



THE PARCEL INDEX MAP

Cadastral Records and Cadastral Management at the Lands and Surveys Division, Trinidad and Tobago

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Land Conference 2011, UWI St. Augustine
April 28-29, 2011



•The Land Legislative Package of 2000

1. Land Adjudication Act

Systematic ascertainment of all land rights, interest and titles,
both Private and State land

2. Registration of Titles to Land Act

Parcel-based register...one folio for each parcel
Parcels described by UPRN and PIM

3. Land Tribunal Act

To hear appeals to adjudication and decisions of the Land
Registrar



Benefits

- For everyone...
 - ❑ cheaper, quicker, easier and safer transfer of land
 - ❑ improved tenure security
 - ❑ access to land and capital
 - ❑ land use planning
 - ❑ environmental management & protection
 - ❑ equitable taxation / tax policy options
 - ❑ physical planning / development control
 - ❑ State land administration and management



Support of the Inter-American Development Bank for

- Geodetic/GPS infrastructure for surveying and mapping 2005
- Creation of Parcel Index Map 2005
- Computerisation of deeds 2000
- Aerial survey and Mapping 1994

DIRECTOR OF SURVEYS

Ministry of Food Production Land and Marine Affairs
Lands and Surveys Division



- Maintains an archive of cadastral surveys with a Cadastral index using topographic base map (Ward sheets),
- maintains the national geodetic infrastructure
- checks and approves cadastral surveys for registration of titles under RPO, allocates Survey Orders for State lands
- checks and approves cadastral surveys for leasing State lands,
- Hydrographic Surveys
- maintains topographical maps.

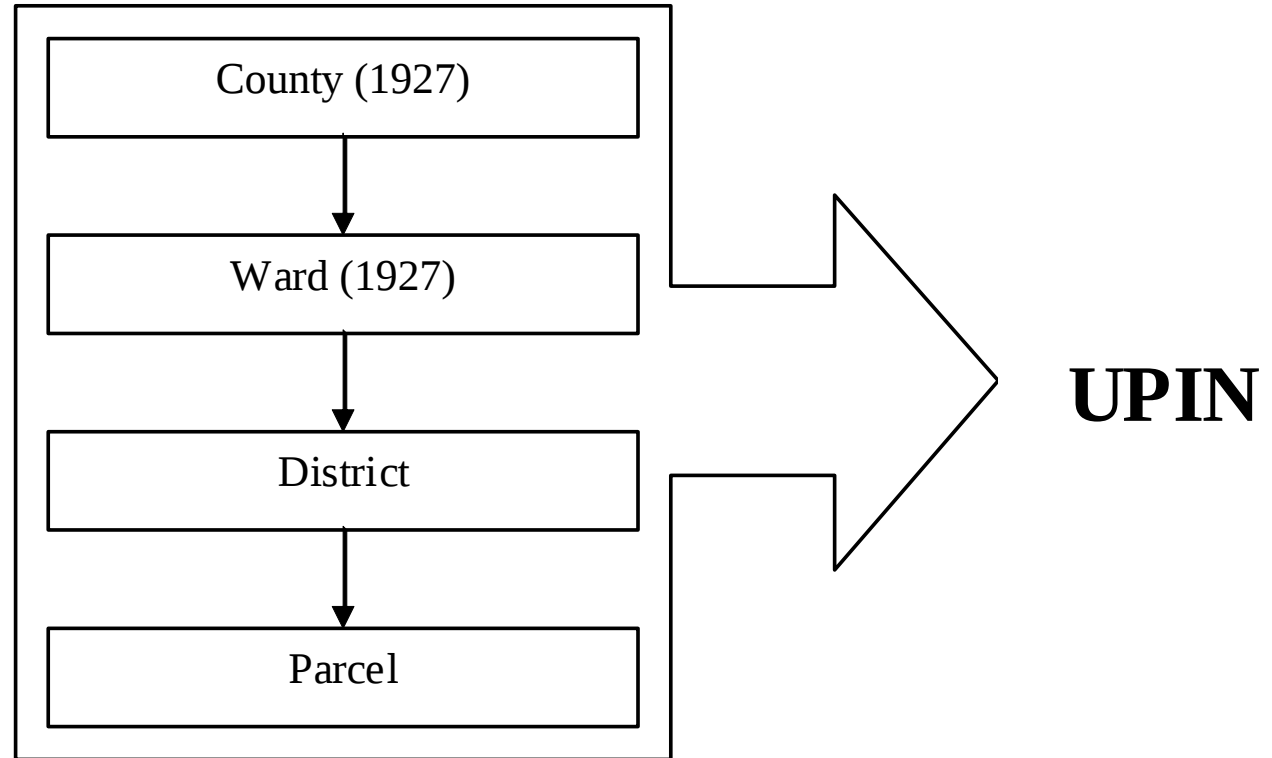


PARCEL INDEX MAP CREATION

- Use cadastral Index sheets
 - Topographic map sheets upon which cadastral surveys have been sketched and labelled with a plan or book reference in the Survey Plan Vault
 - Current sheets have over 150 years of cadastral changes
 - Exist in Naparima map datum at three scales
 - 1:10000
 - 1:2500
 - 1:1250
- Create digitised map sheets and add attribute information
- Seamlessly create 3 layers of cadastral index maps (one for each scale)
- Use of topographic base map and orthophoto 1994
- Conversion to WGS84 map datum in anticipation of use of GPS in the Land Adjudication exercise

Unique Parcel Identification Number (UPIN)

