

INSTITUTION OF SURVEYORS NSW

ACT Seminar – 15 October 2025

UPCOMING EVENTS

- ▶ 24 Oct – Surveying Heritage Coffs Harbour Bypass Visit
- ▶ 29 Oct - Emerging Surveyors Webinar
- ▶ **1 Nov – EISSI Awards – tickets close this Friday**
- ▶ 4 Nov - Programming Academy – expressions of interest close 4 Nov
- ▶ 5 Nov - Cumberland Group Dinner & AGM
- ▶ 7 Nov – Hunter Manning Group full-day Seminar
- ▶ 13 & 14 Nov – Northern Group 2-day Seminar
- ▶ 13 Nov - Surveying Heritage Group Luncheon
- ▶ 15 Nov – Urban Workshop
- ▶ 18 Nov – Annual Golf Day
- ▶ 19 Nov – Sydney North Group Dinner
- ▶ 20 Nov – Annual General Meeting

ACTIVITY UPDATE

Past Events

- ▶ 28 Aug – NEW CRE Workshop
- ▶ 10 Sept - Webinar: Easements & Rights of Way
- ▶ 26 Sept - Search Workshop
- ▶ 29 Sept - Let's Locate Canberra school holiday program – 15 students

▶ Publications

- Webber – has been updated and near completion
 - Hallmann – 2 last chapters are being updated
 - Azimuth September edition – out now
- ▶ Meeting with Vice Chancellor of UoN to discuss viability of Survey Program
 - ▶ Registered Surveyor Searching Workshop to come in Feb 2026

LAUNCHING CODING ACADEMY

New Coding Academy – 12 month program with certification upon completion.

Instead of spending valuable time on boring, repetitive tasks, you can learn how to write code to do those tasks for you. Join us for a peer-led program that covers topics:

- Data science foundations
- An introduction to SQL
- Python fundamentals
- Data visualisation with Python
- Python modules such as Pandas
- Many other topics

Join us for monthly peer catch-ups, with guided sessions to support course progression.

Available for beginners to intermediate level people.

Email isnsw@surveyors.org.au with your interest before 4 Nov.



THANK YOU

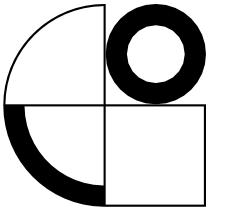
 **ISNSW**
THE INSTITUTION OF
SURVEYORS NSW



The Institution of Surveyors NSW / ACT Seminar

15th October 2025

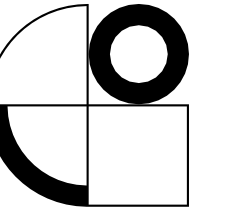




Today's Agenda

- 1. Bushfire Resilience App**
- 2. The Geoscape Context**
- 3. The Impact of Location**

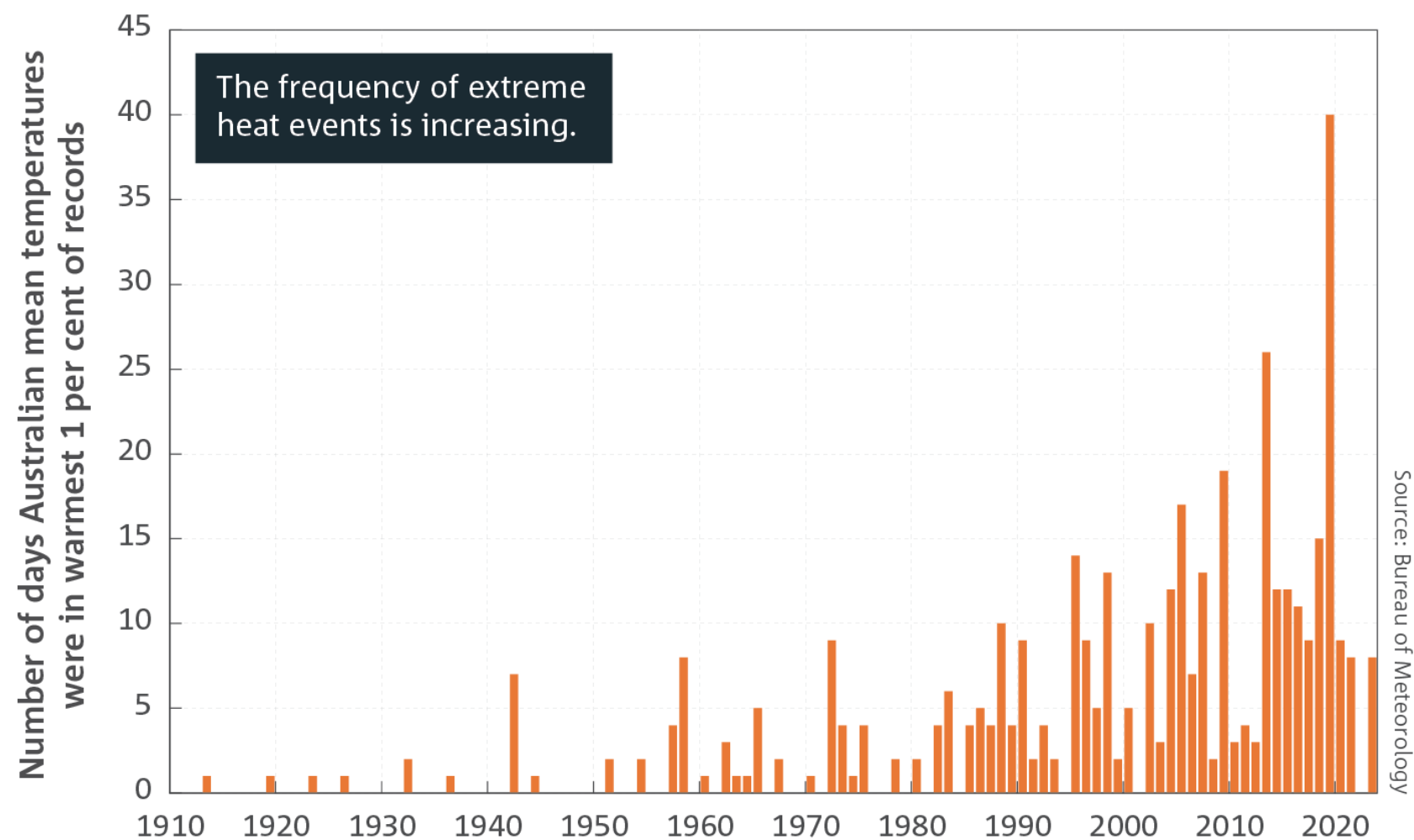
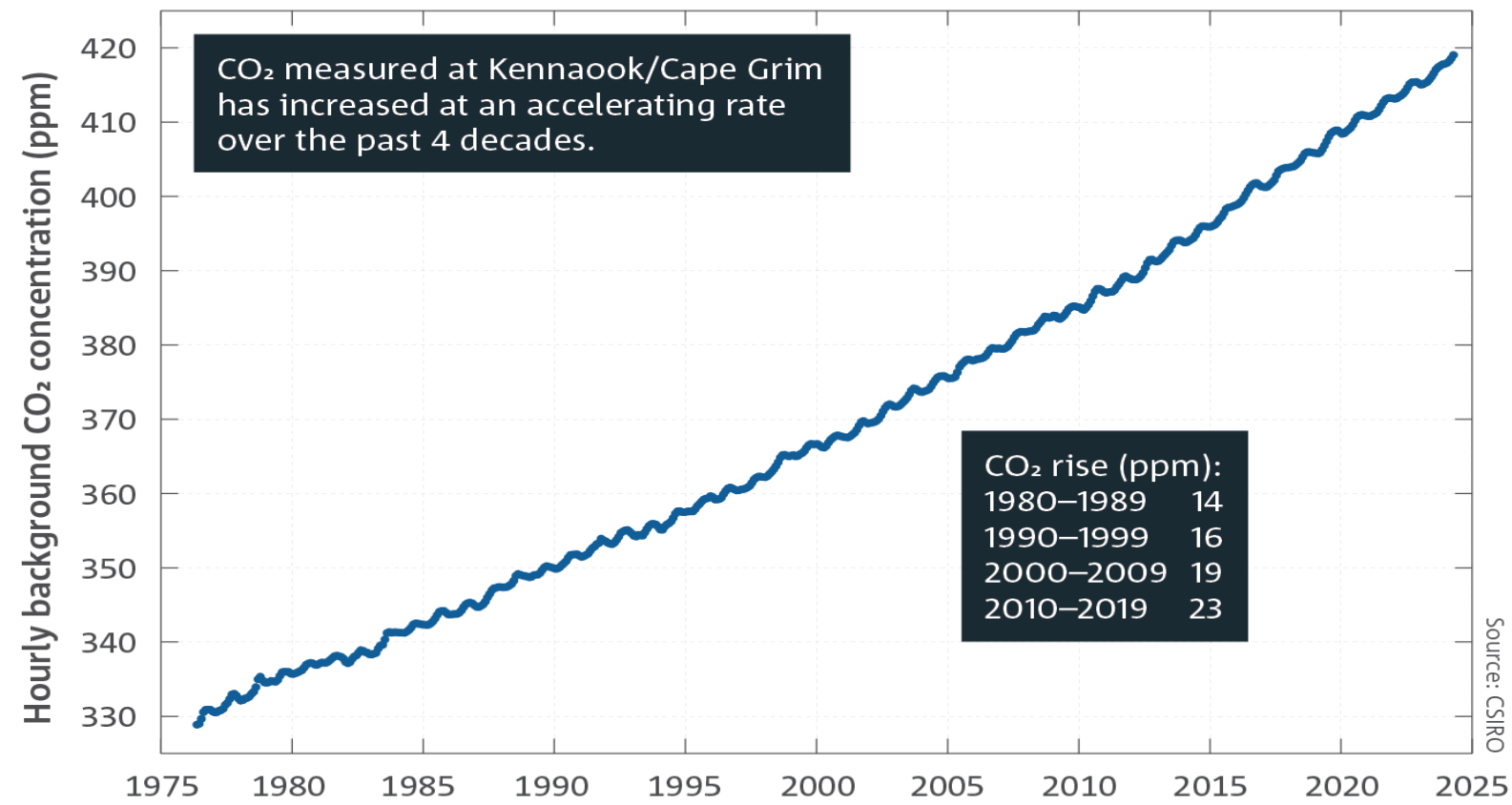




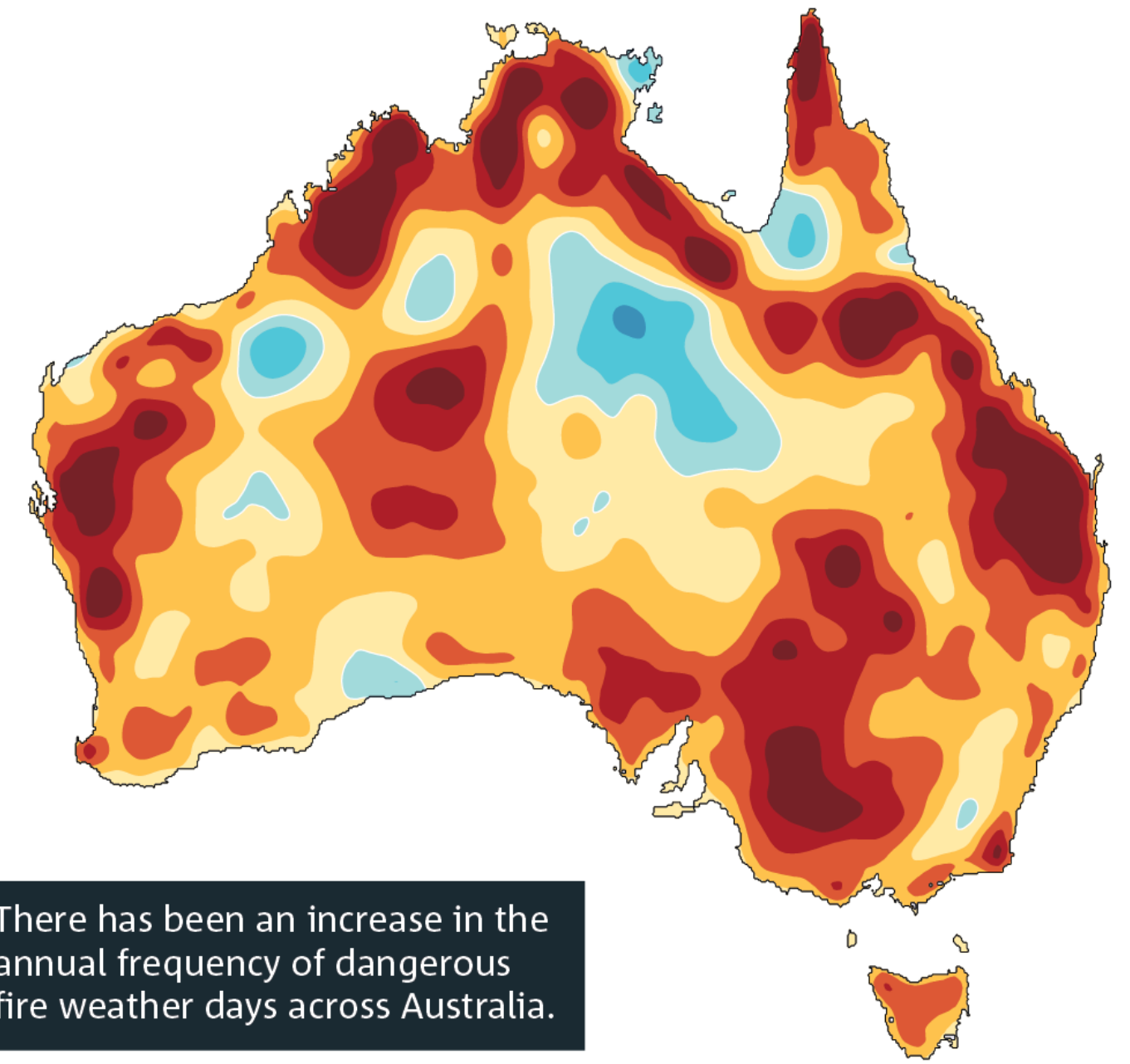
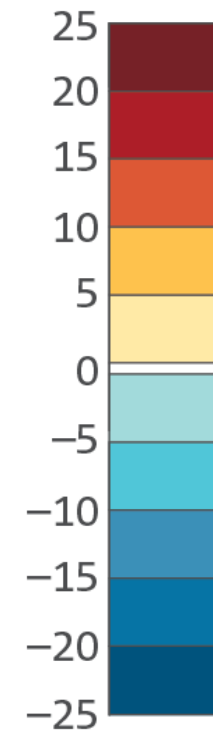
Resilient Futures: Addressing Climate Risks

An interactive information session

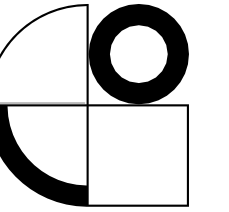




Change in number of dangerous fire weather days



The lived experience of climate change



Climate Risks & Location Intelligence



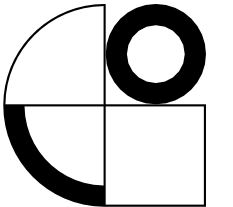
©Shutterstock

Bushfires in the Blue Mountains, 2019



©Shutterstock

Flooding on the Hawkesbury River, 2021



Geoscape Australia Contribution

Geoscape solutions, specifically the Geoscape Addresses API and Buildings API, are integral to the app's functionality:

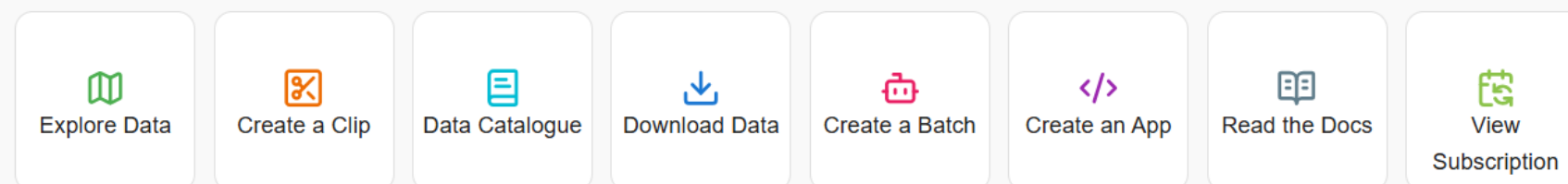
- **Addresses API:** Provides precise geolocation data, ensuring that each home's address is accurately mapped within the app. This critical information allows for the detailed assessment of bushfire risk based on location, aiding in the customisation of resilience strategies for individual properties.
- **Buildings API:** Provides detailed data on building characteristics, such as building area and roof size, helping the app evaluate how a home's construction and design could affect its resilience to bushfires.



API Demo - HUB

What would you like to do today?

There's more to hub but these are great places to start.



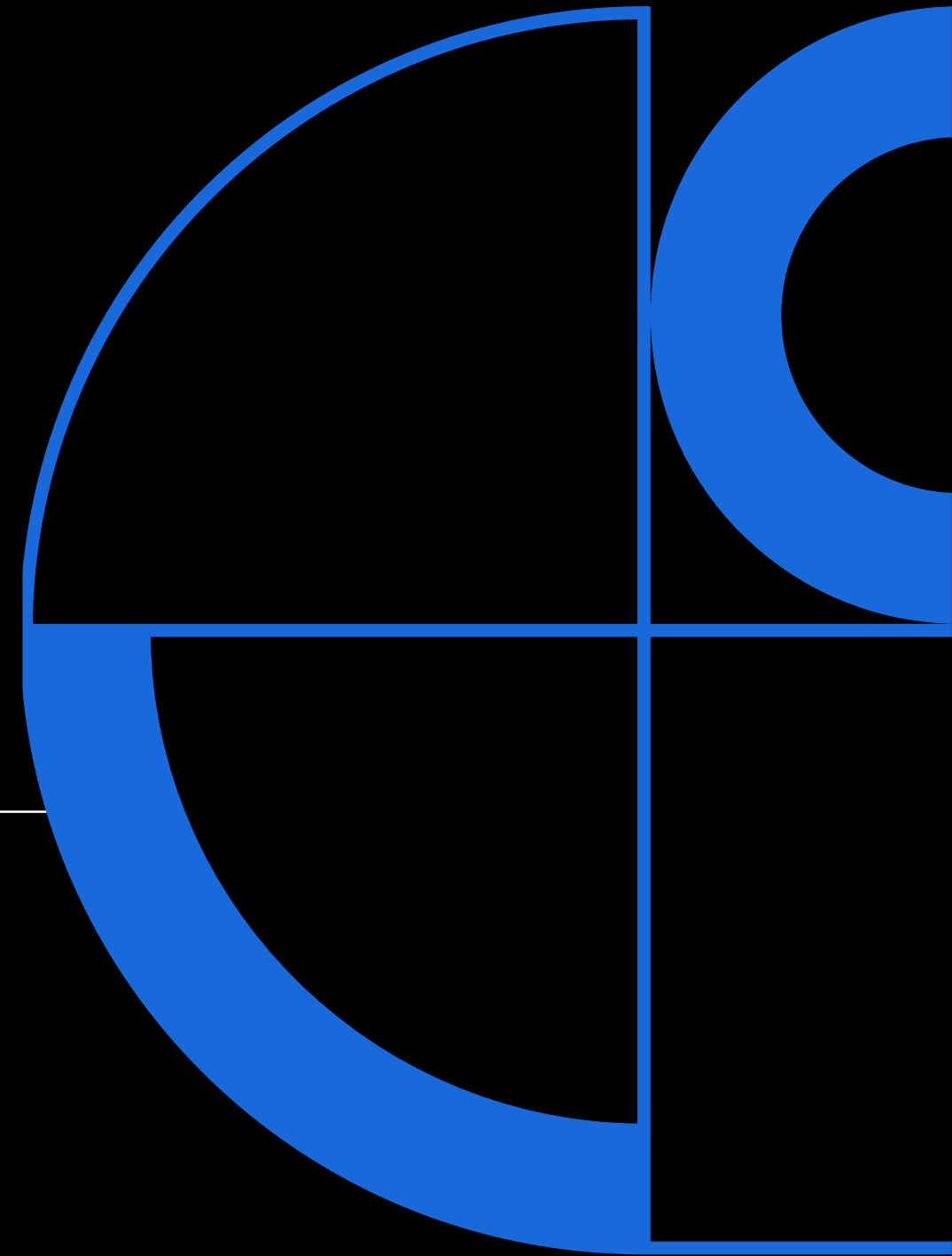
The result is a practical tool that helps homeowners understand their bushfire risk and take action.

The partnership between Geoscape and the RBC illustrates the potential of technology-driven solutions to address challenges posed by climate change and natural disasters.

It's rewarding to be part of a project that aligns so closely with Geoscape Australia's goal of leveraging technology to help Australians build safer and more resilient communities.

