NEPAL STRUCTURE ENGINEERING RESEARCH CENTER (P.) LTD.

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TECHNICAL SURVEY REPORT

LAND AND TOPOGRAPHICAL SURVEY REPORT

FOR THE PROPOSED WELLNESS CENTRE BUILDING

UMN Okhaldhunga Community Hospital

Sobru, Siddhicharan Municipality, Okhaldhunga, Nepal

PROJECT PURPOSE

Topographical survey of the proposed construction site for architectural planning, detailed engineering design, and related site development works.

SUBMITTED TO

Moetus Medical International (MMI) / Moetus Medical Training (MMT)

PREPARED BY

Nepal Structure Engineering Research Center (P.) Ltd.

Lalitpur, Nepal

OCTOBER 2026

DOCUMENT INFORMATION

Proposed Wellness Centre Building

UMN Okhaldhunga Community Hospital | Sobru, Siddhicharan Municipality, Okhaldhunga, Nepal

Project	Proposed Wellness Centre Building, UMN Okhaldhunga Community Hospital
Location	Sobru, Siddhicharan Municipality, Okhaldhunga, Nepal
Prepared by	Nepal Structure Engineering Research Center (P.) Ltd. Lalitpur, Nepal
Submitted to	Moetus Medical International (MMI) Moetus Medical Training (MMT)
Purpose of survey	Topographical survey of the proposed Wellness Centre Building site to support architectural planning, detailed engineering design, and associated site development works.
Document type	Land and Topographical Survey Report

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1. Introduction

A land and topographical survey was conducted within the premises of UMN Okhaldhunga Community Hospital, located at Sobru, Siddhicharan Municipality, Okhaldhunga, Nepal, to support the planning and detailed design of the proposed Community Center Project, specifically the Wellness Centre Building. The hospital serves as an important healthcare and referral centre for Okhaldhunga and its surrounding districts.

The survey covers the land identified for the proposed Wellness Centre Building, including adjoining areas relevant to the proposed development. The work was undertaken to establish accurate information on existing ground elevations, topographical characteristics, site geometry, access routes, and other significant natural and man-made features within and around the project site.

The survey findings, together with the prepared topographical maps and drawings, provide the essential technical information required for architectural planning, structural and civil engineering design, site grading, drainage planning, access development, and associated infrastructure works. The survey data will also serve as a reference for subsequent detailed engineering assessments, construction planning, and site setting-out activities.

2. Objectives of the Survey

The primary objective of the land and topographical survey was to obtain accurate and reliable site information to support the planning, detailed design, and construction of the proposed Community Center Project, specifically the Wellness Centre Building, within the premises of UMN Okhaldhunga Community Hospital, Sobru, Okhaldhunga, Nepal.

The specific objectives of the survey were to:

- Determine the existing ground elevations, site geometry, and topographical characteristics of the proposed development area.
- Survey and map the land designated for the proposed Wellness Centre Building, including adjoining areas relevant to the proposed development and associated site works.
- Establish horizontal and vertical survey control points to provide consistent positional and elevation references for the project.
- Identify and record the existing access roads and site boundaries as identified and confirmed by the authorized representatives of UMN Okhaldhunga Community Hospital.
- Determine the general ground slope, variations in elevation, and existing terrain conditions to support site grading, drainage planning, and preliminary assessment of earthwork and retaining structure requirements.
- Prepare accurate topographical maps and provide coordinate and Reduced Level (RL) data to support architectural planning, structural and civil engineering design, and associated site development works.
- Establish reference points and benchmark levels for subsequent detailed surveys, construction setting-out, and associated site development activities.

3. Scope of Survey

The scope of work comprised field reconnaissance, topographical surveying, survey control establishment, data collection and processing, and preparation of topographical maps and drawings for the proposed Wellness Centre Building within the premises of UMN Okhaldhunga Community Hospital, Sobru, Okhaldhunga, Nepal.

The principal survey activities included:

- Conducting site reconnaissance to assess existing terrain conditions, site accessibility, and the extent of the proposed survey area.

- Establishing and/or verifying survey control points and temporary benchmarks to maintain consistent horizontal and vertical references.
- Conducting a detailed topographical survey using a total station to determine existing ground elevations and terrain characteristics.
- Surveying the existing access roads and relevant terrain features within and adjoining the proposed development area.
- Identifying and recording the boundaries of the proposed development area as indicated and confirmed by representatives of UMN Okhaldhunga Community Hospital.
- Collecting and processing survey data, including Easting, Northing, and Reduced Level (RL) coordinates of surveyed points.
- Preparing contour maps and topographical survey drawings showing the existing ground profile, elevation variations, access roads, and identified project boundaries.
- Documenting representative site conditions and field survey activities through photographs, where available.

