Chapter 1

Tools

1.1 QGIS Tools

1.1.1 Using COGO Tools in QGIS

Set up the Azimuth and Distance Plugin
(Azd Plugin).

In the Plugins drop down(1), under the topography group select the **Azd Plugin(2)**(see fig.).

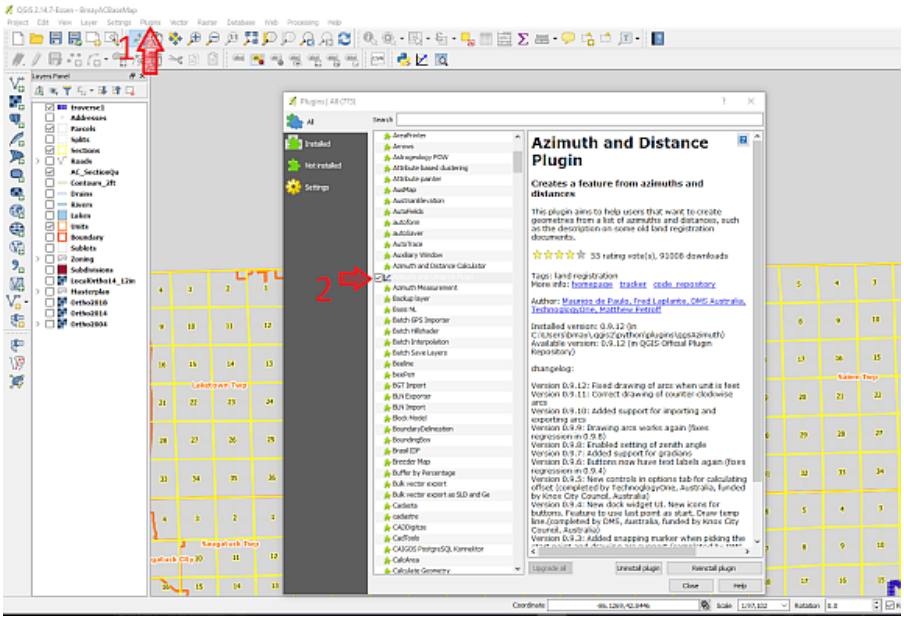

Figure 1.1: launch plugin

Note here which layer is active (see fig.).

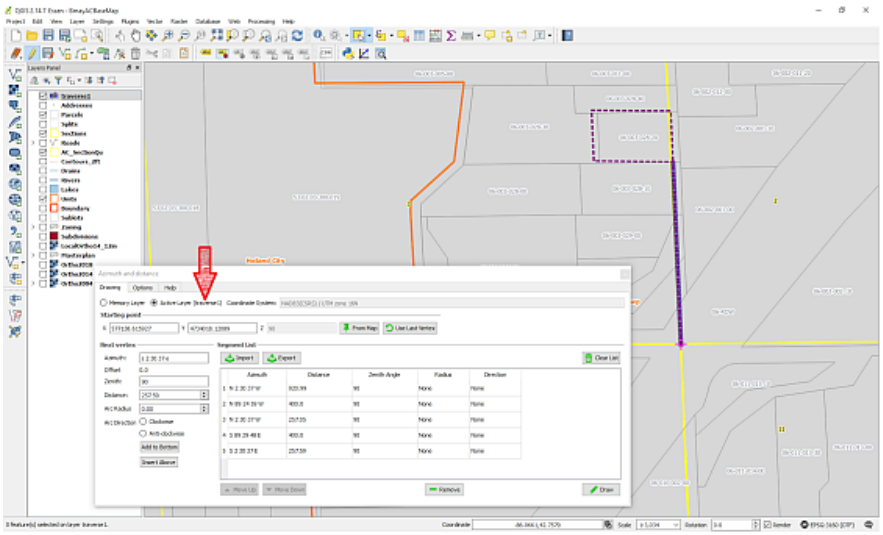

Figure 1.2: check active layer

If necessary, left click the layer ***traverse 1*** in Layer Panel to activate it(see fig.).

