Tabulation Of Bridge

The ***Tabulation of Bridge*** spreadsheet is used to create and populate a ***Summary of Quantities*** table containing item codes and quantities for a bridge project. The Summary of Quantities table is then formatted so it can be embedded in or linked to a MicroStation drawing file and included in the General Information section of the project plan set.

The following definitions apply in this document unless the context otherwise requires:

- ***Tab Sheet*** - a MicroStation drawing file or Tabulation Sheet that contains tabulated quantities and is included in the plan set
- ***Bridge Sheet*** - the main tab of the Tabulation of Bridge excel file used for inputting quantity information

Important!   **Do not modify** the data on the ***Bridge Data*** and ***OtherLists*** worksheets in the Tabulation of Bridge excel file. These tabs are used to manage the contents of the Bridge Sheet tab.

The Bridge Sheet is divided into three main areas:

1. ***Pay Item File:*** - This area specifies what pay item file is being used

2. ***Buttons area*** - These four buttons are used to perform various functions which are explained below

3. ***Summary of Quantities*** - Pay items added to the sheet are displayed in this area and automatically sorted by the pay item number

   Note: The ***Item number***, ***Description***, and ***Unit*** columns in the Summary of Quantities area are fixed; all other columns can be deleted using the ***Delete Location*** button in the ***Bridge Data Entry*** dialog box which is opened using the ***Data Entry*** button.
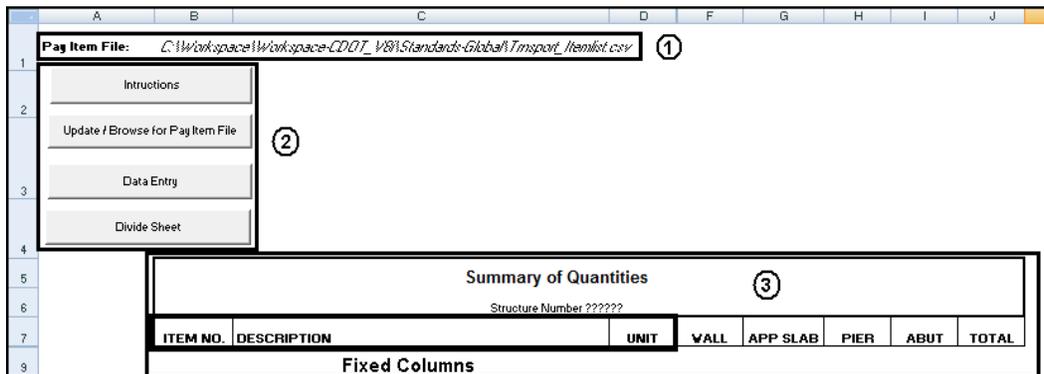
The overall steps involved in using tab sheets are:

1. Locating the spreadsheet template
2. Locating the ***Pay Item*** list
3. Entering pay item and structure data into the appropriate excel spreadsheet
4. Preparing the spreadsheet for use in a plan set
5. Linking the tab sheet to a MicroStation drawing

1.0 Locating the Spreadsheet Template

Newly created projects in ProjectWise contain the ***12345BRDG_Tabulation of Bridge.xls*** file in the ***Bridge\Drawings\Tabs*** folder. If a new copy of the tab sheet is required, it can be copied from:the following ProjectWise folder:
pw:\\VHQPWZ01.dot.state.co.us:PwiseProduction\Documents\Seed_Files\Project Template\Tab Sheets\.

This is a read-only folder.

Once copied to the desired location, replace the ***JPC#*** in the file name with the project number.

2.0 Locating the Pay Item List

The default Pay Item list is an Excel file named ***Trnsport_Itemlist.csv.*** This file is located in the ***C:\Workspace\Workspace-CDOT_V8i\Standards-Global*** folder and is generally updated by ServerCop.

To get started:

1. Open the ***12345BRDG_Tabulation of Bridge.xls*** file from the ***C:\Projects\12345\Bridge\Drawings\Tabs*** folder or copy the default file from the ***C:\Workspace\Workspace-CDOT_V8i\Project Template\Bridge\Drawings\Tabs*** folder.

