



ASaTS – Session with ICS

February 2017

ICS Meeting Agenda

Item	Topic	Time	Who
1.	Welcome & Introductions	1.00	James Mowat
2.	ASaTS Project information	1.15	James Mowat
3.	ASaTS Survey Innovations	2:00	James Mowat/Phil Davison
4.	Wrap up	2.45	James Mowat

About LINZ

We make sure New Zealand has accurate information about where people and places are, people have confidence in their property rights and Crown property is well managed for future generations.

Official record of New Zealand land boundaries, survey plans and measurements.

Geometrical/spatial relationships between the connectivity of features, adjacency of polygons and relationships to attributes.

Infrastructure used to accurately define location and height on land and sea

Our responsibilities include managing land titles, **geodetic** and **cadastral** survey systems, **topographic** information, **hydrographic** information, managing **Crown property** and supporting government decision making around foreign ownership.

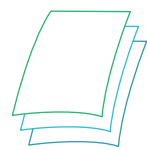
Owned by Her Majesty The Queen, who is the head of State of New Zealand.

Data for New Zealand's area of responsibility – covering the coastal waters around New Zealand and parts of both the Antarctic and the South-West Pacific

A **SHARED AMBITION**: support a thriving New Zealand

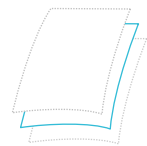


Trusted, quality property information **UNDERPINS THE ECONOMY** by providing confidence in property ownership



Our strategic objectives at LINZ :

- ▶ Increase the use of geographic information
- ▶ Unlock the value of property
- ▶ Improve resilience to natural events



Within **PROPERTY RIGHTS** we're looking to transform our systems and tools so that we:

- ▶ Increase the use of geographic information
- ▶ Unlock the value of property



We are responsible for a piece of critical New Zealand infrastructure

That means mitigating the risk to our capability that would otherwise be inherent in the current system by 2020.

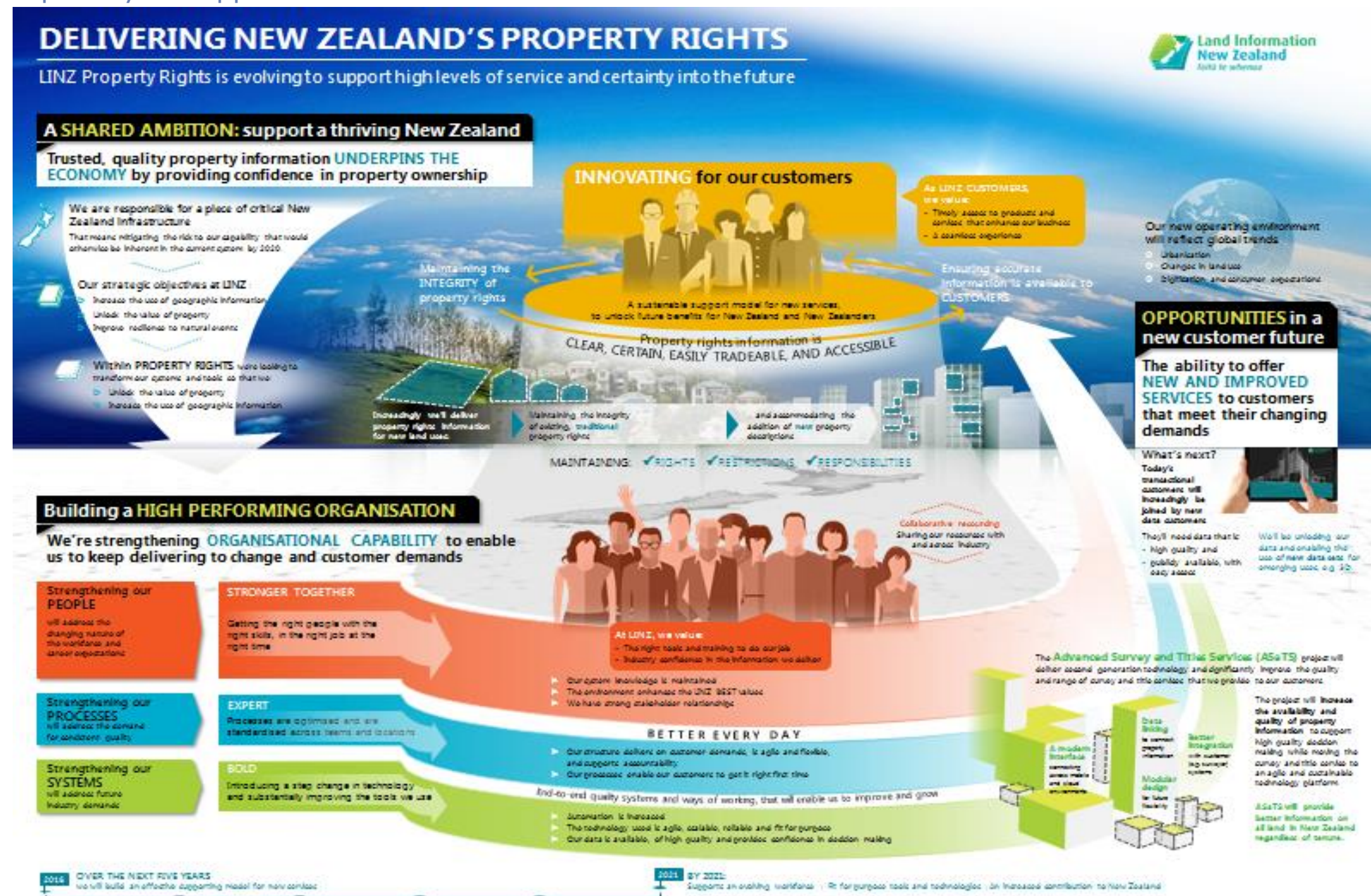
Property Rights Group

200 specialist staff that support the national Cadastral Survey and Land Title Systems. These systems form the basis of New Zealand's land property rights market.

Responsible for the online e-lodgement system (Landonline) which has over 10,000 professional users (conveyancers and lawyers). Alongside LINZ staff these users collectively conduct over 3.5 million searches and transactions per year through Landonline.

CHANGE PORTFOLIO

Property Rights will be impacted by a large number of changes over the next five years. The image below demonstrates the change journey and emphasizes the importance of the need to be agile to changing customer need and demand and how we will strengthen our people, process and system capability to support this.



Property rights information will continue to be:
CLEAR, CERTAIN, EASILY TRADEABLE, AND ACCESSIBLE

INNOVATING around the customer



**A sustainable support model for new services,
to unlock future benefits for New Zealand and New Zealanders**

Maintaining the
INTEGRITY of
property rights

Ensuring accurate information is
available
to **CUSTOMERS**

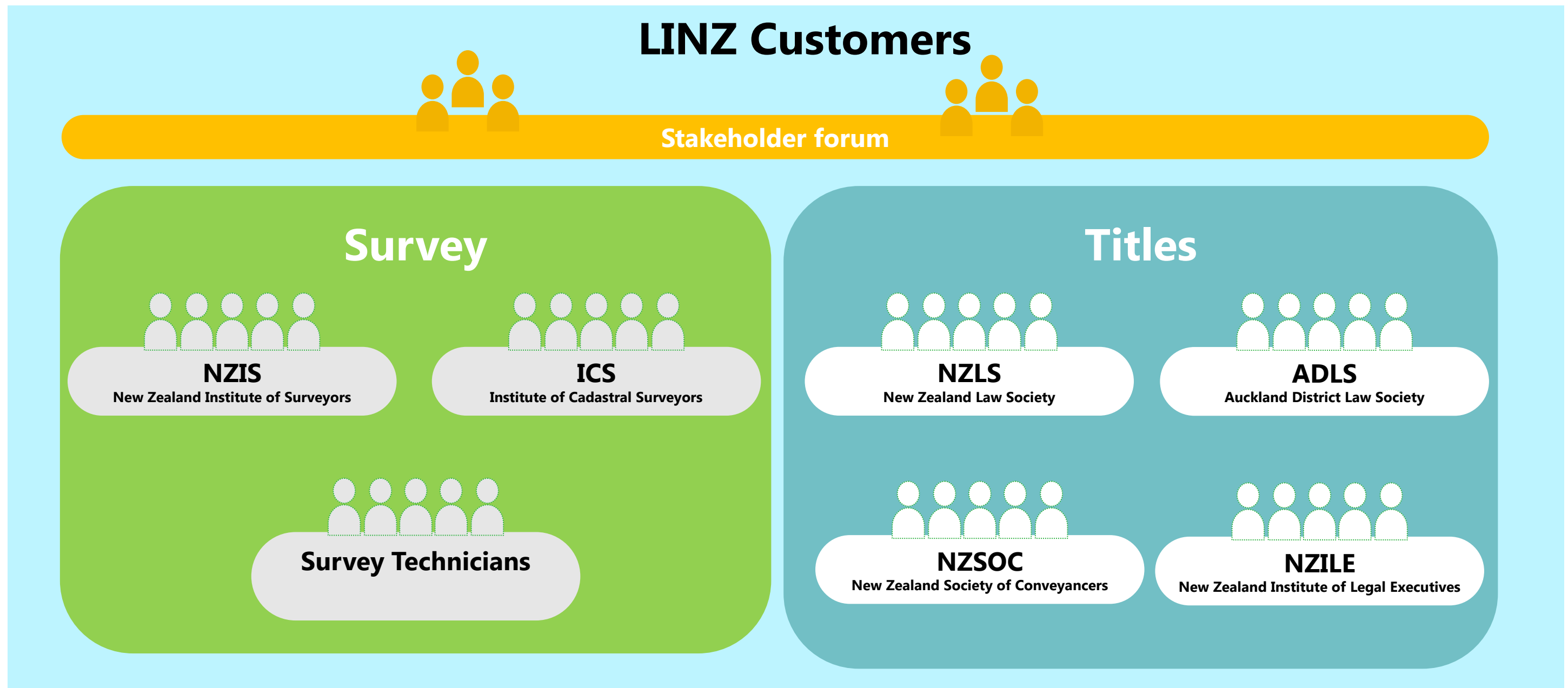
Increasingly we'll deliver property rights information FOR NEW LAND USES:



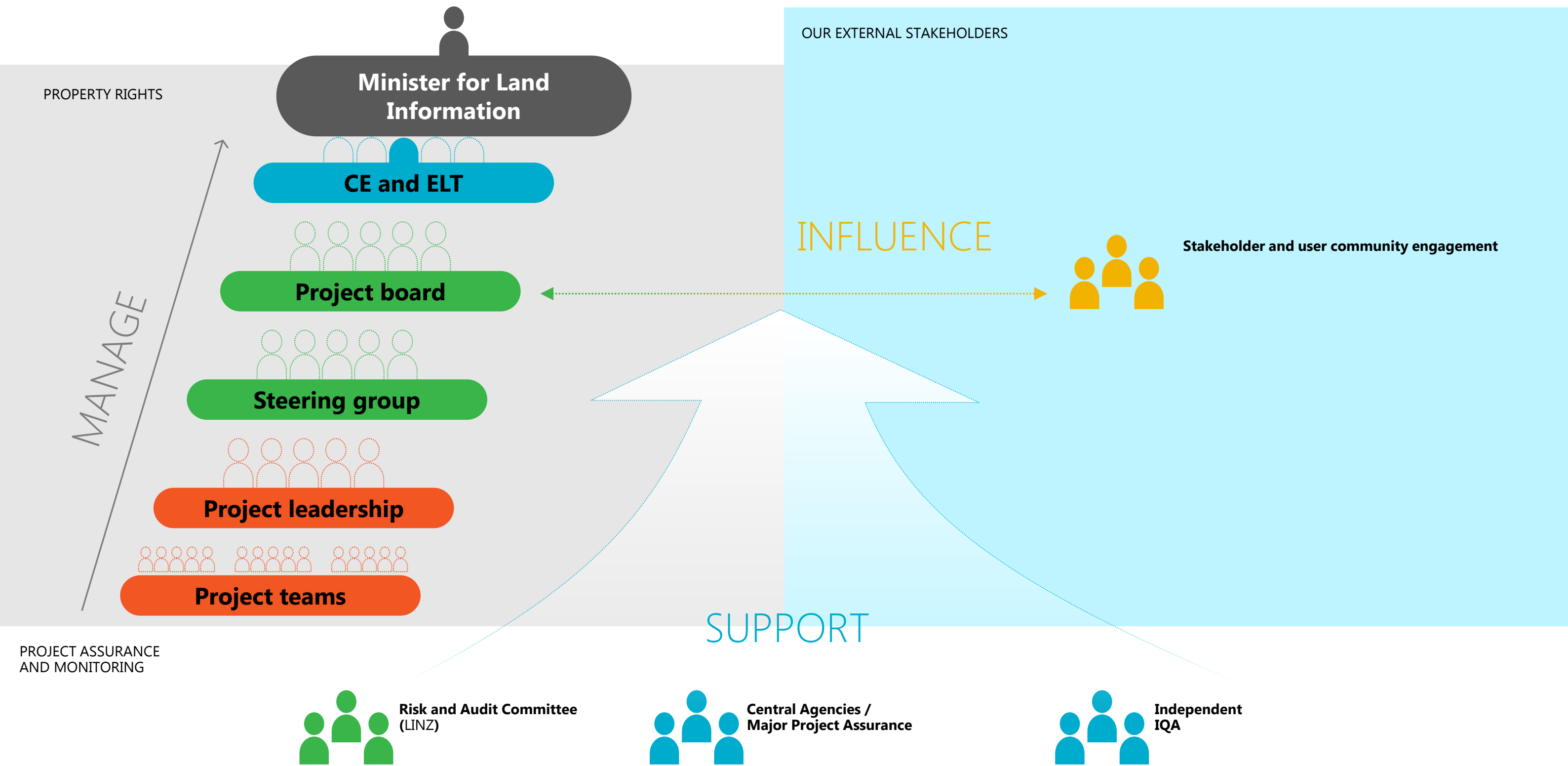
► Maintaining the integrity
of existing, **traditional**
property rights

► ... and accommodating
the addition of **new land
use** property descriptions

ASaTS Customer Engagement



Managing, influencing and supporting our future property rights information



Project Stages



What is 'As a Service (aas)'?

