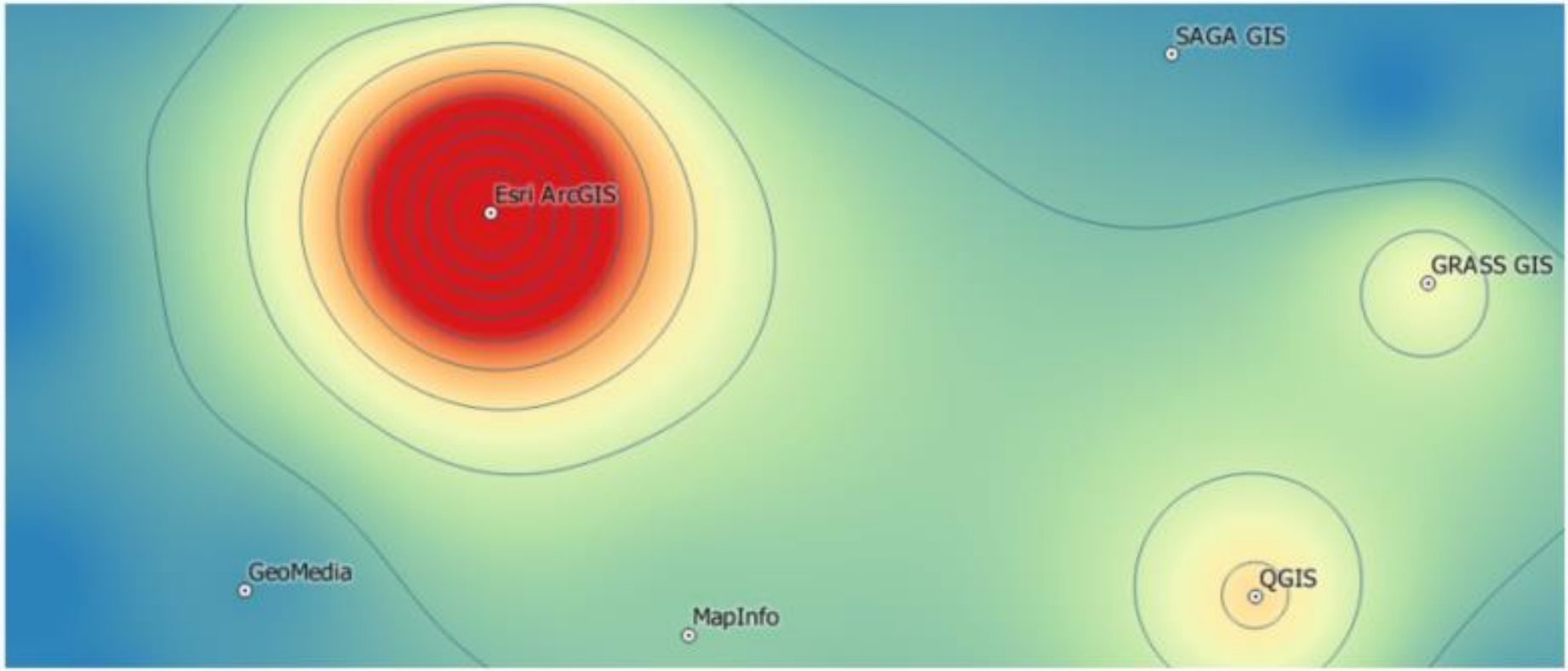
Free your GIS!

A Journey into Open Source

Carl Wezel

Mapping Out the GIS Software Landscape

Posted by **GISGeography** in **GIS Career**



GIS software heatmap

Open Source

First thing that goes through most peoples mind

FREE

You can’t be serious?

What is Free

- Free leads to Fear
- Fear leads to Anger
- Anger leads to Hate
- Hate leads to Suffering

Misconceptions of Open Source Software

- Software developed cheaply and rubbish
- Not paid for development so not good quality
- No development strategy
- No long term support
- Short lived product
- Built on a whim and no further development
- Room full of sweaty pimple faced kids mass hacking, like….

Stereo typing of the Open Source community

Quote from a developer “ This is being part of the software - this makes you a part of it”

So what’s the hold up

- Changing a mindset
- Dispelling Myths
- Past History
- Proving it’s worth

Open Source Software

- What is Open Source Software?
  - According to Wikipedia Open-source software (OSS) is computer software with its source code made available with a license in which the copyright holder provides the rights to study, change and distribute the software to anyone and for any purpose[1]

- Why Open Source?
  - Flexible
  - Powerful
  - FREE
  - Collaborative

Convert your thinking

Open Source in business - It's happening already

Google

Gaining Trust

Helping you gain the trust…….

The Trust

- Open Source Geospatial Foundation
- OSGeo was created to support the collaborative development of open source geospatial software, and promote its widespread use. http://www.osgeo.org/
- Formed in 2006
- Provide Financial, organisational & legal support to the free open source spatial community

The Trust locally

Free Open Source Software (FOSS)

NZOSS use an analogy made here between software and cars:

“A proprietary closed source computer program is like a car that is sold with its bonnet welded shut with only those who pay the manufacturer for "certification" permitted to look inside the car or to maintain it. “

Why – The manufacturer has no competitive pressure for balance and can hike the costs.

Free Open Source Software (FOSS)

"FOSS is like a normal car where you choose the best and most cost effective method of maintaining it. "

"Any FOSS developer can maintain or improve your software for you, so you are assured that you can always obtain top-quality service. This is rather than relying on the original vendor, who may choose to stop supporting you, or to manipulate the software licenses to achieve their corporate goals (typically their profit... at your expense). Even if you know nothing about engines, the fact that you can choose who maintains your car for you is a valuable thing."

dms
simply spatial

The British Government Example

The government has, for the first time, mandated a preference for using open source software for future developments.

> In digital public services, open source software is clearly the way forward
>
> Liam Maxwell, government CTO

http://www.computerweekly.com/news/2240179643/Government-mandates-preference-for-open-source

Why Open Source in NZ

- Central Government direction – NIWA, LINZ, Landcare moving to OSS
- Open Data Source – NZGOAL
- WFS/WMS, REST services and other Web Services are more advanced enabling better sharing of data
- Free data + Free Software = More utilisation

Benefits of Open Source Software

- Eliminate licence fees – free software
- No software contracts
- No fancy marketing budgets and roadshows bumping up prices
- Open web standards
- Mobile apps, tablet apps – ROAM
- Real time interaction with GIS out in the field.
- Open source databases - PostgreSQL

So why not use it in GIS?

- Proven Reliable
- Community driven
- Quick Development time
- Vendor Independent
- And of course Free

