Florida Department of Transportation
605 Suwannee Street
Tallahassee, FL 32399-0450

C3D SURVEY DELIVERABELS

SHEET SET MANAGER

CIVIL 3D STYLES

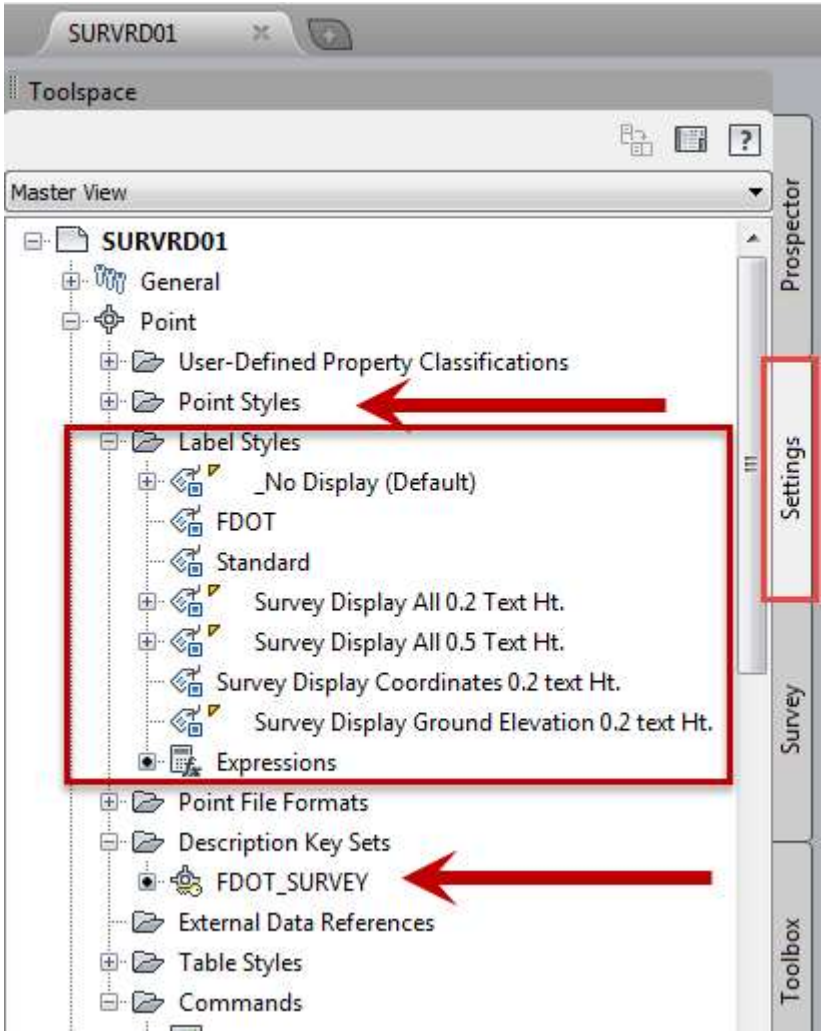
VISUALIZATION

SHEET SET MANAGER

CIVIL 3D STYLES

- Styles are an integral part of Civil 3D and can even replace the need for layers
- FDOT uses a number of styles throughout the design process
- Surveying and Mapping uses styles for visualization of point objects, surfaces, alignments and labels
- Styles are embedded in the template and therefore are drawing specific, but can be moved from drawing to drawing.
- Styles can be edited, usually in Toolspace>Settings tab

CIVIL 3D LABEL STYLES



- Point Label Styles that begin with the word “survey” will not change size with the drawing scale
- All other label styles will change size based on the drawing scale

CIVIL 3D POINT & LABEL STYLES

- Civil 3D uses point objects. Like surfaces and alignments, point objects have built in intelligence.
- When point objects are inserted into a drawing from the survey database, they are visualized based on the associated point and label style.
- Point and label styles are associated with point objects based on the “CreatePoints” Command (see point settings) and the Description Key Set.
  - ✓ NOTE: Description key point and label style settings take precedent over the Point Group display settings in the Toolspace>Prospector tab.

CIVIL 3D POINT & LABEL STYLES

- In previous releases of the FDOT Civil 3D state kit, all points were set to visualize all labels.
- In FDOT2018.C3D the survey point label styles are designed to stack and to visualize only specific labels.
  - ✓ Default Points and Ground Shots (GND) will only show the point position and elevation
  - ✓ Most Point features will only show the point feature and comment/description field
  - ✓ Chain points that use chain features (ie. Leica Smart Works) are set to elevation only or No_Display

CIVIL 3D POINT & LABEL STYLES

DescKey Editor

Code	Style	Point Label Style	Format	Layer
AC	_Marker	Elevation - 0.2	$+	PointLocator_ep
AGV	_No Display (Default)	_No Display (Default)	$+	PointLocator_ep
ANT	ANT	Description - 0.5	$+	Tower_ep
AP	_Marker	Elevation - 0.2	$+	PointLocator_ep
APRS	_Marker	Elevation - 0.2	$+	PointLocator_ep
ARST	_Marker	Elevation - 0.2	$+	PointLocator_ep
AT	AT	Description - 0.5	$+	Monument_ep
ATTN	_No Display (Default)	_No Display (Default)	$+	PointLocator_ep
BARW	_No Display (Default)	_No Display (Default)	$+	PointLocator_ep
BAS	_Marker	Elevation - 0.2	$+	PointLocator_ep
BCATV	_No Display (Default)	_No Display (Default)	$+	PointLocator_ep
BCATVB	QLB	_No Display (Default)	$+	PointLocator_ep
BCATVC	QLC	_No Display (Default)	$+	PointLocator_ep
BCATVD	QLD	_No Display (Default)	$+	PointLocator_ep
BGV	_No Display (Default)	_No Display (Default)	$+	PointLocator_ep
BL	BL	_No Display (Default)	$+	BLSurveySymbl_ep
BLC	NL	Survey Display All 0.5 Text Ht.	$+	PointLocator_ep
BLDG	_Marker	Elevation - 0.2	$+	PointLocator_ep
BN	BN	Description - 0.5	$+	Beacons_ep
BNCH	BNCH	Description - 0.5	$+	BusStop_ep
BNK	GND	Survey Display Ground Elevation 0.2 text Ht.	$+	PointLocator_ep
BOL	BOL	Description - 0.5	$+	Bollard_ep

CIVIL 3D POINT & LABEL STYLES

- Survey point and label styles for design surveys will be found in the SURVRD template
- Point styles control how the points will be visualized.
  - ✓ FDOT existing point features have been set to an idealized size based on and relative to the size of travel lanes. Once placed in a drawing file, they will remain static in size and will not change with the drawing scale.
  - ✓ Some point styles will change size with the drawing scale for annotation scale purposes.

CIVIL 3D POINT & LABEL STYLES

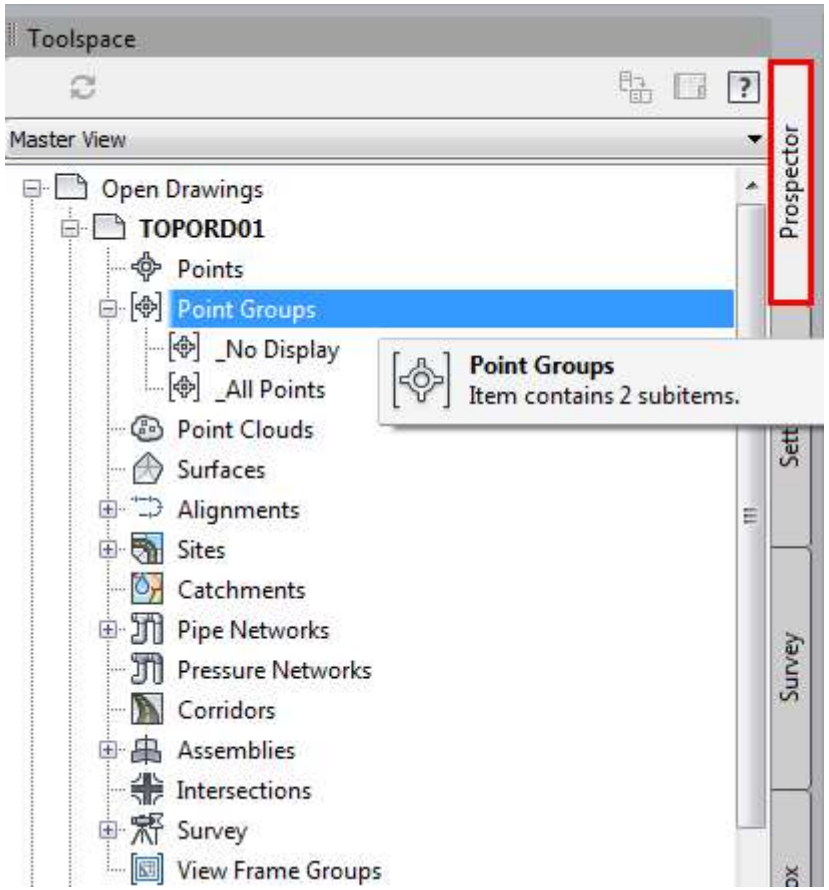
- Label Styles control how the point object labels will be displayed.
  - ✓ FDOT has provided a number of Label Styles for the surveyor to use in developing deliverables.
  - ✓ Label Styles that end in 0.2 will stay static at 0.2 feet in height and are unaffected by the drawing scale.
  - ✓ Label Styles that end in 0.5 will stay static at 0.5 feet in height and are unaffected by the drawing scale.
- The label style associated with point objects inserted in the drawing can be changed individually in the Properties box or globally in the Prospector under Point Groups.

CIVIL 3D POINT GROUPS

- Toolspace > Prospector tab > Point Groups
  - ✓ Survey templates have two preset point groups
    - _No Display – turns off all point and label styles
    - _All Points – turns on all point and label styles
  - ✓ Civil 3D displays Point Groups based on a hierarchy order of the point groups.
    - The top group has precedent over the lower groups
    - For example if _No Display is at the top then all groups lower in the list will not display
    - EXCEPTION: Description Key settings take precedent over Point Groups hierarchy unless point and label “Overrides” are selected

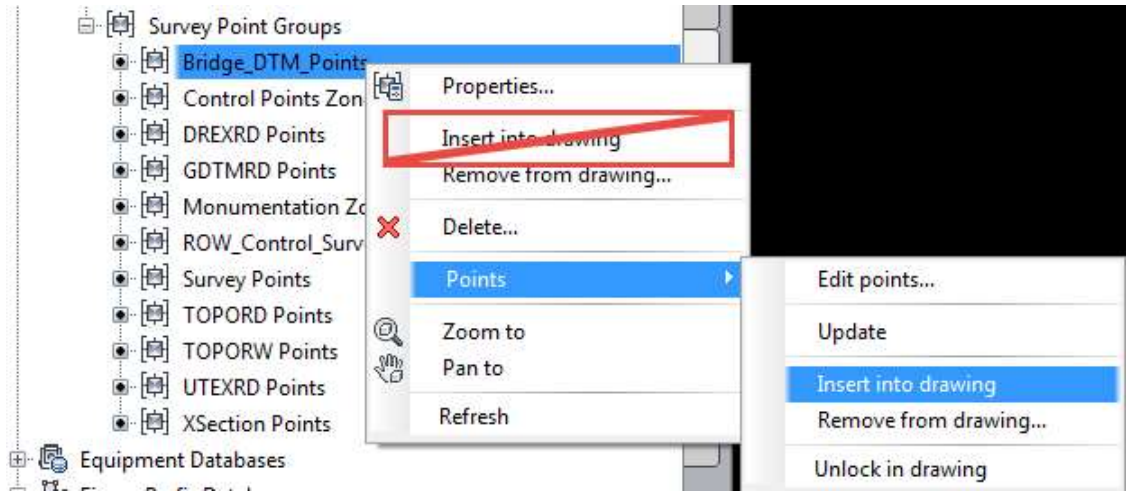
CIVIL 3D POINT GROUPS

- When points from the survey database are inserted into a drawing they will show up in the Prospector under Point Groups.



