

FIG
2018
ISTANBUL

06-11 MAY 2018
EMBRACING OUR SMART WORLD
WHERE THE CONTINENTS CONNECT:
ENHANCING THE GEOSPATIAL
MAJORITY OF SOCIETIES



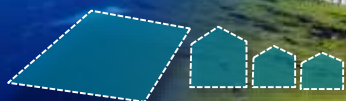
New Zealand Government

Presented at the FIG Congress 2018
May 6-11, 2018 in Istanbul, Turkey

A Vision for a Fully Digital Cadastral Survey System

Anselm Haanen and Trent Gulliver
Land Information New Zealand

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



A Vision for a Fully Digital Cadastral Survey System

Replacing plan images with data and its integration into a complete digital cadastral survey network

1. Digital cadastral survey process
2. Benefits of Digitalisation
3. Visualising 2D and 3D surveys

The Cadastral Survey System in New Zealand

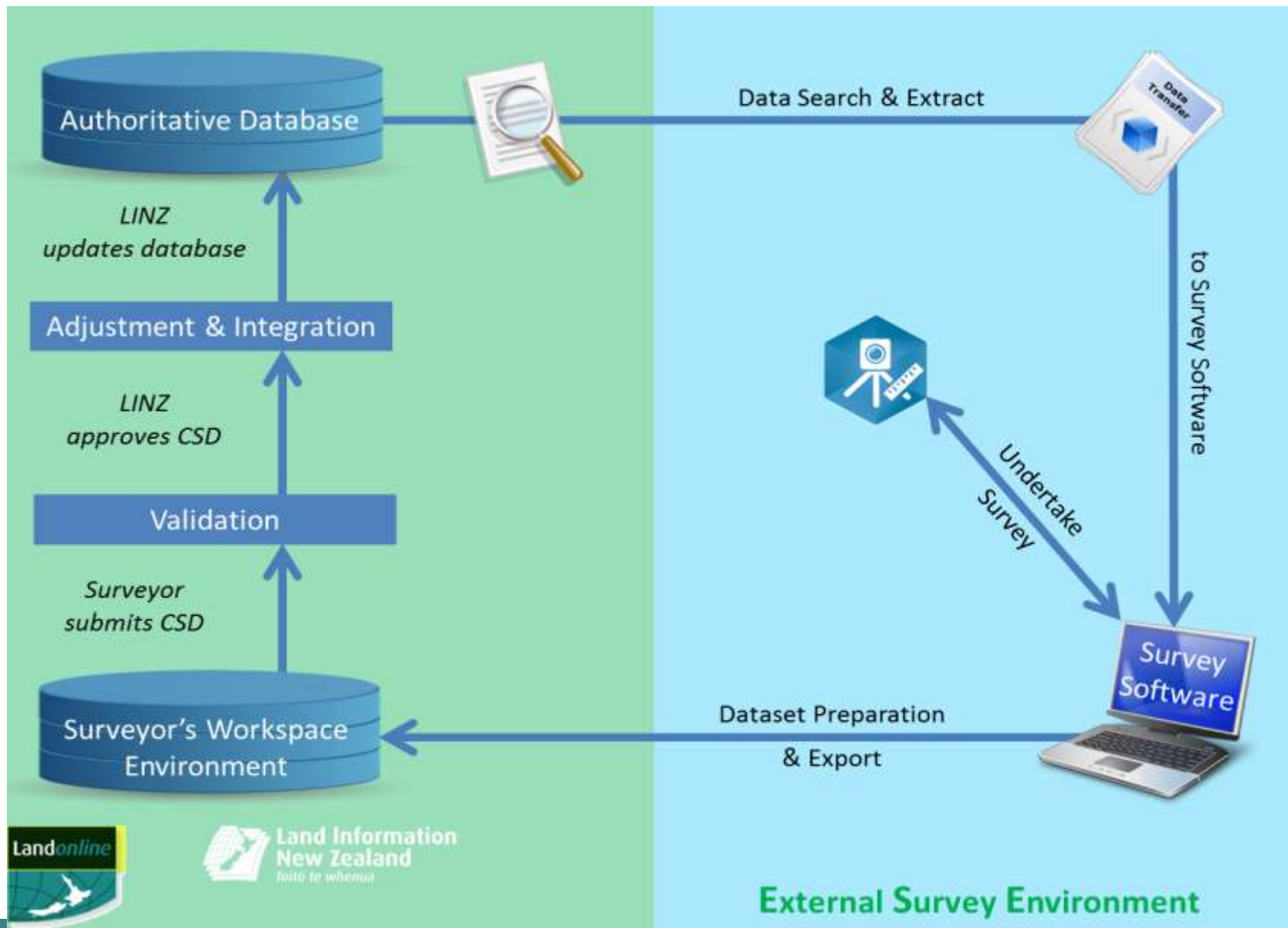
- Surveys undertaken entirely by private licensed cadastral surveyors (currently 686)
- Monument based legal cadastre
- Connected to geodetic control system
- Surveyors submit survey datasets / plans to LINZ
- Cadastral survey data managed in *Landonline* in 2D
- 2.5M primary parcels



