2nd Sheet Documentation
For Microsoft Office and MicroStation V8i
(Select Series 2)

Roadway Design Division
Website https://www.tn.gov/content/tn/tdot/roadway-design/design-standards/design-cadd-files.html
Email TDOT.CADDSupport@tn.gov
# Table of Contents

2nd Sheets Using Office 2010 and MicroStation V8i ................................................................. 3
General Information .................................................................................................................. 3
Set up Office 2010 .................................................................................................................. 4
Word: ........................................................................................................................................ 4
  Word Template Files .............................................................................................................. 11
Excel: ....................................................................................................................................... 11
  Saving Documents with Macros ........................................................................................... 15
  Enabling macros that are not in a trusted location .............................................................. 17
Excel Template Files .............................................................................................................. 18
  C:\Users\Public\Office Standards\Survey ........................................................................... 18
  C:\Users\Public\Office Standards\TDOT 2nd Sheets ............................................................ 18
  C:\Users\Public\Office Standards\TDOT Tab Quantities ...................................................... 18
Estimated Roadway Quantities Excel File ............................................................................. 20
Create The TDOT Estimated Roadway Quantities ............................................................... 21
Estimated Roadway Quantities Macros .................................................................................. 25
  Project Column Format ....................................................................................................... 25
  Select Item Numbers From List .......................................................................................... 27
  Fill In Description and Unit ................................................................................................. 33
  Import CSV File for Items .................................................................................................. 33
  Sort Item Numbers ............................................................................................................ 35
  Format Item Numbers ......................................................................................................... Error! Bookmark not defined.
  Import CSV .......................................................................................................................... 37
Auto-Build Tabulated Quantity Block Macro Access ............................................................ 38
Alternate Pay Items .............................................................................................................. 38
Additional Estimated Roadway Quantities Worksheets ....................................................... 39
Add Tabulated Quantity Blocks In The Estimate File ......................................................... 40
Removing Tabulated Quantity Blocks In The Estimate File .............................................. 41
  Standard Tabulated Quantity Template Formatting ......................................................... 42
Auto-Build Tabulated Quantity Blocks ................................................................................ 43
  Guardrail Tab Builder ........................................................................................................ 43
  Storm Drainage Pipe Tab Builder ...................................................................................... 45
  Storm Drainage Structures Tab Builder ............................................................................ 46
2nd Sheets Using Office 2010 and MicroStation V8i

General Information

Instructions in this document are for development of 2nd sheets using Office 2010 and MicroStation V8i. The process of attaching Office files in MicroStation is called ‘OLE linking’, which stands for Object Link and Embed. It works best to Link Excel files and to Embed Word files when users are attaching Office files to MicroStation. CADD Support has embedded several Word documents in MicroStation DGN seed files including General Notes and Index sheets in order to streamline their production.

‘Embedded’ Word documents are available only from inside the MicroStation file.

‘Linked’ Excel files are external to MicroStation and can be opened & edited from either inside MicroStation or outside of MicroStation directly in Excel. If the Office file is edited separate from MicroStation, the link in MicroStation must be updated after the MicroStation file is opened in order to reflect the current information.

The Office OLE attachment is a picture of the Office file. The boundary of the picture is defined by a MicroStation shape element. The OLE attachment can be modified by graphics commands such as move, copy and scale.
Set up Office 2010

This is the recommended set up for Office 2010 when using the T.D.O.T. Roadway Design Division templates and programs. If Office templates are not installed to the default folders, then the directions will need to be modified accordingly.

Do this **one time only** when using **Word** and **Excel 2010** for the first time with the **TDOT** templates and programs. This must be done for each user profile in the computer that will be using Office 2010 to link with MicroStation.

**Word:**

1. In Word 2010, click on the **File** tab at the far left of the ribbon and choose **Options** from the drop down list.
2. In the Word Options dialog click on **Save** in the options on the left.

Set the **Save Files in this format** option to "**Word Document (*.docx)**".

Set the **Default file location**: Use the Browse button to the right of "**Default File Location:**".

Set the folder where you wish all Word documents to be saved by default.
3. In the Word Options dialog, click on **Advanced** in the options on the left. Scroll down to the **General** section and click the **File Locations** button.

Click on **User Templates** and then click on the **Modify** button. Navigate to and set the folder to: "C:\Users\Public\Office Standards".

Click **OK** to save the setting.

This will set the default template location for both **Word** and **Excel** so that the TDOT template folders will be available.
4. In the Word Options dialog, click on **Trust Center** in the options on the left. Click on the **Trust Center Settings** button.
5. In the Trust Center dialog, click on **Trusted Locations** in the options on the left. Then modify as listed:
   a. If you will be using Office documents on a network drive, check the box at the bottom for
      Allow Trusted Locations on my network.
   b. Select the trusted location for "**Word 2010 default location: User Templates**".
      Click the **Modify** button.

   All files stored under Trusted Locations will automatically load macros without any action from the user.

   ![Trust Center Dialog](image)

   c. In the dialog box, which opens for the **User Templates**, set the **Path** by Clicking on the **Browse** button.

      Select the **Path** "C:\Users\Public\Office Standards".

      Select on the box for "**Subfolders of this location are also trusted**" and click **OK**.

   ![User Templates Dialog](image)

6. In the Trust Center dialog, click the **Add new location** button.
Click the **Browse** button and navigate to the location where your project files are stored.

It is recommended for TDOT personnel that all Roadway Design Projects be stored on your c: drive in a folder named Projects and individual projects in subfolders.

**Click on the "Subfolders of this location are also trusted" option**, key in a description if desired and click **OK**.

With your project folders defined as trusted locations, all macros will automatically be enabled.

Your Trusted Locations should look like this.
If you open a Word 2010 file with macros that is not in a trusted location, the following two settings, numbers 7 and 8 will provide you the opportunity to enable the macros as needed.

7. In the Trust Center dialog, click on **Macro Settings** in the options on the left. The option "Disable all macros with notification" should be set.
8. In the Trust Center dialog, click on Message Bar in the options on the left. The option "Show the Message Bar in all applications when active content, such as ActiveX controls and macros, has been blocked" should be set.

9. Click **OK** at the bottom of the Trust Center dialog to save the Trust Center settings just made.

10. This completes the settings under Word Options, so click the **OK** button at the bottom of that dialog to complete the Word 2010 set up.

**Word Template Files**

T.D.O.T. Roadway Design Division Word templates used with MicroStation, are part of the Standard Design and Survey CADD Files and Documents, Office downloads from the TDOT CADD web page. The templates listed below should be in their default folder locations as shown.

C:\Users\Public\Office Standards\Survey
- Property Owner Contact Letter - Aerial Flagging.dotm
- Property Owner Contact Letter - Geotechnical Staking.dotm
- Property Owner Contact Letter - ROW Staking.dotm
- Property Owner Contact Letter - Survey.dotm
- Region 1 Survey Letterhead.dotx
- Region 3 Survey and Roadway Design Letterhead.dotx
- Sheet 3 ROW Notes Utility Notes Utility Owners XXXXXX.dotx
- Survey Check List_Field.dotx
- Survey Check List_Office.dotx
- SURVEY_SUBMITTAL_CHECK_LIST.dotx
- SuveyContact_Avery5160_Labels.docx
- SuveyContact_Envelopes.docx

C:\Users\Public\Office Standards\TDOT 2nd Sheets
- Bridge Index.dotx
- CONSTRUCTION INDEX XXXXXX.dotx
- Drop Off Notes Traffic Control XXXXXX.dotx
- EPSC Notes XXXXXX.dotx
- General Notes XXXXXX.dotx
- Index and Standard Drawings XXXXXX.dotx
- PRELIMINARY INDEX TITLE SHEET XXXXXX.dotx
- RIGHT OF WAY INDEX TITLE SHEET XXXXXX.dotx
- Sheet 3 ROW Notes Utility Notes Utility Owners XXXXXX.dotx
- SHEET FORMAT FOR 2ND SHEET NOTES XXXXXX.dotx
- Special Notes XXXXXX.dotx
- Standard Roadway Drawings XXXXXX.dotx
- Standard Structure Drawings XXXXXX.dotx
- Standard Traffic Operations and Structure Drawings XXXXXX.dotx
- Standard Traffic Operations Drawings XXXXXX.dotx

C:\Users\Public\Office Standards\TDOT Tab Quantities
-NONE-
Excel:

1. In Excel 2010, click the **File** tab at the far left of the ribbon and choose **Options** from the drop down list.

2. In the **Excel Options** dialog, click **Save** in the options on the left. Set the option for **Save Files in this format**: "Excel Workbook (*.xlsx)". Change the path given for **Default File Location**: Set the folder where all Excel documents should be saved by default.