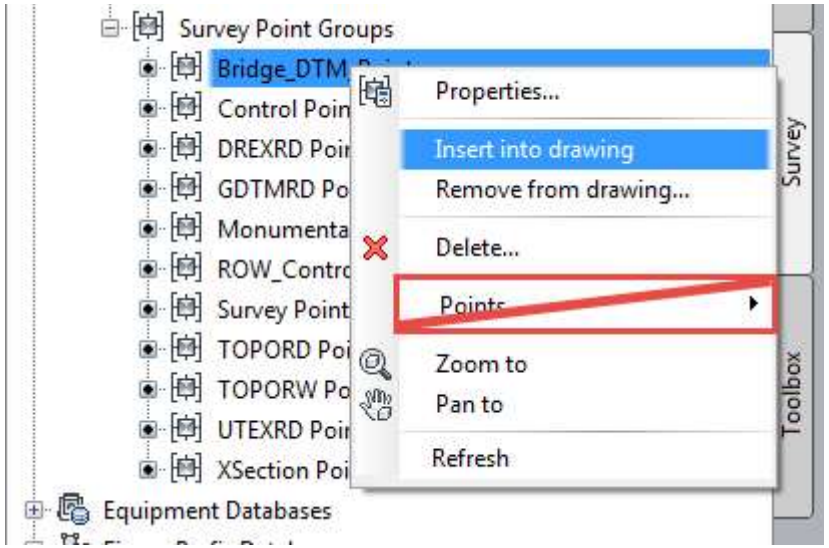
CIVIL 3D POINT GROUPS

- To insert points into a drawing from the survey database, right click on “Survey Points” or a “Survey Point Group”.
  - ✓ To insert points into the _All Points group
    - Hover over “Points” and select from the options “Insert into drawing”. This will always insert the points into the “_All Points” group even if it is done from a survey database point group.



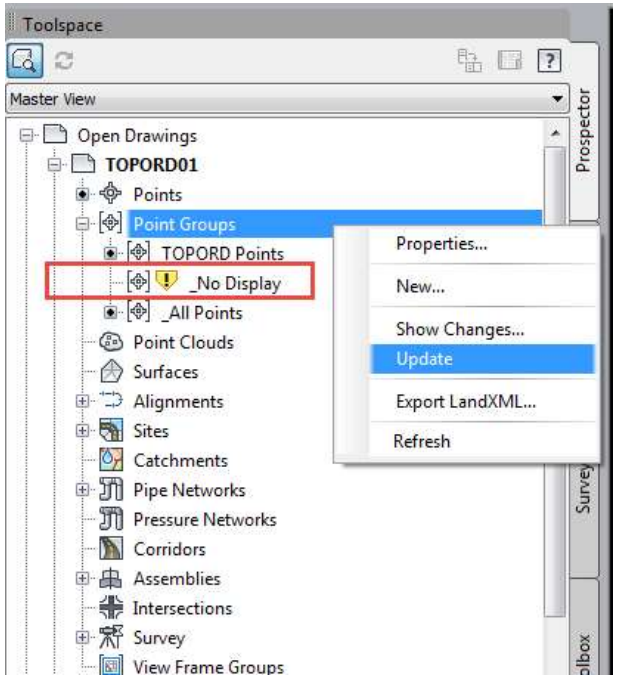
CIVIL 3D POINT GROUPS

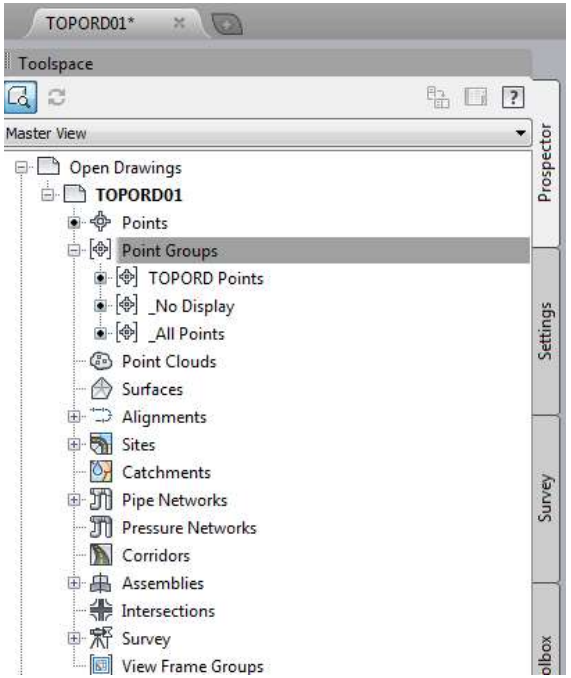
- To insert points into a drawing from the survey database, right click on “Survey Points” or a “Survey Point Group”.
  - ✓ To insert points into its own point group
    - Do not hover over “Points”. Instead, click on the “Insert into drawing” directly below “Properties…”



CIVIL 3D POINT GROUPS

- Once the points have been inserted into the active drawing, navigate to the Toolspace>Prospector and view the point groups. Right click on point groups and “Update”. This will update any affected groups that did not update with the insertion like the “_No Display” group below.

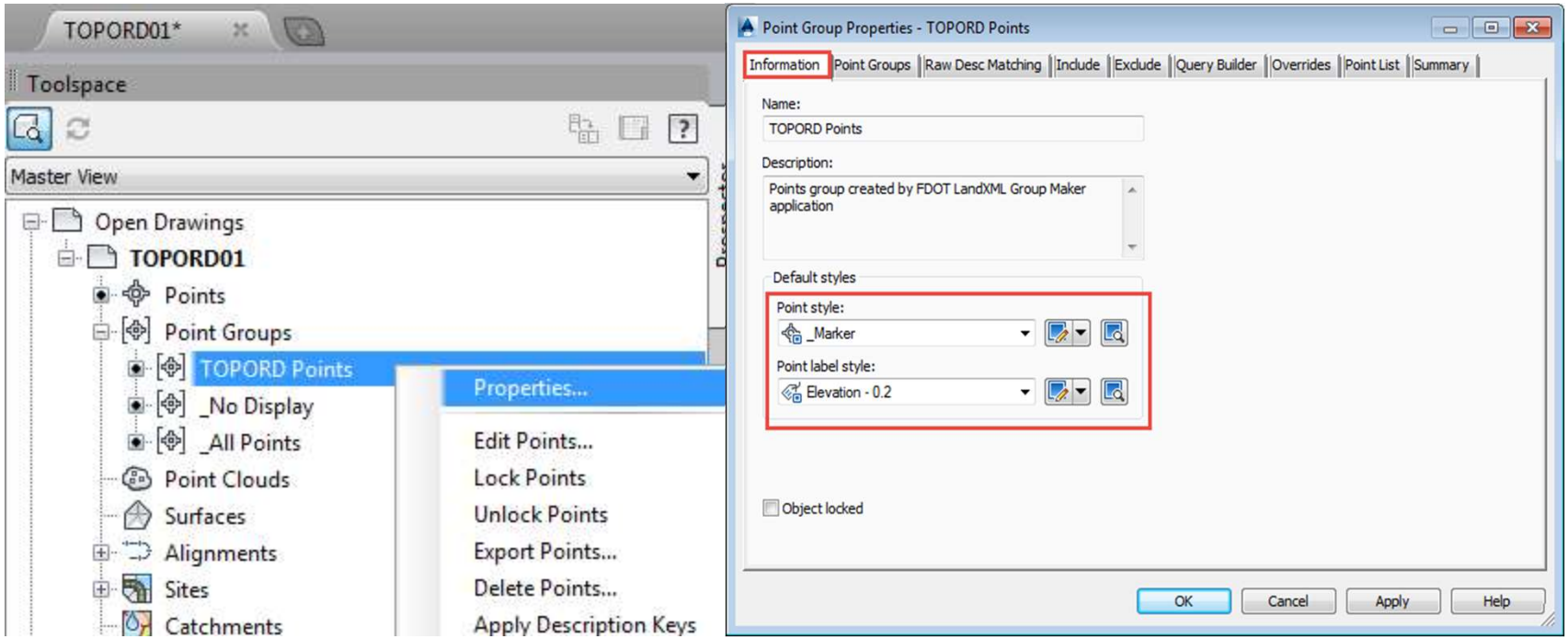


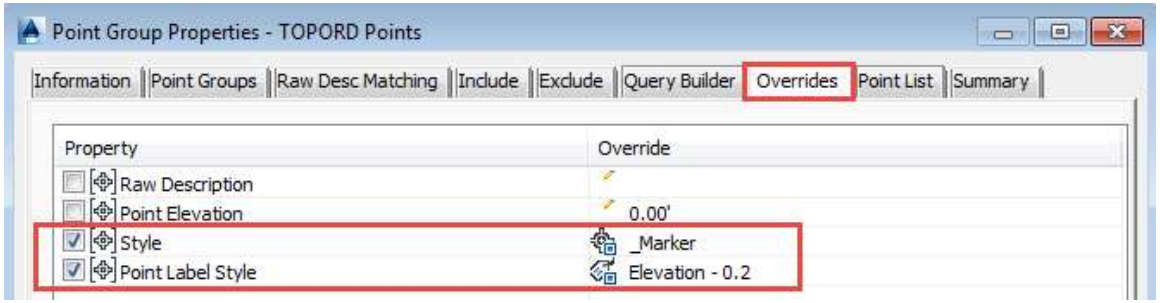


CIVIL 3D POINT GROUPS

- To reverse the insertion process, instead of choosing insert into drawing, choose “Remove from drawing…”
- After removing points and/or point groups from the drawing, update the point groups in Toolspace>Prospector.
- Changing the display of points in a point group can be done by right clicking the point group in the Prospector and selecting “Properties”.
  - ✓ Select the “Information” tab and change to the desired Point style and/or Point label style. Note: If the style is defined in the description keys for a point object then overides must be selected in the “Overides” tab.

