



JURUUKUR
SYNERGY

LiDAR-Powered Survey Solutions

JURUUKUR SYNERGY SDN. BHD. [1492205-X]
www.jssbsurveys.com

RPWP
**TECHNICAL
POWERHOUSE**

TITLE SURVEY SOLUTIONS

CADASTRAL SURVEY

Involves accurately defining, demarcating and verifying land boundaries to establish ownership, as well as subdividing or consolidating land parcels for legal registration.

STRATA SURVEY

Mapping the vertical divisions of properties within multi-storey buildings, enabling the creation and registration of strata titles for individual units

LAND ACQUISITION & FINAL TITLE

The land acquisition process encompasses Sections 4 and 8, along with a Final Title survey, to establish a Certified Plan (CP).



ENGINEERING SURVEY SOLUTIONS

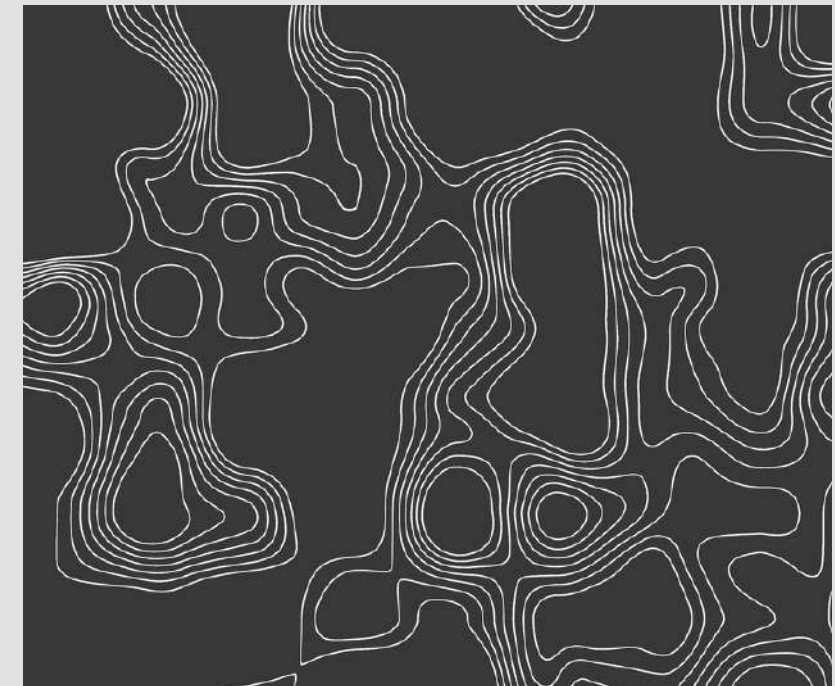
CONVENTIONAL LAND SURVEYING

For simple terrain where conventional methods are easier to implement, including “setting out works.”



TOPOGRAPHICAL SURVEY

Topographical survey maps detailed natural and man-made features of a site, including elevations and contours, to support planning, design and environmental assessments.



GEODETIC SURVEY

Geodetic survey establishes a network of precise control points over large areas using GNSS and other methods, providing the foundational coordinates for all other surveys.



UNDERGROUND DETECTION & MAPPING

Identifying and charting buried structures like pipes, cables and tunnels, ensuring safe and efficient building projects.



HYDROGRAPHIC SURVEY

Mapping and surveying bodies of water (oceans, seas, rivers, lakes) including bathymetry with an emphasis on navigation safety, marine construction and maritime boundaries.



OCEANOGRAPHY ANALYSIS

Comprehensive study of the ocean's characteristics and dynamics through scientific data collection and interpretation to better understand and manage ocean environments.



GEOTECHNICAL INVESTIGATION

A process of evaluating the soil, rock and groundwater conditions of a site to determine its suitability for construction projects.

LIDAR-POWERED SURVEY SOLUTIONS

MULTI-PLATFORM LIDAR SURVEYS

With a multi-platform LIDAR scanner, survey data can be quickly and accurately collected, even in narrow alleys and on multi-level highways.

AERIAL LIDAR MAPPING

When dealing with a large or hard-to-reach area, aerial LIDAR is the most effective method for capturing high-quality, dense data for engineering applications.

3D MODELLING & VISUALISATION

A 3D model serves multiple purposes, including design and visual inspection, condition monitoring, security and even providing walkthroughs or tours for visitors.

GIS INTEGRATION AND SUPPORT

For more intricate analyses, GIS provides a broad range of solutions that enhance our understanding of current conditions and assist in future predictions.





ABOUT US

PREMIER LAND SURVEYING COMPANY
FOCUSED ON DELIVERING
INNOVATIVE AND HIGH-PRECISION
LIDAR SURVEYING SERVICES

COMMITTED TO EXCELLENCE AND TECHNOLOGICAL PROGRESS, WE SPECIALIZE IN INCORPORATING STATE-OF-THE-ART LIDAR TECHNOLOGY INTO OUR SURVEY PROCESSES. OUR VISION IS TO ESTABLISH NEW INDUSTRY BENCHMARKS BY SHOWCASING HOW LIDAR-DRIVEN SOLUTIONS IMPROVE DATA DENSITY AND ACCURACY, THEREBY **REVOLUTIONIZING** SURVEY RESULTS ACROSS A DIVERSE ARRAY OF APPLICATIONS.





VISION

Our vision is to make cutting-edge geospatial technology **affordable** and **accessible** for all businesses, enabling informed decisions and innovation across diverse sectors.

MISSION

To deliver precise, reliable and comprehensive survey data by utilising advanced LIDAR technology, empowering clients with detailed and actionable geospatial information for better decision-making.



WHY LIDAR?

Land surveying has faced limitations with traditional methods, particularly in **data density** and **interpolation**, leading to inaccuracies in complex terrains. Juruukur Synergy capitalise **LIDAR technology** to capture high-density point clouds, reducing the need for interpolation and improving precision. This innovative approach enhances deliverable quality while complementing conventional surveys.

KEY ADVANTAGES

01



HIGH DATA DENSITY

Captures millions of points per second for a detailed and comprehensive terrain model.

02



ENHANCED PRECISION

Reduces data gaps and interpolation errors common in lower-density conventional surveys.

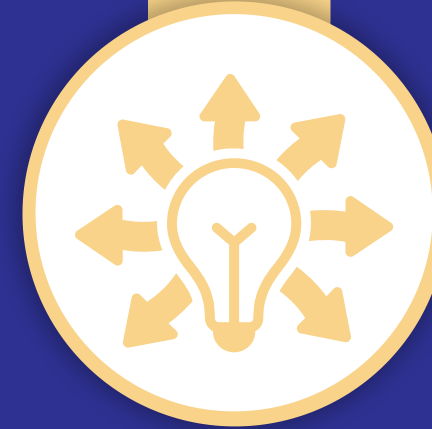
03



FASTER DATA COLLECTION

Efficiently surveys large or difficult terrain in significantly less time.

04



VERSATILITY

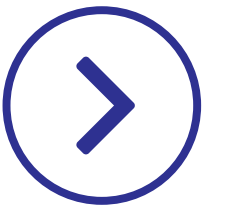
Effective for topographic surveys, infrastructure monitoring, forestry, mining and environmental management.

05

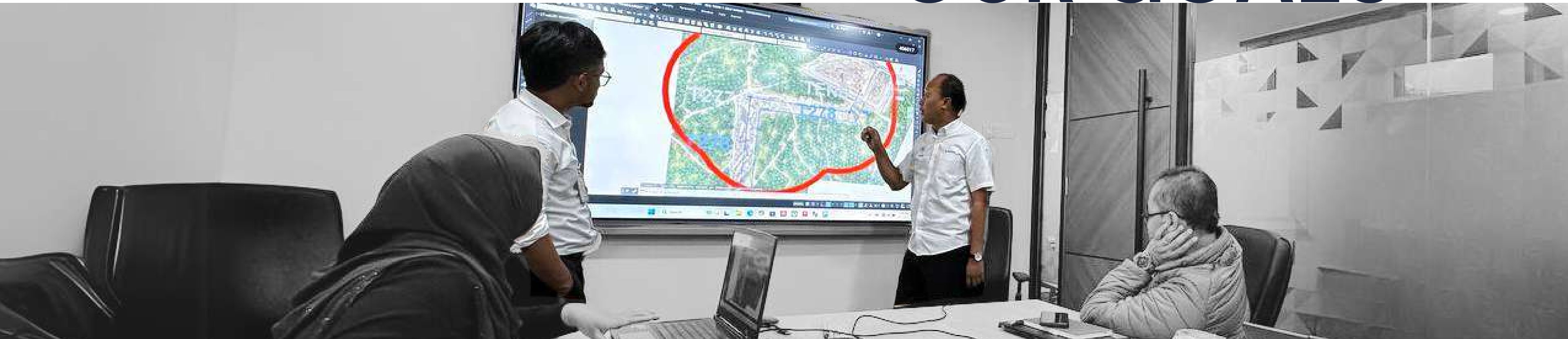


COMPREHENSIVE DELIVERABLES

Provides 3D models, contour maps, volume calculations and GIS-ready data.



OUR GOALS



**Make LIDAR
affordable &
accessible**

**Provide the helpful
business solutions**

**Help clients overcome
challenges**

**Comply international
management and
survey standard**



MILESTONES

2000

Lead Survey Team for Juruukur
Usaha Sdn. Bhd.