County and
Ward
definitions
from the 1927
Division of
Trinidad and
Tobago Act



Districts to be
geographically
defined

Example: County of St. George (1), St. Ann's Ward (2), District 134,
Parcel 111
UPIN 1-2-134-111



Map divisions of Trinidad of cadastral sheets

UTM

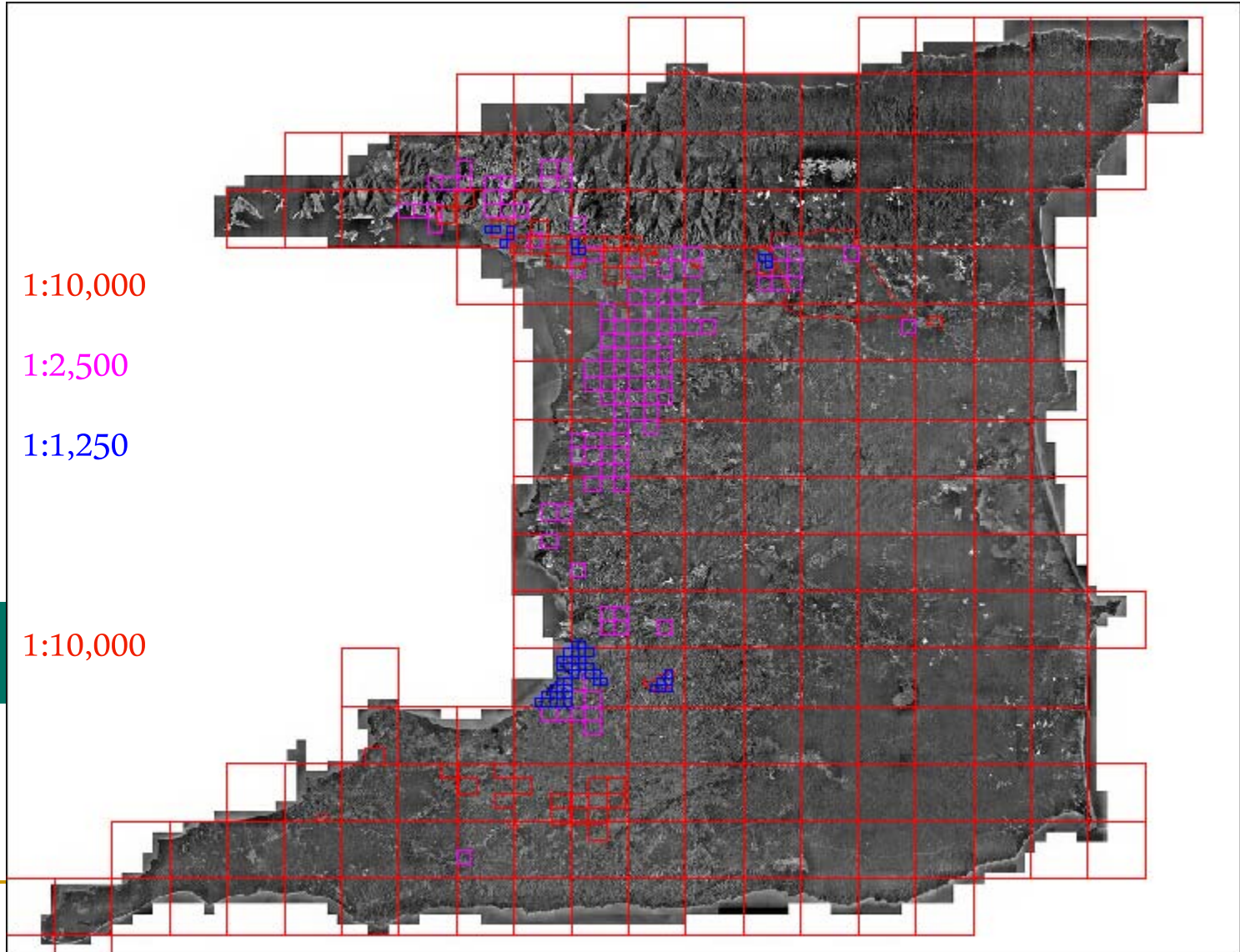
1:10,000

1:2,500

1:1,250

Cassini

1:10,000



Map divisions of Trinidad of cadastral sheets

UTM

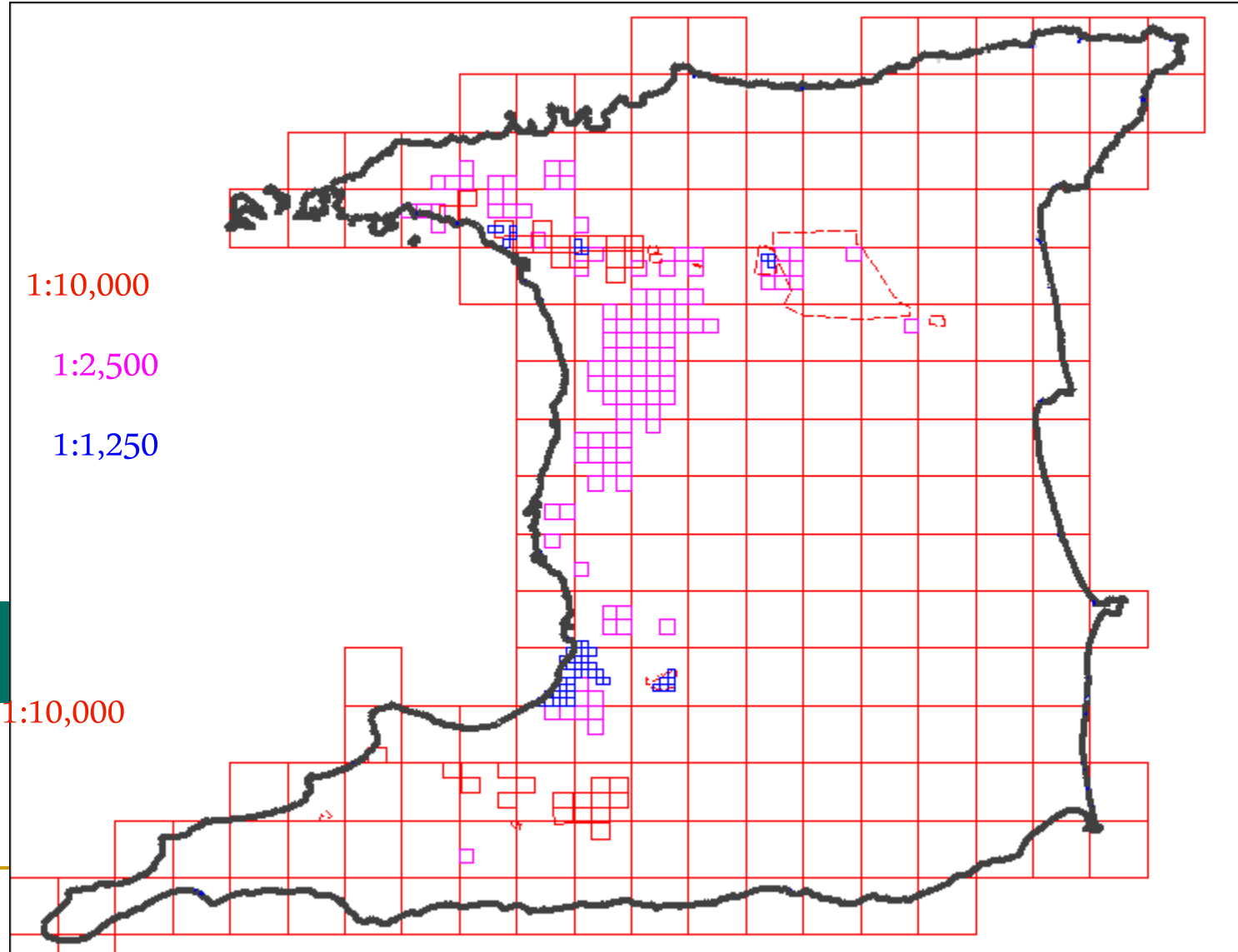
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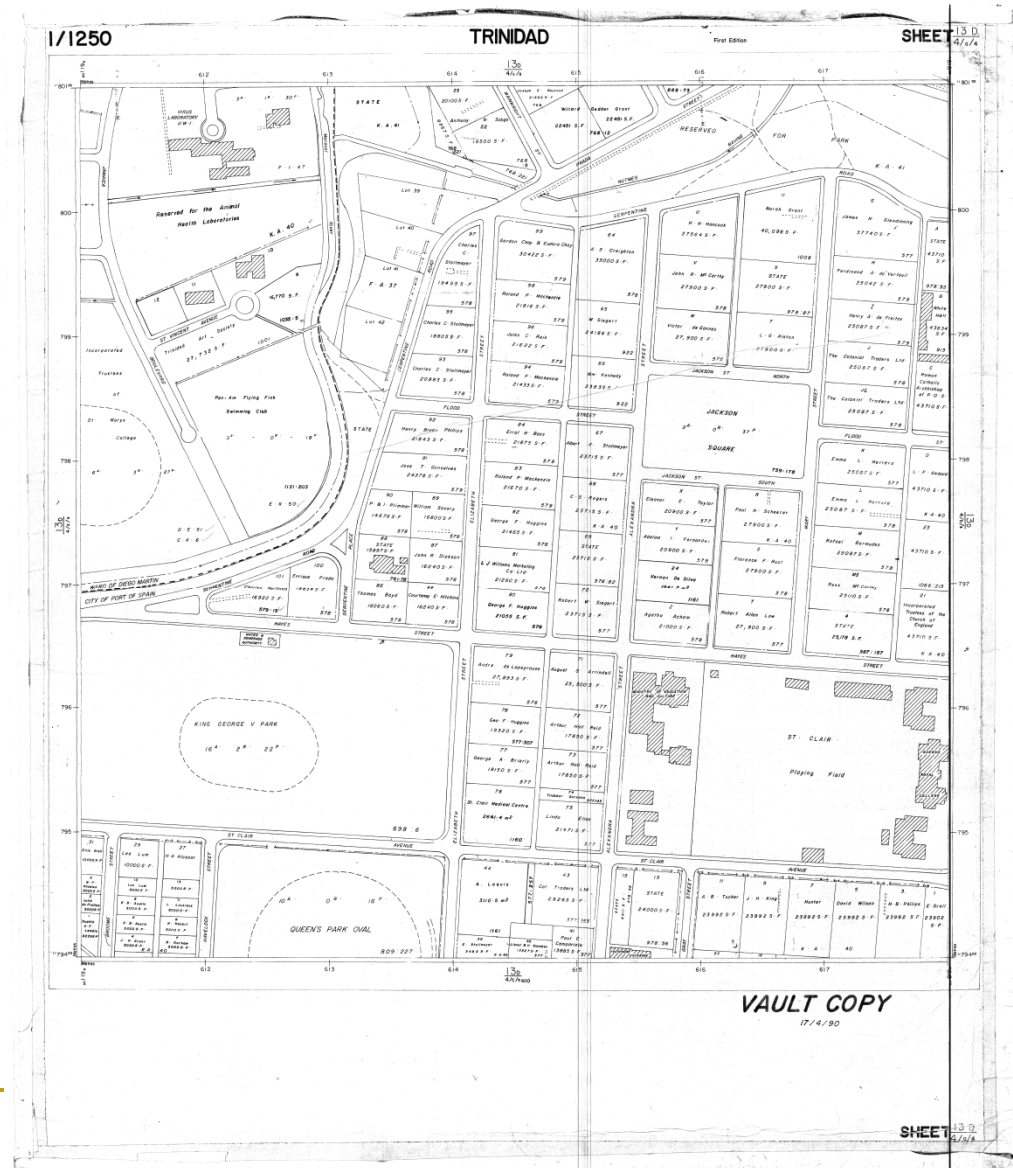
Cassini

