RAFLYTE
DRONES

RAFLYTE DRONES SURVEYS

Our Company

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Raflyte Drones Surveys leads the way in revolutionizing surveying with cutting-edge drone tech. Specializing in contour mapping, plant health analysis, and road surveys, they offer precise data for engineering, construction, and environmental projects. Using advanced LiDAR and multispectral imaging, they create detailed 2D/3D maps and provide invaluable insights for agriculture, forestry, and infrastructure management. Their commitment to accuracy, efficiency, and cost-effectiveness sets them apart, delivering unmatched solutions for clients' needs

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INTRODUCTION

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Drones, also known as unmanned aerial vehicles (UAVs), have emerged as one of the most transformative technologies of the 21st century. These versatile aerial devices have revolutionized various industries and activities, ranging from photography and videography to agriculture, construction, surveillance, and even humanitarian aid.

At their core, drones are flying robots controlled remotely or autonomously through software-controlled flight plans. They come in a wide range of sizes, shapes, and capabilities, from small hobbyist drones to large-scale commercial and military UAVs. Equipped with advanced sensors, cameras, and other payloads, drones are capable of capturing high-resolution imagery, collecting data, and performing a myriad of tasks with precision and efficiency.

The proliferation of drones has opened up new possibilities and opportunities across numerous sectors. In agriculture, drones are used for crop monitoring, pest management, and precision agriculture, enabling farmers to optimize yields while minimizing resource usage. In construction, drones aid in surveying, mapping, and site inspection, improving project planning, monitoring progress, and enhancing safety. In emergency response and disaster relief efforts, drones provide aerial reconnaissance, delivering critical information to first responders and facilitating search and rescue operations.

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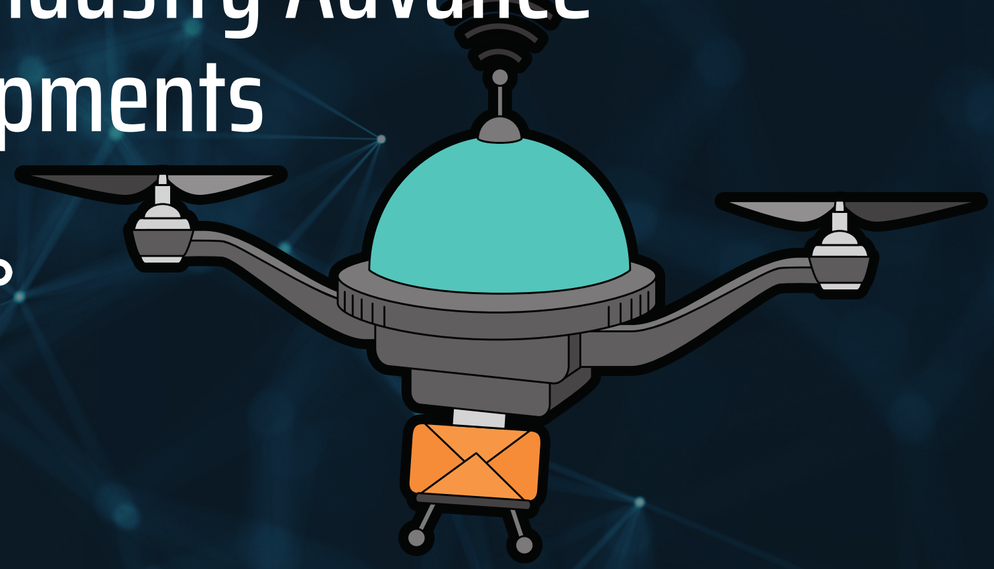
Our Services

- **Aerial Surveying**: Utilizing state-of-the-art drones equipped with advanced sensors, we capture high-resolution imagery and data from above.
- **Mapping and Modeling**: We transform raw aerial data into detailed 2D and 3D maps, models, and contour maps, providing valuable insights for planning and analysis.
- **Inspection and Monitoring:** Our drones enable efficient and thorough inspections of infrastructure, construction sites, and more, facilitating proactive maintenance and risk management.
- **Environmental Monitoring:** We support environmental conservation efforts by providing aerial monitoring of ecosystems, habitats, and natural resources.

Why? Choose Us ?

Raflyte Drones offers enterprises a cost-effective, efficient, and safe solution for their mapping and surveying needs, providing them with accurate and reliable data that meets their business objectives. Leading in Industry Advance Equipment Best in class Equipments



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What we Deliver

01 2D/3D Model

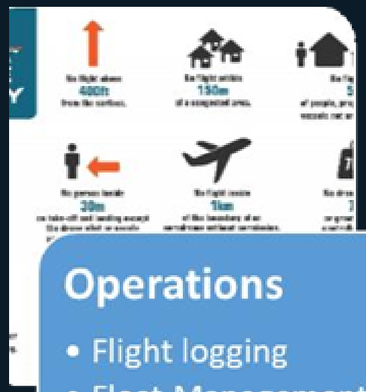
02 CAD & CSV Files

03 Ortho Maps

04 Contour Maps

05 DTM & DEM Files

06 Point Cloud, L/X- Section



Operations

- Flight logging
- Fleet Management
- SOPs
- Safety Check

Flight Planning

- Site selection
- Flight path
- Overlap
- Parameters set

Data Acquisition & Processing

- Aircraft
- Platform
- Sensor/ camera
- Computer vision
- Embedded all

Data Visualization and Classification

- Images/ Video
- Photogrammetry
- Point cloud
- 3D model

Building infrastructure mapping & analysis

- Site selection
- Height measurement
- Progress monitoring

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Simplified methodology process flow for feature extraction of building infrastructure mapping and monitoring using drone images

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Drone Survey Applications

- New Railway/Highway Survey
- Assets Mapping, Drone Videography Survey
- Rivers, Irrigation, Dams, Forests Survey
- Mining, Oil & Gas Line Survey
- Project Management, Tourism, Historical
- Inspection and Maintenance
- Volumes, Contour, Monitoring, etc.

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Manual V/s Drone Survey

Accept Survey
1- 2 days

Data Collection & Post-processing
1- 2 weeks

Delivery of PDF, CAD File, Contour Map
1-2 weeks

Mobilize to Site
1 days

Fly Drone & Collect Data
1-2 days

Delivery of PDF, CAD File, Ortho Map, Contour Map, Point Cloud
1-2 days

How Drones can be useful for HIMUDA?

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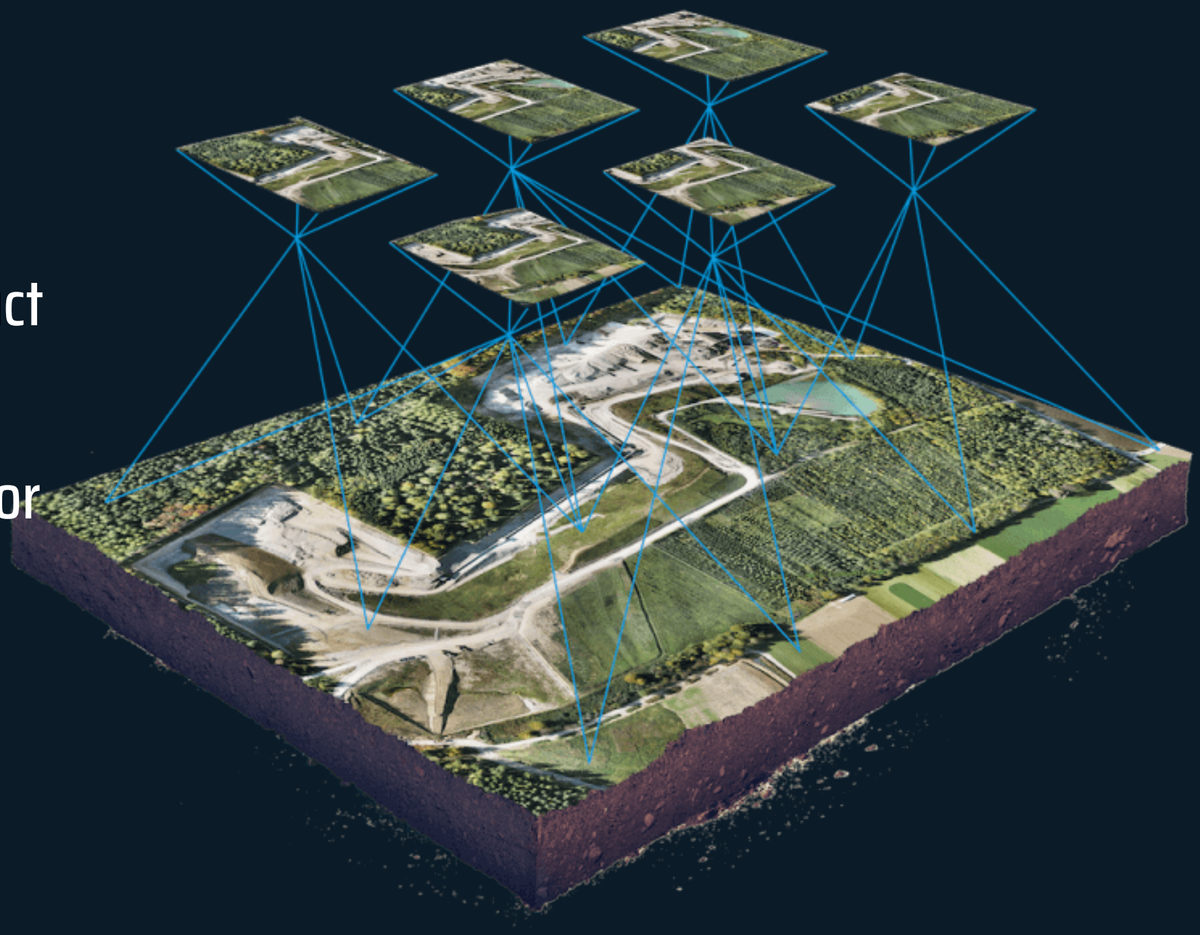
Drones, also known as Unmanned Aerial Vehicles (UAVs), offer a wide range of applications that can greatly assist HIMUDA in its urban development initiatives in Himachal Pradesh. Here's a detailed exploration of how drones can be effectively utilized:

1. Aerial Surveying and Mapping:

Drones equipped with high-resolution cameras and LiDAR (Light Detection and Ranging) sensors can conduct aerial surveys to map the topography, land use, and infrastructure of urban areas. This data can be crucial for urban planning, identifying suitable locations for new housing projects, assessing the need for infrastructure improvements, and monitoring construction progress.



