

# *MicroStation Basics for Construction (Plan Summary Boxes)*

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# Objectives



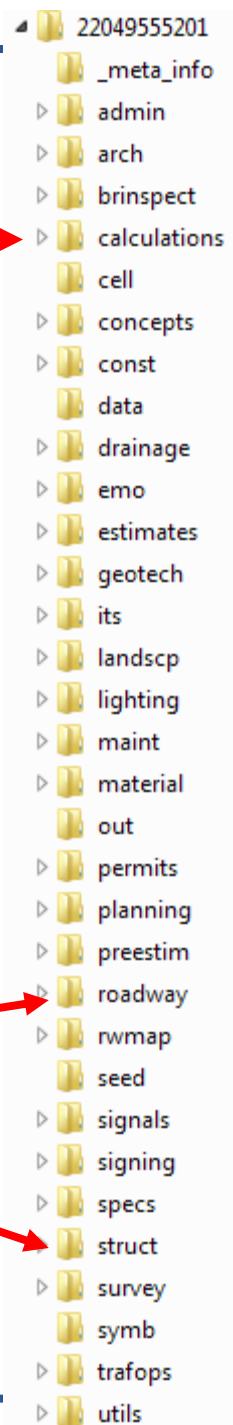
- Define the Standards for Plan Summary Boxes
  - Project Directory Structure
  - File Naming Conventions
  - Quantity Shape File Recommended Set Up
- Review the MicroStation Basics
  - Models & Navigation
  - Find & Replace tool
  - Reference Dialog Basics
  - Measurement Tools

# *Plan Summary Box Standards*

- Plan Summary Boxes have replaced Computation Books
- All items of work are to be documented in a Plan Summary Box (Lump Sum projects & Conventional Projects)
- Traditional “Back Up” (shape diagrams) are no longer provided. Location information is provided in the summary boxes intended to be used with the Plan Sheets.
  - If quantity has been automated through the use of Computer Aided Drafting & Design (CADD) tools, it is not the intent for reviewers or construction personnel to review every area shape in the CADD files.
  - All shapes that have been calculated with the CADD tools will have an AREA ID included in the summary box.
  - The QTDSRD file is provided with the CADD\_[FPID].zip file to be used when there is an issue with the quantity in the field.

# Plan Summary Box Standards

- CADD\_[FPID].zip file
  - Included with every project delivery
  - Standard Project Directory Structure...
    - ✓ Calculations Directory
      - Look here first...
      - Contains the “Back Up” documentation for quantities
        - Excel summary box files
          - Check the Design Backup worksheet for additional documentation
        - PDF files (output from programs or scanned drawings/sketches with formulas)
        - Custom Excel files for calculations
      - Used by Roadway and Structures
    - ✓ Discipline Directories, i.e. roadway, structures, etc.
      - Contains the DGN files with the design, area shapes, sheets, etc.
        - DSGNRD\*\*.dgn – contains Linear and Each features normally shown in plan view
        - QTDSRD\*\*.dgn – contains the area shapes for SF, SY, CY, and TN



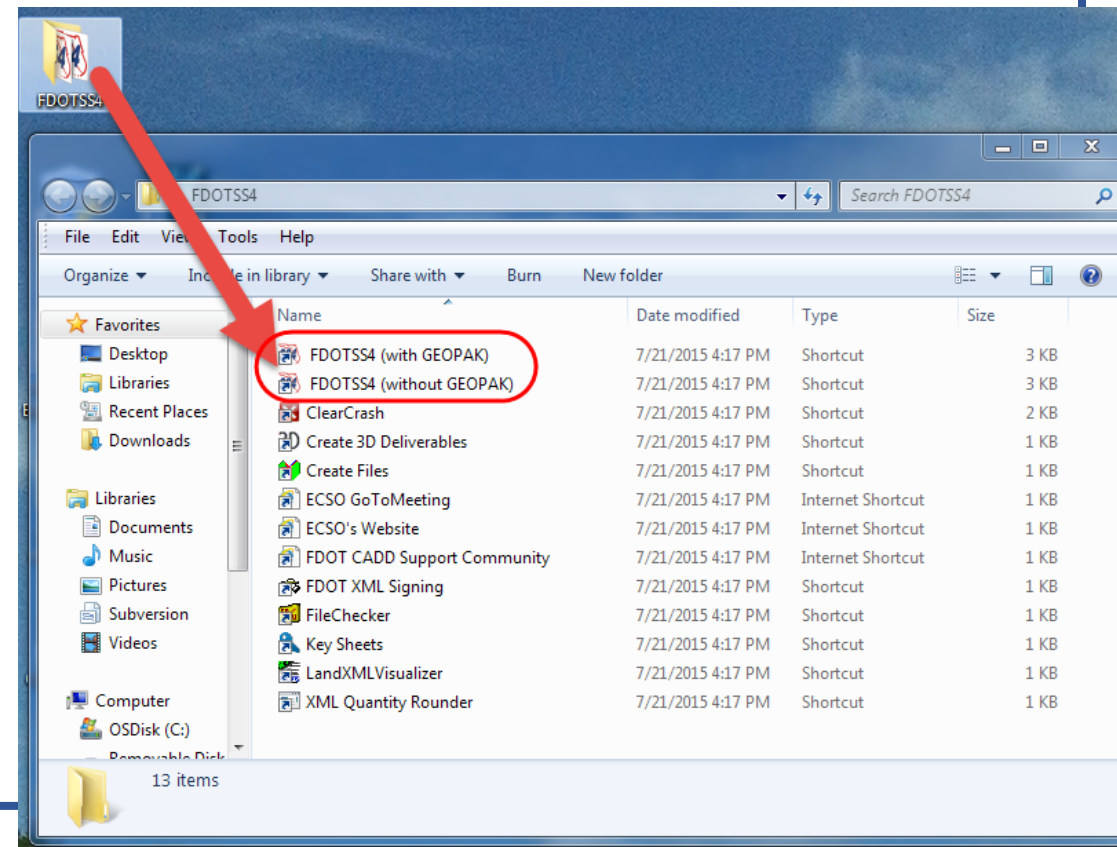
# Plan Summary Box Standards

- QTDSRD\*\*.dgn
  - Contains area shapes used in automated calculations.
  - Should be organized with “models” containing the shapes for each pay item quantity using the pay item for the model name.
    - NOTE: These are designer options but not the recommended practice.
      - The shapes may be organized by DGN file and not models.
      - The models may be named by description not pay item but should be easily identified.
      - More than one set of shapes may be included in the same model.
  - Each model is to include references showing the Alignment, Design, and Survey at a minimum.
  - All shapes will be labeled with the Area ID that is shown in the Plan Summary Box.

