PUBLIC NAMUNA SECONDARY SCH00L

TECS PROGRAM

SIYARI-4, RUPANDEHI NEPA

Report Of Cadastral Survey By Using Total Station

By Group "B"

Dinesh B.K.	Binaya k. Chaudhary
Asmita Thapa	Jitendra Chaudhary
Sabitra Aryal	Narendra B.K.
Priyanka Dhakal	Gobinda B.K.
Roshni Tharu	Salim Gharti Magar
Keshav Panthi	

Submitted By: Group B **Submitted To: Er. Keshav Raj Bhusal**

2081-05- 15

ACKNOWLEDGMENT

We would like express our sincere gratitude from Group “B” to our survey instruction committee, PUBLIC NAMUNA SECONDARY SCHOOL. And mostly we are thankful to our teacher ER. Keshav Raj Bhusal for organizing this survey to enhance our knowledge and importance of Cadastral Surveying and Gis Application. Our heartfelt thanks also goes to our team members for cooperation throught this survey.

This acknowledgement is incomplete without the word of appreciation for the administration who provided us the working space, environment and mostly thankful to our teacher Jr.Er.Ajit Shrestha for providing instrument that are used in survey. We are humbly thanked for those who directly and indirectly involved in this survey.

Report contains such content the symbolize the significance of cadastral surveying in Geomatics. This reports include the task conducted the methodology used, observation and calculation with drawing. We hope that this report emphasises on providing the knowledge on practical issues to the reader.

ABSTRACT

This report mainly Explain in detail the working procedures and techniques applied in cadastral surveying throughout the 6 days. The objectives of cadastral survey Was to carry out the details of Eastern Part of Public school like Road, Building, Pond, Parcel Boundary.

The survey was also targeted to improve the planning, managing and working ability of students in the real field situation. Further More GIS was used for mapping which encouraged the students to be Familier with the advanced mapping technology. Parcel editor was used for cadastral map purposes which made us quite familiar with government work.

This report describes Throughly the methodology, observation, calculation, methods of adjustment of errors and result obtains from survey. The problem faced during the survey and their solution was also explained. The sheets showing the framework of the major and minor travers

ABBREVIATIONS

PB Parcel Boundary

BLD Building

RD Road

PD Pond

Table of Figure

Contents

1. INTRODUCTION

1.1. BACKGROUND

Cadastral surveying is the definition, identification, demarcation, measuring and mapping of new or changed legal parcel boundaries. It usually includes the process of re-establishing lost boundaries and sometimes resolving disputes over boundaries or other interests in real property. Cadastral surveys document the boundaries of land ownership with the help of documents, diagrams, sketches, plans, charts, and maps. They were originally used to ensure reliable facts for land valuation and taxation. Cadastral surveys are carried out by governmental officials and sometime by private surveyors. However, the survey done by private surveyors is not legally accepted and has to be verified

1.2. OBJECTIVES

- To get more knowledge about how to make map in GIS
- To learn how to doing cadastral survey in real field
- To make cadastral map of school area and around of school area
- To familiar with instrument

2. STUDY AREA

In re-search, the study area refers to the specific geographical or conceptual location or focus of a research project. On 12 March 2017, the government of Nepal implemented a new local administrative structure, with the implementation of the new local administrative structure, VDCs have been replaced with municipal and village councils. The study was carried out in Rupandehi district, Siyari rural municipality. Siyari is one of these 753 local units. There are 7 wards in siyari gaunpalika which is a combination of formal Chilhiya, Mainahaiya, Harnaiya, Dayanagar and west Amawaa VDC. Siyari is located near Sisahaniya and Jagahattha . Geographic area of this place is 66.17sq.km whereas, the population of this area is 38,466 according to (2011) census.

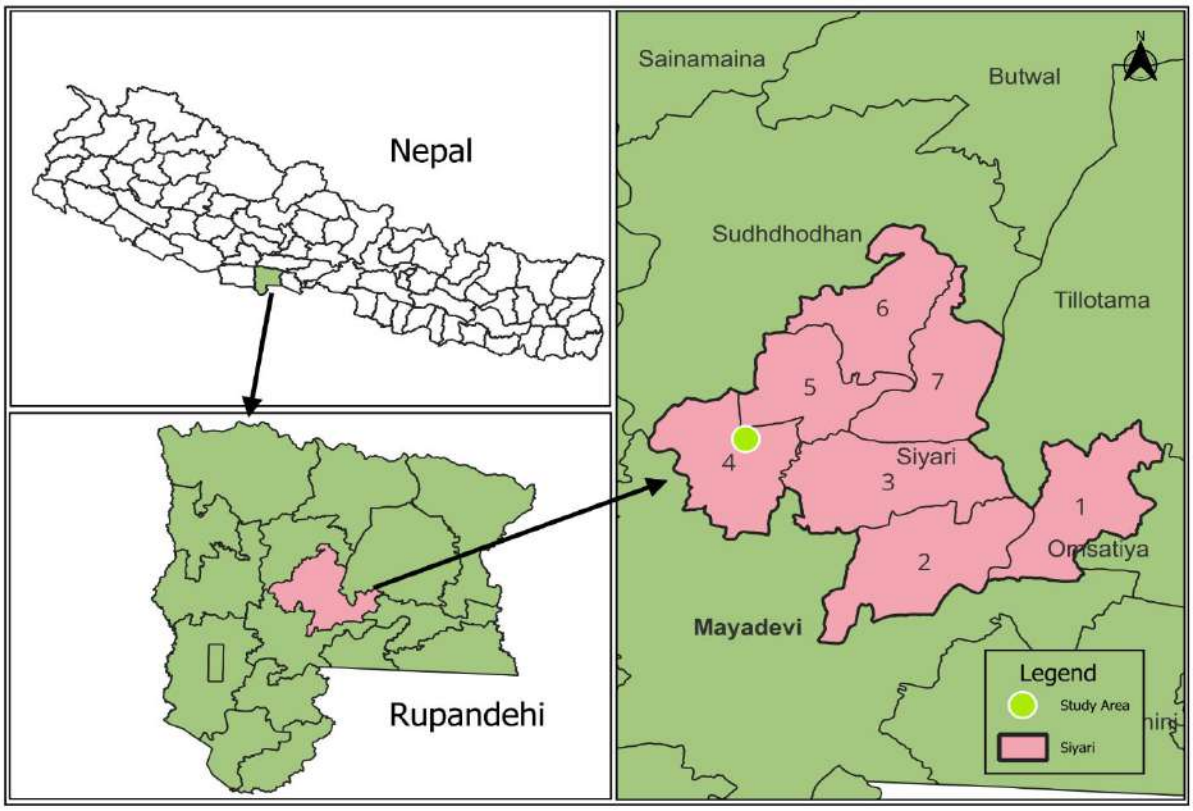

Figure 1: Study Area

3. INSTRUMENT AND ACCESSORIES

- Total station
- Prism
- Peg
- Tape
- Levelling Machine
- Staff
- Tripod
- Hammer
- Clamp

TOTAL STATION

A Total Station is an electronic optical instrument used in surveying and construction. It combines the functions of a theodolite and distance meter, allowing surveyors to measure angles, distances, and elevations with high accuracy.

Figure 2: Total Station

PRISM

In the context of surveying, a prism refers to a reflective target used with total stations for distance measurements. The total station emits a laser, and the prism reflects it back to the instrument, enabling accurate distance calculations.

Figure 3: Prism

PEG

A peg in surveying is a wooden or metal stake driven into the ground to mark a specific point, often used as reference points for measurements or to outline boundaries.

