



**Western Cape
Government**

Agriculture

BETTER TOGETHER.

GEOSPATIAL ONLINE WEB-TOOLS CapeFarmMapper & CAMIS

F.C. Basson

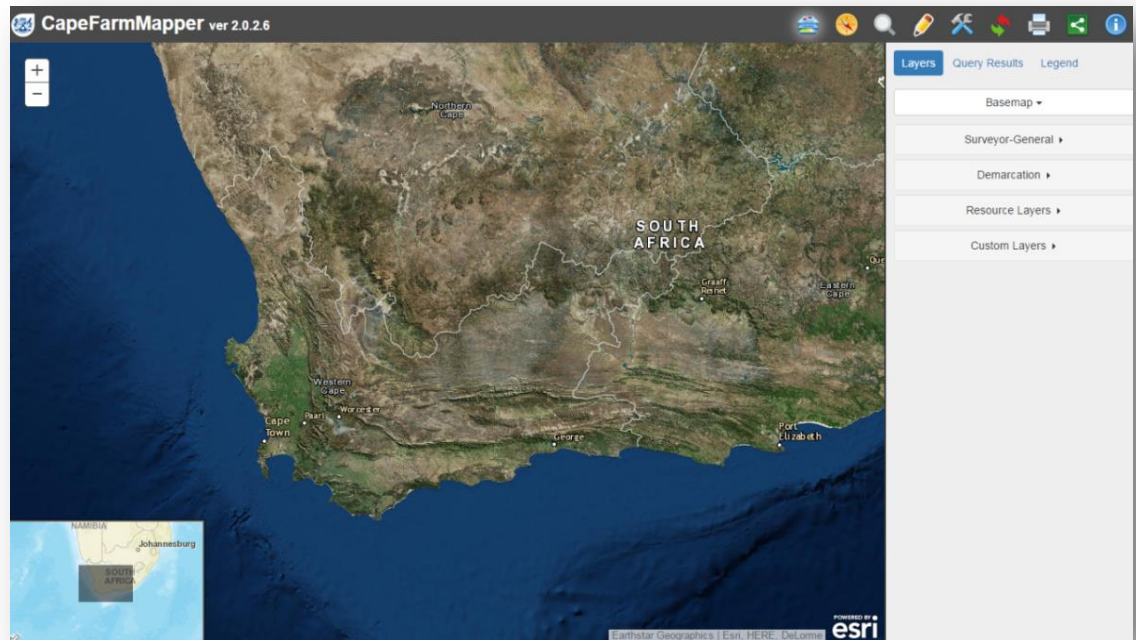
14 March 2017

Overview

- Spatial information and technology has become more important and relevant
- Applications
 - Mapping of Agricultural footprint and Land Use
 - Farm planning
 - Crop and vegetation monitoring
 - Drought monitoring and analysis
 - Suitability modelling
- Online Tools
 - CapeFarmMapper
 - CAMIS

CapeFarmMapper

- CapeFarmMapper is a Web Mapping Application
 - Developed and maintained in-house by the Western Cape Department of Agriculture
- To assist with decision making for:
 - Agriculture practices
 - Environmental management
 - Farm planning
 - Land evaluation
 - Land reform
- Access to data
 - Spatial database
 - Web services
- View, query, search and create spatial data
- Various spatial data sets



• URL: <https://gis.elsenburg.com/apps/cfm>

CapeFarmMapper: Features

- Map navigation
- Bing, Google, OSM, SPOT and other base maps
- Surveyor-General Cadastre search
- Surveyor-General scanned diagrams
- Layer view and query
- Feature drawing tools
- Geoprocessing tools
- Data import and export (KML/GPX)
- Map export
- Map scene share

CapeFarmMapper: Datasets

- Surveyor-General cadastre boundaries
- Administrative demarcation boundaries
- Agricultural commodities
- Agricultural potential
 - Dryland potential, land capability, grazing capacity, etc.
- Broad soil descriptions
- Long-term climate parameters (SA Atlas of Climatology and Agrohydrology, RE Schulze)
- Conservation
- Solar Energy
- Vegetation classification
- Water Resources
- Other

Data Sources

- Spatial data layers are integrated from various sources
 - Department of Agriculture Forestry and Fisheries
 - Department of Rural Development and Land Reform
 - Chief Surveyor-General
 - Chief Directorate: National Geo-spatial Information
 - Department of Environmental Affairs
 - Department of Water Affairs
 - Municipal Demarcation Board
 - Agricultural Research Council
 - Cape Nature
 - Council for Scientific and Industrial Research (CSIR)
 - South Africa National Botanical Institute (SANBI)
 - South Africa National Energy Development Institute (SANEDI)
 - University of KwaZulu-Natal
 - University of Stellenbosch
 - Water Research Commission
 - Western Cape Department of Agriculture

Online Access

- Direct link:

- <https://gis.elsenburg.com/apps/cfm>

- Department of Agriculture Web site

- <https://www.elsenburg.com/>
- Agri-Tools menu => CapeFarmMapper

Screenshots

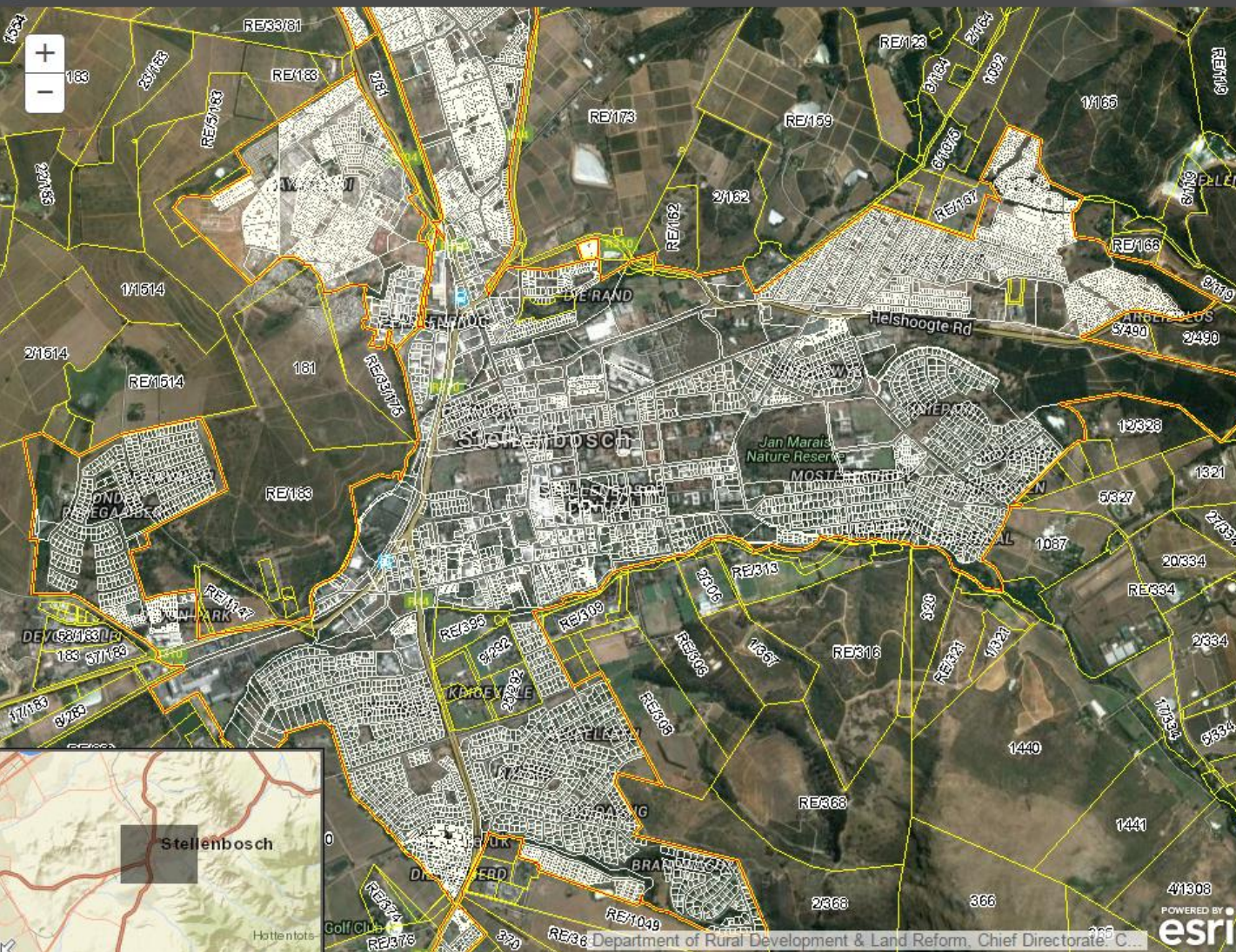




Layers Query Results Legend

- Basemap ▾
- Surveyor-General ▸
- Demarcation ▾
- Provinces
- District Municipalities
- Local Municipalities
- Wards
- Resource Layers ▸
- Custom Layers ▸

Demarcation



Layers Query Results Legend

Basemap ▾

Surveyor-General ▾

- Administrative Regions
- Towns
- Public Place
- Parent Farms
- Farm Portions
- Erf

Demarcation ▾

- Provinces
- District Municipalities
- Local Municipalities
- Wards

Resource Layers ▶

Custom Layers ▶

Farm & Erven Boundaries



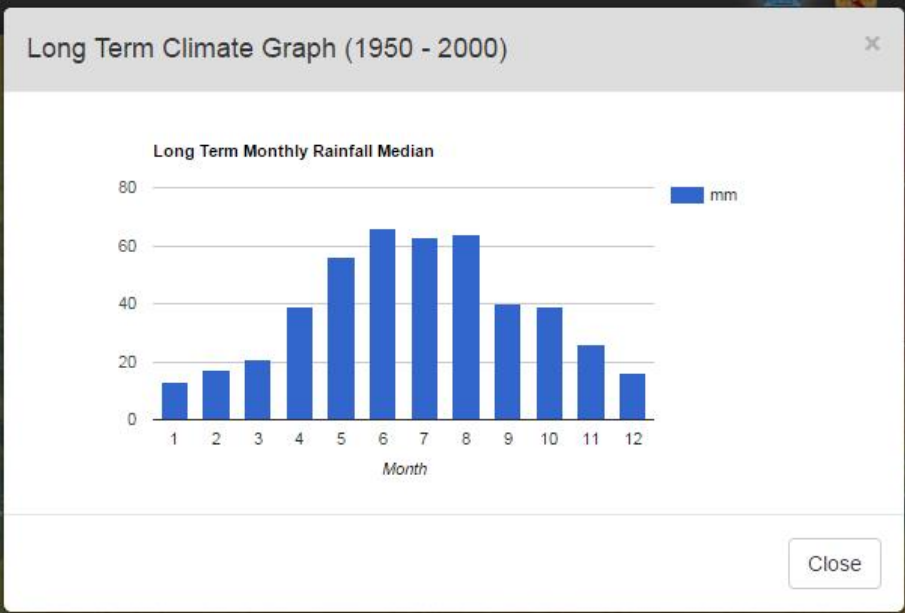
Layers Query Results Legend

Land Capability

- Moderate potential arable land
- Marginal potential arable land
- Non-arable; moderate potential grazing land
- Non-arable; low to moderate potential grazing land
- Non-arable; low potential grazing land
- Water
- Wilderness



Land Capability



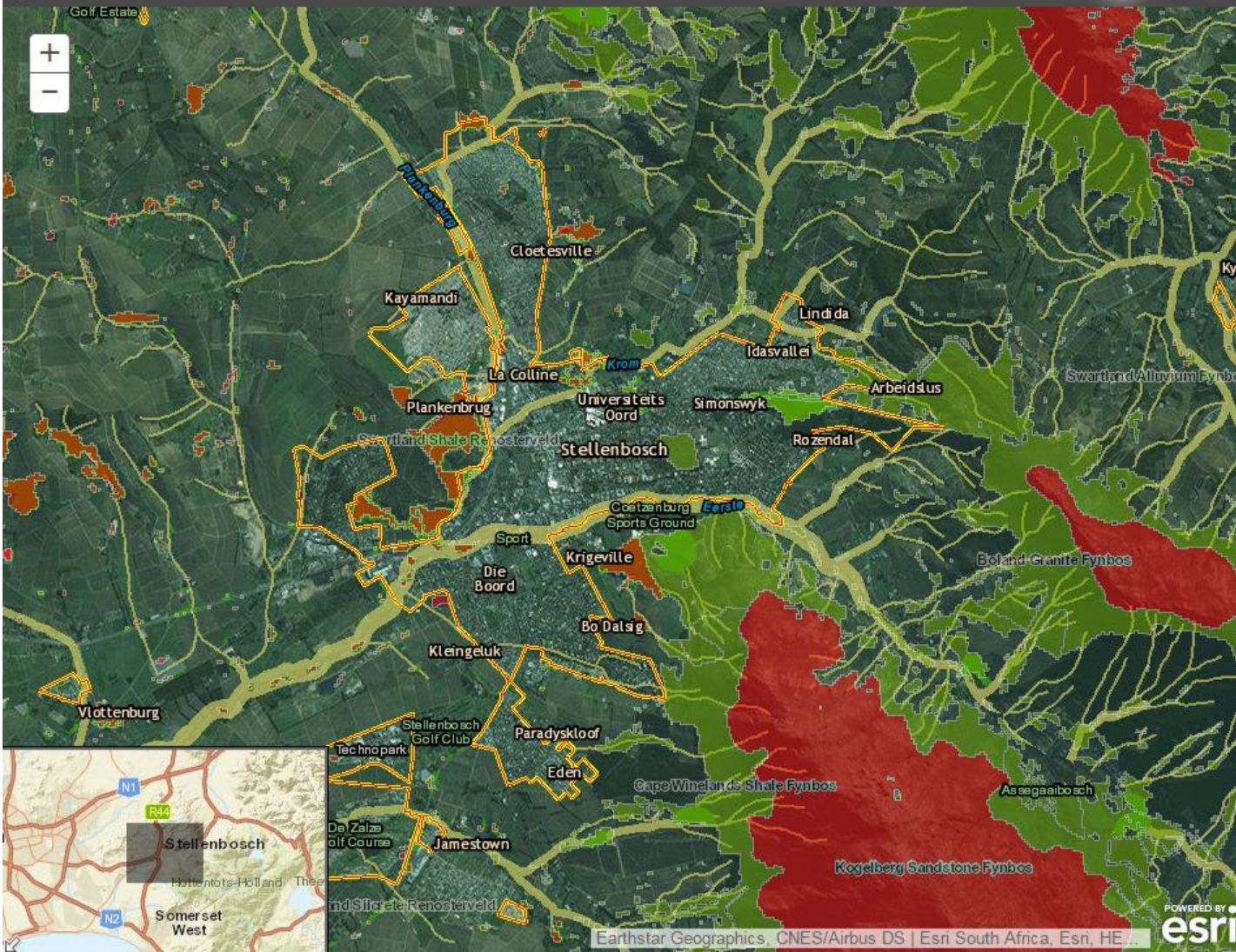
Location Information

Surveyor-General [Resource Layers](#)

Mean Annual Rainfall

mm: 554.00 [View Graph](#)

