Net Deed Plotter®

(Version 5 of Deed Plotter®)

For Windows XP® and Windows Vista®

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Third Printing of Fourth Edition

Preface

Welcome to Greenbrier Graphics, LLC
Net Deed Plotter®

Net Deed Plotter (Version 5 of Deed Plotter®) is our fourth Windows release, and it is our eighth major Deed Plotter revision.

This release is, as always, in response to the wish list customers continue to submit.

Net Deed Plotter is ideal for the individual who needs to determine the shape, area, and accuracy (closure) of survey descriptions.

More than ever, we learn that our software provides very important results for our users. Litigation is often avoided or its outcome decided by Deed Plotter.

System Requirements

Net Deed Plotter requires the following:

- A Windows-based computer running Microsoft Windows XP® (with NET Framework 2) or Windows Vista®.
- Approximately 3 ½ megabytes of Hard Disk Drive space.*
- Approximately 10 megabytes of dedicated RAM.*
- A mouse or other pointing device.
- A monitor having a minimum resolution of 1024X768.

All modern printers are supported.

(* See Installation and Requirements Help topic for exceptions and details.)

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Introduction

Welcome to Net Deed Plotter®

Whether you are going to draw a simple legal description once in six months or draw legal descriptions every day, Net Deed Plotter is for you.

If you want only a map and essential data, you can skip a significant portion of the manual. Background images and other powerful options we offer are ready if you ever need them. We keep the advanced features out of your way. Use what you need and ignore the rest.

As always, Deed Plotter® is designed to provide maps and technical data for those involved in real estate at a professional level. We do not expect you to be a surveyor or engineer.

Version 5 of Deed Plotter is distinguished by the name **Net Deed Plotter**.

The design (programming) of Net Deed Plotter was on a Windows **XP**® (SP2) based computer AND on a computer that used the **Vista**® operating system.

In the **Getting Started** topics, you will see how easy it is to enter deed calls into Net Deed Plotter and draw a map. It is important that ALL new users understand those topics and the general entry of Net Deed Plotter data.

If legal descriptions are reasonably well written, our Deed Conversion™ wizard can often read the deed calls directly from the deed and automatically format the deed calls to the final protocol Net Deed Plotter requires. After you have learned the basic concepts of entering deed calls directly into our Deed Call Editor, you may want to see if Deed Conversion works for you.

Installation and Requirements

We recommend that, especially for Vista operating systems, Net Deed Plotter® be installed under Administrator Rights. Any run-time error (unhandled exceptions, etc.) that may occur during or after installation is probably the result of not doing so.

As you will learn in the **Copy Protection and License Activation** page that follows, any license(s) you have purchased, and continue to have, must be activated after installation. It is important that you also refer to our Help topic for additional information. To do so, please select **Deed Plotter Help** from the **Help** menu, and then select the **Copy Protection and License Activation** topic.

This version of Deed Plotter is based on the latest programming technology offered by Microsoft. This new technology is known as the .Net Framework. Therefore, Greenbrier Graphics has again changed its programming language to provide you with leading-edge-technology.

Deed Plotter now requires version 2 or later of the .Net Framework. This is one reason we require **Windows XP** with service pack 2 or **Vista**. *If you are using XP and Net Deed Plotter fails to run, you probably do not have an up-to-date version of .Net Framework 2.0. XP users can find important information concerning this in the* ***Support*** *topic at our Web site.*

Net Deed Plotter looks at the paper size and other important information concerning the specific printer(s) you will be using. It is important that you have at least installed a printer driver. It is not required that the printer actually be turned on or connected.

Copy Protection and License Activation

Regardless of the method (CD or download) you used to install Net Deed Plotter, it will eventually expire if the license has not been activated.

If you have purchased, and continue to have, one or more valid licenses, you are entitled to activate the license(s) at your convenience. LICENSE ACTIVATION IS NOT REQUIRED DURING THE TRIAL PERIOD.

Whether you have downloaded Net Deed Plotter® or received it on a CD, it is never limited in functionality. You will have access to every feature without limitation. If a trial period remains, it will briefly be indicated in the status bar each time Net Deed Plotter begins to run.

The copy protection currently used with this version of Deed Plotter® is designed to be user-friendly for our customers. Menus relative to copy protection are visible only when relevant. If you change the status of your license, any menu no longer needed may disappear or a new one may appear.

This copy protection remains effective even if you re-format the hard disk drive, change various circuit boards, reinstall/update Windows, or a host of other changes that alter portions of your computer's "fingerprint."

If you are entitled to activate a license on more than one computer, it would be prudent to carefully select the computers to be activated. Using a license on an unauthorized computer could result in your not having enough licenses for needs that may arise later.

If you have received an **Internet Activation License Number** from your dealer, you can use the **Internet Activation** option to activate your computer.

The "**Manual Activation**" option will require that we receive a 12 digit **Installation ID** code number from you so as to compute a 16 digit **Unlocking Key** number unique to the computer being activated.

The steps presently used for license activation are on the next page.

License Activation Process

The steps provided below are currently used when you need to activate a license. Over the life of this manual the exact steps may change, but these steps will remain reasonably useful. If the steps change significantly, you will find the updated method in a Help topic.

These steps are based on the assumption you are a registered user of Net Deed Plotter and currently have a valid license to use the software.

The current steps for activation within the trial period are as follows:

1. During the trial period, an **Activate License** menu will be visible on the **Deed Call Editor** until you have activated the license for that particular computer.
2. When you click the **Activate License** menu, a form will appear that will guide you through the license activation process.
3. If you have received an 18-digit Internet Activation License number from Greenbrier Graphics, select the **Internet Activation** option; otherwise, use the **Manual Activation** option and email or phone your computer's unique 12 digit **Installation ID** number to your dealer. A 16 digit **Unlocking Key** will then be provided.

(If you attempt to run Net Deed Plotter AFTER the trial has expired, the aforementioned form will appear automatically.)

IF you are using the "**Manual Activation**" option to activate a license, the 12 digit **Installation ID** you will be providing Greenbrier Graphics is unique to that computer. It is not possible to license two or more computers by using the same **Installation ID** or **Unlocking Key.**

After a license is activated, the **Activate License** menu will disappear, and there will be no message pertaining to the days left before expiration. There will be a **License Manager Form** menu option in the **Help** menu. This menu can be used move or remove a license. To Move a license, use the "De-Activate" option, and then reuse your original Internet Activation license number on the new computer. To Remove a license, call your dealer for instructions.

Features and Changes

(Our goal remains finding a way to make Deed Plotter even easier to use.)

- Icons available for the common tasks.
- Accepts directions, distances, and curve data to obtain a scaled map that can include multiple tracts and structures.
- Cardinal directions can be entered directly.
- Complete, full-featured help.
- Editing of deed call data now includes Cut, Copy and Paste. With this version of Deed Plotter, the editor is a word processor editor. For example, when you press the ENTER key, a line break will occur.
- Many metes and bounds descriptions can be read directly from your word processor.
- A powerful Analyze menu option helps solve tracts that have poor closure.
- Permits user-selected scale and zooming.
- Determines area, net area, closure, and precision.
- Directions can be bearings, azimuths, deflections, and interior angles.
- Distances can be feet, meters, varas, chains, rods, poles, perches, and links.
- Special curve editor provides powerful curve handling capabilities.
- Distances can be converted to new units in any order, at any time.
- Text can be added to your map. This text can be sized and rotated.
- The map is always drawn in a print layout view.
- Can be put in "metric" mode for the inputting and printing of metric data.
- Individual deed call can be omitted.
- Accepts references to standard government sections and permits direct entry of rectangular surveys.
- Uses a "?" feature to solve missing line, curve, or radius.
- Tracts can optionally be rotated by automatically rotating deed calls or by a rotation value.
- Finds direction and distance from any point on a property line to any other visible point.
- The mouse can drag tracts and text where you want them.
- Menu items that make your map fancy include broken lines, colored lines, deed call labeling, and circling corners.
- Data, including date and title, can usually be included in a "data box" on same sheet as the map.
- DXF files can be exported for use with CAD and GIS programs.
- Bitmap (.bmp) files of your maps can be copied to the clipboard or be saved for exporting.
- The mouse can be used to create a tract. The calls will be placed in the data editor.
- Create an easement or right-of-way from baseline description.
- Keeps and Exceptions can be indicated to calculate net area.
- Optional entry of x, y (including state plane and utm) coordinates.
- The x, y "corner" coordinates can be saved as a text file.
- A geo-referenced image (topo maps, etc.) can be placed in background.

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Getting Started

Getting Started

Overview

Since 1987, Greenbrier Graphics has earned its reputation for developing easy-to-use deed plotting software. Net Deed Plotter™ is the easiest to use, but yet the most powerful Deed Plotter™ ever to be released.

As a beginner you will appreciate the fact that no surveying or engineering background is needed.

This **Getting Started** section contains the most important discussions you will read. The discussions within this section and the examples we use will enable you to begin drawing many real world descriptions immediately.

Our example entitled "Image Example" is of particular importance, and we recommend that it not be deleted. Image Example shows off the ability of Net Deed Plotter to display background images, and it is referred to later in this manual.

Our **Help** topics detail a menu-by-menu and icon-by-icon breakdown regarding the Editor Menus, Map View Menus, and Icons.

The layout of this manual is to present information on an as-needed basis. For example, if you are interested in displaying more than one tract, you will be learning the relevance of the **Merge File** menu. A significant portion of this manual contains the same information as our Help topics, but important differences are as follows:

- Topics that will change with time will be updated only in the Help topics. (There is an appendix in Help that references version changes, bug fixes, updates, etc.)
- The manual is better designed to provide a tutorial for those new to Deed Plotter and for those using the more common features.
- Advanced features (such as background images) will be mentioned in this manual, but the reader will be guided to Help topics for details.

Your First Map

To see how easy it is to use Net Deed Plotter, we will enter a few basic deed calls and draw the resulting map.

The steps to create your first map are as follows:

1. If you have shut down Net Deed Plotter, launch (start) it again. Then you can optionally select the **New** icon, but if you had no previous project, that is not required.
2. Type the four deed calls listed below into the Deed Call Editor. Each goes on a separate line.

---

n0e 100
n90e 100
s0w 100
s90w 100

   The screenshot on page 3 shows these entries.

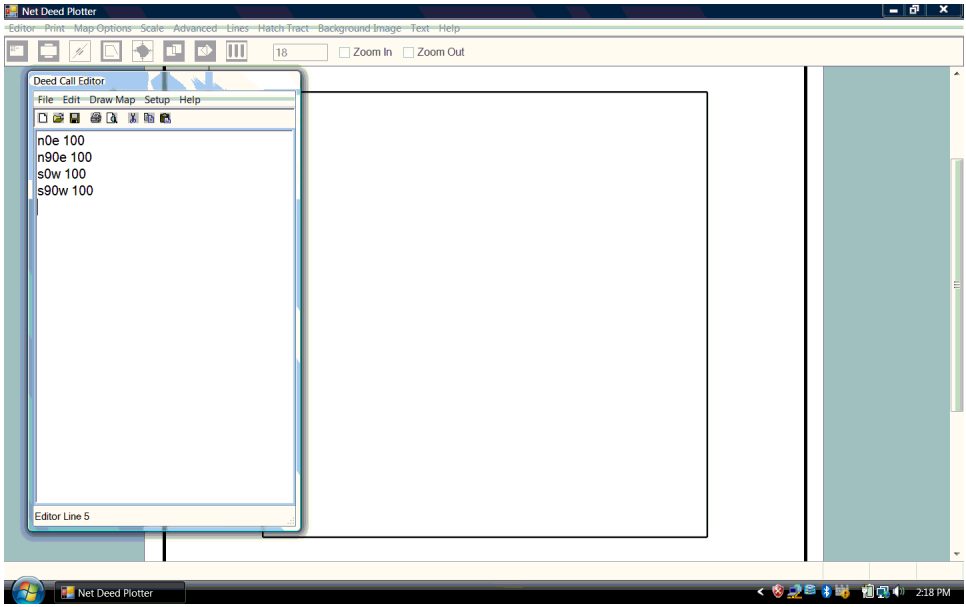
   Notice that there is a space between each direction and the corresponding distance (but there are NO other spaces). The "0" is a zero, not the character "o". The n, s, e, w characters can be upper or lowercase.

3. Draw the map by clicking on the **Draw Map** menu option. You could also have drawn the map by pressing the **F2** function key or by moving the mouse cursor onto the "paper" form that is to contain the map, then clicking the **Left Mouse** button**.**
4. The Editor should no longer be visible, and the simple square tract you have created will appear. The icons and menus relative to the map view are no longer grayed out.
5. One icon of particular importance is the **AutoScale** icon. This is the colored icon that has small red arrows pointing toward its center. You can click this icon to rescale (AutoScale) and/or re-center the map, but it should not be used if you are happy with the map scale. If the **CONTROL** key is pressed when you click this icon, the map will center without altering the scale.