Learn more about the Bushfire Resilience Rating at resiliencerating.org

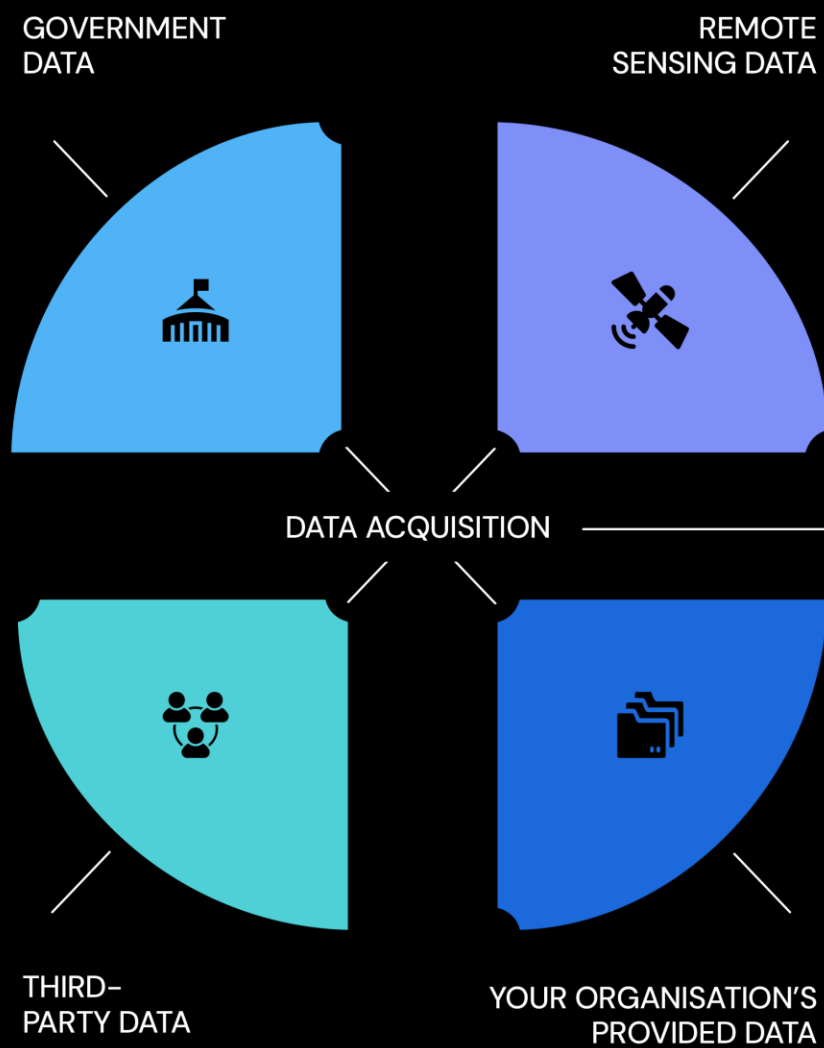
Geoscape Context



Our Process

Discover how Geoscape turns data into location intelligence to power real-world solutions and enable an AI ready Australia

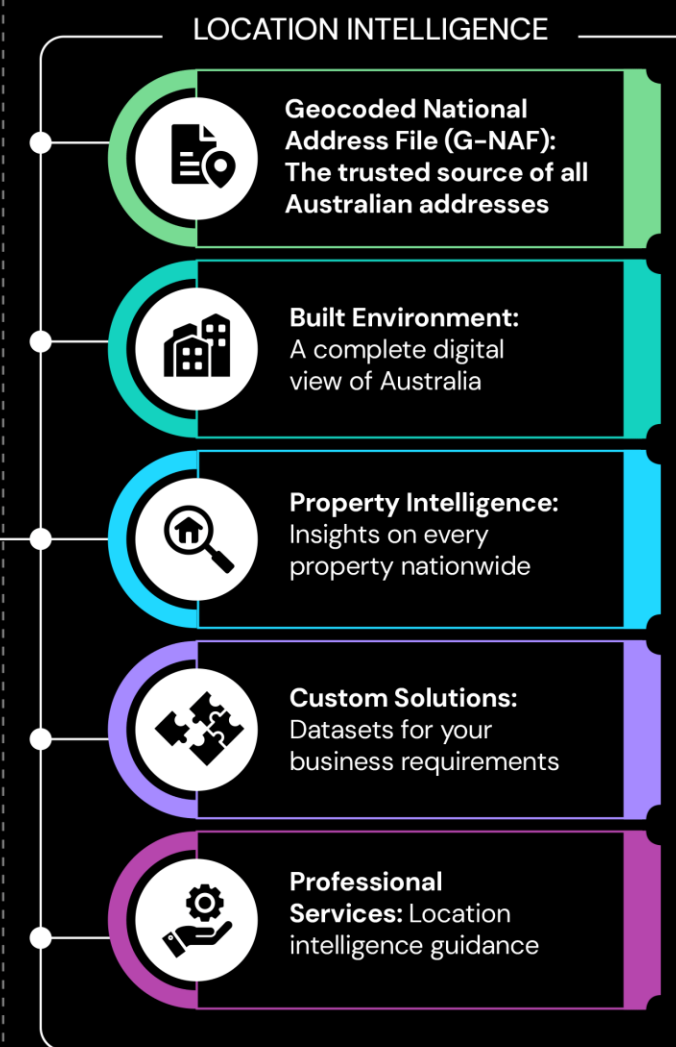
1 **Collect**
raw data



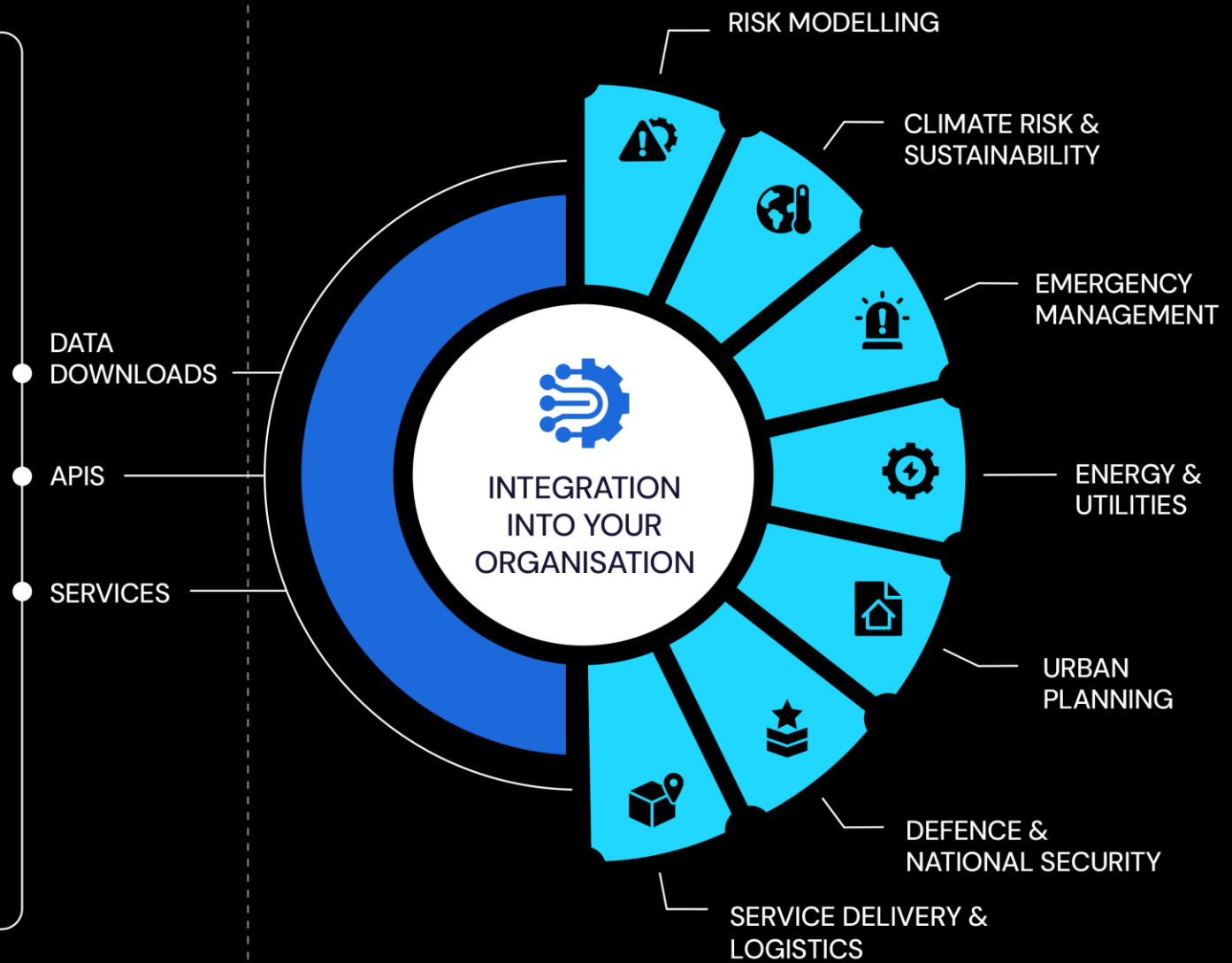
2 **Organise it**
for insights

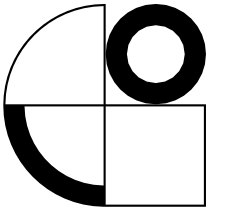


3 **Transform insights**
into intelligence



4 **Apply that intelligence**
to real-world solutions

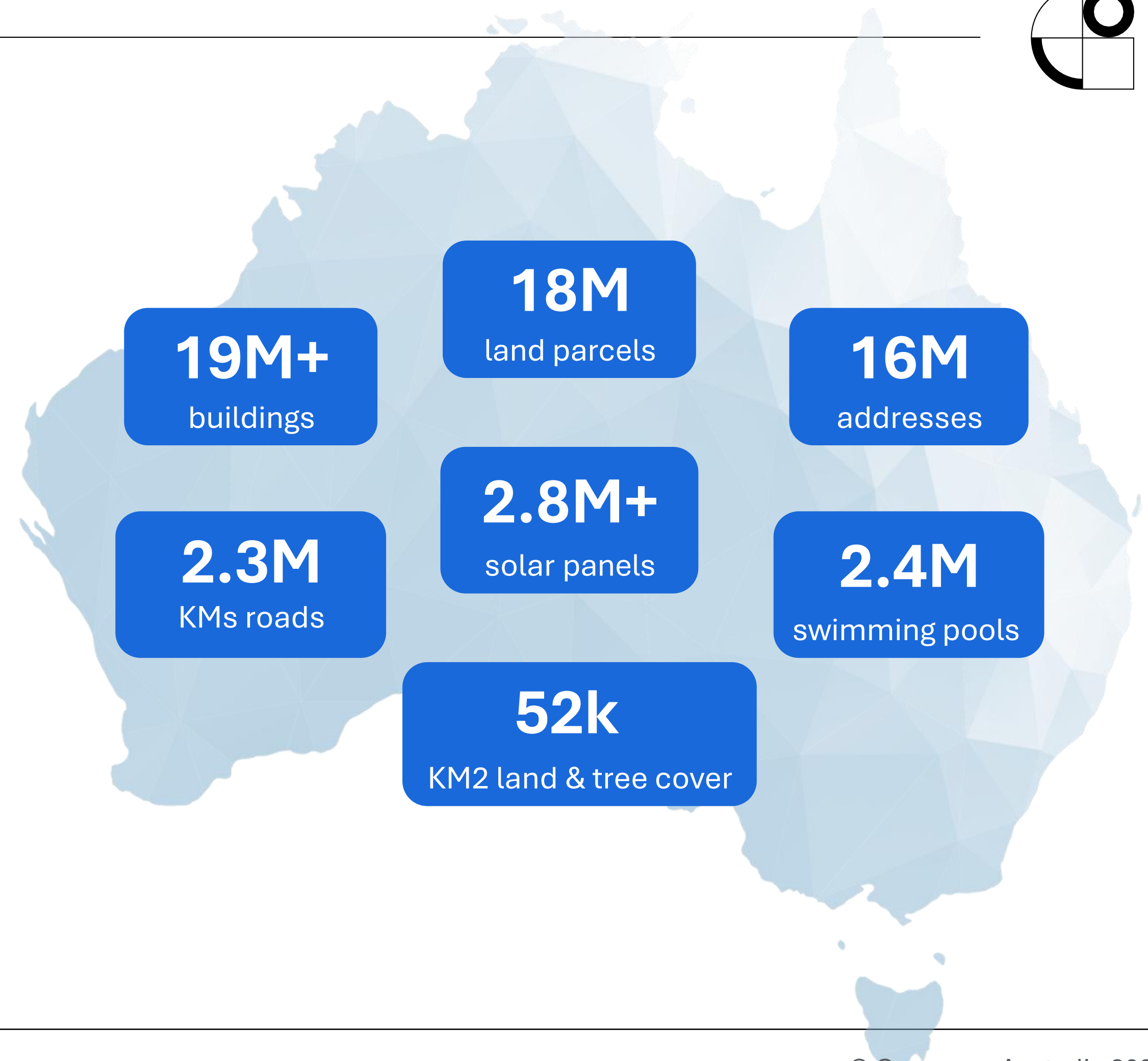




Geoscape Australia

Australia's national location intelligence organisation

- Providing data insights for the benefit of all Australians
- Owned by 9 governments of Australia
- Self-funded
- 25 years in operation
- Building a smarter, safer, more productive Australia
- At the global forefront of AI powered image detection





National Buildings Dataset

Current Capability

All 19M Buildings Nationwide:

- Footprints
- Heights
- Roof material, shape, colour
- Solar
- Pool

Location linked to G-NAF, Cadastre, Property, Locality, Planning, ABS MB

Update Frequency:

Metro areas every year
Regional areas upon request

Future Capability

New Building Insights:

- Total Floor Area (emissions/valuation)
- Use of Building
- Primary Building
- Improved Metadata

Advanced On-Demand Insights:

- **First Floor Elevation (FFE)¹**
- Roof Condition
- Facade Material & Condition
- Year Built/Age of Building
- Distance to Services

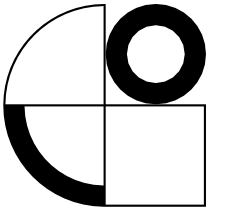
Enhanced Location Precision:

- Linked to LGA

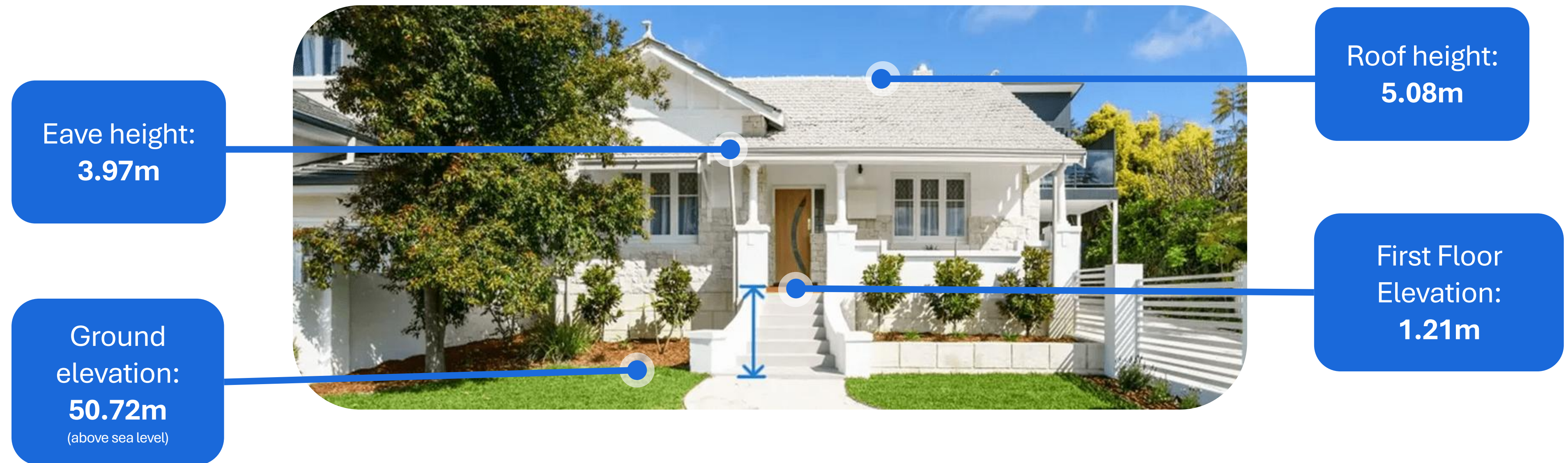
Authoritative Data Accuracy:

- Every building in Australia [metro & regional] updated annually
- Major cities every 6 months!

¹ Geoscape utilises AI-powered aerial and street level imagery to measure First Floor Elevation with precision at-scale

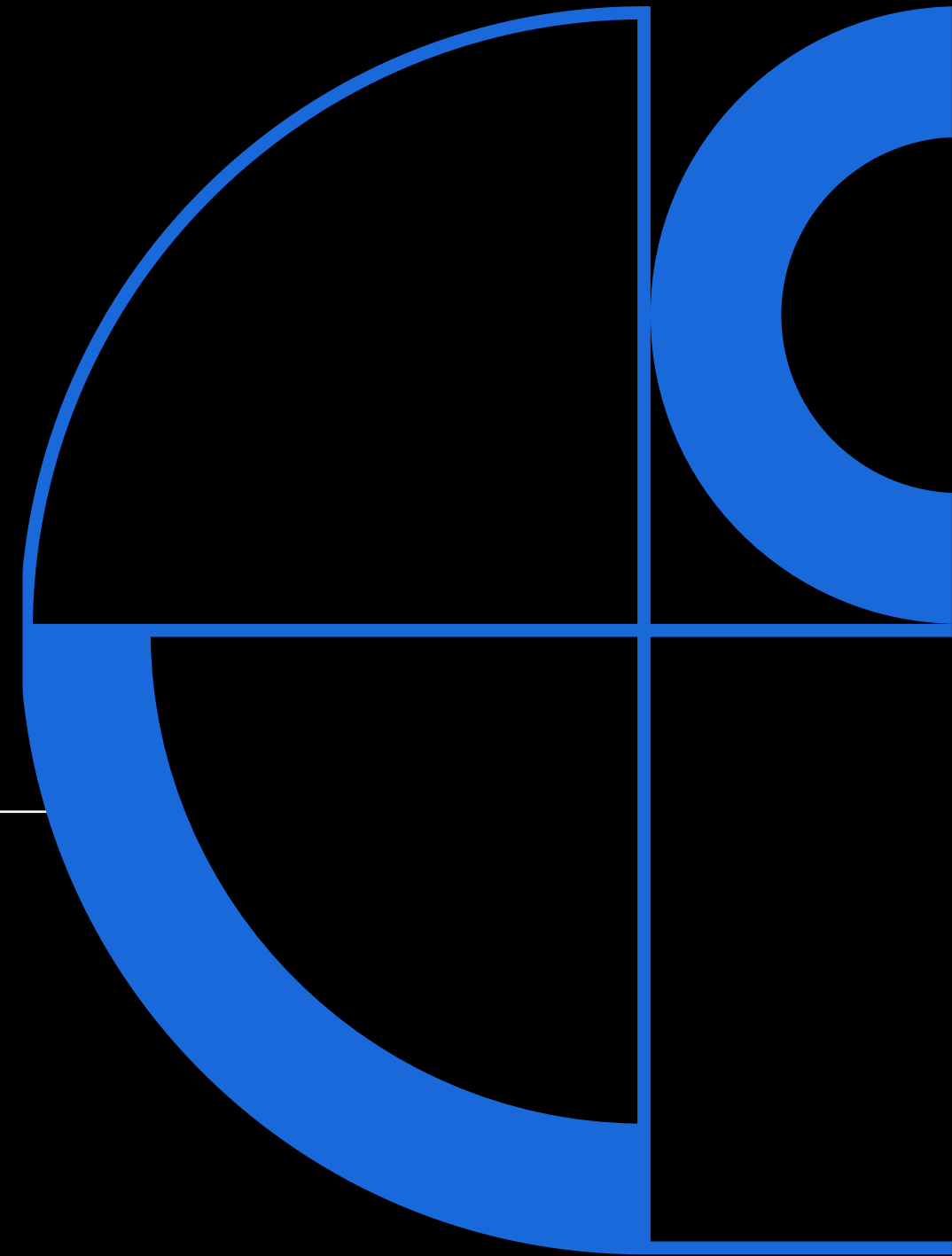


Combining flood models with building resilience data creates a robust and more **precise understanding of risk**



Geoscape utilizes AI powered aerial & street level imagery to measure building elevation. Identification of garage, basement and primary residence from the National Buildings Dataset.

Impact of Location Data





The value of Geocoded National Address File (G-NAF)

15 Hughes Pl

1/7 St Pauls Street

The Study

Undertaken in 2022-23 by Lateral Economics

Seeking to understand the economic impact of G-NAF in the Australian economy.