Figure 4: Peg

TAPE

In surveying, a tape refers to a measuring tape used to measure distances on the ground. It can be made of various materials, including cloth, metal, or fiberglass.

Figure 5: Tap

LEVELLING MACHINE

A levelling machine, or level, is a surveying instrument used to determine the relative height difference between different points on the Earth's surface. It consists of a telescope and a levelling mechanism.

Figure 6: Level Machine

STAFF

A staff is a graduated rod used in surveying to measure vertical distances. It typically has markings in meters or feet and is held upright at survey points for height measurements.

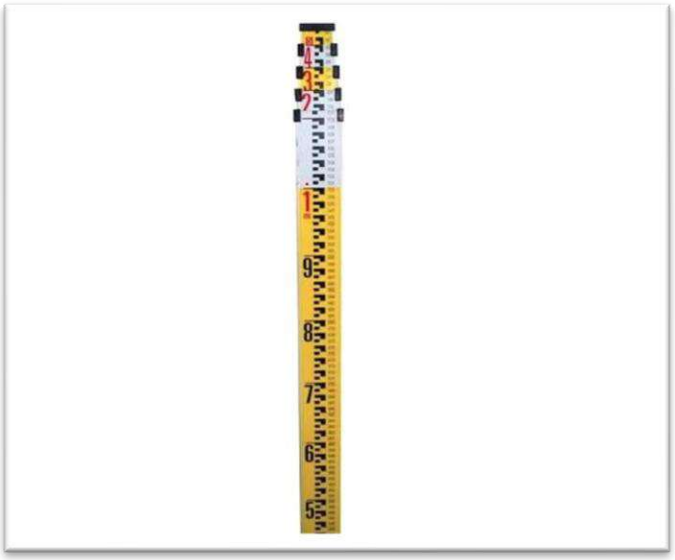

Figure 7: Staff

TRIPOD

A tripod is a three-legged support stand used to mount surveying instruments like total stations, theodolites, or levels. It provides stability and allows for precise adjustments in the instrument's position.

Figure 8: Tripod

HAMMER

In surveying and construction, a hammer may refer to a tool used to drive pegs or stakes into the ground. It is essential for securing markers and reference points.

Figure 9: Hammer

CLAMP

A clamp is a device used to secure or fasten objects together. In surveying, clamps may be used to attach instruments to tripods or to secure other equipment in place.

Figure 10: Clamp

4. METHODOLOGY

4.1. RECONNAISSANCE

Firstly the group was divided into three groups and the leader of each group was Chosen. Then visiting the field to have knowledge about the field and distribute the control points uniformly.

4.1.1. TRAVERSE STATION ESTABLISHMENT

The Station Eastablish withb the help of sw maps

4.1.2. MONUMENTATION

The processs of establishing a physical survey control network, consisting of survey makers representing specific points and generally assigned with geographical coordinates which pertain to a defined datum of references

4.1.3. D-CARD PREPARATION

After Monumentation D-Card is prepared for every station. It just looks like an identity card of station. D-card helps to relocate or find the station in the field in case the station is lost. Then we have done traversing.

4.2. MEASUREMENT AND OBSERVATION

4.2.1. TRAVERSING

Traversing is that type of survey in which a number of connected survey lines form the framework and the directions and lengths of the survey lines are measured with the help of an angle measuring instrument and tape or chain respectively.

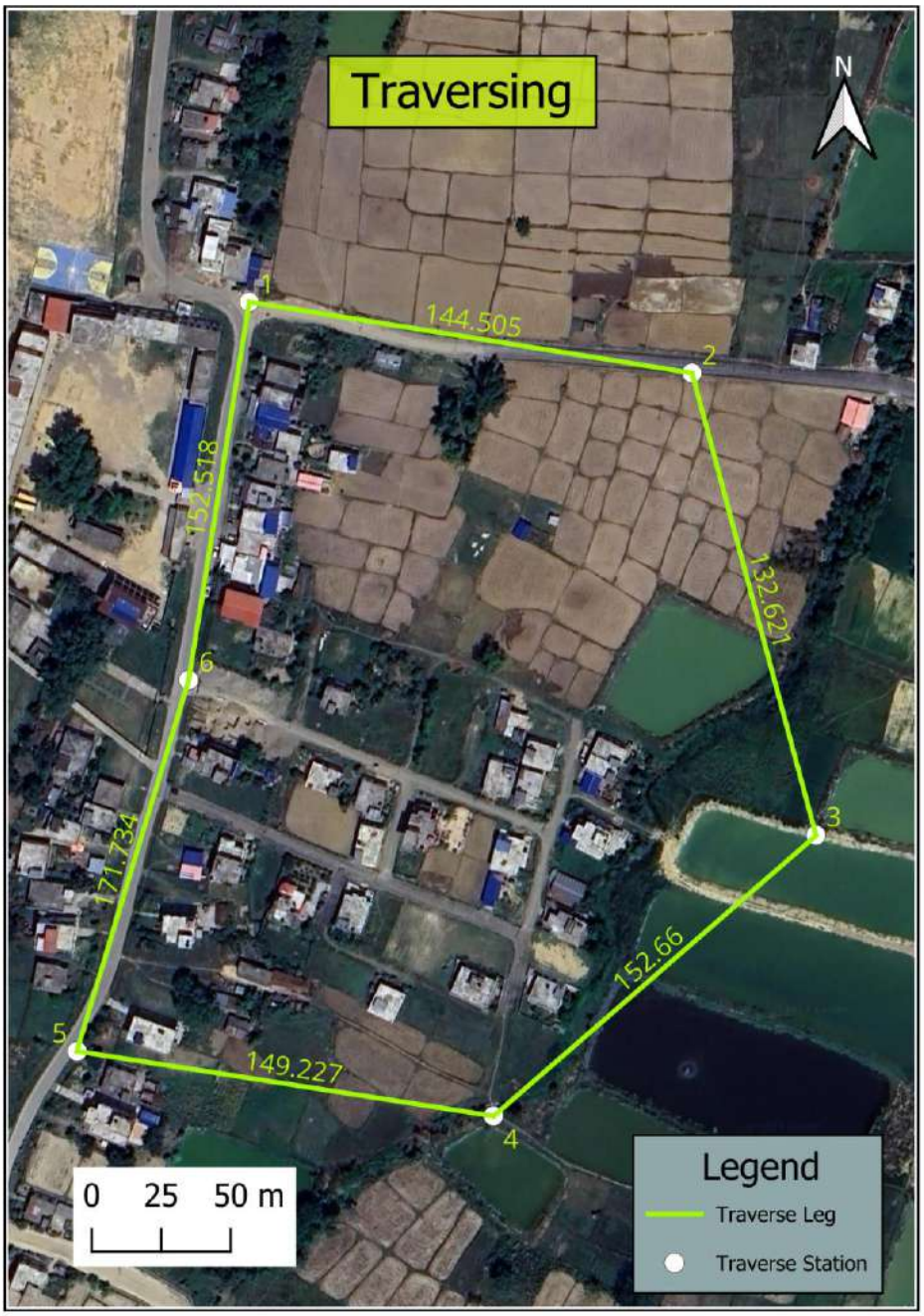

Figure 11: Traverse

Horizantal Angle & Distance Reading (Traverse)									
Inst. Stn	Sight to	Face	HCR			HA(L-L&R-R)	Mean HA	Distance(m)	MeanDistance
			D	M	S				
1	6	L	0	0	0	88◦17'2"	88◦17'2"	152.512	152.512
		R	180	0	0			152.512	
	2	L	88	17	2	88◦17'2"		144.501	144.504
		R	268	17	2			144.503	
2	1	L	0	0	0	187◦36'17"	187◦36'17"	144.507	144.507
		R	180	0	0			144,507	
	3	L	187	36	17	187◦36'17"		132.618	132.618
		R	7	36	17			132.618	
3	2	L	0	0	0	82◦37'26"	82◦37'26"	132.623	132.623
		R	179	59	59			132.623	
	4	L	82	37	26	82◦37'26		152.64	152.64
		R	262	37	25			152.64	
4	3	L	0	0	0	127◦53'54"	127◦53'54"	152.686	152.686
		R	180	0	0			152.686	
	5	L	127	53	54	127◦53'54"		149.235	149.234
		R	307	53	54			149.233	
5	4	L	0	0	0	116◦0'32"	116◦0'32"	149.22	149.22
		R	180	0	0			149.22	
	6	L	116	0	32	116◦0'32"		171.725	171.725
		R	296	0	32			171.725	
6	5	L	0	0	0			171.747	171.743