6. If you move the mouse into the map, data for that tract will appear in the status bar. You can also scroll the view and see the tract data at the bottom of the map.
7. If you click the **Left Mouse** button while the cursor is in a tract, that tract will be selected (made active) and will show with dashed red borders. As you will learn in other topics, selecting a tract can be very important.
8. Return to the Deed Call Editor by clicking on the **Editor** menu, the **Editor** icon, or by pressing the ESCAPE key.

Net Deed Plotter looks at the paper size and other important information concerning the specific printer(s) you will be using. It is recommended that you have at least installed a printer driver. It is not required that the printer actually be turned on or connected.

Now that you have a feel for the basics of Net Deed Plotter, you are ready to quit this project and move on to other topics. The **Entering Deed Calls** topic is one you must not skip.



Opening and Saving Files

There are several example files you may want to open as you learn to enter deed calls. We suggest you open the example titled "Image Example" to see the potential of Net Deed Plotter. The use of background images is optional and can be ignored. The Image Example files will be used later if you want to learn more about background images.

The **Open** and the **Save** sub-menus are in the **File** menu. We discuss other Deed Call Editor menu options where relevant. Net Deed Plotter uses a new "ndp" file extension for its proprietary files.

Older Deed Plotter (Version 4) files can also be opened by selecting the **Open Version 4 File** menu. The only loss in the older files is any custom text you may have added.

When Net Deed Plotter is installed, default paths are set for all files it uses. These paths can be reset; however, the occasional change of a file path is not reason enough to change the default file path(s).

When the Deed Call Editor is visible, you have access to the **Setup** menu. To change a file path, select the **File Path's** sub-menu. You can select the current file path by clicking on it or by using the UP/DOWN Arrow keys, and then select the **Modify** button. You can now browse your way to the path that is to become the new default and select it. *You can change only one file path at a time; however, you can repeat the process for other file types as needed*.

There is also a **Reset All** button available. If you "reset all," ALL file paths will return to the paths that were set when the program was installed. Selecting **Cancel** will not restore other values. Of course you can modify the paths again if desired.

Net Deed Plotter can open and save text (.txt) files, but the files you will work with more often are the files that are in the format Net Deed Plotter recognizes when drawing maps, images, and notes. As previously mentioned, these files have a default extension of ".ndp". Do not open a file into the Deed Call Editor unless it has a ".txt", "des", or ".ndp" extension.

Net Deed Plotter will cause its Editor to match the type of file you open. If you open a text file, the Deed Call Editor will permit word wrapping. This minimizes the need to scroll the text. Word wrapping is not needed for most .ndp files.

Net Deed Plotter permits the saving (exporting) of bitmap files and DXF files of your maps. Bitmap files can be used to display the map in Microsoft Word and certain other word processors. Bitmaps are often used in "Paint" or any other software that can accept a raster image.

DXF files are polygons of your tract(s) that can be used with GIS and AutoCAD. As requested by our customers, we currently export only the polygons. There are no attributes that will encumber the DXF file.

The ability to save ESRI® Shape Files has not been provided because the DXF files can be read by GIS software. Shape Files may be added later. If this happens, they will be mentioned in a Help topic.

Entering Deed Calls

To get a little hands-on experience, we suggest you refer to the topic titled **Your First Map**, and then return to this topic. You may also want to open the examples we have included. These examples will give you a glimpse of what Net Deed Plotter can do.

We include a metes and bounds legal description in this topic and show you how to enter the deed calls it contains.

Some of our customers skip the information on **Getting Started** and jump right into Deed Conversion. That is a mistake. The direct entry of deed calls into our Deed Call Editor is so simple that, for many legal descriptions, it is quicker to NOT use Deed Conversion. It is also important that you know how to proofread converted deed calls and how to directly enter the deed calls from legal descriptions that cannot be converted.

The term "metes and bounds" will frequently be referred to in our Help topics and other documentation. Many people consider metes and bounds the same as coordinates. They are NOT the same thing. Most of our customers will never use coordinates. The metes and bounds within legal descriptions are all they need.

"Metes and bounds" applies to legal descriptions in which *measurements* (metes) are made to define a boundary of land. The monuments and adjoiners (bounds) relevant to the boundary are also indicated. These *measurements* make the existence of deed plotting software possible. We could not draw practical maps without measurements.

We are almost ready to enter and draw the metes and bounds legal description that follows. It is the same example we use in our topic that relates to Deed Conversion. If you later decide to try Deed Conversion, this will help you see how that automated process works.

A parcel of land located in Spring Dale, WV, more particularly bound and described as follows: Beginning at a concrete monument located 40 feet east of State Route #20, thence with same s23° 08'21"w 211.05 feet to a point, thence with a curve to the right, having a radius of 572.96 feet and an arc

length of 300.02 feet, to the PT of said curve, thence leaving said road and with the H. Whitlow property North 40 degrees 15 Minutes 30 seconds West 176.87 feet to an iron pipe, thence N2E, at 25 feet crossing Laurel Creek, at 125.9 feet crossing a 15 foot right-of-way, in all, 245.90 feet to an iron pipe set N. 43-01 w. 12 feet from the east wing wall of an 18" culvert, thence North 82-51' East 374.74 feet to the beginning and containing 2.29 acres, more or less, as surveyed April 25, 1976, and being that same property conveyed to Ed Benson by deed dated Feb 12, 1946.

Assuming Net Deed Plotter is running, click the **Begin New Project** icon, or select **New** from the **File** menu.

You may have noticed "grayed out" menus and icons in the background. They will become enabled anytime you choose to view the map you are creating.

The Deed Call Editor is visible and ready for your data. We will not waste your time explaining how a basic word processor editor works. Virtually everyone who uses a computer has experience with Word Pad, Microsoft Word, Word Perfect, or some other brand of word processor.

If you look in the **Setup** Menu, you will notice there is a choice of two different editor widths. Choose the one that best suits your current project. You can change it at anytime. You also have the option of stretching the editor when all data is not visible. To do this, place the mouse cursor over the "Grab Bars" (if visible) at the lower right of the editor and drag the editor to the size you prefer,

The important thing to remember with this new Version 5 of Deed Plotter (Net Deed Plotter) is that pressing the ENTER key will break a line as you would expect from any word processor.

Now we will show you exactly what to type into Net Deed Plotter and explain the steps after you have drawn your first map. Type the deed calls into our editor as follows:

---

s23.0821w 211.05
curve
n40.1530w 176.87
n2e 245.9
n82.51e 374.74

You should now have five lines of *metes and bounds* **deed calls.** If you try to draw the map, the word "curve" will turn red because it is an incorrect entry.

We purposely did not provide any information for the curve. In most cases, you would have placed curve data in the curve dialog box when you encountered the curve, but that would have made it a little harder to explain this particular example.

As indicated, the five lines you just entered are metes and bounds **deed calls**. Some customers mistakenly refer to deed calls as coordinates.

Now we will fix the curve. Place the blinking caret on the word "curve," then double click the **Left Mouse** button (or while holding down the CONTROL key, press the ENTER key). In either case, you should now be looking at our "Curve Data Entry Form." **Place curve data in this form as indicated below**, but of course, do not include the quotes.

The first line prompts for direction, type "**R** "
The second line prompts for radius, type "**572.96** "
The third line prompts for arc length, type "**300.02** "

On page 10, there is a screenshot of these entries.

That is all the information we have for that curve, and in this case, it is enough. There is a topic entitled **Curves** within the **Understanding Deed Calls** section that will explain the details of curve entries.

Click the **Accept** button to close the curve dialog box. You should still have exactly five lines of data, but the data for the curve is now displayed. You

may be wondering why there are not six deed lines. The reason is that the "N.43-01w 12 feet" call is only a reference call. It is not part of the actual boundary.

If you properly entered the deed calls, a map will appear when you press the **F2** function key or you click the **Left Mouse** button on the view that is to contain the map. *You have just seen how easy Net Deed Plotter is to use.*

Entering deed calls directly into our Deed Call Editor is quick and simple because the majority of the words in a legal description can be ignored. The example we just completed followed these basic rules:

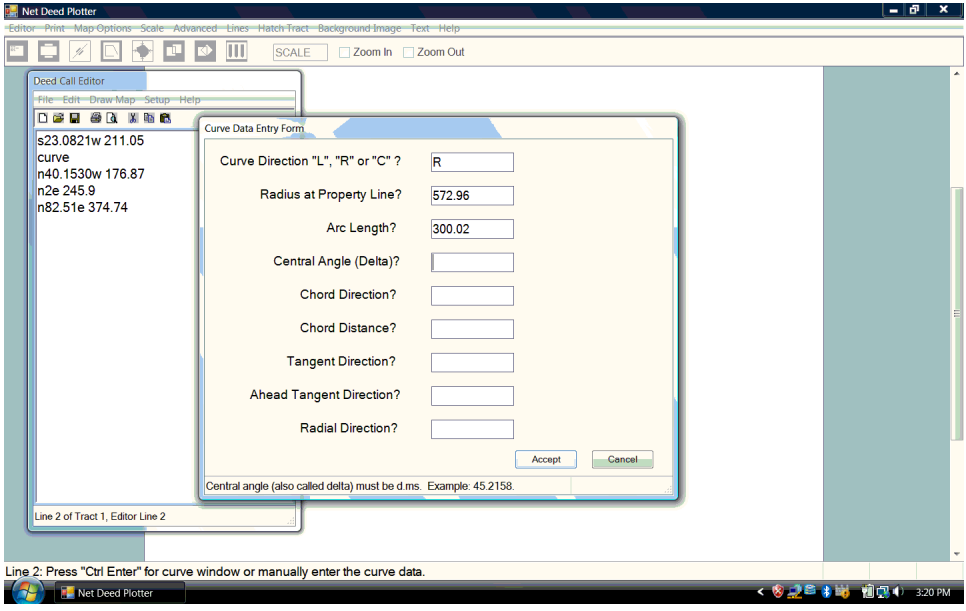
- Each deed call must exist on a separate line in the editor.
- For straight lines, the legal description must ALWAYS provide a direction and a distance. Each direction and distance "pair" must be on a single line.
- A "dot" (period) is used to separate the degrees from the minutes in a direction, but nothing is required to separate the minutes from the seconds. We explain this in the **Directions** topic.
- Minutes, if given, follow degrees and must be a two-digit number.
- Seconds, if given, follow minutes and must be a two-digit number.
- A space must separate the direction from the distance.
- **By default, Net Deed Plotter assumes the distance is in feet.** If the distance is NOT feet, an abbreviation for the unit of measurement must follow the distance. For example 30.09 meters would be entered as **30.09m**, and 3 chains, 4 poles, and 5 links would be **3C4P5L** (no spaces before the abbreviation).
- For curved lines (curves), type the word "Curve," then double click on the word "Curve" (or optionally press the ENTER key while holding down the CONTROL key). Either method will open a curve editor dialog for you to enter your known curve information. All curve data for a particular curve must be on a single line.
- After all data has been entered, draw the map using any of the methods you prefer.

There are generally two types of legal descriptions. As you have learned, the one we defined and discussed in this topic is a Metes and Bounds description. Metes and Bounds descriptions consist only of straight lines and curves as measured by a surveyor.

The second type is a **Rectangular Survey** based on the **PLSS** (*Public Land Survey System*) description. This method is used in 31 states. These can be reduced to a metes and bounds description. Our **Township and Range** section of the manual will be important for those who will be working with townships and ranges.

Deed Call Editor data cannot be carelessly entered. Certain key commands MUST be in the proper order.

- If there is more than one tract (multi-tract), the "@" symbol (followed by a number) is used to separate it from the previous tract. If this "@" symbol is elsewhere, it would cause an error.
- If a tract is tied to a section, the section data must precede the deed calls.
- Any deed calls that are needed to get to the True Point of Beginning must have a "/" (forward slash) in front of them.
- Coordinates (not deed calls) are sometimes used to reference a tract, and they must be at the beginning of the tract.
- When you move tracts, coordinates (not metes and bounds) will automatically appear in the Deed Call Editor. Don't concern yourself with them; however, if you want to completely undo the movement of a tract, you can delete them.



Drawing the Map

The information presented in this topic is based on the assumption you have learned how to enter deed calls into Net Deed Plotter. If this is not the case, you should refer to the topic entitled **Your First Map** and the topic entitled **Entering Deed Calls**.

Start a new project and type the following four deed calls into our Deed Call Editor.

---

n25e 237
n61.09e 174.29
s12.58w 214.3
s66.1523w 223.66

Now draw a map of the tract you just entered by using any of the three methods listed.

1. Press the **F2** function key.
2. Click the **Left Mouse** button on the "paper" form view that is to show the map.
3. Click on the **Draw Map** menu.

The Deed Call Editor should have disappeared and a map should have appeared on your screen.

If you had a faulty deed call, it will be colored red, and a possible cause of the problem will appear in the status bar at the bottom of your computer screen.

Once you see the map, you can scroll to reveal hidden portions of it. The bottom of the map, by default, will have a data box that includes important map data. The **Map Options** menu can be used to alter the border and data box.

(Note: If the map is drawn defectively in print preview or on paper, the printer driver may need updated. Printer drivers can usually be downloaded from the manufacturer's Web site.)