# MicroStation Basics

- It is recommended to open MicroStation in the FDOT workspace.
  - By opening the files in the FDOT workspace, the resource files used to create the file will be available. (Most specifically the fonts)
- An icon is available in the FDOTSSX folder that is created on the desktop when the FDOT software is installed.
  - “X” represents the version of the software, i.e. SS3, SS4, etc.

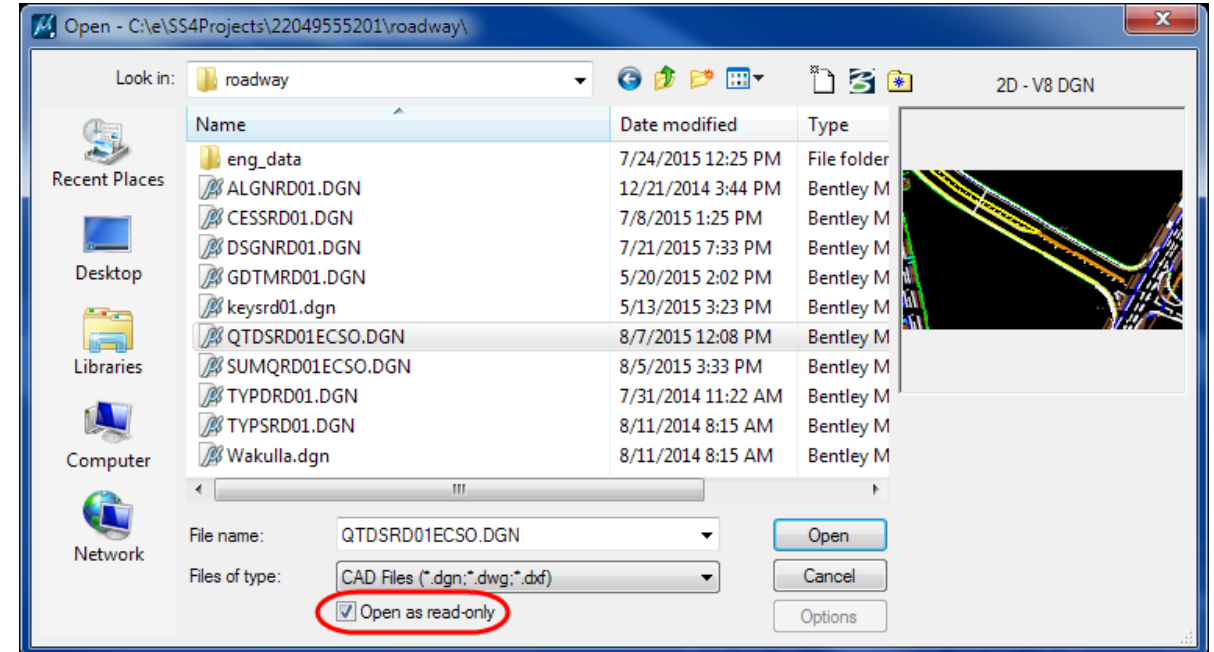
Icons may also be named “FDOTSS4 for PowerGEOPAK”.



# MicroStation Basics

- On the File Open dialog, toggle on the option to open the file “Read Only”. This helps to insure the integrity of data within the file. When a file is opened to write access (whether the file is changed or not) MicroStation saves the file automatically and the date/time stamp of the file changes.

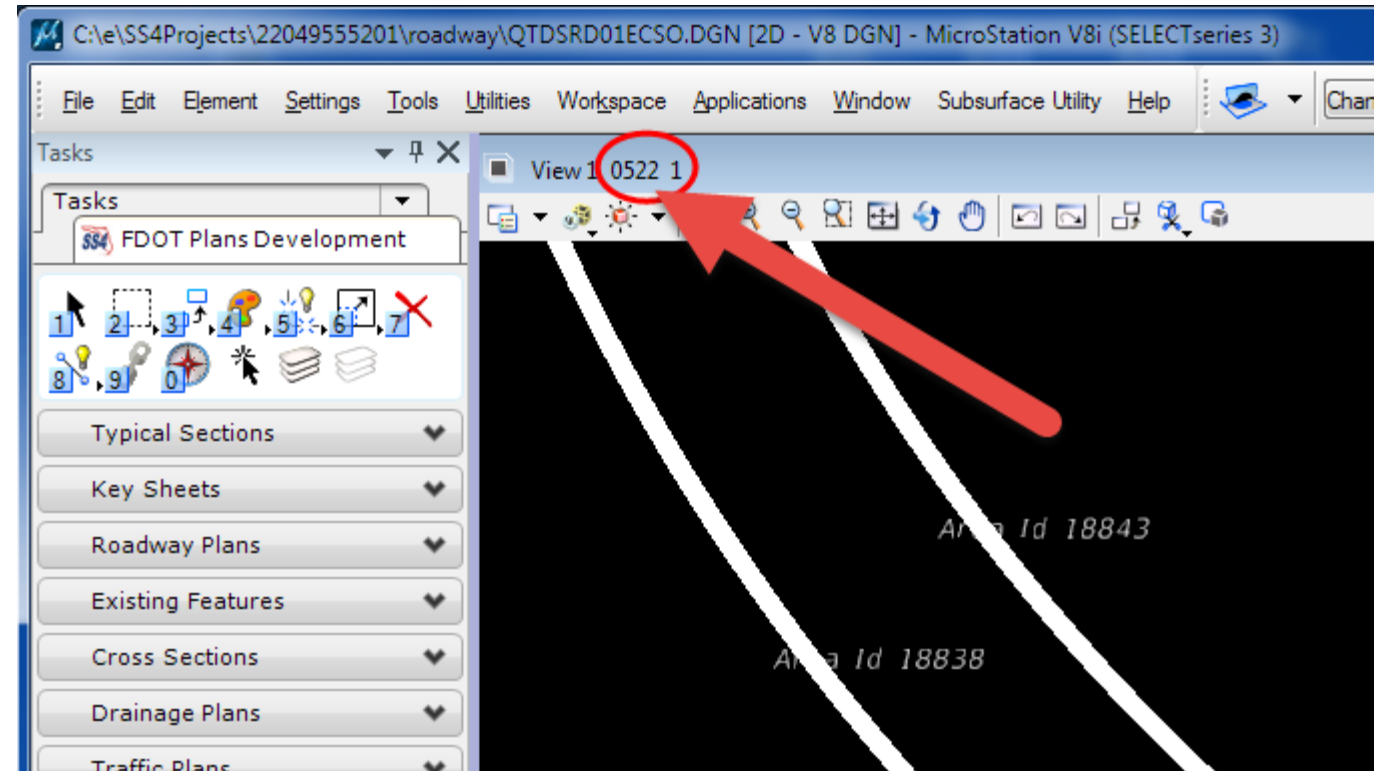
- Only open the file with the option toggled off when it is the intent to make changes in the file (i.e. As-Built plans).