3. In the Excel Options dialog, click **Trust Center** in the options on the left.
Click the **Trust Center Settings** button.

4. In the Trust Center dialog, click **Trusted Locations** in the options on the left. Select the trusted location for **Excel 2010 default locations: User Templates**. Click the **Modify** button.

   All files stored under Trusted Locations will automatically load macros without any action from the user.

5. In the dialog box, which opens for the **User Templates**, set the Path by clicking the **Browse** button.
Select the Path "C:\Users\Public\Office Standards".
Select the box for "Subfolders of this location are also trusted" and click OK.

6. In the Trust Center dialog, click on the Add new location button.
Click on the **Browse** button and navigate to the location where your project files are stored. It is recommended for TDOT personal that all Roadway Design Projects be stored on your c: drive in a folder named Projects and individual projects in subfolders.

Click on the "**Subfolders of this location are also trusted**" option, key in a description if desired and click **OK**.

With your project folders defined as trusted locations, all macros will automatically be enabled.

Your Trusted Locations should look like this.
Note: If you open an Excel 2010 file with macros that is not in a trusted location, the following two settings, numbers 7 and 8 will provide you the opportunity to enable the macros as needed.

7. In the Trust Center dialog, click on Macro Settings in the options on the left. The option "Disable all macros with notification" should be set.

8. In the Trust Center dialog, click on Message Bar in the options on the left. The option "Show the Message Bar in all applications when active content, such as ActiveX controls or macros, has been blocked" should be set.

9. Click OK at the bottom of the Trust Center dialog to save the Trust Center settings just made.

10. This completes the settings under Excel Options, so click the OK button at the bottom of that dialog to complete the Excel 2010 set up.

Saving Documents with Macros
If you try to save a new document that has macros with the default file formats, .docx or .xlsx, then you will be warned that all macros will be thrown out since those file types are specifically macro free.

If you no longer need the macros, simply click Yes to save the file in the macro free format. Otherwise, click No to stop at this point.

To keep macros for later use, go to File > Save As and under Save As Type choose the macro-enabled one.

Previously saved documents automatically save in their current format.
Enabling macros that are not in a trusted location

If you open a file with macros that is not in a trusted location, a **Security Warning** message bar will appear.

If you need to use the macros, click the **Enable Content** button in the message bar. The Security Warning message bar goes away and macros are ready for use. Once a document has been trusted, Office 2010 remembers the name so that it will not be necessary to Enable Content again later.
Excel Template Files

T.D.O.T. Roadway Design Division Excel templates used with MicroStation, are part of the Standard Design and Survey CADD Files and Documents, Office downloads from the TDOT CADD web page. The templates listed below should be in their default folder locations as shown.

C:\Users\Public\Office Standards\Survey
- ROWAcqTable.xltm
- Survey_CONTACT_Acq_Create.xltm
- Survey Weekly Progress Report.xltx
- Utility Owners.xltx

C:\Users\Public\Office Standards\TDOT 2nd Sheets
- Bridge Quantities.xltm
- Maintenance Quantities.xltm
- Project Commitments.xltx
- Estimated Roadway Quantities XXXXXX.xltm

C:\Users\Public\Office Standards\TDOT Tab Quantities
- Builder Guardrail Tab.xltm
- Builder Storm Drainage Pipe Tab.xltm
- Builder Storm Drainage Structure Tab.xltm
- OutFalls.xltx
Estimated Roadway Quantities Excel File

The Estimated Roadway Quantities Excel file is required on all jobs per the T.D.O.T. Roadway Design Division Roadway Design Guidelines. A preliminary construction quantity estimate Excel file shall be submitted to the Estimating and Bid Analysis Office when the Right-of-Way plans are turned in per Section 3-400.15. A complete construction quantity estimate Excel file shall be turned in to the Estimating and Bid Analysis Office when the plans are turned in for construction, Section 4-140.06. See Section 4-140.05 for details on the Estimated Roadway Quantities Excel file.

This Excel quantities file is used as an input file for a T.D.O.T. computer database program. The worksheets names, column and row locations and heading information should not be changed or the database program will not input the data correctly.

The Estimated Roadway Quantity Excel file will contain all worksheets that are needed for a design project. The following worksheets are required but not limited to the following: Project Data, Rdwy Quantity Block 1, Rdwy Quantity Block 2 (if needed, etc), Foot Notes, Box Bridge Quantities Block, and all Tabulated Quantity Blocks. There may be many worksheets for a large job.

The Estimated Roadway Quantity file has all of the approved Tabulated Quantity Blocks embedded in it for TDOT Roadway Projects.

Structures, Maintenance and the Right-Of-Way Utilities Office also have estimated quantities Excel files that they submit to the Estimating and Bid Analysis Office. The templates for these are included in the TDOT 2nd Sheets download.

The Utility Office provides their estimated quantities Excel worksheet to their users. The Utility Office will send a copy of the utility Excel worksheet to the Roadway Design Division so the “Estimated Utilities Quantities” Sheet 2A3 for the plans can be produced, as per Section 4-137.00 in the T.D.O.T. Roadway Design Division, Roadway Design Guidelines.

Save the Excel file to your project folder. Any links attached will not be correct if the Excel file is not saved onto your computer or computer network where your files are stored before attaching them to a MicroStation file.
Create The TDOT Estimated Roadway Quantities

It is required that the user have all of the tabulated quantity blocks in the same file with the estimated roadway quantities. By putting all of the worksheets together in the same Excel file, the quantities on the different tab block sheet quantities should be linked to the estimated quantities sheet. These same tab blocks and quantity blocks will be linked to the MicroStation design files. By setting up the Excel estimate file in this way, each quantity can be entered and updated in one location only, and will then be updated in each of the locations where the value appears.

These directions will first demonstrate creating the Estimated Roadway Quantities file and later describe adding other tabulated blocks.

1. In Excel, click on the File tab on the far left of the Excel ribbon and choose New.
3. Go to the TDOT 2nd Sheets tab and select the Estimated Roadway Quantities.xltm template.

Choose the file with the latest revision date.
4. Fill in the **Project Data** sheet. Instruction notes are available on the worksheet. Hold the mouse pointer over the small red triangles for directions. NOTE the rows with RED text (2, 3, 5, 6, 9, 11, 13, 27, 28 and 31) in column “A” are required be filed in before you can proceed! The example below shows what must be filled in to proceed

5. When you have filled in all the data for the Project Data sheet click on the Continue Button. You will notice the sheet tabs will appear at the bottom of the sheet.
6. Before you can fill in the Estimated Roadway Quantity Block(s) you must have quantities and they must be tabulated. All tabulated blocks are in this one file. To open a tabulated block sheet click on the tab at the bottom named **Add Sheets**.

7. This will bring up a dialog box so the user can choose the **Classification** and **Type** of Tab Block need.  
   NOTE: All approved Tabulation Blocks are in this file and are hidden. This will unhide them for you.  
   For this example, we will open Catch Basins & Manholes Tabulation Block.

Make your selection and **Click Select**.
8. This will open a sheet for the chosen Tab Block as shown.

Then the user can fill in the data that is needed and repeat step no. 7 as many times needed to open the Tab Blocks that are required for the project.

**NOTE:** If you need to remove a Tab Block, repeat step no. 7 and choose the same Tab Block again, and click on **Select**, and it will be hidden again.

- In all Tabulated Blocks, the Headers are locked and cannot be edited.
- Individual cells for things like item numbers and type can be edited, as required.
- The Tab Blocks are setup for a full sheet of data when placed in a MicroStation file.
- You may delete Rows as needed to adjust the size (length) of the block.
- Be careful not to delete the **TOTALS** Row so the sheet will tabulate your quantities.
9. The worksheets named: **Rdwy. Quantity Block 1, Rdwy. Quantity Block 2 and Box Bridge Quantities Block**, contain several macros that are available to help fill out the estimated quantities block. On these worksheets, buttons are provided to access the macros with descriptions to the right as shown.

---

**Estimated Roadway Quantities Macros**

**Macro:**

**Project Column Format**

These macros listed below will **Hide** and **Unhide** the extra quantity columns. These macros **should always be used** so that the macro buttons and description text to the right will move with the columns and keep the correct format of the table. Macro "**1 Project Column Format**" through "**5 Project Column Format**" function the same they just open up the additional columns as needed.