Long Term Climate: Rainfall



Layers Query Results Legend

Threatened Ecosystems

- Critically Endangered (CR)
- Endangered (EN)
- Vulnerable (VU)

WCBF Critical Biodiversity Areas

- Critical Biodiversity Area (CBA)
- CBA (potentially rehabilitating agric land)
- CBA (known agric landuse)
- CBA lost to agric landuse

WCBF Ecological Support Areas

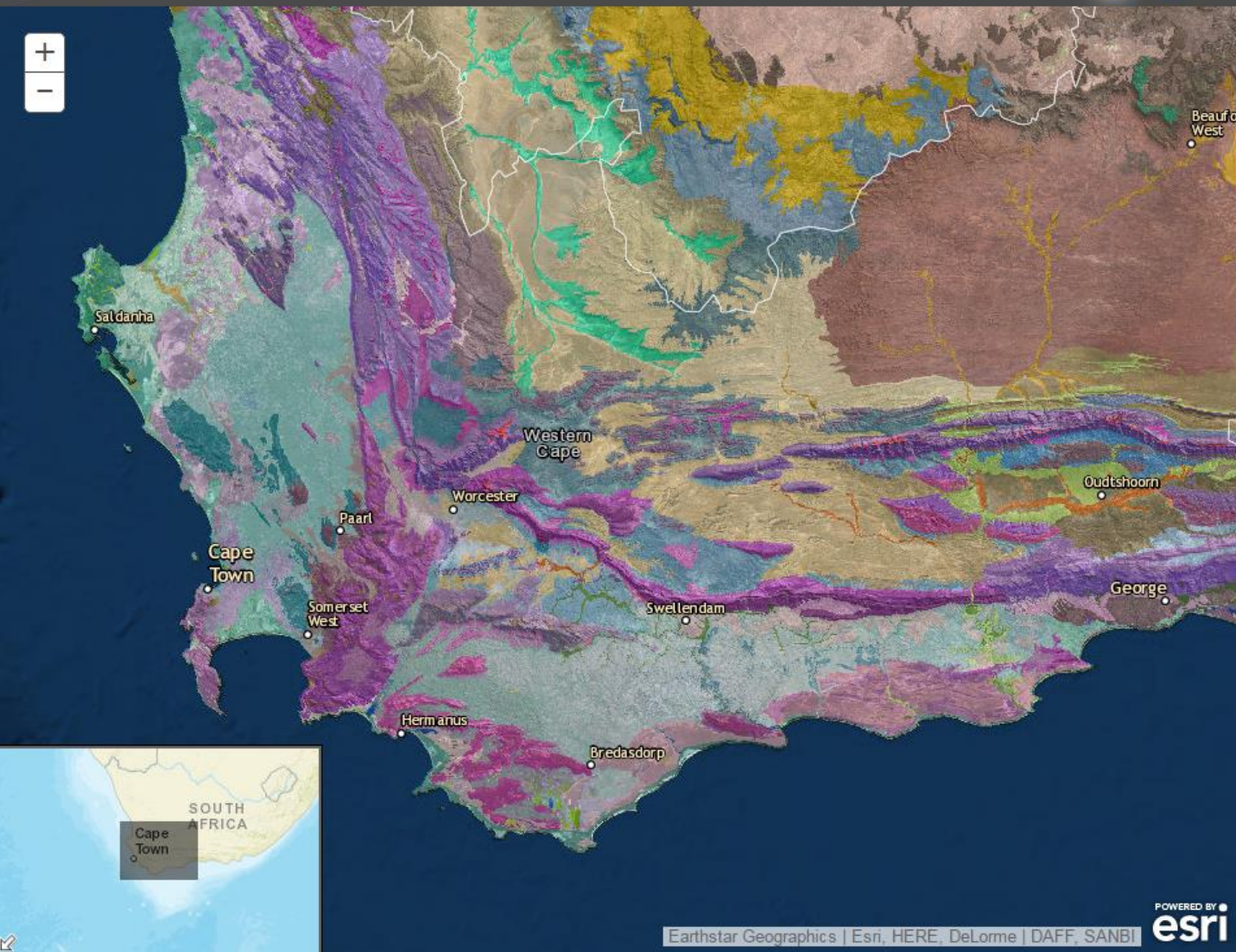
- Ecological Support Areas (ESA)

Allotment Township

-



Conservation

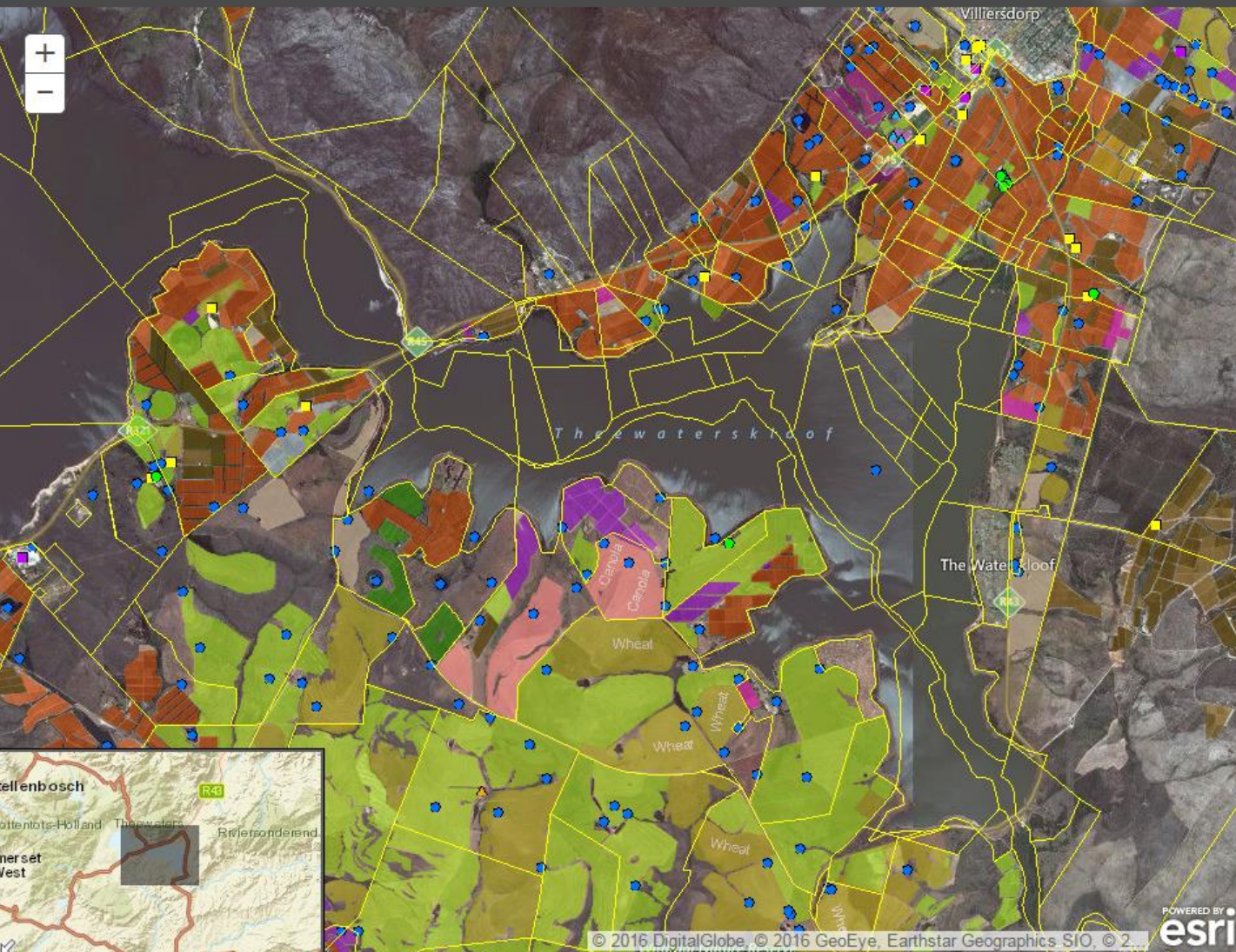


Layers Query Results Legend

VegMap2009

- AT1
- AT10
- AT11
- AT12
- AT13
- AT14
- AT2
- AT3
- AT4
- AT5
- AT6
- AT7
- AT8
- AT9
- AZa1
- AZa2
- AZa3
- AZa4
- AZa5
- AZa6
- AZa7
- AZa8
- AZd1
- AZd2
- AZd3
- AZd4
- AZe1
- AZe2
- AZe3