You may at anytime return to the Deed Call Editor by clicking the Editor menu or the Editor icon. Pressing the ESCAPE key will cancel a selection you may have made. If there was no selection, you will return to the Deed Call Editor.

If you made no errors, the steps below will permit you to see that this tract has 0.7207 acres, no distance closure error, and a perimeter of 849 feet.

As you move the mouse, you may notice a quickly changing bearing and distance in the status bar. This is normal and, by default, has no useful data. This feature becomes very useful when you need the direction and distance between any two visible points. If no tract corner is selected, each time the **Left Mouse** button is clicked, the direction will become zero. As you move the mouse, the direction and distance will be scaled to the new mouse position. If a tract corner has been selected, the direction and distance will be from the selected corner. If the mouse then "senses" another corner, the direction and distance will be calculated precisely from the selected corner to the "sensed" corner.

If you make significant changes and no background image is visible, the map may rescale and re-center the next time you draw the tracts.

You have the option of deciding exactly what size you want the map to be. To do so you simply enter a numeric **s**cale. We provide two ways to access the scale entry text box. You can simply click in it, or select the **Scale** menu option. Entering a metric scale is discussed elsewhere.

In either case, a blinking caret will appear. Place the numeric value for the new scale in that box, then press the ENTER key. The scale value will become dimmed, but will remain visible.

It is important that the scale is large enough in value to let the map fit on the paper. The scale may need to be the same as a tax map, image, or other drawing. If the map is referenced to a government section, you may want to print two maps. The first map would be at a scale that permits the entirety of relevant sections to show. The second map would be a larger view of the tract(s) you have drawn.

Getting the Map Data and Selecting a Tract or Corner

If you move the cursor into the tract of land you have drawn, statistics (area, closure, precision, and perimeter) will appear in the status bar. Some legal descriptions are of such poor quality that these statistics are useless and should be disregarded.

If you have a tract nested within another, you can force Net Deed Plotter to provide the statistics for a particular tract by selecting it. All the statistics will pertain to the selected tract until you cancel the selection. (Selection is simply clicking the **Left Mouse** button inside the tract until it turns red and the lines are dashed.)

Selecting a Tract:

There are many reasons you will want to select a tract. They include:

- Being able to select certain features or options that would pertain to a particular tract. One example is coloring a tract.
- In the event one particular tract appears within another tract (multi-tracts), you may want to force Net Deed Plotter to show you the statistics (area, etc.) of that particular tract.
- Moving a certain tract relative to other tracts.

Two methods of selecting (activating) a tract follow:

1. Move the cursor into the tract and click the **Left Mouse** button.
2. Double click the **Left Mouse** button on any corner of a tract. (This is handy for tracts that have bad closure and for easements that consist of a single line.)

As previously indicated, the selected tract will turn red and its borders will have a dashed pattern. **If the tract you wish to select is nested within another, you may need to continue clicking the mouse until the one you seek becomes selected.** We also refer to selecting a tract as making a tract active.

Canceling a selection can be accomplished by clicking the mouse as needed until you observe the tract to be no longer selected. If the mouse is clicked while it is not within a tract, any selection will be canceled.

Selecting a Corner:

The precise connecting of two tracts is among the reasons you may need to select the corner of a tract.

To select a tract corner, move the cursor toward the desired corner until the cursor changes its shape to a hand. If, while holding the cursor steady, you look in the status bar, you can see the corner you have approached. Continue in this fashion until the corner indicated is the corner you want, and then click the **Left Mouse** button. A small red circle will appear on the corner to indicate it is selected.

That corner will remain selected until you again approach that corner and use the mouse to toggle it off or another action automatically cancels the selection.

The selection will change to any new corner you later decide to select.

If the corner you want to select is directly over (or under) a corner of another tract, you can first select (*make active*) the tract that has the corner of interest, and then select the corner. This works because a selected tract has priority.

You have now graduated from deed plotting 101, but you should review other sections of the manual that apply to you.

Understanding Deed Calls

Directions

Distances

Curves

Missing Deed Call

Deed Call Examples

Coordinates

Understanding Deed Calls

Directions

Directions and distances are the most common surveying information you will see in legal descriptions. These two survey measurements define any straight line in a legal description. Each direction and distance "pair" should be placed on a single line of the Deed Call Editor. We use a protocol (format) for deed call data that is quick, simple, and easy to remember.

There are many variations used by surveyors when measuring a direction, but the one that most often winds up in a legal description is a **bearing**. A few examples of bearings are as follows: N45° 01'23"W, N0-00'23"E, N0E, S34-05-02E, and South 85 degrees, 10 minutes West.

To conform to the protocol Net Deed Plotter needs, the above bearings would be entered into our Deed Call Editor as N45.0123W, N0.0023E, N0E, S34.0502E, and S85.10W. **Minutes and seconds, if known, are ALWAYS two digits.**

Uppercase and lowercase letters are accepted. It should be noted that a period is always used to separate degrees from minutes. Seconds (if known) will always be following a two-character minute entry and therefore need no period for separation. *Do not confuse a period between the degrees and minutes as a decimal point.*

Deeds will sometimes contain **cardinal** directions (also called cardinal bearings). "North 100 feet" is an example that contains a cardinal direction. Notice that the distance is given, but there is no numerical value given for the direction. "North 10 East 100 feet" does NOT involve a cardinal direction. It would be entered into the Editor as "n10e 100". If you encounter north, south, east, or west as the ONLY indicator of a direction, you should first determine if the writer of the description meant a precise direction.

The four possible cardinal directions are converted to bearings as follows:

Due North would actually be entered as n0e
Due East would actually be entered as n90e
Due South would actually be entered as s0w
Due West would actually be entered as s90w

We used to ask that cardinal directions be remembered, but there is good news. This new version of Deed Plotter allows you to break the rules a little.

For example, we used to require that "North 100 feet" be entered as "n0e 100". That is the proper format; however, we will now permit you to simply enter the cardinal direction in its more natural form. "North 100 feet" can now be entered as "n 100". (Notice the space before the distance.) This call may linger "as is" in the editor for a while, but when the editor happens to "see" it, Net Deed Plotter will convert it to the proper format.

Note: A small number of deeds contain directions that have a decimal point within the seconds. "N34-12' 15.8"W" contains a decimal point within the seconds. The entry into Net Deed Plotter would be "n34.1216w". These seconds were rounded to a value of 16. One second subtends 1/3 of an inch per mile. Computers and surveying technology results in values being blindly computed to the second, but matters related to the laws of probability reduce such precision (and accuracy) to the absurd. (See **Area, Closure, and Precision** Help topic in Appendix I.)

The surveying directions that follow are less common. Take a glance at them for now, but unless you see them in your work, there is no need to study them.

AZIMUTHS are angles measured clockwise from a reference line that points north (south in rare cases). Azimuths can vary from 0 to 360 degrees. An example of an azimuth is 231 degrees, 12 minutes, and 59 seconds. Enter it as 231.1259.

DEFLECTIONS are angles ranging from 0 to 360 degrees that indicate the amount a line deviates left or right of the projection of a previous line. For example, "a deflection to the right of 341 degrees and 15 minutes" would be entered as +341.15. The "+" (plus) sign indicates an angle to the right. A "-" (minus) sign indicates an angle to the left.

INTERIOR angles are similar to deflections except that they are measured right or left of the BACKWARD projection of a previous line. For example, "an interior angle to the left of 359 degrees, 31 minutes, and 15 seconds," would be entered as -359.3115i. "I" or "i" is used to indicate an interior angle. The plus and minus are the same as for deflections.

Distances

A DISTANCE must be included on any command line that contains a direction (bearing, azimuth, deflection, or interior angle.) One or more spaces must separate the direction from the distance. The units for distance can be feet, meters, chains, rods, poles, perches, links, or varas. The first character of the unit of measure is used to identify the distance. No space can exist between the distance and the character.

IF only one distance is on a given Editor line, and its unit is feet, no identifying character ("f" or "F") is required.

For example, N23E 231.14 is valid if the 234.14 is feet, and N43.1245W 234.14M is valid if the distance is in meters.

A deed call can have a mixed entry for distance. An example of a mixed distance is N43E 23M45F19L. The program would interpret this distance to be 23 meters + 45 feet +19 links. **Poles, rods, and perches are equal (16.5 feet) and are entered into Net Deed Plotter as poles.** "14.3" rods could be entered as "14.3R or as 14.3P". All distances are internally converted to feet.

Distance units can be changed automatically. To do so, select the deed calls that are to have their distances converted, and then select the **Change Distance Units** menu. This sub-menu is in the **Edit** menu. You can select the new distance units from a list.

Distance units defined by Net Deed Plotter compare to feet as follows:

- 3.2808334 feet per meter
- 66 feet per chain
- 16.5 feet per pole, rod, or perch
- 0.66 (66/100) foot per link
- 2.7778 feet per vara

These conversions are made internally by Net Deed Plotter provided you properly abbreviate any distance unit that is not in feet.

Curves

As you learned in the **Getting Started** section, the “Curve Data Entry Form” (dialog box) will open if you type the word "Curve" (without the quotes) into the Deed Call Editor and then **double click on the word "curve."** (You can also open this dialog by pressing the ENTER key while holding the CONTROL key down.)

One serious obstacle to being able to successfully enter a curve into Net Deed Plotter is inadequate or missing curve data. This is especially true for those curves that must have a chord direction, radial direction, or a tangent direction before they draw properly. These curves are called **non-tangent** curves.

Our users often believe they do not know how to enter curve data when, in reality, the curve was not adequately described in the legal description.

If the computer determines that an insufficient amount of data is given, you will usually be warned. If redundant or conflicting data is given, the computer will decide what will have priority. The curve entry editor is a dialog box that uses the TAB key to advance to the next entry option. Select **Accept** after all curve data available to you has been entered.

YOU ARE NOT EXPECTED TO HAVE ALL THE INFORMATION REQUESTED BY THE CURVE EDITOR.

CURVE DIRECTION is the first curve editor prompt. This is usually indicated as right or left, and "R" or "L" is entered. Uppercase or lowercase is accepted. Some curve directions are indicated as **concave** to a particular quadrant. If this is the case, enter a "C" for the curve direction. This causes two lists to appear. You can then select from the "Concave To" and the "General Direction" lists. Net Deed Plotter will determine the curve direction and enter it for you. If the quadrant and general direction are not adequately described, clues for them will have to be sought from the remainder of the curve description. The chord or tangent direction of the curve might be useful in this regard.

RADIUS is the distance from any point on a curve to its center. In rare cases the radius is not known. If you are not provided a radius, you may, as a last resort, use a "?" in its place. If enough additional information is

provided, the computer will calculate a radius. It is best to have a radius provided. The radius is always feet or meters. Entering and using metric data is explained elsewhere in the manual.

Older legal descriptions may provide a **Degree of Curvature**. There are two definitions for this (arc and chord). The chord definition was sometimes used for railroad curves. Net Deed Plotter assumes the more common and modern arc definition. *If the radius cannot be found AND the degree of curvature is known, you may enter it and let Net Deed Plotter compute the radius.* To do this, enter the degree of curvature in degrees, minutes, and seconds and follow it with a "d". When you press the TAB key, the radius will be computed. For example: If the degree of curvature is 3 degrees and 5 minutes, you would enter "3.05d" (without the quotes). *You must not confuse degree of curvature with delta.*

ARC LENGTH is the distance the property line travels WITH the curve; therefore, it is the distance "*around*" the curve. The ARC length is NEVER less than the chord distance and is entered as feet or meters.

DELTA or CENTRAL ANGLE is the angle in degrees, minutes, and seconds that the curve sweeps along the boundary line. It must be less than 360 degrees. Be careful to not confuse this value with a bearing or chord direction. "132.0732" is a valid delta.

CHORD DIRECTION is the direction of the chord that connects the relevant ends of the curve. It is the direction in which the chord distance is measured. It must be a bearing. "N50.2459W" is a valid example. Us hill folk would say it is the direction a crow flies to get from one end to the other.

CHORD DISTANCE is the "straight" distance, in feet or meters, from end to end of a curve (it is the distance *through* the curve) and will NEVER be greater than the ARC distance.

TANGENT direction is a complex concept. A simple curve has a back tangent and an ahead tangent. The back tangent is the tangent direction to which most survey descriptions make reference. It is the initial direction of the beginning of a curve and is at a right angle to the radius at that point. "S15.1243W" is a valid example of a back tangent.

AHEAD TANGENT is rarely given or used. An ahead tangent is the tangent direction on the opposite (ahead) end of the curve. Ahead tangents are sometimes useful if a curve has no back tangent, and if insufficient data are available to enter it properly. When you encounter a curve for which the wording ends with, "... to the point of tangency," the next direction (after the curve) is probably an ahead tangent. If the curve fails, you may try entering *that* direction on the "Ahead Tangent" line of the Curve Editor.

RADIAL DIRECTION is a bearing from the beginning of the curve pointing to the radius point (center) of the curve. On rare occasions a bearing will be given from the radius point to the beginning of the curve. This value is opposite that accepted by the program. It can be corrected by changing the characters that define its direction to their opposite values. For example, N34.12W would be changed to S34.12E, and s45w would be changed to n45e.

