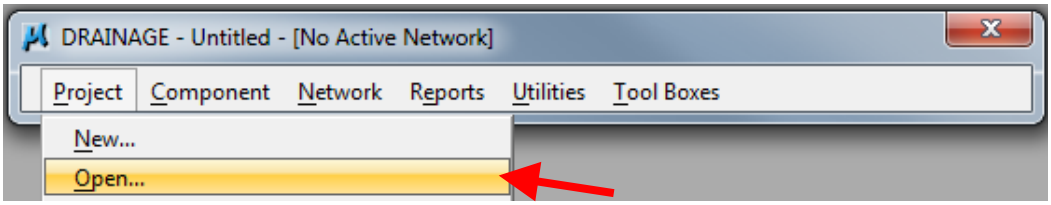
Geopak Drainage – Drainage Reports

This section provides instructions for creating and generating drainage reports. Drainage reports can be used to analyze networks and to enter data into tabulations.

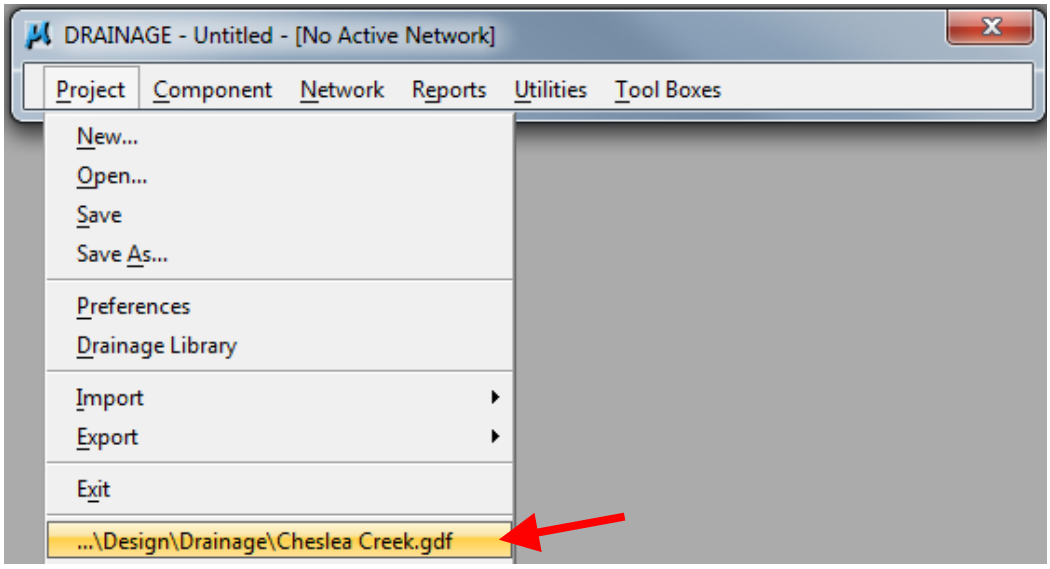
Opening a Project

For instructions on starting a new Geopak Drainage project, see Section 4A-52. To open an existing project, start Geopak Drainage as shown in Section 4A-52. In the DRAINAGE dialog box, go to *Project→Open* and browse to the appropriate file:



OR

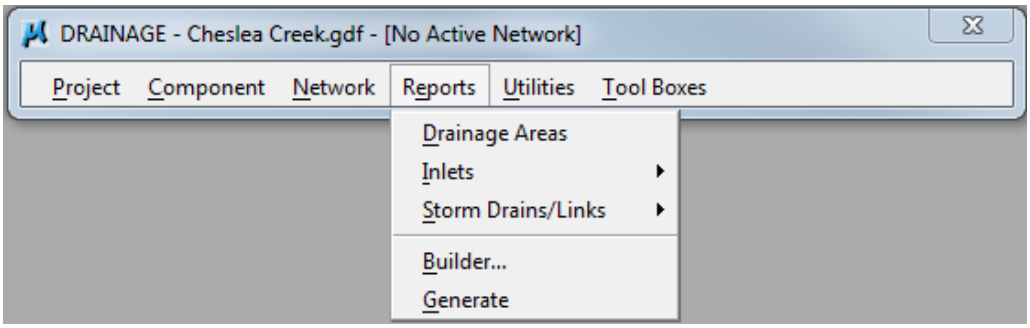
Choose a project at the bottom of the Project menu in the DRAINAGE dialog box:



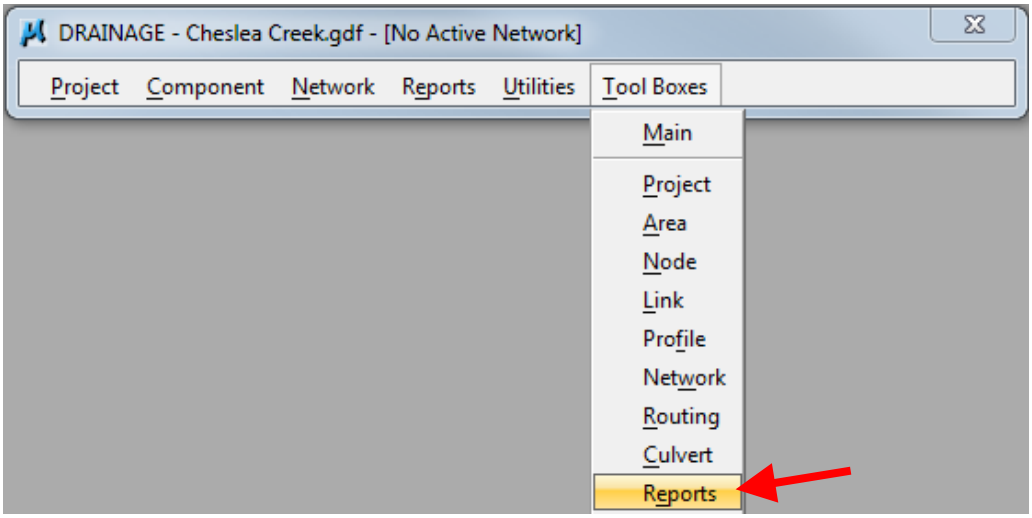
Creating a Drainage Report

Drainage reports can be created in several ways:

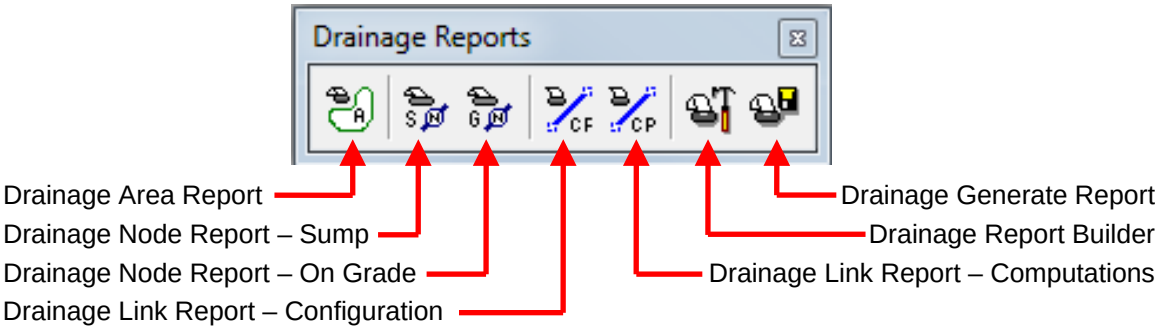
- Choosing one of the options from the Reports menu in the DRAINAGE dialog box:



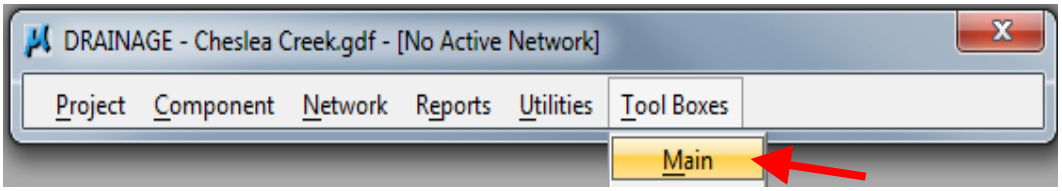
- Using the Drainage Reports toolbox accessed through the DRAINAGE dialog box:



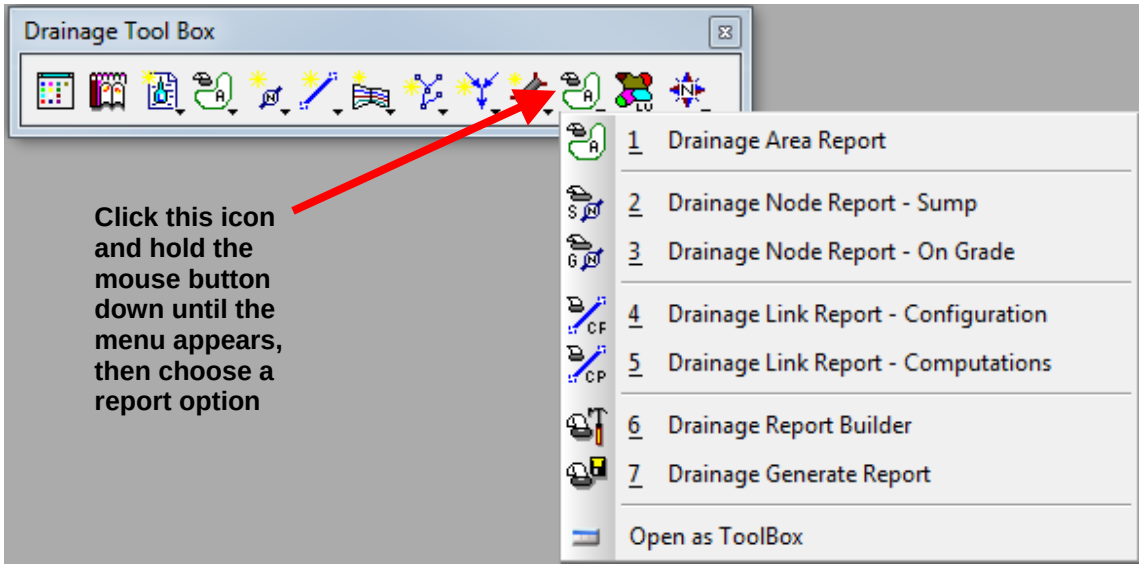
The Drainage Reports tool box will appear. Designers have several options to choose from:



- Using the Drainage Tool box accessed through the DRAINAGE dialog box:



The following tool box will appear:



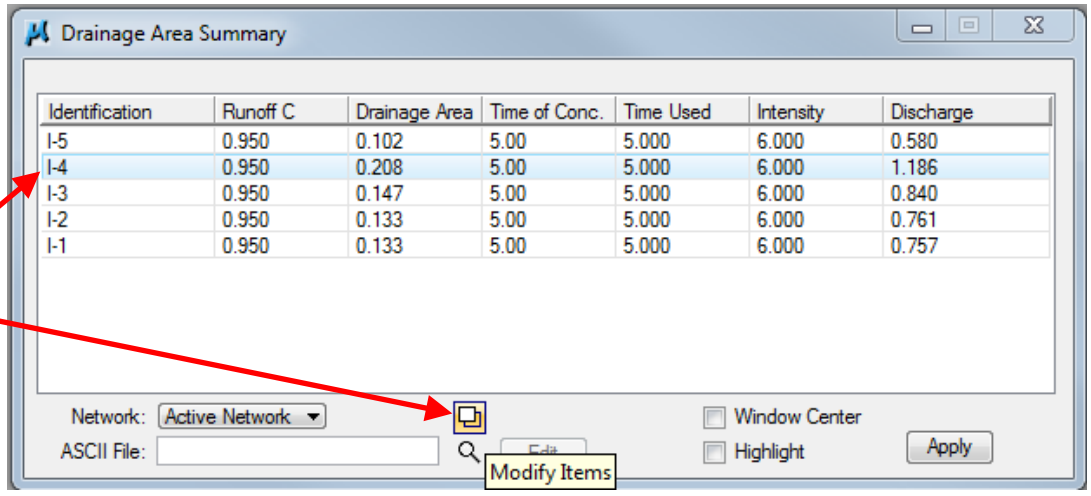
Regardless of the method designers use to create a report, several report options are available:

- Drainage Area Report
- Drainage Node Report – Sump
- Drainage Node Report – On Grade
- Drainage Link Report – Configuration
- Drainage Link Report – Computations
- Drainage Report Builder
- Drainage Generate Report

The first five options are preset reports – the information they generate cannot be changed. The last two options allow designers to custom build reports, create a preference file, and generate a report.

Drainage Area Report

Choosing the Drainage Area Report option produces a report similar to the following:

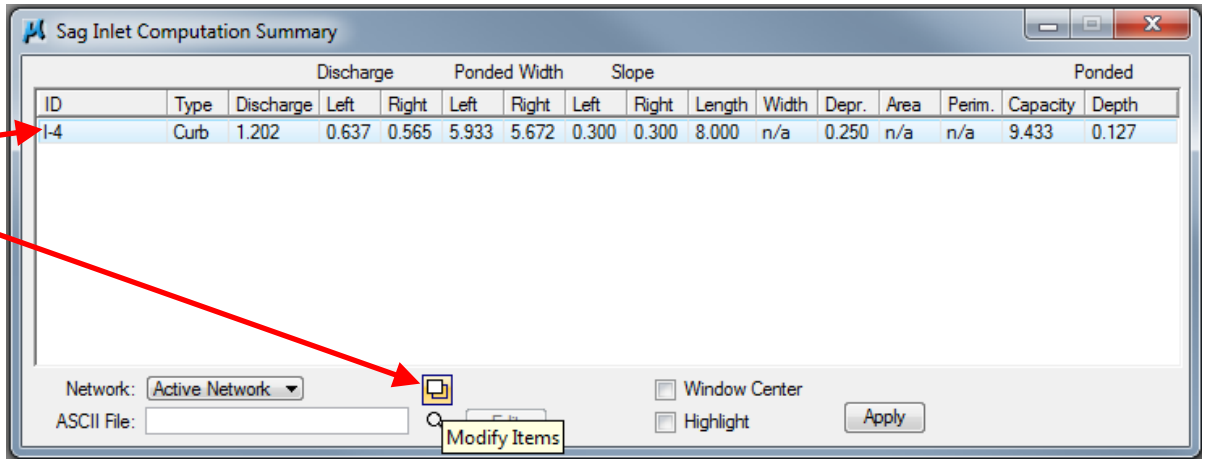


The report will list all of the drainage areas in the file or model unless *Network:* is set for Active Network. Refer to Select Active Network in Section 4A-56. If Active Network is chosen, only those drainage areas for the active network will be listed.