ASaTS is being delivered using Software as a service (SaaS) in which a third-party provider builds and owns the application and makes it available to customers.

The ASaTS application will be hosted at a Government approved datacentre in New Zealand and LINZ will retain ownership of the data.

Benefits

Requires no new investment from the Crown

Is a step towards the future direction of government investment in critical IT systems with potential to replicate this investment model in other agencies

What will this mean for Customers?

Enhanced customer release cycle.

Investigating the integration of 3rd party applications.

The detail of the changes will be understood towards the end of the design phase.

Other Activities

British Columbia LTSA



Other activities going on in LINZ

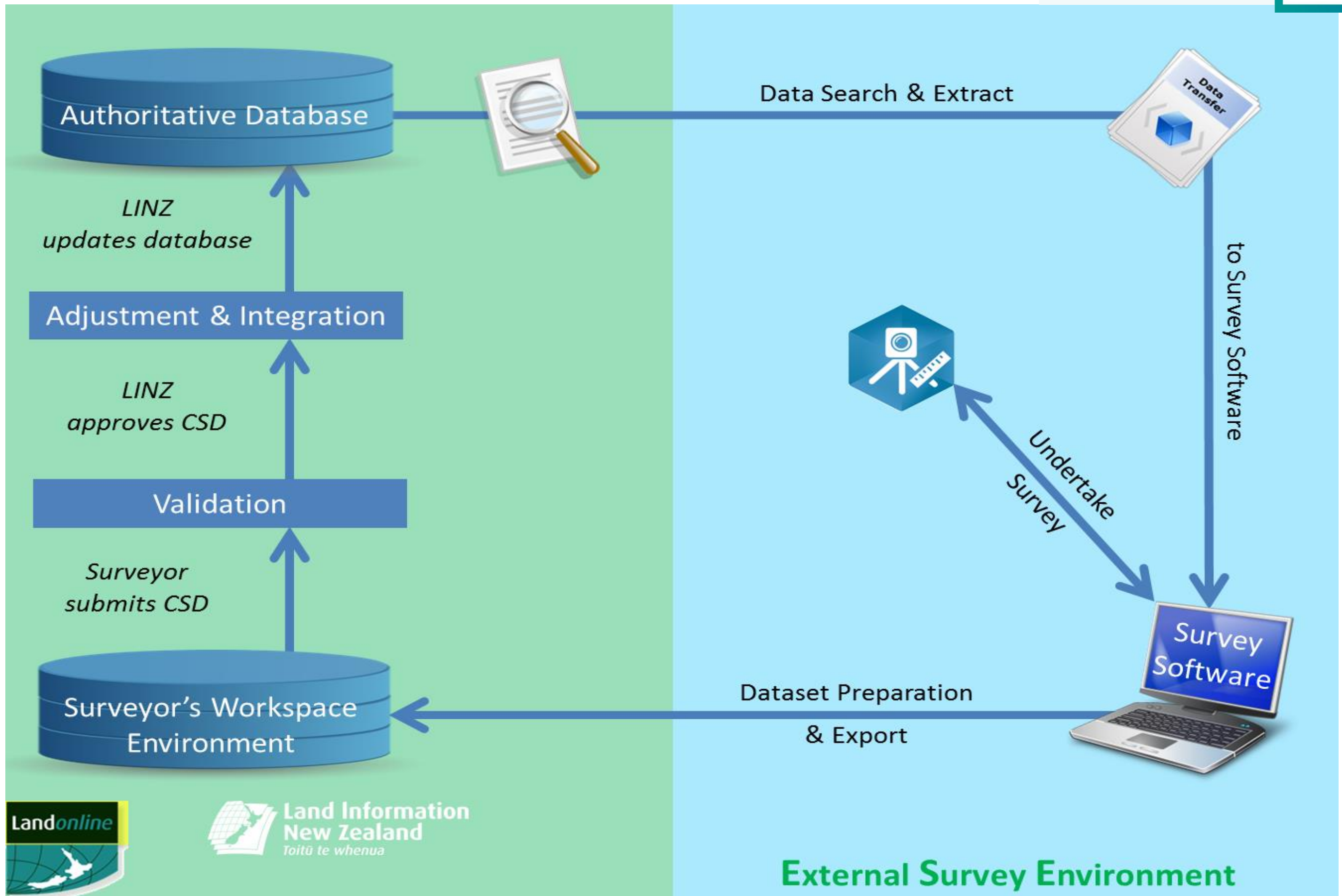
- RealMe
- Lol infrastructure change

ASaTS Survey Innovations

- **Cycle of Cadastral Survey Data**
 - From Landonline to ASaTS
- **Innovations**
 - 3D Digital Cadastre
 - Spatial Objects
 - Improved Integration with Third-party Survey Software
 - Dataset Preparation in Third-party Software
 - Plan Production in Third-party Software
 - Validation as a Web Service
 - Need for CSD & Title Plan
 - Plan Production in Third-party Software
 - Discontinue Survey-accurate Digital Cadastre (SDC) status

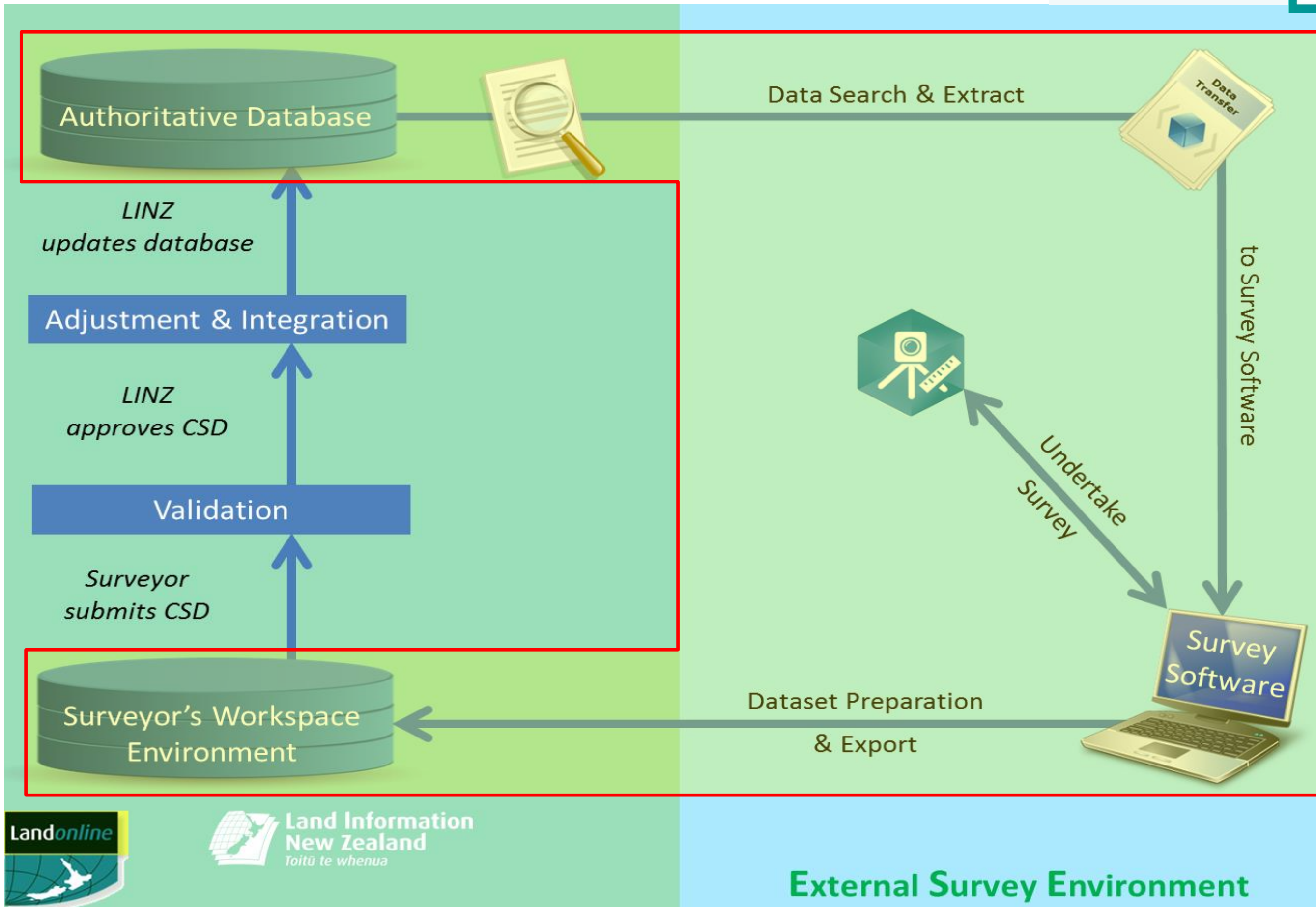
Cycle of Cadastral Survey Data – Landonline

ASaTS



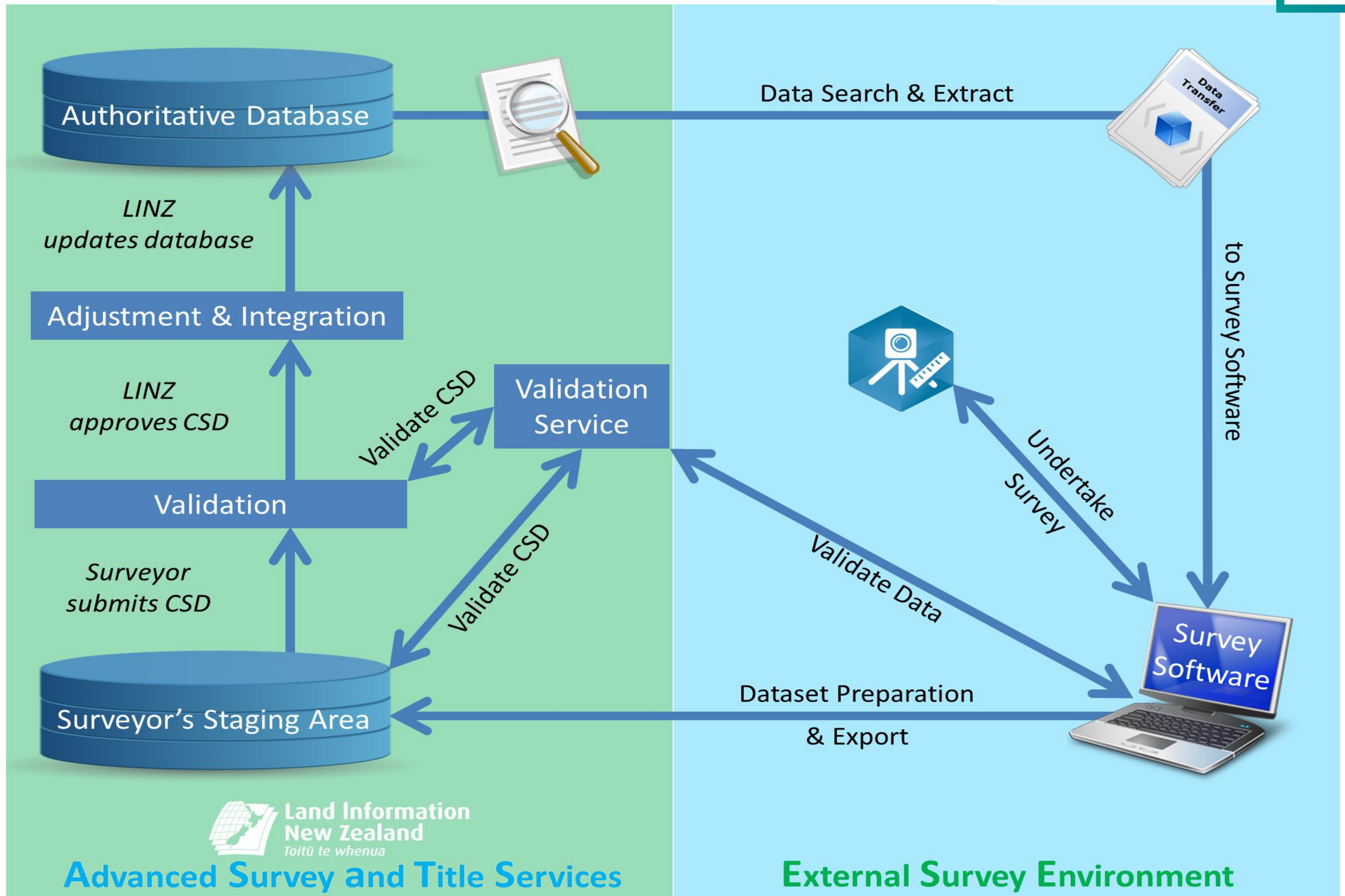
Cycle of Cadastral Survey Data – Landonline