		R	179	59	59	117◦32'51"	117◦32'51"	171.739	
	1	L	117	32	51	117◦32'51"		152.525	152.525
		R	297	32	50			152.525	

4.2.2. LEVELLING

Levelling is the branch of surveying which deals with the measurements in the vertical plane. Levelling is defined as the art of determining the relative height or elevation above or below the selected datum. By using dumply level we take the RL of one station.

RL of back station = RL of previous station +staff reading of previous station - staff reading of back station

4.3. COMPUTATION AND ADJUSTMENT

The traverse computation involve calculation of consecutive coordinates of traverse station, checking error of closure, determination of the amount of closing error, adjustment of traverse by balancing of consecutive coordinates, calculation of independent coordinates and determination of corrected distances

4.3.1. HORIZONTIAL ANGLE ADJUSTMENT

The sum of angles of a regular polygon is given by:

Sum= (2n±4)×90° '+'ve if the traverse is done in clockwise direction (exterior angles) '-'ve if the traverse is done in anticlockwise direction (interior angles)

Where, n = total number of stations Since, we have altogether 6 stations and the traverse is done in anticlockwise direction.

So, Theoretical Sum (ΣSumT) = (2×6-4)×90°= 720° We have, Observed Sum (ΣSumO) = 719°58'6" Error in angular measurement can be calculated as:

Error (e) = ΣSumT- ΣSumO = 720°- 719°58'6"= – 0° 01' 54"

Total error = – 0° 1' 54" = -1'54"

Total correction = -1'54"

Correction in each angle = -1'54"/6 = +19"

So, we are adding station in 1 and 2 is 2 and in other station is 1.

Horizontal Angle Correction				
Station				
From	To	Horizontal Angle	Correction	Corrected Angle
1	6 2	88◦17'2"	19"	88◦17'21"
2	1 3	187◦36'17"	19"	187◦36'36"
3	2 4	82◦37'27"	19"	82◦37'46"
4	3 5	127◦53'57"	19"	127◦54"16"
5	4 6	116◦0'32"	19"	116◦0'51"
6	5 1	117◦32'51"	19"	117◦33'10"

4.3.2. BEARING COMPUDATION

Bearing of station 1-2= 183° 13’ 40’ (which was measured on the field using mobile compass) From bearing of line 1-2 and corrected horizontal angle, the bearings of all other traverse legs can be computed by using formula:

Bearing of next/forward line = Bearing of previous line + included angle between them

E.g

Bearing of line joining ST2 – ST3 = Bearing of line joining (ST1-ST2) + angle at ST2 If 180°,

then subtract 180° If >540°, then subtract 540° Accordingly, bearings are tabulated as

Bearing Computation							
Station	line	Corrected Angle			Bearing		
		D	M	S	D	M	S
ST1	ST1-ST2	88	17	121	183	13	40
ST2	ST1-ST3	187	36	36	190	50	16
ST3	ST1-ST4	82	37	46	93	28	2
ST4	ST1-ST5	127	54	16	41	22	18
ST5	ST1-ST6	116	0	51	337	23	9
ST6	ST1-ST7	117	32	10	274	56	19

4.3.3. CONSECUTIVE COORDINATE COMPUTATION

The consecutive coordinates are expressed in term of latitude and departure which are used later to determine independent coordinates.

Latitude and departure are given by,

Latitude = L*sinθ and Departure = L*cosθ where L = length of that line, θ= bearing of that respective line.

The consecutive coordinates (latitude and departure) are tabulated as:

Consecutive Coordinate Computation							
Station	Line	Length	Bearing WCB			Consecutive coordinate	
			D	M	S	Latitude	Departure
1	1 to 2	144.505	183	13	40	-144.276	-8.136
2	2 to3	132.621	190	50	16	-130.256	-24.937
3	3 to 4	152.66	93	28	2	-9.232	152.381
4	4 to 5	149.227	41	22	18	112.023	98.63
5	5 to 6	171.734	337	23	9	158.53	-66.036
6	6 to 1	152.518	274	56	19	13.13	-151.952
Sum of length(l)∑ =903.265						**∑ = -0.081**	**∑ = -0.05**

4.3.4. BALANCING THE TRAVERSE

The process of adjusting the consecutive coordinates of each line by applying correction to them in such a way that algebraic sum of latitude and departure of traverse equal to zero is called balancing the traverse. In this traverse we apply Bowditch method for balancing the traverse.

By using formula i.e.

correction in latitude = total correction in latitude × Length of line/ Primeter of traverse
correction in Departure = total correction in Departure × Length of line/ Primeter of traverse

Station	Line	Length	consecutiv coordinte		bowditchs correction		correction consecutive coordinate	
			Latitude	Departure	Latitude	Departure	Latitude	Departure
1	1 to 2	144.51	-144.276	-8.136	0.013	0.008	-144.263	-8.128
2	2 to 3	132.62	-130.256	-24.937	0.012	0.008	-130.244	-24.929
3	3 to 4	152.66	-9.232	152.381	0.014	0.008	-9.318	152.389
4	4 to 5	149.23	112.023	98.63	0.013	0.008	112.034	98.639
5	5 to 6	171.73	158.53	-66.036	0.015	0.01	138.545	-66.026
6	6 to 1	152.52	13.13	-151.952	0.014	0.008	13.114	151.944

4.3.5. INDEPENDENT COORDINATE COMPUATAION

After calculating a bearing. Now can calculate latitude and departure by using bearing and distance. Apply Bowditch correction lat/dep.

Now by knowing coordinates of first station we can calculate of other stations also. After the traverse has been completely balanced (ie. Σlat.= 0 and Σdep. = 0) ,

the independent coordinates of all the traverse stations are calculated. If the coordinate of any one traverse station is known, then the independent coordinates of all other stations can be computed by using consecutive coordinates.

