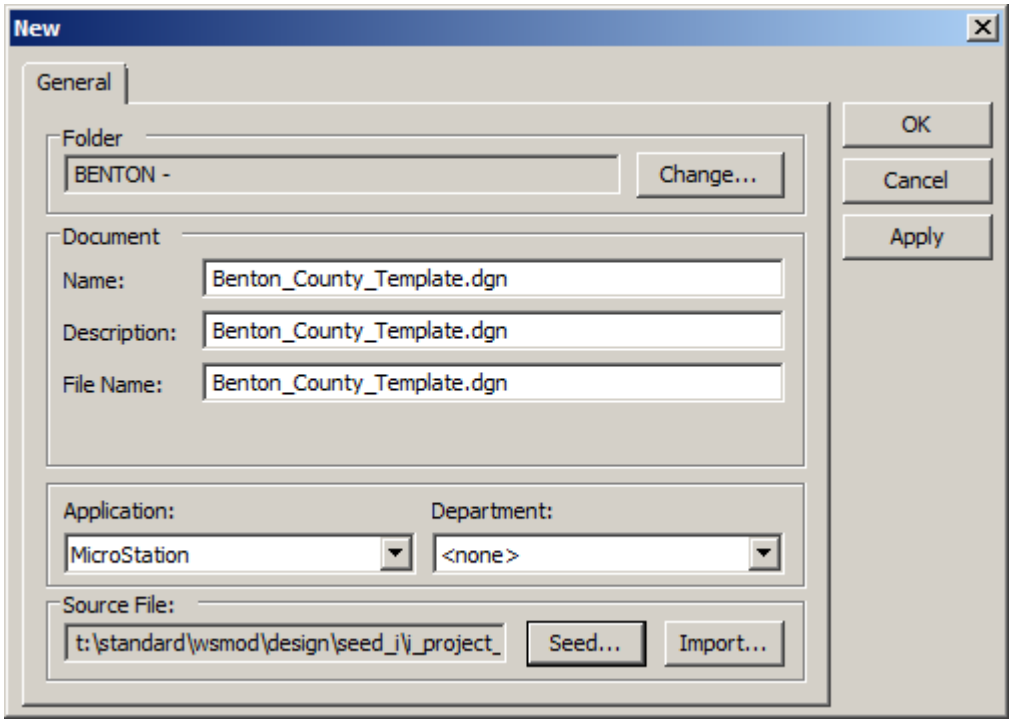
Lab 1: Creating a Location Survey Plat Template

Purpose:
The purpose of this exercise is to provide the steps for creating a Survey Plat Template for any particular county. Once the template is created, contact CADD Support so it can be reviewed and moved to pw:\\ghpwise10:MoDOT\Documents\CADD_Standards\County Survey Templates\{district}\.

Background Information:
Benton County requires a 2" tall x 3" wide notch in the upper right corner to place their county seal. The District Land Survey Manager or lead PLS should know the specific requirements for the county in which they are recording the plat.

1. Open any MicroStation drawing through ProjectWise.

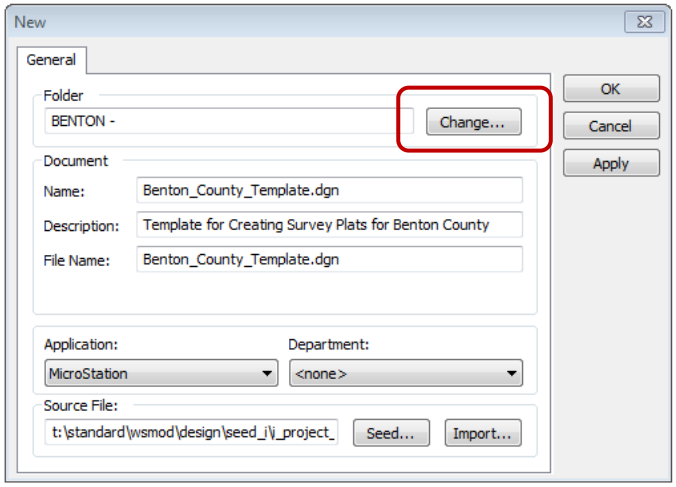
2. Create a new MicroStation drawing by selecting **File >>New**. Select "No Wizard" when prompted. Populate the dialog with the *Name, Description*, and *File Name* as shown below:

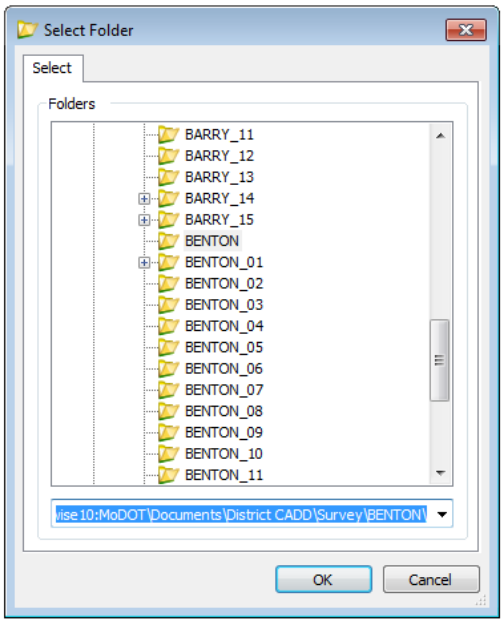


Hint: You can type the name, and then copy/paste it into the other boxes.

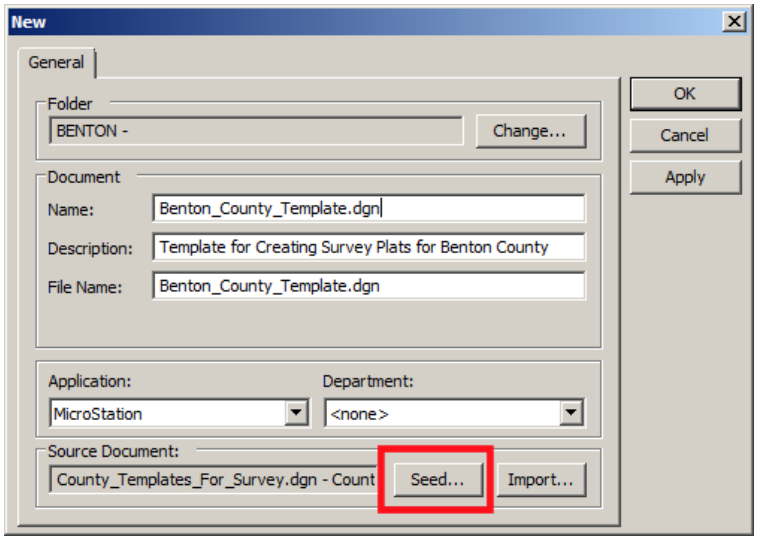
(2 Cont.) Make sure to select the **Change** button and change the location where the file will be temporarily stored.

For this lab, place this template in this location:
PW:\\MoDOT\Documents\District CADD\ Survey\BENTON_##\.



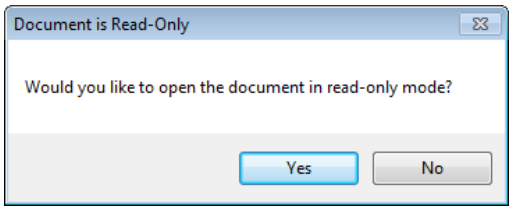


We also need to change the source file for creating this template file. Click on **Seed**. In the Select Document dialog box, navigate to **PW:\\Documents\CADD_Standards\Seed Files\Design-English** and select **County_Templates_For_Survey.dgn.**



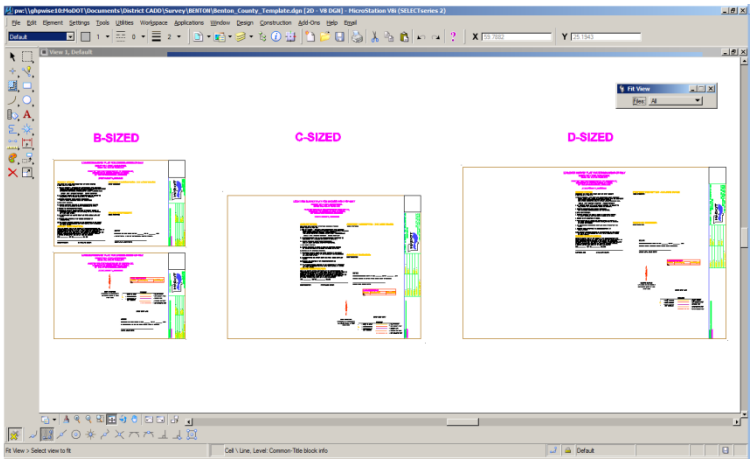
(2 Cont.) Then select **Open**.

Open the file in Read-Only mode because it is a read-only seed file. Select **Yes**.

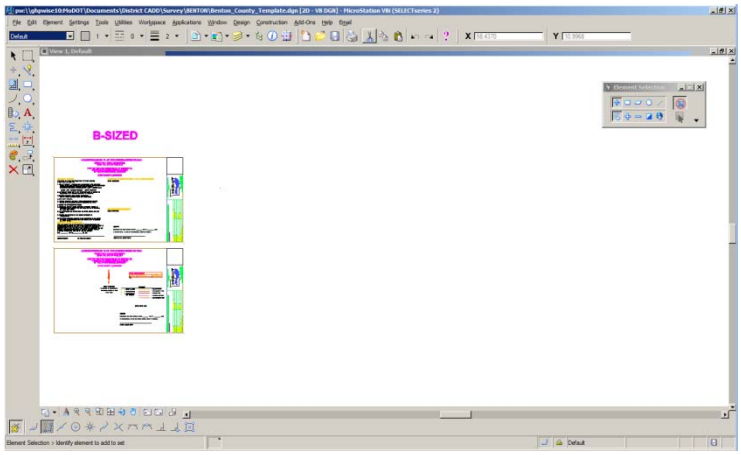


Finally select **OK** in the New dialog box to create the template file for the county.

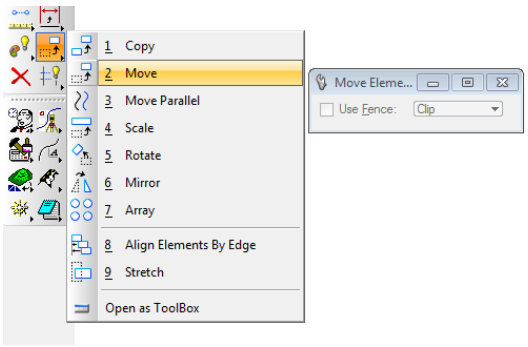
3. When the file opens, you will notice 3 sets of border files.

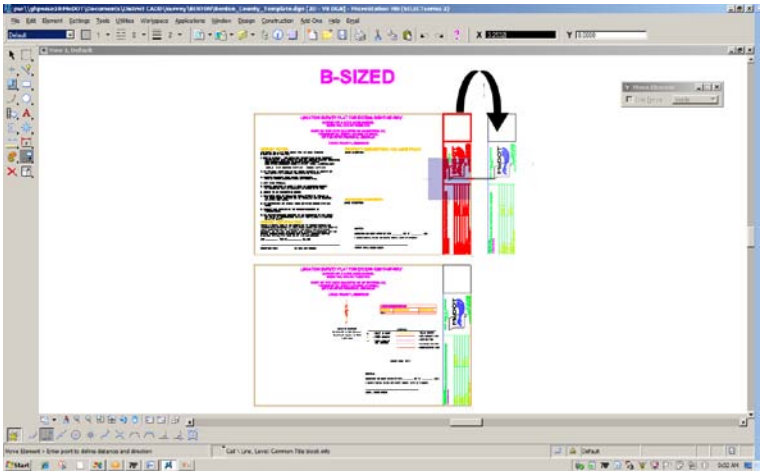


Benton County requires a B-Sized plat, so you can delete the C and D-Sized plats in the file.

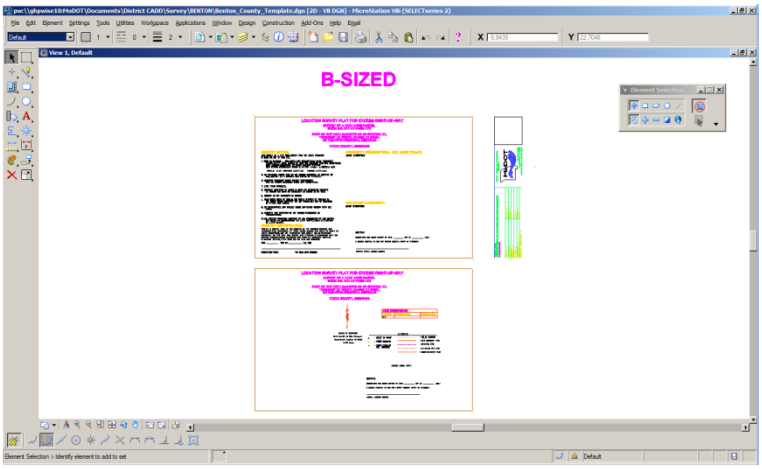


4. Place any special blocks or notches as required by the county. Benton County requires a 2” tall by 3” wide notch in the upper right corner. In order to do this, we need to move the title block information somewhere outside the border. Using the **Move** tool, select the title block geometry and move it somewhere outside the border.

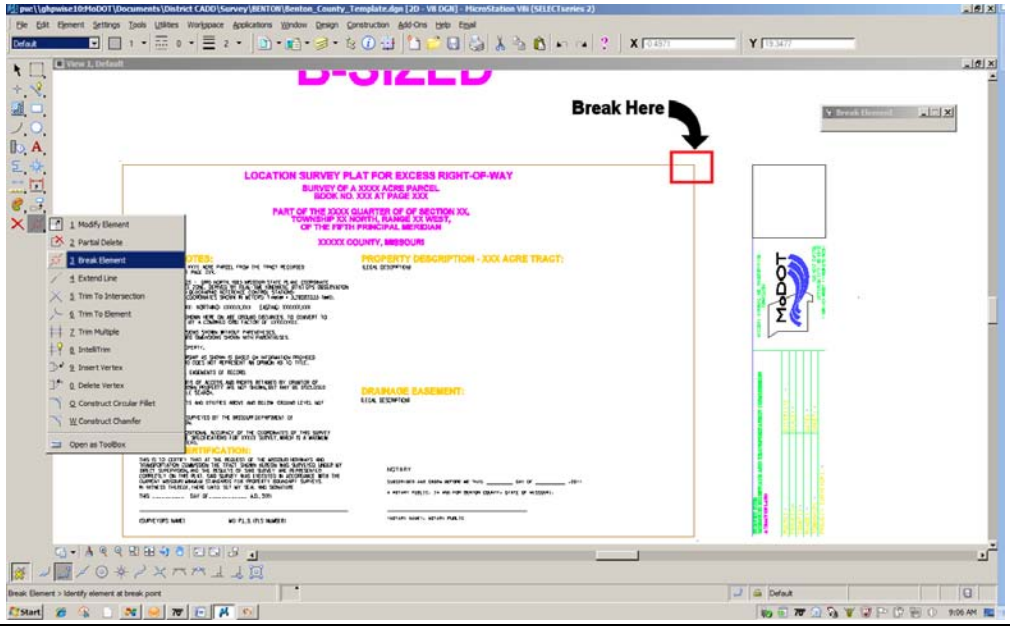




Do this to one, and delete the other. We will copy from one border to the other later.

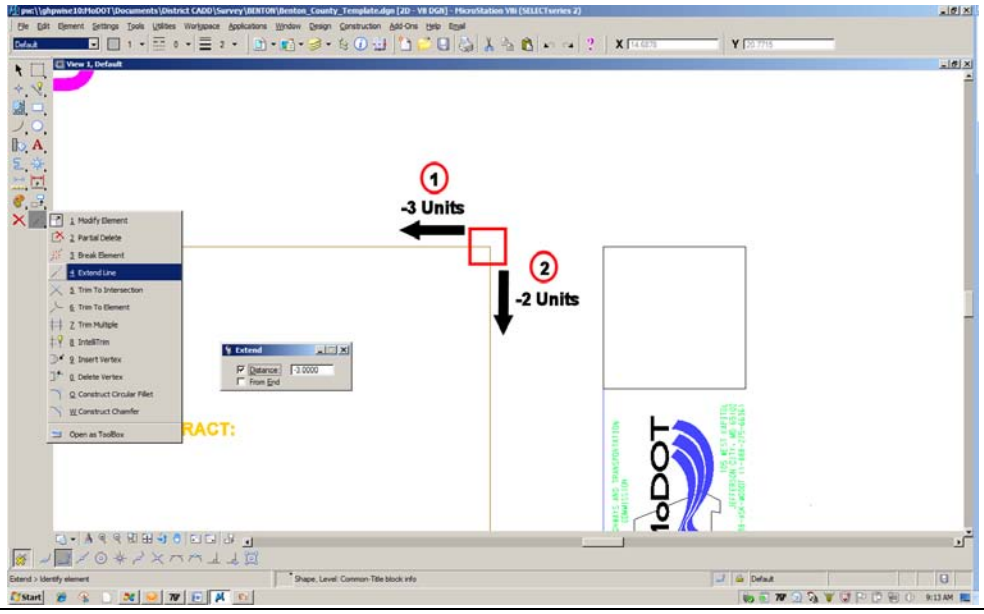


5. To place the notch in the upper right corner, select the **Break Element** tool. Left click ***ONE TIME*** on the upper right corner of the border as shown below. This will cause the geometry to break so we can modify it. Do this to both borders.

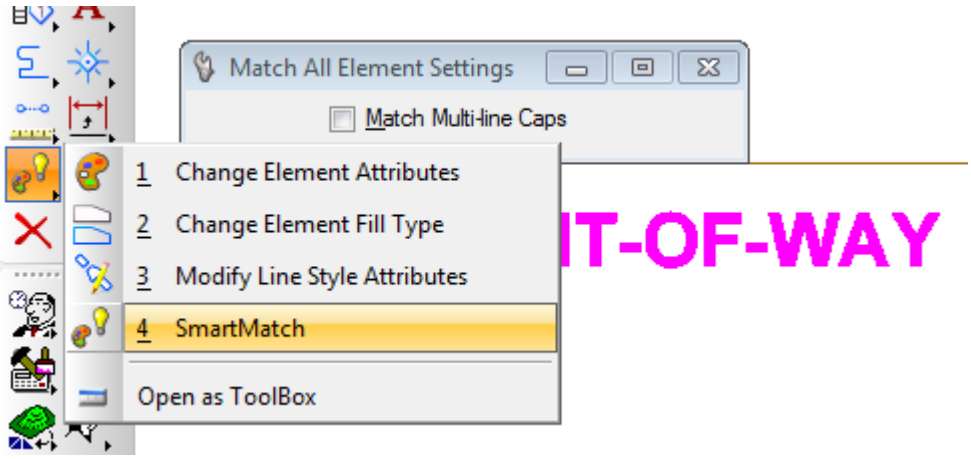


6. Using the **Extend Line** tool, remove the amount needed to the horizontal and vertical lines. Since we remove from the existing lines, make sure to put in a ***negative value*** in the dialog box. Also do this to both sheets. The scale of the template is 1”=1’, so for a 2” x 3” notch, you would remove 2’ x 3’ in the drawing.