Desktop GIS

General GIS viewing, editing, and analysis on the desktop

QGIS

GRASS GIS

gvSIG

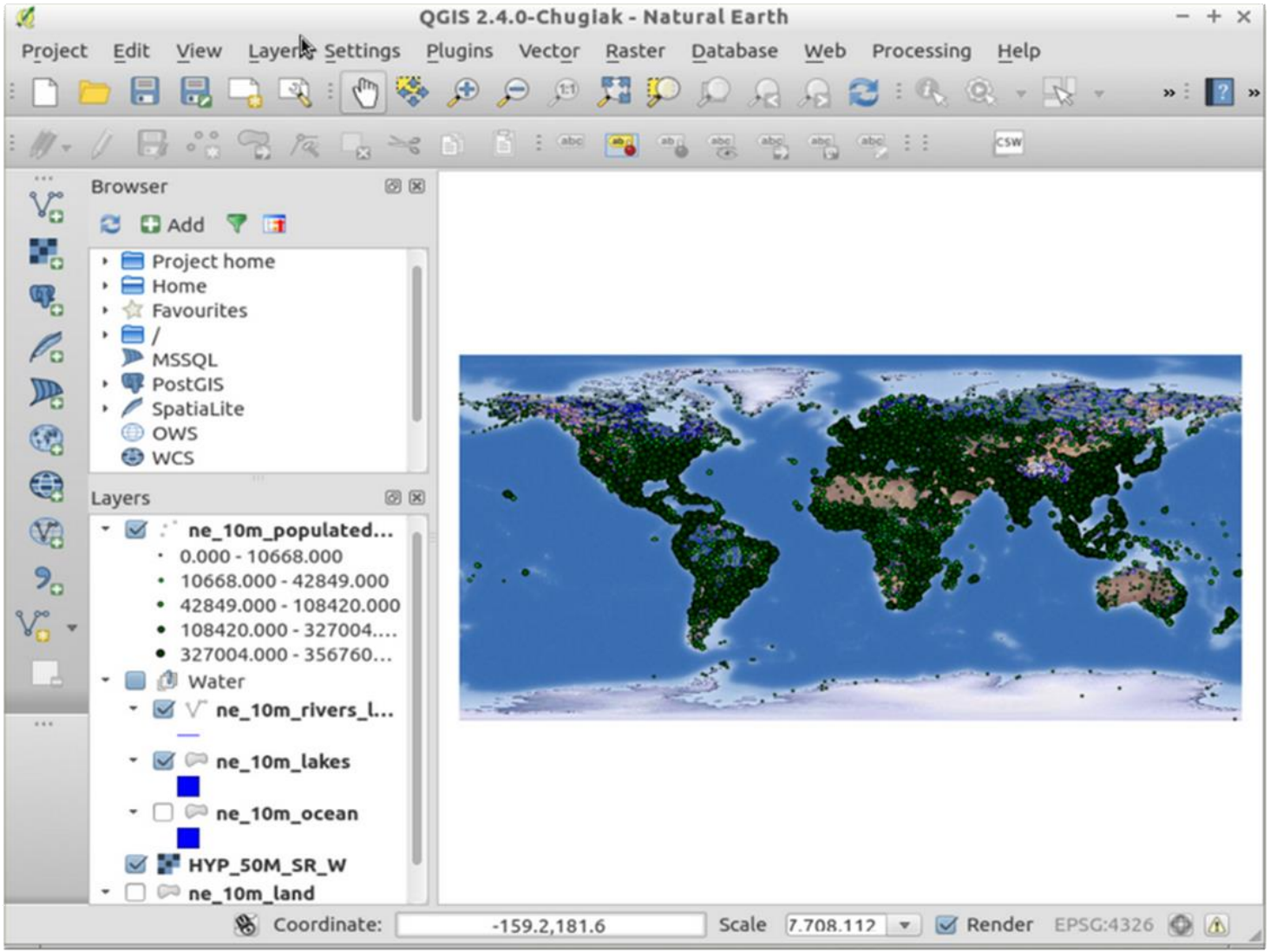
uDig

Kosmo

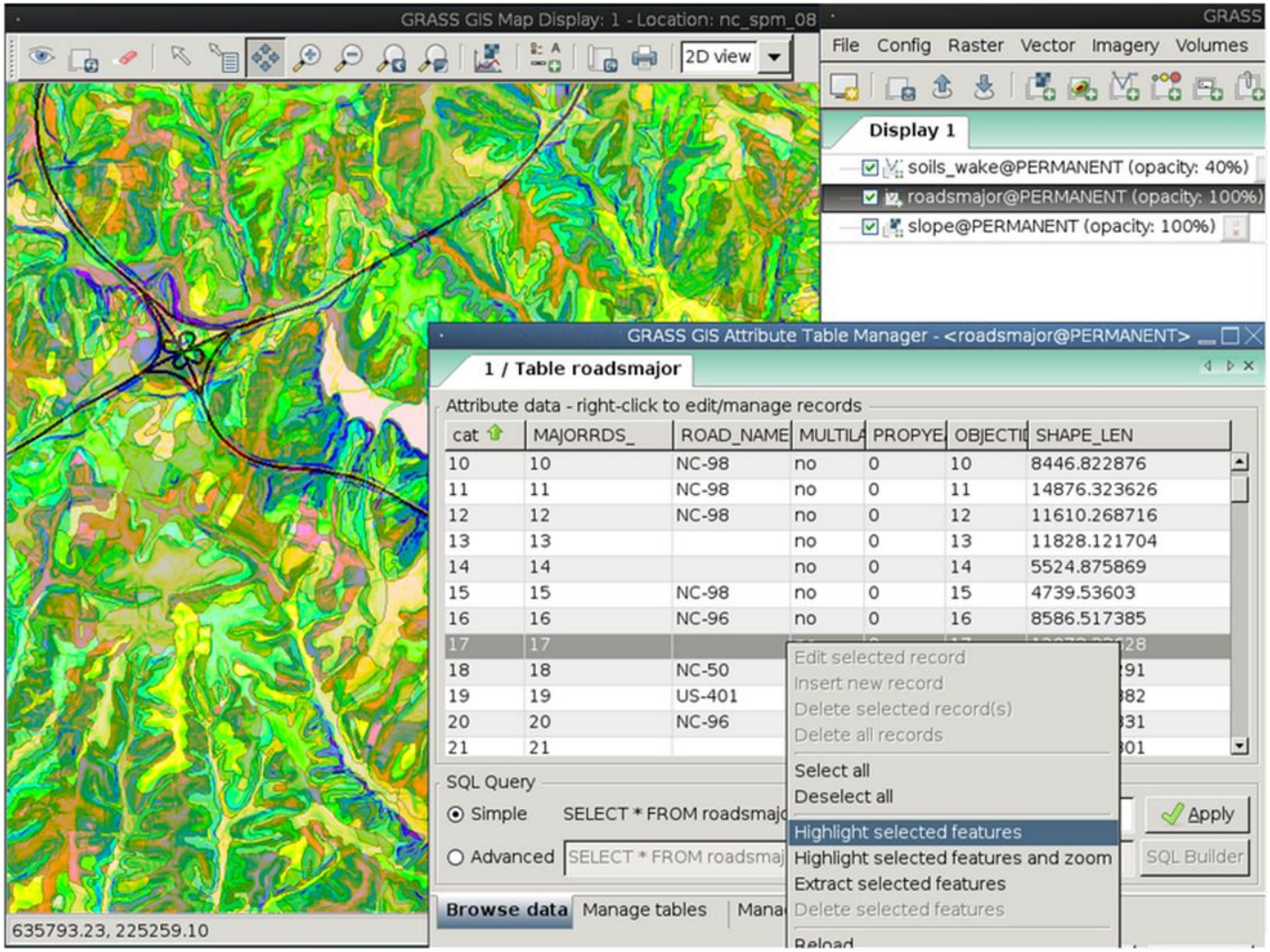
OpenJUMP

SAGA

QGIS - Desktop GIS



GRASS GIS


GRASS GIS Map Display: 1 - Location: nc_spm_08
2D view
GRASS
File Config Raster Vector Imagery Volumes
Display 1
soils_wake@PERMANENT (opacity: 40%)
roadsmajor@PERMANENT (opacity: 100%)
slope@PERMANENT (opacity: 100%)
GRASS GIS Attribute Table Manager - <roadsmajor@PERMANENT>
1 / Table roadsmajor
Attribute data - right-click to edit/manage records
cat MAJORRDS_ ROAD_NAME MULTILA PROPYE OBJECTID SHAPE_LEN
10 10 NC-98 no 0 10 8446.822876
11 11 NC-98 no 0 11 14876.323626
12 12 NC-98 no 0 12 11610.268716
13 13 no 0 13 11828.121704
14 14 no 0 14 5524.875869
15 15 NC-98 no 0 15 4739.53603
16 16 NC-96 no 0 16 8586.517385
17 17
18 18 NC-50
19 19 US-401
20 20 NC-96
21 21
Edit selected record
Insert new record
Delete selected record(s)
Delete all records
Select all
Deselect all
Highlight selected features
Highlight selected features and zoom
Extract selected features
Delete selected features
Reload
SQL Query
Simple SELECT * FROM roadsmajo
Advanced SELECT * FROM roadsmaj
Apply
SQL Builder
Browse data
Manage tables
635793.23, 225259.10