ASaTS



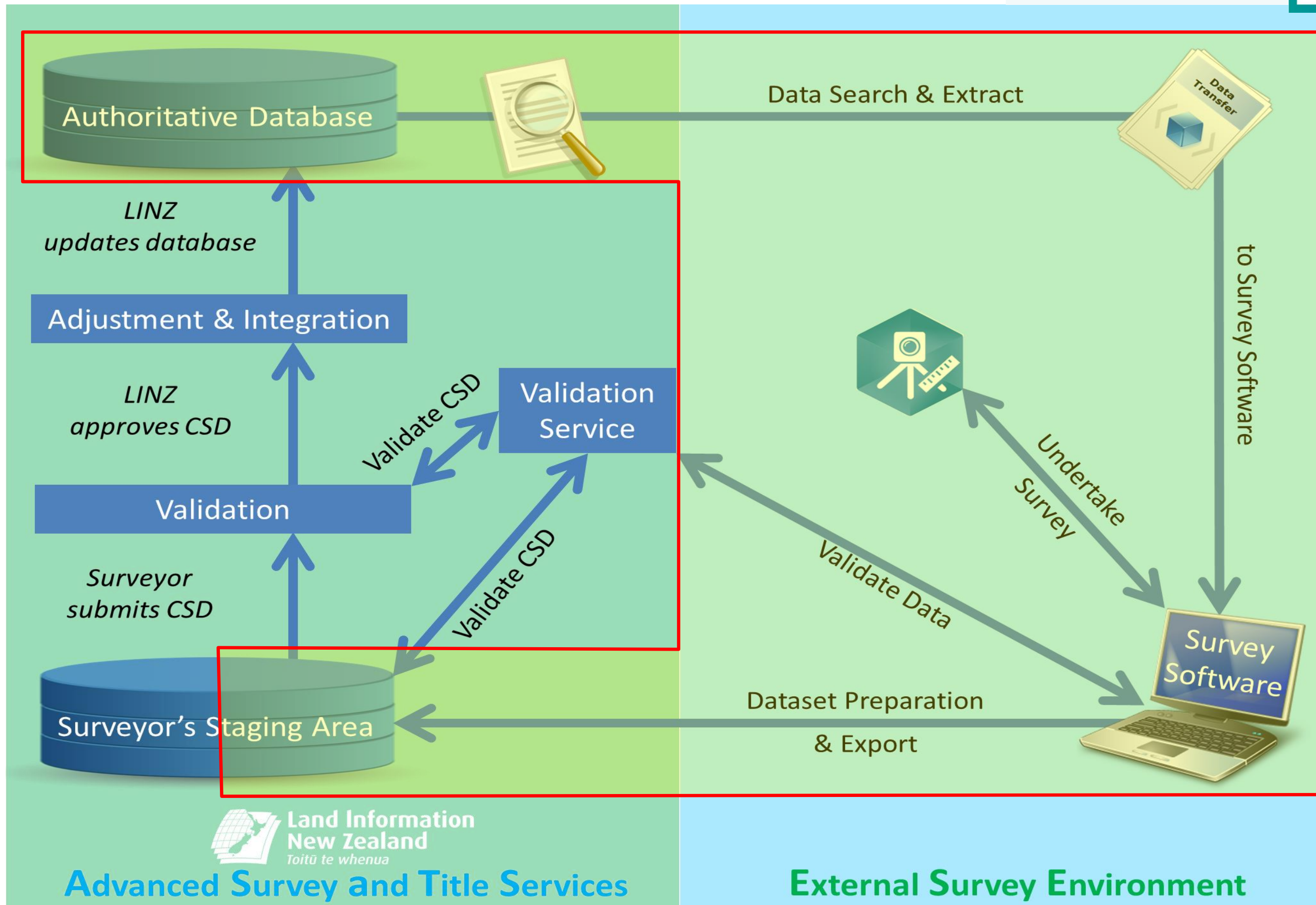
Cycle of Cadastral Survey Data – ASaTS

ASaTS

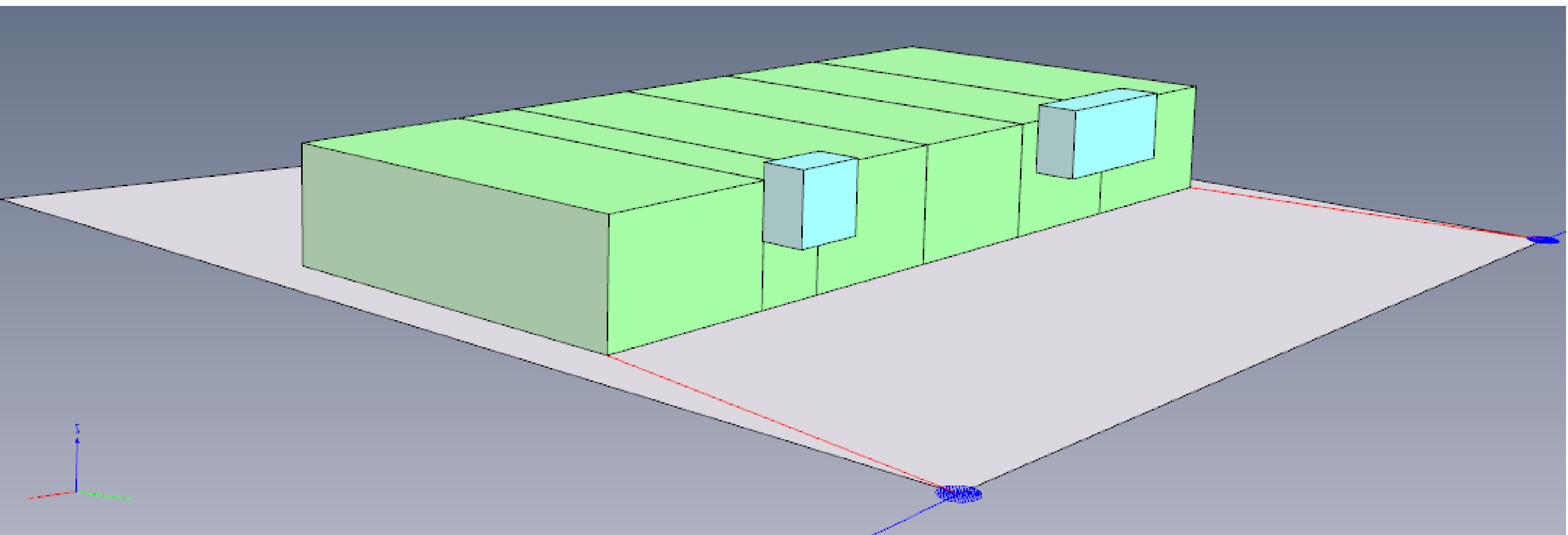


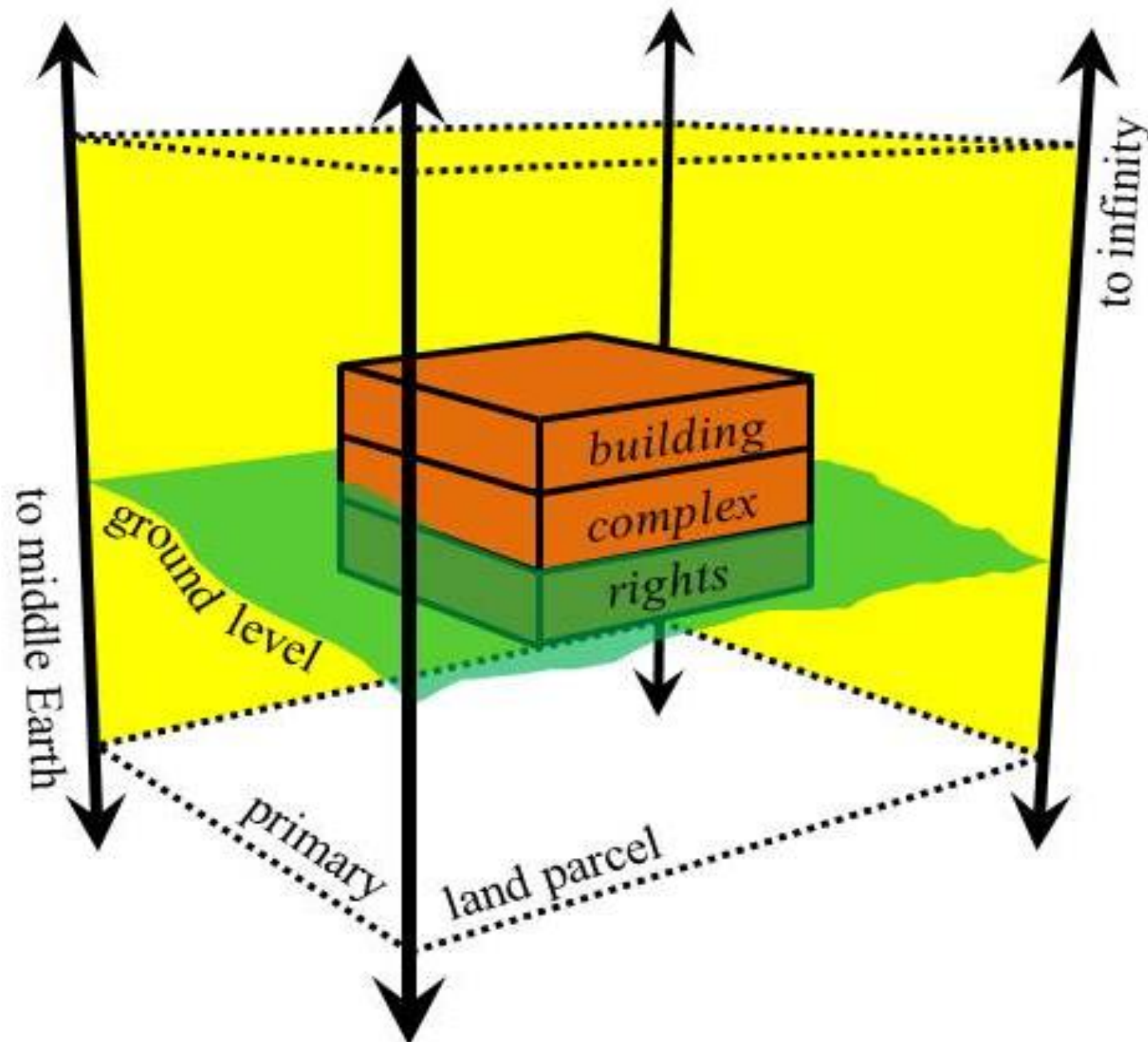
Cycle of Cadastral Survey Data – ASaTS

ASaTS



3D Digital Cadastre





Extents of property rights in New Zealand

Source: Gulliver T F D, (2015)

15456

— WAITAKI BLUFF RAILWAY. —

15456

Area	Section	Block	District
0 2 301	pt. of 28 & 29 and 1st 7 L.T. Plan 1514	VI	Town
0 0 045	pt. Allots 6 & 8 L.T. Plan 1514		
0 0 157	pt. Road		
1 3 046	pt. 29, 37, 38, 39, 40	VI	
	(end pt. Allots 15, 14 & 7 & 8 L.T. Plan 1514)		
0 0 287	pt. road		
0 0 045	pt. Allot 13 L.T. Plan 1514		
0 0 151	road		
0 0 002	road		
0 0 163	road		
2 0 090	40, 43, 44, 35	VI	
	1	AV	D & E Taieri
0 0 177	pt. road		
0 2 061	1		
1 0 201	36, 37, 38	V	Lower Kaikorai

Subsoil required for Railway Purposes for the Dunedin Mosgiel Duplication.
taken under Sections 29 & 198 of the Public Works Act 1908 & Section 2 of the Public Works Act Amendment 1908.