Drainage areas can be modified by clicking on a drainage area and clicking the Modify Items icon. This opens the Drainage Area Definition dialog box. See Section 4A-54 for more on editing drainage areas.

Drainage Node Report – Sump

Choosing the Drainage Node Report – Sump option produces a report of intakes located in sags, similar to the following:



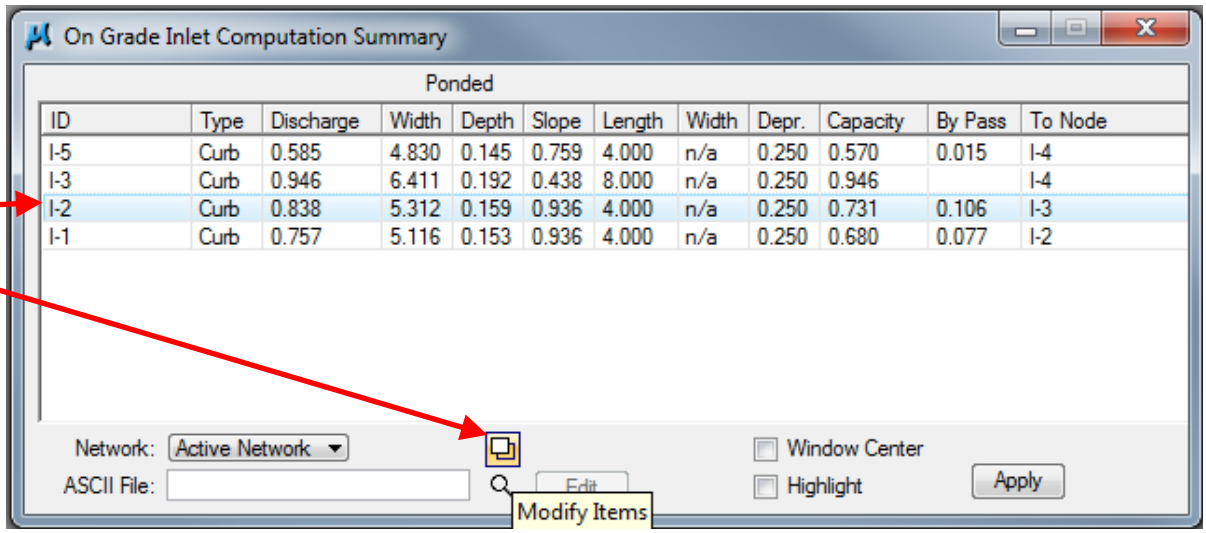
Click on an intake, then click on the Modify Items icon to modify it

The report will list all of the sag intakes in the file or model unless *Network:* is set for Active Network. Refer to Select Active Network in Section 4A-56. If Active Network is chosen, only those sag intakes for the active network will be listed.

Sag intakes can be modified by clicking on an intake and clicking the Modify Items icon. This opens the Node Configuration - Properties dialog box. See Section 4A-53 for more on editing intakes.

Drainage Node Report – On Grade

Choosing the Drainage Node Report – On Grade option produces a report of intakes located on-grade similar to the following:



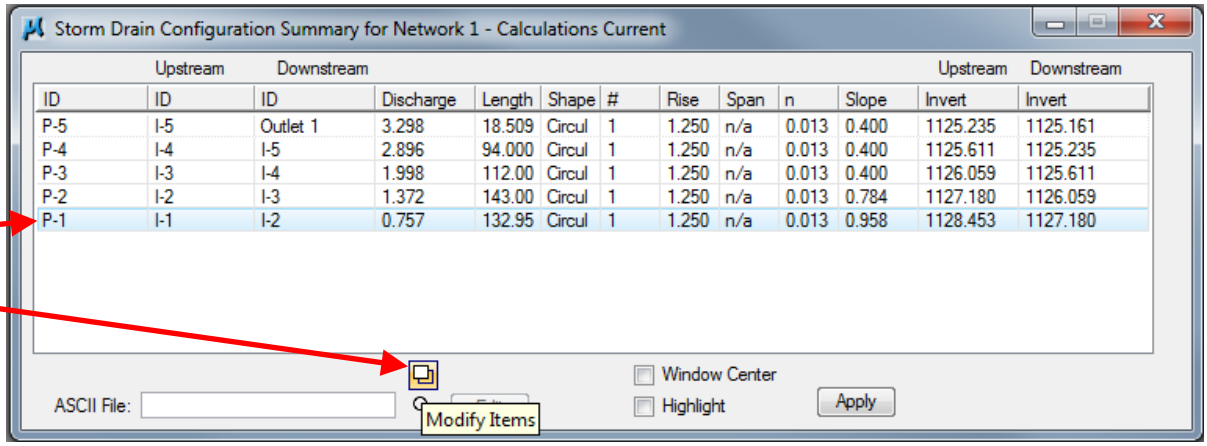
Click on an intake, then click on the Modify Items icon to modify it

The report will list all of the on-grade intakes in the file or model unless *Network:* is set for Active Network. Refer to Select Active Network in Section 4A-56. If Active Network is chosen, only those on-grade intakes for the active network will be listed.

On-grade intakes can be modified by clicking on an intake and clicking the Modify Items icon. This opens the Node Configuration - Properties dialog box. See Section 4A-53 for more on editing intakes.

Drainage Link Report – Configuration

Choosing the Drainage Link Report – Configuration option produces a pipe configuration properties report similar to the following:



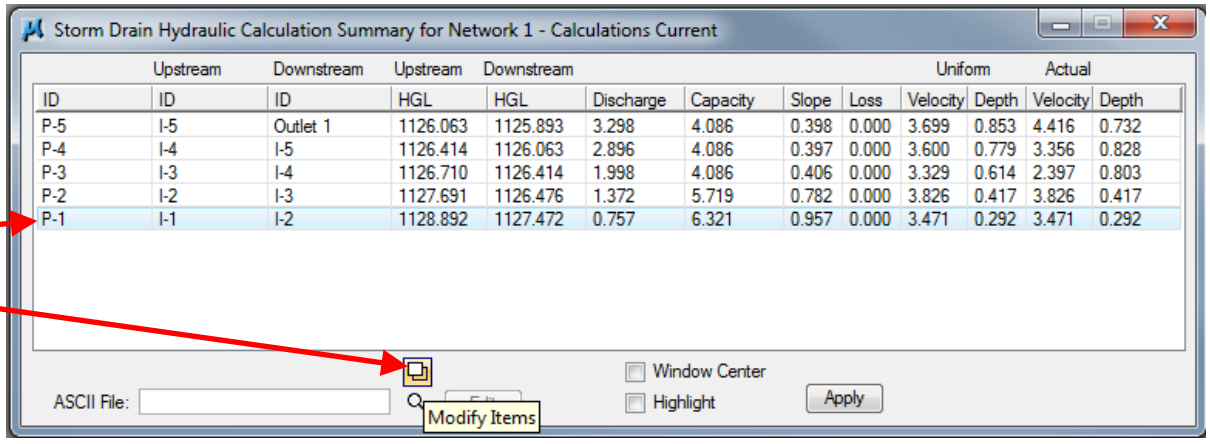
Click on a pipe, then click on the Modify Items icon to modify it

The report will list all of the pipes in the file or model unless *Network:* is set for Active Network. Refer to Select Active Network in Section 4A-56. If Active Network is chosen, only those pipes for the active network will be listed.