If a curve is the first entry in the Deed Call Editor, there must be enough data to draw it as a non-tangent curve.

Many tangent curves will draw properly even if the direction, radius, and one other element are all you have; however, **if a curve is the FIRST entry in a tract, or the curve is non-tangent, the requirements are a little more strict.** A non-tangent curve or curve on the first line of a tract must have one or more of the following directions:

- Chord Direction
- Tangent Direction
- Radial Direction
- Ahead Tangent Direction

All curve directions must be bearings.

Missing Deed Call (The Question Mark Feature for a Line or Curve)

In descriptions of poor quality, a deed call may be missing or incomplete. Descriptions of this nature cannot be trusted. Net Deed Plotter has given you the right to exercise your judgment on whether or not the program should solve the missing deed call or missing radius. If this option is exercised, a question mark "?" is entered on the editor command line that would normally receive the defective call. If the defective call is a curve, the direction of the curve and its radius must follow the call. **Spaces are not permitted.** An example for a missing curve is "?L5729.58." All we know about this curve is that it is to the left and has a radius of 5729.58 feet. When a curve is solved, all curve data Net Deed Plotter accepts will be computed.

Right or left can be uppercase or lowercase. Solving for a missing call will yield an incorrect answer if any of the other entries are incorrect. **WARNING: Error of closure will become zero (or very small) regardless of the accuracy of the original survey.**

If multi-tracts are present, one "?" is permitted in each tract. You should search the deed for confirmation that a "?" solution is correct.

The "?" can be very useful in finding the chord bearing, chord distance, and other desired information relative to a curve.

Deed Call Examples

The examples below can be very helpful for the rusty occasional user of Net Deed Plotter; however, the topics within **Getting Started** and **Understanding Deed Calls** provide the important foundation needed by all beginners.

Examples of Bearings:

- "North 23 degrees East" (entered as n23e)
- "N12-07'W" (entered as n12.07w)
- "S89°20'08"W" (entered as s89.2008w)
- "Due West" (entered as W or as s90w)
- "**N12 3/4E**" (Fractions discussed below)
- " **N9.5W**" (Decimals discussed below)

Examples for Distance:

- "472.93 feet" (entered as 472.93)
- "129 meters" (entered as 129M)
- "68 varas" (entered as 68V)
- "4 chains" (entered as 4C)
- "38 poles and 5 links" (entered as 38P5L)

Example of Curve:

Consider a curve to the left having a radius of 1200 feet and a central angle of 19°03'16".

- Type the word **Curve**, and then press ENTER while holding down the CONTROL key to open the Curve Data Entry Form. (Or double click **Left Mouse** button while mouse is on word "curve.")
- Enter an "**L**" for direction, **1200** for the radius, and **19.0316** for Central Angle (Delta).
- Enter any other curve data that the Curve Data Entry Form will accept.
- Click on **Accept,** and the curve data will be displayed in the Deed Call Editor.

Example of Reference (Tie) to Section Corner:

"Beginning at the northwest corner of the southeast corner of section 12, 3 north, 5 west..."

- Enter as "**/nw,se,12,3N,5W**" (without the quotes).
- This will tie a metes and bounds tract that follows to the section corner of a perfect (standard) section.

Example of a Rectangular Survey:

"The north 348 feet of the west 281.3 feet of the south half of the northeast quarter of section 12, 3 north, 5 west."

- Enter as "**n348,w281.3,s,ne,12,3n,5w**" (without quotes).
- This must be the first entry for a tract. When the ENTER key is pressed, the entry will automatically expand to an equivalent metes and bounds referenced to a perfect (standard) section.

Example of Calls to the True Point of Beginning:

- "...thence n87 degrees 15 minutes west 203.6 feet to the true POB."
- Enter as "**/n87.15w 203.6**" (without quotes).
- The forward slash ("/") is used for ALL the deed calls that precede the true POB.

Fractions in Directions:

This is a common problem in old legal descriptions. *Converting the fraction in a direction directly to a decimal is usually incorrect*. We all understand that 1/2 dollar is 0.50 (fifty cents), but TIME AND DIRECTIONS DO NOT ALWAYS WORK THAT WAY. Time and direction both have intervals of 60 minutes and 60 seconds. If we say it is 3/4 past the hour, we mean it is 45 minutes past the hour. The same idea holds for direction; therefore, N12 3/4E is entered into the Deed Call Editor as n12.45e. South 12 and 1/2 degrees east is entered as s12.30e, and s6 1/4w is entered as s6.15w. We use the period to separate the degrees from the minutes. Decimals in distances are entered in the normally expected manner. 103 1/2 FEET equals 103.5 feet.

Decimal Directions:

Problems with fractions and decimal directions are related and can be confusing. For example, there is a temptation to enter n9.5w as n9.50w. This looks good and Net Deed Plotter will accept it, but don't be deceived by looks. North 9 degrees and 50 minutes West IS entered as n9.50w**.** N9 1/2W is the DECIMAL equivalent to n9.5w. The Deed Call Editor is looking for degrees, minutes, and seconds; therefore, the decimal ".5" must be converted to 30 minutes. The decimal bearing of north 9.5 degrees west is the equivalent of north 9 degrees and 30 minutes west. It is entered in to the Deed Call Editor as n9.30w. You will seldom see decimal degrees except in old deeds.

Coordinates

The use of coordinates is often optional. You may never need to concern yourself with them.

Many people incorrectly believe they are entering coordinates when actually they are only entering deed calls. An example of a **deed call** would be "**s89.03w 6289.23**".

A coordinate "pair" example is "**E574681.92 N4381063.3M"**. In this arbitrary example, the east coordinate is in feet, but the north coordinate is in meters.

With Net Deed Plotter you can use coordinates to move tracts on paper, position tracts relative to each other, and position tracts on a background image.

Coordinates will automatically appear (or change) on the first line of a tract (in the Deed Call Editor) when you move that tract with the mouse.

If you want to manually control the relative positions of tracts or their position on a background image, you can enter valid coordinates as needed for each tract.

For example, a GPS unit could be used to obtain the UTM coordinates of a property corner. That UTM coordinate could be entered into the Deed Call Editor as the first entry for that particular tract. The surveyor's metes and bounds deed calls (commencing from that point) would then be entered into the Editor. That tract is now tied to the real world. If the appropriate background image was available, the tract could automatically position itself on the background image. This process is explained later in this topic.

As previously mentioned, the coordinate (pair) is entered only on the first line of the relevant tract. If you will open our Image Example, you will see e512908.187m n4187038.237m on the first line. The remaining lines are metes and bounds deed calls. When this tract is drawn, these coordinates will cause the tract to position properly relative to a field.

It is possible to define an entire tract by its coordinates. Net Deed Plotter can convert these coordinates to a metes and bounds tract.

The best method of teaching this is by example. Here are the steps:

1. Begin a new project. (No calls in the editor.)

2. Enter the following metric coordinates. Each coordinate goes on a separate line. A space separates the easting from the northing.

   e512775m n4187011m
   e512701m n4186999m
   e512686m n4187003m
   e512648m n4187051m
   e512757m n4187109m
   e512775m n4187011m

   Notice that the last coordinate is identical to the first. That causes the tract to close at the point of beginning.

3. Click on the **Edit** menu, and then click on **Coordinates to Bearings**.

You should now have e512775m n4187011m on the first line followed by five metes and bounds deed calls. When you draw the map, the area should be 2.0730 acres.

This tract is referenced to the real world. If you want proof, change the scale to 200. Click the **Background Image** menu option, and then click on the **Open tif, jpg, or bitmap file** menu option. You can now find and open the "Image_Example.jpg" background image.

The tract you have created will now adjoin the north and east side of a rural road. The southwest corner of the tract will be at a sharp bend in the road. The tract crosses a field and then follows a fence back to the beginning. The scale of 200 was recommended because the default scale would make the image too large, and large scale values would have shown a significant amount of image border.

Townships and Ranges

Townships and Ranges

Overview (Townships and Ranges)

NOTE: If your work is limited to deeds that are not referenced to government sections, or you choose to not reference tracts to sections, then the topics concerning townships and ranges need not be read.

There are two completely different concepts relevant to the wording of legal descriptions when sections are involved. A significant number of people get very confused by them. This overview is dedicated to explaining the differences.

A discussion and example of each follows:

1. **Metes and Bounds referenced to section:**
   We learned what a metes and bounds description is in the **Entering Deed Calls** topic of the **Getting Started** section. In the 31 states that have PLSS Townships and Ranges, the surveyor has the option of referencing a *metes and bounds* tract to some recognized and established point within the section, then the metes and bounds deed calls will follow.

   For example, "*Beginning at the northwest corner of the southeast quarter of section 8, township 12 north, range 6 west, thence n45e 208.71 feet, thence n90e 100 feet, thence s45w 208.71 feet, thence s90w 100 feet to the beginning.*"

2. **Rectangular Survey:** (also called Aliquot part)
   A rectangular survey can describe a tract of land within a section, but not use the formal wording found in a metes and bounds description. A rectangular survey will define a tract that is approximately rectangular or square.

   Here is an example of a rectangular survey: *"The northwest quarter of the southeast quarter of section 8, township 12 north, range 6 west."*

Now we will discover why many people are confused by these two types of legal descriptions. **Notice how similar the first sentences are!**

- The "tie" of the metes and bounds description contains the wording, "*Beginning at the northwest corner of the southeast quarter of section 8, township 12 north, range 6 west.*"
- The rectangular survey contains the wording, "*The northwest quarter of the southeast quarter of section 8, township 12 north, range 6 west.*"

The wording of the first sentence is nearly identical, but the intent is completely different.

This particular metes and bounds tract that is tied to a section corner is skewed 45 degrees and contains slightly more than 1/3 of an acre. The rectangular survey is supposedly a square that contains 40 acres.

We must always be alert for clues as to what the intent of the legal description really is. The clues in the first example were the metes and bounds description, and in this case, we could see the words "*beginning at...*" The clues in the second example were the absence of a metes and bounds tract and no words implying a reference.

As you will see in the other topics that relate to entering Township and Range data, the format that Net Deed Plotter expects is also nearly identical.

For the above example, where a metes and bounds tract was referenced to a section corner, the first entry into the Deed Call Editor would be "**/nw,se,8,12n,6w**".

For the example where a rectangular survey was to be created, the first entry into the Deed Call Editor would be "**nw,se,8,12n,6w**".

The only difference in the entry is a "/" mark, but the results will be completely different.

Had you entered "/nw,se,8,12n,6w" the blinking caret would have dropped to the next line to permit the entry of a metes and bounds call.

Had you entered "nw,se,8,12n,6w" (with no slash mark), Net Deed Plotter would have recognized this to be a rectangular survey and would have

calculated the equivalent metes and bounds deed calls needed to define this tract in a "standard" section.

In summary, be careful to resolve whether wording relative to sections might be describing a tie (reference) to a metes and bound survey or defining a rectangular survey.

You should not, by use of the mouse or any other method, move tracts that are properly referenced to a section. The reason is the location was defined by the section reference, and now you have defeated that intent. Net Deed Plotter will often cancel any tract movements you have made within a section.

Referencing to Section Corners (Townships and Ranges)

The majority of the United States is laid out in rectangular systems of Townships and Ranges that are further subdivided into sections. These government sections are "one mile square" in theory. In reality, most sections contain measurement and corner identification defects. Also, the most westerly sections in a township are subject to the convergence of meridians that result from curvature of the earth. **Net Deed Plotter** accepts the entry of township and range data for the purpose of locating a tract of land *within a perfect one-mile square section.* Such a section is referred to as a **Standard Section.** Any tract so located will, of course, be subject to some error associated with the aforementioned limitations. This new version of Deed Plotter will permit an image that may contain more realistic section lines to appear in the background. The image will enable you to create a more realistic solution.

If **a metes and bounds** tract of land is to be referenced (tied) to a section, the first entry into the Deed Call Editor (line one) must show the section tie for the metes and bounds tract that follows. *If there is more than one tract in the Editor, the first line of each (after the @0) can also be a reference to a section.* Here is an example of a single tract referenced to a section corner. Notice the very important slash mark.

/ne,nw,sw,24,4n,47w
n0e 972
s79.03w 687.06
s15w 849
s88.3740e 894.54

The first entry is "/ne,nw,sw,24,4n,47w". Had this line not been included, we simply would have a four-sided tract. *In some cases the fact the tract could be tied to a section is simply not important. Perhaps one needs to know the area, shape, and closure, but nothing else.*

As can be seen, a tie (reference) to a section must be of the following format: “/corner, quarter-quarter, quarter, section, township, and range" (without the spaces). Uppercase and lowercase characters are permitted, but spaces are not.

The "/" mark that precedes the section format is essential IF you are referencing a metes and bounds tract to a section. In the **Rectangular Surveys** topic, you will see an almost identical format wherein the "/" must NOT be used.

In Net Deed Plotter, the corner, quarter-quarter and/or quarter are abbreviated as "ne", "se", "sw", or "nw." The halves are abbreviated as "n", "s", "e", or "w". The section is a number between 1 and 36 inclusive. Following the appropriate number with a direction abbreviation identifies the township and range. In the example above, "/ne,nw,sw,24,4n,47w" indicates the tract begins at the northeast corner of the northwest quarter-quarter of the southwest quarter of section 24 in township 4 north, range 47 west.