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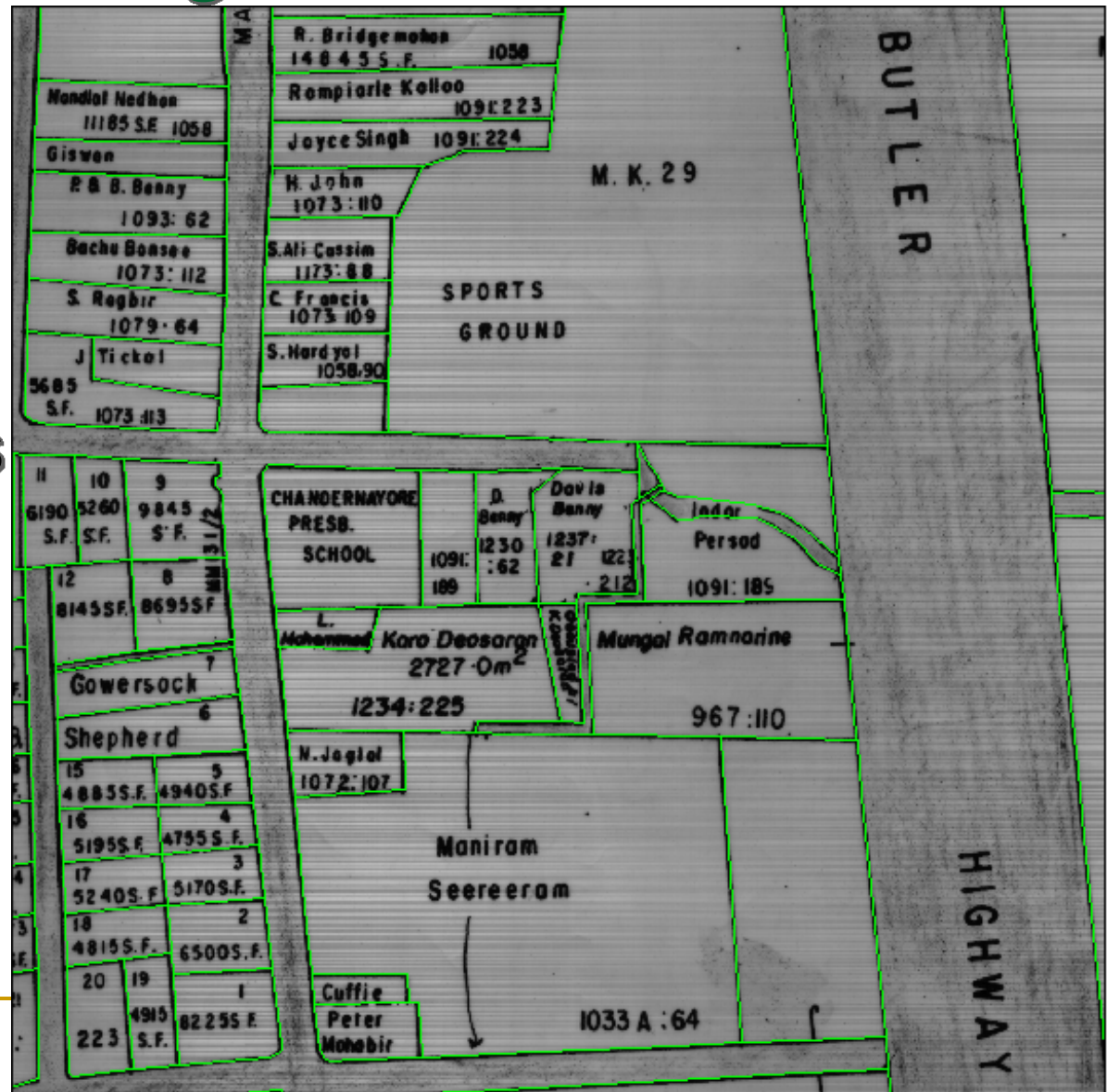
Scanning Cadastral Sheets