# MicroStation Basics



- MicroStation uses files with the “DGN” extension.
- Each DGN is a compilation of “Models”. Each model contains a separate drawing space.
- Once the file is opened, the first thing to do is make sure you are in the correct model. The model name is at the top of the “View” window.

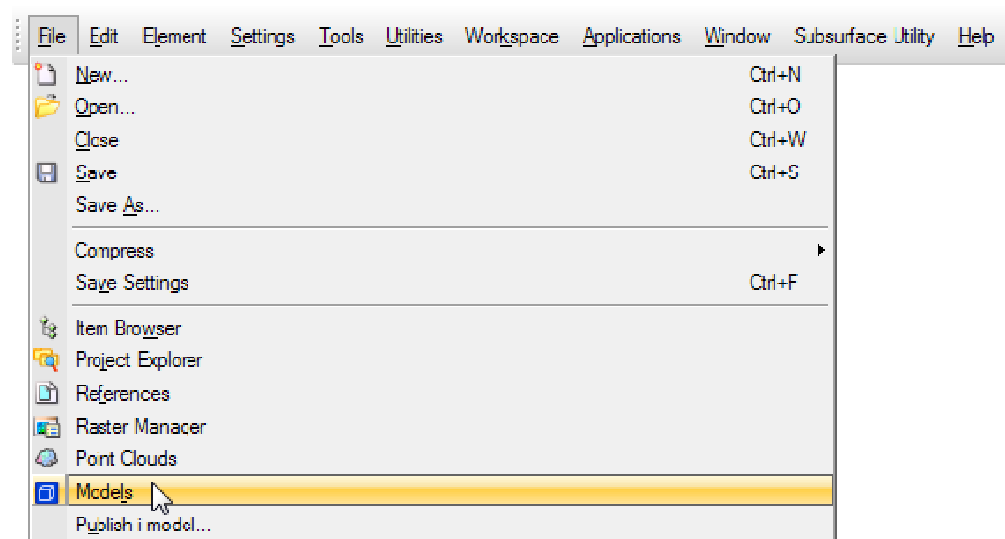




# MicroStation Basics

- To change the active model...
- Open the Models dialog
  - File > Models

--OR--

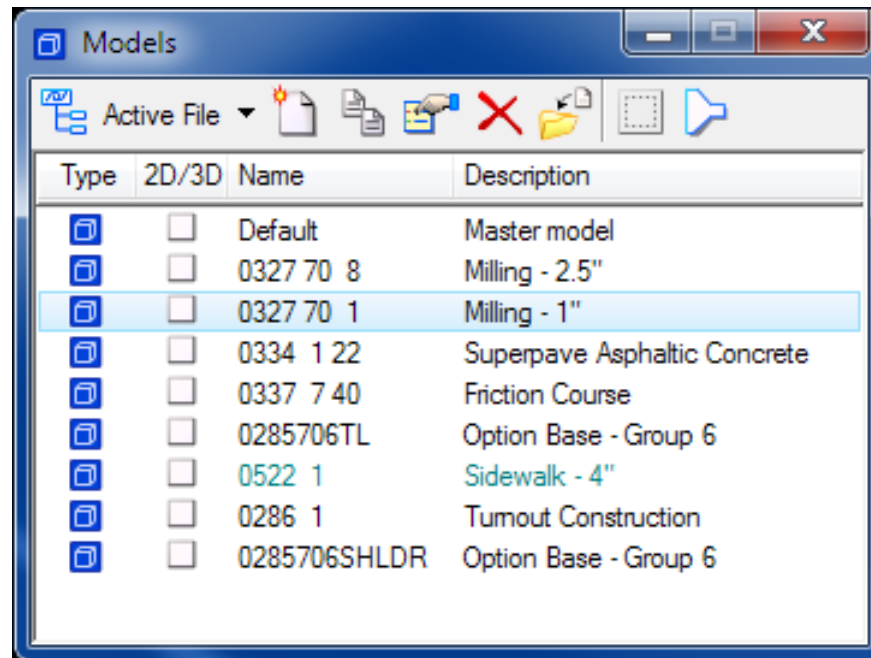


- Click on the Models icon on the Primary Tools toolbar



# MicroStation Basics

- Models Dialog Box
  - Model name in Green is the active model.
  - Double clicking on a model sets it to the active model and opens it to the view.

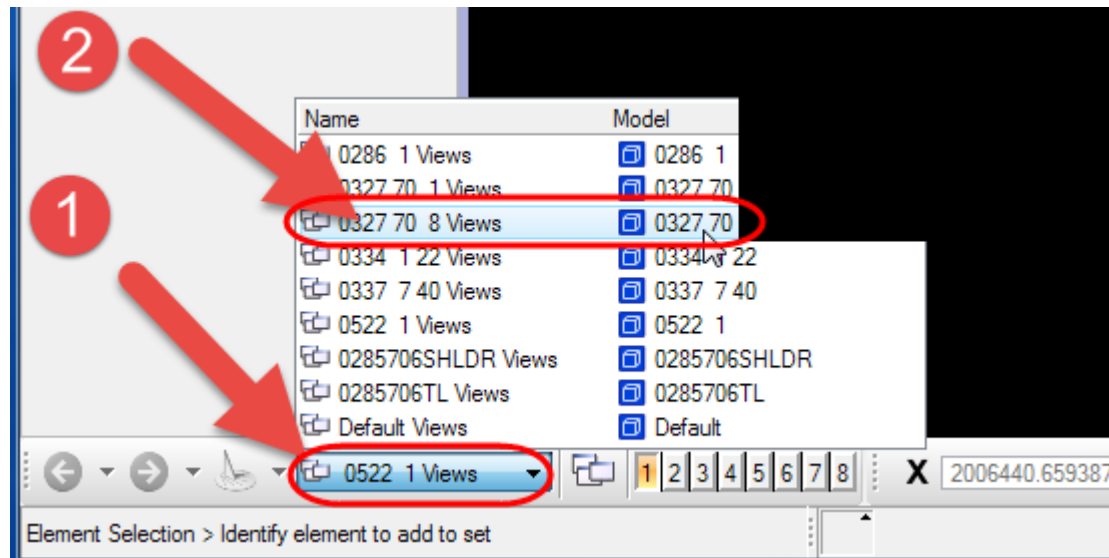


With this option, you see the model names as well as the description.

# MicroStation Basics

OR...