New Zealand

Population: 4.5 million
Land area: 268,000 km²
Distance from Istanbul: 17,159 km

Current Digitisation of the Survey Process





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 / Ac)
 - Bdy / Non Bdy (Old)
- Non Bdy Vectors
 - Measured Non Boundary
 - Adopt/Calc Vectors
- Non Primary Centreline
 - Non Primary Centreline
- 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

0.0875Ha

Lot 2 DP 470500

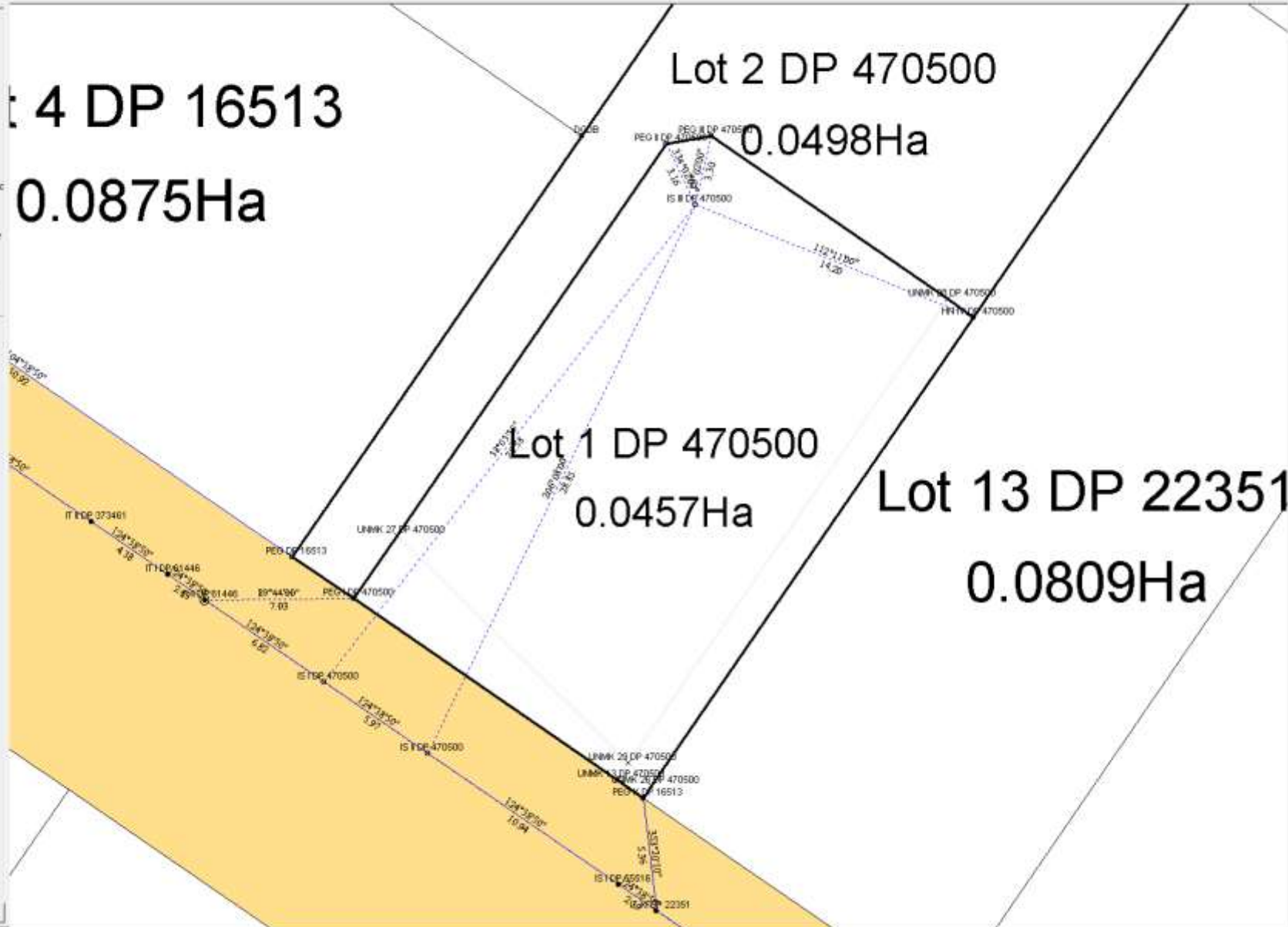