- Scanning Cadastral Sheets
- 200 - 400 DPI



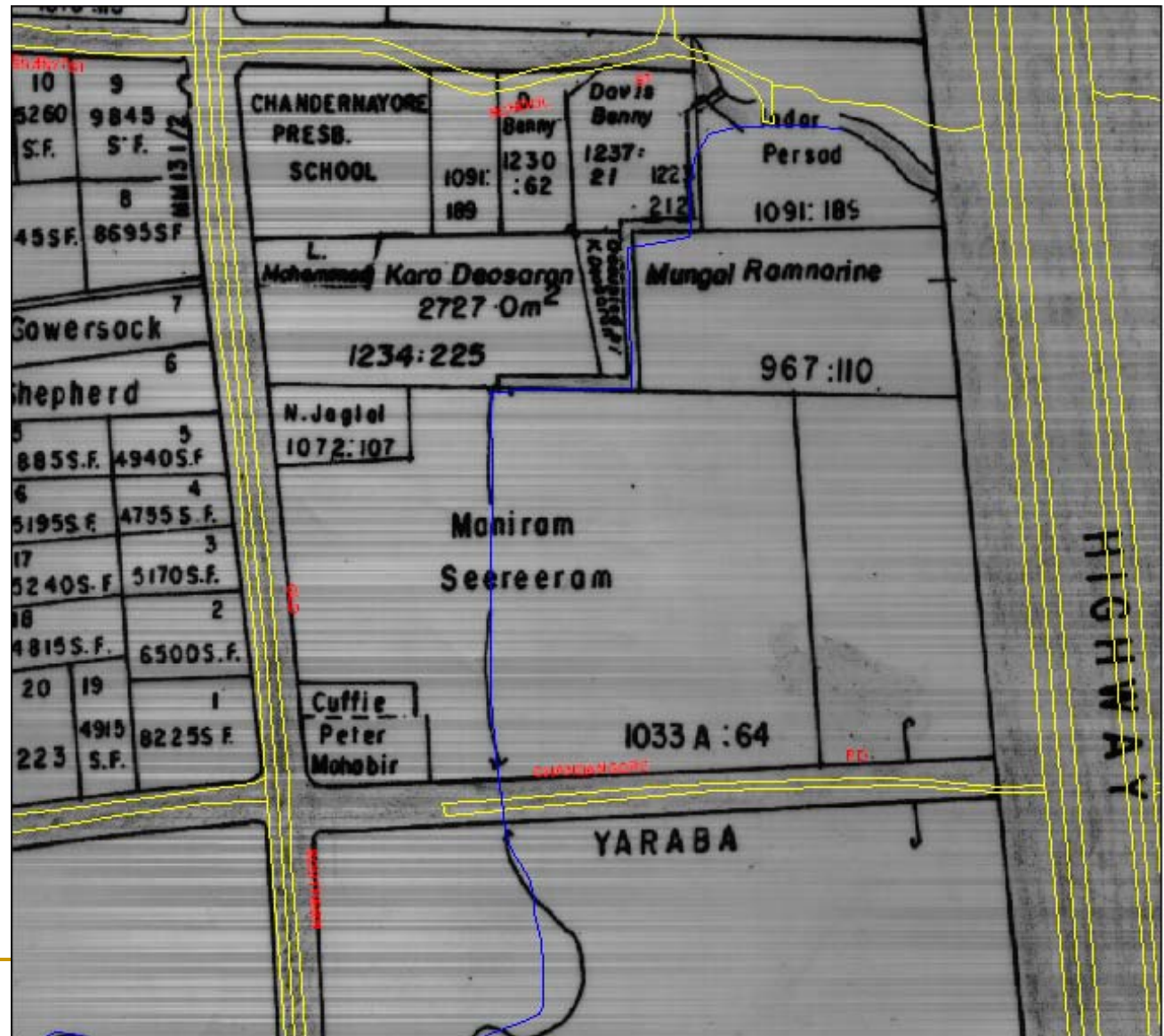
Georeferencing Cadastral Sheets

Capturing
parcel
boundaries
and
coordinates



Georeferencing Cadastral Sheets

Georeferenced
cadastral
maps with
Road and
River data
captured from
1994 Aerial
survey