Web Services

Publishing spatial data to the internet

GeoServer

MapServer

deegree

ncWMS

EOxServer

GeoNetwork

pycsw

MapProxy

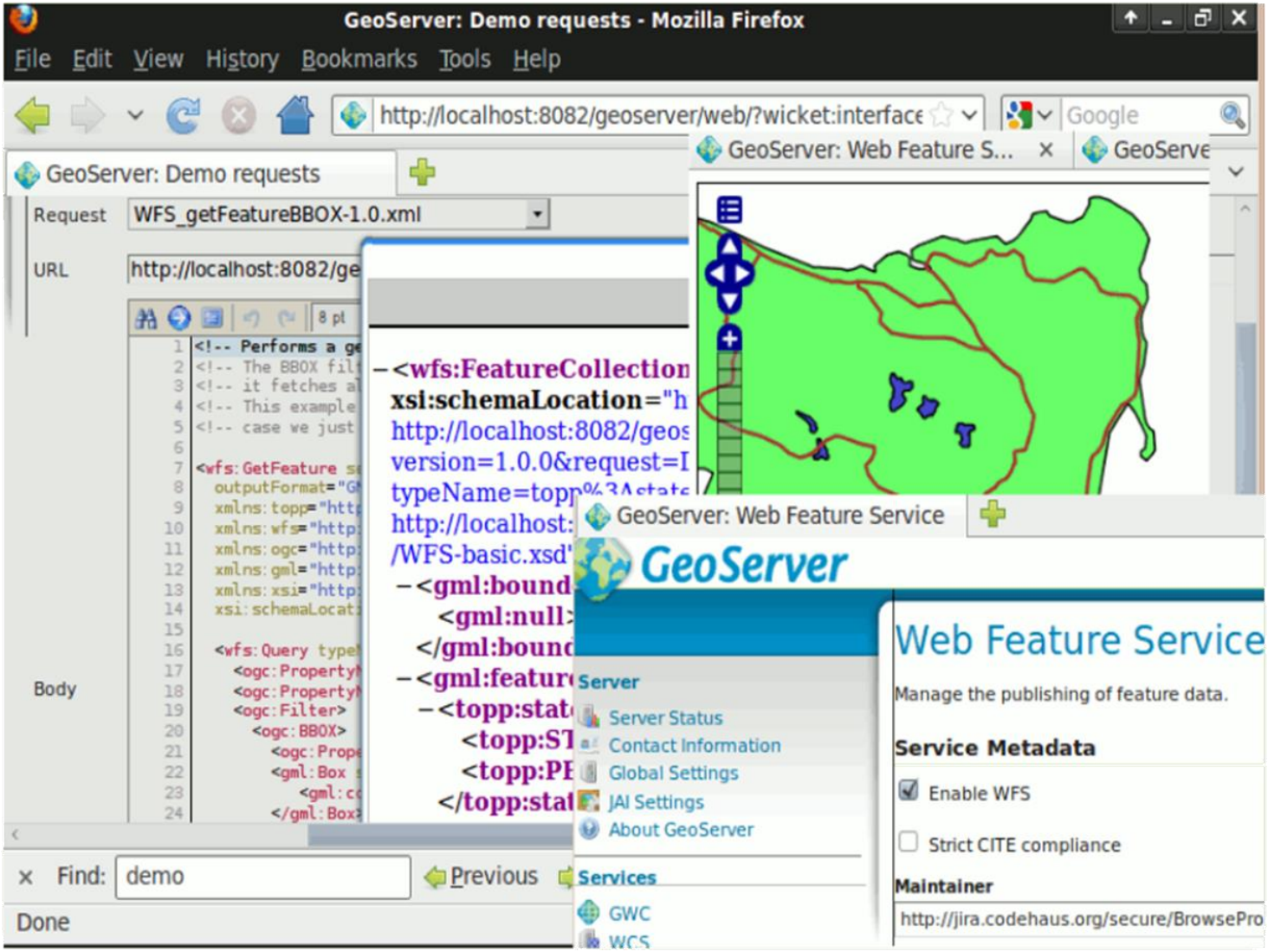
QGIS Server

52North WPS/SOS

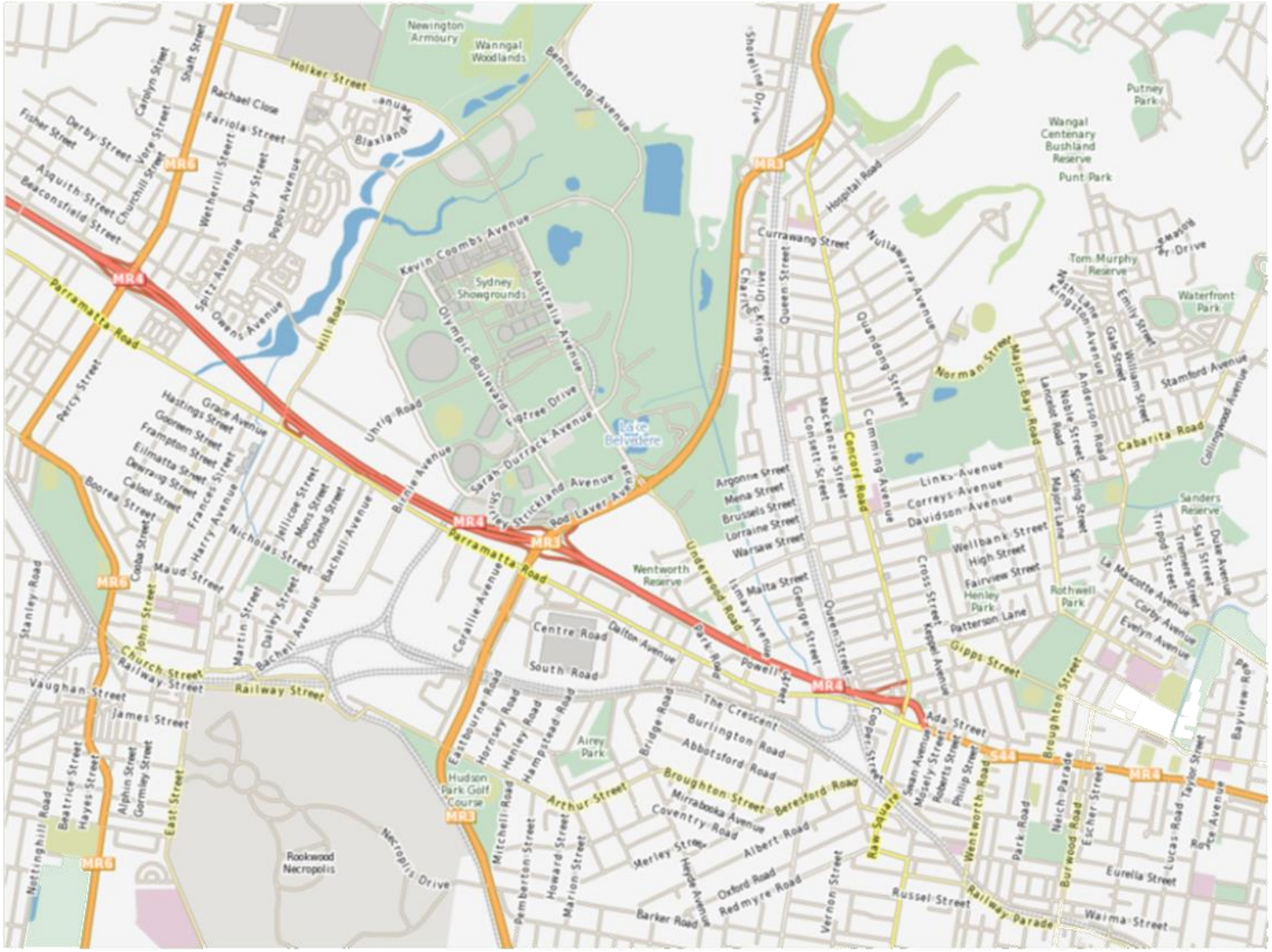
TinyOWS

Zoo Project

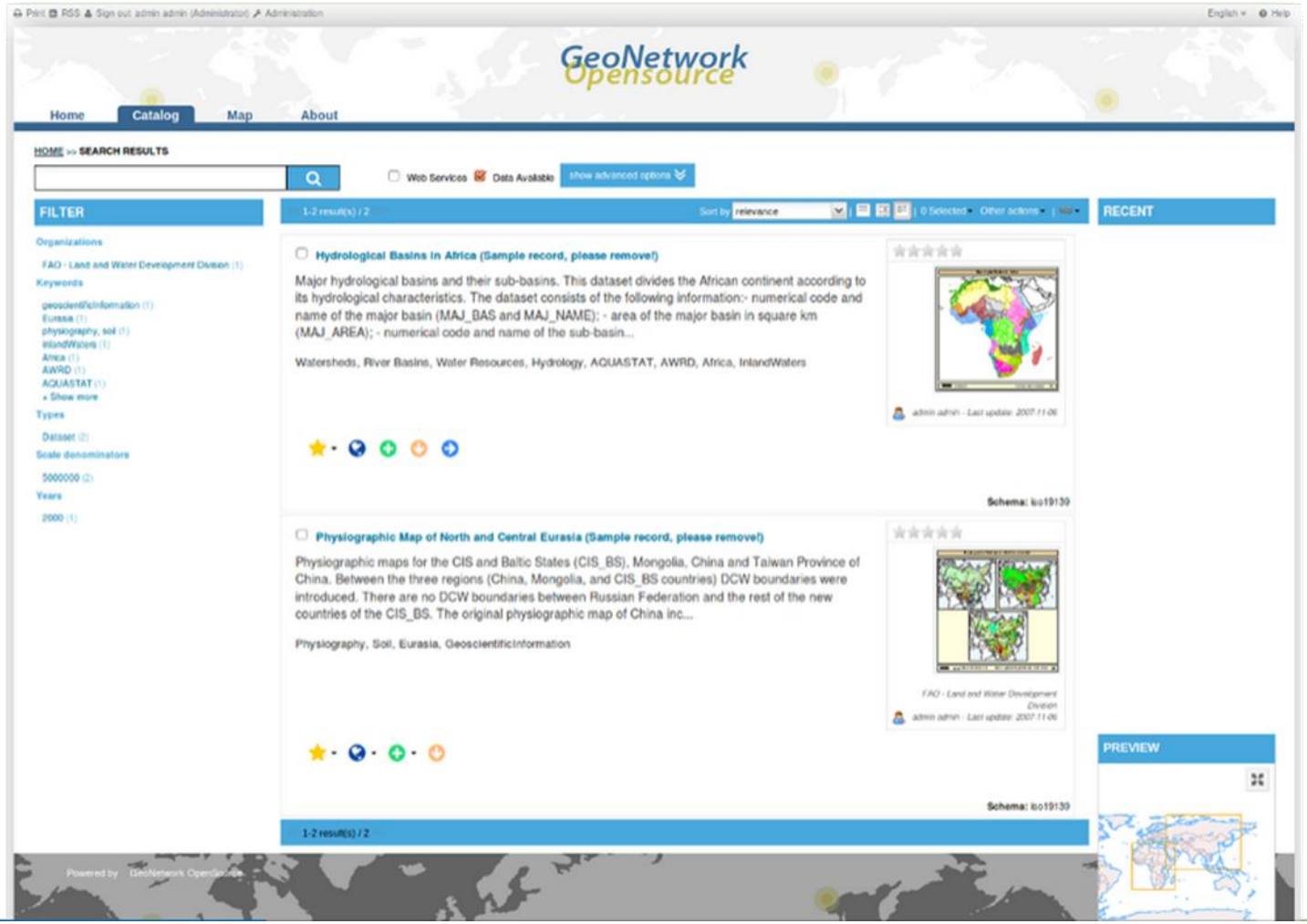
GeoServer - Web Services



MapServer - Web Services



GeoNetwork - Metadata Catalogue

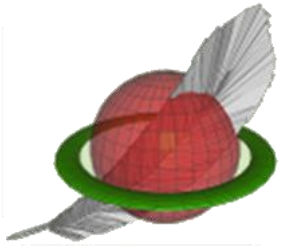


Data Stores

Storing spatial data

PostGIS

SpatialLite



rasdaman

pgRouting

PostgreSQL - Database

PostgreSQL

The world's most advanced open source database.

Home | About | Download | Documentation | Community | Developers | Support | Your account

PostgreSQL 9.4.1, 9.3.6, 9.2.10, 9.1.15 & 9.0.19 Released!

5th February 2015

The PostgreSQL Global Development Group is pleased to announce the availability of PostgreSQL 9.4.1, 9.3.6, 9.2.10, 9.1.15 & 9.0.19!

These new releases contain security and bug fixes over previous releases. All users should plan upgrade their systems as soon as possible.

» **Release Announcement**
» **Download**

LATEST RELEASES

9.4.1 · Feb. 5, 2015 · Notes
9.3.6 · Feb. 5, 2015 · Notes
9.2.10 · Feb. 5, 2015 · Notes
9.1.15 · Feb. 5, 2015 · Notes
9.0.19 · Feb. 5, 2015 · Notes

Download | RSS
Why should I upgrade?

SHORTCUTS

» Security
» International Sites
» Mailing Lists
» Wiki
» Report a Bug
» FAQs

SUPPORT US

PostgreSQL is free. Please support our work by making a donation.

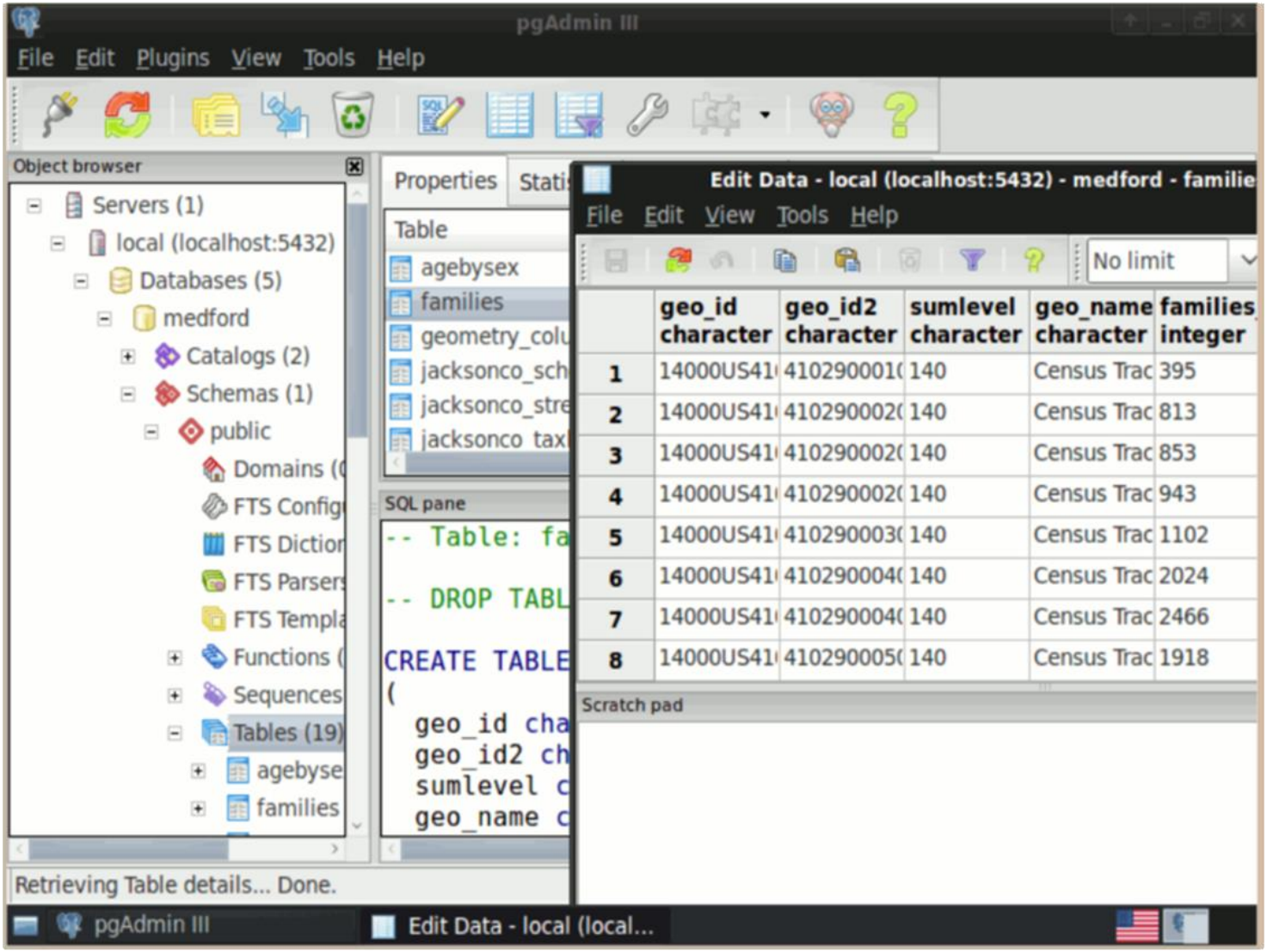
FEATURED USER

[With PostgreSQL] we have been quite successful in growing the databases as the company has grown, both in number of users and in the complexity of services we offer.

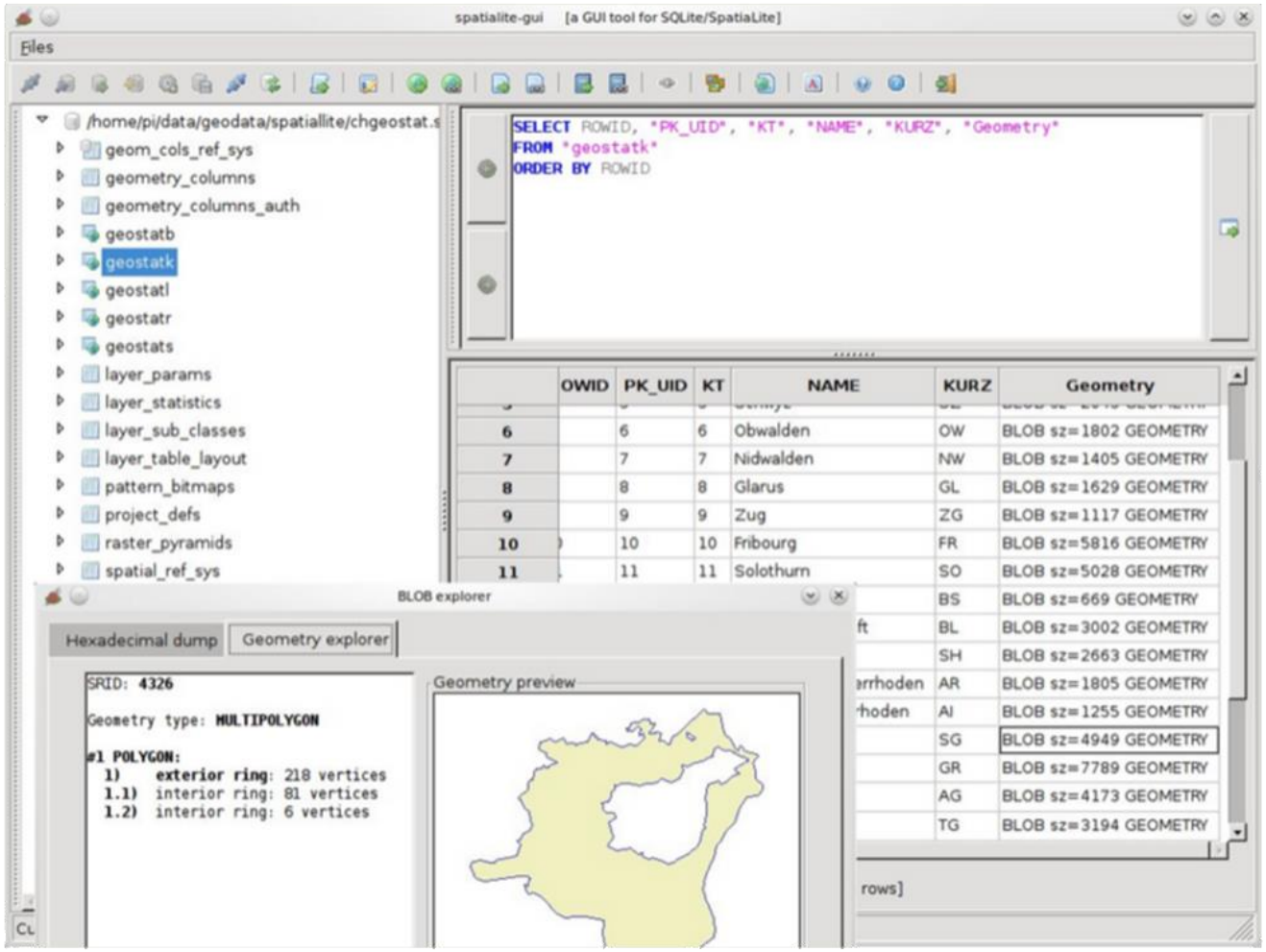
Hannu Krosing, Skype

» Case Studies | More Quotes | Featured Users

PostGIS - Spatial Database



SpatiaLite - Lightweight Database



Data

Spatial data sets

Land Information New Zealand
Toitū te whenua

Open Street Map

koordinates

Department of Conservation
Te Papa Atawhai

Statistics New Zealand
TATAURANGA AOTEAROA

NIWA
Taihoro Nukurangi

Landcare Research
Manaaki Whenua

ww.data.govt.nz

Government datasets online

data.govt.nz is a directory of publicly-available, non-personal New Zealand government held datasets. This site does not host data, instead it links to datasets held on other government websites. For more info, see About this site.

Find out about the New Zealand Open Government Information and Data Work Programme, and the Declaration on Open and Transparent Government.

Search, **browse**, or **list** government held datasets on data.govt.nz.

data.govt.nz

2827 datasets **122** data requests

Most common dataset keywords

- geo (2054)
- new zealand (1353)
- environment (1107)
- open government (355)
- sport and recreation (135)
- Chief Executive (134)
- Ministry of Transport (125)
- downloadable data (92)
- forecasts (85)
- Fiscal (78)
- tax (62)
- expenses (62)
- Soil (61)
- Health (58)
- classification (53)

Dataset categories

- Agriculture, forestry and fisheries
- Building, construction and housing
- Education
- Energy
- Fiscal, tax and economics
- Justice
- Local and regional government
- Population and society
- State sector performance
- Ministers, cabinet and portfolios
- Arts, culture and heritage
- Commerce, trade and industry
- Employment
- Environment and conservation
- Health
- Infrastructure
- Land
- Māori and Pasifika
- Migration
- Science and research
- Tourism
- Transport

Other open data sources

- Statisphere
- DigitalNZ
- Open Data Catalogue
- LINZ Data Service
- LRIS Portal
- Koordinates
- Geodata.govt.nz
- NZ.Stat

Department of Conservation
Te Papa Atawhai

Geoportal

Login Help About Feedback

HOME | SEARCH | BROWSE

Search

Type a search term or leave blank to return all records and click Search

Search

Results 1-10 of 41 record(s) 1 2 3 4 5 > Last

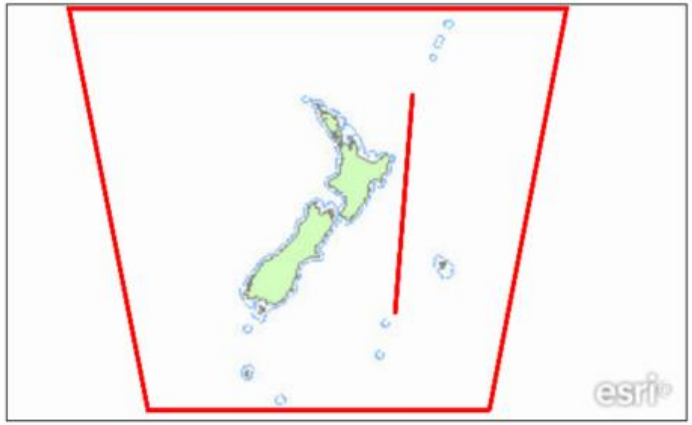
Expand results Zoom To Results Zoom To Searched Area

Records shown from: This Site
Click here to select different site or configure search.