0.0498Ha

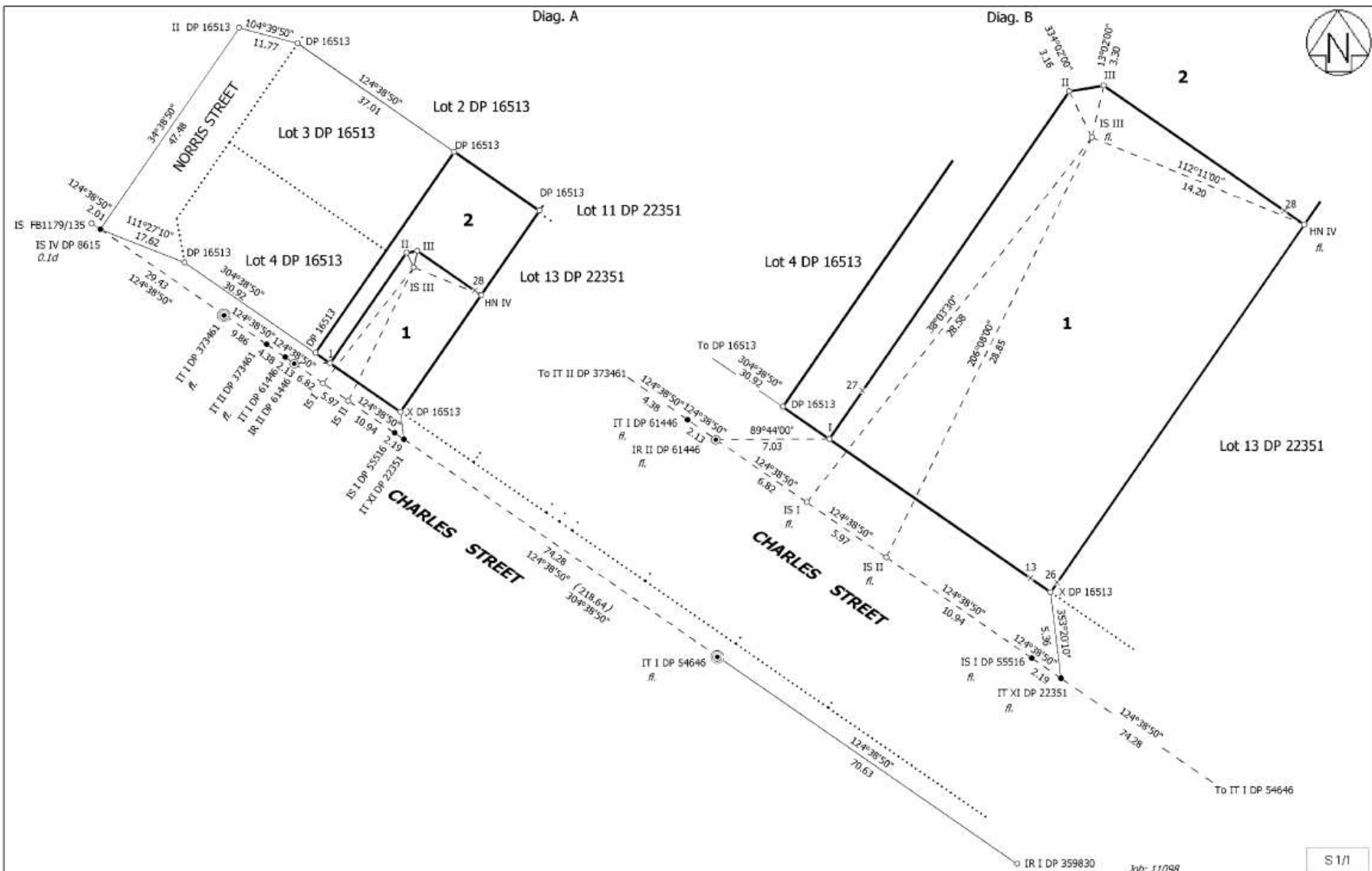
Lot 1 DP 470500

0.0457Ha

Lot 13 DP 22351

0.0809Ha





Land District: Canterbury Digitally Generated Plan Generated on: 05/05/2014 1:57pm Page 7 of 8	LOTS 1 & 2 BEING SUBDIVISION OF LOT 5 DP 16513	Surveyor: Steven Graeme Thomas Firm: Vince T Ryan Registered Surveyor Survey Date: 11/11/2013	Job: 11098 CSD Plan DP 470500 Deposited on: 28/04/2014