Vegetation



Layers Query Results Legend

Resource Layers ▾

Agriculture 1 ▾

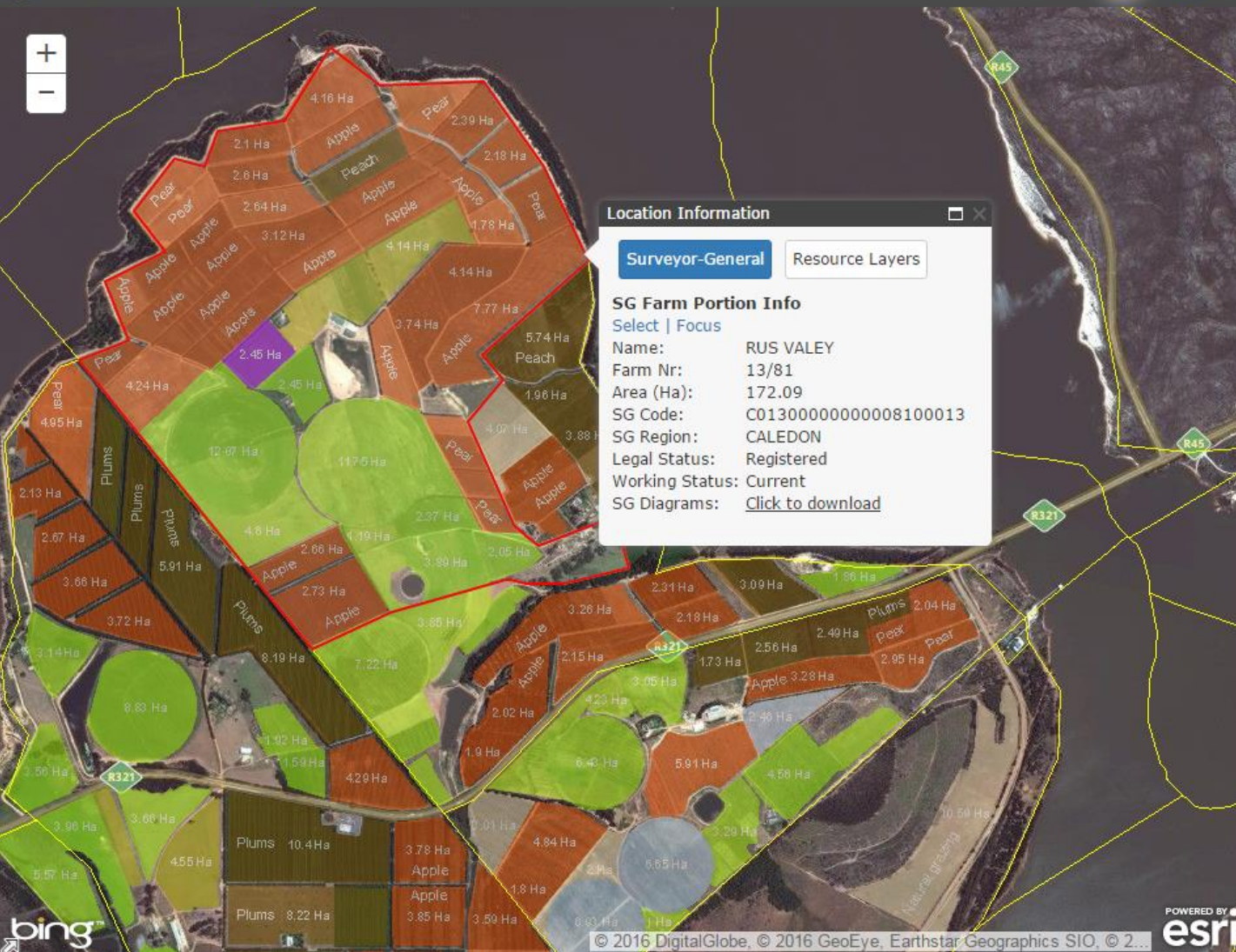
Agri-Infrastructure 9 ▾

- Abattoirs
- Agri Processing Plants
- Airfields
- Chicken Batteries
- Crushpens / Diptanks
- Dairies
- Dams
- Feedlots
- Fruit Packers / Cool Chain
- Facilities
- Homesteads
- Nurseries
- Packhouses
- Piggeries
- Shadenetting
- Silos
- Tunnels
- Other

Agri-Tourism ▾



Crops & Infrastructure



Location Information

Surveyor-General | Resource Layers

SG Farm Portion Info
 Select | Focus

Name: RUS VALEY
 Farm Nr: 13/81
 Area (Ha): 172.09
 SG Code: C0130000000008100013
 SG Region: CALEDON
 Legal Status: Registered
 Working Status: Current
 SG Diagrams: [Click to download](#)

Layers | **Query Results** | Legend

Click in the map for location information.

Lat: -34.020586 | **Lon:** 19.192184

Surveyor-General ▾

SG Farm Portion Info		Select Focus Remove
Name:	RUS VALEY	
Farm Nr:	13/81	
Area (Ha):	172.09	
SG Code:	C0130000000008100013	
SG Region:	CALEDON	
Legal Status:	Registered	
Working Status:	Current	
SG Diagrams:	Click to download	

Demarcation ▾

District Municipality: Overberg
Local Municipality: Theewaterskloof
Ward: 10301009

Resource Layers ▾

Crop Census (2013)

Description: Pome fruit
 Crops: Apple
 Irrigation: Irrigated
 Area (Ha): 7.77
 Date: May / June / July 2013

Farm Information



Drawing Tools

Click a button to activate the drawing tool. Hold down the CTRL key to enable snapping.

Polygon

Feature Info Label Feature Edit Features

Graphics Properties

Feature Properties

ID: Grapes
 Area (Ha): 5.2
 Area (Sqm): 52308
 Perimeter (m): 1068.4
 Comment: Chenin Blanc