**1 Project Column Format**

For most projects, where there is only one project number, the one column format should be used and it is the default table as shown and when the Excel file is open for the first time.
Note: If the one column format is not shown and you need only one column then Click on the "1 Project Column Format" button and the Macro will reformat the sheet.

2 Project Column Format

For projects that go across two counties or for another reason have two project numbers with a total quantities column, there is the two column format. Click on the "2 Project Column Format" button and the Macro will reformat the sheet.
3 Project Column Format thru 5 Project Column Format

For projects that go across three counties or for another reason have three project numbers with a total quantities column, there is the three-column format thru five-column format. Click on the "3 Project Column Format" button thru "5 Project Column Format" button and the Macro will reformat the sheet.

**Note:** You can Click on the Project Column Format Buttons at any time to Hide or Unhide the columns. But it will nor remove any information you will need to do the manually. Do not hide unrequired data! This will cause problems for other users.

**Macro:**

**Select Item Numbers From List**

**Note:** There are two macros to place item numbers in the work sheets: The first is the macro "Select Item Numbers From List" and it uses the Items.dat file. The file Items.dat must be in the folder C:\Users\Public\Office Standards\TDOT 2nd Sheets. The second is the macro "Import CSV File for Items."
These macros are used to fill in item numbers, descriptions and units. They will direct the user to the website to download the items.dat file if the file is not on the computer in the correct location or if it is more than 30 days old.

1. Uses the Items.dat file located at C:\Users\Public\Office Standards\TDOT 2nd Sheets to find items, list them in an Item Select window and write the items selected to the worksheet.

![Excel Sheet](image)

If the items.dat file is not on the computer in the correct location or if it is more than 30 days old you will see the following block and you will need to download the items.dat file. It is recommended to always update this file due to item numbers and descriptions changing so often due to standard drawings being revised.

2. Click on "Select Item Numbers From List"
   This will open a dialog box named: "Old Database File" as shown.

![Dialog Box](image)

3. Click on "Download Items.dat from the web page now."
4. The following web page will open. In the web page named; "Roadway Item List" scroll down the blue underlined text "Download Search Item lists" and click on it.
5. This will open Windows Explore to **RUN** an EXE file named "**RosdwayItemList.exe**", **Double Click** on it.
6. This will open a dialog box named: "WinZip Self-Extractor – RoadwayItemList.exe" as shown.

Then Click Unzip

Check Overwrite files without prompting

This will place the Items.dat file in the right place and overwrite the old file. You can X out of this box.

7. You should see the following dialog box if the macro works correctly.

Click OK

Now you are ready to search and import item numbers in the Estimated Roadway Quantities Block.

8. You will need to Click on "Select Item Numbers From List" Again to be able to select item numbers.
9. You will see the following Dialog box again but now **Click on "Use existing Items.dat file."**

This will bring up the Item Select Dialog Box.

**These are the associated buttons:**

**Search** – If the **Search for Items** field is left blank, the search button will open all of the items. Put in one or more numbers or letters to pull up all items containing those characters. Do **not** use any wild card characters. Use the **Shift** or **Ctrl** key to select or unselect multiple items.

**Import** – Will prompt for the Excel cell to start placing the selected item numbers, descriptions and units.

**Reset** – Clears the **Items Found** list box.

**Close** – Closes the **Item Select** dialog box.

10. The **Item Select** Dialog Box
For this example, we typed 705 in the "Search For Items" window and clicked on Search. This will bring all items numbers that stars with 705. Then we select the desired items.

11. Click Import.
This will bring up a dialog box that will ask you for a starting location of the cells to placing the item data.

12. Click in the Estimated Roadway Quantities block cell where we want to start placing the item numbers we choose. In the example we selected B6.

The imported item data
Macro:

**Fill In Description and Unit**

Uses the *Items.dat* file located at `C:\Users\Public\Office Standards\TDOT 2nd Sheets` to find items, list them in an *Item Select* window and write the items selected to the worksheet. The macro "**Fill in Description and Unit**" functions like the macro "**Select Item Numbers From List**" But only imports one item number at a time and you must know the complete item number.

Macro:

**Import CSV File for Items**

GEOPAK produces quantity calculation files in CSV (comma-separated values) format that can be input directly into the Excel estimated roadway quantities file. The default CSV file format from GEOPAK is item number, GEOPAK description, units and quantity. This macro imports only the item number and the quantity and then uses the **Fill In Description** … macro to enter the description and unit. The GEOPAK descriptions do not always match the official item descriptions which must be used.
1. You are prompted for the location of CSV file to import.

   Find your file to import, click on it then click on open.

   This will bring up a dialog box that will ask you for a starting location of the cells to place the item data.

2. Then **Click** in the Estimated Roadway Quantities block cell where we want to start placing the item data we choose. Then **Click OK**. In the example we selected B6.

   The imported Item data

   To import a CSV file **as written** for other tabulated quantity worksheets, see macro **Import CSV**.

**Macro:**
Sort Item Numbers

The item numbers must be sorted in numerical order by the item number. This macro sorts the item numbers selected by the user and maintains the correct formatting. The macro prompts the user to select the items to be sorted by the cell range in column B. Notice in the figure below; the item numbers are out of order.

1. Click on "Sort Item Numbers."

This Brings up the dialog box to select the range for sorting.
2. Select the range to be sorted by highlighting the Estimated Roadway Quantities Block in column B. For this example we highlighted B6 thru B20 and it fills in the Select Sort Area dialog box.

3. Click OK
Notice the item numbers are now sorted.
After sorting, the blank lines at the bottom can be deleted and blank lines between groups can be inserted as desired. Select the row by the row number, and right click for row **Delete** and **Insert** tools.

**Macro:**

**Import CSV**

This macro brings in a CSV (comma separated values) file to the worksheet selected, starting at the cell selected. This is intended as a way to build tabulation blocks on other worksheets, but can be used to bring the CSV file in without having any processing done on the information to the Estimated Roadway Quantities Block. You are **First** prompted for the CSV file to import. For this example we did ROW Markers.

**Select** the worksheet & cell location.

![Select worksheet & cell location](image)

**Before Import**

<table>
<thead>
<tr>
<th>RIGHT OF WAY MARKERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHEET</td>
</tr>
<tr>
<td>NO.</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>TOTALS</td>
</tr>
</tbody>
</table>

**After Import**

![After Import](image)
Auto-Build Tabulated Quantity Block Macro Access

These macros are provided as a way to access the macros in the Excel auto-build tabulated quantity block templates. When those templates are inserted as worksheet templates, their macros are not brought in. The macro buttons can be re-assigned to these macros to access the programs from the original template files.

BuildCatchBasinsBlock    \texttt{runcheckitemsCB}
BuildGRBlock        \texttt{runcheckitemsGR}
BuildStormDrainagePipes runcheckitemsSS

See the section \textbf{Auto-Build Tabulated Quantity Blocks} for full descriptions of these macros.

Alternate Pay Items

All alternate items \textbf{must} be placed after all of the other roadway items.

In Column C (the description column) on the line preceding the alternate items, enter the designation for the alternate as ALTERNATE AA1, ALTERNATE AA2, ALTERNATE AA3, etc.

AA1 will alternate with AA2 and AA3.

If there were another set of items to be alternated, they would be labeled ALTERNATE AB1, ALTERNATE AB2, ALTERNATE AB3, etc.

AB1 will alternate with AB2 and AB3.

A third set of alternates would be AC1, AC2, AC3, etc.
Additional Estimated Roadway Quantities Worksheets

To add an additional "Rdwy. Quantity Block #" Worksheet:

1. **Select** the worksheet tab named "Add Sheets."

![Select Worksheet Tab](image)

This will bring up a dialog box so the user can choose the **Classification** and **Type** of Tab Block need.

**NOTE:** All approved Tabulation Blocks are in this file and are hidden. This will unhide them for you.

For this example, we opened **Roadway Quantities Blocks & Rdwy. Quantity Block 3**.

![Add Sheets Dialog Box](image)

2. **Make your selection and Click Select.**

Your New Worksheet

![New Worksheet](image)
The Project Data worksheet must be the first worksheet in the file, the second set of worksheets are the Estimated Roadway Quantities worksheets with the name Rdwy. Quantity Block # (numbered 1 thru 6 if needed), the third set is the Foot Notes worksheet and the fourth set is the Box Bridge Quantities worksheet and the next set is all other tabulated worksheets need for the roadway project.