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Current Layers | All Layers | Labels

- Underlying Marks
 - Marks
- Underlying Parcel Bdy Lines
 - Boundary Lines
- Underlying Vectors
 - Vectors
- 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 (Primary)
- Street Address (Sub)
- Road Centreline
 - Road
 - Hydrographic
 - Other Parcels
- Live Parcels - All

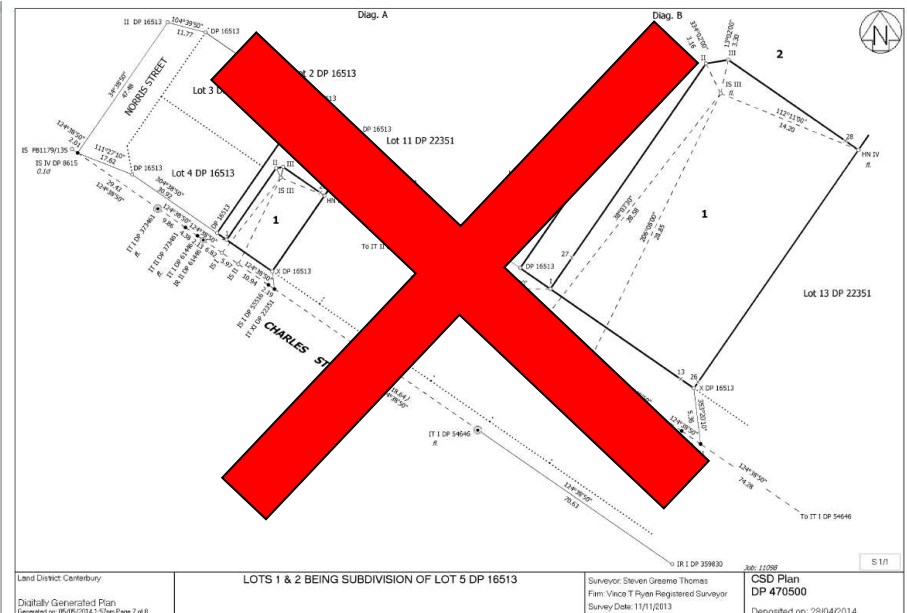
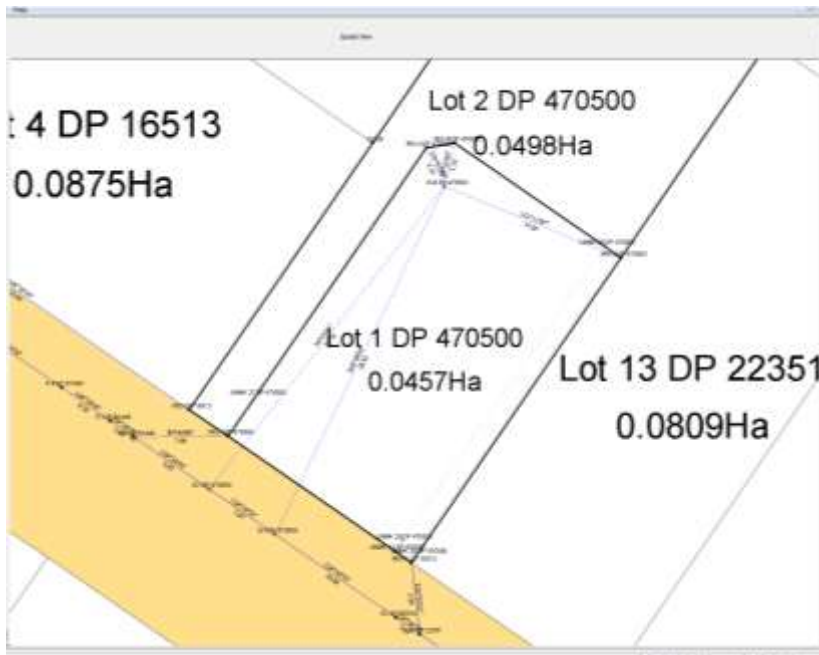
Default Remove Up Down