CIVIL 3D POINT GROUPS

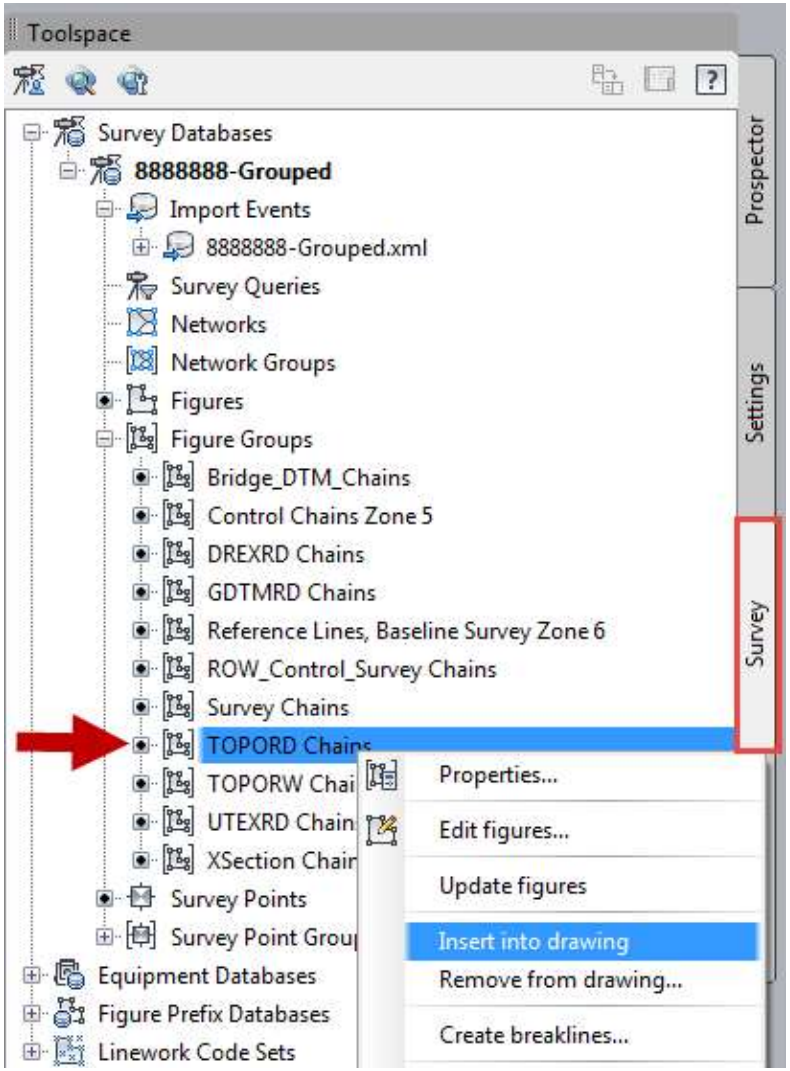




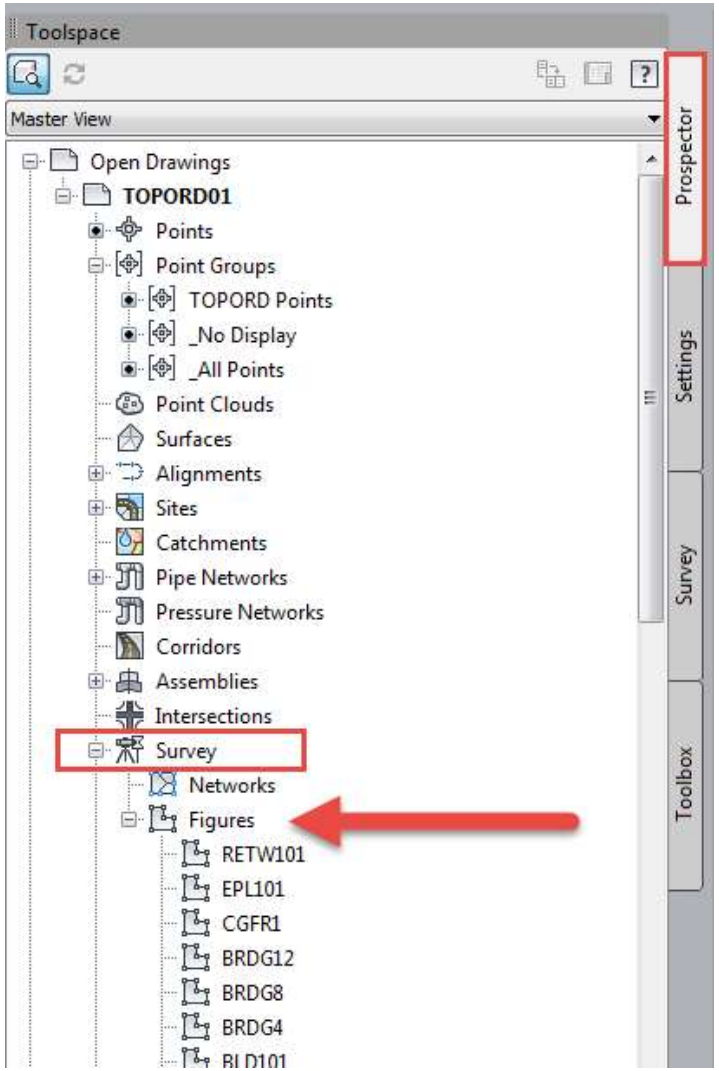
CIVIL 3D FIGURE GROUPS

- Civil 3D Figure Groups work similarly to the Point Groups in that they can be inserted into the drawing from the survey database in the Toolspace>Survey tab. Once inserted into the drawing, figures are listed in the Prospector under Survey>Figures, however, they are not segregated into groups like points.
- Note that it is critical that the appropriate template is used for the figures inserted into a drawing.
- Only the “Survey” template has all survey layers and Survey Styles

CIVIL 3D FIGURE GROUPS



CIVIL 3D FIGURE GROUPS



FDOT CIVIL 3D DELIVERABLES

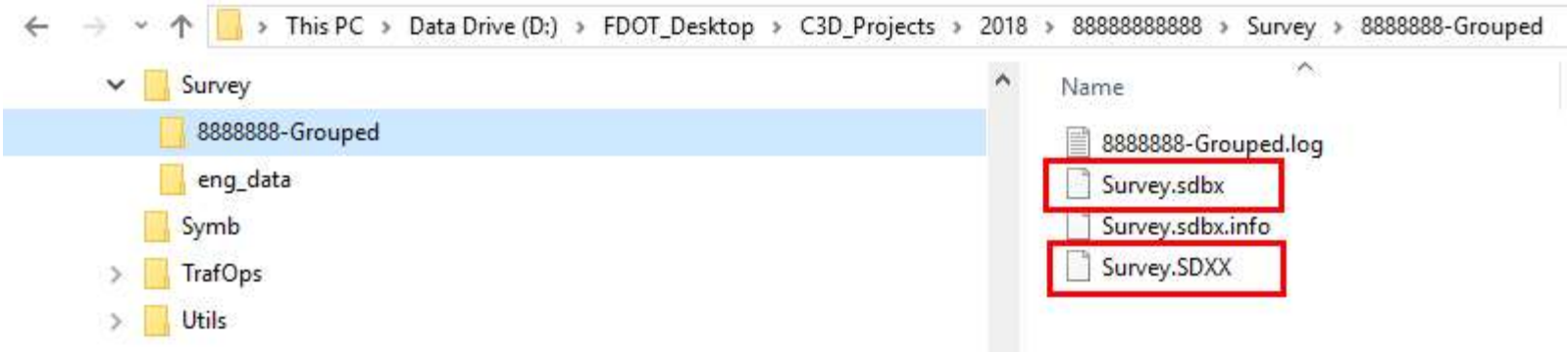
- FDOT deliverables can be created from the Point and Figure groups created with the LandXML Grouper
- Use the Create File utility to create and open the appropriate file.
  - ✓ TOPORD
  - ✓ UTEXRD
  - ✓ DREXRD
  - ✓ GDTMRD
  - ✓ ALGNRD (Found under Roadway Design Files)
  - ✓ CTLSRD

FDOT CIVIL 3D DELIVERABLES

- To create a TOPORD, UTEXRD, or DREXRD deliverable
  - ✓ Insert the appropriate Point Group
  - ✓ Insert the appropriate Figure Group
  - ✓ Edit Figures if necessary
  - ✓ Label as needed (includes turning on/off point labels)
- To create a GDTMRD or ALGNRD deliverable
  - ✓ Insert the LandXML file(s) created in the SURVRD file using the “Insert” tab on the Civil 3D Ribbon.
- To create the CTLSRD deliverable, first use the Sheet Set Manager to populate the title block.

FDOT CIVIL 3D DELIVERABLES

- A critical delivery for a Civil 3D Design Survey Project is the Survey Database.
  - ✓ It should be under the “Survey” folder in the project
  - ✓ It should include at a minimum:
    - Survey.sdbx
    - Survey.SDXX



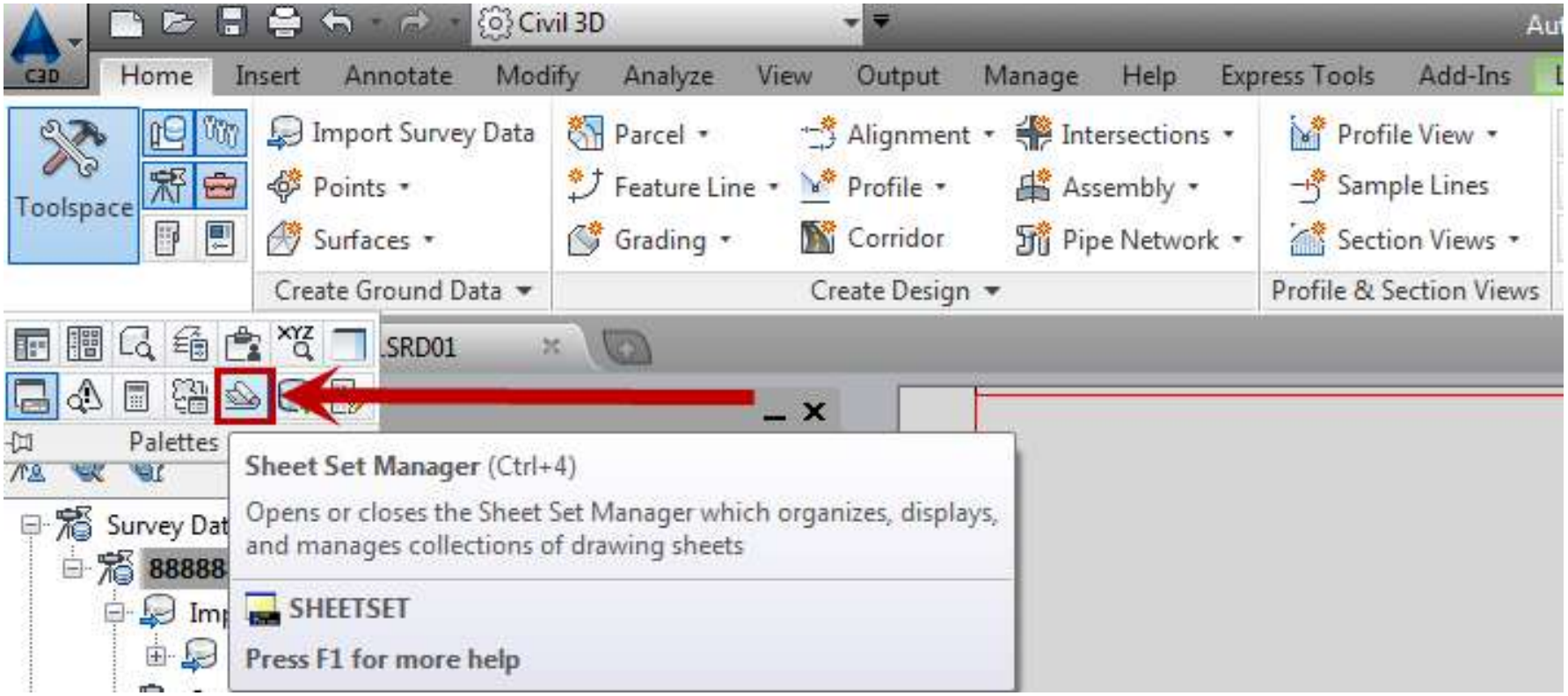
CTLSRD DELIVERABLE

- The ctlsrd.dwt is the only design survey template with layout tabs and sheets.
- When created the CTLSRD file will have four unique layout sheets.
  - ✓ These layouts can be duplicated within the file to make multiple sheets if needed.
  - ✓ All, some or one layout can be used as needed.
  - ✓ Unused layouts can be deleted.
- The Sheet Set Manager will populate the sheet title blocks in all of the layouts.