2022

Acquired Licensed Surveyor
status from LJT

2024

Partnership with Geospatial
Intelligence Experts

2025

LIDAR-Powered Survey
Company

25
YEARS
INDUSTRIAL
EXPERIENCE



LICENSED LAND SURVEYOR



QUALIFICATION

B. Eng (Geomatics) (Hons.) UTM MRISM MAALS
Land Surveyor Licensed Under Act 458 (Revised 1991)
Certified Underground Survey and Mapping (Sept 2025)



EDUCATION

2025 – Competency for Licensed Surveyor in Underground Survey and Mapping
2002 – Bachelor of Geomatics Engineering (Hons), Universiti Teknologi Malaysia (UTM)
1997 – Diploma in Land Surveying, Universiti Teknologi Malaysia (UTM)



EXPERIENCE

2022 – PRESENT: Licensed Land Surveyor, Juruukur Synergy Sdn. Bhd.
2004 – 2022: Project Director, Juruukur Usaha Sdn. Bhd.
2002 – 2003: Land Surveyor, Jurukur Perintis Sdn. Bhd.
1997 – 2000: Field Officer, Jurukur Perintis Sdn. Bhd.

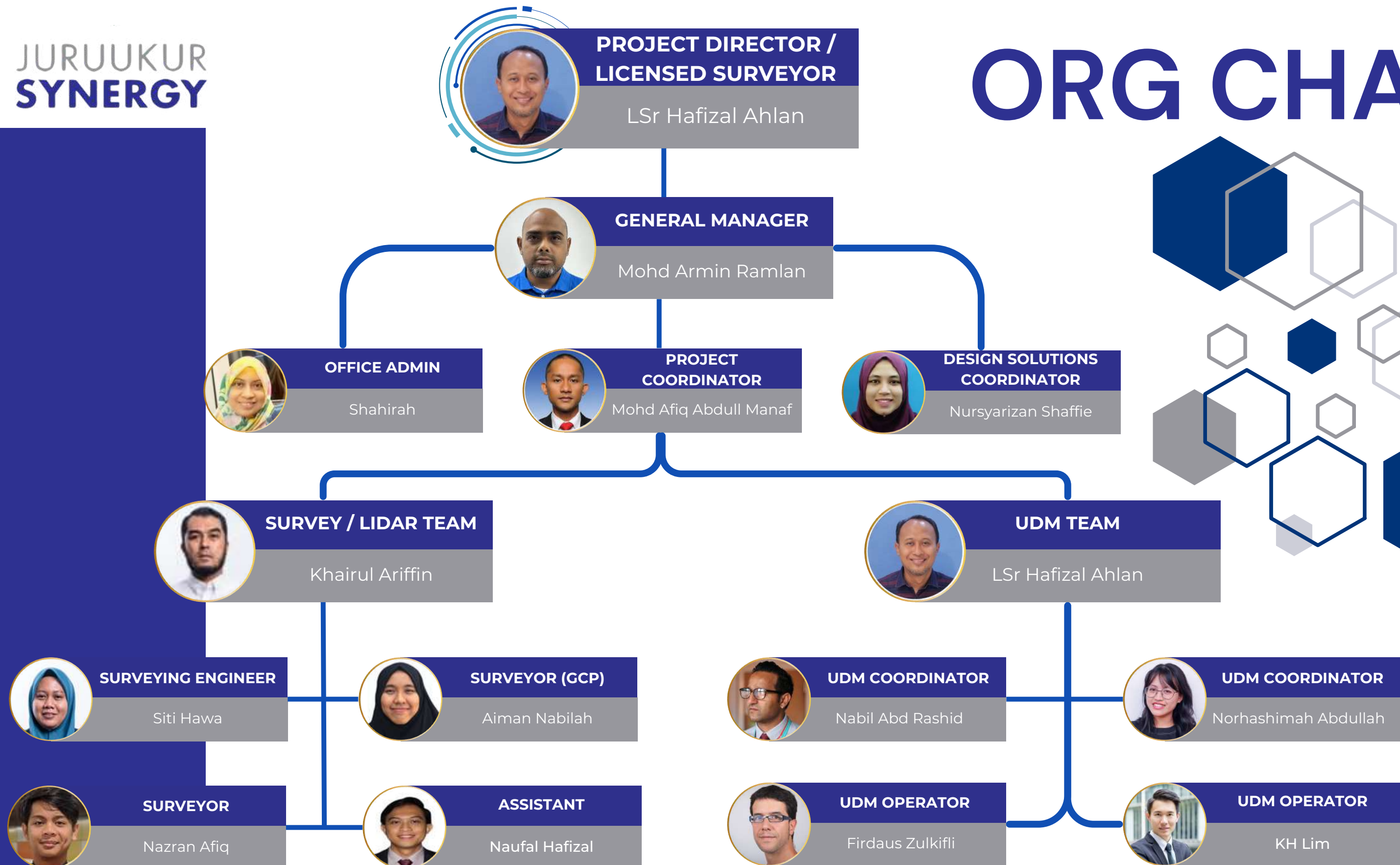


NOTABLE PROJECT

Licensed Land Surveyor Consultancy Services for the Preparation of Pre-Comp Plans for the Purpose of Gazette Notification of Railway Reserve Land in Selangor (Section 62, National Land Code) – 68.0 km and many more.

LSR. HAFIZAL BIN AHLAN

ORG CHART



PARTNERS

GEOSPATIAL INTELLIGENCE PARTNER



TECHNOLOGY PARTNERS

QUANTUM
SYSTEMS





JURUUKUR
SYNERGY

QUANTUM
SYSTEMS



QUICKLOCK INTERCHANGEABLE SENSORS



Qube 240 LiDAR



UMC-R10C + RedEdge-MX
Double Payload



MicaSense Altum



MicaSense RedEdge-MX



Sony UMC-R10C



Sony RX1R II



MicaSense Dual Camera
System

QUANTUM SYSTEM TRINITY F90+ PRO

- **Long Flight Time:** Offers up to 90 minutes of flight per battery charge, enabling extensive area coverage in a single flight.
- **VTOL Capability:** Vertical Take-Off and Landing allows operation in confined or rough terrain without the need for runways.
- **High-Resolution Mapping:** Equipped with advanced sensors and cameras for precise aerial data collection and detailed mapping.
- **Robust Design:** Built to withstand various weather conditions, making it reliable for diverse environments.
- **Easy Operation:** User-friendly interface with automated flight planning and data processing workflows to increase efficiency.
- **Versatile Applications:** Suitable for surveying, agriculture, mining and environmental monitoring due to its flexibility and accuracy.



DJI MAVIC 3 ENTERPRISE

- **Compact and Portable:** Lightweight and foldable design makes it easy to transport and deploy quickly.
- **High-Quality Imaging:** Features a dual-camera system with a 4/3 CMOS sensor for sharp, detailed photos and video, plus a thermal camera option for inspections.
- **Extended Flight Time:** Up to around 45 minutes of flight per battery charge for efficient surveying and monitoring.

DJI MATRICE 300 RTK

- **Robust and Durable:** Built with industrial-grade materials for reliable performance in harsh environments and challenging weather conditions.
- **Precise Positioning:** Equipped with RTK technology for centimetre-level accuracy, enhancing mapping and surveying precision.
- **Long Flight Time:** Provides up to 55 minutes of flight per battery charge, enabling extended missions without frequent downtime.
- **Advanced Safety Systems:** Features six-directional obstacle avoidance and automatic return-to-home for secure and confident operations.
- **Multi-Payload Capability:** Supports up to three payloads simultaneously, including high-resolution cameras, thermal sensors and LiDAR systems for versatile applications.
- **Seamless Data Integration:** Works smoothly with DJI's enterprise software suite, simplifying mission planning, data collection and analysis.





SCANFLY ULTRA X

- **High-Performance LiDAR System:** Equipped with the advanced Hesai XT32M2X LiDAR, the Scanfly ULTRA X offers a triple return capability and an impressive range of up to 300 metres across 32 profiles, delivering high-resolution point clouds for detailed mapping.
- **Compact and Lightweight Design:** Weighing just 1.49 kg, this system is designed for easy integration onto various platforms, including drones, backpacks and vehicles, facilitating versatile deployment in diverse environments.
- **Robust Navigation and Control:** The integrated Applanix APX-15L Inertial Navigation System (INS) with multi-constellation GNSS support ensures precise georeferencing, enhancing data accuracy even in challenging conditions.
- **Enhanced Data Processing Capabilities:** Utilising the SmartProcessing Lidar software, the system supports efficient data fusion and processing, enabling quick generation of accurate point clouds. Optional tools like Ground Control Point (GCP) and strip alignment further refine data quality.
- **Versatile Application Support:** The Scanfly ULTRA X is suitable for a wide range of applications, including topographic surveys, infrastructure inspections and environmental monitoring, making it a valuable tool for professionals in geospatial data acquisition.



