THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF WATER

HYDROGEOLOGICAL AND GEOPHYSICAL INVESTIGATION REPORT

FOR

SELECTION OF FIFTEEN (15) BOREHOLE DRILLING SITES

AT THE SELECTED VILLAGES

IN

HANDENI DISTRICT-TANGA

CLIENT,

RURAL WATER SUPPLY AUTHORITY

(RUWASA)-HANDENI

P.O BOX HANDENI

COMPILLED BY,

PANGANI BASIN WATER BOARD

P. O BOX 7617

MOSHI

FEBRUARY, 2021

ABSTRACT:

This report presents the groundwater survey results done at eight villages in Handeni District, Tanga. The survey was done as a response toward the scarcity of enough and good quality water supply to the communities in the respective villages which RUWASA is facing as it is doing its best to meet the required water demand.

During the site visit data was collected and the preliminary study was done followed by the geophysical investigation employing two methods namely; Magnetic Survey and Resistivity survey. The results are presented in tables and graphs to simulate the behavior of the subsurface condition. The obtained data from the field are also attached with this report.

Due to water quality challenges in the surveyed area, then it is recommended that, extra care should be taken during drilling activity by which, the drilling should take place under supervision of the qualified Hydrogeologist/Hydrogeology Technician together with Water Quality Personnel. This will enable close monitoring of the aquifers struck and their respective water quality.

Groundwater investigation that involved Hydrogeological, Geological and Geophysical methods was conducted in Handeni district by the staff of Hydrogeology Unit–Pangani Basin Water Board. The aim of the survey is to select potential sites for drilling exploratory-cum-production boreholes that will be used to supply water to the community for domestic purposes.

The study area is located in the following fifteen (15) villages: 1) Mzeri, 2) Kwamtita-Msirwa, 3)Kwanyanje, 4)Mkababu –Msomera, 5) Wanyamakazi-Konje, 6) Kwamngoya-Gole,

7) Kibaya-Komnyuzi, 8) Msaje Street, 9) Hoza, 10) Mbagwi, 11) Komkonga,12) Kwamagome,13) Kwaluala,14) Gendagenda,15) Mbamba

The survey conducted involved Magnetic profiles and electrical resistivity meter. Magnetic Profiles of different distances were measured in the compound in all the 17 villages at an interval of **5m** and **10m** to trace underground fractures/faults which depict ground water localization. Instrument used in this exercise is a GEM-System Proton Magnetometer.

Thirty Vertical Electrical Soundings (**VES**) were probed at the identified sites with AB/2 distance maximum separation of 200m using LS Terrameter applying the Four-Electrode

Schlumberger's Configuration array by injecting electric currents to the ground to get apparent resistivity values of various underlying layers by means of two electrodes and the potential field generated by the currents was measured. The separation between the electrodes was step-wise increased, thus causing the flow of currents to penetrate greater depths. The apparent resistivity values were later plotted on double logarithmic sheets and the graph obtained depicts resistivity variation against depth.

The field data obtained was plotted on double logarithmic paper to know number of layers and their respective thickness which is a first step of interpretation. Final interpretation of the data was done in a computer using **IXD** inversion software.

Results have shown that there are sites with sizeable thickness of aquifers to enable them to be groundwater potential to yield enough water for the intended. The proposed sites have different drilling depths ranging from 150m to 180m. The final casing diameter is recommended to be 6 inches and above depending on the client's interest. The quality and quantity of water will be determined after drilling but it is expected to be good in most of the sites.

INTRODUCTION:

Groundwater is becoming a core source for water supply in most of the areas in Tanzania. However, quality of water is a remarkable challenge facing groundwater due to various factors such as nature of the geology, pollution and climatic condition which differ from one area to another. The high population increase rate is also challenging the existing water sources as they fail to meet the current demand. With these challenges, some areas are potential for groundwater but the water quality challenge change the status of the area making the resource to be scarce.

The survey was conducted in the previously mentioned eight villages under review in response to the request of the RUWASA-Handeni to Pangani Basin Water Board Director. All the villages are located in a tropical climate zone. Due to the topography of the area both rainfall, surface water and other seasonal rivers are expected to be the source of groundwater in the studied villages. The available groundwater will be meant for domestic uses in the villages.

Experts involved in this study were divided into two groups as follows:

Group A

1. Hezron Philipo-Senior Hydrogeologist
2. Godwin J. Kapama-Senior Hydrogeologist
3. Baltazar J. Assey-Principal Hydrogeology Technician
4. Zania D. Msangi- Principal Hydrogeology Technician
5. Alfan Mnandi-Hydrogeology Technician
6. Arodia Alex-Hydrogeology Technician
7. Joseph Mmari-Assisstant
8. Tanga-Driver

Group B

1. Mohamed S. Swalehe-Senior Hydrogeologist-Team Leader
2. Yussuph A. Ndwela–Principal Hydrogeology Technician.
3. Amiri Msangi-Sinior Hydrogeology Technician
4. Mitinje L. Kulwa-Hydrogeology Technician
5. Ally Gonza-Hydrogeology Technician
6. Nice Minja-Hydrogeology Technician

7. Lucy Kimaro-Hydrogeology Technician
8. Athuman -Driver

LOCATION:

The study areas are located in Handeni Township and the selected villages, outskirts of the Township. The site probed can be located on the Topo Sheet of Handeni No. 129/3 where they are bounded by the following UTM Grid References and Co-ordinates is shown below:-

S/N	Village	Number of VES	Recommended VES	Eastings	Northings	Recommended Depth(m)
1	Mzeri	2	Ves 1	404558	9424025	150
2	Kwamtita-Msirwa	2	Ves 2	449609	9383313	170
3	Kwanyanje	2	Ves 1	436109	9343101	150
4	Mkababu - Msomera	2	Ves 1	386868	9432582	140
5	Wanyamakazi-Konje	2	Ves 1	404262	9402771	150
6	Kwamngoya-Gole	2	Ves 1	390413	9352057	160
7	Kibaya-Komnyuzi	2	Ves 1	403908	9411559	150
8	Msaje Street	1	Ves 1	384495	9386444	150
9	Hoza	2	VES 1	436852	9377314	170
10	Mbagwi	3	VES 3	395911	9413773	180
11	Komkonga	2	VES 1	434623	9380359	180
12	Kwamagome	2	VES 2	389015	9385645	180
13	Kwaluala	2	VES 1	0385309	9387530	150
14	Gendagenda	2	VES 2	461274	9382279	180
15	Mbamba	2	VES 2	385754	9387271	180

GEOLOGY:

The general geology of the surveyed villages which is the general geology of Handeni district is composed of Gneisses, granulites, amphibolites of various composition and origin and this

formation is mostly overlained by undifferentiated soils. Also peridotites and other Basic Metaintrusives are found in some areas and Septarian Mudstones and Marls with massive to poorly bedded siltstones, patch reef limestones.

HYDROGEOLOGY

The area receives about 600mm per year of rainfall which account for ground water recharge over the area. Recharge is mainly expected to come from the available seasonal rivers and gullies found in the area and floods coming from higher slopes of the available hills and mountains.

Hydro geologically, the area of study has two major formations; formations with little or no porosity except in fractured zones (Metamorphic rocks of Inselbergs-dissected highlands) and formation with interstitial porosity (weathered colluvial or alluvial cover of dissected highlands). In some parts prominent Mbugas are available.

METHODOLOGY

The groundwater exploration needs a preliminary investigation that involve delineation of surface indicators of the area to host water. These include studying the geomorphological structures such as faults, folds, shears, rock beddings plus other indicators such as vegetation cover, termites, etc. In addition to the preliminary investigation, the geophysical methods are employed to trace and conduct in-depth study of the characteristic and potentiality of the identified structure for groundwater. For the case of this study, two geophysical methods were employed to trace and conduct in-depth study of the hydrogeological conditions of the identified structures. These are Magnetic Profiling (MP) and Resistivity (Vertical Electrical Sounding) Method.

- **Magnetic Profile**

This method was used to trace the faults through studying the subsurface rocks magnetic properties, which affect the earth's magnetic field. With the aid of the Proton Magnetometer GSM-19T v7.0, the varied strength of the vertical component of the earth’s magnetic field was measured and recorded then plotted against respective distance to detect any anomalous conductive zones in the subsurface which might be associated with buried dykes, faults, fractured zones, etc., which may influence in groundwater occurrence.

- **Vertical Electrical Soundings (VES):**

This method is used to probe the electrical properties and depth to sub-surface layered formations below the sites of measurements. With the aid of the LS ABEM Terrameter, the resistivity sounding was carried out through allowing electric current into the ground by means of two electrodes and the potential field generated by the current is measured. The separation between the electrodes is step-wise increased (in what is known as Schlumberger and Wenner Arrays), thus causing the flow of current to penetrate greater depths. The observed resistivity values are multiplied by a multiplying factor (k) resulting to apparent resistivity. The apparent resistivity values are plotted on log-log paper and the graph obtained depicts layer resistivity variation against depth.

CONCLUSION AND RECCOMENDATIONS:

1. Judged from the interpretation results, one site was selected for drilling ground water potential and are anticipated to have high yield rate.

2. Drilling depth recommended for each site is shown in the annex with a final casing diameter desired by the client**.**

2. Drilling works must be carried out under the supervision of Hydrogeologist /Hydrogeology Technician as per drilling depth, lithological logging, borehole assembly, pumping test water quality etc.

3. Quantity and quality of water will be known after drilling.

4. A Cable-Tool rig or Air Hammer drilling method may be adopted at this site.

4. After casings/screens installation the borehole must be packed well with non-carbonate gravels after thorough washing and sieving.

5. Development of the borehole must be performed until a silt free stage is reached.

6. Pumping test to determine yield and other hydraulic parameters must be continued for at least **24 hours.**

7. Chemical and Bacteriological analysis of the water must be ascertained before human use.

8. **Drilling permit** and **Water use permit** must be obtained from the Water Officer-Pangani Basin Water Board Moshi.

9. Sites selected for drilling are known to Pangani Basin Water Board and District manager-RUWASA-Handeni.

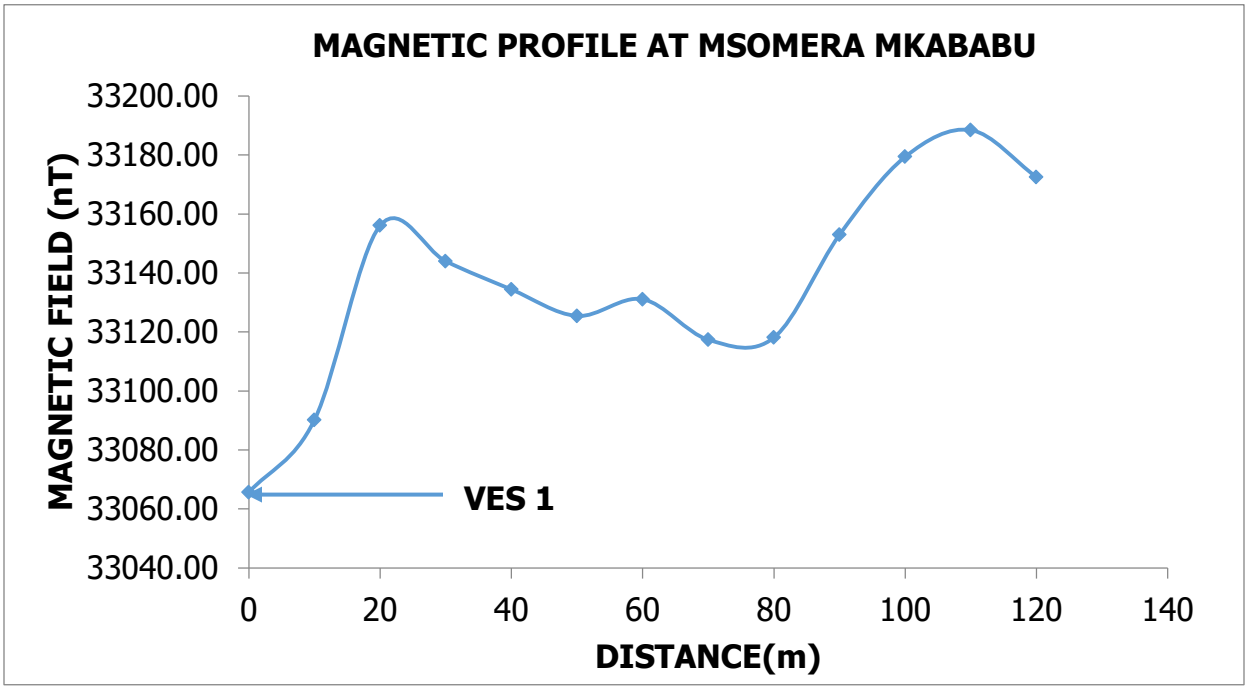
RESULTS:

The results of the Magnetic Profiling (MP) and Vertical Electrical Sounding (VES) in each village is shown in the below charts and figures.

MAGNETIC PROFILE

APPLICANT: RUWASA HANDENI **AREA:** MSOMERA - MKABABU **DISTRICT:** HANDENI
REGION: TANGA **NORTINGS:** 9432573 **EASTINGS:** 0386873
ALTITUDE: 713M **DIRECTION:** N-S **PROFILE No.** 1
DATE: 09/02/2021

Distance(m)	nT	Coordinate	Remarks
0	33065.63	**9432582/ 0386868**	**VES 1**
10	33090.17		
20	33156.05		
30	33143.97		
40	33134.41		
50	33125.43		
60	33131.09		
70	33117.37		
80	33118.09		
90	33152.97		
100	33179.38		
110	33188.43		
120	33172.51		

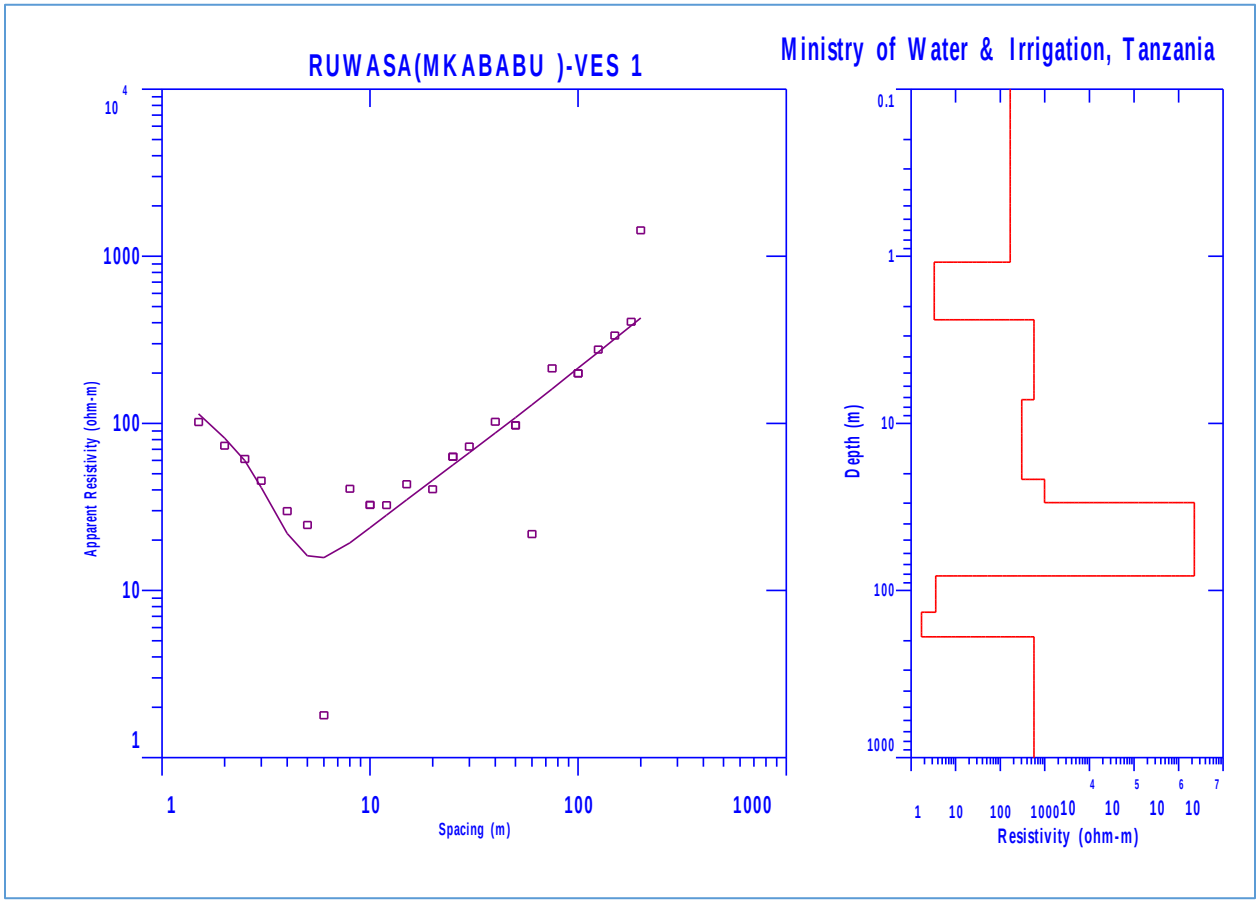


SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA-HANDENI **LOCATION:** MKABA - MSOMERA **DISTRICT:** HANDENI
REGION: TANGA **NORTHINGS:** 9432582 **EASTINGS**: 0386868
ALTITUDE: 719m **DIRECTION:** E-W **VES No:** 1
TAKEN AT: 0m along MP 1 **DATE:** 9/02/2021

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.50	0.50	6.28	16.23	101.92
2	2.00	0.50	11.78	6.24	73.56
3	2.50	0.50	18.84	3.25	61.19
4	3.00	0.50	27.48	1.65	45.36
5	4.00	0.50	49.46	0.60	29.83
6	5.00	0.50	77.77	0.32	24.66
7	6.00	0.50	112.26	0.02	1.79
8	8.00	0.50	200.18	0.20	40.59
9	10.00	0.50	313.22	0.10	32.51
10	10.00	2.50	58.88	0.53	31.16
11	12.00	2.50	86.51	0.37	32.41
12	15.00	2.50	137.38	0.31	43.21
13	20.00	2.50	247.28	0.16	40.35
14	25.00	2.50	288.58	0.53	151.86
15	25.00	2.50	188.40	0.33	63.11

16	30.00	2.50	274.75	0.26	72.61
17	40.00	2.50	494.55	0.21	102.28
18	50.00	2.50	777.15	0.13	97.36
19	50.00	10.00	376.80	0.28	106.28
20	60.00	10.00	549.50	0.04	21.76
21	75.00	10.00	867.43	0.25	213.36
22	100.00	10.00	1554.30	0.12	188.60
23	100.00	25.00	588.75	0.34	199.29
24	125.00	25.00	942.00	0.29	276.45
25	150.00	25.00	1373.75	0.24	335.43
26	180.00	25.00	1998.01	0.20	405.65
27	200	25	2475.90	0.58	1429.10



Results of resistivity in relation to thickness for VES 1. Mkababu-Msomera village

Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	167.44	1.08	1.08
2	33.33	1.32	2.40
3	573.43	4.82	7.22
4	303.55	14.40	21.61
5	984.03	8.18	29.80
6	100.00	52.11	81.91

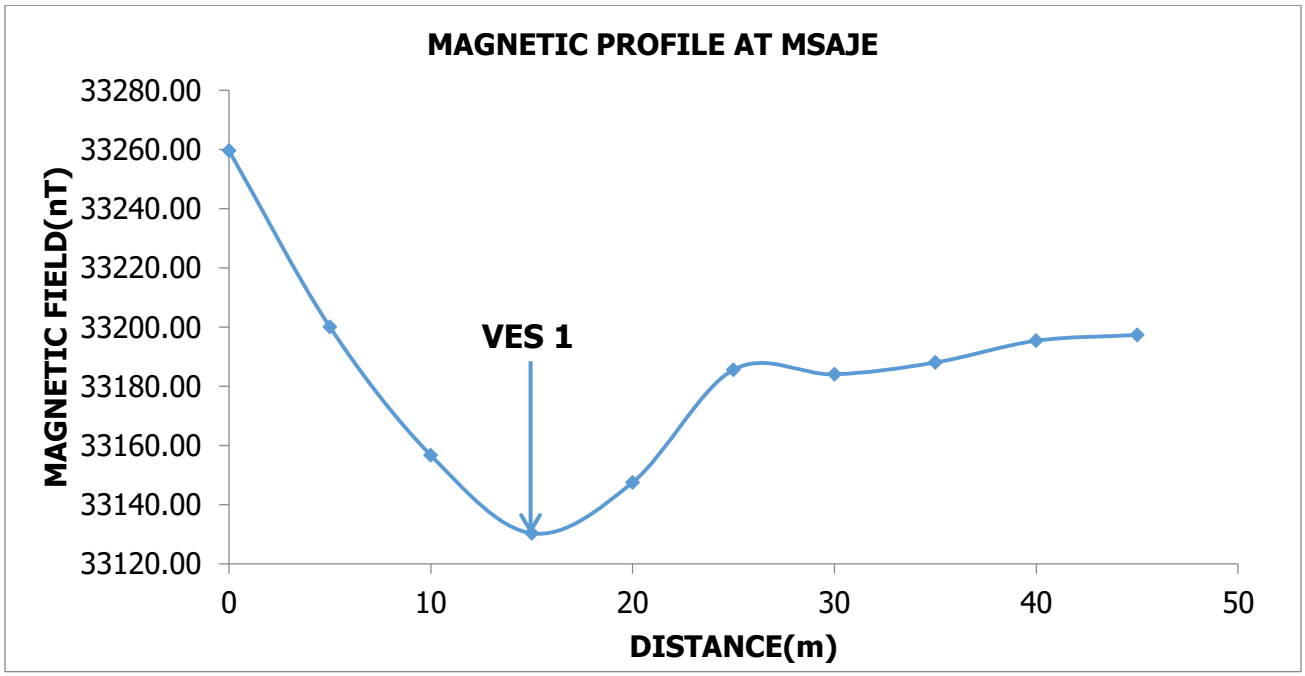
7	23.58	53.00	90.91
8	31.71	54.30	**144.21**
9	571.16	+++	+++

N.B: +++ Represent Undeterminable depth

MAGNETIC PROFILE

APPLICANT: RUWASA HANDENI **LOCATION**: MSAJE **DISTRICT:** HANDENI
REGION: TANGA **NORTINGS:** 9386444 **EASTINGS:** 0384495
ALTITUDE: 621M **DIRECTION:** N-S **PROFILE No.** 1
DATE: 10/02/2021

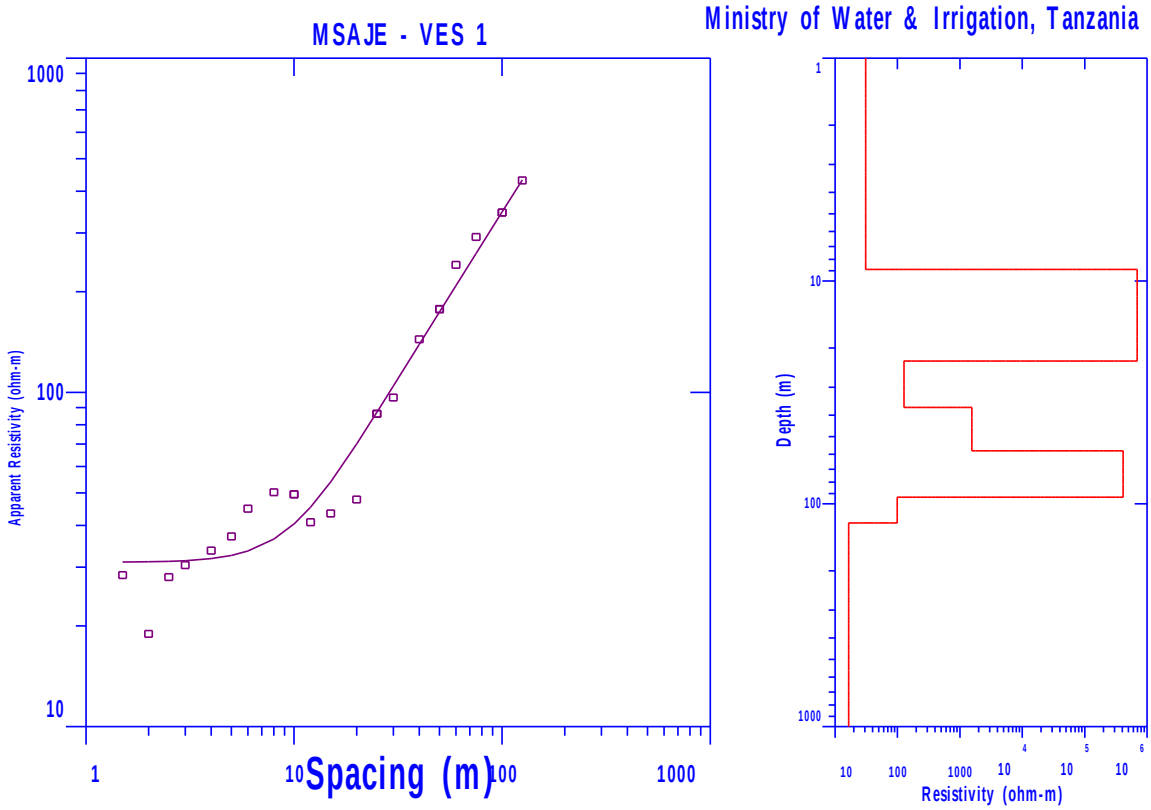
Distance(m)	nT	Coordinate	Remark
0	33259.61		
5	33200.06		
10	33156.73		
15	33130.37	**9386435/0384489**	**VES 1**
20	33147.56		
25	33185.63		
30	33184.06		
35	33188.06		
40	33195.4		
45	33197.36		



SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA-HANDENI **LOCATION:** MSAJE **DISTRICT:** HANDENI
REGION: TANGA **NORTHINGS:**9386435 **EASTINGS**: 0384489
ALTITUDE: 624m **DIRECTION:** E-W **VES No:** 1
TAKEN AT: 15 m along MP 1 **DATE:** 10/02/2021

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	4.52	28.39
2	2	0.5	11.78	1.61	18.94
3	2.5	0.5	18.84	1.49	28.01
4	3	0.5	27.48	1.11	30.42
5	4	0.5	49.46	0.68	33.61
6	5	0.5	77.77	0.48	37.07
7	6	0.5	112.26	0.40	44.88
8	8	0.5	200.18	0.25	50.24
9	10	0.5	313.22	0.16	50.94
10	10	2.5	58.88	0.84	49.53
11	12	2.5	86.51	0.47	40.88
12	15	2.5	137.38	0.32	43.42
13	20	2.5	247.28	0.19	47.80
14	25	2.5	288.58	0.25	71.49
15	25	2.5	188.40	0.46	86.23
16	30	2.5	274.75	0.35	96.49
17	40	2.5	494.55	0.29	144.18
18	50	2.5	777.15	0.20	157.74
19	50	10	376.80	0.47	177.43
20	60	10	549.50	0.44	240.78
21	75	10	867.43	0.34	291.73
22	100	10	1554.30	0.16	428.33
23	100	25	588.75	0.59	242.51
24	125	25	942.00	0.46	345.29
25	150	25	1374.40	0.313	430.79



Results of resistivity in relation to thickness for VES 1. Msaje village

Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	30.995	8.8784	8.8784
2	60.691	13.995	22.873
3	126.89	14.051	36.924
4	1553.3	20.973	57.897
5	110.41	35.624	93.521
6	99.063	48.320	**148.84**
7	16.566	+++	+++

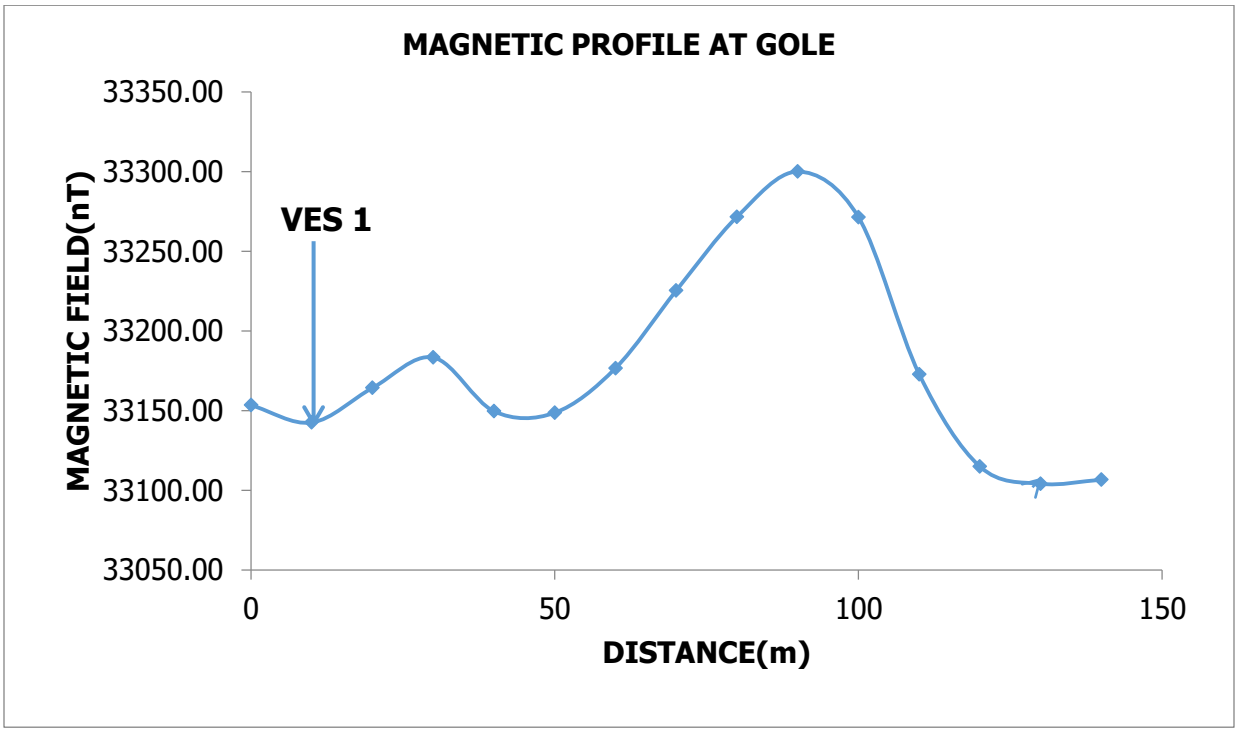
N.B: +++ Represent Undeterminable depth

MAGNETIC PROFILE

APPLICANT: RUWASA HANDENI **LOCATION**: GOLE **DISTRICT:** HANDENI
REGION: TANGA **NORTINGS:** 9352056 **EASTINGS:** 0390424
ALTITUDE: 621M **DIRECTION:** E-W **PROFILE No.** 1