On occasion, Greenbrier Graphics gets a support call of which a reference to a section is vague. Our solution to this problem would be to rough out a freehand drawing of the section on a sheet of paper. If there is a solution, a work around may appear.

CALLS TO THE "TRUE POINT OF BEGINNING":

Often a tract does not actually begin at a section, quarter, or quarter-quarter point. There may be one or more calls leading to the **True Point of Beginning (POB)**.

You need to place a forward slash ("/") in front of all deed calls that precede the true point of beginning. If you omit those calls, the tract will NOT be properly referenced within the section. If you include the POB calls but forget to place a "/" in front of them, the area and closure will be incorrect.

For example, consider a tract that begins 300 feet east of the northwest corner of "24,4n,47w". On line one of the Deed Call Editor you would enter "/nw,24,4n,47w". On line two you would enter "/n90e 300". From line three to the end of the tract you would place the deed calls in the normal manner (without slash marks).

Rectangular Surveys (Aliquot Parts in Townships and Ranges)

(Rectangular Formatted Descriptions Referenced to a Standard Section)

". . .the north 600 feet of the west 800 feet of the west half of the northwest quarter of section 5, township 9 south, range 14 east is an example of a rectangular survey." Net Deed Plotter is designed to handle most descriptions of this nature.

It is important to understand that all versions of our deed plotting software assume "Standard Sections." We define a standard section as one that is square and measures exactly 1 mile on each side.

If you are referencing a metes and bounds description to a standard section, you should read the topic entitled **Referencing to Section Corners**. The discussion that follows relates only to special, rectangular formatted descriptions.

To enter a rectangular description, type all rectangular data in abbreviated form. For example, a tract consisting of the *north half of the southeast quarter of section 9, township 8 north, range 15 west* would be entered into our Deed Call Editor as "*n,se,9,8n,15w*" (without the quotes).

In general, type all rectangular data in abbreviated form as follows: "Abbreviated description data, section, township, and range"**.** The abbreviated description uses commas (no spaces) to separate vital data that defines a rectangular tract. The topic entitled **Sample Abbreviations** will provide some examples to help you understand how to enter the data.

A rectangular formatted description is NEVER preceded with a forward slash "/" or with the "@0" used in multi-tracts. If "@0" is needed with a rectangular formatted description, the program will insert it. If this is not apparent to you, please refer to the **Overview** topic.

As indicated previously, abbreviated description data is separated by the use of commas. This data will consist of the characters "n" (north), "s" (south), "e" (east), and "w" (west). Numbers will be accepted if preceded by any one of the previously named characters. It is recommended you refer to the **Sample Abbreviations** topic that follows.

Sample Abbreviations (Townships and Ranges)

As you have seen in the **Overview**, the format for referencing a metes and bounds survey to a section is nearly identical to the format used to define a rectangular survey. In the Deed Call Editor, the only difference is a "/" mark would be the first character in a metes and bounds reference. Of course the intent is very different.

In these examples, we did not include the section, township, and range. You would include those values after the abbreviations shown.

EXAMPLES: (Note: the abbreviation follows the legal description wording.)

1. "All of the section" ALL
2. "North half of section" N
3. "West half of section" W
4. "Southwest quarter of section" SW
5. "North half of south half" N,S
6. "East half of southwest quarter" E,SW
7. "South ½ of ne of se of sw" S,NE,SE,SW
8. "North 251.4 ft of the south 800 ft" N251,S800
9. "West 200 ft of northeast quarter" W200,NE

Now we will apply one of these examples. Consider the north half of the south half of section 10, township 4 north, range 5 west.

The entry in the Deed Call Editor would be "/se,n,s,10,4n,5w" IF this were a tie for a metes and bounds survey (tied to se corner of n,s,10,4n,5w).

The entry in the Deed Call Editor would be "n,s,10,4n,5w" IF this was a rectangular survey. (Net Deed Plotter would convert it to metes and bounds.)

Many other valid combinations could be added, but these should give you enough background to get started.

Text

Entering, Moving, and Rotating Text

Text

Entering, Moving, and Rotating Text (Custom Notes)

Text is the "notes" you can add to your map.

Notes (text) can be added to your map anytime, anywhere, and at any angle. There are several fonts and styles to choose from. You can easily move the text with the mouse.

The addition of text should be the LAST change you make.

The reason for this is that any existing text will not be in its intended position relative to the tracts if you add or delete tracts, or if you change the view, scale, rotation, or position of the tract(s).

Adding New Text:

1. To add new text, be certain no other text you have created is selected. (Selected text will be red.)
2. Click the **Text** menu.
3. Type the text into the text box that appears.
4. Modify the font, size, style, and/or rotation to suit your needs.
5. Click **OK** to accept the font and the text.

Selecting Existing Text:

1. Move the mouse cursor so it is on the text you wish to select (make active), then click the **Left Mouse** button. This will select the text. The selected text will turn red.
   It is necessary to select text before it can be modified.

Canceling Text Selection:

1. If text has been selected, it will be red. The recommended method of canceling (un-selecting) that text is to move the mouse cursor onto the selected text and click the **Left Mouse** button.
2. Any selected text will also be un-selected if the **Left Mouse** button is clicked anywhere on the paper form.

Modifying Existing Text:

1. Select the existing text.
2. Click on the **Text** menu.
3. Modify the text in the same manner you did when adding new text.

Moving Text:

1. If any text (including the text you wish to move) is selected (red), the first step would be to cancel the selection of that text.
2. Move the mouse cursor onto the text that is to be moved.
3. Click **and hold down** the **Left Mouse** button.
4. The text will move as you drag it with the mouse.
5. Do not release the **Left Mouse** button until the text is where you want it.
6. The text will remain selected (red) until you (again) click the **Left Mouse** button.

Deleting Text:

- Select the text that is to be removed (deleted).
- Click on the **Text** menu to make the text box appear.
- Delete the text from the text box.
- Click the **OK** button.

Drawing Maps from MS Word

(Deed Conversion)

Deed Conversion Overview

Deed Conversion Example

Deed Conversion Protocol

Deed Conversion without MS Word

Drawing Maps from MS Word

Deed Conversion Overview

Deed Conversion™ is the term Greenbrier Graphics uses to define Net Deed Plotter's ability to *optionally* read legal descriptions directly from a word processor. Deed Conversion simply automates the entry of deed calls that already exist as a legal description. The legal description would typically be in MS Word or in a text file.

It is important to understand that Deed Conversion is optional. There are two methods of getting the needed surveyor's deed calls into Net Deed Plotter. The method most frequently used is simply typing the calls directly into our Deed Call Editor. The second is the Deed Conversion process we are discussing here.

If you want Net Deed Plotter to read a legal description and convert the deed calls into the format Net Deed Plotter requires when drawing maps, this overview will explain the process:

If, during the installation of Net Deed Plotter, you never prevented setup from placing a **Net Deed Plotter** Add-In option in Microsoft Word, the Deed Conversion option should be available to you. In Word 2007, the Net Deed Plotter add-in should be found in the **Add-Ins** TAB. In older versions of Word, it should be in the **Tools** menu. In the event there is an unexpected technical problem, refer to the **Add-In Installation Issues** topic. (This is a Help topic.)

The Deed Conversion Example in this manual will make the steps we summarize below easy to understand. Here is a summary:

- Open or create a legal description in Microsoft Word. If you are not using MS Word, the legal description can be a text file written by Word Pad or any word processor that can save files with a .txt file extension.
- Leave the format of the deed calls in the original format that most surveyors use. Don't alter them into the format (protocol) our Deed Call Editor expects. *The purpose of Deed Conversion is to do that for you*. For example, the deed may read in part, "...thence north 12 degrees and 7 minutes west with the Smith tract 200 feet,

thence S 83° 05'30" E 521.37 feet to...". These two deed calls are ready for Deed Conversion as is.

- You are now ready to convert the deed calls from their original format into the format Net Deed Plotter always requires before it can draw a map. If you are using MS Word, simply highlight (select) the portion of the deed that has the entire legal description, then select the **Net Deed Plotter** Add-In. The location of this add-in is as previously described in this overview.
- Net Deed Plotter should have launched, and the map should appear.
  If all went well, you are ready to view the map, see the area of the tract, etc. When finished with Net Deed Plotter, you may want to save the converted calls before quitting Net Deed Plotter. These saved files would be in the format recognized by the Deed Call Editor and cannot be opened by any program other than Net Deed Plotter. Your original text file is unaltered.

It is important that you examine the legal descriptions before you attempt to convert them. This will give you an opportunity to correct the format of the original deed calls as needed to insure conversion works as expected.

It is also important that you proofread the new deed calls after they were created during Deed Conversion. These calls are now in the format needed by Net Deed Plotter, but it is always possible one or more calls did not convert properly.

In summary, the Deed Conversion process is designed to help you avoid the entry of long legal descriptions directly into Net Deed Plotter. You will see that the Deed Conversion process has been designed to handle a considerable variation in legal descriptions. We do not have space to explain the entire process used in converting calls, but you can be assured it is very comprehensive. It works well for many of our customers, but remember, you always have the option of easily entering calls directly into our Deed Call Editor.

Deed Conversion Example

This example assumes you will be using Microsoft Word for your legal descriptions. If that is not the case, you will need to read our **Deed Conversion without MS Word** topic.

The legal description we will convert is a "picture worth a thousand words." Though we suggest you read the overview and insist that you review the topic on protocol, this example will show how simple Deed Conversion can be. (This legal description is an example we have included during installation. You will need to browse for "Whitlow.txt" in our "Net Deed Plotter Surveys" folder to find it.)

The legal description (see next page) consists of several variations (protocols) that surveyors throughout the United States use when writing legal descriptions. As you follow the steps listed here, you will watch Deed Conversion recognize the various protocols and place the converted deed calls into our Deed Call Editor. *These converted deed calls will appear in the only format Net Deed Plotter can use to actually draw a map.*

Convert the example legal description as follows:

1. Cause the legal description to be in your word processor. The manner used is up to you. You could open the "Whitlow.txt" file into Word, or you could select (highlight) the legal description, then copy it to the clipboard and paste it into Word.
   Before you convert the description, make certain Net Deed Plotter was shut down. The intent is simply to have this legal description visible in MS Word and NOT have Net Deed Plotter running.
   We can then forget this first step.
2. From within MS Word, select the legal description text.
3. Select the **Net Deed Plotter** Add-In from within **MS Word**. (This launches Net Deed Plotter and draws the map.)

You're done! If you click on the **Editor** menu or the **Editor** icon, you should see the converted calls. They are formatted to the only protocol Net Deed Plotter can use. You are now ready to work as needed with Net Deed Plotter. For example, you can press the **F2** function key to redraw

the map. Actually the map can be drawn by clicking the mouse anywhere on the print layout form that contains the map. You can also select the **Draw Map** menu option.
When you are finished with Net Deed Plotter, you may want to save the new deed calls. When you quit Net Deed Plotter, you will be returned to MS Word. If you save the new deed calls, they will be in a format recognized by Net Deed Plotter.

(This legal description can be found in our examples as "Whitlow.txt".)

A parcel of land located in Spring Dale, WV, more particularly bound and described as follows: Beginning at a concrete monument located 40 feet east of State Route #20, thence with same s23° 08'21"w 211.05 feet to a point, thence with a curve to the right, having a radius of 572.96 feet and an arc length of 300.02 feet, to the PT of said curve, thence leaving said road and with the H. Whitlow property North 40 degrees 15 Minutes 30 seconds West 176.87 feet to an iron pipe, thence N2E, at 25 feet crossing Laurel Creek, at 125.9 feet crossing a 15 foot right-of-way, in all, 245.90 feet to an iron pipe set N. 43-01 w. 12 feet from the east wing wall of an 18" culvert, thence North 82-51' East 374.74 feet to the beginning and containing 2.29 acres, more or less, as surveyed April 25, 1976, and being that same property conveyed to Ed Benson by deed dated Feb 12, 1946.

If things did not go well:

- Did you completely quit Net Deed Plotter before you began the actual conversion process from within MS Word? If Net Deed Plotter was running, MS Word would not properly re-launch it.
- Was the entire legal description selected in MS Word?
- Was the **Net Deed Plotter** Add-In available in MS Word?
- Did MS Word attempt to launch an older version of Deed Plotter?
- Did you get an error message?

If there is an Add-in problem that you cannot resolve, look at the Help topic titled **Add-In Installation Issues** for information that is not included in the manual.

Deed Conversion Protocol

As you have learned, there are two methods of entering deed calls into our Deed Call Editor. The first is to manually type them in the quick, easy format required by the editor. The second is to have Net Deed Plotter automatically convert the deed calls of a surveyor's legal description into the format Net Deed Plotter requires. This is called Deed Conversion.

Deed Conversion will never be foolproof. Legal descriptions must adhere to a reasonable protocol. This avoids deed calls being incorrectly converted or not converted at all. **It is important that, after any Deed Conversion, the final results are carefully checked for obscure errors.** After successful Deed Conversion, you are ready to draw the map, determine area, and do all the wonderful things Deed Conversion was designed to do.