Being that portion of the hereinafter mentioned Sections, edged Red on this plan and extending from the centre of the Earth not to the surface thereof but up to a line edged Red on the Longitudinal Section here in under which line is 10 feet above centre of roof of the new Caversham Tunnel.

parts of Sections 28, 29, 32, 35, 36, 39, 40, 43 & 44, Block VI, Town District.
part of Section I, Block XV, Dunedin & East Taieri District.
also parts of Sections 36, 37, 38, Block V, Lower Kaikorai District.

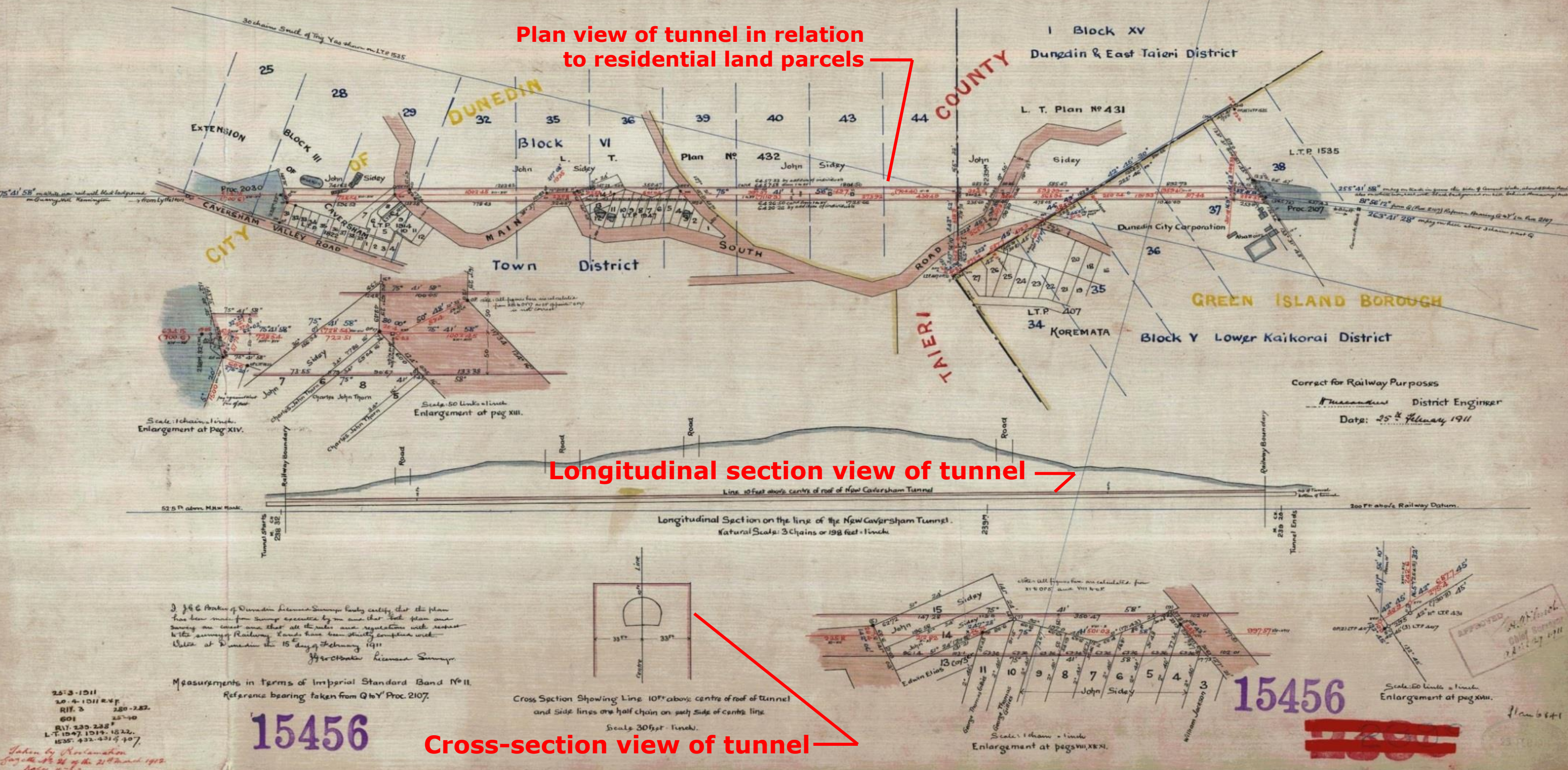
J.G.C. Baker Licensed Surveyor Dunedin Feb 1911.

Scale: 3 Chains = 1 inch.

Plan view of tunnel in relation to residential land parcels

Longitudinal section view of tunnel

Cross-section view of tunnel



I, J.G.C. Baker of Dunedin Licensed Surveyor hereby certify that the plan has been made for survey executed by me and that the plan and survey are correct and that all the rules and regulations with respect to the surveying of Railway Lands have been strictly complied with. Witness at Dunedin the 15 day of February 1911.
J.G.C. Baker Licensed Surveyor.

Measurements in terms of Imperial Standard Band No. 11.
Reference bearing taken from Q to Y Proc. 2107.

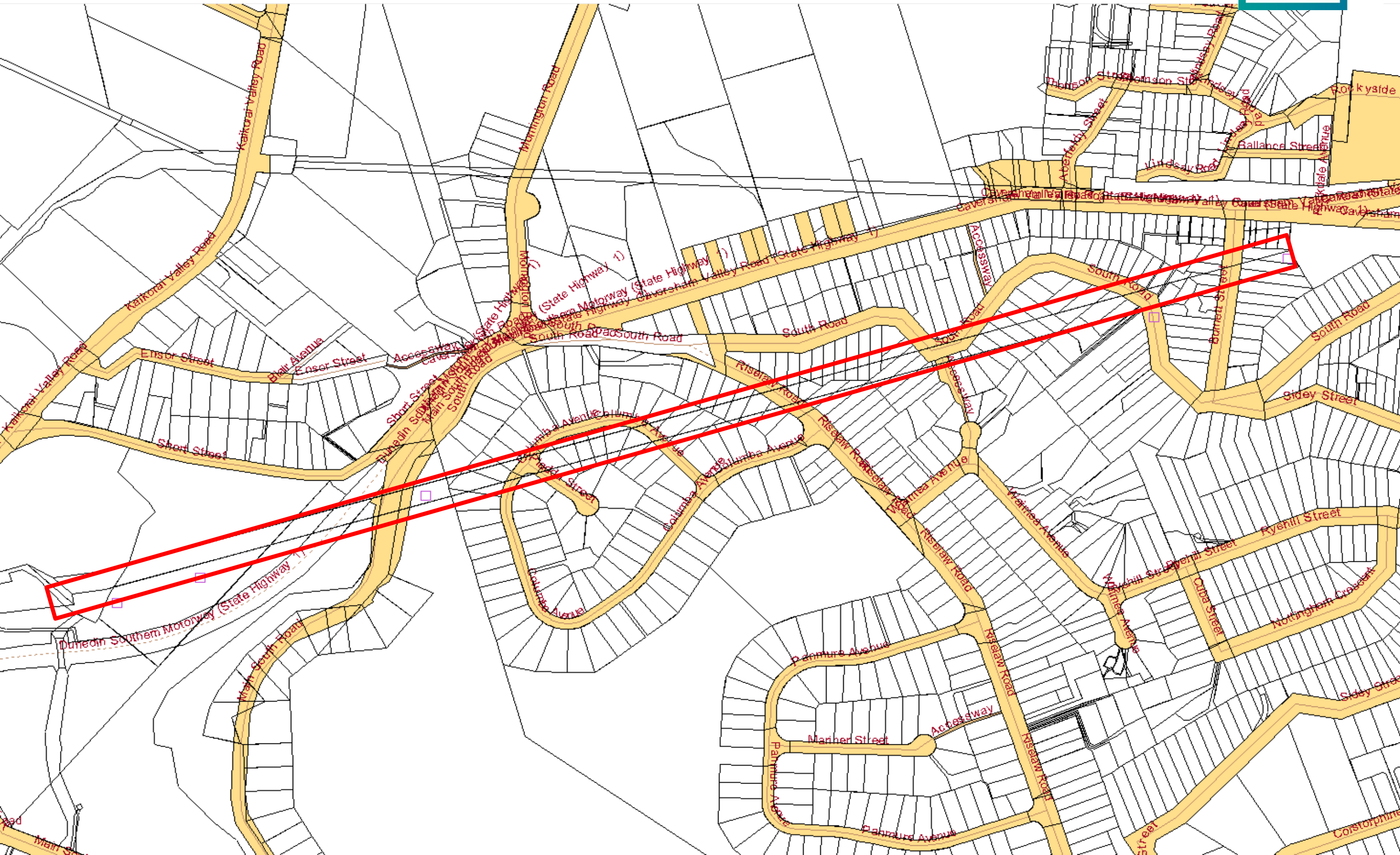
25.3.1911
20.4.1911 R.V.P.
R.V.P. 3 280-282.
601 25-40
R.V.P. 235-238
L.T. 1514, 1519, 1522.
1535, 432, 431 & 407.

Taken by Reservation
Sergeant J. H. 24 of the 21st March 1912.
Page 1672.

Correct for Railway Purposes
District Engineer
Date: 25th February 1911

Scale: 30 links = 1 inch
Enlargement at page VIII.

APPROVED
Chief Surveyor
25th Feb 1911



Digital Cadastre ≠ Legal Cadastre



A 3D Digital World



Case Study: 3D Unit Title Development



Current Layers
 All Layers
 Labels

☒ SEARCH: Plan Reference
☐

☒ Registered Survey Plan Refs.
 + Label Point

☒ Approved Survey Plan Refs.
 + Label Point

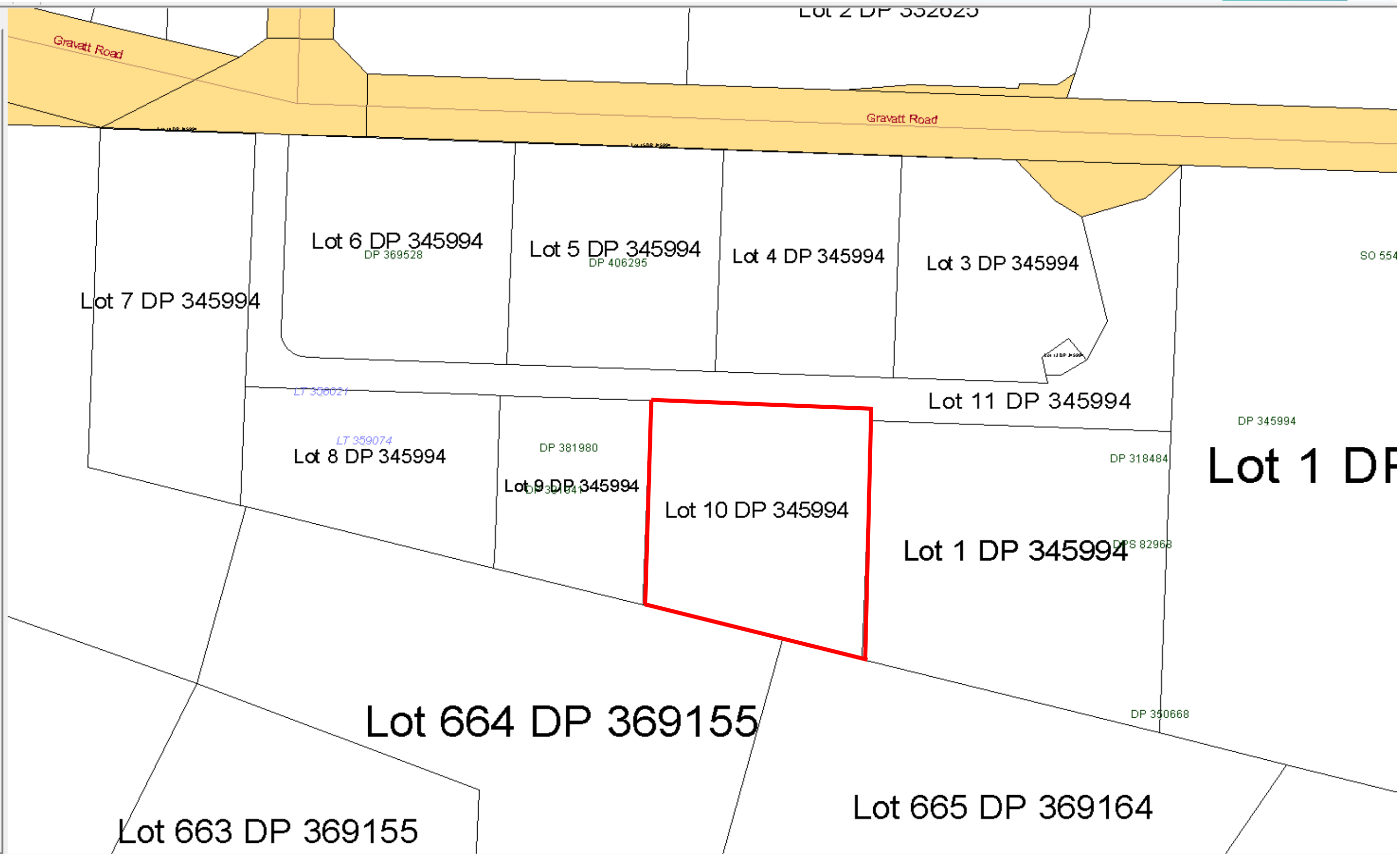
☒ Provisional Survey Plan Refs.
 + Label Point