    Note: Some computers may generate a ***Security Warning*** that ***Macros have been disabled*** similar to the one below.

    If this happens, be sure to **Enable** the Macros before continuing.

2. Verify the correct ***Pay Item file*** is being used.

    The Pay Item file being used in the tab sheet is shown at the top of the spreadsheet as shown below.


    Note: If the Pay Item location is listed in black text, this means that the Pay Item file is correct and you can proceed to enter pay item data into the excel spreadsheet as described in section ***3.0 Entering Pay Item Data Into an Excel Spreadsheet.***

    If the location of the Pay Item file is listed in red text, this means that the Pay Item file is not found and you need to locate or change the pay item file being used. The following steps illustrate how to attach a different Pay Item file to the tab sheet using the ***Update/Browse for Pay Item File*** dialog box.

3. \<D\> the **Update/Browse for Pay Item File** button. This displays the *Update/Browse for Pay Item File* dialog box.

4. \<D\> the **Download New Pay Item File** button to access the most current Pay Item file from the internet.
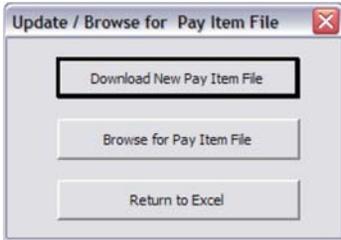

5. If the *Security Alert* dialog box is displayed, left click the **OK** button to dismiss the dialog box and proceed to the web page.
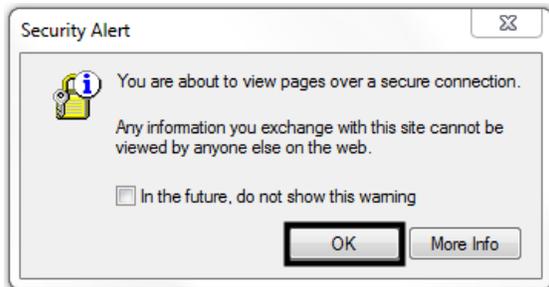
6. If the *Microsoft Excel* dialog box is displayed, left click the **OK** button to dismiss the dialog box. and proceed to the web page.
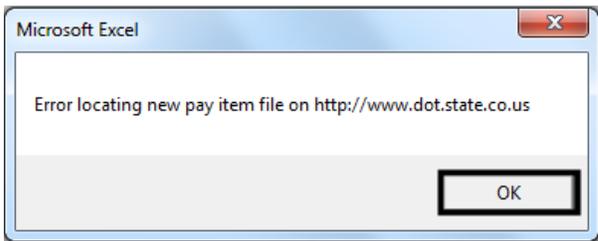
7. On the *Most Current Pay Item List* web page, left click on the **Trnsport_ItemList.csv** link. An *Open/Save options* menu is displayed at the bottom of the window.
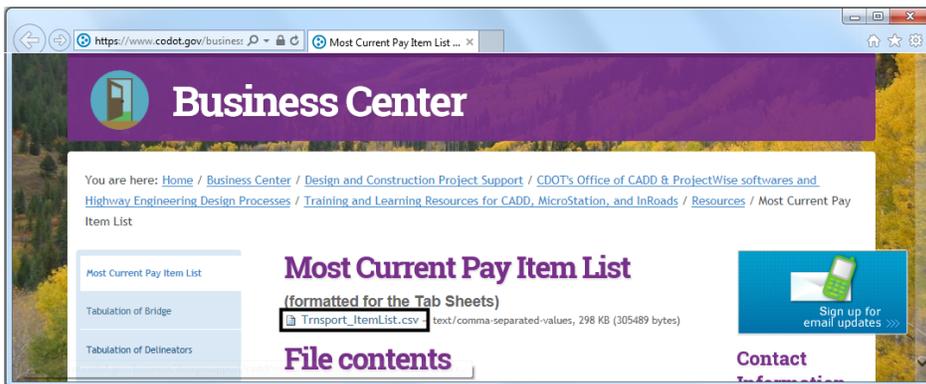
8. In the *Open/Save options* menu, select **Save As** from the *Save* menu button. This displays the *Save As* dialog box.