If you save the deed calls that were successfully converted, they will be in a format that Net Deed Plotter can read. For example, if a surveyor recorded a deed call direction as "South 12 degrees 9 minutes and 12 seconds west", Net Deed Plotter must eventually see that direction in its Deed Call Editor as "s12.0912w" (without the quotes). As previously alluded to, you have the option of manually placing calls into the Deed Call Editor *in the required format*, or have Net Deed Plotter automatically read the deed in an attempt to save you some work.

Valid Directions in a Legal Description:

The following example variations in the wording of a particular direction are what you would expect to find in real world legal descriptions, and our Deed Conversion process should be able to convert deed calls of this nature into the format required by Net Deed Plotter:

"North 12-23' West"
"North 12 degrees 23 minutes West"
"n12 deg 23 min west"
"N. 12°23' W."
"n12°23w"

Our Deed Conversion wizard should recognize the various wordings of the direction in this example. After conversion, the deed call would appear in

the Deed Call Editor as "n12.23w". Deed Conversion looks for many variations in the wording for a direction and may recognize formats not shown here.

The **Deed Conversion Example** topic ignores the fact that Deed Conversion also accepts directions that have only degrees, or also have seconds. For example, n23w is valid (no minutes or seconds); s76 deg. 08 min. 12 sec. w is also valid.

Valid Distances in a Legal Description:

For every direction in a legal description, there needs to be a corresponding distance. If not, the legal description is defective. The exceptions to this would be very rare. One could argue that curves are an exception, but they also need at least one distance (the radius).

Let's ignore curves for now. As you read a well-written legal description, the direction/distance pairs can be identified. Consider the wording, "... thence leaving the Smith 12 acre tract N. 12°23' W. along the right of way of said railroad 179.03 feet to a concrete marker..."

The direction/distance pair would be N. 12 °23' W. 179.03 feet. Net Deed Plotter needs the direction and the distance. Whether we enter the data directly into the Deed Call Editor, or we optionally use Deed Conversion to read the deed for us, the final result needs to be the same. Each direction and distance needs to appear on a single line in the Deed Call Editor. This line would read (without the quotes) "**n12.23w 179.03**."

As can be seen, there is now a dot (period) between the degrees and the minutes, and there is now a space between the direction and the distance. The dot in the direction should not be thought of as a decimal point. It separates the degrees from the minutes. (No dot is needed between the minutes and the seconds.) The word "feet" is now missing. Net Deed Plotter assumes feet. If the unit is not feet, Deed Conversion will place an abbreviation after the distance. If the distance was 3 chains and 2 poles, Deed Conversion would show the distance as 3C2P. Net Deed Plotter can accept that format.

Deed Conversion will recognize the following units: feet, meters, varas, chains, poles, perches, rods, and links.

North 12 West 145 meters would appear in the Deed Call Editor (after conversion) as **n12w 145M**. Distance units must always be in the original description, but are removed or abbreviated after conversion.

Deed Conversion will, as a last resort, consider a single quote as a distance unit for feet, IF no other distance units are found anywhere in the description. For example 376.23' would be converted as 376.23 feet.

Those who have experience with previous versions of Deed Plotter will notice some changes in the protocol Deed Plotter will now accept. For example, Deed Plotter no longer ignores text that is inside parenthesis. The protocol required by Net Deed Plotter is consistent with the practices of writing legal descriptions throughout the United States. The format is easy to remember and implement.

General Format Needed in Legal Descriptions:

The legal description being converted must be a metes and bounds description. Metes and bounds that are within a government section can usually be converted, but after conversion has been completed, you will need to manually add any desired reference to the section and possibly correct any deed calls that precede the true point of beginning.

Deed Conversion is NOT case sensitive. Upper and lowercase can be intermixed.

Bearings are the only directional entry permitted. Azimuths, Deflections and Interior Angles are NOT permitted. The numerical value of the bearing must be preceded by one of the following: N, N., North, S, S., or South. The numerical value must be followed by E, E., East, W, W., or West. A space or two can be present before and/or after the numerical value. "N23-09'12"W" and N 23-09'12" W are both valid.
The degrees must be separated from any minutes that follow with a minus (hyphen) sign or a degree symbol. The minutes must be followed with a single quote if seconds exist. Seconds should be followed by a double quote. These symbols are placed as shown throughout this section.

Degrees, minutes, and seconds can also be designated by being correctly spelled or abbreviated. "S. 23 degrees 15 min. 24 sec west" is valid.
It is important to remember that the period is NOT used to separate

degrees from minutes in a legal description being prepared for conversion. The entire bearing must be on a single line. Don't let a line break occur within a bearing, distance, or any keyword. You have the opportunity to correct these problems before conversion is made.

No keyword, bearing, or distance can contain invalid spaces, characters, or line breaks. It is acceptable for the entire bearing to be on a given line and the corresponding distance to be on the next line. Keywords and data would be missed if words were permitted to "bump" each other. Spaces must be where spaces belong.

When a curve is being converted, the program will look for the following keywords: *curve, right (or left), radius, arc (or distance), delta (or central angle), chord direction, chord distance, tangent direction, and radial direction*. We recommend, but do not require, that these keywords be in the indicated order. Each keyword must be followed by the corresponding numerical value before the next keyword occurs. No other curve data is considered, but, if given in the deed, should be manually added after conversion. This order of data is natural and intuitive. Descriptive wording may remain within the sentences that contain the curve data. Perhaps the best way to learn this is by referring to the deed conversion example (in this section of the manual) and by practicing.

The keywords *at* and *in all* must be used if several intermediate distances are given before the final distance. "Thence N 23-09' W, at 200 feet passing the Brown corner, at 801.2 feet passing a concrete monument, in all, 2014.73 feet to a concrete monument" is a valid example that demonstrates need for the *at* and *in all* keywords. These keywords, if used, must immediately precede the relevant distance. In rare cases conversion might fail because the word “at” precedes a distance that was not intended to be a “passing” call.

The units of a distance must immediately follow its numerical value. The following unit designations (keywords) are permitted: feet, meters, varas, chains, poles, rods, perches, and links. The abbreviations for these units are also acceptable. Older deeds often combine chains, poles, and links. The following is acceptable: "thence n12 1/2w 7c4p3L." Conversion looks for commonly used fractions and attempts to make the indicated decimal conversions. For example, thence “N9 3/4W 12 1/2P," would be converted to "N9.45W 12.5P".

The keyword *from* must be used to prevent the conversion of any deed call that is used only as a reference. *From* would immediately follow the relevant course and distance. The wording "thence n34w 200 meters to a concrete monument referenced s23-0413e 101.30 meters from a set stone" would result in this direction and distance being ignored in the conversion process. If conversion fails, reference calls may be the reason. Look for and, if necessary, reword references.

Unlike previous versions of Deed Plotter, we now look in the original legal description for the "@" symbol followed with a number to indicate additional tracts in a description. This is more consistent with the general use of the "@" multi-tracting format Deed Plotter has always used to separate tracts. Unless you are certain of a previous corner line number, you should always use "@0" (without the quotes). Multi-tracting is discussed in more detail elsewhere.

Deed Conversion without MS Word

Some customers who used older versions of Deed Plotter appear to overuse Deed Conversion. We cannot overemphasize that Deed Conversion is one of two options available for the entry of deed call data. You can always directly enter deed calls into our Deed Call Editor in the quick, easy abbreviated format Net Deed Plotter requires. For deeds having less than a dozen or so deed calls, the direct entry of data is often quicker than Deed Conversion. See the topics related to the direct use of our Deed Call Editor for details.

The preferred method to convert a legal description into the format (protocol) required by Net Deed Plotter is to use Microsoft Word; however, that is not a necessity.

You may use Word Pad or another word processor to create a legal description. If this is the case, save the legal description, using any name you prefer, but (if you are not using MS Word) be certain the file is saved as a TEXT file and with a ".txt" file extension.

The legal description we used as an example in other topics is available to you. It is named "Whitlow.txt" and can be found among the examples we included during installation. You will not see that file until you browse for .txt files.

You can launch Net Deed Plotter and browse your way to the text file. When you open it with Net Deed Plotter, it is ready for Deed Conversion. At this point the conversion would proceed when you select **Legal Description to Deed Calls** from the **Edit** menu. The remainder of the process is as discussed in the other topics related to Deed Conversion.

As a last resort you can paste a legal description directly into Net Deed Plotter without using MS Word or opening a file. The disadvantage to this is that Net Deed Plotter does not know it is a "raw" legal description and therefore it is not in the protocol needed by Net Deed Plotter. In this case, the Deed Call Editor will not be in "word-wrap mode." This means you may want to change the editor size or scroll the editor text to see hidden text. Other than that limitation, you can proceed with Deed Conversion in the usual manner.

Multiple Tracts

Chaining and Merging

Using "@" to Separate Multiple Tracts

Placing Tracts in Their Proper Position

Summary of Methods Used to Position Tracts

Keeps and Exceptions

Multiple Tracts

Chaining and Merging (Creating Multiple Tracts)

Perhaps you wish to see how one tract fits relative to another, or you want to show all the tracts your client owns. These are just two reasons you may want to chain (or merge) tracts into the Deed Call Editor.

Chaining is manually adding deed calls into the Deed Call Editor in a manner that creates more than one tract.

Merging is having Net Deed Plotter to automatically add deed calls (that were previously saved in a file) into the Deed Call Editor to create more than one tract.

The intent of Chaining and Merging is the same. We want to draw multiple tracts; therefore, we chain or merge the calls of more than one tract into the editor.

Proper use of the "@" symbol to separate tracts is important and is discussed later.

Chaining is very easy to do. The steps are as follows:

1. Simply type in all the calls for a tract and then draw it to see if there are any errors.
2. On the line below the last deed call, type the "@" symbol followed by a zero (@0). Press ENTER to drop to the next line.
3. Type in all the deed calls for the next tract and also check it for errors.
4. Continue in this manner until all tracts have been entered, then draw and work with these tracts as needed.
5. You will probably need to move the tracts to their proper position. This is explained in the **Moving and Rotating Tracts** section of the manual.

The example that follows is a simple **Multi-Tract:**

---

n0e 100
n90e 100
s0w 100
n90w 100
@0
n45e 400
n90e 600
s45w 400
s90w 600

This simple multi-tract consists of only two simple tracts, but it demonstrates the process.

Merging:

Merging is nothing more than an automated "chaining" process. Merging simply keeps you from having to retype the calls when creating multi-tracts. Merging automatically places an "@0" as needed to separate the tracts.

The example above could have been accomplished by merging if the tract(s) had previously been saved as two separate tracts. The first tract would have contained the first four deed calls and the second tract would have contained the last four deed calls. (There would have been no "@0" line.) Here are the steps:

1. Open the file that contained the first four deed calls. (Merging cannot be completed unless a file with valid calls has been opened.)
2. Select the **Merge File** menu option. This sub-menu is in the **File** menu.
3. Select the file that you want to merge. (In this case, the one with the last four deed calls.)
4. As explained in the discussion on chaining, you will probably need to move the tracts to their proper position. This is explained in the **Moving and Rotating Tracts** section of the manual.

When a file is merged, only certain aspects of the file can be combined with the existing file. Any text (notes) that are in the file being merged will not appear on the multi-tract map.

The relative positions of the tract(s) being merged obviously cannot be preserved. The task of re-positioning the tracts is usually insignificant compared to the benefits of merging tracts.

If the merged file contained coordinates (deed calls and coordinates are not the same thing), the relative positions of the tracts could be so different that you will see nothing on the screen until you correct the problem.

If the merged file has entries that are not consistent with the previous tract, you may receive an error. For example, an error would occur if the second tract was tied to a section corner, but the first tract was not.

Using "@" to Separate Multiple Tracts

The **Chaining and Merging** topic introduced you to multi-tracts and the need for the “@” symbol as a tract separator.

The ability of Net Deed Plotter to show more than one tract is called "Multi-Tracting." The "@" symbol followed by a valid number is used to separate the tracts.

To maintain compatibility with previous versions of Deed Plotter, we continue to permit the multi-tract delimiter to be in the form "**@# Text**".

For example, "@0" and "@0 John Smith 2 acre tract" are both valid entries. (Of course you would not include the quotes.)

The preferred method for multi-tracts is for the number (#) used after the "@" symbol to ALWAYS be a zero (0). The text is optional.

There is never a space after the "@", BUT if you are entering text on the "@" line, there must be a space before the text. In the example above, a space exists before the word "John."

As previously mentioned, we prefer "@0", but we do permit the older format of having any reasonable number after the "@" symbol; therefore, "@14", etc. may be valid. If you do not use a zero after the "@" symbol, you will hinder or complicate the ability to move the tract(s) with a mouse, possibly defeat the use of references to a section, and interfere with any x, y coordinates you may want to include. (The manual entry of x, y coordinates is an optional advanced feature.)