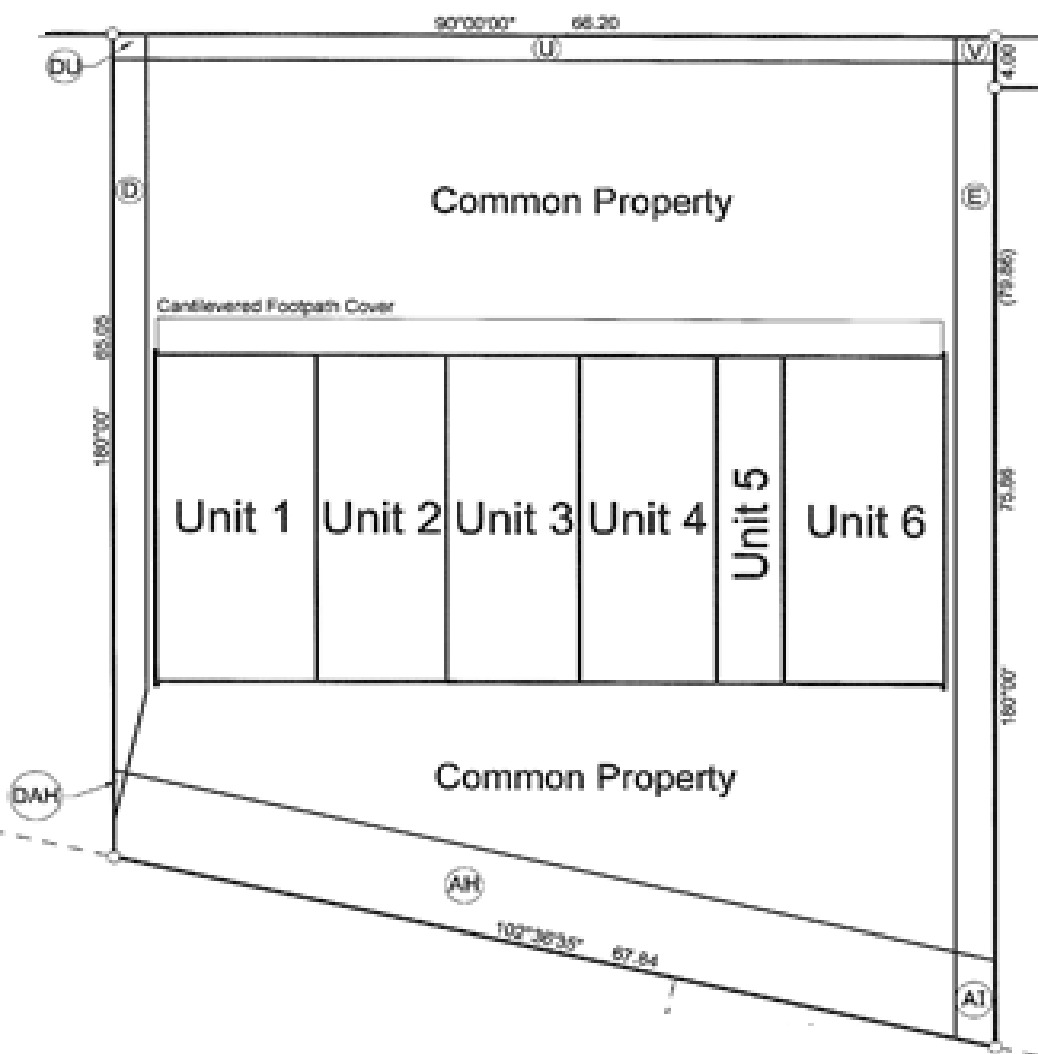
☒ Withdrawn Survey Plan Refs.
 + Label Point

☐ Street Address

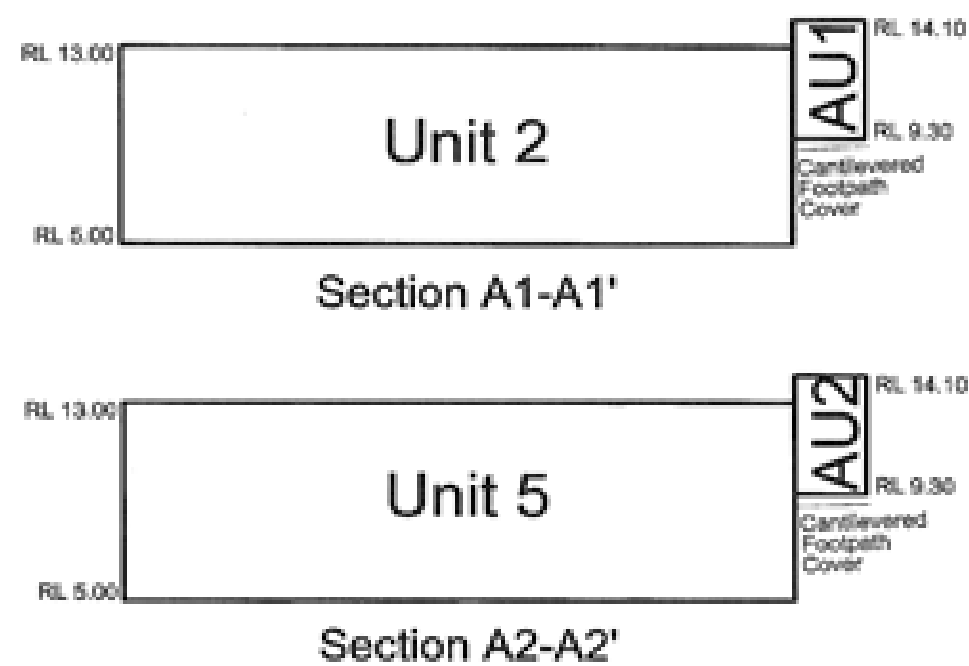
☒ Road-Cur-Centreline
 — Cadastral
 - - - Non Cadastral

☒ Live-Parcels-All
 Road
 Hydrographic
 Other Parcels

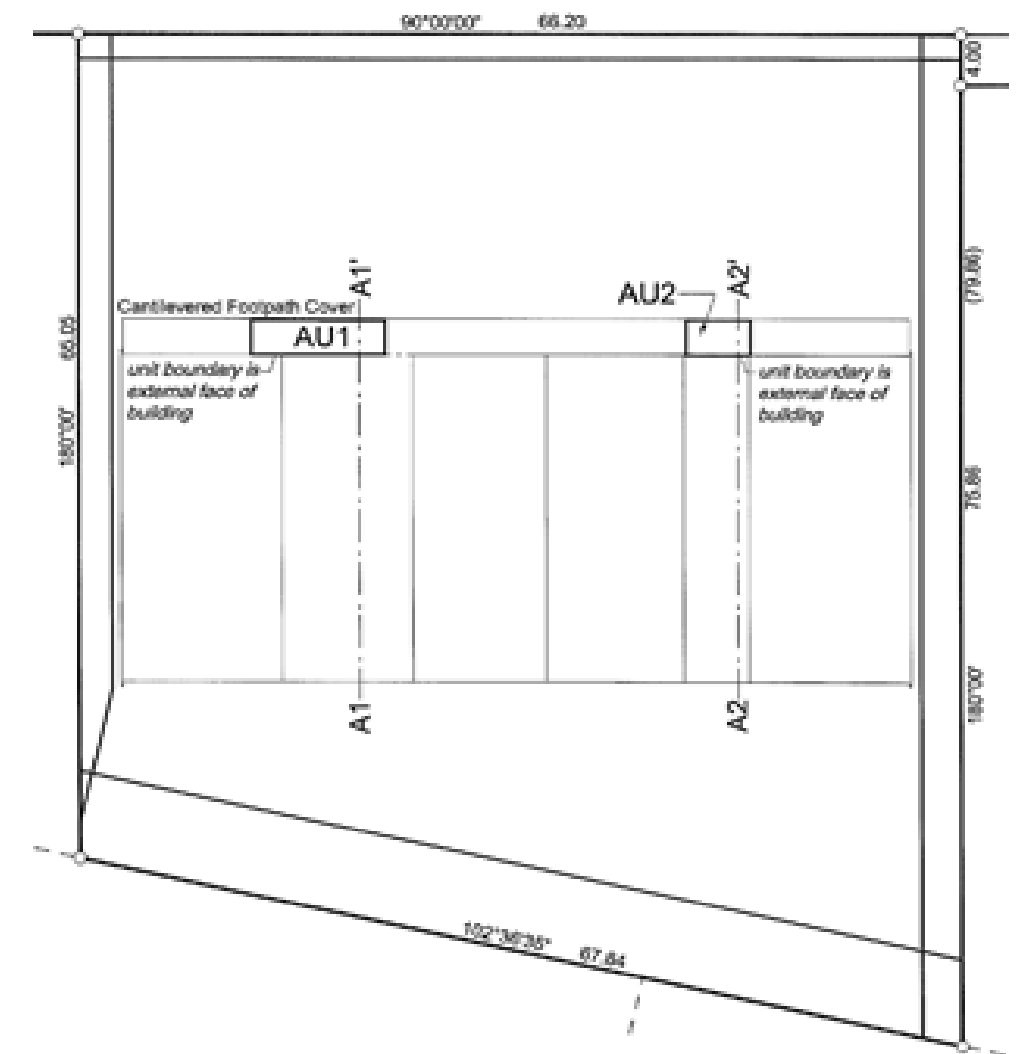




Ground-level plan view



Elevation views



Upper level plan view

Current Layers All Layers Labels

☒ SEARCH: Plan Reference☒ Registered Survey Plan Refs.

Label Point

☒ Approved Survey Plan Refs.

Label Point

☒ Provisional Survey Plan Refs.

Label Point

☒ Withdrawn Survey Plan Refs.

