

'The power of where'
DRIVES NEW ZEALAND'S SUCCESS



5th International FIG Workshop on 3D Cadastres
18-20 October 2016, Athens, Greece

A 3D Digital Cadastre for New Zealand by 2021: *leveraging the current system and modern technology*



Trent Gulliver, Anselm Haanen & Mark Goodin
Land Information New Zealand

Overview



- The Cadastral Survey System in New Zealand
- Approach to Achieving 3D
- 3D Digital Cadastre 2021
- Discussion



The Cadastral Survey System in New Zealand



- Surveys undertaken entirely by private licensed cadastral surveyors (currently 652)
- Surveyor-General sets regulations
- Monuments and observations based
- Connected to national geodetic system
- Cadastral survey data managed in Landonline, in 2D
- +2,500,000 primary parcels



New Zealand

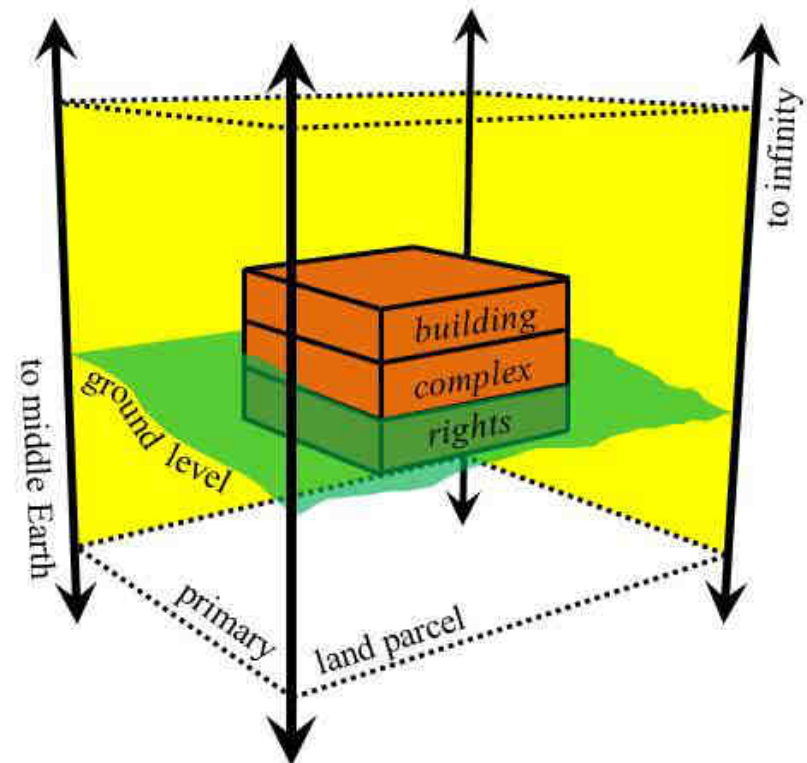
Population: 4.5 million

Land area: 268,000 km²

Distance from Athens: 17,518 km

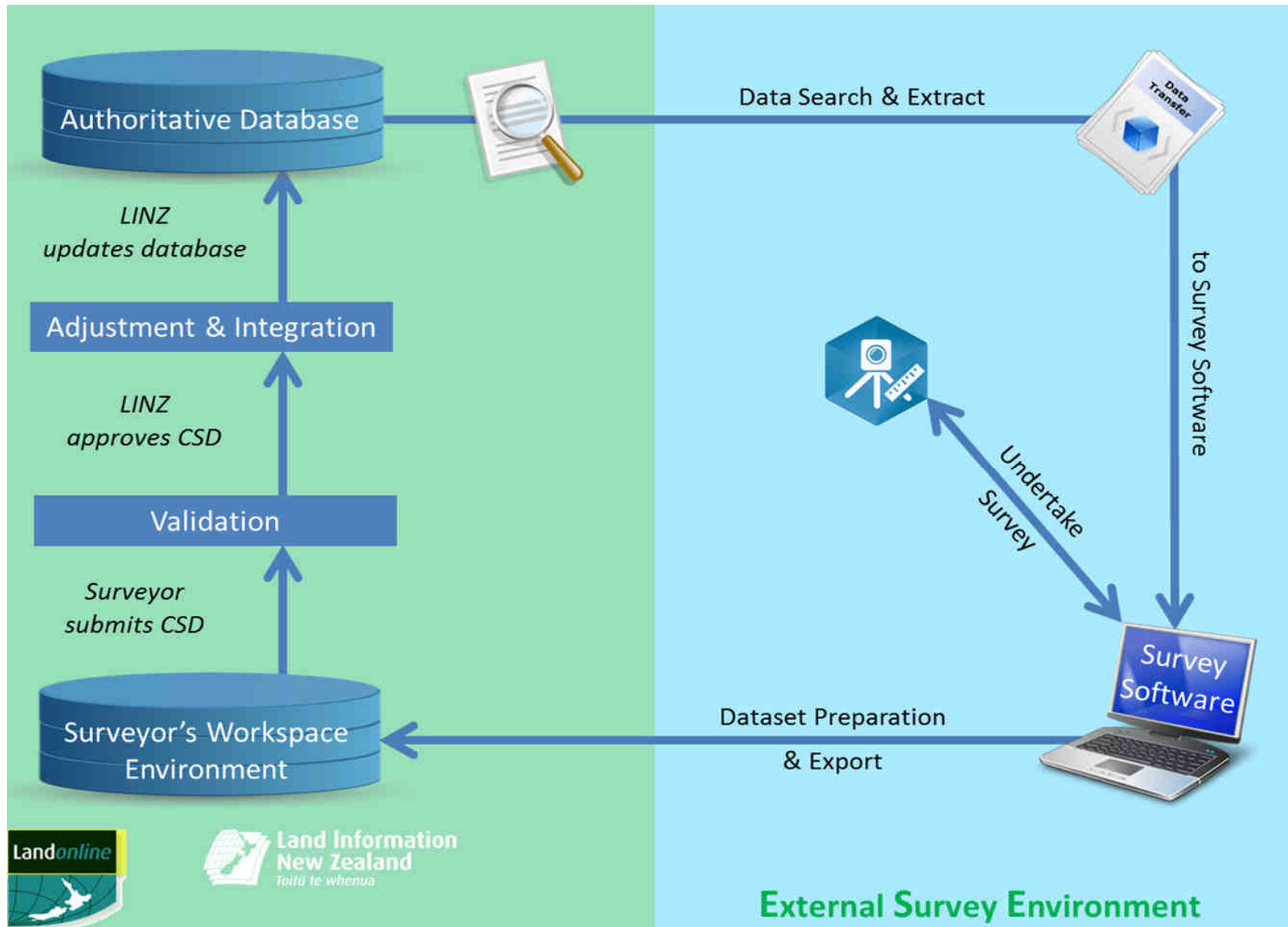
The Current New Zealand 3D Cadastre

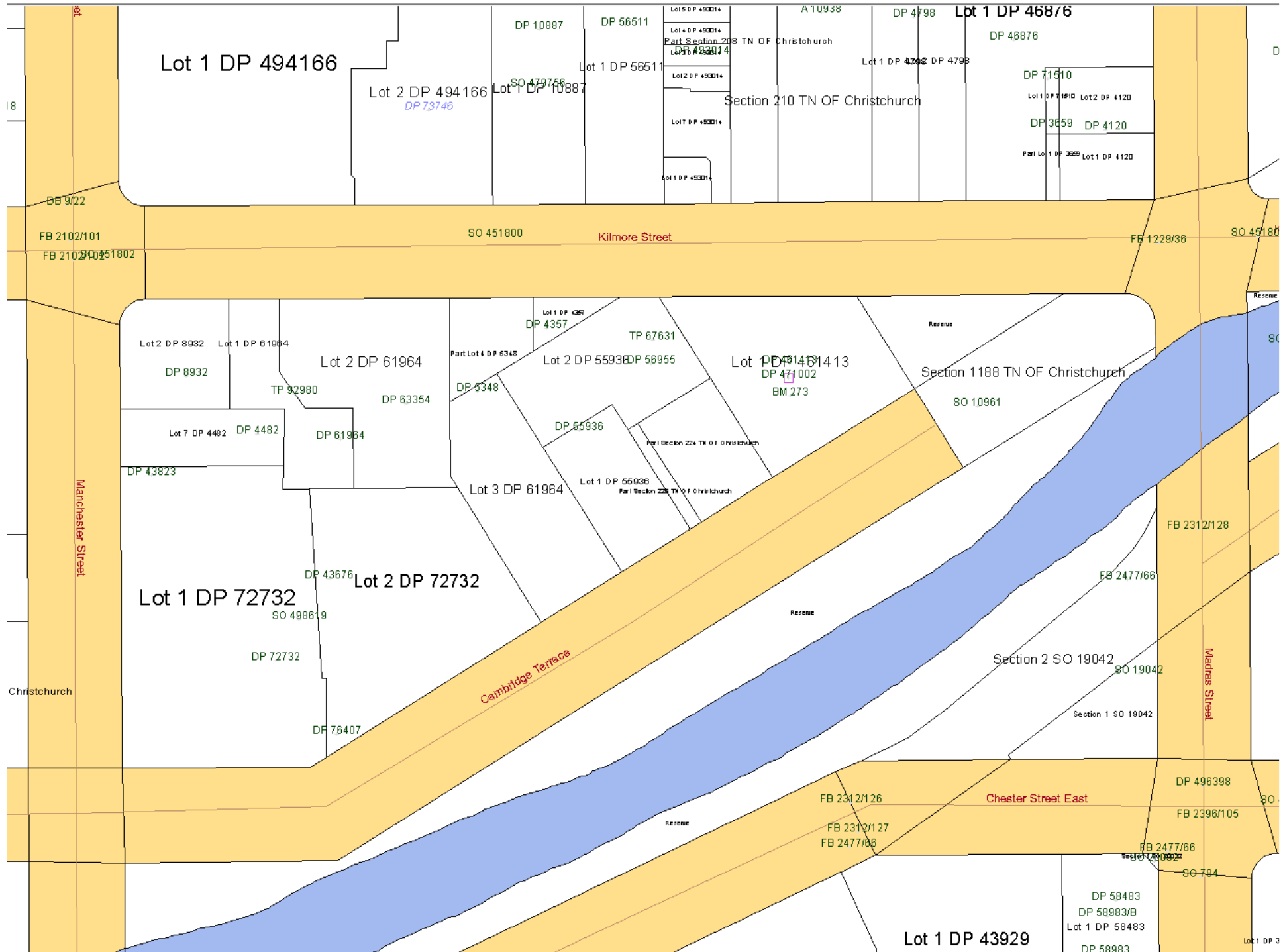
- A 3D legal cadastre since the 1800s
- Unit titles primary means of multi-unit property ownership (approx. 140,000 unit titles)
- 3D parcels not spatially captured in Landonline system