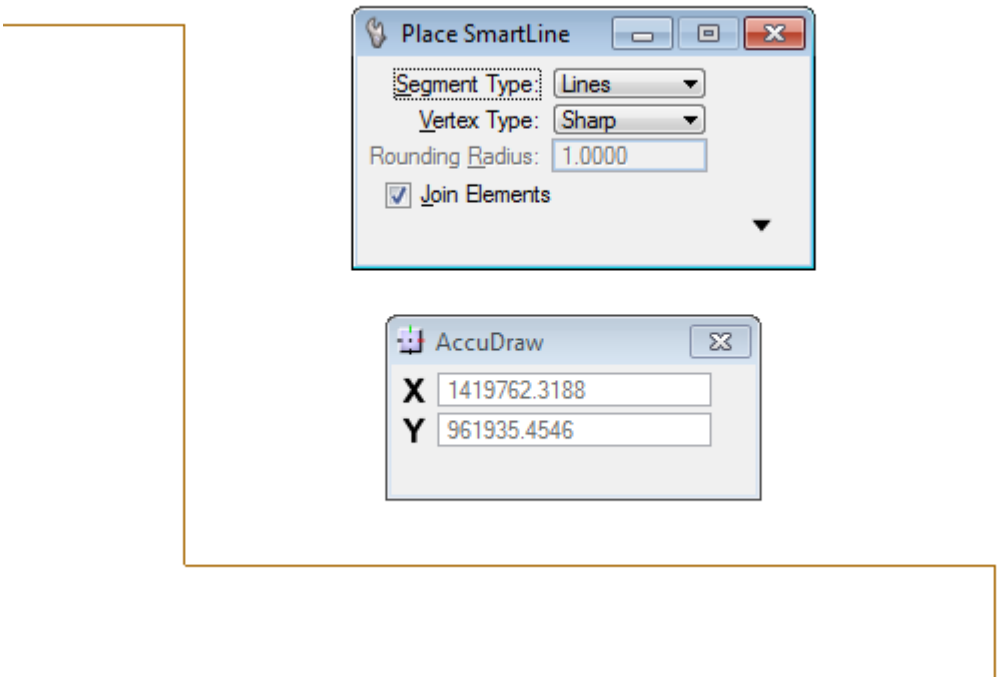
(Note: Remove -3 units from the horizontal (x) line first, and then remove -2 units from the vertical (y))



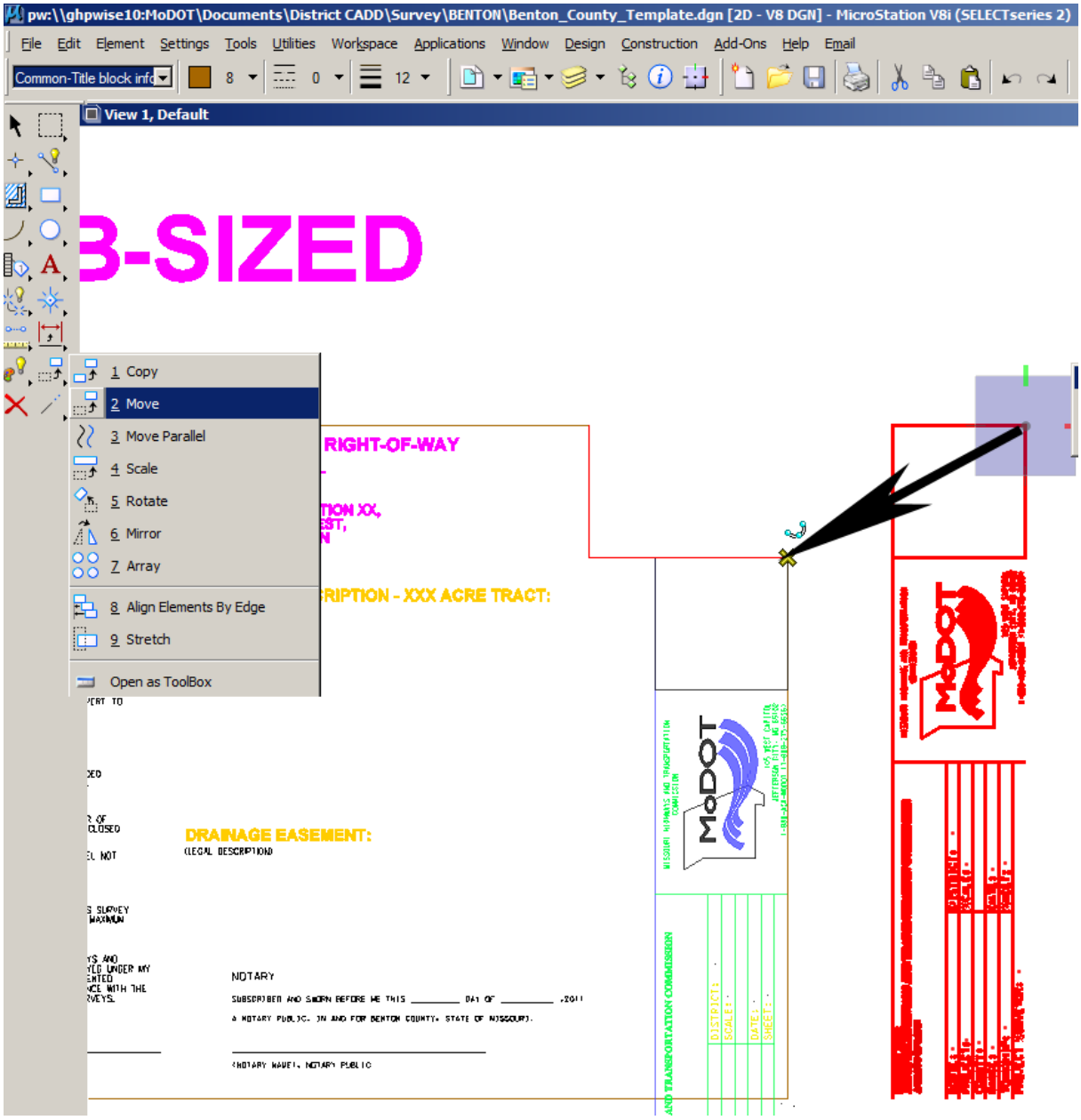
7. Use the **SmartMatch** tool and select the outside border. This will load the proper attributes so you can complete the notched out area in the next step.



8. Using the **Place Smartline** and **Accudraw**, snap to the end of the horizontal line. Then move your mouse down, type in 2 and left click to accept the line. Snap to the other end of the vertical line. It should end up looking like the image below.

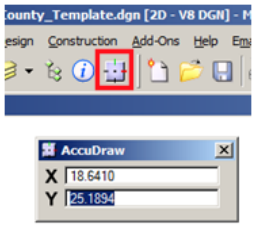


9. Now we need to move the title block information back into the correct location inside the border. Use the **Move** tool and snap to the upper right hand corner of the PLS seal block. Move the title block information to the correct location in the border.



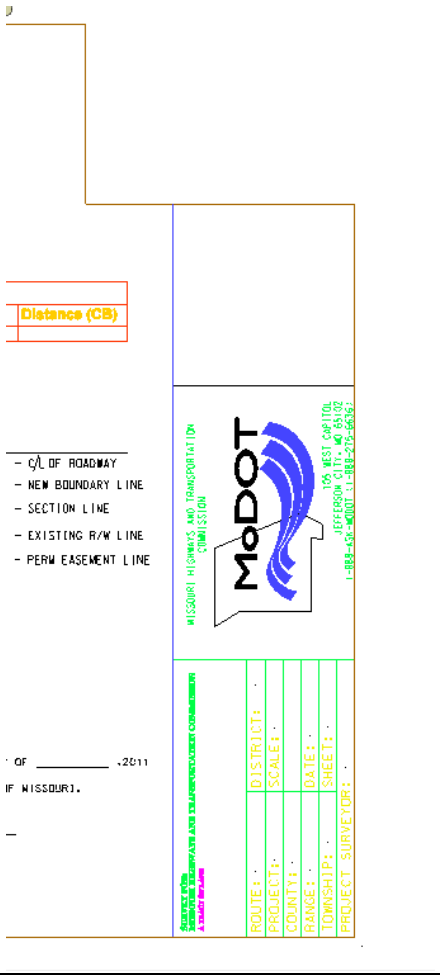
10. You will notice that the title block information extends past the border. In order to edit this, you will need to ungroup these items. Use the **Element Selection** tool and select both title blocks. Then go to **Edit>>Ungroup**. This will break up the title block information so you can make the necessary changes to it.

    Use MicroStation tools (Element Selection, Move, Etc.) and modify the title block as needed to fit inside the border. Then copy the title block information to the other border. Make sure AccuDraw is turned on!



NOTE: DO NOT modify the PLS seal area.

When you are done, it should look something like this.

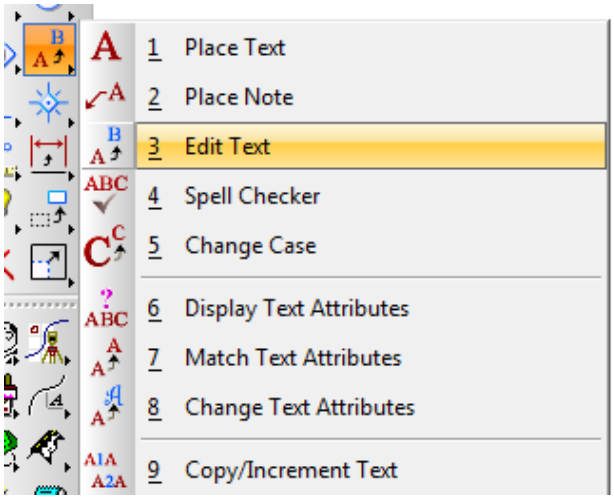


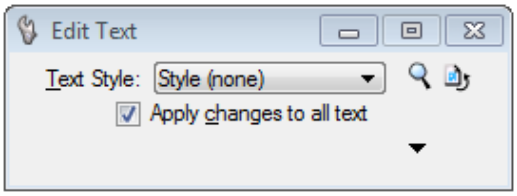
11. Using the **Edit Text** tool, edit the county name in the Location Survey Plat description. Make sure to do this on both sheets.

LOCATION SURVEY PLAT FOR EXCESS RIGHT-OF-WAY
SURVEY OF A XXXX ACRE PARCEL
BOOK NO. XXX AT PAGE XXX

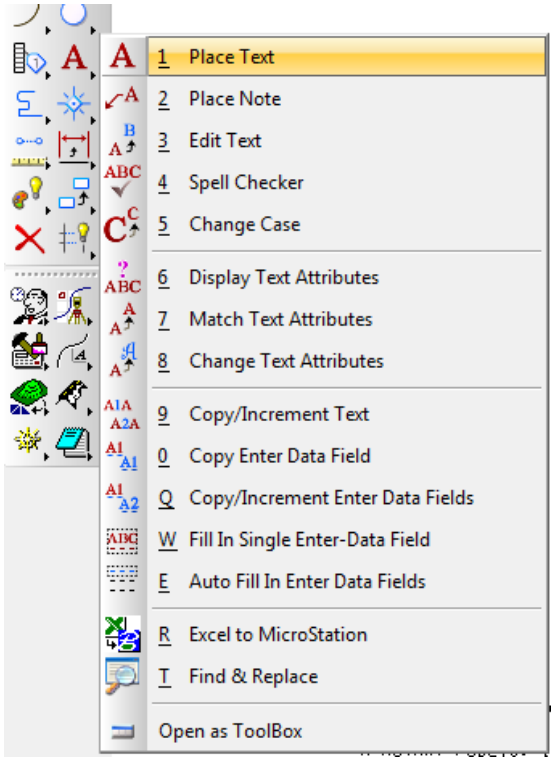
PART OF THE XXXX QUARTER OF OF SECTION XX,
TOWNSHIP XX NORTH, RANGE XX WEST,
OF THE FIFTH PRINCIPAL MERIDIAN

XXXXX COUNTY, MISSOURI





12. Final process is to fill out the information in the title block area for the county template. **SmartMatch** the text in the title block area for it to load the proper attributes and text attributes. Then go to the **Place Text** tool and place the **COUNTY** and **DISTRICT** text using the handles (points) provided in the title block area.



SURVEY FOR: MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

A TRACT OF LAND

ROUTE:	DISTRICT: CD
PROJECT:	SCALE:
COUNTY: BENTON	
RANGE:	DATE:
TOWNSHIP:	SHEET:
PROJECT SURVEYOR:	

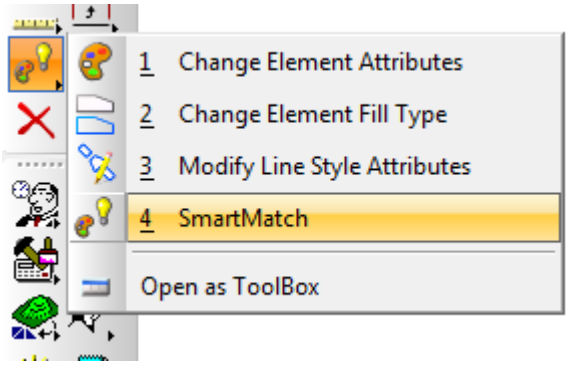
13. The county template is now completed. Save the file.

You will not do this here in class, but in production, you should now email it to CADD Support so it can be reviewed and placed in ProjectWise with the other templates. Those templates will be located at:

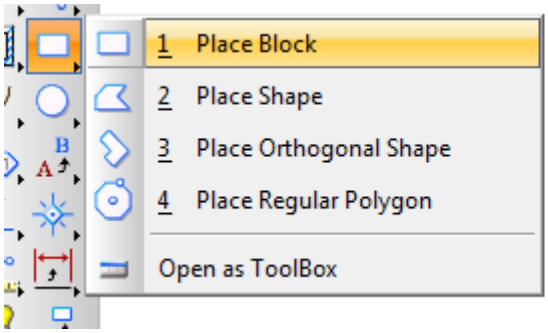
pw:\\ghpwise10:MoDOT\Documents\CADD_Standards\County Survey Templates

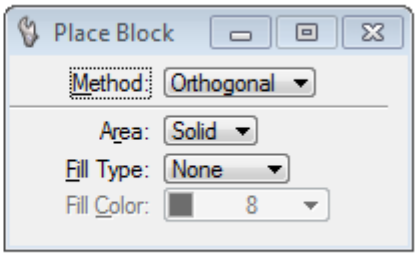
Note that they will also be renamed to "[county]_[size].dgn" for easy identification. For example, Benton_B.dgn would be the Benton County template to be plotted at B size.

NOTE: Benton County required a "notched out" area in the upper right hand corner of the border for the county seal information. If a "notched out" area is not required, you can simply use the **SmartMatch** tool to load the proper attributes for the county seal block area. Select the border.



Construct the county seal block area using the **Place Block** tool in conjunction with **AccuDraw**..





Move the county seal block area to the correct location on the sheet according to the requirements by the county.

This concludes Lab 1.

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Lab 2: Creating the Location Survey Plat

Purpose:
The purpose of this exercise is to provide the steps for creating a Survey Plat based on an already created “County Template” for any particular project.

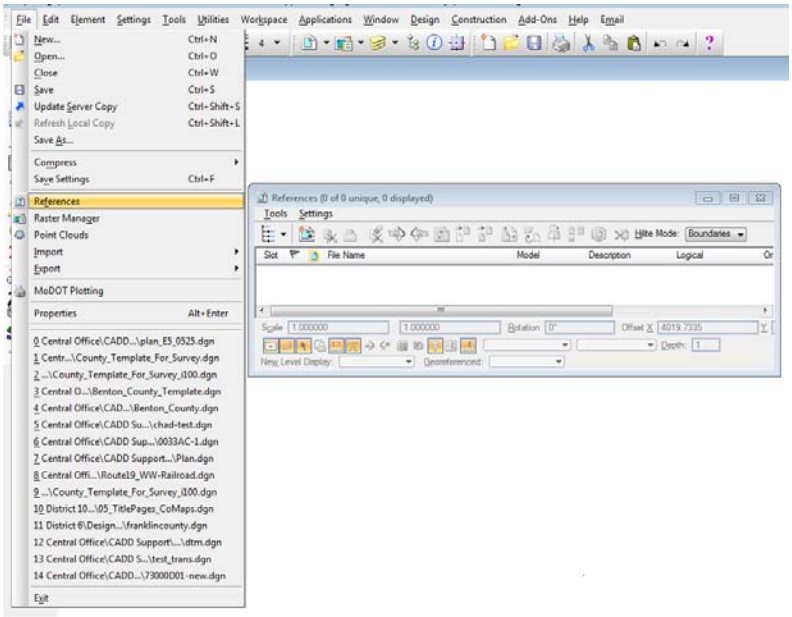
Background Information:
The survey geometry has already been provided in a MicroStation file. All lines and points have been visualized.

1. Open drawing PW:\\District CADD\Survey\Benton_##\E5-0525\data\plan_E5_0525.dgn **Save** the files as **plat_E5_0525.dgn**

2. Refer to Appendix D to determine the plot scale based off the survey data. In this Lab, assume an approximate area of 700’ x 1000’. Benton County requires a B-sized sheet (11” x 17”). This would mean that a 100 scale border would fit the data.

3. Reference in the template previously created for Benton County. Go to **File>>Reference** and then in the Reference dialog box, select **Tools>>Attach**. Browse for the file and attach the **Benton County Template**.

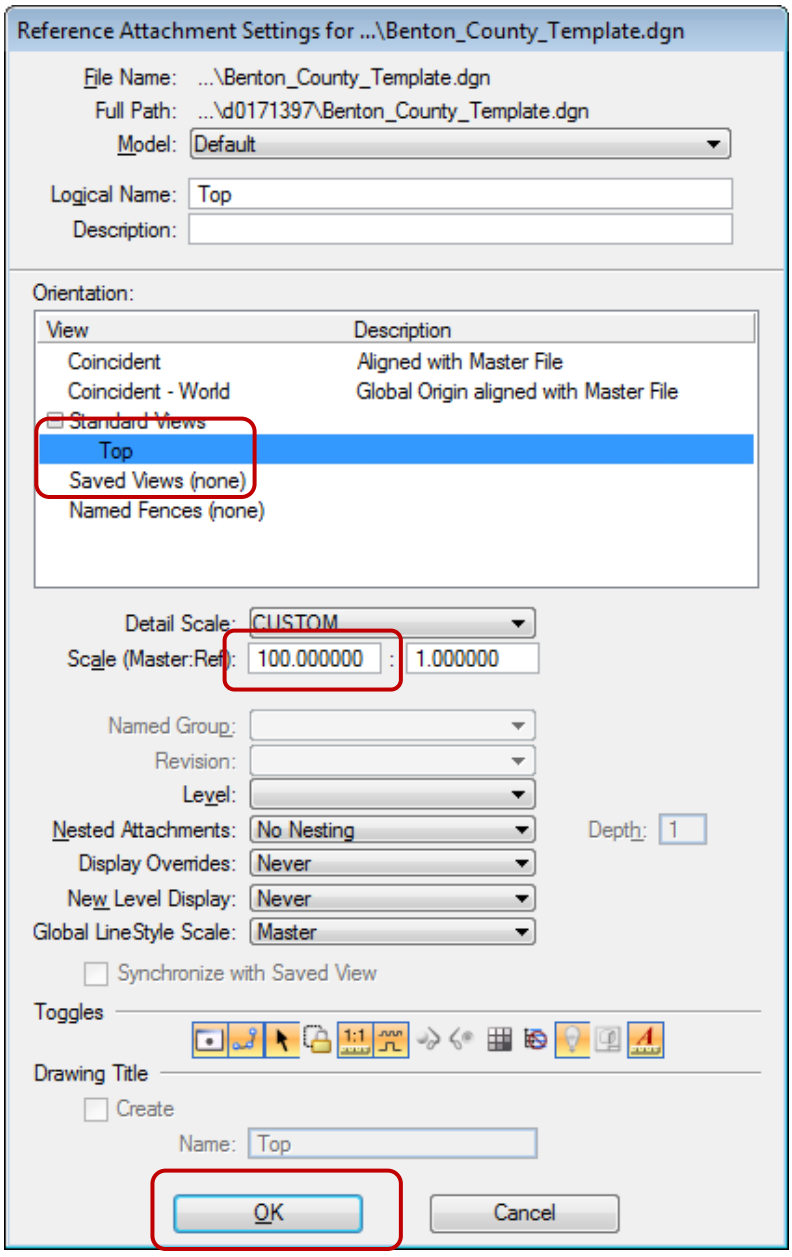
PW:\\District CADD\Survey\Benton_##\Benton_County_Template.dgn



3. (cont)

NOTE: In order to be able to scale the border without affecting the survey geometry, you will need to attach the file differently than what is commonly done. This should ONLY be done for this process.

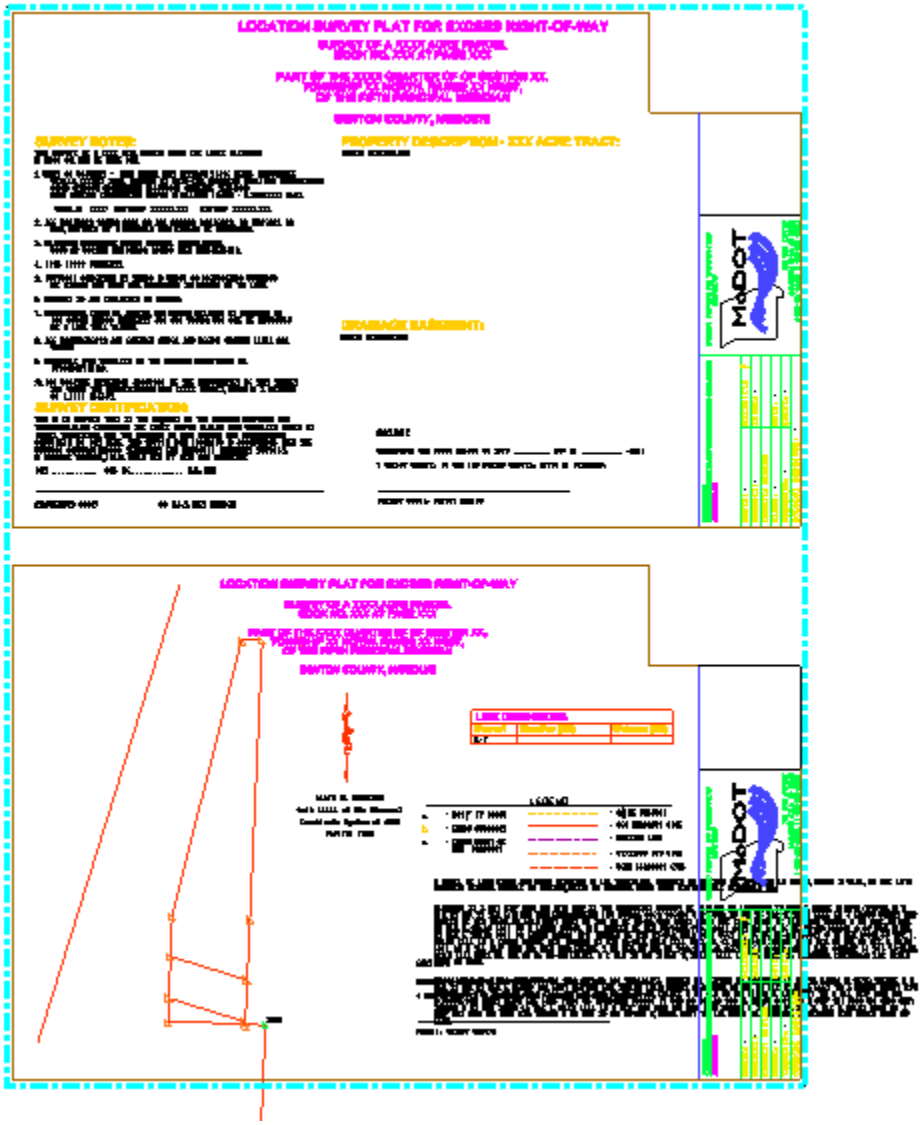
a. Select the **Standard Views >> Top**
b. Change the Scale (Master:Ref) to **100:1**
c. Click **OK**
d. Drop the border file in a **BLANK** area to the right of the survey geometry.