Boundary Identification: The project boundaries shown in the survey drawings are based on the locations identified by hospital representatives during the survey. These boundaries are intended for project planning and engineering design purposes.

4. Site Location and Project Context

The project site is located within the premises of UMN Okhaldhunga Community Hospital, at Sobru, Siddhicharan Municipality, Okhaldhunga District, Nepal. The hospital provides primary healthcare services to the local population and communities within its surrounding catchment areas.

The approximate geographical coordinates of the site, as referenced in the original survey report, are 27°19′48.6″ N latitude and 86°29′54.9″ E longitude. A satellite image showing the geographical location of the hospital and the proposed development site is provided in Annexure A.

The proposed Wellness Centre Building forms part of the planned Community Center development within the hospital premises. Its location within the existing hospital campus requires consideration of the surrounding terrain, site accessibility, and integration with existing hospital facilities during planning and design.

5. Survey Equipment

The following instruments and field equipment were used for the topographical survey:

S.N.	Equipment	Purpose
1	FOIF RTS392 Total Station	Coordinate and detail survey
2	Auto Level	RL and level verification
3	Levelling Staff	Level measurement
4	Prism	Total station observation
5	Tripod	Instrument setup
6	Measuring Tape	Short-distance and instrument-height measurement

6. Survey Methodology

6.1 Site Reconnaissance

A preliminary reconnaissance was carried out to review site access, terrain, existing features and suitable locations for survey control. The reconnaissance also helped define the limits of the extended survey area and the features requiring detailed pickup.

6.2 Survey Control and Level Reference

The total station was set up and oriented using the established survey control points. Temporary benchmark / benchmark points were used for vertical control and checking of Reduced Levels. The source report identifies BM1 and BM2 among the surveyed points.

6.3 Detail Topographical Survey

Detailed points were observed using the total station to define the existing ground surface and relevant physical features. The surveyed features include land-boundary points, buildings, road center and road corners, proposed temporary-road points, benchmark points, gate / main-road features and other site details represented in the topographical drawing.

6.4 Data Processing and Drawing Preparation

Observed coordinates and Reduced Levels were transferred for processing and consistency checks. The processed data were then used to prepare the topographical survey drawing, including contour representation, point locations and existing site features. The topographical survey drawings are presented in Annexure B.

7. Survey Data and Deliverables

The survey points are recorded by serial number, Easting (E), Northing (N), Reduced Level (RL) and remarks / feature codes. The complete schedule of surveyed point coordinates and RLs is presented in Annexure C.

Feature codes used in the source survey data are listed below:

Code	Description
BD	Boundary of the land
BO	Boundary of the proposed extension TB building
TB	TB building
TBKIT	TB Kitchen Building
RO	Road corner
RC	Road center
TR	Proposed temporary road
MR	Main road
BM	Benchmark

8. Findings and Existing Site Conditions

The topographical survey indicates that the proposed development site is situated on sloping terrain, characterized by considerable variations in ground elevation and locally terraced ground conditions. The survey covers the proposed development plot and the adjoining existing access road. Based on the recorded survey data, the principal elevation characteristics are summarized below.

Description	Elevation / Difference
Highest Reduced Level (RL) within the plot	125.915 m
Lowest representative Reduced Level (RL) within the plot	113.571 m
Elevation difference between the above levels	12.344 m
Highest Reduced Level (RL) along the existing access road	116.134 m
Lowest Reduced Level (RL) along the existing access road	104.068 m
General ground slope direction	Towards the north

The surveyed terrain generally slopes downward towards the north, with the lowest surveyed elevations occurring along the existing access road. The proposed development plot occupies relatively higher ground, although noticeable variations in elevation exist within its boundaries.

The elevation difference between the highest recorded point (RL 125.915 m) and the lowest representative ground level (RL 113.571 m) is 12.344 m. A lower elevation of RL 109.022 m was also recorded at an isolated point near the plot boundary, possibly associated with localized ground erosion. Including this point, the maximum recorded elevation difference within the plot is 16.893 m. However, the proposed Wellness Centre Building will occupy only a portion of the surveyed land; therefore, these elevation differences should not be interpreted as the ground level variation within the proposed building footprint. The actual elevation difference within the building footprint will depend on its final location and orientation.