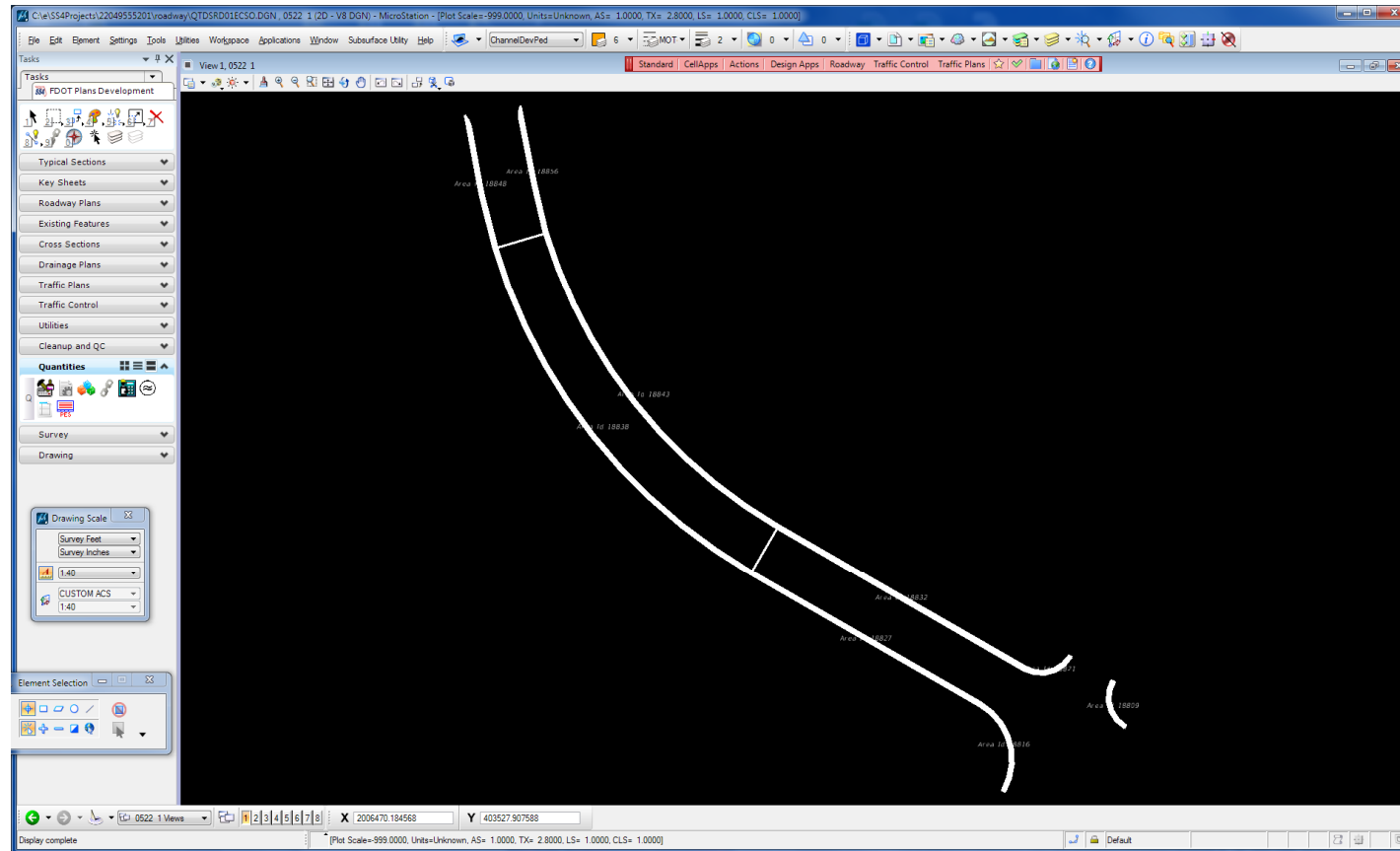
- Click on the View Group drop down menu at the bottom left corner of the screen.
- Select the model from the list that you want to open.



With this option, you only see the model names. It is also possible that not all of the models are included in this list. If not, you'll need to open the Models dialog box.

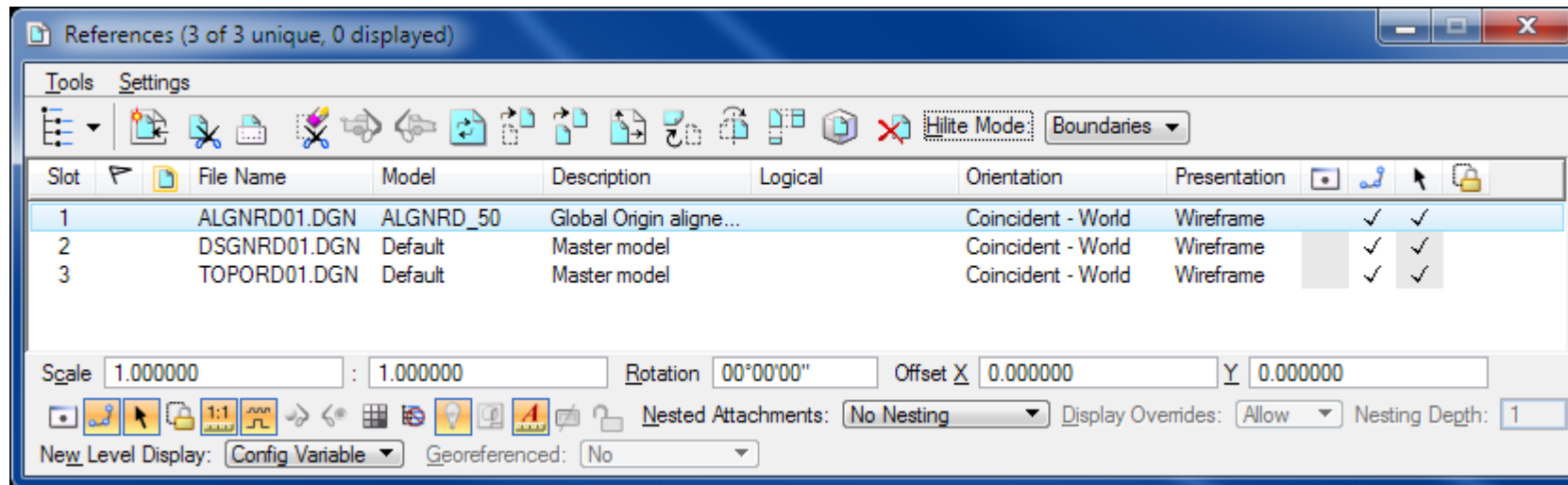
# MicroStation Basics

- Once the desired Model has been opened, the contents can be viewed.