4. Now select **Tools >> Move** in the reference dialog box and move the Benton_County_Template.dgn in the desired location to fit the survey data provided in the blank area provided in the template.

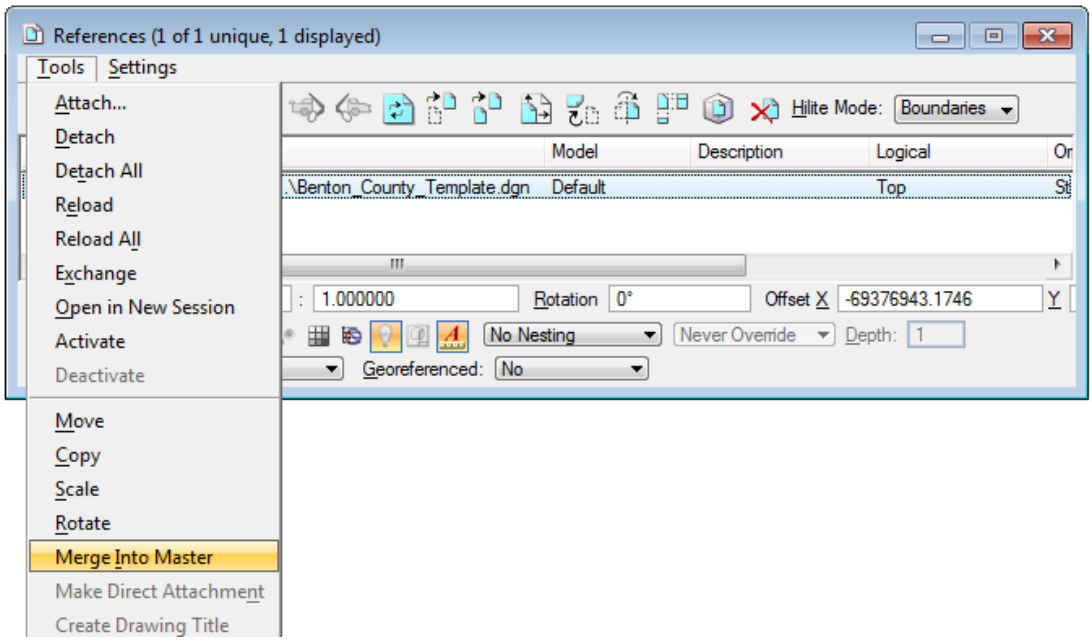
NOTE: DO NOT EVER move the actual survey geometry.

You will also notice in this example that the line going to the Set Survey Monument extends past the border (at the bottom). This will be addressed in Lab 3.

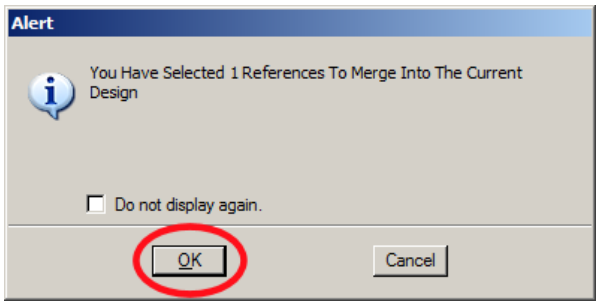


5. Merge the Benton_County_Template.dgn into the active file so you can edit or modify data for the particular job you are working on

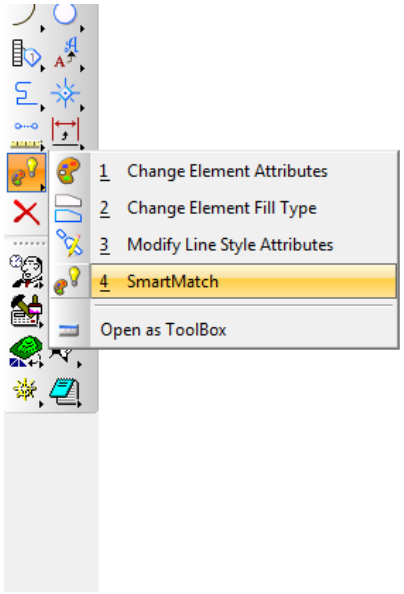
   In the Reference dialog box, select the **Benton_County_Template.dgn** and select **Tools >> Merge into Master**. Left click out on a blank area of the screen somewhere.

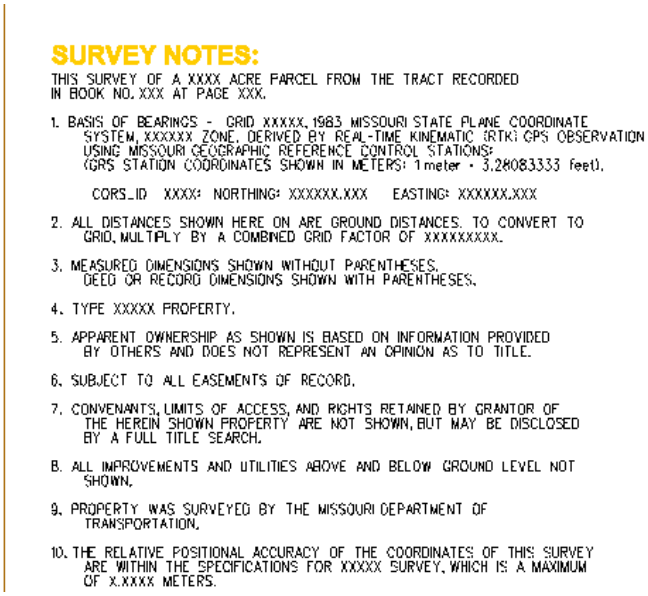


Click on **OK** in the Alert dialog box.



6. Use the **SmartMatch** tool and select the white text on the survey notes. This will load the proper attributes and text attributes for the Property Description Notes being placed in the next step.





SURVEY NOTES:

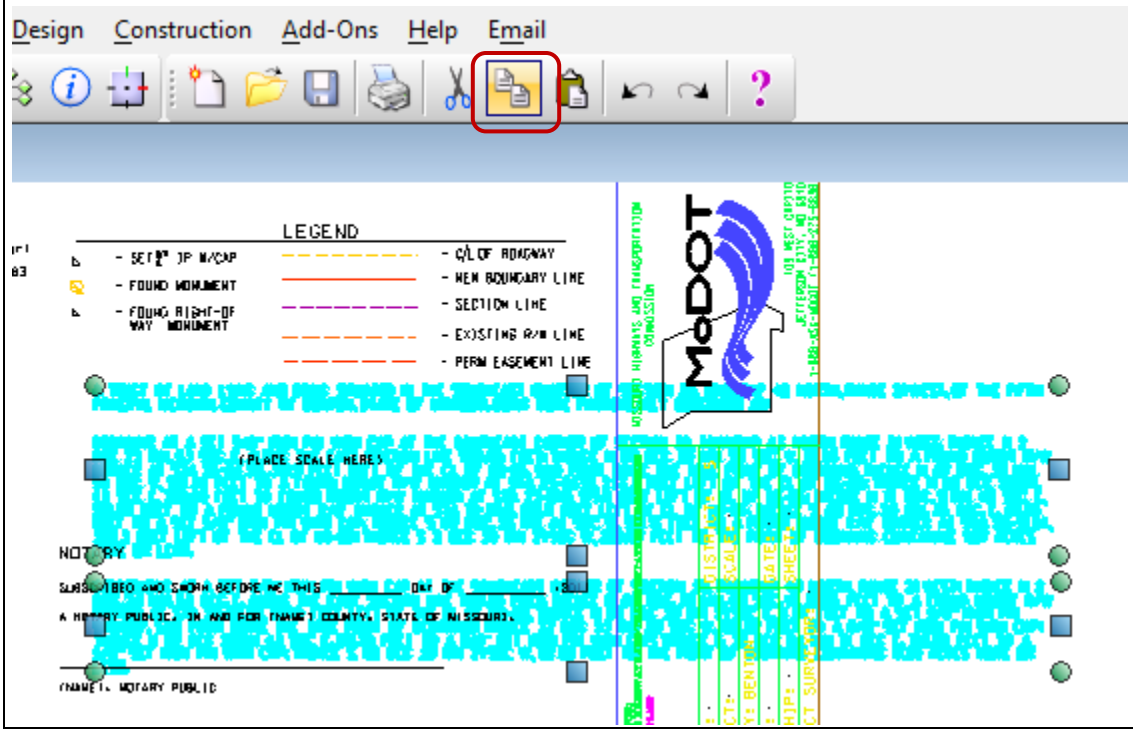
THIS SURVEY OF A XXXX ACRE PARCEL FROM THE TRACT RECORDED IN BOOK NO. XXX AT PAGE XXX.

1. BASIS OF BEARINGS - GRID XXXXX, 1983 MISSOURI STATE PLANE COORDINATE SYSTEM, XXXXXX ZONE, DERIVED BY REAL-TIME KINEMATIC (RTK) GPS OBSERVATION USING MISSOURI GEOGRAPHIC REFERENCE CONTROL STATIONS: (GRS STATION COORDINATES SHOWN IN METERS: 1 meter = 3.28083333 feet).

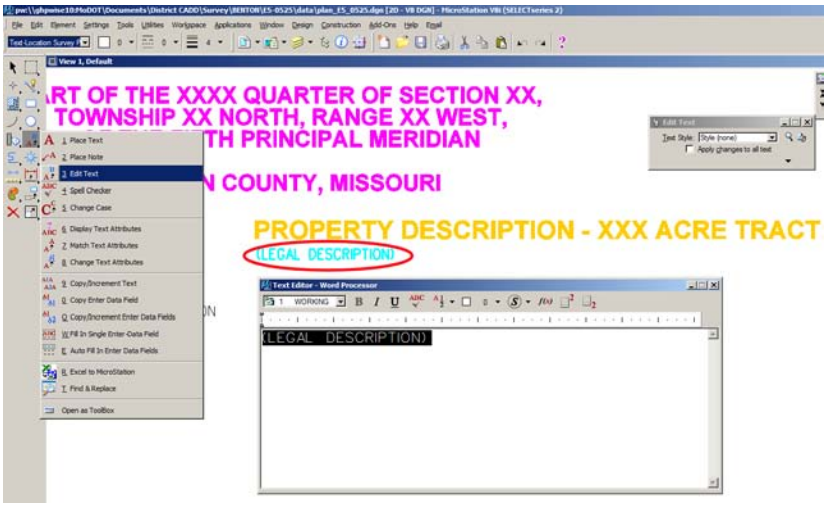
   CORS_ID XXXX: NORTHING: XXXXXX.XXX EASTING: XXXXXX.XXX

2. ALL DISTANCES SHOWN HERE ON ARE GROUND DISTANCES. TO CONVERT TO GRID, MULTIPLY BY A COMBINED GRID FACTOR OF XXXXXXXXX.
3. MEASURED DIMENSIONS SHOWN WITHOUT PARENTHESES. DEED OR RECORD DIMENSIONS SHOWN WITH PARENTHESES.
4. TYPE XXXXX PROPERTY.
5. APPARENT OWNERSHIP AS SHOWN IS BASED ON INFORMATION PROVIDED BY OTHERS AND DOES NOT REPRESENT AN OPINION AS TO TITLE.
6. SUBJECT TO ALL EASEMENTS OF RECORD.
7. CONVENANTS, LIMITS OF ACCESS, AND RIGHTS RETAINED BY GRANTOR OF THE HEREIN SHOWN PROPERTY ARE NOT SHOWN, BUT MAY BE DISCLOSED BY A FULL TITLE SEARCH.
8. ALL IMPROVEMENTS AND UTILITIES ABOVE AND BELOW GROUND LEVEL NOT SHOWN.
9. PROPERTY WAS SURVEYED BY THE MISSOURI DEPARTMENT OF TRANSPORTATION.
10. THE RELATIVE POSITIONAL ACCURACY OF THE COORDINATES OF THIS SURVEY ARE WITHIN THE SPECIFICATIONS FOR XXXXX SURVEY, WHICH IS A MAXIMUM OF X.XXXX METERS.

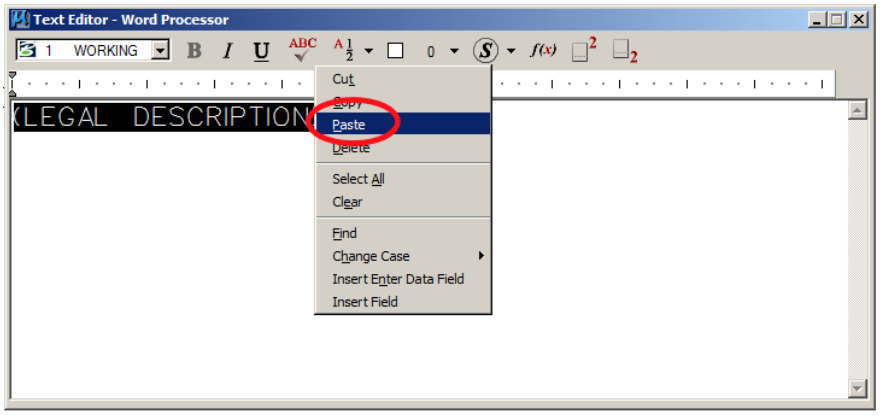
7. Use the **Element Selection** tool and select the **Property Description** provided in the original plan drawing. Then **Copy** the selected text.



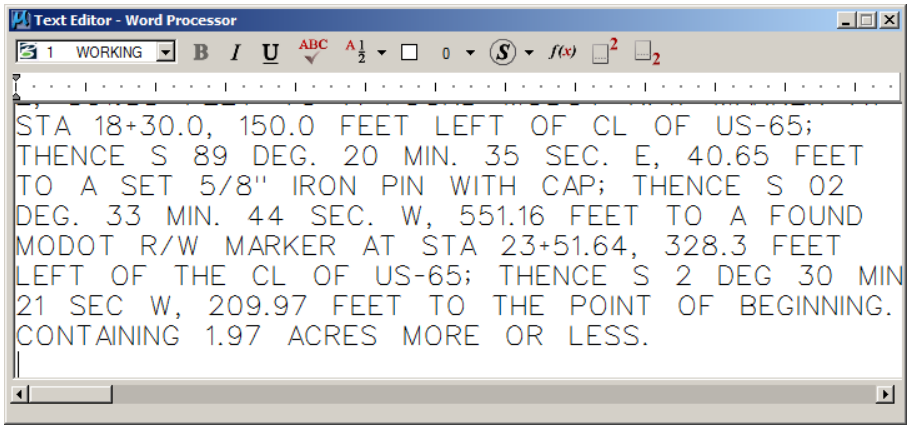
7. (cont) Select the text that says “Legal Description”. Then select the Edit Text tool. This will bring up the Text Editor dialog box.



Right-click over the text in the Word processor, and select Paste.

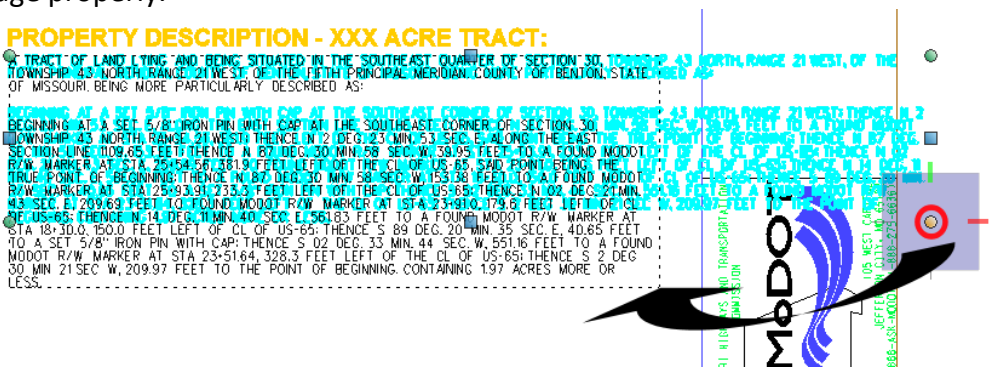


The Legal Description will appear in the Text Editor.



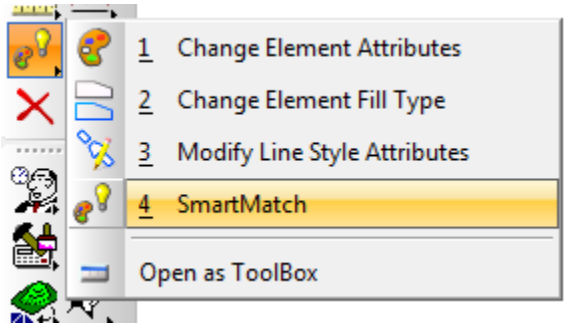
Right click on a blank area of the screen, and the Legal Description will be in the correct place.

7. (cont) If the text does not fit correctly, grab the handle on the bottom right edge of the text, hold your left mouse button down, and drag it to the left to resize it until it fits on the page properly.

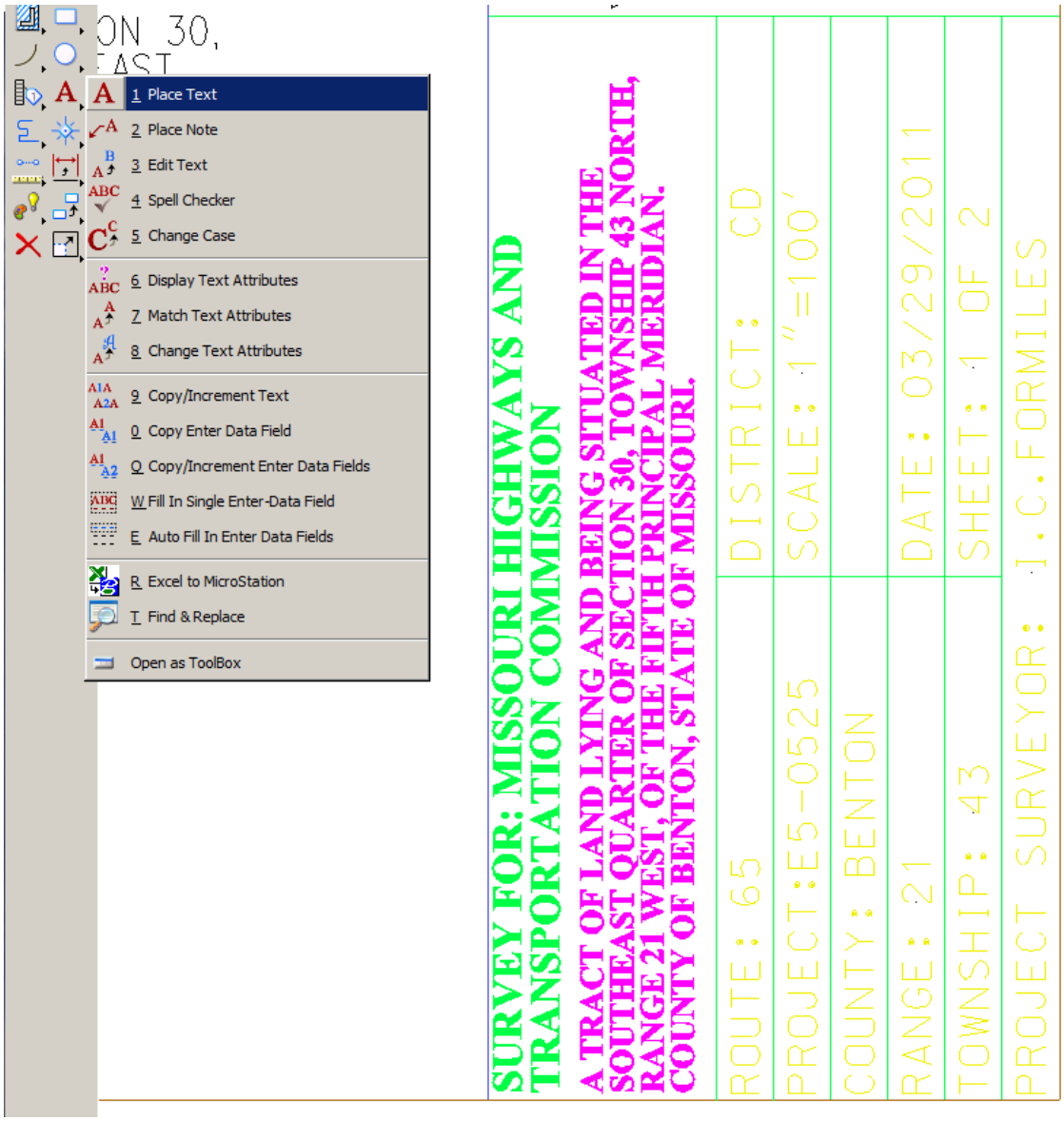


If your handles do not appear, make sure the "Disable Handles" option is not enabled on your Element Selection tool, and try it again.