CERTIFICATION



**SURUHANJAYA
SYARIKAT MALAYSIA
(SSM)**



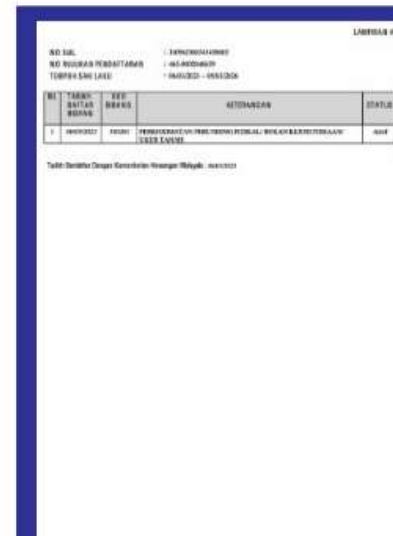
**LESEN
LEMBAGA JURUKUR
TANAH (LJT)**



**LESEN
LEMBAGA JURUKUR
TANAH (LJT)**



**KEMENTERIAN
KEWANGAN
MALAYSIA (MOF)**



**KEMENTERIAN
KEWANGAN
MALAYSIA (MOF)**



**KEMENTERIAN
KEWANGAN
MALAYSIA (MOF)**



**KEMENTERIAN
KEWANGAN
MALAYSIA (MOF)**



**SIJIL BUMIPUTERA
(MOF)**



**PENDAFTARAN
TENAGA NASIONAL
BERHAD (TNB)**



**PENDAFTARAN
TENAGA NASIONAL
BERHAD (TNB)**



**PERSATUAN
JURUUKUR TANAH
BERTAULIAH (PEJUTA)**



Get in Touch



JURUUKUR
SYNERGY

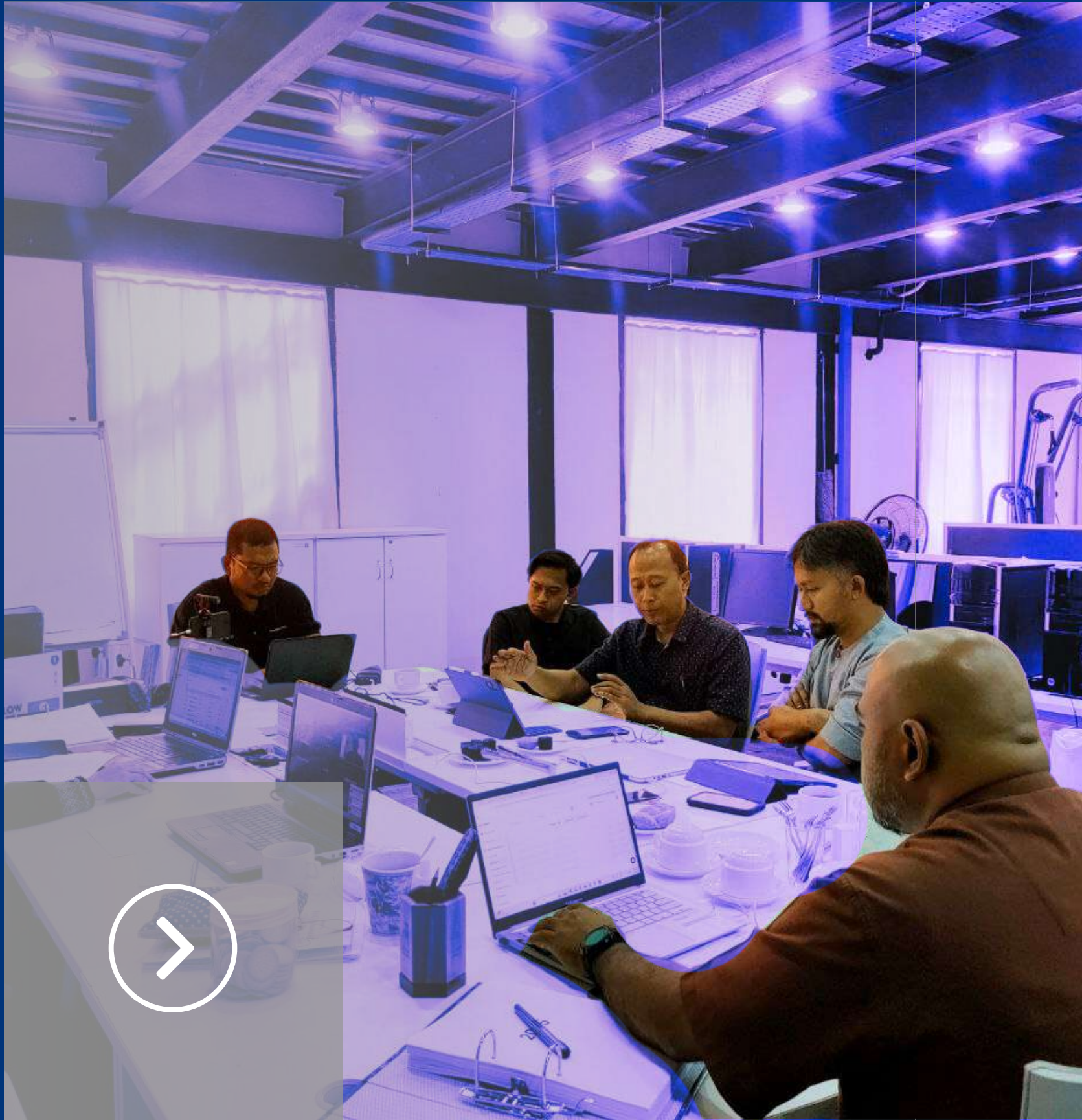
Headquarter: Kompleks RPWP, Jalan Abim, Sungai Ramal Dalam,
43000, Kajang, Selangor.

Operation Office: No 77A, Jalan BP 6/3, Bandar Bukit Puchong,
47120 Puchong Selangor

Phone: +6012 319 3576 / +6019 2647 062

Website: www.jssbsurveys.com

Email: jssb2u@gmail.com



CASE STUDIES

Case Study 1

LIDAR CASE STUDY FOR ROAD DESIGN

Case Study 2

RIGHT OF WAY DISCREPANCIES STUDY

CASE STUDY LIDAR

Description

The objective of the study is to highlight the importance of accurate survey data in road design, comparing the benefits of LIDAR versus conventional survey methods.

Year 2025

Role Licensed Surveyor

LIDAR CASE STUDY FOR ROAD DESIGN



LIDAR & GCP

Integrating GCPs into the LIDAR process helps validate and correct the data, ensuring it is accurate, reliable and linked to real-world coordinates.

LIDAR

Advanced surveying method that uses laser pulses to measure distances to the Earth's surface.

GROUND CONTROL POINT (GCP)

Surveyed locations on the Earth's surface that are used to tie LIDAR data to the actual physical locations on the ground.





JURUUKUR
SYNERGY

ACCURATE SURVEY DATA

FOUNDATION FOR ROAD DESIGN

ESTABLISH DESIGN GROUNDWORK

Accurate physical and topographical information help to determine best route for road

GUIDE ENGINEERING DECISION

Decision on road alignment, geometry and materials in determining most efficient and safest design

PREVENT COSTLY MISTAKES & DELAYS

Without reliable survey data, the risk of design errors increases, potentially leading to rework and project delays.

BUDGETING & RESOURCE ALLOCATION

Better estimate costs for materials, labour and equipment. efficiently allocate resources based on real, site-specific information.

FACILITATE LEGAL & COMPLIANCES

Ensures that the road design complies with local regulations, environmental guidelines and land ownership laws.

PROBLEMS

CONVENTIONAL SURVEY METHOD



TIME

Long survey duration, slower pace delay overall timeline, increase cost

DATA ACCURACY

Problem and difficult in rugged environment or hard-to-reach locations. Need physically access by surveyor.

COST

More manual work, take longer time to collect data and often need more surveyors and equipment.

MAJOR INEFFICIENCIES OF CONVENTIONAL SURVEY METHOD

STUDY REFERENCE

Reviewing the tender document and TOR, attending site visits and input from C&S consultants and contractors on road design and construction challenges.

Analyse the cost differences – LIDAR reduces fieldwork time, labor costs and errors. Lead to long-term savings and more efficient surveys.

TENDER DOCUMENT & TOR

Analyse the provided tender document and TOR to understand the scope of work, specific survey requirements and any limitations related to both survey methods.

SITE VISIT & OBSERVATION

Document site-specific conditions such as accessibility, terrain and environmental factors that may influence the efficiency of conventional surveys versus LIDAR.

INPUT BY CONSULTANT & CONTRACTOR

Understand road design and construction challenges. LIDAR offers precise, real-time data for road alignment and grading. This speeds up construction, cuts delays and saves costs by reducing rework and the number of surveys needed.

LIDAR EXPENSIVE?

LIDAR is no longer considered expensive as it has become more affordable and comparable to conventional survey methods.

Multiplatform

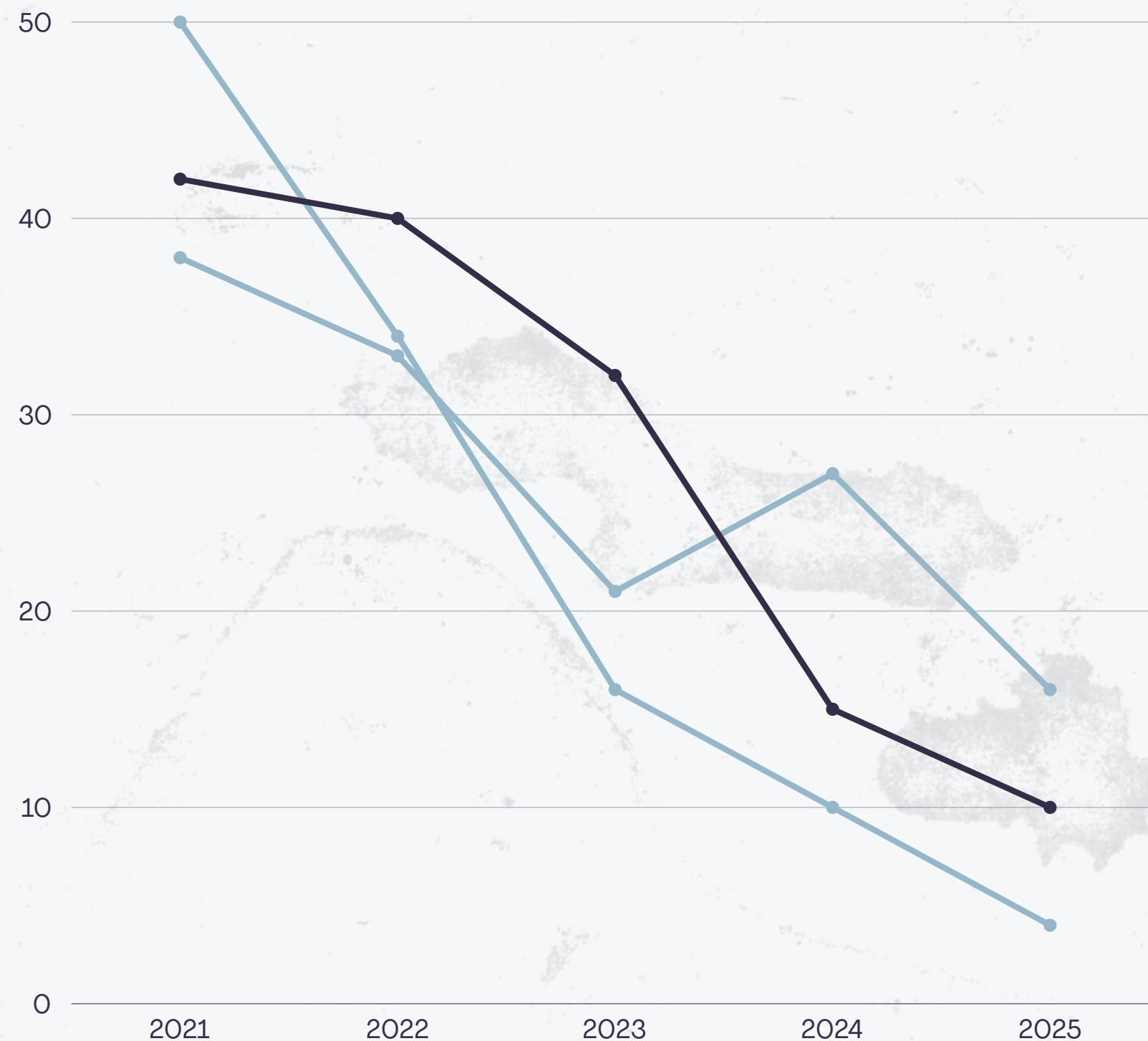
Ability to mount LIDAR on multiple platforms make it more affordable compared to traditional airborne LIDAR. Making LIDAR more accessible and cost-effective