Colour Properties

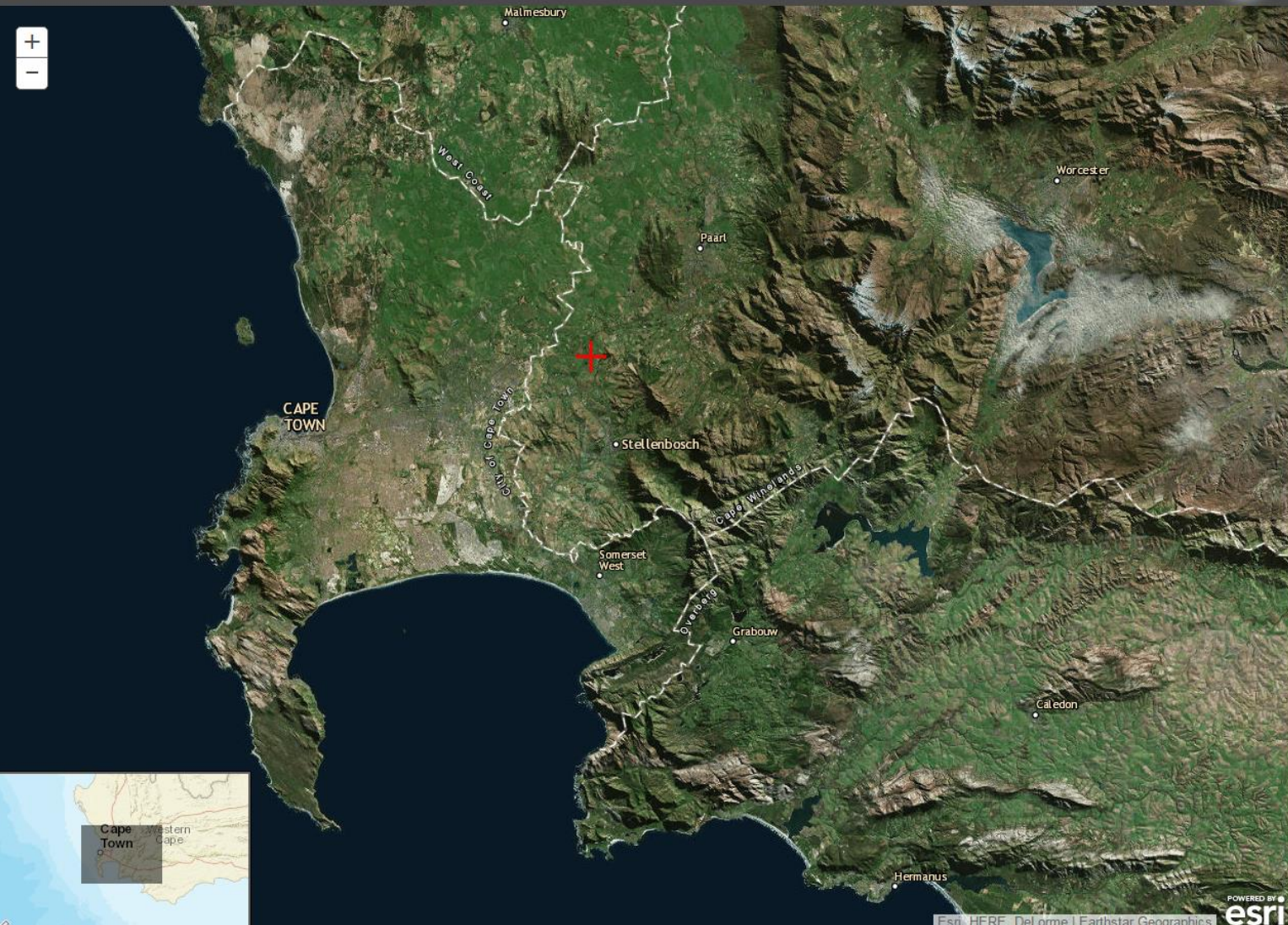
Outline Colour: [Color palette]
 Fill Colour: [Color palette]
 Fill Opacity: [Slider]

Label Properties

Label Fields: (hold CTRL to select multiple fields)
 cfm_id
 cfm_area
 cfm_length
 cfm_comm

Font Colour: [Color palette]
 Font Size: 14
 Hor Alignment: Center

Drawing Tools



Navigation Toolbar

Current View ▾

Scale: 1:577791
Center Lat: -33.959421
Center Lon: 18.905724

User Location ▾

Latitude: n/a
Longitude: n/a
Accuracy: n/a

Mark current location Deactivate tracking

Find Location ▾

Coordinate Format

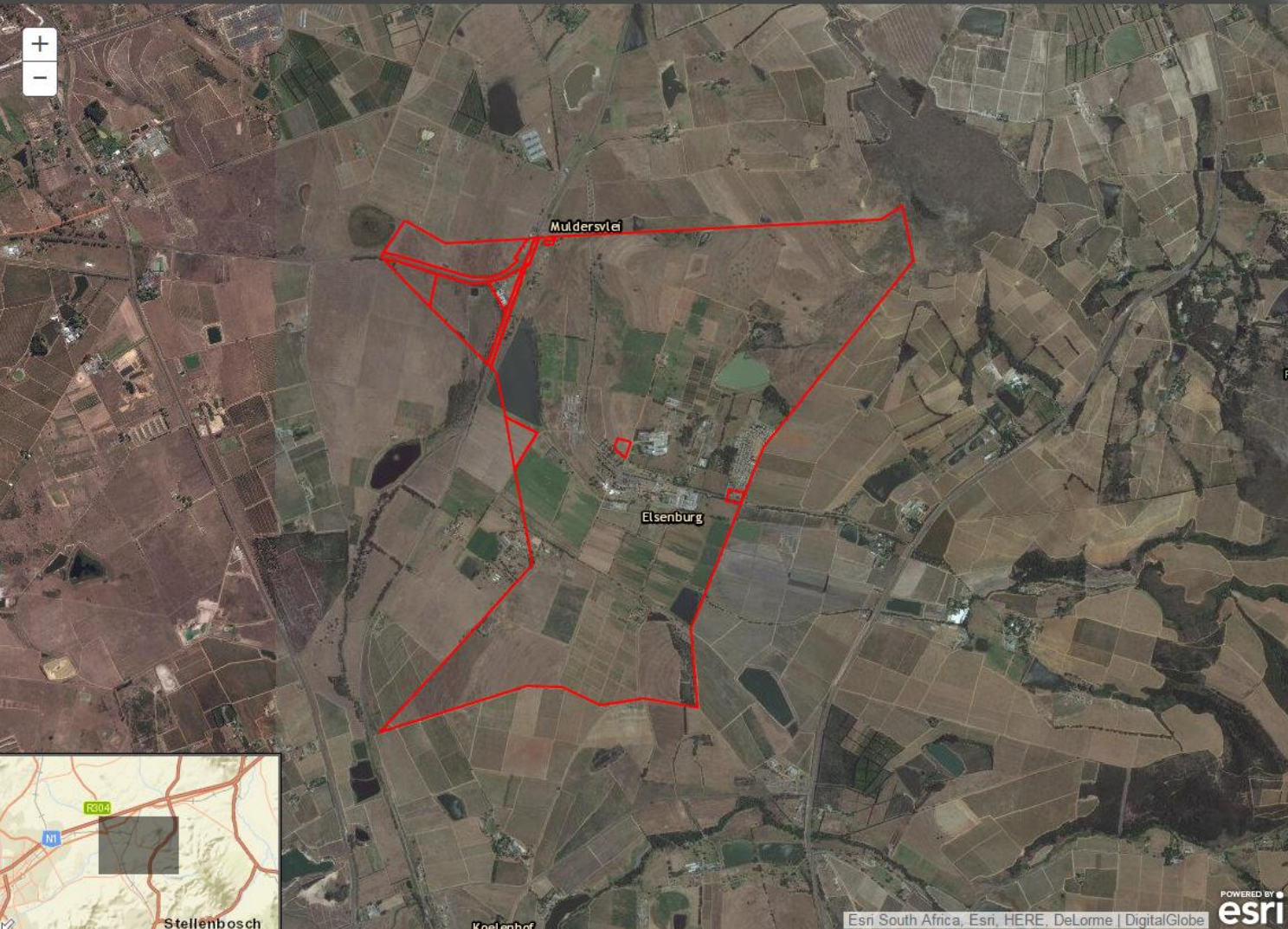
- Decimal Degrees
- Degrees Minutes Seconds

Decimal Degrees

Latitude	-33.83416
Longitude	18.83384

Go to location Mark location

Navigation/Location



Cadastre Search

Elsenburg

Select Search Database

- Surveyor-General Farms
- Surveyor-General Erven
- Address or Place

SG Region Filter: ALL REGIONS ▾

Results from SG Farm Portions

District: STELLENBOSCH 12 ▾

ELSENBURG 1/34	X
ELSENBURG 10/34	X
ELSENBURG 2/35	X
ELSENBURG 5/34	X
ELSENBURG 6/34	X
ELSENBURG 7/34	X
ELSENBURG 8/34	X
ELSENBURG 9/34	X
ELSENBURG RE/2/34	X
ELSENBURG RE/34	X
ELSENBURG RE/34	X
ELSENBURG RE/34	X
ELSENBURG RE/34	X

Farm & Erf Cadastre Search



Map Export

Use the options below to define the output map extent and layout.