2. Infrastructure Inspection:

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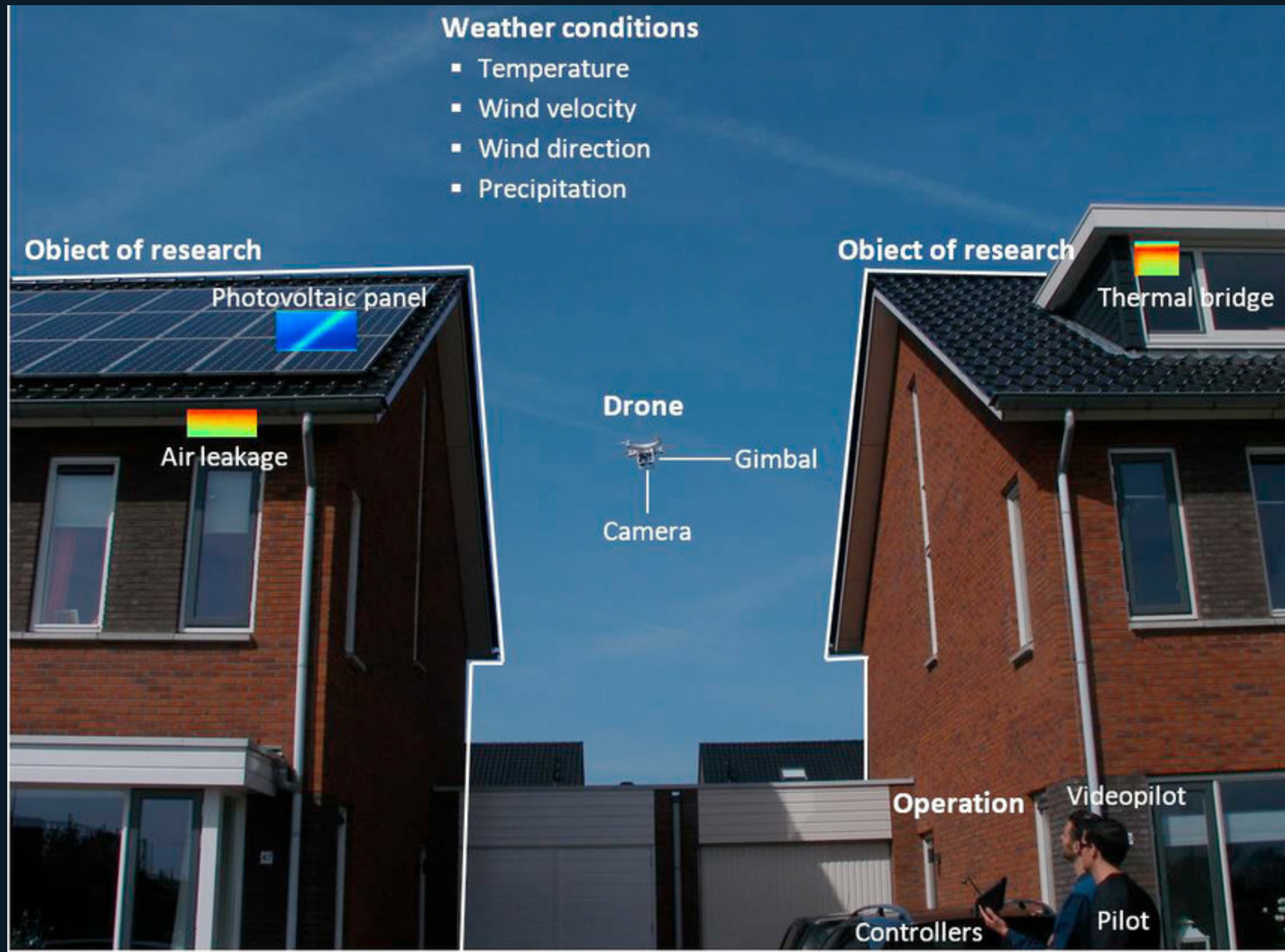
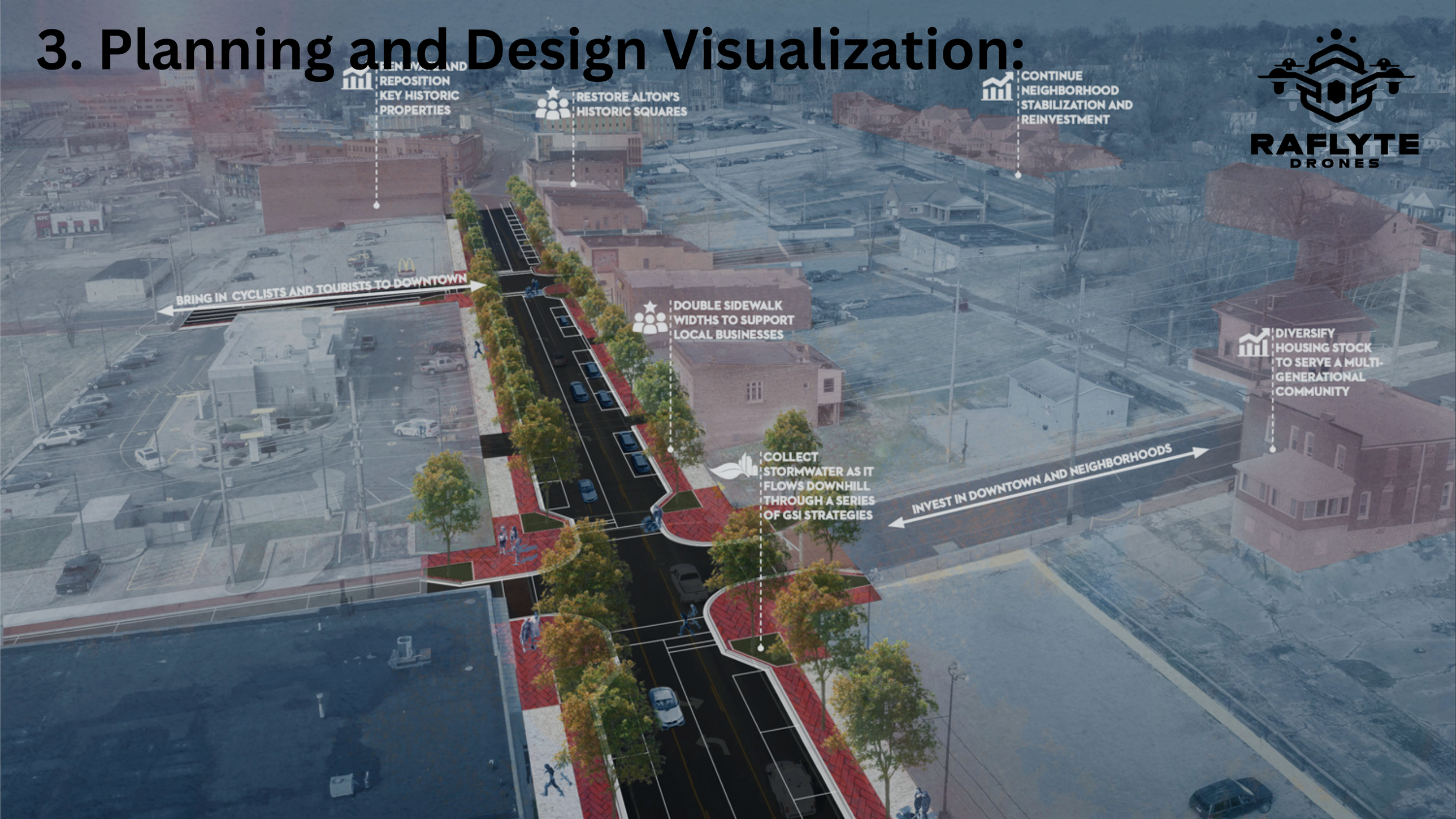
Drones can be used to inspect critical infrastructure such as bridges, roads, and buildings for maintenance requirements, structural integrity, and safety hazards. By conducting regular aerial inspections, HIMUDA can detect issues early on, prioritize repairs, and ensure the longevity and safety of infrastructure assets.



3. Planning and Design Visualization:



Use of Drone for Building Infrastructure Mapping and Monitoring

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Building construction analysis and monitoring using drone/ UAV

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Building construction is the process of adding structures to areas of land. Based on the ownership and property type, buildings can be broadly classified in to four types. First is Residential building construction that may be undertaken by individual land-owners (self- build). Whereas, non-residential building construction can be procured by a wide range of private and public organisations, including local authorities, educational and religious bodies, transport undertakings, retailers, hoteliers, property developers, financial institutions and others. Third type of building infrastructure comes under infrastructure construction for civil engineering purposes. Civil engineering covers the design, construction, and maintenance of the large public buildings like, airports and railway stations etc. Fourth type of building infrastructure comes under Industrial construction that also includes large and massive structure but mainly in non-residential areas for mining, refineries, processing plants, power stations, mills, warehouses and factories.

Drones and UAVs can be used at several stages in a building construction project including pre-planning, detailed survey and mapping of job site, construction process monitoring, and post-build checks. Here in this concept note we will be presenting the potential uses of drones in building infrastructure mapping & monitoring with stepwise data processing stages ,drone image and camera properties best for such analaysis and used cases.

Figure 1 Showing drone image of buildings from different views

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Generation of 3D model of buildings using drone-based point clouds

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Drone image showing 3D reconstruction of the project for height/volume related measurements

2D imaging using drones for feature extraction

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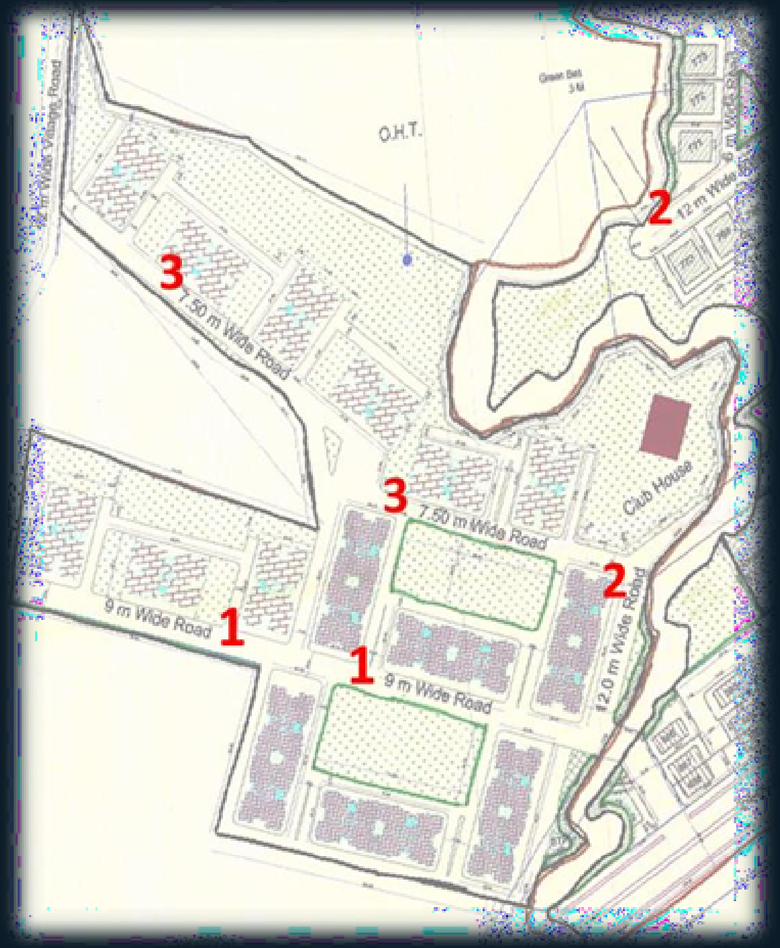
Data acquisition planning for constructional projects monitoring

Drone applications in different Building Infrastructure Mapping and Monitoring



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Showing T&CP approved road width (left) Vs actual implemented 7m (as seen by drone) in the right side

Use of drone image to measure Marginal Open Space (MOS)

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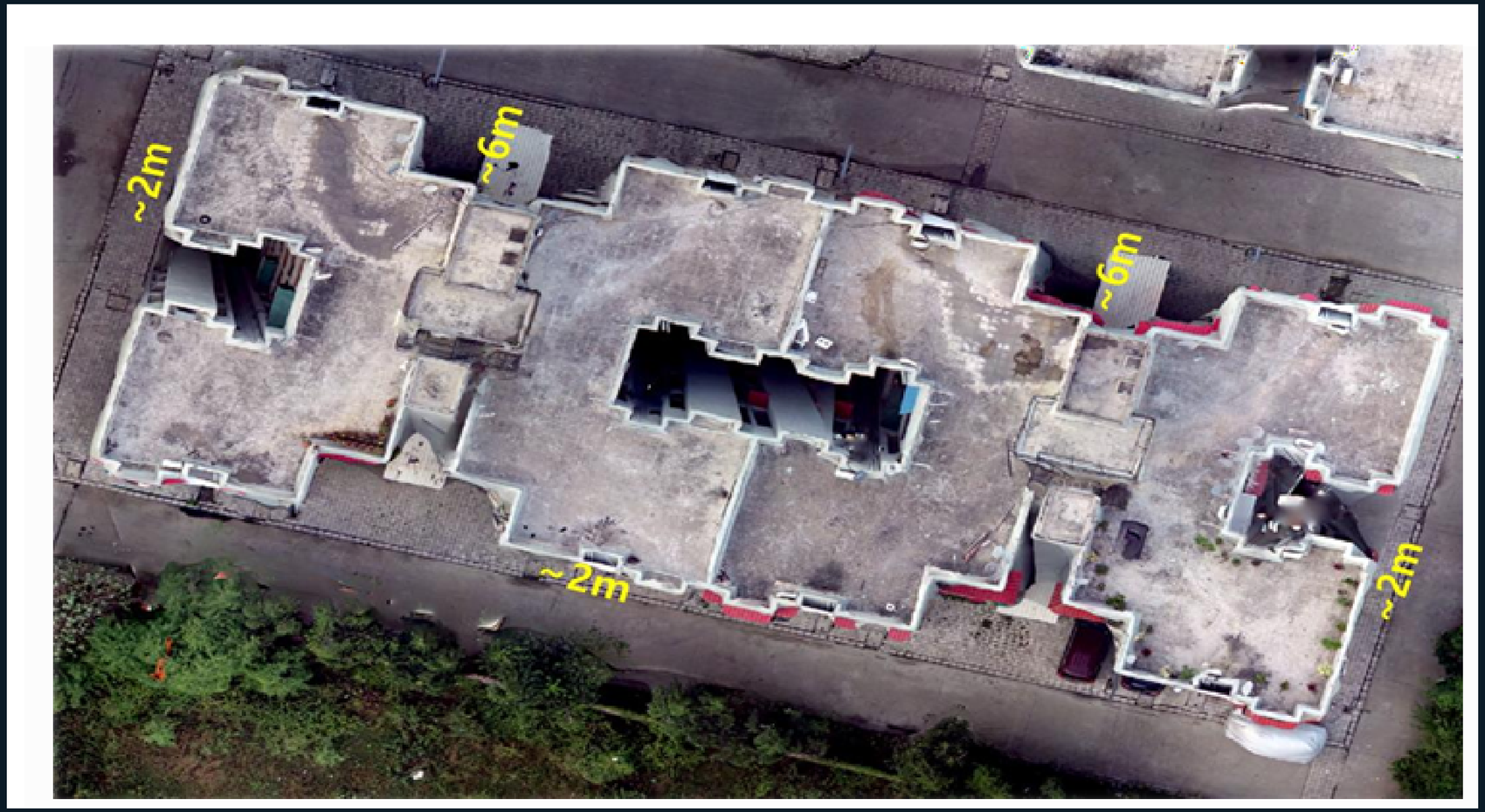