DATE: 09/02/2021

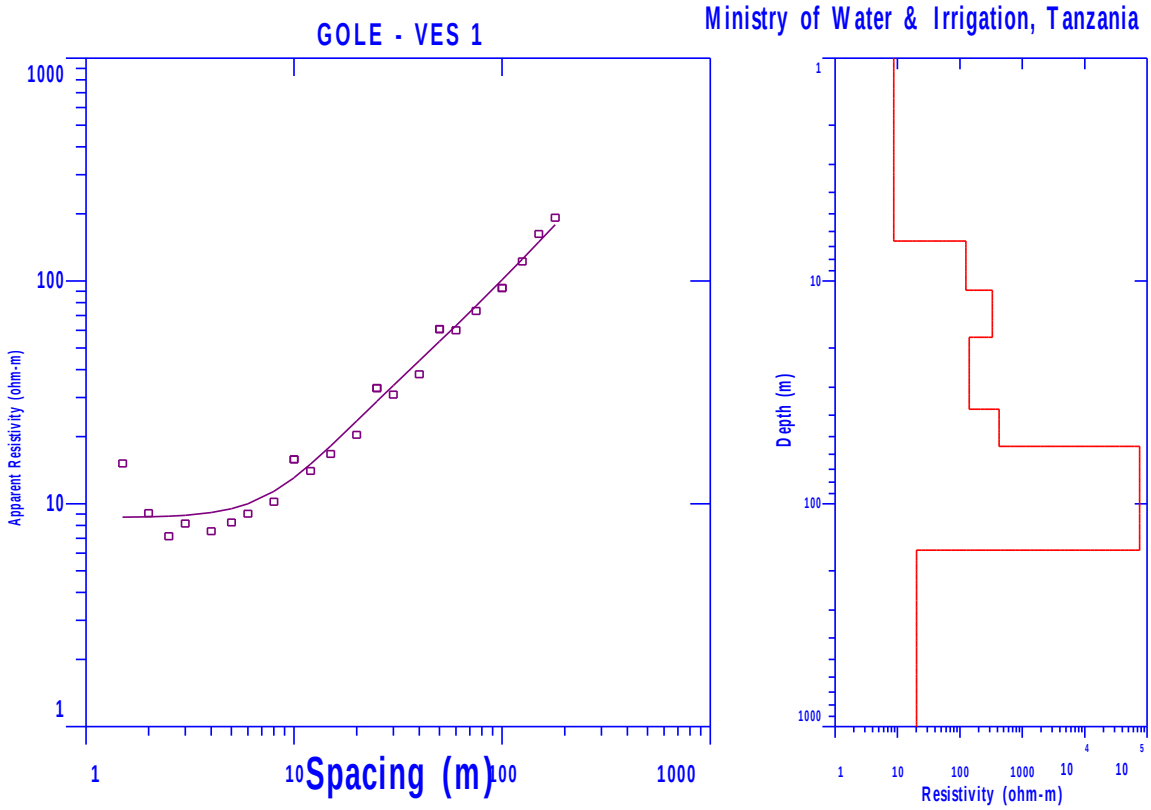
Distance(m)	nT	Coordinate	Remark
0	33153.38		
10	33142.53	**9352057/0390413**	**VES 1**
20	33164.27		
30	33183.34		
40	33149.56		
50	33148.67		
60	33176.64		
70	33225.35		
80	33271.65		
90	33300.02		
100	33271.43		
110	33172.81		
120	33114.86		
130	33104.04		
140	33106.6		



SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA-HANDENI **LOCATION:** GOLE **DISTRICT:** HANDENI
REGION: TANGA **NORTHINGS:** 9352057 **EASTINGS**: 0390413
ALTITUDE: 501m **DIRECTION:** N-S **VES No:** 1
TAKEN AT: 10m along MP 1 **DATE:** 10/02/2021

S/N	AB/2 (m)	MN/2(m)	K	R(Ώ)	K x R(ΏM)
1	1.50	0.50	6.28	2.42	15.17
2	2.00	0.50	11.78	0.77	9.08
3	2.50	0.50	18.84	0.38	7.15
4	3.00	0.50	27.48	0.30	8.15
5	4.00	0.50	49.46	0.15	7.53
6	5.00	0.50	77.77	0.11	8.24
7	6.00	0.50	112.26	0.08	9.02
8	8.00	0.50	200.18	0.05	10.21
9	10.00	0.50	313.22	0.04	12.91
10	10.00	2.50	58.88	0.27	15.83
11	12.00	2.50	86.51	0.16	14.03
12	15.00	2.50	137.38	0.12	16.73
13	20.00	2.50	247.28	0.08	20.39
14	25.00	2.50	288.58	0.09	26.82
15	25.00	2.50	188.40	0.18	33.06
16	30.00	2.50	274.75	0.11	30.88
17	40.00	2.50	494.55	0.08	38.14
18	50.00	2.50	777.15	0.06	48.78
19	50.00	10.00	376.80	0.16	60.78
20	60.00	10.00	549.50	0.11	60.07
21	75.00	10.00	867.43	0.08	73.34
22	100.00	10.00	1554.30	0.06	92.94
23	100.00	25.00	588.75	0.22	127.93
24	125.00	25.00	942.00	0.13	122.36
25	150.00	25.00	1373.75	0.12	162.57
26	180.00	25.00	1998.01	0.10	192.22



Results of resistivity in relation to thickness for VES 1. Komnyuzi village

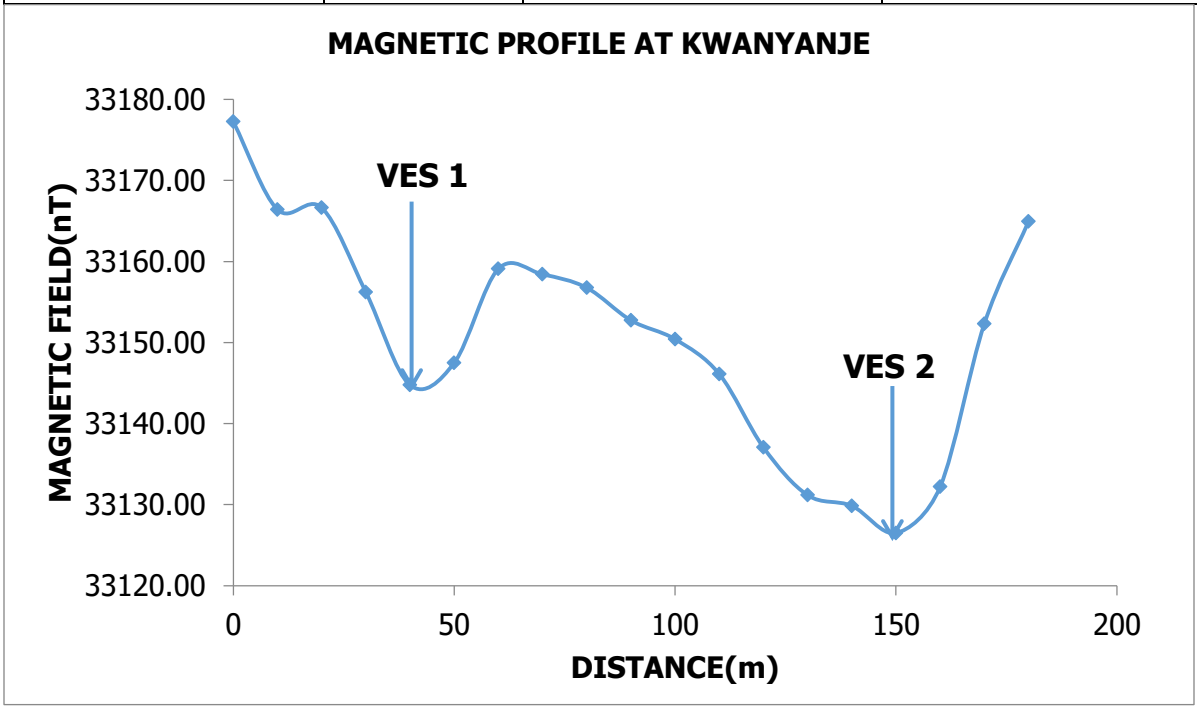
Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	8.7009	6.6196	6.6196
2	125.08	4.3905	11.010
3	331.46	6.8988	17.909
4	141.33	19.759	37.668
5	425.75	17.612	55.279
6	75910.	106.22	**161.50**
7	20.183	+++	+++

N.B: +++ Represent Undeterminable depth

MAGNETIC PROFILE

APPLICANT: RUWASA HANDENI **LOCATION**: KWA NYANJE **DISTRICT:** HANDENI
REGION: TANGA **NORTINGS:** 9343066 **EASTINGS:** 436109
ALTITUDE: 354M **DIRECTION:** N40W **PROFILE No.** 1
DATE: 10/02/2021

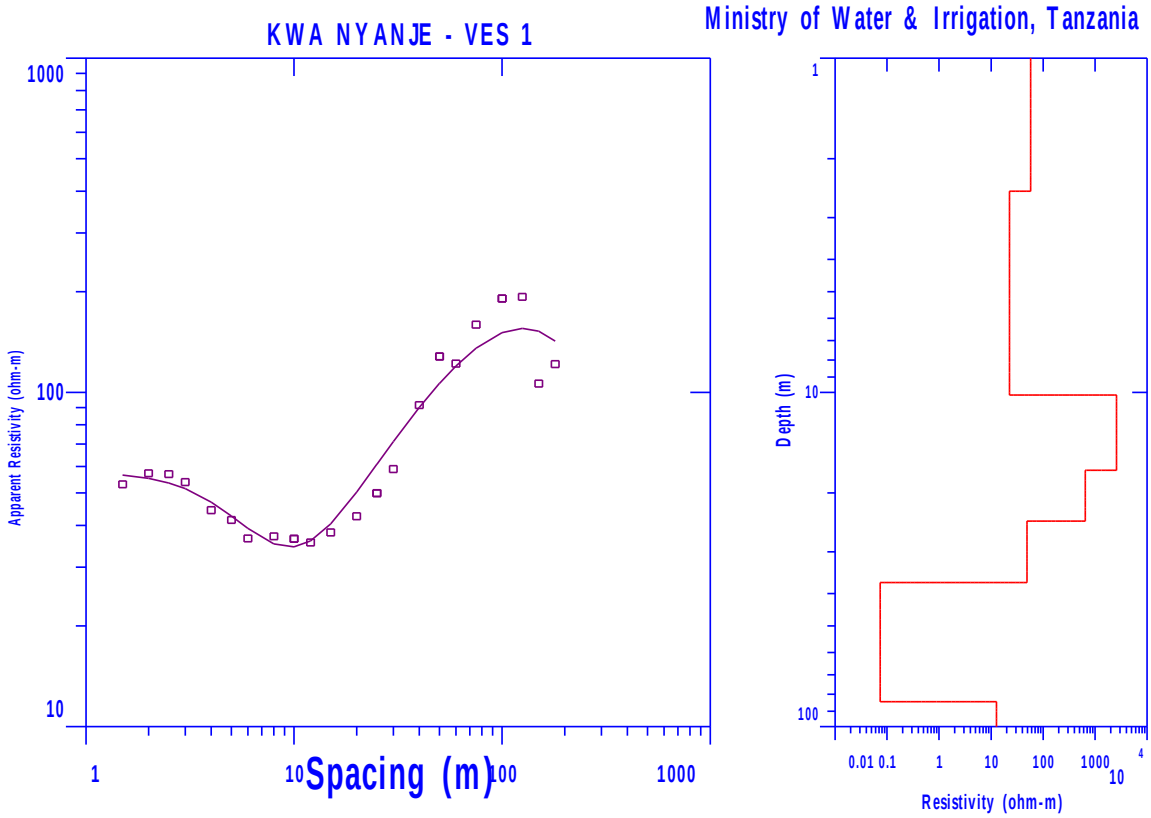
Distance(m)	nT	Coordinate	Remark
0	33177.26		
10	33166.42		
20	33166.64		
30	33156.23		
40	33144.76	**9343101/0436109**	**VES 1**
50	33147.49		
60	33159.09		
70	33158.41		
80	33156.76		
90	33152.74		
100	33150.41		
110	33146.12		
120	33137.06		
130	33131.17		
140	33129.85		
150	33126.5	**9343101/0436109**	**VES 2**
160	33132.2		
170	33152.32		
180	33164.94		



SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT:RUWASA-HANDENI **LOCATION:**KWA NYANJE **DISTRICT:** HANDENI
REGION: TANGA **NORTHINGS:**9343101 **EASTINGS**: 0436109
ALTITUDE: 353m **DIRECTION:** N20E **VES No:** 1
TAKEN AT: 40m along MP 1 **DATE:** 10/02/2021

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	30.28	53.08
2	2	0.5	11.78	16.40	57.27
3	2.5	0.5	18.84	5.64	56.95
4	3	0.5	27.48	1.96	53.89
5	4	0.5	49.46	0.90	44.42
6	5	0.5	77.77	0.53	41.50
7	6	0.5	112.26	0.33	36.54
8	8	0.5	200.18	0.19	37.09
9	10	0.5	313.22	0.12	36.47
10	10	2.5	58.88	0.59	34.87
11	12	2.5	86.51	0.41	35.55
12	15	2.5	137.38	0.28	38.10
13	20	2.5	247.28	0.17	42.58
14	25	2.5	288.58	0.17	49.94
15	25	2.5	188.40	0.25	47.20
16	30	2.5	274.75	0.21	58.96
17	40	2.5	494.55	0.19	91.60
18	50	2.5	777.15	0.20	156.10
19	50	10	376.80	0.34	128.34
20	60	10	549.50	0.22	121.94
21	75	10	867.43	0.18	159.42
22	100	10	1554.30	0.15	236.94
23	100	25	588.75	0.32	190.17
24	125	25	942.00	0.21	193.16
25	150	25	1373.75	0.08	106.27
26	180	25	1998.01	0.06	121.53



Results of resistivity in relation to thickness for VES 1. Kwa Nyanje village

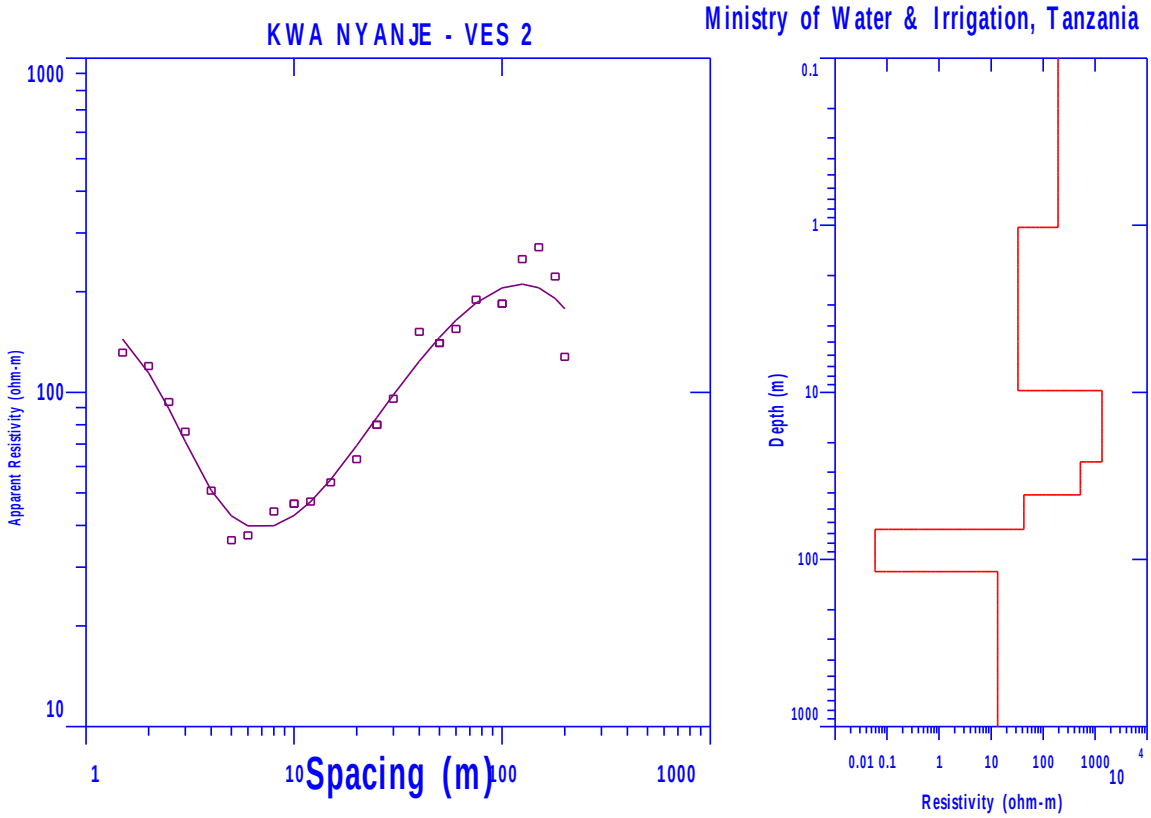
Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	57.535	2.5022	2.5022
2	22.656	17.683	19.186
3	2585.9	26.923	35.109
4	649.58	27.174	62.284
5	49.125	32.786	94.069
6	30.721	57.139	**151.22**
7	12.656	+++	+++

N.B: +++ Represent Undeterminable depth

SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA-HANDENI **LOCATION:** KWA NYANJE **DISTRICT:** HANDENI
REGION: TANGA **NORTHINGS:**9343101 **EASTINGS**: 0436109
ALTITUDE: 353m **DIRECTION:** N20E **VES No:** 2
TAKEN AT: 40m along MP 1 **DATE:** 10/02/2021

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	29.33	131.52
2	2	0.5	11.78	21.26	119.85
3	2.5	0.5	18.84	14.42	93.57
4	3	0.5	27.48	2.78	76.29
5	4	0.5	49.46	1.03	50.80
6	5	0.5	77.77	0.46	36.12
7	6	0.5	112.26	0.33	37.33
8	8	0.5	200.18	0.22	44.01
9	10	0.5	313.22	0.15	46.42
10	10	2.5	58.88	0.70	41.15
11	12	2.5	86.51	0.54	47.11
12	15	2.5	137.38	0.39	53.78
13	20	2.5	247.28	0.26	63.09
14	25	2.5	288.58	0.28	79.95
15	25	2.5	188.40	0.37	69.92
16	30	2.5	274.75	0.35	95.69
17	40	2.5	494.55	0.31	151.71
18	50	2.5	777.15	0.18	140.43
19	50	10	376.80	0.34	128.42
20	60	10	549.50	0.28	154.80
21	75	10	867.43	0.22	189.34
22	100	10	1554.30	0.11	168.02
23	100	25	588.75	0.31	184.18
24	125	25	942.00	0.27	250.42
25	150	25	1373.75	0.20	271.70
26	180	25	1998.01	0.01	22.05
27	200	25	2475.90	0.05	127.72



Results of resistivity in relation to thickness for VES 2. Kwa Nyanje village

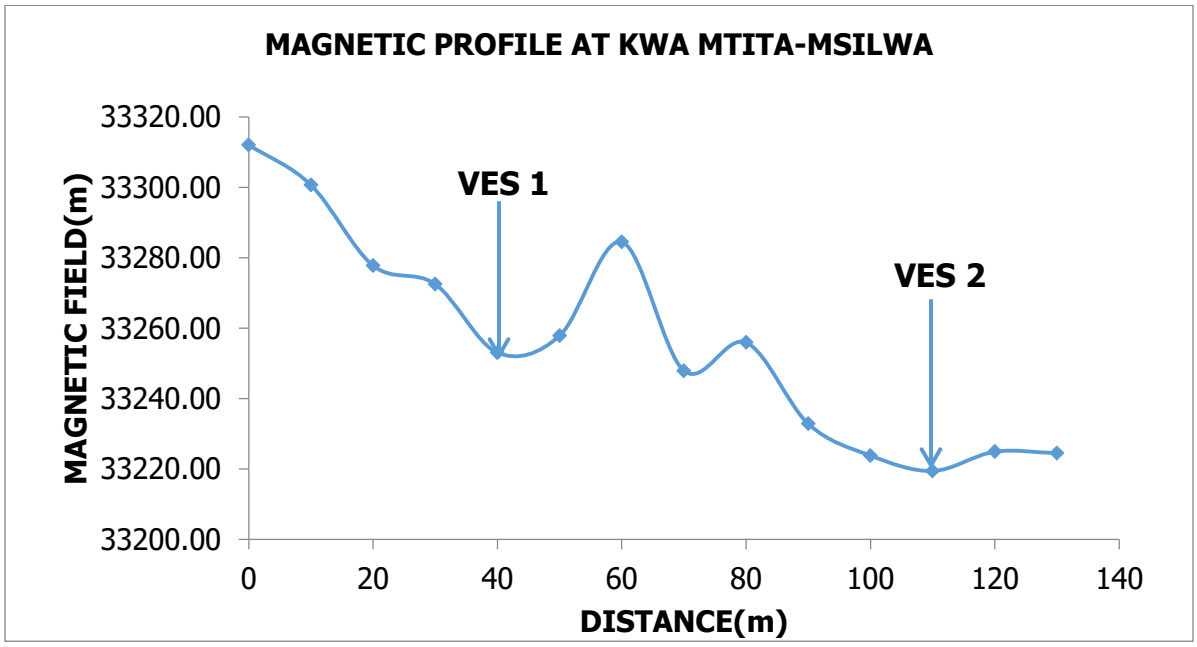
Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	180.17	1.1358	1.1358
2	27.331	6.1507	7.2865
3	1210.9	9.5970	16.883
4	135.52	27.914	44.797
5	49.195	24.979	69.777
6	29.177	75.642	**145.42**
7	12.348	+++	+++

N.B: +++ Represent Undeterminable depth

MAGNETIC PROFILE

APPLICANT: RUWASA HANDENI **LOCATION**: KWA MTITA - MSILWA **DISTRICT:** HANDENI
REGION: TANGA **NORTINGS:** 9383119 **EASTINGS:** 0449573
ALTITUDE: 299M **DIRECTION:** N20E **PROFILE No.** 1
DATE: 10/02/2021

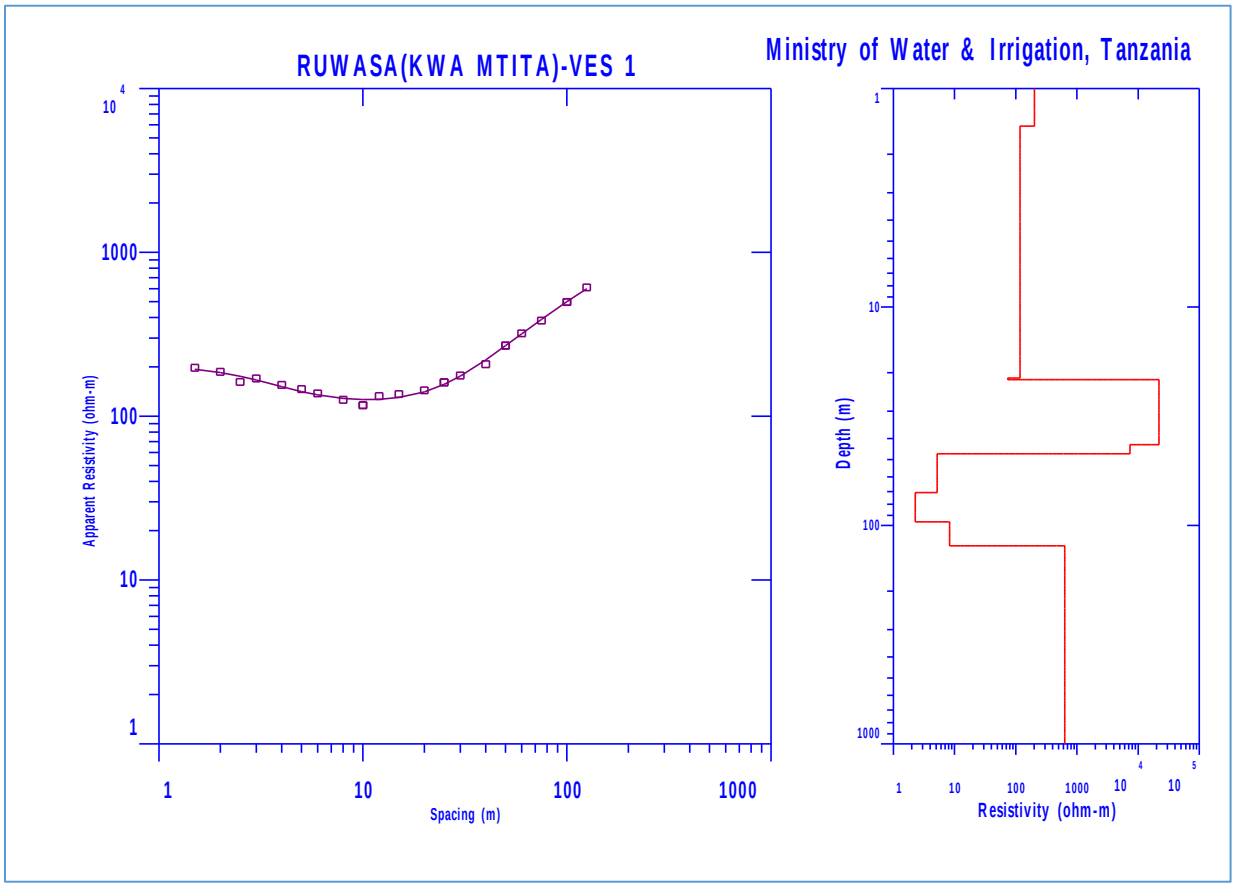
Distance(m)	nT	Coordinate	Remark
0	33312.07		
10	33300.66		
20	33277.79		
30	33272.50		
40	33253.05	**9383136/0449609**	**VES 1**
50	33257.86		
60	33284.48		
70	33247.91		
80	33255.93		
90	33232.84		
100	33223.83		
110	33219.46	**93831621/0449683**	**VES 2**
120	33224.93		
130	33224.51		



SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA-HANDENI **LOCATION:** KWAMTITA - MSILWA **DISTRICT:** HANDENI
REGION: TANGA **NORTHINGS:** 9383136 **EASTINGS**: 0449609
ALTITUDE: 308m **DIRECTION:** N20E **VES No:** 1
TAKEN AT: 40m along MP 1 **DATE:** 10/02/2021

S/N	AB/2 (m)	MN/2(m)	K	R(Ώ)	K x R(ΏM)
1	1.50	0.50	6.28	31.46	197.55
2	2.00	0.50	11.78	15.84	186.54
3	2.50	0.50	18.84	8.60	161.93
4	3.00	0.50	27.48	6.18	169.89
5	4.00	0.50	49.46	3.14	155.16
6	5.00	0.50	77.77	1.88	146.29
7	6.00	0.50	112.26	1.23	137.69
8	8.00	0.50	200.18	0.63	125.94
9	10.00	0.50	313.22	0.37	116.64
10	10.00	2.50	58.88	2.23	131.44
11	12.00	2.50	86.51	1.53	132.68
12	15.00	2.50	137.38	0.99	136.48
13	20.00	2.50	247.28	0.58	143.86
14	25.00	2.50	288.58	0.56	161.02
15	25.00	2.50	188.40	0.82	154.02
16	30.00	2.50	274.75	0.64	177.16
17	40.00	2.50	494.55	0.42	207.61
18	50.00	2.50	777.15	0.31	242.23
19	50.00	10.00	376.80	0.72	269.74
20	60.00	10.00	549.50	0.58	320.33
21	75.00	10.00	867.43	0.44	383.32
22	100.00	10.00	1554.30	0.34	529.39
23	100.00	25.00	588.75	0.85	497.94
24	125.00	25.00	942.00	0.65	610.69



Results of resistivity in relation to thickness for VES 1. Kwa Mtita-Msilwa village