The independent coordinates of the first station (ie. ST1) was obtained previously through SW Map. It's coordinates are:

Northing(N) = 3051868.33 Easting(E) = 732963.498 The independent coordinates of other stations are computed and tabulated as:
Northing of next station = Northing of previous station + latitude of that line joining the stations Easting of next station = Easting of previous station + departure of that line joining the stations

Independent coordinate computation					
Station	Line	Corrected Consecutive coordinates		Independent Coordinates	
		Latitude	Departure	Northing	Easting
		From SW Map Coordinate		3051868.33	732963.498
ST1	ST1-ST2	-144.263	-8.128	3051868.33	732963.498
ST2	ST2-ST3	-130.244	-24.929	3051724.067	732955.37
ST3	ST3-ST4	-9.318	152.389	3051593.823	732930.441
ST4	ST4-ST5	112.034	98.639	3051586.605	733082.83
ST5	ST5-ST6	138.545	-66.026	3051696.641	733181.468
ST6	ST6-ST1	13.114	151.944	3051855.181	733115.442

4.4. DETAILING

PT	PCODE	NORTHING	EASTING	ELEVATION
1	ST1	3051868.33	732963.5	49.411
2	ST2	3051724.03	732955.4	48.326
3	ST6	3051855.15	733115.5	49.638
4	RD	3051866.28	732951.5	49.39
5	RD	3051859.83	732951.1	49.194
6	RD	3051862.34	732939.7	49.237
7	RD	3051868.97	732941	49.418
8	RD	3051863.44	732933.4	49.312
9	RD	3051870.95	732935.2	49.443
10	RD	3051858.84	732952.9	49.186
11	RD	3051855.87	732956.5	49.124
12	RD	3051854.92	732966.1	49.301
13	RD	3051851.72	732958.4	49.085
14	RD	3051850.64	732965	49.342
15	RD	3051846.49	732959.1	49.085
16	RD	3051791.71	732954.6	48.769
17	RD	3051791.4	732961.8	48.834
18	RD	3051867.72	732968	49.262
19	RD	3051857.98	732969.4	49.274
20	RD	3051859.1	732977.9	49.214
21	RD	3051863.57	732995.9	49.115
22	RD	3051858.37	732992.5	49.189
23	RD	3051856.41	733004.6	49.292
24	RD	3051860.93	733013.3	49.154
25	RD	3051853.71	733022	49.335
26	RD	3051859.11	733024.4	49.263
27	RD	3051852.55	733036.2	49.333
28	RD	3051857.9	733038.1	49.333
29	RD	3051853.14	733060.5	49.533
30	RD	3051859.03	733061.2	49.57
31	BLD	3051843.88	732972.6	49.071
32	BLD	3051837.17	732971.9	49.313
33	BLD	3051841.97	732984.7	49.256
34	BLD	3051837.14	732971.5	49.277
35	ST1	3051868.34	732963.4	49.372
36	ST5	3051696.64	733181.5	48.11
37	RD	3051859.59	733075.2	49.525

38	RD	3051853.63	733075.6	49.565
39	RD	3051854.28	733105.1	49.582
40	RD	3051860	733105.3	49.459
41	RD	3051854.48	733190.6	49.438
42	RD	3051861.23	733185.2	49.315
43	RD	3051853.82	733194.2	49.567
44	RD	3051862.09	733195	49.567
45	RD	3051853.61	733198.2	49.561
46	RD	3051861.6	733199.9	49.563
47	PB	3051852.49	733105.6	49.451
48	PB	3051852.57	733121.3	49.421
49	PB	3051780.17	733092.1	48.957
50	PB	3051780.13	733090.4	48.973
51	PB	3051738.51	733074.2	48.36
52	PB	3051775.88	733103.3	48.778
53	PB	3051768.97	733116.3	48.537
54	PB	3051730.38	733099.7	47.797
55	PB	3051743.63	733057.4	48.405
56	PB	3051761.15	733066	48.778
57	PB	3051761.8	733083.4	48.563
58	PB	3051766.15	733054.8	48.39
59	PB	3051763.36	733076	48.474
60	PB	3051762.8	733069.6	48.586
61	PB	3051852.2	733092.7	49.379
62	PB	3051839.63	733091.8	49.338
63	PB	3051827.33	733089.3	49.307
64	PB	3051814.35	733086.2	49.206
65	PB	3051812.3	733092	49.168
66	PB	3051800.88	733082.5	49.254
67	PB	3051799.58	733089.5	49.176
68	PB	3051785.13	733079.5	49.012
69	PB	3051803.89	733069.6	49.11
70	PB	3051819.68	733073.7	49.217
71	PB	3051811.03	733046.4	49.046
72	PB	3051838.63	733078.2	49.246
73	PB	3051827.52	733050.8	49.113
74	PB	3051841.44	733079.5	49.243
75	PB	3051840.22	733053.6	49.118
76	PB	3051851.88	733080.5	49.264

77	PB	3051850.91	733054.7	49.24
78	PB	3051852.18	733133.4	49.233
79	PB	3051841.63	733132.1	49.244
80	PB	3051837.28	733130.5	49.168
81	PB	3051839.16	733150.6	49.318
82	PB	3051852.45	733154.3	49.345
83	PB	3051827.32	733129.3	49.033
84	PB	3051823.23	733127.9	48.956
85	PB	3051809.37	733125.3	48.764
86	PB	3051781.46	733119.4	48.629
87	PB	3051785.79	733106.7	48.914
88	OFF2	3051778.66	733028	48.399
89	OFF2	3051844.19	733153.5	48.646
90	OFF2	3051838.92	733168.5	49.045
91	OFF2	3051830.54	733150.4	49.047
92	OFF2	3051824.53	733163.7	48.864
93	OFF2	3051827.86	733154.1	48.962
94	OFF2	3051822.67	733164.3	48.676
95	OFF2	3051822.84	733151.6	48.784
96	OFF2	3051808.78	733153	48.595
97	OFF2	3051817.36	733179	48.743
98	OFF2	3051807.75	733161.4	48.611
99	OFF2	3051824.58	733183.4	48.725
100	OFF2	3051803.54	733161.3	48.418
101	OFF2	3051828.36	733184	48.735
102	OFF2	3051802.49	733174.5	48.354
103	OFF2	3051833.2	733183.6	48.734
104	OFF2	3051837.37	733177.1	48.996
105	OFF2	3051788.96	733158	48.355
106	OFF2	3051851.49	733180.3	49.069
107	OFF2	3051793.38	733148.2	48.393
108	OFF2	3051814.89	733181.8	48.466
109	OFF2	3051803.65	733149.5	48.41
110	OFF2	3051807.95	733151.3	48.347
111	OFF2	3051807.43	733136.4	48.409
112	OFF2	3051793.43	733145.6	47.989
113	OFF2	3051791.65	733144.4	48.118
114	OFF2	3051798.79	733133.6	48.209
115	OFF2	3051785.17	733143.1	48.017

116	OFF2	3051794.83	733132.9	48.165
117	OFF2	3051782.01	733152.8	47.994
118	OFF2	3051768.98	733148.3	47.854
119	OFF2	3051776.89	733127.3	48.362
120	POND	3051762.73	733158.4	48.52
121	POND	3051758.77	733164.1	48.552
122	POND	3051752.41	733165.9	48.68
123	POND	3051745.78	733161.3	48.646
124	POND	3051723.22	733129.3	48.736
125	BLD	3051720.2	733116.7	47.764
126	BLD	3051714.5	733115.4	47.744
127	BLD	3051723.71	733105.4	47.719
128	BLD	3051718.48	733102.7	47.901
129	BLD	3051717.89	733091.1	48.018
130	BLD	3051709.3	733089.6	48.21
131	BLD	3051720.27	733079.6	47.994
132	BLD	3051712.43	733077.9	48.404
133	ROAD	3051725.18	733093.2	47.709
134	ROAD	3051729.4	733094.4	47.755
135	ROAD	3051726.28	733098.3	47.767
136	ROAD	3051690.1	733090	47.635
137	ROAD	3051689.99	733094.6	47.646
138	ROAD	3051737.67	733074.1	48.156
139	ROAD	3051732.82	733073.4	48.087
140	ROAD	3051744.39	733054.8	48.529
141	ROAD	3051738.98	733051.7	48.252
142	BLD	3051728.79	733072.3	48.331
143	PB	3051793.45	733067	49.108
144	PB	3051790.75	733064.3	48.948
145	PB	3051787.38	733061.3	48.907
146	ST6	3051855.19	733115.4	49.63
147	PB	3051794.46	733049.7	48.978
148	PB	3051777.34	733042.5	48.858
149	PB	3051773.44	733055.8	48.863
150	PB	3051762.26	733037.5	48.781
151	PB	3051765.96	733054.3	48.788
152	PB	3051758.63	733051.7	48.807
153	PB	3051762.46	733035.4	48.761
154	PB	3051746.61	733048.9	48.593