Drone image showing measurement of front and other 3 sides MOS

Use of drone image to measure the building/floor heights

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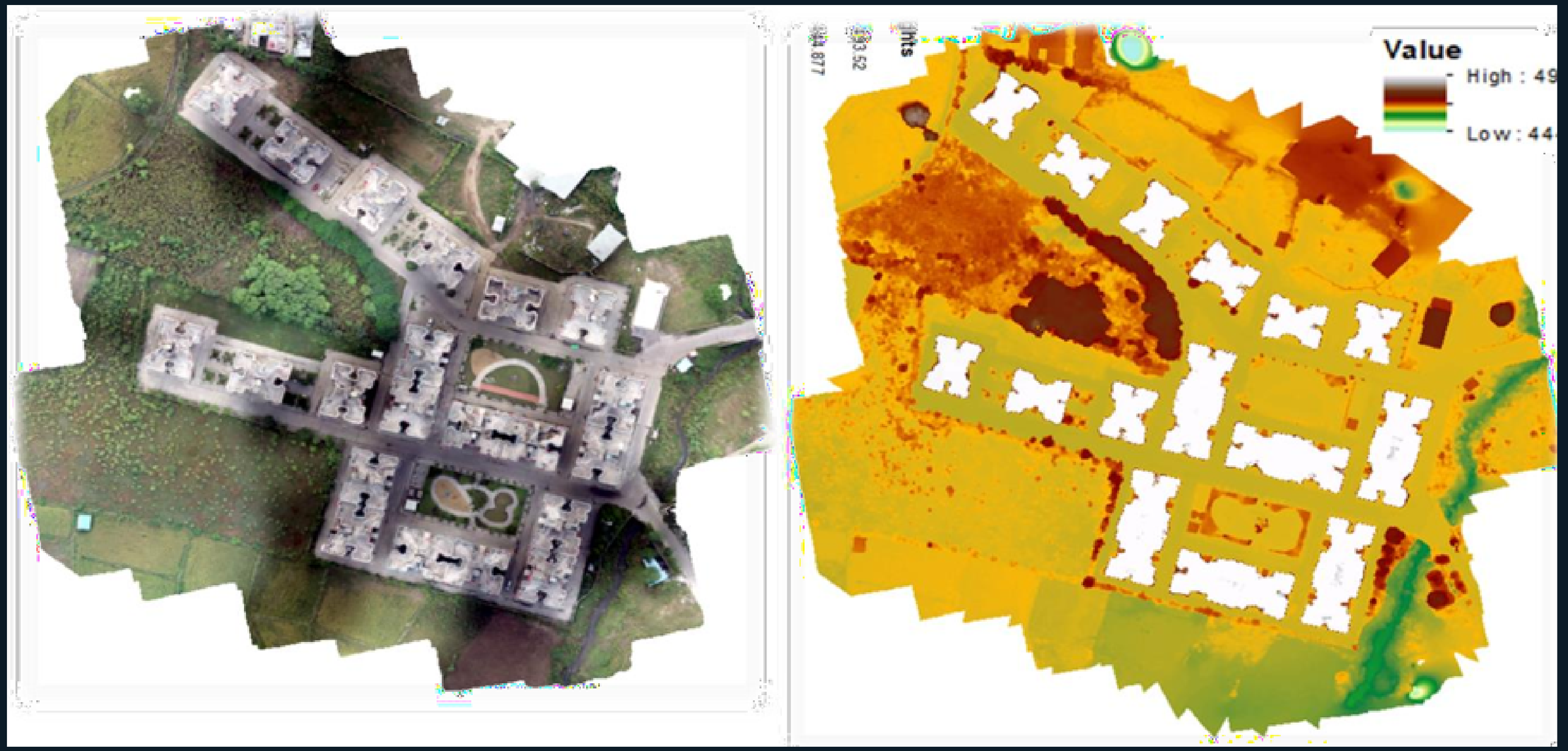
Showing building height approved by T&CP (18m) Vs actual height (21m)

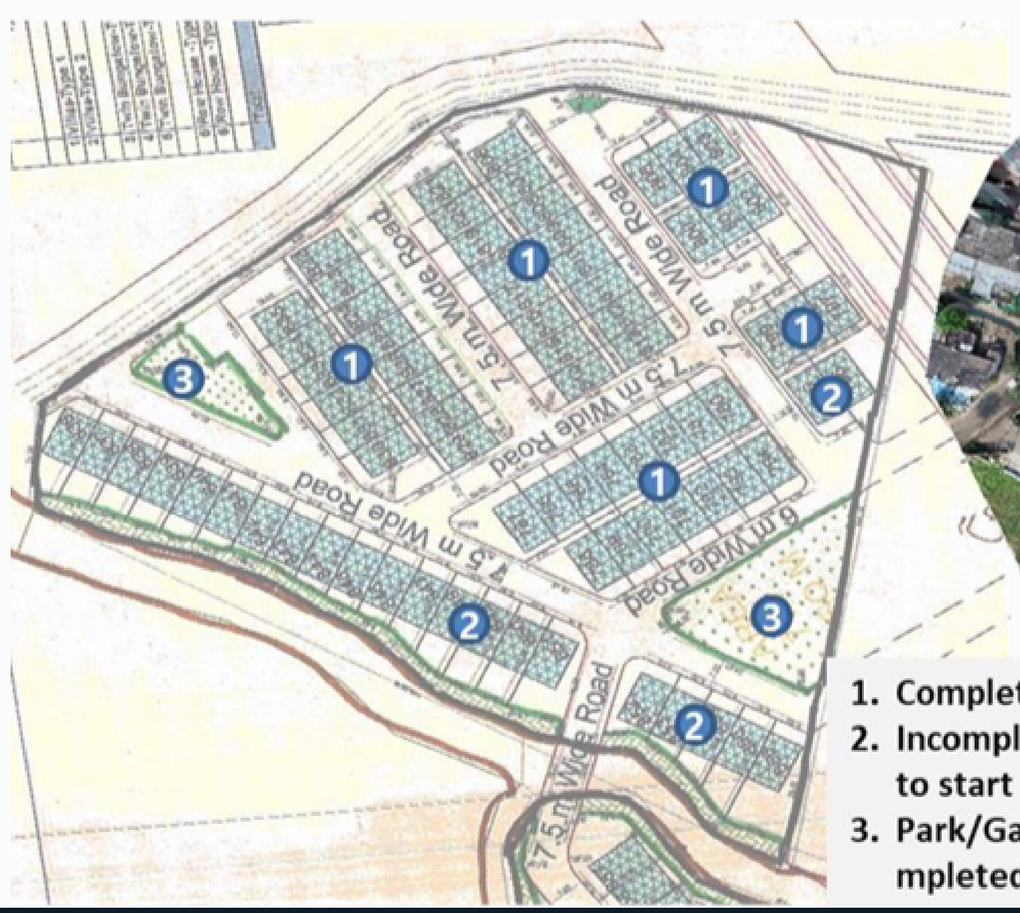
Actual building heights comparison with T&CP approved height for the same building

Digital surface model of the building and construction site



Ortho-photo of the site and Digital Surface model (DSM) showing elevation information

Building construction progress monitoring



1. Completed
2. Incomplete/Yet to start
3. Park/Garden co mpleted

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Showing building construction progress over drone images

Outputs

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Drone image analysis and mapping of building infrastructure results in two broad outputs. First are survey grade results for site monitoring of land which is under construction to capture 2D based information only from the area under target. Another output is photogrammetric based image information having height information in it. Both the process is different and require separate methodology for image processing. For 2D based analysis which majorly involves feature extraction technique will be undertaken based on object orientation approach using algorithm-based rule set. To do this, images will be segmented or classified based on predefined scheme. At this point, user need to provide command to the system to extract features directly or to produce a classified map for the entire scene. Following outcomes can be obtained using the above-mentioned processing of drone images based on feature extraction method. For Photogrammetry based output, height and other elevation related information can be extracted using a dedicated photogrammetry software

Outputs from processed data

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- ✓ Dense Point cloud, 3D Mesh, 3D-tiled model (3d Object)
- ✓ Ortho-photo, DSM, Contour, DXF, 3D reconstruction

Survey-grade results

- ✓ Obtain results with sub-centimetre accuracy

- ✓ 1-2-pixel GSD in Horizontal (X, Y), 1-3 pixels GSD in Vertical (Z)