8. Now we can fill out the rest of the title information. **SmartMatch** a piece of text in the title block area.

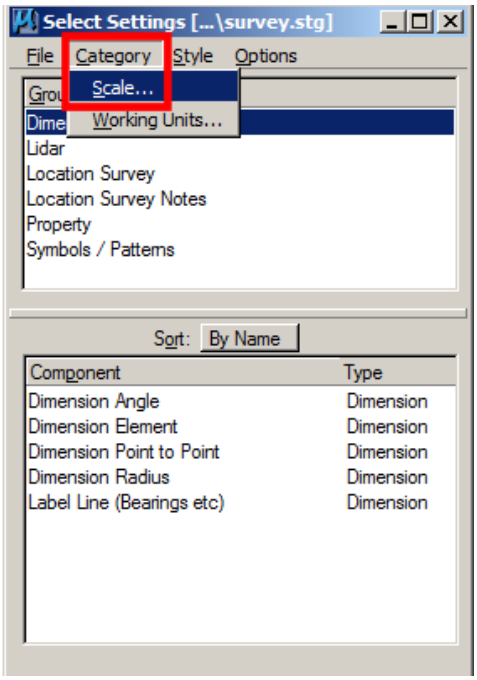


8. (cont) Use the **Place Text** tool and place the necessary text in the title block using the handles (points) provided in the title block area.

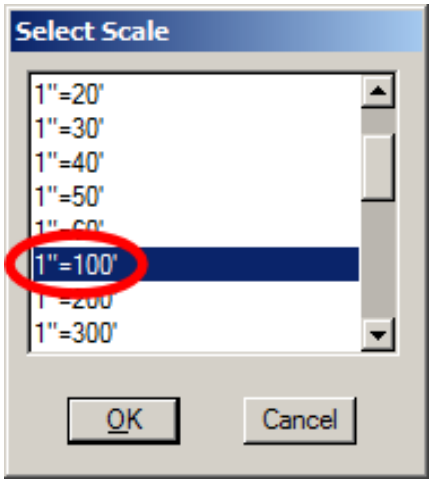


9. Use the **Edit Text** tool and edit all the text in both sheets that can be filled out. See **Appendix C** to get the data for editing the notes/text in both sheets.

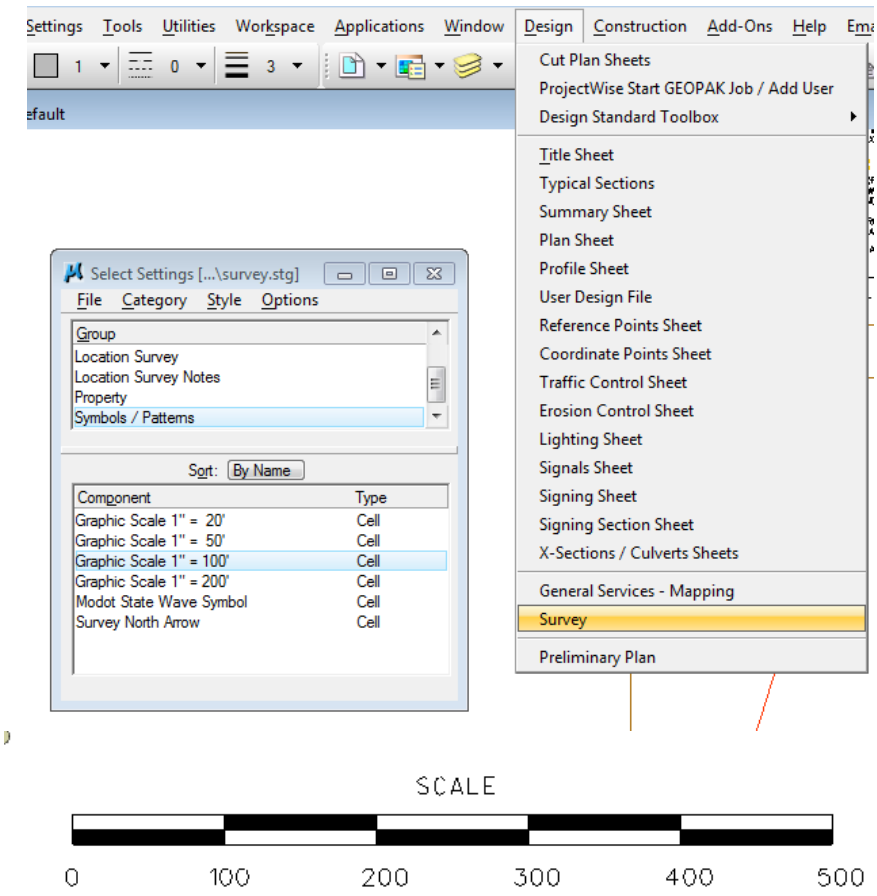
10. Attach a graphic scale to the file by going to **Design >> Survey**. The scale should already be set, but you should verify the scale by selecting "**Category >> Scale**".



The scale is based on of the scale of the border. As you may recall from step 3 in this lab, the border that was placed is **100 Scale**. Scroll down and select **1"=100'** if it is not set to that.



10. (cont) In the **Survey** settings manager, select the **Symbols / Patterns** group and then the correct graphic scale for the drawing, based once again on the border size. For this Lab, select **Graphic Scale 1" = 100'**. Place the graphic scale over top the *(Place Scale Here)* text. After the graphic scale is place, use the **Delete** tool and remove the *(Place Scale Here)* text.



Lab 2 is complete. Look over the drawing make any other necessary changes the file, such as moving text and notes around, etc, so nothing overlaps each other. Remember **NEVER MOVE** the plan geometry in the file. **Save** the file.

Lab 3- Working with Data, Labeling, Applying Correct Attributes.

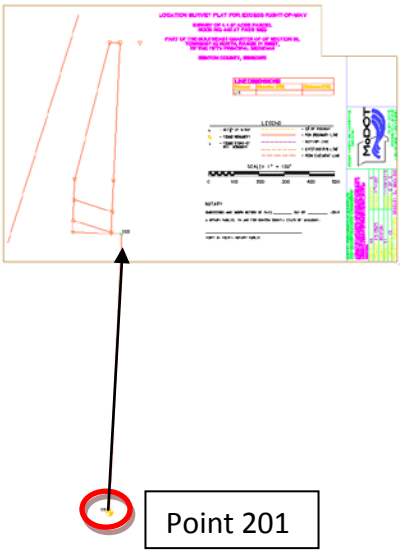
Purpose:

The purpose of this exercise is to provide the steps for reviewing your Survey Data, cleaning up the file, applying correct attributes and labeling the line work.

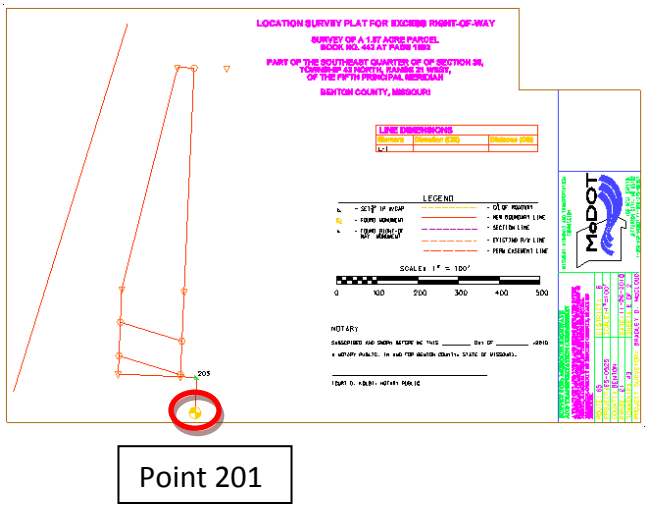
Background Information:

The Survey data and county template have been combined into 1 file. We will now clean up the data.

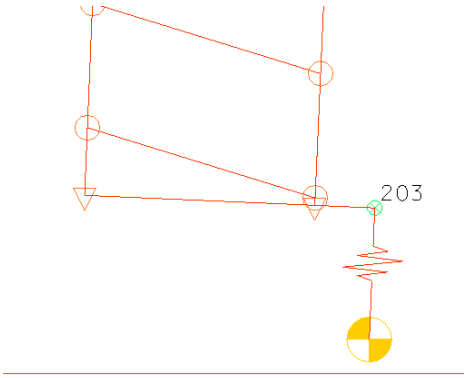
1. Working with the data.



Point 201, which marks a Found Survey Monument, is off the bottom of the sheet. This point can be moved onto the sheet as long as a break is shown, and the monument is properly noted.
-Use the break tool to break and shorten the line.
-Use the Move tool to move the monument onto the sheet.
-Delete any leftover text that is below the border.
-Use the Partial Delete tool to put a break in the line.
-Show the break with a zig-zag by using the Place Line tool
(Do not worry about the attributes of your line for now).

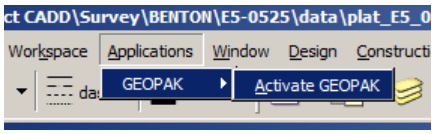


It should look something like this when you are done

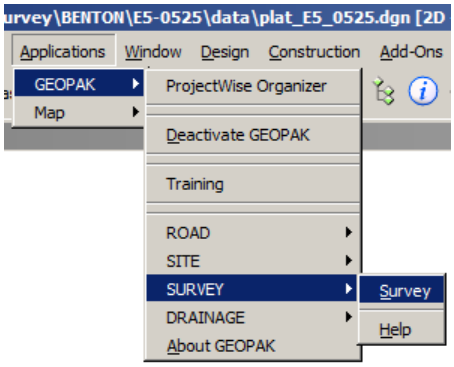


2. Activate Geopak Survey.

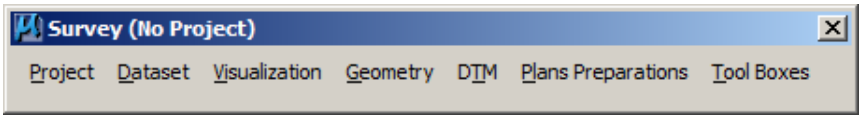
Go to the MicroStation menu bar and select **Applications >> GeoPak >>Activate GeoPak**.



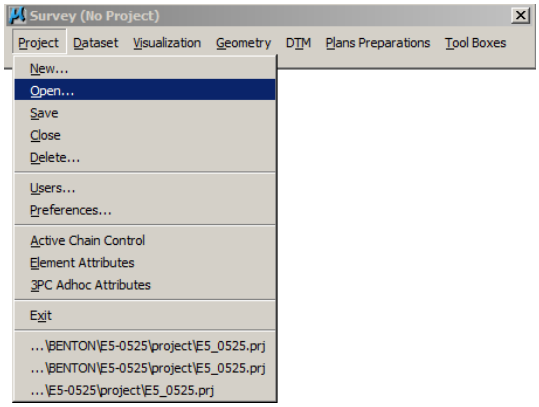
Now that GeoPak is active, select **Applications >> Geopak Survey >> Survey**.



This will bring up the Survey menu bar.

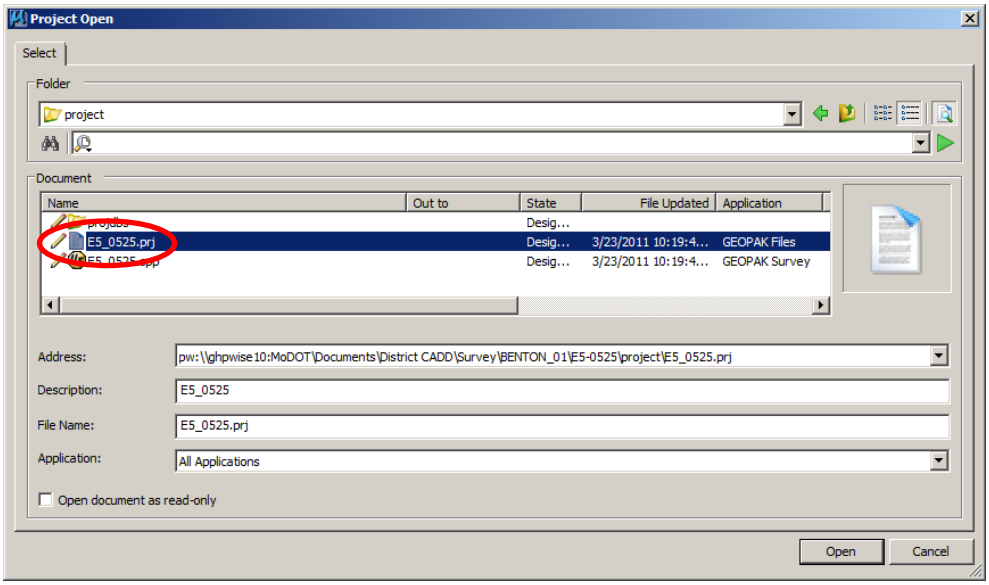


3. Opening a Project. To open a project, select **Project > Open** on the survey menu bar.



3. (cont)

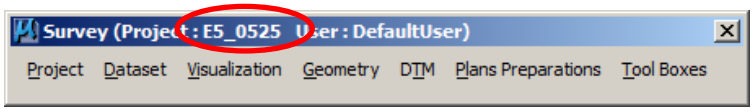
This will bring up the Project Open dialog box in ProjectWise. If it is in the wrong directory, use the drop down arrow on the right side and navigate to the Project directory.



Select the project file (E5-0525.prj in this case).

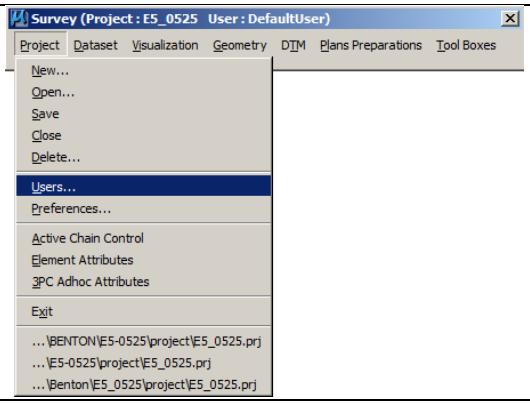
Select **Open**.

The project will show up in the banner for Geopak Survey.



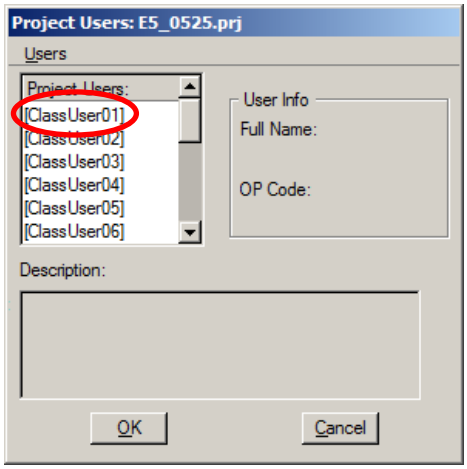
4. Adding a User

While the project showed up, there is no User defined (shows as **DefaultUser**).
Select **Project > Users**.

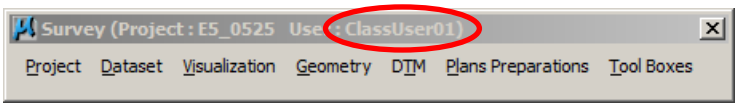


4. Adding a User (cont)

In your office, you will select your user ID. For the purpose of this class, select the "ClassUser" that corresponds with the computer you are sitting at. CaddUser1=ClassUser01, etc.



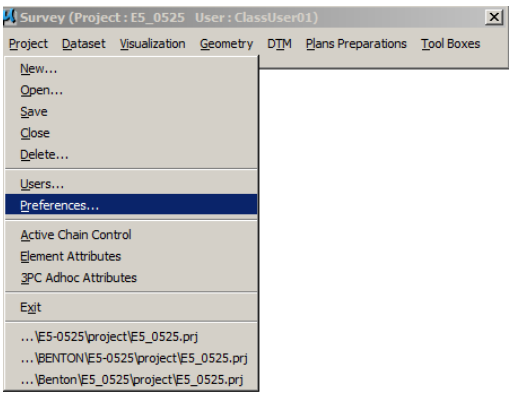
Select "**OK**".



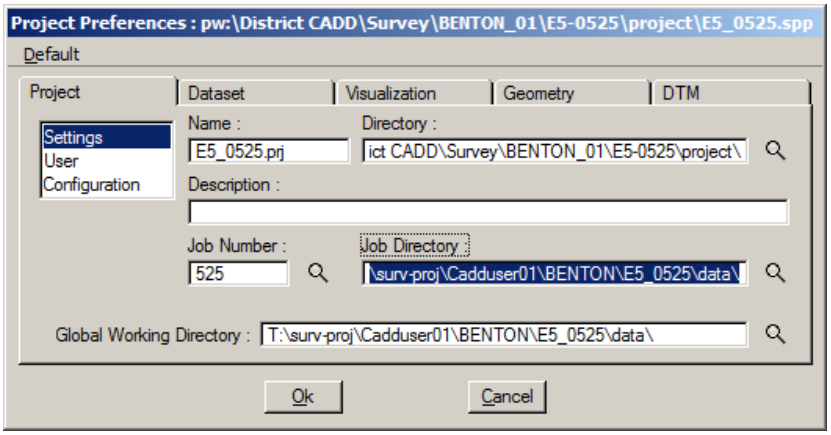
The User name will show up in the banner.

5. Project Preferences (optional)

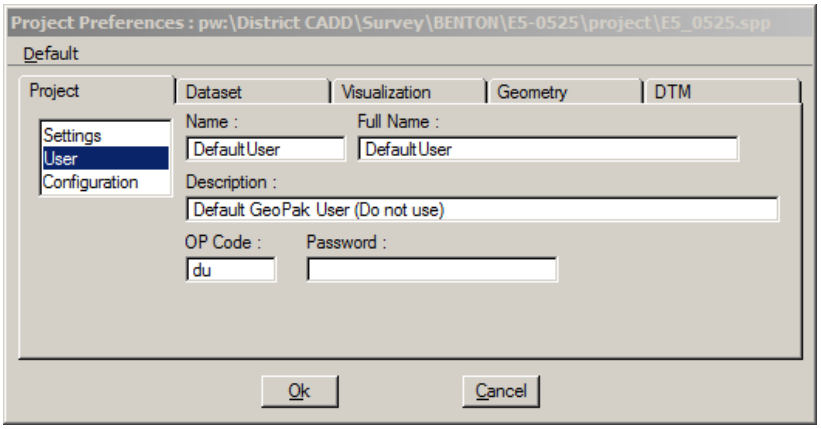
The preferences are set up when the Start Job option is used. The only time these settings need to change if a user needs to use a different gpk file then the one originally created.



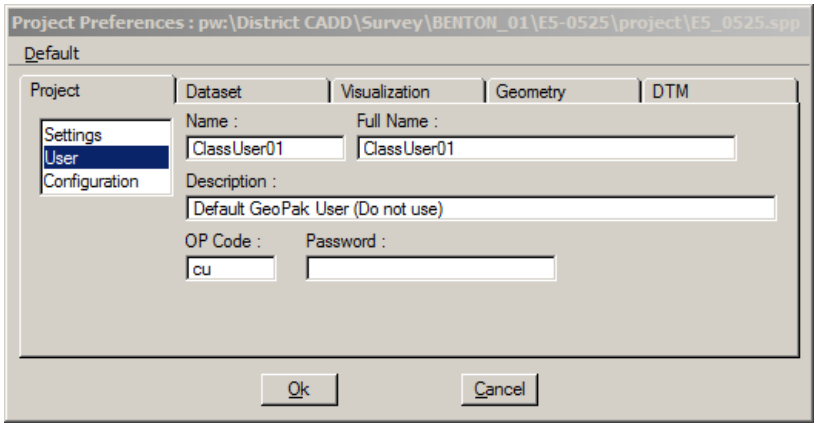
5) Project Preferences (cont)



If a change is needed, click the magnifying glass to the right of the field to be changed, navigate to the correct location, say **OK** to accept it.



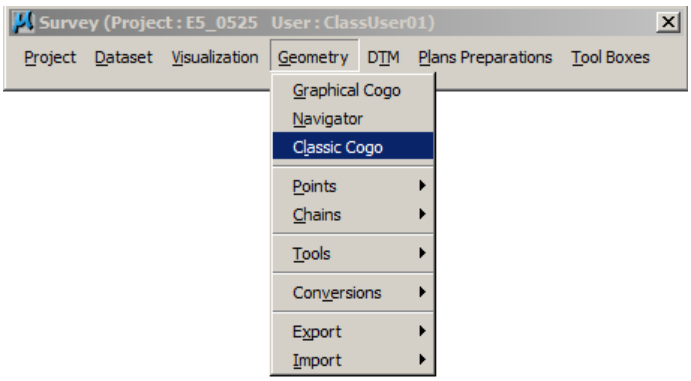
In the User area of Project Preferences, data will need to be entered manually.



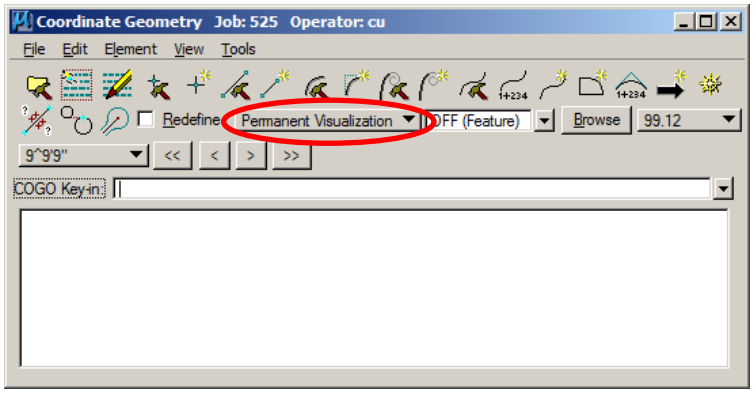
Select **OK** when done.