Additional Options
Clear

WHERE

Anywhere Intersecting Fully within



- DOC Pesticide Summary Operational Areas July 2014
- DOC Pesticide Summary Operational Areas November 2014
- DOC Pesticide Summary Operational Areas March 2014
- DOC Pesticide Summary Operational Areas November 2013
- FENZ_BIOGEOGRAPHIC_Units_v1
- FENZ_BIOGEOGRAPHIC_Provinces_v1
- Kea Habitats With Scarce Rats
- Estuarine (Typology)
- Estuarine (Bathymetry)
- Estuarine (5m Depth Freshwater Flow)

See results through REST
API: GEORSS ATOM HTML FRAGMENT KML JSON

Download DOC GeoSpatial Data

On this page you will find a link to browse and download files that can be used with your GPS, Smartphone, Tablet, Google Maps, Google Earth and other mapping systems.

On this page you will find a link to browse and download files that can be used with your GPS, Smartphone, Tablet, Google Maps, Google Earth and other mapping systems.

Ensure you have read the terms and conditions, and associated metadata before using this information. A full metadata description is also available via the DOC GeoPortal.

We have also listed useful websites and links to software, data and other information of interest to GIS and GPS users.

- Download data sets
- Loading files to your GPS
- Important note for hunters
- Projection versus Datum
- GPS software, data sources and useful websites
- Terms and conditions of use
- Contact the DOC GeoSpatial Services Team

Landcare Research
Manaaki Whenua

HOME | ABOUT US | OUR SCIENCE | PUBLICATIONS | RESOURCES

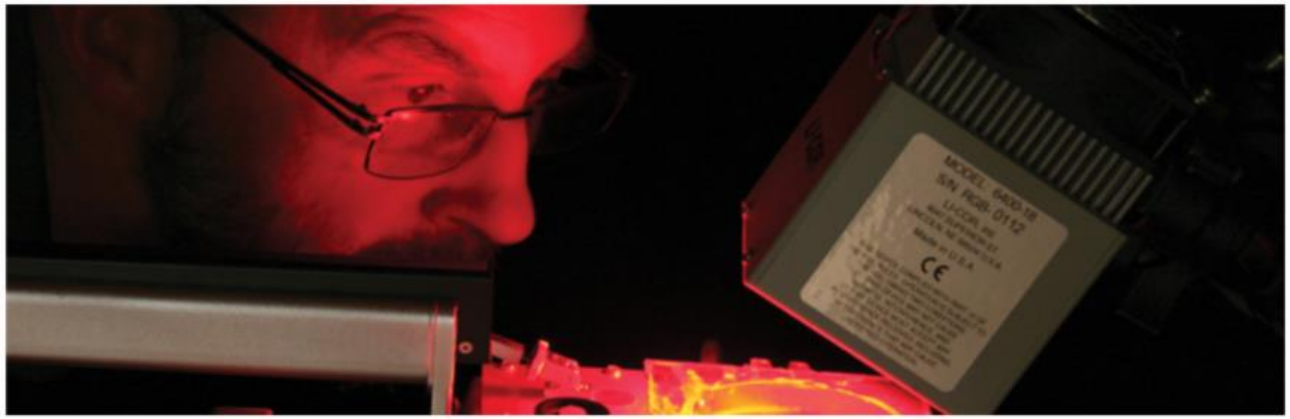
Data | Collections | Identification | Laboratories & diagnostics | Business solutions | Maps & satellites | Pest management | Teaching | Tools

DATA

- Adélie census data
- Ant distribution data
- Ecological Traits
- Ko te Aitanga Pepeke o Aotearoa - New Zealand Land Invertebrates
- Land Resource Information Systems (LRIS)
- OurEnvironment
- National Land Resource Centre
- National Vegetation Survey (NVS) databank
- Ngā Tipu Whakaoranga - Māori Plant Use Database
- Ngā Tipu Aotearoa – New Zealand Plants
- NZFungi
- NZ Lizards
- New Zealand Soils Portal
- S-mapOnline
- SINDI
- Systematics collections data
- Tussock grassland moths

Home » Resources » Data

DATA



Landcare Research is the custodian of a number of nationally significant biological and resource collections and databases.

Adélie census data

Ant distribution data

Ecological Traits of New Zealand Flora

Ko te Aitanga Pepeke o Aotearoa - New Zealand Land Invertebrates

statisphere

The Official Statistics System

- Home
- Official Statistics and the OSS
- Seminars, Training and Forums
- Tier 1 statistics
- The Source
- Survey Notification System
- Further resources and information
- FAQ
- Help

Welcome to Statisphere

Statisphere is New Zealand's official statistics portal – enabling users, producers and researchers to find available information about New Zealand's Official Statistics System.

Statisphere is an important element in strengthening and coordinating official statistics on a whole-of-government basis. This portal includes:

- information about official statistics and the Official Statistics System (OSS)
- a listing of the most important statistics (Tier 1 statistics)
- the principles and protocols for producers of Tier 1 statistics
- other supporting statistical resources.

Please note the 'Statistics by Agency' and 'Statistics by Subject' pages have been temporarily removed, pending a review and update of the content. Any queries regarding this, please contact the Information Centre on 0508 525 525 or email info@stats.govt.nz.

newzealand.govt.nz

Statistics New Zealand
TATAURANGA AOTEAROA

Back to top

Official Statistics Programme | Statistics New Zealand
Statistics House, The Boulevard, Harbour Quays, PO Box 2922, Wellington, New Zealand.
Ph: 0508 525 525 Fax:+64 4 931 4079
For other government services go to newzealand.govt.nz

Disclaimer/Copyright | Privacy/Security Page last updated: Wed 16 Jul 2014

Statistics New Zealand

NZ.Stat

Get data on demand

Data by theme | Popular queries

Find in Themes » Reset

All Themes

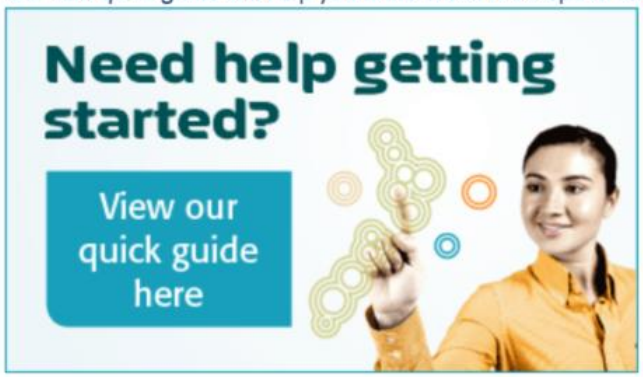
- Agriculture
- Business demography statistics
- Business Operations
- 2001 Census
- 2006 Census
- 2013 Census
- Crime
- Disability
- Employment and unemployment
- Housing
- Immigration
- Imports and exports
- Incomes
- Injury
- Justice
- LEED
- Maori
- Population estimates
- Population projections

HIDE NAVIGATION

Welcome to the DataHub table viewer

NZ.Stat lets you view and download the information you want from large datasets. You can select variables and customise your table layout, then download the table in Excel or CSV format.

Our new quick guide will help you understand the steps to take to customise and download your table.



To customise and download a table

Step 1: Find a dataset by:

- clicking **Choose theme** or **Popular queries** in the left navigation panel
- using the search box in the top right corner.

Step 2: Click on the dataset you're interested in. A default view of the table will be displayed.
Step 3: Use the drop-down menu under **Customise** to select variables or change the table layout.
Step 4: Click **Export** to download your table in Excel or CSV format.

OpenStreetMap.org.nz

The Free Wiki World Map

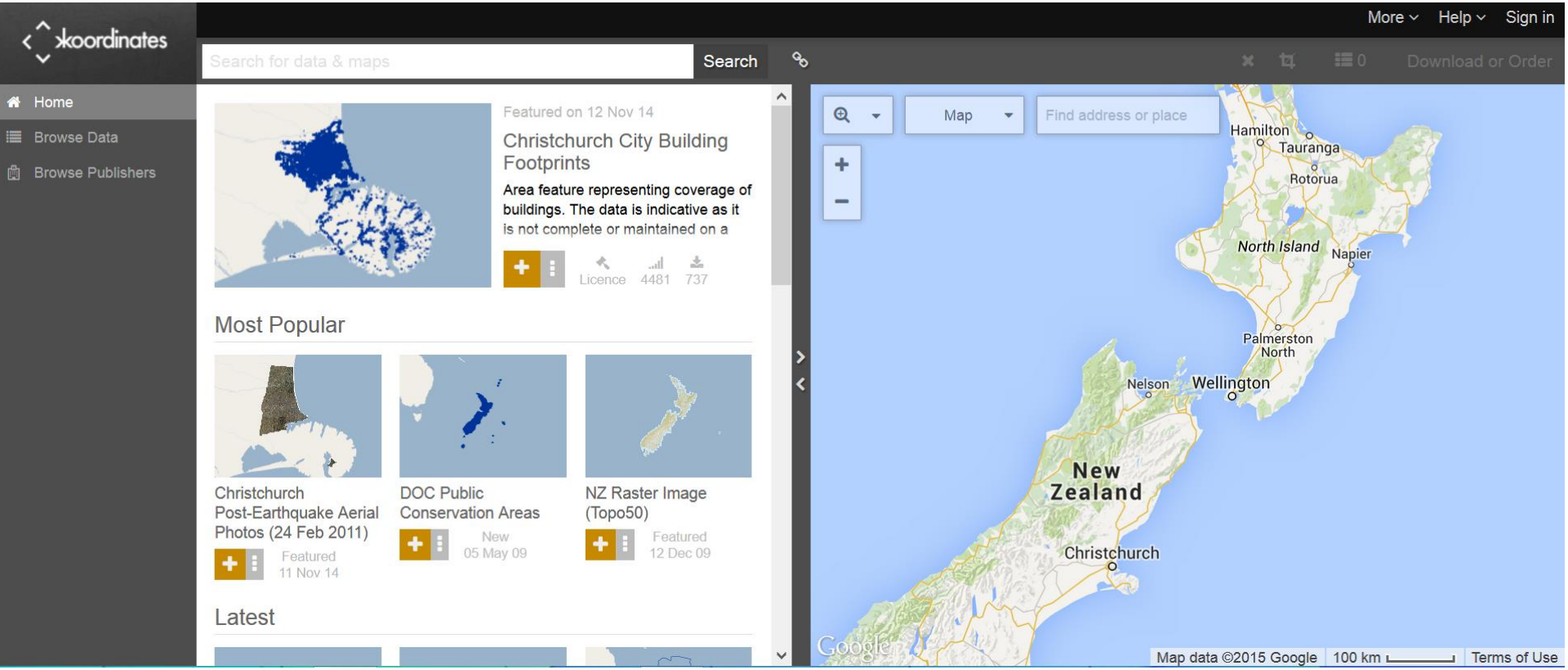
Map | FAQs | Wiki | OpenStreetMap.org

Frequently asked Questions

- What is OpenStreetMap?
- How can I get involved?
- How is the data licensed?
- How good is the data?

Events

- Auckland OpenStreetMap meetings
- Wellington OpenStreetMap meetings


koordinates
More
Help
Sign in
Search for data & maps
Search
Download or Order
Home
Browse Data
Browse Publishers
Featured on 12 Nov 14
Christchurch City Building Footprints
Area feature representing coverage of buildings. The data is indicative as it is not complete or maintained on a
Licence
4481
737
Most Popular
Christchurch Post-Earthquake Aerial Photos (24 Feb 2011)
Featured 11 Nov 14
DOC Public Conservation Areas
New 05 May 09
NZ Raster Image (Topo50)
Featured 12 Dec 09
Latest
Map
Find address or place
Hamilton
Tauranga
Rotorua
North Island
Napier
Palmerston North
Nelson
Wellington
New Zealand
Christchurch
Google
Map data ©2015 Google
100 km
Terms of Use

LINZ Data Service

Free online access to New Zealand's most up-to-date land and seabed data.

