The SURPAC CADASTRAL (Standard) Module Applications

The Diagram CAD Application

- This CAD application incorporates specific functions for the creation of Diagrams. The format of the Diagrams created conforms with the requirements of the Surveyors General in all provinces of South Africa, in Namibia, Swaziland, Lesotho, Zimbabwe, Malawi and Zambia.
- Any number of Diagrams may be created for a given Co-ordinate File.
- A created Diagram may vary in size from A4 to A0.
- The basic Diagram form layouts for the different provinces and countries are incorporated in the application. For South Africa, the Diagram headings are available in English or Afrikaans.
- Diagram Data and Figural plot may be generated from :-
    - A Co-ordinate File,
    - A SURPAC General CAD Plotting Sheet (including Line and Text data for the figure and surrounding data),
    - A SURPAC Working Plan (including Line and Text data for the figure and surrounding data),
    - importing from a DXF file.
- Apart from the Main Figure of the Diagram, Users may specify data for :-
    - Connecting Data,
    - Indicatory Data,
    - Servitude Data,
    - Excluded Data, and
    - Trig. or TSM Data.
- Other options include :-
    - Defining the Diagram as a Line (Servitude) Diagram,
    - Defining the Diagram as a Compilation Diagram,
    - Selecting or deselecting the display of the Diagram Co-ordinates.
- Once generated, the Diagram Figure may be :-
    - Dynamically re-positioned,
    - Dynamically re-scaled, or
    - Dynamically re-oriented.
- A variety of Line and Text related functions may be employed for completing the Diagram information, surrounding data etc.
- Using simple mouse or keyboard commands, the on-screen view of a Diagram may be :-

- Zoomed Up,
- Zoomed Down,
- Zoomed to a defined window,
- Zoomed to the defined Plotting scale,
- Zoomed to a User defined scale,
- Rotated positively or negatively,
- Panning or scrolling the display

- The Diagram application functions are accessible from :-
  - a Drop Down Menu system,
  - a Tool Bars system (that includes most of the common functions), or
  - using Single or Double Keyboard entered commands.

- The standard CAD functions included are :-
  - Line construction/editing :-
    - Draw using various colours, widths and styling,
    - Generate (using Polar data),
    - Replicate,
    - Dimension,
    - Trim/Snap,
    - Subdivide,
    - Draw arrows, rectangles, arcs.
  - Point functions :-
    - Add, Edit or Delete a Point,
    - View a Point's information
    - Calculate Polars,
    - Calculate Joins,
    - Calculate Intersections,
    - Circle and Name Points (i.e. Block Corners etc.)
  - Text functions :-
    - Write a Text Item using any Font, any Size, any Direction, any compaction or styling,
    - Edit or Delete a Text Item,
    - Dynamically Move a Text Item,
    - Dynamically Copy a Text Item,
    - Dynamically Resize, Position and/or Orientate a Text Item,
    - Import Text Items from an ASCII file,
    - Reset the attributes of all, or selected Text Items.
  - Graphic Image functions :-
    - Import Graphic Images (BMP, JPEG, GIF, ICO, WMF or EMF formats)

- Create Graphic Image of Sheet, or portion of the Sheet (BMP format)
- Flip an Image (Horizontal, Vertical or both)
- Set Images to be in front of, or behind, drawing information
- Move an Image
- Re-Size an Image
- Shift an Image

- Use the SURPAC "Frame" function to :-
  - Copy defined a block of Data from Position to Position,
  - Move a defined block of Data from Position to Position,
  - Delete a defined block of Line/Text data,
  - Create an Inset at a User defined Scale,
  - Align a defined block of Text Items (Left/ Centre/ Right Justify, plus horizontal spacing),
  - Rotate a defined block of Data,
  - Zoom Up, or Zoom Down, a defined block of Data,
  - Store and recall Data Blocks from disk for repeated Sheet application.

- Output of the Diagram to :-
  - A Printer or Plotter,
  - An ASCII File,
  - A HPGL File, or
  - A DXF File.

- The specific Diagram CAD functions are :-

- Carry out an automatic Data and Consistency calculation,
- Compute the Figure Area,
- Move the Figure (Dynamic),
- Scale the Figure (Dynamic),
- Orient the Figure (Dynamic),
- Insert a Data Line,
- Delete a Data Line.
- Setting an Erasure Polygon for :-
  - Erasing Lines,
  - Erasing Text Items,
  - Erasing Points, or
  - All Data.
- Displaying a North Point.