The topographical survey drawing indicates irregular and locally terraced terrain, with varying ground elevations across the proposed development area. These existing conditions should be considered during the planning and detailed design of the Wellness Centre Building, particularly in determining suitable building platform levels, access arrangements, excavation and filling requirements, surface drainage provisions, and the potential need for retaining structures.

The final building location, finished floor levels, foundation elevations, earthwork requirements, and retaining structure arrangements should be established through coordinated architectural, structural, civil, and geotechnical assessments, considering the surveyed ground conditions, site constraints, and functional requirements of the proposed development. Detailed ground elevations, contour configurations, and existing terrain features are presented in the accompanying topographical survey drawing.

9. Survey Notes and Limitations

The following notes and limitations should be considered when interpreting and using the topographical survey report and accompanying drawings:

a. **Scope of Survey:** The survey report and accompanying drawings represent the existing topographical conditions of the surveyed area, including ground elevations, terrain features, access roads, and identified plot boundaries, based on field survey observations and information obtained from representatives of OCH and local consultations. The survey is primarily intended to support the planning and engineering design of the proposed Wellness Centre Building and associated infrastructure.

b. **Survey Reference System:** The topographical survey was conducted using a locally established coordinate system and an assumed elevation datum adopted for the project, based on the survey instruments and reference points used during fieldwork. The recorded coordinates and Reduced Levels (RLs) are therefore relative to these local survey references and are not tied to an officially established national coordinate system or vertical datum maintained by the concerned government authorities. Accordingly, the survey data are suitable for site planning, topographical assessment, and engineering design within the surveyed area. However, appropriate coordinate transformation and datum verification would be required before integrating these data with official cadastral maps, GIS databases, or other georeferenced information. The adopted local survey control points and elevation references should be properly documented, preserved, or re-established to maintain consistency during subsequent construction setting-out activities.

c. **Identification of Plot Boundaries:** The plot boundaries shown in the topographical survey drawings have been identified based on available site information, observable physical boundary features, and information provided by representatives of Okhaldhunga Community Hospital (OCH) and local residents familiar with the property. These boundaries are presented primarily for site planning and engineering design purposes and do not constitute formal cadastral boundary verification or legal confirmation of land ownership. Where precise legal boundary identification is required, the boundaries should be verified against official cadastral records and, where necessary, through authorized field demarcation by the concerned government survey authority.

d. **Discrepancies with Cadastral Records:** Certain differences have been observed between the existing site conditions and the available Government cadastral map, particularly concerning certain plot boundary features and the existing access road. The access road currently present at the site is not shown in the available cadastral map; however, its actual location and alignment have been recorded in the topographical survey drawing. Consequently, the land area physically available for development may differ from the registered area stated in the Land Ownership Certificate (Lalpurja). These differences are not considered significant constraints to the proposed building planning and detailed engineering design, particularly as the building is intended to be located within the interior portion of the property, away from the plot boundaries. For boundary-related works, such as boundary walls and other peripheral structures, the existing physical boundary features, available land records, and mutual understanding with adjoining property owners may be considered when determining the proposed alignment, subject to applicable legal requirements. Formal verification by the concerned Government survey authority may be undertaken if any significant boundary uncertainty, objection, or dispute arises, particularly before executing construction works directly along the affected boundary. Accordingly, the present topographical survey drawings are considered suitable for proceeding with the proposed development planning and engineering design.

e. **Survey Control Points and Benchmarks:** Existing survey control points and benchmarks should be properly identified, preserved, or re-established as necessary to maintain consistent horizontal and vertical references during subsequent design verification and construction setting-out activities. Any disturbed or missing control points should be re-established and checked against reliable reference points before further use.

f. **Changes in Existing Site Conditions:** The topographical survey drawings represent the physical site conditions recorded at the time of fieldwork. Ground elevations, dimensions, and other relevant site features should be reverified before construction wherever subsequent excavation, filling, vegetation clearance, road modifications, natural erosion, or other site activities may have altered the surveyed conditions. Any significant changes affecting the proposed building layout, access arrangements, drainage, earthwork requirements, or retaining structures should be considered and incorporated into the final engineering design, as necessary.

10. Conclusion

The land and topographical survey for the proposed Wellness Centre Building at UMN Okhaldhunga Community Hospital (OCH), Sobru, Okhaldhunga, Nepal, has been completed to establish the existing topographical conditions of the proposed construction site. The survey covers the proposed development area, adjoining access road, and relevant surrounding features, including supplementary coverage beyond the earlier surveyed area.

