

# FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

Presented by the FIG Working Week 2019,  
April 22-26, 2019 in Hanoi, Vietnam

"Geospatial Information for a Smarter Life  
and Environmental Resilience"



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# Initial explorations in reconstructing the original beacons and boundaries in the Constantia Valley in Cape Town

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University of Cape Town

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## Aims

- Relocation of the farm CONSTANTIA
- Identification of original beacons and boundaries
- Add spatial survey knowledge and rigour to historical research
- Significant addition to body of work on early settlement and its enduring effect on the city-scape today
- Key contribution is to pair with the genealogical and social historical work produced in a text such as *Constantia and its Neighbours* by historian Helen Robinson

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## Location

South of Wynberg Hill and Kirstenbosch, East of the Table Mountain chain on the Cape Peninsula. The Constantia Valley takes its name from the early Constantia farm.



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- Survey and a diagram 1685
- Subdivided in 1716 into two portions and again in 1716 to create a third portion.
- In the location of the historic wine-producing estate called *Groot Constantia*.



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## Data sources

- Dr Helen Robinson: *Constantia and its neighbours*
- *Constantia* farm diagram in the Comprehensive Atlas of the Dutch United East India Company, Vol. V: Africa, by Brommer, 2009
- *Constantia and Wynberg: a bibliography* created by Wilhelm Wolfgang Wendland
- National Dutch Archives
  - web portal - P.A. Leupe collection maps but too poor for use

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## Data sources

- Deeds Office Cape
  - Old diagrams embedded in deeds of grant and transfer
  - Erf Register books for property lineage
- The Surveyor-General's Office: Cape (SGO)
  - Noting sheets – typology of parcels, historic farm boundaries, erf and farm numbers etc.
  - Copies of diagrams and surveyors records
  - Compilation map of Constantia farms displayed in the SGO



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## Data sources

- South African National Archives and Record Service (NARS)
  - list of maps of greater Cape Town in the cape archives compiled in 1979 by Christopher Merret and held in hard copy by J Whittal provided references
  - very large compilation map 2 x 1.5m
  - Department of Rural Development and Land Reform - Chief Directorate: National Geo-spatial Information (CD:NGI): old aerial photography (hard copy only) and old topographical maps (digital)

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## Methodology

- Process of **evidentiary and methodological triangulation**
- **Georeferencing** - GIS map overlays
- Diagram/deed **tracing**
- Cadastral surveying and **reconstruction**

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## Methodology - tasks

- Historic **map** digitized and georeferenced in ArcMap - SGO diagram 11113/1887 Compilation
- Lineage of **diagrams** and **title** deeds back through time
- **Cadastral layer** and Surveyor-General's Office noting sheets
- Aerial **imagery** for context
- Cadastral **beacon** data – office and field

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## Results – the Constantia Valley

- 45 diagrams sourced, digitized to create a layer of farm boundary shapes



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## Results – the Constantia Valley

- georeferenced to the current cadastre (red points)
- or where these are lost to the current cadastre the 1887 compilation was used to visually reconstruct the boundaries and beacons (blue points)



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## Results – the Constantia Valley