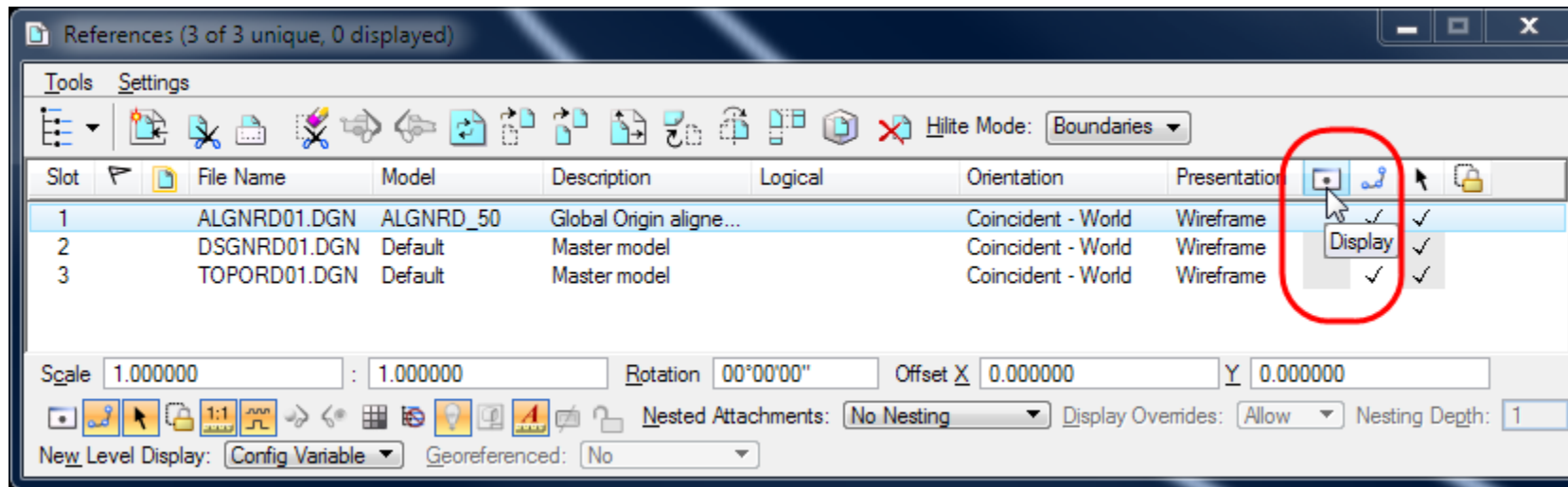
# MicroStation Basics

- If the references have not been left turned on, they can be turned on using the References dialog.
- References can be accessed by:
  - File > References
  - References icon on the Primary Toolbar (right next to the Models icon)



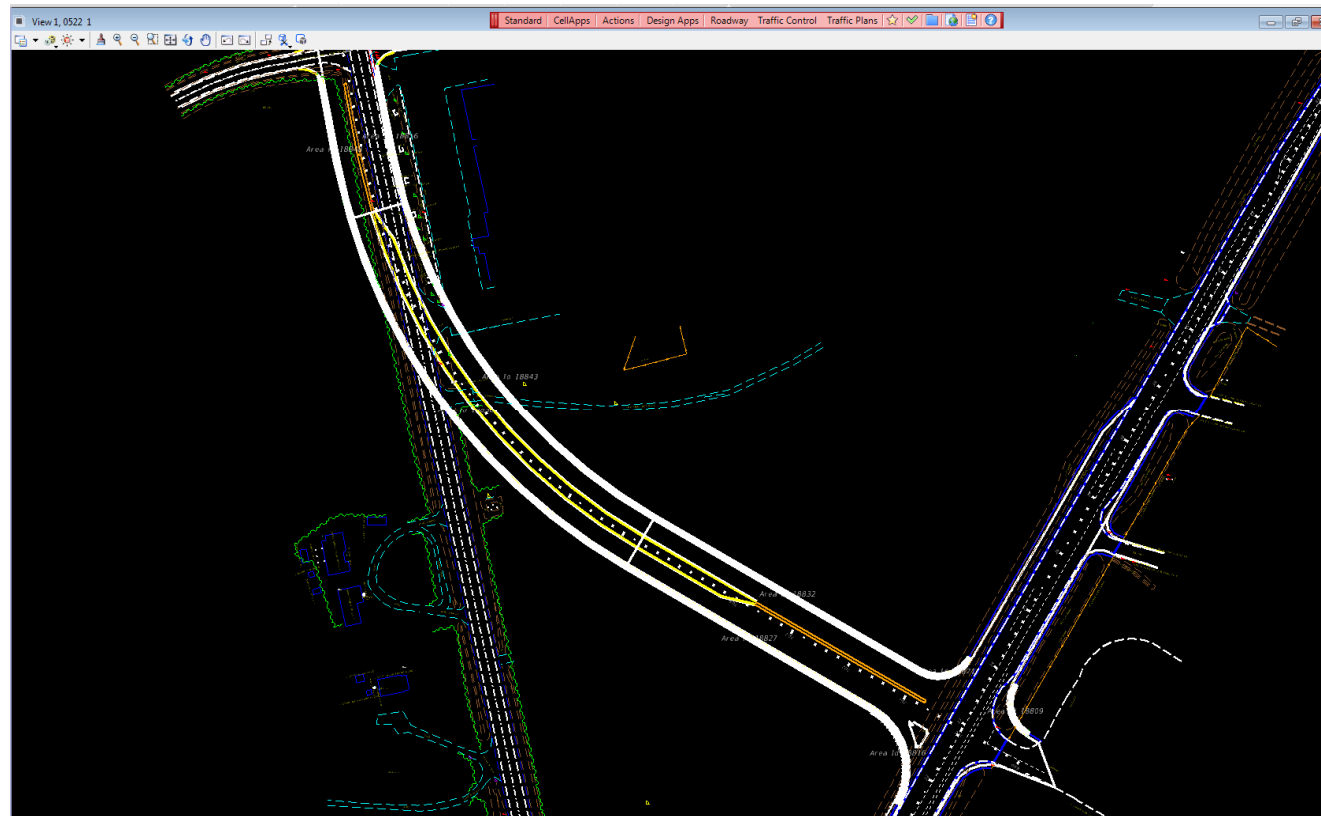
# MicroStation Basics

- Click in the Display column to toggle the references on and off.



# MicroStation Basics

- Having the references turned on gives you a better feel for where you are looking in the project.