Combine data about 'where' with layers of other non-personal information like population density, housing data, and travel patterns, and you have at your fingertips a powerful analytical tool that helps increase efficiencies, promote productivity and better resource decisions.

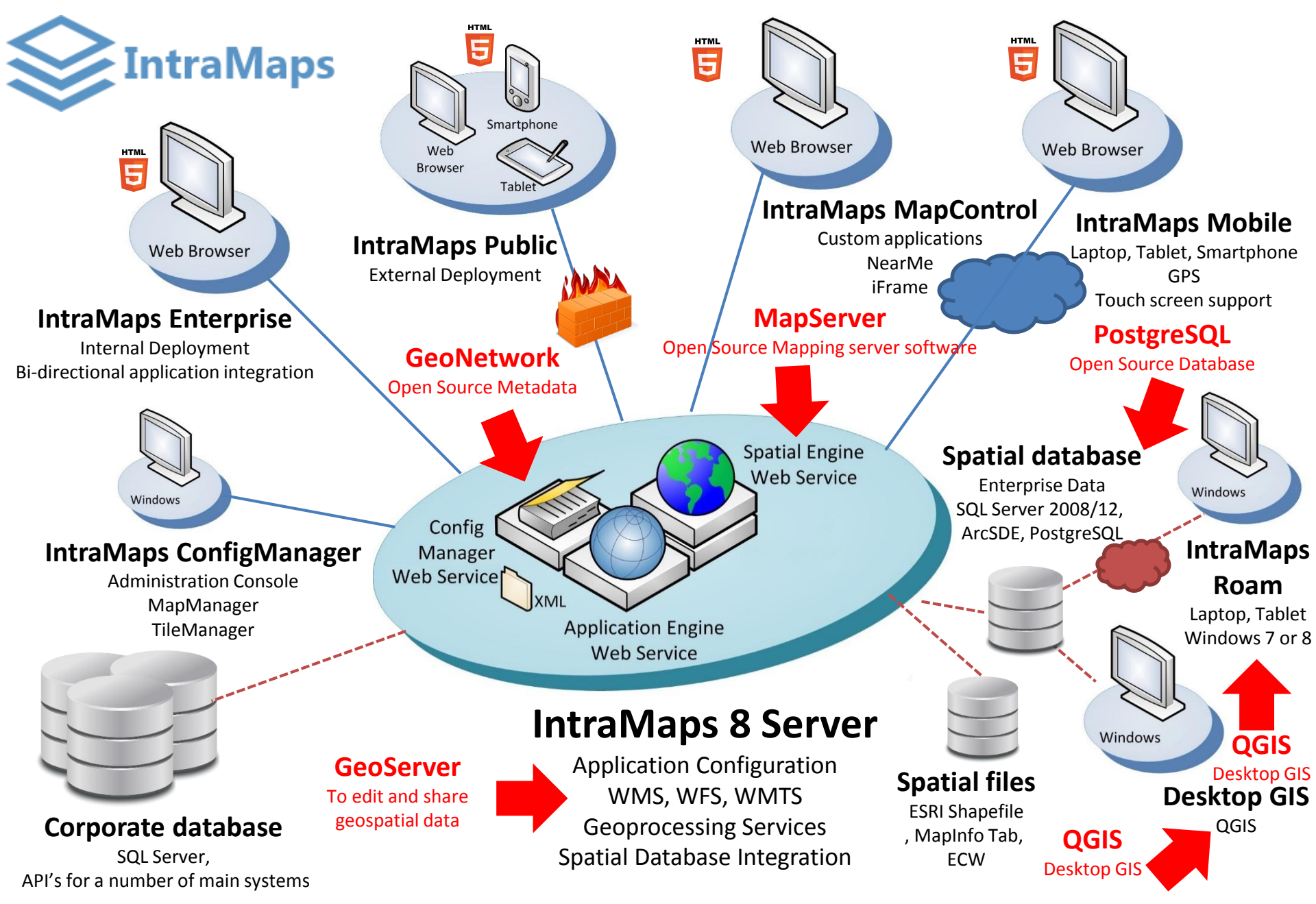
Visit the LINZ Data Service →

Data News

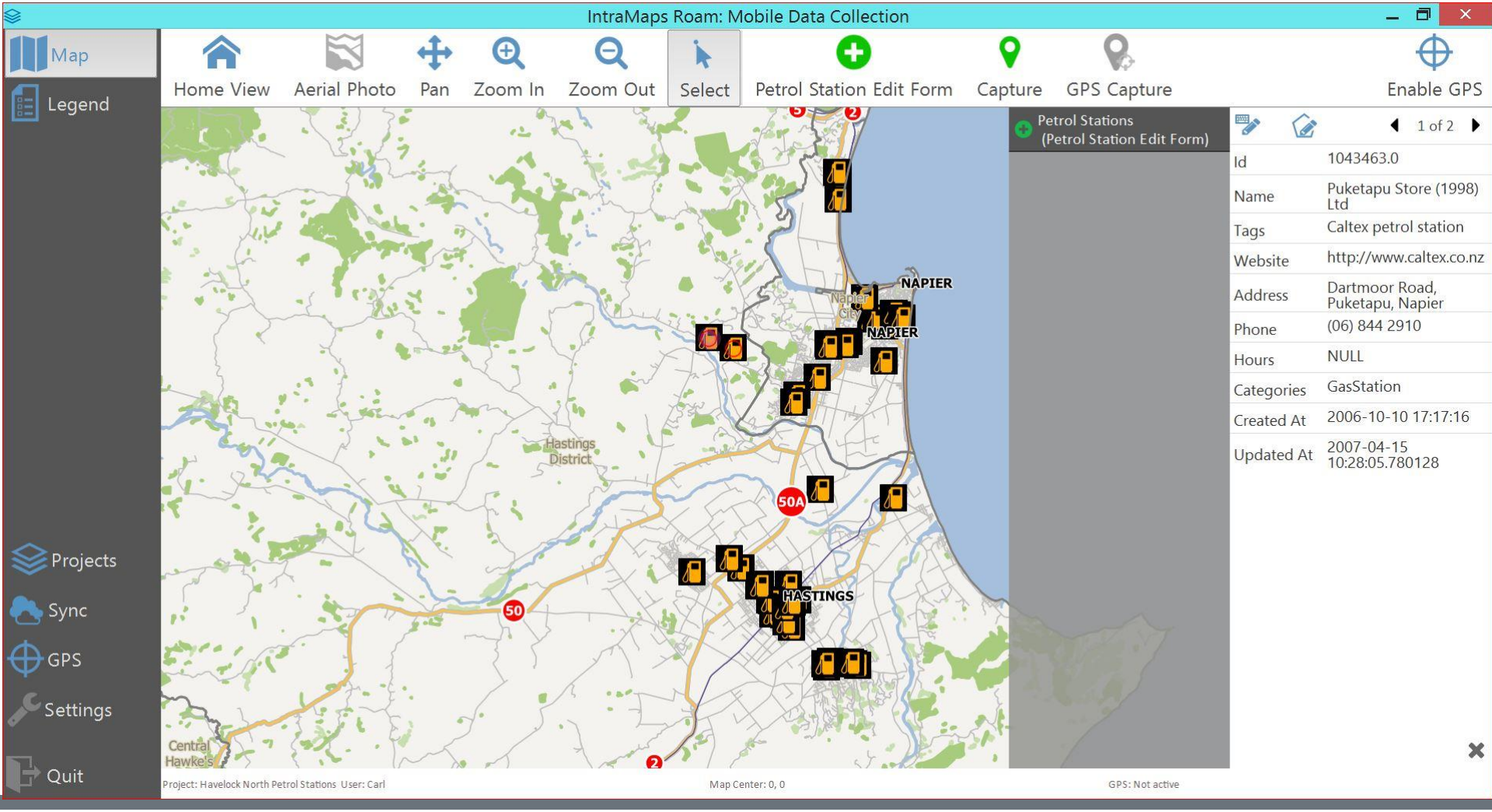
- → UN urges global approach to geodesy | 30 March 2015
- → Project supports Pacific safety improvements | 4 March 2015
- → Ministry for the Environment launches new data service | 3 March 2015
- → New Zealand leading in open data | 5 February 2015
- → LINZ Data Service update December 2014 | 19 December 2014
- → LINZ Data Service Update October 2014 | 13 October 2014

Where is Open Technology taking us

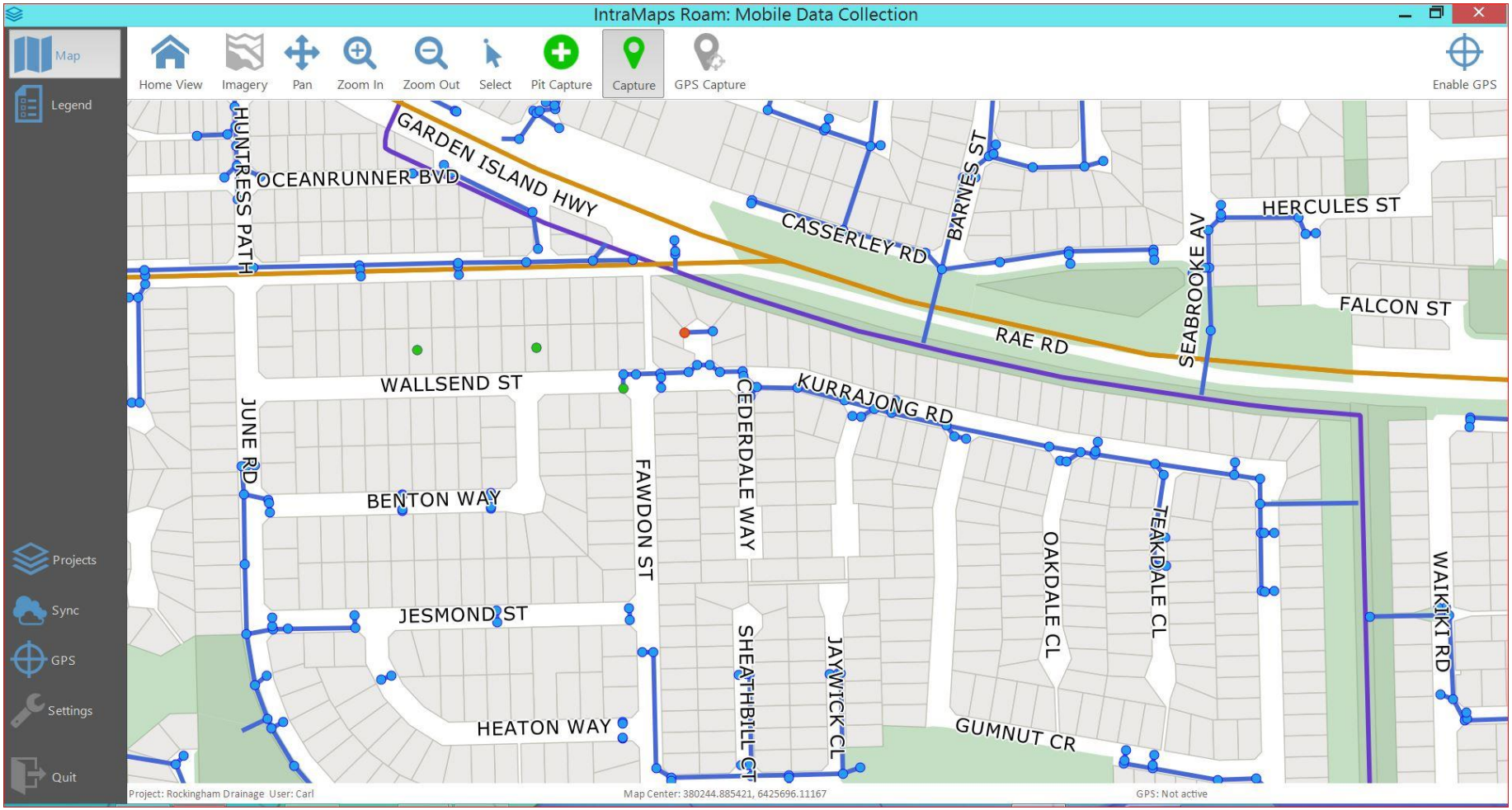
- JavaScript
- HTML5
- CSS
- OGC Standards
  - WMS
  - WFS
  - TMS


IntraMaps
HTML
Web Browser
Smartphone
Tablet
IntraMaps Public
External Deployment
Web Browser
IntraMaps MapControl
Custom applications
NearMe
iFrame
Web Browser
IntraMaps Mobile
Laptop, Tablet, Smartphone
GPS
Touch screen support
IntraMaps Enterprise
Internal Deployment
Bi-directional application integration
GeoNetwork
Open Source Metadata
MapServer
Open Source Mapping server software
PostgreSQL
Open Source Database
Windows
IntraMaps ConfigManager
Administration Console
MapManager
TileManager
Spatial Engine
Web Service
Config
Manager
Web Service
XML
Application Engine
Web Service
Spatial database
Enterprise Data
SQL Server 2008/12,
ArcSDE, PostgreSQL
Windows
IntraMaps
Roam
Laptop, Tablet
Windows 7 or 8
Windows
QGIS
Desktop GIS
Desktop GIS
QGIS
Corporate database
SQL Server,
API's for a number of main systems
GeoServer
To edit and share
geospatial data
IntraMaps 8 Server
Application Configuration
WMS, WFS, WMTS
Geoprocessing Services
Spatial Database Integration
Spatial files
ESRI Shapefile
, MapInfo Tab,
ECW
QGIS
Desktop GIS