6) Review COGO Geometry and points.

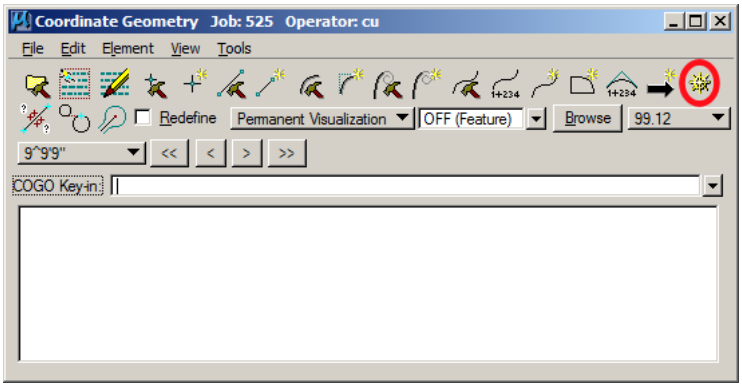
Select **Geometry >> Classic COGO**.



This will open the COGO dialog box there we can verify the points, lines, curves, chains, survey chains, or parcels have been included in the gpk file. Make sure that Visualization is set to **Permanent Visualization**.

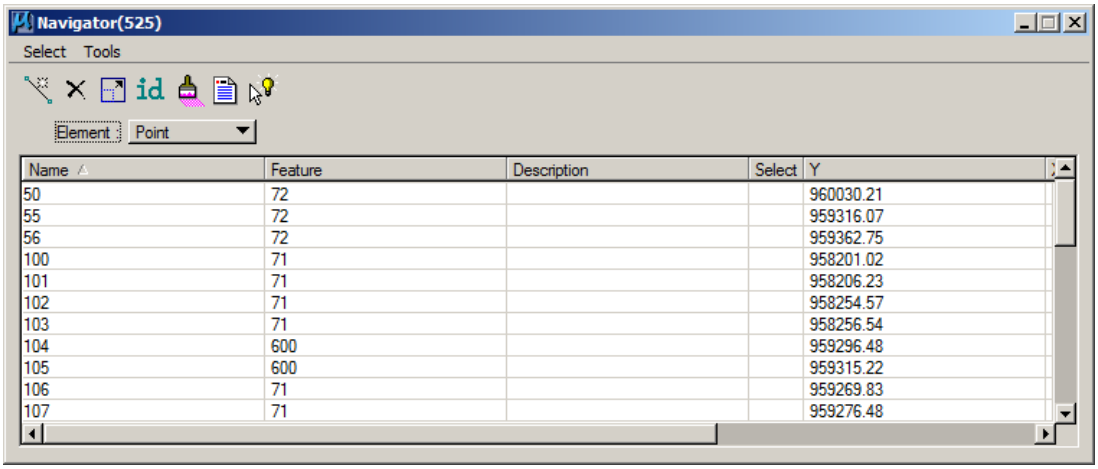


The Navigator is the icon that looks like the Captain's wheel on a ship. Depending on how your dialog box is sized, it may be in a different location than shown here.

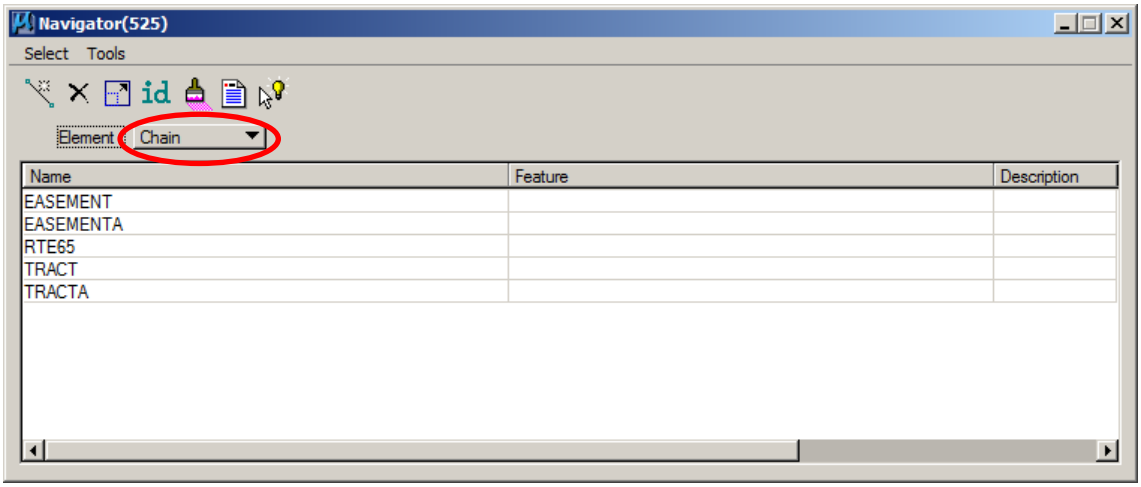


6) Review COGO Geometry and points (cont).

This will bring up the COGO Navigator.



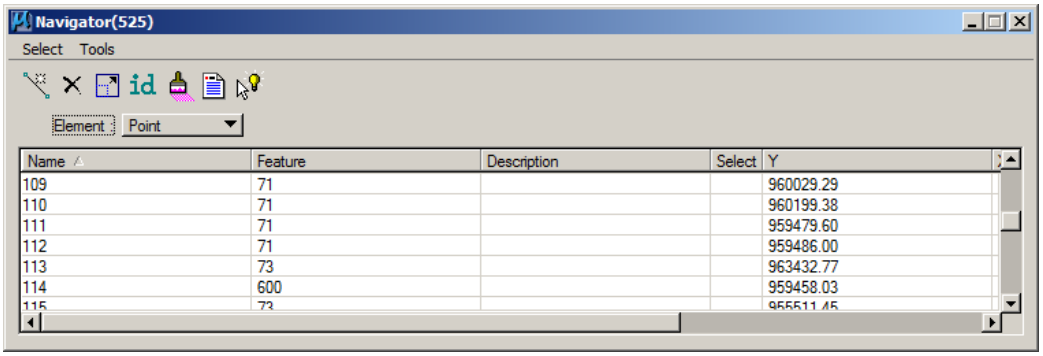
Chains can be accessed by using the drop down next to **Point** and changing it to **Chain**. If there was a parcel, you would change it to parcel.



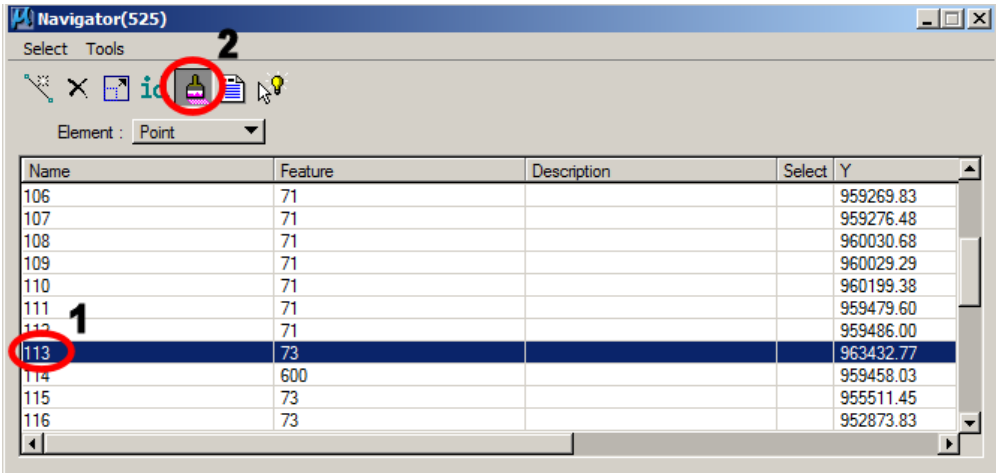
7) Visualizing a point.

If a point is missing from the plat, it can easily be visualized. Point 113, which is the North ¼ Corner is not visualized.

Set Element to **Point**, and scroll down the list to 113.



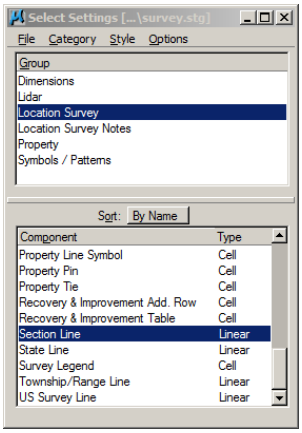
First select the point number, and then click the **Visualize Element** icon ONCE.



To locate the point, select **ID** and click on 113. You will be brought to the location of that point.

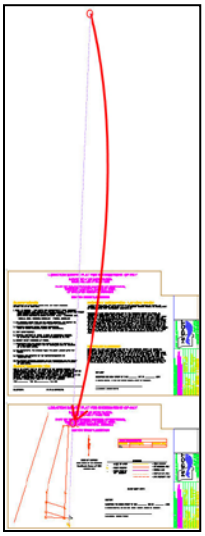
8) Cleaning up the data.

Connect the North ¼ Corner to Survey Point 203 using the correct line style (**Design >> Survey >> Location Survey >> Section Line**). This will invoke the Place SmartLine tool automatically.



Move the North ¼ Corner onto the sheet on the line. To get the Corner to fall exactly on the line, you may want to snap to the middle of the corner point while using the Move tool, then single left click the **Near Snap Point** on the Snaps toolbar.

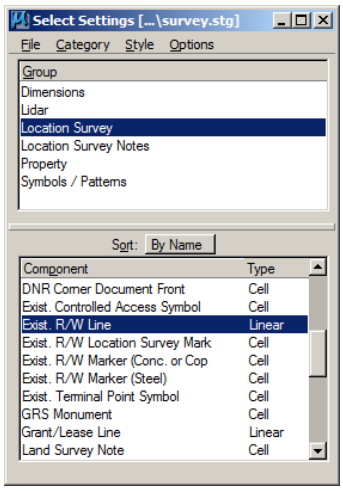
This will activate it for a single click and allow you to place the point along the Section Line. If it falls on any text, don't worry about it. This text will be moved later on.



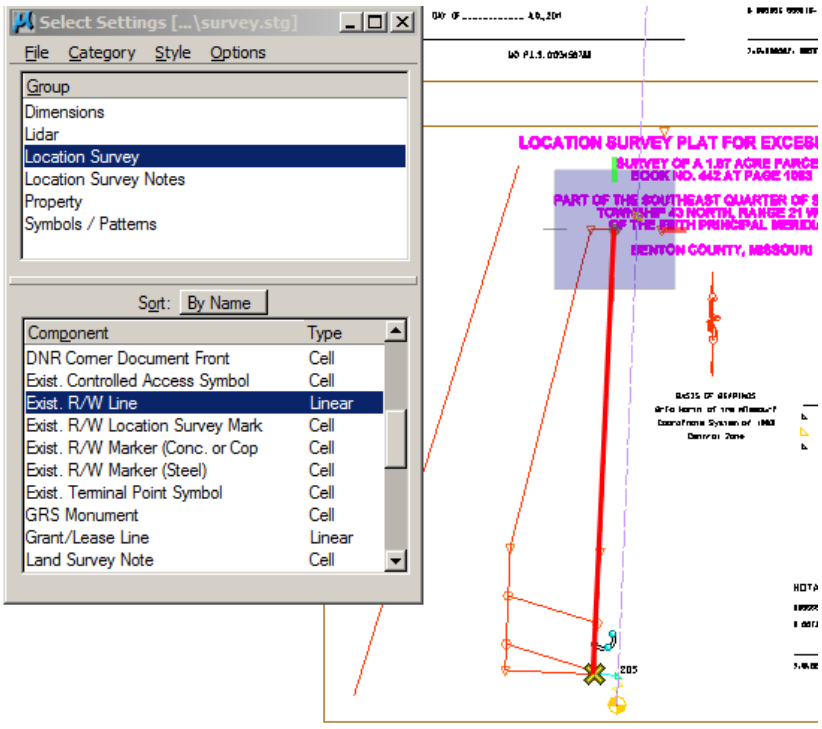
Then break the line and delete the part that goes past the Corner Point you just moved onto the sheet.

8. (cont)

The Section Line is also the C/L of the Outer Road with an 80’ R/W. To draw that R/W, set the correct line style in the Settings manager (**Design >> Survey >> Location Survey >> Existing R/W Line**),

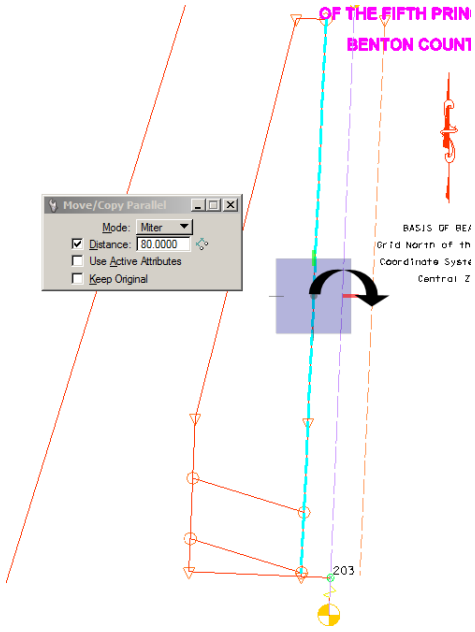


Draw the line on top of the east side of the parcel as shown below (The line style is exaggerated intentionally in this illustration).



8. (cont)

Offset it by 80’ using the Move/copy parallel tool with the settings shown below.

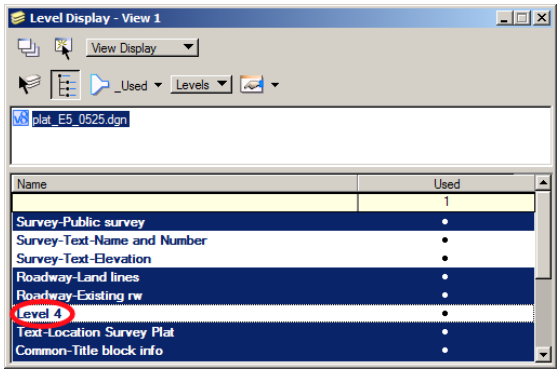


9) Working with the D&C Manager.

When the parcels and easements were first brought in through COGO, they were automatically assigned attributes, which are not to our CADD standards. This can be easily corrected through the D&C manager. You first need to turn off the level they are currently on, which is level 4.

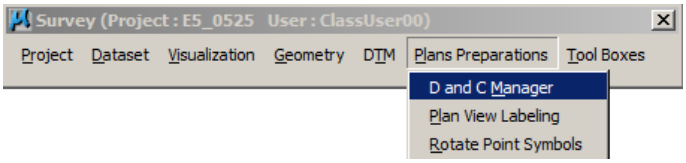
Open the Level Display dialog box.

Click on Level 4 to turn it off.

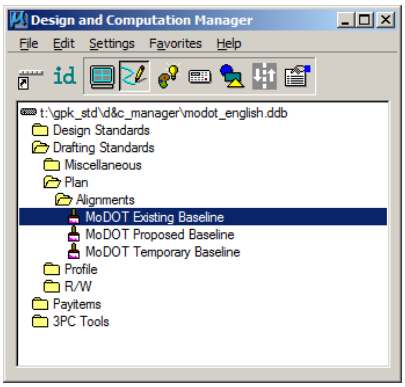


9. (cont)

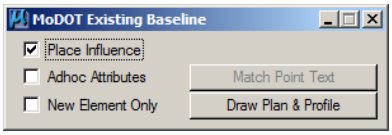
We can now place these lines through the D&C manager so they have the correct attributes, and labels. The Survey D&C Manager is used to visualize all linear data from the gpk file. It can be accessed through **Plans Preparations >> D and C Manager**.



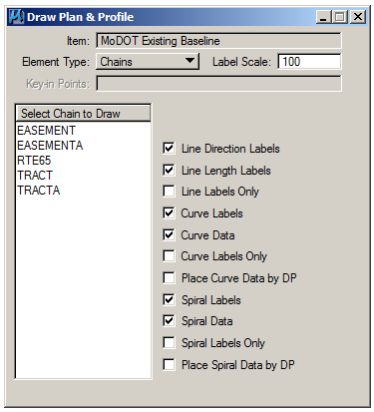
First, we will visualize and label the C/L of US-65 on the left side of the plan sheet (see Appendix C). The line style for the CL for US65 can be found under **Drafting Standards >> Plan >> Alignments >> MoDOT Existing Baseline**. Double left click it.



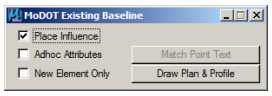
Make sure "Place Influence" is the only box checked and click **Draw Plan & Profile**.



This will bring up the "Draw Plan & Profile" box. Make sure the following check boxes are checked.



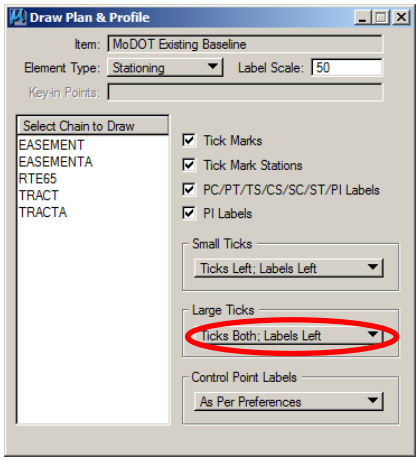
9) (cont).

Once again, check the “Place Influence” checkbox 

and select the **Rte 65** chain once (checking “Place Influence” places the text using the same attributes as the line).

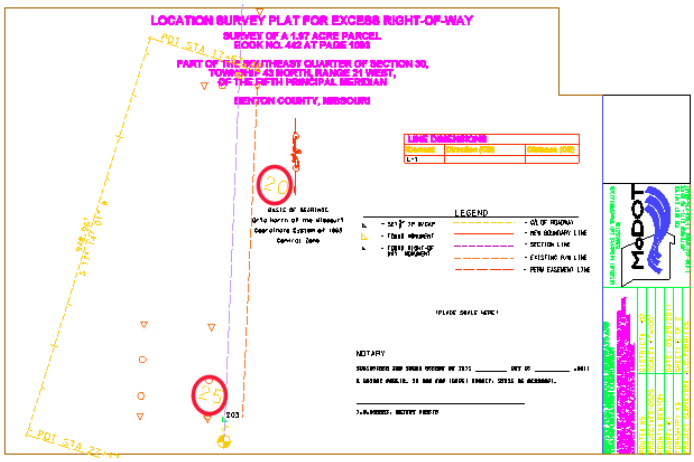
To place the tic marks, change the Element type from Chains to **Stationing**, and fill out the box as shown below.

Note: The **Large Ticks** box tends to default back to “Ticks left, Labels Left”. Make sure to change this to “**Ticks Both, Labels Left**”



Select **Rte65**, and you will see the stationing appear on the plan sheet.

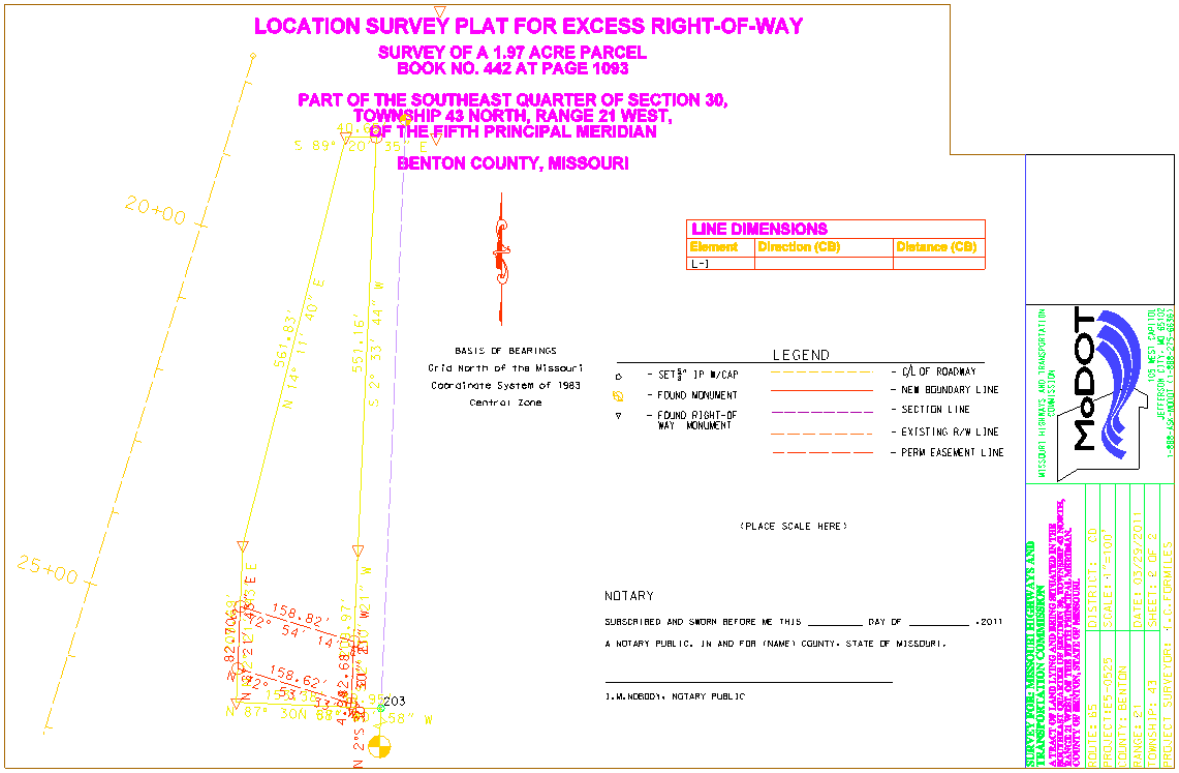
The station labels are far over on the sheet. Move the Station Labels, and edit them to look correct.