Problem #1

Data Duplicated on Plans:

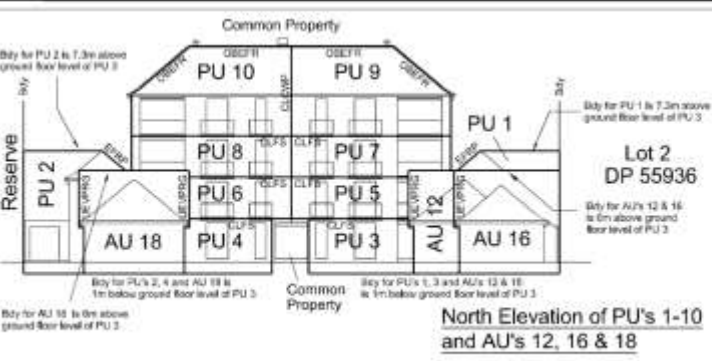
- Benefits driven by representation of survey in data format
- Plan production adds time and costs



Problem #2

3D Surveys only lodged as plans

- Plans difficult to interpret
- Requires manual validation



North Elevation of PUs 1-10 and AU's 12, 16 & 18

Lot 2 DP 55936

Reserve

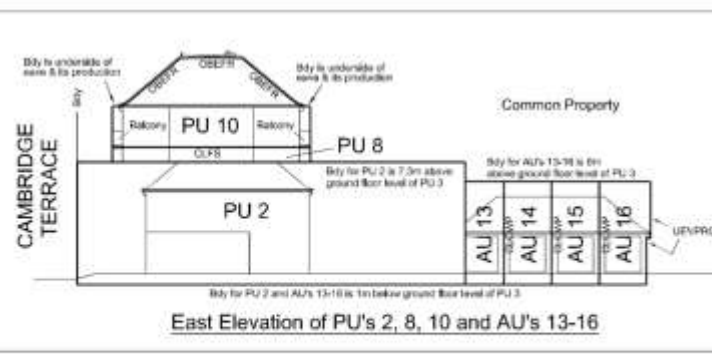
Common Property

PU 10, PU 9, PU 8, PU 7, PU 6, PU 5, PU 4, PU 3, AU 12, AU 16, AU 18

Boundary Units 11-18 of external unless shown

Unit floorplans representative

PERMANENT STRUCTURE BOUNDARY LEGEND	
CLFS	Unit boundary is centreline of floor slab & its production
CLCW	Unit boundary is centreline of common wall
GLCW	Unit boundary is centreline of common wall & its production
IFCBW	Unit boundary is internal face of concrete block wall & its production
OBEFR	Unit boundary is offset 0.1m below the external face of roof
EFPR	Unit boundary is external face of roof & its production
PEFW	Unit boundary is production of external face of wall
UEVPRG	Unit boundary is underside of eaves & their vertical production upwards of the roof guttering