Extents of property rights in New Zealand
(Gulliver, 2015)

Cycle of Cadastral Survey Data





Lot 1 DP 494166

Lot 2 DP 494166
DP 73746

Lot 1 DP 10887

Lot 1 DP 56511

Lot 5 DP 45001+
Lot 4 DP 45001+
Part Section 208 TN OF Christchurch
DP 492014
Lot 2 DP 45001+
Lot 7 DP 45001+
Lot 1 DP 45001+

Section 210 TN OF Christchurch

Lot 1 DP 47982 DP 4798

Lot 1 DP 46876

DP 46876

DP 71910
Lot 1 DP 71610 Lot 2 DP 4120
DP 3659 DP 4120
Part Lot 1 DP 3659 Lot 1 DP 4120

DB 9/22

FB 2102/101

FB 2102/102 SO 451802

SO 451800

Kilmore Street

FB 1229/36

SO 451800

Reserve

Lot 2 DP 8932 Lot 1 DP 61964

DP 8932

Lot 2 DP 61964

TP 92980

DP 63354

Part Lot 4 DP 5348

DP 5348

Lot 2 DP 55938 DP 56955

TP 67631

Lot DP 41413

DP 471002
BM 273

Section 1188 TN OF Christchurch

SO 10961

Lot 7 DP 4482 DP 4482

DP 61964

DP 55936

Part Section 224 TN OF Christchurch