High Accuracy

Zero rework, as the data collected is precise from the start. This allows for smoother design progress and more accurate cost estimation, reducing the need for adjustments later.

Low Cost

Low cost in LIDAR comes from reduced associated costs, such as fewer man-days and less manpower in the field, due to faster data collection and less time spent on-site.



SOLUTION

HOW TO ADAPT LIDAR?

MULTI PLATFORM LIDAR USAGE

Utilize both UAV (aerial) and mobile (ground) LIDAR to gather high-density, accurate data, enhancing the design process, land acquisition and other considerations for road upgrading or new development.

REVIEW TOR & TENDER DOCUMENTS

more flexibility in selecting the most suitable methods for the job. Focus the TOR on the desired output—what the design team needs—and physical benchmarks on-site, avoiding rigid requirements.

KNOWLEDGE UPSKILLING

Provide training to familiarize the team with LIDAR data processing. This will ensure efficient use of LIDAR data, eliminating the need for interpolation from conventional survey methods.



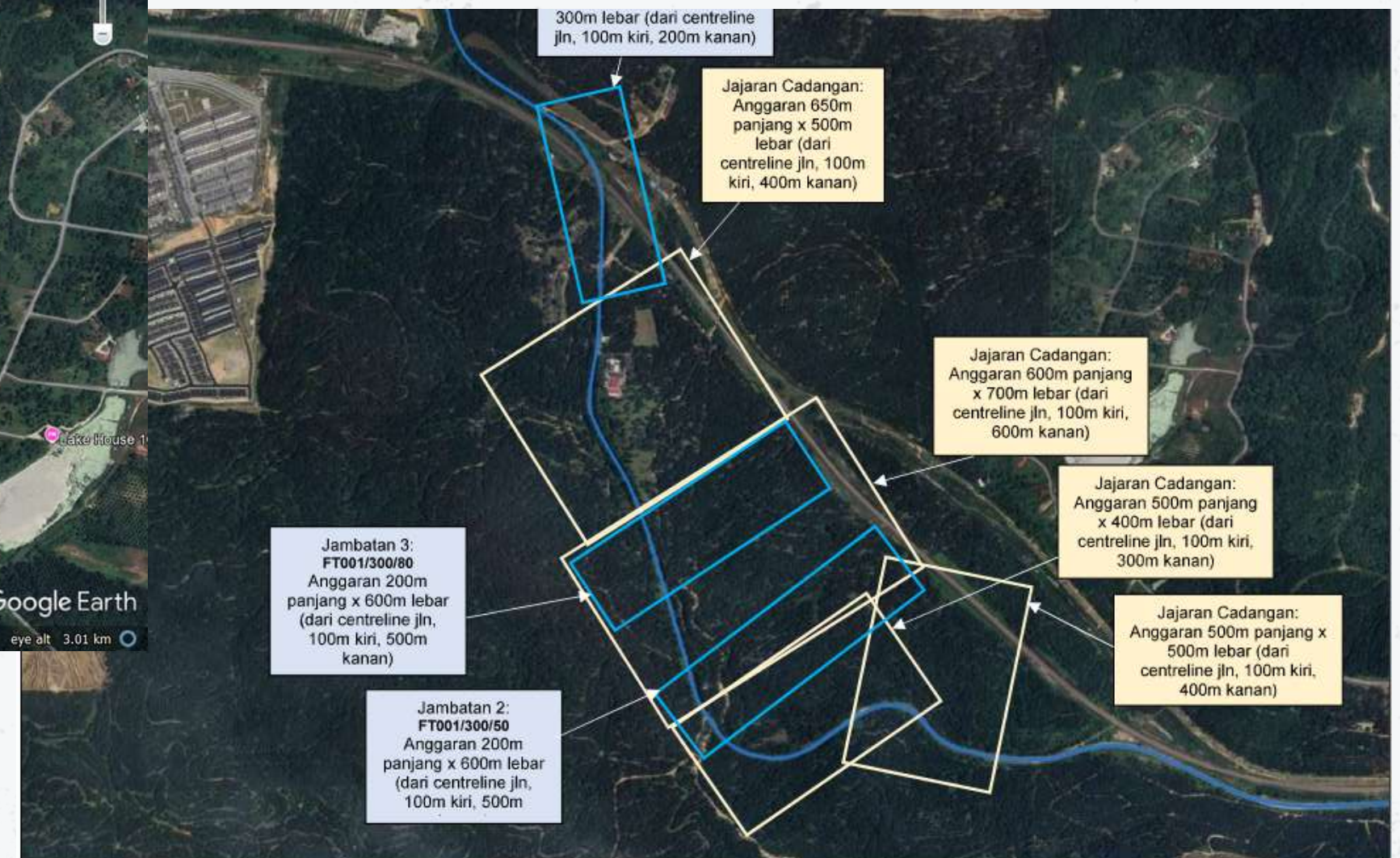
JURUUKUR
SYNERGY

ACTUAL DATA, REAL PROJECT

TITLE:

“JALAN PEDAS KE SUNGAI GADUT, REMBAU, NEGERI SEMBILAN.

AREA OF WORKS



AERIAL LIDAR+ GROUND LIDAR (MOBILE)

LOCATION
TOTAL TIME
TOTAL AREA
TOTAL LENGTH

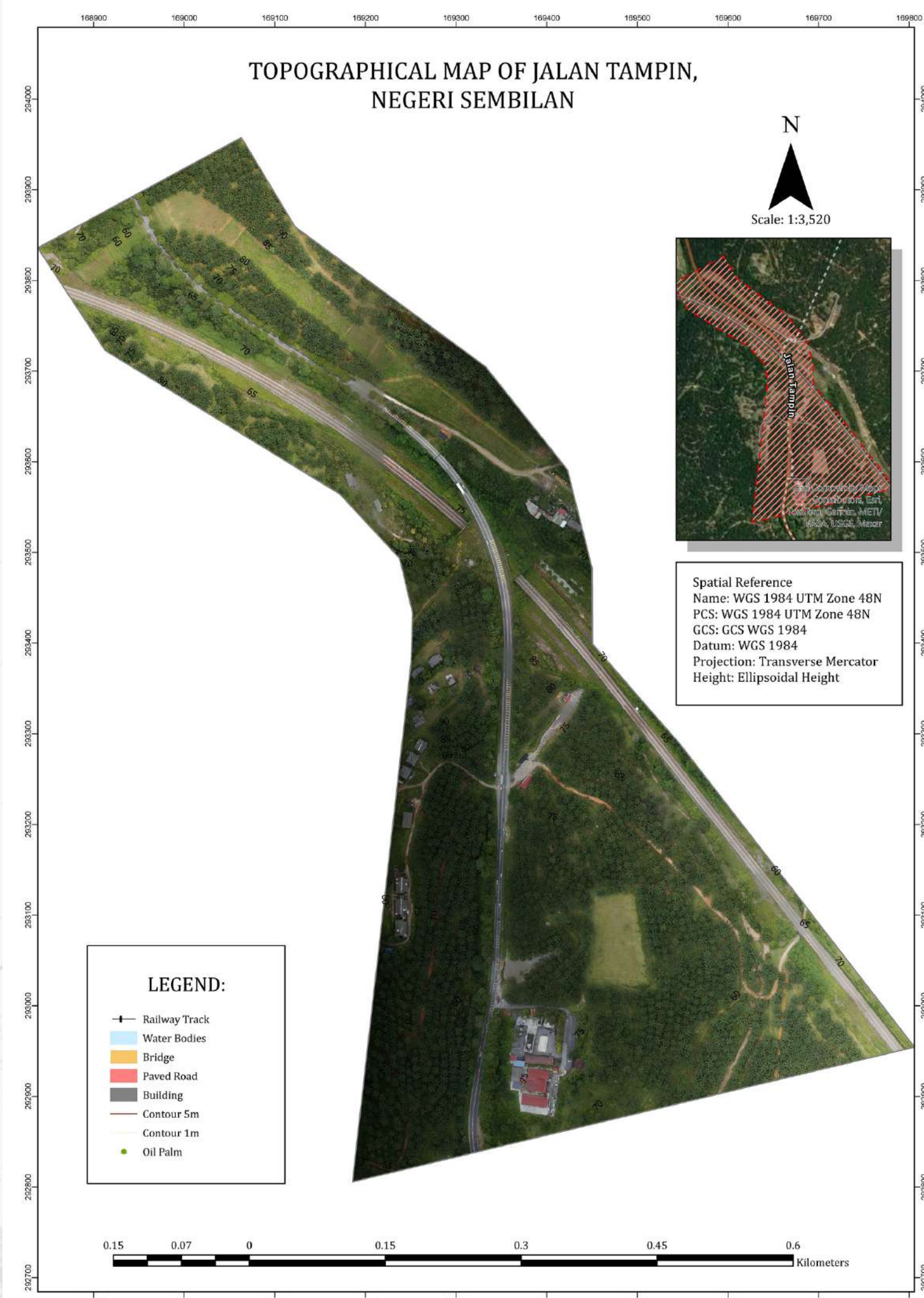
: JALAN TAMPIN
: 1 HOUR 30 MIN
: 37 HECTARES
: 1.3KM
(14% FROM TOTAL LENGTH OF 9.25KM)