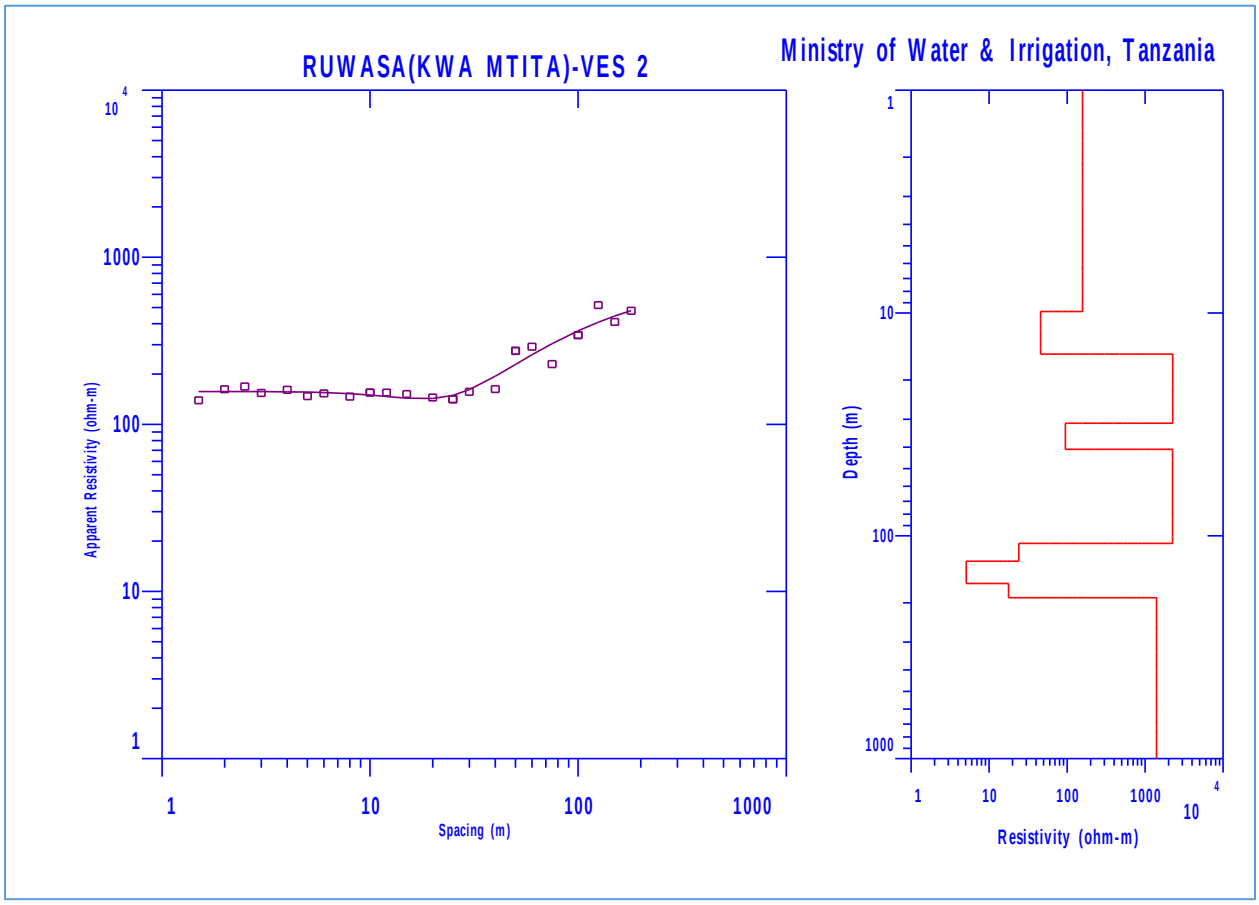
Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	202.69	1.49	1.49
2	117.24	19.67	21.16
3	74.09	0.36	21.52
4	55.00	21.21	42.73
5	55.20	4.28	47.01
6	5.18	23.72	70.74
7	112.29	25.66	96.39
8	28.28	37.74	**150.13**
9	630.17	+++	+++

N.B: +++ Represent Undeterminable depth

SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT:RUWASA-HANDENI **LOCATION:**KWAMTITA-MSILWA **DISTRICT:**HANDENI
REGION: TANGA **NORTHINGS:** 9383162 **EASTINGS**: 0449683
ALTITUDE: 307m **DIRECTION:** N20E **VES No:** 2
TAKEN AT: 110m along MP 1 **DATE:** 10/02/2021

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.50	0.50	6.28	22.19	139.36
2	2.00	0.50	11.78	13.76	162.14
3	2.50	0.50	18.84	8.94	168.36
4	3.00	0.50	27.48	5.61	154.18
5	4.00	0.50	49.46	3.25	160.98
6	5.00	0.50	77.77	1.90	147.38
7	6.00	0.50	112.26	1.37	153.34
8	8.00	0.50	200.18	0.73	146.62
9	10.00	0.50	313.22	0.46	144.60
10	10.00	2.50	58.88	2.63	155.08
11	12.00	2.50	86.51	1.79	155.10
12	15.00	2.50	137.38	1.10	151.80
13	20.00	2.50	247.28	0.59	144.82
14	25.00	2.50	288.58	0.40	116.54
15	25.00	2.50	188.40	0.75	141.34
16	30.00	2.50	274.75	0.57	156.68
17	40.00	2.50	494.55	0.33	162.52
18	50.00	2.50	777.15	0.35	275.40
19	50.00	10.00	376.80	0.75	281.46
20	60.00	10.00	549.50	0.53	291.58
21	75.00	10.00	867.43	0.26	229.58
22	100.00	10.00	1554.30	0.30	460.42
23	100.00	25.00	588.75	0.58	342.10
24	125.00	25.00	942.00	0.55	517.16
25	150.00	25.00	1350.00	0.30	410.16
26	180.00	25.00	2022.90	0.24	478.48



Results of resistivity in relation to thickness for VES 2. Kwa Mtita-Msilwa village

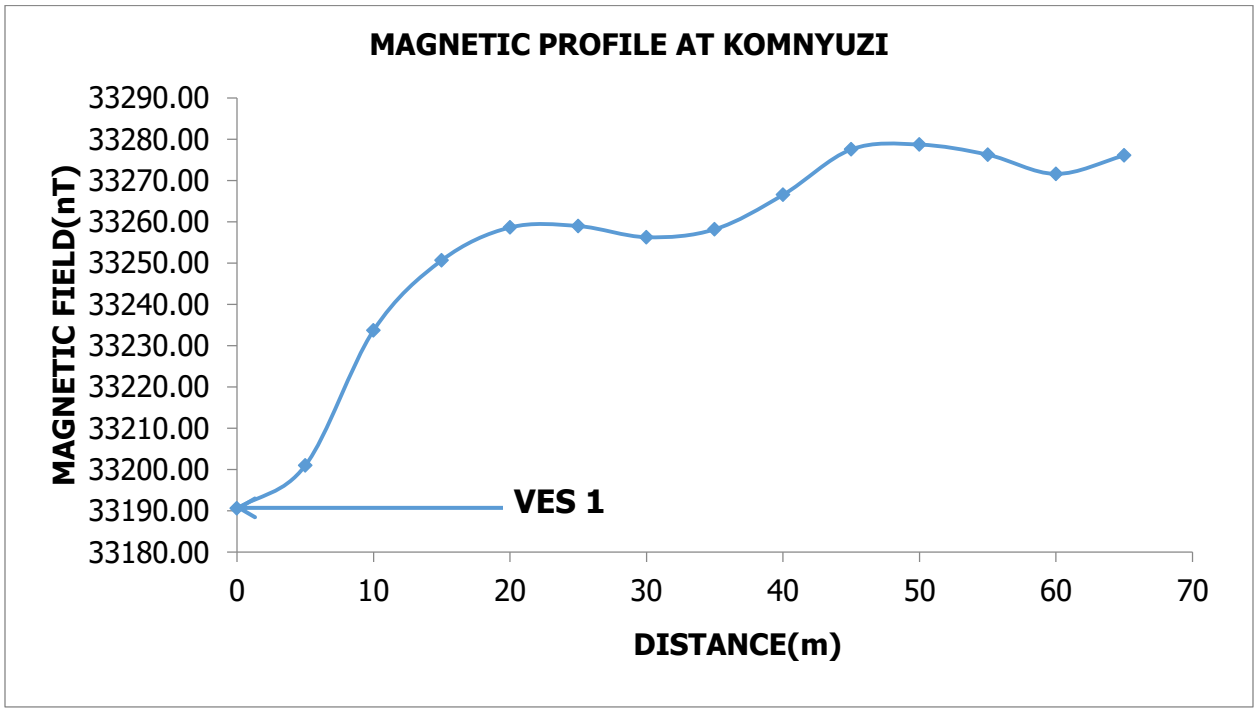
Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	157.37	9.85	9.85
2	45.67	5.44	15.30
3	2252.10	15.95	31.25
4	95.00	9.65	40.90
5	2248.50	67.29	108.18
6	24.07	21.99	130.17
7	5.10	33.50	150.67
8	17.80	21.13	**171.80**
9	1402.10	+++	+++

N.B: +++ Represent Undeterminable depth

MAGNETIC PROFILE

NAME OF APPLICANT: RUWASA HANDENI **LOCATION**:KOMNYUZI -KIBAYA **DISTRICT:** HANDENI
REGION: TANGA **NORTINGS:** 9411559 **EASTINGS:** 0403908
ALTITUDE: 541M **DIRECTION:** N-S **PROFILE No.** 1
DATE: 10/02/2021

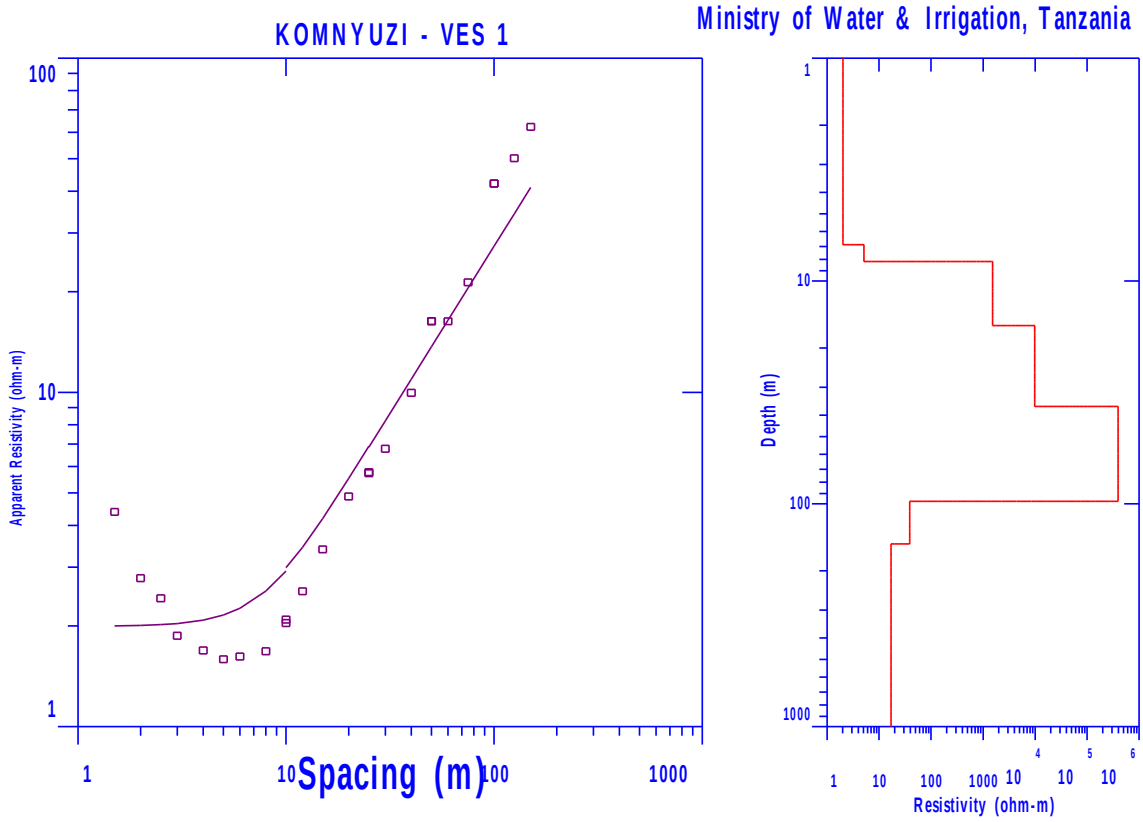
Distance(m)	nT	Coordinate	Remark
0	33190.58	**9411557/0403908**	**VES 1**
5	33200.97		
10	33233.70		
15	33250.69		
20	33258.64		
25	33258.99		
30	33256.28		
35	33258.19		
40	33266.52		
45	33277.54		
50	33278.714		
55	33276.27		
60	33271.61		
65	33276.07		



SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA **LOCATION:** KOMNYUZI **DISTRICT:** HANDENI
REGION: TANGA **NORTHINGS:** 9411557 **EASTINGS**: 0403908
ALTITUDE: 538m **DIRECTION:** E-W **VES No:** 1
TAKEN AT: 0m along MP 1 **DATE:** 10/02/2021

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.50	0.50	6.28	0.70	4.39
2	2.00	0.50	11.78	0.24	2.78
3	2.50	0.50	18.84	0.13	2.42
4	3.00	0.50	27.48	0.07	1.87
5	4.00	0.50	49.46	0.03	1.69
6	5.00	0.50	77.77	0.02	1.59
7	6.00	0.50	112.26	0.01	1.62
8	8.00	0.50	200.18	0.01	1.68
9	10.00	0.50	313.22	0.01	2.04
10	10.00	2.50	58.88	0.03	1.89
11	12.00	2.50	86.51	0.03	2.54
12	15.00	2.50	137.38	0.02	3.39
13	20.00	2.50	247.28	0.02	4.88
14	25.00	2.50	288.58	0.02	5.77
15	25.00	2.50	188.40	0.03	5.63
16	30.00	2.50	274.75	0.02	6.78
17	40.00	2.50	494.55	0.02	9.97
18	50.00	2.50	777.15	0.02	13.33
19	50.00	10.00	376.80	0.04	16.13
20	60.00	10.00	549.50	0.03	16.32
21	75.00	10.00	867.43	0.02	21.34
22	100.00	10.00	1554.30	0.02	29.56
23	100.00	25.00	588.75	0.07	42.15
24	125.00	25.00	942.00	0.05	50.18
25	150.00	25.00	1373.75	0.05	62.31



Results of resistivity in relation to thickness for VES 1. Komnyuzi village

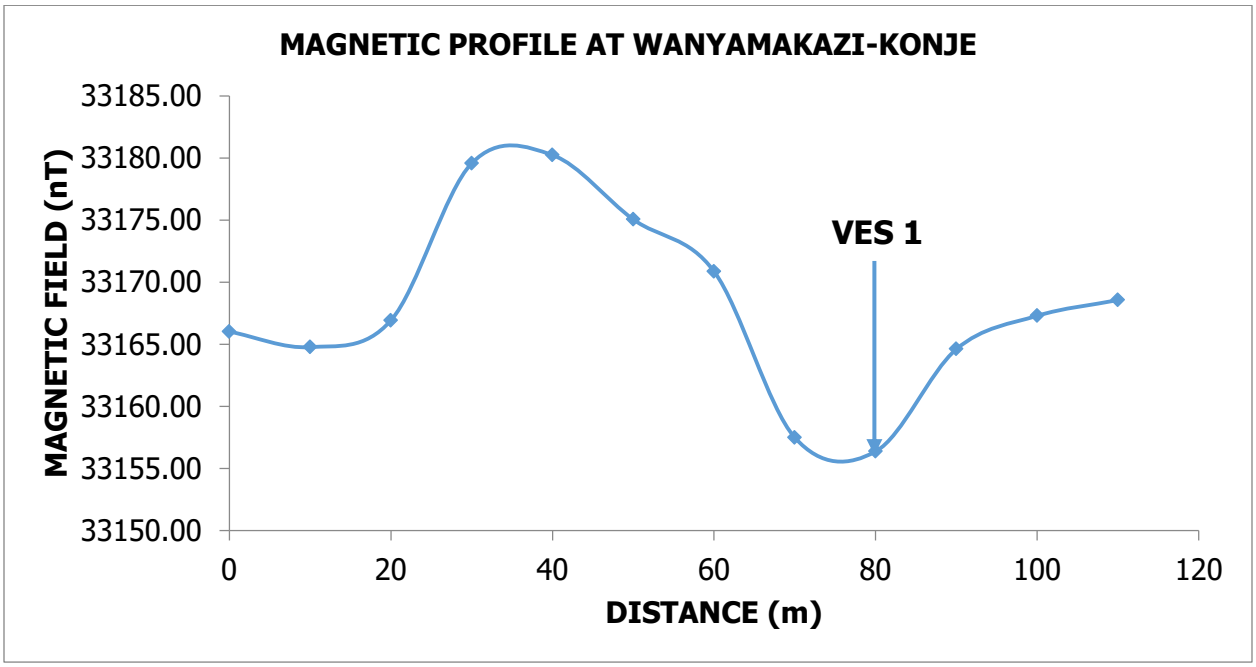
Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	2.0298	6.8687	6.8687
2	5.1185	1.3052	8.1739
3	1523.8	7.6850	15.859
4	9852.9	20.719	36.578
5	60.393	60.984	97.562
6	38.891	53.952	**151.51**
7	16.957	+++	+++

N.B: +++ Represent Undeterminable depth

MAGNETIC PROFILE

APPLICANT: RUWASA HANDENI **LOCATION**: WANYAMAKAZI-KONJE **DISTRICT:** HANDENI
REGION: TANGA **NORTINGS:** 9402771 **EASTINGS:** 0404262
ALTITUDE: 643M **DIRECTION:** E-W **PROFILE No.** 1
DATE: 10/02/2021

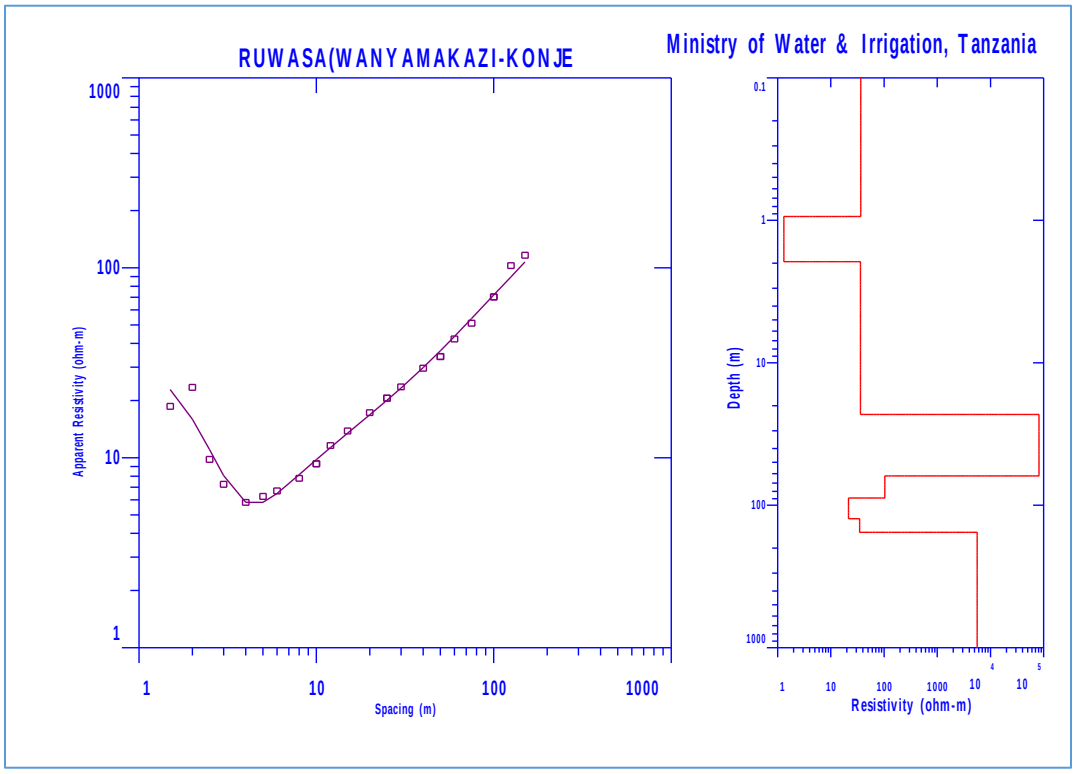
Distance(m)	nT	Coordinate	Remark
0	33166.02		
10	33164.77		
20	33166.92		
30	33179.57		
40	33180.23		
50	33175.05		
60	33170.86		
70	33157.48		
80	33156.37	**9402841/0404248**	**VES 1**
90	33164.61		
100	33167.29		
110	33168.56		



SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA **LOCATION:** WANYAMAKAZI-KONJE **DISTRICT:** HANDENI
REGION: TANGA **NORTHINGS:** 9402841 **EASTINGS**: 0404248
ALTITUDE: 641m **DIRECTION:** E-W **VES No:** 1
TAKEN AT: 80m along MP 1 **DATE:** 10/02/2021

S/N	AB/2 (m)	MN/2(m)	K	R(Ώ)	K x R(ΏM)
1	1.50	0.50	6.28	2.97	18.65
2	2.00	0.50	11.78	1.99	23.48
3	2.50	0.50	18.84	0.52	9.80
4	3.00	0.50	27.48	0.26	7.25
5	4.00	0.50	49.46	0.12	5.82
6	5.00	0.50	77.77	0.08	6.26
7	6.00	0.50	112.26	0.06	6.69
8	8.00	0.50	200.18	0.04	7.79
9	10.00	0.50	313.22	0.03	9.30
10	10.00	2.50	58.88	0.22	13.16
11	12.00	2.50	86.51	0.13	11.59
12	15.00	2.50	137.38	0.10	13.83
13	20.00	2.50	247.28	0.07	17.28
14	25.00	2.50	288.58	0.07	20.97
15	25.00	2.50	188.40	0.11	20.59
16	30.00	2.50	274.75	0.09	23.61
17	40.00	2.50	494.55	0.06	29.61
18	50.00	2.50	777.15	0.04	34.11
19	50.00	10.00	376.80	0.10	35.97
20	60.00	10.00	549.50	0.08	42.20
21	75.00	10.00	867.43	0.06	51.11
22	100.00	10.00	1554.30	0.05	70.27
23	100.00	25.00	588.75	0.13	77.29
24	125.00	25.00	942.00	0.11	102.68
25	150.00	25.00	1373.75	0.08	116.47



Results of resistivity in relation to thickness for VES 1. Wanyamakazi-Konje village

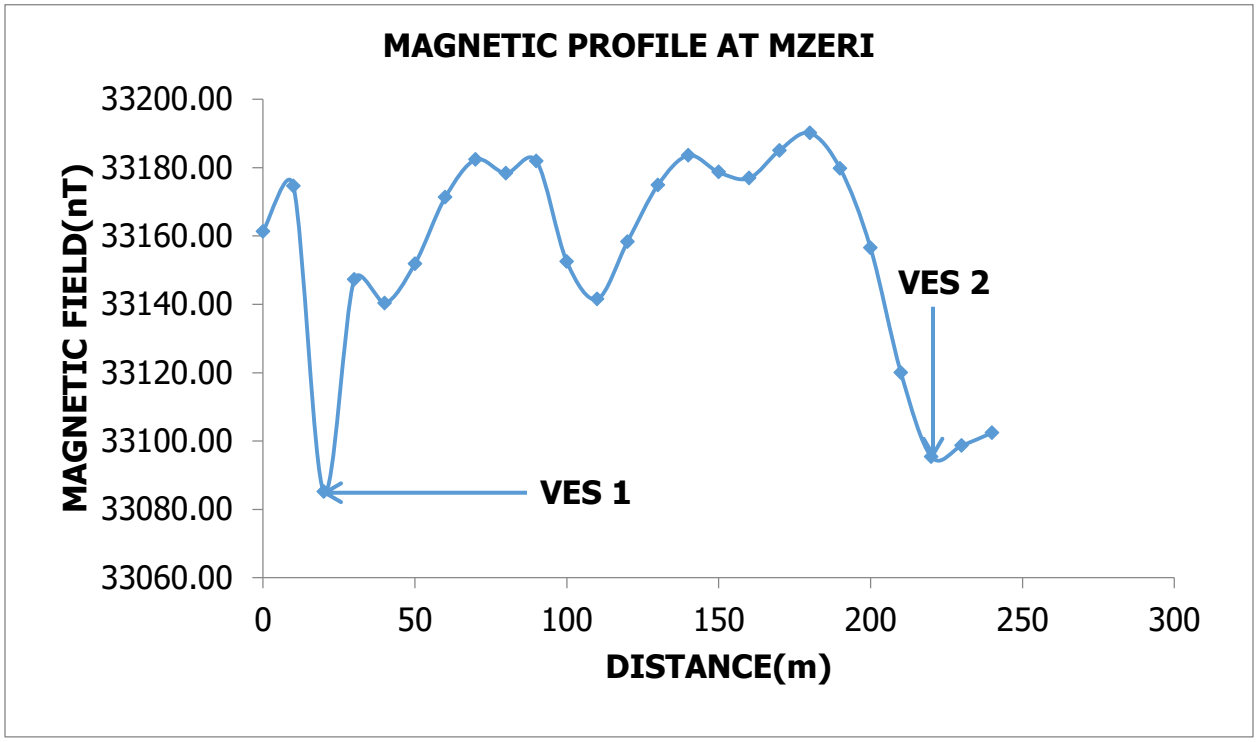
Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	36.45	0.94	0.94
2	1.31	1.01	1.95
3	36.06	21.08	23.03
4	39.00	39.26	62.29
5	103.53	26.79	89.08
6	21.43	35.16	124.24
7	34.69	30.87	**155.10**
8	5631.80	+++	+++

N.B: +++ Represent Undeterminable depth

MAGNETIC PROFILE

APPLICANT: RUWASA HANDENI **LOCATION**: MZERI **DISTRICT:** HANDENI
REGION: TANGA **NORTINGS:** 9424052 **EASTINGS:** 0404565
ALTITUDE: 562M **DIRECTION:** N-S **PROFILE No.** 1
DATE: 09/02/2021

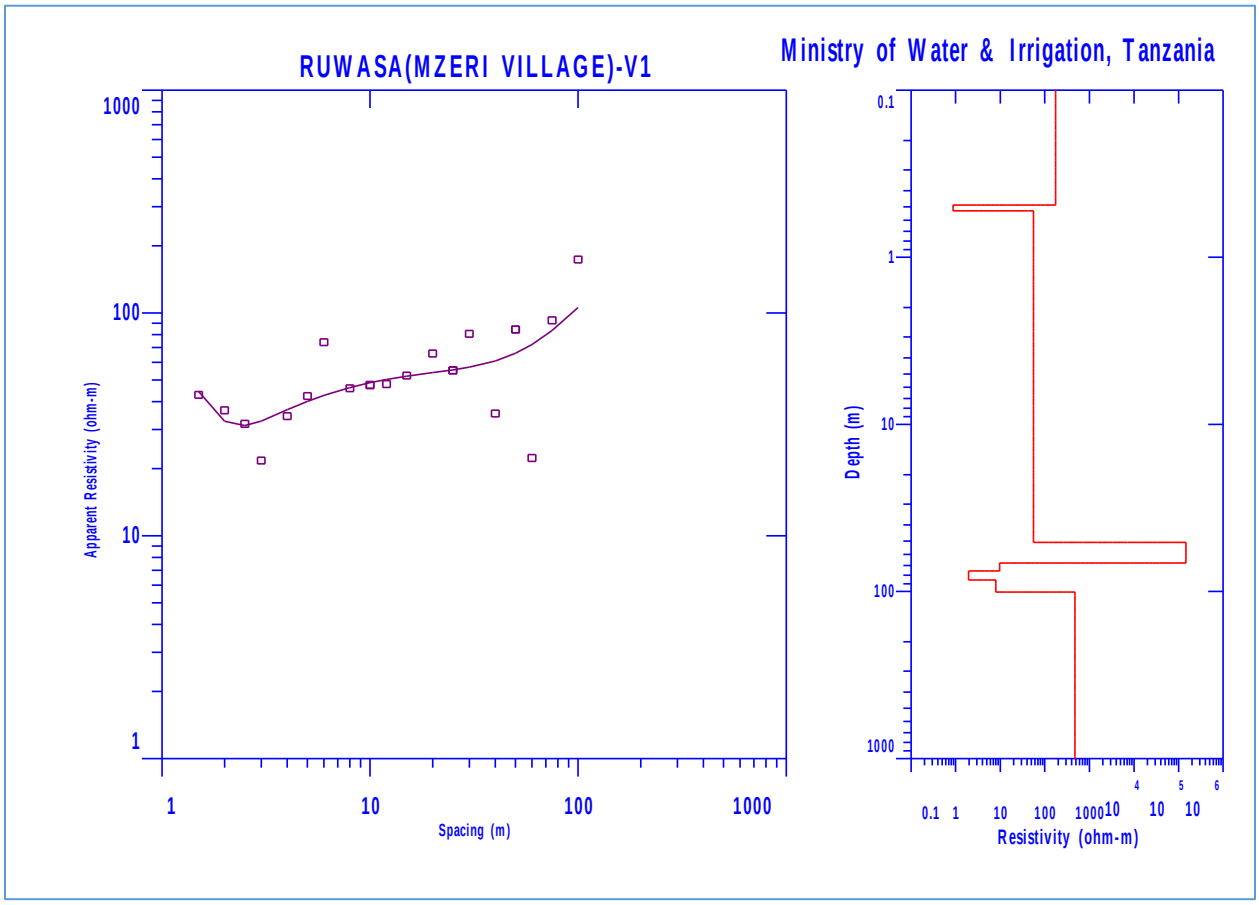
Distance(m)	nT	Coordinate	Remark
0	33161.35		
10	33174.61		
20	33085.20	**9427025/0404558**	**VES 1**
30	33147.22		
40	33140.29		
50	33151.85		
60	33171.32		
70	33182.34		
80	33178.36		
90	33181.92		
100	33152.48		
110	33141.54		
120	33158.35		
130	33174.9		
140	33183.57		
150	33178.69		
160	33176.91		
170	33185.04		
180	33190.13		
190	33179.73		
200	33156.5		
210	33119.97		
220	33095.41	**9423848/0404488**	**VES 2**
230	33098.62		
240	33102.4		


MAGNETIC PROFILE AT MZERI
MAGNETIC FIELD(nT)
33200.00
33180.00
33160.00
33140.00
33120.00
33100.00
33080.00
33060.00
0
50
100
150
200
250
300
DISTANCE(m)
VES 1
VES 2

SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA **LOCATION:** MZERI **DISTRICT:** HANDENI
REGION: TANGA **NORTHINGS:** 9427025 **EASTINGS**: 0404558
ALTITUDE: 559m **DIRECTION:** N-S **VES No:** 1
TAKEN AT: 20m along MP 1 **DATE:** 7/02/2021

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.50	0.50	6.28	6.83	42.89
2	2.00	0.50	11.78	3.10	36.57
3	2.50	0.50	18.84	1.69	31.80
4	3.00	0.50	27.48	0.79	21.75
5	4.00	0.50	49.46	0.70	34.43
6	5.00	0.50	77.77	0.55	42.40
7	6.00	0.50	112.26	0.66	73.93
8	8.00	0.50	200.18	0.23	45.92
9	10.00	0.50	313.22	0.15	47.49
10	10.00	2.50	58.88	0.75	44.13
11	12.00	2.50	86.51	0.55	47.97
12	15.00	2.50	137.38	0.38	52.35
13	20.00	2.50	247.28	0.27	65.74
14	25.00	2.50	288.58	1.10	316.88
15	25.00	2.50	188.40	0.29	55.25
16	30.00	2.50	274.75	0.29	80.60
17	40.00	2.50	494.55	0.07	35.38
18	50.00	2.50	777.15	0.45	347.02
19	50.00	10.00	376.80	0.22	84.26
20	60.00	10.00	549.50	0.00	2.34
21	75.00	10.00	867.43	0.11	92.69
22	100.00	10.00	1554.30	0.06	173.65
23	100.00	25.00	588.75	0.29	548.98