ROAM – Mobile App



Free Mobility Software



Free Mobility Software

Free Mobility Software

Pit Capture

Cancel | Save

Pit Number	This value will be populated when the feature is saved
Pit Type	BUP - Bubble Up Pit
Pit Lid Type	CA - Cast Iron / **CI - Concrete Insert** / CO - Concrete / F - Fibreglass / GA - Steel-Gatic / GR - Grate / UNK - Unknown
Pit Construction Type	PC - Pre-cast Concrete / **CI - Cast Insitu Concrete** / BR - Brick / UNK - Unknown
Diameter Width (mm)	16
Depth (m)	1
Litter Trap	☒
Condition Rating	1 / 2 / **2** / 4 / 5
Comments	Cracked Concrete
Date Inspected	This value will be populated when the feature is saved
Photo	

Project: Rockingham Drainage User: Carl | Map Center: 380244.885421, 6425696.11167 | GPS: Not active

Free Mobility Software

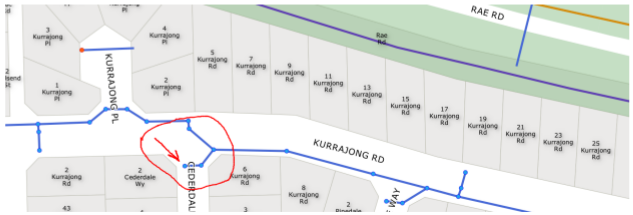
IntraMaps Roam: Mobile Data Collection

Map
Data Entry
Legend

Pipe Capture

Cancel
Save

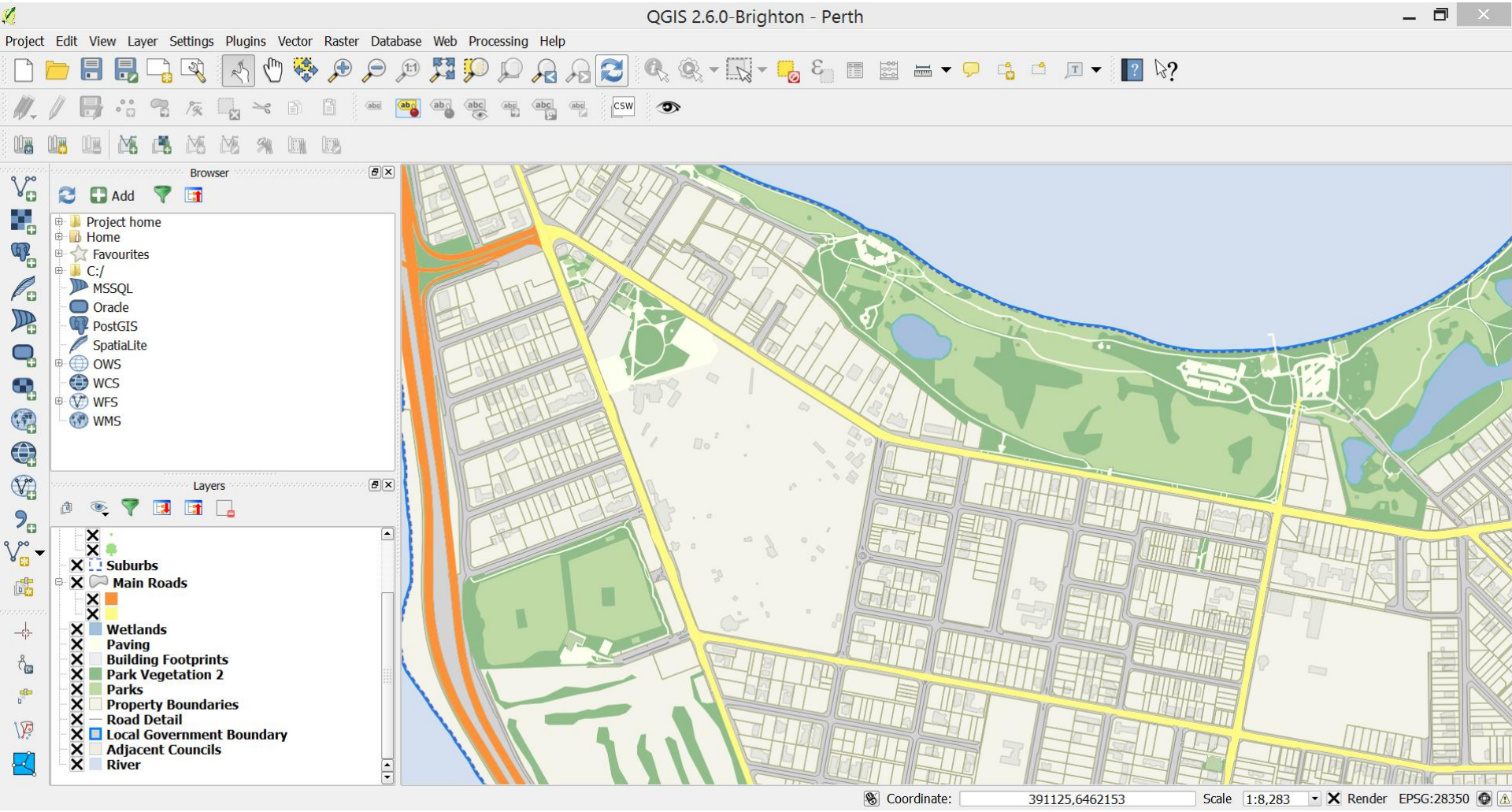
Upstream Pit ID	XTG_09001
Downstream Pit ID	
Length (auto)	46.4998907299968
Diameter Width (mm)	15
Height (mm)	1
Construction Material	PVC - Polyvinylchloride
Design Company Name	
Condition	Good / Bad / Really Bad
Comments	New pipework
Date Inspected	This value will be populated when the feature is saved
Photo	



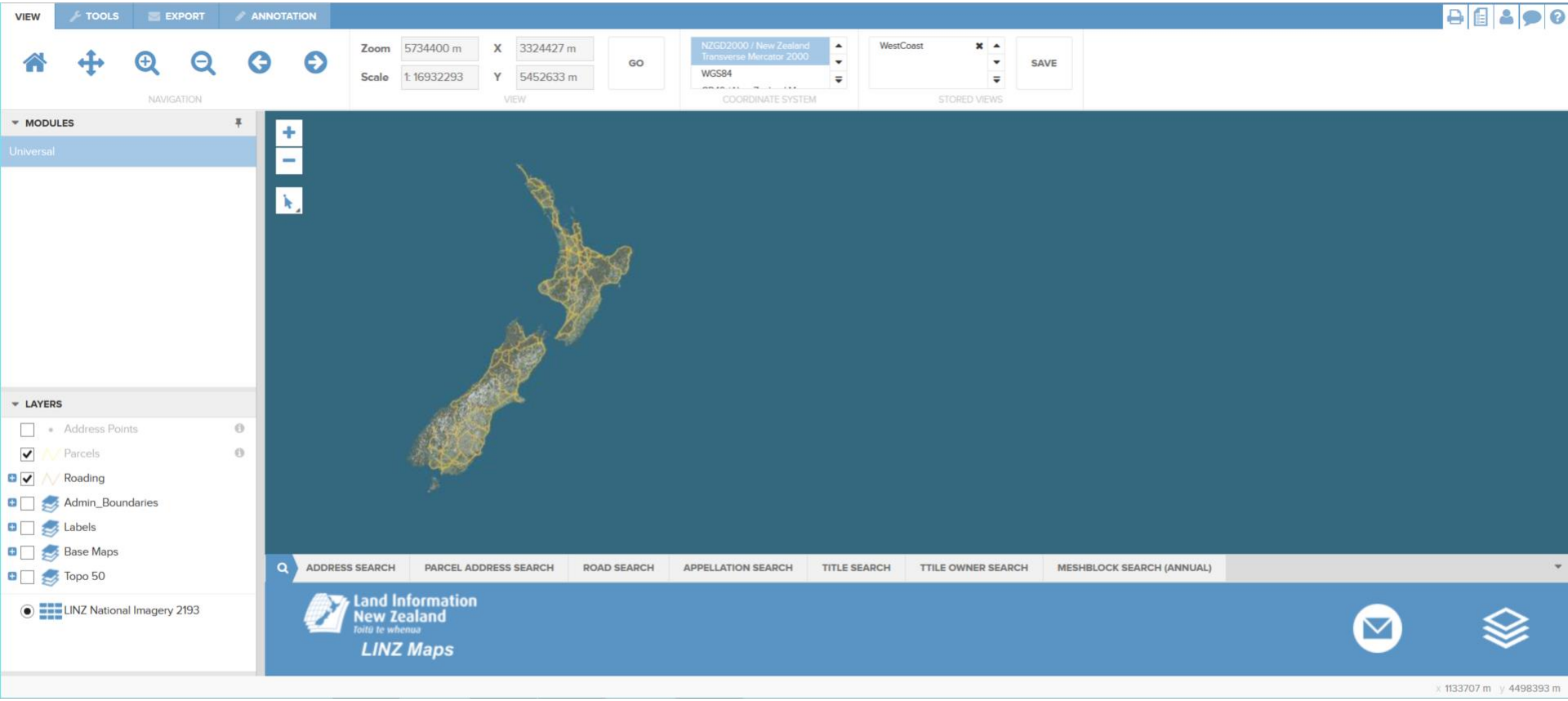
Projects
Sync
GPS
Settings
Quit

Project: Rockingham Drainage User: Carl
Map Center: 380242.336724, 6425756.94058
GPS: Not active

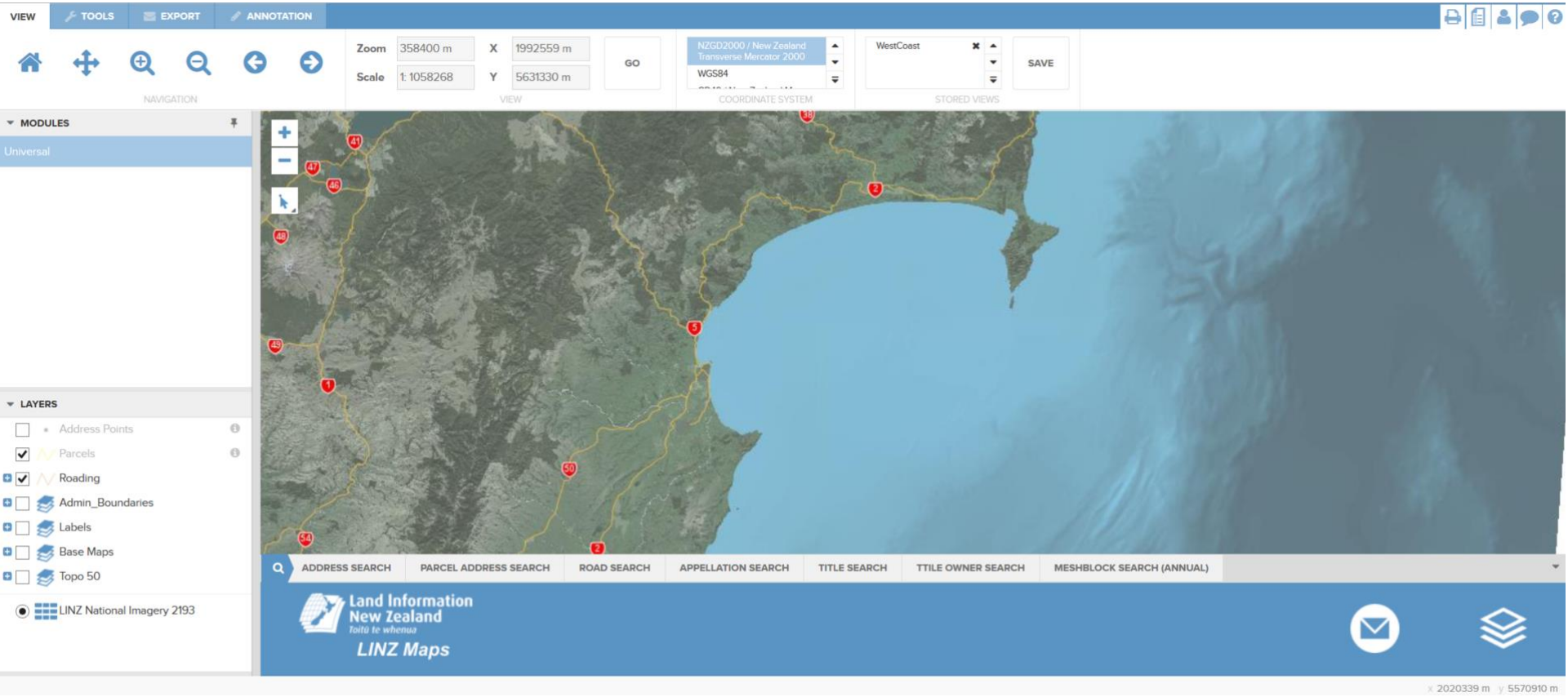
Free Desktop GIS - QGIS



LINZ Internal Viewer



LINZ Internal Viewer



LINZ - Metadata

VIEW | TOOLS | EXPORT | ANNOTATION

NAVIGATION

Zoom 286720 m X 2013697 m
Scale 1: 1058268 Y 5661883 m
GO
VIEW

NZGD2000 / New Zealand Transverse Mercator 2000
WGS84
COORDINATE SYSTEM

WestCoast
SAVE
STORED VIEWS

MODULES
Universal

LAYERS
- Address Points
- Parcels
- Roading
- Admin_Boundaries
- Labels
- Base Maps
- Topo 50
- LINZ National Imagery 2193