9. Save the file to a known location where project team members from all specialty units can access it, preferably the *Specification* folder of the project directory.

   Note: Do not change the name of the file, only the location. This file can be copied to ProjectWise for others to use, but there must be a local copy because the Browse for Pay Item File command does not access ProjectWise.
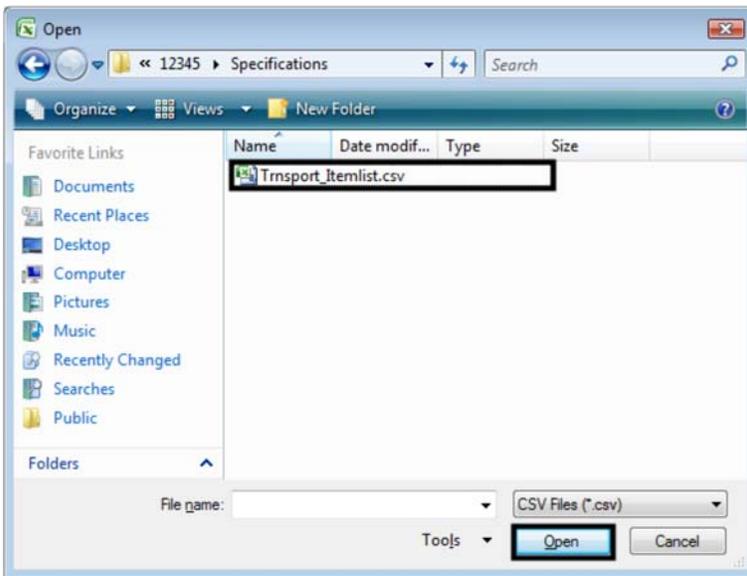
10. To load the new/updated Pay Item file, <D> the Browse for Pay Item File button.
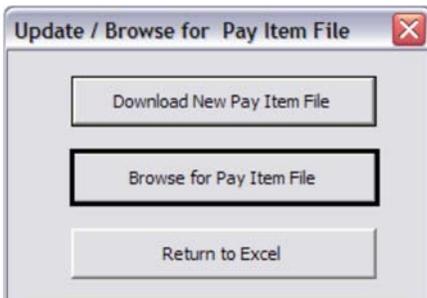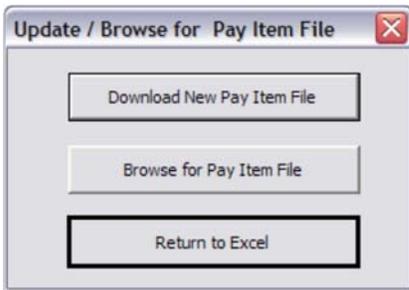
9. In the *Open* dialog box, navigate to the Pay Item list file just downloaded and open it.
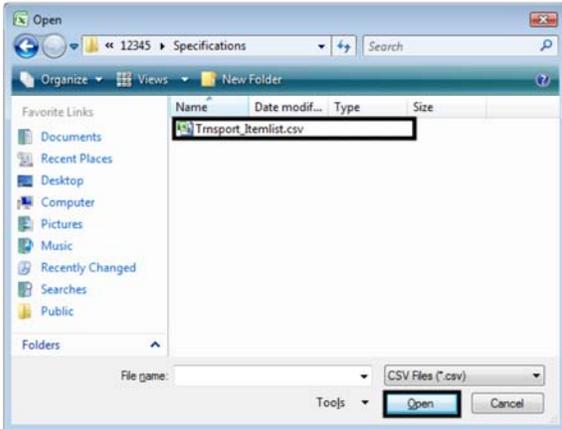
> After choosing **Open**, the *Update/Browse for Pay Item File* dialog box will display.

10. In the *Update/Browse for Pay Item File* dialog box, **<D> Return to Excel** to dismiss the *Update/Browse for Pay Item File* dialog box and return to the spreadsheet.

11. **Save** the *12345BRDG_Tabulation of Bridge.xls* file so that the path to the Pay Item file remains attached to the spreadsheet.