Lot 3 DP 61964

Lot 1 DP 55938

Part Section 226 TN OF Christchurch

Lot 1 DP 72732

DP 43676

SO 498619

DP 72732

DF 76407

Lot 2 DP 72732

Cambridge Terrace

Section 1188 TN OF Christchurch

SO 10961

Section 2 SO 19042

SO 19042

Section 1 SO 19042

FB 2312/128

FB 2477/66

Madras Street

FB 2312/126

Chester Street East

DP 496398

FB 2312/127
FB 2477/66

FB 2396/105

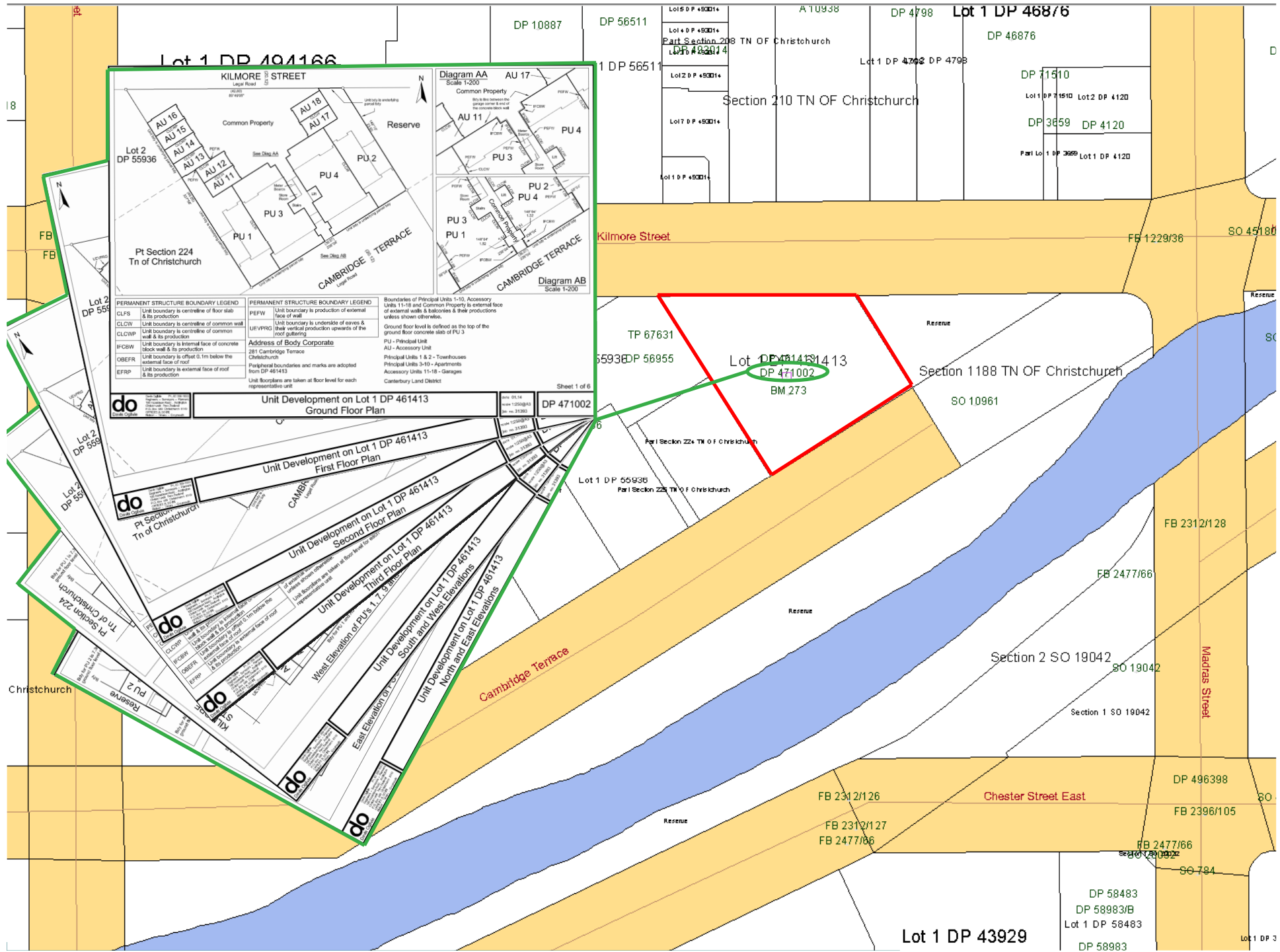
FB 2477/66

SO 784

DP 58483
DP 58983/B
Lot 1 DP 58483
DP 58983

Lot 1 DP 43929

Lot 1 DP 3



Lot 1 DP 104166

Section 210 TN OF Christchurch

Lot 1 DP 46876

Section 1188 TN OF Christchurch

Lot 1 DP 43929

DP 58483
 DP 58983/B
 Lot 1 DP 58483
 DP 58983

Lot 1 DP 3

Approach to Achieving 3D

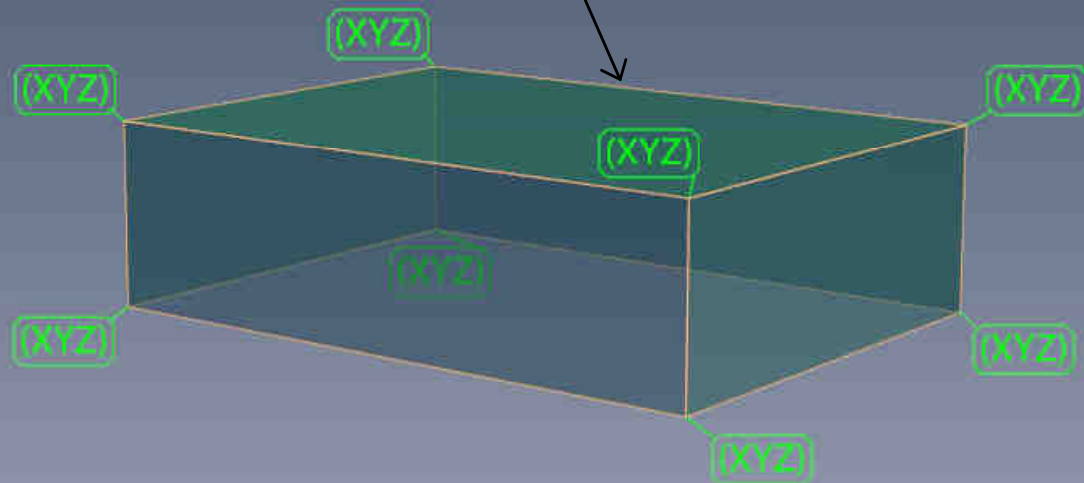
- Legislative framework exists
- Technical and operational changes are required