Consulted across 18 public & private organisations' (including Australia Post)

Estimated public and private benefits from use of G-NAF

Trusted Source of Location

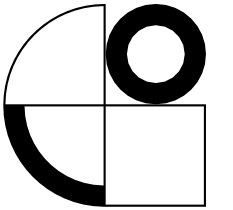
The authoritative source of Australia's 15+ million location addresses

Wide Application

- Customer identification
- Address verification
- Mapping & service delivery
- Targeted emergency response
- Policy development
- Data led decision making (insurance)

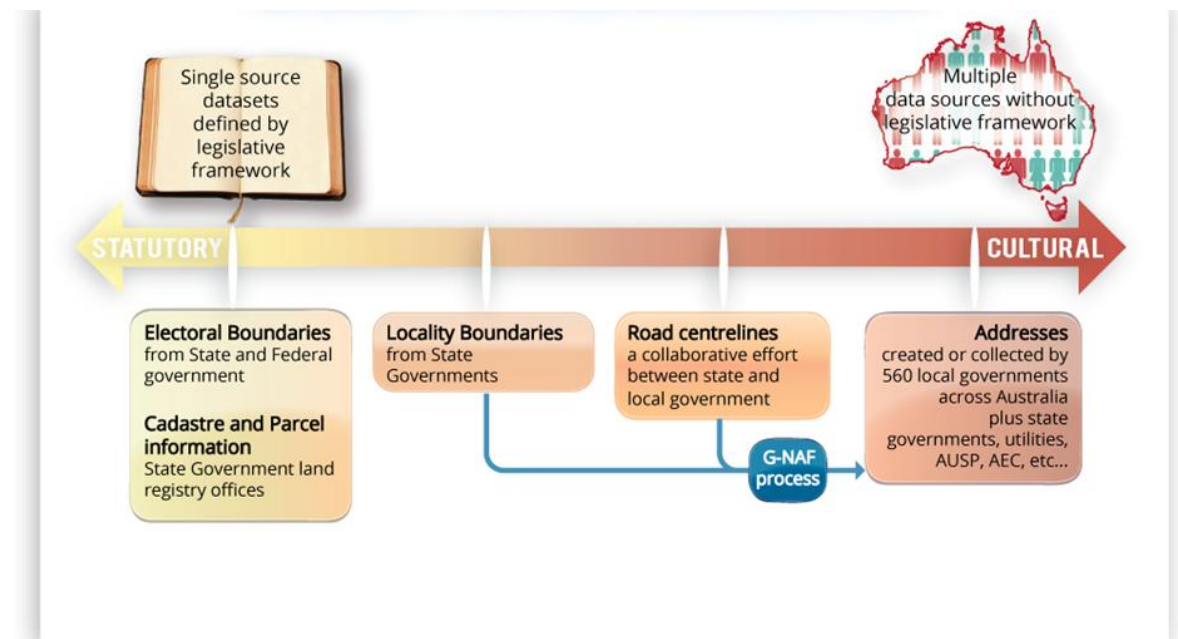
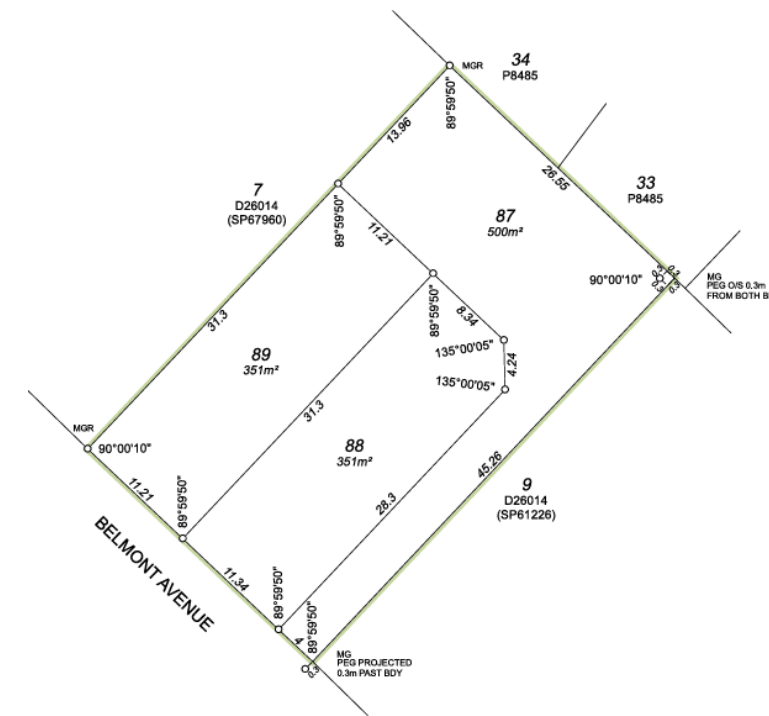
Value to Communities

\$1.4+ billion in value to communities by enabling insights and efficiencies



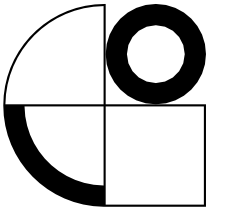
Location Data Sources

- Government – Land Administration
 - Valuation / Rating, Development Assessment, Zoning, Planning, Building Safety, Transport, Open Space, Public Administration



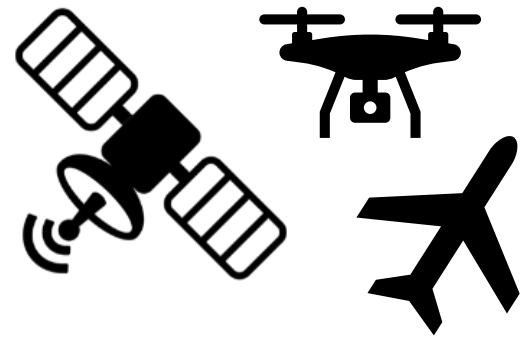
- Government – Services
 - Emergency Services, Parks and Wildlife, Agriculture, Education, Tourism, Infrastructure, Justice, Sport & Recreation, Health, Arts, Community Services



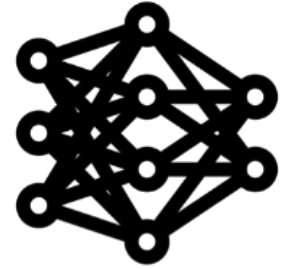


Location Data Sources

Earth Observation
Technology



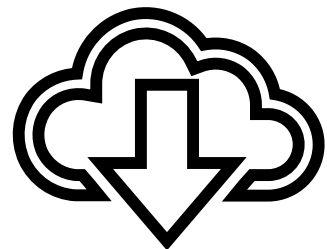
Machine
learning



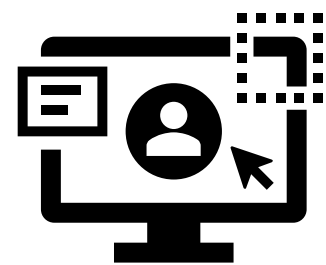
Crowdsourcing



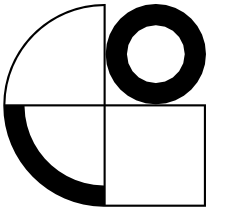
Cloud
computing



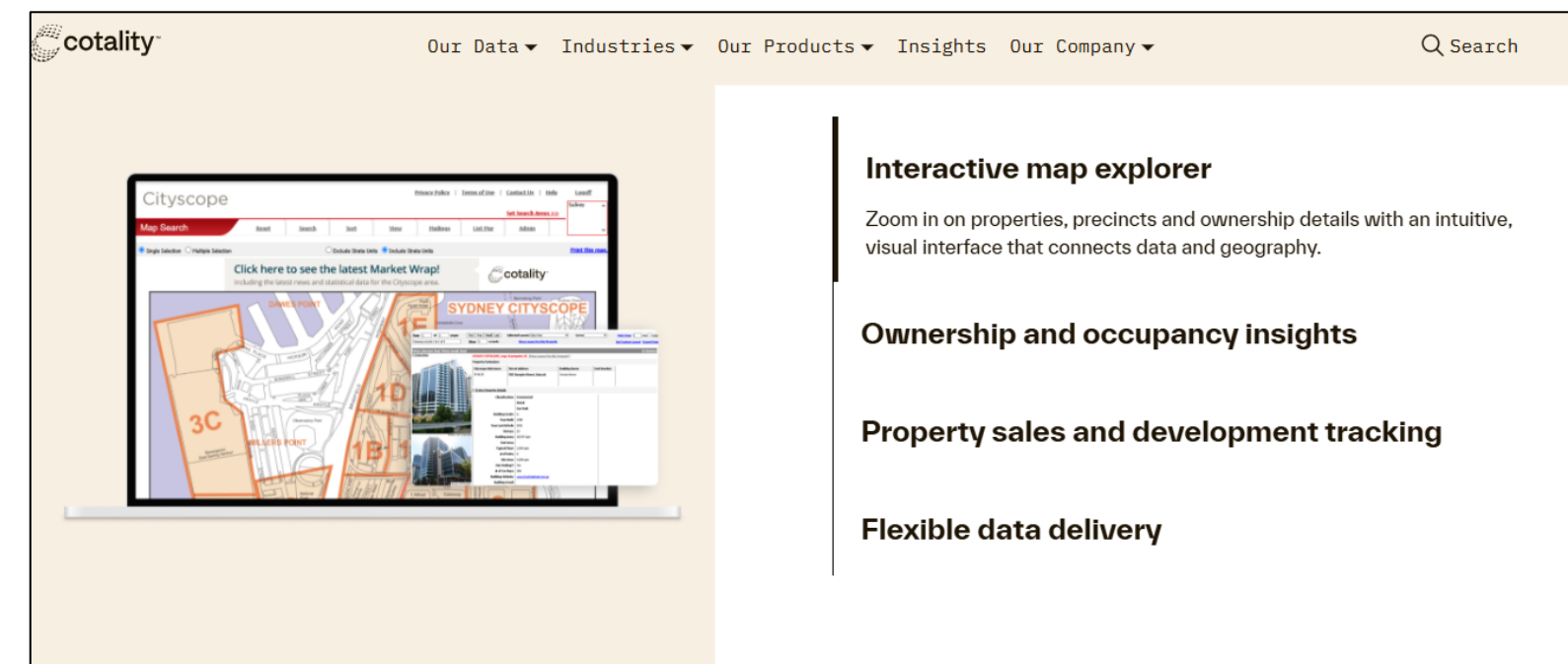
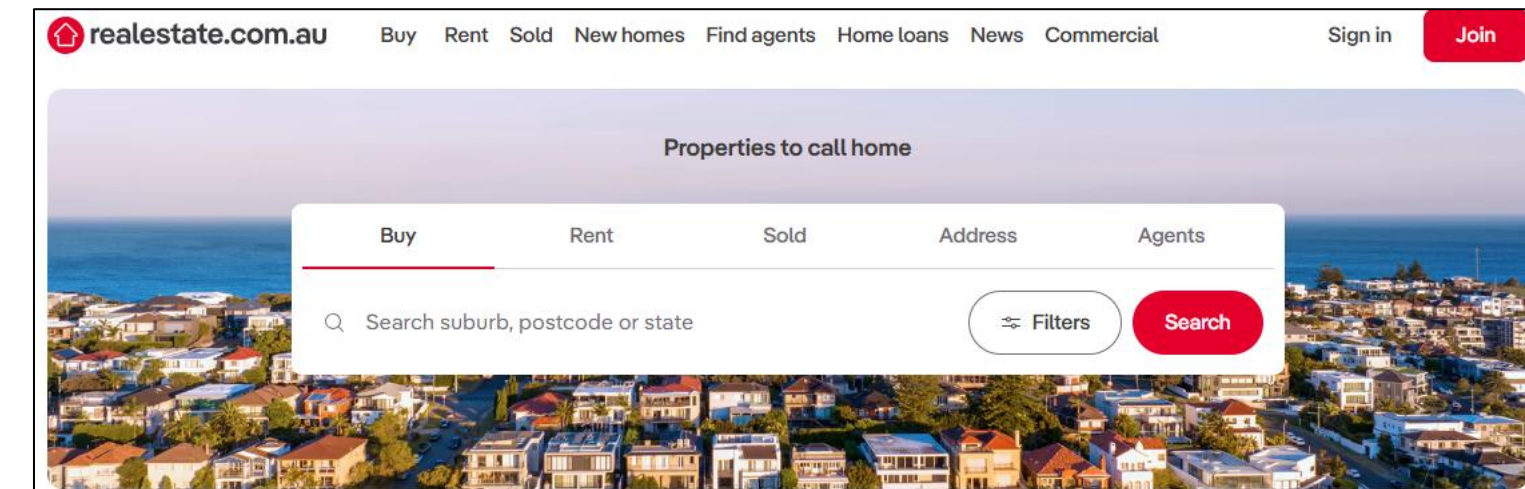
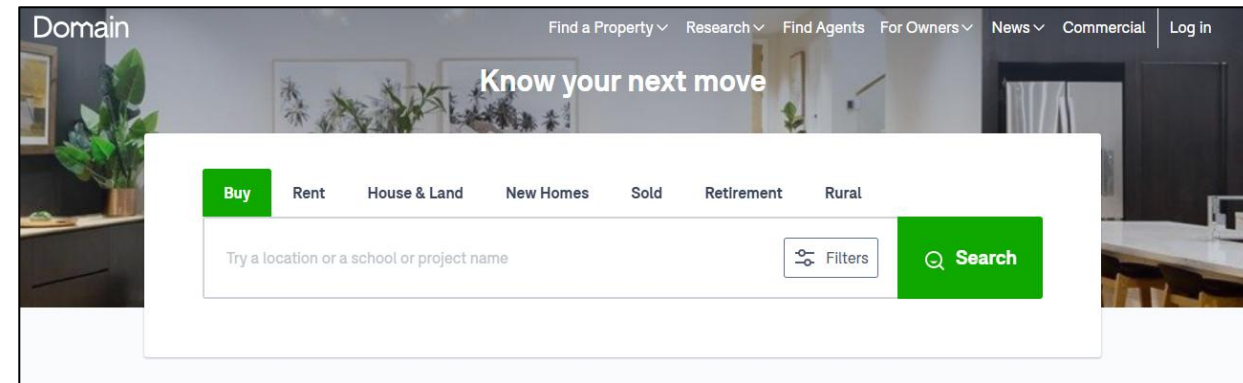
User
Feedback



Mapping Foundations



Location Data Sources

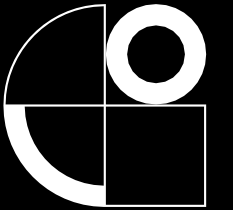


REPORT

Property Insights | Settlement trends continue the shift towards South-East QLD, Perth & Adelaide

The total spent on property in Queensland, Western Australia and South Australia has grown considerably compared to the same quarter last year, as these states continued to be popular for property purchases.

29 April 2025

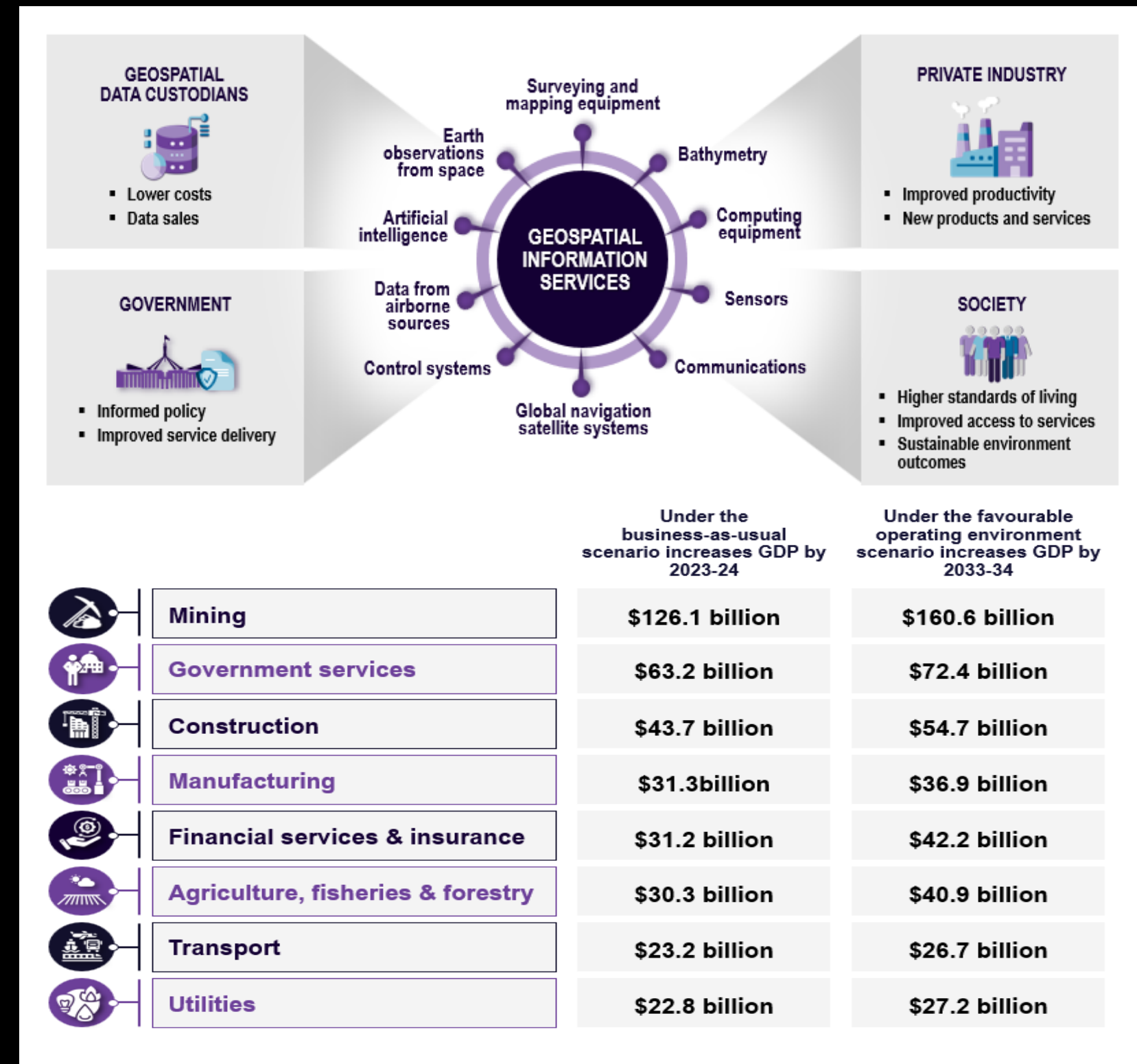


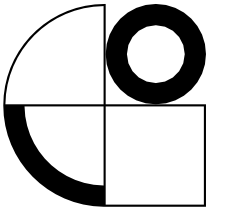
Geospatial capability powers Australia... and has the potential to add a further \$689B in economic impact!

- Critical to the economy - cuts across government, industry, society
- Enables strategic policy – climate, housing, services, security
- Powers industry – mining, construction, finance, agri, transport
- Presently adds \$38.6B to the Australian economy
- Will add a further \$689B in economic output if a ‘favorable operating environment’ created...