The survey findings indicate that the site is characterized by sloping and locally terraced terrain with considerable variations in ground elevation. The collected field data have been processed and incorporated into the accompanying topographical drawings, presenting the existing ground elevations, contour configurations, access road alignment, identifiable site features, and plot boundaries. These findings establish the physical characteristics of the site and the principal topographical considerations for the proposed development.

The completed survey provides a suitable technical foundation for architectural planning, detailed engineering design, and associated site development works. The information will support the selection of an appropriate building location and platform level, planning of access and drainage arrangements, assessment of excavation and filling requirements, and identification of potential retaining structures and other site development needs.

Overall, the prepared topographical drawings and associated survey data establish a comprehensive representation of the existing site conditions and serve as the principal topographical reference for the planning, design, and subsequent development of the proposed Wellness Centre Building.

ANNEXURE A: LOCATION MAP

Approximate location reference: 27°19′48.6″ N, 86°29′54.9″ E

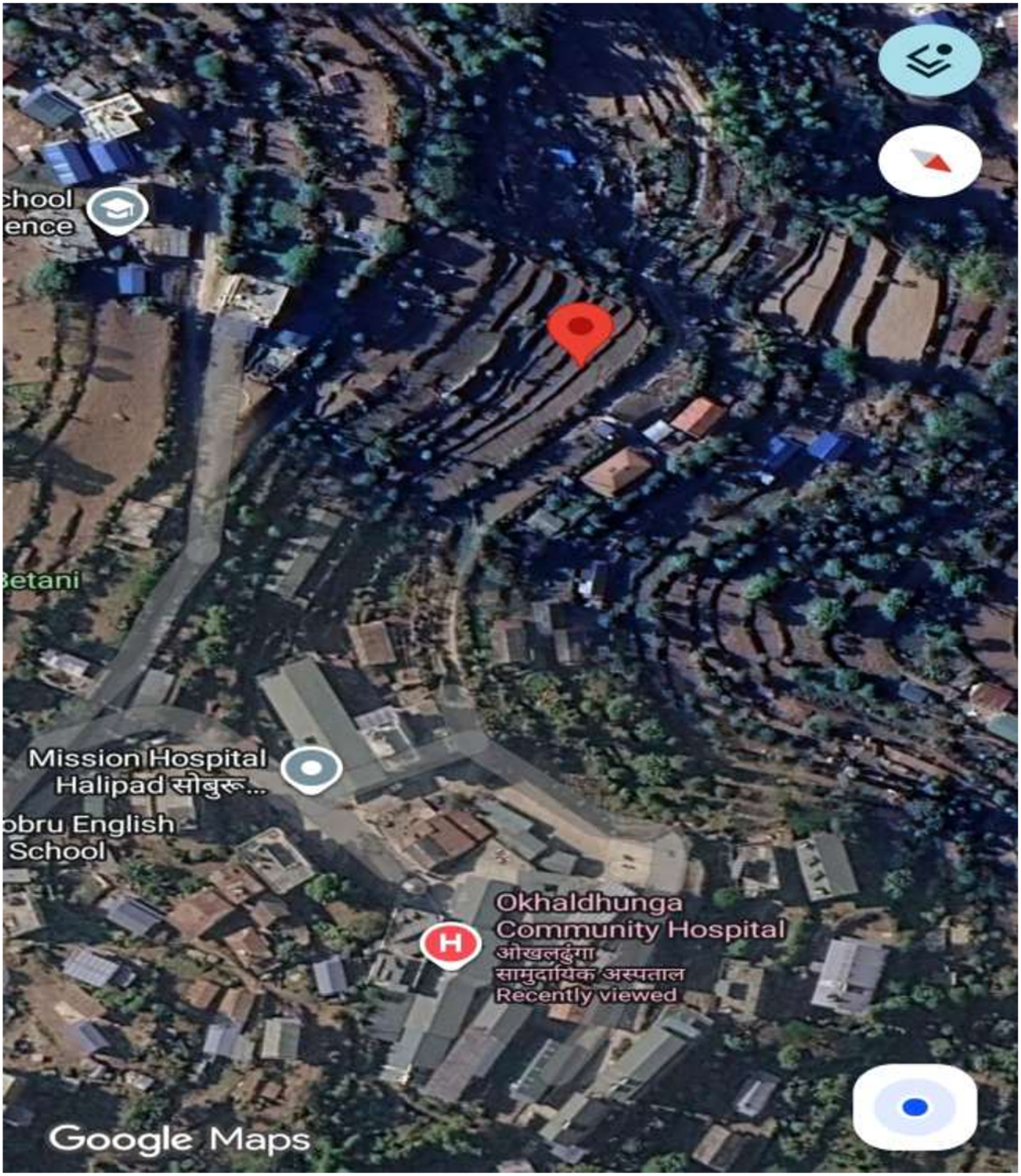


Figure A-1. Satellite location image of the proposed Wellness Centre area in relation to Okhaldhunga Community Hospital.