# MicroStation Basics

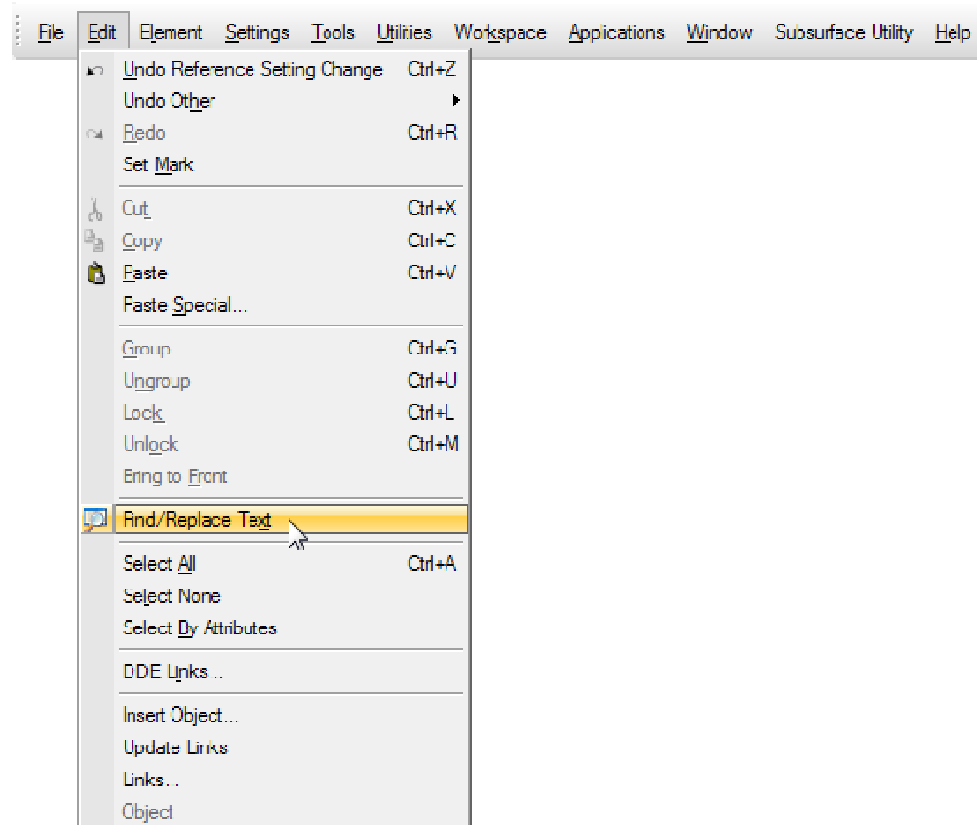
- To locate the shape for a quantity...
  - get the AREA ID from the Plan Summary Box.

SUMMARY OF SIDEWALK & DETECTABLE WARNINGS									
LOCATION		SIDE	AREA ID	LENGTH	WIDTH	CONC SIDEWALK 4"		DESIGN NOTES	CONSTRUCTION REMARKS
						0522 1			
STA. TO STA.						SY			
						P	F		
701+34.00	to 705+70.99	LT	18827			291.3			
705+70.99	to 712+37.08	LT	18838			466.2			
712+37.08	to 714+57.32	LT	18848			145.7			
699+08.00	to 699+66.00	RT	18809			57.6			
700+42.00	to 701+00.00	RT	18821			57.6			
701+00.00	to 705+70.99	RT	18832			314.0			
705+70.99	to 712+37.08	RT	18843			421.9			
712+37.08	to 714+55.65	RT	18856			138.7			
SUB-TOTAL:						1893.0			
TOTAL:						1893			



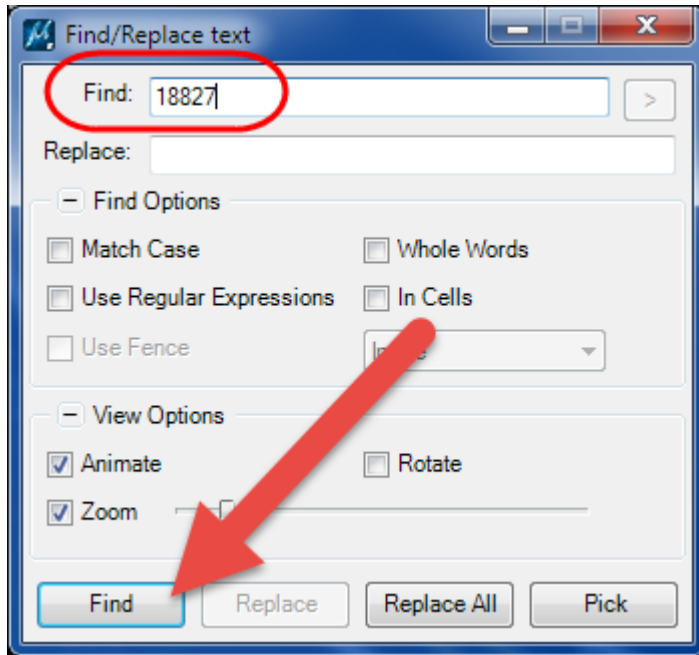
# MicroStation Basics

- To locate the shape for a quantity...
  - Go to Edit > Find/Replace Text in MicroStation



# MicroStation Basics

- To locate the shape for a quantity...
  - Type in the AREA ID in the Find: field of the dialog and click Find



Hint: Leave Animate and Zoom toggled on. When you click on Find, it will zoom into the shape you are looking for.

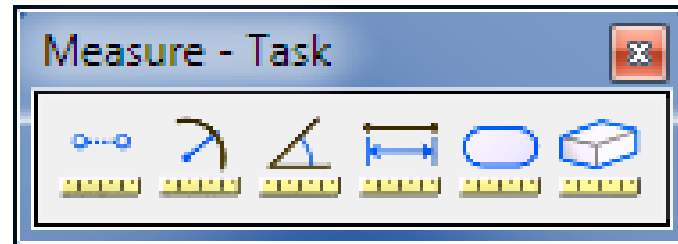


# MicroStation Basics

- If the AREA ID's are not labeled in the file, then it is recommended to contact the designer for the project and have them correct the file.
  - These labels are **required** by Design when documenting the quantities that have been automated using the CADD software.