9. (cont)

Visualize the parcel and easement using the same steps we did for the US-65 Chain. Use **Drafting Standards >> Plan >> Alignments >> MoDOT Proposed Baseline** for the parcel, and **Drafting Standards >>R/W>>Parcels>>Permanent Easement** for the easement. These do not need to be stationed.

When you are done, it should look similar to this.



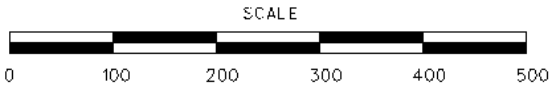
Move the Bearing and Distance Labels. You may change the text height with the Change Text Attributes tool. Do not make the height less than 10 !

See Appendix D for minimum actual text height according to the scale of your drawing.

10. Labeling.

In Lab 2, a Graphic Scale was placed in the file. Per the CSR, “A written scale shall be noted on any plat”.

SmartMatch the text in the Graphic Scale.

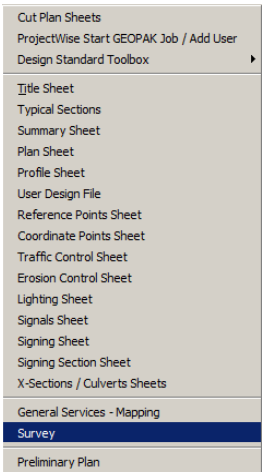


Use the Place Text tool to place **SCALE: 1”=100’** somewhere on the plan sheet.

10) (cont).

Begin placing the rest of the notes for the plat. Refer to **Appendix C** for the note contents, and **Appendix E** for the correct Attributes.

The **Design >>Survey** Settings Manager has the correct attributes for the text.



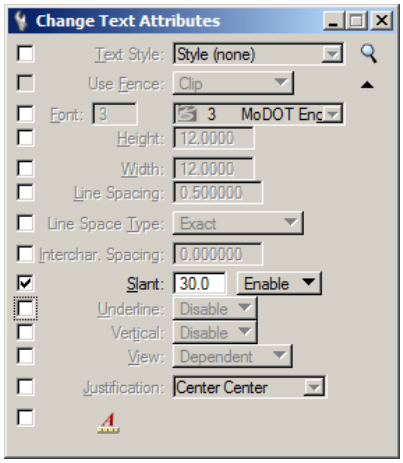
When placing these notes, keep in mind the following:

a) **Do NOT stack fractions.**
b) **Make sure all text height is 0.08" or larger on printed paper.**
c) **Easements: Slant text 30 degrees.**
d) **Section Calls: Slant and rotate text 15 degrees.**

Continue labeling the sheet using the appropriate Components for the text you are placing.

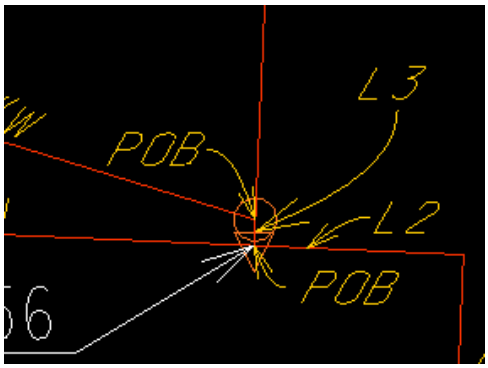
If the text is too large to fit, you can scale it down or abbreviate using L-1, L-2, etc for lines, and C-1, C-2, etc for curves. The complete text will be placed in the table on the right side of the page. Add rows to that table if necessary.

After all the labels are on the sheet, then use the **Change Text Attributes** tool to apply a slant to all Easement text and Section Calls. Only check the box next to slant. Make sure all others are unchecked.

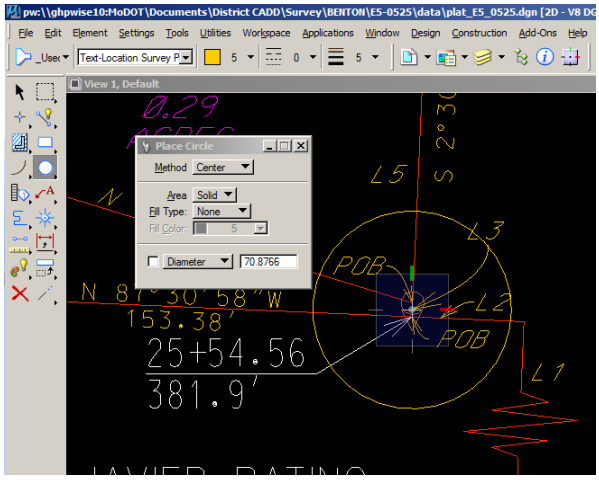


10) (cont).

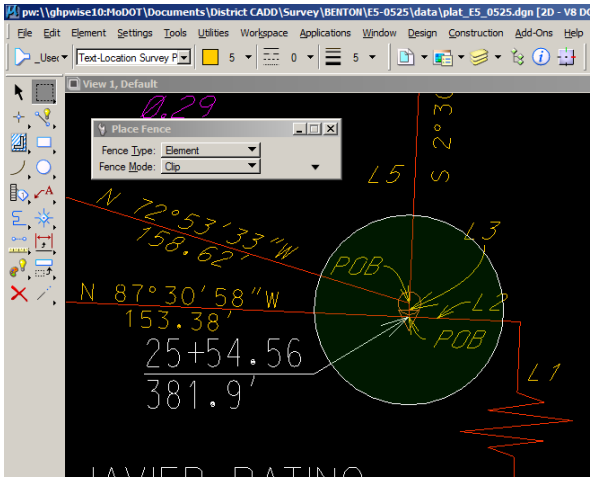
If an area of the drawing is too compact to clearly see the details, copy and scale the area up as shown in the steps below.



Place a circle around the area that you want to scale.

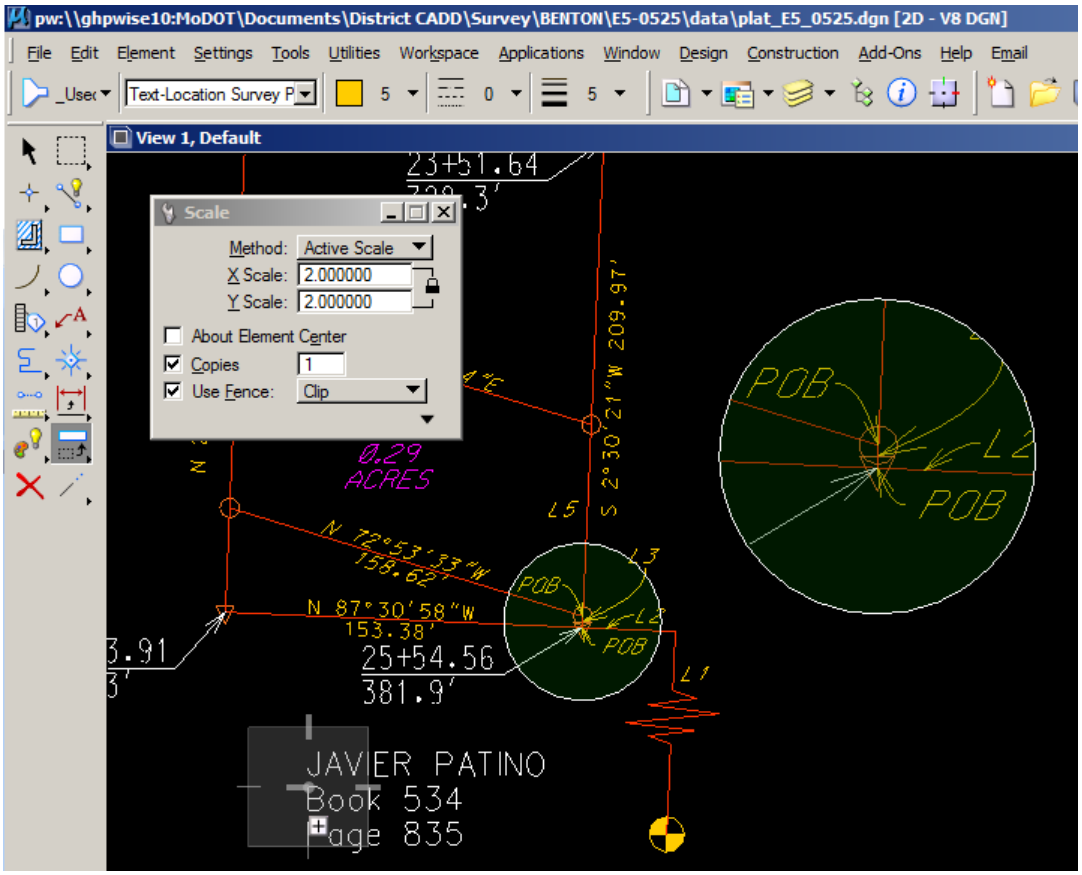


Use the Place Fence tool set to **Element** and **Clip**, and select the element (circle).



10) (cont).

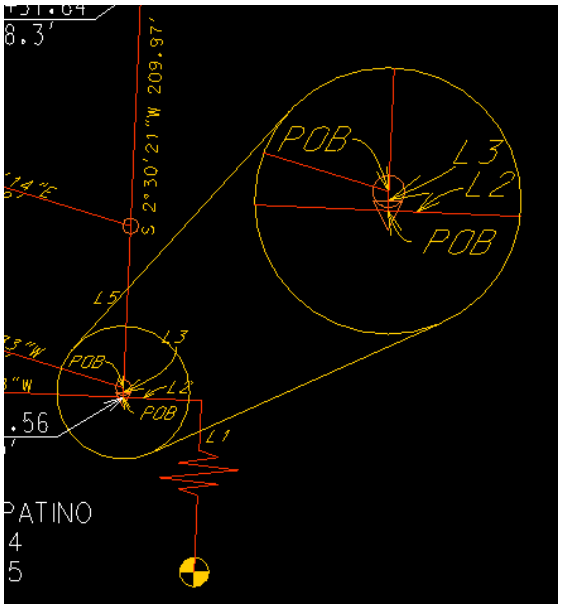
Use the **Scale** tool with the settings shown below.



After you drop the scaled area off, drop the fence by selecting the Place Fence tool again.

10) (cont).

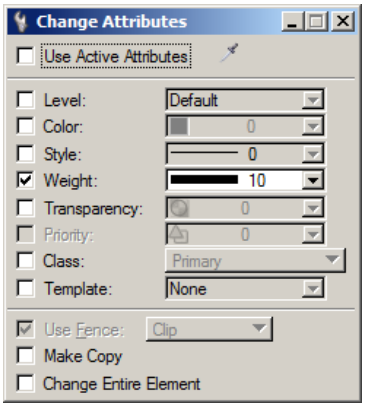
Smart match one of the circles, and use the Place Line tool to link them as shown below.



11) Adjusting Line Weight.

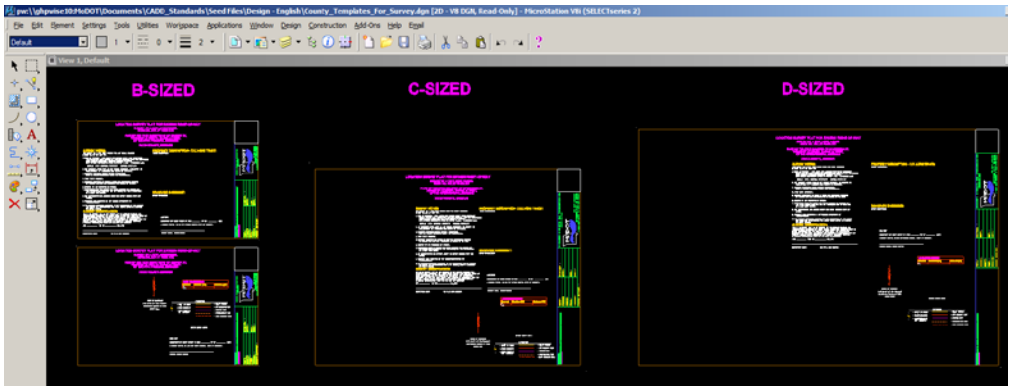
The parcel and all monuments/points associated with it need to stand out with a heavier line weight.

Increase the line weight by using the **Change Element Attributes** tool. Set it up as shown below.

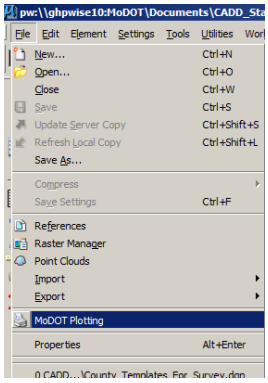


Select the Lines and Points associated with the parcel to apply the new weight to them.

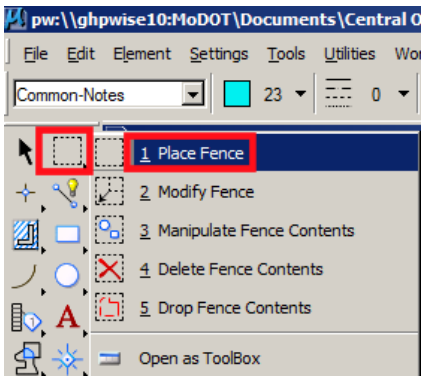
12) Plotting.



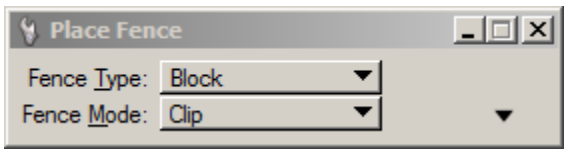
The County Template offers B, C, and D sized plots. For B and D sized, you can use the normal MoDOT plotting routine located under **File >> MoDOT Plotting**, or by using the Plot icon.



If there is no border you will need to place a fence first to define the plot area. To plot by placing a fence, select the Place Fence tool.

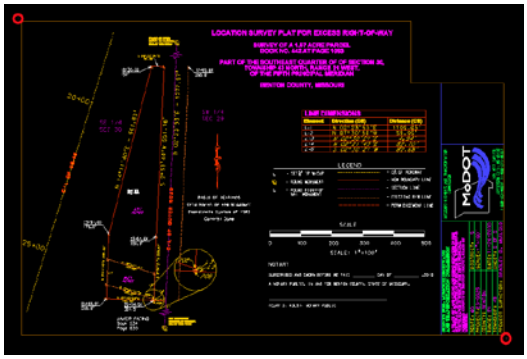


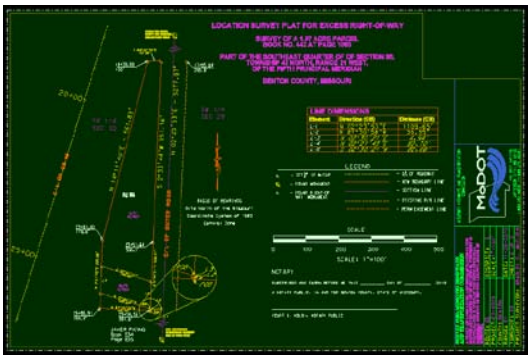
Make the Fence Mode and Type are set as shown below.



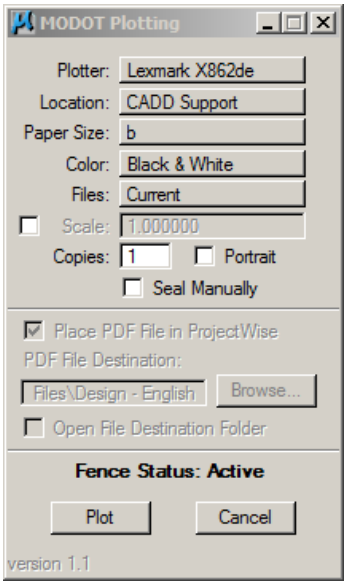
12) (cont)

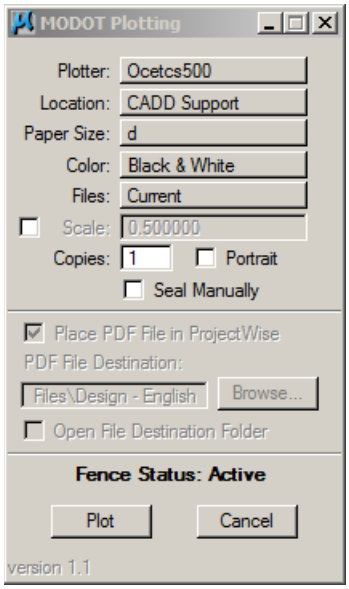
Snap on the point that is part of the plot border at the top, just over and left of the border corner. Accept it, and snap to the plot border just below and right of the bottom of the border. The area to be plotted should highlight.





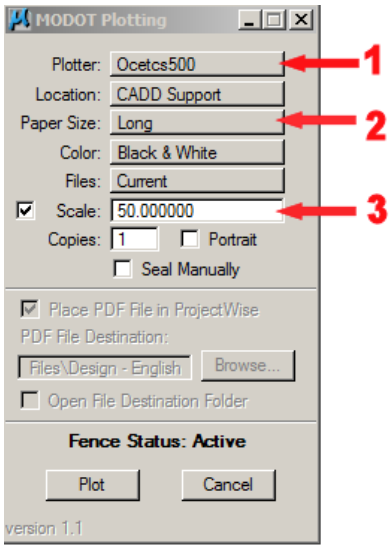
For B and D sized, you can simply choose the appropriate plotter and paper size.





12) (cont)

For C-sized plots, the routine is slightly different. Follow the example below assuming that you have already placed your fence.

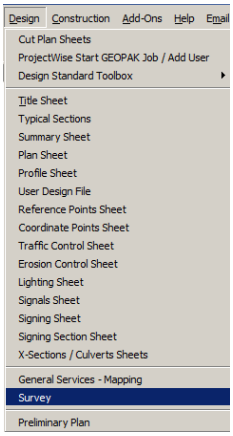


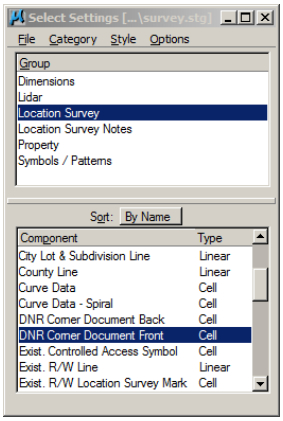
1) Choose the appropriate plotter.
2) Select the "Long" option for paper size.
3) Check the box next to "Scale", and put the scale you used when you brought in the template in Lab 2.

When you plot it, you will need to trim it down to C-sized.

13) Certified Land Corner Documents.

If you are establishing, reestablishing or restoring a land corner, you can include these documents in the same dgn file as the plat. They are found under **Design >> Survey >> Location Survey**. Scroll down and you will see DNR Corner Document Front, and Back.



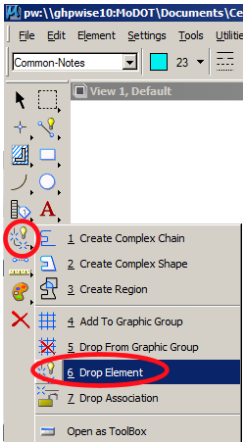


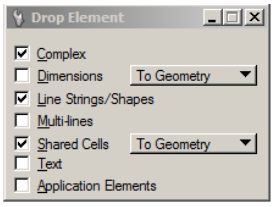
13) (cont)

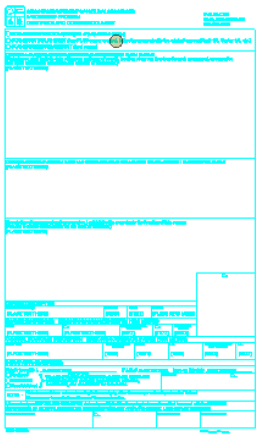
Select them and place them in the file. To work with the data, you will need to drop the cell into its individual components.

Click on the Groups tools, and select **Drop Element**.

Click once in MicroStation on the document you want to work on. Once it is dropped, you can then edit or add information.







General Requirements for Original, Resurveys, and Subdivisions

Survey Plat Requirements

1. Plats shall be made and provided indicating the results of the survey with seal and signature of surveyor in responsible charge.

2. Plat shall be drawn to a convenient scale on the type of material consistent with the purpose and permanency required. AutoCAD or Digital format plats required by client are allowed; however, a hard copy plat will be the official plat and take precedence over the digital data.

3. Name of person for whom the survey was made and date shall be noted on plat.

4. Multiple plats shall bear the seal and signature on each sheet provided to the client.

5. Lettering on plat shall be no smaller than 0.08 in height.

6. Boundary lines on plat shall be shown by direct angles, azimuths, or bearings. They shall be based on a bearing system that is retraceable and described on the plat.

7. Distances, directions, and curves shall be shown for all parcels surveyed or created.

8. A prominent north arrow shall be drawn on each sheet of the plat containing graphics.

9. Linear dimensions shall be horizontal in feet or meters at the ground's surface.
10. A written scale shall be noted on plat. Any plat 8 1/2" x 14" or larger shall also show a graphic scale.

11. Vertical dimensions shall be shown by elevations above an established or assumed datum.

12. Distances, angles, bearings, azimuths, and calculated areas will be shown on the plat to a number of significant figures representative of the actual precision of the measurements.