155	PB	3051750.07	733032.4	48.629
156	PB	3051752.33	733022.3	48.519
157	PB	3051754.69	733010.3	48.322
158	PB	3051768.92	733026.4	48.703
159	PB	3051770.61	733013.3	48.293
160	PB	3051778.83	733028.1	48.689
161	PB	3051780.55	733016.1	48.371
162	PB	3051793.93	733030.9	48.779
163	PB	3051782.78	733002.7	48.399
164	PB	3051796.15	733005.7	48.564
165	PB	3051785.09	732986.4	48.31
166	PB	3051797.51	732988.2	48.53
167	PB	3051797.15	732999.1	48.878
168	PB	3051806.35	733000	48.742
169	PB	3051806.4	733008.8	48.654
170	PB	3051815.01	733009.6	48.698
171	PB	3051813.8	733028.5	48.723
172	PB	3051814.69	733036	48.879
173	PB	3051822.94	733041.4	48.612
174	PB	3051828.26	733033.9	48.706
175	PB	3051825.69	733019	48.729
176	PB	3051840.66	733022.2	48.803
177	PB	3051840.77	733037.3	48.482
178	PB	3051850.68	733024	48.542
179	BLD	3051814.02	733008.8	48.753
180	BLD	3051806.82	733007.9	48.641
181	BLD	3051807.73	732997.6	48.75
182	BLD	3051802.95	732999.2	48.593
183	BLD	3051799.7	732998.7	48.983
184	BLD	3051797.84	732990.4	49.174
185	BLD	3051798.03	732989	48.911
186	BLD	3051798.86	732983.7	48.778
187	BLD	3051782.8	732985.6	48.793
188	BLD	3051790.22	732986.7	48.645
189	BLD	3051791	732981.9	48.691
190	BLD	3051797.98	732982.8	48.695
191	ROAD	3051748.49	733038.6	48.578
192	ROAD	3051743.13	733038	48.395
193	ROAD	3051752.08	733022.2	48.481

194	ROAD	3051746.73	733021.7	48.4
195	ROAD	3051757.71	732998.6	48.31
196	ROAD	3051751.12	732997.9	48.413
197	ROAD	3051749.69	733003.4	48.206
198	ROAD	3051736.21	733000.9	48.19
199	ROAD	3051736.59	732996.4	48.209
200	BLD	3051738.92	732988.2	48.623
201	BLD	3051733.4	733006.1	48.561
202	BLD	3051730.93	733015.6	48.51
203	BLD	3051723.17	733014.5	48.231
204	BLD	3051747.31	732991.3	48.777
205	BLD	3051746.63	733020.5	48.288
206	PB	3051731.4	733018.4	48.007
207	PB	3051584.62	733082.8	47.33
208	PND	3051701.1	733144.4	48.13
209	PND	3051680.9	733136.6	47.975
210	PND	3051670.48	733131.8	48.264
211	PND	3051657.03	733245	48.139
212	PND	3051642.38	733127.9	48.363
213	PND	3051678.08	733252.4	48.396
214	PND	3051640.51	733124.2	48.163
215	PND	3051650.46	733244.5	48.14
216	PND	3051601.49	733111.9	48.81
217	PND	3051577.18	733210.7	48.69
218	PND	3051609.95	733224.5	48.859
219	PB	3051699.33	733184.2	47.519
220	PB	3051728.9	733191.8	47.403
221	PB	3051731.77	733179.7	47.364
222	PB	3051728.64	733179	47.455
223	PB	3051729.46	733167	47.423
224	PB	3051721.92	733163.4	47.576
225	PB	3051727.87	733152.4	47.129
226	PB	3051701.99	733159.7	48.195
227	PB	3051701.03	733173.1	47.084
228	PB	3051687.05	733131.2	47.673
229	PB	3051689.36	733127.7	47.731
230	PB	3051693.12	733126	47.794
231	PB	3051704.5	733122.6	47.067
232	PB	3051720.7	733128.4	48.13

233	PB	3051691.96	733132.7	47.606
234	PB	3051705.1	733131.2	47.391
235	PB	3051710.5	733135.1	48.085
236	PB	3051752.02	733180.1	47.17
237	PB	3051766.86	733183.5	47.835
238	PB	3051789.56	733188.6	47.998
239	PB	3051753.72	733167.7	48.572
240	PB	3051680.75	733129.9	47.501
241	PB	3051678.56	733119.7	47.244
242	PB	3051671.13	733120.6	47.726
243	PB	3051666.59	733119	47.664
244	PB	3051644.05	733120.9	48.078
245	PB	3051602.48	733109.3	47.864
246	PB	3051597.75	733112.1	48.027
247	PB	3051594.84	733108.4	48.051
248	PB	3051576.76	733100	47.966
249	PB	3051572.53	733105.4	48.056
250	PB	3051566.09	733125.9	48.046
251	PB	3051593.75	732930.4	47.117
252	KULO	3051585.25	733084.4	47.156
253	KULO	3051590.86	733084.7	47.117
254	KULO	3051584.74	733089.4	47.158
255	KULO	3051590.36	733088.2	46.95
256	KULO	3051587.3	733095.2	47.279
257	KULO	3051591.5	733090.8	46.859
258	KULO	3051589.12	733099.1	47.421
259	KULO	3051592.53	733094.2	46.697
260	KULO	3051596.24	733097.9	46.795
261	KULO	3051592.68	733102.9	47.764
262	KULO	3051598.73	733107.4	47.731
263	KULO	3051615.95	733103.2	46.837
264	PB	3051621.53	733086.1	47.005
265	PB	3051596.06	733080.6	47.075
266	ROAD	3051588.64	733078.1	47.135
267	ROAD	3051593.28	733075.8	47.039
268	ROAD	3051620.5	733078.8	47.141
269	ROAD	3051638.18	733087.5	47.429
270	ROAD	3051632.68	733080.5	47.17
271	ROAD	3051656.54	733091	46.817

