxxx E	5	21	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	5	22	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	5	23	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	5	24	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	5	25	x.xx m		x.xx m
x.xxxxxx N	x.xxxxxx E	6	26	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	6	27	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	6	28	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	6	29	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	6	30	x.xx m		x.xx m
x.xxxxxx N	x.xxxxxx E	7	31	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	7	32	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	7	33	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	7	34	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	7	35	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	7	36	x.xx m		x.xx m
x.xxxxxx N	x.xxxxxx E	8	37	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	8	38	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	8	39	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	8	40	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	8	41	x.xx m		x.xx m
x.xxxxxx N	x.xxxxxx E	9	42	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	9	43	x.xx m	x.xx m	
x.xxxxxx N	x.xxxxxx E	9	44	x.xx m		x.xx m

2. SURFACE LEVEL MONITORING

The monitoring shall be done by utilizing a Level device with a standard ruler. The ruler shall be placed over one of the surface measurement points allocated above just offshore. The monitoring period shall take place over 30 weeks.

All surveying works will be monitored by Blumont's Engineers and shall comply with the instructions given by them. Data shall be processed and sent to Blumont on a weekly basis using a provided form.