13. Curved lines shall show two elements of the curve; however, three is suggested including Radius, Central Angle and length of arc. When curves are not tangent to the preceding or succeeding boundary line the bearing, angle, and direction of the initial tangent, radial line, or long chord shall be shown.

14. The survey shall show sufficient data (distances and directions) to positively locate the parcel within the U.S.P.L.S.S or recorded subdivision. If the survey cannot be located

by either of these provisions, it must be referred to other lines and points established by record.

15. All controlling corner monuments, either found or set, shall be shown and described on the plat by symbol or note.

16. All controlling corners accepted or restored shall be shown or noted on the plat.

17. Accuracy class or property being surveyed shall be noted or shown on plat.

18. Any material variation between measured and record dimensions shall be noted on plat.

19. Plat shall identify title documents for ajoiners. Preference for source shall be by recording book-page.

10 CSR 30-2.030 General Land Surveying Requirements

PURPOSE: This rule describes standards that apply to all property boundary surveys.

(1) Research and Investigation.

(A) Every survey executed shall be based on the property description of the parcel or parent tract taken from the title of record. This property description should be provided by the client.

(B) Prior to making a survey the surveyor shall, insofar as necessary to define the property to be surveyed, acquire other data, such as adjoining deeds, maps, subdivision plats, original plats and original notes. This shall not be construed that the surveyor has an obligation to research the title of record.

(C) The surveyor shall compare and analyze all of the data obtained and determine the record title boundaries of such parcel or parent tract as reflected by the documents of record supplied or acquired by the surveyor.

(2) The Field Survey. The registered land surveyor or a person under his/her direct personal supervision, shall—

(A) Search for and locate controlling corners and other physical monuments that may influence or are required to define the location of the exterior corners of the parcel to be surveyed;

(B) Search for and locate other real evidence, such as, where applicable, the location of streets, roads, lines of occupation, resident witness information, etc. which relates to the survey;

(C) Evaluate the reliability of the evidence and monuments that have been found;

(D) Obtain appropriate measurements to correlate all found evidence. Measurements will be taken to a precision compatible with the size and geometric shape of the parcel involved, and consistent with the accuracy desired for the class of property on which the survey is located, and in accordance with the accuracy standards as set out in this chapter;

(E) Correlate the facts obtained by the field survey with the record boundaries of the parcel or parent tract; and

(F) Reach a conclusion on the location of record title boundaries and set monuments as required.

(3) Publication of Results. A plat shall be made showing the results of the survey and a signed and sealed copy of the plat shall be furnished to the client. This survey plat shall conform to all of the following provisions, where applicable:

(A) The plat shall be a drawing made to a convenient scale on the type of material consistent with the purpose and permanency required. If the client requests the survey plat to be provided in digital format (AutoCAD, etc.), the surveyor shall also provide a signed and sealed drawing. The drawing shall be the official plat and shall take precedence over the digital data;

(B) The plat shall show the name of the person for whom the survey was made and the date of the survey;

(C) The plat or copy of the plat furnished the client shall bear the signature and seal of the surveyor in responsible charge. Whenever more than one (1) sheet must be used to accurately portray the survey, each sheet shall bear the signature and seal of the surveyor;

(D) Lettering on the plat presented to the client or recorder shall be no smaller than eight-hundredths inch (0.08") in height. All characters shall be open, well-rounded and of uniform width;

(E) The direction of boundary lines on the plat shall be shown by direct angles between established lines or by azimuths or bearings based upon a described direction reference system. The direction reference system shall be clearly described on the plat and must be retraceable for future surveys;

(F) A north arrow shall be drawn on every sheet containing graphic survey data;

(G) Complete dimensions (distances, directions, and curve data) of all parcels surveyed and/or created shall be shown;

(H) All dimensions shall be shown in feet or meters. All plat dimensions shall be given as horizontal distances at the ground surface. A written scale shall be noted on all plats. Drawings eight and one-half inches by fourteen inches (8 1/2" × 14") or larger shall also show a graphic scale;

(I) All vertical dimensions shall be shown by elevations above an established or assumed datum and the source of the established or assumed datum shall be defined on the plat. Vertical dimensions shall be made at the same accuracy standard as property boundary surveys.

1. Type Urban Property Accuracy shall be one-tenth (0.10) of a foot or 1:20,000 for distances greater than two thousand feet (2,000') and shall apply to any property that is wholly or partly within the corporate limits of any city, town or village, and any commercial and industrial property, condominium property, town house property, apartments, and other multi-unit developments.

2. Type Suburban Property Accuracy shall be one-tenth (0.10) of a foot or 1:10,000 for distances greater than one thousand feet (1,000') and shall apply to any property that is not Urban Property, that is or is intended to be primarily used for residential purposes or property lying between residential areas whose value is influenced by the presence of such nearby developed real estate.

3. Type Rural Property Accuracy shall be two-tenths (0.20) of a foot or 1:5,000 for distances greater than one thousand feet (1,000') and shall apply to all property that is not Urban Property or Suburban Property;

(J) Measurements and calculated areas will be shown on the plat to a number of significant figures representative of the actual precision of the measurements;

(K) Curved lines shall show at least two (2) elements of the curve and preferably these three (3): radius, central angle and length of arc. When not tangent to the preceding and/or succeeding course, the bearing or angle of either the initial tangent, radial line or long chord shall be shown. Pertinent information on compound curves shall be shown;

(L) The survey shall show sufficient data (distances and directions) to positively locate the parcel surveyed within the United States Public Land Survey, or within the recorded subdivision. If the survey cannot be located by either of the previously mentioned provisions, it must be referenced to other lines and points sufficiently established by record;

(M) All controlling corners accepted or restored shall be shown or noted on the plat;

(N) All controlling corner physical monuments either found or set shall be shown and described on the plat. A note or symbol shall show which were found and which were set;

(O) Any material variation between measured and record dimensions shall be noted on the plat; and

(P) The plat shall identify title documents for adjoining properties, as they appear of record, consistent with the research and investigation provisions of these standards. The source of said title documents shall be shown, preferably by recording book and page reference of the county records.

AUTHORITY: sections 60.510(7), 60.550 and 448.2-109, RSMo 2000. Original rule filed May 3, 1994, effective Dec. 30, 1994. Amended: Filed March 20, 2003, effective Oct. 30, 2003.*

**Original authority: 60.510(7), RSMo 1969; 60.550, RSMo 1969; and 448.2-109, RSMo 1983, amended 1988.*

10 CSR 30-2.040 Accuracy Standards for Property Boundary Surveys

PURPOSE: This rule prescribes the accuracy standards for all property boundary surveys.

LOCATION SURVEY PLAT FOR EXCESS RIGHT-OF-WAY

SURVEY OF A XXXX ACRE PARCEL
BOOK NO. XXX AT PAGE XXX

PART OF THE XXXX QUARTER OF SECTION XX, TOWNSHIP XX NORTH, RANGE XX WEST, OF THE FIFTH PRINCIPAL MERIDIAN

XXXXX COUNTY, MISSOURI

SURVEY NOTES:

THIS SURVEY OF A XXXX ACRE PARCEL FROM THE TRACT RECORDED IN BOOK NO. XXX AT PAGE XXX.

1. BASIS OF BEARINGS - GRID NORTH, 1983 MISSOURI STATE PLANE COORDINATE SYSTEM, XXXXXX ZONE. DERIVED BY REAL-TIME KINEMATIC (RTK) GPS OBSERVATION USING MISSOURI GEOGRAPHIC REFERENCE CONTROL STATIONS: (GRS STATION COORDINATES SHOWN IN METERS: 1 meter = 3.28083333 feet).

   CORS_ID XXXX: NORTHING: XXXXXX.XXX EASTING: XXXXXX.XXX

2. ALL DISTANCES SHOWN HERE ON ARE GROUND DISTANCES. TO CONVERT TO GRID, MULTIPLY BY A COMBINED GRID FACTOR OF XXXXXXXXX.

3. MEASURED DIMENSIONS SHOWN WITHOUT PARENTHESES. DEED OR RECORD DIMENSIONS SHOWN WITH PARENTHESES.

4. TYPE XXXXX PROPERTY.

5. APPARENT OWNERSHIP AS SHOWN IS BASED ON INFORMATION PROVIDED BY OTHERS AND DOES NOT REPRESENT AN OPINION AS TO TITLE.

6. SUBJECT TO ALL EASEMENTS OF RECORD.

7. CONVENANTS, LIMITS OF ACCESS, AND RIGHTS RETAINED BY GRANTOR OF THE HEREIN SHOWN PROPERTY ARE NOT SHOWN, BUT MAY BE DISCLOSED BY A FULL TITLE SEARCH.

8. ALL IMPROVEMENTS AND UTILITIES ABOVE AND BELOW GROUND LEVEL NOT SHOWN.

9. PROPERTY WAS SURVEYED BY THE MISSOURI DEPARTMENT OF TRANSPORTATION.

10. THE RELATIVE POSITIONAL ACCURACY OF THE COORDINATES OF THIS SURVEY ARE WITHIN THE SPECIFICATIONS FOR XXXXX SURVEY, WHICH IS A MAXIMUM OF X.XXXX METERS.

SURVEY CERTIFICATION:

THIS IS TO CERTIFY THAT AT THE REQUEST OF THE MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION THE TRACT SHOWN HEREON WAS SURVEYED UNDER MY DIRECT SUPERVISION, AND THE RESULTS OF SAID SURVEY ARE REPRESENTED CORRECTLY ON THIS PLAT. SAID SURVEY WAS EXECUTED IN ACCORDANCE WITH THE CURRENT MISSOURI MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS.
IN WITNESS THEREOF, I HERE UNTO SET MY SEAL AND SIGNATURE

THIS _____ DAY OF_____ A.D., 2011

_____

(SURVEYORS NAME) MO P.L.S. (PLS NUMBER)

PROPERTY DESCRIPTION - XXX ACRE TRACT:

(LEGAL DESCRIPTION)

DRAINAGE EASEMENT:

(LEGAL DESCRIPTION)

NOTARY

SUBSCRIBED AND SWORN BEFORE ME THIS _____ DAY OF _____ ,2011

A NOTARY PUBLIC. IN AND FOR BENTON COUNTY, STATE OF MISSOURI.

_____

(NOTARY NAME), NOTARY PUBLIC

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

SURVEY FOR:
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
A TRACT OF LAND

ROUTE:
PROJECT:
COUNTY:
RANGE:
TOWNSHIP:
PROJECT SURVEYOR:

DISTRICT:
SCALE:
DATE:
SHEET:

LOCATION SURVEY PLAT FOR EXCESS RIGHT-OF-WAY

SURVEY OF A XXXX ACRE PARCEL
BOOK NO. XXX AT PAGE XXX

PART OF THE XXXX QUARTER OF SECTION XX, TOWNSHIP XX NORTH, RANGE XX WEST, OF THE FIFTH PRINCIPAL MERIDIAN

XXXXX COUNTY, MISSOURI

BASIS OF BEARINGS
Grid North of the Missouri
Coordinate System of 1983
XXXXX Zone

LINE DIMENSIONS		
Element	**Direction (CB)**	**Distance (CB)**
L-1		

LEGEND

- ○ - SET $\frac{5}{8}$" IP W/CAP
- ◐ - FOUND MONUMENT
- ▽ - FOUND RIGHT-OF WAY MONUMENT
- ——————— - C/L OF ROADWAY
- ——————— - NEW BOUNDARY LINE
- ——————— - SECTION LINE
- — — — — — — - EXISTING R/W LINE
- — —— —— —— —— - PERM EASEMENT LINE

(PLACE SCALE HERE)

NOTARY

SUBSCRIBED AND SWORN BEFORE ME THIS _____ DAY OF _____ ,2011

A NOTARY PUBLIC. IN AND FOR (NAME) COUNTY, STATE OF MISSOURI.

_____

(NAME), NOTARY PUBLIC

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

SURVEY FOR:
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
A TRACT OF LAND

ROUTE:		DISTRICT:	
PROJECT:		SCALE:	
COUNTY:			
RANGE:		DATE:	
TOWNSHIP:		SHEET:	
PROJECT SURVEYOR:			

LOCATION SURVEY PLAT FOR EXCESS RIGHT-OF-WAY

SURVEY OF A 1.97 ACRE PARCEL
BOOK NO. 442 AT PAGE 1093

PART OF THE SOUTHEAST QUARTER OF SECTION 30, TOWNSHIP 43 NORTH, RANGE 21 WEST, OF THE FIFTH PRINCIPAL MERIDIAN

BENTON COUNTY, MISSOURI

SURVEY NOTES:

THIS SURVEY OF A 1.97 ACRE PARCEL FROM THE TRACT RECORDED IN BOOK NO. 442 AT PAGE 1093.

1. BASIS OF BEARINGS - GRID NORTH, 1983 MISSOURI STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE. DERIVED BY REAL-TIME KINEMATIC (RTK) GPS OBSERVATION USING MISSOURI GEOGRAPHIC REFERENCE CONTROL STATIONS: (GRS STATION COORDINATES SHOWN IN METERS: 1 meter = 3.28083333 feet).

   CORS_ID MOSD: NORTHING: 317530.968 EASTING: 434658.336

2. ALL DISTANCES SHOWN HERE ON ARE GROUND DISTANCES. TO CONVERT TO GRID, MULTIPLY BY A COMBINED GRID FACTOR OF 0.9999505.

3. MEASURED DIMENSIONS SHOWN WITHOUT PARENTHESES. DEED OR RECORD DIMENSIONS SHOWN WITH PARENTHESES.

4. TYPE RURAL PROPERTY.

5. APPARENT OWNERSHIP AS SHOWN IS BASED ON INFORMATION PROVIDED BY OTHERS AND DOES NOT REPRESENT AN OPINION AS TO TITLE.

6. SUBJECT TO ALL EASEMENTS OF RECORD.

7. CONVENANTS, LIMITS OF ACCESS, AND RIGHTS RETAINED BY GRANTOR OF THE HEREIN SHOWN PROPERTY ARE NOT SHOWN, BUT MAY BE DISCLOSED BY A FULL TITLE SEARCH.

8. ALL IMPROVEMENTS AND UTILITIES ABOVE AND BELOW GROUND LEVEL NOT SHOWN.

9. PROPERTY WAS SURVEYED BY THE MISSOURI DEPARTMENT OF TRANSPORTATION.

10. THE RELATIVE POSITIONAL ACCURACY OF THE COORDINATES OF THIS SURVEY ARE WITHIN THE SPECIFICATIONS FOR RURAL SURVEY, WHICH IS A MAXIMUM OF 0.060 METERS.

SURVEY CERTIFICATION:

THIS IS TO CERTIFY THAT AT THE REQUEST OF THE MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION THE TRACT SHOWN HEREON WAS SURVEYED UNDER MY DIRECT SUPERVISION, AND THE RESULTS OF SAID SURVEY ARE REPRESENTED CORRECTLY ON THIS PLAT. SAID SURVEY WAS EXECUTED IN ACCORDANCE WITH THE CURRENT MISSOURI MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS.
IN WITNESS THEREOF, I HERE UNTO SET MY SEAL AND SIGNATURE

THIS _____ DAY OF_____ A.D., 2011

_____

I.C.FORMILES MO P.L.S. 0123456789

PROPERTY DESCRIPTION - 1.97 ACRE TRACT:

A TRACT OF LAND LYING AND BEING SITUATED IN THE SOUTHEAST QUARTER OF SECTION 30, TOWNSHIP 43 NORTH, RANGE 21 WEST, OF THE FIFTH PRINCIPAL MERIDIAN. COUNTY OF BENTON, STATE OF MISSOURI. BEING MORE PARTICULARLY DESCRIBED AS:

BEGINNING AT A SET 5/8" IRON PIN WITH CAP AT THE SOUTHEAST CORNER OF SECTION 30, TOWNSHIP 43 NORTH, RANGE 21 WEST; THENCE N 2 DEG. 23 MIN. 53 SEC. E, ALONG THE EAST SECTION LINE 1109.65 FEET; THENCE N 87 DEG. 30 MIN. 58 SEC. W, 39.95 FEET TO A FOUND MODOT R/W MARKER AT STA 25+54.56, 381.9 FEET LEFT OF THE CL OF US-65, SAID POINT BEING THE TRUE POINT OF BEGINNING; THENCE N 87 DEG. 30 MIN. 58 SEC. W, 153.38 FEET TO A FOUND MODOT R/W MARKER AT STA 25+93.91, 233.3 FEET LEFT OF THE CL OF US-65; THENCE N 02 DEG. 21 MIN. 43 SEC. E, 209.69 FEET TO FOUND MODOT R/W MARKER AT STA 23+91.0, 179.6 FEET LEFT OF CL OF US-65; THENCE N 14 DEG. 11 MIN. 40 SEC. E, 561.83 FEET TO A FOUND MODOT R/W MARKER AT STA 18+30.0, 150.0 FEET LEFT OF CL OF US-65; THENCE S 89 DEG. 20 MIN. 35 SEC. E, 40.65 FEET TO A SET 5/8" IRON PIN WITH CAP; THENCE S 02 DEG. 33 MIN. 44 SEC. W, 551.16 FEET TO A FOUND MODOT R/W MARKER AT STA 23+51.64, 328.3 FEET LEFT OF THE CL OF US-65; THENCE S 2 DEG 30 MIN 21 SEC W, 209.97 FEET TO THE POINT OF BEGINNING. CONTAINING 1.97 ACRES MORE OR LESS.

DRAINAGE EASEMENT:

COMMENCING AT A SET 5/8" IRON PIN WITH CAP AT THE SOUTHEAST CORNER OF SECTION 30, TOWNSHIP 43 NORTH, RANGE 21 WEST; THENCE N 2 DEG. 23 MIN. 53 SEC. E, ALONG THE EAST SECTION LINE 1109.65 FEET; THENCE N 87 DEG. 30 MIN. 58 SEC. W, 39.95 FEET TO A FOUND MODOT R/W MARKER AT STA 25+54.56, 281.9 FEET LEFT OF THE CL OF US-65, THENCE N 02 DEG 30 MIN 21 SEC E, 4.94 FEET TO A SET 5/8" IRON PIN WITHCAP, SAID POINT BEING THE TRUE POINT OF BEGINNING; THENCE 72 DEG 53 MIN 33 SEC W, 158.62 FEET TO A 5/8" SET IRON PIN WITH CAP; THENCE N 02 DEG 21 MIN 43 SEC E, 82.70 FEET TO A 5/8" SET IRON PIN WITH CAP; THENCE S 72 DEG 54 MIN 14 SEC E, 158.82 FEET TO A 5/8" SET IRON PIN WITH CAP; THENCE S 02 DEG 30 MIN 21 SEC W, 82.68 FEET TO THE POINT OF BEGINNING CONTAINING 0.29 ACRES MORE OR LESS.

NOTARY

SUBSCRIBED AND SWORN BEFORE ME THIS _____ DAY OF _____ ,2011

A NOTARY PUBLIC. IN AND FOR BENTON COUNTY, STATE OF MISSOURI.

_____

I.M.NOBODY, NOTARY PUBLIC

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

SURVEY FOR: MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

A TRACT OF LAND LYING AND BEING SITUATED IN THE SOUTHEAST QUARTER OF SECTION 30, TOWNSHIP 43 NORTH, RANGE 21 WEST, OF THE FIFTH PRINCIPAL MERIDIAN. COUNTY OF BENTON COUNTY, STATE OF MISSOURI.