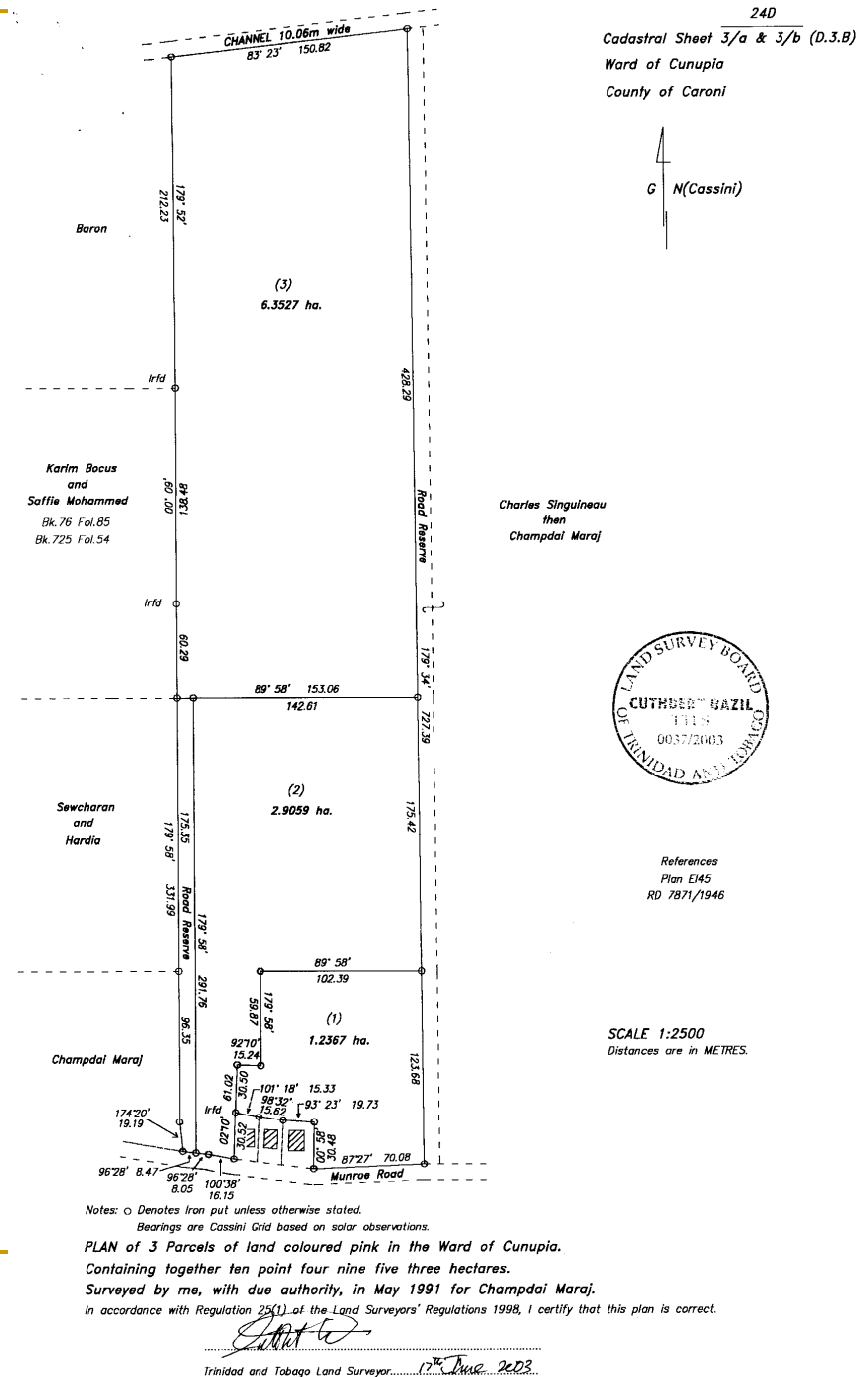
Georeferencing Cadastral Sheets

- Scanned Cadastral sheet georeferenced to the 1994 orthophoto mosaic



Georeferencing Survey Plans

Survey plan as part of Deed Registration



Georeferencing Survey Plans

Connection
between
Parcel Map
and Survey
Plan



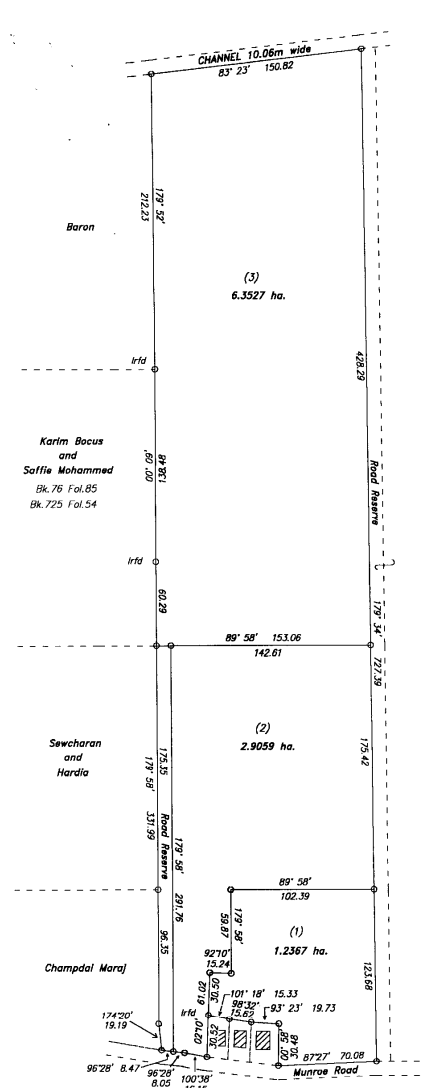
Georeferencing Survey Plans

Connection
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Georeferencing Survey Plans

Connection between Parcel Map and Survey Plan



Notes: ○ Denotes iron put unless otherwise stated.

Bearings are Cassini Grid based on solar observations.

PLAN of 3 Parcels of land coloured pink in the Ward of Cunupia.

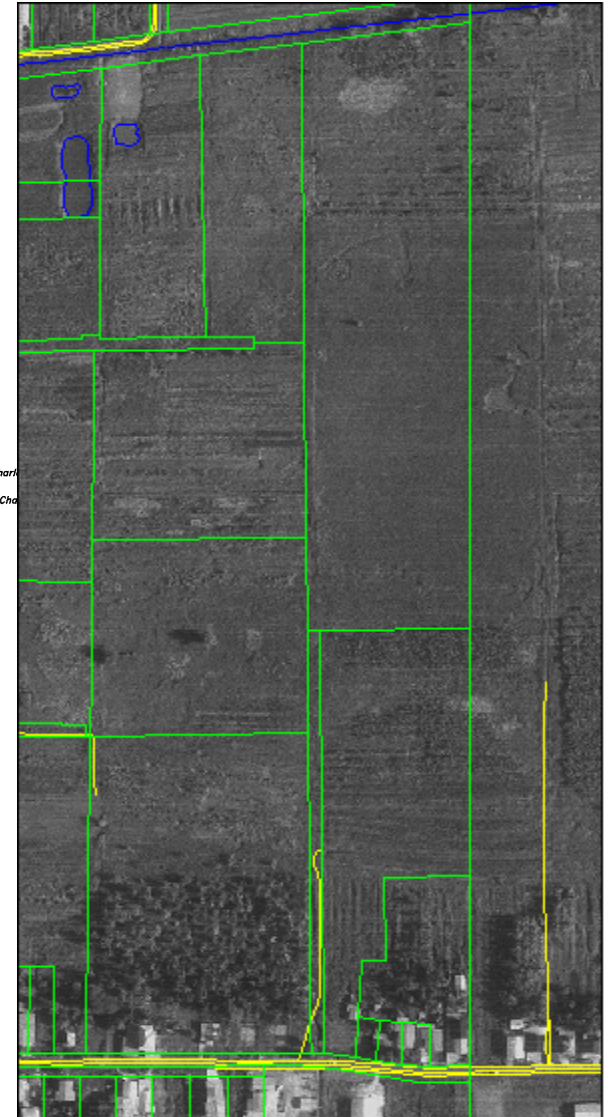
Containing together ten point four nine five three hectares.