SHEET SET MANAGER

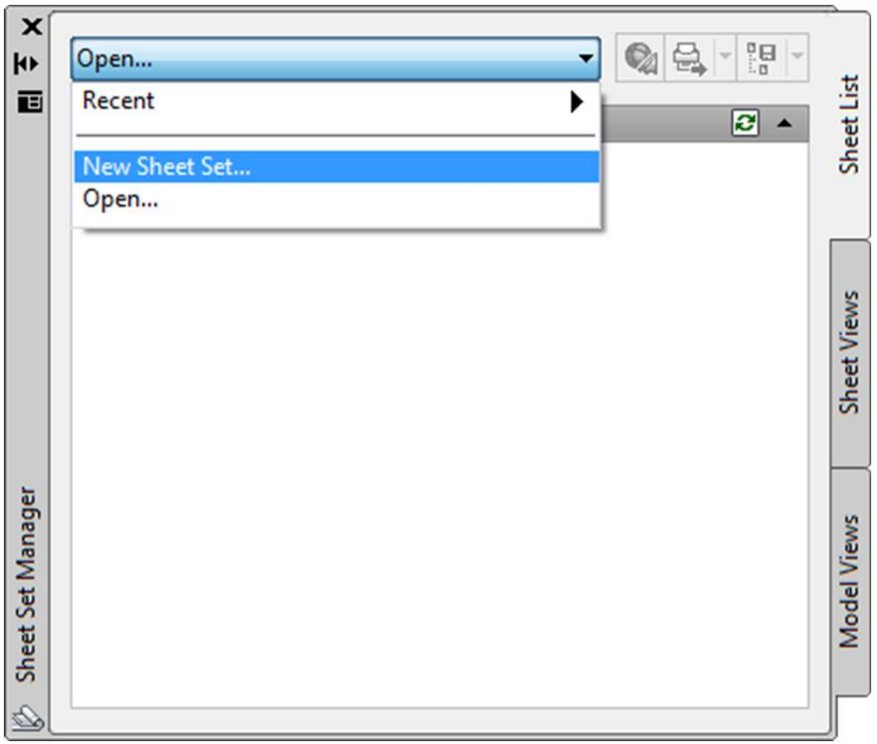
- The Sheet Set Manager is a Civil 3D tool used in part to populate the sheet title blocks.
- The Sheet Set Manager uses a DST file to accomplish this. The DST file template for Surveying is in the “Data” directory of the project file structure created by the “CREATE PROJECT” utility.
- The FDOT SURVEYING.dst template is used by the Sheet Set Manager to create a CTLSRD.dst under the project Survey/eng_data folder.
- Open the Sheet Set Manager from the Civil 3D ribbon in the Home tab under the Pallets drop down.

SHEET SET MANAGER



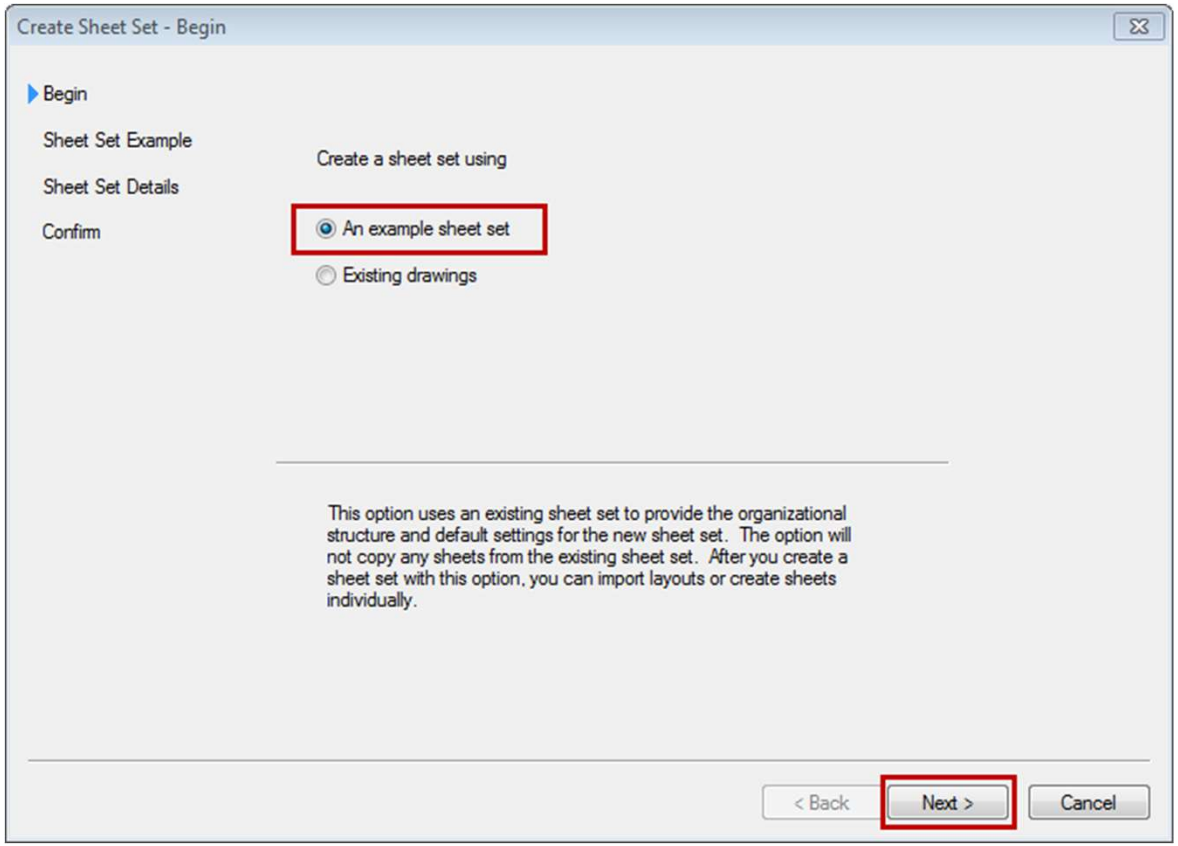
SHEET SET MANAGER

- In the “Open…” drop down, select “New Sheet Set…” to start the Create Sheet Set wizard.



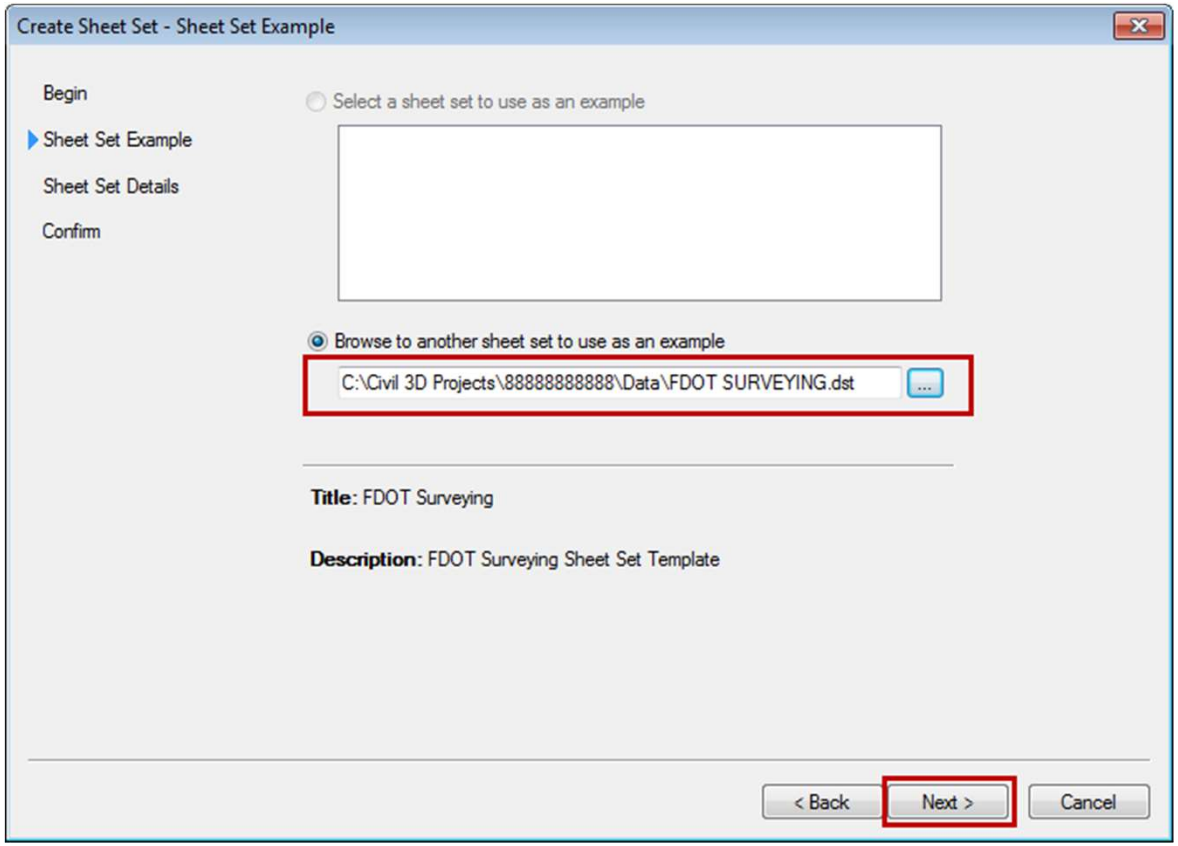
SHEET SET MANAGER

- Using “An example sheet set”, browse to the FDOT SURVEYING.dst template under the project “Data” folder.