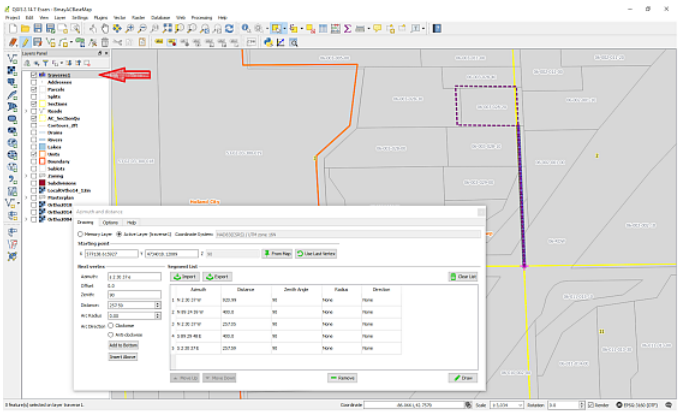

Figure 1.3: activate layer

Configure Options On Options Tab: Select Boundary, Bearing, Feet, and Degree radio buttons.

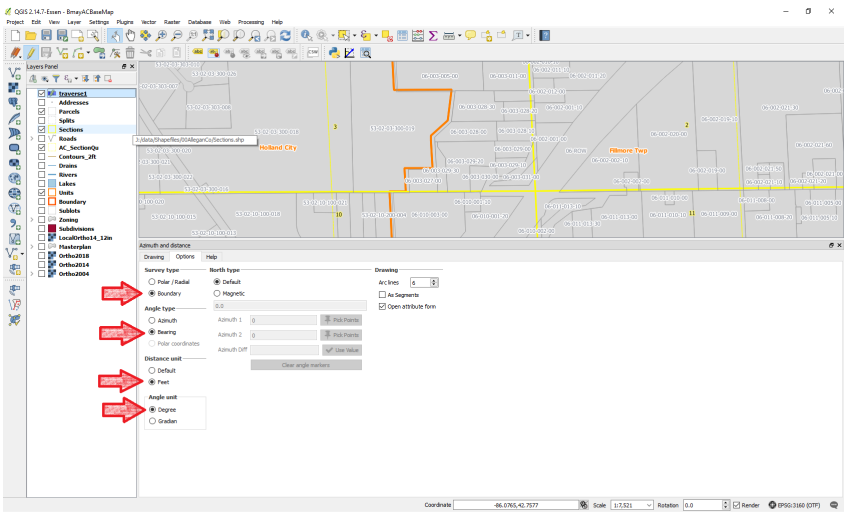

Figure 1.4: Plugin Options

Using the tool Boundary descriptions are entered into the Drawing Tab. Azimuth (bearing) and Distance are the important boxes (Set Offset = 0 and Zenith = 90 and ignore)(see below).

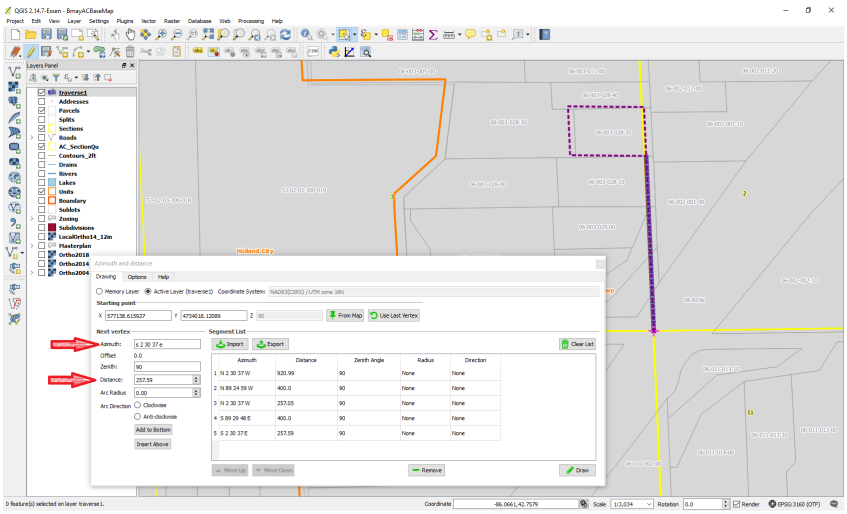

Figure 1.5: Entering Bounds

Configure editing environment

Use Settings Dropdown and Snapping Options to enable snapping to Sections, Quarter Sections, and or Parcels if desired (see fig.).