Surveyed by me, with due authority, in May 1991 for Champdal Maraj.

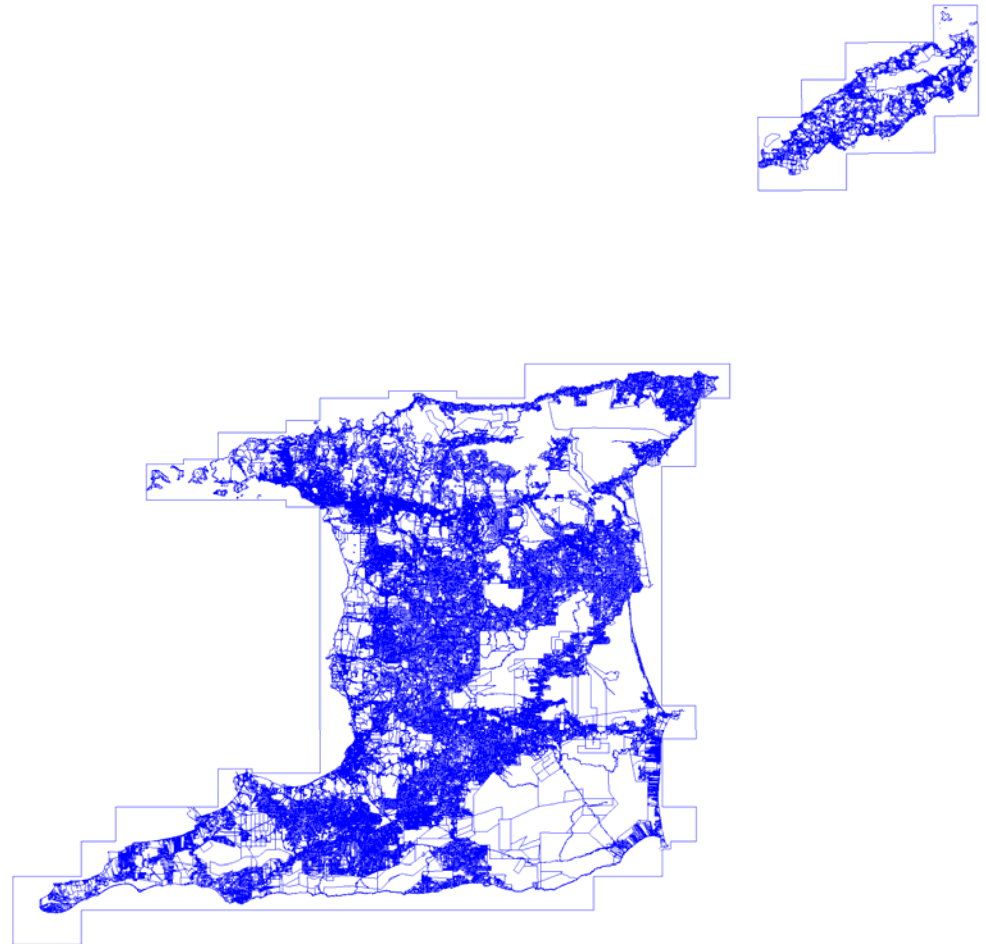
In accordance with Regulation 25(1) of the Land Surveyors' Regulations 1998, I certify that this plan is correct.

[Signature]

Trinidad and Tobago Land Surveyor..... 17th June 2022



Parcel Index Map



CMIS –Improving Management, Improving Service

- Automated workflow for cadastral processes in Division
 - Log transactions
 - Update digital parcel index map
 - Scan submitted documents (plans and notes, etc.)
 - Quality control Survey Content
 - Linkage to RGD for information of registration of interests (Deeds, RPO)
-

Improving Data Quality

- Surveyors required to provide
 - Parcel location – IMPERATIVE TO THE UPDATE OF THE INDEX MAP
 - Coordination – GPS, Ground Control, Use of topo data
 - Parcel Address
 - ROAD AND RIVER NAMES (NO 'ROAD AND RIVER RESERVE')
 - County, Ward, District
 - Title document reference
 - Survey Plan Cross referencing
-

Improving Data Quality

- Coordinates of a boundary mark required
 - Qualified by source – GPS, ground control, digital topo data
 - and method (resection, traversing, intersection)
 - Qualified by datum
 - Qualified by error statement
 - Must be included on plan submission – a requirement of the CMIS
-

From Cadastral Index to digital Cadastral Map

- 3 layers of graphic data – Scales 10000, 2500, 1250
– The Index Maps
 - The digital Cadastral Map
 - Target Error of +/- 2m
 - Use of 1250 layer for updates of lower order error
 - Use of a 4th layer for surveys that meet error target or better
 - Created in the CMIS
 - WGS84 datum
-