- Boundaries that survive today – red
- Boundaries that are extinct - yellow



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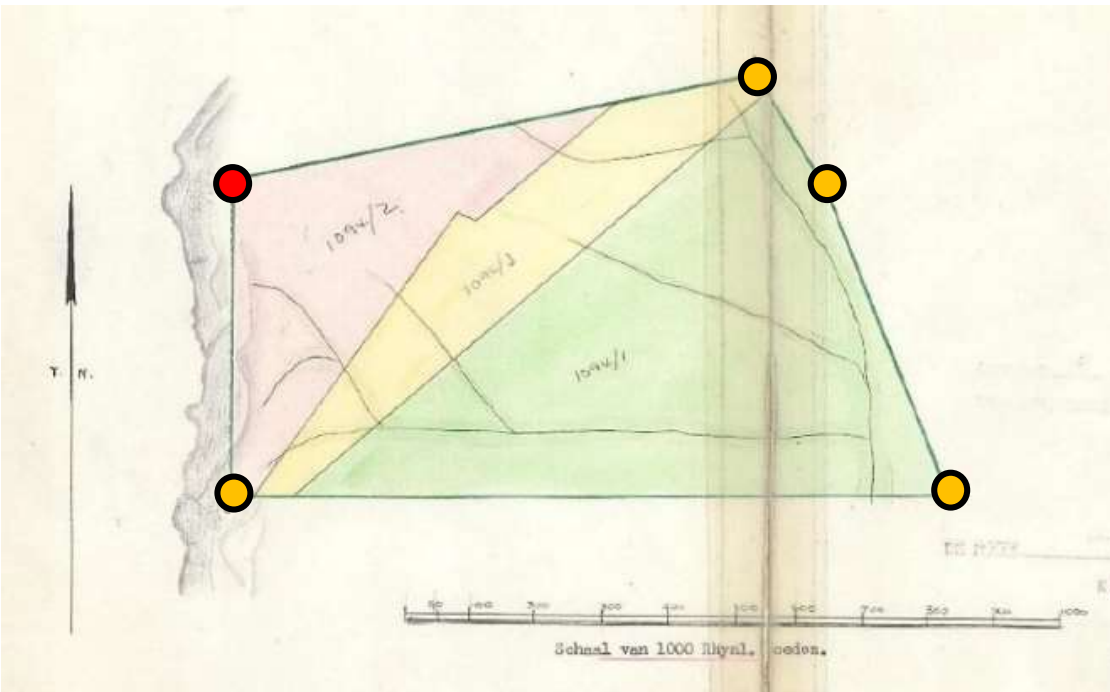
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## Results – the Constantia Farm

- Beacons that could be reconstructed (30cm data agreement)
- Beacon with conflicting data - 20 metre variation



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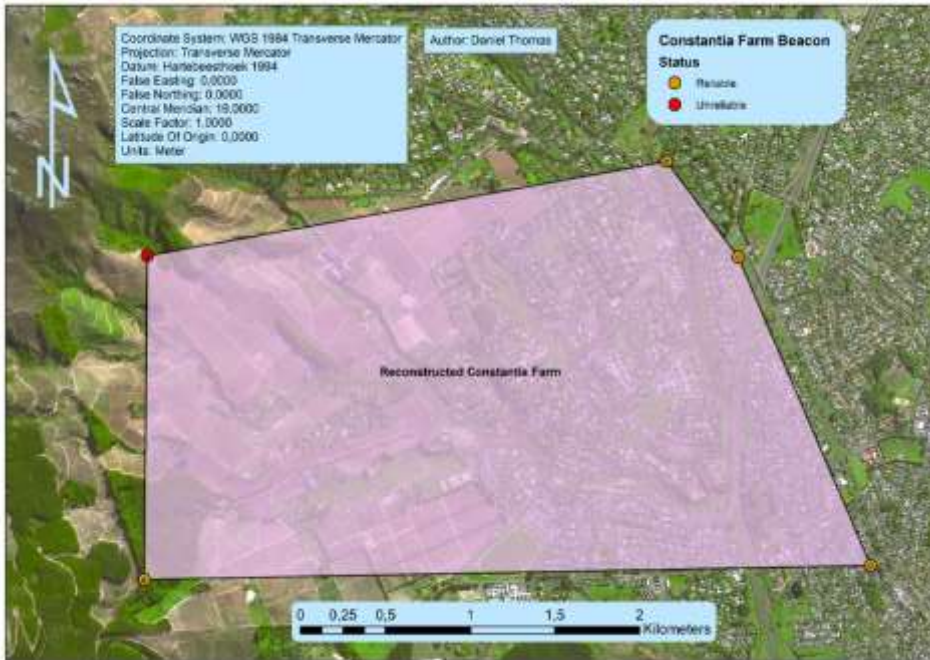




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## Conclusions

- Land parcel from about 300 years ago reconstructed:
- Successful mixed-method approach:
  - GIS-based overlays for georeferencing
  - SGO noting sheets – critical data and metadata
  - Tracing grants successfully
  - e-diagrams essential
  - Traditional cadastral reconstruction is essential but has not been undertaken yet on this project – this is the next step

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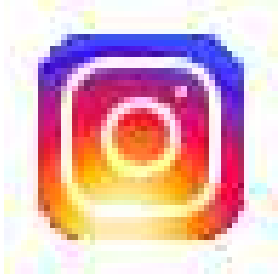


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