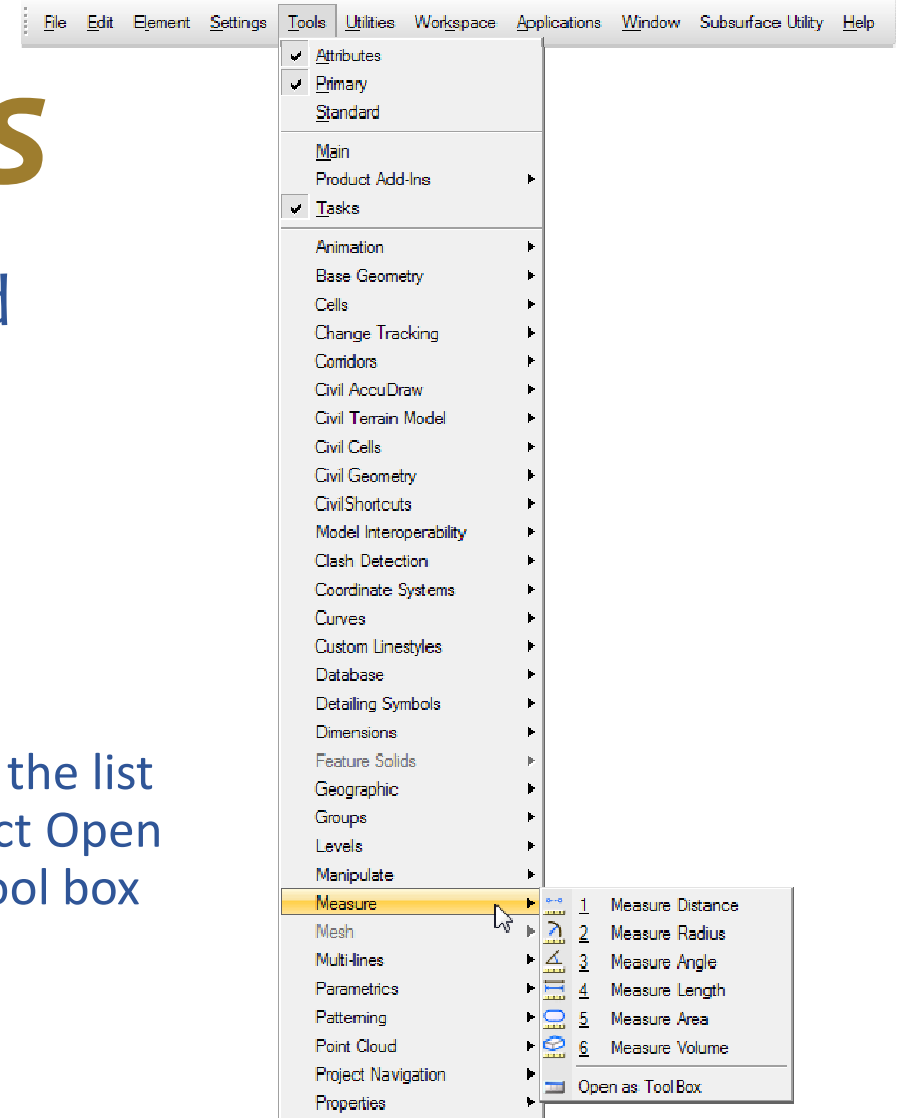
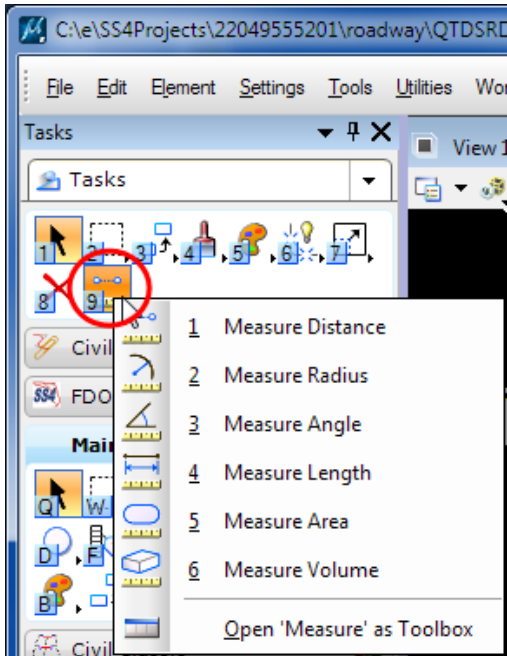
# MicroStation Basics

- Once the area shape has been located, the Measure tools can be used to measure distances, areas, element lengths, etc.
  - Distance
  - Radius
  - Angle
  - Element Length
  - Area
  - Volume (Not valid for 2D plan shapes)
    - Note: Measurements are in Master Units. For the FDOT workspace this is Survey Feet. (which means linear measurements are in FT and areas are in SF not SY)



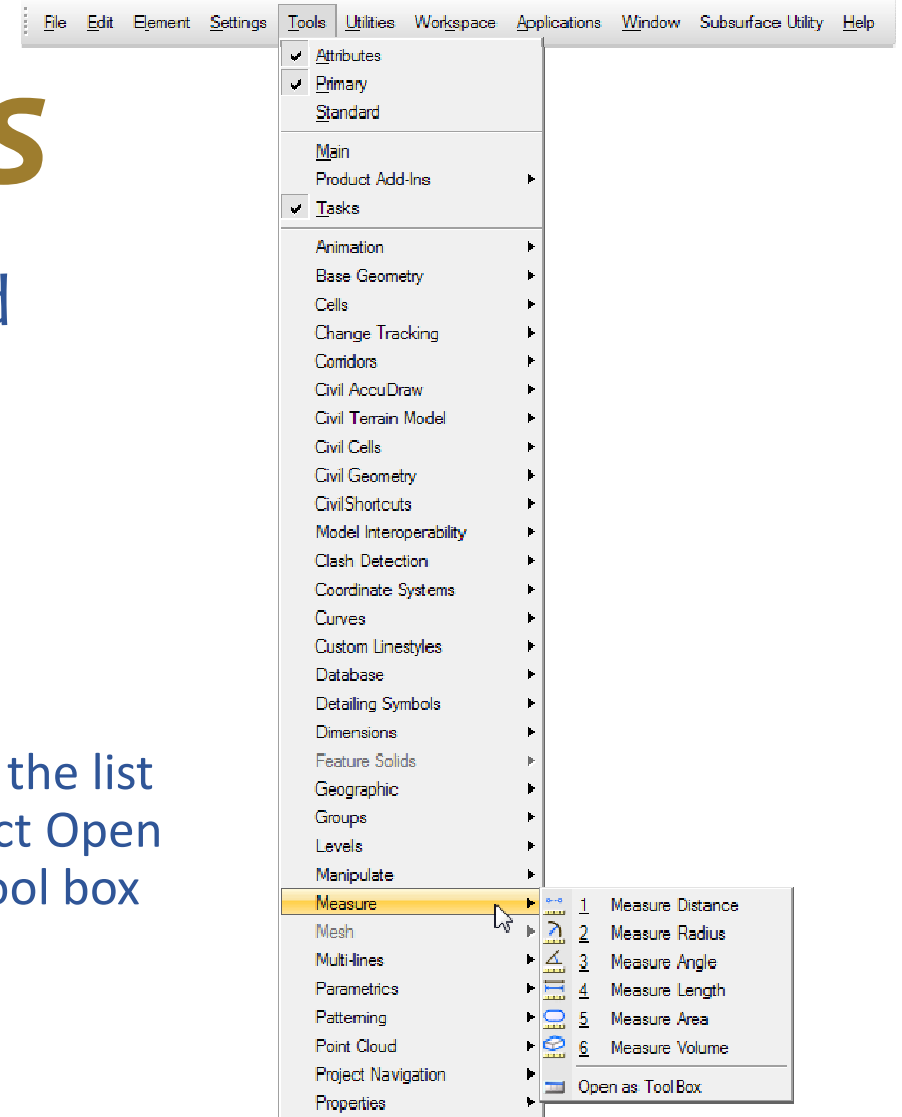
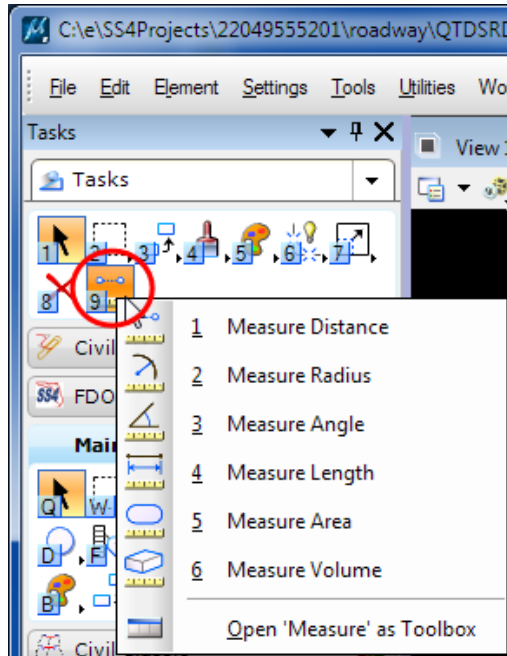
# MicroStation Basics