Results of resistivity in relation to thickness for VES 1. Mzeri village

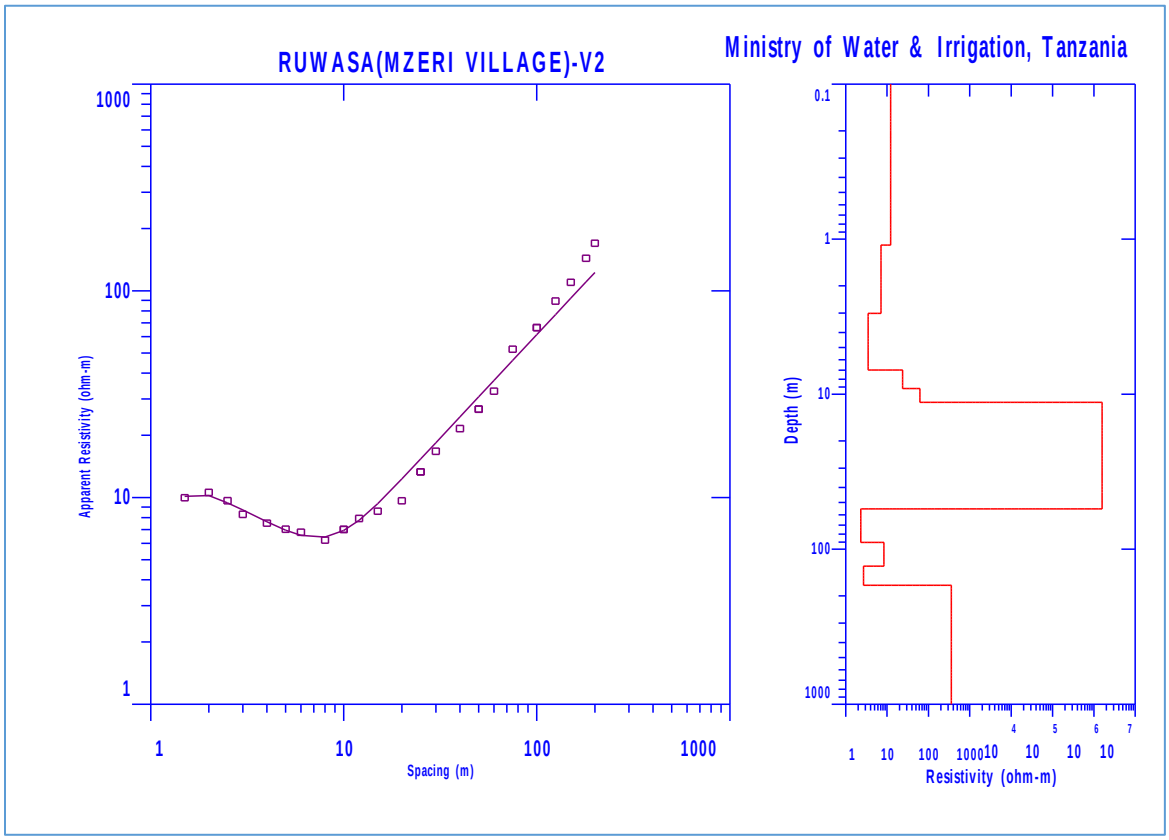
Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	174.56	0.49	0.49
2	0.88	0.04	0.53
3	55.60	50.30	50.83
4	530.00	16.70	67.52
5	39.71	7.85	75.37
6	41.96	9.99	85.37
7	18.01	45.49	**145.86**
8	473.78	+++	+++

N.B: +++ Represent Undeterminable depth

SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA **LOCATION:** MZERI **DISTRICT:** HANDENI
REGION: TANGA **NORTHINGS:** 9423848 **EASTINGS**: 0404488
ALTITUDE: 562m **DIRECTION:** N20W **VES No:** 2
TAKEN AT: 230m along MP 1 **DATE:** 9/02/2021

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R
1	1.50	0.50	6.28	1.59	9.
2	2.00	0.50	11.78	0.90	10.
3	2.50	0.50	18.84	0.51	9.
4	3.00	0.50	27.48	0.30	8.
5	4.00	0.50	49.46	0.15	7.
6	5.00	0.50	77.77	0.09	7.
7	6.00	0.50	112.26	0.06	6.
8	8.00	0.50	200.18	0.03	6.
9	10.00	0.50	313.22	0.02	6.
10	10.00	2.50	58.88	0.12	7.
11	12.00	2.50	86.51	0.09	7.
12	15.00	2.50	137.38	0.06	8.
13	20.00	2.50	247.28	0.04	9.
14	25.00	2.50	288.58	0.04	12.
15	25.00	2.50	188.40	0.07	13.
16	30.00	2.50	274.75	0.06	16.
17	40.00	2.50	494.55	0.04	21.
18	50.00	2.50	777.15	0.04	27.
19	50.00	10.00	376.80	0.07	26.
20	60.00	10.00	549.50	0.06	32.
21	75.00	10.00	867.43	0.06	52.
22	100.00	10.00	1554.30	0.06	90.
23	100.00	25.00	588.75	0.11	66.
24	125.00	25.00	942.00	0.09	89.
25	150.00	25.00	1373.75	0.08	109
26	180.00	25.00	1998.01	0.07	143
27	200	25	2475.90	0.07	169



Results of resistivity in relation to thickness for VES 2. Mzeri village

Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	12.24	1.09	1.09
2	7.13	1.92	3.01
3	3.48	3.97	6.99
4	23.75	2.20	9.19
5	62.52	2.11	11.30
6	73.00	43.66	54.96
7	32.31	35.53	90.49
8	58.39	38.09	128.58
9	12.71	42.28	**170.86**
10	358.36	+++	+++

N.B: +++ Represent Undeterminable depth

MAGNETIC PROFILE

APPLICANT: RUWASA HANDENI

AREA: MSOMERA **DISTRICT:** HANDENI **REGION:** TANGA

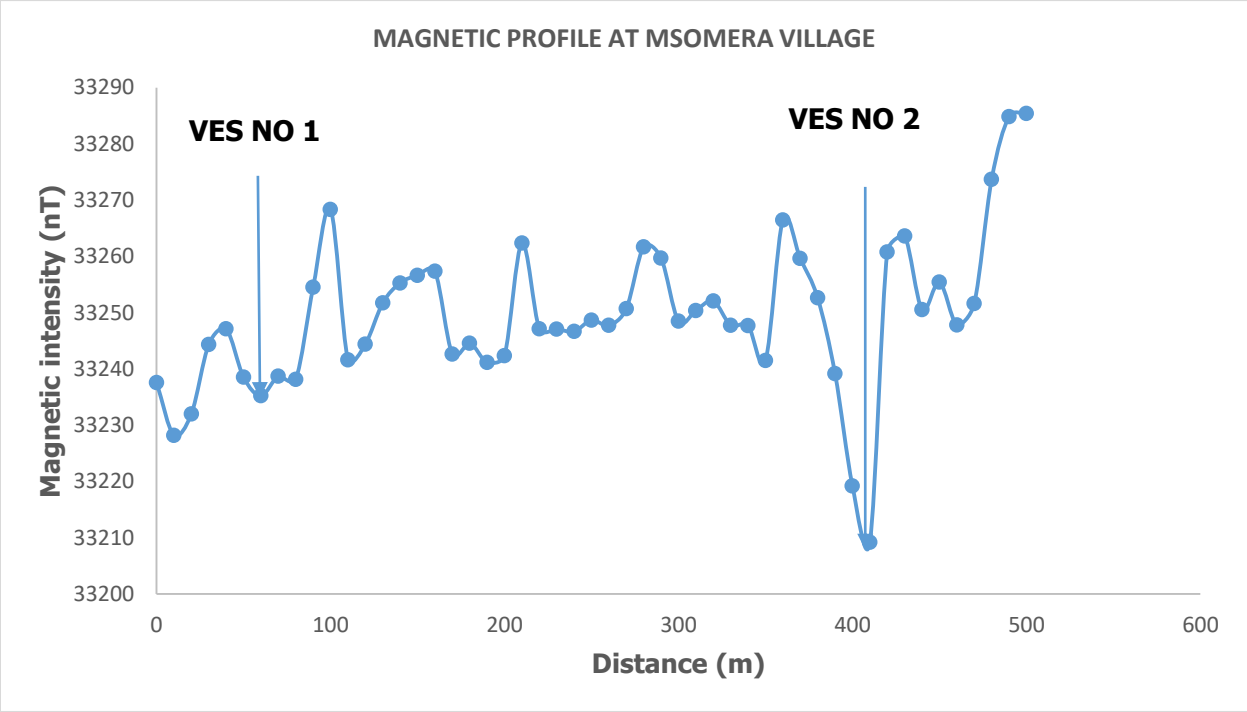
NORTINGS: 9427229 **EASTINGS:** 0385328 **ALTITUDE:** 717M

DIRECTION: NW-SE **PROFILE No.** 1 **DATE:** 12/02130/2021

Distance(m)	nT	Coordinate	Remarks
0	33237.56		
10	33228.16		
20	33231.98		
30	33244.34		
40	33247.09		
50	33238.51		
60	33235.24	**9427176/385378**	**VES 1**
70	33238.68		
80	33238.13		
90	33254.52		
100	33268.35		
110	33241.62		
120	33244.36		
130	33251.71		
140	33255.26		
150	33256.63		
160	33257.37		
170	33242.60		
180	33244.56		
190	33241.12		
200	33242.36		
210	33262.36		
220	33247.10		
230	33247.06		
240	33246.64		
250	33248.66		
260	33247.71		
270	33250.69		
280	33261.69		
290	33259.67		
300	33248.46		
310	33250.36		
320	33252.05		
330	33247.75		
340	33247.67		
350	33241.47		

360	33266.44		
370	33259.61		
380	33252.60		
390	33239.12		
400	33219.19		
410	33209.19	**9426945/385642**	**VES 2**
420	33260.77		
430	33263.63		
440	33250.54		
450	33255.41		
460	33247.79		
470	33251.61		
480	33273.68		
490	33284.85		
500	33285.37		

Interpretation result



MAGNETIC PROFILE

APPLICANT: RUWASA HANDENI

AREA: MBAGWI **DISTRICT:** HANDENI **REGION:** TANGA

NORTINGS: 9413281 **EASTINGS:** 0396090 **ALTITUDE:** 669M

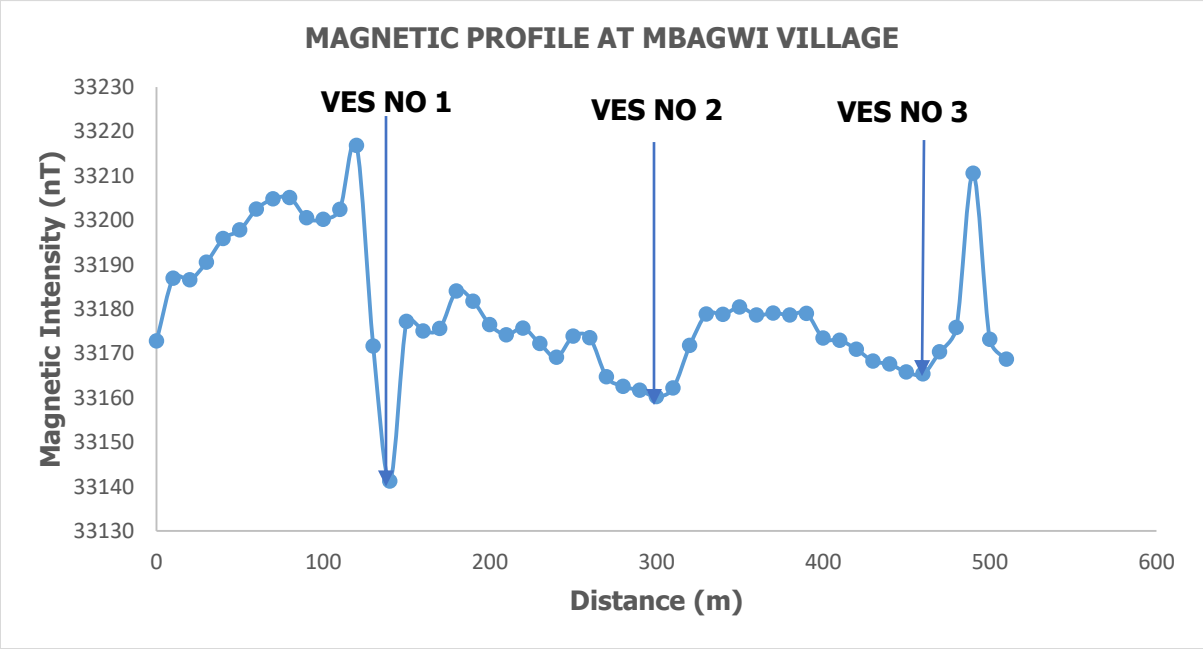
DIRECTION: N-S

PROFILE No. 1 **DATE:** 11/03/2021

Distance(m)	nT	Coordinate	Remarks
0	33172.80		
10	33186.96		
20	33186.60		
30	33190.51		
40	33195.84		
50	33197.79		
60	33202.53		
70	33204.79		
80	33205.09		
90	33200.54		
100	33200.17		
110	33202.46		
120	33216.85		
130	33171.66		
140	33141.21	**9413440/396040**	**VES 1**
150	33177.21		
160	33175.06		
170	33175.60		
180	33184.07		
190	33181.77		
200	33176.46		
210	33174.20		
220	33175.70		
230	33172.20		
240	33169.12		
250	33173.85		
260	33173.51		
270	33164.74		
280	33162.56		
290	33161.66		
300	33160.27	**9413581/396004**	**VES 2**
310	33162.18		
320	33171.76		
330	33178.87		
340	33178.75		
350	33180.42		
360	33178.61		

370	33179.09		
380	33178.67		
390	33179.02		
400	33173.42		
410	33172.98		
420	33170.92		
430	33168.26		
440	33167.58		
450	33165.77		
460	33165.37	**9413773/395911**	**VES 3**
470	33170.37		
480	33175.85		
490	33210.56		
500	33173.19		
510	33168.69		

Interpretation result



MAGNETIC PROFILE

APPLICANT: RUWASA HANDENI

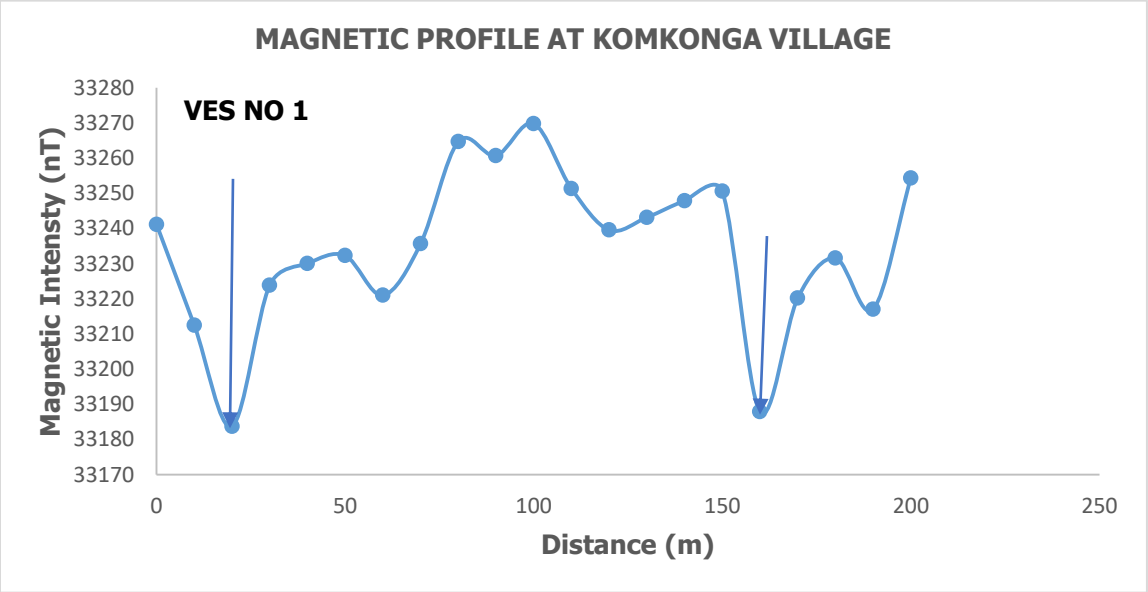
AREA: KOMKONGA **DISTRICT:** HANDENI **REGION:** TANGA

NORTINGS: 9380344 **EASTINGS:** 0434609 **ALTITUDE:** 375M

DIRECTION: E-W **PROFILE No.** 1 **DATE:** 10/03/2021

Distance(m)	nT	Coordinate	Remark
0	33241.15		
10	33212.49		
20	33183.73	**9380359/434623**	**VES 1**
30	33223.86		
40	33230.04		
50	33232.29		
60	33220.99		
70	33235.64		
80	33264.69		
90	33260.72		
100	33269.81		
110	33251.34		
120	33239.57		
130	33243.16		
140	33247.84		
150	33250.61		
160	33187.91	**9380451/434715**	**VES 2**
170	33220.16		
180	33231.61		
190	33217.02		
200	33254.31		

Interpretation result



MAGNETIC PROFILE

APPLICANT: RUWASA HANDENI

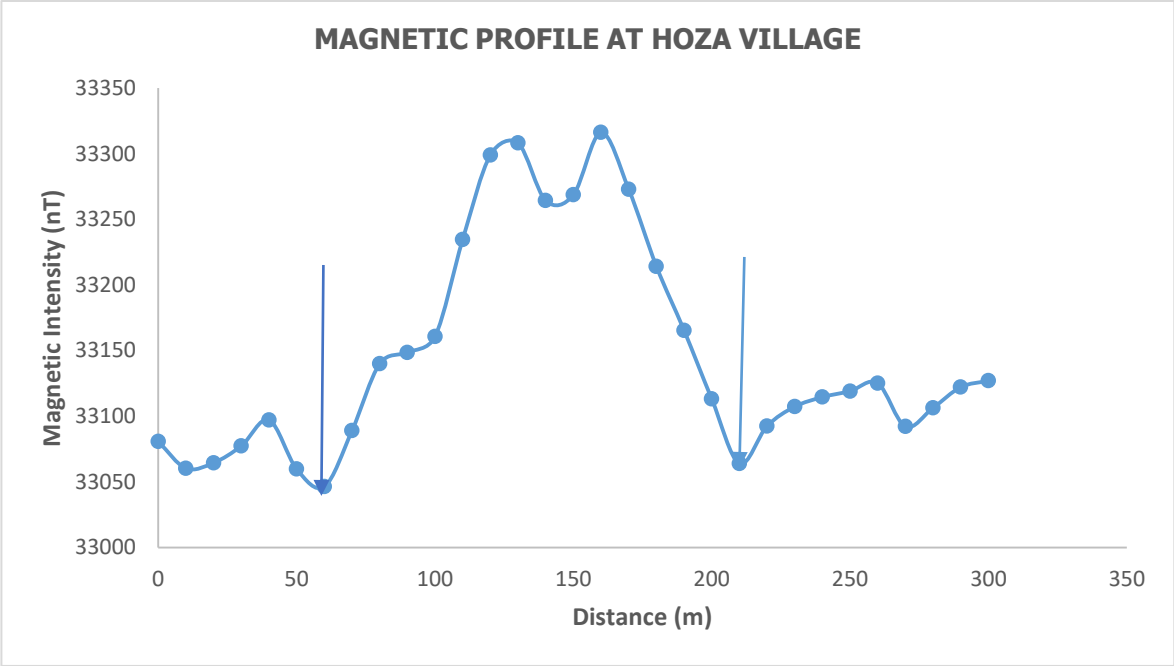
AREA: HOZA **DISTRICT:** HANDENI **REGION:** TANGA

NORTINGS: 9377369 **EASTINGS:** 0436871 **ALTITUDE:** 368M

DIRECTION: S20W **PROFILE No.** 1 **DATE:** 10/03/2021

Distance(m)	nT	Coordinate	Remark
0	33080.70		
10	33060.33		
20	33064.54		
30	33077.42		
40	33097.17		
50	33059.77		
60	33046.42	**9377314/436852**	**VES 1**
70	33089.03		
80	33139.97		
90	33148.69		
100	33160.72		
110	33234.67		
120	33299.04		
130	33308.18		
140	33264.30		
150	33268.71		
160	33316.19		
170	33272.98		
180	33214.27		
190	33165.47		
200	33113.25		
210	33063.96	**9377196/436771**	**VES 2**
220	33092.48		
230	33107.30		
240	33114.57		
250	33119.14		
260	33125.18		
270	33092.13		
280	33106.44		
290	33122.20		
300	33127.10		

Interpretation result



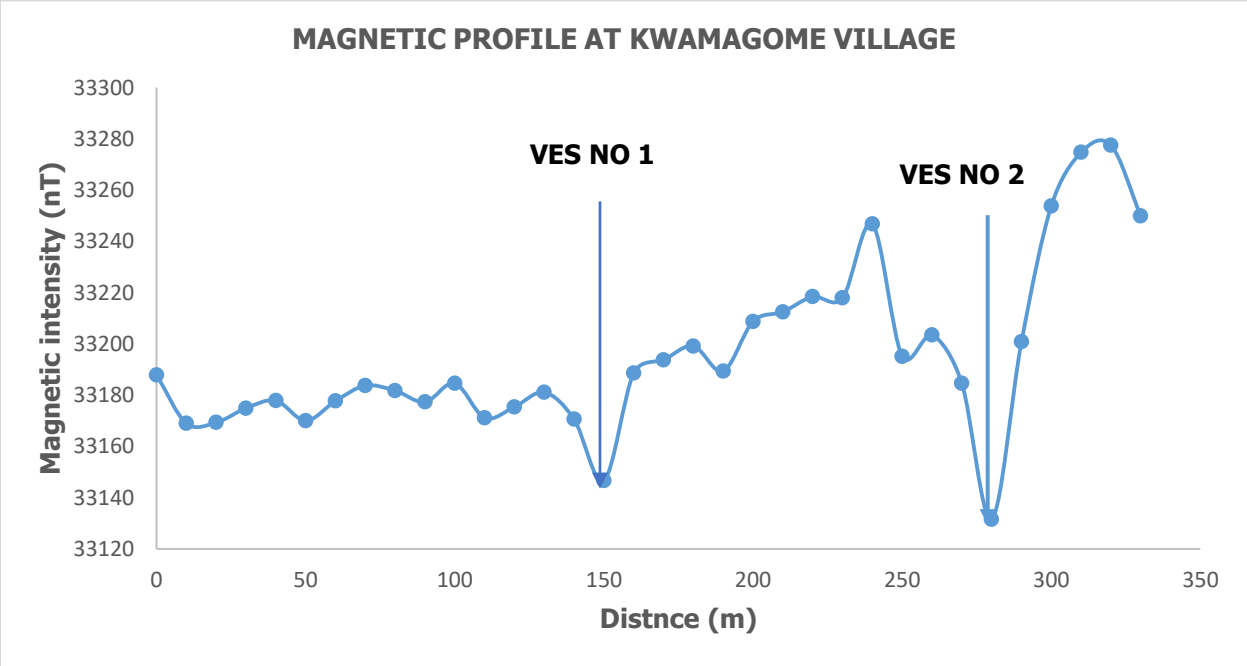
MAGNETIC PROFILE

APPLICANT: RUWASA HANDENI
AREA: KWA MAGOME **DISTRICT:** HANDENI **REGION:** TANGA
NORTINGS: 9385926 **EASTINGS:** 0388954 **ALTITUDE:** 606M
DIRECTION: NW-SE **PROFILE No.** 1 **DATE:** 11/03/2021

Distance(m)	nT	Coordinate	Remark
0	33187.90		
10	33169.06		
20	33169.39		
30	33174.96		
40	33177.90		
50	33170.08		
60	33177.77		
70	33183.77		
80	33181.82		
90	33177.35		
100	33184.69		
110	33171.20		
120	33175.47		
130	33181.13		
140	33170.61		

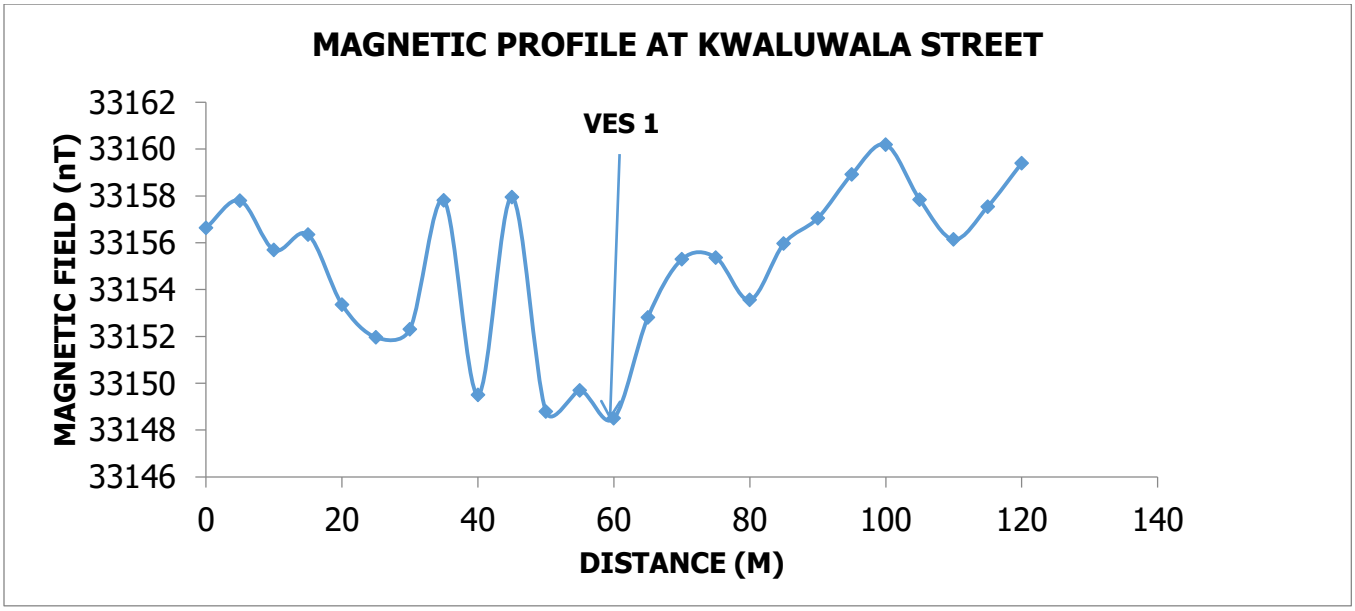
150	33146.72	**9385774/388985**	**VES 1**
160	33188.66		
170	33193.78		
180	33199.18		
190	33189.41		
200	33208.78		
210	33212.54		
220	33218.43		
230	33217.92		
240	33246.75		
250	33195.19		
260	33203.55		
270	33184.66		
280	33131.63	**9385645/389015**	**VES 2**
290	33200.87		
300	33253.82		
310	33274.72		
320	33277.46		
330	33249.98		

Interpretation result



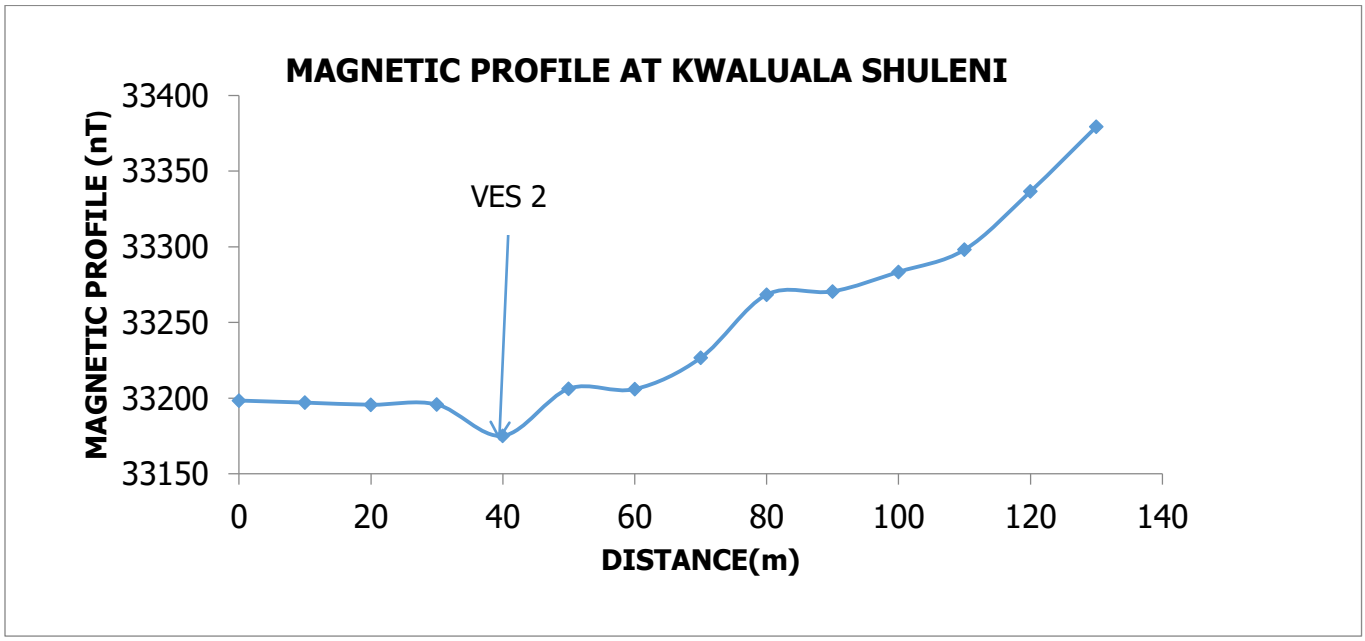
APPLICANT: RUWASA HANDENI
AREA: KWALUWALA STREET **DISTRICT:** HANDENI **REGION:** TANGA
EASTINGS: 04385309 **NORTINGS:** 9387481 **ALTITUDE:** 666M
DIRECTION: N-S **PROFILE No.** 1 **DATE:** 11/03/2021