Label Point

☐ Street Address☒ Road-Cur-Centrelines

Cadastral

Non Cadastral

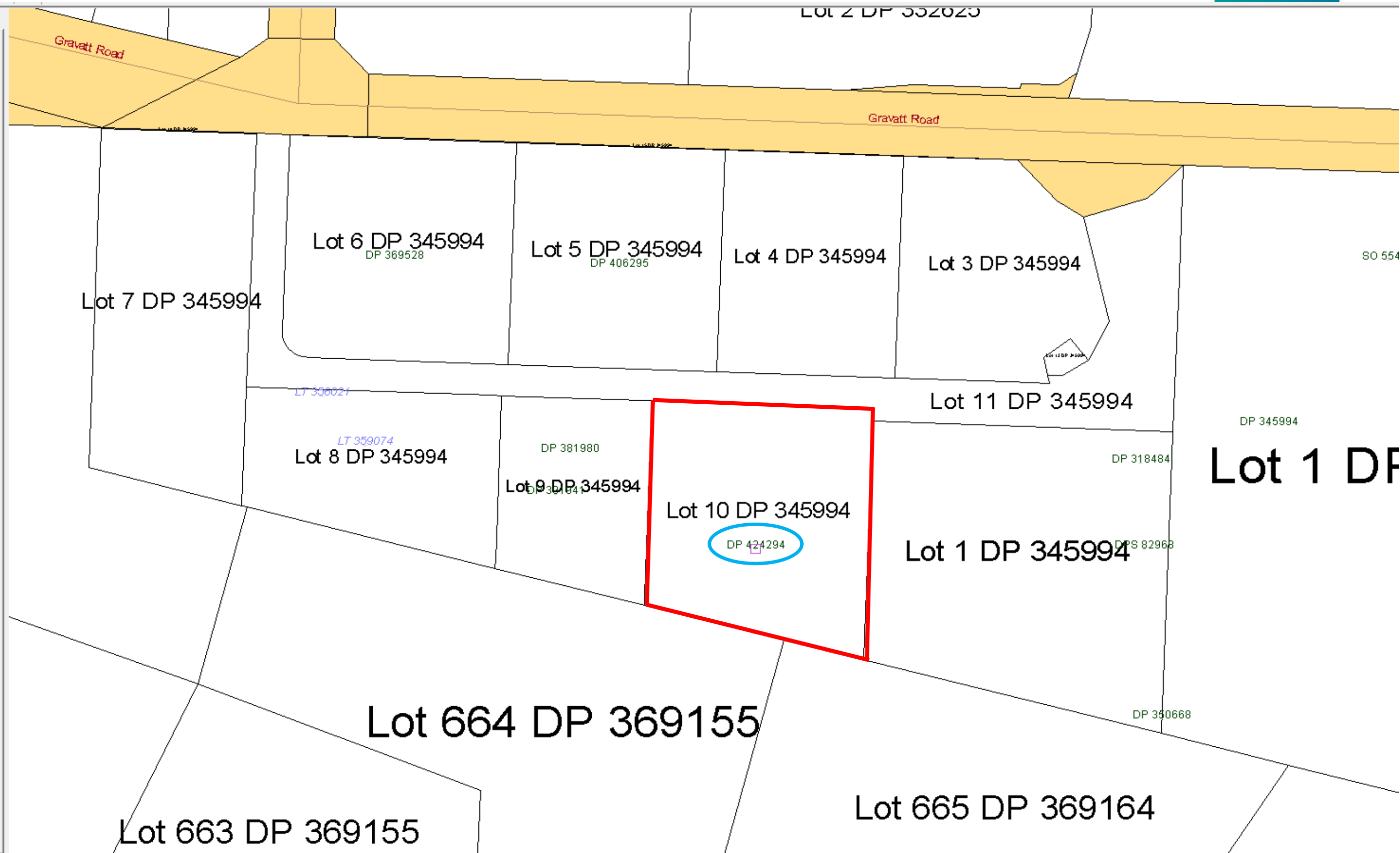
☒ Live-Parcels-All

Road

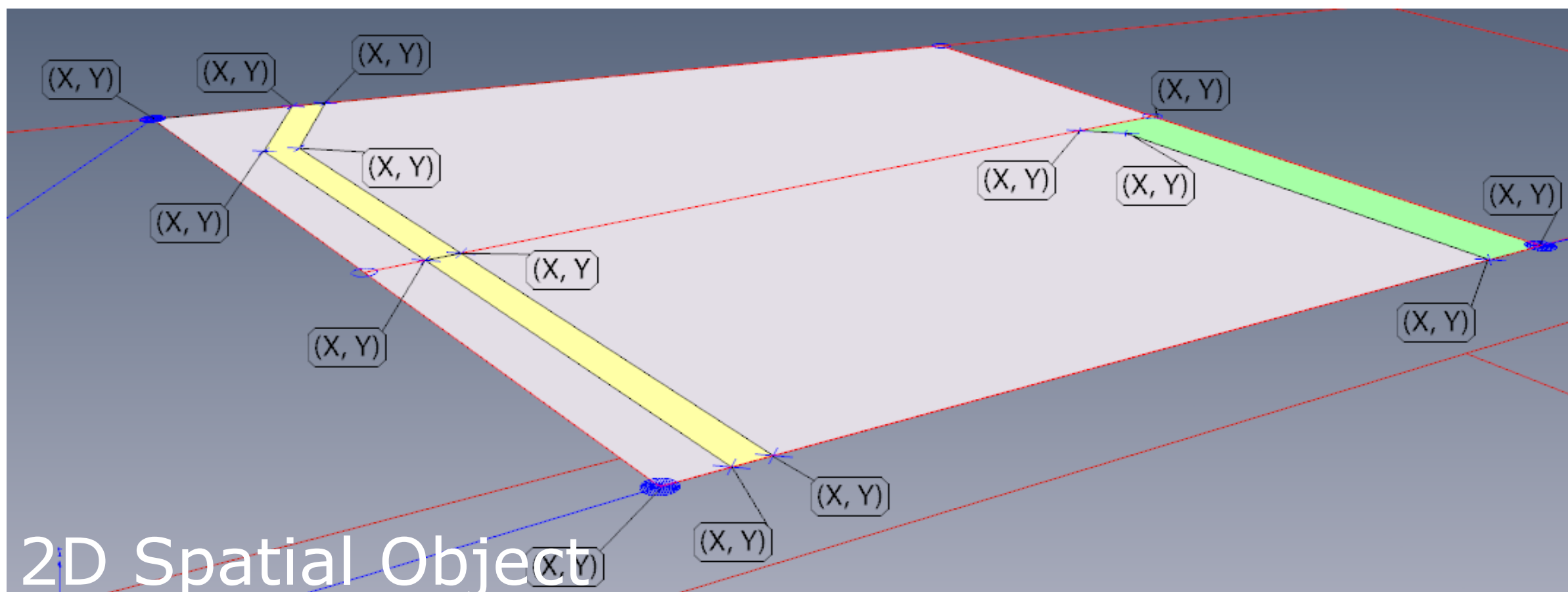
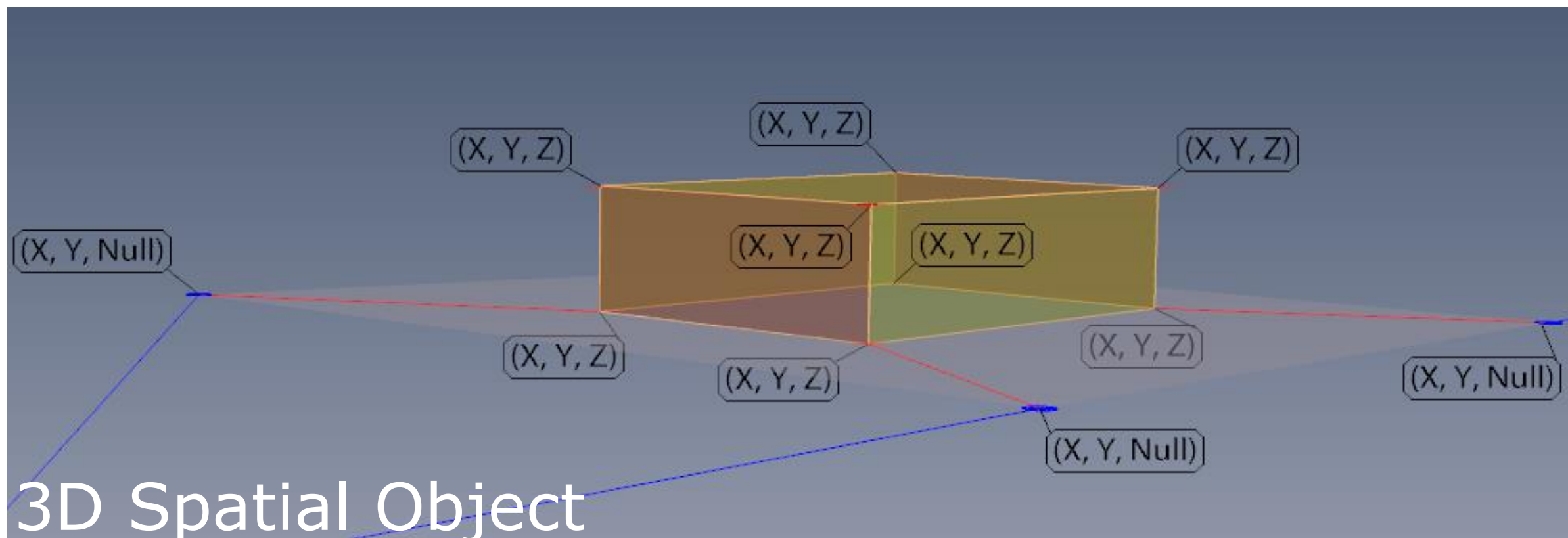
Hydrographic

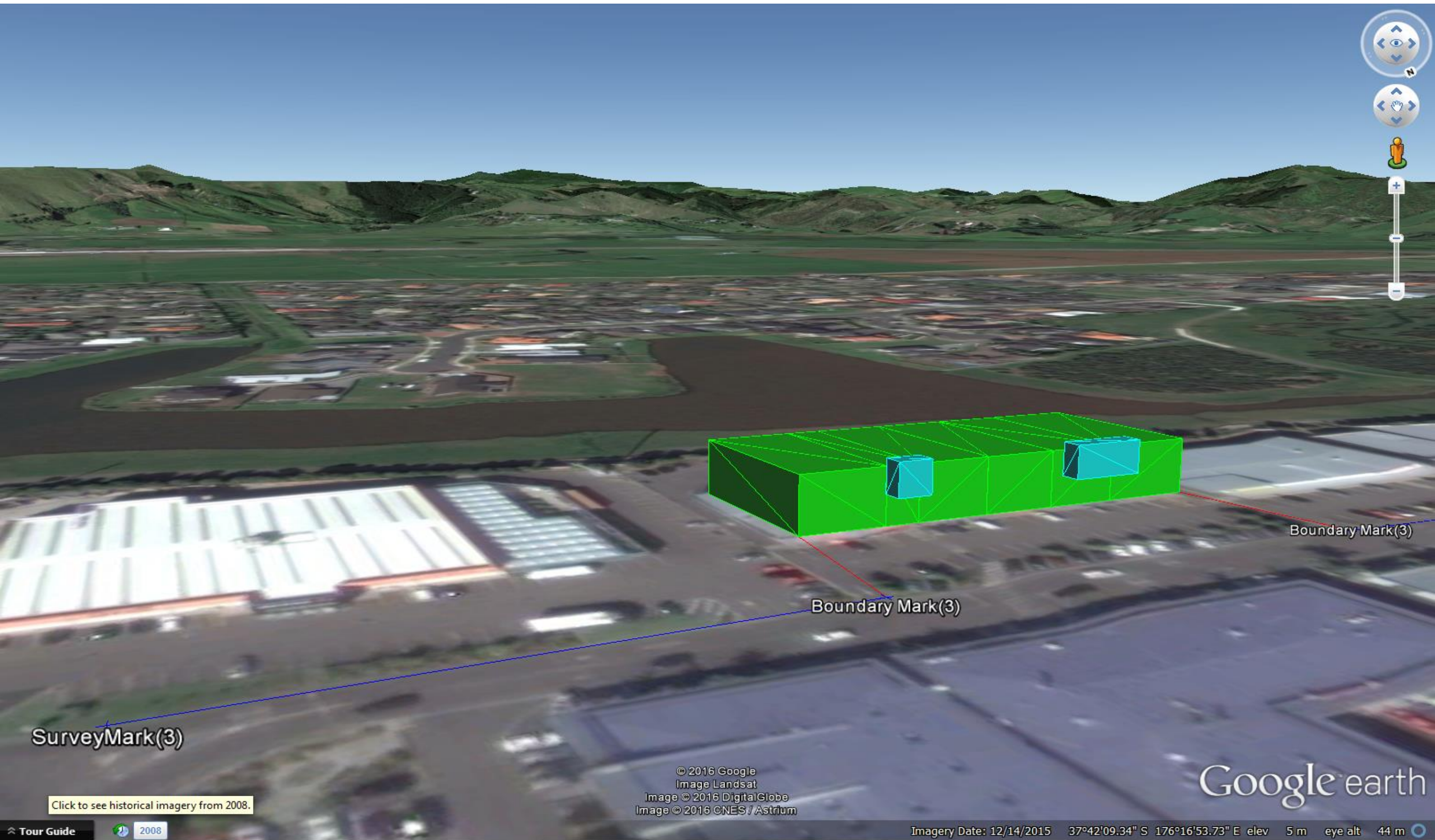
Other Parcels

Default Remove Up Down



Spatial Objects





SurveyMark(3)