Pipes can be modified by clicking on a pipe and clicking the Modify Items icon. This opens the Link Configuration Definition dialog box. See Section 4A-55 for more on editing intakes.

Drainage Link Report – Computations

Choosing the Drainage Link Report – Computations option produces a pipe computation report similar to the following:

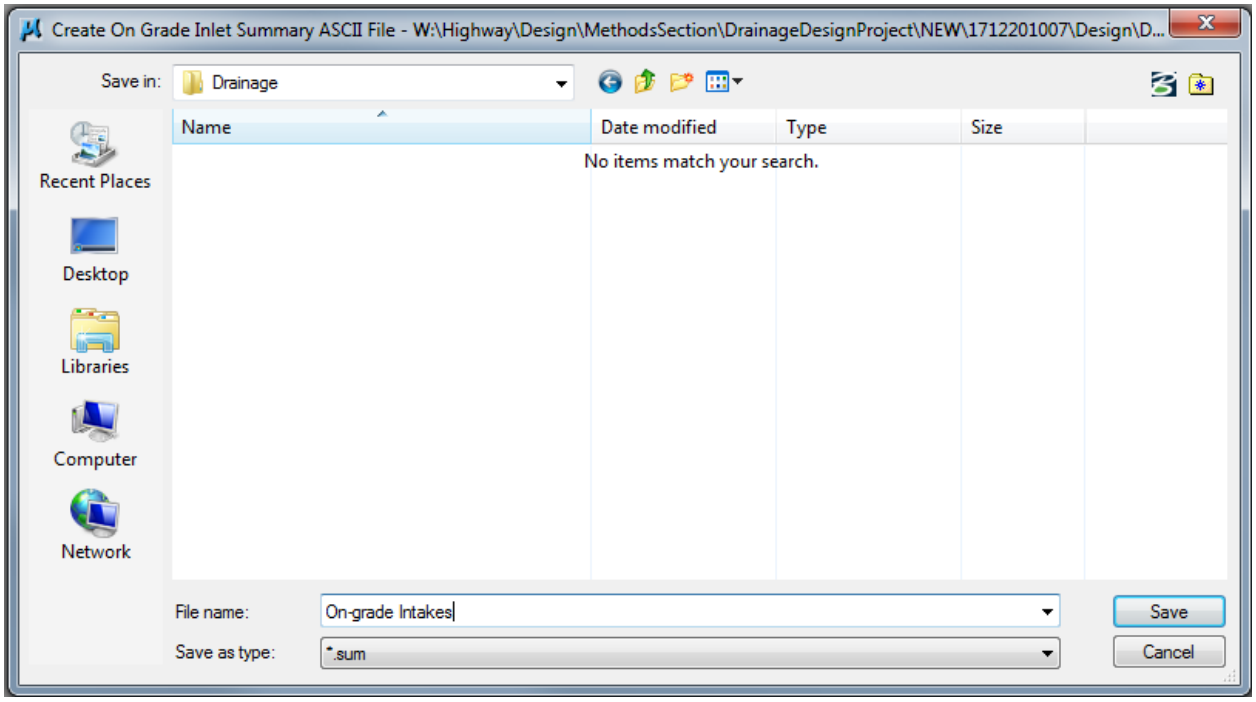


Click on a pipe, then click on the Modify Items icon to modify it

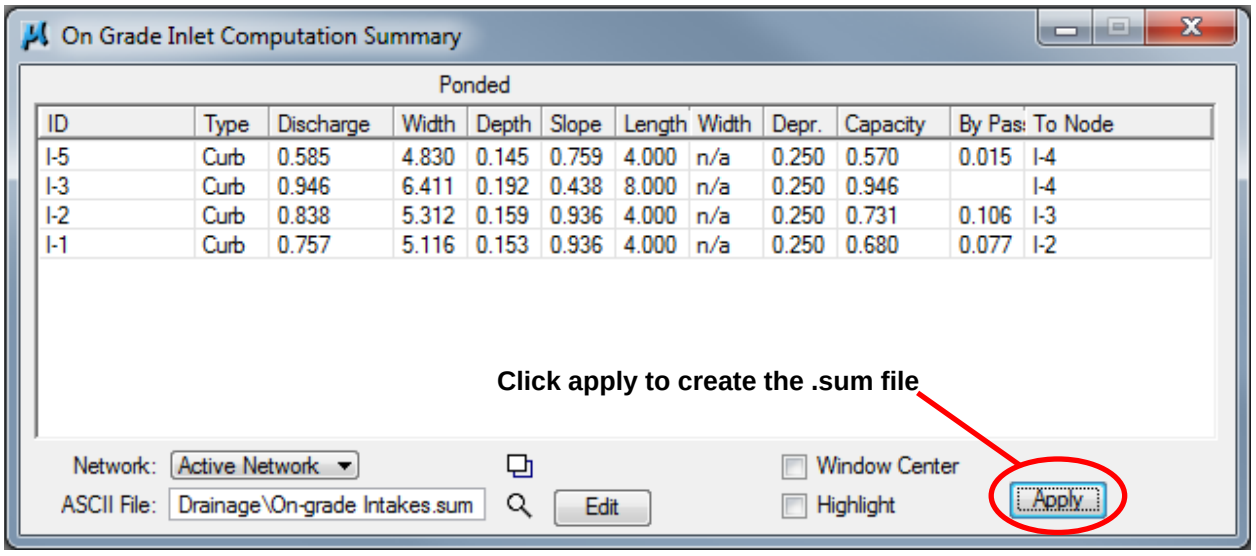
The report will list all of the pipes in the file or model unless *Network:* is set for Active Network. Refer to Select Active Network in Section 4A-56. If Active Network is chosen, only those pipes for the active network will be listed.

Pipes can be modified by clicking on a pipe and clicking the Modify Items icon. This opens the Link Configuration Definition dialog box. See Section 4A-55 for more on editing intakes.

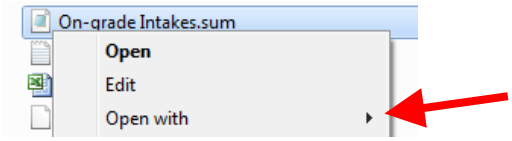
The five reports discussed above can be saved to a folder as an ASCII file. This information can then be placed in a spread sheet. The process begins by selecting a location to place the report (typically in the Drainage folder). Click on the browse icon in any of the reports and browse to the desired folder location. Type in a file name (in this case, a report for Drainage Node Report – On Grade is being generated), see below.