The Working Plan CAD Application

- This CAD application incorporates specific functions for the creation of Working Plans. The format of the General Plans created conforms with the requirements of the Surveyors General in all provinces of South Africa, in Namibia, Swaziland, Lesotho, Zimbabwe, Malawi and Zambia.
- Up to 10 Working Plan Sheets may be created for any Co-ordinate File.
- The Co-ordinate File is used as the source of Point data. These Point Data may be used for the construction of the necessary Plan Lines, and/or the Lines may be imported from a variety of external sources.
- Measured Lines and Arcs (the "Red" Line data) are drawn at an offset from the Boundary Line positions for clarity,
- Red Line data may be added graphically, or automatically from an Observation file,
- All plotted Points use their listed Descriptions to automatically display their correct symbols,
- A variety of Text related functions may be employed for completing the headings, street names etc.
- Using simple mouse or keyboard commands, the on-screen view of a Working Plan may be :-
  - Zoomed Up,
  - Zoomed Down,
  - Zoomed to a defined window,
  - Zoomed to the defined Plotting scale,
  - Zoomed to a User defined scale,
  - Rotated positively or negatively,
  - Panning or scrolling the display
- The Working Plan application functions are accessible from :-
  - a Drop Down Menu system,
  - a Tool Bars system (that includes most of the common functions), or
  - using Single or Double Keyboard entered commands.
- The standard CAD functions included are :-
  - Importing Line, Arc and/or Text Data :-
    - from a SURPAC General Plan, Data Sheet, Working Plan or General CAD plotting She
    - from a TopoCAD Sheet, or
    - from a DXF file.
  - Line construction/editing :-
    - Draw using various colours, widths and styling,
    - Generate,
    - Replicate (using Polar data),
    - Dimension,
    - Trim/Snap,
    - Subdivide,

- Draw arrows, rectangles, arcs, circles.
- Point functions :-
  - Display All Points, or Trig., TSM and Working Stations only,
  - View a Point's information
  - Calculate Polars,
  - Calculate Joins,
  - Calculate Intersections,
  - Circle and Name Points
- Text functions :-
  - Write a Text Item using any Font, any Size, any Direction, any compaction or styling,
  - Edit or Delete a Text Item,
  - Dynamically Move a Text Item,
  - Dynamically Copy a Text Item,
  - Dynamically Resize, Position and/or Orientate a Text Item,
  - Import Text Items from an ASCII file,
  - Reset the attributes of all, or selected Text Items.
- Graphic Image functions :-
  - Import Graphic Images (BMP, JPEG, GIF, ICO, WMF or EMF formats)
  - Create Graphic Image of Sheet, or portion of the Sheet (BMP format)
  - Flip an Image (Horizontal, Vertical or both)
  - Set Images to be in front of, or behind, drawing information
  - Move an Image
  - Re-Size an Image
  - Shift an Image
- Use the SURPAC "Frame" function to :-
  - Copy defined a block of Data from Position to Position, or Sheet to Sheet,
  - Move a defined block of Data from Position to Position,
  - Delete a defined block of Line/Text data,
  - Create an Inset at a User defined Scale,
  - Align a defined block of Text Items (Left/ Centre/ Right Justify, plus horizontal spacing),
  - Rotate a defined block of Data,
  - Zoom Up, or Zoom Down, a defined block of Data,
  - Store and recall Data Blocks from disk for repeated Sheet application.
- Output of the Working Plan to :-
  - A Printer or Plotter,
  - A HPGL File, or
  - A DXF File.

- **The specific Working Plan CAD functions are :-**
  - Compile Heading and Description Lists,
  - Boundary or Measured Line construction from manual entry,
  - Automatic Measured Line loading from an Observation file,
  - Listing of existing Measured Lines to/from each Beacon,
  - Listing of the "To/From" information for Measured Lines,
  - Listing of Measured Lines from all Points,
  - Creating Insets, including Points,
  - Creating Working Plans showing only Trig. Beacons, TSMs and Working Stations.
  - Setting an Erasure Polygon for :-
    - Erasing Lines,
    - Erasing Text Items,
    - Erasing Points, or
    - All Data.
  - Displaying a Grid Mesh used to select permanent Grid Line display,
  - Displaying a North Point.