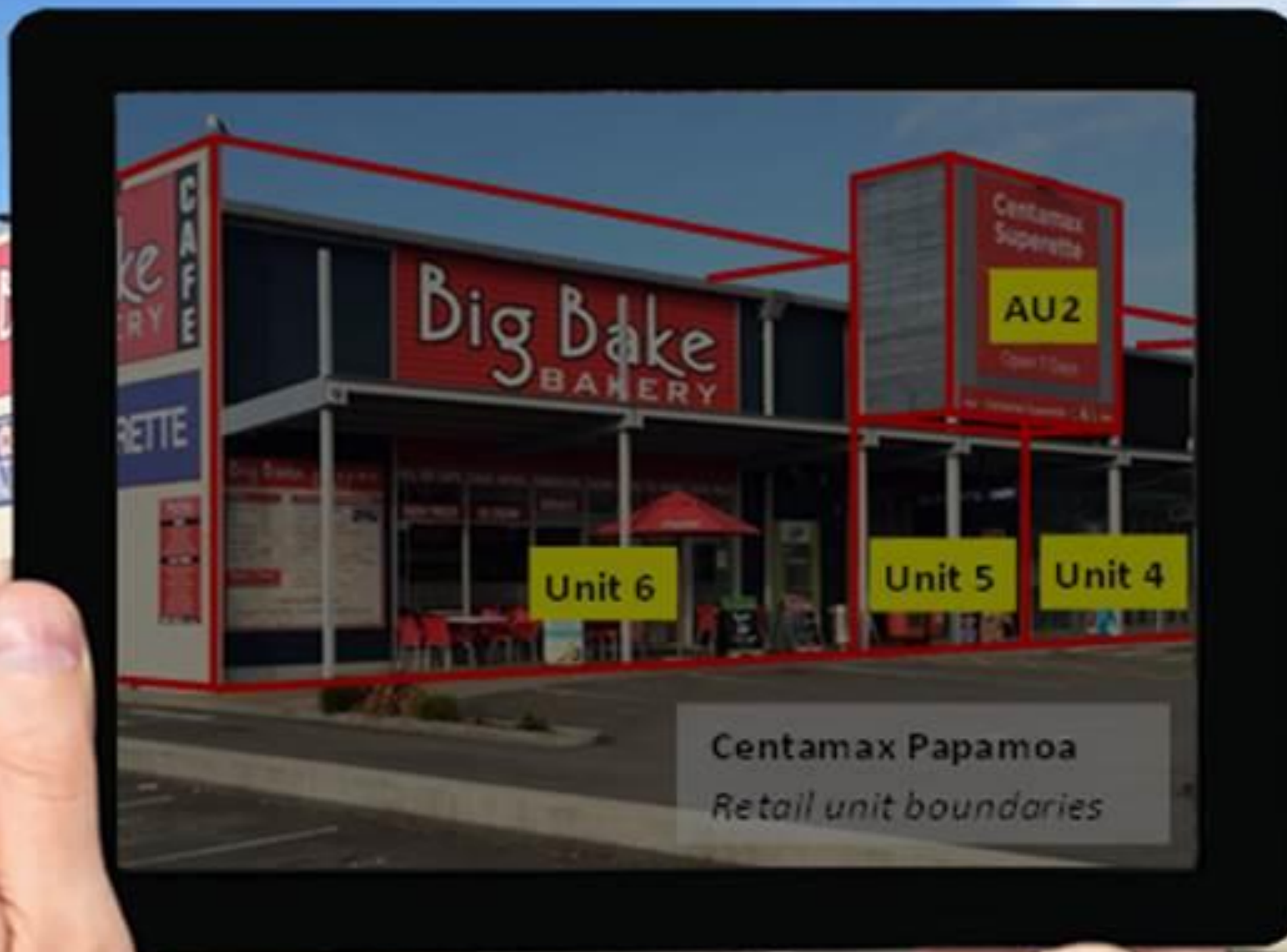
Boundary Mark(3)

Boundary Mark(3)

Click to see historical imagery from 2008.

© 2016 Google
Image Landsat
Image © 2016 DigitalGlobe
Image © 2016 CNES / Astrium