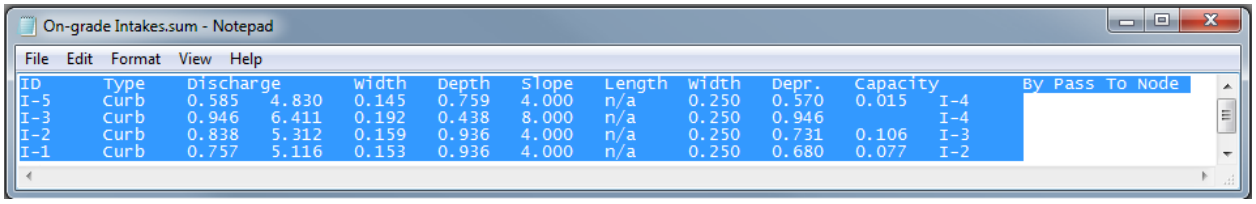
Click on Save. The file will not be created yet. Return to the report summary and click Apply to create the file:



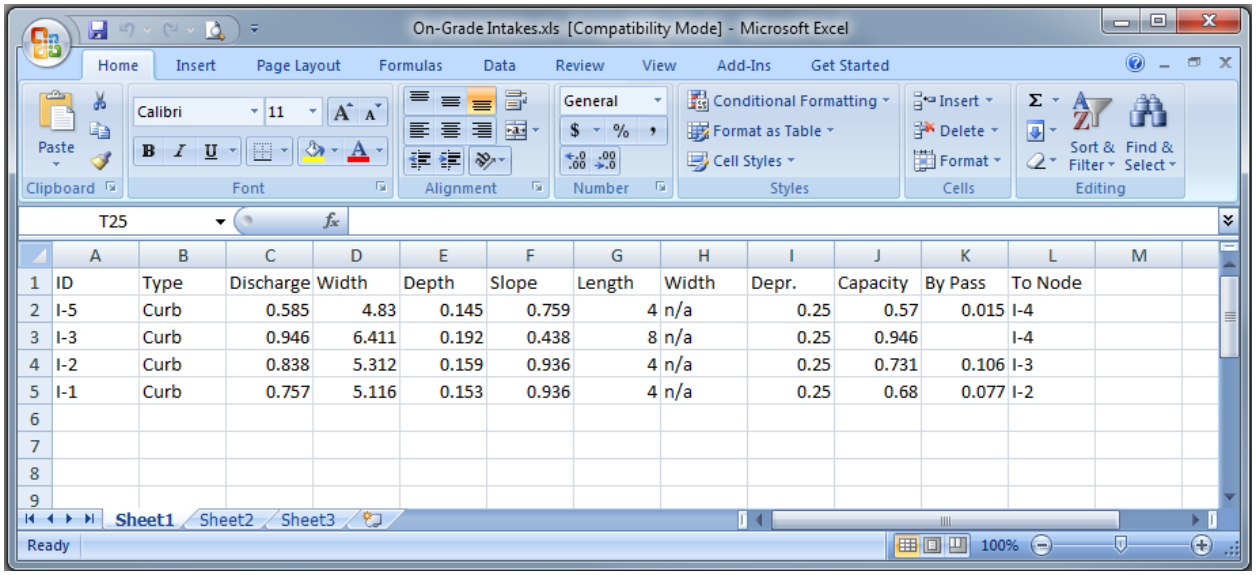
A .sum file will be created (in this case, On-grade Intakes.sum). To open the file, right click on the file, use the *Open with* option, and choose Notepad:



To copy the data into a spread sheet, go to *Edit→Select All*. This will highlight all of the data, see below. Go to *Edit→Copy*.



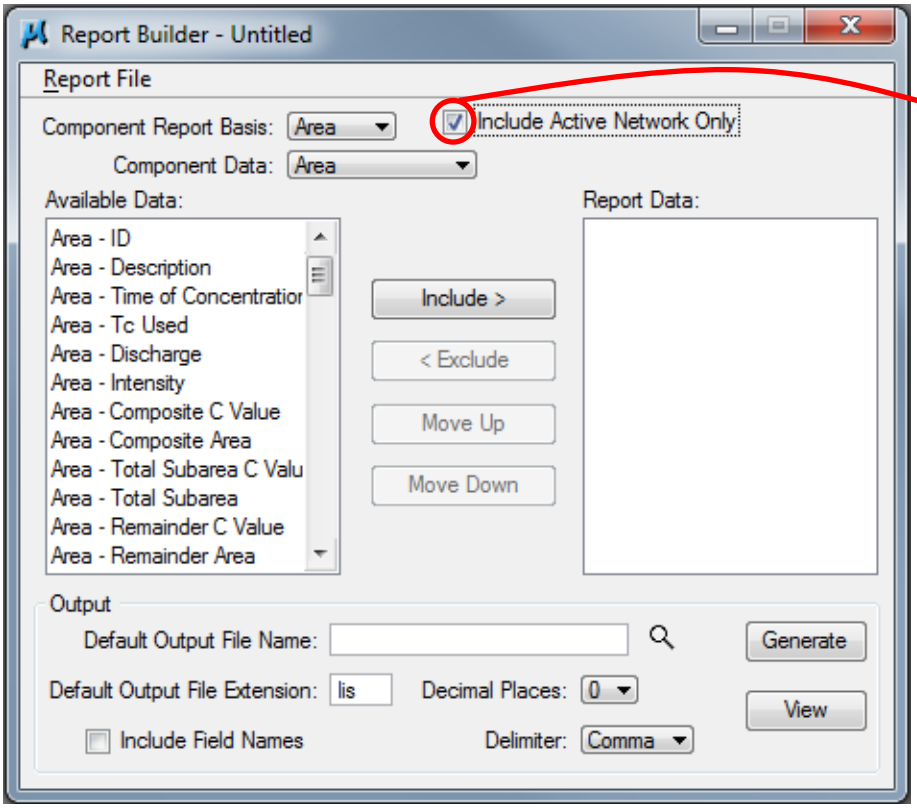
Open a spreadsheet. Click on *Paste* to place the data into the spreadsheet:



To build custom reports, designers need to use the Drainage Report Builder. Reports can be generated using either the Drainage Report Builder or the Drainage Generate Report option.

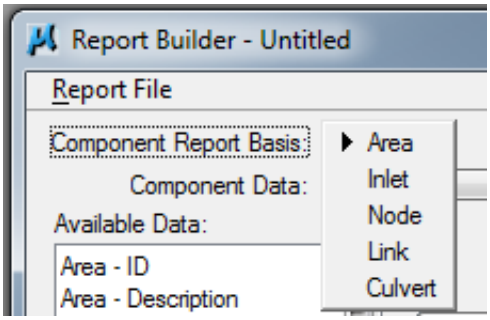
Drainage Report Builder

Choosing the Drainage Report Builder option opens the following dialog box:

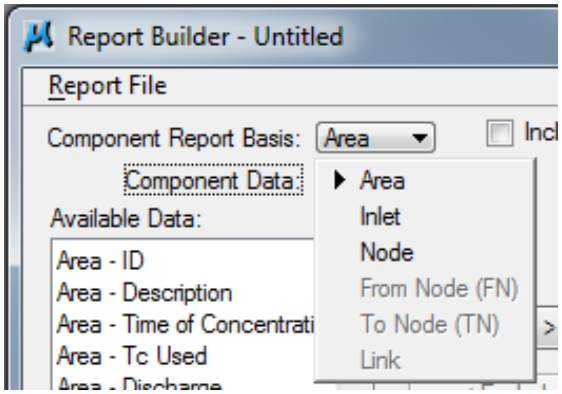


Toggle this on to create and/or generate a report for an active network only. Toggle off to create and/or generate a report for all networks.

