

# CE 4020- Computer Applications in CEE

*The Survey Tab*

September 9, 2013

## Using Survey Data

The survey database stores survey specific information, including control points, known directions, observation measurements, traverse definitions, figures, and standard deviations based on equipment data.

A survey network is a collection of related survey control points, instrument setup and observation data (including, known directions, observations and traverses). They are used to edit, organize and manage survey data. Network components include:

- Direction line
- Error ellipse
- Known and unknown control points
- Network line - connecting known and unknown control points (also called Setups)
- Sideshot points and sideshot lines connecting sideshot points to control points
- Traverses

**Survey figures and prefixes** - as described in survey data - automate the production of pre-engineering base plan and existing ground features. Survey figures are poly-linear objects made of lines and arcs that connect similar surveyed features. Survey figure prefixes can be used to distinguish different types of survey features and automatically assign them different figure styles. Figure prefixes are stored in the figure prefix database.

Field book files (.fbk format) are survey data observation files. They include the following information:

- Control coordinates (all points expressed as NEZ)
- Station setup information (STN)

- Instrument and prism heights (PRISM)
- Backsight angles (BS)
- Sideshot data such as slope distance, horizontal angle and vertical angle (F1 VA)
- Traverse data
- Connectivity codes applied by surveyors in the field to automatically generate base plan linework, e.g. BEG, END, CONTINUE, C3 9connecting 3 points with an arc).

## Class Exercise

**Goal:** Interface directly with surveyors, import surveyed land data automatically from field databases.

**Objective:** (1) Set up a survey network by directly importing data from a surveyor's field book and (2) use appropriate settings to display line work in surveyed data.

Follow these steps:

- Open survey tab using the command *OST* from the command line - if you cannot already see it next to the Prospector and Settings tab in the Tool Space.
- Right click the *Survey Database* in the survey tab and create a *New Local Database*.
- Open the database branch and inspect the data structure.
- Right click on *Networks* and add a new network called *Fifth Avenue*.
- Inspect the Equipment and Figure Prefixes databases.
- Add an object to the *Figure Prefix* database. Figures such as line segments and curve segments are used by surveyors, during data collection to identify features such as waterlines, curbs etc. They use figure prefixes to identify these figures when collecting data. Hence for each figure prefix object in the database a corresponding figure style has to be created so that each of the features can be imported on distinct layers as defined by color and line type.
- Add the following objects to the *Figure Prefix* database and the corresponding styles as *Figure Styles* under the Settings tab.

Figure Prefix	Layer Name	Figure Style
CL	ST_CL	Centerline
FW	ST_WALK	Sidewalk
EP	ST_EOP	Expvmt
DW	ST_DW	Driveway

- Open the fieldbook file (from class website *Survey.fbk*) in a text editor and inspect it.
- Right click on *Fifth Avenue* and *Import Field Book*.
- Right click on *Networks* (top level), go to *Points* and select *Insert to Drawing*.
- Go to the prospector tab and investigate imported points.