East Elevation of PUs 2, 8, 10 and AU's 13-16

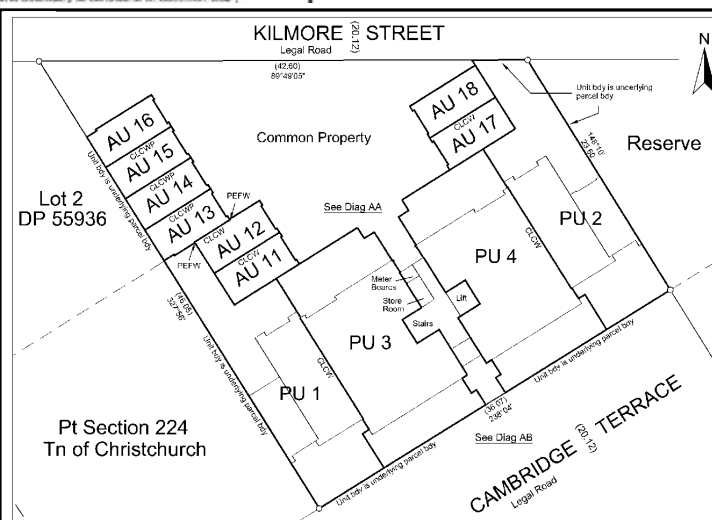
Cambridge Terrace

Common Property

PU 10, PU 8, PU 2, AU 13, AU 14, AU 15, AU 16

Unit floorplans representative

PERMANENT STRUCTURE BOUNDARY LEGEND	
CLFS	Unit boundary is centreline of floor slab & its production
CLCW	Unit boundary is centreline of common wall
GLCW	Unit boundary is centreline of common wall & its production
IFCBW	Unit boundary is internal face of concrete block wall & its production
OBEFR	Unit boundary is offset 0.1m below the external face of roof
EFPR	Unit boundary is external face of roof & its production
PEFW	Unit boundary is production of external face of wall
UEVPRG	Unit boundary is underside of eaves & their vertical production upwards of the roof guttering



Ground Floor Plan

Lot 1 DP 461413

Pt Section 224 Tn of Christchurch

Kilmore Street

Cambridge Terrace

Reserve

Common Property

AU 16, AU 15, AU 14, AU 13, AU 12, AU 11, AU 18, AU 17, PU 2, PU 4, PU 3, PU 1

See Diag AA, See Diag AB

Unit floorplans taken at floor level for each representative unit

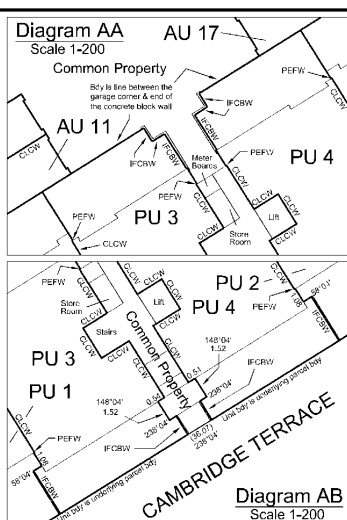


Diagram AA
Scale 1-200

Diagram AB
Scale 1-200

Common Property

AU 17, AU 11, PU 4, PU 3, PU 2, PU 4, PU 3, PU 1

Unit floorplans taken at floor level for each representative unit

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Boundaries of Principal Units 1-10, Accessory Units 11-18 and Common Property is external face of external walls & balconies & their productions unless shown otherwise.

Ground floor level is defined as the top of the ground floor concrete slab of PU 3

PU - Principal Unit
AU - Accessory Unit

Principal Units 1 & 2 - Townhouses
Principal Units 3-10 - Apartments
Accessory Units 11-18 - Garages