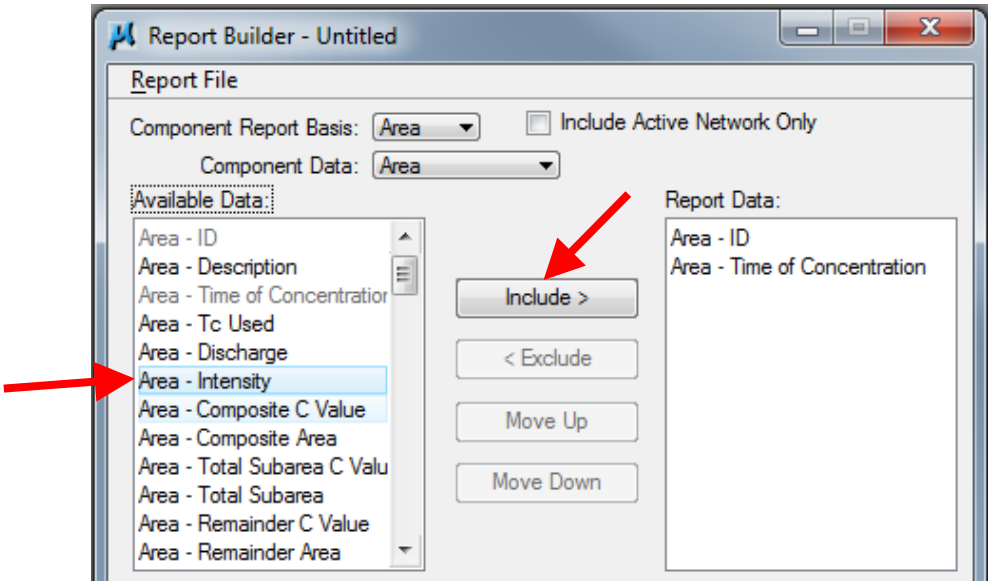
Choose a Component Report Basis (Area for this example):



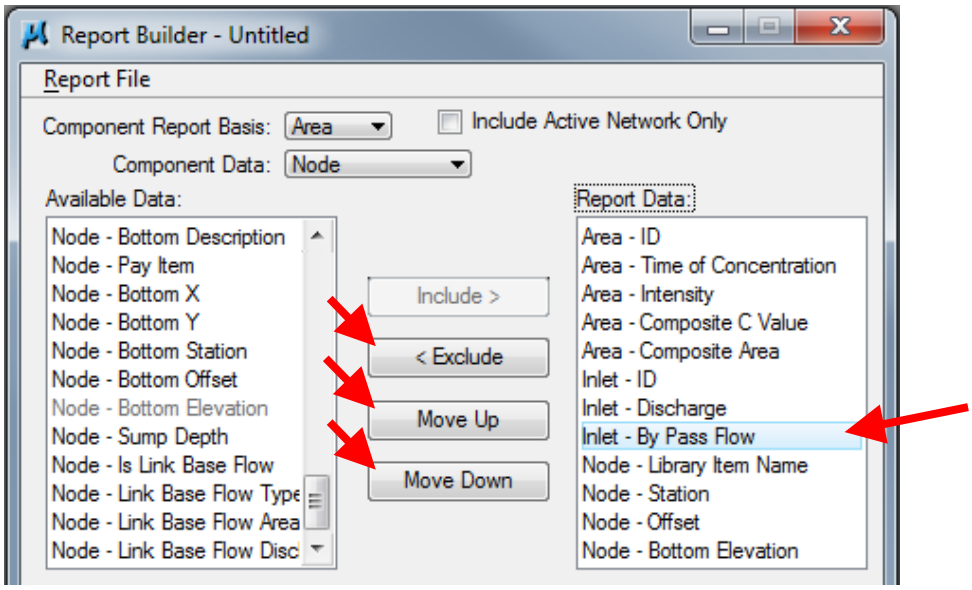
Choose Component Data (Area for this example):



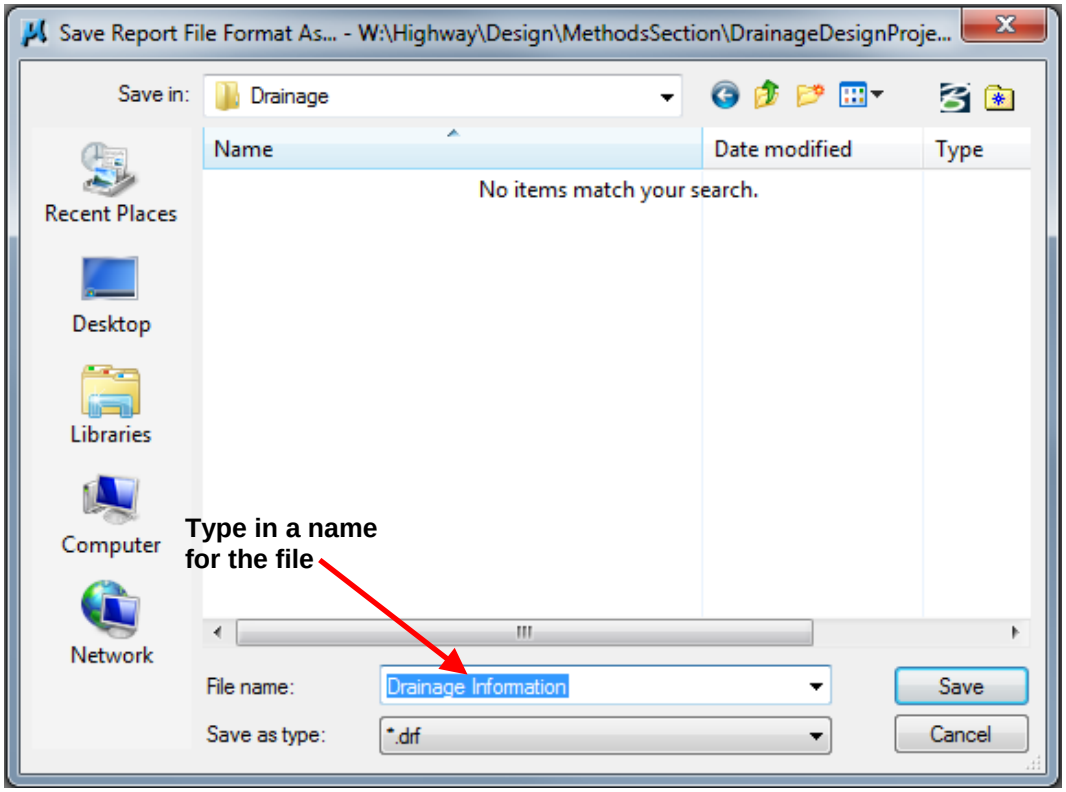
Choose a desired item under Available Data. Click on *Include>* (or double-click on the item) to add to the Report Data:



To remove an item from the Report Data, choose the item and click <*Exclude* (or double click the item). Designers can move items up or down by clicking on Move Up or Move Down.



Once the desired items have been selected for the Report Data, a preference file can be created by going to *Report File→Save* and choosing a location to store the file. Choose a name for the file (Drainage Information for this example) and click Save. This will save a .dpf file which can be used to generate a report.