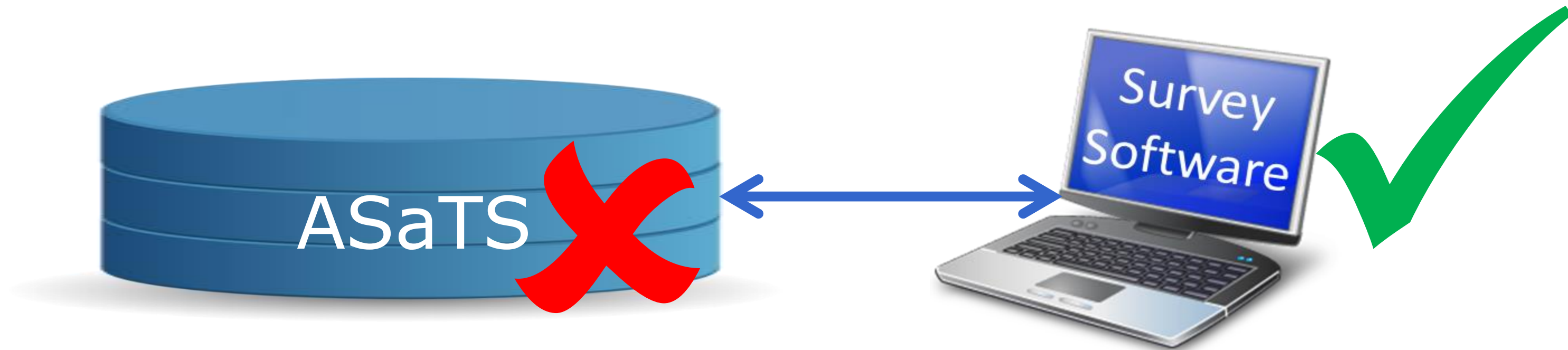
Google earth



Improved Integration with Third-party Survey Software

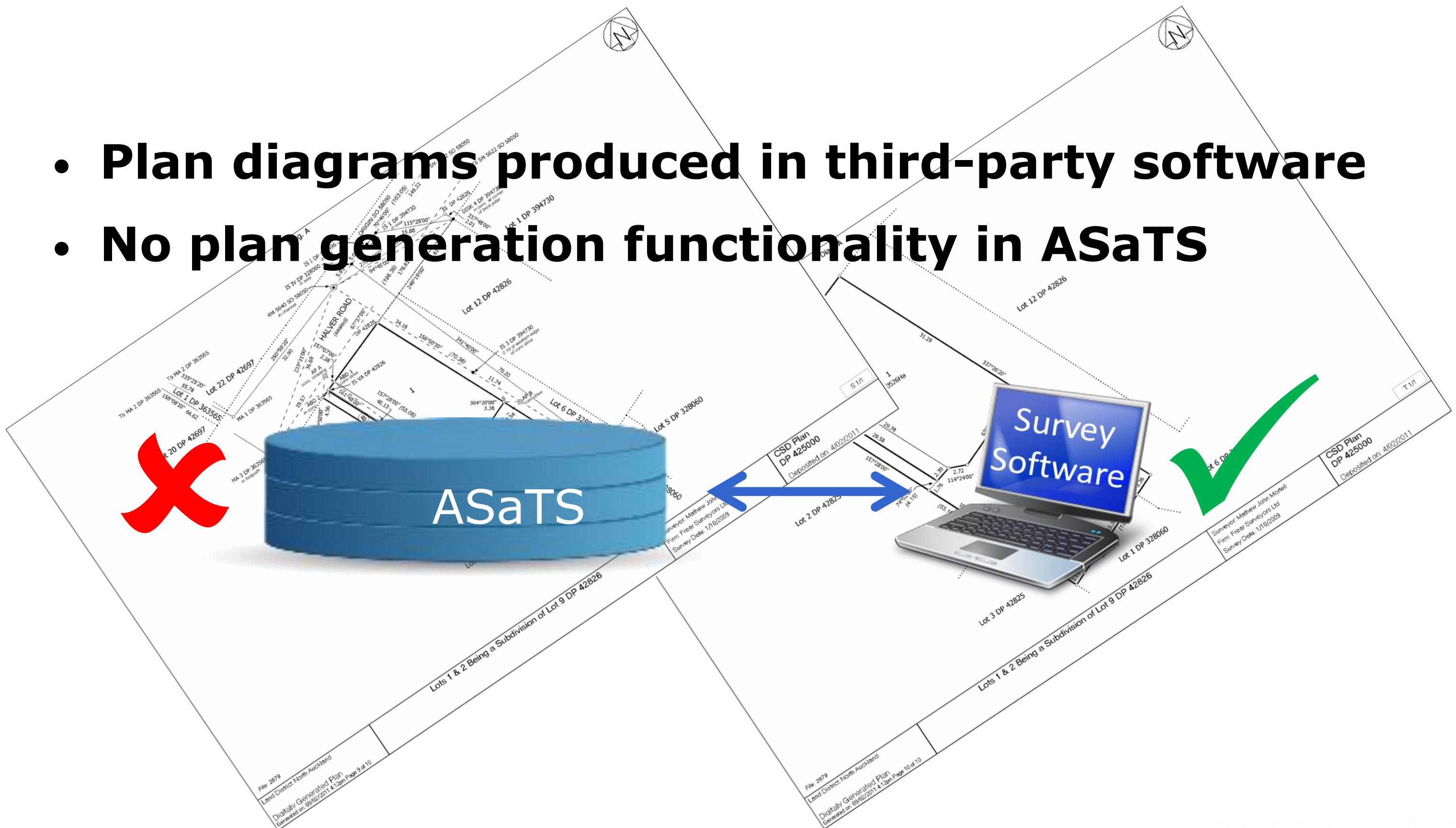


100% of CSD Prepared in Third-party Software, including 3D

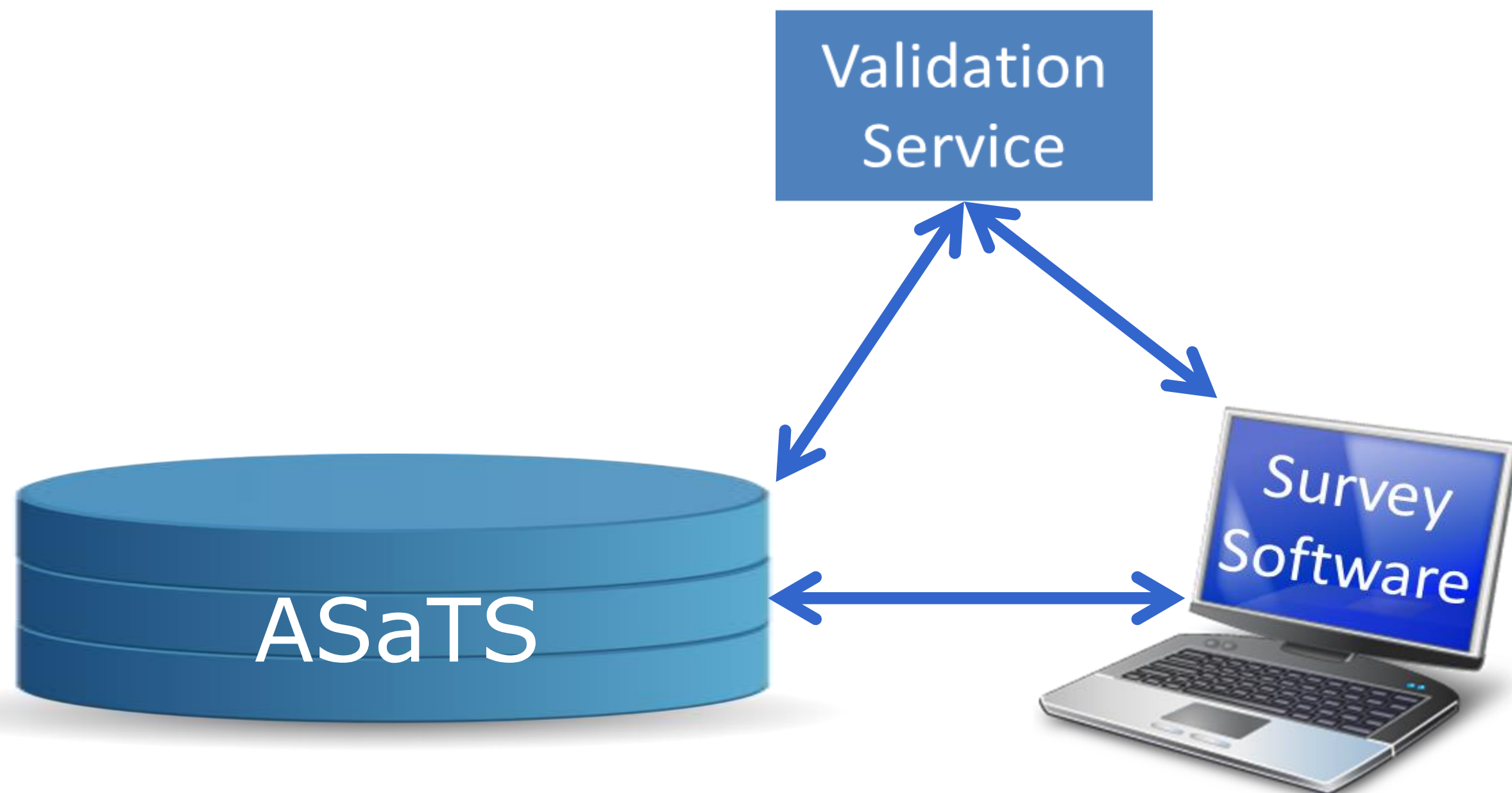


Plan Production in Third-party Software

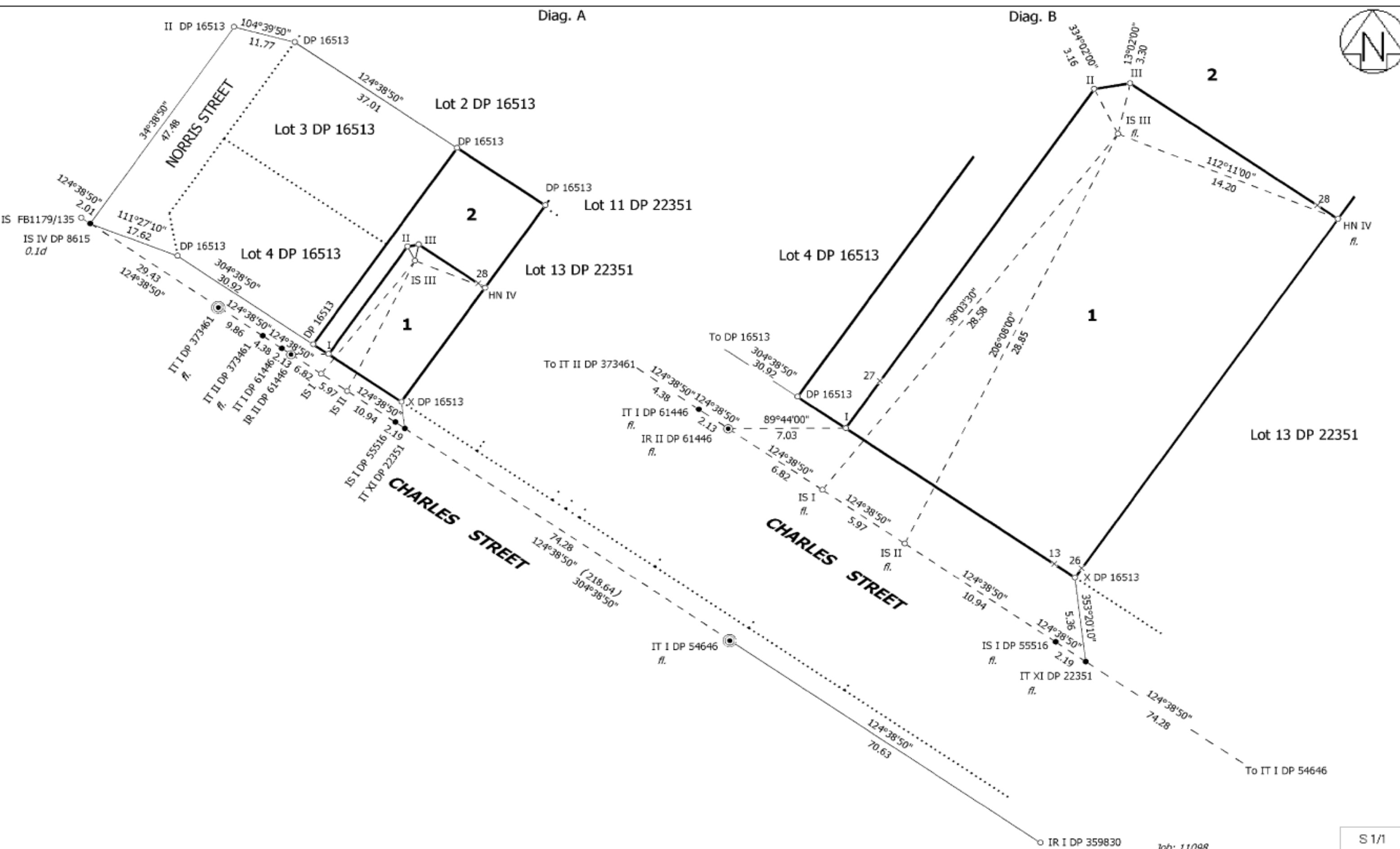
- Plan diagrams produced in third-party software
- No plan generation functionality in ASaTS

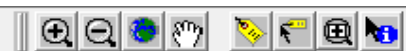


Validation as a Web Service



Need for a CSD Plan





Spatial View

Current Layers | All Layers | Labels

- ☒ Survey Marks
 - Origin/Witness
 - Origin
 - PRM (New)
 - PRM (Old)
 - Witness (New)
 - Witness (Old)
 - Post (New / Adopted)
 - Post (Old)
 - Unmarked
 - Bdy / Non Bdy (New / Adopted)
 - Bdy / Non Bdy (Old)
- ☒ Non Bdy Vectors
 - Measured Non Boundary
 - Adopt/Calc Vectors
- ☒ Non Primary Centreline
 - Non Primary Centreline
- ☒ Non Primary Parcels
 - Non Primary Parcels
- ☒ Primary Parcels
 - Primary Parcels
- ☒ Dimension Vectors
 - Dimension Vectors
- ☒ Live-Primary Parcel
 - Other Parcels
- ☒ Live-Road
 - Road
- ☐ Live-Hydro



Default Remove Up Down

Lot 2 DP 470500

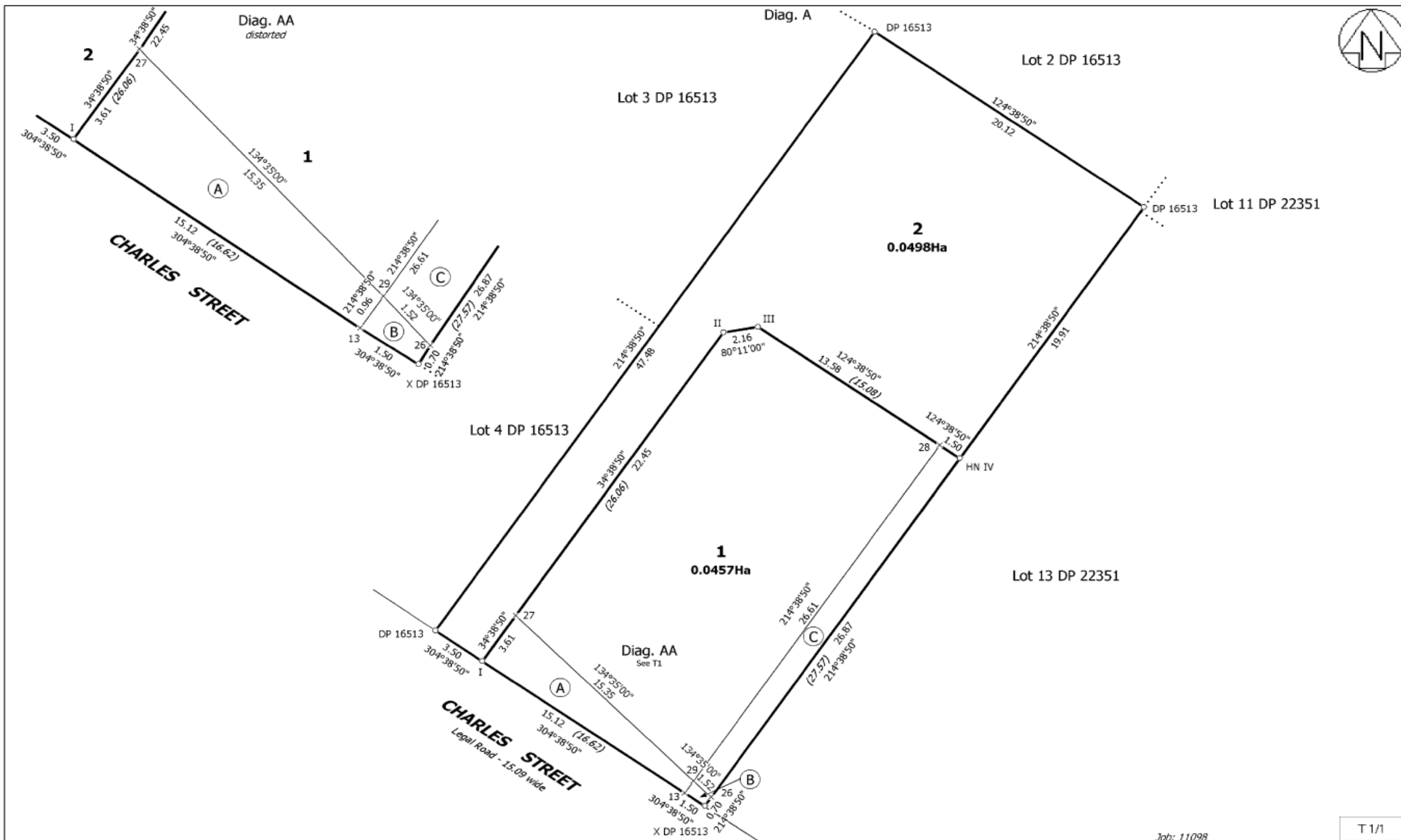
Lot 1 DP 470500

Lot 13 DP 2235

- [illegible]



Need for a Title Plan



Current Layers | All Layers | Labels

- ☐ Survey Marks
- ☐ Non Bdy Vectors
- ☒ Non Primary Centreline
 - Non Primary Centreline
- ☒ Non Primary Parcels
 - Non Primary Parcels
- ☒ Primary Parcels
 - Primary Parcels
- ☒ Dimension Vectors
 - Dimension Vectors
- ☒ Live-Primary Parcel
 - Other Parcels
- ☒ Live-Road
 - Road
- ☐ Live-Hydro

Lot 4 DP 16513

Lot 2 DP 470500

0.0498Ha

Lot 1 DP 470500

0.0457Ha

Area C DP 470500

Lot 13 DP 22351

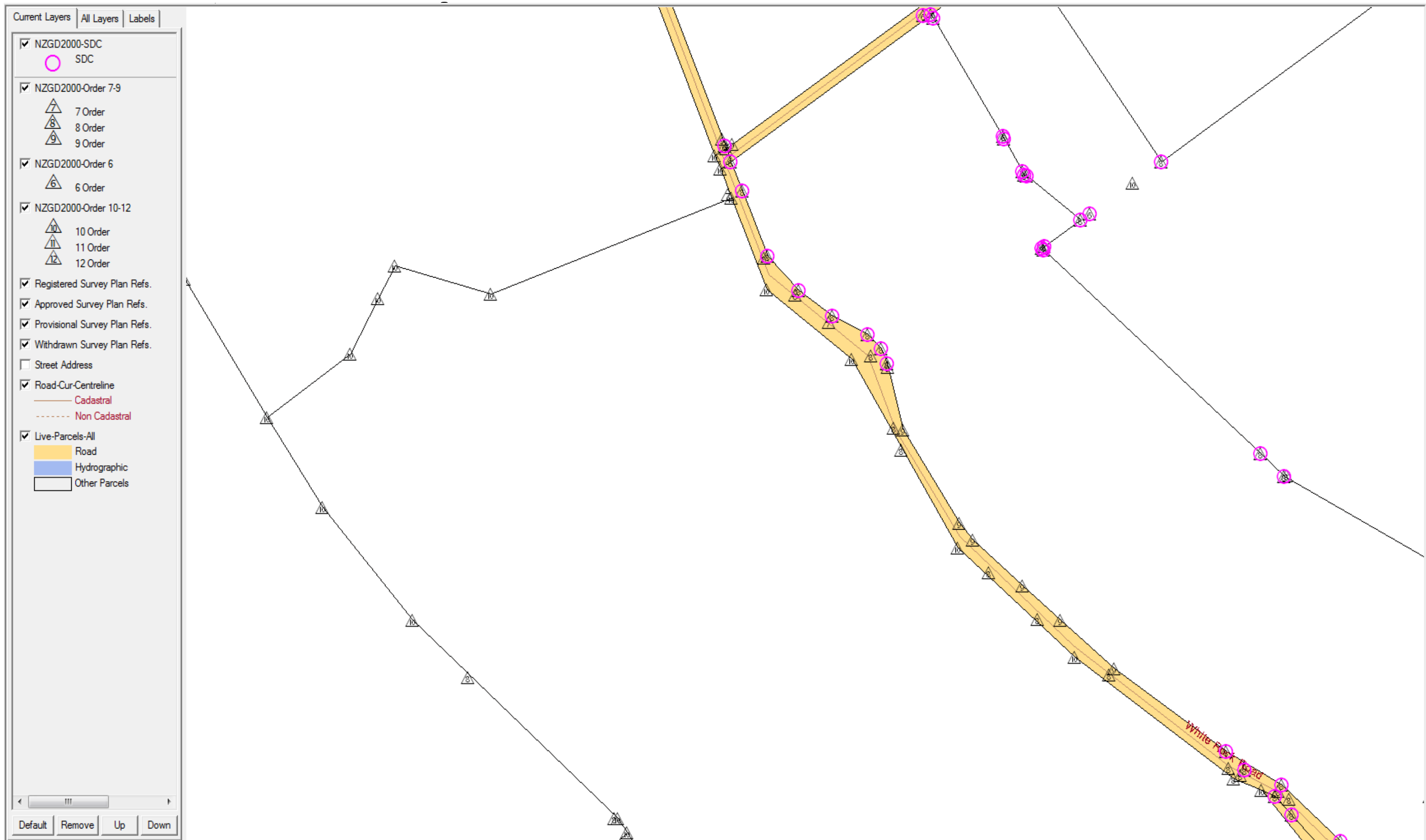
Lot 12 DP 223

Area A DP 470500

Area B DP 470500

Default Remove Up Down

Discontinue Survey-accurate Digital Cadastre (SDC) status



Further Engagement

Engagement During Design

Stakeholder Updates

- On Project Milestones
- Will provide updates on the previous phase and what is expected during the next phase

Monthly Communication

- Either email or phone meeting depending on the content to discuss
- To provide updates on the progress of the design phase

Additional Engagement

- As and when required
- Will be used when feedback or advice is required to make a design decision