If you insist on using a non-zero "@" value, it must refer to the line number of a previous deed call. A non-zero number points to the corner you wish to use as a reference for the beginning of the tract being added. For example, "@14" would indicate the first corner of the new tract would be referenced (tied) to the 14th deed call in the Deed Call Editor. When the map is drawn you should see the first corner of the new tract connected to the corner of the 14th deed call.

Placing Tracts in Their Proper Position

Generally, there is no way for artificial intelligence (a computer) to replace a person in this regard. When you create multiple tracts, deed plotting software usually has to place the tract(s) in an arbitrary default position. There are several features in Net Deed Plotter that permit the user to move the tracts or reference them to a specific point of beginning. The methods are as follows:

1. If you have separated the tracts using "@0", you can very easily move the tracts with the mouse. Of course, you will need to determine from the legal description or from the shape of the tracts how they should fit relative to each other. This is discussed in the **Moving and Rotating Tracts** section of the manual.
2. We recommend a zero always follow the "@" symbol; however, for backwards compatibility, Net Deed Plotter will accept other realistic values. Those values are used to tie the beginning corner of a tract to a corner of a previous tract. For example, "@5" will cause the beginning corner of the tract (that immediately follows "@5") to connect to the beginning point (corner) of the 5th deed call in the editor. *Using any value other than zero after the "@" symbol may defeat other methods of tract positioning.*
3. If you have more than one tract, and there are deed calls leading from a common point to the "True Point of Beginning," place a slash mark ("/") in front of those calls. If you decided to use the "true POB" calls, but forget to place a slash mark in front of them, the area and closure will be incorrect. For example, "…n12e 150 feet, thence s78e 301 feet to the true point of beginning, thence…" would be entered as "/n12e 150" on the first line, and then "/s78e 301" on the second line. The remaining calls (within this tract) would have no slash mark before them. The basic concept is the same as calls which lead to the true POB in a section.
4. IF you are working with tracts that are referenced to government sections, see **Referencing to Section Corners** (within the **Townships and Ranges** section of the manual). You will find information on calls to the "True Point of Beginning." If the tracts are not referenced to sections, see the other options mentioned here.

Summary of Methods Used to Position Tracts

Here is a summary of events that cause one or more tracts to change their position or size. Some are obvious. We summarize the others.

1. Changing the scale.
2. Zooming.
3. Selecting the **AutoScale** icon. This will re-center the tract(s) and automatically change the scale to make map fit screen.
4. Selecting the **AutoScale** icon while pressing CONTROL key. This re-centers the tract(s), but does not change the scale.
5. Using Coordinates. Coordinates control the relative positions of tracts. If there is a background image, valid coordinates could position the tract(s) in their proper position on the image.
6. Reference tie to a section or a point within a section.
7. Offsets to the "True Point of Beginning." A slash mark ("/") should be placed in front of any deed call that precedes the true POB.
8. Using non-zero "@" value. If "@0" is used, the tracts depend on coordinates, section references, etc.
9. Moving tract(s) with mouse (no background image visible).
10. Moving background image (and tracts) by scrolling.
11. Moving tracts on image with mouse or with SHIFT key + **Left Mouse** button.
12. Moving tracts and image as a unit with mouse and CONTROL key. If the map is in portrait or landscape mode and the **Translate** (move tracts) icon has been selected, the cursor should be moved to the point that is to be centered. Clicking the **Left Mouse** button while the CONTROL key is pressed will shift the image and tracts in a manner that results in the point under the cursor being centered on the paper.

Details of the various methods of tract positioning are discussed in this manual and/or in Help topics.

Keeps and Exceptions (Finding the Net Area)

If you are not interested in having Net Deed Plotter consider one or more tracts as an exception, this discussion on Keeps and Exceptions can be skipped.

If someone owns a tract of land and later sells a portion of it, the remaining portion of land he/she continues to own would be considered a **Keep**, and the portion sold would be considered an **Exception**. Net Deed Plotter can optionally subtract the areas of exceptions from the areas of keeps. This algebraic sum would be reflected in the "Net Area" print.

To obtain net area, a minus (-) or a plus (+) is optionally added as text (on the "@" line) to indicate a tract is a "Keep" or "Exception." A plus sign indicates a keep, and a minus indicates an exception. The "-" or "+" can be the only text, but if there is text, the "-" or "+" must precede the first character of the text. Don't forget to place a space before it.

"@0 -" is an example of an exception, and "@1 +hello world" is an example of a keep.

If keeps and exceptions are indicated, Net Deed Plotter considers all tracts NOT preceded by a "+" or a "-" to be neutral. It, of course, is not possible to place a "+" or "-" before the first tract; therefore, **the first tract would be a "Keep."**

Beginning with v5.33, Net Deed Plotter color codes lines (not tracts) for keeps and exceptions. It uses black for keeps, red for exceptions, and blue for neutral tracts. These colors have precedence so long as there are any keeps and exceptions indicated. Tract colors can be user defined even if there are keeps and exceptions. If tracts are colored, it is suggested that a light hatching pattern also be used. This may help you see the line colors in regards to keeps and exceptions.

Moving and Rotating Tracts

Moving and Rotating Tracts

Moving Tracts (Or the North Arrow)

Those who have a previous version of Deed Plotter will notice the movement of tracts (translation) has been significantly improved. We now use an intuitive manner that permits the tract(s) to move while you are moving the mouse.

If one or more tracts need rotated, it is usually better to do it before the tracts are moved.

If you have only a single tract on the screen, or you want to move all tracts as a unit, do not select any tract.

If you have more than one tract, and you wish to move one of them relative to the other(s), select that tract.

In either case you are now ready to move the tract(s). Do so as follows:

1. Select the **Move Tracts** icon (or Right Click the mouse button and select the **Move Tract(s)** menu option).
2. While holding the **Left Mouse** button down, move the mouse in the direction you want the tract(s) to move as needed.
3. Release the mouse button and CANCEL THE TRACT MOTION OPTION. To do this, toggle the **Move Tracts** icon, or click the Right Mouse button and select the **Cancel Move or Zoom** menu option. If you forget to do this, you may accidentally move the tracts.

The method we explained moves a tract with an accuracy slightly limited by the screen's resolution. In most cases this is good enough.

Net Deed Plotter offers an additional option if you are wanting to make a corner of the tract you are moving connect EXACTLY with a certain corner of another tract. This method is not limited by screen resolution.

Take advantage of exact positioning as follows:

1. Prior to following the steps previously outlined, place the mouse cursor in the tract that is NOT being moved, and select the **corner** you want to be common to both tracts. (See **Selecting a Tract or Corner** topic.)
2. Follow the previously mentioned steps so as to bring the desired corner of the tract being moved very near the corner that was selected in the other tract.
3. Release the **Left Mouse** button. If the corners were close, they will mathematically lock together. (You may notice a slight movement when you release the mouse button.)

You can move other tracts until they are where they need to be. You should make certain all tract motion has been completed and a final scale is selected before you add any notes (text) to your drawing.

Some users of Net Deed Plotter may want to place an image (topo maps, etc.) in the background, and then move the tract(s) and/or the image as needed. This is an advanced option and will be discussed in help topics that pertain to images. To see these topics, click on Net Deed Plotter Help, and then find the **Map View Menus and Imaging** section. Within that section is a **Background Image** sub-section that explains the positioning of tracts on an image.

Moving the North Arrow:

1. Cancel the selection of any tracts or text.
2. Move the mouse cursor onto the North Arrow.
3. Click the **Left Mouse** button. (The North Arrow will turn red.)
4. While holding down the **Left Mouse** button, drag the North Arrow to its new position.

Rotating Tracts

If one or more tracts are being overlaid on a background image, you may need to rotate the tract(s) to adjust for the meridian (north) direction of the image. Even if there is no background image, and you are drawing two or more tracts, one or more of them many need rotated to compensate for surveys that were on different meridians.

A tract drawn by Net Deed Plotter can be rotated by selecting an icon or by selecting a menu option. Both methods are explained below.

Using the Rotate Selected Tract Icon:

This icon can be selected if you are in the "Map View Mode." (Map visible, Deed Call Editor not visible.)

This method of rotation is used if the tract needs to be rotated without altering the deed calls. The steps are as follows:

1. Select the tract you want to rotate.
2. Click on the **Rotate Selected Tract** icon.
   This will open a small Tract Rotation Form that permits you to rotate the currently selected tract. This form can be moved with the mouse if it covers the tract.
3. You will notice a numeric "up/down" Spin Control that permits rotation and displays the rotated value. You can use the **Page Up** and the **Page Down** keys to quickly rotate the selected tract. We recommend the **Up Arrow** and the **Down Arrow** keys be used to make small adjustments to the rotation. You have the option of using the spin control for small adjustments.
4. If reasonable caution is used, you can perform other tasks such as selecting and rotating a different tract while the rotation form is open. This freedom permits the rotation and/or translation of various tracts in one session.
5. If you click the mouse outside of the Tract Rotation Form, you will need to click inside of it again before continuing to rotate a tract. This restores the focus to the form.

Rotate Tract by Changing Deed Calls:

This method is preferred if you wish to alter the actual directions that are listed in the Deed Call Editor. The steps are as follows:

1. Select the lines of deed calls that are to be rotated in value. (Select implies you are to highlight the text as you would to cut or copy.) Don't worry about the fact the distances and other data will also be selected. Net Deed Plotter will change only curves and directions.
2. Select **Rotate by Changing Deed Calls.** This sub-menu is found in the **Edit** menu of the Deed Call Editor.
3. Enter the amount of rotation (format explained below).
4. Clicking **Select** will cause the selected calls in the Deed Call Editor to change by the amount of rotation you had entered. Any deflections or interior angles will be converted to equivalent bearings.

Regardless of which method was used, the tract(s) will always rotate about the point of beginning. This can result in the tract being relocated relative to the paper. It also can result in the tract changing its position relative to other tracts. It is therefore recommended that any rotation be completed for all tracts before the tract(s) are moved (translated) and before any text is added.

Format for the rotation angle:

The discussion below applies ONLY if you are manually entering a rotation value to rotate deed calls in the Deed Call Editor.

The format for the amount of rotation is generally consistent with the format for entering directions in general. Here's the drill:

1. The rotation angle must begin with a minus (-) or plus (+). Minus is for counterclockwise and plus is for clockwise.
2. The value must be less than 360 degrees.
3. The standard degrees, minutes, and seconds format must be used. That requires a period before any minutes and requires any minutes and seconds to have exactly two digits. For example, "+30.0023" would rotate the selected deed calls clockwise 30 degrees, 00 minutes, and 23 seconds.

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Map View Options

Create Easement Overview

Net Deed Plotter provides a major improvement in the creation of baseline easements.

An easy method for accessing the easement Help topic is as follows:

- Select the baseline tract that is to be converted to an easement.
- Click on the **Create Easement** menu. (This sub-menu is in the **Advanced** menu.)
- When the **Easement Designer** form appears, press the **F1** function key. The **Easements and Rights-of-Way** topic will appear.
- It is recommended this topic be printed and reviewed before working with baseline easements.

The **Easements and Rights-of-Way** Help topic can also be accessed by opening Net Deed Plotter Help. Within Help is a section named **Multiple Tracts.** The **Easements and Rights-of-Way** topic is in that section.

The most common question we receive concerning the creation of easements is how to activate the "tract" that is to become an easement. If the "easement tract" is not a straight line, it can usually be activated in the normal manner of placing the cursor within its bounds and clicking the **Left Mouse** button.

The question usually results from wanting to activate an "easement tract" that is nearly straight or consists of only one line. This is solved by double clicking the **Left Mouse** button on one of the corners of the "easement tract."

Portrait or Landscape Mode

We recommend drawing maps in portrait mode; however, having a landscape option is nice if it causes a tract to fit better or look better. For example, if a tract is wider than it is high, landscape mode may allow you to select a scale that draws a larger map.

Here are a few reasons you may not want to arbitrarily change modes (views).

1. Any scale you may have already chosen may not be ideal for the new mode. Until you rescale, a portion of the map may not be visible.
2. The map may be off center until you select the icon that re-centers and re-scales it. The reason Net Deed Plotter does not alter scale or position is, after you have glanced at the new view, you may decide to return to the original view; therefore, the map needs to remain in its original position.
3. Any text (notes) you may have added would have to be moved again.

You should always decide portrait or landscape mode BEFORE you select a final scale or add notes.

Show Deed Calls

The **Show Deed Calls** icon toggles calls on or off. If no tract has been selected (made active), ALL tracts will have the labeling of deed calls along their boundary lines toggled on or off. If there is only one tract, there would not be any need to select the tract solely for the purpose of turning deed calls on or off.

If a tract is active, clicking the icon will toggle only the calls for that tract. One should give this option a little thought. If later the icon is clicked while no tract is active, the deed call labeling could result in one tract having deed call labeling in the opposite "toggle" mode of the other tracts.

If a line is too short for labeling, only a line number will appear.

If a deed call for a particular line of a given tract is hiding a deed call in another tract, either deed call can be turned off. To do so, select the corner from which the line originates, and then click the **Lines** menu. A sub-menu will show the corners of the line for which you can toggle the deed call on or off.

For straight lines (not curves), a second option is available. To toggle a single deed call on a line, simply double click on the line that is to have the deed call status changed.