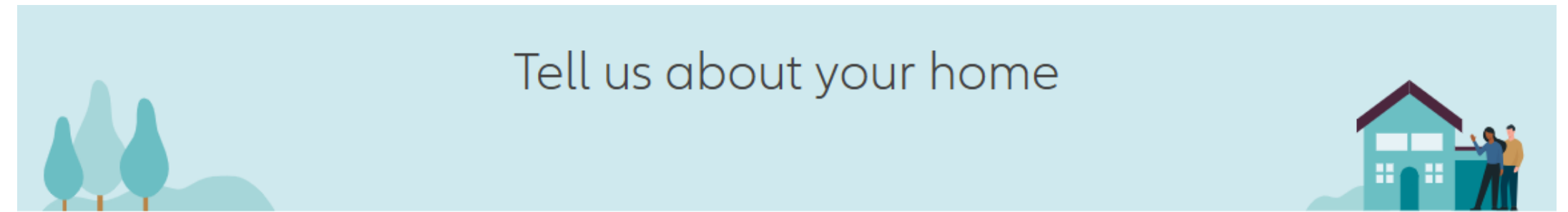
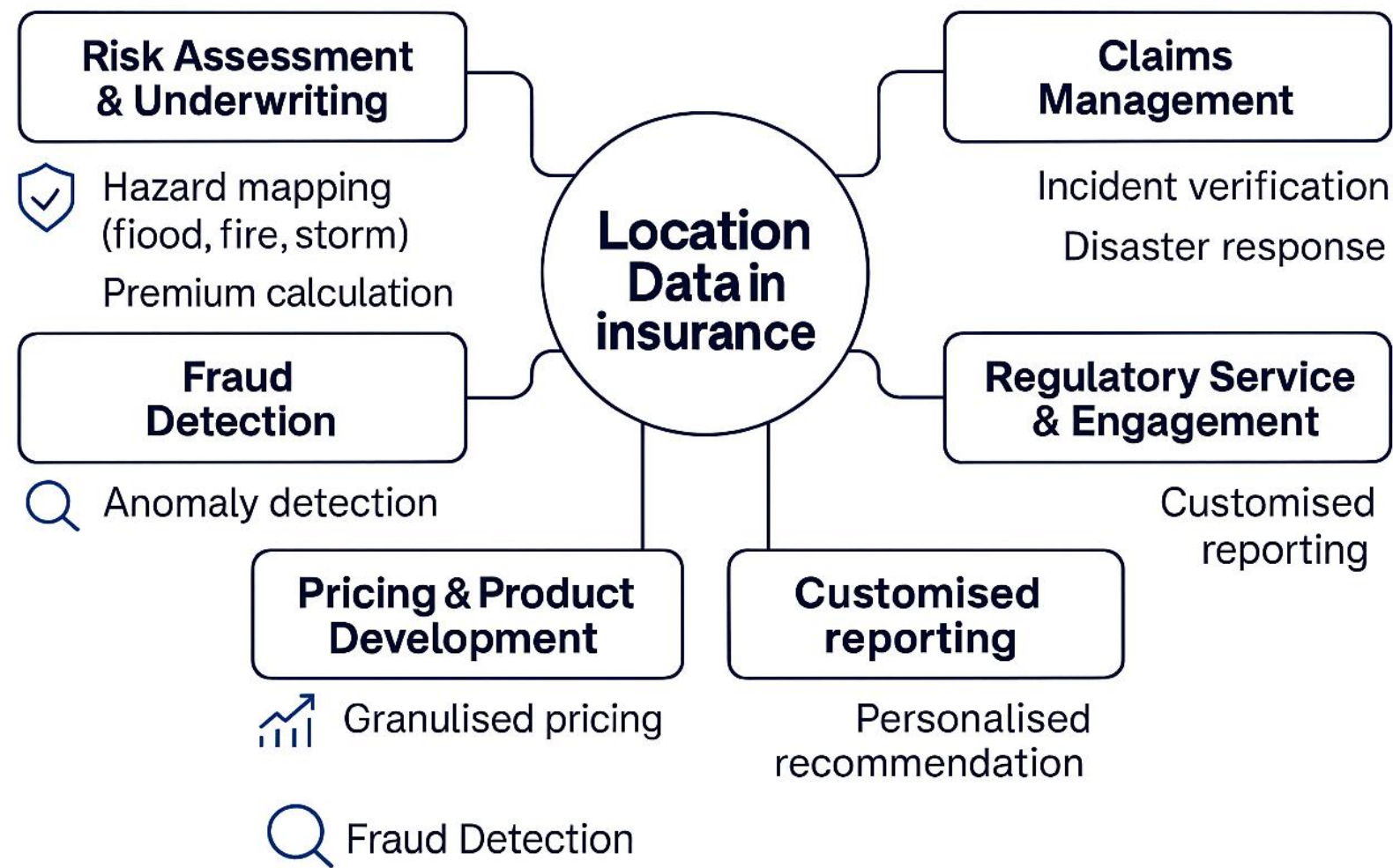
Government fully utilizing its sovereign assets will fuel productivity

\$689B

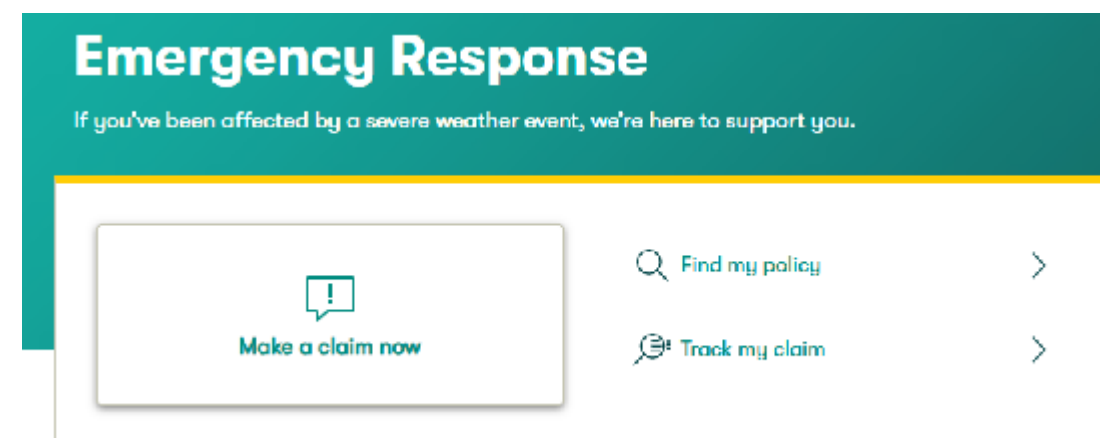


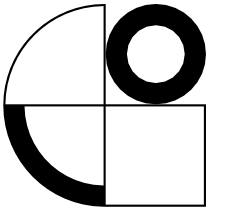


Insurance

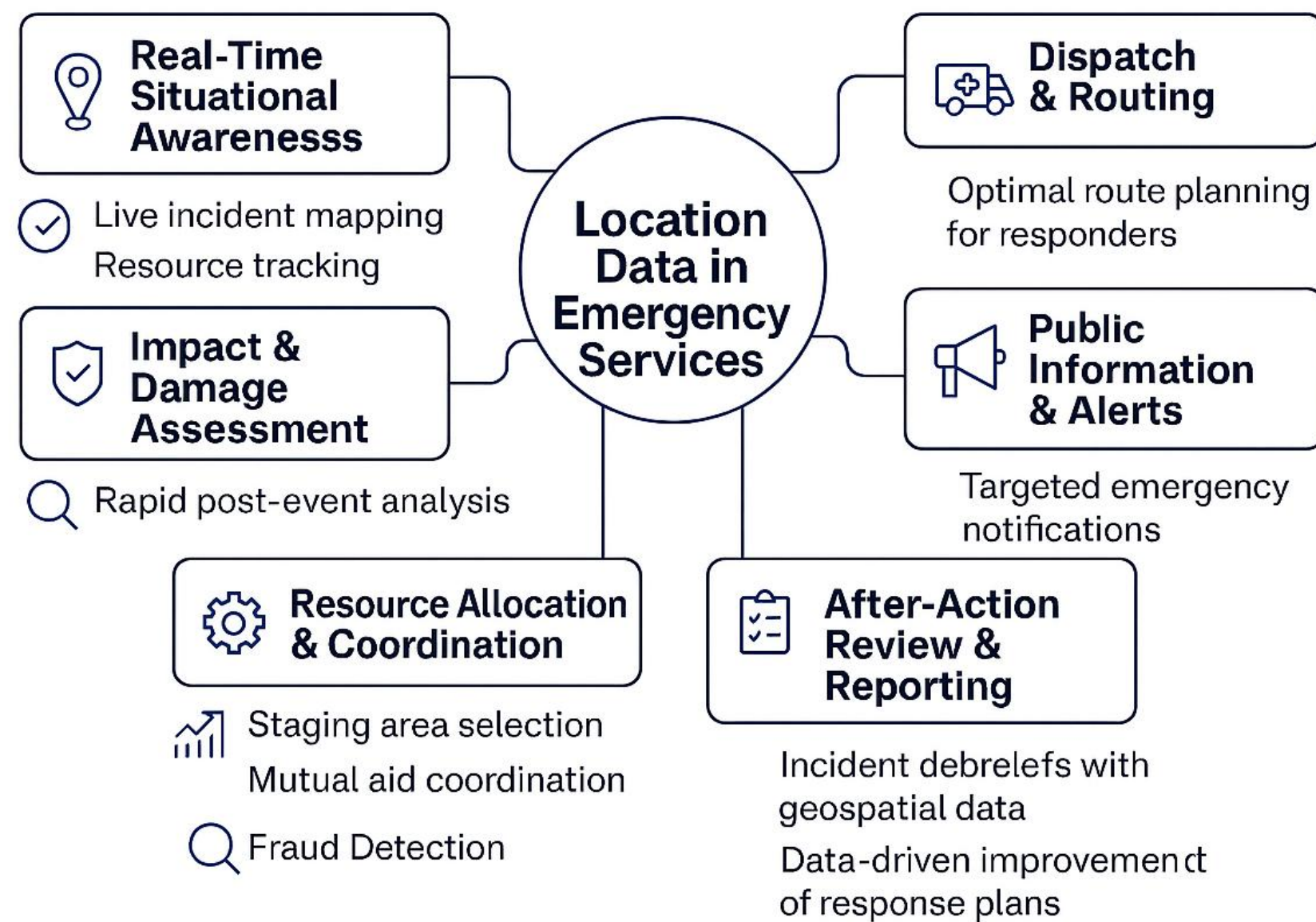


Home details Cover details Your quote Additional details Summary and Payment





Emergency Services

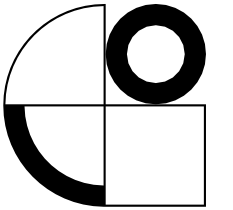


NSW / VICTORIA
BORDER CLOSED
 from 12:01am Wednesday 8 July 2020

- Anyone wishing to travel into NSW from Victoria will need to apply for an exemption online at www.service.nsw.gov.au
- Substantial fines apply for providing false information when applying for exemptions.
- Anyone entering NSW from Victoria is subject to Public Health Orders. Find out more at www.nsw.gov.au
- Penalties of up to **\$11,000** and/or **six months imprisonment** apply for breaching Public Health Orders.

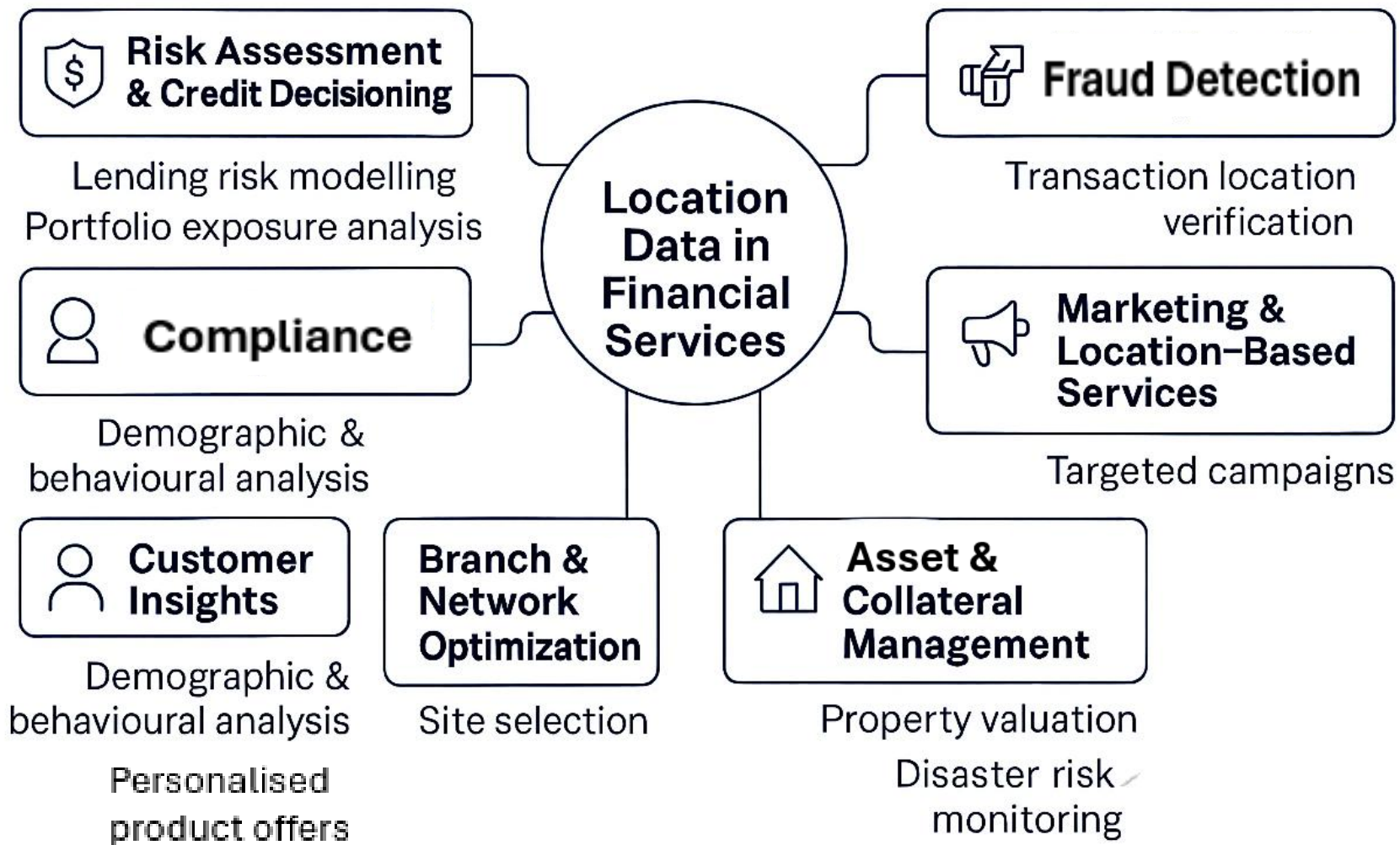
[FINE]

Report any breaches of COVID-19-related ministerial directions to Crime Stoppers: <https://nsw.crimestoppers.com.au>



Financial Services

Spatial Enablement for Banking



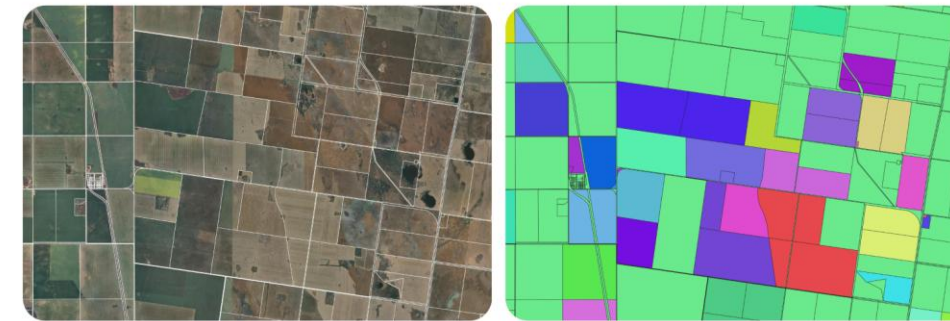
National Portfolio Validation

Reconcile the details of your mortgage book against the land title register, and plot it on a map.

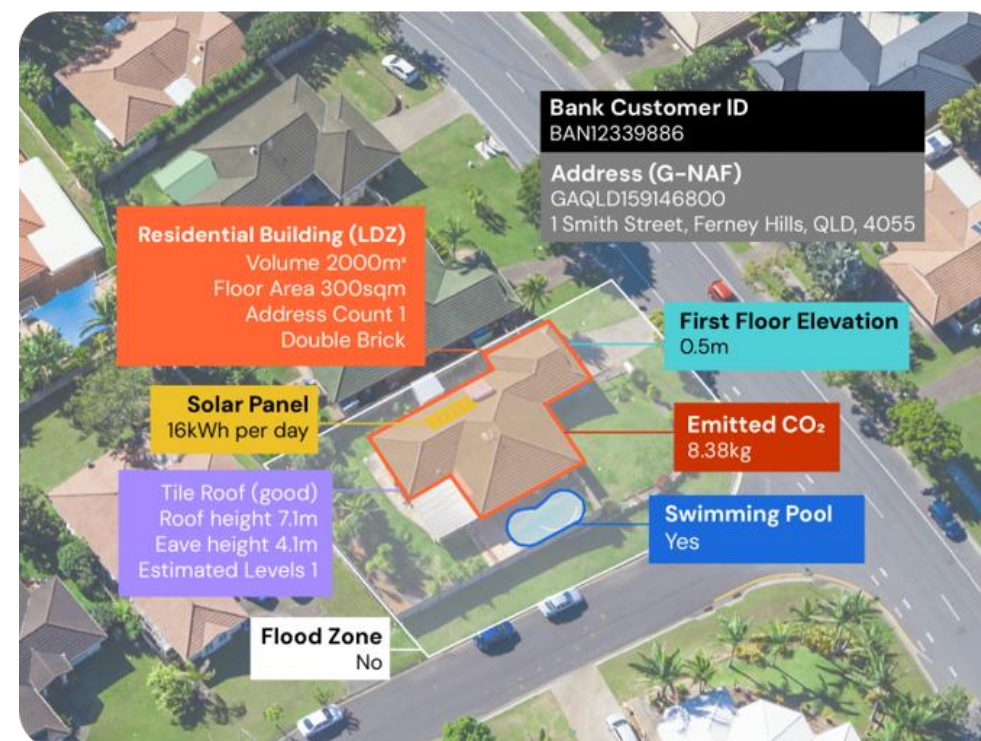
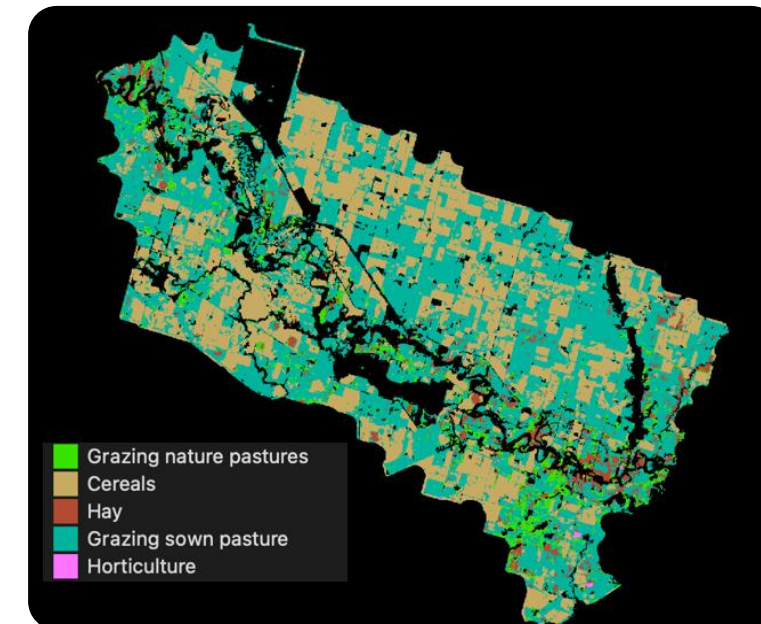
“Up to 20% of a bank’s mortgage records can be incorrect.”

What is it?

- Annual Subscription Service
- Snapshot of complete mortgage book across all titles (Agricultural, Commercial, Residential)
- Monthly deliveries via a Secure File location service
- VIC, NSW, QLD, SA & WA



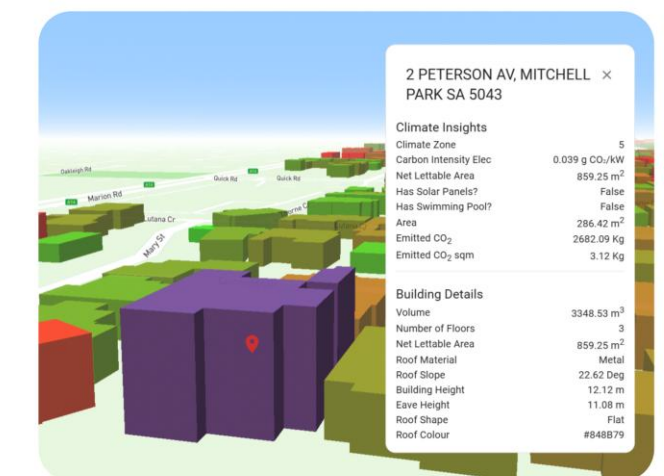
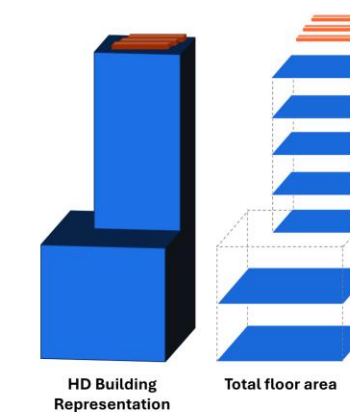
© Google Imagery