3.0 Entering Pay Item Data Into the Excel Spreadsheet

The overall steps for modifying the tab sheet are:

Adding the Structure Number

Adding or Deleting Locations or Components

Adding a Pay Item

Removing a Pay Item

Entering Quantity Data

To set up the Bridge Sheet, the user must provide the following data: the Structure Number, the Component/Location column heading, and the Pay Items. The *Bridge Data Entry* dialog box is used to enter this data.
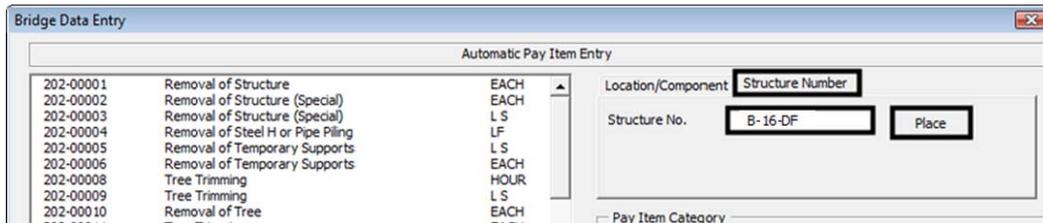
3.1 Adding the Structure Number

The structure number is added to the title row of the Summary of Quantities grid.

1. **<D>** the **Data Entry** button. This displays the ***Bridge Data Entry*** dialog box.
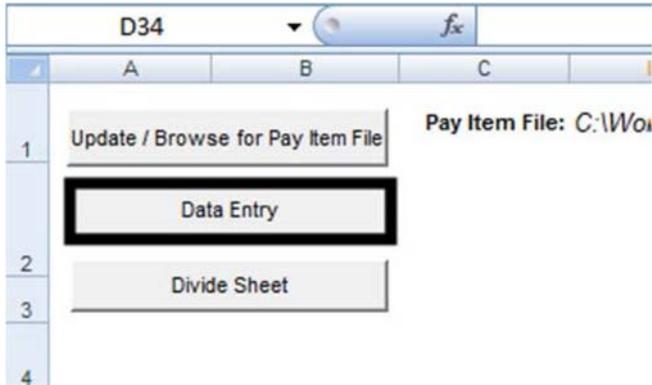
2. Select the **Structure Number** tab in the upper-right corner of the dialog box.

3. In the ***Structure No.*** field, key in the desired structure number.

4. **<D>** the **Place** button to add the structure number title to the spreadsheet.

Note: The Summary of Quantities table can also be used for entering quantities for multiple structures. To use multiple structures, enter a blank for the structure number and use the ***Component Name*** field in the ***Location/Component*** tab to enter all the structure numbers. An example is shown below.

3.2 Adding or Deleting Locations or Components

Quantities for bridge components such as piers, abutments, etc., can be entered separately.

To add a location or component column:

1. From the Bridge Data Entry dialog box, select the **Location/Component** tab.

2. In the *Component Name* field, use the drop down menu to select the component type, then key in the identifiers like Pier 1, Pier 2, etc for that component. A custom component can also be added by replacing the entire entry with the desired text.

3. **<D>** the **Place Location** button to add the component to the spreadsheet.
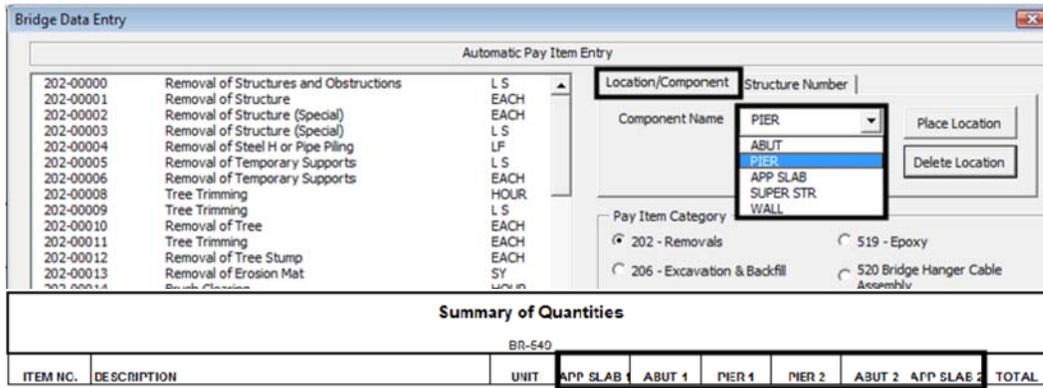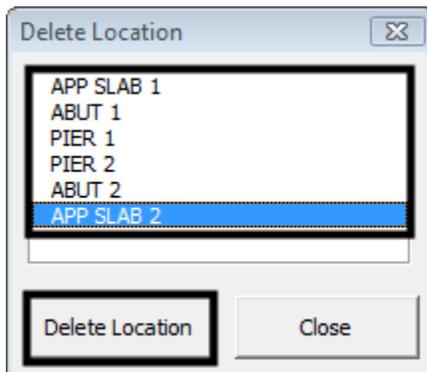