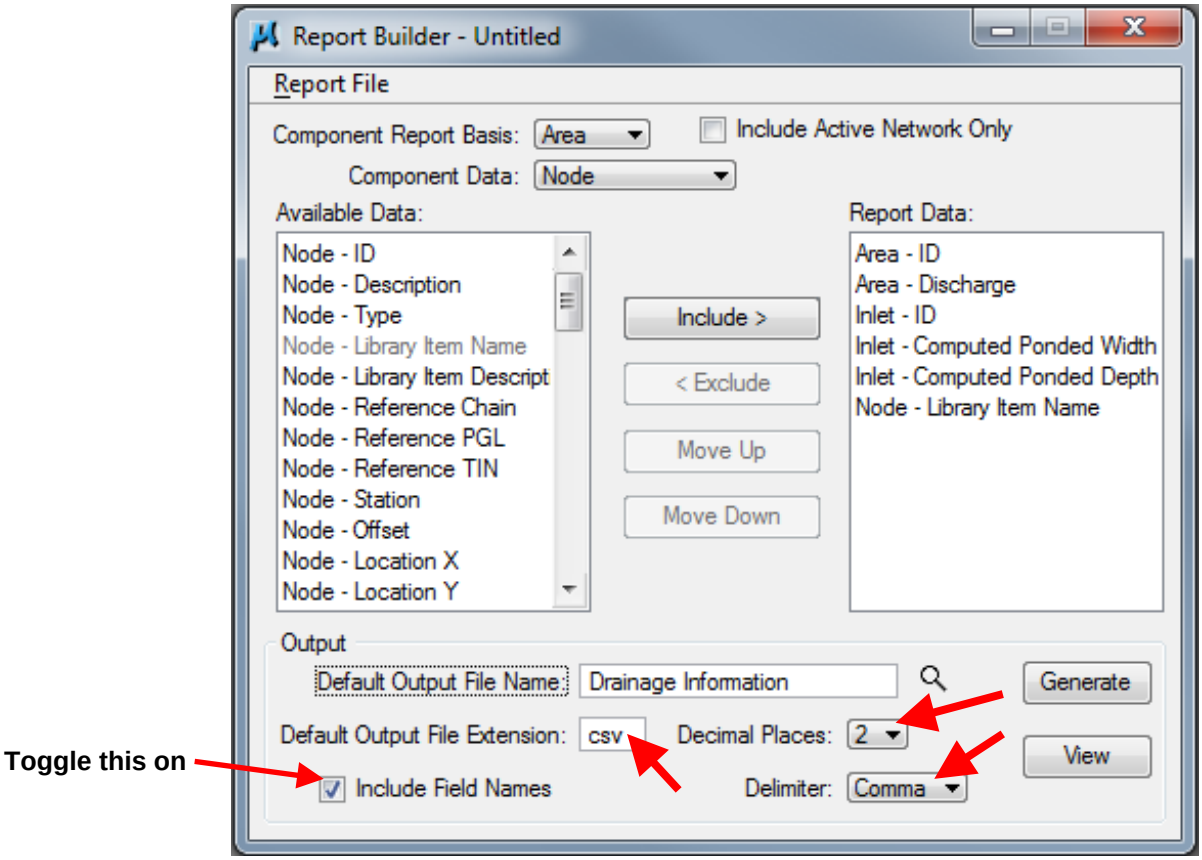


Two preference files, Intakes and Utility Accesses.dpf and Pipes.dpf, have been created for filling in Tab 104-5B. These are located in the W:\Highway\Design\CADD\Geopak\Drainage folder.

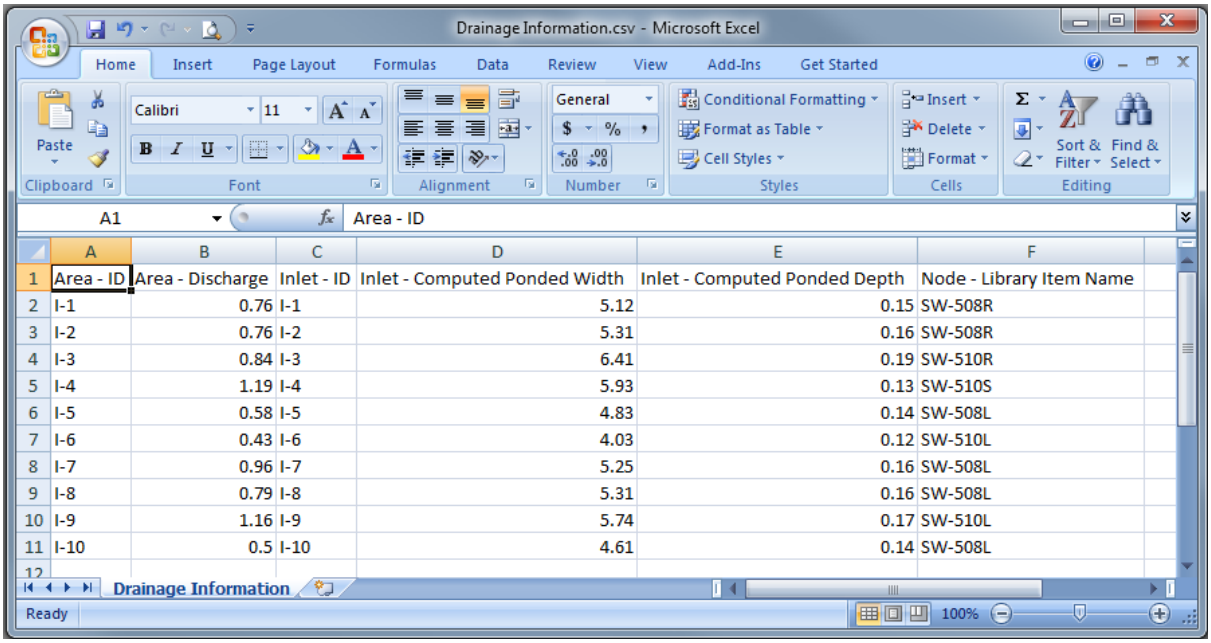
To open a preference file, go to *Report File→Open*… and browse to the appropriate file. Report Data will populate with the items stored in the preference file.

To generate a report through the Drainage Report Builder, type in a Default Output File Name (Drainage Information for this example), type in csv for the Default Output File Extension, choose the

number of Decimal Places (2 for this example), and check that Delimiter is set to Comma. Toggle Include Field Names on. This will place the items selected in Report Data as column headings in the spreadsheet.



Click on Generate. This will create a .csv file (Drainage Information.csv for this example) in the same folder as the .dsn (or .drn) file.

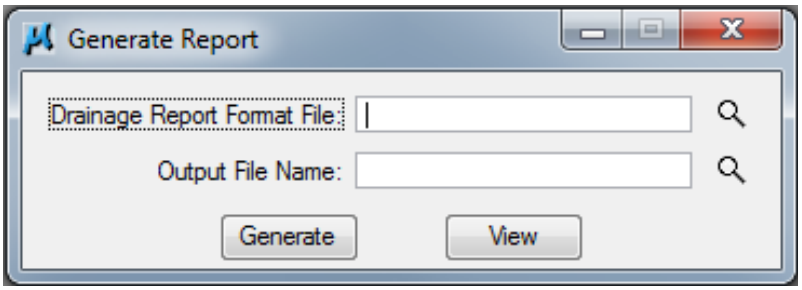


	A	B	C	D	E	F
1	Area - ID	Area - Discharge	Inlet - ID	Inlet - Computed Ponded Width	Inlet - Computed Ponded Depth	Node - Library Item Name
2	I-1	0.76	I-1	5.12	0.15	SW-508R
3	I-2	0.76	I-2	5.31	0.16	SW-508R
4	I-3	0.84	I-3	6.41	0.19	SW-510R
5	I-4	1.19	I-4	5.93	0.13	SW-510S
6	I-5	0.58	I-5	4.83	0.14	SW-508L
7	I-6	0.43	I-6	4.03	0.12	SW-510L
8	I-7	0.96	I-7	5.25	0.16	SW-508L
9	I-8	0.79	I-8	5.31	0.16	SW-508L
10	I-9	1.16	I-9	5.74	0.17	SW-510L
11	I-10	0.5	I-10	4.61	0.14	SW-508L

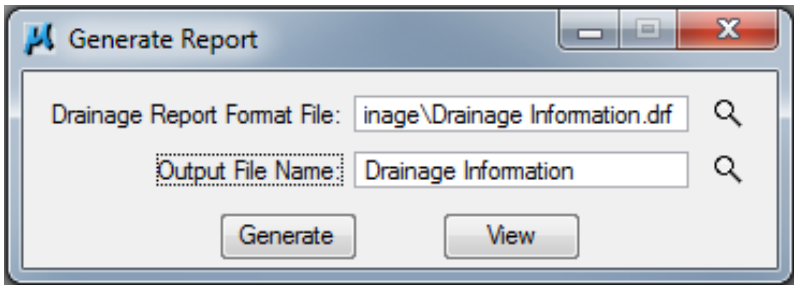
The file can be opened with Excel. This information can either be saved as, or copied and pasted into, an Excel spreadsheet.