Add Tabulated Quantity Blocks In The Estimate File

Note: All tabulated quantity sheets the TOTALS row of cells contain formulas to sum the contents of the columns or rows.

1. Select the worksheet tab named "Add Sheets."

This will bring up a dialog box so the user can choose the Classification and Type of Tab Block need.

NOTE: All approved Tabulation Blocks are in this file and are hidden. This will unhide them for you.

For this example, we opened Storm Drains & Endwalls & Storm Drain Endwalls.

2. Make your selection and Click Select.
Your New Worksheet

Note: The new worksheet selected may not be in the proper order. To change the order of the worksheets, select the worksheet tab, hold the left mouse button down and then drag and drop to the location wanted.

Removing Tabulated Quantity Blocks In The Estimate File

Note: To remove a tabulated quantity sheets that you have opened just repeat the process for opening the sheet. This process will hide the worksheet but will not remove any data you have entered into it. Do NOT submit an Estimated File with hidden data it will not work properly for the Estimate and Construction Offices. They will send your file back to you to fix.

1. Select the worksheet tab named "Add Sheets."
This will bring up a dialog box so the user can choose the **Classification** and **Type** of Tab Block that need to be hidden \ removed. You must choose the exact name of the Tabulation Block for this to work. If you have renamed a tab for a Tabulation Block, it will not work.

2. Make your selection and **Click** Select.

---

**Standard Tabulated Quantity Template Formatting**

1. All fonts are **Arial**.
2. Body text is size **9 or 10**, not bold.
3. The main heading text is size **16, bold**.
4. The sub heading text is size **9 or 10, bold**.
5. The **TOTALS** text is size **12, bold**.
6. The body horizontal lines are light weight.
7. The heading borders and vertical lines are medium weight.
8. All justification for cells is preset.
**Auto-Build Tabulated Quantity Blocks**

The following Excel templates include macros that automatically build the tabulation blocks using data files generated by GEOPAK.

Guardrail Tab Builder.xltm
Storm Drainage Pipe Tab Builder.xltm
Storm Drainage Structure Tab Builder.xltm

**Guardrail Tab Builder**

The macro in template **Guardrail Tab Builder.xltm** builds the guardrail block from a guardrail output file created with GEOPAK’s Design & Computation Manager Pay Items. The macro also runs the **Check Items Numbers** program to verify all item numbers that are used. See the **GEOPAK Road Course Guide, D&C Manager – Additional Functions, Section 20c. Quantities** for directions to create the guardrail output file using the **Comp Book** format. An example is shown below.

Do not use the **Append function** in GEOPAK to add guardrail quantities from multiple roadways together in the same file. Instead, generate each roadway guardrail tabulation in separate files and then combine using any text editor. **The Append function uses line feeds that are not recognized by Excel and will cause this program to fail.**

In Excel, click the **Build Guardrail Block** button and the user is given a file open dialog to **Select GEOPAK Guardrail Pay Items Output File**. Once the file is identified, the macro reads the data and builds the block.
Different roadways are sorted alphabetically based on the roadway chain name from the output file. If **Insert** is used to add this file as a worksheet in the Estimated Roadway Quantities file then it will be necessary to re-assign the macros for the buttons. Select a location away from the macro button, right click over the button and choose the **Assign Macro** option. From the macro list, pick **BuildGRBlock** for the top button & click **OK** to finish. Assign **runcheckitemsgsGR** to the bottom button. If you do not see these macros listed in your estimated roadway quantities file, then you will have to either set it up in a file by itself or update your estimated roadway quantities Excel file to the latest version of that file which includes these macros.
Storm Drainage Pipe Tab Builder

The macro in template Storm Drainage Pipe Tab Builder.xltm builds the storm drainage pipe tabulation block from the drainage report file created with GEOPAK Drainage using the drainage report format file TDOTlinksFULL.drf. The macro also runs the Check Items Numbers program to verify all item numbers which are used.

In Excel, click the Build Storm Drainage Pipe Block button to activate the file open dialog to Select Storm Drainage Link Report File. Once the file is identified, the macro reads the data and builds the block.

If Insert is used to add this file as a worksheet in the Estimated Roadway Quantities file then it will be necessary to re-assign the macros for the buttons. Select a location away from the macro button, right click over the button and choose the Assign Macro option. From the macro list, pick BuildStormDrainagePipes for the top button & click OK to finish. Assign runcheckitemsSS to the bottom button. If you do not see these macros listed in your estimated roadway quantities file, then you will have to either set it up in a file by itself or update your estimated roadway quantities Excel file to the latest version of that file which includes these macros.
Storm Drainage Structures Tab Builder

The macro in template Storm Drainage Structure Tab Builder.xltm builds the storm drainage catch basins, junction boxes and manholes tabulation block from the drainage report file created with GEOPAK Drainage using the drainage report format file TDOTnodesFULL.drf. The macro also runs the Check Items Numbers program to verify all item numbers that are used.

In Excel, click the Build Catch Basins and Manholes Block button and the user is given a file open dialog to Select Storm Drainage Node Report File. Once the file is identified, the macro reads the data and builds the block.

If Insert is used to add this file as a worksheet in the Estimated Roadway Quantities file then it will be necessary to re-assign the macros for the buttons. Select a location away from the macro button, right click over the button and choose the Assign Macro option. From the macro list, pick BuildCatchBasinsBlock for the top button & click OK to finish. Assign runcheckitemsCB to the bottom button. If you do not see these macros listed in your estimated roadway quantities file, then you will have to either set it up in a file by itself or update your estimated roadway quantities Excel file to the latest version of that file which includes these macros.
Link Tabulated Quantity Blocks to Estimated Roadway Quantities Worksheet

To link cells from tabulated quantity block worksheets to the estimated roadway quantities worksheet:

1. Select the cell where the linked value will be displayed. Enter the equal sign, =
   For this example we will link item no. 709-05.06, MACHINED RIP-RAP (CLASS A-1).

2. Click to the worksheet and cell to be linked.
3. Then add an $+$ in the **Formula Bar** (if you are going to link another tabulation block) and **click** on the second worksheet and cell to be linked.

4. When the correct worksheet name and cell address are entered into the **Formula Bar** entry window, **click** on the check mark, ✓ on the **Formula Bar** and the total quantity will be linked as shown.

**Note:** Do **not** have quantities linked to values in separate workbooks. The Estimating and Bid Analysis Office will not accept files with links to separate Excel files.
MicroStation 2D Files for Word and Excel

Have a 2d design file ready with a sheet border placed in it or open the plans sheet MicroStation DGN file. As with most design files for T.D.O.T. projects, the design file should be created from the T.D.O.T. Roadway Design Division Seed2d.dgn seed file, which is part of the T.D.O.T. Roadway Design Division standard CADD files downloads.

Name the MicroStation DGN sheet file according to CADDV8.pdf, Section Roadway Design DGN Project Filenames; Standard Sheet File Types: for all sheet files Use .SHT extension. For example, use the name 002A.sht for the first ESTIMATED ROADWAY QUANTITIES MicroStation sheet file and the second 002A1.sht etc. Tabulated Block sheets use the name 002B.sht, 002B1.sht, 002B2.sht, etc. For the complete INDEX of all sheets see the Roadway Design Guidelines.

There are several reasons why the MicroStation DGN sheet files need to be named according to the Standard Sheet File naming requirements. One, the project will be very easy to plot using InterPlot Organizer where the sheets will automatically be in order. Two, the names of the sheet files must be the same as the sheet number so that when the sheet is published on FileNet, other divisions, such as Right-of-Way and Construction, can easily find and use the files produced by the Design Division.

All Second Sheet files must be on a 1:1 scale! The Traffic Control and EPSC Tabulation Blocks shall also be placed on a 1:1 scale. The Right-Of-Way Acquisition Table should be on a 1:1 scale if it is on a sheet by itself or if it is with a Property Map it should be placed at the scale of the property Map. Other links can be placed on a plan sheet at the scale of the sheet or at the scale listed in the tabulated block.

Creating a New Second Sheet

1. Open MicroStation SS2 and click on the New File Icon.
2. In the window that opens to create a new 2nd sheet you need to set the seed type to seed2d.dgn. If it is not set, click Browse and select it. Next, set the location where the file will be created. Select your project Folder where the file is to be placed. It should be placed with the rest of the project files. The last thing you need to set is the name of the file. Then click **Save**.