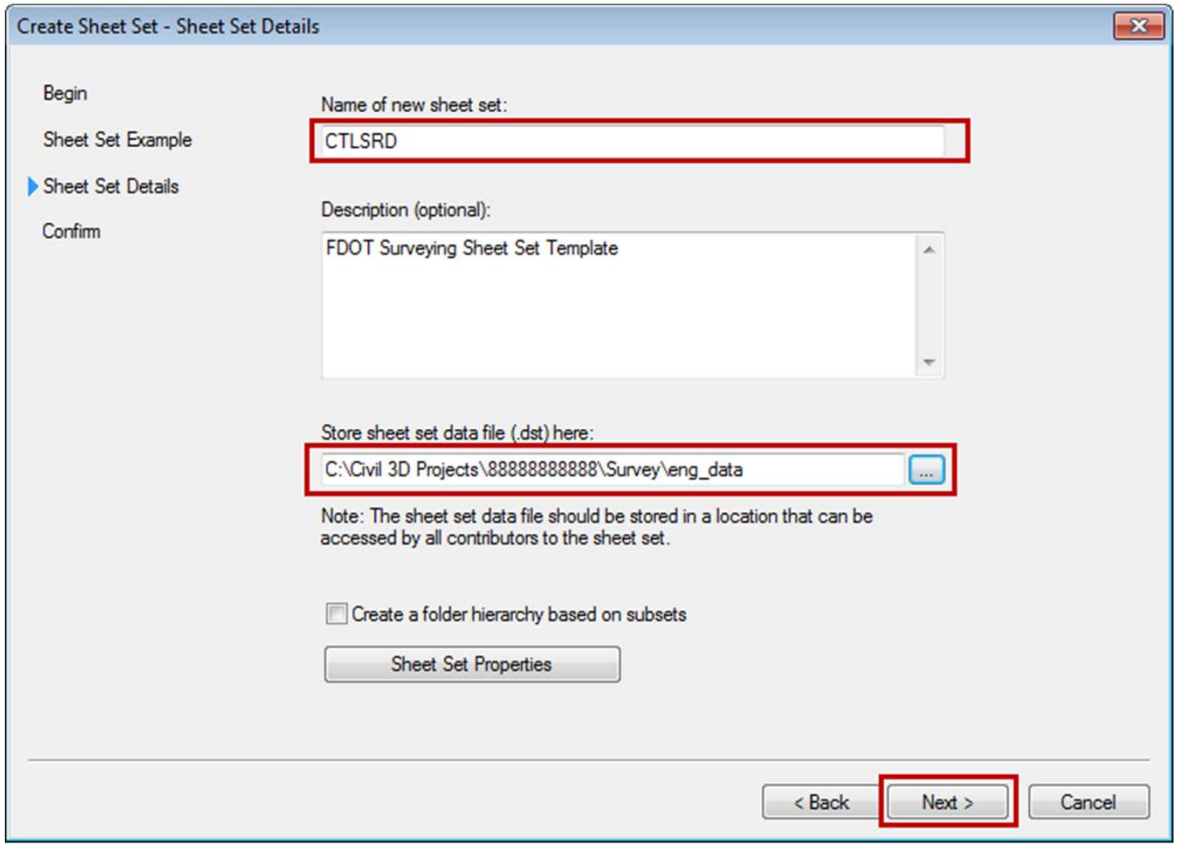
SHEET SET MANAGER

- Using “An example sheet set”, browse to the FDOT SURVEYING.dst template under the project “Data” folder.



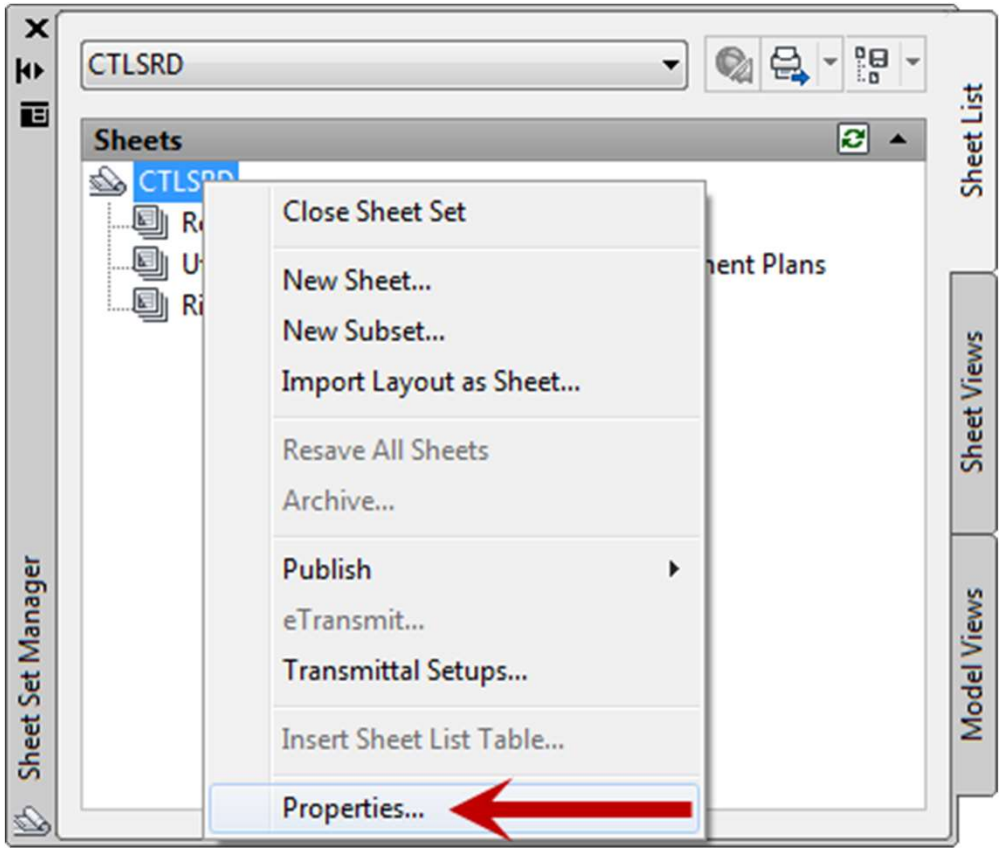
SHEET SET MANAGER

- Name the sheet set “CTLSRD” and browse to the project Survey/eng_data folder. Select Next, then Finish.



SHEET SET MANAGER

- In the Sheet Set Manager dialogue box, right click on the sheet set name (CTLSRD) and select “Properties…”

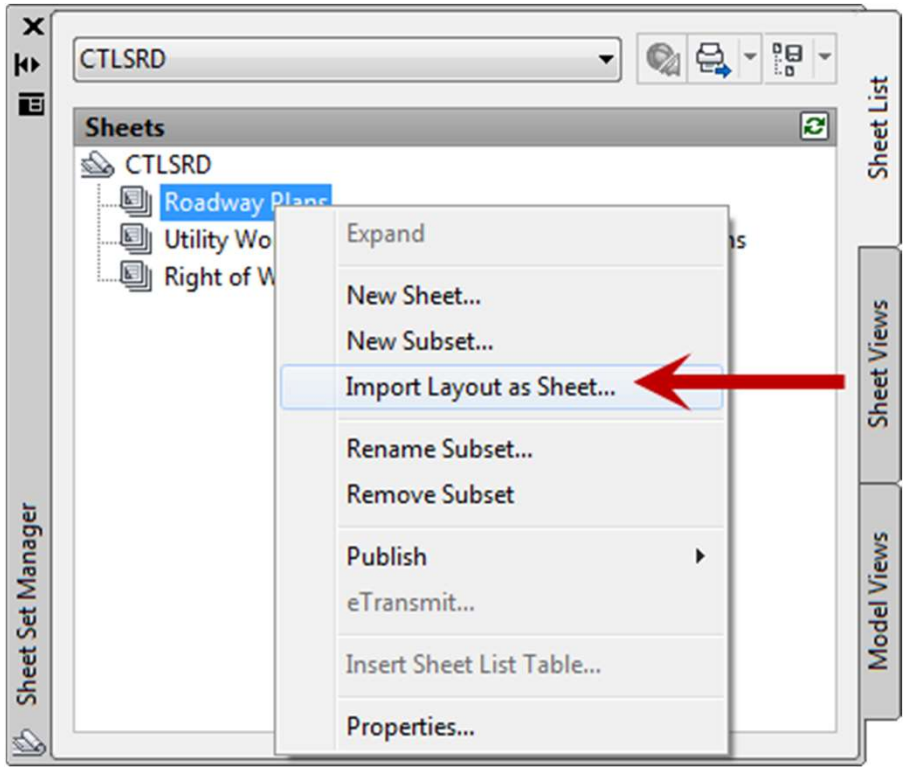


SHEET SET MANAGER

- In the Sheet Set Manager dialogue box, right click on the sheet set name (CTLSRD) and select “Properties…”
- The Sheet Set Properties dialogue box will open. Fill out missing information and press “OK”
  - ✓ County
  - ✓ District
  - ✓ POR1-8 information (Professional of Record)
  - ✓ Project Description
  - ✓ Road Number

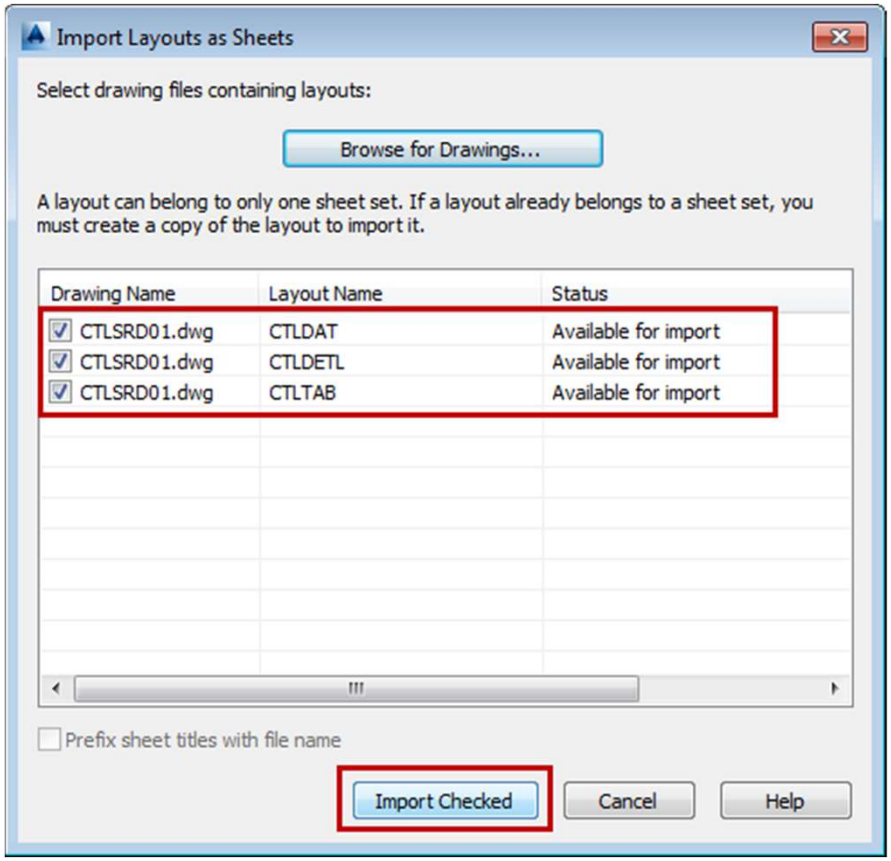
SHEET SET MANAGER

- In the Sheet Set Manager dialogue box, right click on the Roadway Plans subset and select “Import Layout as Sheet…”



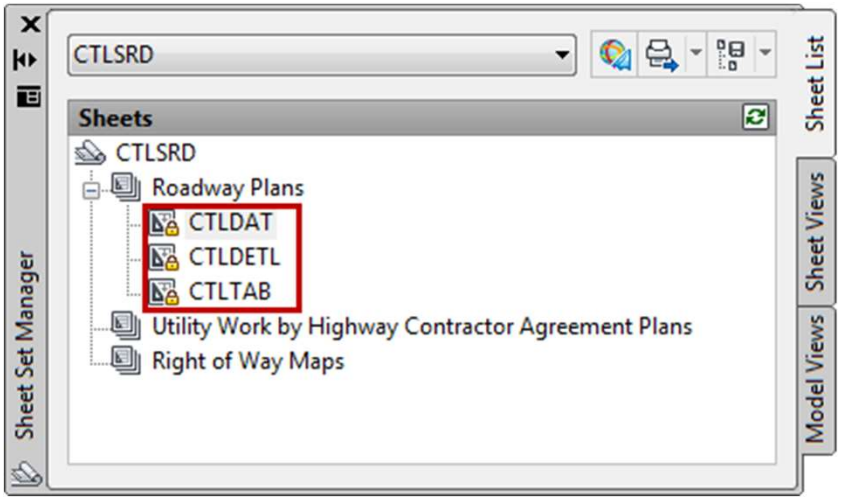
SHEET SET MANAGER

- Browse for the drawing containing the layouts (CTLSRD01.dwg) and select “Import Checked”