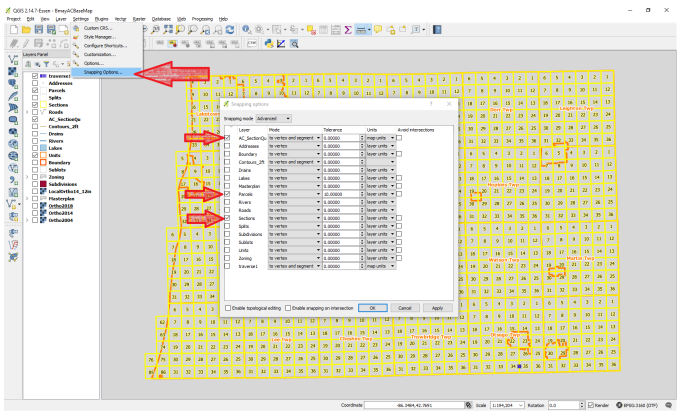

Figure 1.6: Configure editing environment

Locate Point of Commencement

To get to the Point of Commencement,

Use **any combination** of the following methods:

- Using Reference Layer
- Using Measuring Tool
- Search by Parcel Number (Search Layers Plugin)
- Draw COGO lines (Azd Plugin)(as described earlier)

Using Reference Layer Use reference layers; Units, AC_SectionsQu, Sections, and Parcels. Toggle layers on and off in Layers Panel and zoom in and out with mouse wheel.

Using Measuring Tool Use the measuring tool, make sure to set units to feet. To exit current measurement right click (see fig.).

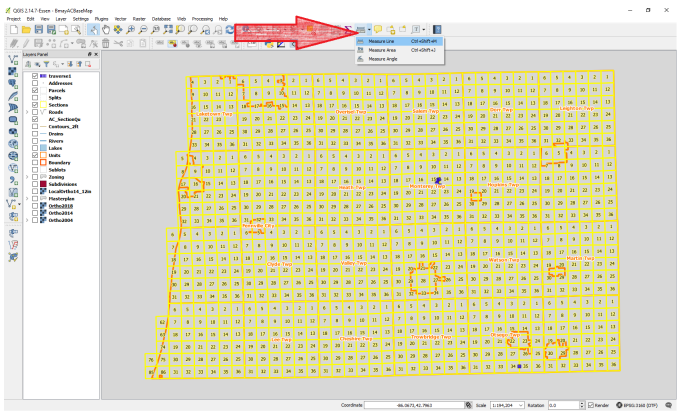

Figure 1.7: Measuring Tool

Search by Parcel Number (Search Layers Plugin.)

To Launch Search Layers Plugin:
In Plugins dropdown:
Enable the **Search Layers** Plugin. (see fig.)

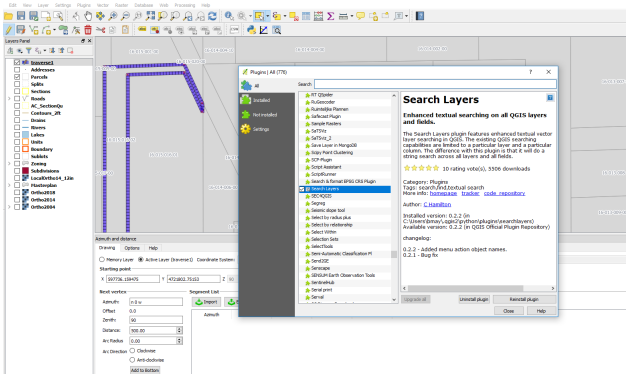

Figure 1.8: Search Layers Plugin

Enter parcel number (with dashes), Set layers, and set search field.(see fig.)