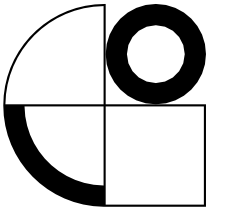


Spatial Enablement for Banking

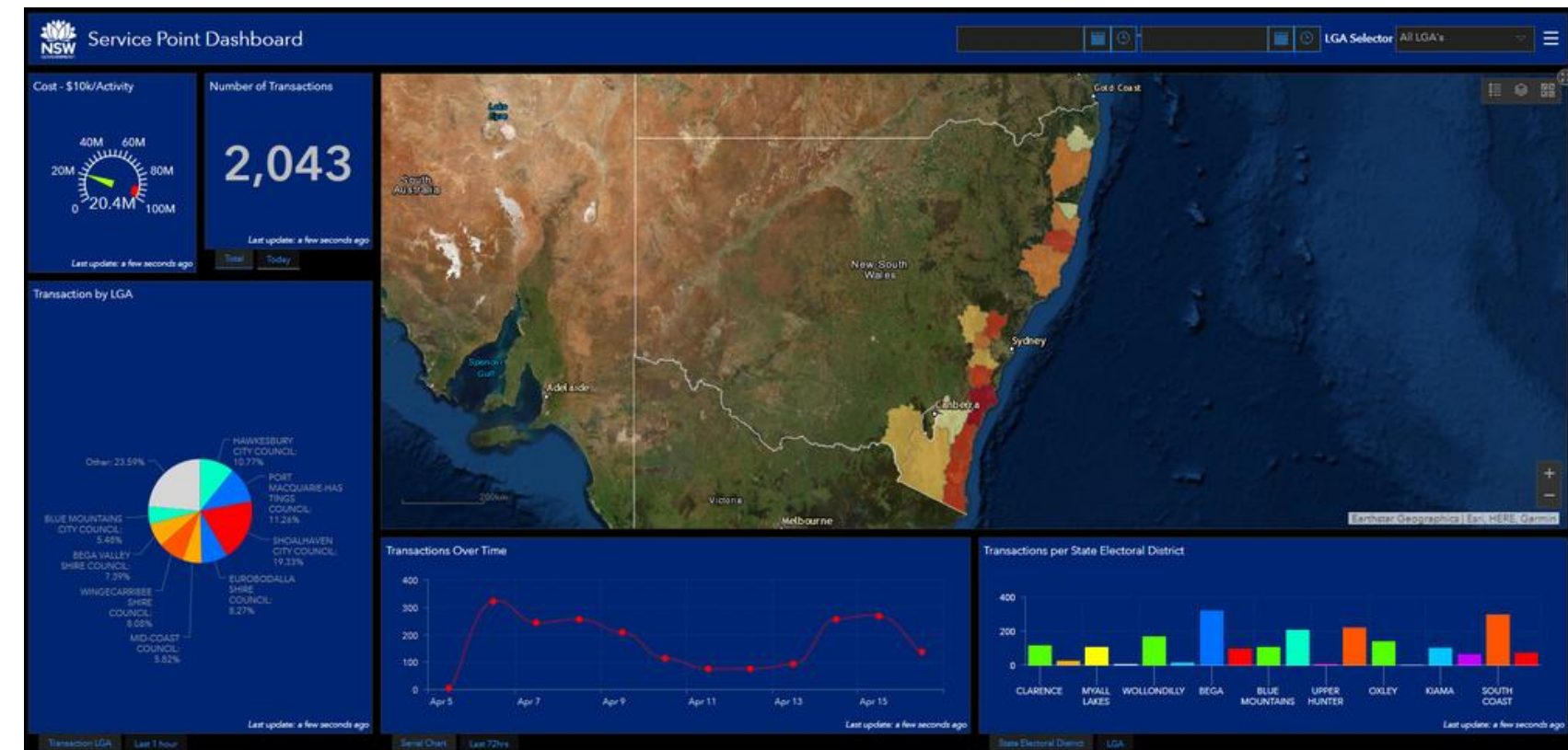
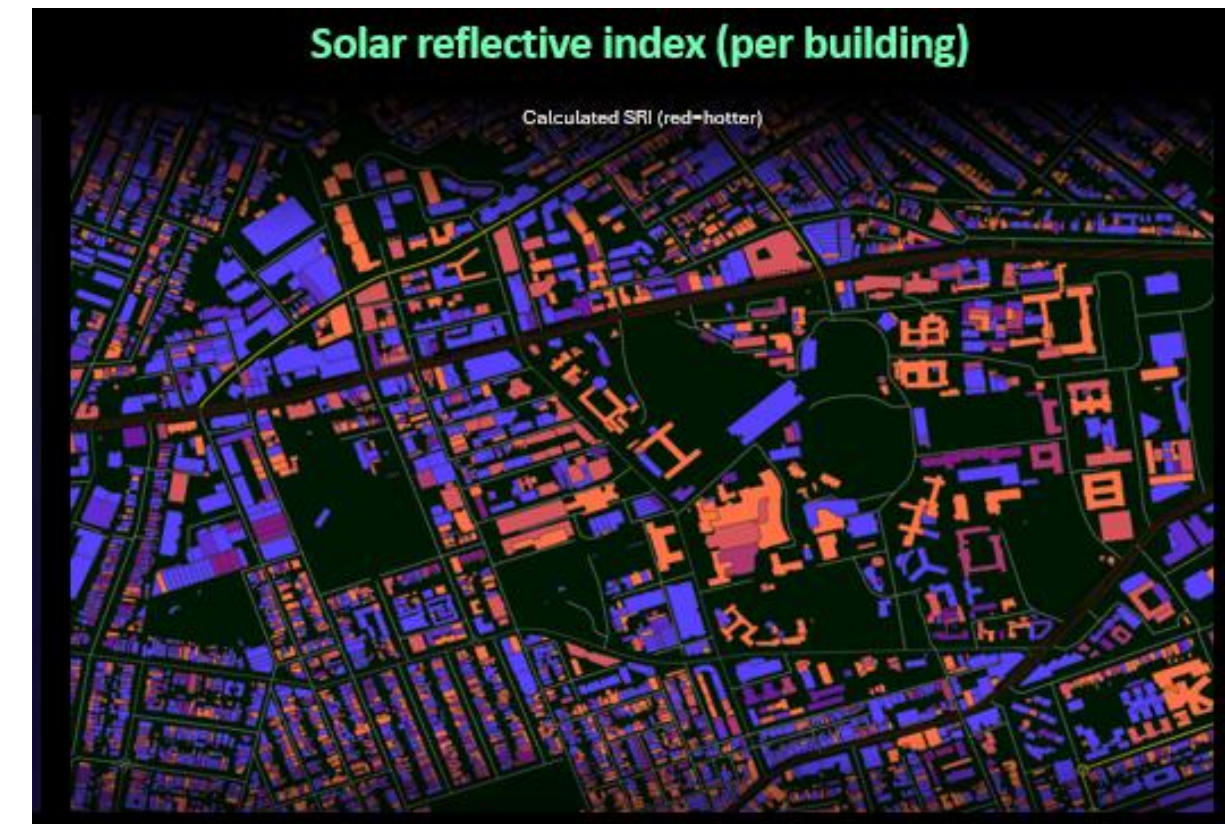
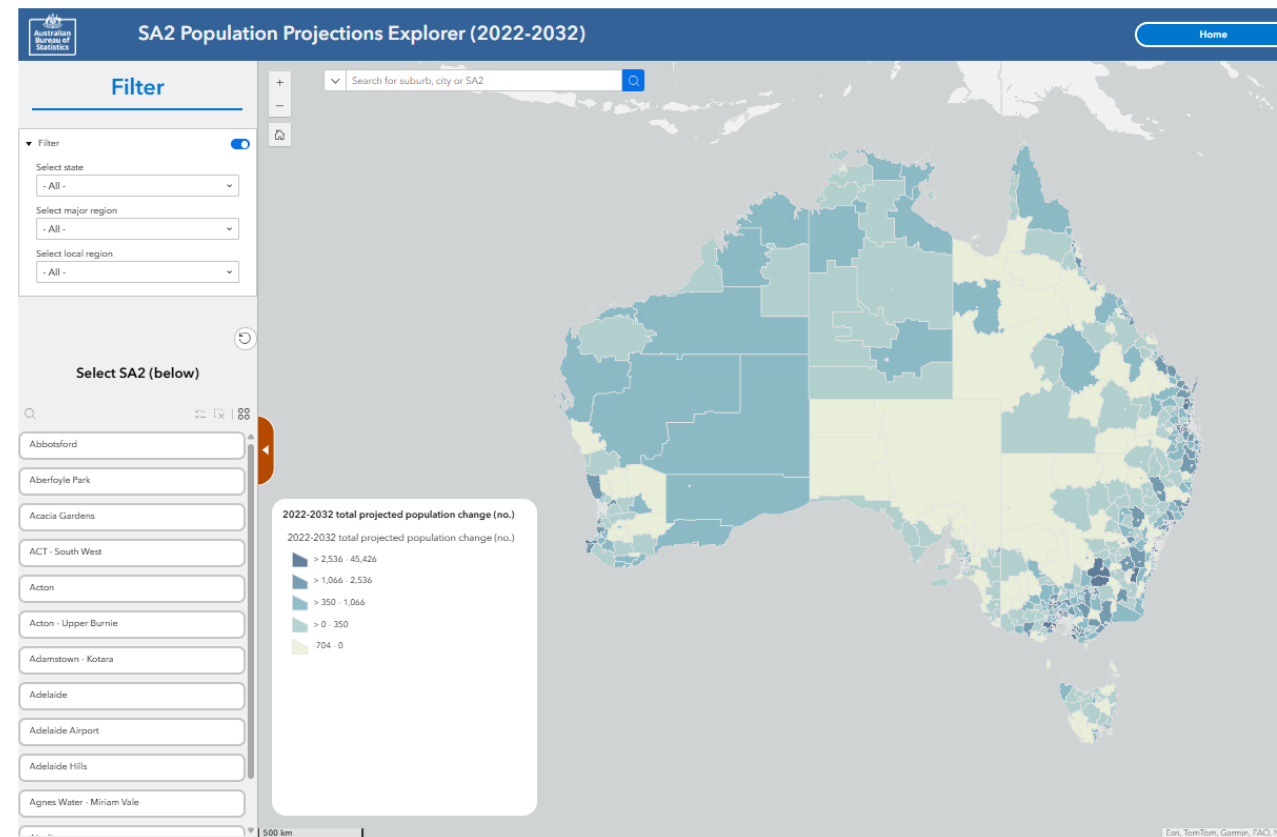
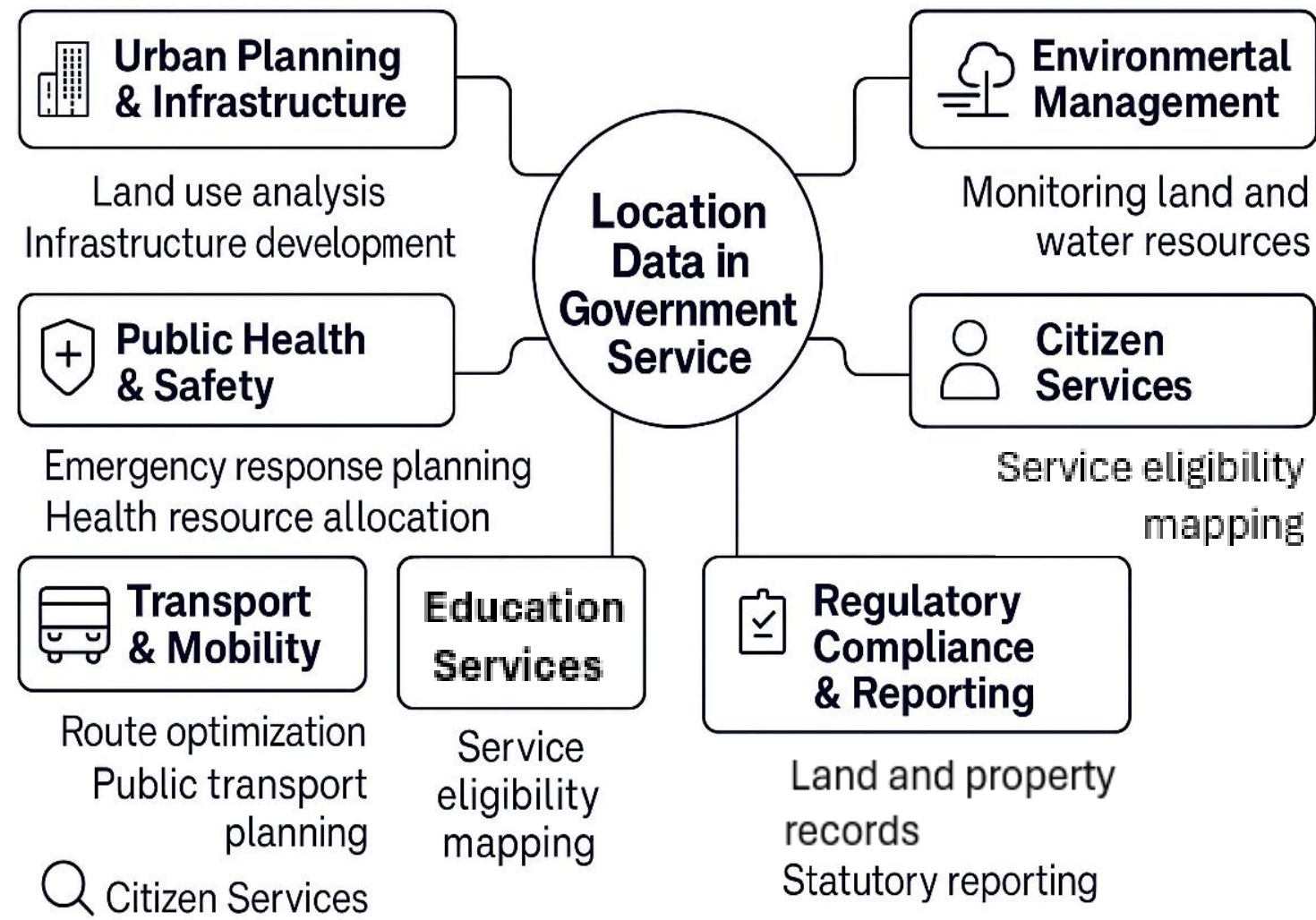


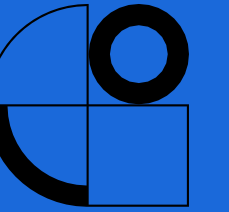
National Carbon Emission Metric





Government Services





Thank you

We welcome the opportunity to partner in the national interest.

Contact:

Michael Dixon | Chief Data Officer | michael.dixon@geoscape.com.au
www.geoscape.com.au

ACT Government

ACTmapi – One Stop Shop for Surveyors and LiDAR.

Martin Wingett
Director of Land Information



ACT
Government

The Vision

To provide all freely available information a Surveyor requires for a site within 10mins.



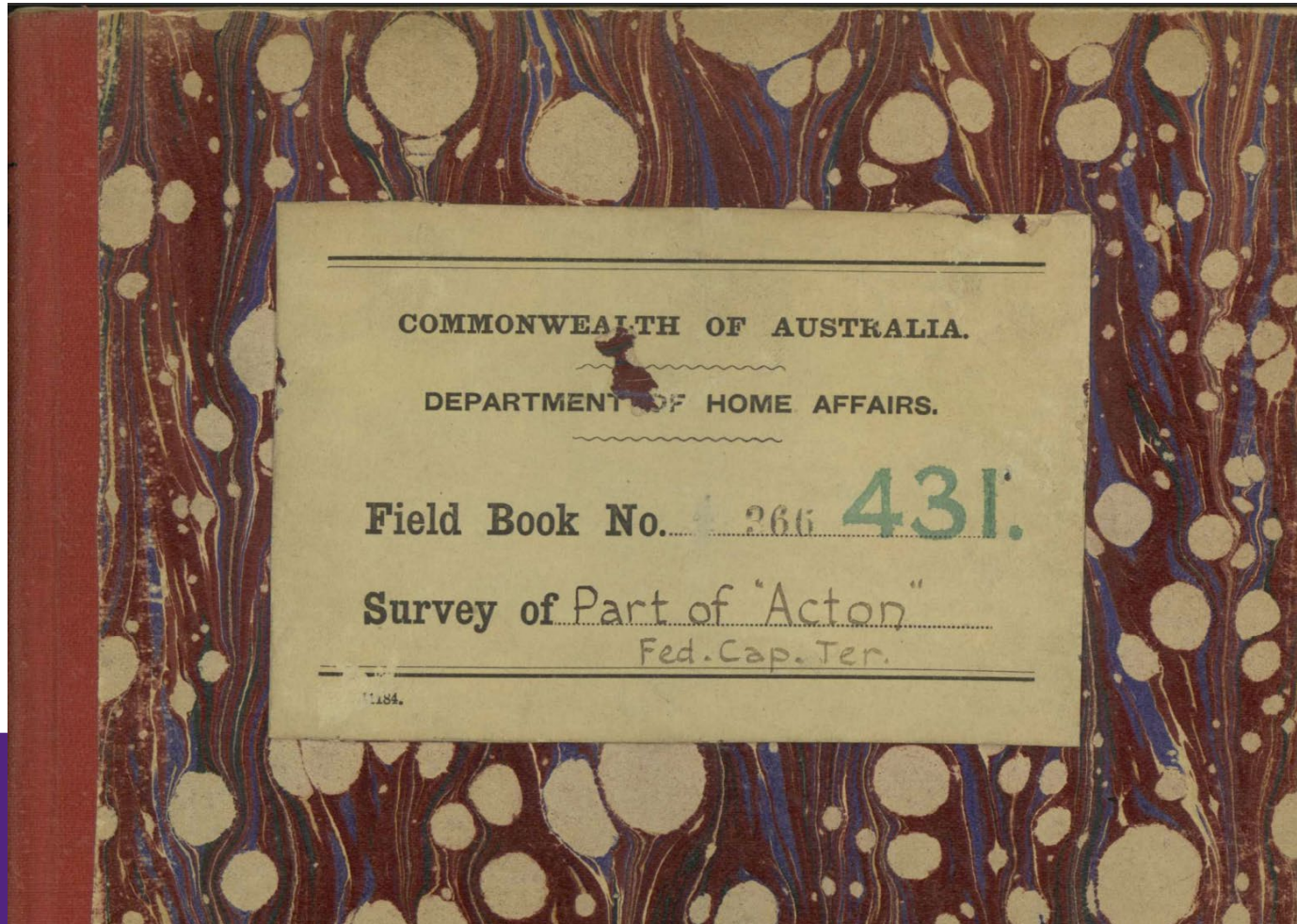
What have we been up to?

- We've been working on technical feasibility.
- Identify the initial customer experience we want to create.
- Seeking approvals for publishing existing free plans
- Updating to a beta (ready for testing)




What are we aiming to provide.

- Fieldbooks



https://files.actmapi.act.gov.au/?path=SurveyorsFieldBook

WorkSites



ACT Government

ACT Government

Home SurveyorsField Books

Filter Results...

- [A Books](#)
- [B Books](#)
- [D Books](#)
- [Early Books](#)
- [F Books](#)
- [G Books](#)

What are we aiming to provide - continued.

- Various Plans:
 - Territory Border Plans
 - Miscellaneous Survey Plans (MS Plans)
 - Investigation Survey Plans Series and Non-Series
 - Miscellaneous Survey Plans (MISC Plans)
 - Radial Investigation Plans
 - Road Survey Plans (Rural and Urban)
 - Railway Plans
 - CM (Control Mark) Sheets
 - RM Sheets



What are we aiming to provide - continued.

Survey Mark information

Deposited Plan list for
ACTLIS

CAD information



ACT
Government

What have we learnt?

- We publish a lot of Field books for Survey Control
 - But we have more Field books to scan.
- It's not technically feasible to link to ACTLIS through ACTmapi.
- There's varying interest in the information people need.
- There's a lot of data to create to cover what a person would normally do.





Map redevelopment



We are actively maintaining and enhancing our suite of mapping products. We welcome feedback by contacting spatialdata@act.gov.au.



[Basic map](#)



[Territory Plan Map](#)



[Bushfire Map](#)



[Survey Map](#)



[Development Map](#)



[Education Map](#)



[Placenames Map](#)



[Land Custodianship Map](#)



[BETA National Capital
Authority Map](#)



[Domestic Animals Map](#)



[Environment Map](#)



[Historic Plans Map](#)

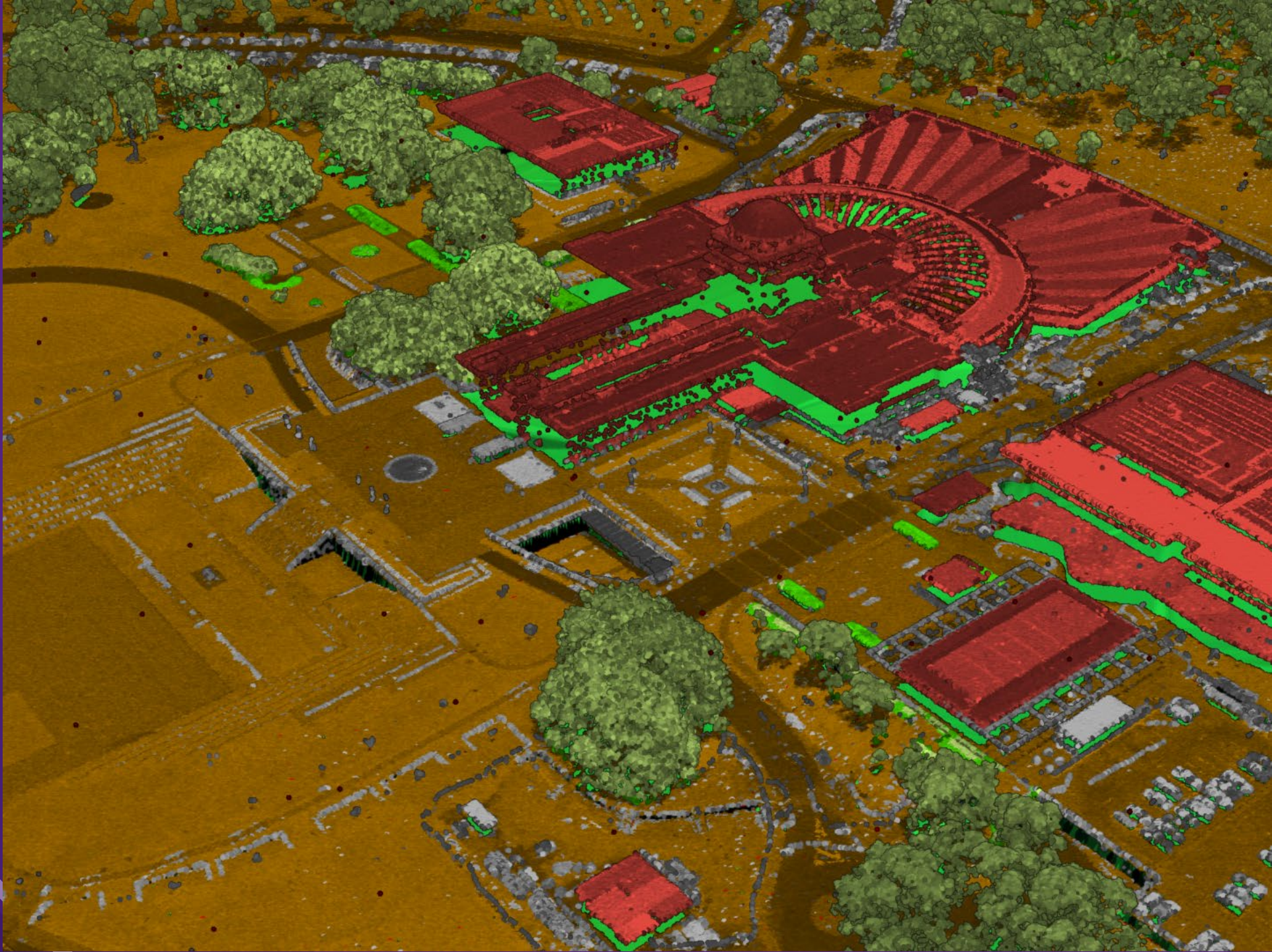
Where to from here?