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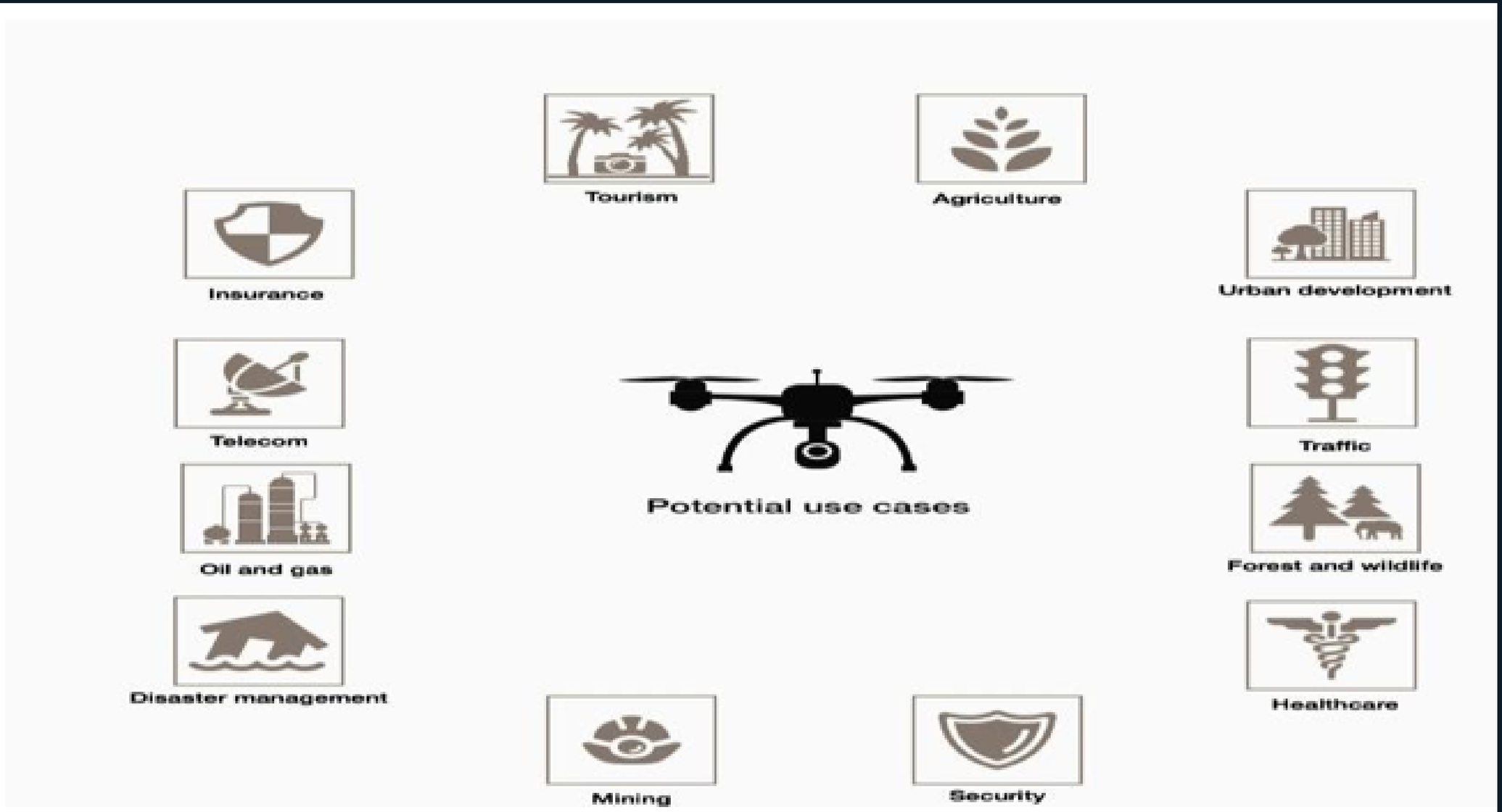
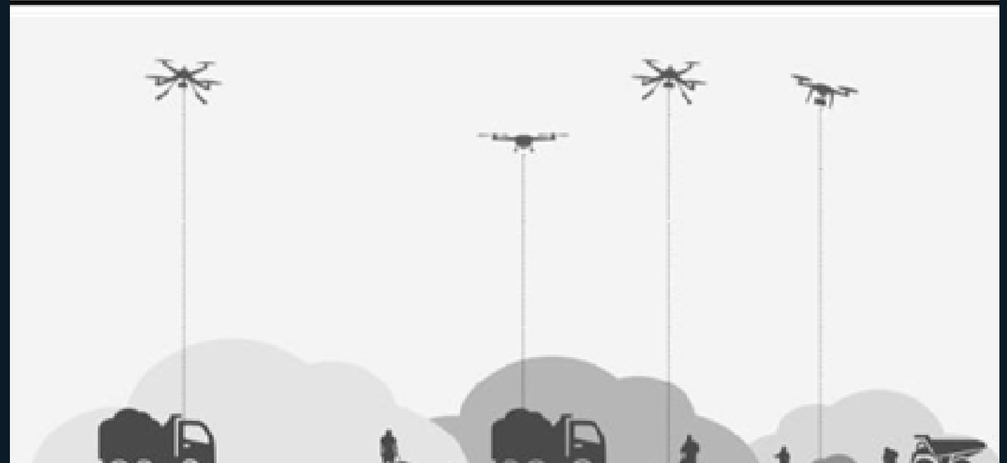
Measure & inspect

- ✓ Measure Distances, Areas, Heights and Volumes.
- ✓ Extract elevation profile data and perform virtual inspection

How Can Governments Use Drones?





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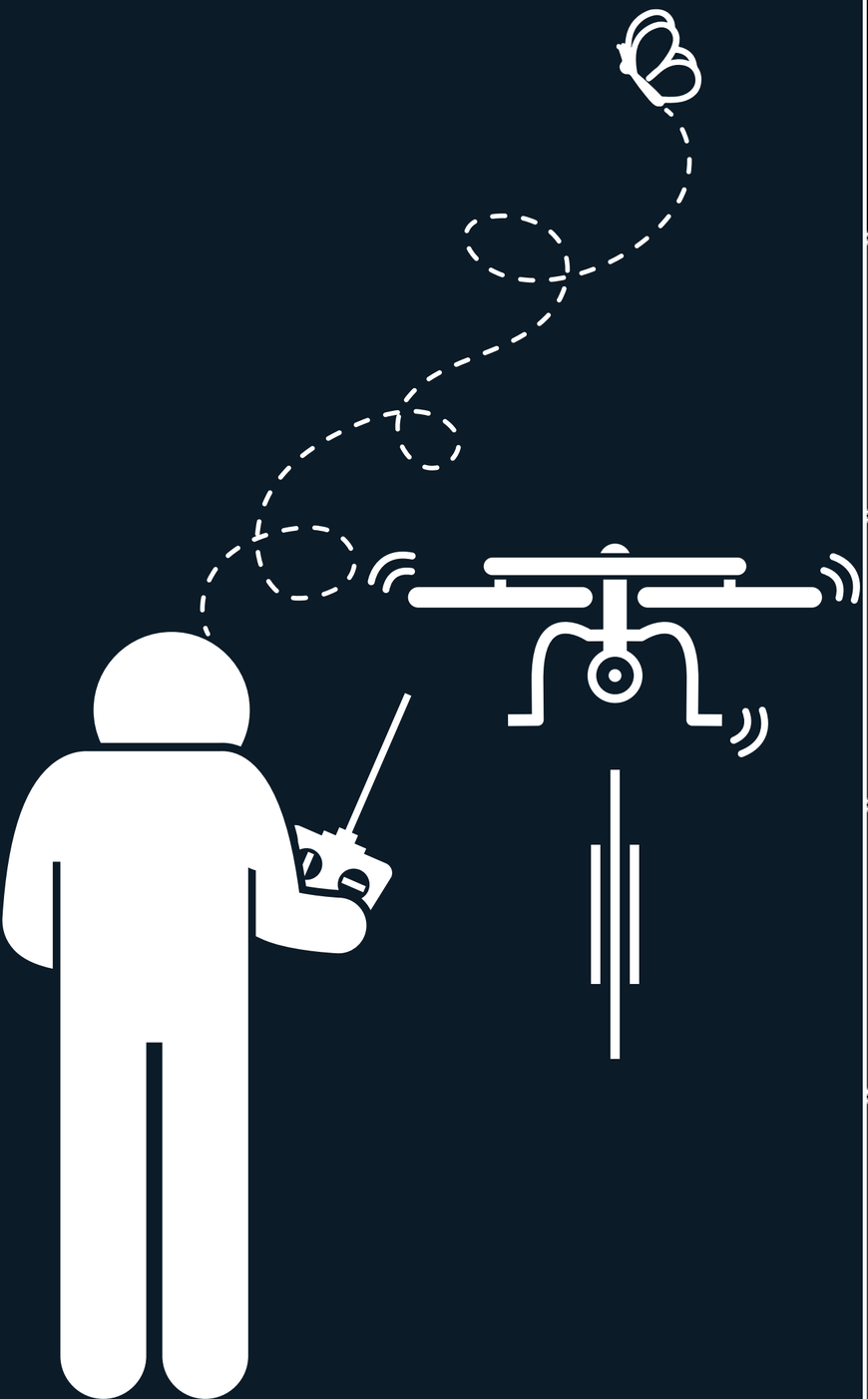

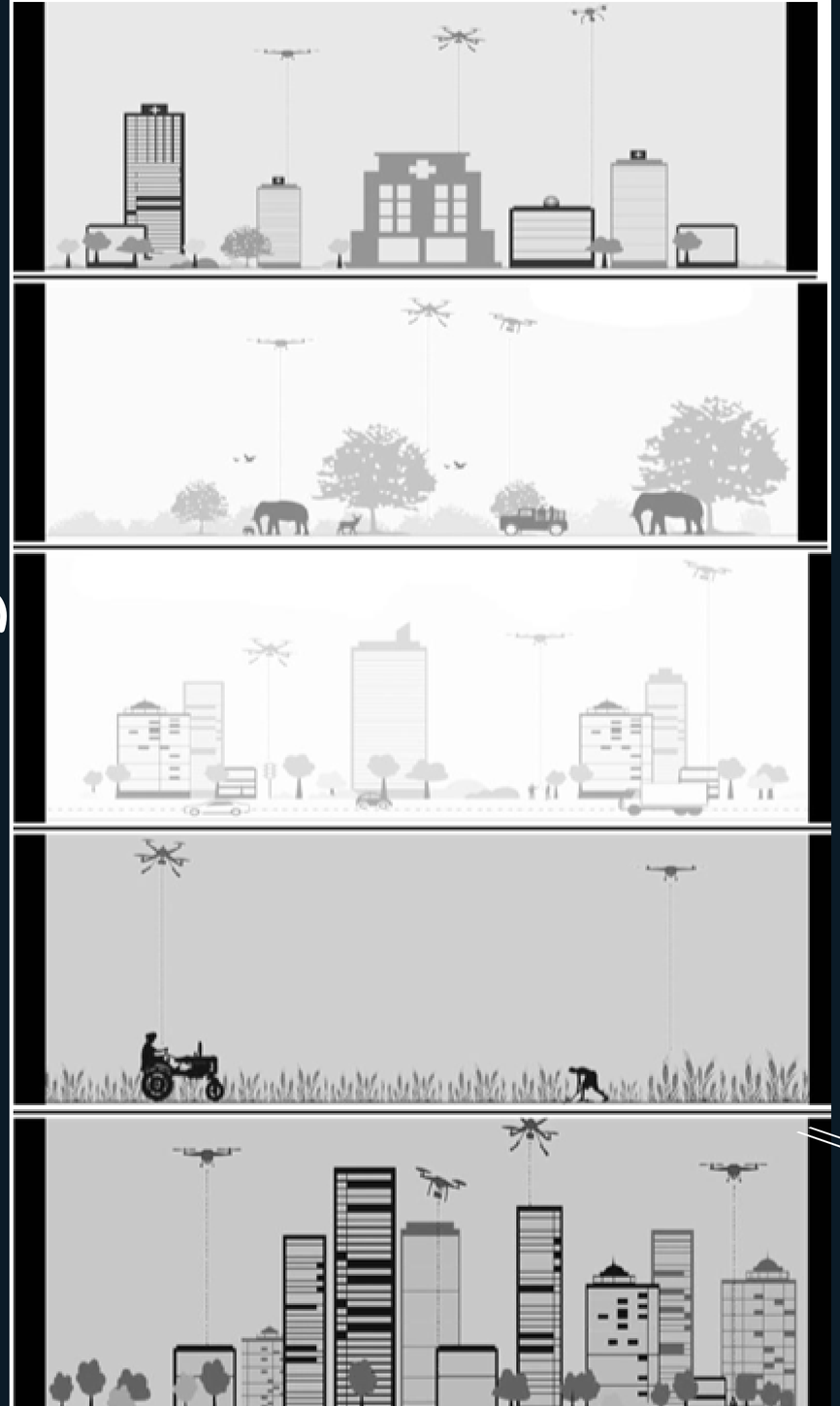

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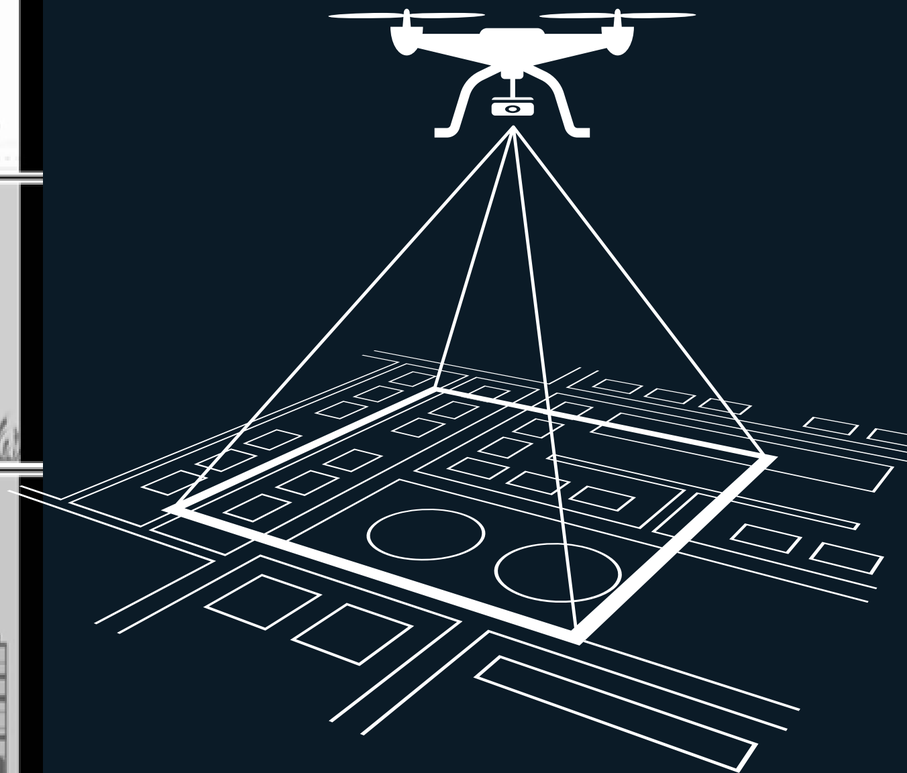