PARCELS

	or historic parcels see the [All Parcels Layer](http://data.linz.govt.nz/layer/1571-nz-all-parcels) The originating data for parcel/title associations includes some non-official sources where the official data does not support a link. For more information [see](http://www.linz.govt.nz/about-linz/linz-data-service/dataset-information/cadastral-titles-data)
lastupdate	26/11/2014 12:00:00 AM
filepath_database	
filepath_mapcache	

ROAD SEARCH | APPELLATION SEARCH | TITLE SEARCH | TTILE OWNER SEARCH | MESHBLOCK SEARCH (ANNUAL)

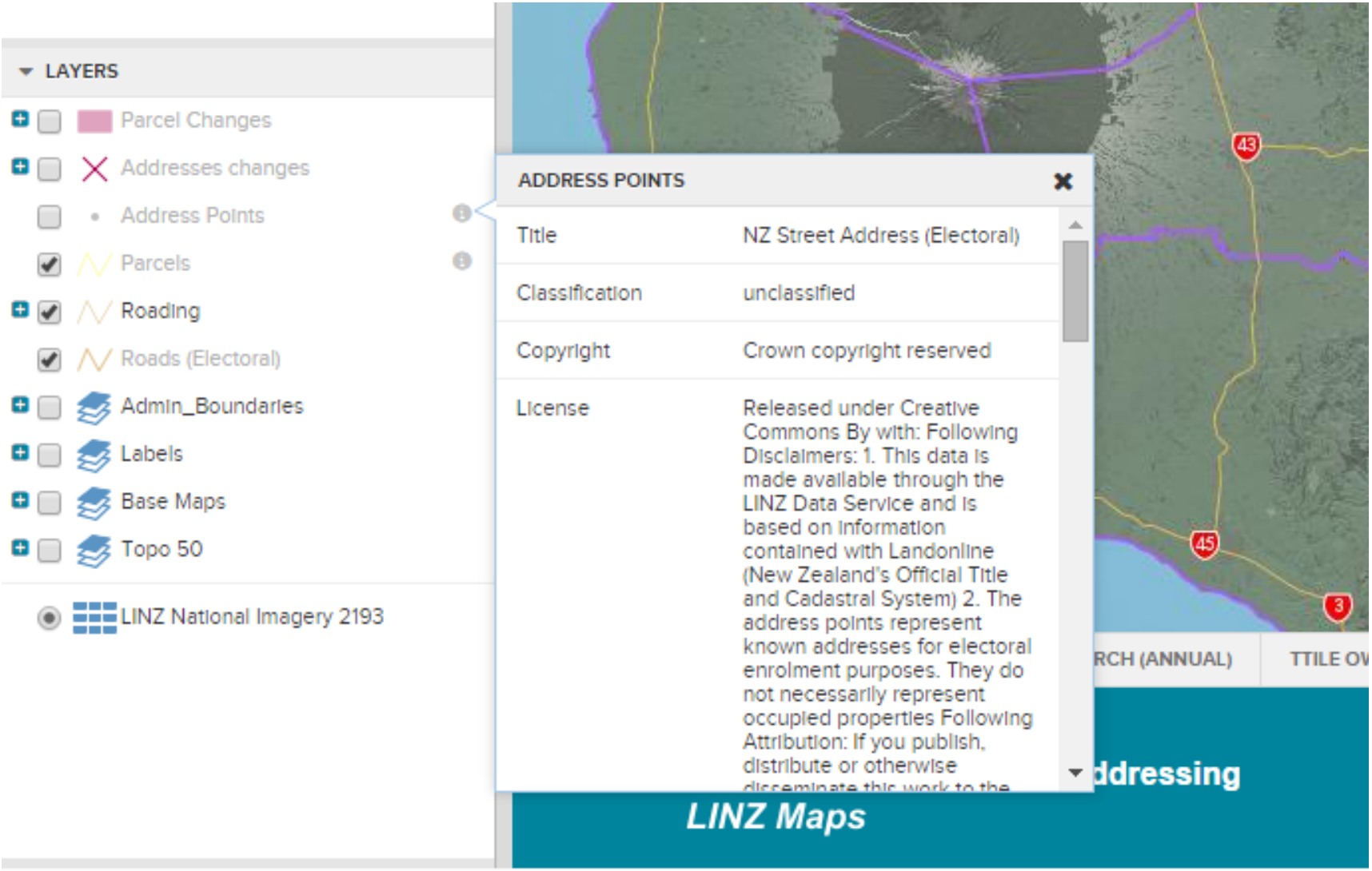
ADDRESS POINTS

ADDRESS DETAILS 1 OF 1

id	1756454
rna id	1803091
rcl id	321919
address	257 Mahanga Road
house number	257
range low	257
range high	0
road name	Mahanga Road
locality	Mahia
territorial authority	Wairoa District
shape x	2019655.34117

x 1922197 m y 5663343 m

LINZ - Metadata



LINZ - PostgreSQL

IntraMaps 8 ConfigManager

File Help

Project | Database | Spatial | Print | Admin

- LDS Parcel
  - Search Forms
    - Parcel Address Search
    - Appellation Search
    - Title Search
    - Ttile Owner Search
    - TEST Address Search
  - Mapkey Queries
    - Parcel Addresses
    - Info List Parcel Addresses
    - Google StreetView TEST ONLY
    - Titles
    - Title Owners
    - Related Survey Plan
    - Shallow Surface Movement
  - Dbkey Queries
  - ComboBox Queries
- LDS Roads
- LDS Survey Plans
- LDS Street Addresses
- External Meshblock (Annual)
- Shallow surface contours
  - Search Forms
    - Shallow_Surface_Countours
  - Mapkey Queries
    - Shallow_Surface_Contours
    - Building Consents Count
    - Address Count
    - Count of Survey Plans
  - Dbkey Queries
  - ComboBox Queries
    - Contour Types
    - tables
- Building Consents

Database > Shallow surface contours > Mapkey Queries > Count of Survey Plans

Reset | Apply | Test | References

Name: Count of Survey Plans

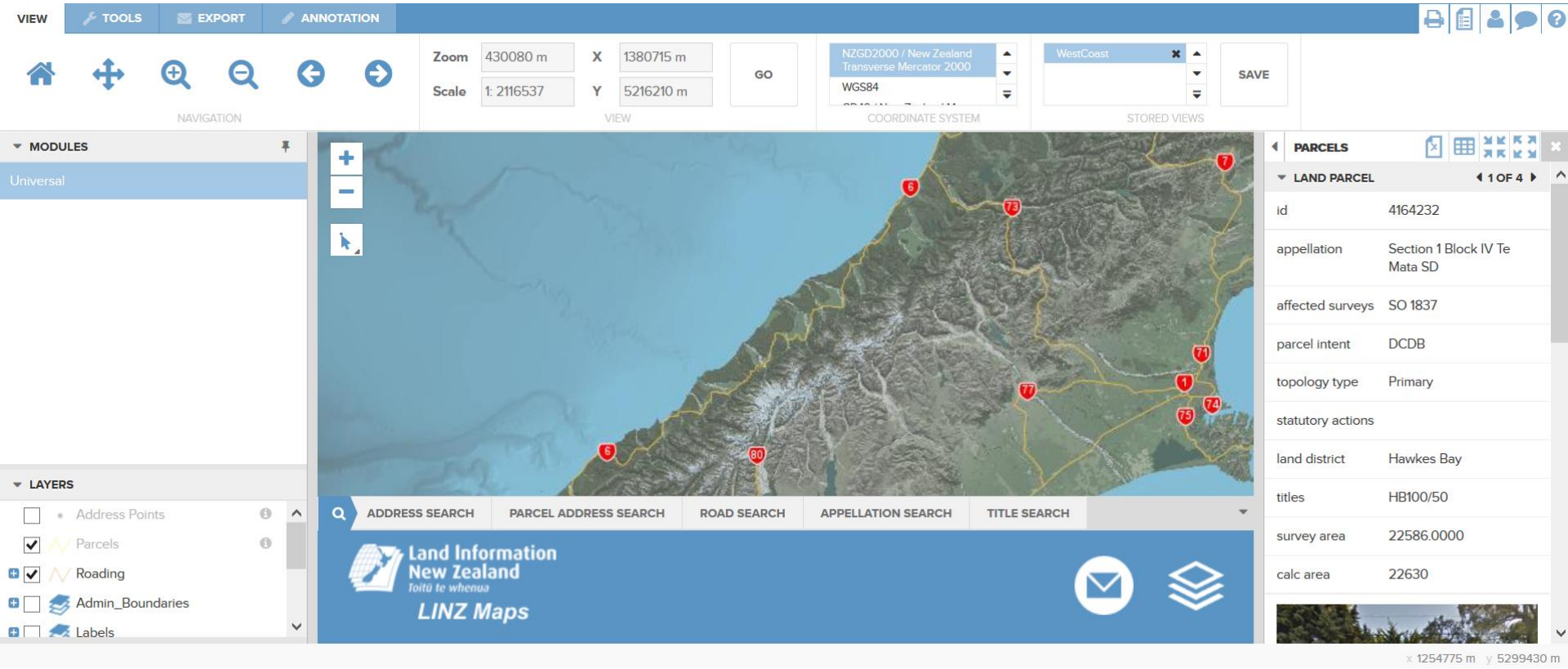
Test Value: @mapkey 5

Query

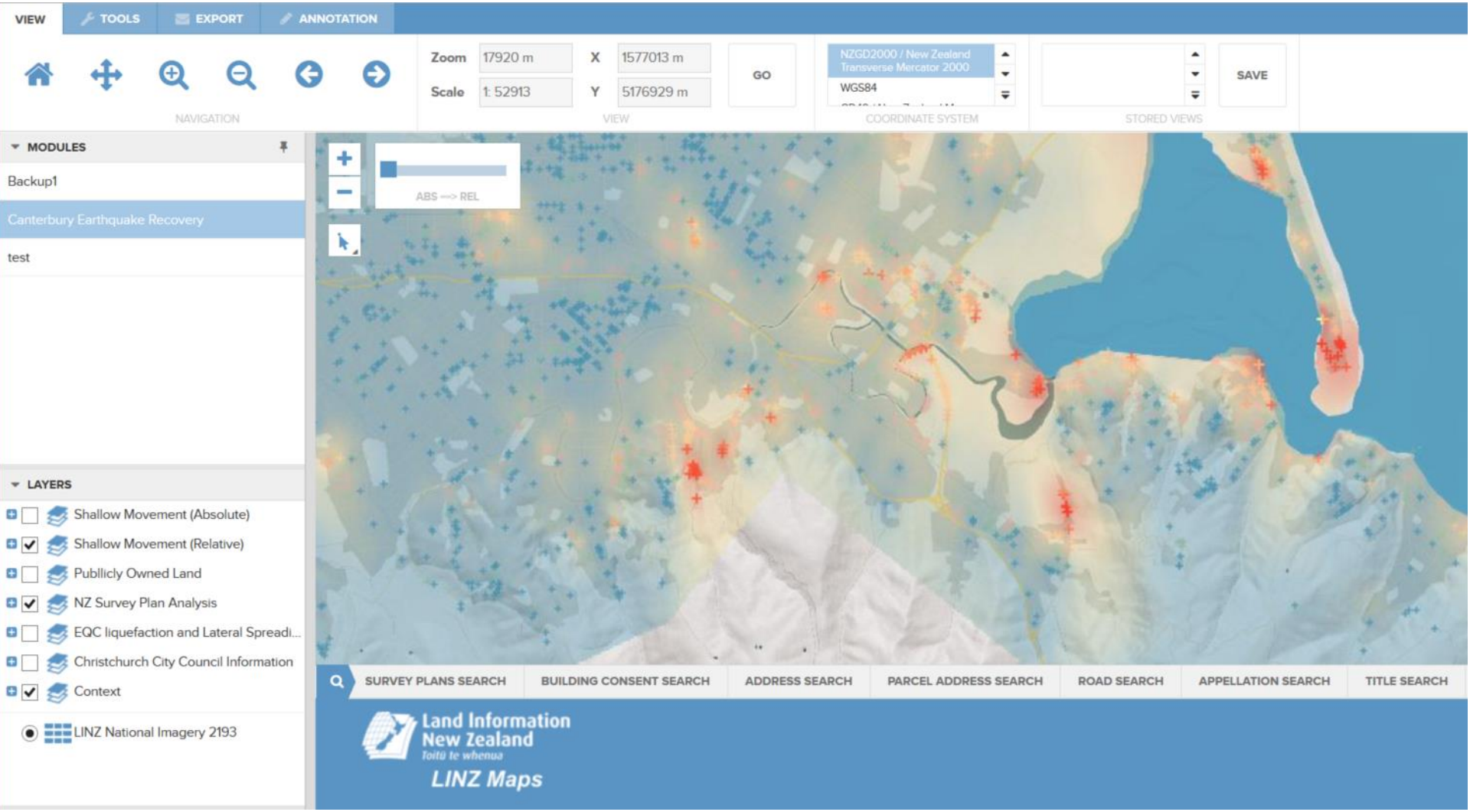
```
SELECT
      count(b.id) as "Number of Survey Plans"

FROM  nz_survey_plans b,  cera_shallow_movement_contours s
WHERE ST_Intersects(ST_Transform(b.wkb_geometry,4167), s.wkb_geometry)
      AND s.id=@mapkey;
```