- Release to beta to industry.
- Need to organise screenshare sessions to a few Surveyors.
- Continue adding additional plans and field books.



ACT Government

LiDAR 2025



LiDAR - Progress

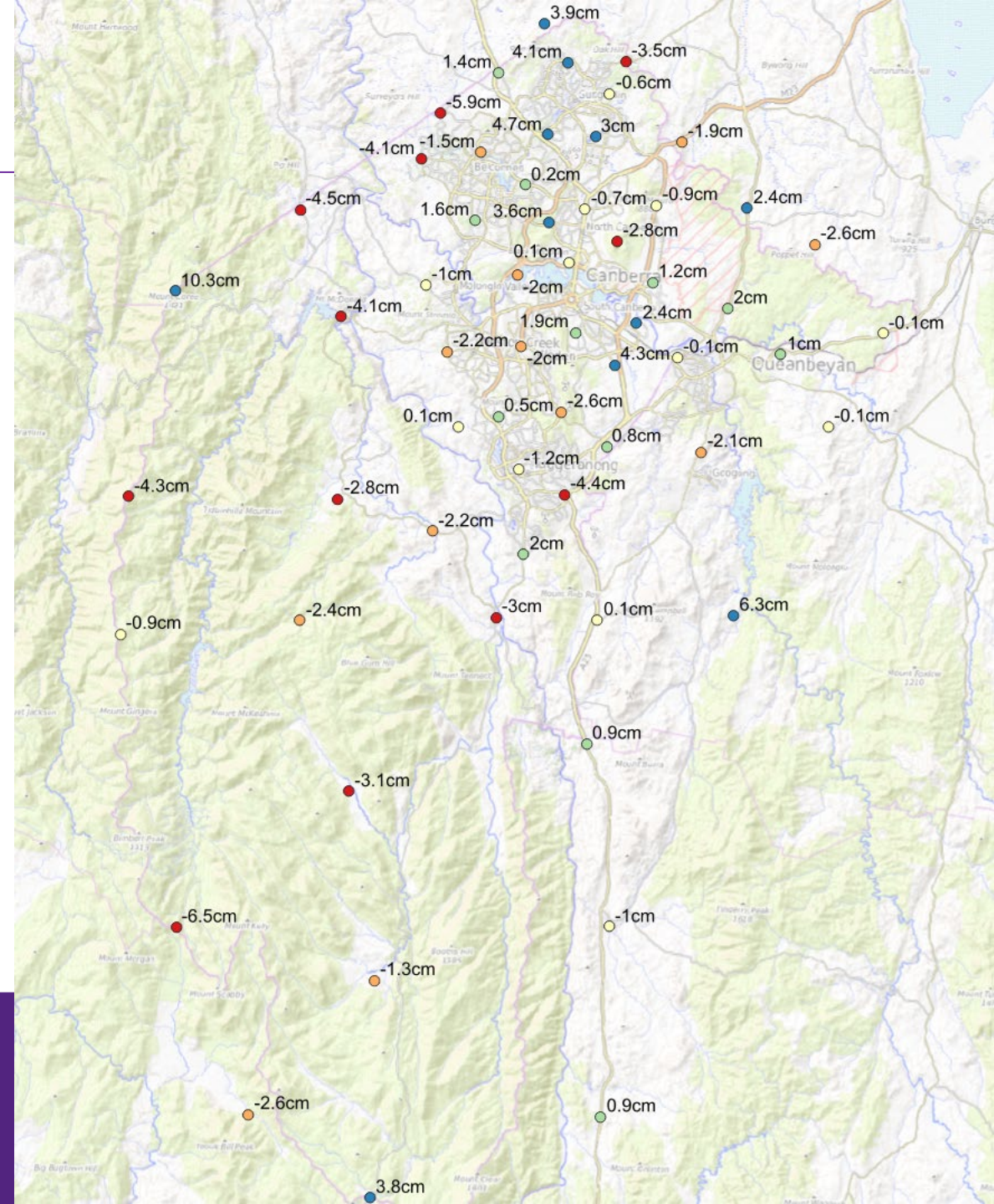
- Aerial Survey was completed between 16/02/2025 – 01/03/2025
- Achieved an average of 16 points per square meter
- Successfully completed Horizontal and Vertical accuracy assessments.
- Final completed next week.



LiDAR – Vertical

Vertical Height Differences LiDAR Height and Derived AHD.

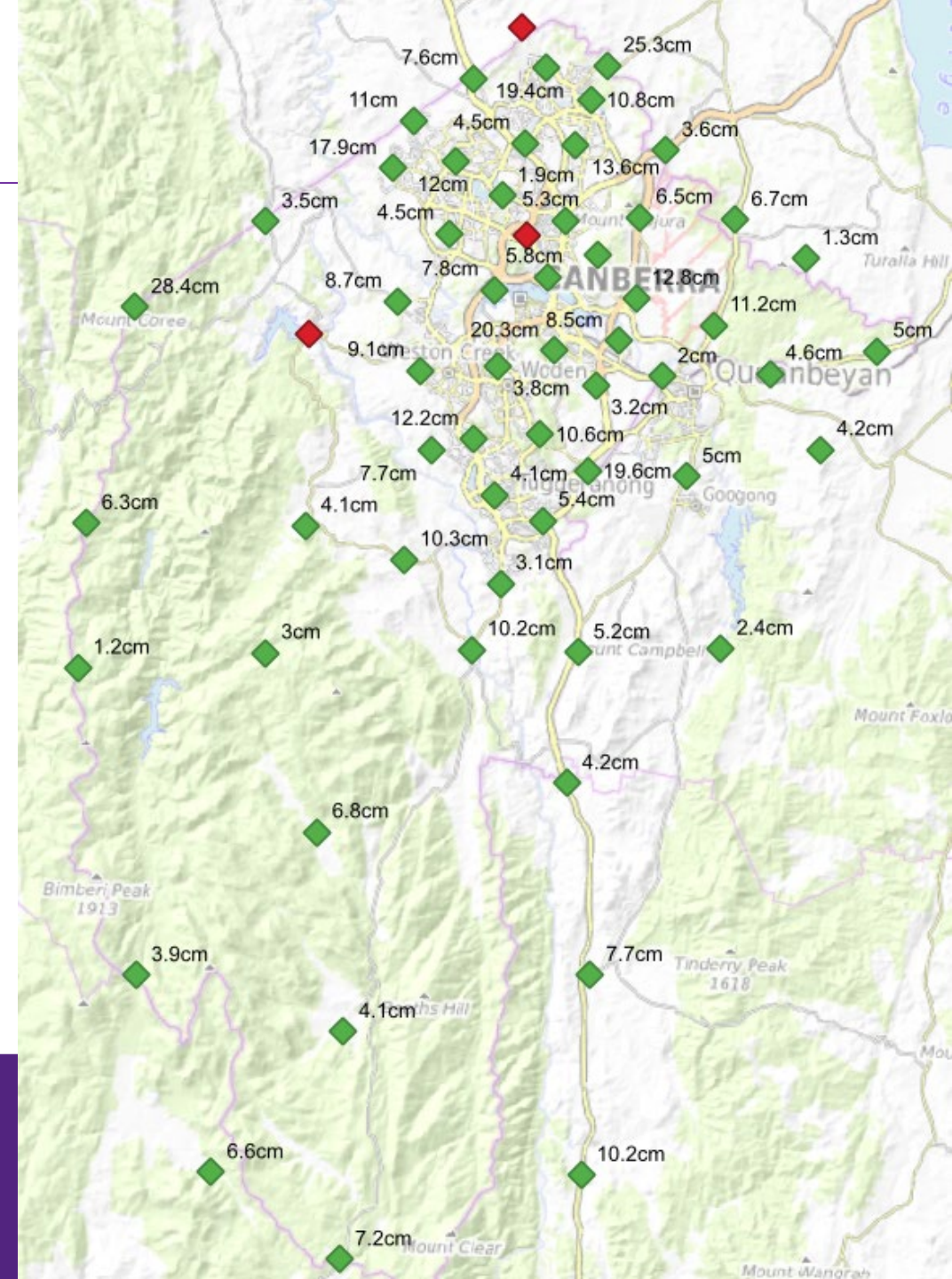
Average	-0.003
Min	-0.065
Max	0.103
Std	0.031
VA(95%)	0.060



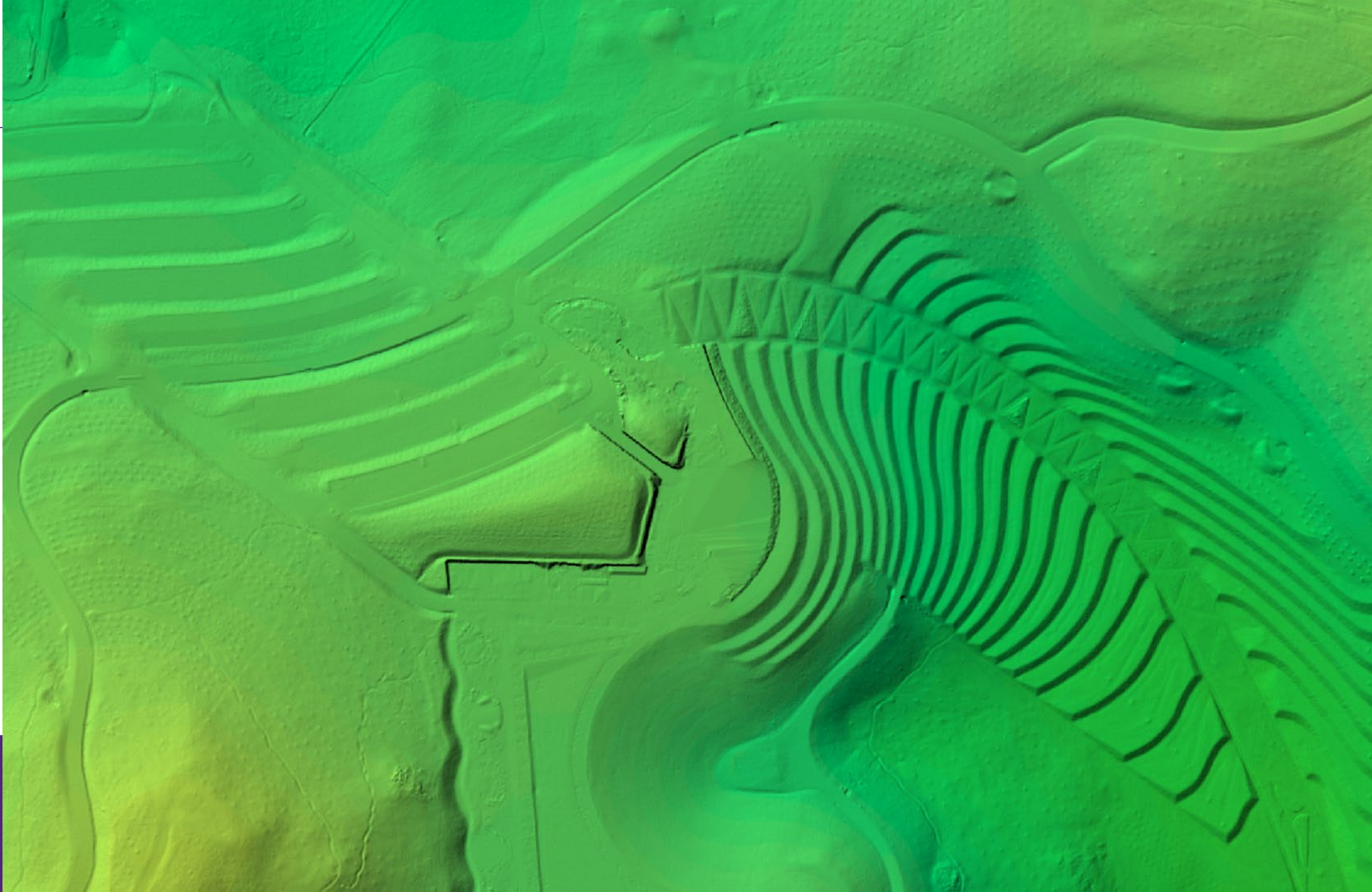
LiDAR – Horizontal

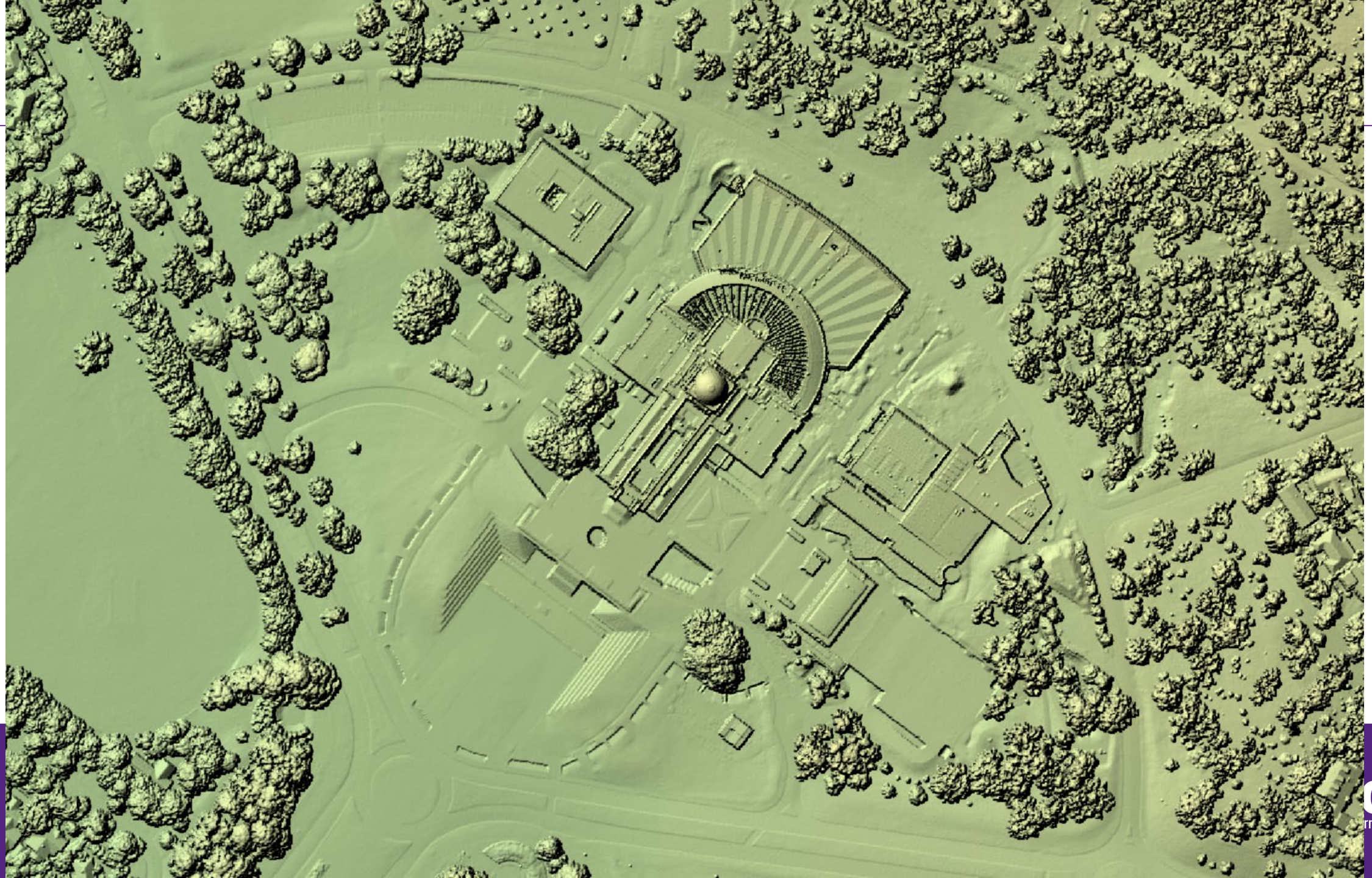
Horizontal Differences LiDAR vs Surveyed.

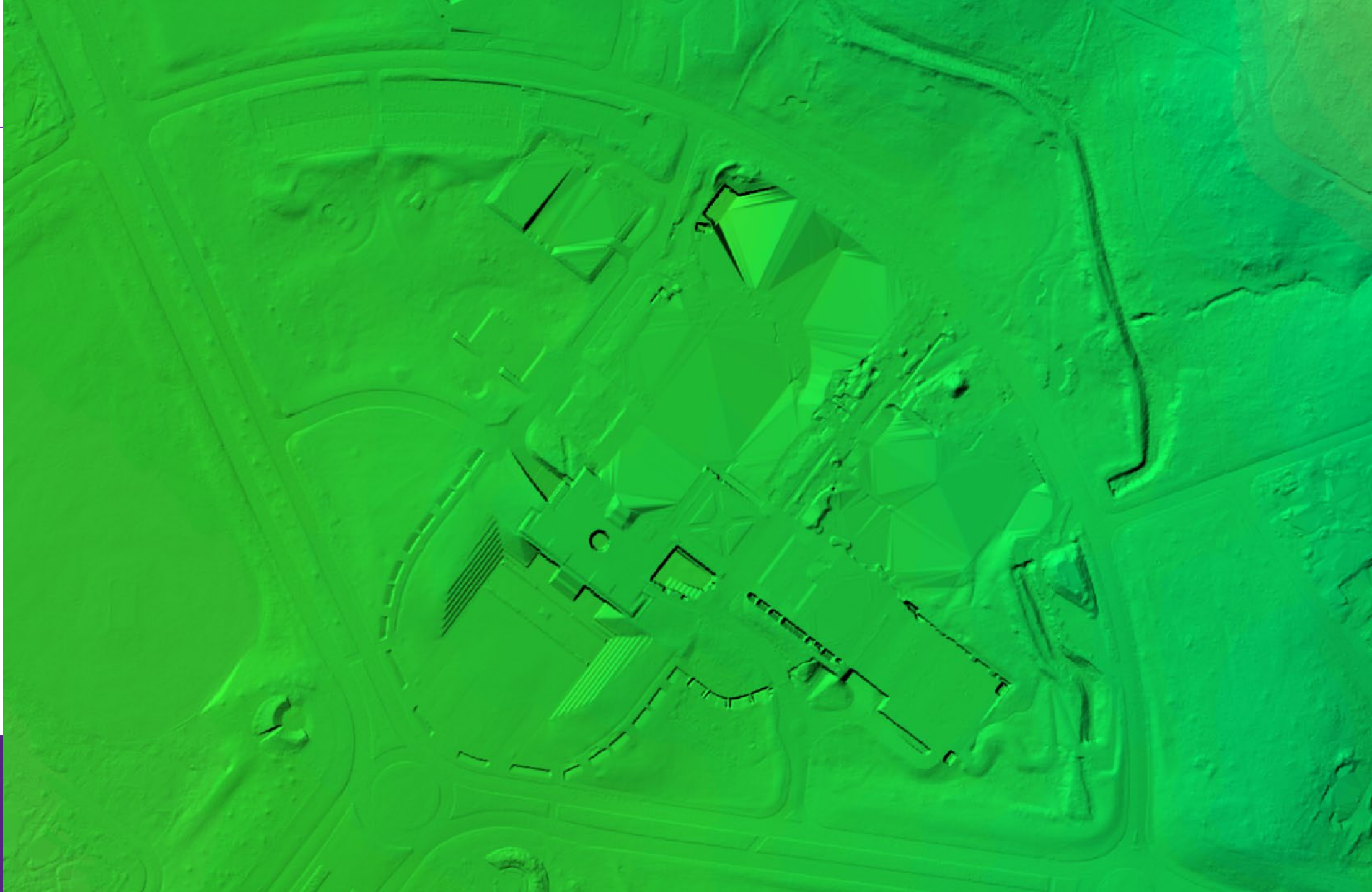
Statistics:	dX	dY	dXY
Average	0.000	0.007	0.082
Min	-0.234	-0.194	0.012
Max	0.201	0.240	0.284
STD	0.069	0.072	0.058
H Acc (95%)	0.135	0.141	0.113
#Pts	57		











ACT Government

Demo



ACT
Government



ISNSW Event

OSGLI Update

15 October 2025

Greg Ledwidge



ACT
Government

Office of the Surveyor-General

Contents

1. [GCA Liquidation](#)
2. [Let's Locate - Canberra](#)
3. [Associate Surveyors](#)
4. [Supervision](#)
5. [Engineering Surveyors](#)
6. [Survey Control – Guideline No. 2](#)
7. [ACT Survey Practice Advisory Committee](#)



Geospatial Council of Australia (GCA) – Current Situation

GCA liquidated

- Late August 2025 - Nothing to replace it yet
- A national professional body is important

GCA members locally

- Some renewed membership – What now?
- Some have gone to Institution of Surveyors NSW (ISNSW)
- Some may go to Surveyors Australia

A replacement professional organisation to be created

- What would you want from an organisation?
- Where is the value for you?