Distance(m)	nT	Coordinate	Remarks
0	33156.64		
5	33157.80		
10	33155.69		
15	33156.35		
20	33153.36		
25	33151.96		
30	33152.31		
35	33157.81		
40	33149.50		
45	33157.95		
50	33148.79		
55	33149.69		
60	33148.50	**0385309/9387530**	**VES 1**
65	33152.81		
70	33155.29		
75	33155.37		
80	33153.56		
85	33155.96		
90	33157.05		



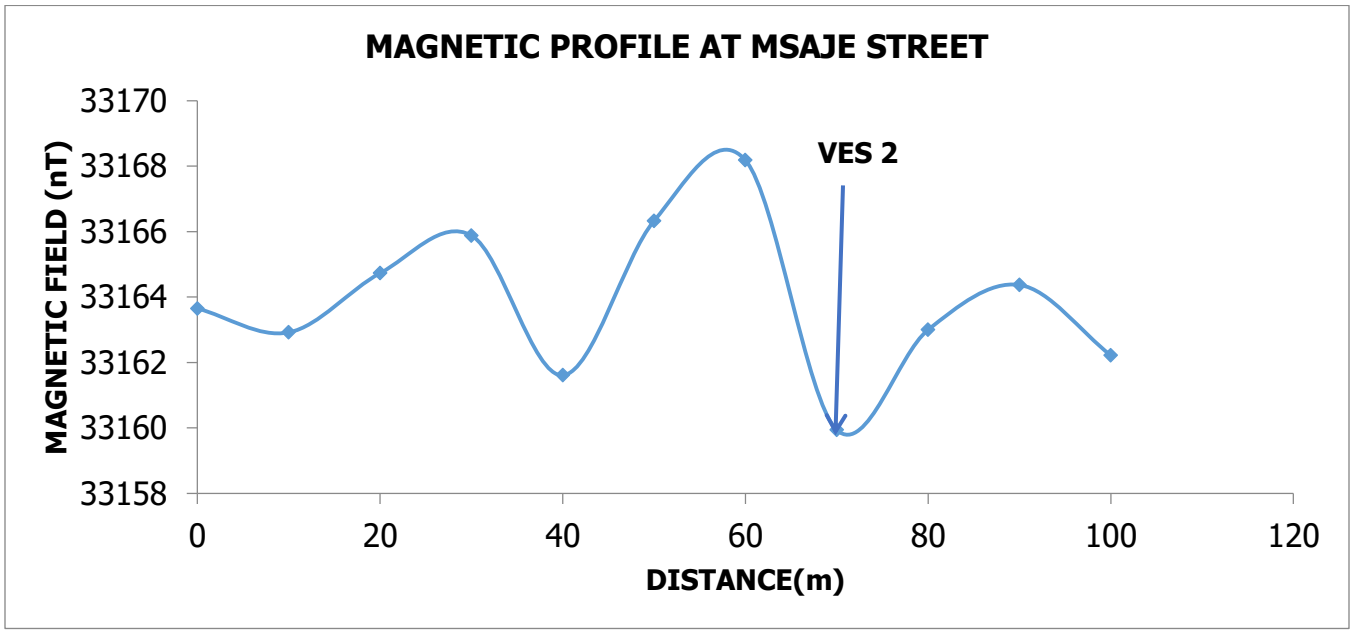
APPLICANT: RUWASA HANDENI
AREA: KWALUALA SHULENI **DISTRICT: HANDENI** **REGION:** TANGA
EASTINGS: 0385713 **NORTHINGS:** 9387277 **ALTITUDE:** 666M
DIRECTION: E-W **PROFILE No.** 2 **DATE:** 11/03/2021

Distance(m)	nT	Coordinate	Remarks
0	33198.43		
10	33197.07		
20	33195.66		
30	33195.81		
40	33175.17	**0385754/9387271**	**VES 2**
50	33206.25		
60	33205.96		
70	33226.63		
80	33268.35		
90	33270.51		
100	33283.40		
110	33298.03		
120	33336.50		
130	33379.31		



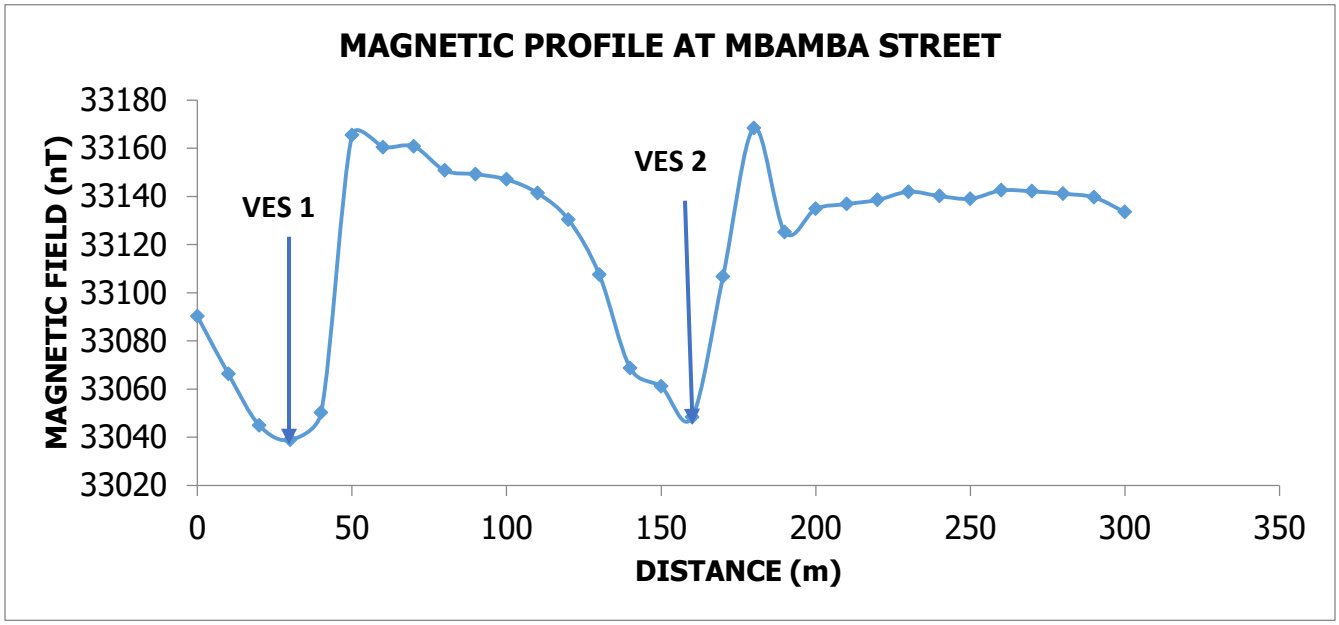
APPLICANT: RUWASA HANDENI
AREA: MSAJE STREET **DISTRICT:** HANDENI **REGION:** TANGA
EASTINGS: 0385015 **NORTINGS:** 9386641 **ALTITUDE:** 653M
DIRECTION: E-W **PROFILE No.** 2 **DATE:** 11/03/2021

Distance(m)	nT	Coordinate	Remarks
0	33163.65		
10	33162.92		
20	33164.73		
30	33165.88		
40	33161.61		
50	33166.33		
60	33168.18		
70	33159.94	**0384962, 9386615**	**VES 2**
80	33163.00		
90	33164.37		
100	33162.22		



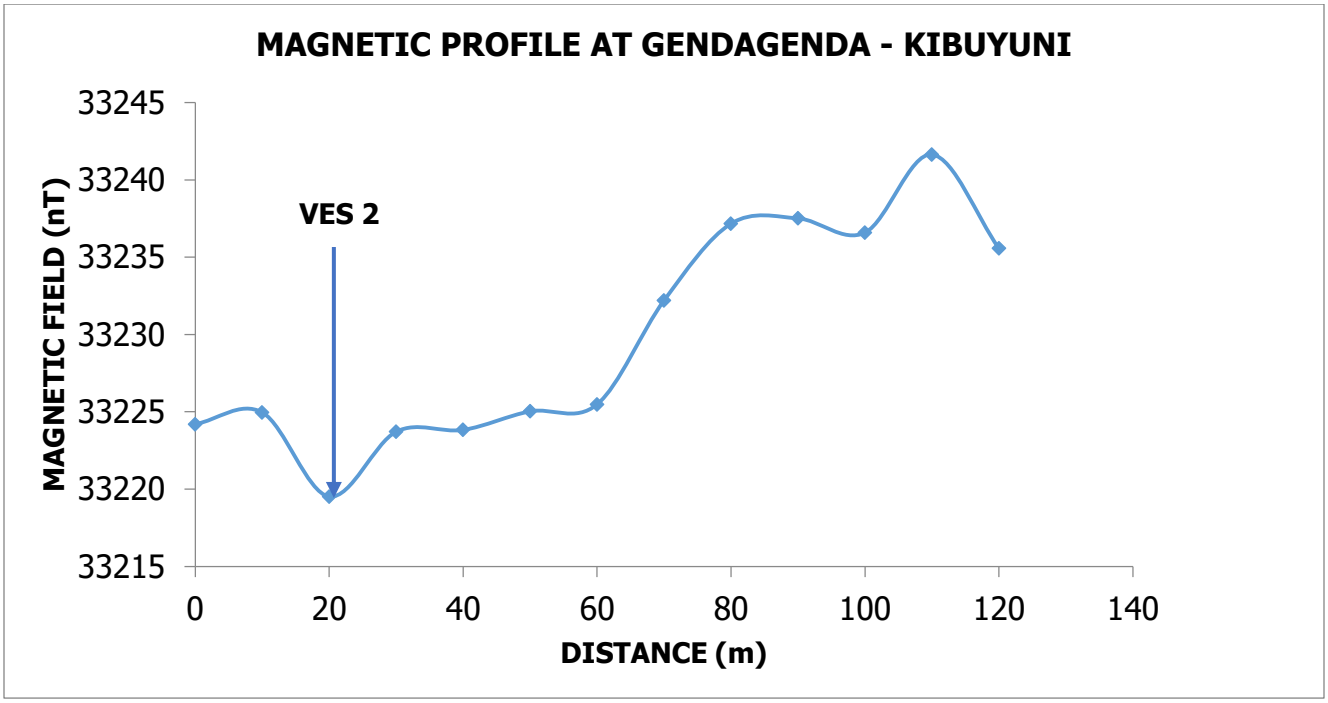
APPLICANT: RUWASA HANDENI
AREA: MBAMBA STREET **DISTRICT:** HANDENI **REGION:** TANGA
EASTINGS: 0384564 **NORTINGS:** 9384052 **ALTITUDE:** 652M
DIRECTION: NW-SE **PROFILE No.** 1 **DATE:** 11/03/2021

Distance(m)	nT	Coordinate	Remarks
0	33090.24		
10	33066.29		
20	33044.91		
30	33038.87	**0384571, 9384088**	**VES 1**
40	33050.15		
50	33165.44		
60	33160.41		
70	33160.75		
80	33150.77		
90	33149.24		
100	33147.02		
110	33141.37		
120	33130.37		
130	33107.49		
140	33068.64		
150	33061.02		
160	33048.31	**0385754, 9387271**	**VES 2**
170	33106.64		
180	33168.30		
190	33125.17		
200	33134.80		
210	33136.81		
220	33138.53		
230	33141.95		
240	33140.16		
250	33139.02		
260	33142.49		
270	33142.09		
280	33141.09		
290	33139.61		
300	33133.48		


MAGNETIC PROFILE AT MBAMBA STREET
MAGNETIC FIELD (nT)
33180
33160
33140
33120
33100
33080
33060
33040
33020
VES 1
VES 2
0
50
100
150
200
250
300
350
DISTANCE (m)

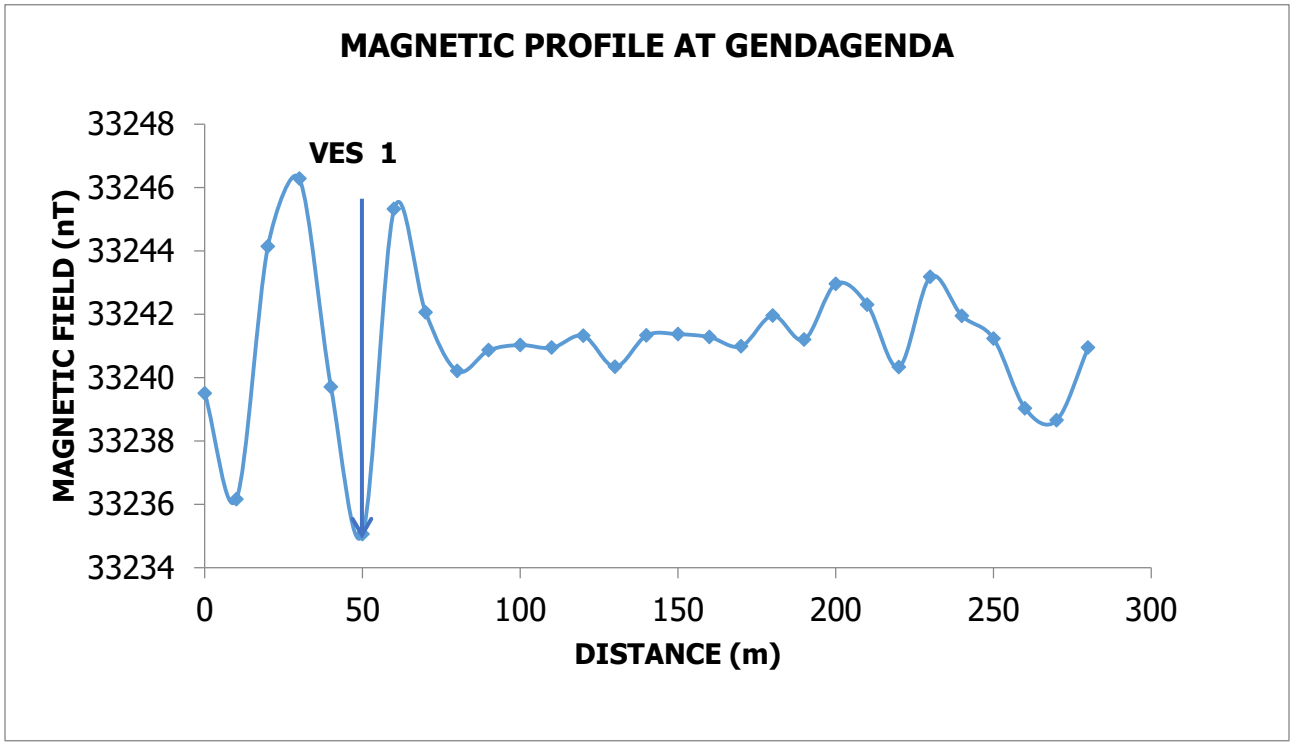
APPLICANT: RUWASA HANDENI
AREA: GENDAGENDA-KIBUYUNI **DISTRICT:** HANDENI **REGION:** TANGA
EASTINGS: 0461249 **NORTINGS:** 9382289 **ALTITUDE:** 118M
DIRECTION: N-S **PROFILE No.** 2 **DATE:** 10/03/2021

Distance(m)	nT	Coordinate	Remarks
0	33224.20		
10	33224.96		
20	33219.52	**0461274/9382279**	**VES 2**
30	33223.71		
40	33223.83		
50	33225.03		
60	33225.48		
70	33232.20		
80	33237.17		
90	33237.51		
100	33236.59		
110	33241.64		
120	33235.57		



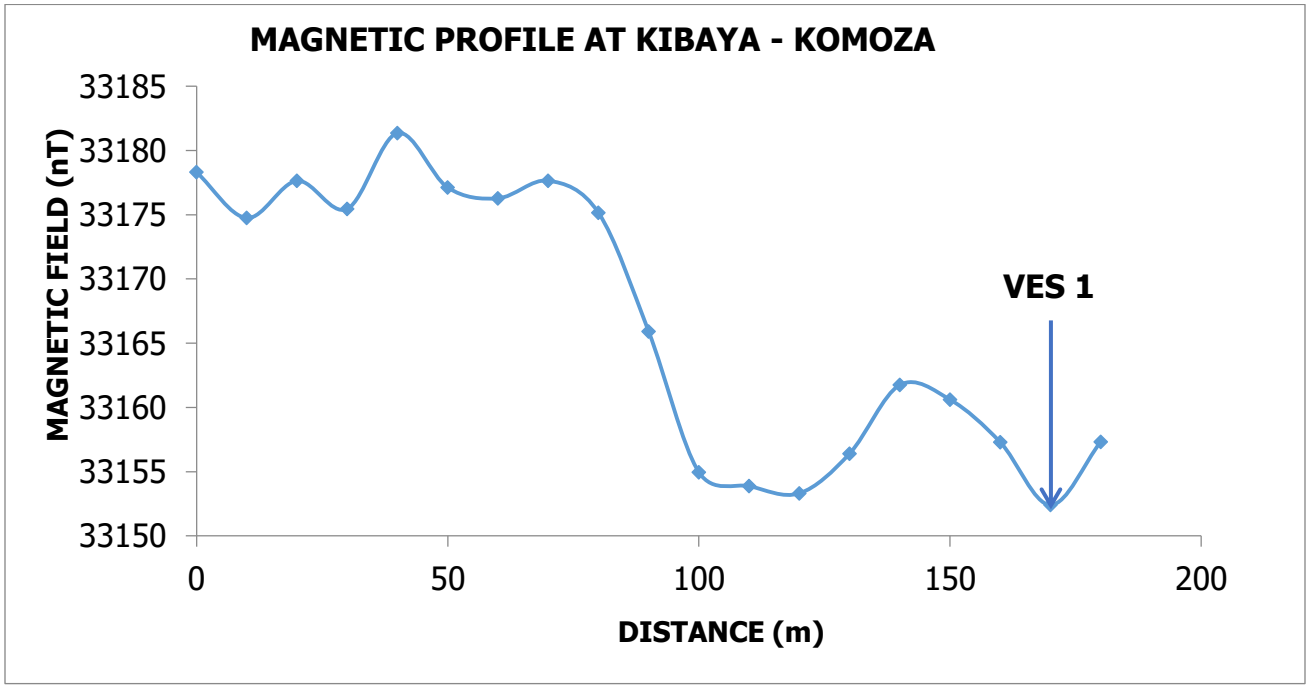
APPLICANT: RUWASA HANDENI
AREA: GENDAGENDA **DISTRICT:** HANDENI **REGION:** TANGA
EASTINGS: 0464650 **NORTINGS:** 9385054 **ALTITUDE:** 99M
DIRECTION: E-W **PROFILE No.** 1 **DATE:** 10/03/2021

Distance(m)	nT	Coordinate	Remarks
0	33239.50		
10	33236.16		
20	33244.14		
30	33246.28		
40	33239.70		
50	33235.06	**0464717/9385055**	**VES 1**
60	33245.32		
70	33242.06		
80	33240.21		
90	33240.86		
100	33241.03		
110	33240.94		
120	33241.32		
130	33240.34		
140	33241.33		
150	33241.37		
160	33241.28		
170	33240.99		
180	33241.96		
190	33241.20		
200	33242.96		
210	33242.30		
220	33240.33		
230	33243.18		
240	33241.95		
250	33241.23		
260	33239.03		
270	33238.65		
280	33240.94		


MAGNETIC PROFILE AT GENDAGENDA
VES 1
MAGNETIC FIELD (nT)
33248
33246
33244
33242
33240
33238
33236
33234
0
50
100
150
200
250
300
DISTANCE (m)

APPLICANT: RUWASA HANDENI
AREA: KIBAYA-KOMOZA **DISTRICT:** HANDENI **REGION:** TANGA
EASTINGS: 0385713 **NORTINGS:** 9410444 **ALTITUDE:** 593M
DIRECTION: E-W **PROFILE No.** 2 **DATE:** 12/03/2021

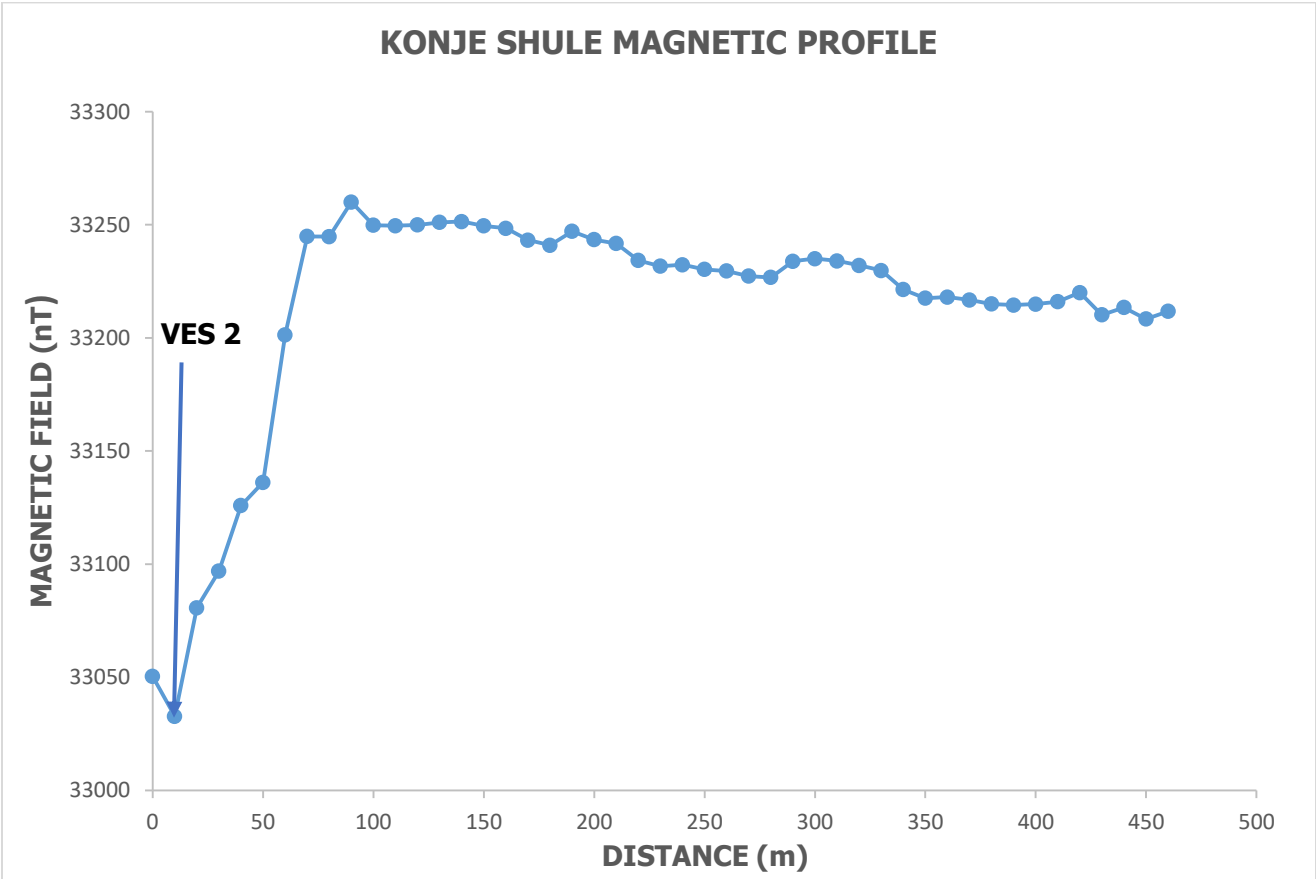
Distance(m)	nT	Coordinate	Remarks
0	33178.31		
10	33174.75		
20	33177.64		
30	33175.46		
40	33181.36		
50	33177.12		
60	33176.28		
70	33177.65		
80	33175.16		
90	33165.91		
100	33154.96		
110	33153.88		
120	33153.32		
130	33156.41		
140	33161.75		
150	33160.61		
160	33157.29		
170	33152.41	**0401075/9410505**	**VES 2**
180	33157.33		
190	33172.75		



APPLICANT: RUWASA HANDENI
AREA: KONJE SHULE **DISTRICT:** HANDENI **REGION:** TANGA
EASTINGS: 0403305 **NORTINGS:** 9402885 **ALTITUDE:** 639M
DIRECTION: N-S **PROFILE No.** 2 **DATE:** 12/03/2021

Distance(m)	nT	Coordinate	Remarks
0	33050.41		
10	33032.79	**04033129/9402886**	**VES 2**
20	33080.75		
30	33096.89		
40	33125.90		
50	33136.18		
60	33201.36		
70	33244.86		
80	33244.78		
90	33260.05		
100	33249.82		
110	33249.63		
120	33249.97		
130	33251.09		
140	33251.46		
150	33249.50		
160	33248.46		
170	33243.21		
180	33240.97		
190	33247.11		
200	33243.47		
210	33241.77		
220	33234.23		
230	33231.69		
240	33232.37		
250	33230.29		
260	33229.60		
270	33227.30		
280	33226.79		
290	33233.87		
300	33235.00		
310	33234.07		
320	33232.04		
330	33229.78		
340	33221.39		
350	33217.58		
360	33218.08		

370	33216.77		
380	33215.01		
390	33214.52		
400	33214.95		
410	33216.01		
420	33220.07		
430	33210.23		
440	33213.43		
450	33208.40		
460	33211.77		



SCHLUMBERGER GEOELECTRICAL SOUNDING

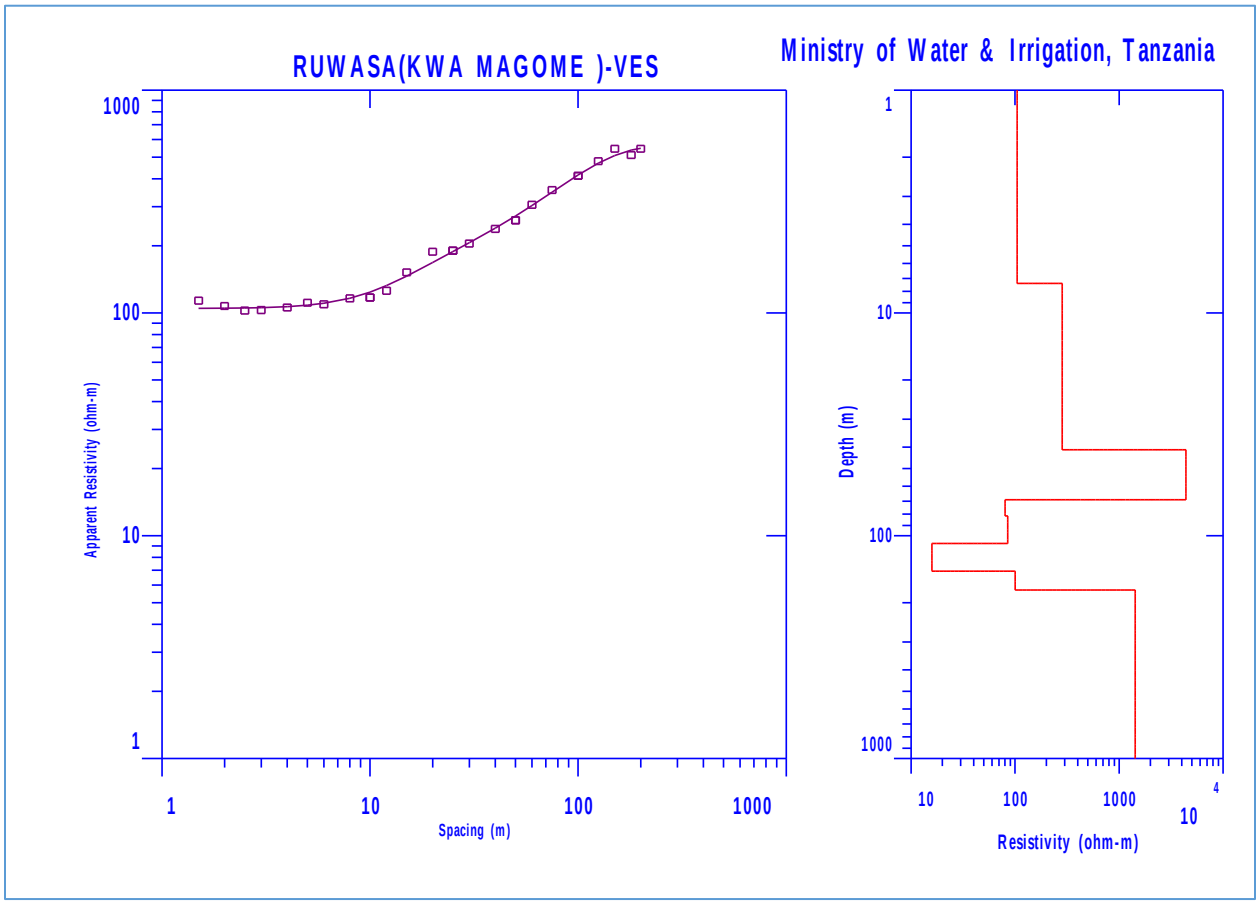
NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** KWAMAGOME

ALTITUDE: 596m **NORTHINGS:** 9385774 **EASTINGS**: 388985

VES No: 1 **DIRECTION:** N-S **DATE:** 11/03/2021

TAKEN AT: 150m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	18.07	113.49
2	2	"	11.78	9.12	107.41
3	2.5	"	18.84	5.44	102.46
4	3	"	27.48	3.75	102.99
5	4	"	49.46	2.14	105.72
6	5	"	77.77	1.43	111.14
7	6	"	112.26	0.97	109.33
8	8	"	200.18	0.58	116.29
9	10	"	313.22	0.37	117.22
10	10	2.5	58.88	1.93	113.81
11	12	"	86.51	1.45	125.78
12	15	"	137.38	1.37	152.04
13	20	"	247.28	0.87	188.26
14	25	"	288.58	0.66	214.08
15	25	5	188.40	1.09	190.26
16	30	"	274.75	0.87	204.86
17	40	"	494.55	0.53	238.37
18	50	"	777.15	0.35	260.56
19	50	10	376.80	0.81	269.73
20	60	"	549.50	0.65	305.76
21	75	"	867.43	0.47	356.04
22	100	"	1554.30	0.27	406.58
23	100	25	588.75	0.82	412.37
24	125	'	942.00	0.58	479.97
25	150	'	1373.75	0.37	545.51
26	180	'	1998.01	0.27	511.54
27	200	'	2475.90	0.22	545.66