Our Projects

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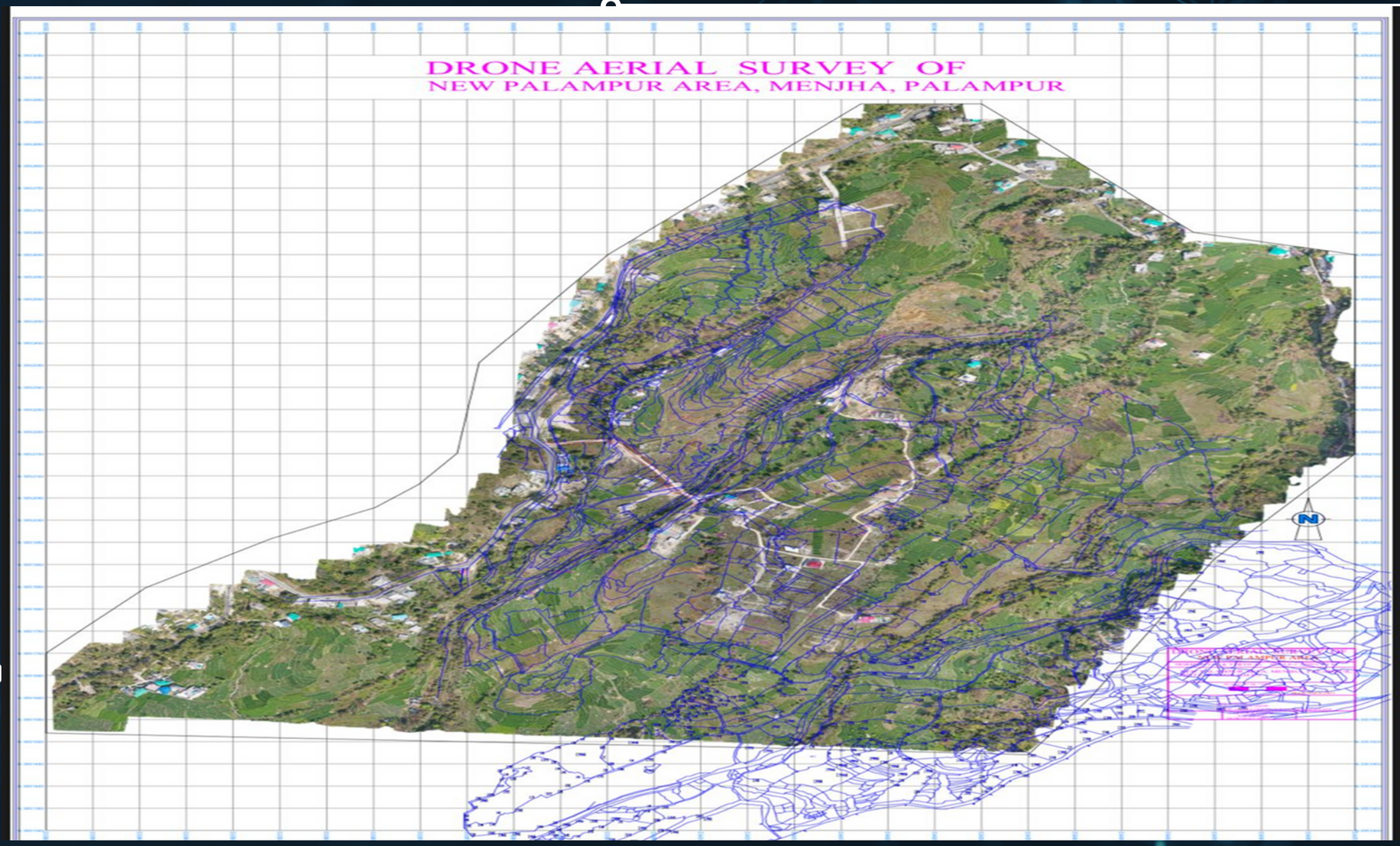

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ORTHOPHOTO

MADAN BHANDARI HIGHWAY

BASAHA-GAIGHAT-KATARI-SINDHULI(BHIMAAN) ROAD

CHAINAGE 111+000 - 109+800

Scale 1 : 2500

50 25 0 50 100 150 200 Meters


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CONTOUR PLAN OF LAND AREA AT VILLAGE BARI , BIR,BAIJNATH, DISTT.-KANGRA(H.P.)

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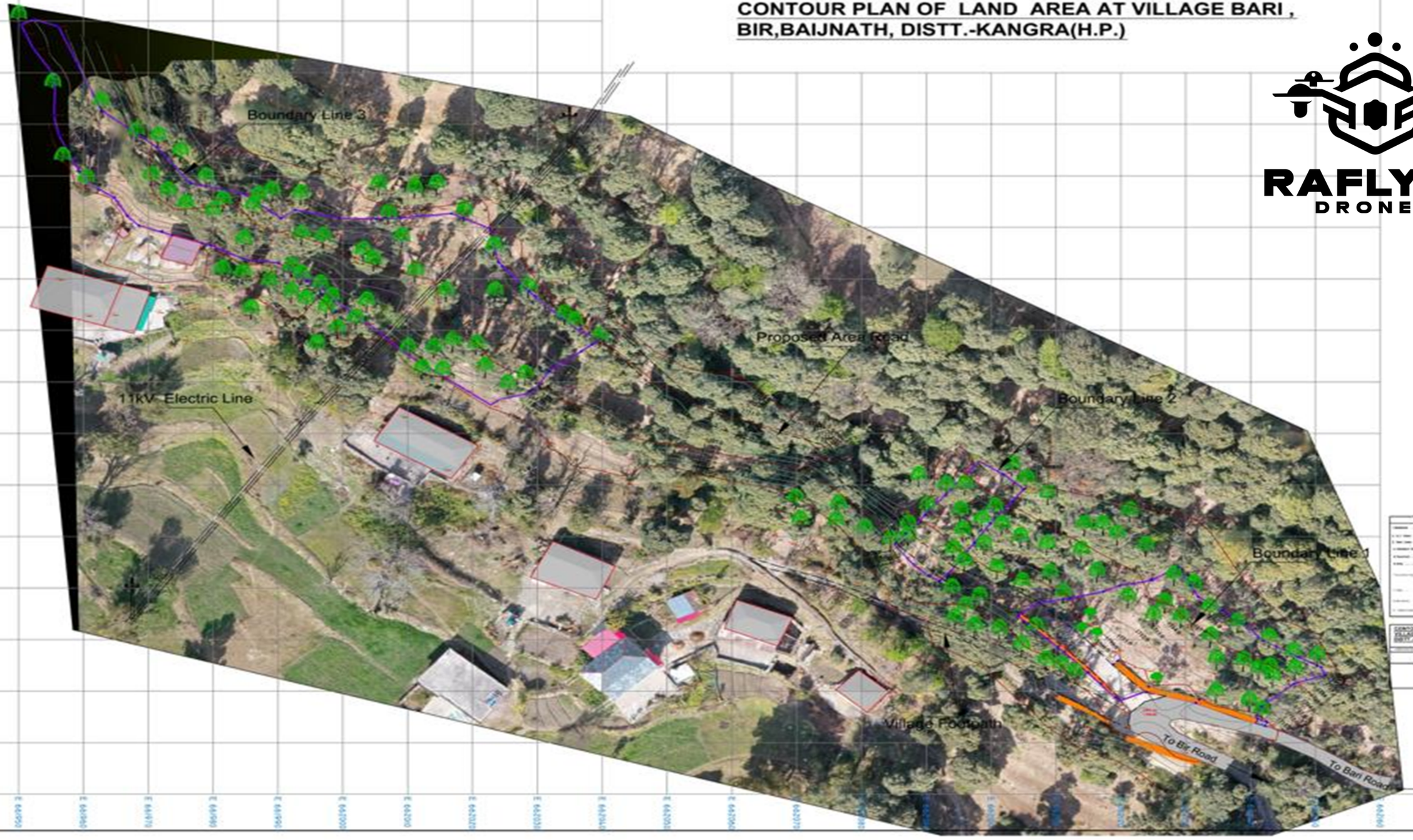
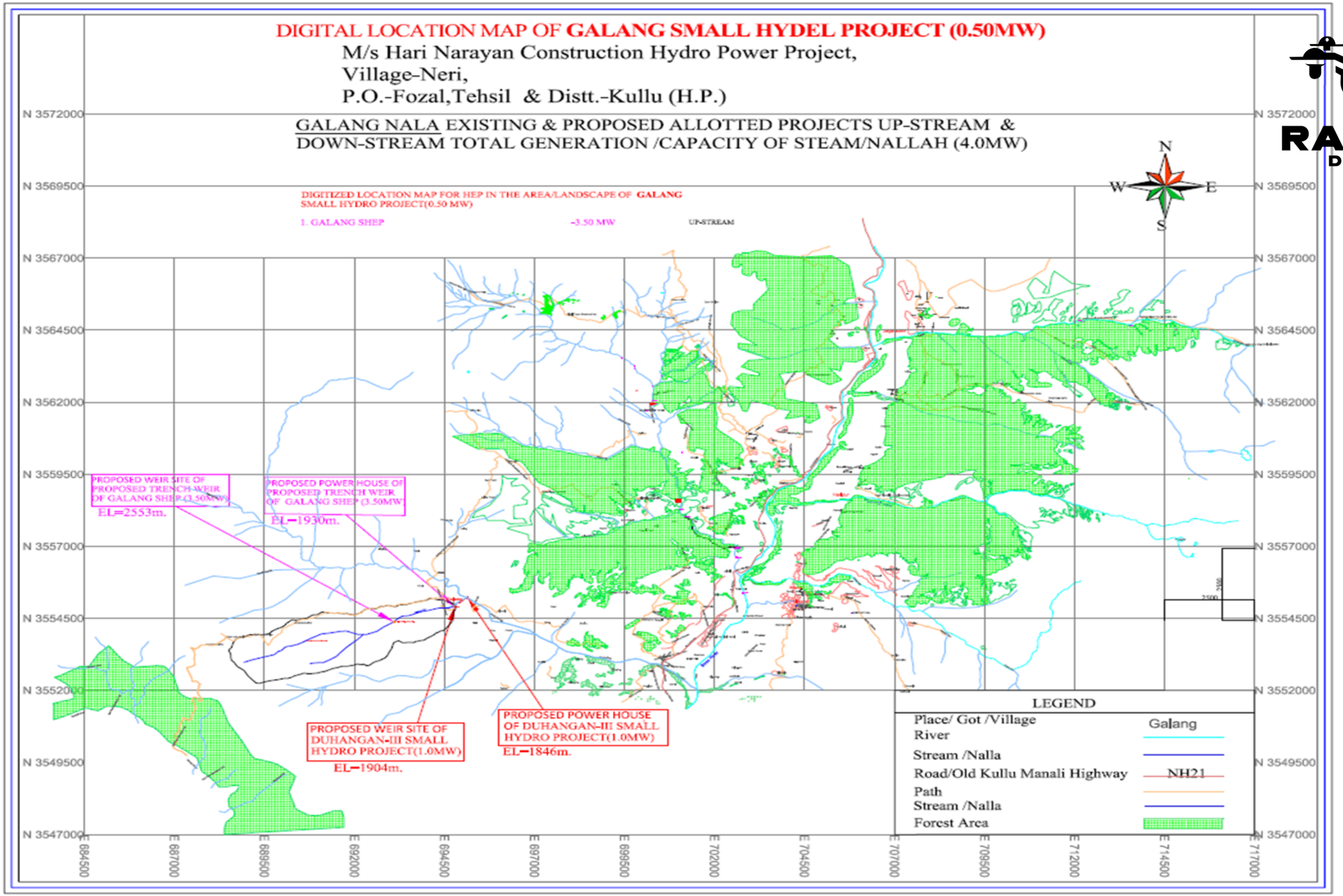


DIGITAL LOCATION MAP OF GALANG SMALL HYDEL PROJECT (0.50MW)

M/s Hari Narayan Construction Hydro Power Project,
Village-Neri,
P.O.-Fozal,Tehsil & Distt.-Kullu (H.P.)