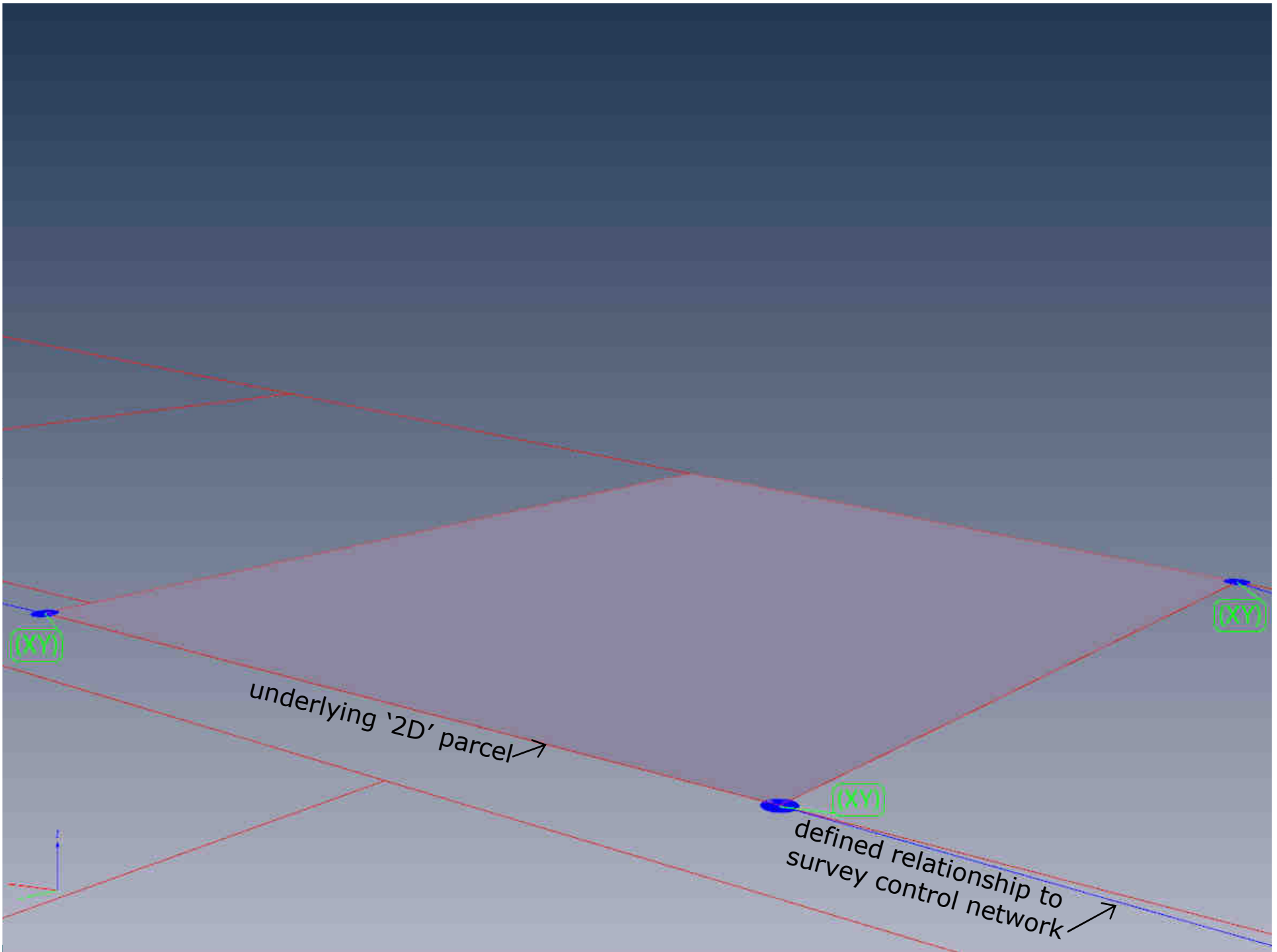
Requirements of a 3D Digital Cadastre (adapted Gulliver, 2015)

Requirement	Description
Search	Users will need to be able to visualise, interrogate and extract digital 3D property rights related information.
Capture/ Lodgement	Cadastral surveyors will need the ability to digitally capture/lodge 3D cadastral survey datasets.
Validation	Automated business rules will be necessary to check the validity of incoming data.
Integration	3D data will need to be integrated into the cadastre.
Maintenance	The spatial accuracy of the cadastre will require horizontal and vertical network maintenance.