Deleting Components:

4. **<D>** the **Delete Location** button. This displays the *Delete Location* dialog box.
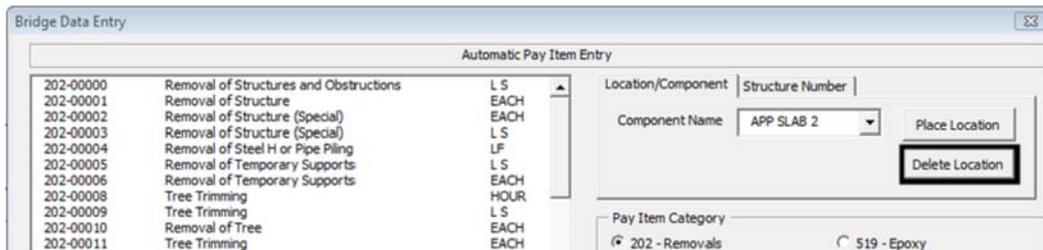
5. In the *Delete Location* dialog box, highlight the desired location, then **<D>** the Delete Location button. You will only be able to delete one location at a time.

6. This updates the spreadsheet, removing the selected component.

   Note: Removing a component also removes any data entered in that column.

7. **<D> Close** to dismiss the *Delete Location* dialog box.

3.3 Adding a Pay Item

Adding Pay Items From the Pay Item List

1. Verify that the *Bridge Data Entry* dialog box is open. If not, **<D>** the *Data Entry* button to open.

2. Select the desired category from the *Pay Item Category* area. This will filter the list of items to show only those Pay Items from the selected category.
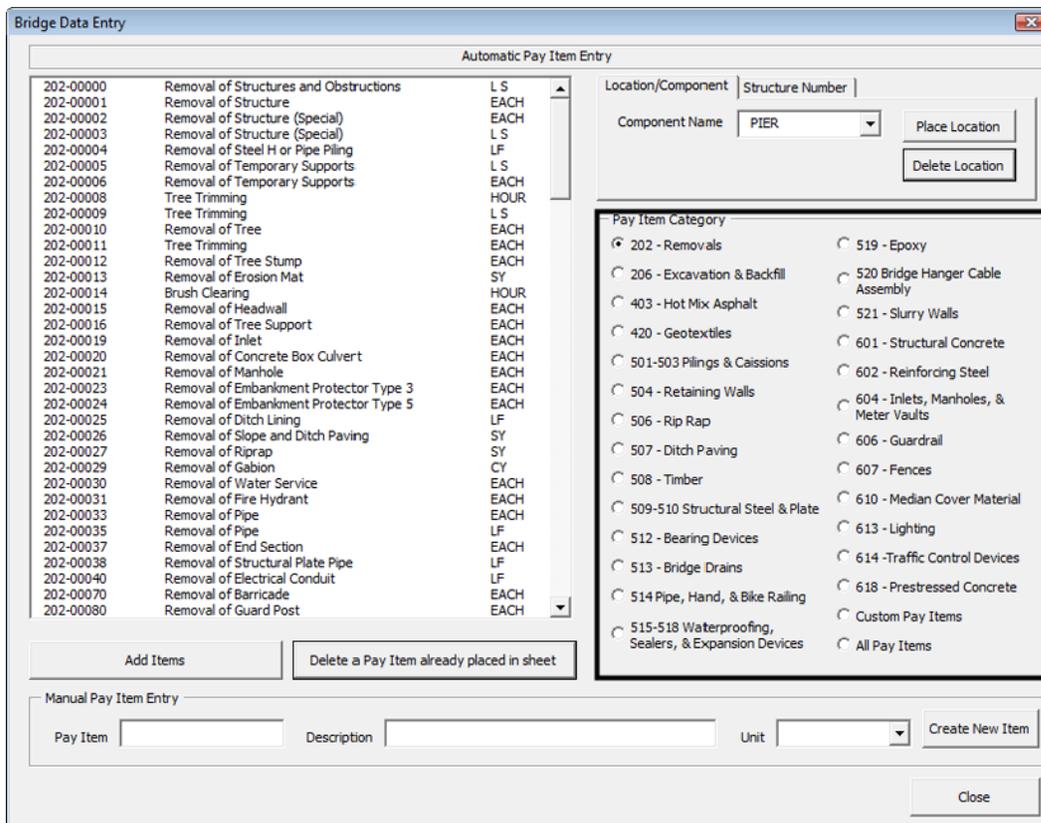
3. Select the desired Pay Items from the list. Multiple Pay Items can be selected using standard Windows selection methods (i.e. using Ctrl and Shift keys).