SHEET SET MANAGER

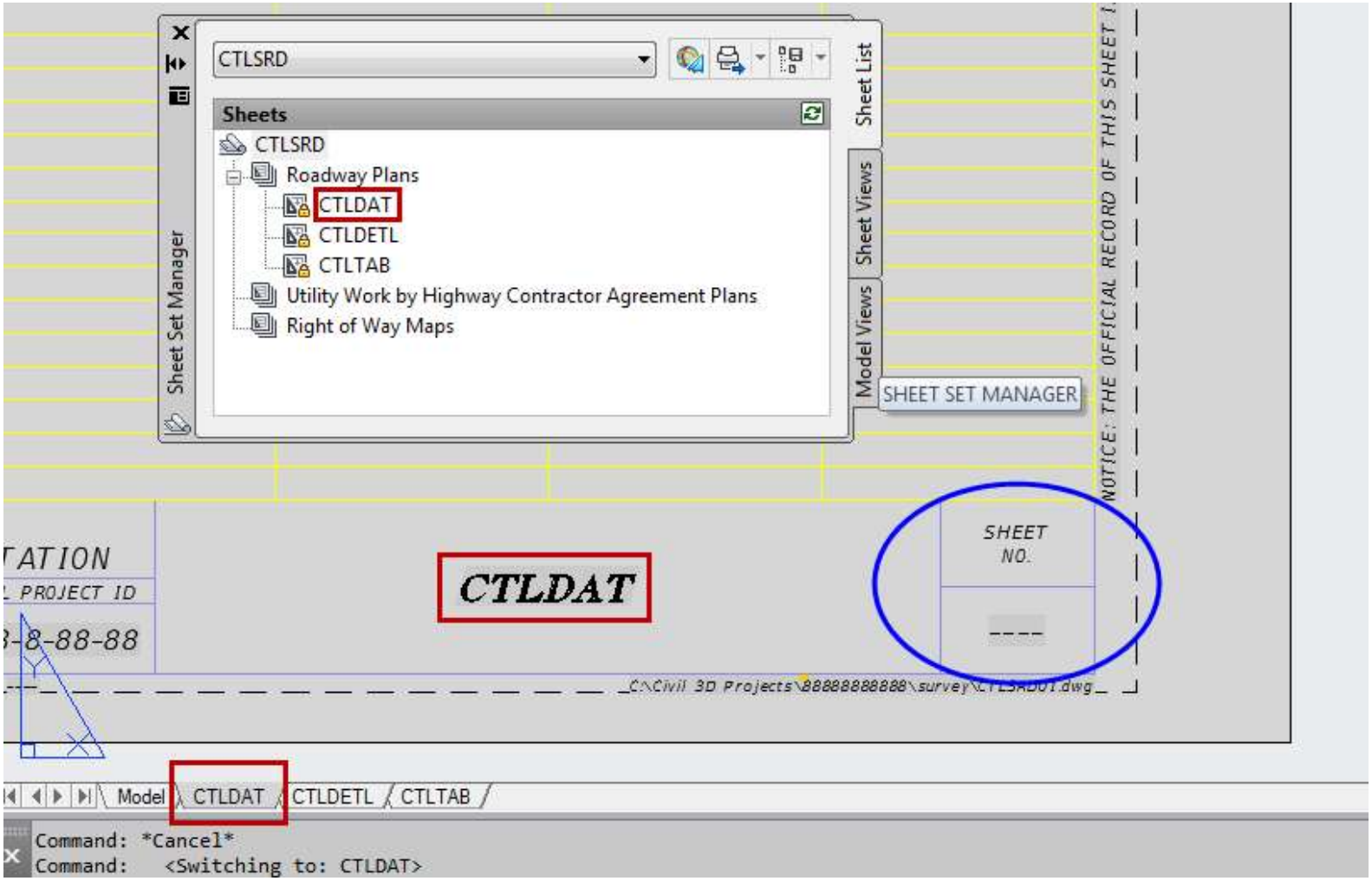
- The checked layouts will be imported into the Sheet Set Manager as “sheet titles” under the Roadway Plans subset.



- Note that the sheet titles and the drawing layout names are the same

- Also note the SHEET NO. has not been populated

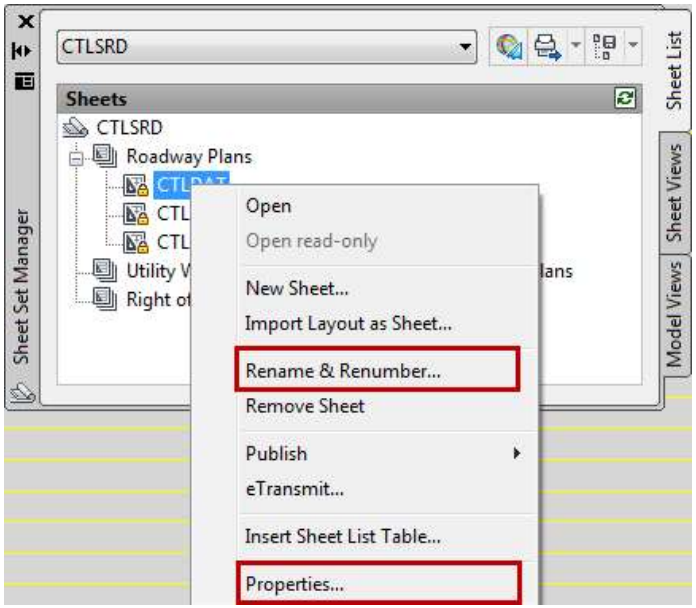
SHEET SET MANAGER



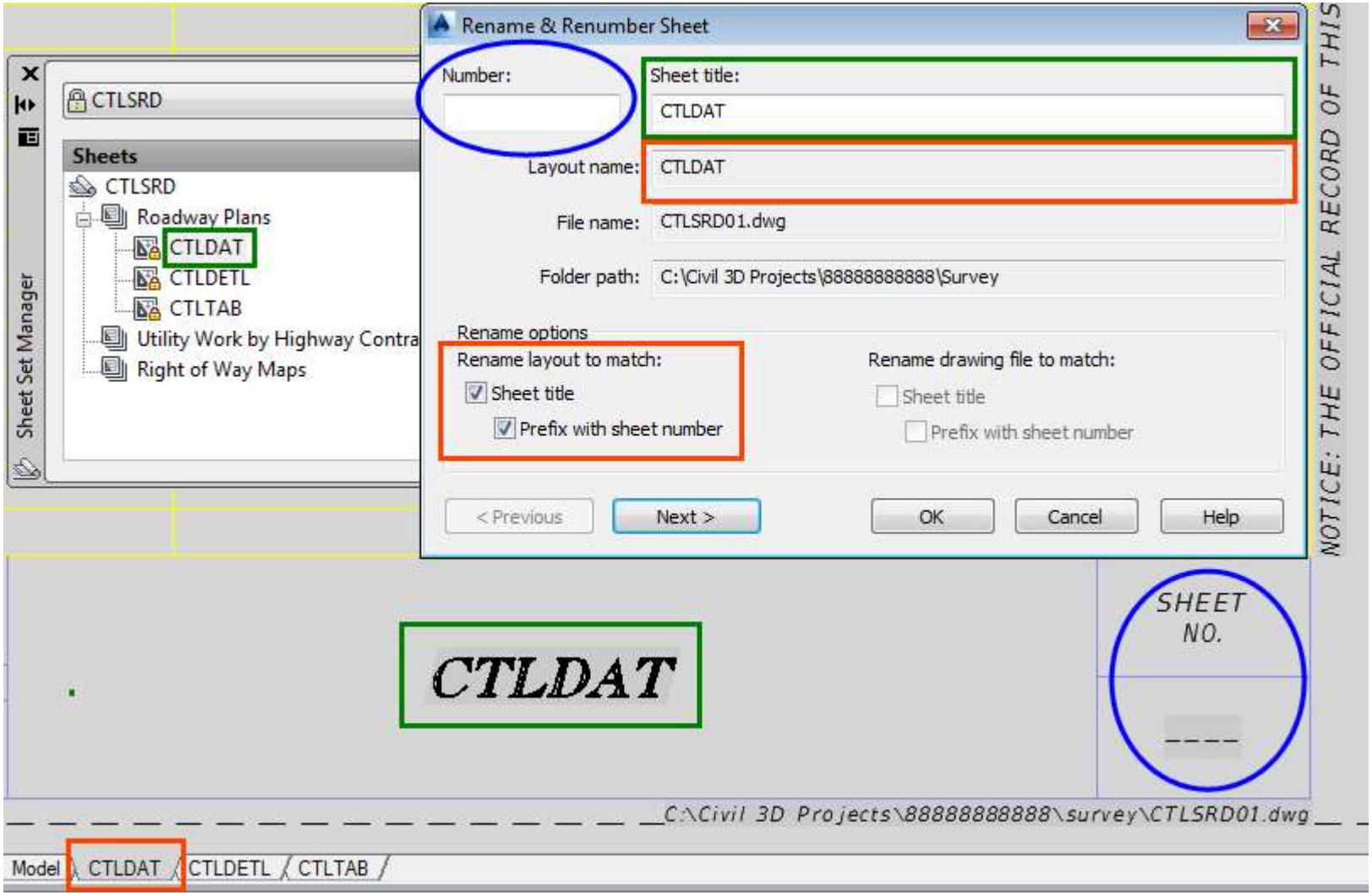
SHEET SET MANAGER

- Rename the Sheet titles and number the sheets
  - ✓ “Rename & Renumber…” – Renames & numbers the sheet title block.
  - ✓ “Properties…” – Change or add information, including renaming & numbering the sheet title block.