272	ROAD	3051643.4	733082.7	47.228
273	ROAD	3051645.39	733082	47.189
274	ROAD	3051646.92	733079.9	47.225
275	ROAD	3051652.1	733081	47.283
276	ROAD	3051651.64	733083.9	47.353
277	ROAD	3051684.67	733088.4	47.465
278	ROAD	3051593.21	733073.8	47.07
279	PB	3051599.98	733051.2	47.397
280	PB	3051600.09	733076.4	47.001
281	PB	3051608.24	733055.3	47.191
282	PB	3051614.77	733078.3	47.035
283	PB	3051613.18	733042.7	47.21
284	PB	3051620.92	733060.1	47.173
285	PB	3051625.77	733046.4	47.36
286	PB	3051610.4	733027.7	47.463
287	PB	3051617.47	733030.4	47.304
288	PB	3051616.16	733014.8	47.367
289	PB	3051623.55	733015.8	47.251
290	PB	3051590.76	733074.5	47.059
291	PB	3051598.16	733052.9	47.222
292	PB	3051583.36	733045.9	46.976
293	PB	3051577.86	733056.3	46.982
294	PB	3051609.79	733022.7	47.149
295	PB	3051597.17	733020.4	46.931
296	PB	3051585.99	733040.5	46.964
297	PB	3051593.75	733025.2	46.917
298	PB	3051600.89	733019.7	46.874
299	PB	3051608.76	732997.4	47.049
300	PB	3051580.57	733019.4	46.828
301	PB	3051611.21	732994.1	47.136
302	PB	3051614.25	732992.4	47.13
303	PB	3051583.41	733013.8	46.953
304	PB	3051589.99	733002.7	47.065
305	PB	3051599.4	732991.8	47.151
306	PB	3051583	732998.4	47.033
307	PB	3051584.99	732992.8	47.21
308	PB	3051566.3	732986.4	47.631
309	PB	3051569.21	732974.2	47.684
310	PB	3051574.19	732958.1	47.488

311	PB	3051592.87	732980.9	47.301
312	PB	3051597.27	732960.4	47.724
313	KULO	3051578.62	733072.1	47.771
314	KULO	3051572.64	733063.7	47.938
315	KULO	3051569.23	733060.7	48.003
316	POND	3051566.32	733059.8	48.237
317	POND	3051565.15	733061.7	48.222
318	POND	3051569.44	733062.9	47.898
319	POND	3051576.73	733071.3	47.919
320	POND	3051578.65	733074.8	47.713
321	POND	3051579.97	733079	47.715
322	POND	3051579.8	733083	47.82
323	POND	3051577.85	733088.4	47.562
324	POND	3051567.62	733108.1	47.862
325	POND	3051566.45	733109.4	47.781
326	POND	3051565.05	733110.3	47.79
327	POND	3051563.03	733110.2	47.744
328	POND	3051542.38	733100.4	47.907
329	POND	3051541.02	733098	47.867
330	POND	3051540.96	733095.8	47.878
331	OFF4	3051481.82	733046.5	47.21
332	OFF5.	3051664.68	733035	47.783
332	OFF5.	3051665	733035	47.783
333	ROAD	3051657	732948.6	47.965
334	ROAD	3051651	732948.7	47.954
335	ROAD	3051647	732985.8	47.983
336	ROAD	3051651	732985.4	47.924
337	ROAD	3051650	732993.5	47.879
338	ROAD	3051642	733012.5	47.799
339	ROAD	3051647	733015.6	47.816
340	ROAD	3051642	733014.6	47.777
341	ROAD	3051641	733014.8	47.777
342	ROAD	3051640	733019.9	47.829
343	ROAD	3051641	733020.5	47.842
344	ROAD	3051645	733030.8	47.787
345	ROAD	3051640	733030	47.814
346	ROAD	3051641	733059.5	47.395
347	ROAD	3051636	733061	47.357
348	ROAD	3051645	733036.4	46.994

349	ROAD	3051658	733035.3	47.65
350	ROAD	3051658	733029.9	47.826
351	ROAD	3051661	733035.9	47.586
352	ROAD	3051661	733029.9	47.94
353	ROAD	3051676	733035.9	47.878
354	ROAD	3051678	733030.7	47.908
355	ROAD	3051684	733030.7	47.86
356	ROAD	3051683	733033.7	47.83
357	ROAD	3051707	733030.8	48
358	ROAD	3051707	733033.1	48.057
359	PB	3051660	733045.5	47.391
360	PB	3051644	733044.4	47.434
361	PB	3051658	733058.6	47.377
362	PB	3051642	733056.4	47.321
363	PB	3051657	733069.8	47.117
364	PB	3051640	733068.6	47.298
365	BLD	3051657	733069.9	47.078
366	BLD	3051644	733068.9	46.943
367	BLD	3051659	733069.4	47.352
368	BLD	3051644	733074.2	47.352
369	BLD	3051661	733046.6	48.156
370	BLD	3051661	733036.7	48.16
371	BLD	3051673	733037.3	48.119
372	BLD	3051648	733030	47.806
373	BLD	3051663	733029.6	48.035
374	BLD	3051649	733021.1	48.492
375	BLD	3051639	733031.5	47.605
376	BLD	3051637	733020.2	48.6
377	BLD	3051624	733030.5	47.413
378	BLD	3051607	733051.1	47.386
379	BLD	3051610	733038.7	47.567
380	BLD	3051598	733036.9	47.364
381	BLD	3051610	733064.9	47.286
382	BLD	3051619	733083.8	47.241
383	BLD	3051616	733091.3	47.133
384	BLD	3051626	733091.4	47.17
385	PB	3051615	733038.5	47.116
386	PB	3051638	733042.1	47.466
387	PB	3051623	733105.6	47.227

388	PB	3051622	733065.8	47.857
389	KULO	3051623	733111	46.901
390	PB	3051626	733091.5	47.445
392	BLD	3051707	732963.1	49.539
391	BLD	3051717	732965.9	49.404
393	BLD	3051713	732979.6	49.498
394	BLD	3051698	732962.6	49.362
395	BLD	3051762	732965.9	49.448
396	BLD	3051753	732964.8	49.293
397	BLD	3051750	732978.8	49.421
398	BLD	3051750	732978.9	49.321
399	BLD	3051741	732977.6	49.218
400	PB	3051731	732975.8	49.223
401	PB	3051749	732978	49.318
402	PB	3051752	732962.9	49.102
403	PB	3051735	732960.2	48.994
404	ROAD	3051710	732954	48.857
405	ROAD	3051710	732948.3	48.829
406	ROAD	3051642	732944	48.979
407	ROAD	3051642	732938.3	48.96
408	ST2	3051724	732955.4	47.512
409	ROAD	3051711	732992.2	48.982
410	OFF6	3051692	732940.9	48.951
411	OFF7	3051685	733087.8	48.454
412	BLD	3051671	732987	49.163
413	BLD	3051675	732973.6	48.717
414	BLD	3051660	732970.7	48.755
415	PB	3051681	732952.9	48.869
416	PB	3051675	732973.2	48.953
417	PB	3051667	732971.4	48.915
418	PB	3051671	732951	48.572
419	PB	3051690	732989.9	48.452
420	PB	3051646	732956.5	49.229
421	PB	3051637	732956.7	48.893
422	PB	3051647	732968.1	49.147
423	ROAD	3051691	732945.9	48.888
424	ROAD	3051695	732946.6	48.906
425	ROAD	3051697	732941.9	48.868
426	ROAD	3051695	732940.3	49.104

427	ROAD	3051706	732928.1	48.983
428	ROAD	3051703	732927	49.231
429	ROAD	3051716	732912.1	49.417
430	ROAD	3051713	732910.8	49.291
431	PB	3051585	732956	47.204
432	PB	3051592	732934.3	47.334
433	PB	3051602	732937.1	47.236
434	PB	3051597	732962.4	46.725
435	BD	3051589	732941.1	47.533
436	BD	3051586	732952.7	47.339
437	BD	3051580	732939.4	47.552
438	ROD	3051635	732942.8	47.36
439	ROD	3051635	732937.2	47.337
440	ROD	3051618	732934	47.221
441	ROD	3051615	732938.9	47.244
442	ROD	3051609	732936.5	47.238
443	ROD	3051609	732931.7	47.128
444	ROD	3051605	732929.7	47.143
445	ROD	3051602	732933.5	47.203
446	OFF8	3051529	732901.8	47.228
532	OFF9	3051750	732940.8	55.843
533	BLD	3051773	732967.9	48.739
534	BLD	3051774	732968	48.797
535	BLD	3051783	732968.5	48.868
536	BLD	3051784	732968.8	49.04
537	BLD	3051792	732970.2	49.024
538	BLD	3051793	732969.2	49.083
539	BLD	3051799	732969.8	48.88
540	BLD	3051801	732970.9	48.918
541	BLD	3051809	732973.1	48.924
542	BLD	3051822	732968.3	49.055
543	PB	3051775	732960.9	48.618
544	PB	3051764	732960.2	48.497
545	PB	3051784	732962	48.689
546	PB	3051792	732962.6	48.772
547	PB	3051800	732963.4	48.748
548	PB	3051812	732963.2	49.065
549	BLD	3051831	732968.3	49.206
550	OFF10	3051848	732895.6	48.686