GALANG NALA EXISTING & PROPOSED ALLOTTED PROJECTS UP-STREAM & DOWN-STREAM TOTAL GENERATION /CAPACITY OF STEAM/NALLAH (4.0MW)



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SMALL HYDRO PROJECT DUHANGAN-III (1.0 MW KULLU MANALI H.P)

TOPOGRAPHICAL AND CONTOUR SURVEY PLAN

M/s Jamdagni Hydro Power,
Vill & P.O.-Jagat Sukh,Tehsil Manali,
Distt.-Kullu-175143

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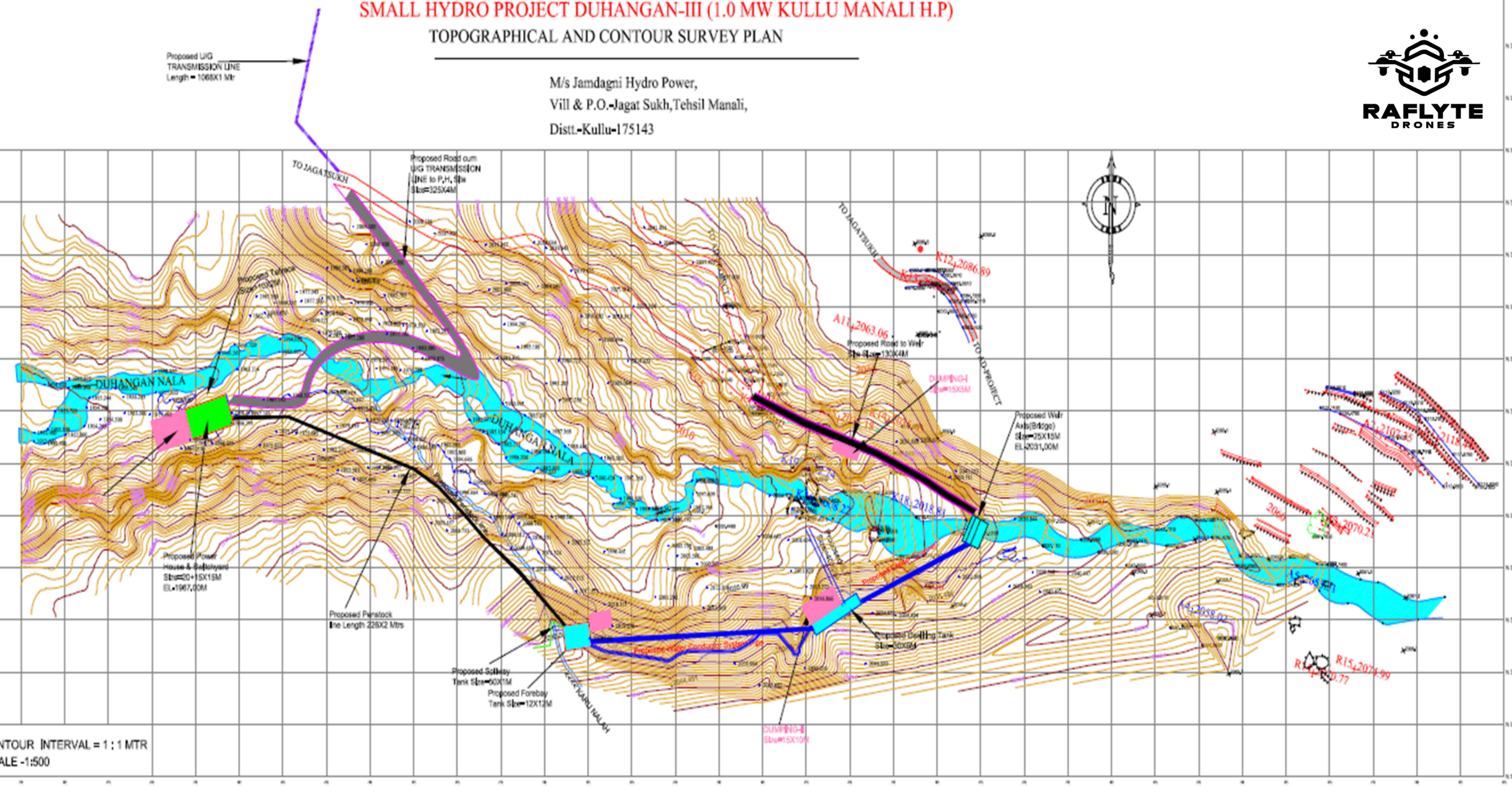

TOPOGRAPHICAL SURVEY OF GENERAL LAYOUT PLAN

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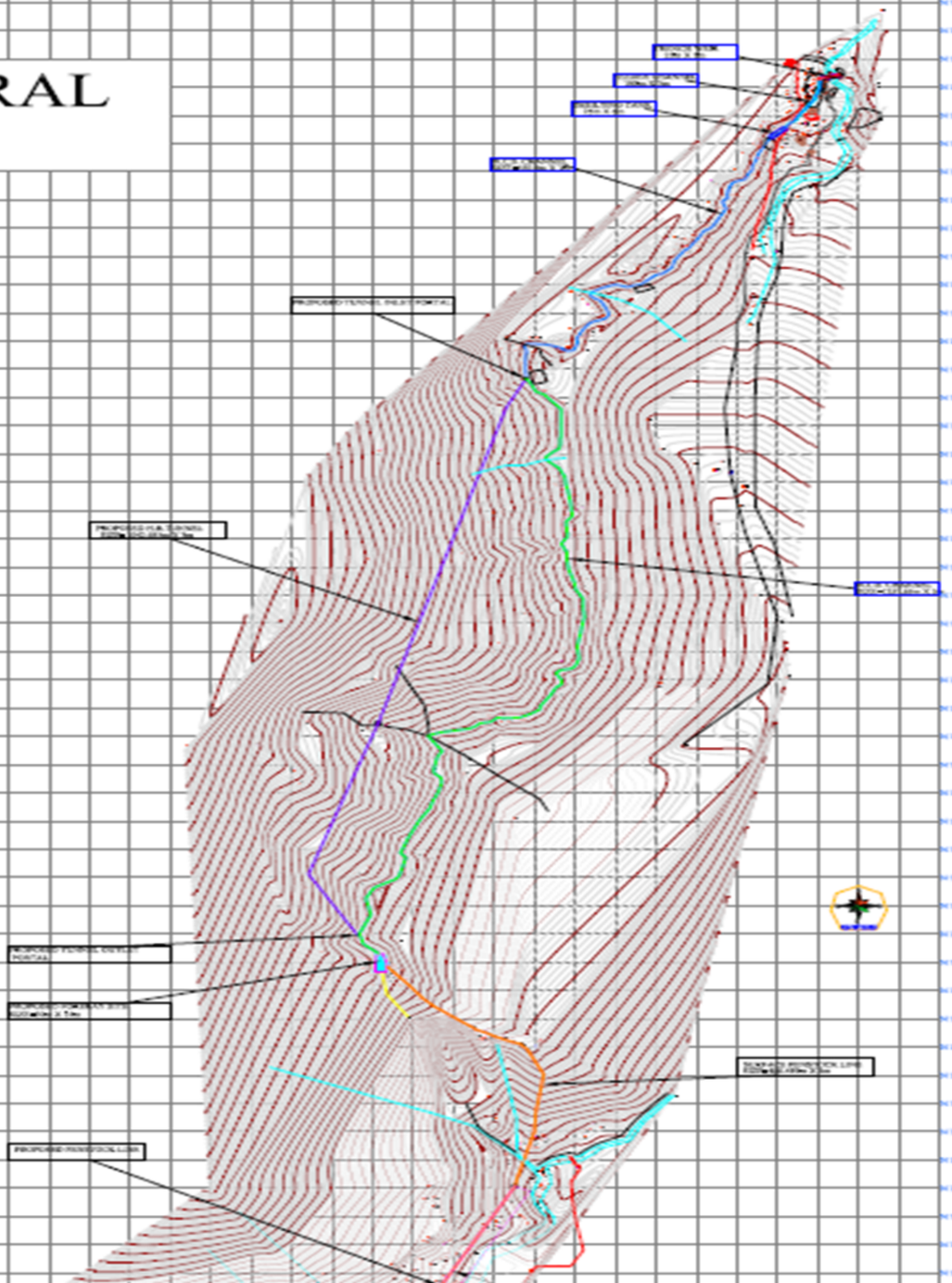
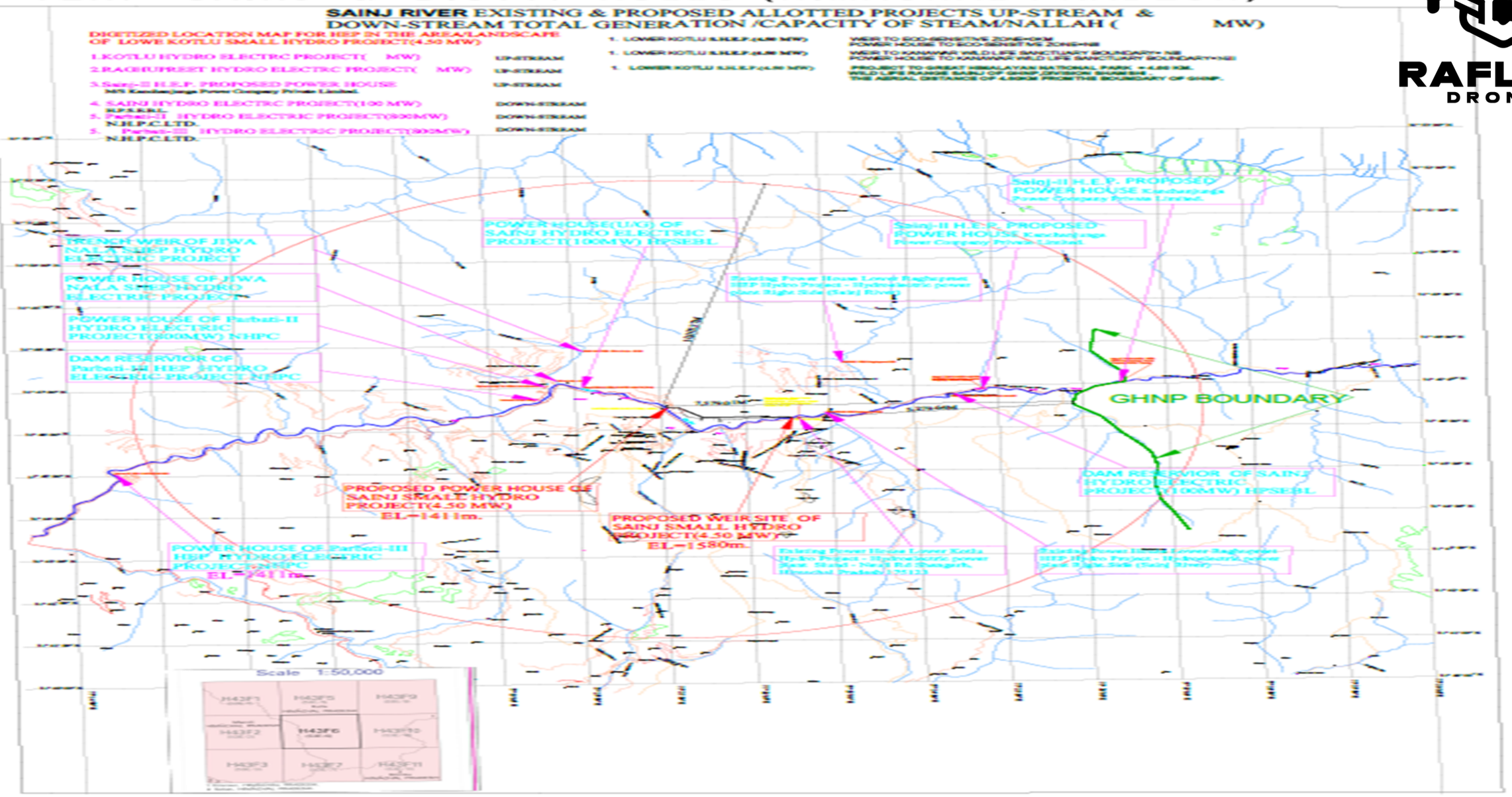