Deed calls usually look much neater on the paper printout than they do on the screen.

Analyze Tract

If a selected tract (active tract) has a relatively large closure error and all or most of this error is caused by one faulty deed call, the **Analyze** option has a good chance of discovering the faulty deed call. This call may not be the only problem with the tract, but correcting it can be very worthwhile. It is important that you first try to find the closure problem by looking for errors on your part and by examining the legal description. If you know in advance which deed call is causing the problem, the solution will usually not involve the **Analyze** option.

Analyze looks for problems that are often found in defective descriptions. These defects include boundary lines too long or too short, transposed degrees in a bearing, a bad quadrant for a bearing, or a reversed bearing.

As the program analyzes the selected tract, it may suggest several solutions, of which one is often correct. Some of the suggestions will be ridiculous and therefore immediately canceled by the user. Other suggestions will be tempting. The general shape and area of the tract should be considered. The calls of an adjoining tract may also help you confirm the validity of a suggestion the program has offered. Viewing all of the suggestions is quick and easy. It is usually best to accept none of the options the first time. Try analyzing again and select **Yes** when the proper solution (if any) is displayed. The selected solution will be placed in the Editor. The **Analyze** option is so easy to use that it should be considered any time you cannot otherwise find a defect in a tract. Be conservative. You are not compelled to accept any of the suggestions. You will make the final decision as to the quality of the solution. If the **Analyze** option solves one deed in a hundred, it remains worth the effort. You may notice the suggestion message box covers part of the map. If this is the case, move the message box with your mouse.

If you analyze a tract that has a large number of deed calls, the process may take a few seconds. Give the computer time to complete this involved mathematical process. Any deflection, interior angle, or azimuth on the altered line will be converted to a bearing.

AutoScale and Center Map

The map scale is often OK the first time it is drawn, but if you have repositioned, rescaled, or otherwise altered the map, you may want to click the **AutoScale** icon.

Clicking the **AutoScale** icon will redraw the map **centered and to a new scale**. This is not advised if you have added text (notes) to the drawing because their positions will be altered relative to the map.

If you want to center the tract(s), but NOT change the scale, click the **AutoScale** icon while the **CONTROL** key is pressed.

After you have auto-scaled the map, repeated clicking of this icon would produce no significant changes.

If you have placed an image (topo map, etc.) in the background, you should be cautious relative to using AutoScale. The natural scale of the image may be very different from the "AutoScaled" scale. This could result in distortion of the image.

Metric Scale and Metric Data

For our customers in Canada and other locations that use metric units, Net Deed Plotter will accept a metric scale and then display metric data. If you are not using metric data, this topic can be skipped.

If you want Net Deed Plotter to provide METRIC values for areas (hectares, etc.), use a metric scale and place an "M" after its value. This tells Net Deed Plotter you want to see metric data.

Maps drawn using a metric scale will appear the same size on paper as when drawn using a standard scale IF the metric scale is 12 times larger. For example, a map drawn at an English scale of 100 will be the same size as a map drawn with a Metric scale of 1200M. We are not suggesting you should make this conversion except when you insist on metric values for area, perimeter, and closure.

Draw Tract with Mouse

This has always been a popular feature of Deed Plotter.
It is used to create new tracts and to closely estimate the area of an overlap or gap.

With this new version of Deed Plotter, the mouse can also be used to trace a boundary that runs with natural monuments such as roads, ridges, creeks, rivers, fields, etc. This is possible because the new version of Deed Plotter can show an image such as a topo map in the background.

Unless you use the "Image" keyword (explained below), one or more tracts must be visible on your screen before you begin. (You can delete any tract later.) To draw a tract with the mouse, proceed as follows:

1. From the **Advanced** menu, select the **Draw Tract with Mouse** sub-menu.
2. Carefully move the mouse cursor (crosshair) to your choice of a beginning point and click the **Left Mouse** button. A small red circle will appear.
3. Move the crosshair to the next position that is to become a new corner and click the **Left Mouse** button again. A red boundary line will now draw to your new corner.
4. Continue in the above manner until you have completely described the new "mouse" tract.
5. To complete the process of drawing the tract, place the crosshair exactly on any of the new corners you have just created and click the **Left Mouse** button. The most logical choice is usually to place the crosshair on your first (beginning) corner because that makes a complete closed loop for your new tract.
6. A message box should appear with the following question: "**You have selected point "#" twice. Are you finished drawing with mouse?**"
   If you select **Yes**, the new "mouse" lines will turn black. Net Deed Plotter will cancel the **Draw Tract with Mouse** menu option, and the deed calls will be placed in the Deed Call Editor.
   *If you selected **No**, Net Deed Plotter will remove (delete) your last line. This gives you an option to make corrections.*

The tract(s) you have just drawn will behave like any other tract(s). You can select it, see its statistics, move it, etc. In the Deed Call Editor, the new tract will begin with "@0" and will indicate the tract was drawn with the mouse. You can remove or alter that text.

If you want any corner of the new tract you are drawing to have precisely the same position as a corner of any PREVIOUS tract, be very careful to move the cursor (crosshair) precisely over the desired corner before clicking the **Left Mouse** button.

If you did it properly, the status bar will indicate you that you are on a corner. Confirm this before you click the **Left Mouse** button. If you are working with nested tracts, you may need to first select the tract that has the corner you want to use.

A common mistake when creating a new "mouse" tract that adjoins another tract is to prematurely assume the new tract is finished. The tract may deceptively look finished because the lines of the adjoining tract appear to complete it. Don't let appearances deceive you. The new tract is not correct until you also "trace" your way along any commonly shared corners of adjoining tracts.

Beginning with version 5.2 of Net Deed Plotter the "**Image**" keyword can be entered into the Deed Call Editor to permit viewing an image and/or drawing with the mouse without having any previous deed calls.
You can optionally use this special feature as follows:

1. Start with an Empty Deed Call Editor.
2. Type the word "**Image**" (without the quotes) into the editor.
3. Draw in the normal manner (Press **F2**, or select **Draw Map** etc.) At this point you will have an empty map view. (no actual map)
4. Change the scale to a practical value based on the length of lines you wish to create. (This is not required if you will be opening a background image.)
5. Select the "**Draw Tract with Mouse**" sub-menu.
6. Draw with the mouse using the methods previously explained.

When the new tract is completed, it will be placed in the editor as usual. Though not required, tracts are often drawn on a background image.

Background Image

Background Image Overview

Background Image

Background Image Overview

The **Background Image** section is advanced. If you do not want your maps to overlay a topo map, aerial photo, or other image, you should skip this topic.

Overlaying maps on a background image can be very worthwhile. Here are a few reasons to consider drawing tracts on a background image:

- The position of tracts can be seen relative to actual topo features including roads, rivers, streams, ridges, fields, buildings, pipelines, power lines, etc.
- If a legal description has missing courses and distances where a natural boundary is called for, the missing calls can be approximated by tracing along the natural features with the mouse.
- The distance and direction can be scaled to topo features and to various boundaries including section lines, state lines, county lines, and city limits.
- The general slope of the land within a tract can be observed if the contour interval is sufficient.
- Tracts can be divided or created in conformity with features visible in the image. For example, the mouse can be used to create a tract that has a field as its borders. This provides a method of estimating the area of that field.

The **Coordinates** topic in this manual (see **Understanding Deed Calls** section of manual) has an example wherein coordinates are used to create a tract, and that tract is positioned on a background image.

The ability to display a background image is a powerful feature of Net Deed Plotter. Though not anticipated, it is possible this new feature may change somewhat after the manual is printed; therefore, the detailed instructions are available only as Help topics.

To find these Help topics, open Net Deed Plotter Help, and then click on the **Background Image** topics option**.**

The Background Image Help topics will include:

- How to obtain digital images including topo maps and digital orthophoto quarter quads (DOQQ).
- The importance of an accurate "tfw" or "jgw" geo-reference file.
- How (as a last resort) to create geo-reference files.
- Certain precautions in using images of questionable specifications.
- Understanding and using coordinates with digital images. Improper coordinates is the most likely reason a map or image will disappear from your screen. Improper coordinates will result in tracts appearing in the wrong location.
- How to find the x, y coordinates of a point within the background image.
- How to scale an image to fit the page.
- How to optionally move tracts on an image using the SHIFT key + **Left Mouse** button.
- How to scroll the image to make a preferred portion of the image fit portrait or landscape mode.
- How to shift a point on the map (at the cursor position) to the center of paper in portrait or landscape view. (Use **CONTROL** key + **Left Mouse** button to shift image and all tracts while in "Translate" mode.)

The background image information provided in this manual is limited to the following summary.

A background image can be of your choosing provided it is a **tif**, **jpg,** or bitmap (**bmp**) file. A tif image (or bitmap image) MUST have an identically named tfw file, and a JPeg image must have an identically name jgw file.

For example, if your image file is named "MyTopo.tif," there must be a corresponding file named "MyTopo.tfw." It must be in the same folder (have same file path) as the image file. The tfw and jgw files are special geo-referencing text files that have technical information relative to the image. Each geo-reference file is unique to that image and cannot be used with another image. Always try to get a genuine geo-reference file. If this is impossible, you may want to consider creating a custom geo-reference file.

Fortunately, most sources of digital topo maps provide the appropriate file with the image. As previously mentioned, the “tfw” (or “jgw”) file will "geo-reference" the image. We need geo-referencing so Net Deed Plotter can know the natural scale, resolution, and x, y coordinates of the image. As you will see, the geo-reference file is the magic that makes good things happen. *Do not trust any image that is not geo-referenced even if you believe you know its scale.*

Global Positioning System:

Here are just a few reasons an inexpensive WAAS enabled sportsman GPS unit is very useful when working with background images:

- A trip to the field for the purpose of observing the UTM coordinates of a property corner will provide you with reference coordinates. These coordinates will usually be sufficient for placing a tract on a topo map or other background image.
- Finding significant errors in legal descriptions. Net Deed Plotter can convert UTM coordinates to deed calls. These calls can be combined with the (adjusted) calls from a legal description to help solve boundary problems.
- Cruising timber, finding the areas of natural boundaries, and creating a tract based on features dependent on topography are enhanced with the combination of Net Deed Plotter, GPS, and background images.

Common Support Questions

FAQ

Common Support Questions

FAQ (Frequently Asked Questions)

- Q1: How do I enter “north 300 feet”?

  This also applies to east, south, and west. These are “cardinal” directions. IF you are certain the surveyor’s intent was precisely a cardinal direction, use “n0e” for north, “n90e” for east, “s0w” for south, and “s90w” for west. Net Deed Plotter will also accept the abbreviations “n”, “e”, “s”, and “w”. The entry for “north 300 feet” would be “n0e 300”, or you could use “n 300”.

- Q2: How do I enter “southwesterly”?

  You don’t. This is not a measurement. It is a guess! The same is true for any direction that is not a cardinal direction and does not include a numerical value. You should never assume or “second-guess” the intent of a legal description.

- Q3: How do I center my tract on the paper?

  If you also would like for the tract to better fit the paper (automatically change scale), click the **AutoScale** icon.
  If you want only to center the tract, click the **AutoScale** icon while pressing the **CONTROL** key.

- Q4: Why are my tracts shown in the wrong position?

  You need to properly reference or move the tracts. See **Placing Tracts in Their Proper Position** within the **Multiple Tracts** section of this manual.

- Q5: If a background image is visible in portrait (or landscape) mode, how do I shift the image and tracts (as a unit) so that a selected point is moved to the center of the paper?

  Click the translate (move tracts) icon, and then move the “translate” cursor to the point you want shifted to center. Click the **Left Mouse** button while pressing the **CONTROL** key.

Q6: How do I enter n12 1/2e?

Net Deed Plotter expects bearings to be in the surveying format of degrees, minutes, and seconds. Minutes and seconds in directions are similar to time. There are 60 minutes in a degree and 60 seconds in a minute; therefore, ½ degree is converted as would be ½ hour (30 minutes). N12 ½ E would be entered into The Deed Call Editor as n12.30e. See **Deed Call Examples** in the **Understanding Deed Calls** section for more information.

- Q7: How do I enter distances other than feet?

  Meters, chains, poles, links, and varas are recognized by their abbreviation after the distance. (The pole, rod, and perch are identically 16 ½ feet.) A distance of 3 chains, 4 poles, and 5 links is entered as "3c4p5L". A distance of "127.9 varas" is entered as "127.9v". See **Distances** in the **Understanding Deed Calls** section for more information.

- Q8: How do I place Net Deed Plotter in Metric mode?

  The mode is determined by the scale. By default the scale is 1 inch to the number of feet as is shown in the scale window. For metric mode, place an "M" after the scale value, but of course be certain the metric value is valid (for example, 200M). See **Metric Scale and Metric Data** within the **Map View Options** section for more information.

- Q9: How can I more quickly enter deed calls?

  Net Deed Plotter accepts a shorthand entry of deed calls directly from the numeric key pad. This is explained in a help topic entitled **Entering Deed Calls**. To find it, click **Net Deed Plotter Help**, and then look for **Entering Deed Calls** within the **Getting Started** section.

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