3D Spatial Objects

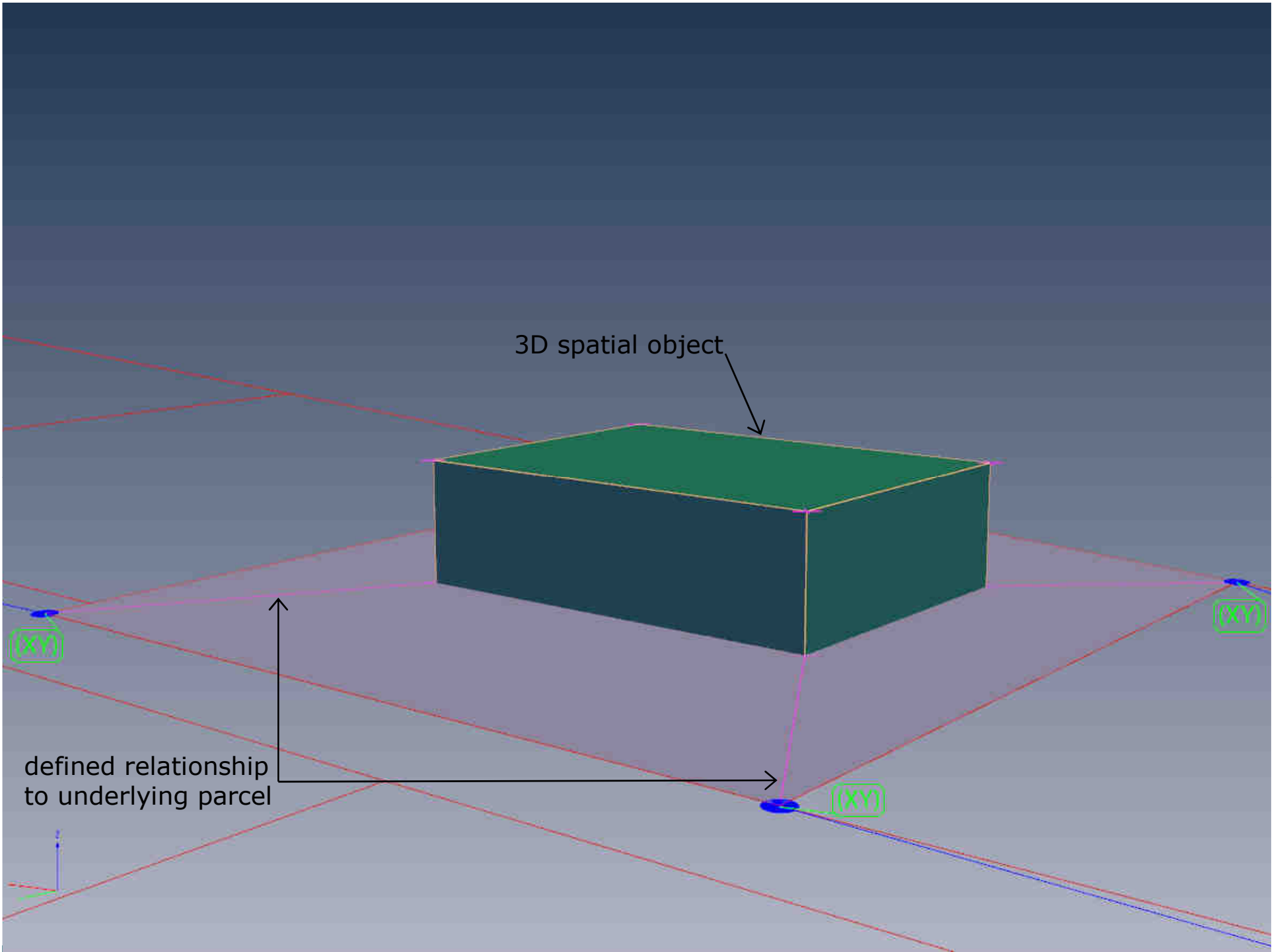
3D spatial object

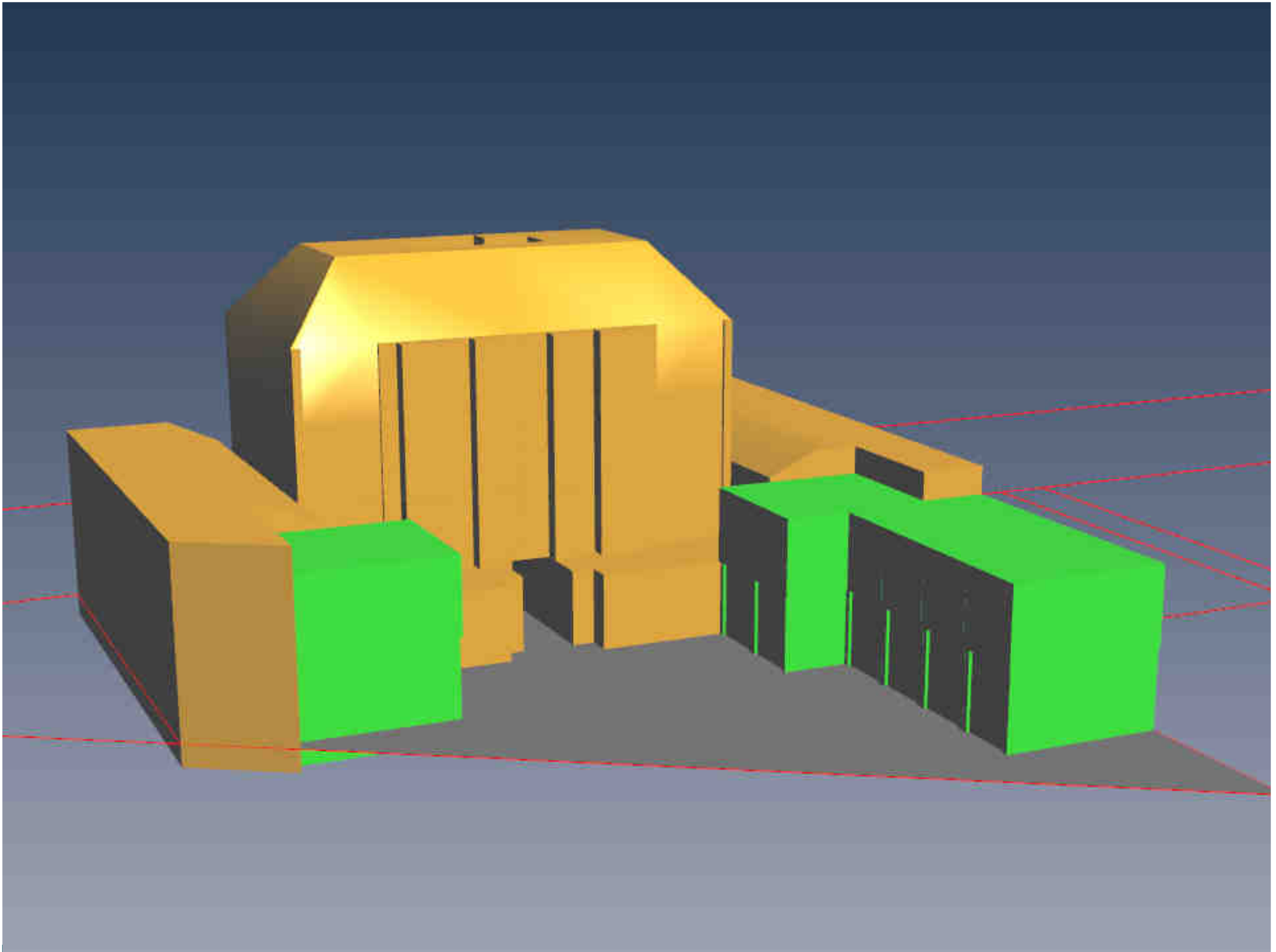




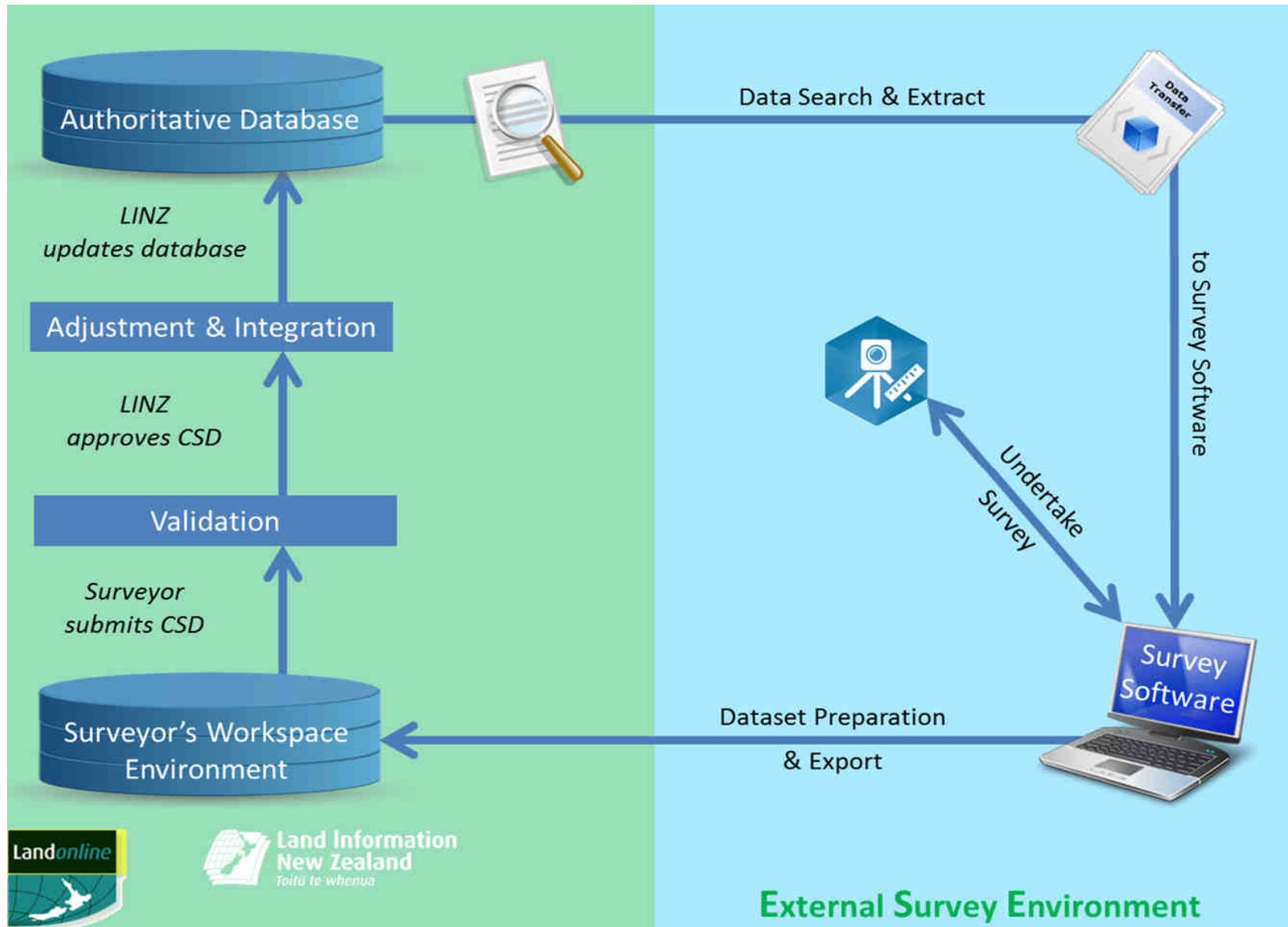
3D spatial object

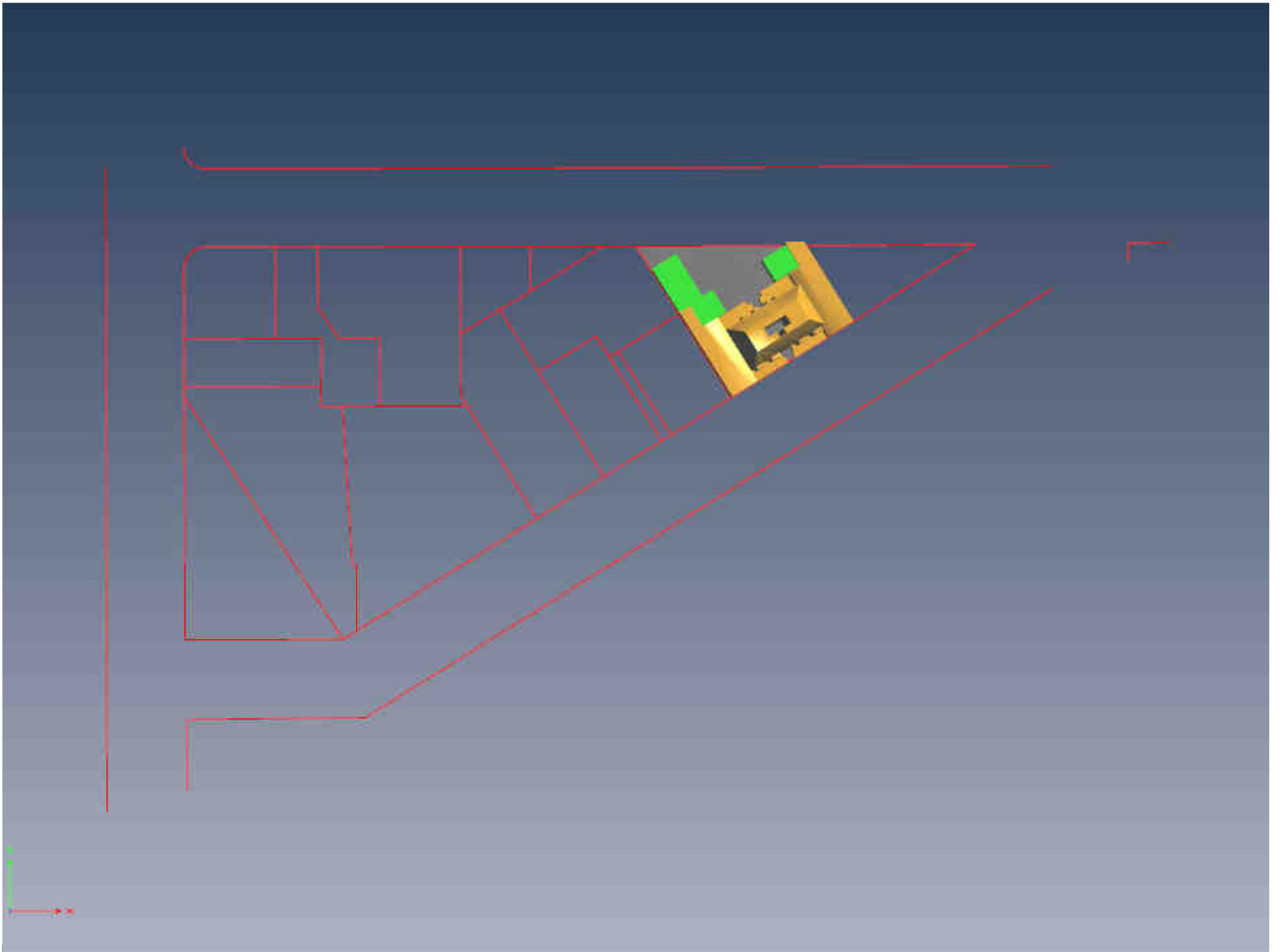
defined relationship
to underlying parcel





Cycle of Cadastral Survey Data





3D Digital Cadastre 2021

- ✓ National Cadastral Survey System
 - ✓ Accommodating Legislation
 - ✓ 2D Digital Cadastre
 - ✓ National Geodetic System
 - ✓ New National Vertical Datum (NZVD2016)
 - ✓ Advanced Survey and Title Services (ASaTS)
-

ASaTS Programme



- To replace Landonline
 - To modernise the system and provide a better service
 - A modularised IT architecture solution
 - 3D digital cadastre included as an innovative requirement
 - Supported by the New Zealand government
-

ASaTS Timeline



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Discussion



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Toitū te whenua

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