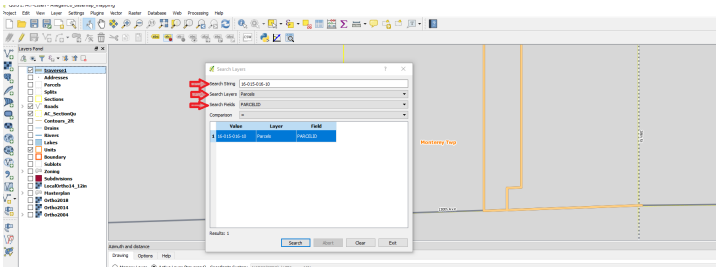

Figure 1.9: Search Layers Setup

1.2 LaTeX Packages

1.2.1 float Package

BLAH
(BLAH).

1.2.2 graphicx Package

BLAH
(BLAH).

1.2.3 hyperref Package

usepackage

Add the *hyperref package* to the preamble **last**.

```
\usepackage[options]{hyperref}
```

Simple Use

```
Use \href{URL}{DESCRIPTION} to add a link with description
Example:
\href{https://www.latex-tutorial.com}{Website with tutorials}
produces:
```

Website with tutorials

Options

Add optional arguments to the usepackage line:
Useful options:

- **pdftex**
  enables other options like breaklines
- **breaklinks**
  allow links to be broken across several lines
  eg. https://lists.gnu.org/archive/html/emacs-orgmode/2013-06/msg00776.html
- **colorlinks**
  Colors the text of links and anchors.(default is false)
- **linkcolor**
  Color for normal internal links(default is red).

- **anchorcolor**
  Color for anchor text.
- **citecolor**
  Color for bibliographic citations in text.
- **urlcolor**
  Color for linked URLs

Use with options

```
\usepackage[breaklinks,colorlinks,citecolor=blue,urlcolor=green]{hyperref}
```

Commands

```
\href{URL}{text}  Makes text a link to URL.
```

Manual for hyperref

```
\hyperref[label]{text}
   Makes text a link to where
\ref{label} would point.
\hypertarget{name}{text}  Sets an anchor on textwith the label name.
\hyperlink{name}{text}  Makes text a link that takes you to the anchor labeled name.
Pair with \hypertarget.
\phantomsection  Used in conjunction with
\addcontentsline to make the correct link in the Table of Contents.
```

1.2.4 import Package

BLAH
(BLAH).

1.2.5 wrapfig Package

BLAH
(BLAH).

1.3 LaTeX Templates

1.3.1 LaTeX Section Template

```
\documentclass[class=book , crop=false]{standalone}

\usepackage[subpreambles=false]{standalone}
```

```
\input{../../preamble}

\begin{document}

\section{SECTION NAME HERE}

\subimport{RELATIVE PATH TO NEW Section/}{NEW SUBSECTION Subsection.tex}

%eg.
%\subimport{latexTemplatesSection/}{subsectionTemplateSubsection.tex}
% etc...

\end{document}
```

1.3.2 LaTeX Subsection Template

```
\documentclass[class=report , crop=false, multi={itemize, figure}, float=false]{standalone}

\input{../../../preamble}

\title{ % create title page
\HRule % Horizontal Line added
\\[.4cm] % space
\begin{figure}[H] % included image
\begin{center} % centered horizontally
\includegraphics[scale=.45]{GIS_Logo_better.jpg}
\end{center}
\end{figure}
\Huge \bfseries TITLE GOES HERE % Title text
\HRule \\[.4cm] % Horizontal Line added
}  % closing brace for title

\author{\Large Allegan County GIS \\\Large www.allegancounty.org/gis} % defines author

\begin{document}% Document Begins

\ifstandalone
%\frontmatter % turns off chapter numbering and uses roman numerals for page numbers
\maketitle % creates title page and blank page after title page
\tableofcontents % creates TOC and blank page
\clearpage
%\mainmatter % turns on chapter numbering, resets page numbering and uses arabic numerals for pag
\fi
```

```
\subsection{BLAH}
\medskip
\subsubsection{\Large BLAH \\\small(BLAH).}

\medskip
\large BLAH\\\Large BLAH \textbf {BLAH}(see fig.).
\begin{figure}[H] % included image
\centering
\includegraphics[scale=.30]{1.png}
\caption{BLAH}
\end{figure}
\clearpage

\large BLAH (see fig.).
\begin{figure}[H] % included image
\centering
\includegraphics[scale=.26]{2.png}
\caption{BLAH}
\end{figure}


\end{document}
```