551	ST2	3051724	732955.4	49.323
552	BLD	3051845	732899.9	48.81
553	BLD	3051837	732905.2	48.672
554	BLD	3051847	732903.3	48.944
555	BLD	3051849	732902.1	48.765
556	BLD	3051852	732906.4	48.612
557	BLD	3051850	732907.6	48.602
558	BLD	3051852	732909.8	48.591
559	BLD	3051833	732879.5	49.093
560	BLD	3051831	732893.3	49.496
561	BLD	3051852	732909.9	48.497
562	BLD	3051855	732890.2	48.842
563	BLD	3051854	732886.9	48.812
564	BLD	3051854	732885	48.918
565	BLD	3051852	732879.9	48.873
566	BLD	3051855	732879.3	48.881
567	BLD	3051854	732876.7	48.847
568	BLD	3051868	732885.2	48.329
569	BLD	3051875	732893.5	48.185
570	BLD	3051874	732889.8	48.298
571	BLD	3051874	732886.8	48.302
572	BLD	3051875	732882.7	48.364
573	BLD	3051860	732900.2	48.589
574	BLD	3051855	732891.2	48.504
575	RD	3051849	732895.8	48.774
576	RD	3051836	732903	48.72
577	RD	3051833	732899.2	48.843
578	RD	3051826	732908.2	48.764
579	RD	3051823	732904.1	48.974
580	RD	3051803	732913.5	49.043
581	RD	3051787	732927.4	49.166
582	RD	3051785	732923.3	49.138
583	RD	3051729	732957	49.469
584	RD	3051726	732953.6	49.433
585	ST4	3051584	733082.9	47.392
586	BLD	3051657	733030.6	47.558
587	BLD	3051645	733028	47.498
588	BLD	3051660	733020.5	48.263
590	BLD	3051670	733030.5	48.188

591	BLD	3051671	733021.7	48.182
592	BLD	3051683	733032.2	47.96
593	BLD	3051681	733039.3	47.721
594	BLD	3051692	733041.5	48.138
595	BLD	3051679	733049.3	47.876
596	PB	3051680	733039.2	47.421
597	PB	3051675	733060.3	47.391
598	PB	3051659	733056.3	47.369
599	PB	3051673	733071.2	47.312
600	PB	3051656	733068.1	47.314
601	BLD	3051673	733071.1	47.318
602	BLD	3051672	733071.6	47.22
603	BLD	3051662	733069.9	47.536
604	BLD	3051661	733073.5	47.544
605	BLD	3051637	733093.6	47.562
606	BLD	3051634	733102.6	47.22
607	PB	3051638	733088.7	47.416
608	PB	3051628	733036.3	47.805
609	PB	3051618	733032.3	47.987
610	BLD	3051625	733045.7	47.723
611	BLD	3051629	733086.9	47.139
612	PB	3051634	733034.5	47.424
613	BLD	3051633	733078.5	47.714
614	BLD	3051637	733064.6	47.85
615	BLD	3051627	733061.4	47.778
616	PB	3051631	733046.3	47.305
617	PB	3051626	733060.2	47.06
618	PB	3051653	733052.5	47.316
619	PB	3051638	733062	47.401
620	PB	3051657	733041.6	47.468
621	PB	3051633	733081.2	47.156
622	ROAD	3051666	733030	47.798
623	ROAD	3051666	733031.8	47.795
624	ROAD	3051667	733032.3	47.788
625	ROAD	3051697	733036.1	47.932
626	ROAD	3051698	733036.2	47.979
627	ROAD	3051698	733035.3	48.083
628	ROAD	3051697	733043.1	47.904
629	ROAD	3051697	733041.6	47.9

630	ROAD	3051696	733040.6	47.893
631	ROAD	3051663	733022.4	47.848
632	ROAD	3051663	733020.8	47.85
633	ROAD	3051662	733019.8	47.863
634	ROAD	3051664	733015.3	47.883
635	ROAD	3051665	733015.3	47.884
636	ROAD	3051665	733014.5	47.869
637	ROAD	3051670	732997.9	47.815
638	ROAD	3051675	732999.3	47.857
639	ROAD	3051687	732953.8	47.963
640	ROAD	3051687	732952.8	47.973
641	ROAD	3051688	732951.4	47.968
642	ROAD	3051683	732953.5	47.977
643	ROAD	3051683	732952.3	47.991
644	ROAD	3051683	732951	47.909

5. DATA DOWNLOAD, PROCESSING AND MAP MAKING

5.1 Data Download

First of all we need a point data coordinate and elevations (x, y, z) collected from field with the help of total station. We need a Txt files format. Data Download with the help of USB and Bluetooth.

5.2. DATA PRPCESSING

After the data is extracted the data is transferred to the computer and have to be processed. Data processing can be done by using ArcGIS, QGiS Firstly convert the data into CSV Format. Then add the data in QGis any other software and also give the Projection Create shape file to join those points. The shape files geometry may be Point, Line, and Polygon according to the required feature. Create a cadastral map of project site

5.3. MAP MAKING

Map Elements are parts that make up the design and layout of a map are visual elements, which allow the transfer of information. The elements we have use in prepared in map are given below;

- Title: a word or group of words to identify or describe.
- Map Body: The map body shows the area under discussion and all the data being included.
- North arrow: A north arrow maintains a connection to a map frame and indicates the orientation of the map inside the frame.
- Map Scale: Map scale refers to the relationship (or ratio) between distance on a map and the corresponding distance on the ground.
- Legend: A legend displays the meaning of the symbols, colors and styles used to represent geographic data on the map.

6. WORK SUMMARY

Day	Work Done
1	Rough survey (control point establish with the help of SW map) & Traverse
2	Level Transfer, calculation
3	Detailing, Rough Sketch, GIS, Excel Sheet,
4	Detailing, Rough Sketch, GIS, Excel Sheet,
5	Detailing, Rough Sketch, GIS, Excel Sheet,
6	Detailing, Rough Sketch, GIS, Excel Sheet,

7. RESULT AND CONCLUSION

- From doing this cadastral survey we get the knowledge about how to do cadastral survey. We know how to determine the coordinate of each control point with the help of SW Map.

- And also we get point data and then we need to load that data in GIS software. In GIS software we prepared a cadastral map. This survey of surveying. Helps to improve our skill.