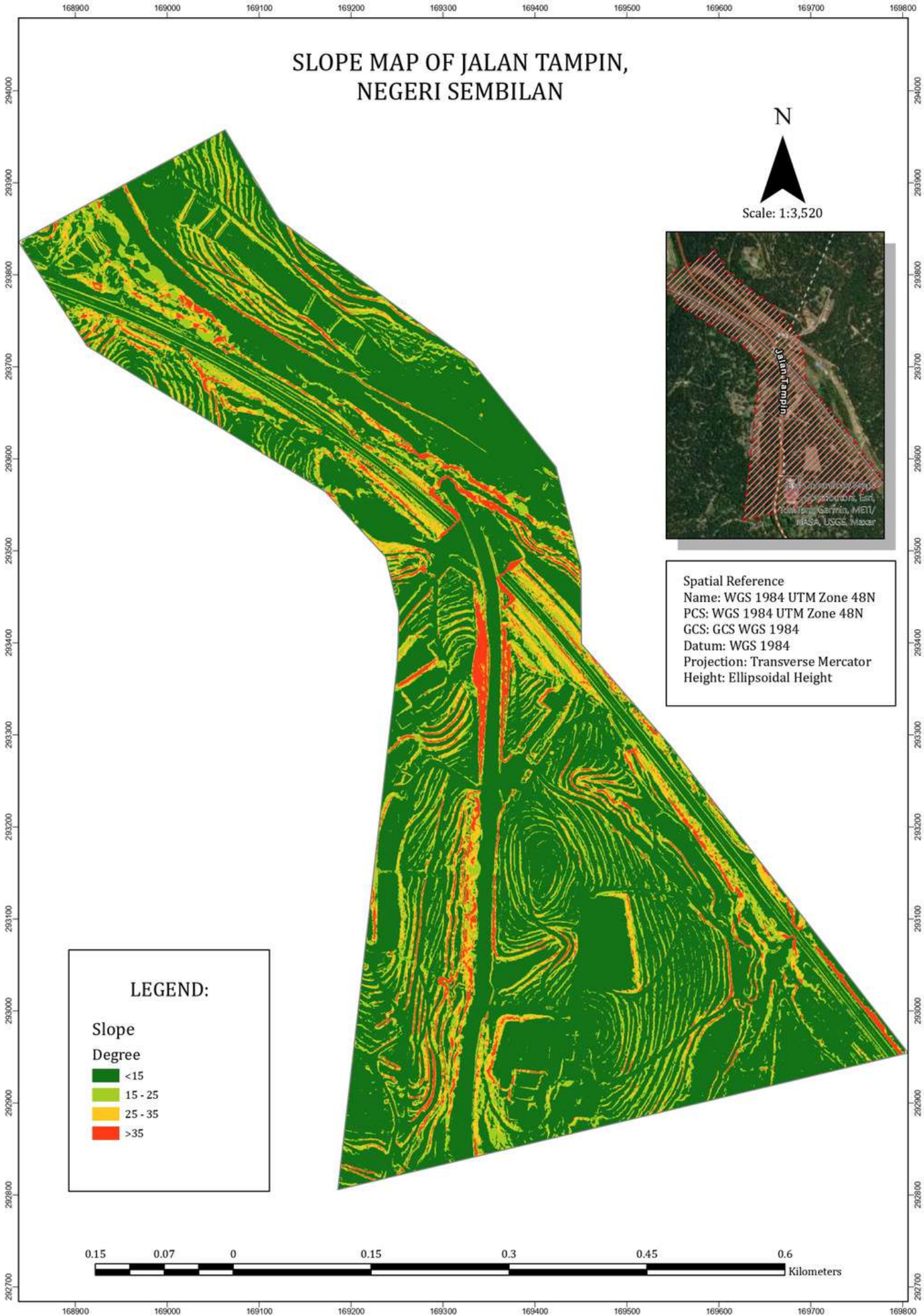
JURUUKUR
SYNERGY



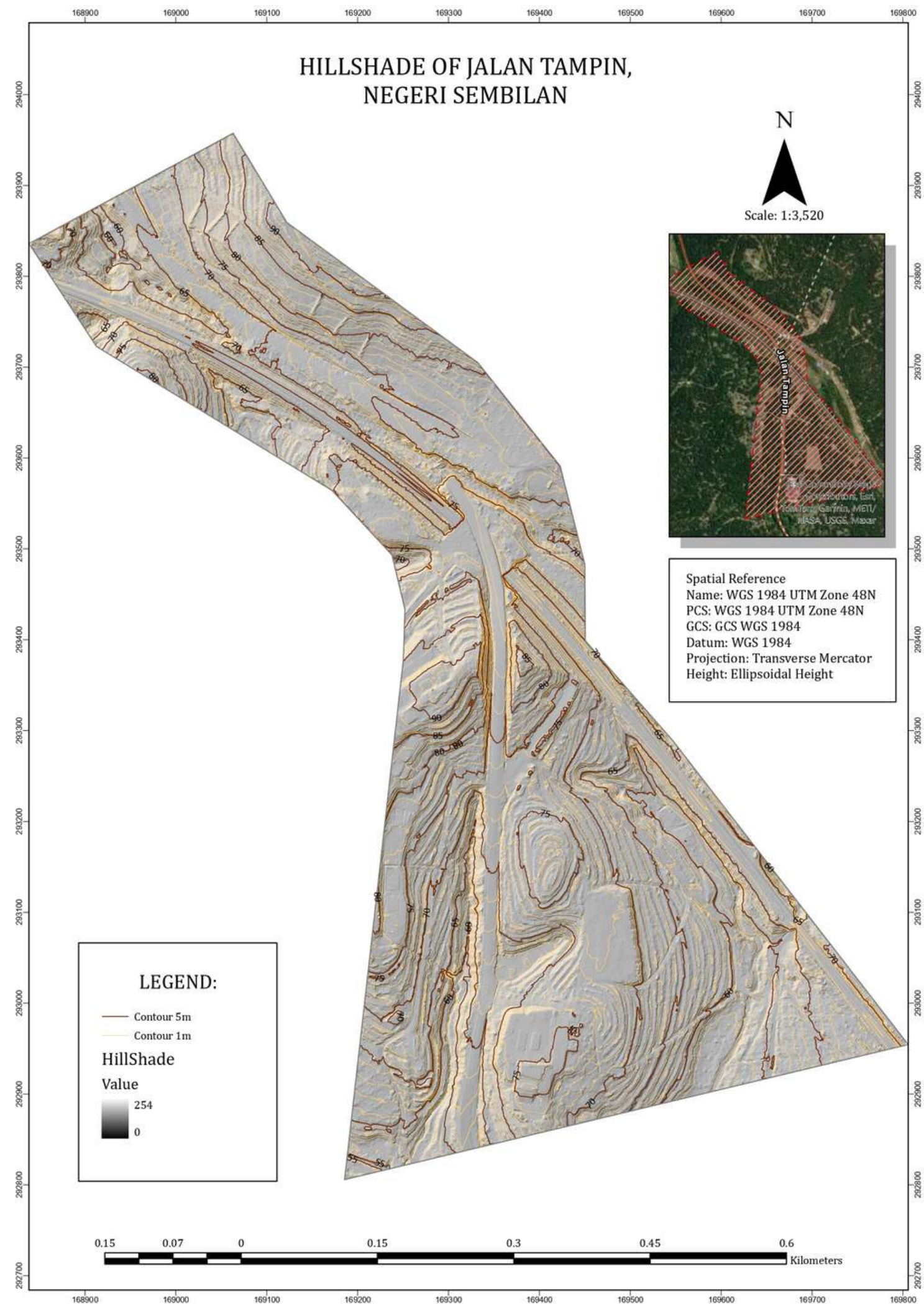
LIDAR OUTPUT:
AERIAL
ORTHOMOSAIC
MAP



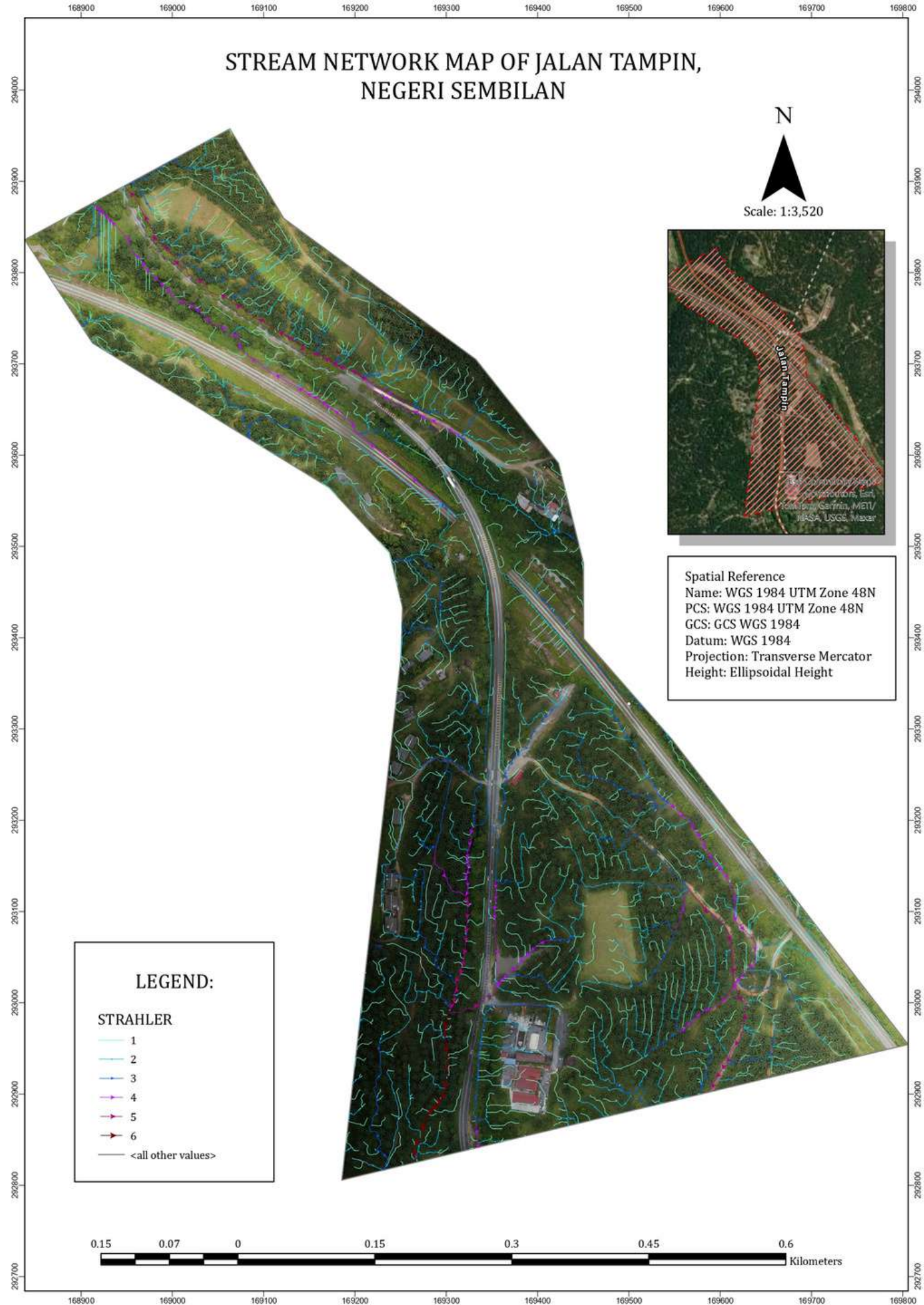
LIDAR OUTPUT: SLOPE MAP



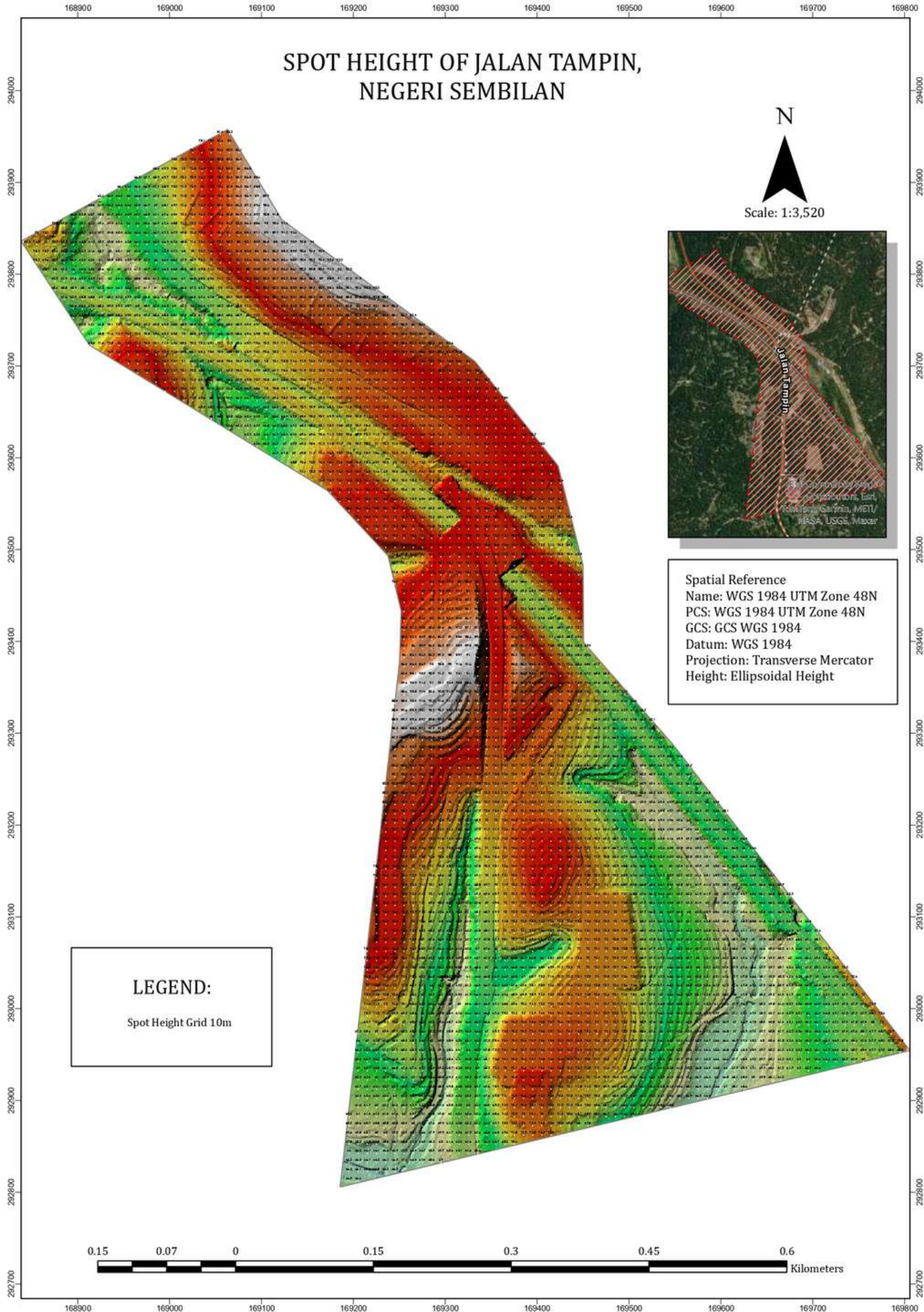
LIDAR OUTPUT: HILL SHADE MAP



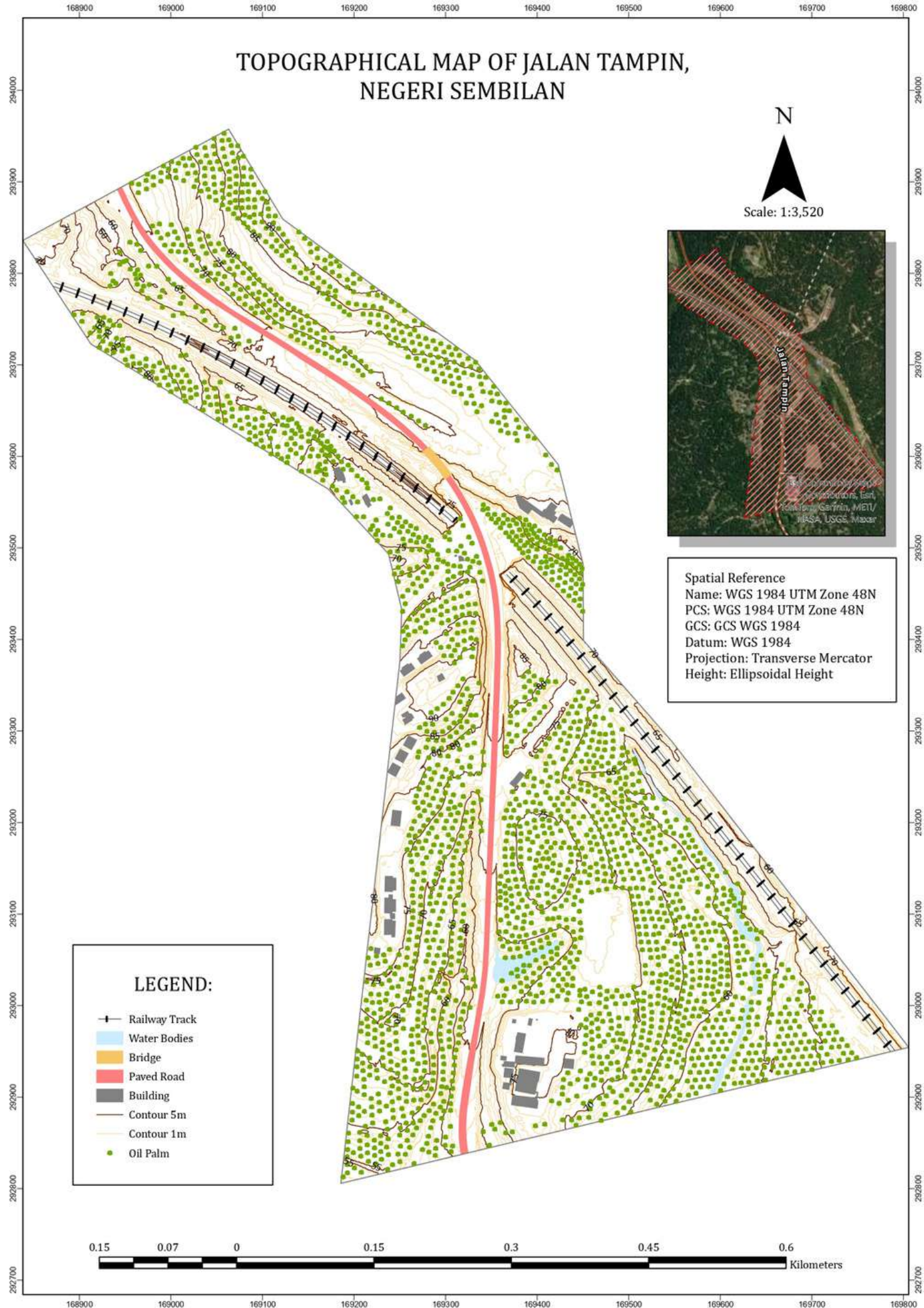