![Image of window with file settings](image)

3. In the window that opens select the file and click **OPEN**.

![Image of file selection](image)
4. When the MicroStation file opens the first thing user needs to do is set the active scale to 1:1 for second sheets. In the Menu Ribbon at the top of MicroStation select Utilities and dropdown to **Key-in** and click on it to open it. Key in `as=1,1,1` in Key-in window and hit **Enter**. The file will be set to a 1:1 scale if it is a 2D or 3D file. Then in the Menu Ribbon at the top of MicroStation select **File** and dropdown to **Save Settings** and **click** on it. This will save the active scale so you will not need to do it again for this file.

5. Now we place a sheet cell. In the Menu Ribbon at the top of MicroStation select **T.D.O.T** and pull down to **Sheet Cells** and **click** on it.
6. This will bring up a dialog box to select your sheet border. Click on **Plan for Tabulated Quantities**.

![Sheet Cells dialog box](image)

7. This will activate the sheet cell the user needs to place the cell in the MicroStation file by clicking in the MicroStation view window where they want to place the cell. The sheet cell should look like this.

![Sheet cell in MicroStation](image)

The sheet cell has snap points for placing the **Estimated Roadway Quantity blocks by corners**. The **Yellow** snaps points are for placing the quantity block on the left side of the sheet. The first snap point is for placing the beginning corner point of the block and the second is ending corner point. The third, fourth, fifth and sixth snap points are provided if the quantity file has more than one column for quantities. The **Purple** snap points can be used for a second Estimated Roadway Quantity block with one column of quantities or for placing the **Foot Notes by corners**. The **Blue** snap points are the maximum limits for any Excel or Word file being attached by corners.
Excel Linking to a MicroStation File

Linking The Estimated Roadway Quantities Block

1. Open your Estimated Roadway Quantity file. For this example, we will use the Rdwy. Quantity Block 1.
   All tab blocks have been setup so the top row and the row just below the table is one cell each, to make it easy for selecting. Select the information in Excel needed for linking to the MicroStation file. Click on the row above the block and hold down the Shift key then click on the row just below the table (in this example it is row 1 and 67). This will select an extra row and column on each side of the block to provide a border on each table. The selected area should now be highlighted.

2. Right click on your mouse and pick Copy from the choices given. This puts the selected information into the Windows Clipboard.
3. In your MicroStation file on the menu bar, go to **Edit > Paste Special**…
   (The Excel link will be placed on the active level in MicroStation)

Select the **Linked Microsoft Excel Worksheet** option and click the **Paste** button,

4. Select the Method: By Corners.

5. Snap to the left Yellow snap point then second Yellow Snap point and the **Rdwy. Quantity Block 1** is placed on the sheet in your DGN file.

You now have a live Excel file linked to your DGN file so when you make changes in your Excel file they can be updated without attaching the file again.
6. Open your Estimated Roadway Quantity file. For this example, we will use the Foot Notes. All tab blocks have been setup so the top row and the row just below the table is one cell each, to make it easy for selecting. Select the information in Excel needed for linking to the MicroStation file. **Click** on the row above the block and hold down the **Shift key** then **click** on the row just below the table (in this example it is row 1 and 67). This will select an extra row and column on each side of the block to provide a border on each table. The selected area should now be highlighted.

7. **Right click** on your mouse and pick Copy from the choices given. This puts the selected information into the Windows Clipboard.
8. In your MicroStation file on the menu bar, go to **Edit > Paste Special…**
   (The Excel link will be placed on the active level in MicroStation)

Select the **Linked Microsoft Excel Worksheet** option and click the **Paste** button,


10. Snap to the left Purple snap point then second Purple Snap point and the **Foot Notes** are placed on the sheet.

    Again you have a live Excel file linked to your DGN file so when you make changes in your Excel file they can be updated without attaching the file again.
11. Open your Estimated Roadway Quantity file. For this example, we will use the **STORM DRAIN ENDWALLS** Tabulation Block. All tab blocks have been setup so the top row and the row just below the table is one cell each, to make it easy for selecting. Select the information in Excel needed for linking to the MicroStation file. **Click** on the row above the block and hold down the **Shift key** then **click** on the row just below the table (in this example it is row 1 and 61). This will select an extra row and column on each side of the block to provide a border on each table. The selected area should now be highlighted.

12. Right **click** on your mouse and pick Copy from the choices given. This puts the selected information into the Windows Clipboard.

13. In your MicroStation file on the menu bar, go to **Edit > Paste Special**…

Select the **Linked Microsoft Excel Worksheet** Option and click the **Paste** button,
14. Select the Method: By Size. **Click** on Rotate With View. **Set** the Scale to: **18**.

![Paste OLE Object](image)

All Tabulation Blocks are set up to be placed on a scale of **18**.
The Active Scale and the Sheet file in the DGN file must be on a 1 to 1 scale.

15. Place the Tabulated Block anywhere inside the sheet border in the DGN file by **clicking** with your mouse that now has the Tab Block attached to it.

![Tabulated Block](image)

16. You will need to move the Tab Block you just attached to the top left corner of the sheet. You must save and close your Excel file to be able to move the attach file in MicroStation. **Snap** to the top left corner of the attached tab block to pick it up and **Snap** on the **Blue Snap Point** in the top left corner of the sheet file as shown to have the block in the right location of the sheet.

![Sheet with Tab Block](image)

Again you have a live Excel file linked to your DGN file so when you make changes in your Excel file they can be updated without attaching the file again.
All Tabulated Quantity Blocks are set up for a full sheet of each block. In most small jobs, you will not need a full sheet of most tables. All Tabulated Block have been set up so the user can delete the rows needed to be removed to make the table the size it needs to be. The Rows for the Headers are locked so they cannot be deleted, but the Row for the TOTALS is not locked, so do not delete this Row or the table will not tabulate your quantities.

Note: It is ok to have one Tabulated Block per sheet in the design project, but if there is a need to place multiple blocks on one sheet then repeat steps 11 thru 16 to have the blocks placed in upper left corner at the Blue Snap Point.

17. In this example we have attached two blocks to the Blue Snap Point in the upper left corner of the sheet. The two blocks have been edited by removing the rows we do not need (rows 9 thru 54) in our blocks. The user will need to move the blocks off of the top of each other. In MicroStation activate AccuDraw, click on Move element, then snap to the left top corner of one of the blocks and move down in the sheet. It is recommended to keep one half inch between blocks. Your sheet should look something like this example.

If your Tabulation Block extends into the area under the 4 inches under the Project ID Block in the upper right corner than something did not attach correctly.

It is recommended that each time a Tabulation Block is attached in a MicroStation file that the user compress design, save settings, exit completely out of MicroStation and reopen it before attaching another Excel or Word file.
Excel Text Size in a MicroStation File

All text in the Estimated Roadway Quantity file that has the Tabulated Quantity Blocks is based on the Arial font and the blocks are set to be placed at a Scale 18. This should produce a text size values for .14 for the rows in the middle of all tab blocks that are to be filled in. This is the recommended text size for the best legibility in the plans.

The Arial font, text size 9 in a Excel Tab Block when placed at a scale 18 will measure in the DGN file a height of .14 feet.

1-scale size sheet, set the scale to 18 for placement:
Main Body text size 9 in Excel will measure 0.14 feet in MicroStation
Table Name text size 16 in Excel will measure 0.24 feet in MicroStation
Total Row text size 12 in Excel will measure 0.18 feet in MicroStation

50-scale size sheet, set the scale to 900 for placement:
Main Body text size 9 in Excel will measure 7 feet in MicroStation
Table Name text size 16 in Excel will measure 12 feet in MicroStation
Total Row text size 12 in Excel will measure 9 feet in MicroStation

Because the Excel file link is attached as a picture, the text cannot be measured directly. Zoom in and use the measure tool to see if the body (not the headings) text is approximately the correct size.
**Open & Update the Excel OLE Attachment**

The changes made to the Excel files outside of MicroStation will not be changed in MicroStation until the Excel links have been opened & updated.

Use one of the following methods:

1. In MicroStation, start the **Element Selection** tool and double click on the link to be revised. The Excel file is opened. Make any changes that may be needed and save the file. The link is updated in MicroStation.
2. In MicroStation, go to **Edit > Links…** In the Links dialog, select the link to be revised and click **Open Source**. The Excel file is opened. Make any changes that may be needed and save the file. The link is updated in MicroStation.
3. You should not use the Update Now option in the Links dialog without opening the document first. The link may be updated but errors are generated and you may corrupt your MicroStation file.
4. In MicroStation, select the link to be revised and the **Worksheet Object** tools are enabled. Go to **Edit > Macro-Enabled Worksheet Object > Edit**. The Excel file is opened Make any changes that may be needed and save the file. The link is updated in MicroStation.