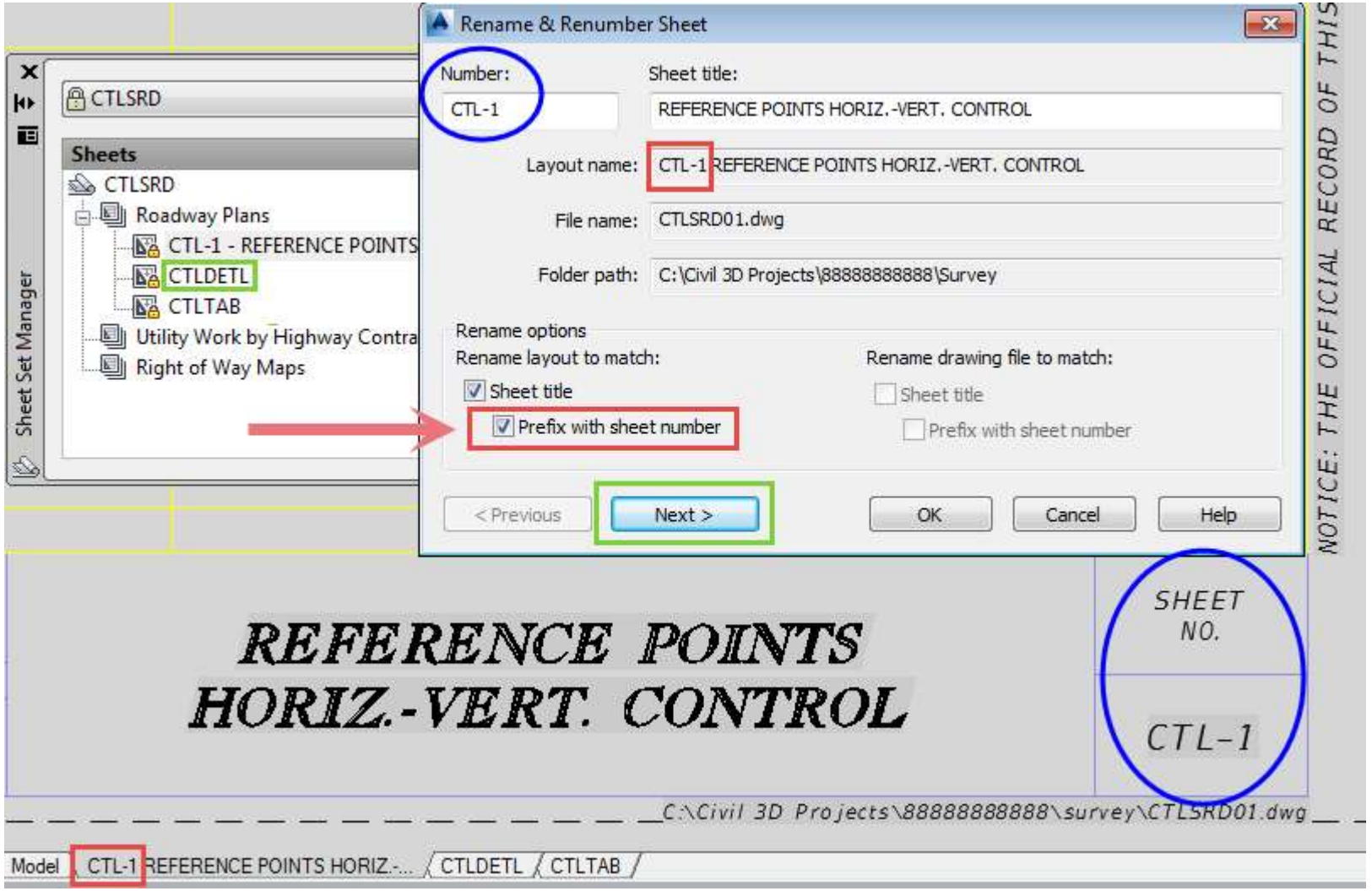
Right Click Sheet title:



SHEET SET MANAGER

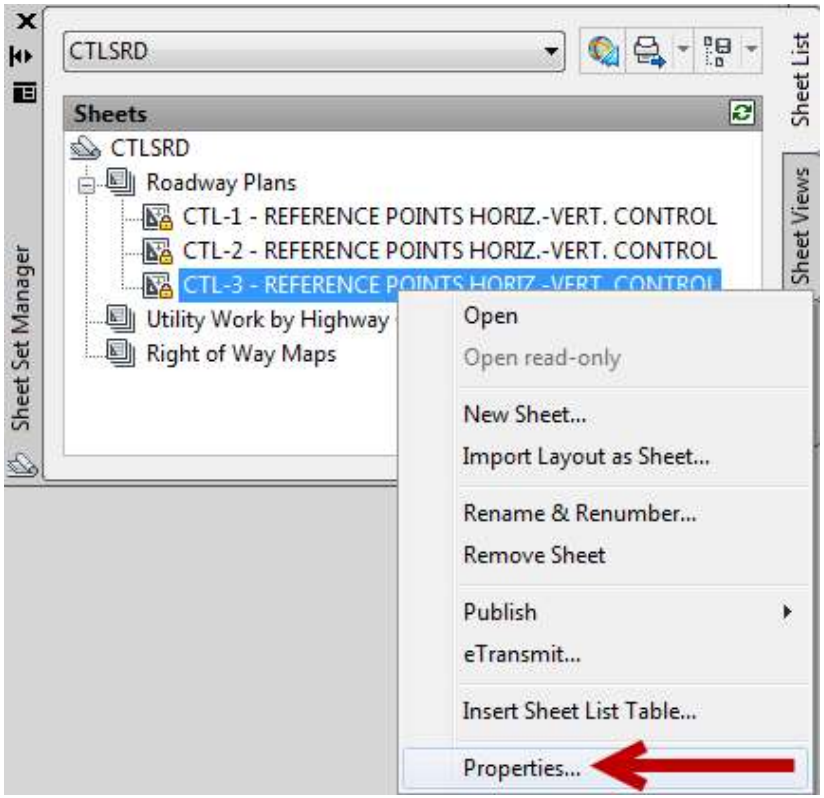


SHEET SET MANAGER



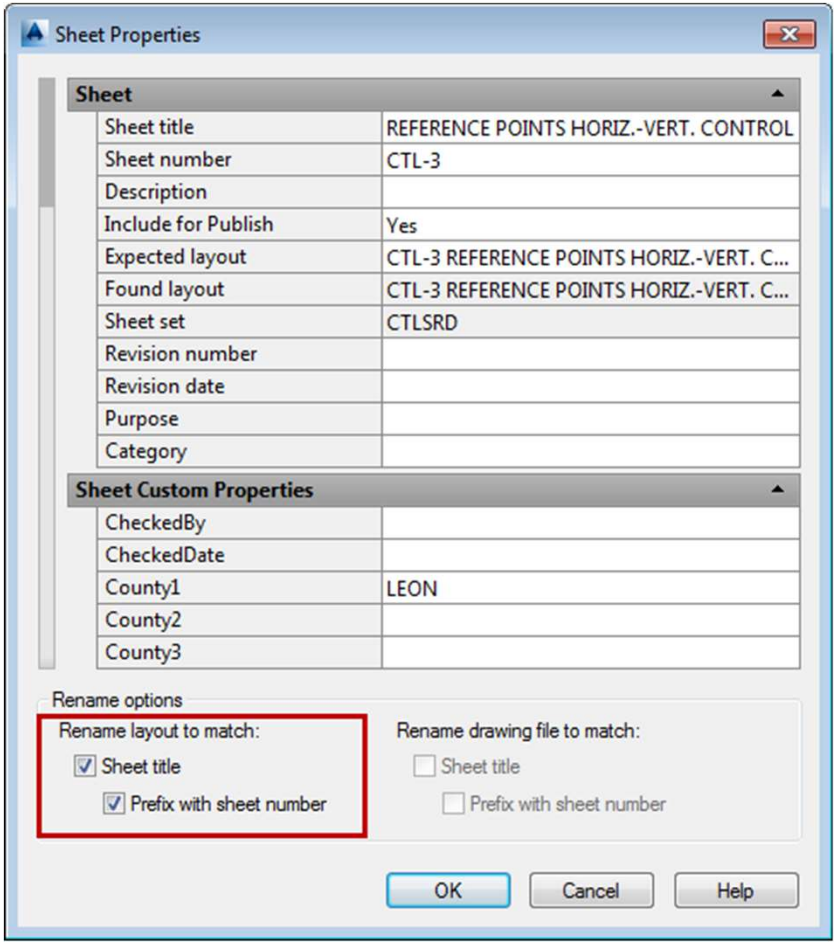
SHEET SET MANAGER

- Right click on the sheet title and select properties to make changes to the information in the title block for a specific layout



SHEET SET MANAGER

- Note: “Rename layout to match” options are the same.



SHEET SET MANAGER

- To add another sheet to the subset with a layout in the current drawing, right click on any layout and choose “Move or copy…”
- Pick the appropriate layout, check the “Create a copy” box and select “OK”
- The new layout is created in front of the copied layout. To move it after the copied layout… drag it.
- Before the new layout can be imported as a sheet in the Sheet Set Manager, the drawing must be **SAVED!**
- Once imported put sheets in order - rename & renumber

SHEET SET MANAGER

- Delete unused layouts in the CTLSRD01.dwg file.
- It is important to use the correct subset in order for project management to use the Sheet Set Organizer tool
- Unused subsets (ie. “Right of Way Maps” and “Utility Work by Highway Contractor Agreement Plans”) can be deleted

Link to Create Files and Create Projects video:

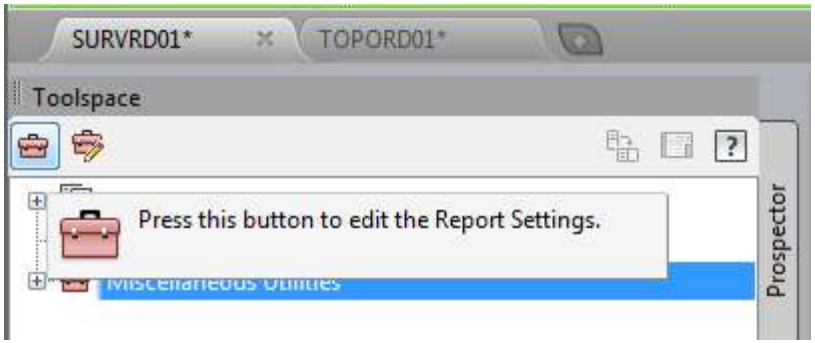
- http://www.dot.state.fl.us/structures/designExpo2012/Presentations/CreateFiles.wmv

REPORTS

- To Generate an alignment report showing station and offset to Horizontal and Vertical Control Points, the alignment and the control points must be inserted into the CTLSRD file.
- In the CTLSRD file, switch to “Model” space.
- Insert the alignment LandXML file
- From the survey database, survey point groups, insert the Control Points (zone 5).
- In Toolspace>Toolbox tab, expand the Reports Manager and under Alignments is “Station_and_Curve”. Under Points is “Station Offset to Points”