   Note: Pay Items will be sorted in the Bridge Sheet by Pay Item Code regardless of the order they are selected and added in the Bridge Data Entry dialog box.

4. **<D>** the **Add Items** button to update the spreadsheet with the selected Pay Items.

Bridge Data Entry Dialog Box

Note: Clicking on the *All Pay Items* category will show a listing of Pay Items across all Pay Item categories.

Resulting Bridge Sheet

			APP SLAB 1	ABUT 1	PIER 1	APP SLAB 2	ABUT 2	PIER 2	TOTAL
ITEM NO.	DESCRIPTION	UNIT							
202-00037	Removal of End Section	EACH							0
202-00150	Removal of Wall	EACH							0
202-00175	Removal of Concrete	L S							0

Summary of Quantities — B-16-AK

Note: If error checking triangles appear in the Summary of Quantities table, remove these triangles prior to linking the data to the tab sheet by using the Excel *Options > Formulas* menu and **toggle off** the **Error Checking** option *Enable background error checking*.

Adding Pay Items That Are Not In The Lists

To add new Pay Items, use the fields in the *Manual Pay Item Entry* area:

5. **<D>** in the **Pay Item** field and key in the desired *Pay Item code*.

6. Tab to move into the **Description** field and key in the Pay Item's **Description**.

7. Use the **Unit** drop down menu to select the Pay Item's unit of measure.

8. **<D>** the **Create New Pay Item** button to add the data to the spreadsheet.
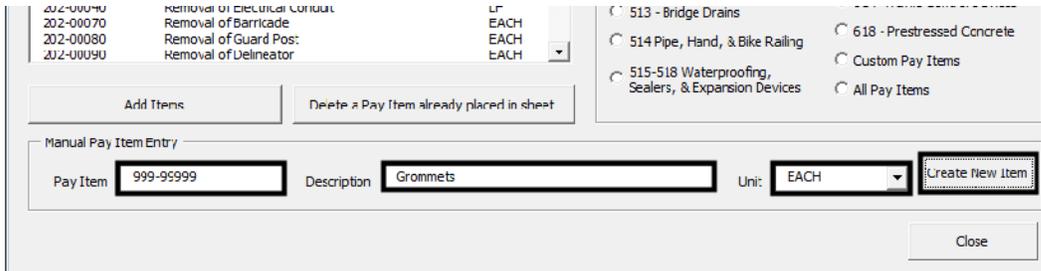
3.4 Removing a Pay Item

Important!   *Do not delete the Pay Item columns manually*. This will corrupt the file and you will have to start over with data entry. Use the following steps to remove a Pay Item from the Bridge Sheet.