Interpretation result

Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	104.81	7.3734	7.3734
2	283.4	33.737	41.11
3	4379.3	27.913	69.023
4	80.143	12.461	81.484
5	84.939	26.92	108.4
6	15.852	36.04	144.44
7	100.1	30.926	**175.37**
8	1429.5	+++	+++

SCHLUMBERGER GEOELECTRICAL SOUNDING

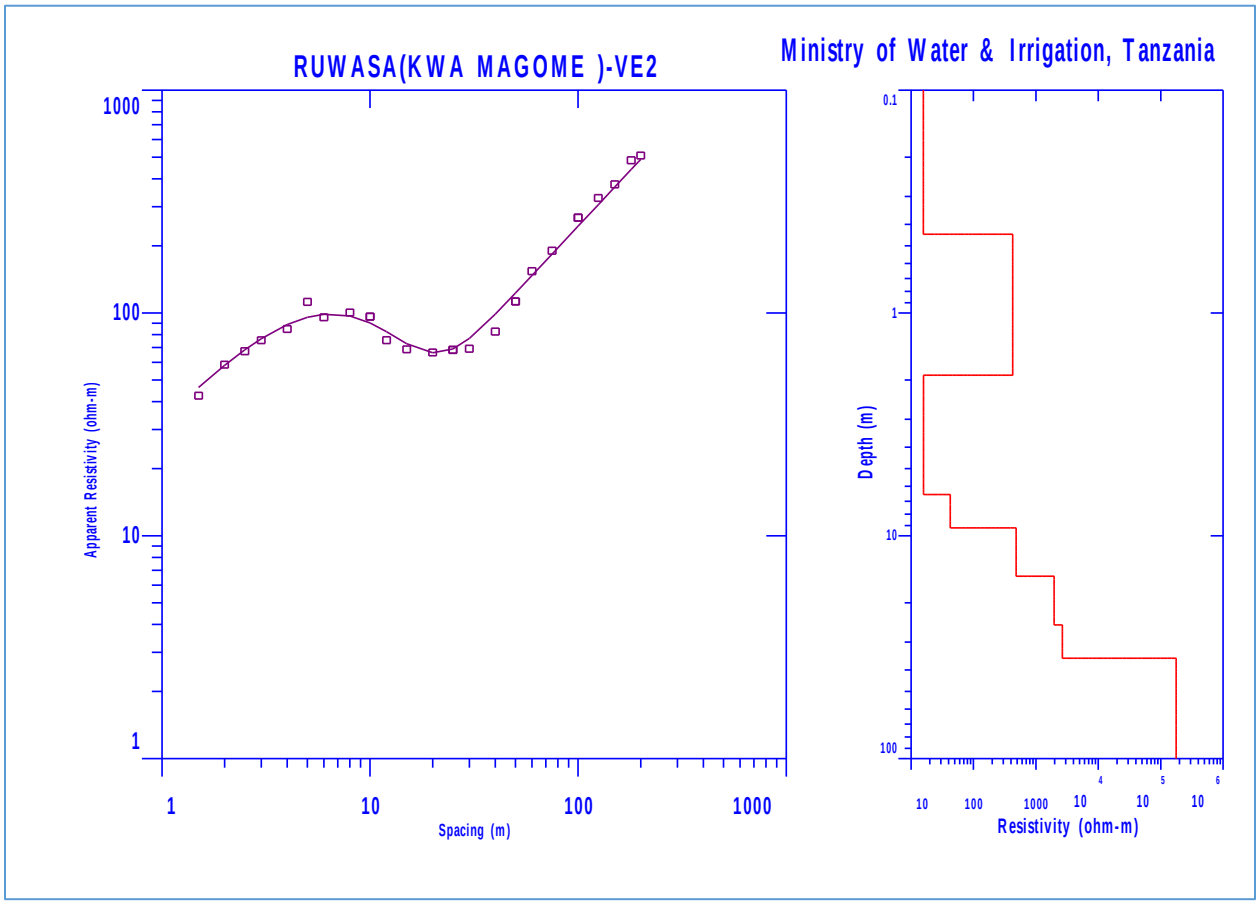
NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** KWAMKONGA

ALTITUDE: 591m **NORTHINGS:** 9385645 **EASTINGS**: 0389015

VES No: 2 **DIRECTION:** N-S **DATE:** 11/03/2021

TAKEN AT: 280m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	6.77	42.53
2	2	"	11.78	4.97	58.60
3	2.5	"	18.84	3.58	67.37
4	3	"	27.48	2.74	75.42
5	4	"	49.46	1.71	84.71
6	5	"	77.77	1.44	112.15
7	6	"	112.26	0.85	95.64
8	8	"	200.18	0.50	100.44
9	10	"	313.22	0.31	96.41
10	10	2.5	58.88	1.63	96.24
11	12	"	86.51	0.87	75.50
12	15	"	137.38	0.48	68.70
13	20	"	247.28	0.27	66.52
14	25	"	288.58	0.24	67.39
15	25	5	188.40	0.37	68.28
16	30	"	274.75	0.30	69.11
17	40	"	494.55	0.23	82.49
18	50	"	777.15	0.16	112.68
19	50	10	376.80	0.41	123.98
20	60	"	549.50	0.35	154.00
21	75	"	867.43	0.31	190.38
22	100	"	1554.30	0.06	267.56
23	100	25	588.75	0.56	87.18
24	125	'	942.00	0.40	328.28
25	150	'	1373.75	0.35	377.77
26	180	'	1998.01	0.25	484.75
27	200	'	2475.90	0.21	508.88



Interpretation result

Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	73.526	30.252	30.252
2	3.49E+05	44.111	74.362
3	16.461	22.989	97.351
4	16.885	10.578	107.93
5	9.4122	22.642	130.57
6	27.788	36.182	166.75
7	34.183	36.461	203.21
8	1.54E+05	+++	+++

SCHLUMBERGER GEOELECTRICAL SOUNDING

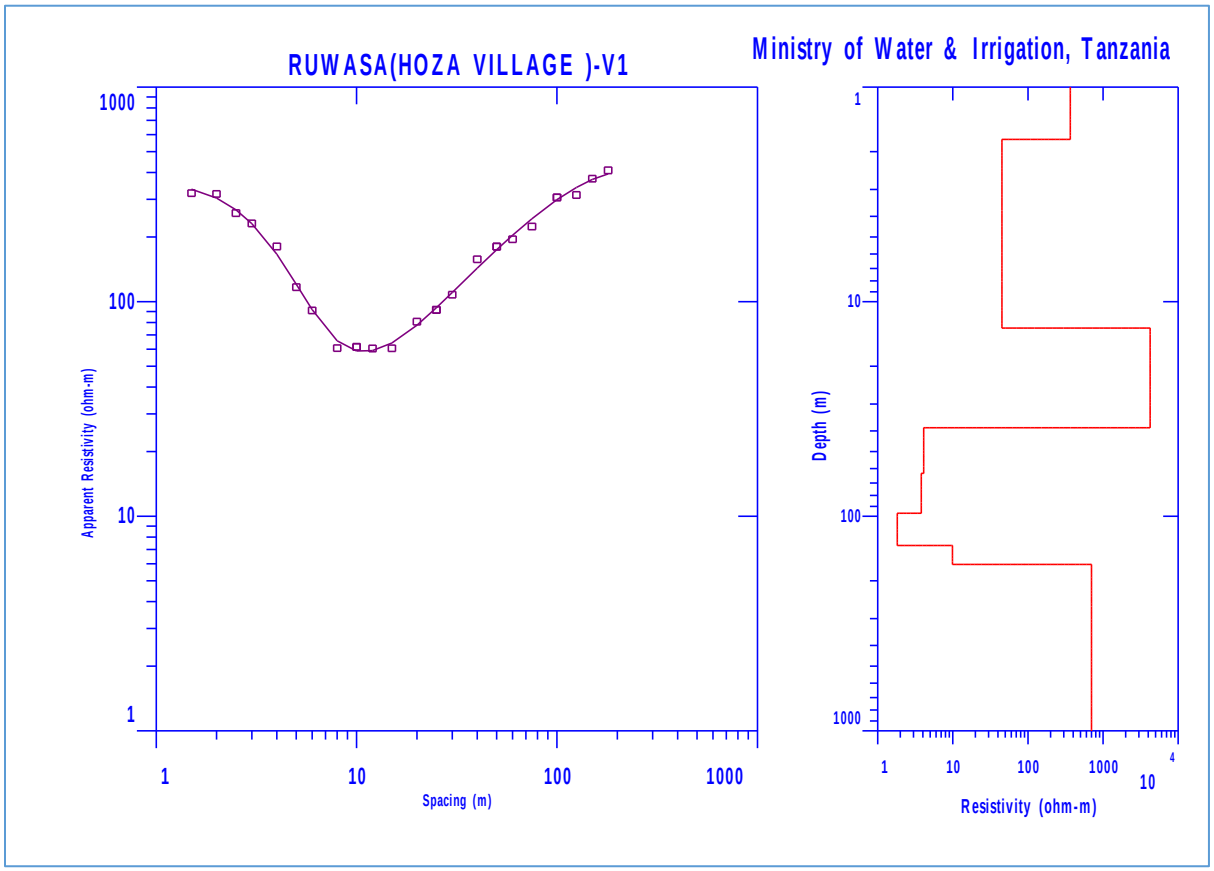
NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** HOZA

ALTITUDE: 369m **NORTHINGS:** 9377314 **EASTINGS**: 0436852

VES No: 1 **DIRECTION:** E-W **DATE:** 10/03/2021

TAKEN AT: 60m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.50	0.50	6.28	51.04	320.55
2	2.00	0.50	11.78	26.97	317.75
3	2.50	0.50	18.84	13.73	258.60
4	3.00	0.50	27.48	8.42	231.45
5	4.00	0.50	49.46	3.66	180.78
6	5.00	0.50	77.77	1.50	116.81
7	6.00	0.50	112.26	0.81	90.99
8	8.00	0.50	200.18	0.30	60.73
9	10.00	0.50	313.22	0.19	59.49
10	10.00	2.50	58.88	1.04	61.52
11	12.00	2.50	86.51	0.70	60.47
12	15.00	2.50	137.38	0.44	60.64
13	20.00	2.50	247.28	0.33	80.67
14	25.00	2.50	288.58	0.30	87.05
15	25.00	2.50	188.40	0.49	91.58
16	30.00	2.50	274.75	0.39	107.72
17	40.00	2.50	494.55	0.32	157.55
18	50.00	2.50	777.15	0.23	180.49
19	50.00	10.00	376.80	0.43	161.30
20	60.00	10.00	549.50	0.36	195.45
21	75.00	10.00	867.43	0.26	224.00
22	100.00	10.00	1554.30	0.20	306.07
23	100.00	25.00	588.75	0.48	284.91
24	125.00	25.00	942.00	0.33	314.25
25	150.00	25.00	1373.75	0.27	374.17
26	180.00	25.00	1998.01	0.20	409.35



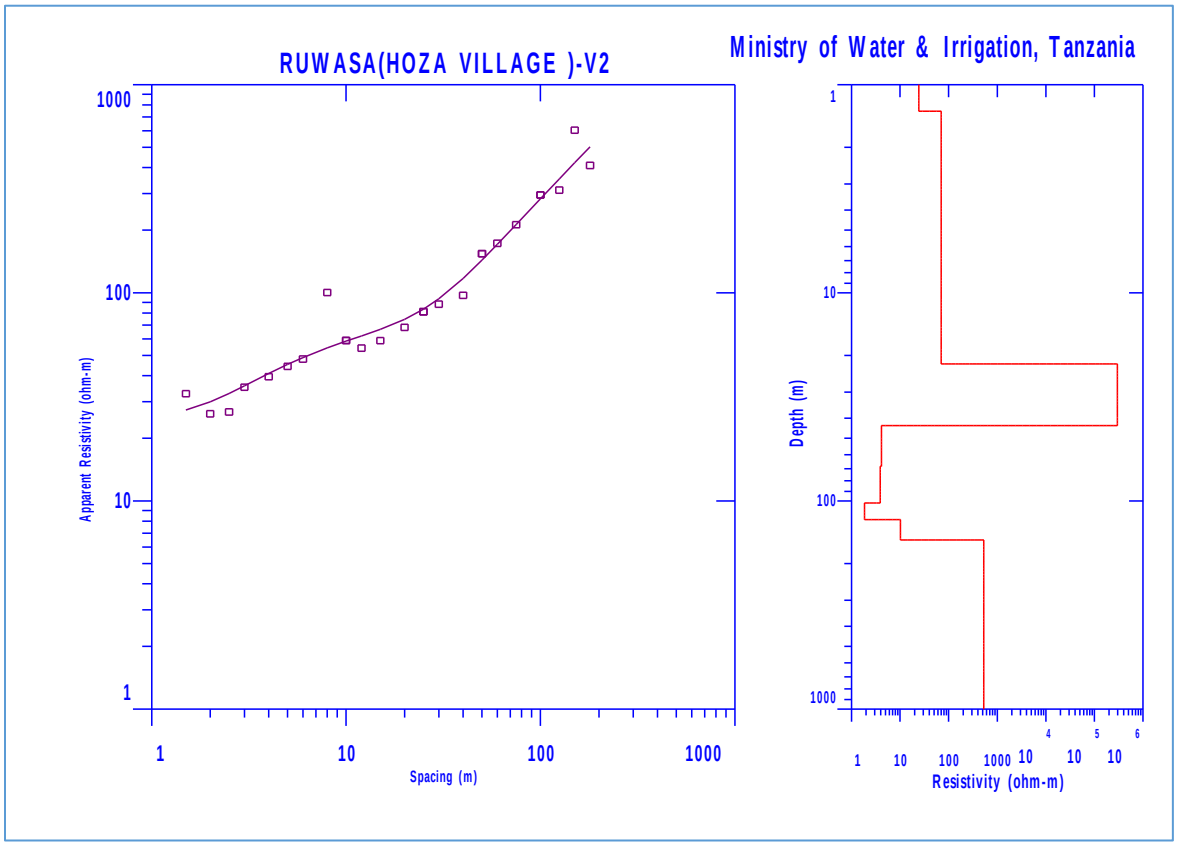
Interpretation result

Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	366.07	1.7521	1.7521
2	45.017	11.524	13.276
3	4233.4	25.395	38.67
4	4.103	24.417	63.088
5	3.8192	33.785	96.873
6	1.8274	40.034	136.91
7	9.9073	30.939	**167.85**
8	700.47	+++	+++

SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** HOZA
ALTITUDE: 353m **NORTHINGS:** 9377196 **EASTINGS**: 0436771
VES No: 2 **DIRECTION:** NW-SE **DATE:** 10/03/2021
TAKEN AT: 210m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.50	0.50	6.28	5.21	32.75
2	2.00	0.50	11.78	2.23	26.23
3	2.50	0.50	18.84	1.42	26.76
4	3.00	0.50	27.48	1.28	35.21
5	4.00	0.50	49.46	0.80	39.51
6	5.00	0.50	77.77	0.57	44.31
7	6.00	0.50	112.26	0.43	48.04
8	8.00	0.50	200.18	0.50	100.28
9	10.00	0.50	313.22	0.19	59.01
10	10.00	2.50	58.88	0.86	50.91
11	12.00	2.50	86.51	0.63	54.21
12	15.00	2.50	137.38	0.43	58.93
13	20.00	2.50	247.28	0.28	68.23
14	25.00	2.50	288.58	0.27	79.30
15	25.00	2.50	188.40	0.43	81.11
16	30.00	2.50	274.75	0.32	88.16
17	40.00	2.50	494.55	0.20	97.28
18	50.00	2.50	777.15	0.20	154.20
19	50.00	10.00	376.80	0.38	143.63
20	60.00	10.00	549.50	0.31	173.03
21	75.00	10.00	867.43	0.24	212.51
22	100.00	10.00	1554.30	0.19	295.33
23	100.00	25.00	588.75	0.53	311.52
24	125.00	25.00	942.00	0.47	443.35
25	150.00	25.00	1373.75	0.44	604.57



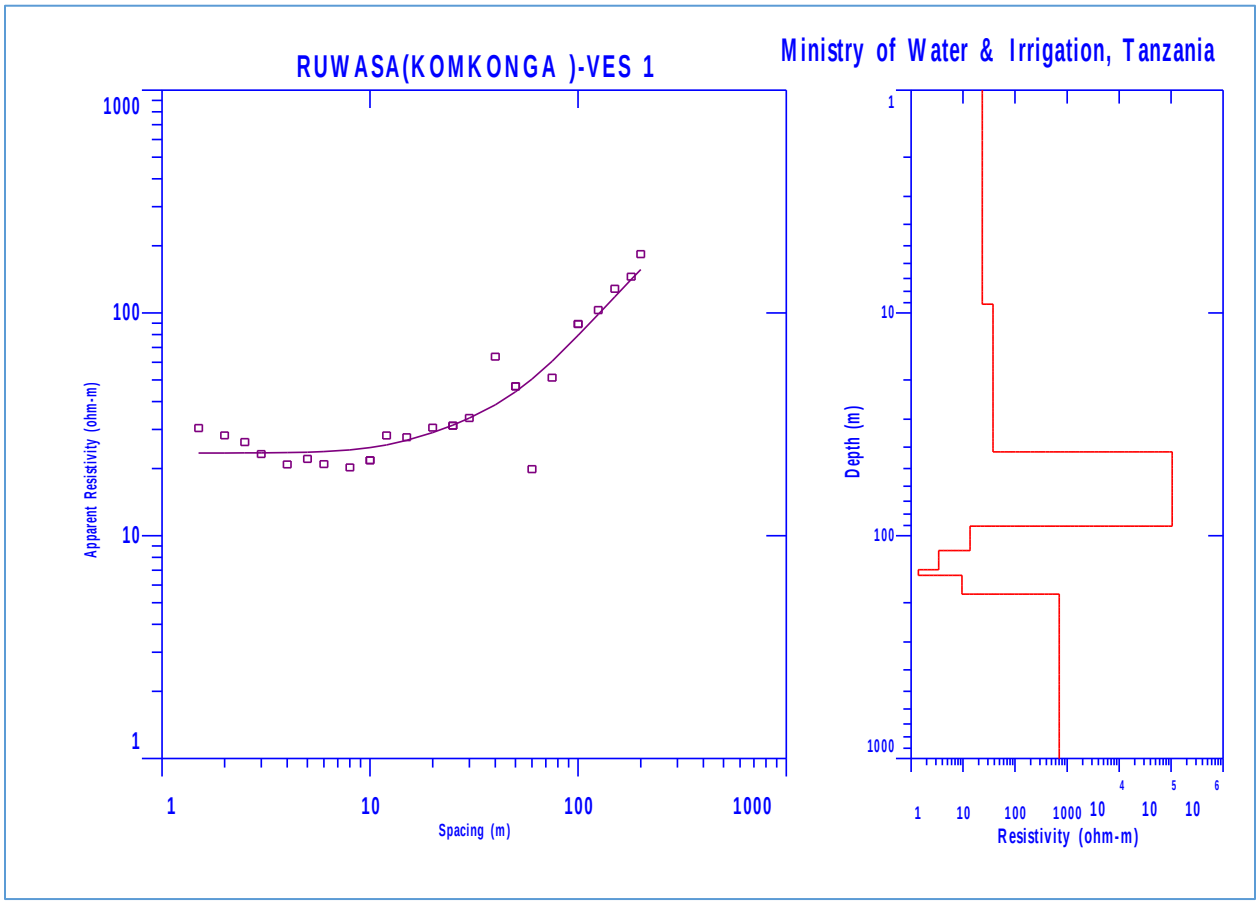
Interpretation result

Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	24.33	1.34	1.34
2	69.90	20.63	21.97
3	2.95E+03	21.51	43.48
4	4.130	24.66	68.13
5	3.916	34.07	102.20
6	1.852	20.69	122.89
7	10.193	31.14	**154.03**
8	527.170	+++	+++

SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** KOMKONGA
ALTITUDE: 375m **NORTHINGS:** 9380359 **EASTINGS**: 0434623
VES No: 1 **DIRECTION:** E-W **DATE:** 10/03/2021
TAKEN AT: 30m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	4.84	30.42
2	2	"	11.78	2.39	28.20
3	2.5	"	18.84	1.40	26.32
4	3	"	27.48	0.85	23.25
5	4	"	49.46	0.42	20.89
6	5	"	77.77	0.28	22.12
7	6	"	112.26	0.19	20.95
8	8	"	200.18	0.10	20.25
9	10	"	313.22	0.07	21.79
10	10	2.5	58.88	0.46	27.27
11	12	"	86.51	0.33	28.17
12	15	"	137.38	0.20	27.68
13	20	"	247.28	0.12	30.56
14	25	"	288.58	0.11	31.41
15	25	5	188.40	0.17	31.18
16	30	"	274.75	0.12	33.75
17	40	"	494.55	0.13	63.60
18	50	"	777.15	0.07	51.63
19	50	10	376.80	0.12	46.83
20	60	"	549.50	0.04	19.89
21	75	"	867.43	0.06	51.20
22	100	"	1554.30	0.05	75.63
23	100	25	588.75	0.15	89.15
24	125	'	942.00	0.11	102.98
25	150	'	1373.75	0.09	128.37
26	180	'	1998.01	0.07	145.52
27	200	'	2475.90	0.07	183.66



Interpretation result

Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	23.488	9.1472	9.1472
2	37.684	32.894	42.041
3	1.05E+05	48.605	90.646
4	13.636	25.927	116.57
5	3.4072	25.523	142.1
6	1.3839	8.6382	150.73
7	9.5284	32.229	**182.96**
8	706.11	+++	+++

SCHLUMBERGER GEOELECTRICAL SOUNDING

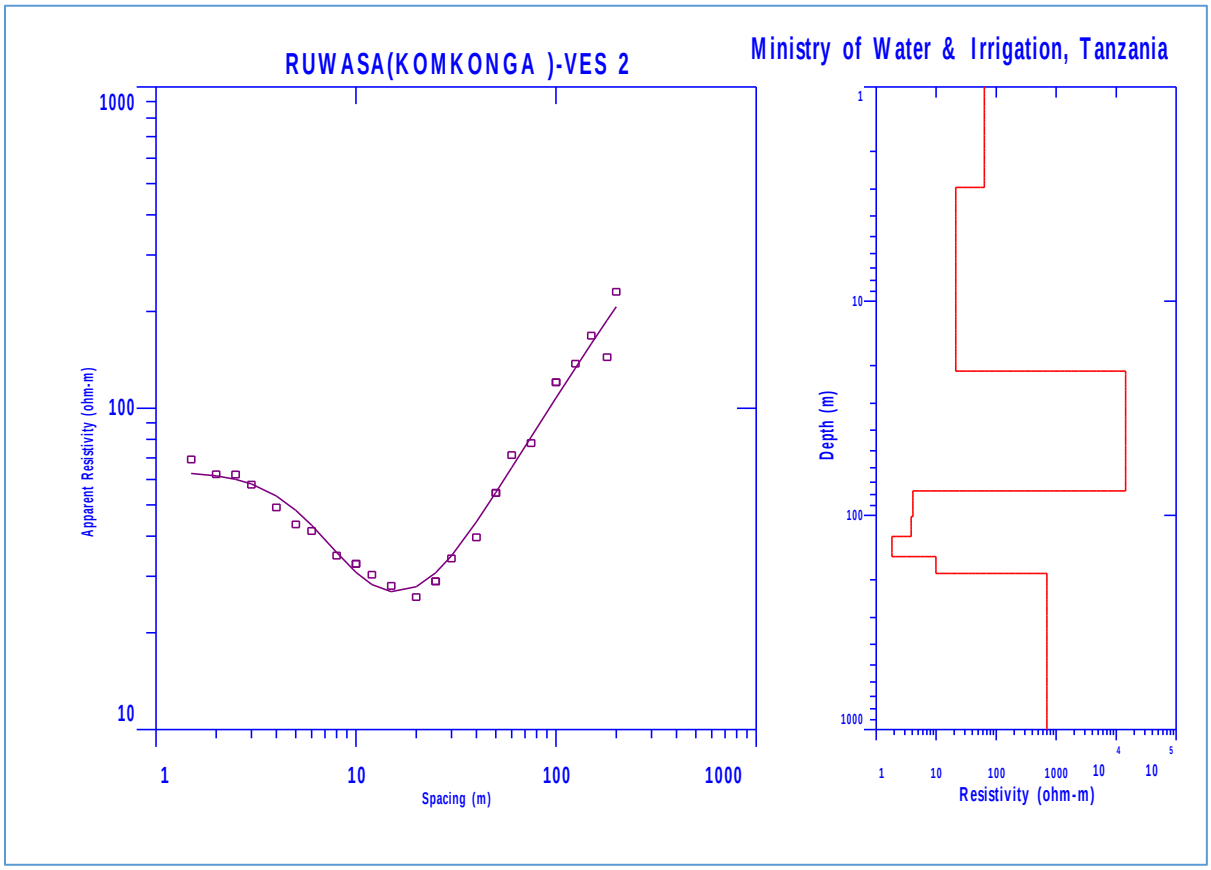
NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** KOMKONGA

ALTITUDE: 376m **NORTHINGS:** 9380451 **EASTINGS**: 0434715

VES No: 2 **DIRECTION:** N-S **DATE:** 10/03/2021

TAKEN AT: 160m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	11.03	69.29
2	2	"	11.78	5.29	62.31
3	2.5	"	18.84	3.30	62.18
4	3	"	27.48	2.10	57.82
5	4	"	49.46	0.99	49.13
6	5	"	77.77	0.56	43.50
7	6	"	112.26	0.37	41.48
8	8	"	200.18	0.17	34.79
9	10	"	313.22	0.10	32.79
10	10	2.5	58.88	0.60	35.09
11	12	"	86.51	0.35	30.32
12	15	"	137.38	0.19	27.99
13	20	"	247.28	0.12	25.84
14	25	"	288.58	0.11	28.92
15	25	5	188.40	0.18	30.81
16	30	"	274.75	0.14	34.08
17	40	"	494.55	0.11	39.64
18	50	"	777.15	0.07	52.33
19	50	10	376.80	0.19	54.49
20	60	"	549.50	0.14	71.47
21	75	"	867.43	0.15	77.88
22	100	"	1554.30	0.08	128.17
23	100	25	588.75	0.23	120.44
24	125	'	942.00	0.18	137.58
25	150	'	1373.75	0.10	168.17
26	180	'	1998.01	0.12	144.19
27	200	'	2475.90	0.09	230.32



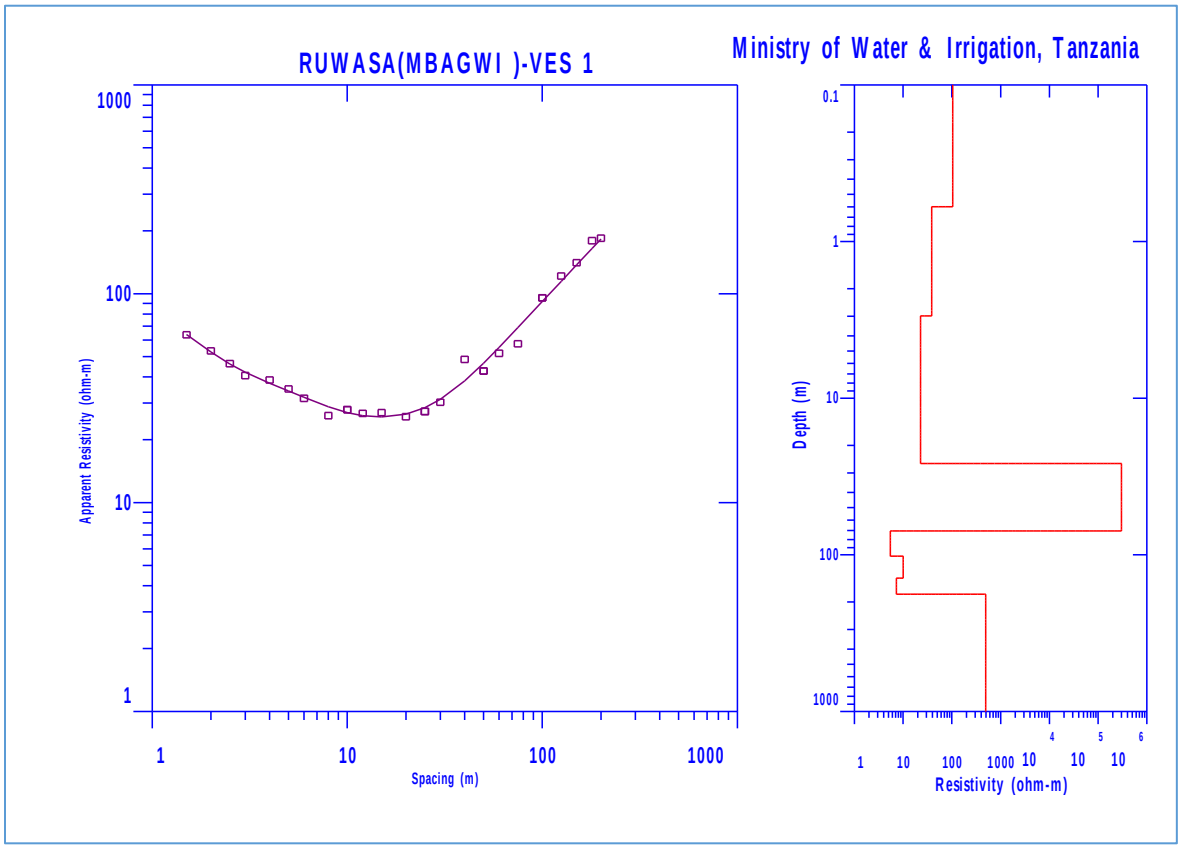
Interpretation result

Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	63.60	2.95	2.95
2	21.20	18.29	21.23
3	14387.00	55.68	76.91
4	4.11	24.53	101.44
5	3.82	24.06	125.50
6	1.83	30.39	155.90
7	9.91	31.00	**186.89**
8	698.26	+++	+++

SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** MBAGWI
ALTITUDE: 663m **NORTHINGS:**9413440 **EASTINGS**: 0396040
VES No: 1 **DIRECTION:** E-W **DATE:** 11/03/2021
TAKEN AT: **14**0m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	10.13	63.59
2	2	"	11.78	4.52	53.28
3	2.5	"	18.84	2.46	46.27
4	3	"	27.48	1.48	40.58
5	4	"	49.46	0.78	38.64
6	5	"	77.77	0.45	35.03
7	6	"	112.26	0.28	31.59
8	8	"	200.18	0.13	26.08
9	10	"	313.22	0.07	22.82
10	10	2.5	58.88	0.47	27.85
11	12	"	86.51	0.31	26.75
12	15	"	137.38	0.20	26.98
13	20	"	247.28	0.10	25.78
14	25	"	288.58	0.09	24.69
15	25	5	188.40	0.15	27.32
16	30	"	274.75	0.11	30.24
17	40	"	494.55	0.10	48.52
18	50	"	777.15	0.05	38.20
19	50	10	376.80	0.11	42.69
20	60	"	549.50	0.09	51.89
21	75	"	867.43	0.07	57.62
22	100	"	1554.30	0.06	95.60
23	100	25	588.75	0.14	82.98
24	125	'	942.00	0.13	121.66
25	150	'	1373.75	0.10	140.82
26	180	'	1998.01	0.09	179.60
27	200	'	2475.90	0.07	184.52



Interpretation result

Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	104.14	0.59922	0.59922
2	38.57	2.3873	2.9865
3	22.702	23.12	26.106
4	3.00E+05	44.367	70.473
5	5.4659	31.598	102.07
6	10.072	38.719	140.79
7	7.2906	37.697	**178.49**
8	492.74	+++	+++

SCHLUMBERGER GEOELECTRICAL SOUNDING

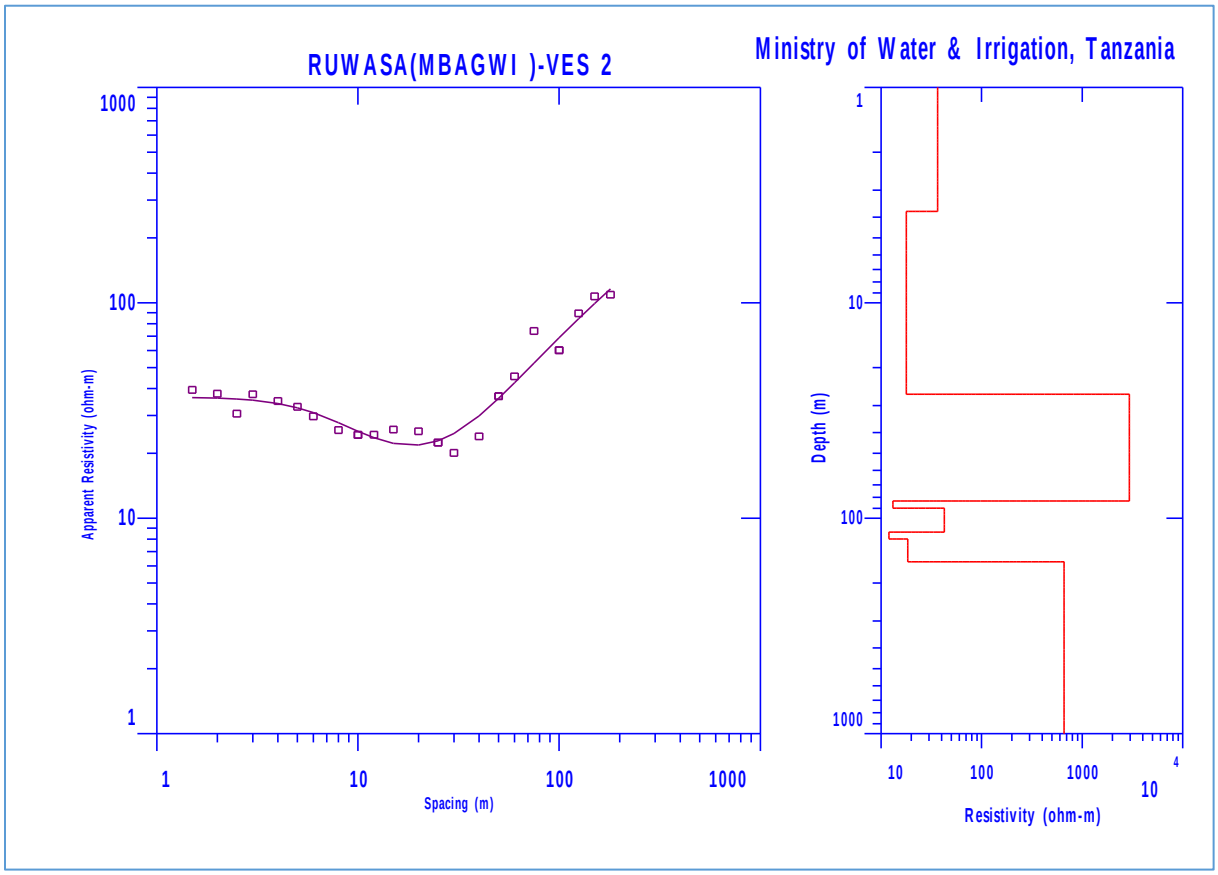
NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** MBAGWI

ALTITUDE: 663m **NORTHINGS:**9413581 **EASTINGS**: 0396004

VES No: 2 **DIRECTION:** E-W **DATE:** 11/03/2021

TAKEN AT: **30**0m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	6.28	39.43
2	2	"	11.78	3.21	37.83
3	2.5	"	18.84	1.62	30.58
4	3	"	27.48	1.37	37.60
5	4	"	49.46	0.71	34.99
6	5	"	77.77	0.42	32.90
7	6	"	112.26	0.26	29.71
8	8	"	200.18	0.13	25.66
9	10	"	313.22	0.08	24.37
10	10	2.5	58.88	0.40	23.42
11	12	"	86.51	0.28	24.42
12	15	"	137.38	0.19	25.81
13	20	"	247.28	0.10	25.33
14	25	"	288.58	0.08	22.43
15	25	5	188.40	0.13	25.22
16	30	"	274.75	0.07	20.10
17	40	"	494.55	0.05	23.98
18	50	"	777.15	0.05	41.75
19	50	10	376.80	0.10	36.84
20	60	"	549.50	0.08	45.54
21	75	"	867.43	0.09	73.98
22	100	"	1554.30	0.04	60.21
23	100	25	588.75	0.09	55.63
24	125	'	942.00	0.09	89.30
25	150	'	1373.75	0.08	107.14
26	180	'	1998.01	0.05	109.04



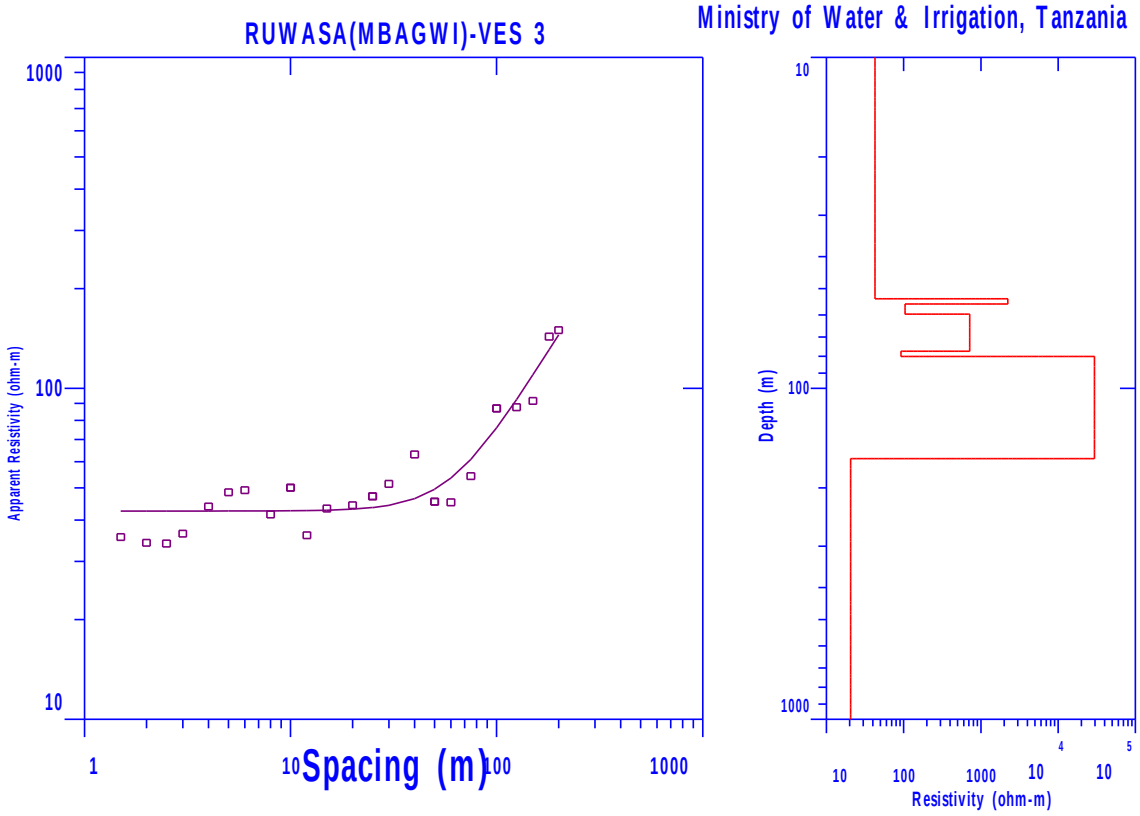
Interpretation result

Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	36.502	3.7628	3.7628
2	17.836	22.805	26.568
3	2949.5	56.693	83.261
4	13.116	6.5767	89.838
5	42.548	26.193	116.03
6	12.005	8.78	124.81
7	18.436	34.555	159.37
8	659.27	+++	+++

SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** MBAGWI
ALTITUDE: 663m **NORTHINGS:**9413581 **EASTINGS**: 0396004
VES No: 3 **DIRECTION:** E-W **DATE:** 11/03/2021
TAKEN AT: **30**0m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	5.66	35.52
2	2	"	11.78	2.90	34.13
3	2.5	"	18.84	1.80	33.96
4	3	"	27.48	1.32	36.37
5	4	"	49.46	0.89	43.94
6	5	"	77.77	0.62	48.50
7	6	"	112.26	0.44	49.24
8	8	"	200.18	0.21	41.58
9	10	"	313.22	0.34	105.22
10	10	2.5	58.88	0.85	50.07
11	12	"	86.51	0.42	35.96
12	15	"	137.38	0.32	43.31
13	20	"	247.28	0.18	44.35
14	25	"	288.58	0.14	41.39
15	25	5	188.40	0.25	47.14
16	30	"	274.75	0.19	51.43
17	40	"	494.55	0.13	63.12
18	50	"	777.15	0.06	45.41
19	50	10	376.80	0.24	90.85
20	60	"	549.50	0.08	45.24
21	75	"	867.43	0.06	54.29
22	100	"	1554.30	0.06	95.59
23	100	25	588.75	0.15	86.94
24	125	'	942.00	0.09	87.66
25	150	'	1373.75	0.07	91.59
26	180	'	1998.01	0.07	143.24
27	200	'	2475.90	0.06	149.90



Interpretation result

Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	42.549	53.641	53.641
2	2225.2	1.9763	55.617
3	104.72	4.0815	59.699
4	714.93	17.573	77.272
5	92.310	2.8259	80.097
6	29483.	82.931	**163.03**
7	20.590	+++	+++

SCHLUMBERGER GEOELECTRICAL SOUNDING

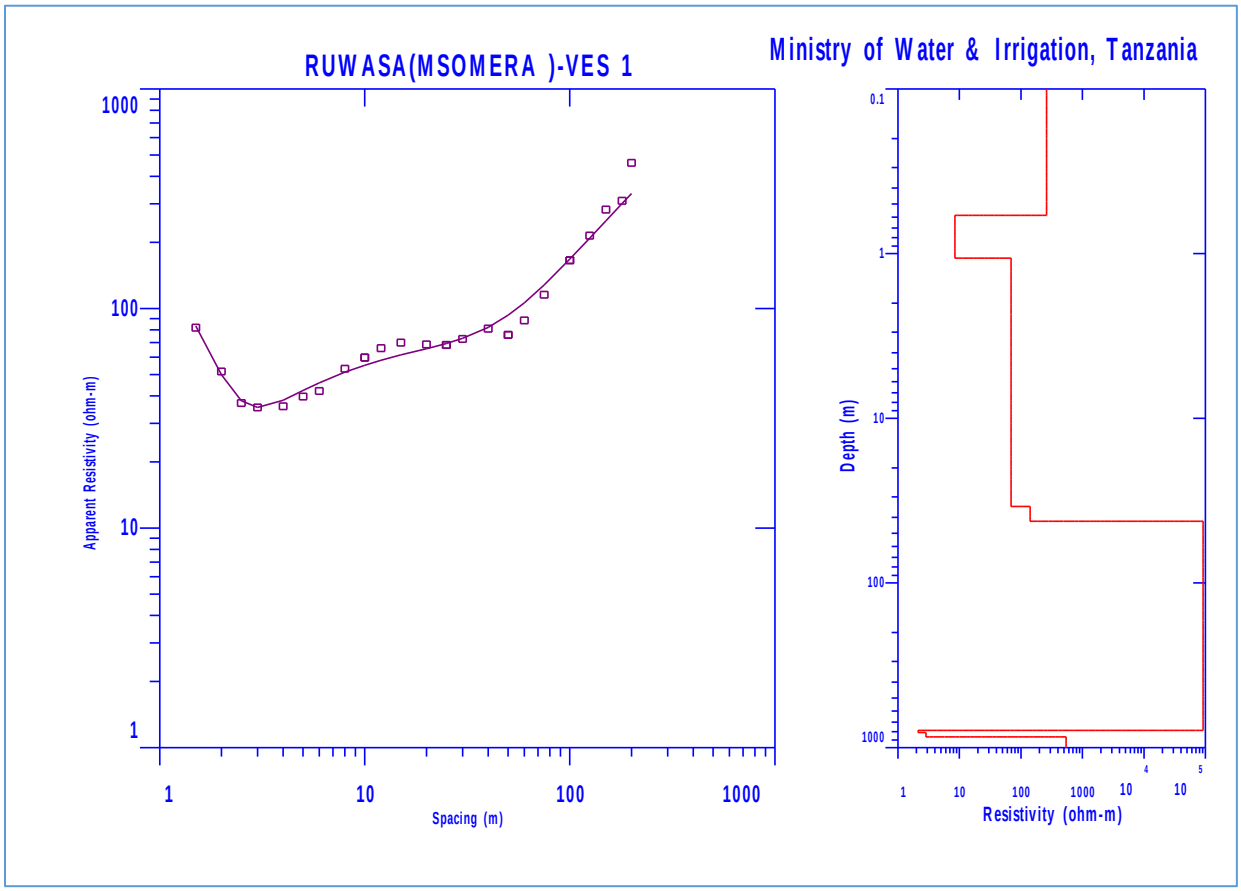
NAME OF APPLICANT: RUWASA **DISTRICT:** HANDENI **LOCATION:** MSOMERA

ALTITUDE: 719m **NORTHINGS:**9427176 **EASTINGS**: 0385378

VES No: 1 **DIRECTION:** N-S **DATE:** 12/03/2021

TAKEN AT: 60 Along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	13.03	81.81
2	2	"	11.78	4.38	51.65
3	2.5	"	18.84	1.97	37.11
4	3	"	27.48	1.29	35.43
5	4	"	49.46	0.72	35.85
6	5	"	77.77	0.51	39.71
7	6	"	112.26	0.37	42.08
8	8	"	200.18	0.27	53.16
9	10	"	313.22	0.18	56.47
10	10	2.5	58.88	1.01	59.76
11	12	"	86.51	0.76	65.98
12	15	"	137.38	0.51	69.92
13	20	"	247.28	0.28	68.61
14	25	"	288.58	0.26	76.04
15	25	5	188.40	0.36	68.19
16	30	"	274.75	0.26	72.69
17	40	"	494.55	0.16	81.00
18	50	"	777.15	0.07	52.29
19	50	10	376.80	0.20	75.82
20	60	"	549.50	0.16	88.24
21	75	"	867.43	0.13	115.55
22	100	"	1554.30	0.11	165.95
23	100	25	588.75	0.26	155.06
24	125	'	942.00	0.23	214.73
25	150	'	1373.75	0.21	282.28
26	180	'	1998.01	0.15	309.48
27	200	'	2475.90	0.19	460.91



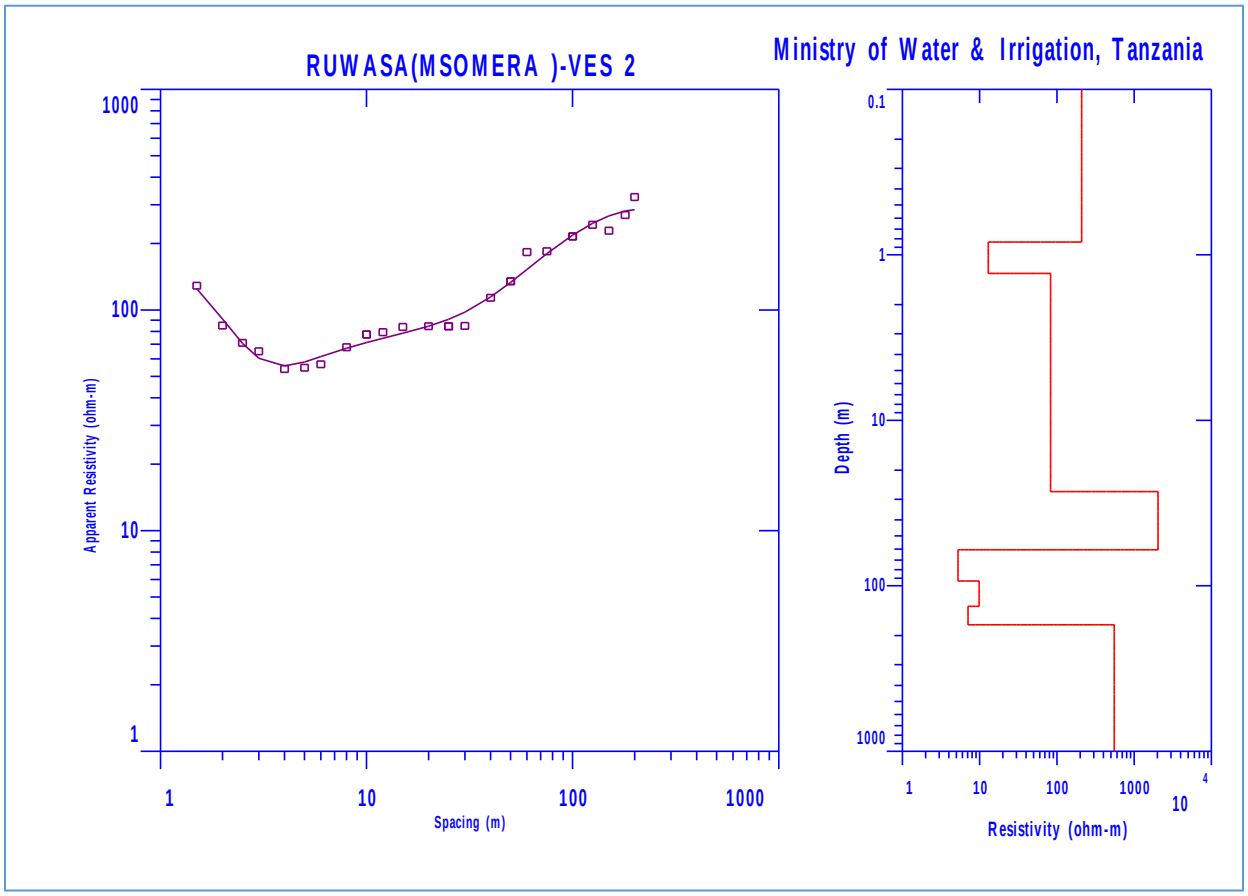
Interpretation result

Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	1.20E+03	0.19	0.19
2	49.713	28.39	28.58
3	2.70E+02	45.07	73.65
4	15.63	20.18	93.83
5	5.43	35.74	129.57
6	2.08	23.46	153.03
7	2.59	52.91	205.93
8	557.51	+++	+++

SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** PANGANI **LOCATION:** MSOMERA
ALTITUDE: 727m **NORTHINGS:**9426945 **EASTINGS**: 0385642
VES No: 2 **DIRECTION:** N-S **DATE:** 05/02/2021
TAKEN AT: 410 Alond MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	20.52	128.88
2	2	"	11.78	7.22	85.03
3	2.5	"	18.84	3.77	70.97
4	3	"	27.48	2.36	64.98
5	4	"	49.46	1.09	54.06
6	5	"	77.77	0.70	54.74
7	6	"	112.26	0.51	56.75
8	8	"	200.18	0.34	67.81
9	10	"	313.22	0.29	91.99
10	10	2.5	58.88	1.32	77.43
11	12	"	86.51	0.92	79.36
12	15	"	137.38	0.61	83.78
13	20	"	247.28	0.34	84.44
14	25	"	288.58	0.29	84.34
15	25	5	188.40	0.43	81.25
16	30	"	274.75	0.31	84.68
17	40	"	494.55	0.23	113.62
18	50	"	777.15	0.17	134.99
19	50	10	376.80	0.49	185.74
20	60	"	549.50	0.33	183.00
21	75	"	867.43	0.21	184.55
22	100	"	1554.30	0.13	200.18
23	100	25	588.75	0.37	215.54
24	125	'	942.00	0.26	243.18
25	150	'	1373.75	0.17	228.73
26	180	'	1998.01	0.13	269.46
27	200	'	2475.90	0.13	325.00



Interpretation result

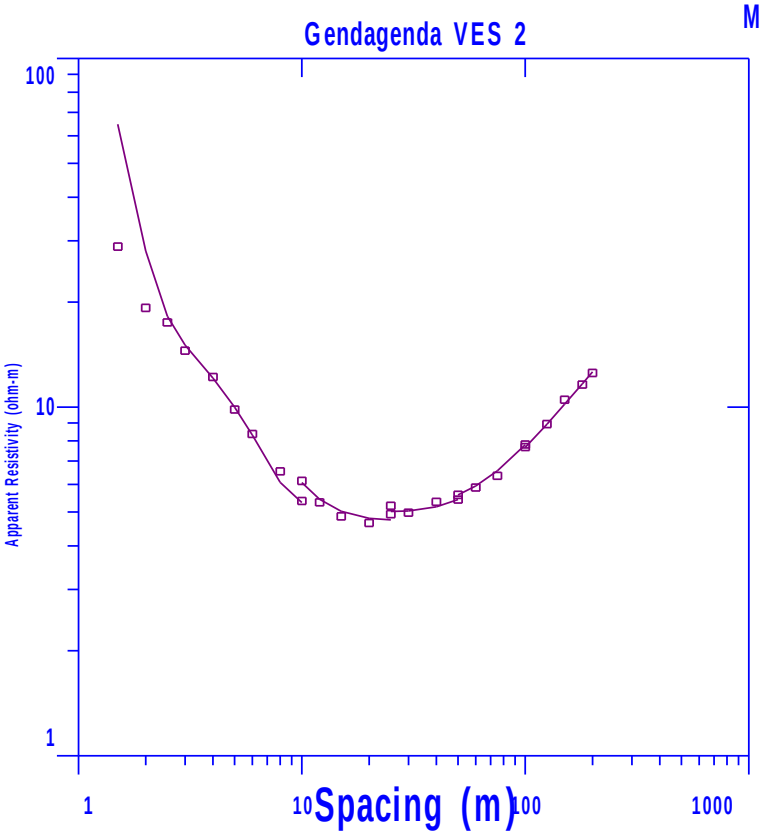
Layer No.	Resistivity (Ohm - m)	Thickness (m)	Depth (m)
1	208.99	0.84	0.84
2	12.92	0.46	1.30
3	82.98	25.67	26.96
4	2037.10	33.69	60.65
5	5.25	32.83	93.48
6	9.83	39.57	133.04
7	7.07	39.00	172.05
8	551.23	+++	+++

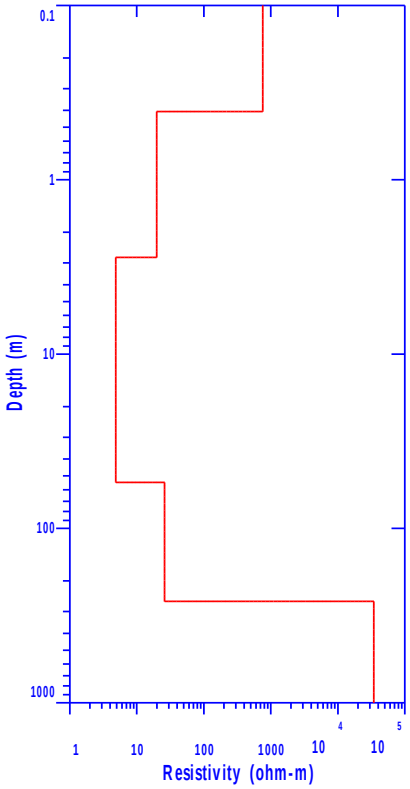
SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA **DISTRICT:** HANDENI **LOCATION:** GENDAGENDA
ALTITUDE: 113m **NORTHINGS:** 9382279 **EASTINGS**: 0461274
VES No: 2 **DIRECTION:** N-S **DATE:** 10/03/2021
TAKEN AT: 20m along MP 2

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	4.60	28.87
2	2	"	11.78	1.63	19.26
3	2.5	"	18.84	0.93	17.49
4	3	"	27.48	0.53	14.52
5	4	"	49.46	0.25	12.2
6	5	"	77.77	0.13	9.84
7	6	"	112.26	0.07	8.37
8	8	"	200.18	0.03	6.54
9	10	"	313.22	0.02	5.38
10	10	2.5	58.88	0.10	6.14
11	12	"	86.51	0.06	5.33
12	15	"	137.38	0.04	4.86
13	20	"	247.28	0.02	4.65
14	25	"	288.58	0.02	4.93
15	25	5	188.4	0.03	5.21
16	30	"	274.75	0.02	4.98
17	40	"	494.55	0.01	5.35
18	50	"	777.15	0.01	5.43
19	50	10	376.8	0.01	5.6
20	60	"	549.5	0.01	5.88
21	75	"	867.43	0.01	6.35
22	100	"	1554.3	0.01	7.81
23	100	25	588.75	0.01	7.68
24	125	'	942	0.01	8.94
25	150	'	1373.75	0.01	10.5
26	180	'	1998.01	0.01	11.6
27	200	'	2475.9	0.01	12.53

Ministry of Water & Irrigation, Tanzania





SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** GENDAGENDA

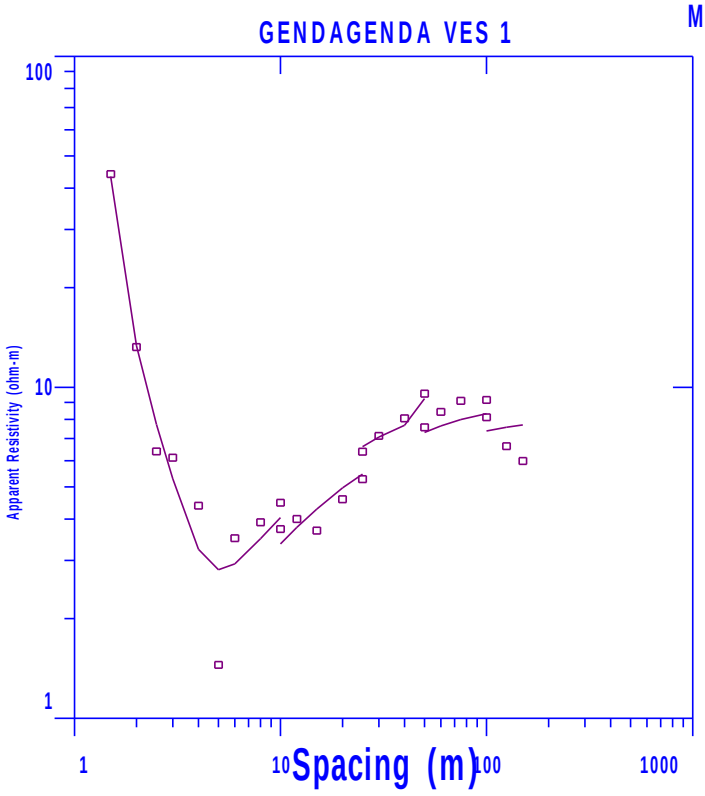
ALTITUDE: 112m **NORTHINGS:** 9385055 **EASTINGS**: 0464717

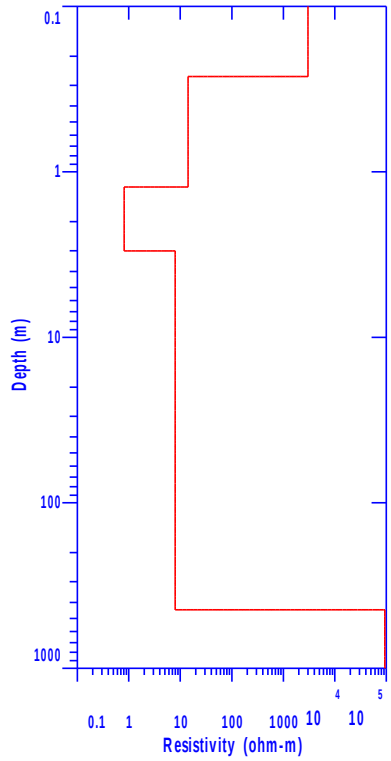
VES No: 1 **DIRECTION:** N-S **DATE:** 10/03/2021