ALIGNMENT REPORT

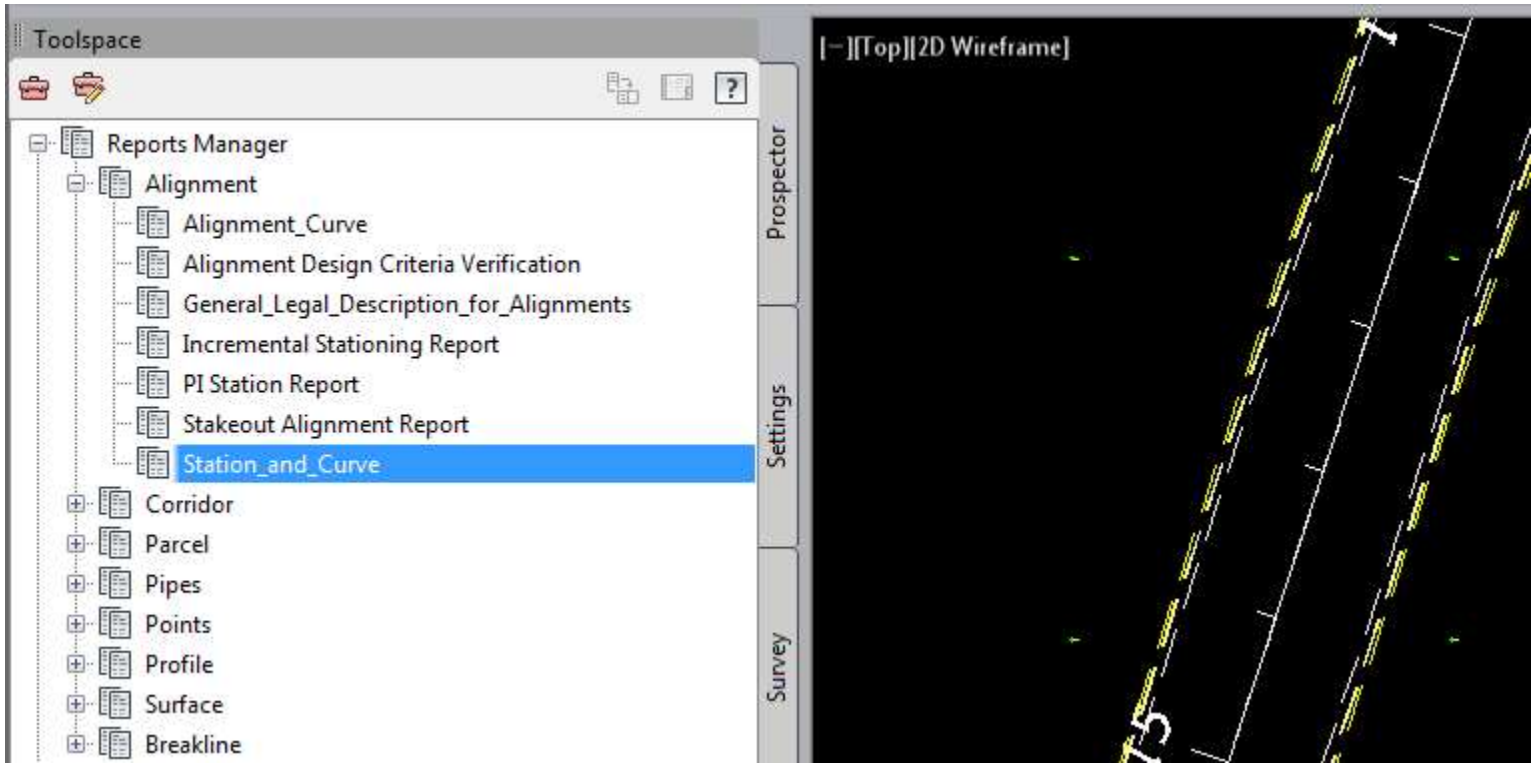
- In Toolspace>Toolbox tab, in the upper left under the word “Toolspace” is the Edit Report Settings button.



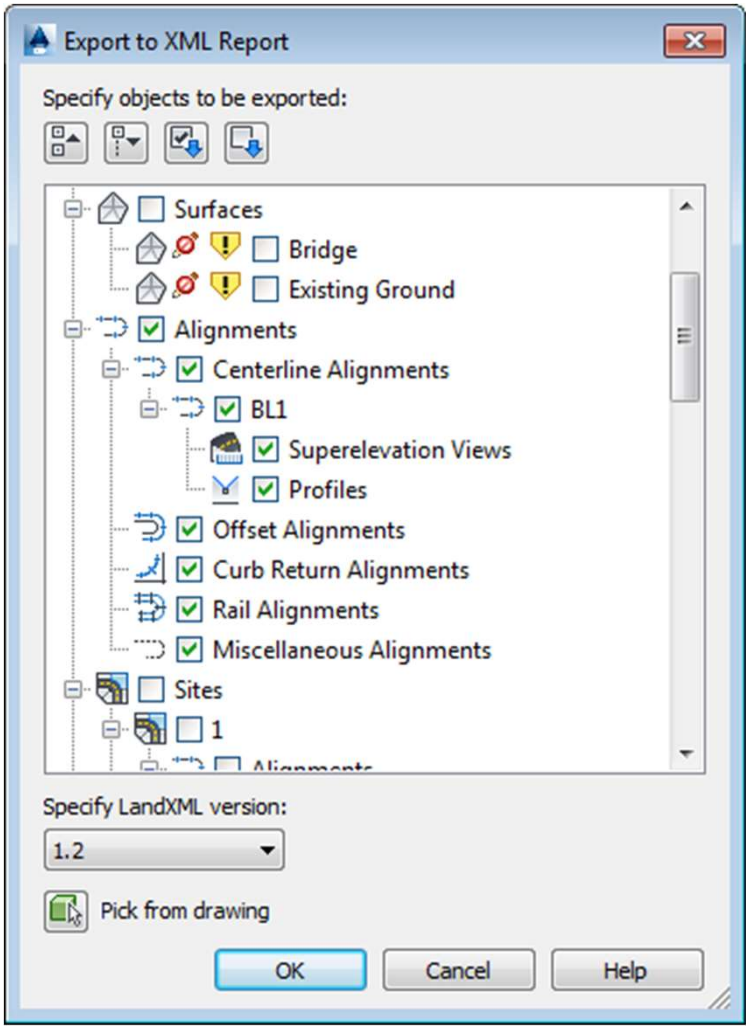
- ✓ Company name and address can be added under “Owner”.

ALIGNMENT REPORT

- In Toolspace>Toolbox tab, expand the Reports Manager to show Alignment and double click on “Station_and_Curve” to run the alignment report.

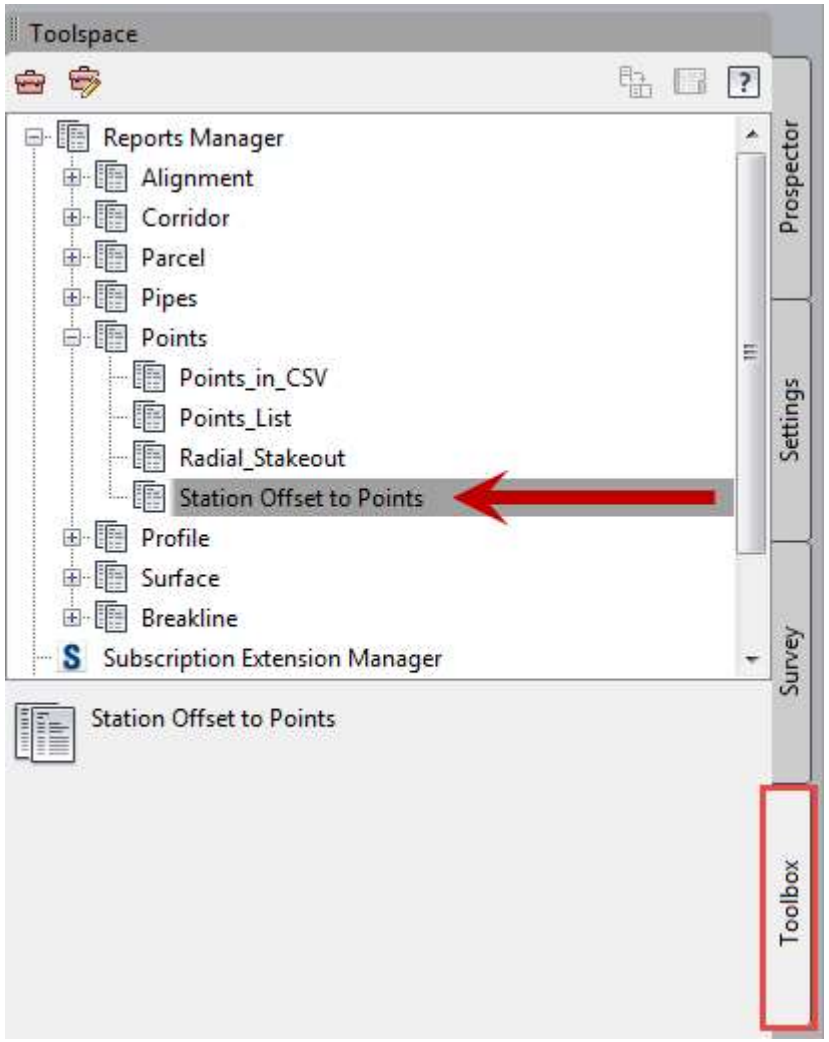


ALIGNMENT REPORT



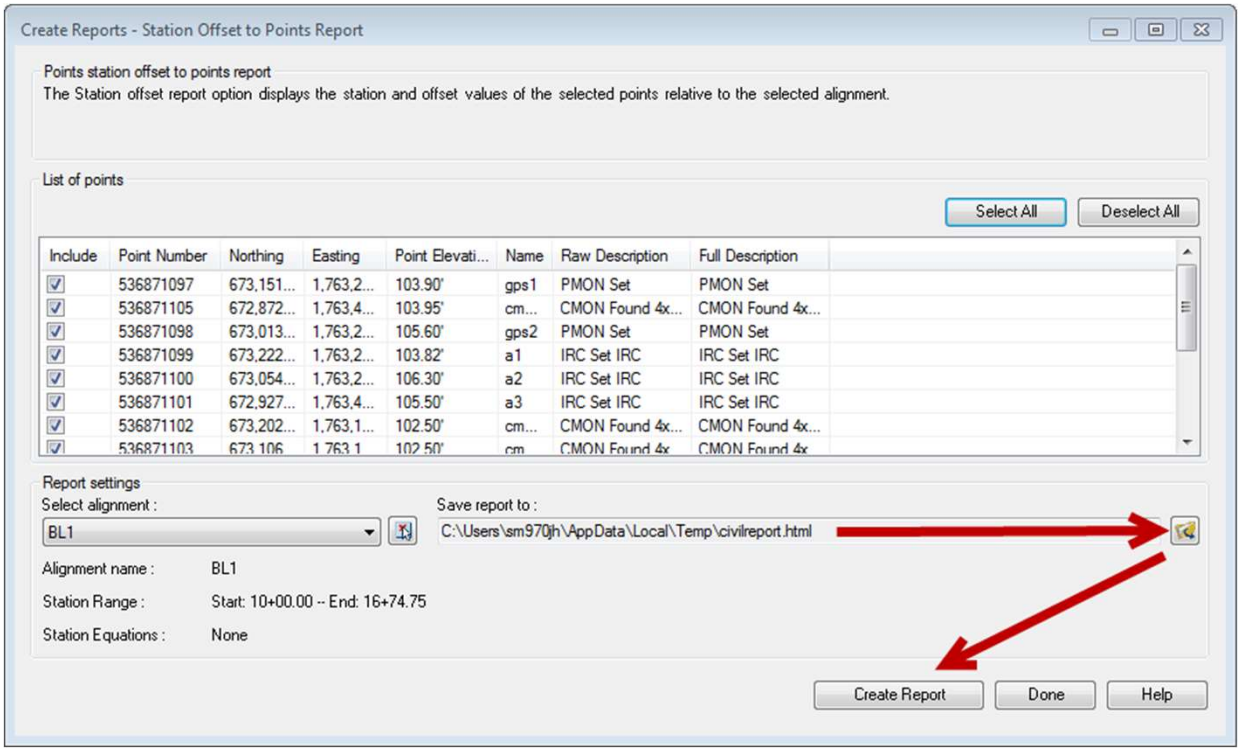
- The “Export to XML Report” dialogue box will come up.
  - ✓ Uncheck everything except Alignments.
  - ✓ Press “OK”.
  - ✓ Change output to save an Align.txt under the project Survey folder.

CONTROL POINT REPORT



CONTROL POINT REPORT

- In the Create Reports dialogue box, select the points and alignment and save report to a “Control.txt” file under the survey folder in your project directory.



DRAW IN VIEWPORTS

- To take advantage of the view ports in the layouts, additional survey data can be inserted into the drawing.
- Switch to the desired layout.
- Unlock the viewport
- Xref a file or draw in the viewport.
- Set the viewport scale and lock the viewport.
- SAVE

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C3D SURVEY DELIVERABELS

SHEET SET MANAGER

DIRECT QUESTIONS TO:

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