**Relinking**

When the sizes of the rows are changed, the area linked will still be displayed in MicroStation but will be warped or truncated. It will need to be relinked to correct the display in graphics.

To relink an Excel file:

1. Move the existing link graphics away from the sheet border.
2. Open the Excel file.
3. Follow the directions for a new link. See section **Excel Linking to MicroStation**.
4. After the new link has been established and is correct, the link graphics from the old link can be deleted.
Word Embedded in MicroStation

Word Documents Embedded in MicroStation DGN Seed Files

There are MicroStation design seed files set up for the 2\textsuperscript{nd} sheets with the T.D.O.T. Word documents embedded. These seed files have sheet borders set up at a one-scale.

MicroStation seed files with embedded Word documents:

- BLANK SHEET FOR 2ND SHEET NOTES XXXXXX.dgn
- Drop Off Notes Traffic Control XXXXXX.dgn
- EPSC Notes XXXXXX.dgn
- General Notes XXXXXX.dgn
- Index and Standard Drawings XXXXXX.dgn
- Sheet 3 ROW Notes Utility Notes Utility Owners XXXXXX.dgn
- Special Notes XXXXXX.dgn
- Standard Roadway Drawings XXXXXX.dgn
- Standard Structure Drawings XXXXXX.dgn
- Standard Traffic Operations and Structure Drawings XXXXXX.dgn
- Standard Traffic Operations Drawings XXXXXX.dgn

Creating a Second Sheet from a Seed File in MicroStation

1. From MicroStation or MicroStation manager,
   
   Go to File > New in MicroStation or click the New File icon in MicroStation Manager ..., and in the project folder, Browse to select the seed file needed for the sheet, assign the name according to the sheet name directions and assign a *.sht extension. See CADDV8.pdf, Section Standard Filenames, part Standard Sheet File Types: (Use .SHT extension). For example, use the name 001A.sht for the seed file named Index and Standard Drawings xxxxxx.dgn. Be sure to look for the latest date at the end of the file name for each seed file used.

   There are several reasons why the MicroStation DGN sheet files need to be named according to the Standard Sheet File naming recommendations. One, the project will be very easy to plot using InterPlot Organizer where the sheets will automatically be in order. Two, the names of the sheet files must be the same as the sheet number so that when the sheet is published on FileNet, other divisions, such as Right-of-Way and Construction, can easily find and use the files produced by the Design Division.

   The OLE link is displayed as a ‘picture’ of the Word document. It has a shape around the edge. The OLE link can be copied, moved or scaled using the graphics commands.
Seed file Editing Notes:

1. In MicroStation, use the **Element Selection** tool and double click on the embedded Word document. The embedded document will open in Word.

2. Note that the Word document header says **Document in DesignFile.Name.sht**. Make edits as needed.

3. Occasionally information previously deleted needs to be added back into the Word document. This can be accomplished by cutting and pasting from other open Word documents. To open a temporary General Notes or Index and Standard Drawings file in Word, go to the **File** tab at the far left of the ribbon and choose **New > My Templates > TDOT 2nd Sheets > General Notes_xxxxxx.dotx** or **Index and Standard Drawings_xxxxxx.dotx** (The file you need info from). Cut from the temporary document and paste to the document in the sheet file. Close the temporary document without saving them.

   In General Notes documents, each section is numbered starting at 1 (one). If the 1\textsuperscript{st} note in a section is deleted, the remaining notes will pick up the numbering sequence from the previous section. To correct this, highlight the first note in the section, right click and choose the option **Restart at 1**.

4. After making the edits wanted, go to the File tab at the upper left and choose **Save** or click on the **Save** icon at the upper left. Changes made in the Word document will not be shown in MicroStation until the Word document is closed.
5. The only access to an embedded document is from the graphics in the MicroStation design file. If the graphic display of the embedded Word document is deleted, the Word document will be deleted. If MicroStation has not been closed and the file has not been compressed then the graphics and the Word document can be recovered through the **Undo** command.

For this reason, it is recommended that a copy of the Word file information be made after significant edits have been done.

This can be done several ways. In the Word document, go to the File tab at the upper left and select Save As to make a copy to the project folder. In MicroStation, the OLE link graphics can be copied to the side creating separate OLE link of the edits at that moment which creates an additional separate embedded Word document. Of course, a backup copy of the entire MicroStation DGN file can be made.

**Special Info in the Word Header & Text Body**

**The Header:**

There is special text in **RED**, which is the Updated Date that this file was updated and the Instructional Bulletin(s) that the file was updated to their requirements.

There is special text in **Black**, which list the Effective Date for the data in the word file.

There is special text in **Blue**, which is special instruction of the user.

**The Body of Text:**

There is special text in **Blue**, which is special instruction of the user.

---

**More than one Sheet Needed**
If more than one plan sheet will be needed for General Notes or Index sheets:

1. Make edits as needed to the Word document embedded in the first sheet and close the Word document. Since the text is not easily moved from one MicroStation design file to another, it is recommended that all of the edits be made to the first MicroStation General Notes or Index design file before creating the additional sheets.

2. Repeat step 1 under section **Creating a Second Sheet from a Seed File in MicroStation** as listed below. From MicroStation or MicroStation manager,
   - Go to **File > New** in MicroStation or click the **New File** icon in MicroStation Manager ..., and in the project folder, **Browse** to select the seed file needed for the sheet, assign the name according to the sheet name directions and assign a *.sht extension. See **CADDV8.pdf**, Section **Standard Filenames**, part **Standard Sheet File Types: (Use .SHT extension)**. For example, use the name **001A1.sht** for the second sheet of the seed file named **Index and Standard Drawings xxxxxx.dgn**. Be sure to look for the latest date at the end of the file name for each seed file used.

3. In the new MicroStation sheet file, edit the Word document. Highlight all of the text (except the heading if needed) on the first page in the Word document and delete it. Save & close the Word document to see the changes in the MicroStation file.

4. Repeat as needed for additional sheets.
Embedding Word Documents in Existing MicroStation DGN Sheet Files

Sometimes you need to add small groups of notes to existing plan sheets in MicroStation. This section describes the process of embedding the Word documents in MicroStation. The TDOT Word documents embedded in the MicroStation seed files are also available as Word templates. These can be used to add notes or standard drawings back into full sheets as needed.

T.D.O.T. Roadway Design Division Word templates used with MicroStation at C:\Users\Public\Office Standards\TDOT 2nd Sheets:

- BLANK SHEET FOR 2ND SHEET NOTES XXXXXX.dotx
- Drop Off Notes Traffic Control XXXXXX.dotx
- EPSC Notes XXXXXX.dotx
- General Notes XXXXXX.dotx
- Index and Standard Drawings XXXXXX.dotx
- Sheet 3 ROW Notes Utility Notes Utility Owners XXXXXX.dotx
- Special Notes XXXXXX.dotx
- Standard Roadway Drawings XXXXXX.dotx
- Standard Structure Drawings XXXXXX.dotx
- Standard Traffic Operations and Structure Drawings XXXXXX.dotx
- Standard Traffic Operations Drawings XXXXXX.dotx

A Full Sheet of Notes

1. In Word, go to the File tab at the upper left, choose New > My Templates > TDOT 2nd Sheets, and select the type note file needed. (Or use your own note files)
   (Note if you use a non TDOT 2nd Sheet template the following scales for the sheets will not be correct.)

2. Edit the notes as needed. Select and copy to put the text into the Windows Clipboard.

3. In your MicroStation file on the menu bar, go to Edit > Paste Special…
   Select the Embedded Microsoft Word Document Option and click the Paste button,

4. If you are placing a Full Sheet of Notes in a Second Sheet
that is 1:1 scale then you should use a **Sheet Border** that has the **Snaps Points** at the top of the sheet.

Select the Method: By Corners.

**Click** on Rotate With View.

5. Place the Word Note File by **clicking** with your mouse on the **Snap Points** at the top of the Sheet File

**Text Size for a Full Sheet of Text**

Arial font is the standard Font, text size 8 for normal text in Word (font and size in TDOT templates):

1-scale size sheet:

- **Text Size 13** for .14 text size - this will measure **0.14 feet** in MicroStation
  and will measure **0.14 inch** on the printed sheet

- **Text Size 11** for .12 text size
- **Text Size 9** for .10 text size

50-scale size sheet, multiply the dimension above by **50**:

- **Text Size 650** for .14 text size
- **Text Size 550** for .12 text size
- **Text Size 450** for .10 text size

**Placing a Word File on a Layout Sheet**
1. In Word, **Select and copy** your Text into the Windows Clipboard that you want to place in the DGN file.