1. In the ***Bridge Data Entry*** dialog box, **<D>** the ***Delete a Pay Item already placed in sheet*** button. The ***Delete Pay Item*** dialog box is displayed.
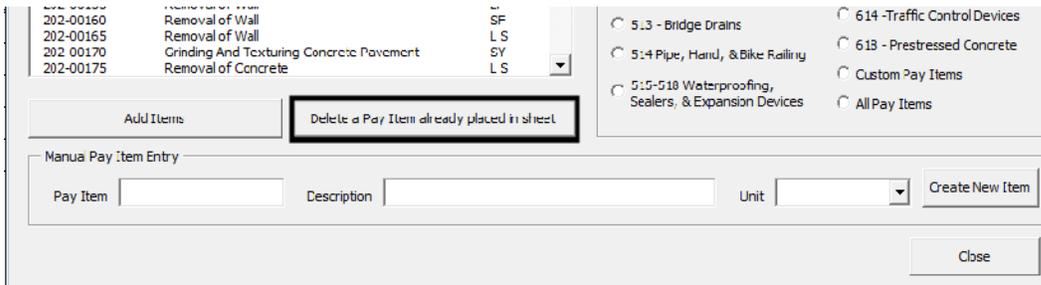
2. Highlight the Pay Item to be deleted.

3. **<D>** the **Delete Item** button to remove the Pay Item from the spreadsheet and condense the remaining data. Only one item at a time can be selected for deletion. **<D>** the **Close** button to dismiss the dialog box.
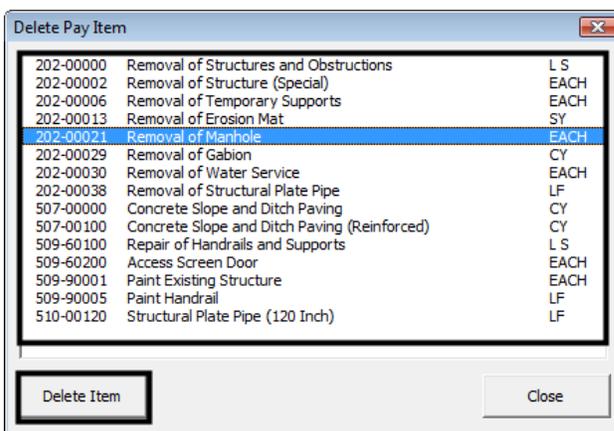
3.5 Entering Quantity Data

Once the Bridge Sheet table is laid out, quantity data can be added below each of the defined locations.

ITEM NO.	DESCRIPTION	UNIT	ABUT	PIER	APP SLAB	TOTAL
Summary of Quantities						
B-16-AK						
512-00103	Bearing Device (Type III)	EACH				0
514-01011	Bridge Rail (Steel)	LF				0
601-01000	Concrete Class B	CY				0
601-21010	Precast Concrete Unit	CY				0
601-25730	Precast Concrete Deck Panel (3 Inch)	SY				0
618-10054	Precast Concrete U Girder (U54)(Pre-Tensioned)	LF				0

Totals for each Pay Item will automatically be calculated in the last column of the table. Periodically save the file to avoid the unintentional loss of data.

4.0 Preparing the Worksheet for Use in a Plan Sheet

Once all the data is entered into the Bridge sheet, use the ***Divide Sheet*** button to create the worksheets that will be linked to a MicroStation sheet border file. The Divide Sheet button will create a ***Sub Sheet*** and will add blank rows between each of the Pay Items according to current standards. If the table is too long to fit inside one sheet border, additional Sub Sheets will be created that can be independently linked to a border file. A ***Sub Sheet Totals*** worksheet will also be created with a summary of quantities from all Sub Sheets.

4.1 Dividing Sheets

Important! All bridge quantities should be entered on the ***Bridge Sheet***. However, the Bridge Sheet should not be used to link bridge quantities to the ***Tab Sheet*** because the data is not formatted correctly on this worksheet. Instead, use the ***Sub Sheet*** worksheets created using the ***Divide Sheet*** button as the source for linking your bridge quantities to the ***Tab Sheet.***

To format and divide this sheet into sub sheets:

1. <D> the Divide Sheet button. This displays the ***Sheet Rows*** dialog box.

2. Key in the number of rows of data you want to appear on each sheet.

   Note: The number of rows specified in the ***Sheet Rows*** dialog box includes any blank lines that will be created to separate Pay Items on the Sub Sheets.