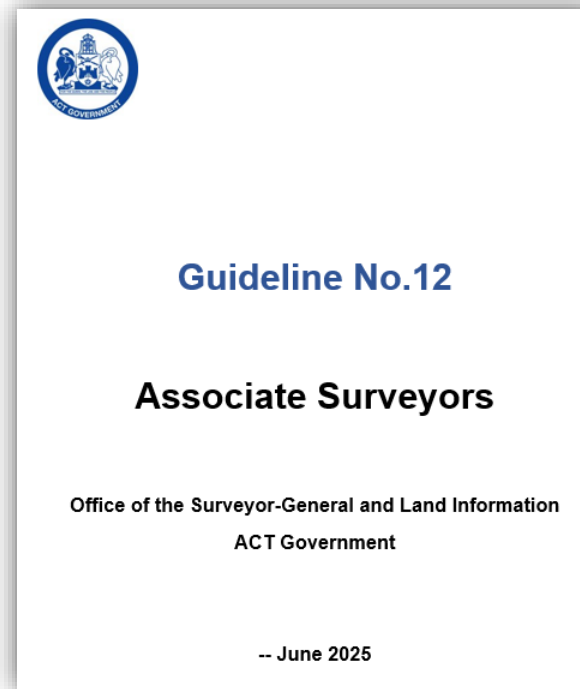
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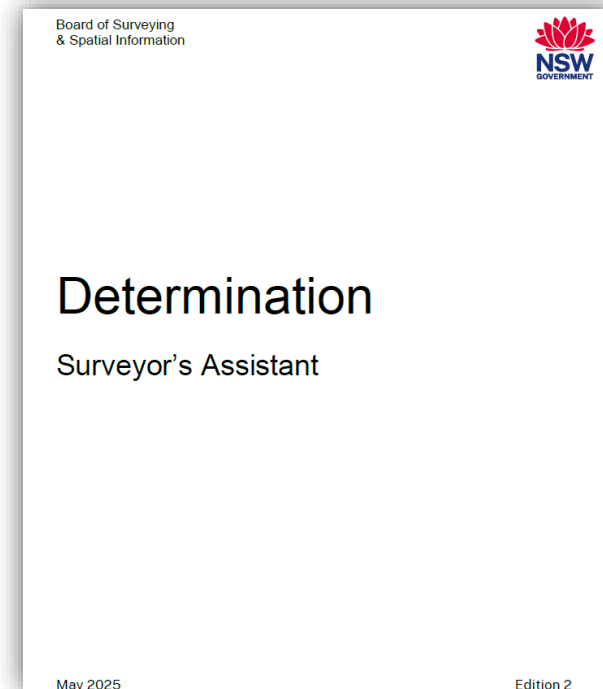
Associate Surveyors

Aligns more with NSW Surveyors Assistant Determination

- Minimum Qualifications and Practical Experience
- Knowledge and understanding – NSW
- Knowledge and awareness - ACT



=



Associate Surveyors – What they can do

Perform Cadastral surveys under General Supervision, including:

- DPs and UPs,
- Detail Surveys,
- Compliance Surveys, and
- Boundary Re-marking surveys
- In addition - Datum Ground Level Surveys
- See Directions 13 and 14 & Guideline No. 13

Perform non-cadastral surveys without supervision by a Reg'd Surveyor.

- Engineering surveys
- Construction surveys
- Other surveys



Surveyor-General
of the Australian Capital Territory

Guideline No.13

Supervision by Registered Surveyors

Office of the Surveyor-General and Land Information
ACT Government



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Office of the Surveyor-General

General Supervision – Site Attendance

Site Attendance Requirements by a Registered Surveyor	
Site attendance	<p>Accompany the Surveyors Assistant a minimum of:</p> <ul style="list-style-type: none">• Once for each job, and• Once per month for long jobs
Site attendance exemptions	<ul style="list-style-type: none">• Self-assessed exemptions by registered surveyors are permitted.• A registered surveyor may self-assess and grant an exemption to the site attendance requirements. Conditions apply. <p style="text-align: right;">See next slide</p>



Supervision by Registered Surveyors – Exemptions from Site Attendance

Criteria for a Self-Assessed Exemption from site attendance	Details
Associate Surveyor is competent, and	The Associate Surveyor has sufficient cadastral experience, to do the work, as assessed by the supervising surveyor.
Duration is short term, and	The duration of the job will be less than 4 hours.
Job complexity is low, and	Boundary definition is simple, <ul style="list-style-type: none">• i.e. the reference marks are readily available and in agreement such as CRMs in a Greenfield area.
Risk is minimal	Structures being surveyed are far enough from parcel boundaries such that an encroachment would be unlikely to occur



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Engineering Surveyor – Accreditation – Who and why

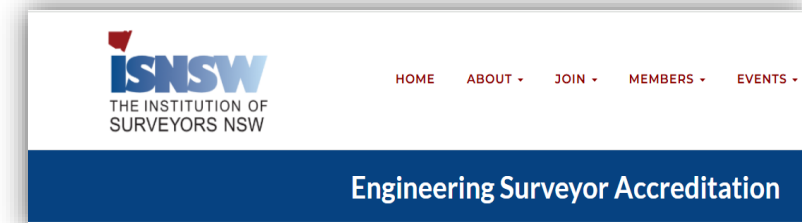
Who provides it?

- Surveyors Australia & ISNSW



Why? Ensure:

- Engineering construction meets the appropriate standards
- Engineering surveyors meet minimum competency standards



Engineering Surveyor – Accreditation

Perform prescribed engineering survey work

- Maybe certify ‘Work as Executed’ and ‘Volumetric surveys’

Boundary work to be done **under the supervision** of a Registered Surveyor.

Initially

- Include in contractual arrangements
- Future regulation or registration possible



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Engineering Surveyor – Accreditation

- Not legally required yet - May include in contractual arrangements
- Minimum qualification
 - Diploma, Advanced Diploma or Associate Degree?
- Minimum practical experience
- Ongoing training / CPD required
- An assessment process - Interviews or Exams



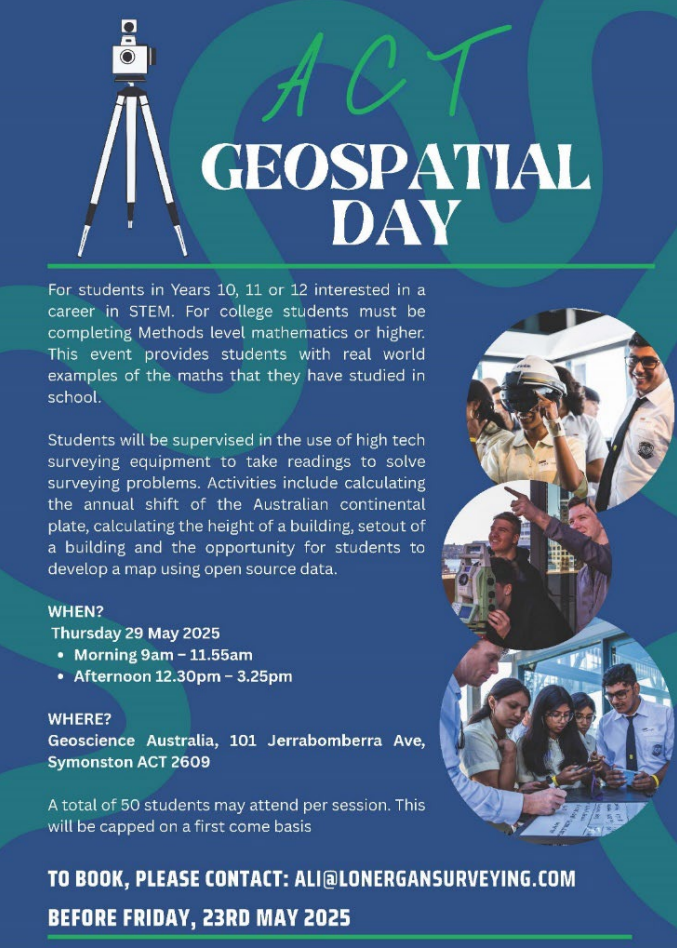
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Let's Locate Canberra 2025

ACT Geospatial Day

- Like Surveying Unleashed
- 29 May 2025 at Geoscience Australia
- 66 students – Double the previous year
- 1 day taster of surveying and spatial
- Surveying and Geospatial exercises
 - Plate tectonics
 - Building setouts with NRTK
 - Building heights with a total station
- A lead in event as part of the 'pipeline'.



The poster features a blue background with green circular patterns. At the top left is an icon of a surveying camera on a tripod. To its right, the text 'ACT GEOSPATIAL DAY' is displayed in a mix of green and white. Below this, there are three circular inset images showing students in various surveying activities: one using a total station, one pointing at a map, and one looking at a tablet. The text on the poster provides details about the event, including eligibility, activities, timing, location, and booking information.

**ACT
GEOSPATIAL
DAY**

For students in Years 10, 11 or 12 interested in a career in STEM. For college students must be completing Methods level mathematics or higher. This event provides students with real world examples of the maths that they have studied in school.

Students will be supervised in the use of high tech surveying equipment to take readings to solve surveying problems. Activities include calculating the annual shift of the Australian continental plate, calculating the height of a building, setout of a building and the opportunity for students to develop a map using open source data.

WHEN?
Thursday 29 May 2025

- Morning 9am – 11.55am
- Afternoon 12.30pm – 3.25pm

WHERE?
Geoscience Australia, 101 Jerrabomberra Ave,
Symonston ACT 2609

A total of 50 students may attend per session. This will be capped on a first come basis

**TO BOOK, PLEASE CONTACT: ALI@LONERGANSURVEYING.COM
BEFORE FRIDAY, 23RD MAY 2025**



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Let's Locate Canberra 2025

Geospatial and Planning

- 14 July to 18 July 2025
- 12 Students
- Used geospatial information in a planning project
- Collaborated with Planning Institute Australia
- At Canberra College in Phillip ACT



LET'S LOCATE
Canberra

LET'S LOCATE IS A GEOSPATIAL STEM SCHOOL HOLIDAY PROGRAM FOR YEARS 10 TO 12.

Let's Locate is a 5-day school holiday program where you'll get hands on with high tech equipment and explore how urban planning affects where you live. You will work with industry experts to solve a real world planning issue while using the latest geospatial capabilities in ACTmapi and the Digital Atlas of Australia.

Get hands-on with high-tech equipment, learn from industry experts, and discover how we map, survey and shape local communities.

If you're into tech, design or just want to see your world differently — this is for you!

14 - 18 JULY 2025

\$100 PER STUDENT - COVERS REGISTRATION & LUNCH FOR 5 DAYS
16 SPACES AVAILABLE - REGISTRATIONS CLOSE 22 JUNE

REGISTER HERE

ACT
ISNSW
SURVEYING CAREERS
PIA
Planning Institute Australia



ACT
Government

Office of the Surveyor-General

Let's Locate Canberra 2025

Surveying & mapping

- 29 September to 2 October 2025
- Campbell High School
- 15 Students –
 - 2 from the July event
 - Double last year
- Completed a detail survey and report then presented it to a client.
- About a third want to study surveying at Uni.
- Thanks to Caitlin Williams, Mitch Mackenzie and Damian Heffernan plus the other volunteers.



LET'S LOCATE
Canberra

LET'S LOCATE IS A SURVEYING & GEOSPATIAL STEM SCHOOL HOLIDAY PROGRAM FOR YEARS 10 TO 12.

Let's Locate is a 4-day school holiday program where you'll get hands on with high tech equipment and explore how surveying and mapping affects everything you do and where you live. You will work with industry experts to develop real world feature mapping while using the latest surveying and geospatial capabilities including ACTmapi.

Get hands-on with high-tech equipment, learn from industry experts, and discover how we map, survey and shape local communities.

If you're into tech, design or just want to see your world differently — this is for you!

29 SEPT - 2 OCT 2025

\$100 PER STUDENT - COVERS REGISTRATION & LUNCH FOR 4 DAYS
16 SPACES AVAILABLE - REGISTRATIONS CLOSE 21 SEPT

REGISTER HERE



Next year 2026



Grow the program

- Incorporate and coordinate all activities
 - Taster Day
 - Immersion events
 - Careers Expo
 - Careers Advisors
 - Attending schools
- Better structure ongoing engagement with students
- Thanks to everyone who presented, supported, assisted and sponsored this year
- Get involved.



Survey Practice Advisory Committee (SPAC) – What happened?

Late 2023, the Minister appointed 6 members

- Surveyor General – required under the *Surveyors Act*
- 2 Surveyors representing a Professional Entity (GCA)
- 2 Surveyors
- 1 Non-Surveyor – Land Titles

Later

- 1 Surveyor representing GCA left GCA and joined ISNSW
- 1 Surveyor was no longer registered

A 'surveyor' must be a Registered Land Surveyor



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Survey Practice Advisory Committee (SPAC) – What happened?

April 2025 – Meeting, action item to seek advice regarding the status of the 2 members

July

- Advice provided - Would a person qualify for membership where?
 - A Surveyor representing GCA left GCA – **NO** – Surveyor Resigned
 - A Surveyor was no longer registered – **NO** – Surveyor Resigned

August 2025

- Advice applied where:
 - A Surveyor representing GCA when it was liquidated – **NO** – Surveyor Resigned

A 'surveyor' must be a Registered Land Surveyor

Survey Practice Advisory Committee (SPAC) – What now?

Current membership (3) – Need a minimum of 5

- Surveyor General
- 1 Surveyor member
- 1 Non-Surveyor member

Replace the members

- 2 Professional entity surveyors - ISNSW
- More diversity - More non-surveyors?
- Recruitment later this year

A 'surveyor' must be a Registered Land Surveyor



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Survey Control in the ACT – Guideline No. 2

SP1 Ver 1.7 applies to cadastral work

- Surveyors Practice Directions 2023
- Class C3 for horizontal
- Class LC for levelling control marks currently.
 - Replaced by LD or B

Adapted the ICSM (SP1) Standards

- Additional levelling methods
 - Differential Levelling - Level
 - Differential levelling – Total Station (new)
 - 3D EDM Height Traversing (new)



Surveyor-General
of the Australian Capital Territory

Guideline No.2

Control Surveys

Office of the Surveyor-General and Land Information

ACT Government

September 2025



ACT
Government

Office of the Surveyor-General

Survey Control Network – Differential Levelling

- LC to LD for cadastral work
 - LD aligns with NSW
- LF for non-cadastral
 - 1 Way levelling
 - Misclose aligns with Detail Survey requirements in Guideline 15
- E.g. length of loop = 2.75 km
Misclose = 9 mm
 - $9 * \sqrt{2.75} = 14.924$ (Complies)
- **Meet all misclose conditions**



Item	LD Cadastral	LF Non-Cadastral
2 peg test – Start of work	Yes – Start of work	
Levelling loops	2 way	1 way
Max sight distance	100m	120 m
Record and apply temperature correction	Yes	Optional
Minimum ground clearance	0.2 m	0.2 m
Minimum No. of ESCMs to use	3	
Maximum misclose <ul style="list-style-type: none"> • For each loop and between control marks 	18 \sqrt{K} mm Forward and Backward runs	25\sqrt{K} mm Forward run only

Survey Control Network – Differential Levelling



- 1 fixed length pole & tilting prism
- LD for cadastral work
- LF for non-cadastral
 - 1 Way levelling
 - Misclosure standard aligns with Detail Survey requirements in Guideline 15.
- **Meet all misclose conditions**

Item	LD Cadastral	LF Non-Cadastral
Collimation test and correction	Start of each day	
Levelling runs	2 way	1 way
Max sight distance	150m	180 m
Record and apply temperature correction	Yes	
Minimum ground clearance	0.2 m	0.2 m
Rounds of angles - (FL – FR)	2	1
Maximum misclose <ul style="list-style-type: none"> • For loops 	18√K mm Forward and Backward runs	25√K mm Forward run only

Survey Control Network – 3D EDM traversing

- Includes the horizontal and vertical in the 1 survey
- * Equivalent to 2 way for Differential Levelling
- Max sight distance
- Reciprocal corrections
- Independent checks
- Class B - 2 rounds of angles
- **Meet all misclose conditions**

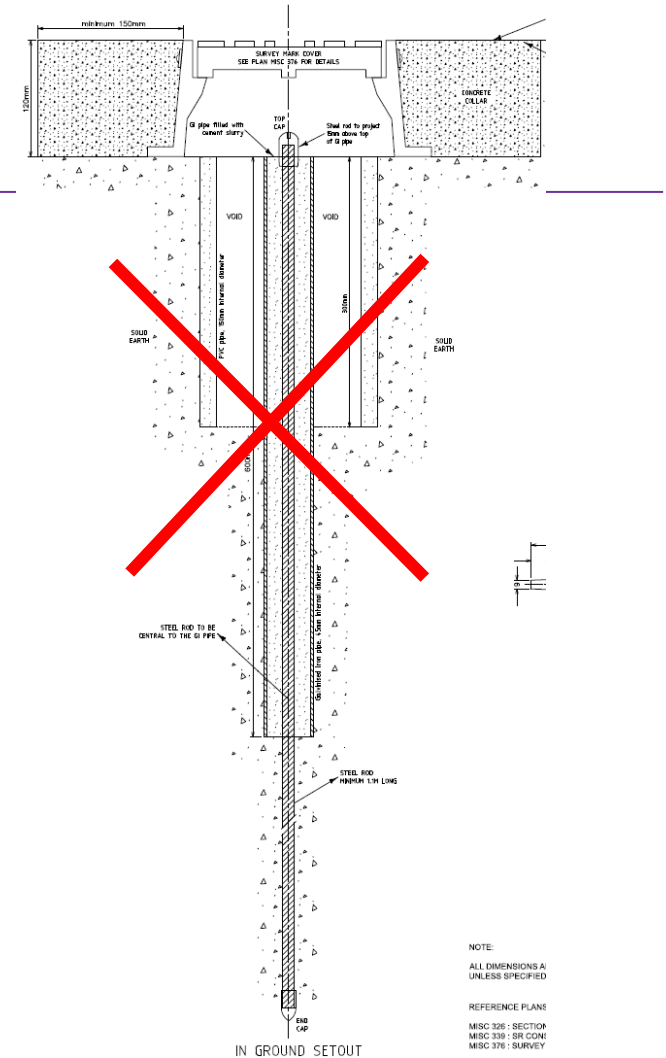


Item	B Cadastral	C Non-Cadastral
Collimation test and correction	Start of each day	
All targets to be on tripods	Yes *	
Levelling runs	1 way*	1 way*
Max sight distance	210m	250 m
Rounds of angles - (FL – FR)	2	1
No. of Distances – each way	4	2
Perform independent check of height differences between marks	Yes	Preferable
Maximum misclose for each loop, and between ESCMs.	18√K mm Forward run	25√K mm Forward run

Survey Control – Survey marks

Stainless Steel Rods (SRs are no more)

- Difficult to construct
- Cover boxes heavy – WHS issues.
- Expensive - More than **\$1000 each**
- We will keep some lids for maintenance
- *Can't use a NSW PM lid with the SR construction.*



NSW pin and disk not adopted - Poor results

- NSW maybe looking to phase them out



CRMs - Buried

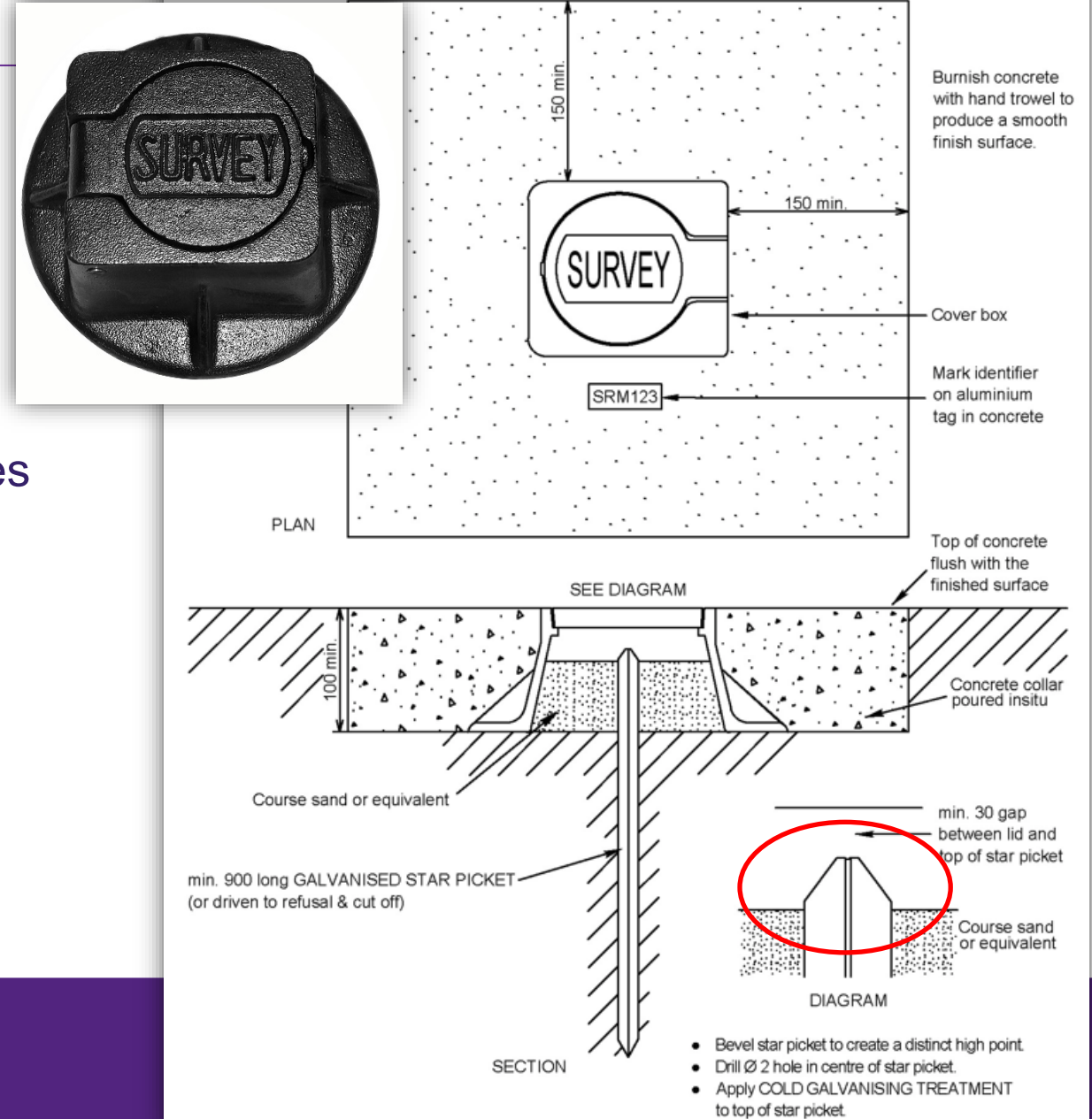
Replaced by In-ground star picket along with a PM cover box.