ANNEXURE B: TOPOGRAPHICAL SURVEY MAP

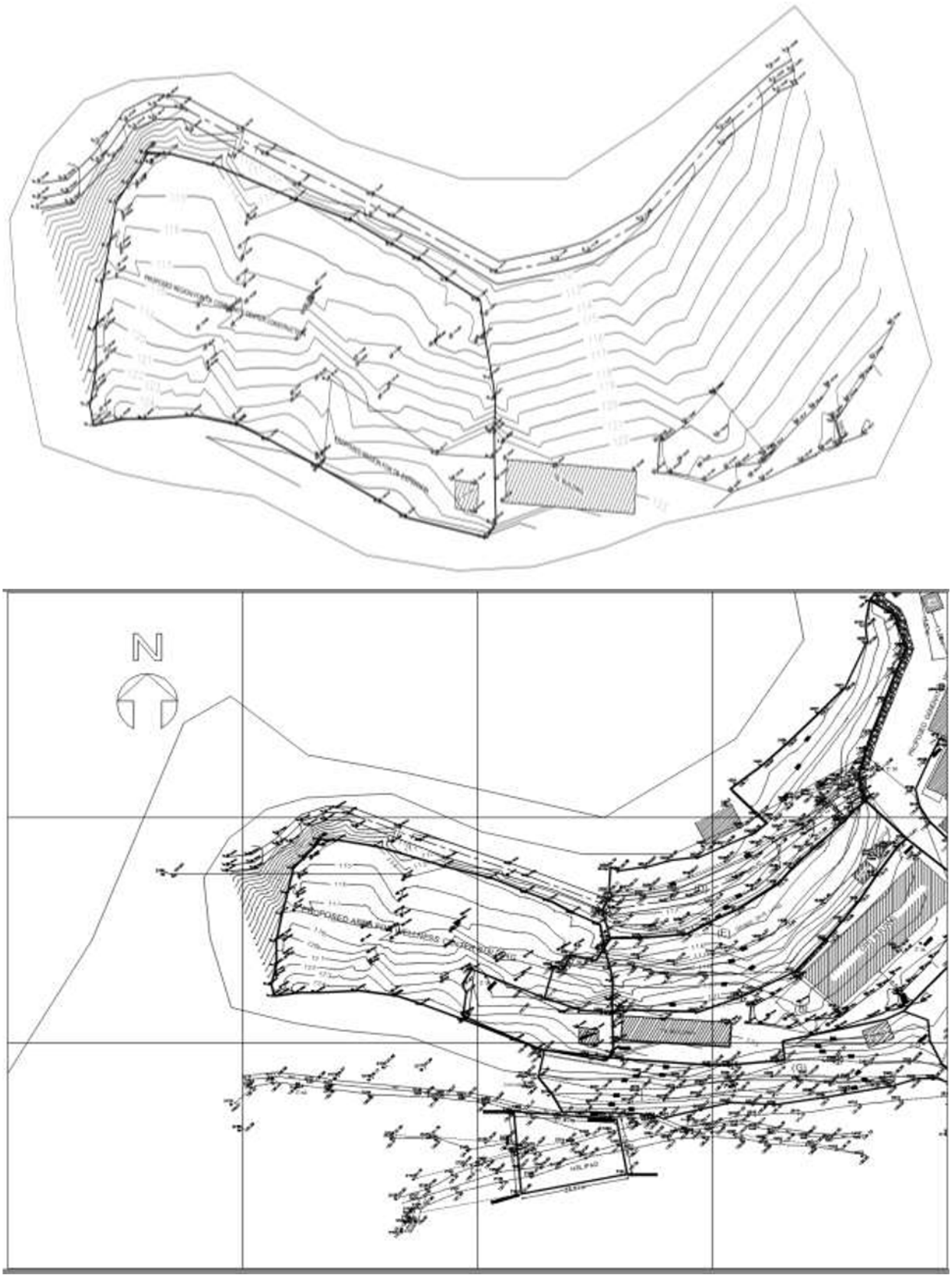


Figure B-1. Topographical Survey Maps (Enlarged Site View and Overall Survey Plan) Showing Ground Contours, Elevations, and Existing Site Features.