LIDAR OUTPUT:
STREAM
NETWORK
MAP



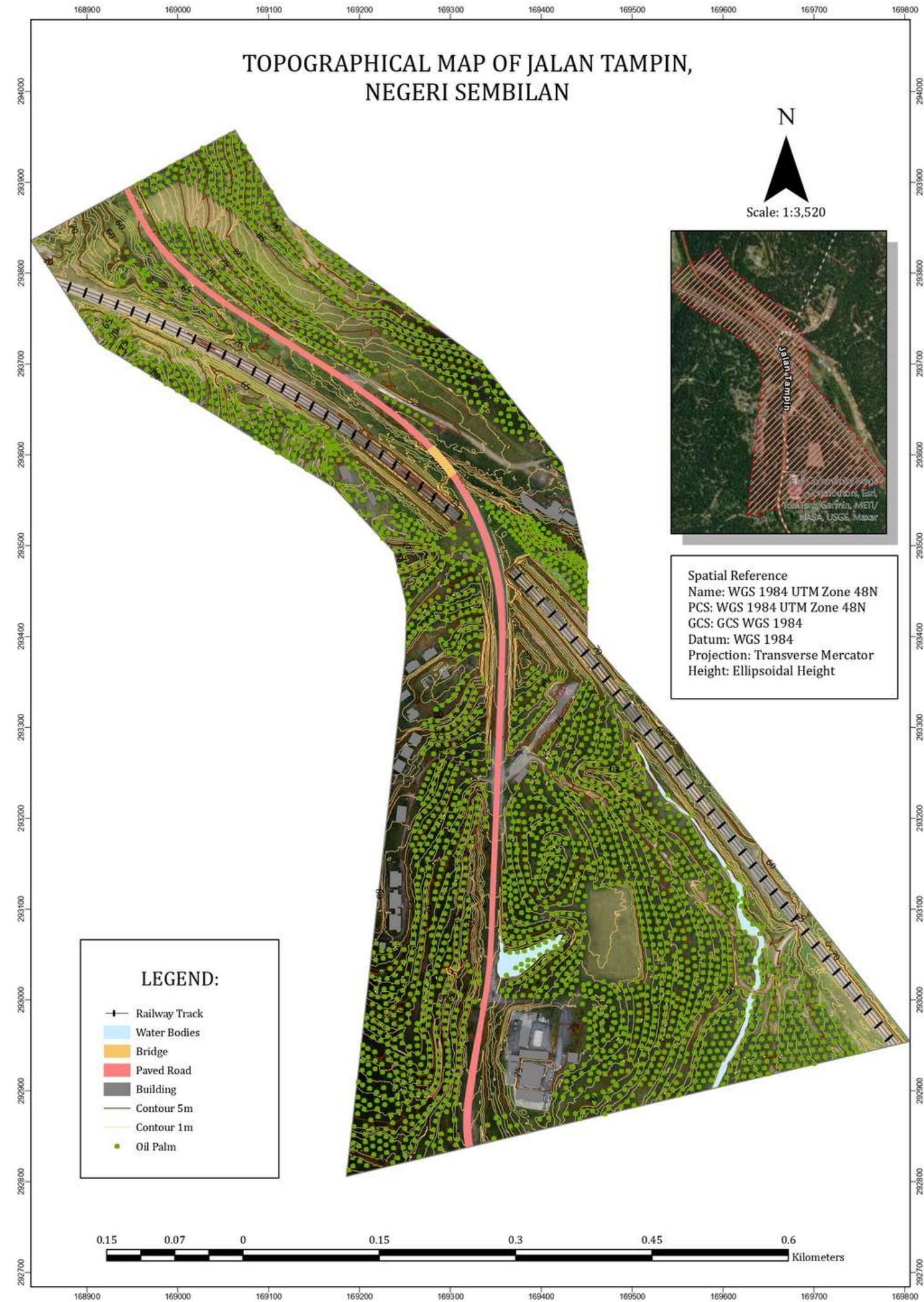
LIDAR OUTPUT: SPOT HEIGHT GRID MAP



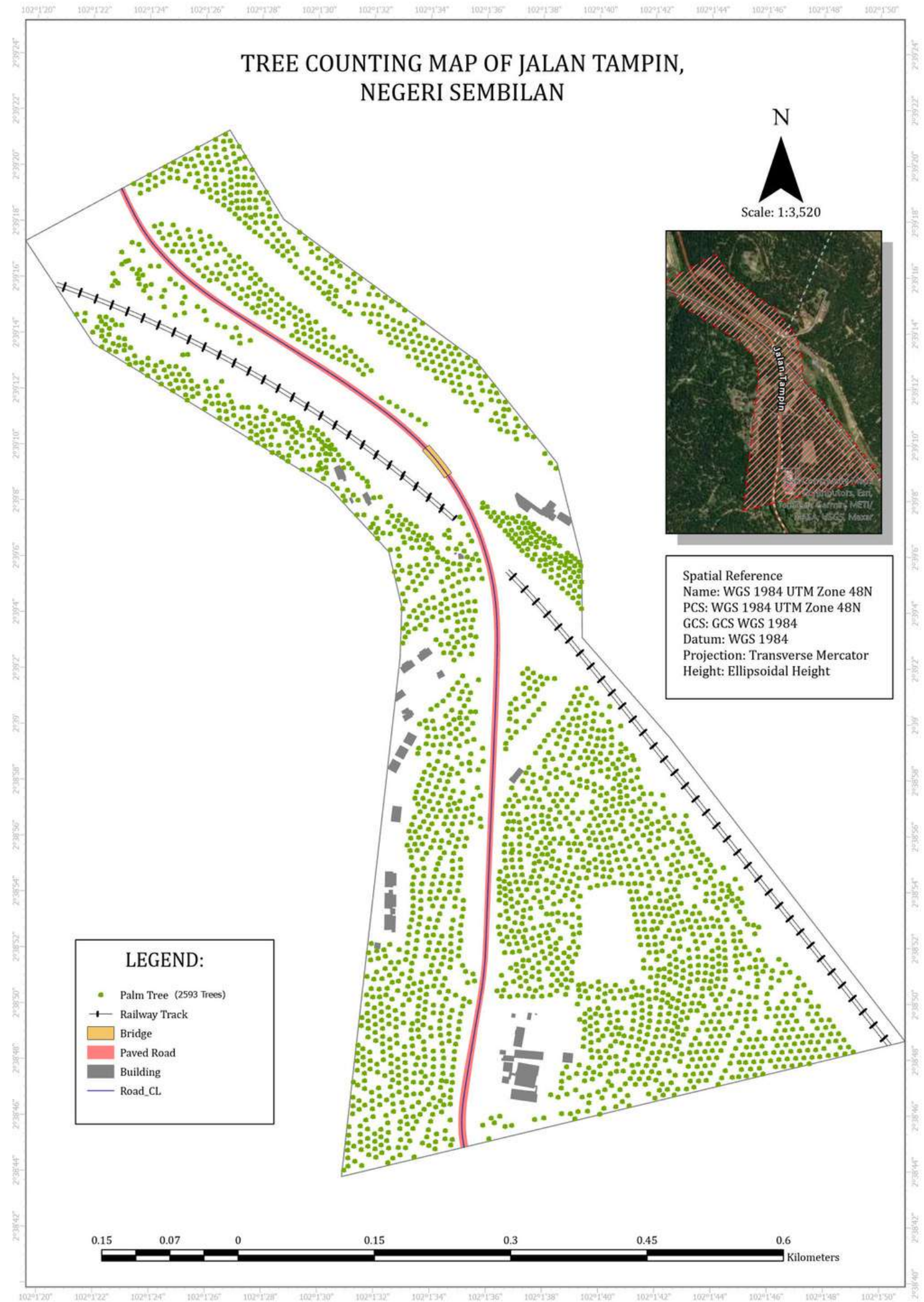
LIDAR OUTPUT: TOPOGRAPHICAL MAP



LIDAR OUTPUT:
TOPOGRAPHICAL
MAP WITH
ORTHOMOSAIC



LIDAR OUTPUT: TREE COUNTING MAP



LIDAR OUTPUT:
TREE
COUNTING
MAP 2



RIGHT OF WAY DISCREPANCIES STUDY

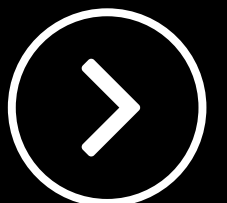
Project Portfolio 2

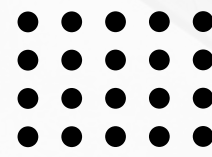
Description

The aim of the study is to confirm the right of way of pylon along 58 km long path. The works includes full coverage of orthophoto (photogrammetry)