Canterbury Land District



Unit Development on Lot 1 DP 461413
North and East Elevations

Unit Development on Lot 1 DP 461413
Ground Floor Plan

Scale 1-200
Date: 01/14
Issue: 1/256/A3
See no. 31393

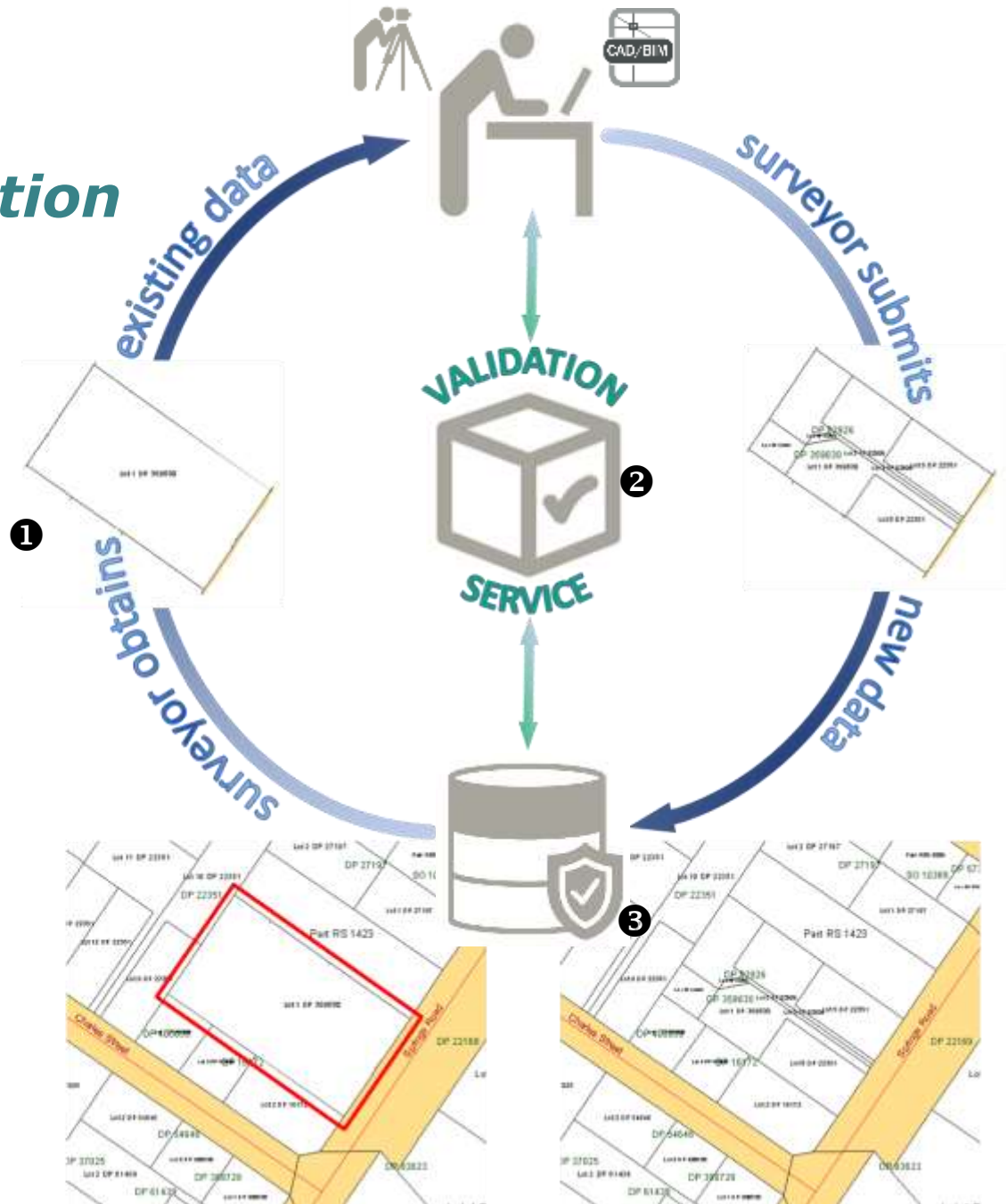
Sheet 1 of 6
DP 471002

Opportunities

Complete digitisation of the cadastral survey data and process

Benefits:

- ✓ Capture
- ✓ Validation
- ✓ Integration
- ✓ Re-use



Visualising a Dataset without a Plan

Bridging the Visualisation Gap

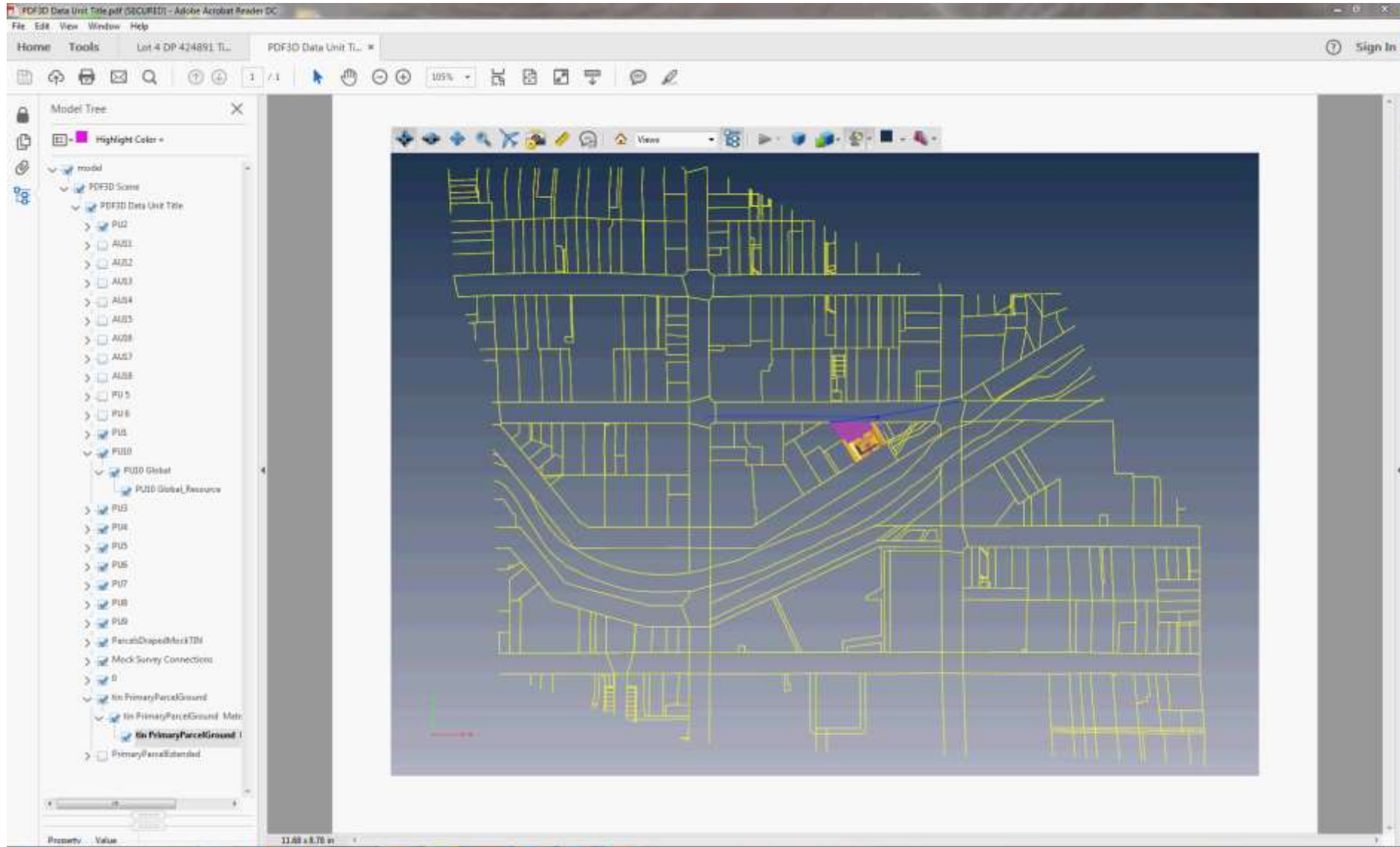
- On-the-fly display
- Survey / GIS software
- Automated rendering of the data as a plan
- PDF reader software

- Highlight Color =
- model
 - 3D/2D Scene
 - Lot 4 DP 424891 Title Dia...
 - TSS Lot DP 424891 Tilt
 - TSS Lot DP 424891
 - TSS Lot DP 4248
 - TSS Lot DP 424891
 - TSS Lot DP 424891 Tilt

- Front(-Z)
- Back(+Z)
- Top(+Y)
- Bottom(-Y)
- Left(+X)
- Right(-X)
- Isometric



Powerful PDFs





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