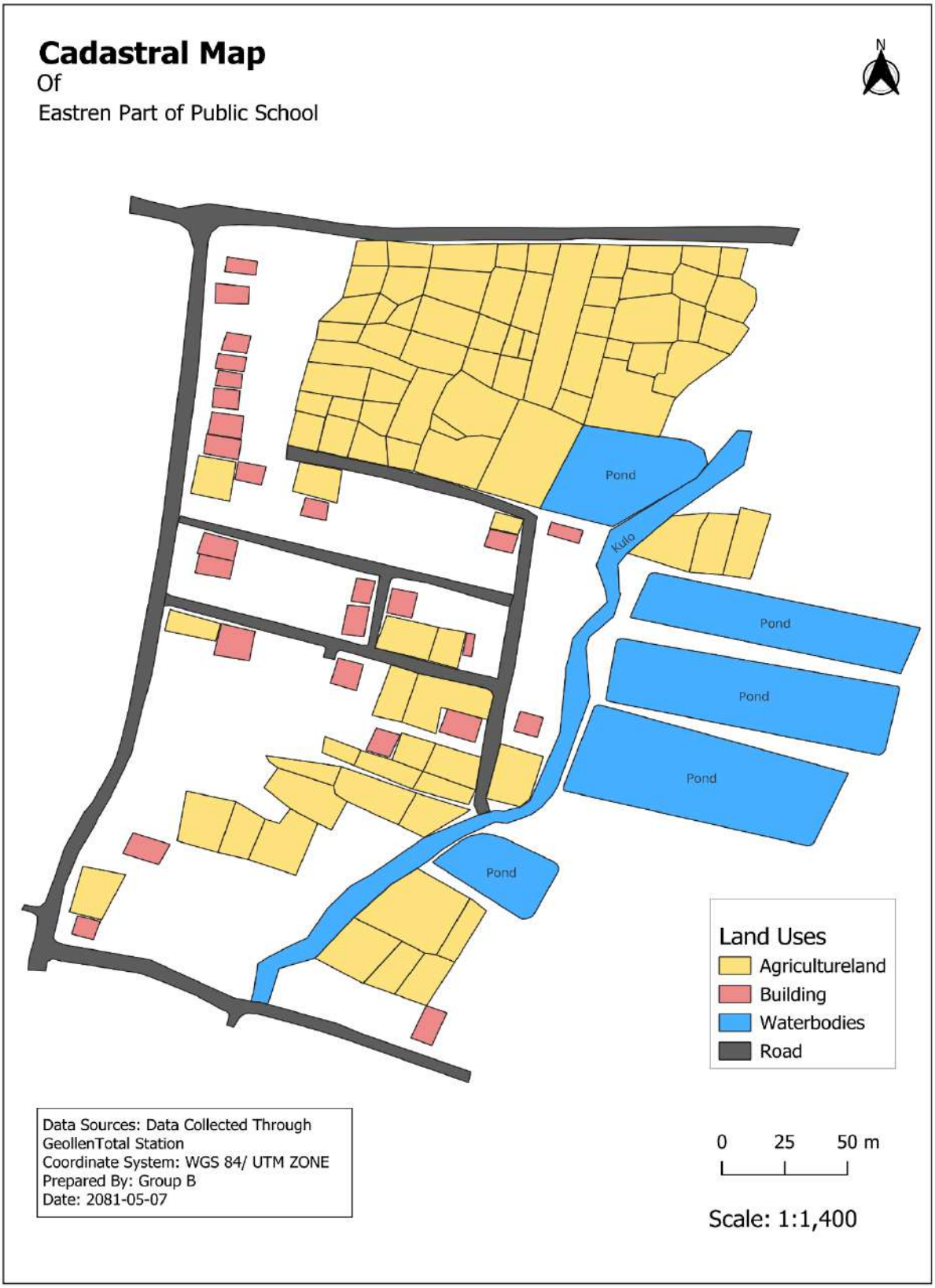

Figure 12: Cadastral Map

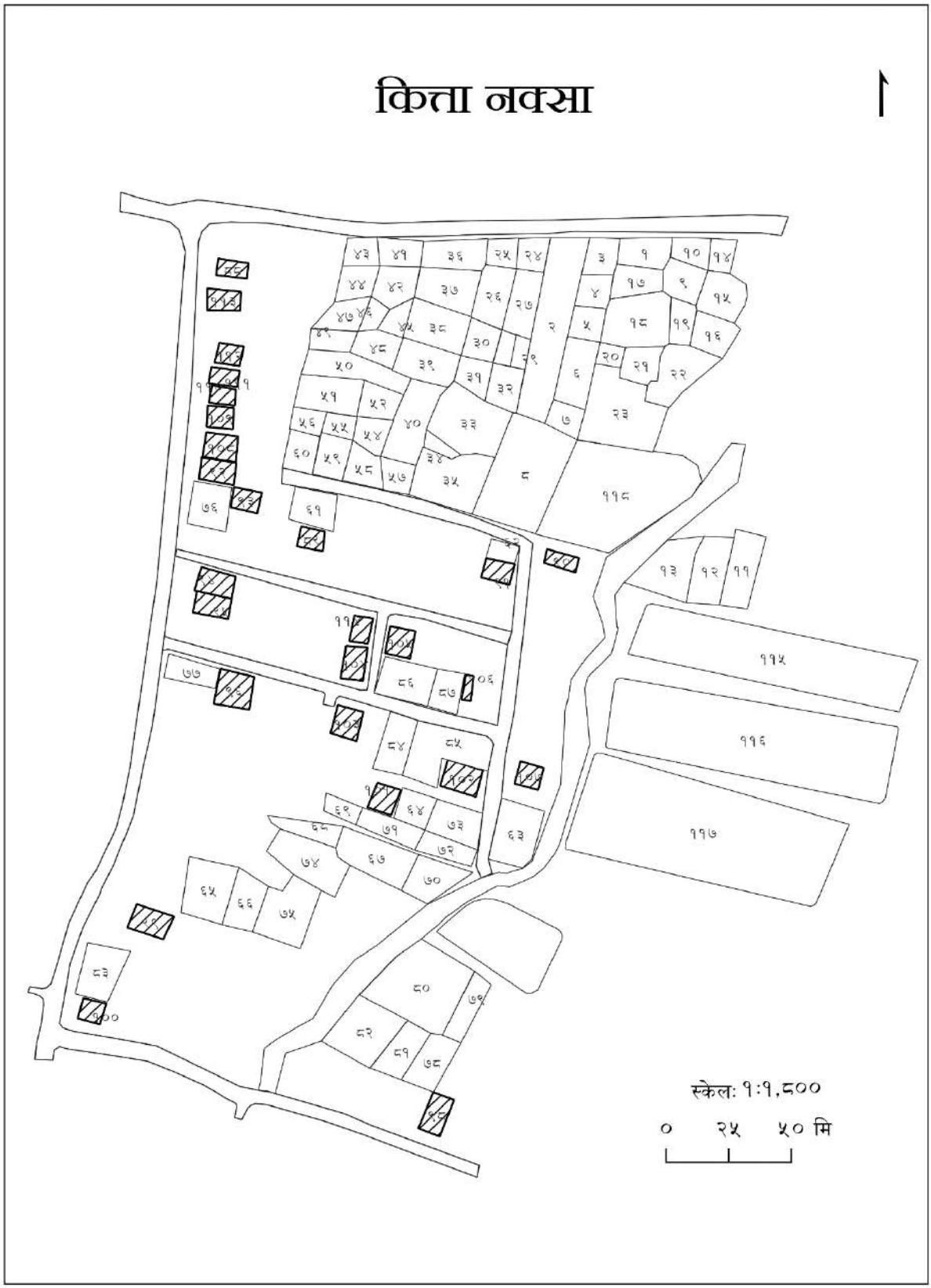

Figure 13: Parcel Map

8. APPENDIXES


KARAM