Year 2025

Role Licensed Surveyor

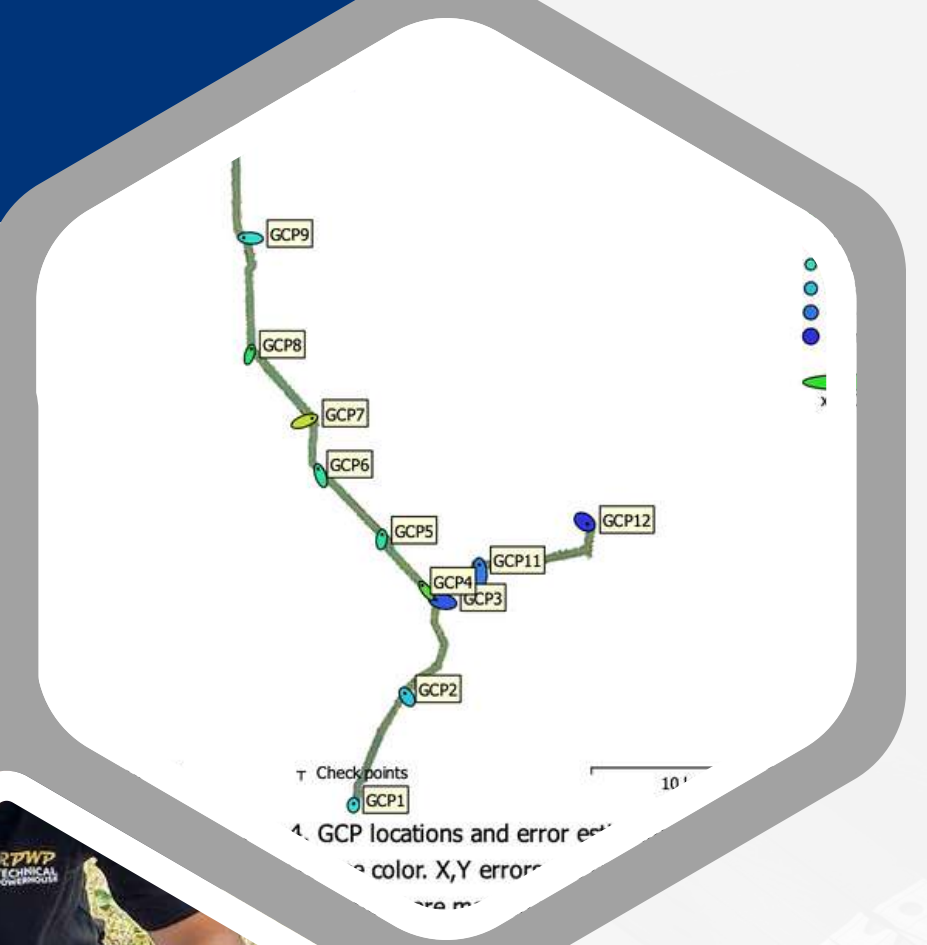




AERIAL UAV PHOTOGRAMMETRY

The photogrammetry work were conducted from March 3-4 2025. Aerial survey method was deployed.

The results are employed to assess the current conditions and suggest potential solutions.



✓ 2 DAYS TO COMPLETE AERIAL SURVEY

✓ 12 POINT OF GROUND CONTROL POINT (GCP)

✓ ORTHOPHOTO OF ACTUAL SITE CONDITIONS

UAV PHOTOGRAMMETRY

QUANTUM SYSTEM TRINITY PRO 90+

The QS Trinity F90+ represents the latest advancement in unmanned aerial vehicles (UAVs), offering exceptional durability, endurance and modularity. Its payload capabilities allow for easy interchangeability among a high-resolution camera, LiDAR and thermal sensors.



SONY RX1RII 42.4 MEGAPIXEL

The Sony RX1RII is ideal for all applications requiring high-resolution images, thanks to its 35 mm CMOS sensor with 42.4 megapixels. GSD values in the 1.29 cm/px range are possible at 100 m altitude

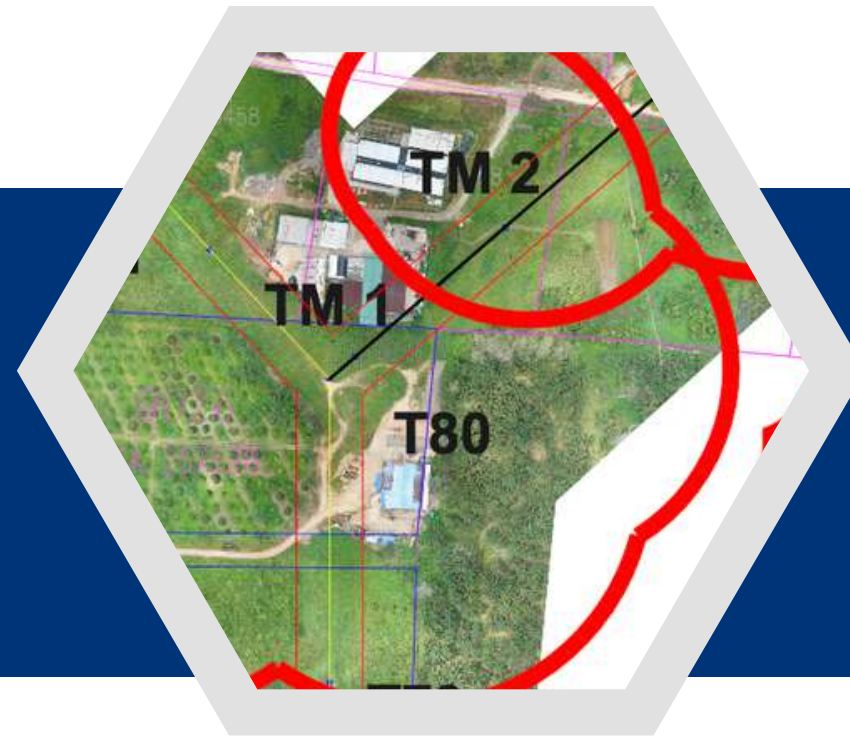


MAJOR DISCREPANCIES DETECTED



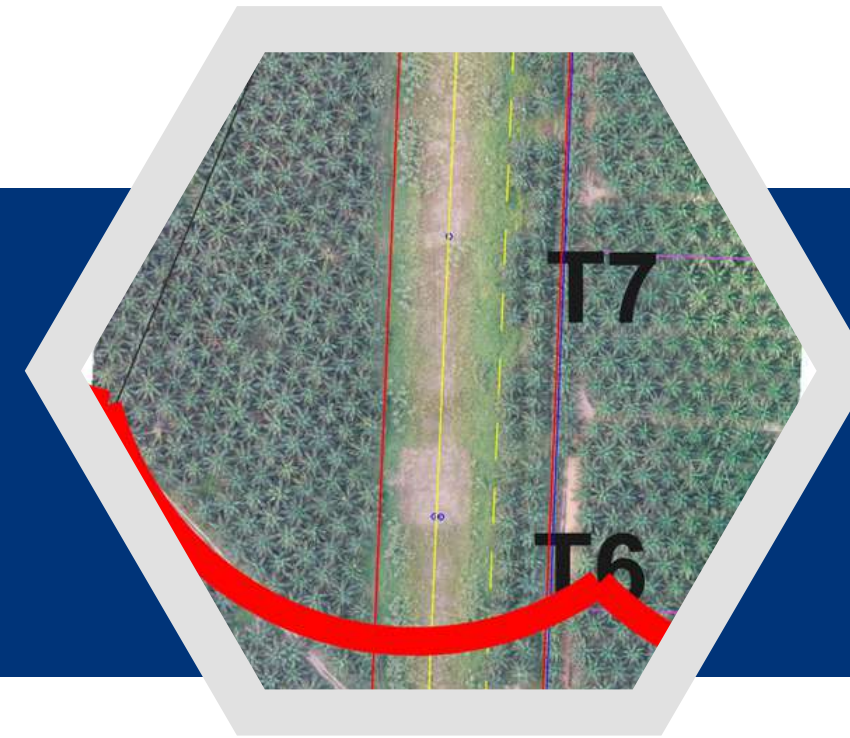
ROW ≠ PA

Several areas exhibit discrepancies between the charted rights of way (ROW) and the **“Pelan Akui”** or Approved Plan recorded in the Land Offices Database.



Actual Pylon Location Outside PA

Pylon T80 is located outside the PA and the designated right-of-way, resulting in a challenging situation for the placement of boundary markers in that vicinity.



Pylon Position Not Centered

The pylon's location was not centered within the ROW, resulting in inadequate clearance on one side of the pylon.



Encroachment Detected

Several areas have been pinpointed where encroachment has occurred within the rights of way. Without precise boundary markers, client incurs higher costs for land clearing, as contractors only clear a portion of the ROW area.



PROPOSED SOLUTIONS

- The right-of-way (ROW) has been marked in accordance with the PA from the Land Office and with the client's approval.
- Regarding the disputed area, we gathered information from colleagues, Land Offices and the Land Management Unit (LMU) to gain insights into any previous mitigation efforts that have been made to address similar issues.

Ultimately, this effort aids the client in identifying issues and potential threats if they are not addressed appropriately.



Begin marking the right-of-ways

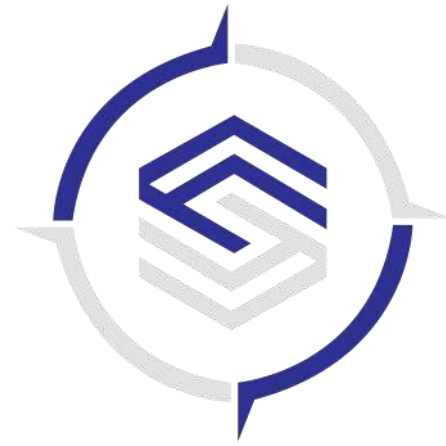


Consult Land Offices on discrepancies between ROW and PA



Consult Land Management Unit on wayforward.

Corrective action to legally marked the boundary will require additional scope.



JURUUKUR
SYNERGY

Headquarter:

Kompleks RPWP, Jalan Abim, Sungai Ramal
Dalam, 43000, Kajang, Selangor.

Operation Office:

No 77A, Jalan BP 6/3, Bandar Bukit Puchong,
47120 Puchong Selangor

Phone: +6012 319 3576 / +6019 2647 062

Website: www.jssbsurveys.com

Email: jssb2u@gmail.com

THANK YOU!