Map Title

Verlorenvlei

Page Layout

- Landscape
- Portrait

Page Size

- A4
- A3
- A2

Page Rotation (-180° - 180°)

0

Export Format

- JPEG
- PDF

Extent

- Current Scale
- Current Extent
- Western Cape
- All Graphics
- At Scale

e.g. 10000

Export Map

Map Export/Print



Coordinate Conversion ▾

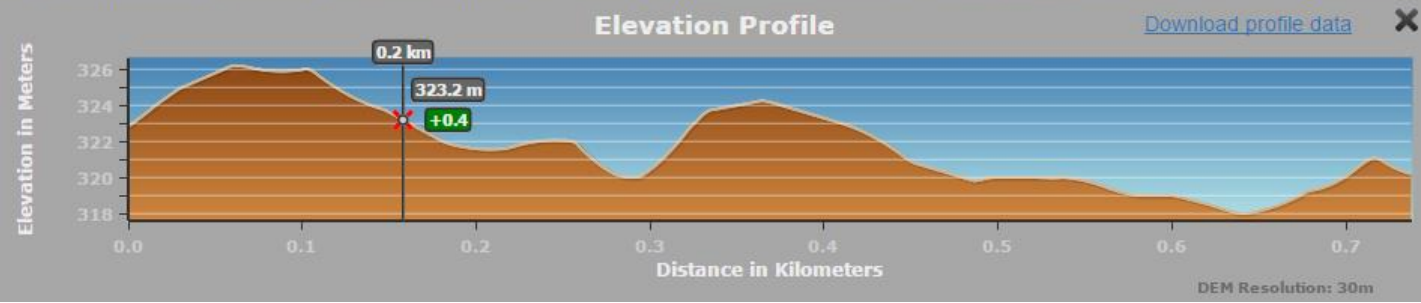
Buffering ▾

Elevation Profile ▶

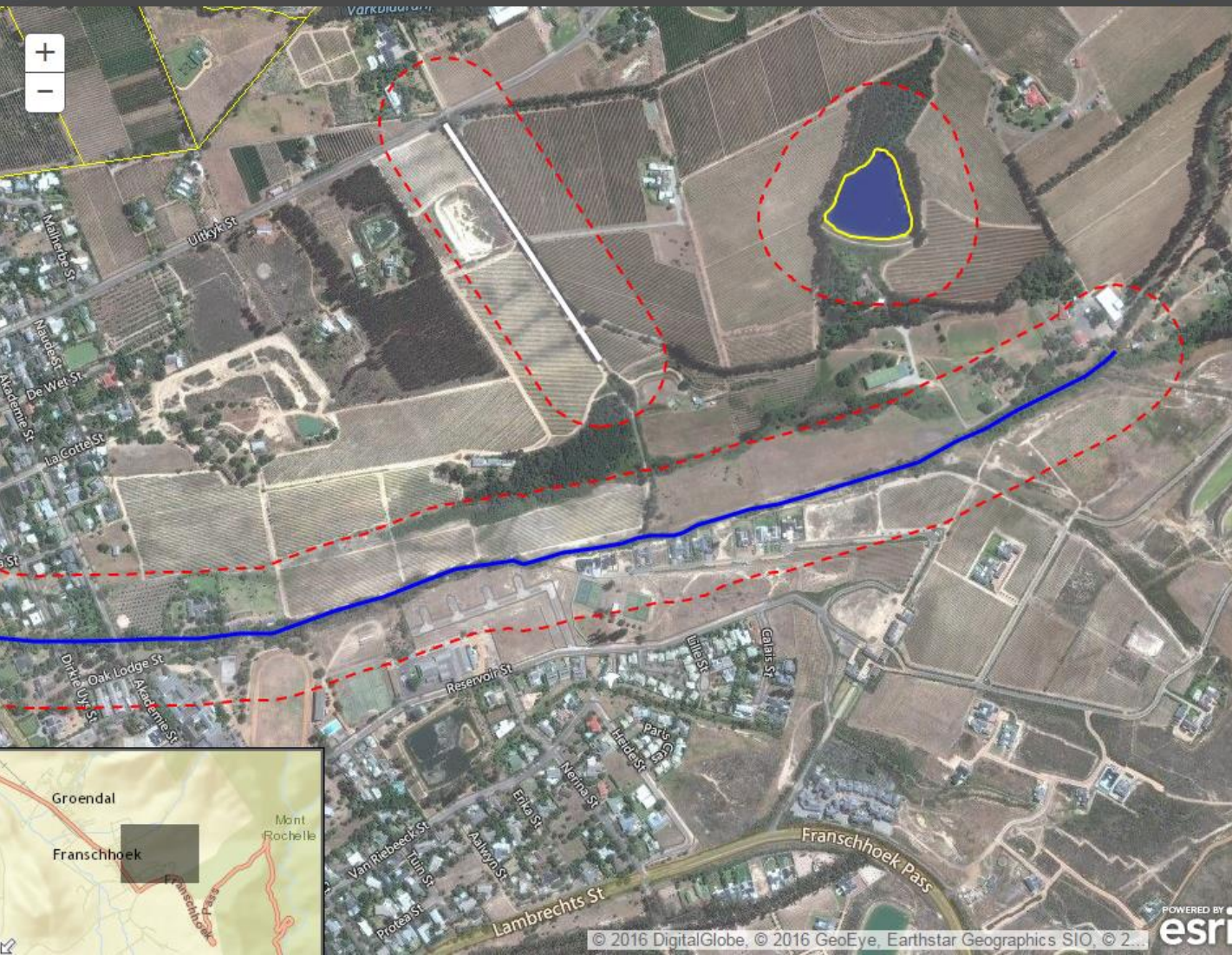
Generate an elevation profile from a line graphic.

- Draw a line graphic in the map
- Activate the **Profile Line Select** button
- Click on a line graphic to select the profile intersect
- Wait for the interactive elevation profile graph to be generated in the container below the map

Profile Line Select ON



Tools: Elevation Profile



Coordinate Conversion ▾

Buffering ▶

Generate a buffer zone for a selected graphic.