3. **<D>** the **OK** button.
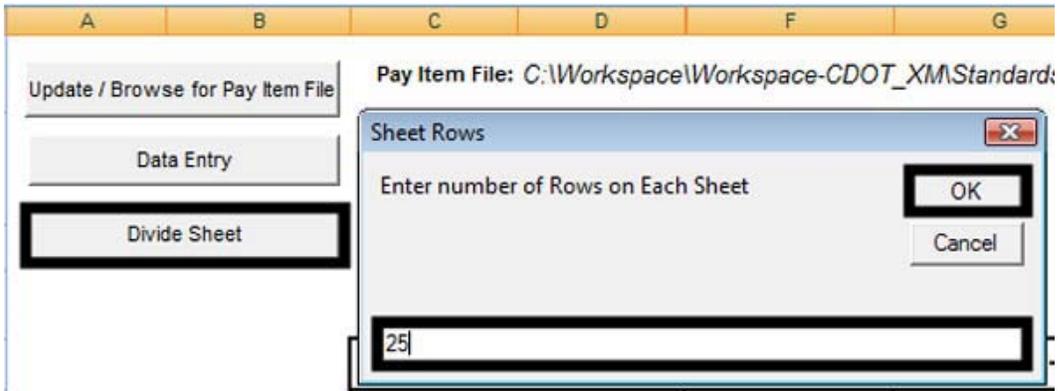
A number of new worksheets named **Sub Sheet 1**, S**ub Sheet 2**, etc. will be created along with a **Sub Sheet Totals** worksheet which contains a table of totals from each sub sheet and a grand total. An example of the resulting list of worksheets and a Sub Sheet are shown below.

Listing of New Sub Sheet and Sub Sheet Total Worksheets

Sub Sheet Example

Summary of Quantities

B-16-AK

ITEM NO.	DESCRIPTION	UNIT	APP SLAB 1	ABUT 1	PIER 1	APP SLAB 2	ABUT 2	PIER 2	TOTAL
202-00037	Removal of End Section	EACH							0
202-00150	Removal of Wall	EACH							0
202-00175	Removal of Concrete	LS							0

Important! If you **<D>** the Divide Sheet button again, a ***confirmation*** dialog box will open with a warning that the existing Sub Sheets will be overwritten. If you are trying to redo the Sub Sheets, click **Yes**. Otherwise click No.
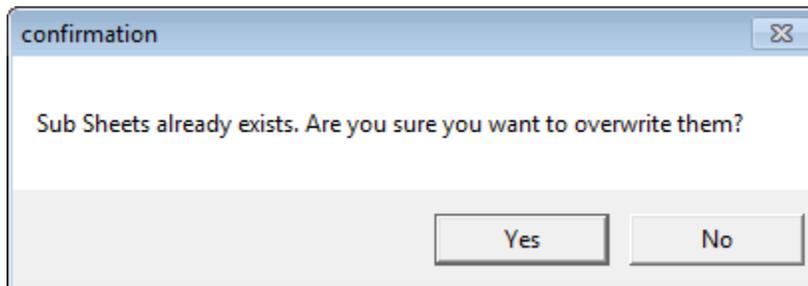
5.0 Linking the tab sheet to a MicroStation drawing

The last step is to link the Sub Sheet worksheets to a MicroStation sheet border file.

4. If you ***are not*** using ProjectWise to store your project files, follow the instructions in Workflow 24 - Linking MicroStation to Excel Documents. You can find this document here: ***http://www.coloradodot.info/business/designsupport/cadd/cadd-workflows/v8i-ss2/CDOT%20Workflow%20Linking%20MicroStation%20to%20Excel%20Documents.pdf***.

3. If you ***are*** using ProjectWise to store your project files, follow the instructions in the section Linking Word and Excel Files to MicroStation located in the chapter named ***Using MicroStation with ProjectWise*** of the ***ProjectWise Users' Guide*** located here: ***http://www.coloradodot.info/business/designsupport/cadd/projectwise%20-training/projectwise-ss2-manual***.

By using the tabulation of quantities spreadsheet templates and following the steps above, you should be able to save a considerable amount of time developing and formatting your quantities for inclusion in a plan set.