TAKEN AT: 50m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	7.02	44.09
2	2	"	11.78	1.12	13.23
3	2.5	"	18.84	0.34	6.4
4	3	"	27.48	0.22	6.17
5	4	"	49.46	0.09	4.39
6	5	"	77.77	0.02	1.45
7	6	"	112.26	0.03	3.5
8	8	"	200.18	0.00	
9	10	"	313.22	0.01	4.48
10	10	2.5	58.88	0.06	3.73
11	12	"	86.51	0.05	4
12	15	"	137.38	0.03	3.69
13	20	"	247.28	0.02	4.59
14	25	"	288.58	0.02	5.28
15	25	5	188.4	0.03	6.39
16	30	"	274.75	0.03	7.13
17	40	"	494.55	0.02	8.06
18	50	"	777.15	0.01	9.57
19	50	10	376.8	0.02	7.57
20	60	"	549.5	0.02	8.43
21	75	"	867.43	0.01	9.1
22	100	"	1554.3	0.01	9.16
23	100	25	588.75	0.01	8.12
24	125	'	942	0.01	6.64
25	150	'	1373.75	0.00	5.99

Ministry of Water & Irrigation, Tanzania



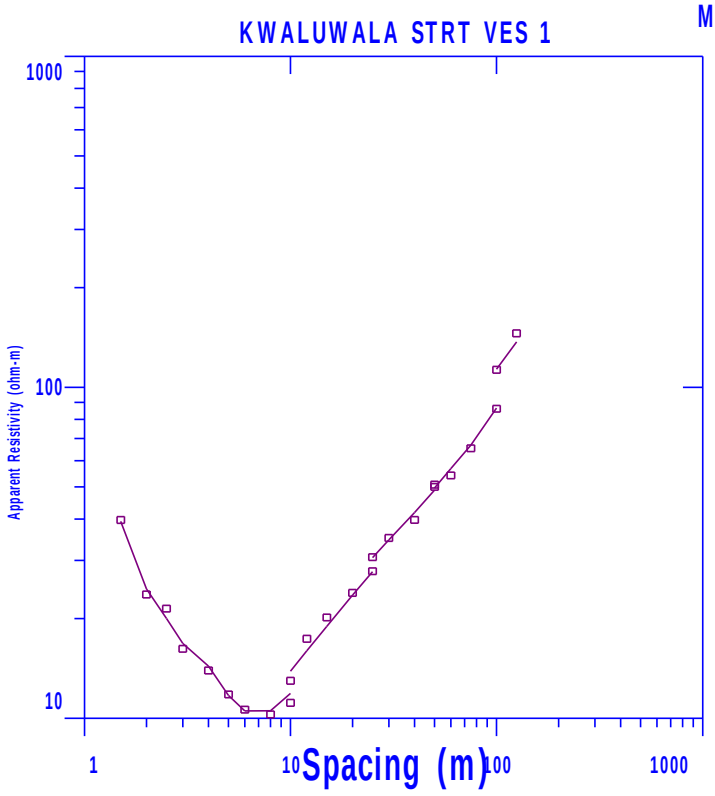


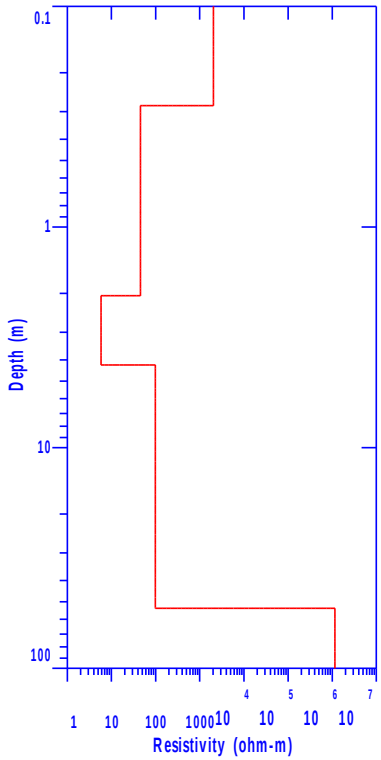
SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** KWALUALA
ALTITUDE: 664m **NORTHINGS:** 9387530 **EASTINGS**: 0385309
VES No: 1 **DIRECTION:** N-S **DATE:** 11/03/2021
TAKEN AT: 60m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	6.33	39.74
2	2	"	11.78	2.01	23.65
3	2.5	"	18.84	1.14	21.44
4	3	"	27.48	0.59	16.21
5	4	"	49.46	0.28	13.94
6	5	"	77.77	0.15	11.8
7	6	"	112.26	0.09	10.62
8	8	"	200.18	0.05	10.27
9	10	"	313.22	0.04	11.13
10	10	2.5	58.88	0.27	15.98
11	12	"	86.51	0.20	17.38
12	15	"	137.38	0.15	20.16
13	20	"	247.28	0.10	23.93
14	25	"	288.58	0.10	27.81
15	25	5	188.4	0.20	37.68
16	30	"	274.75	0.13	35.07
17	40	"	494.55	0.08	39.75
18	50	"	777.15	0.06	50.01
19	50	10	376.8	0.12	45.8
20	60	"	549.5	0.10	54.16
21	75	"	867.43	0.08	65.42
22	100	"	1554.3	0.06	86.16
23	100	25	588.75	0.19	112.96
24	125	'	942	0.15	145.58

Ministry of Water & Irrigation, Tanzania





SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** KWALUALA

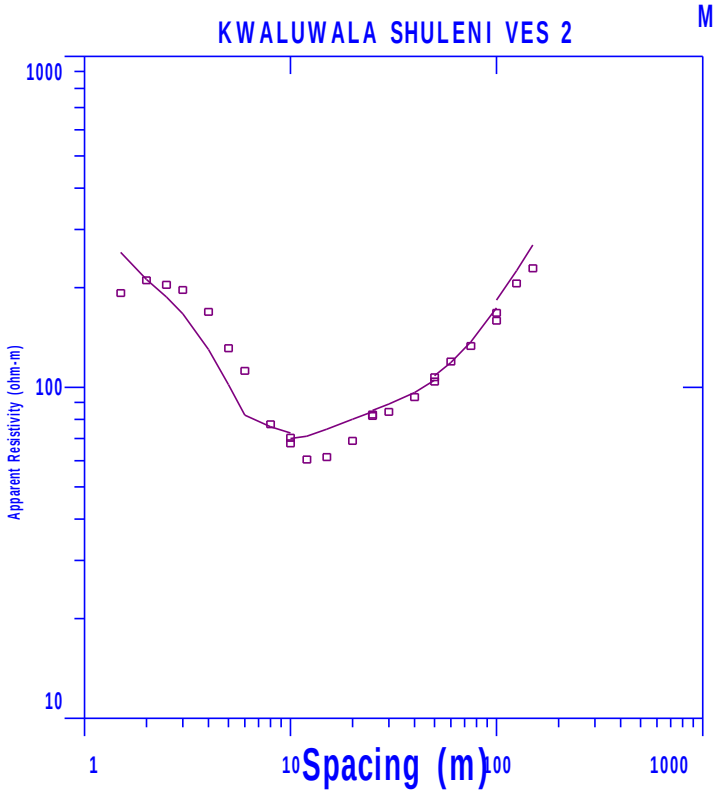
ALTITUDE: 667m **NORTHINGS:** 9387271 **EASTINGS**: 0385754

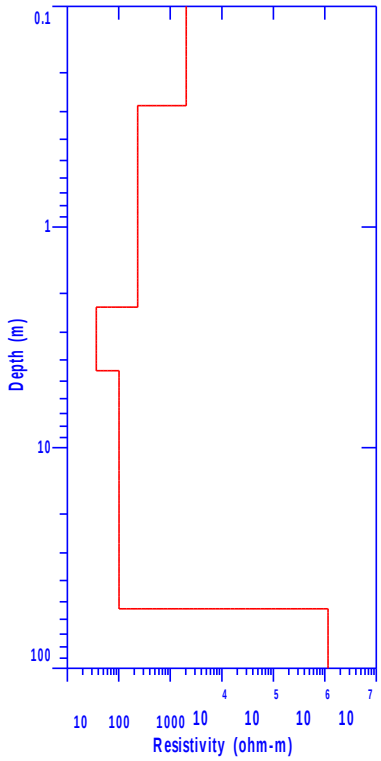
VES No: 2 **DIRECTION:** E-W **DATE:** 11/03/2021

TAKEN AT: 40m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	30.68	192.64
2	2	"	11.78	17.88	210.59
3	2.5	"	18.84	10.83	204.02
4	3	"	27.48	7.16	196.83
5	4	"	49.46	3.42	169.08
6	5	"	77.77	1.69	131.24
7	6	"	112.26	1.00	112.12
8	8	"	200.18	0.39	77.31
9	10	"	313.22	0.22	70.4
10	10	2.5	58.88	1.05	61.74
11	12	"	86.51	0.70	60.53
12	15	"	137.38	0.45	61.57
13	20	"	247.28	0.29	72.89
14	25	"	288.58	0.28	81.94
15	25	5	188.4	0.44	82.75
16	30	"	274.75	0.31	84.28
17	40	"	494.55	0.19	93.41
18	50	"	777.15	0.13	104.06
19	50	10	376.8	0.28	107.28
20	60	"	549.5	0.22	119.66
21	75	"	867.43	0.15	133.33
22	100	"	1554.3	0.10	158.95
23	100	25	588.75	0.29	167.94
24	125	'	942	0.22	206.06
25	150	'	1373.75	0.17	228.94

Ministry of Water & Irrigation, Tanzania



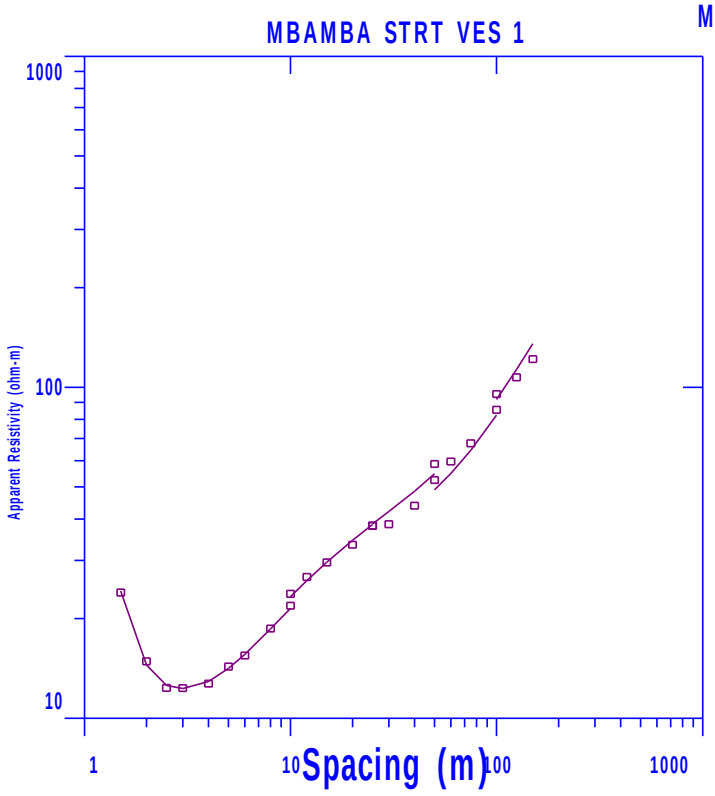


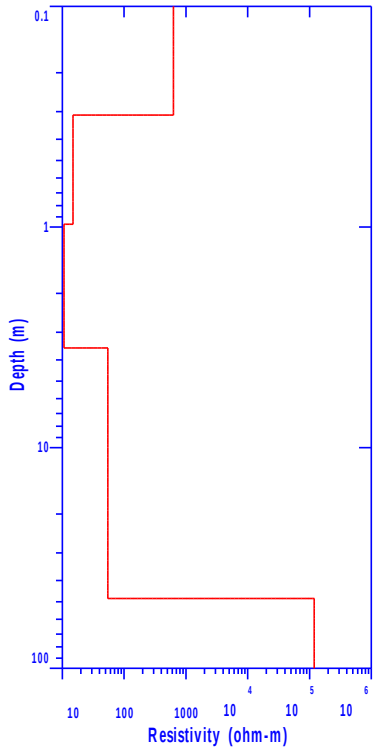
SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** MBAMBA
ALTITUDE: 655m **NORTHINGS:** 9384088 **EASTINGS**: 0384571
VES No: 1 **DIRECTION:** E-W **DATE:** 11/03/2021
TAKEN AT: 40m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	3.82	23.98
2	2	"	11.78	1.26	14.86
3	2.5	"	18.84	0.66	12.35
4	3	"	27.48	0.45	12.34
5	4	"	49.46	0.26	12.72
6	5	"	77.77	0.18	14.33
7	6	"	112.26	0.14	15.47
8	8	"	200.18	0.09	18.66
9	10	"	313.22	0.07	21.89
10	10	2.5	58.88	0.40	23.76
11	12	"	86.51	0.31	26.71
12	15	"	137.38	0.22	29.56
13	20	"	247.28	0.14	33.45
14	25	"	288.58	0.13	38.11
15	25	5	188.4	0.20	38.21
16	30	"	274.75	0.14	38.57
17	40	"	494.55	0.09	43.88
18	50	"	777.15	0.08	58.65
19	50	10	376.8	0.14	52.46
20	60	"	549.5	0.11	59.67
21	75	"	867.43	0.08	67.74
22	100	"	1554.3	0.06	85.5
23	100	25	588.75	0.15	85.5
24	125	'	942	0.10	95.4
25	150	'	1373.75	0.08	107.2
26	180	'	1998.01	0.06	121.7

Ministry of Water & Irrigation, Tanzania



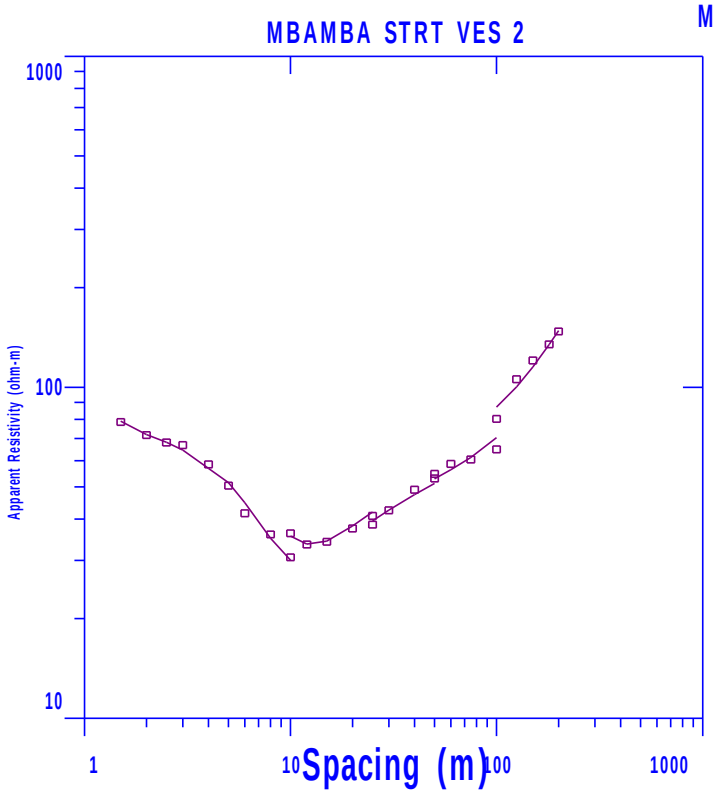


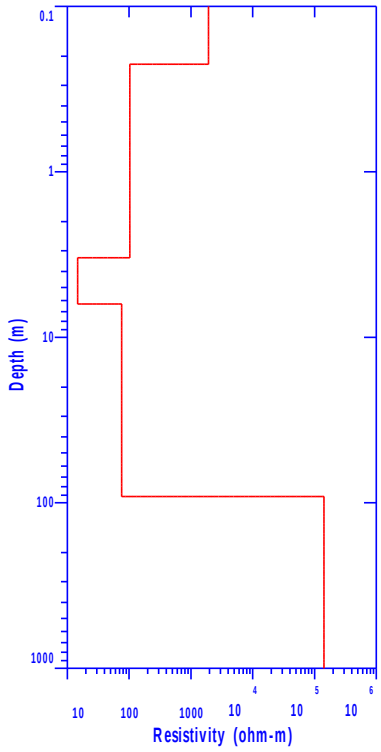
SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** MBAMBA
ALTITUDE: 667m **NORTHINGS:** 9387271 **EASTINGS**: 0385754
VES No: 2 **DIRECTION:** E-W **DATE:** 11/03/2021
TAKEN AT: 40m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	12.51	78.54
2	2	"	11.78	6.09	71.73
3	2.5	"	18.84	3.62	68.11
4	3	"	27.48	2.43	66.87
5	4	"	49.46	1.18	58.47
6	5	"	77.77	0.65	50.46
7	6	"	112.26	0.37	41.62
8	8	"	200.18	0.18	35.92
9	10	"	313.22	0.10	30.64
10	10	2.5	58.88	0.62	36.22
11	12	"	86.51	0.39	33.5
12	15	"	137.38	0.25	34.14
13	20	"	247.28	0.15	37.46
14	25	"	288.58	0.14	40.88
15	25	5	188.4	0.20	38.47
16	30	"	274.75	0.15	42.49
17	40	"	494.55	0.10	49.02
18	50	"	777.15	0.07	53.05
19	50	10	376.8	0.15	54.72
20	60	"	549.5	0.11	58.69
21	75	"	867.43	0.07	60.52
22	100	"	1554.3	0.04	64.92
23	100	25	588.75	0.14	80.28
24	125	'	942	0.11	105.78
25	150	'	1373.75	0.09	120.56
26	180	'	1998.01	0.07	134.8
27	200	'	2475.9	0.06	147.53

Ministry of Water & Irrigation, Tanzania



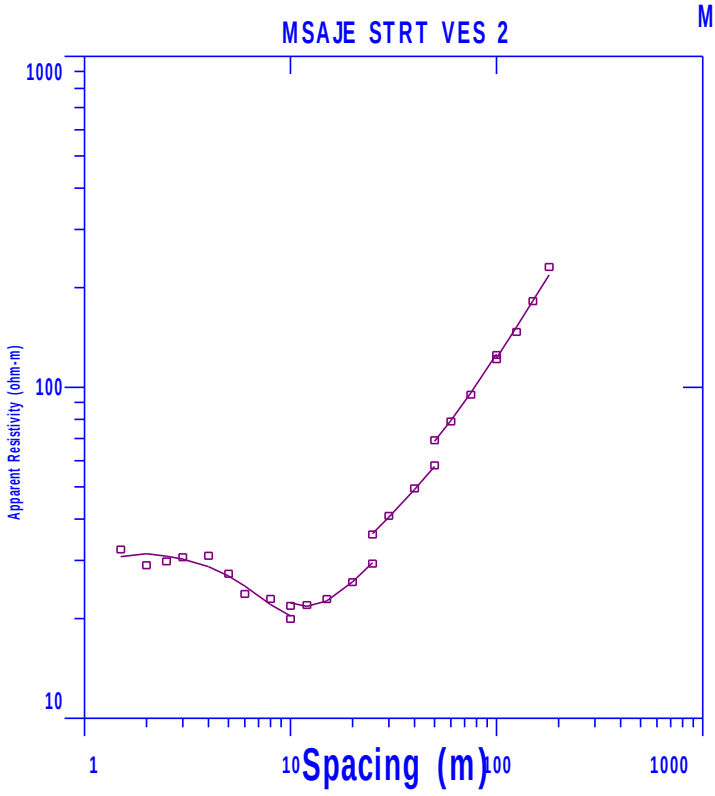


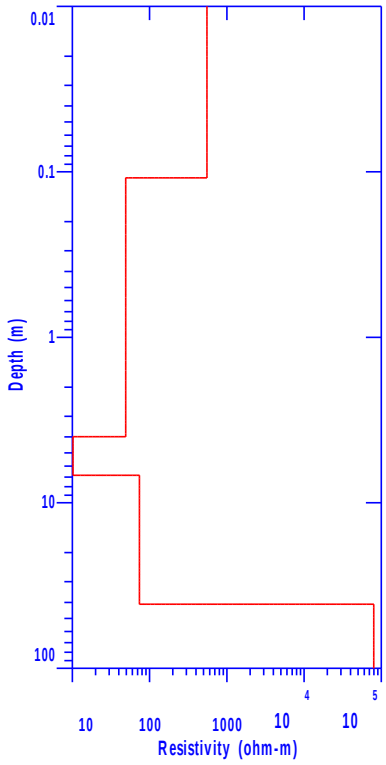
SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** MSAJE
ALTITUDE: 643m **NORTHINGS:** 9386615 **EASTINGS**: 0384962
VES No: 2 **DIRECTION:** E-W **DATE:** 11/03/2021
TAKEN AT: 70m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	5.15	32.36
2	2	"	11.78	2.46	29
3	2.5	"	18.84	1.58	29.78
4	3	"	27.48	1.12	30.66
5	4	"	49.46	0.63	30.97
6	5	"	77.77	0.35	27.33
7	6	"	112.26	0.21	23.75
8	8	"	200.18	0.11	22.94
9	10	"	313.22	0.06	19.96
10	10	2.5	58.88	0.42	24.86
11	12	"	86.51	0.25	21.98
12	15	"	137.38	0.17	22.92
13	20	"	247.28	0.10	25.77
14	25	"	288.58	0.10	29.32
15	25	5	188.4	0.21	39.91
16	30	"	274.75	0.15	40.87
17	40	"	494.55	0.10	49.49
18	50	"	777.15	0.07	58.07
19	50	10	376.8	0.19	73.2
20	60	"	549.5	0.14	78.82
21	75	"	867.43	0.11	94.97
22	100	"	1554.3	0.08	125.19
23	100	25	588.75	0.19	111.66
24	125	'	942	0.16	147.02
25	150	'	1373.75	0.13	182.16
26	180	'	1998.01	0.12	230.93

Ministry of Water & Irrigation, Tanzania





SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** KONJE SHULENI

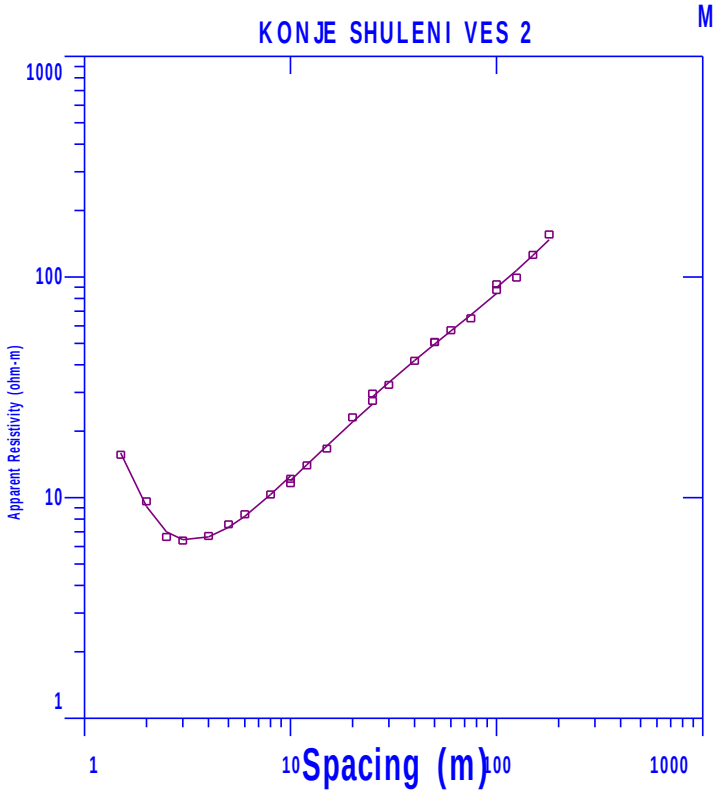
ALTITUDE: 644m **NORTHINGS:** 9402886 **EASTINGS**: 04033129

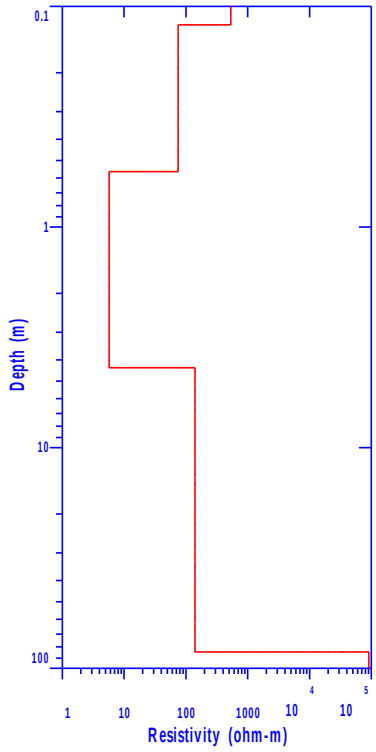
VES No: 2 **DIRECTION:** E-W **DATE:** 12/03/2021

TAKEN AT: 10m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	2.49	15.64
2	2	"	11.78	0.82	9.62
3	2.5	"	18.84	0.35	6.63
4	3	"	27.48	0.23	6.39
5	4	"	49.46	0.14	6.7
6	5	"	77.77	0.10	7.57
7	6	"	112.26	0.07	8.41
8	8	"	200.18	0.05	10.33
9	10	"	313.22	0.04	12.17
10	10	2.5	58.88	0.20	11.62
11	12	"	86.51	0.16	14
12	15	"	137.38	0.12	16.76
13	20	"	247.28	0.09	23.12
14	25	"	288.58	0.10	27.43
15	25	5	188.4	0.16	29.62
16	30	"	274.75	0.12	32.42
17	40	"	494.55	0.08	41.71
18	50	"	777.15	0.07	50.73
19	50	10	376.8	0.13	50.7
20	60	"	549.5	0.10	57.35
21	75	"	867.43	0.07	64.97
22	100	"	1554.3	0.06	87.18
23	100	25	588.75	0.16	92.68
24	125	'	942	0.11	99.38
25	150	'	1373.75	0.09	125.98
26	180	'	1998.01	0.08	155.89

Ministry of Water & Irrigation, Tanzania

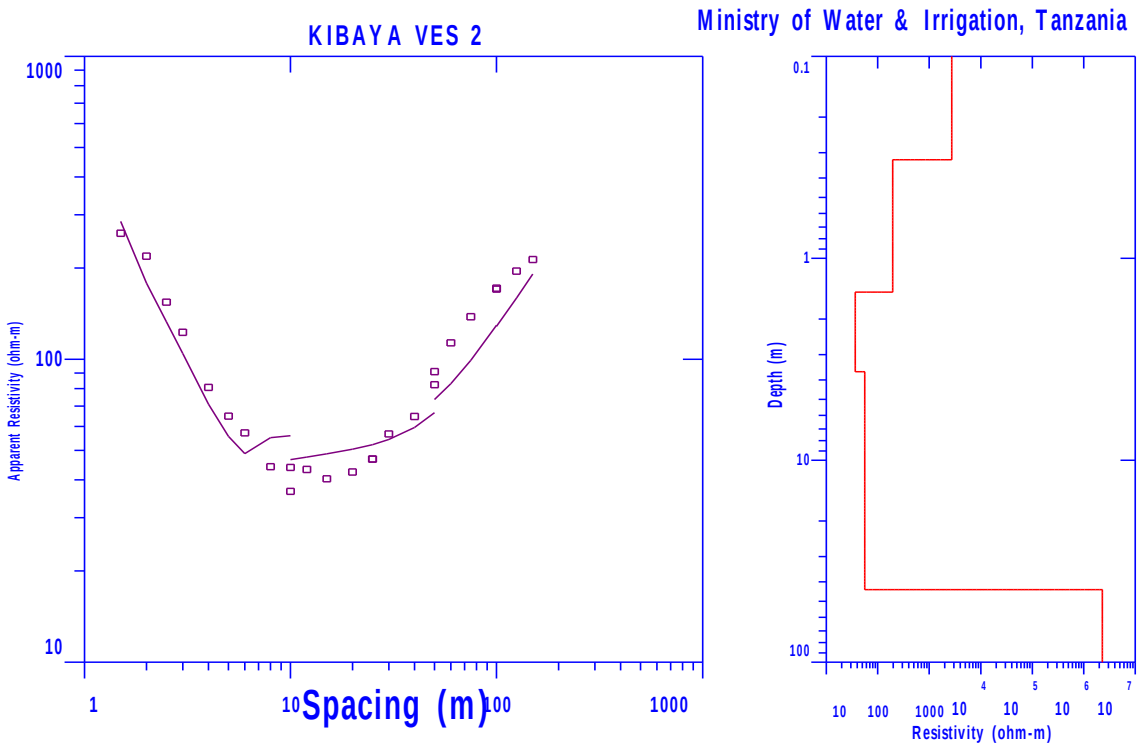




SCHLUMBERGER GEOELECTRICAL SOUNDING

NAME OF APPLICANT: RUWASA HANDENI **DISTRICT:** HANDENI **LOCATION:** KIBAYA
ALTITUDE: 592m **NORTHINGS:** 9410505 **EASTINGS**: 0401075
VES No: 2 **DIRECTION:** E-W **DATE:** 12/03/2021
TAKEN AT: 170m along MP 1

S/N	AB/2 (m)	MN/2(m)	K	R(Ω)	K x R(ΩM)
1	1.5	0.5	6.28	41.49	260.53
2	2	"	11.78	18.59	218.98
3	2.5	"	18.84	8.19	154.39
4	3	"	27.48	4.47	122.76
5	4	"	49.46	1.63	80.74
6	5	"	77.77	0.83	64.89
7	6	"	112.26	0.51	57.13
8	8	"	200.18	0.22	44.19
9	10	"	313.22	0.18	55.94
10	10	2.5	58.88	0.62	36.63
11	12	"	86.51	0.50	43.28
12	15	"	137.38	0.29	40.3
13	20	"	247.28	0.17	42.44
14	25	"	288.58	0.16	46.82
15	25	5	188.4	0.25	46.83
16	30	"	274.75	0.21	56.69
17	40	"	494.55	0.13	64.7
18	50	"	777.15	0.11	82.38
19	50	10	376.8	0.24	91.02
20	60	"	549.5	0.21	113.32
21	75	"	867.43	0.16	138.14
22	100	"	1554.3	0.11	171.71
23	100	25	588.75	0.27	157.43
24	125	'	942	0.21	195.42
25	150	'	1373.75	0.16	213.47



Interpretation Result and recommendation for drilling site

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