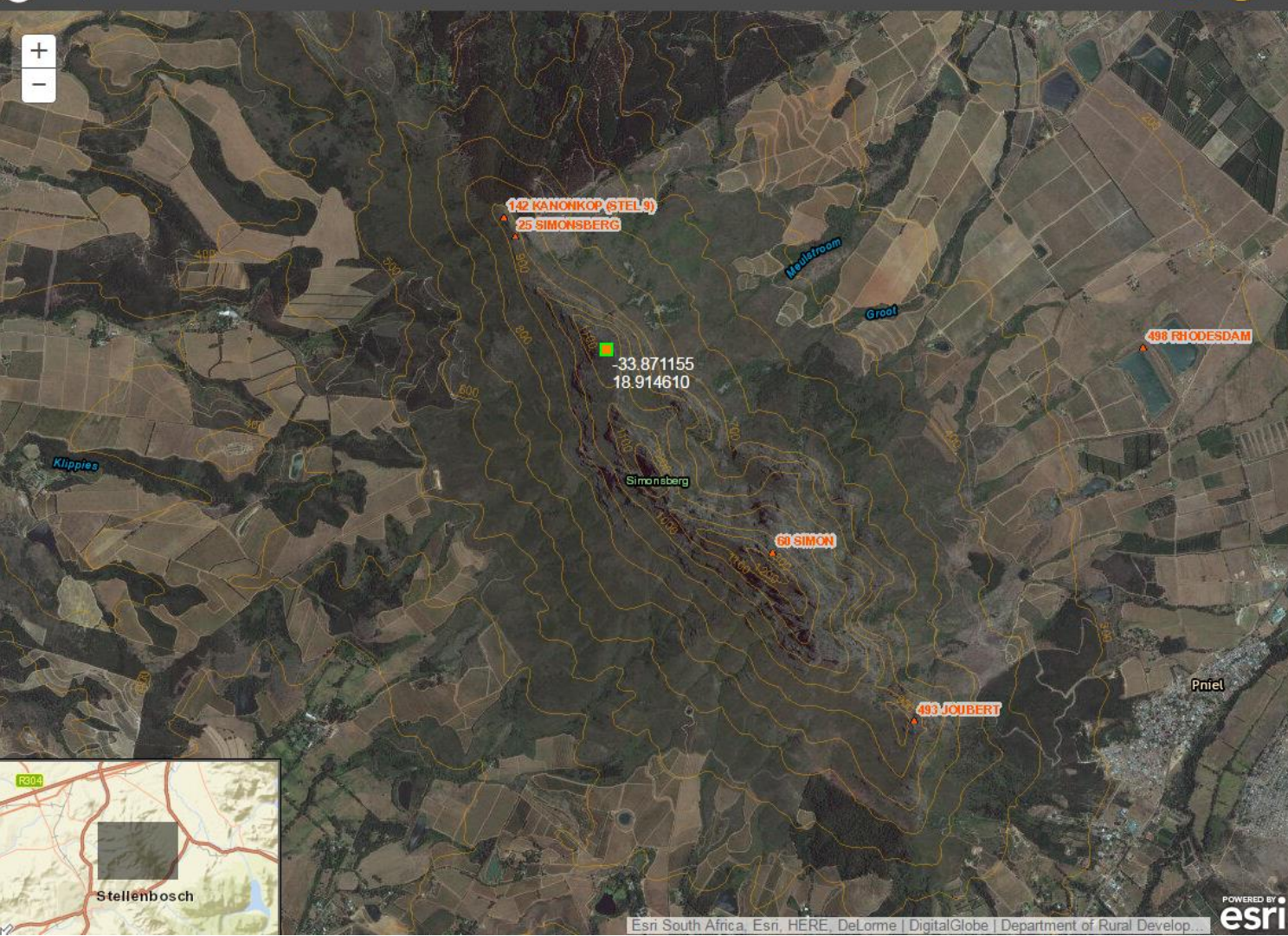
- Draw a graphic in the map
- Specify the buffer distance and units
- Activate the **Buffer Select** button
- Click on a graphic to select the feature to buffer
- Wait for the buffer zone graphic to be added to the map as a graphic

Distance **Units**

Buffer Select ON

Elevation Profile ▾

Tools: Buffering



Coordinate Conversion ▾

Convert a coordinate between different coordinate systems. The available options are relevant to South Africa.

Input Coordinates

X:

Y:

Type:

Datum:

Central Meridian:

Output Coordinate System

Type:

Datum:

Central Meridian: (17-33)

Result X: -7900.645203500273

Result Y: -3749373.1282639406

[Convert Input Coordinate](#)

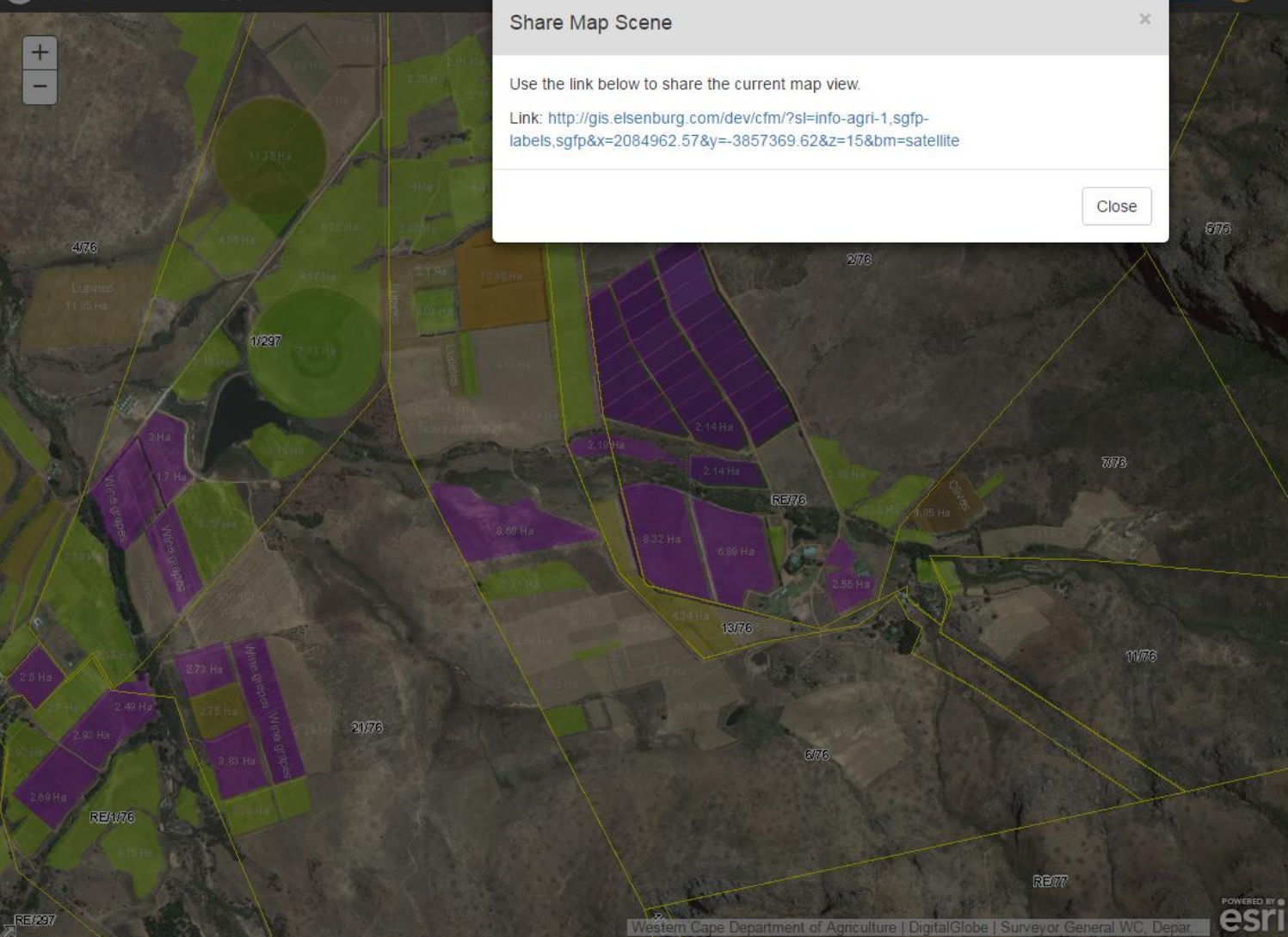
Note: The Transverse Mercator (LO) projection uses a scale factor of +1.0, which is a south-oriented format of the standard surveying projection format with negated values for the X and Y coordinates.

Buffering ▾

Elevation Profile ▾

POWERED BY

Tools: Coordinate Conversion



Share Map Scene [Close]

Use the link below to share the current map view.