ROUTE: 65	DISTRICT: CD
PROJECT:E5-0525	SCALE:1"=100'
COUNTY: BENTON	
RANGE: 21	DATE:3-24-2011
TOWNSHIP: 43	SHEET: 1 OF 2
PROJECT SURVEYOR: I.C.FORMILES	

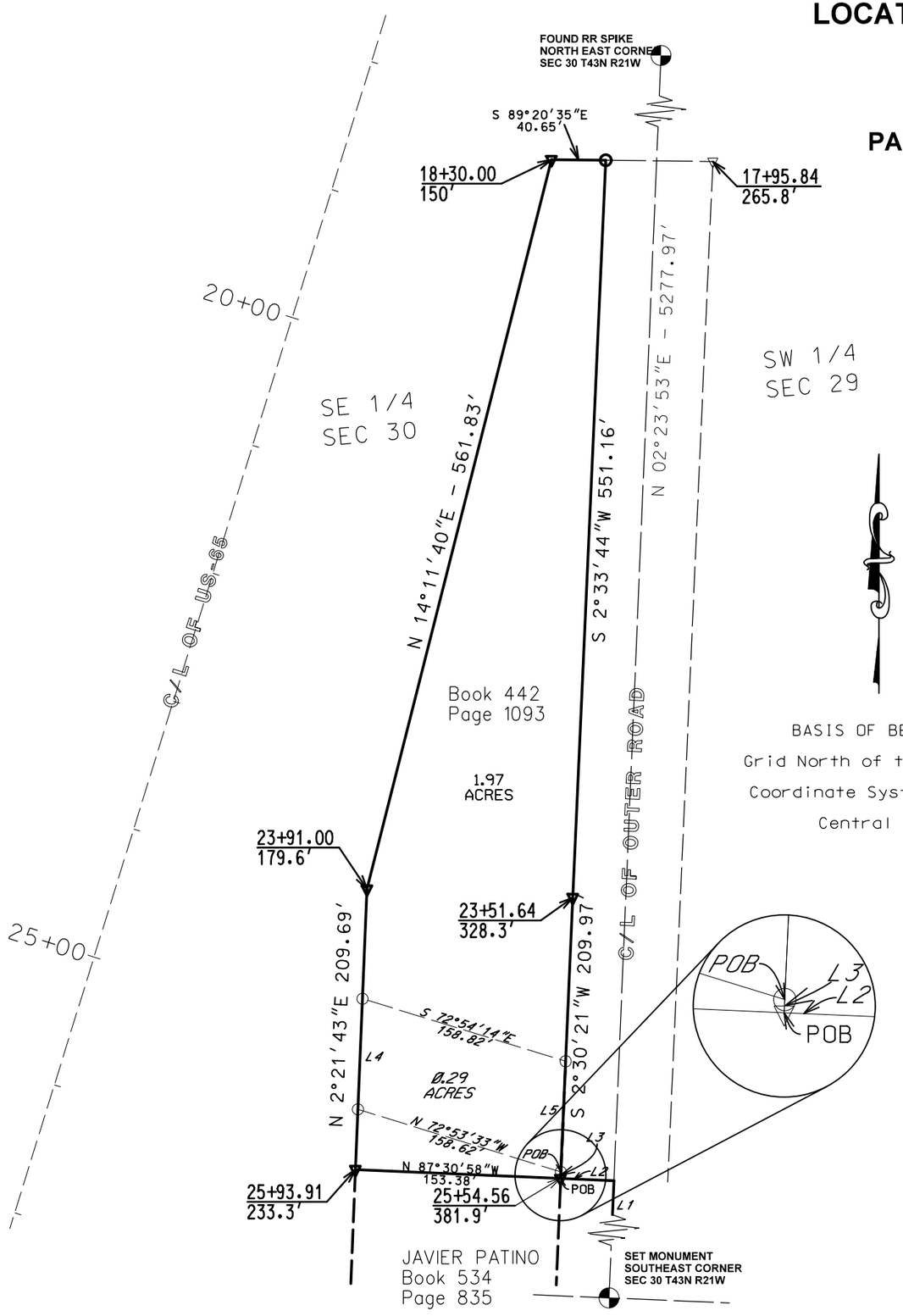
APPENDIX C

LOCATION SURVEY PLAT FOR EXCESS RIGHT-OF-WAY

SURVEY OF A 1.97 ACRE PARCEL
BOOK NO. 442 AT PAGE 1093

PART OF THE SOUTHEAST QUARTER OF SECTION 30, TOWNSHIP 43 NORTH, RANGE 21 WEST, OF THE FIFTH PRINCIPAL MERIDIAN

BENTON COUNTY, MISSOURI



BASIS OF BEARINGS
Grid North of the Missouri
Coordinate System of 1983
Central Zone

LINE DIMENSIONS		
Element	**Direction (CB)**	**Distance (CB)**
L-1	N 02°23'53"E	1109.65'
L-2	N 87°30'58"W	39.95'
L-3	N 02°30'21"E	4.94'
L-4	N 02°21'43"E	82.70'
L-5	S 02°30'21"W	82.68'

LEGEND

- ○ - SET 5/8" IP W/CAP
- ◓ - FOUND MONUMENT
- ▽ - FOUND RIGHT-OF WAY MONUMENT
- ——————— - C/L OF ROADWAY
- ——————— - NEW BOUNDARY LINE
- — — — — — — — — — - SECTION LINE
- — — — — — — — - EXISTING R/W LINE
- — — — — — — — - PERM EASEMENT LINE

SCALE

0 100 200 300 400 500

SCALE: 1"=100'

NOTARY

SUBSCRIBED AND SWORN BEFORE ME THIS _____ DAY OF _____ ,2011

A NOTARY PUBLIC. IN AND FOR BENTON COUNTY, STATE OF MISSOURI.

_____

I.M.NOBODY, NOTARY PUBLIC

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

SURVEY FOR: MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

A TRACT OF LAND LYING AND BEING SITUATED IN THE SOUTHEAST QUARTER OF OF SECTION 30, TOWNSHIP 43 NORTH, RANGE 21 WEST, OF THE FIFTH PRINCIPAL MERIDIAN. COUNTY OF BENTON COUNTY, STATE OF MISSOURI.

ROUTE: 65	DISTRICT: CD	COUNTY: BENTON	
PROJECT: E5-0525	SCALE: 1"=100'	RANGE: 21	DATE: 3-24-2011
		TOWNSHIP: 43	SHEET: 2 OF 2
		PROJECT SURVEYOR: I.C.FORMILES	

APPENDIX D

Plotting Scales for Sheet Sizes				Minimum Text Height
SCALE	(B) 11" X 17"	(C) 18" X 24"	(D) 24" X 36"	
1"=1'	N/A	N/A	N/A	0.08
1" = 20'	175' x 200'	200' x 400'	300' x 600'	1.6
1" = 50'	400' x 500'	500' x 1000'	900' x 1600'	4
1" = 100'	900' x 1000'	3400' x 6000'	1700' x 3000'	8
1" = 200'	1800' x 2000'	4600' x 8000'	3500' x 6000'	16
1" = 300'	2500' x 3000'	6000' x 10000'	5000' x 9000'	24
1" = 400'	3400' x 4000'	7000' x 12000'	7000' x 13000'	32
1" = 500'	4200' x 5000'	8000' x 14000'	9000' x 16000'	40
1" = 600'	5000' x 6000'	9000' x 16000'	10000' x 19000'	48
1" = 800'	7000' x 8000'	10000' x 20000'	13000' x 26000'	64

APPENDIX E
Text Attributes Guide Key

Survey >> Location Survey Notes	
1	Basis of bearings - Assumed
1	Basis of Bearings - Central
1	Basis of Bearings - East
1	Basis of Bearings - Independent
1	Basis of Bearings - West
	Filed for Record
2	Survey Certification
3	Survey Notes
4	Text Acres
5	Text Bearing (Informational)
6	Text Bearing (Parcel)
7	Text CL Name
	Text CL Station Calls
8	Text Found Sta/Offset
9	Text Found Sta/On parcel
	Text General Note
10	Text LSP Description
11	Text Land Corner Description
	Text Landpin or Corner
12	Text Location Survey Plat
	Text Parcel Text
	Text Sec 1/4 & 1/4 1/4 (above)
	Text Section Line (above elem)
13	Text Section, Township, Range
	Text Subdivision Name & Lot No.
	Text Survey Grant/Lease Line
14	Text Survey Note
15	Text Survey Note Header
16	Text Table Label
17	Text Table Text
	Text Table Text Call
18	Text Title Block Description
19	Text Title Block Header
20	Text Title Block Text

Survey >> Location Survey	
21	1/4 Line
22	Exist. R/W Line

D&C Manager >> Drafting Stds >> Plan >> Alignments	
23	MoDOT Existing Baseline
24	MoDOT Proposed Baseline

D&C Manager >> Drafting Stds >> R/W >> Parcels	
25	Permanent Easements

APPENDIX E

(12) LOCATION SURVEY PLAT FOR EXCESS RIGHT-OF-WAY

SURVEY OF A 1.97 ACRE PARCEL
BOOK NO. 442 AT PAGE 1093

PART OF THE SOUTHEAST QUARTER OF SECTION 30,
TOWNSHIP 43 NORTH, RANGE 21 WEST,
(10) OF THE FIFTH PRINCIPAL MERIDIAN

BENTON COUNTY, MISSOURI

(3) SURVEY NOTES:

THIS SURVEY OF A 1.97 ACRE PARCEL FROM THE TRACT RECORDED IN BOOK NO. 442 AT PAGE 1093.

1. BASIS OF BEARINGS - GRID NORTH, 1983 MISSOURI STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE. DERIVED BY REAL-TIME KINEMATIC (RTK) GPS OBSERVATION USING MISSOURI GEOGRAPHIC REFERENCE CONTROL STATIONS:
   (GRS STATION COORDINATES SHOWN IN METERS: 1 meter = 3.28083333 feet).

   CORS_ID MOSD: NORTHING: 317530.968 EASTING: 434658.336

2. ALL DISTANCES SHOWN HERE ON ARE GROUND DISTANCES. TO CONVERT TO GRID, MULTIPLY BY A COMBINED GRID FACTOR OF 0.9999505.

3. MEASURED DIMENSIONS SHOWN WITHOUT PARENTHESES.
   DEED OR RECORD DIMENSIONS SHOWN WITH PARENTHESES.

4. TYPE RURAL PROPERTY.

5. APPARENT OWNERSHIP AS SHOWN IS BASED ON INFORMATION PROVIDED BY OTHERS AND DOES NOT REPRESENT AN OPINION AS TO TITLE.

6. SUBJECT TO ALL EASEMENTS OF RECORD.

7. CONVENANTS, LIMITS OF ACCESS, AND RIGHTS RETAINED BY GRANTOR OF THE HEREIN SHOWN PROPERTY ARE NOT SHOWN, BUT MAY BE DISCLOSED BY A FULL TITLE SEARCH.

8. ALL IMPROVEMENTS AND UTILITIES ABOVE AND BELOW GROUND LEVEL NOT SHOWN.

9. PROPERTY WAS SURVEYED BY THE MISSOURI DEPARTMENT OF TRANSPORTATION.

10. THE RELATIVE POSITIONAL ACCURACY OF THE COORDINATES OF THIS SURVEY ARE WITHIN THE SPECIFICATIONS FOR XXXXX SURVEY, WHICH IS A MAXIMUM OF 0.60 METERS.

(2) SURVEY CERTIFICATION:

THIS IS TO CERTIFY THAT AT THE REQUEST OF THE MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION THE TRACT SHOWN HEREON WAS SURVEYED UNDER MY DIRECT SUPERVISION, AND THE RESULTS OF SAID SURVEY ARE REPRESENTED CORRECTLY ON THIS PLAT. SAID SURVEY WAS EXECUTED IN ACCORDANCE WITH THE CURRENT MISSOURI MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS.
IN WITNESS THEREOF, I HERE UNTO SET MY SEAL AND SIGNATURE

THIS _____ DAY OF_____ A.D., 2011

_____

I.C.FORMILES MO P.L.S. 0123456789

PROPERTY DESCRIPTION - 1.97 ACRE TRACT: (15)

A TRACT OF LAND LYING AND BEING SITUATED IN THE SOUTHEAST QUARTER OF SECTION 30, TOWNSHIP 43 NORTH, RANGE 21 WEST, OF THE FIFTH PRINCIPAL MERIDIAN. COUNTY OF BENTON, STATE OF MISSOURI. BEING MORE PARTICULARLY DESCRIBED AS:

BEGINNING AT A SET 5/8" IRON PIN WITH CAP AT THE SOUTHEAST CORNER OF SECTION 30, TOWNSHIP 43 NORTH, RANGE 21 WEST; THENCE N 2 DEG. 23 MIN. 53 SEC. E, ALONG THE EAST SECTION LINE 1109.65 FEET; THENCE N 87 DEG. 30 MIN. 58 SEC. W, 39.95 FEET TO A FOUND MODOT R/W MARKER AT STA 25+54.56, 381.9 FEET LEFT OF THE CL OF US-65, (14) SAID POINT BEING THE TRUE POINT OF BEGINNING; THENCE N 87 DEG. 30 MIN. 58 SEC. W, 153.38 FEET TO A FOUND MODOT R/W MARKER AT STA 25+93.91, 233.3 FEET LEFT OF THE CL OF US-65; THENCE N 02 DEG. 21 MIN. 43 SEC. E, 209.69 FEET TO FOUND MODOT R/W MARKER AT STA 23+91.0, 179.6 FEET LEFT OF CL OF US-65; THENCE N 14 DEG. 11 MIN. 40 SEC. E, 561.83 FEET TO A FOUND MODOT R/W MARKER AT STA 18+30.0, 150.0 FEET LEFT OF CL OF US-65; THENCE S 89 DEG. 20 MIN. 35 SEC. E, 40.65 FEET TO A SET 5/8" IRON PIN WITH CAP; THENCE S 02 DEG. 33 MIN. 44 SEC. W, 551.16 FEET TO A FOUND MODOT R/W MARKER AT STA 23+51.64, 328.3 FEET LEFT OF THE CL OF US-65; THENCE S 2 DEG 30 MIN 21 SEC W, 209.97 FEET TO THE POINT OF BEGINNING. CONTAINING 1.97 ACRES MORE OR LESS.

DRAINAGE EASEMENT: (15)

COMMENCING AT A SET 5/8" IRON PIN WITH CAP AT THE SOUTHEAST CORNER OF SECTION 30, TOWNSHIP 43 NORTH, RANGE 21 WEST; THENCE N 2 DEG. 23 MIN. 53 SEC. E, ALONG THE EAST SECTION LINE 1109.65 FEET; THENCE N 87 DEG. 30 MIN. 58 SEC. W, 39.95 FEET TO A FOUND MODOT R/W MARKER AT STA 25+54.56, 281.9 FEET LEFT OF THE CL OF US-65, (14) THENCE N 02 DEG 30 MIN 21 SEC E, 4.94 FEET TO A SET 5/8" IRON PIN WITHCAP, SAID POINT BEING THE TRUE POINT OF BEGINNING; THENCE 72 DEG 53 MIN 33 SEC W, 158.62 FEET TO A 5/8" SET IRON PIN WITH CAP; THENCE N 02 DEG 21 MIN 43 SEC E, 82.70 FEET TO A 5/8" SET IRON PIN WITH CAP; THENCE S 72 DEG 54 MIN 14 SEC E, 158.82 FEET TO A 5/8" SET IRON PIN WITH CAP; THENCE S 02 DEG 30 MIN 21 SEC W, 82.68 FEET TO THE POINT OF BEGINNING CONTAINING 0.29 ACRES MORE OR LESS.

NOTARY

SUBSCRIBED AND SWORN BEFORE ME THIS _____ DAY OF _____ ,2011

A NOTARY PUBLIC. IN AND FOR BENTON COUNTY, STATE OF MISSOURI.

_____

I.M.NOBODY, NOTARY PUBLIC

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

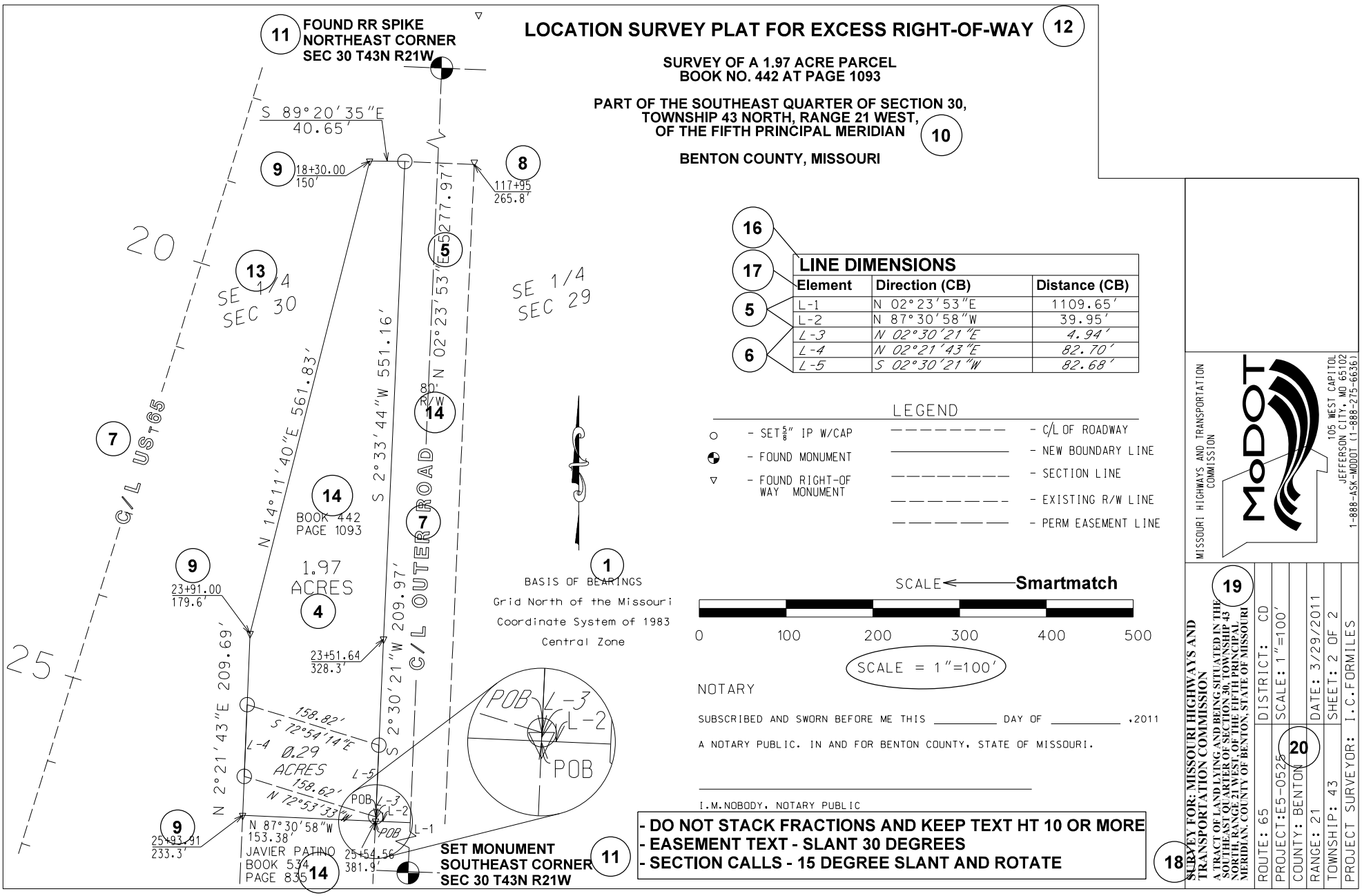
(19)

SURVEY FOR: MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
A TRACT OF LAND LYING AND BEING SITUATED IN THE SOUTHEAST QUARTER OF SECTION 30, TOWNSHIP 43 NORTH, RANGE 21 WEST, OF THE FIFTH PRINCIPAL MERIDIAN, COUNTY OF BENTON, STATE OF MISSOURI

ROUTE: 65	DISTRICT: CD
PROJECT:E5-0525	SCALE: 1"=100'
COUNTY: BENTON (20)	
RANGE: 21	DATE: 3/29/2011
TOWNSHIP: 43	SHEET: 1 OF 2
PROJECT SURVEYOR: I.C.FORMILES	

(18)

APPENDIX E


FOUND RR SPIKE
NORTHEAST CORNER
SEC 30 T43N R21W
LOCATION SURVEY PLAT FOR EXCESS RIGHT-OF-WAY
SURVEY OF A 1.97 ACRE PARCEL
BOOK NO. 442 AT PAGE 1093
PART OF THE SOUTHEAST QUARTER OF SECTION 30,
TOWNSHIP 43 NORTH, RANGE 21 WEST,
OF THE FIFTH PRINCIPAL MERIDIAN
BENTON COUNTY, MISSOURI
S 89°20'35"E
40.65'
18+30.00
150'
117+95
265.8'
277.97'
S 02°23'53"E
N 02°23'53"E
1109.65'
SE 1/4
SEC 30
SE 1/4
SEC 29
C/L US65
N 14°11'40"E 561.83'
S 2°33'44"W 551.16'
C/L OUTER ROAD
R/W
BOOK 442
PAGE 1093
1.97
ACRES
23+91.00
179.6'
23+51.64
328.3'
N 2°21'43"E 209.69'
S 2°30'21"W 209.97'
158.82'
S 72°54'14"E
L-4
Ø.29
ACRES
158.62'
N 72°53'33"W
L-5
POB
L-3
L-2
L-1
N 87°30'58"W
153.38'
JAVIER PATINO
BOOK 534
PAGE 835
25+93.91
233.3'
25+54.56
381.9'
SET MONUMENT
SOUTHEAST CORNER
SEC 30 T43N R21W
BASIS OF BEARINGS
Grid North of the Missouri
Coordinate System of 1983
Central Zone
LINE DIMENSIONS
Element | Direction (CB) | Distance (CB)
L-1 | N 02°23'53"E | 1109.65'
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LEGEND
- SET 5/8" IP W/CAP
- FOUND MONUMENT
- FOUND RIGHT-OF WAY MONUMENT
- C/L OF ROADWAY
- NEW BOUNDARY LINE
- SECTION LINE
- EXISTING R/W LINE
- PERM EASEMENT LINE
SCALE
Smartmatch
0 100 200 300 400 500
SCALE = 1"=100'
NOTARY
SUBSCRIBED AND SWORN BEFORE ME THIS _____ DAY OF _____ ,2011
A NOTARY PUBLIC. IN AND FOR BENTON COUNTY, STATE OF MISSOURI.
I.M.NOBODY, NOTARY PUBLIC
- DO NOT STACK FRACTIONS AND KEEP TEXT HT 10 OR MORE
- EASEMENT TEXT - SLANT 30 DEGREES
- SECTION CALLS - 15 DEGREE SLANT AND ROTATE
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
MoDOT
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
SURVEY FOR: MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
A TRACT OF LAND LYING AND BEING SITUATED IN THE SOUTHEAST QUARTER OF SECTION 30, TOWNSHIP 43 NORTH, RANGE 21 WEST, OF THE FIFTH PRINCIPAL MERIDIAN, COUNTY OF BENTON, STATE OF MISSOURI
ROUTE: 65
DISTRICT: CD
PROJECT: E5-0525
SCALE: 1"=100'
COUNTY: BENTON
DATE: 3/29/2011
RANGE: 21
SHEET: 2 OF 2
TOWNSHIP: 43
PROJECT SURVEYOR: I.C.FORMILES