3.GEO-REFERENCE LOCATION 10KM RADIUS CIRCLE MARK ON SHOWING AREA OF LOWER KOTLU H.E.P. 4.50 MW. TEH. SAINJ & DISTT. KULLU (HIMACHAL PRADESH)



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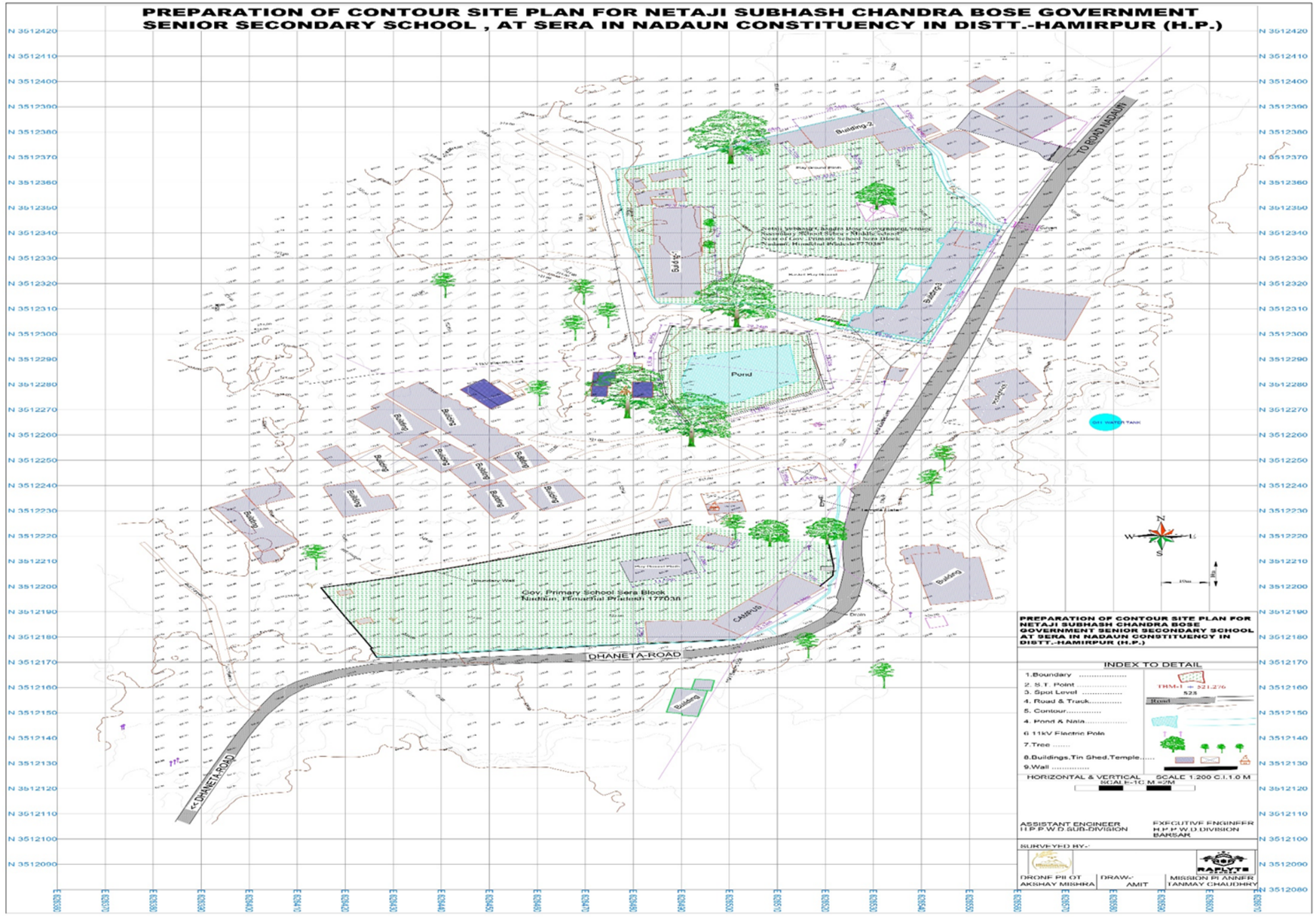
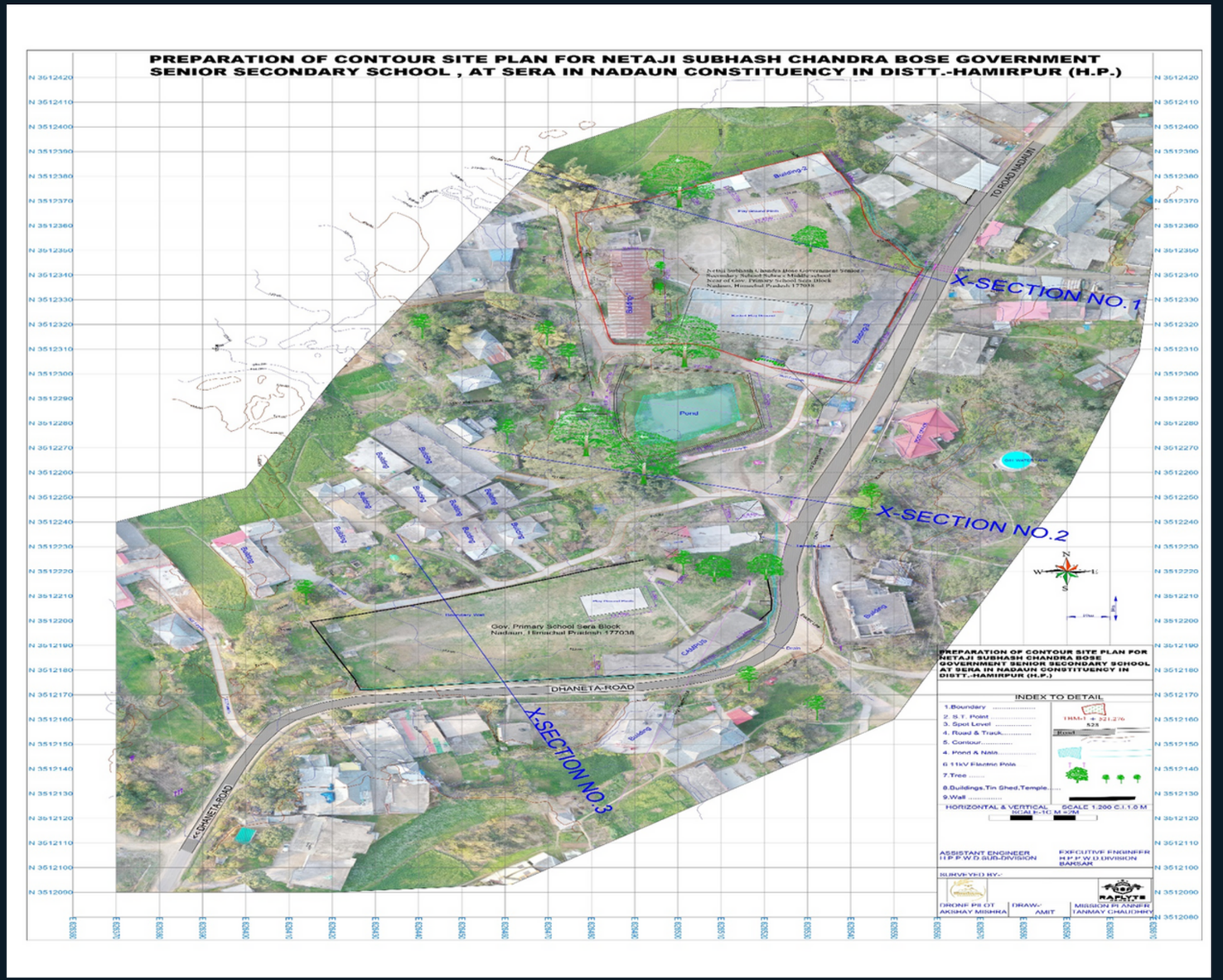

PREPARATION OF CONTOUR SITE PLAN FOR NETAJI SUBHASH CHANDRA BOSE GOVERNMENT SENIOR SECONDARY SCHOOL , AT SERA IN NADAUN CONSTITUENCY IN DISTT.-HAMIRPUR (H.P.)
Building-2
Building-3
Pond
Gov. Primary School Sera Block Nadaun, Himachal Pradesh 177033
DHANETA-ROAD
TO ROAD NADAUN
Building
Canteen
INDEX TO DETAIL
1.Boundary
2. S.T. Point
3. Spot Level
4. Road & Track
5. Contour
4. Pond & Nala
6 11kV Electric Pole
7.Tree
8.Buildings,Tin Shed,Temple
9.Wall
HORIZONTAL & VERTICAL SCALE 1:200 C.I.1.0 M
ASSISTANT ENGINEER H.P.P.W.D SUB-DIVISION
EXECUTIVE ENGINEER H.P.P.W.D.DIVISION BARSAR
SURVEYED BY:-
DRONE PILOT AKSHAY MISHRA
DRAW:- AMIT
MISSION PLANNER TANMAY CHAUDHRY

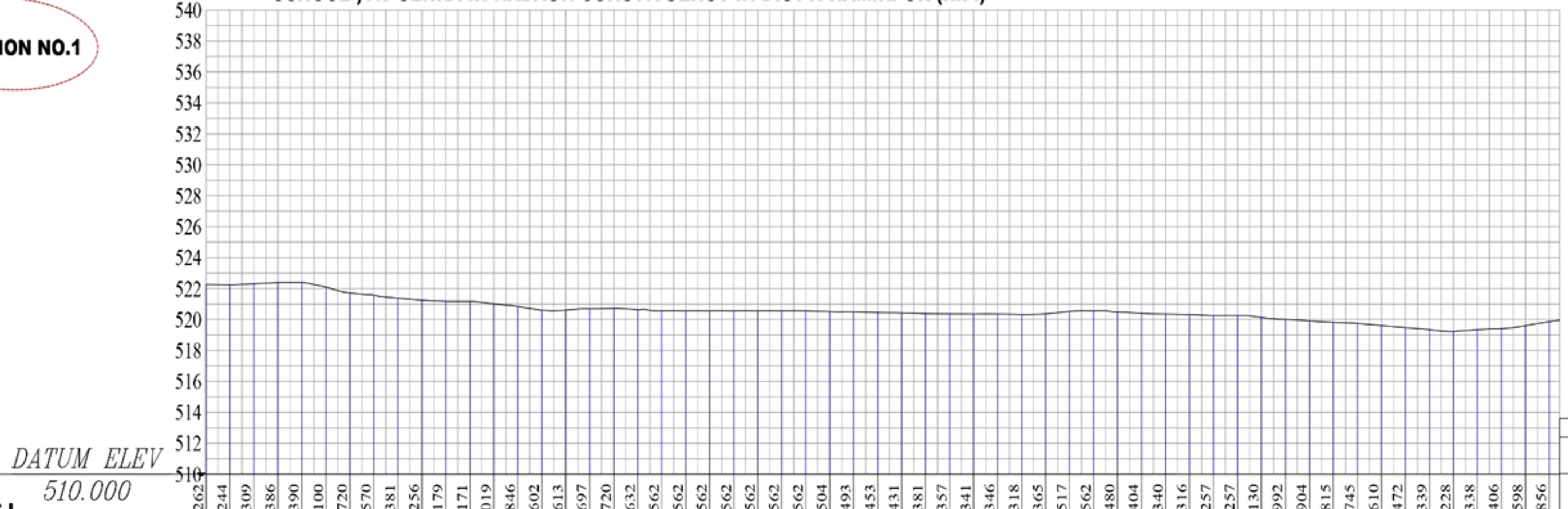
Himalayan
DRONESHALA

RAFLYTE
DRONES



X-SECTION OF FOR NETAJI SUBHASH CHANDRA BOSE GOVERNMENT SENIOR SECONDARY SCHOOL , AT SEHRA IN NADAUN CONSTITUENCY IN DISTT.-HAMIRPUR (H.P.)