- Galvanised Iron Star Picket (GISP)
- Min length 900 mm
- Top of star picket bevelled & 2 mm hole
- Place 1m behind the kerb – Away from services

OSGLI kits will be supplied

- A 1350 long GISP
- PM cover box
- Mark identifier tag

Cost is about \$150 (To be confirmed)



CRMs - Buried

Plaque in Concrete block.

- Like a State Survey mark in NSW
- **Place 1m behind the kerb**

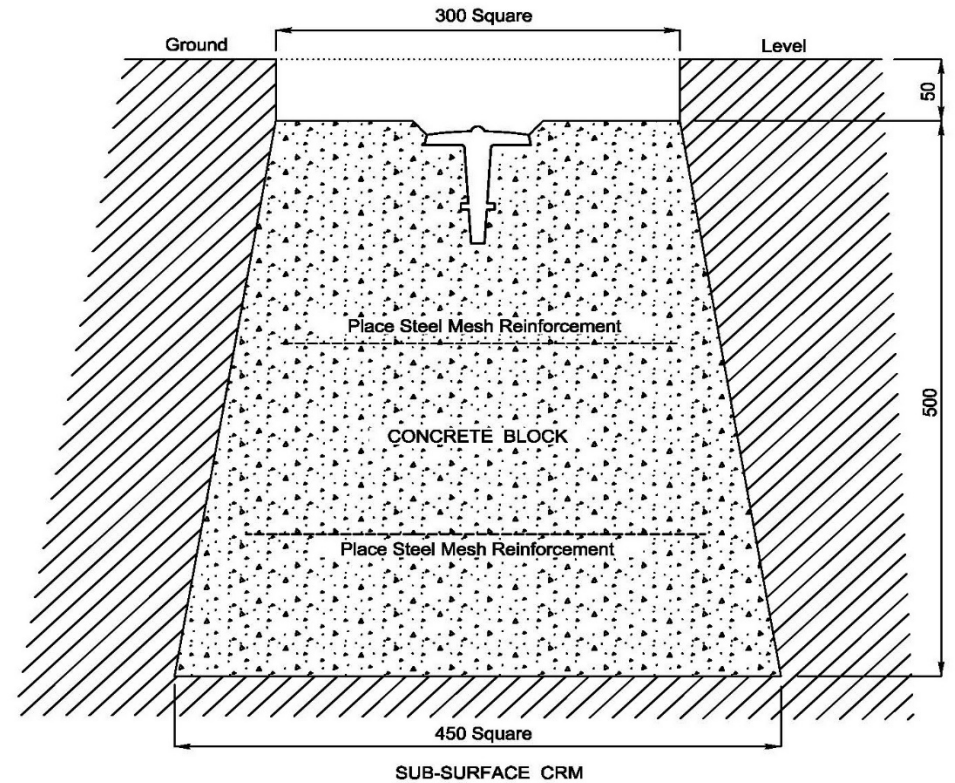
OSGLI kits will supply the

- Plaques cost about \$65 each

Note: There must be

- 2 buried CRMS per 100 blocks, or part thereof, in Greenfields, of which
- **1 must be a GISP which replaces the SR**

CO-ORDINATED REFERENCE MARK (CRM) BRASS PLAQUE PLACEMENT SPECIFICATIONS IN CONCRETE BLOCK



NOTE:

- 1) The CRM is to be placed in the top of a concrete block and cast in situ. The block must have a volume of concrete of at least 0.07 cubic metres and shaped as indicated above.
- 2) Steel mesh reinforcement is used to allow finding with ferrous metal detectors.
- 3) Depth below ground level may vary if a cover box is installed over the mark.

Amendments		
	Description	Date
A	Original Issue	Apr 2005
B	Addition of a CRM in concrete block	Jun 2008
C	General revision for 2008 SPDs	Nov 2008
D	General revision for 2010 SPDs	Aug 2012
E	Proforma update	Aug 2025

Notes:	
-	All dimensions are in millimeters.
-	Not to scale.
Sheet 4 of 4	Amendment E

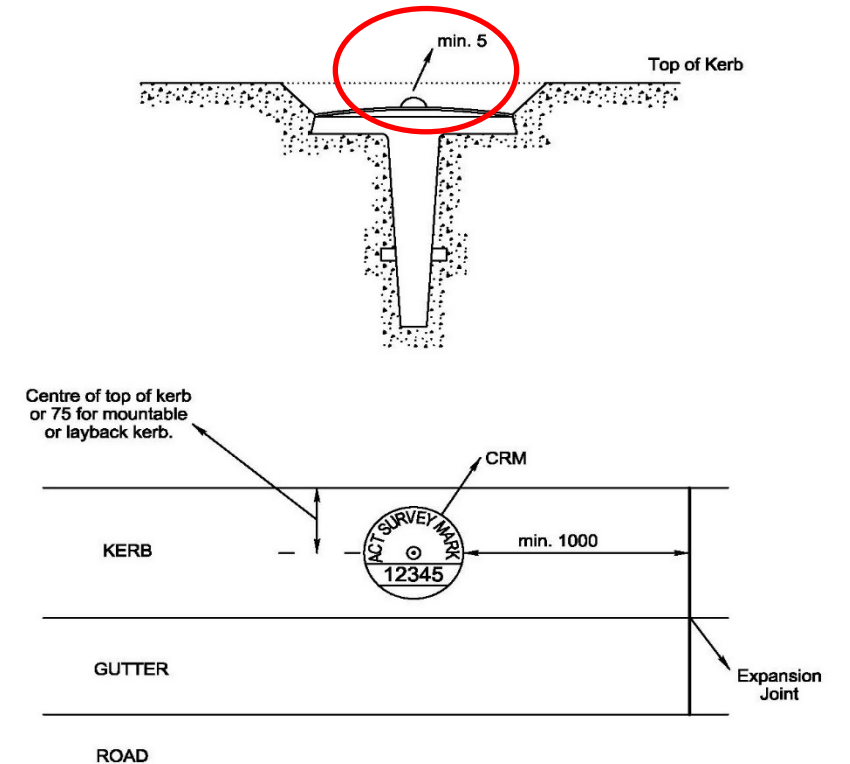
CRMs – Surface

Plaque in kerb.

- Like a State Survey mark in NSW
- Place when kerb is being laid
- **Raised point 5 mm below the top of kerb**
- **1m from expansion joints**
- Mark where the plaque is approximately to go for the kerbies.

OSGLI will supply the plaques at about \$65 each

CO-ORDINATED REFERENCE MARK (CRM) BRASS PLAQUE PLACEMENT SPECIFICATIONS IN NEW KERB



- NOTES: 1) The CRM casting must be placed in the kerb when concrete is being laid.
- 2) The CRM should be placed with the number facing the road and the top of the nipple must be at least 5 below the surrounding kerb.
- 3) The CRM must be placed at least 1 metre from kerb expansion joints.

Amendments		
	Description	Date
A	Original Issue	Apr 2005
B	Addition of a CRM in concrete block	Jun 2008
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Notes:
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- Not to scale.

Sheet 2 of 4 Amendment E

Control Survey Reports - Standardised

A standard report for all control surveys lodged with OSGLI, for:

- Greenfields
- OSGLI Contracts

The document – PDF

- Location
- Equipment
- Survey method
- Problems
- Identify Associate Surveyor
- Registered Surveyor & Signature

Control Survey Report

Location

District		Division	
Section		Stage (Greenfields)	
Project identifier		---	---

Equipment used

Instrument Type	Description, Make, Model	Serial Number	Calibration or Verification Date
Level			
Total Station			

Survey Method used

Survey Type	Survey Method	Identify which method used	Class of Survey
Horizontal	EDM traverse		
	GNSS		
Vertical	Differential – Analogue Level		
	Differential – Total Station		
	3D EDM Traversing		

Problems, doubts and discrepancies encountered

Issue or problem	Additional information

Associate Surveyor

Name	Company

Registered Surveyor

Name	Company	Jurisdiction

Signature:

Date:

Control Survey Reports

Attachments

- Control Survey Plan
- Field notes – ‘Reduced’
 - Levelling - Standard level Book format
 - Traverse – A/so Azimuth, Horizontal Distance, Vertical distance
- Least Squares Adjustment report - PDF
 - Minimally constrained
 - Fully Constrained³
- CRM Excel template
 - Coordinates
 - RLs *
 - Metadata

Attachments

Attachment A – Control Survey Plan

Attachment B – Field notes and reduced observations (pdfs)

Attachment C – Minimally Constrained Adjustment report (pdf)

Attachment D – Fully Constrained Adjustment report (pdf)

Attachment E – The CRM Information Template (.xlsx), including coordinates & metadata pursuant to SPD 12(d).

Note

The observations must be reduced to a ‘human readable’ form.

- Levelling observations must be put into a standard levelling field book format.
- Horizontal observations must include the observed:
 - Instrument and target survey control mark identifiers
 - Horizontal angles or bearings, slope distance and zenith angle
 - Instrument and target heights, and
 - Meteorological readings, including temperature and humidity.

The Least Squares Adjustment Report must include the:

- The ESCMs adopted for the minimally and fully constrained adjustments
- Original bearing, distance and/or height differences between control marks
- Weighting of observations
- Variance factor, and
- Adjusted bearing, distance and/or height difference between control marks.

Control Survey Reports

Least Squares report

- Survey Control Marks adopted
- Original reduced observations
- Weighting of observations
- Variance factor
- Adjusted observations etc

Attachments

Attachment A – Control Survey Plan

Attachment B – Field notes and reduced observations (pdfs)

Attachment C – Minimally Constrained Adjustment report (pdf)

Attachment D – Fully Constrained Adjustment report (pdf)

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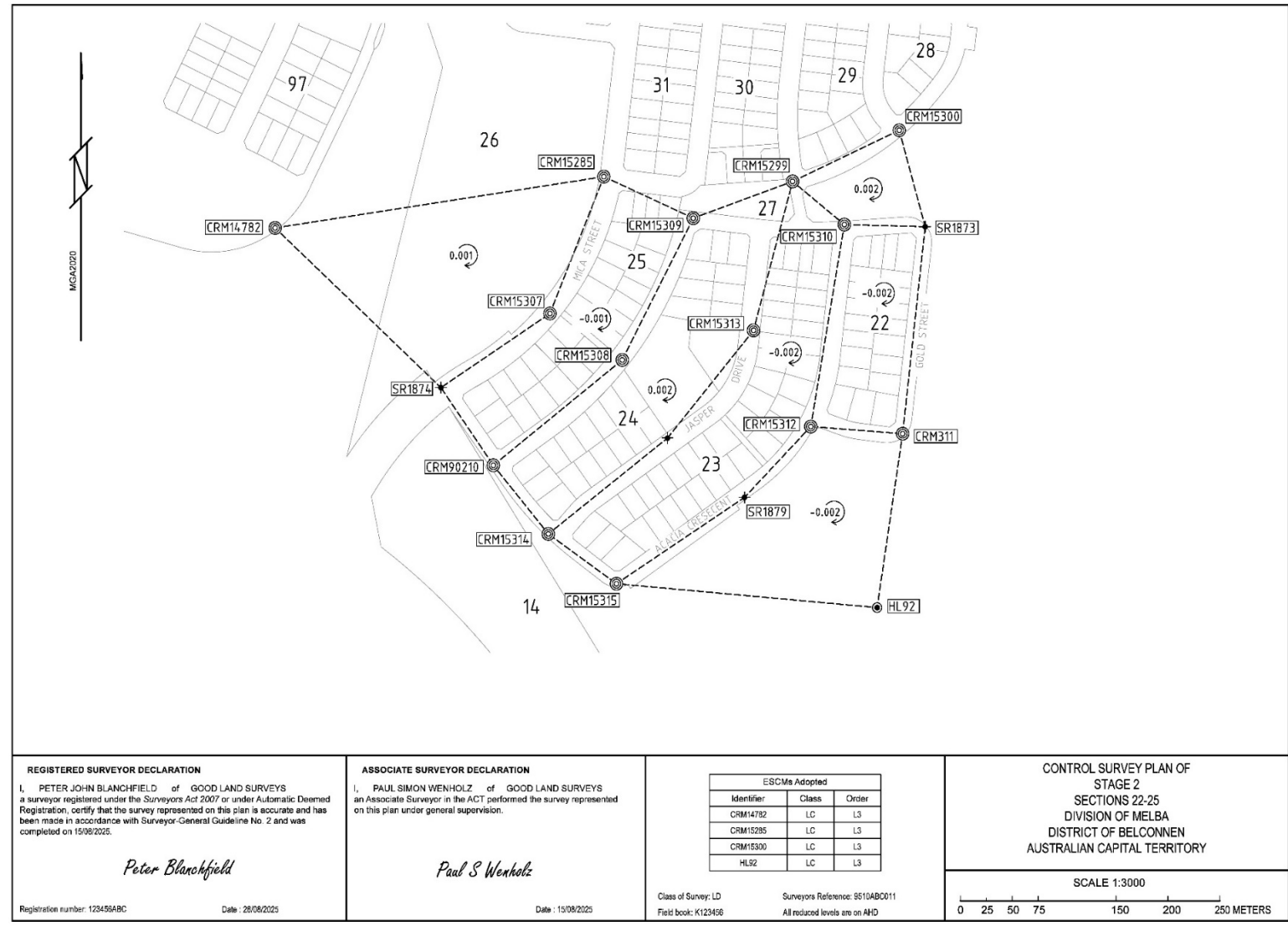
Control Survey Plans – Option 1 - Show

Panels - Show

- Registered Surveyor Certification
- Associate Surveyor Certification (Optional)
- Survey Control marks adopted
- Location identifiers

Drawing area

- Levelling loops with
- Loop miscloses



REGISTERED SURVEYOR DECLARATION
 I, PETER JOHN BLANCHFIELD of GOOD LAND SURVEYS a surveyor registered under the Surveyors Act 2007 or under Automatic Deemed Registration, certify that the survey represented on this plan is accurate and has been made in accordance with Surveyor-General Guideline No. 2 and was completed on 15/08/2025.

Peter Blanchfield

Registration number: 123456ABC Date: 28/08/2025

ASSOCIATE SURVEYOR DECLARATION
 I, PAUL SIMON WENHOLZ of GOOD LAND SURVEYS an Associate Surveyor in the ACT performed the survey represented on this plan under general supervision.

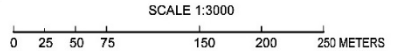
Paul S Wenholtz

Date: 15/08/2025

ESCMs Adopted		
Identifier	Class	Order
CRM14782	LC	L3
CRM15285	LC	L3
CRM15300	LC	L3
HL92	LC	L3

Class of Survey: LD Surveyors Reference: 9610ABC011
 Field book: K123456 All reduced levels are on AHD

CONTROL SURVEY PLAN OF STAGE 2 SECTIONS 22-25 DIVISION OF MELBA DISTRICT OF BELCONNEN AUSTRALIAN CAPITAL TERRITORY



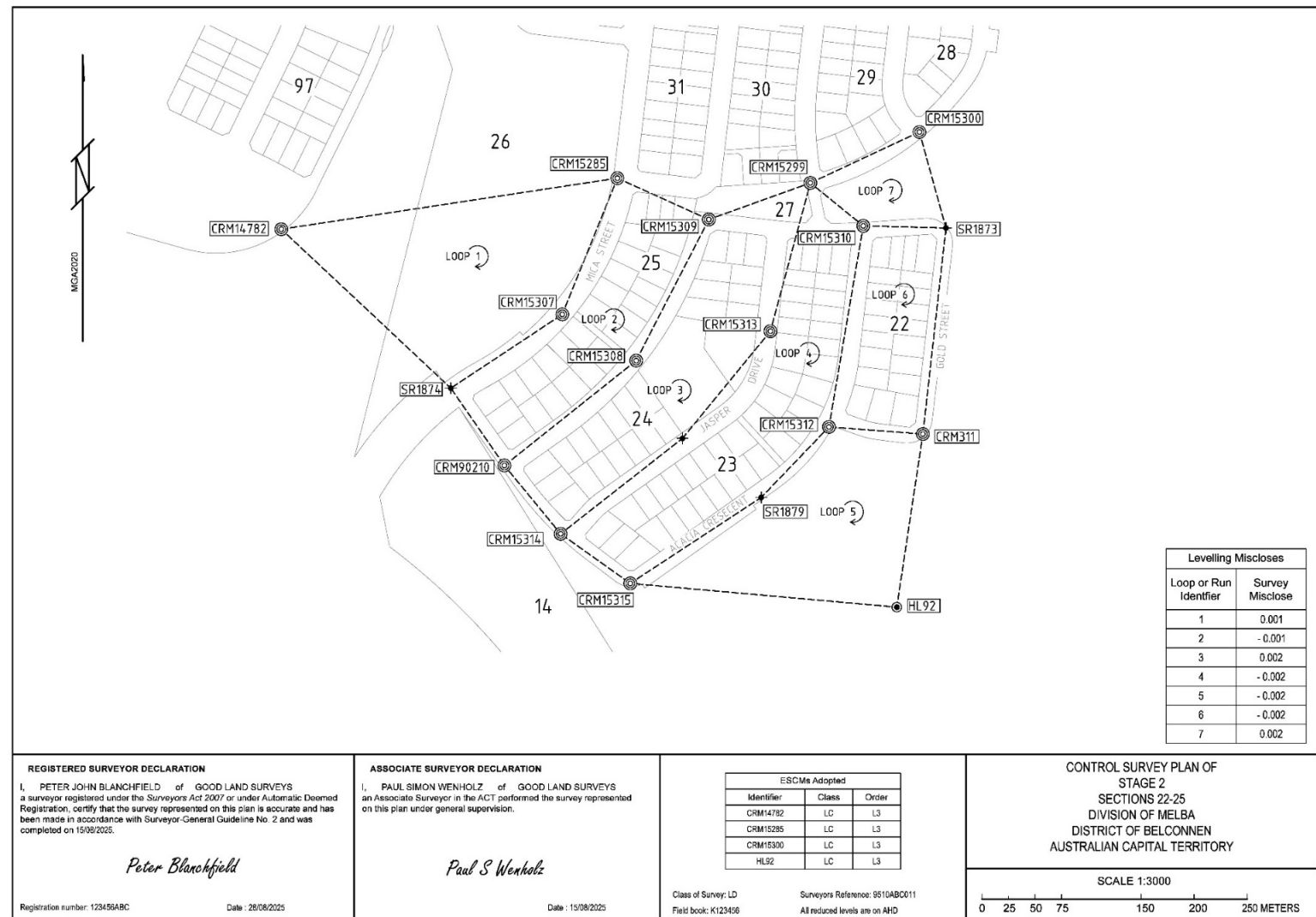
Control Survey Plans – Option 2 - Show

Panels

- Registered Surveyor Certification
- Associate Surveyor Certification (Optional)
- Survey Control marks adopted
- Location identifiers

Drawing area

- Levelling loops with
- Loop miscloses in a table



Survey Control in the ACT – 3D positioning program

Provide 3D position on Control Marks across older Divisions.

- Horizontal position on
 - Kerb Benchmarks
- Reduced Level:
 - Flat style CRMs with no level currently
 - KBMs with UU RLs and poor horizontal position
 - SRs with no level
 - Temporary Benchmarks
- A mix of LD/B and LF/C
- This has been slowed due to ACT Government budget issues.



ACT
Government

Office of the Surveyor-General

A wide-angle landscape photograph taken during the golden hour of sunrise or sunset. The sky is a mix of soft pinks, oranges, and blues. The sun is a bright, glowing orb on the left side of the frame. In the foreground, there are rolling green hills with a paved road lined with young trees. A modern building with a distinctive triangular roof structure sits on a hill to the right. In the distance, a misty valley is visible, and two hot air balloons are floating in the sky. A tall, thin tower is visible on a hill to the left.

Thank you