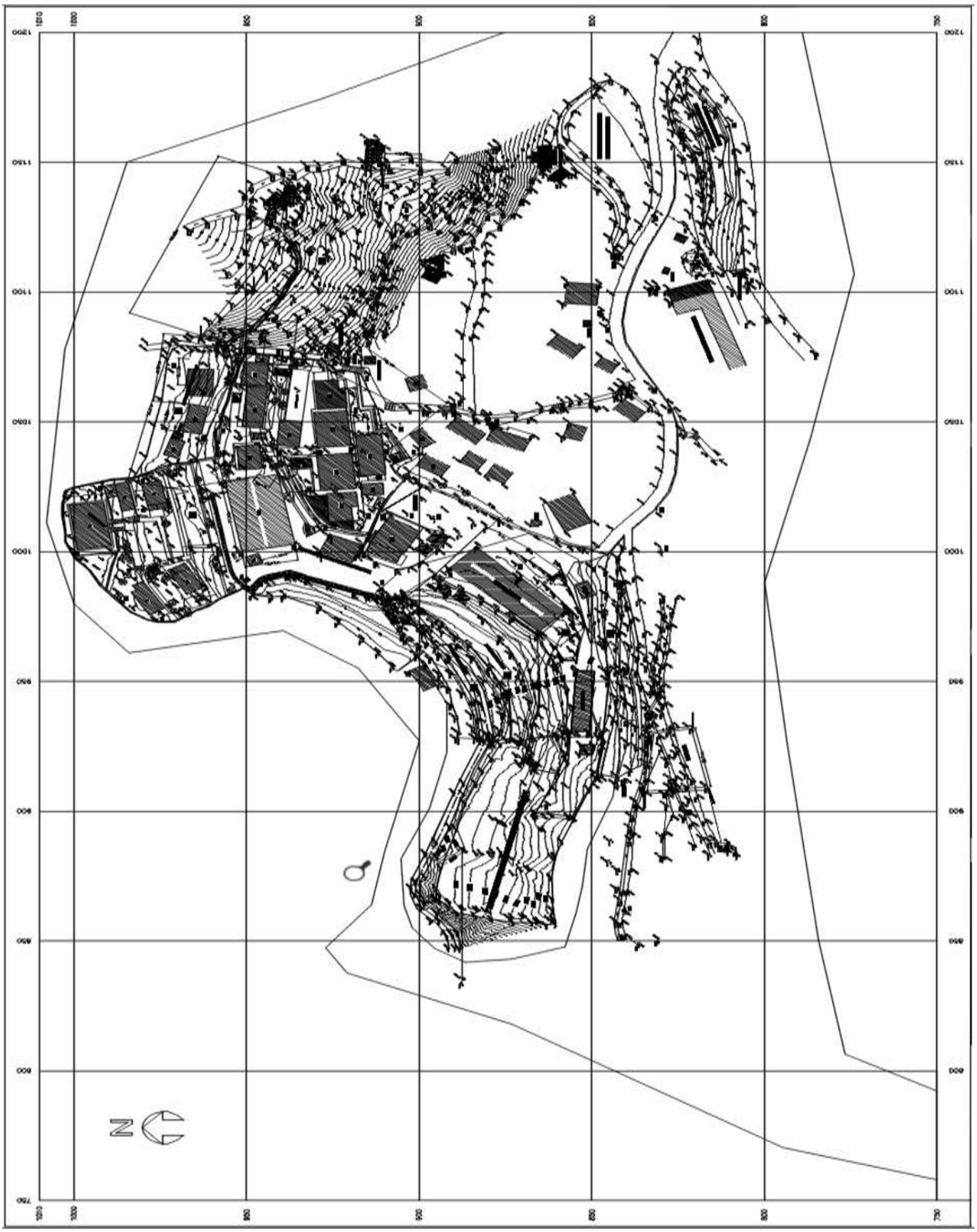


Figure B-2. Combined Topographical Survey Plan of UMN Okhaldhunga Community Hospital, Incorporating the Previous Survey and Newly Surveyed Area for the Proposed Wellness Centre Building.

ANNEXURE C: COORDINATES AND REDUCED LEVEL TABLE

The following table presents the recorded coordinates and Reduced Levels (RLs) of the surveyed points.