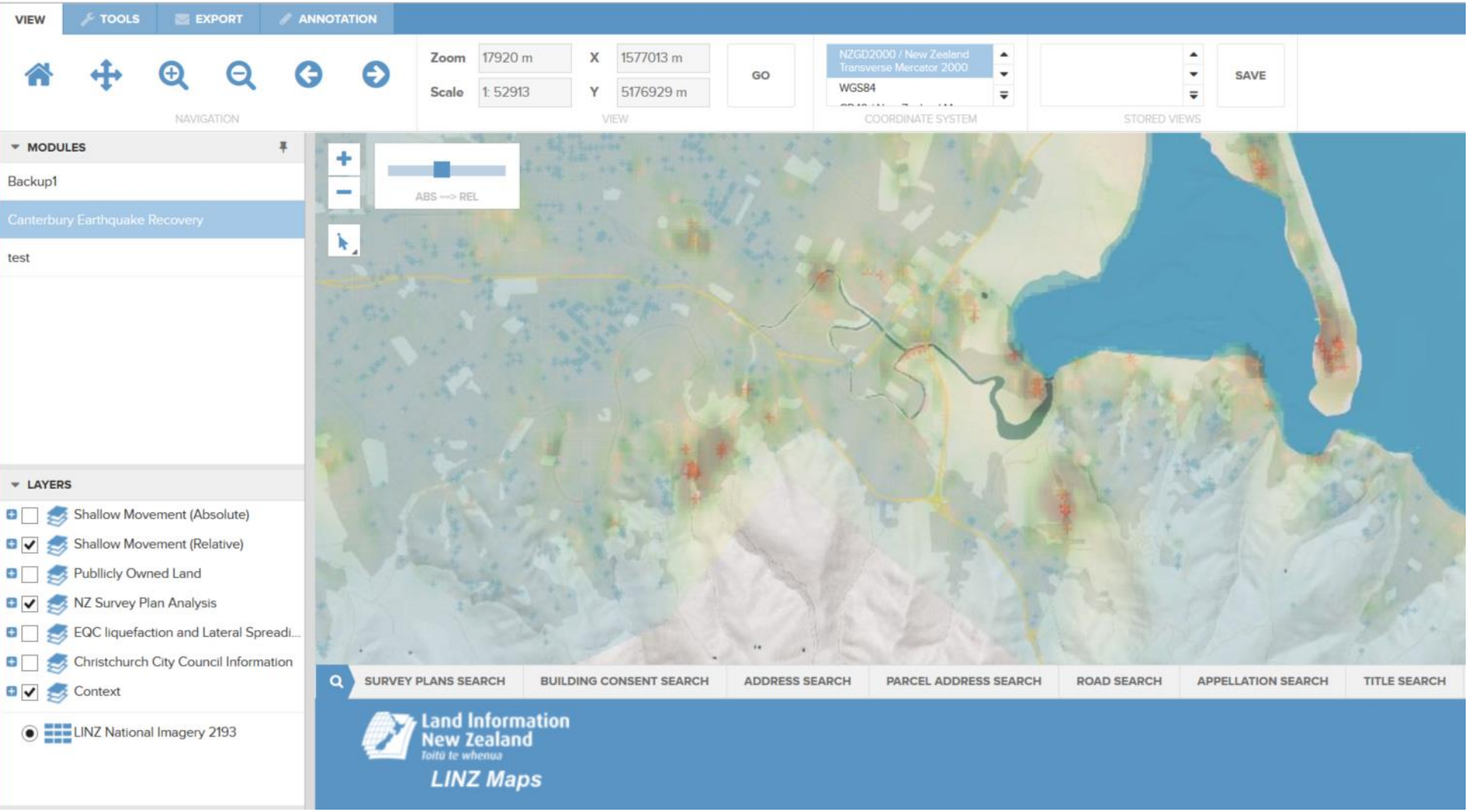
LINZ – National Address database



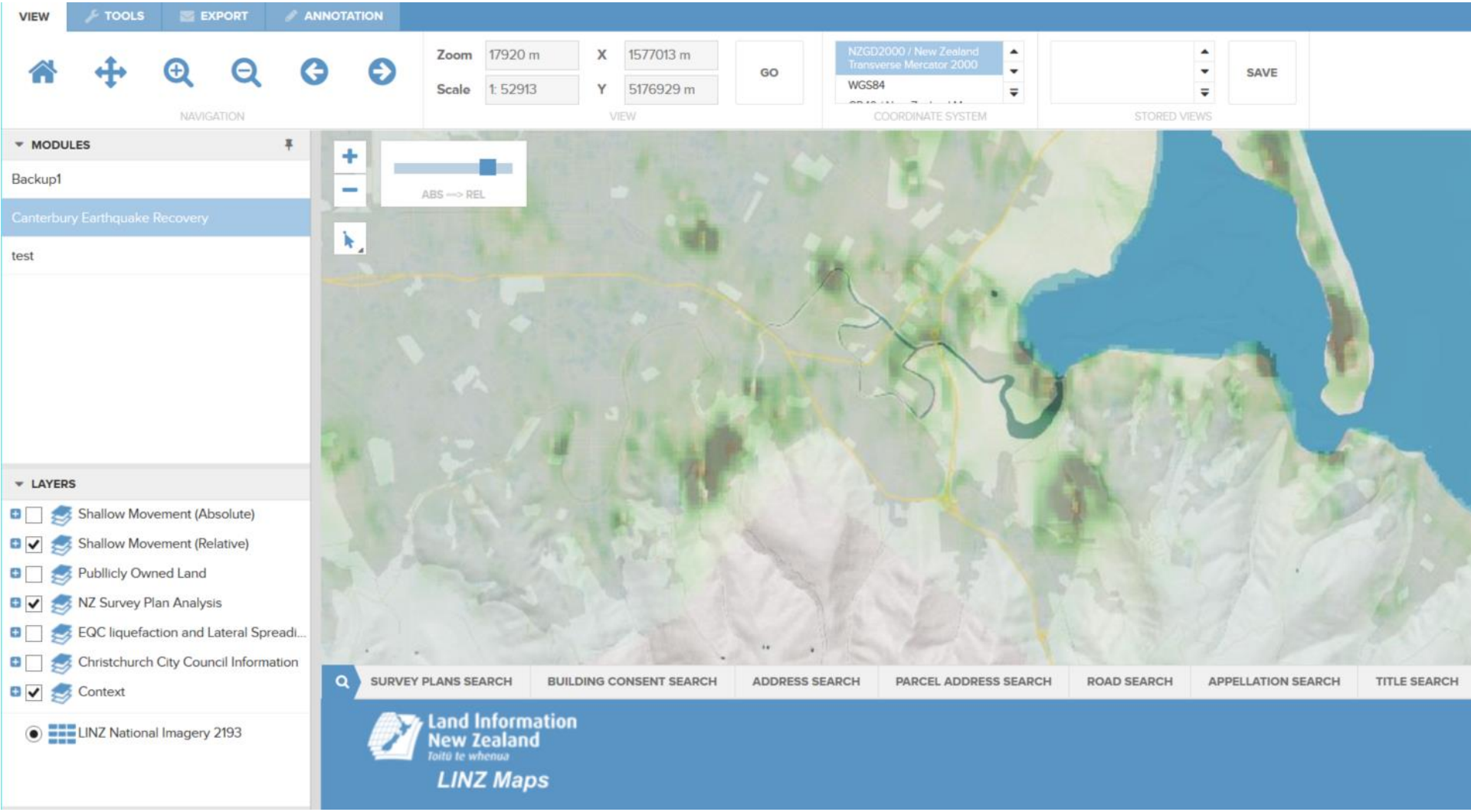
LINZ – Canterbury Earthquake recovery



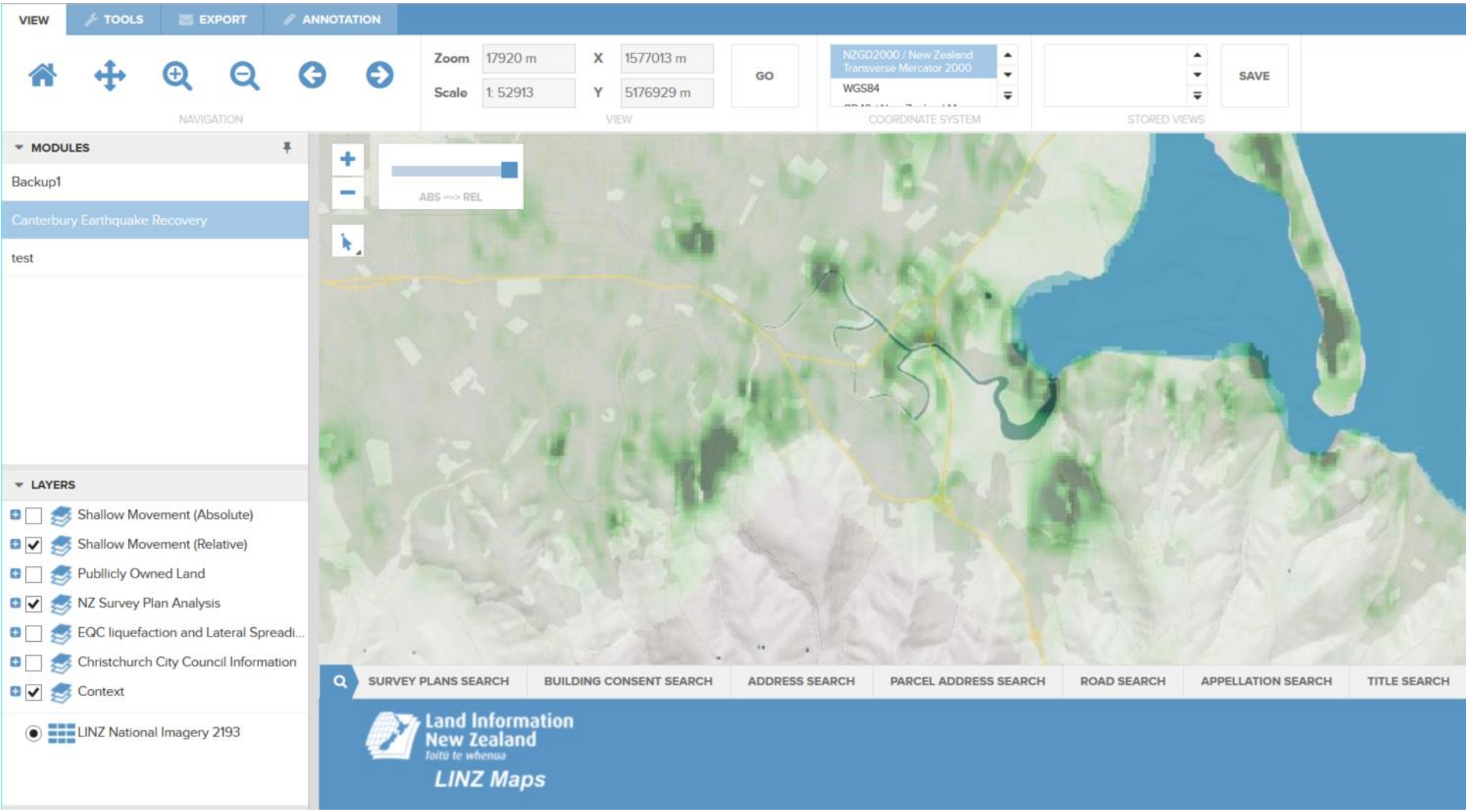
LINZ – Canterbury Earthquake recovery



LINZ – Canterbury Earthquake recovery



LINZ – Canterbury Earthquake recovery



LINZ – Canterbury Earthquake recovery

Make the switch

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