2. In your MicroStation file on the menu bar, go to **Edit > Paste Special**…
   Select the **Embedded Microsoft Word Document** Option and click the **Paste** button,

3. Select Paste as: Embedded and Method: By Size.
   Under the extra options, click on Rotate With View.

4. Set the Scale Size. The following only works if the text is Arial and 7 point size in the Word document.
   This is what the TDOT Standard Note size is based on.
   - If the DGN sheet scale is 1:1 than set the scale to 38.
   - If the DGN sheet scale is 50:1 than set the scale to 1900.

5. Data point at the location on the DGN file where the Word file is to be placed.
6. Use MicroStation’s **Move Element** command to position the link as needed. The temporary Word document used to copy the notes from can be closed without saving since the document is now embedded in the MicroStation DGN file.

Additional Notes concerning this method of Embedding

The By Corners method is used for Word documents to ensure that the text comes in at the correct size. The By Scale method does not yield consistent results when used with Word attachments. That method is used with Excel attachments.

Because the embedded Word file is attached as a picture, the text cannot be measured directly. Zoom in and use the measure tool to see if the body (not the headings) text is approximately the correct size.

Open & Update the Word OLE Attachment

**Embedded Word Documents**

In MicroStation, start the **Element Selection** tool and double click on the document to be revised. The Word file is opened. Make any changes that may be needed and save the file. The document is updated in MicroStation.

**Linked Word Documents**

Linking Word 2010 documents instead of embedding them is not recommended due to several compatibility issues between Word 2010 and older versions of MicroStation. Any made with Office 2010 will have to consider the following if it is necessary to open & update them in MicroStation versions prior to MicroStation V8i including MicroStation V8 2004.

Word 2010 documents linked to MicroStation cannot be opened from inside MicroStation and they cannot be updated until they are open in Word.

In order to update these after being linked, you must first open the document through Word 2010. After making any needed edits, save the file and then with it open in Word, use one of the following methods to update what appears in MicroStation.

1. In MicroStation, go to **Edit > Links**… In the Links dialog, select the link to be updated and click **Update Now**.
2. In MicroStation, go to **Edit > Update Links**.

To use this method, it will be necessary to open all linked files first.

It should update all of the links in the file without opening the links but when used with Office 2010 without the files open, errors are generated and nothing is updated.
Correcting Overlapping Text from Embedded Word Documents

With previous versions of Office and MicroStation when the height of the text area in the embedded Word document was reduced from what it was when originally set up then the text became warped causing text characters to overlap. This could occur when more than one plan sheet is needed and the last sheet does not have full text columns or perhaps in a case where you have less than one full sheet and the columns are adjusted to be the same height. It could also happen if after you have added a small set of notes, one or two are removed.

This problem appears to be corrected with Office 2010 and MicroStation V8i. If you are using MicroStation V8 2004 then you may still run into it.

Take the following steps to re-embed the document and correct this problem:

1. After edits are done to the embedded Word document, the text becomes warped and overlaps in MicroStation.

2. Open the document and in Word go to the Office button at the upper left and select Save Copy As… to save the document outside the MicroStation DGN file to your project folder.

3. Open the Word document from your project folder, select and copy to put the text into the Windows Clipboard.

4. In MicroStation, delete the original embedded document or move it to the side off the sheet.

5. The OLE attachment will be placed on the active level, reset as desired.

6. In MicroStation, go to Edit > Paste Special…, select the Embedded Microsoft Office Word Document option and click the Paste button.

7. Select Paste as: Embedded and Method: By Corners. Under the extra options, click on Rotate With View.

8. Data point at the location where the upper left corner of the data needs to start on the sheet. This sets the first corner and you are prompted to Select Rectangle Corner.
9. In the MicroStation keyin field enter the required \texttt{dx=} keyin to set the corner across from the first point. The dimension used in this keyin is determined by the scale of the plan sheet as well as the width dimension of the document inside of Word. General Notes and Index sheets are set up as full sheets in Word at 11\" X 17\" and in MicroStation at a scale of 1 so you should use \texttt{dx=26} for them. Refer to the table of values in the previous section for use when embedding Word documents in MicroStation.
After re-embedding …

---

**SPECIAL NOTES (CONT.)**

**EROSION PREVENTION AND SEDIMENT CONTROL**

**STREAM/WETLAND**

(1) \textbf{ANY WORK WITHIN THE STREAM CHANNEL AREA (E.G., FOR PIER FOOTING, RIP-RAP PLACEMENT, MULTI-BARREL CULVERT/BRIDGE CONSTRUCTION, ETC.) SHALL BE SEPARATED FROM FLOWING WATER OR EXPECTED FLOW PATH AND PERFORMED DURING LOW FLOW CONDITIONS. ALL ITEMS USED WITHIN THE STREAM CHANNEL AREA FOR DIVERSION OF FLOW (OR EXPECTED FLOW), UNLESS SPECIFIED IN THE PLANS, SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE COST OF OTHER ITEMS THIS NOTE EXCLUDES ANY ITEMS SPECIFIED IN THE PLANS FOR THE TEMPORARY DIVERSION CHANNELS, EC-STR-31 AND TEMPORARY DIVERSION CULVERTS, EC-STR-32 FOR SINGLE BARREL CULVERT CONSTRUCTION.}
Formatting Word Documents

The Office 2010 interface includes a series of tab options across the top, each of which displays a “ribbon” of command options. As you expand or shrink the width of the Office window, these commands are adjusted to show less or more. You can right click over the top of the ribbon to minimize it when not in use if desired.

When you right click from text in your document, some quick formatting tools are shown above the regular right click option list.
The Word documents created for TDOT plans production contain special formatting so they will appear correctly on the plan sheets. Text styles, tabs, bullets and numbering, paragraph indents, hanging indents, columns, column breaks, page breaks and more are used. These are non-printing characters and do not show in the normal view in Word. In order to edit the Word documents successfully, it is often helpful to see these formatting characters.

To display the formatting characters, use the **Show/Hide** display command. It is located on the Office 2010 ribbon under the **Home** tab in the **Paragraph** section. It appears as a paragraph mark.

Click on the **Home** tab. Look at the **Paragraph** section of the ribbon and click on the Paragraph mark to show the **Show/Hide** formatting characters.

Clicking the paragraph mark will toggle off and on the display of the formatting characters. When it is toggled on, we can see section breaks, paragraph marks, tabs, etc.
**Text Styles in Word**

A text style will set all of the characteristics for the specified text. This includes font, font size, tabs, indents, color, heading, bullets and numbering, etc. There are text styles for each type of text used in the TDOT 2nd sheet Office templates. These text styles all start with **V8**.

Text style controls can be found on the Word 2010 ribbon under the **Home** tab in the **Styles** section. Word 2010 includes a type of style control called **Quick Styles**. When you move your cursor mark over the quick style it temporarily applies that style to the entire paragraph where your typing insertion point is currently located. In the example below, I was in the first note and it dynamically shows what it would look like with the style **Heading 1** applied to it. To apply the style permanently, left click on your mouse.

**GENERAL NOTES**

**GRADING**

ANY AREA THAT IS DISTURBED OUTSIDE LIMITS OF CONSTRUCTION DURING THE LIFE OF THIS PROJECT SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE.

(1) **Identification of all work done must be entered in accordance with Section 136 of the Standard Specifications.

(2) **The contractor shall execute in accordance with Section 136 of the Standard Specifications.

(3) **Any area of the property within the limits of the project that is disturbed during the construction period shall be returned to the original condition as nearly as possible. All material shall be removed from the area and transported to a location as specified by the engineer.

(4) **Any area of the property within the limits of the project that is disturbed during the construction period shall be returned to the original condition as nearly as possible. All material shall be removed from the area and transported to a location as specified by the engineer.

(5) **The contractor shall provide temporary drainage facilities to prevent erosion of disturbed areas. Drainage facilities shall include silt fences, silt curtains, and sediment basins.

(6) **Temporary drainage facilities shall be installed in accordance with Section 136 of the Standard Specifications.

(7) **Temporary drainage facilities shall be maintained in accordance with Section 136 of the Standard Specifications.

(8) **Temporary drainage facilities shall be maintained in accordance with Section 136 of the Standard Specifications.

(9) **Temporary drainage facilities shall be maintained in accordance with Section 136 of the Standard Specifications.