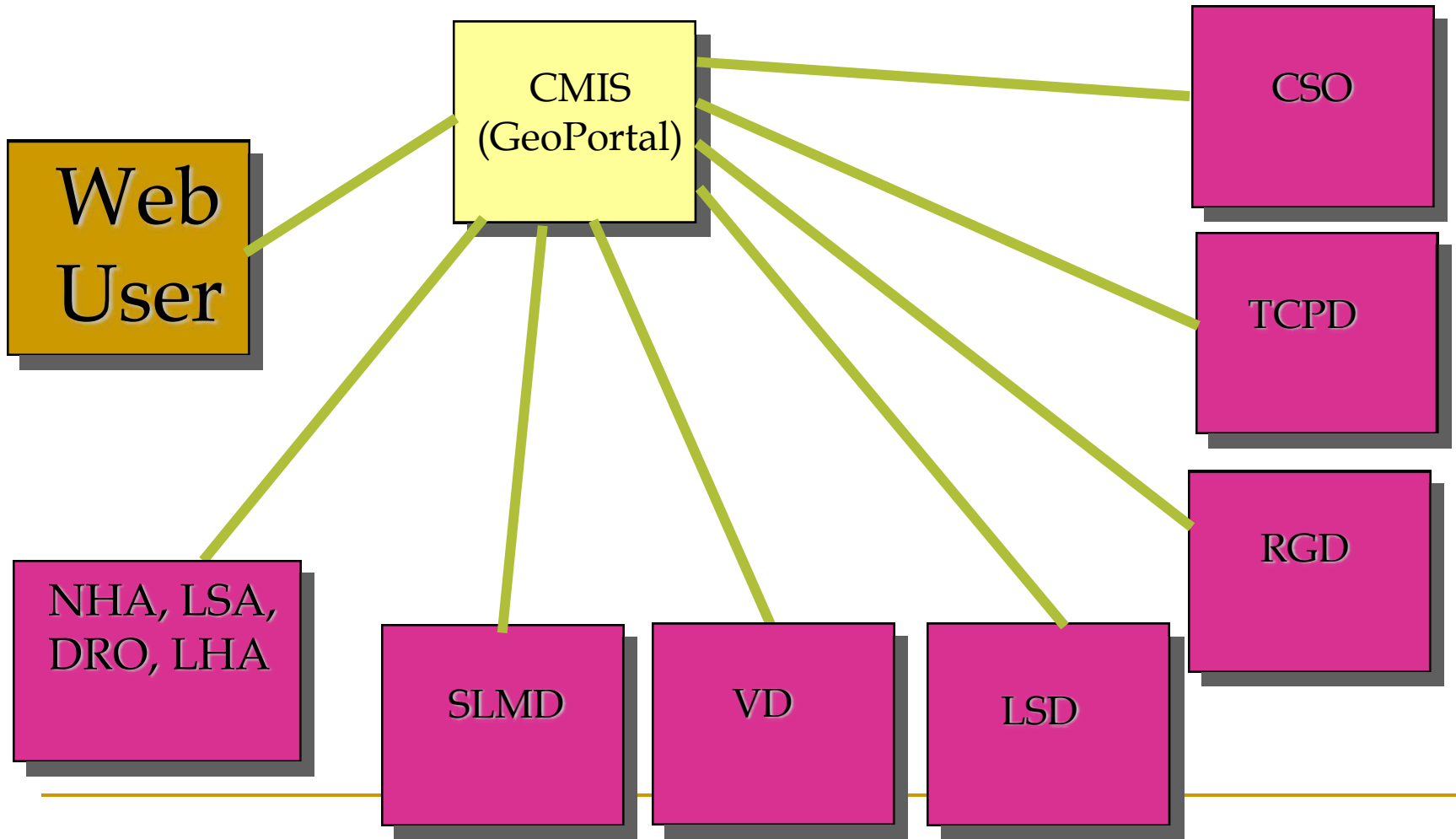
How do you access this dataset?

- Available at L&S LAN at present
 - Plots, digital copy
 - For sale, leasing
- Is shared through the internet by two means namely [http](http://190.213.4.243/tnt) and [ftp](ftp://190.213.4.243/books) (not officially launched, still in a quasi-testing stage)
- <http://190.213.4.243/tnt> - access to live cmis database
- <ftp://190.213.4.243/books> - access to scanned survey plans

Potential for CMIS GeoPortal

- Integration with other datasets
 - Improved development planning
 - Improved revenue earnings (taxation)
 - Assign Assessment no., Value, to parcels
 - Improved efficiency of service
 - Development of several applications – Insurance sector, real estate, Emergency Management, Postal Delivery, National Security
-

CMIS WEB ACCESS – Next Stage



Future Developmental Plans

- Development of standards for DATA SHARING, DATA ACCESS
 - DATA PRICING POLICIES
 - Use of GPS CORS sites
 - Updating topographic base map – proposed 2012?
 - Linking scans to Parcel Index Map
-

The Challenges

- Dwindling human resource
 - Surveyors – 16/46
 - Draftsmen – 11/66
 - Topographers – 1/4
- Lack of in-house personnel
 - for working on updating the Parcel Index Map through the CMIS – 7 contracted draftsmen
 - IT specialists
- Insufficient financial resource
 - Upgrade of hardware and software
 - Update of topographic mapping base
 - Improvements of the Information System
- Spatial Data Infrastructure Policy
- Slow buy in from staff

The Solutions

- Commitment of external organizations to LSD for provision of Cadastral and Topographic base data – for access to funding from Central Gov't for continual data update
 - Structural Reorganization
 - Outsourcing for both staff and services in the short term
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Thank You