- Measure tools can be accessed from several locations
  - Tools Menu
  - Task Menus
    - Tasks
    - Main Classic
    - Note: Click and hold to scroll down the list to the desired Measure tool or select Open 'Measure' as Toolbox to open the tool box



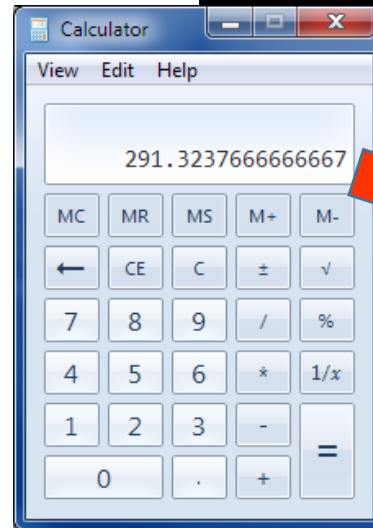
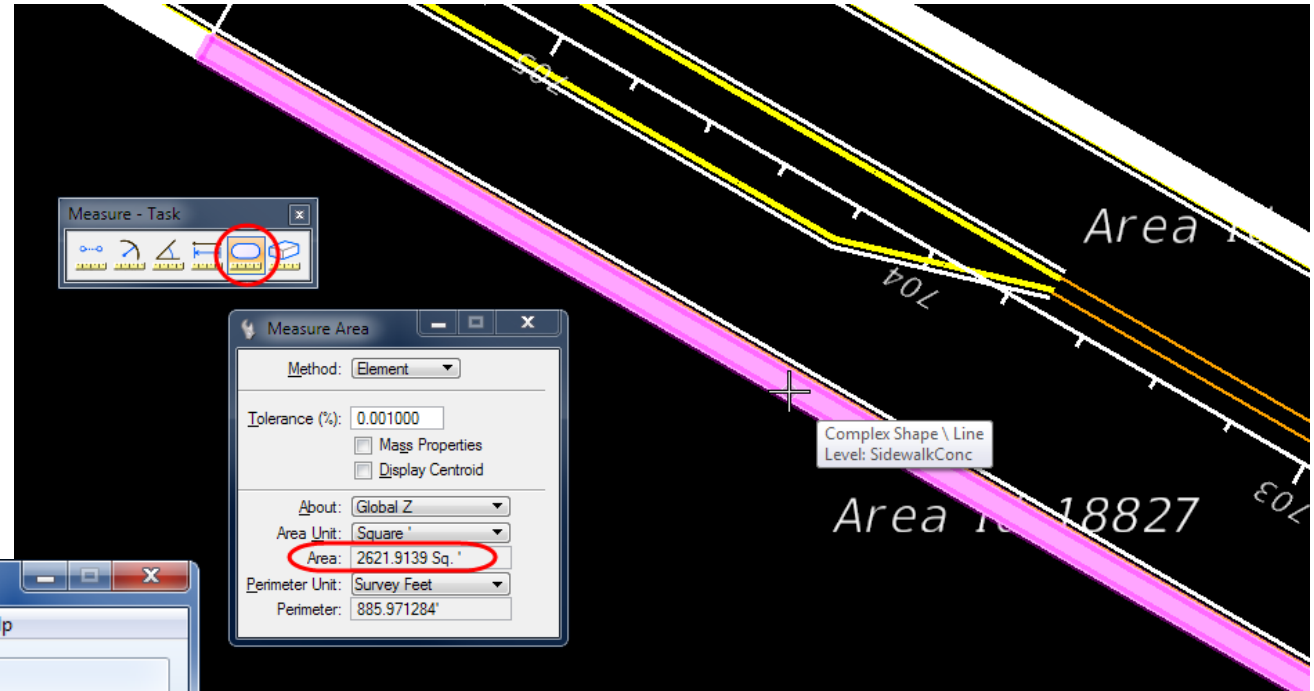
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# MicroStation Basics

- Measure Area
  - Select the Measure Area Tool
  - Click on the shape in the view
  - Take the Area Value populated in the Measure Area dialog box and divide by 9.
  - Compare to the value in the Summary Box



SUMMARY OF SIDEWALK & DETECTABLE W.

LOCATION	SIDE	LENGTH	WIDTH	CONC SIDEWALK 4"	
				P	F
A. TO STA.					
00 to 705+70.99	LT	18827		291.3	
99 to 712+37.08	LT	18838		466.2	

# More MicroStation Training

- More training is available for FDOT employees or contractors/consultants working from a FDOT office (i.e. have a DOT e-mail address)
  - FDOT has a subscription to Bentley's Learn site which provides training on all Bentley products. Contact the Jennifer Weeks in ECSO to get registered and set up for a MicroStation Basic Learning Path.





Need some HELP? Contact me...

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OR: [ecso.support@dot.state.fl.us](mailto:ecso.support@dot.state.fl.us)

<http://www.dot.state.fl.us/ecso>

FDOT CADD Support Forum On-line

[http://communities.bentley.com/communities/user\\_communities/fdot\\_cadd\\_support/default.aspx](http://communities.bentley.com/communities/user_communities/fdot_cadd_support/default.aspx)