Link: <http://gis.elsenburg.com/dev/cfm/?sl=info-agri-1,sgfp-labels,sgfp&x=2084962.57&y=-3857369.62&z=15&bm=satellite>

Layers Query Results Legend

Basemap ▾

Surveyor-General ▾

- Administrative Regions
- Towns
- Public Place
- Parent Farms
- Farm Portions
- Erf

Demarcation ▾

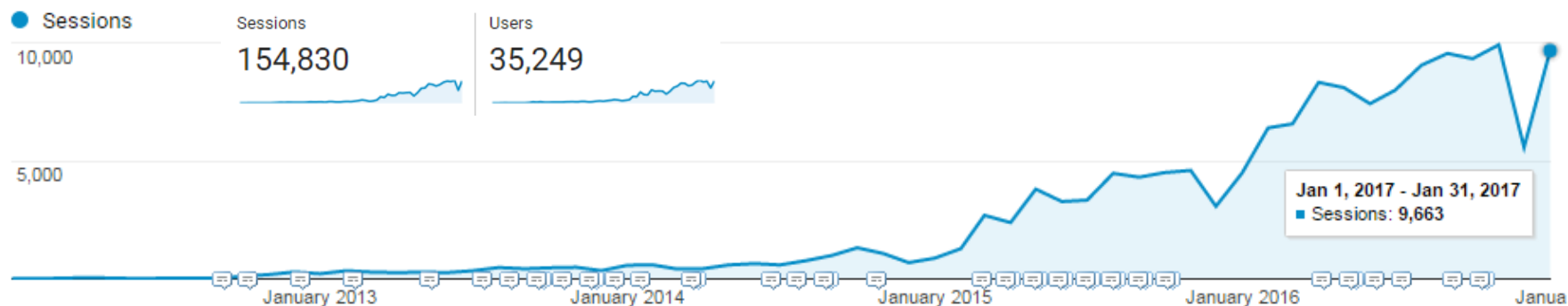
Resource Layers ▾

- Agriculture 1 ▾
- Agri-Infrastructure ▾
- Agri-Tourism ▾
- Climate: Rainfall ▾
- Climate: Temperature Means ▾
- Climate: Temperature Maximum ▾
- Climate: Temperature Minimum ▾
- Climate: Evaporation ▾
- Conservation ▾

Map Share

User Statistics

Usage per Month (1 Jan 2012 to 31 Jan 2017)



Country	Sessions	% Sessions
1. South Africa	150,214	97.02%
2. (not set)	1,254	0.81%
3. United States	905	0.58%
4. United Kingdom	502	0.32%
5. Germany	221	0.14%
6. Netherlands	120	0.08%
7. France	118	0.08%
8. Namibia	115	0.07%
9. Indonesia	107	0.07%
10. Kenya	99	0.06%

1. Western Cape	124,640 (82.97%)
2. Gauteng	16,125 (10.73%)
3. Eastern Cape	6,450 (4.29%)
4. KwaZulu-Natal	1,307 (0.87%)
5. Northern Cape	530 (0.35%)
6. Free State	316 (0.21%)
7. Limpopo	248 (0.17%)
8. Mpumalanga	243 (0.16%)
9. North West	210 (0.14%)
10. (not set)	137 (0.09%)

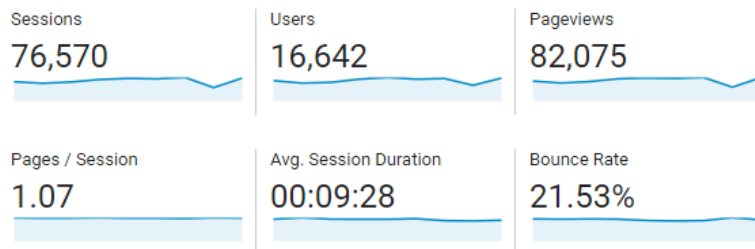
User Events per Month (1 May 2016 to 31 Jan 2017)

- 45,351 Farm Portion searches
(5,039 per month)

- 4,046 Erf searches
(1,013 per month)

- 11,068 Map exports
(2,475 per month)

- 12,812 SG Diagram requests
(3,631 per month)



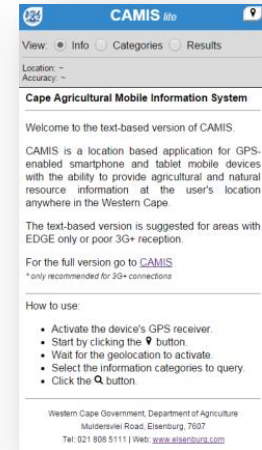
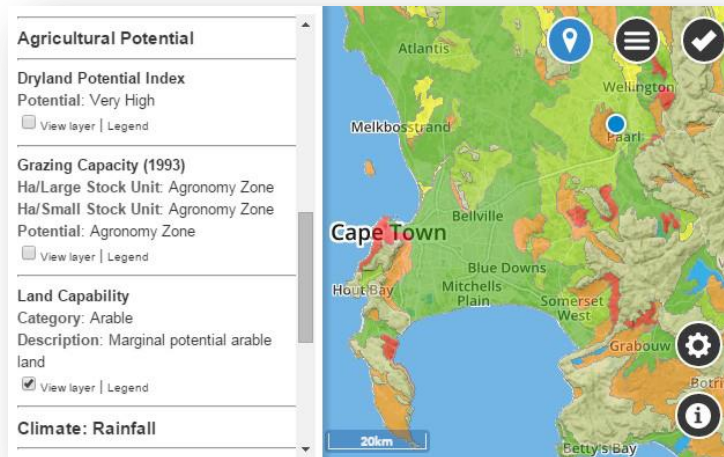
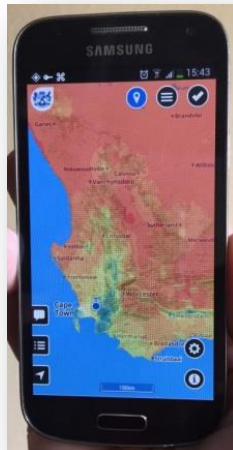
	499,105 % of Total: 100.00% (499,105)
1. Search 0	45,351 (9.09%)
2. SG Diagram	32,687 (6.55%)
3. Layer view: Farm Portions	28,324 (5.67%)
4. Map Export	22,276 (4.46%)
5. Layer view: Erf	21,309 (4.27%)
6. Draw POLYGON	13,039 (2.61%)
7. Draw POLYLINE	12,386 (2.48%)
8. Layer view: Farm Portions Labels	11,042 (2.21%)
9. Layer view: Parent Farms	11,033 (2.21%)
10. Layer view: Erf Labels	10,280 (2.06%)
11. Basemap: Google Satellite	9,560 (1.92%)
12. Search 1	9,119 (1.83%)
13. Basemap: Bing Aerial (with labels)	6,901 (1.38%)
14. Search 2	6,632 (1.33%)
15. Geolocation	6,274 (1.26%)
16. Layer view: Towns	6,088 (1.22%)
17. Basemap: Google Hybrid	5,989 (1.20%)
18. Layer view: Critical Biodiversity Areas	5,763 (1.15%)

Mobile Solutions



Mobile Solutions: CAMIS

- Cape Agricultural Mobile Information System
 - location-based mobile web application
 - Responsive Web design with HTML5, jQuery Mobile, OpenLayers 3 API
 - Not platform dependant – can access from any device
- Two versions for accessibility:
 - Full: Web map user interface design with user interaction - used where mobile connectivity is good (3G+)
 - Lite: Text based user interface with low data usage for areas with poor mobile connectivity



- URL: <https://gis.elsenburg.com/mobile/camis>

Thank you

Contact Us



Western Cape
Government

Agriculture

BETTER TOGETHER.

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