S.N.	E	N	RL	Remarks
1	450099.7	3023095	113.857	'BD-1'
2	450099.2	3023094	113.758	'BD-2'
3	450097.4	3023091	113.853	'BD-3'
4	450095.8	3023088	114.604	'BD-4'
5	450095.8	3023082	116.316	'BD-5'
6	450095.6	3023078	118.198	'BD-6'
7	450095.8	3023071	119.235	'BD-7'
8	450095.8	3023071	119.234	'BD-8'
9	450097	3023066	121.077	'BD-9'
10	450096.9	3023062	122.126	'BD-10'
11	450098.1	3023059	124.048	'BD-11'
12	450103.1	3023061	125.083	'BD-12'
13	450107.3	3023062	124.74	'BD-13'
14	450107.3	3023062	124.73	'BD-14'
15	450115.4	3023065	124.455	'BD-15'
16	450123.3	3023065	124.461	'BD-16'
17	450129.5	3023065	124.623	'BD-17'
18	450138.9	3023063	124.97	'BD-18'
19	450168.8	3023075	122.278	'BD-19'
20	450167.6	3023079	116.971	'BD-20'
21	450166.5	3023081	116.642	'BD-21'
22	450164.1	3023086	113.764	'BD-22'
23	450164.1	3023089	113.571	'BD-23'
24	450162.1	3023090	113.818	'BD-24'
25	450156.2	3023092	113.802	'BD-25'
26	450150.7	3023093	113.672	'BD-26'
27	450145.6	3023094	113.689	'BD-27'
28	450137.6	3023095	113.726	'BD-28'
29	450127.5	3023096	114.013	'BD-29'
30	450112	3023097	114.021	'BD-30'
31	450104.1	3023096	114.03	'BD-31'
32	450100	3023095	114.004	'BD-32'
33	450099.2	3023091	113.866	'1'
34	450099.3	3023091	114.728	'2'
35	450097.5	3023087	114.515	'3'
36	450097.9	3023086	115.809	'4'
37	450098.2	3023083	115.608	'5'
38	450098.4	3023082	116.808	'6'
39	450098.4	3023080	116.651	'7'
40	450098.3	3023079	118.028	'8'
41	450097.3	3023073	118.323	'9'
42	450097.9	3023072	120.366	'10'
43	450098.5	3023069	120.292	'11'
44	450099	3023068	121.324	'12'
45	450097.7	3023065	121.056	'13'
46	450098	3023064	122.292	'14'
47	450099.5	3023062	122.568	'15'
48	450099.8	3023060	124.928	'16'
49	450123.6	3023065	124.485	'17'
50	450122.9	3023066	122.51	'18'
51	450117	3023071	121.992	'19'
52	450116.7	3023072	120.697	'20'
53	450115.9	3023073	120.621	'21'
54	450114.1	3023076	118.388	'22'
55	450113.5	3023078	118.115	'23'
56	450118.8	3023079	118.184	'24'
57	450119.4	3023079	117.723	'25'
58	450120.1	3023077	117.564	'26'
59	450121.8	3023081	116.358	'27'
60	450121.1	3023083	116.369	'28'
61	450119.7	3023083	115.658	'29'
62	450119.8	3023086	115.678	'30'
63	450119.1	3023087	114.438	'31'
64	450119.6	3023091	114.526	'32'
65	450119.6	3023091	113.767	'33'
66	450163	3023085	113.761	'34'
67	450158.6	3023085	114.329	'35'
68	450156	3023083	114.298	'36'
69	450155.2	3023083	115.493	'37'
70	450133.6	3023086	115.607	'38'
71	450133	3023084	115.566	'39'
72	450132.5	3023084	116.267	'40'
73	450132.1	3023083	116.395	'41'
74	450131.9	3023082	117.547	'42'
75	450131.6	3023078	118.003	'43'