X-SECTION NO.1



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522.309	0+004	ROAD
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522.390	0+008	
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521.720	0+012	
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521.381	0+016	
521.256		
521.179	0+020	
521.171		
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520.453	0+056	
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520.381	0+060	
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520.257		
520.130	0+088	
519.992		
519.904	0+092	
519.815		
519.745	0+096	
519.610		
519.472	0+100	
519.339		
519.228	0+104	
519.338		
519.406	0+108	
519.598		
519.856	0+112	

HORIZONTAL & VERTICAL SCALE-1:200
SCALE-1C.M.=2M

ASSISTANT ENGINEER
H.P.P.W.D.SUB-DIVISION

EXECUTIVE ENGINEER
H.P.P.W.D.DIVISION
BARSAR

SURVEYED BY-:

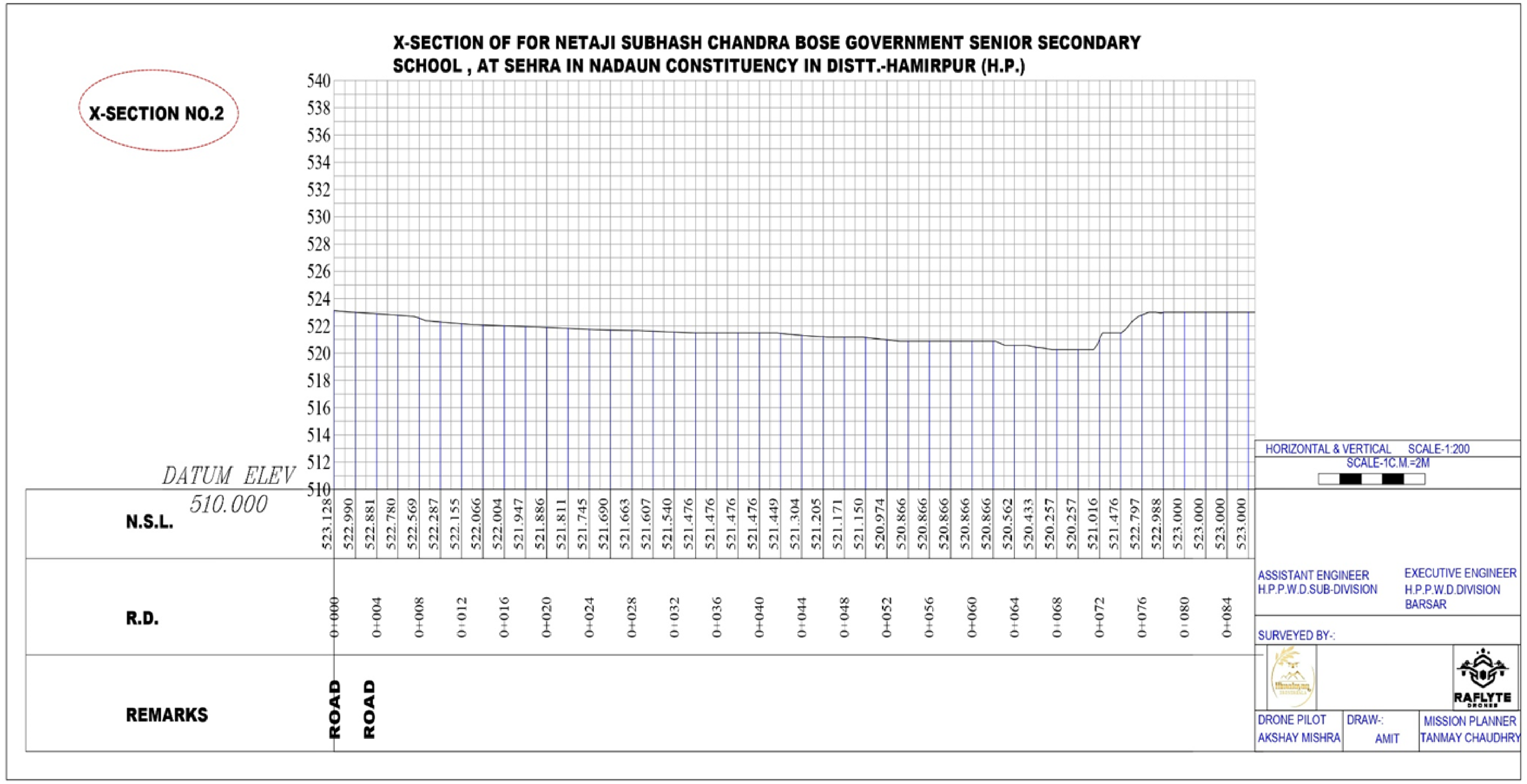
RAFLYTE DRONES

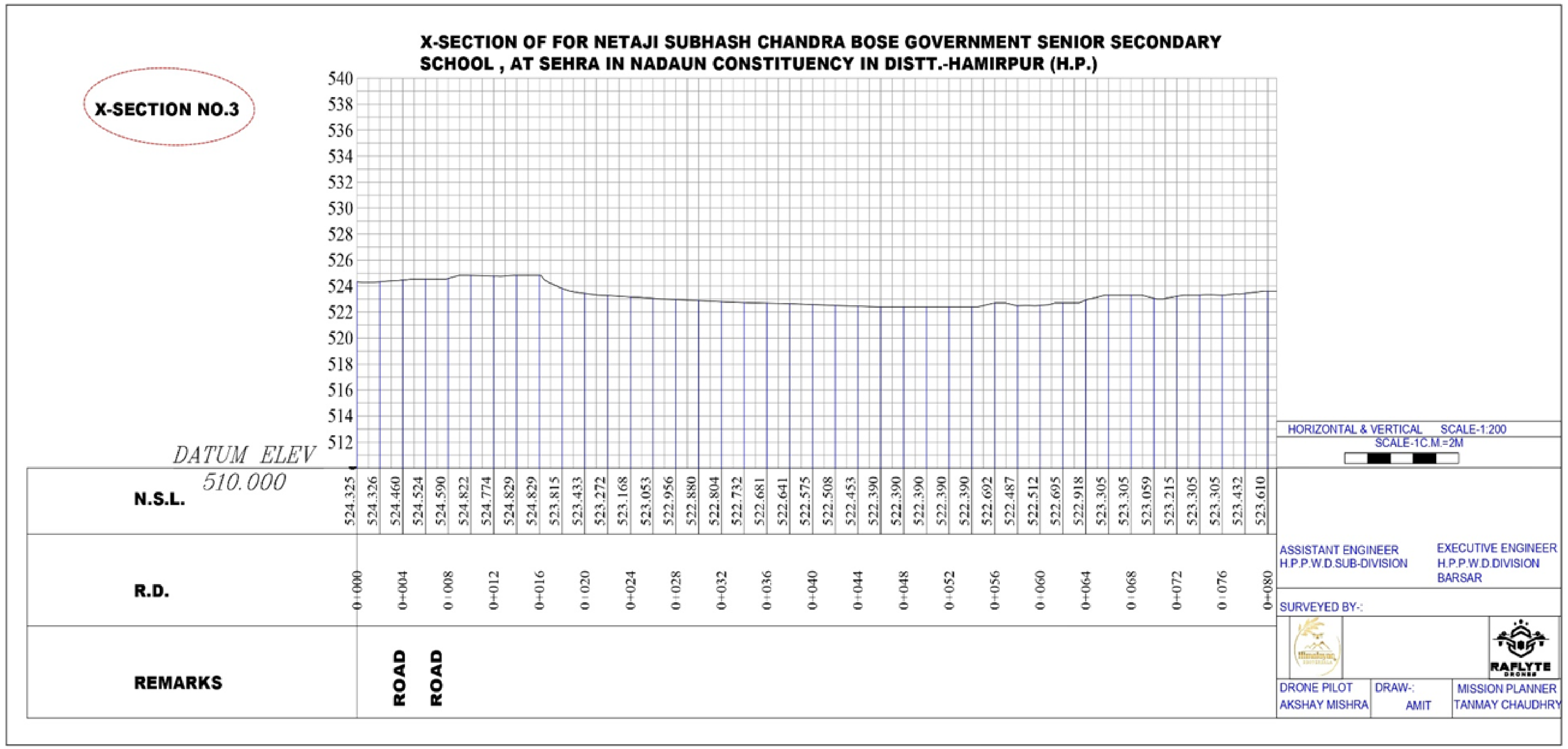
DRONE PILOT
AKSHAY MISHRA

DRAW-:
AMIT

MISSION PLANNER
TANMAY CHAUDHRY

RAFLYTE DRONES





X-SECTION OF FOR NETAJI SUBHASH CHANDRA BOSE GOVERNMENT SENIOR SECONDARY SCHOOL , AT SEHRA IN NADAUN CONSTITUENCY IN DISTT.-HAMIRPUR (H.P.)
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R.D.
0+000 0+004 0+008 0+012 0+016 0+020 0+024 0+028 0+032 0+036 0+040 0+044 0+048 0+052 0+056 0+060 0+064 0+068 0+072 0+076 0+080
REMARKS
ROAD
ROAD
HORIZONTAL & VERTICAL SCALE-1:200
SCALE-1C.M.=2M
ASSISTANT ENGINEER
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BARSAR
SURVEYED BY-:
DRONE PILOT
AKSHAY MISHRA
DRAW-:
AMIT
MISSION PLANNER
TANMAY CHAUDHRY

Our Promise

RAFLYTE DRONES

Raflyte Drones Surveys will exceed our clients expectations in the delivery of innovative land surveying, spatial information and town planning consulting services.

MONITOR

DELIVERY

Aerial Survey| 2D/3D Maps | Contour Maps

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DRONES

SURVEYOR

Elevating Precision in Aerial Solutions for Every Sector

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www.raflytedrones.com

Palampur, Kangra, Himachal Pradesh - 176061

Thank You

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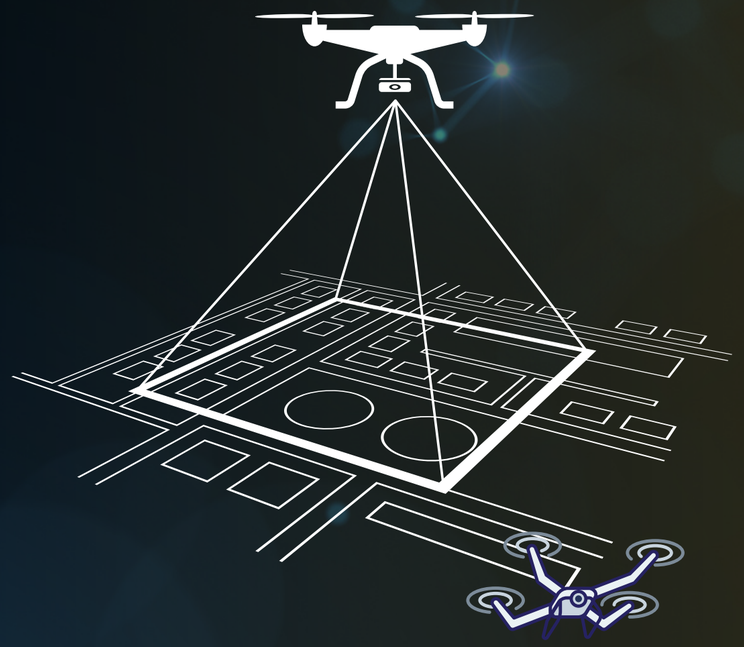

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