(10) **Temporary drainage facilities shall be maintained in accordance with Section 136 of the Standard Specifications.

**FENCING**

(1) **Any area of the property within the limits of the project that is disturbed during the construction period shall be returned to the original condition as nearly as possible. All material shall be removed from the area and transported to a location as specified by the engineer.

(2) **The contractor shall provide temporary drainage facilities to prevent erosion of disturbed areas. Drainage facilities shall include silt fences, silt curtains, and sediment basins.

(3) **Temporary drainage facilities shall be installed in accordance with Section 136 of the Standard Specifications.

(4) **Temporary drainage facilities shall be maintained in accordance with Section 136 of the Standard Specifications.

(5) **Temporary drainage facilities shall be maintained in accordance with Section 136 of the Standard Specifications.

(6) **Temporary drainage facilities shall be maintained in accordance with Section 136 of the Standard Specifications.

(7) **Temporary drainage facilities shall be maintained in accordance with Section 136 of the Standard Specifications.

(8) **Temporary drainage facilities shall be maintained in accordance with Section 136 of the Standard Specifications.

(9) **Temporary drainage facilities shall be maintained in accordance with Section 136 of the Standard Specifications.

(10) **Temporary drainage facilities shall be maintained in accordance with Section 136 of the Standard Specifications.

**MISCELLANEOUS**

(1) **All other costs, except those specified in the contract, shall be included in the cost of the work provided in this specification.

(2) **The contractor shall be responsible for all work performed under this contract.

(3) **The contractor shall be responsible for all work performed under this contract.

(4) **The contractor shall be responsible for all work performed under this contract.

(5) **The contractor shall be responsible for all work performed under this contract.

(6) **The contractor shall be responsible for all work performed under this contract.

(7) **The contractor shall be responsible for all work performed under this contract.

(8) **The contractor shall be responsible for all work performed under this contract.

(9) **The contractor shall be responsible for all work performed under this contract.

(10) **The contractor shall be responsible for all work performed under this contract.

**ROAD CLOSURE**

(1) **Temporary closure shall be provided for all work performed under this contract.

(2) **The contractor shall be responsible for all work performed under this contract.

(3) **The contractor shall be responsible for all work performed under this contract.

(4) **The contractor shall be responsible for all work performed under this contract.

(5) **The contractor shall be responsible for all work performed under this contract.

(6) **The contractor shall be responsible for all work performed under this contract.

(7) **The contractor shall be responsible for all work performed under this contract.

(8) **The contractor shall be responsible for all work performed under this contract.

(9) **The contractor shall be responsible for all work performed under this contract.

(10) **The contractor shall be responsible for all work performed under this contract.
Click the arrow with the line above it at the bottom of the Quick Styles scroll bar to see all of the quick styles currently available.

There are 2 ways to access the standard TDOT 2nd sheet text styles. You can click on the **Apply Styles** option which appears at the bottom of the Quick Styles drop down menu shown above. This opens up the Apply Styles dialog. You could also click the small square with the arrow in it at the lower right of the Styles section title bar. This opens up the **Styles** list.
**Indents, Hanging Indents, Line Spacing, Tabs, etc.**

To see the indents, hanging indents, tabs, etc. put the cursor at the text/paragraph in question, right click and select **Paragraph**. Note that the **Tabs** can be accessed at the lower left of the dialog. To change any of these settings, select the text to be changed, go to the **Paragraph** dialog and make the changes as needed.

You can also access the Paragraph dialog on the Office 2010 ribbon under the **Home** tab in the **Paragraph** section. Click the small square with the arrow in it at the lower right of the Paragraph section title bar.

**Indent & Spacing** controls can also be found on the Office 2010 ribbon under the **Page Layout** tab in its **Paragraph** section.

**Numbering & Bullets**
You can access **Numbering** and **Bullets** on the Office 2010 ribbon under the **Home** tab in the **Paragraph** section. Click either of these to use the current active format or click the arrow next to them to pull out the drop down menu for them. From the drop down menus choose **Define New Number Format** or **Define New Bullet** to set up a new format.

**GENERAL NOTES**

**GRADING**
1. Any area that is disturbed outside limits of construction during the life of this project shall be repaired by the contractor at his expense.
2. Certification for all borrow materials obtained in accordance with Subsection 10.03 of the standard specifications.
3. The contractor shall not dispose of any material either on or off site owned by him in a regulatory fashion as defined by the Federal Emergency Management Agency, without approval. By same, all borrow materials shall be disposed of in upward conversation and where disposed shall be in a manner that will not affect or impair adjacent properties forever.
4. Borrow materials shall be placed and compacted in accordance with any other licenses or permits that may be required by any other federal, state, or local agency.
5. Archaeological site no. must be advised as a source of fill or heavy equipment staging area. Earth fill will be required from borrow pits due to proposed right-of-way. Certification must be obtained in accordance with Subsection 10.03 of the standard specifications.

**SEEDING AND SODDING**
1. All seeding to be within the right of way and not in the borrow area that are to be abandoned shall be scarified. Disturbed area that are to be abandoned shall be scarified, scarified, and seeded in accordance with Subsection 10.05 of the standard specifications. Scarification and seeding of soil that is disturbed and disturbed by the contractor and imported fill will be accomplished in accordance with Subsection 10.05 of the standard specifications. The cost of scarification and seeding will be included in the cost of other project sections. Measurement of soil disturbed and disturbed by the contractor and imported fill will be accomplished in accordance with Subsection 10.05 of the standard specifications. The cost of scarification and seeding will be included in the cost of other project sections.

Position yourself in a given numbered paragraph and right click for various numbering controls.
Page Setup

You can access **Page Setup** on the Office 2010 ribbon under the **Page Layout** tab. The **Page Setup** section includes controls for the margins, orientation, size and columns of the page.

The TDOT General Notes and Index & Standard Drawings templates have a paper size of 11” x 17” and use a landscape orientation.
Columns

You can also access Column formatting controls in the Page Setup section on the Office 2010 ribbon under the Page Layout tab.

The TDOT General Notes and Index & Standard Drawings templates are set up into three columns. The number of columns and justification can be set from the Column drop down menu.

To set widths and other column settings, select the More Columns option from the drop down menu to open the Columns dialog.
**Breaks**

You can also access the Break controls in the Page Setup section on the Office 2010 ribbon under the Page Layout tab.

Turn the Show / Hide formatting display on to see page, column and section breaks. Use the Delete key to remove a break. Use the drop down menu from Breaks in the Page Setup section to insert a page, column or section break as needed.

You can also insert a Page Break from the Pages section on the Office 2010 ribbon under the Insert tab.
Page Break (Ctrl+Return)

Start the next page at the current position.

Press F1 for more help.
Current Office\MicroStation Issues

This section describes current known issues with Office documents that are linked or embedded in MicroStation.

“Word cannot start the converter mswrd632.wpc” Error Message

This error is caused because of an operating system security update for Windows first published on December 8, 2009.

Microsoft Office uses its own text converters to open Word attachments to MicroStation so this does not truly present a problem. The error message appears anytime you either open a Word document embedded in MicroStation or when you are embedding a Word document in MicroStation.

When the error message is encountered, simply click the OK button or the red X in the upper right corner. The message will pop up 1 or 2 times more, continue to click until it stops. When the message stops displaying you may need to click on the MicroStation title bar to make it active once more. At that point your document will open in Word or if attaching to MicroStation, the Paste OLE option settings come up so you can complete the attachment.

Note:

This issue can be resolved through unregistering the mswrd632 converter by editing the operating system registry. The change will effectively unregister the converter and disable it for third-party applications and for Microsoft Office.

Consultants who wish to apply this solution should go to Microsoft online for the appropriate steps to take for their systems. As of May 2010, there are no current plans to try to apply the fix on Roadway Design Division computers due to the time it would take and since it does not present a serious issue.
**Word Document Text Not Visible In MicroStation**

After editing a Word document embedded in MicroStation and closing the document, the text no longer appears in MicroStation; instead, the attachment appears completely white.

Although this has only been encountered a few times, it does warrant mention. The cause of this problem is not currently known but it can be easily fixed.

Open the document in Word; it should appear normally in there. Then use one of the following methods to rebuild the attachment...

Select all of the text and copy it to the clipboard. In MicroStation, create a new DGN file from the standard seed file for those sheets. Open its embedded Word document, select all text and paste from the clipboard and save.

or …

Use Save As and save the Word document outside of MicroStation. Create a blank MicroStation DGN file and using regular embedding methods described previously in this document, embed the saved Word document in MicroStation.