S.N.	E	N	RL	Remarks
76	450142.5	3023078	117.495	'44'
77	450143	3023078	118.354	'45'
78	450148.7	3023080	117.386	'46'
79	450149	3023076	119.108	'47'
80	450147.8	3023074	119.168	'48'
81	450136.2	3023074	121.283	'49'
82	450132.4	3023071	121.51	'50'
83	450132.6	3023070	122.27	'51'
84	450138.6	3023064	124.014	'52'
85	450138.6	3023063	125.498	'53'
86	450170.6	3023074	122.231	'1 (1)'
87	450170.6	3023074	122.227	'2 (1)'
88	450102.3	3023103	109.022	'3 (1)'
89	450101.2	3023094	113.92	'4 (1)'
90	450101.2	3023094	113.92	'5 (1)'
91	450168.3	3023075	122.349	'BO-30'
92	450169.1	3023071	122.316	'BO-31'
93	450171.2	3023063	122.252	'BO-32'
94	450159.5	3023070	122.177	'BO-33'
95	450138.3	3023075	121.59	'BO-34'
96	450139.3	3023065	122.69	'BO-35'
97	450150.8	3023061	125.915	'BO-36'
98	450155.7	3023060	125.497	'BO-37'
99	450170.1	3023061	125.755	'BO-38'
100	450172.2	3023066	122.496	'TB'
101	450171.4	3023072	122.26	'TB'
102	450194.3	3023075	122.328	'TB'
103	450167.7	3023064	122.425	'TBKIT'
104	450167	3023067	122.466	'TBKIT'
105	450163	3023067	122.326	'TBKIT'
106	450211.4	3023130	116.134	'RO-1'
107	450210.5	3023132	116.003	'RO-2'
108	450209.2	3023134	116.028	'RO-3'
109	450206.7	3023131	115.63	'RO-4'
110	450207.6	3023130	115.534	'RO-5'
111	450208.6	3023129	115.631	'RO-6'
112	450199.8	3023122	113.678	'RO-7'
113	450200.5	3023120	113.676	'RO-8'
114	450188.5	3023107	111.889	'RC-9'
115	450180.1	3023101	111.255	'RC-10'
116	450174.9	3023099	111.003	'RC-11'
117	450101.3	3023094	113.971	'RC-12'
118	450164.5	3023095	110.714	'RC-13'
119	450145.1	3023097	110.545	'RC-14'
120	450121.2	3023100	110.209	'RC-15'
121	450104.8	3023102	108.938	'RC-16'
122	450100.1	3023102	108.207	'RC-17'
123	450095.5	3023099	107.225	'RC-18'
124	450091.7	3023092	105.832	'RC-19'
125	450087.3	3023087	104.643	'RC-20'
126	450082.5	3023085	104.226	'RC-21'
127	450082.6	3023084	104.422	'RO-10'
128	450082.1	3023087	104.068	'RO-11'
129	450088.3	3023086	104.76	'RO-12'
130	450086.6	3023089	104.504	'RO-13'
131	450091.2	3023095	106.058	'RO-14'
132	450094.4	3023094	106.491	'RO-15'
133	450097.3	3023098	107.418	'RO-16'
134	450100.6	3023100	108.147	'RO-17'
135	450107.3	3023100	109.263	'RO-18'
136	450115.6	3023098	109.787	'RO-19'
137	450116.2	3023102	109.746	'RO-20'
138	450127.7	3023097	110.568	'RO-21'
139	450141	3023097	110.819	'RO-22'
140	450140.8	3023099	110.424	'RO-23'
141	450170.7	3023069	122.573	'BM1'
142	450180.5	3023073	122.57	'BM2'
143	450197.4	3023080	122.406	'TR1'
144	450198	3023076	122.125	'TR2'
145	450207	3023077	121.738	'TR3'
146	450211.9	3023077	121.951	'TR4'
147	450210.4	3023080	121.919	'TR5'
148	450205.8	3023079	121.325	'TR6'
149	450202.1	3023079	120.54	'TR7'
150	450200.8	3023077	120.448	'TR8'
151	450198.4	3023080	120.254	'TR9'
152	450202	3023084	119.897	'TR10'
153	450206.1	3023088	119.039	'TR11'
154	450208	3023083	119.545	'TR12'
157	450212.6	3023080	122.078	'TR15'
158	450216.5	3023082	122.269	'TR16'
159	450218.2	3023084	122.24	'TR17'

S.N.	E	N	RL	Remarks
160	450217.1	3023080	122.181	'TR18'
161	450223.4	3023083	122.446	'TR19'
162	450214.9	3023080	122.313	'ST4'
163	450216.9	3023082	122.292	'TR25'
164	450221.5	3023088	122.37	'TR26'
165	450223.8	3023091	122.403	'TR27'
166	450225.7	3023094	122.459	'TR28'
167	450227.6	3023090	122.507	'TR29'
168	450226.6	3023086	123.204	'TR30'
169	450227.6	3023090	124.114	'GATE1'
170	450229.2	3023087	124.336	'GATE2'
171	450233.6	3023089	125.21	'MR1'
172	450229.6	3023093	124.328	'MR2'
173	450231.6	3023096	124.369	'MR3'
174	450232.9	3023099	123.829	'MR4'
175	450235	3023104	122.887	'MR5'

ANNEXURE D: SURVEY PHOTOGRAPHS













Site Photographs, Survey Activities, and Terrain Conditions