Drainage Generate Report

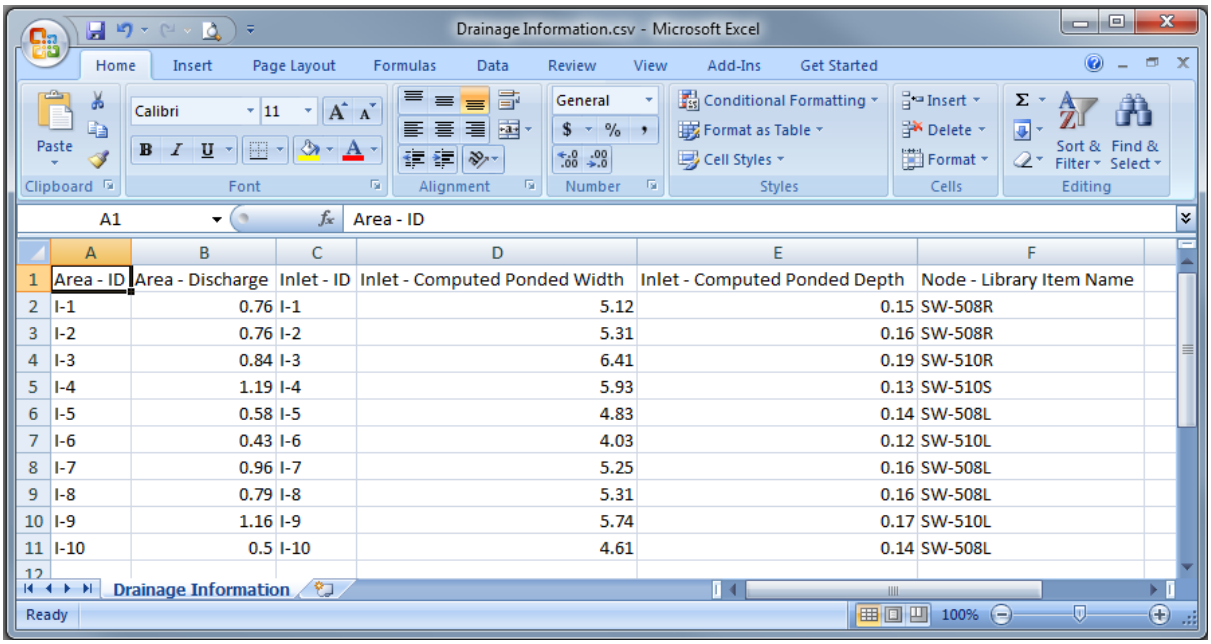
Designers can generate a report without going through the Drainage Report Builder by choosing the Drainage Generate Report option. A .dpf file is required. Selecting the Drainage Generate Report option opens the following dialog box:



Use the browse icon to browse to the desired .dpf file (Drainage Information.dpf for this example). Type in an Output File Name (Drainage Information for this example).



Click on Generate. This will create a .csv file (Drainage Information.csv for this example) in the same folder as the .dsn (or .drn) file.



	A	B	C	D	E	F
1	Area - ID	Area - Discharge	Inlet - ID	Inlet - Computed Ponded Width	Inlet - Computed Ponded Depth	Node - Library Item Name
2	I-1	0.76	I-1	5.12	0.15	SW-508R
3	I-2	0.76	I-2	5.31	0.16	SW-508R
4	I-3	0.84	I-3	6.41	0.19	SW-510R
5	I-4	1.19	I-4	5.93	0.13	SW-510S
6	I-5	0.58	I-5	4.83	0.14	SW-508L
7	I-6	0.43	I-6	4.03	0.12	SW-510L
8	I-7	0.96	I-7	5.25	0.16	SW-508L
9	I-8	0.79	I-8	5.31	0.16	SW-508L
10	I-9	1.16	I-9	5.74	0.17	SW-510L
11	I-10	0.5	I-10	4.61	0.14	SW-508L
12						

The file can be opened with Excel. This information can either be saved as, or copied and pasted into, an Excel spreadsheet.

Filling in Tab 104-5B

The process for filling in Tab 104-5B involves two steps: 1) create .csv files, and 2) import the .csv files into Tab 104-5B.

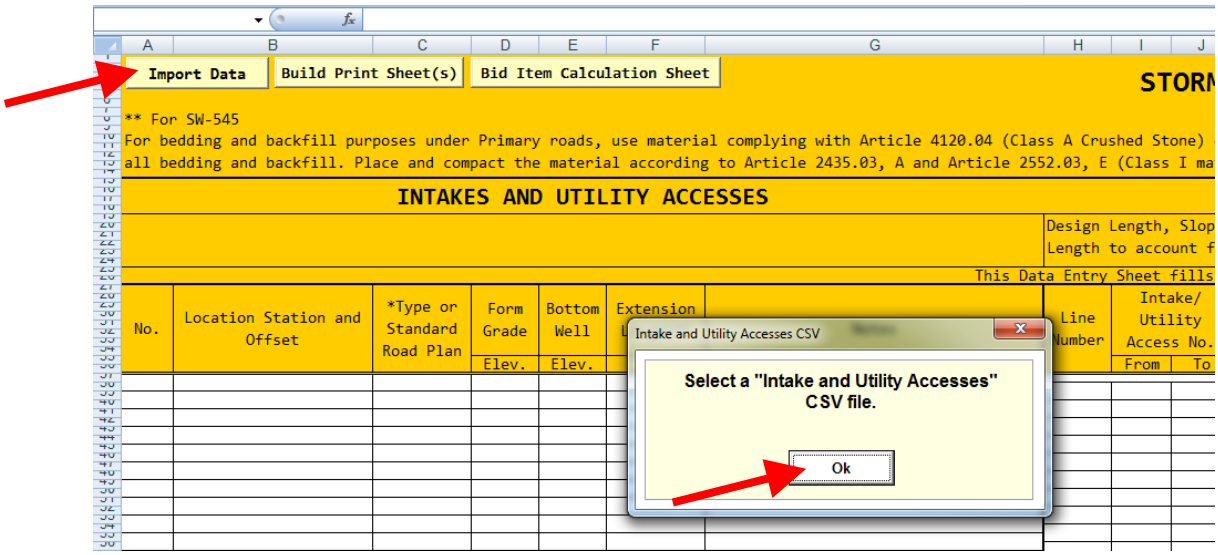
Create .csv Files

As noted above, two preference files are located in the W:\Highway\Design\CADD\Geopak\Drainage folder for filling in Tab 104-5B: Intakes and Utility Accesses.dpf and Pipes.dpf. These files are used to create the .csv files that populate Tab 104-5B. Follow the instructions under Drainage Report Builder or Drainage Report Generate to create the .csv files.

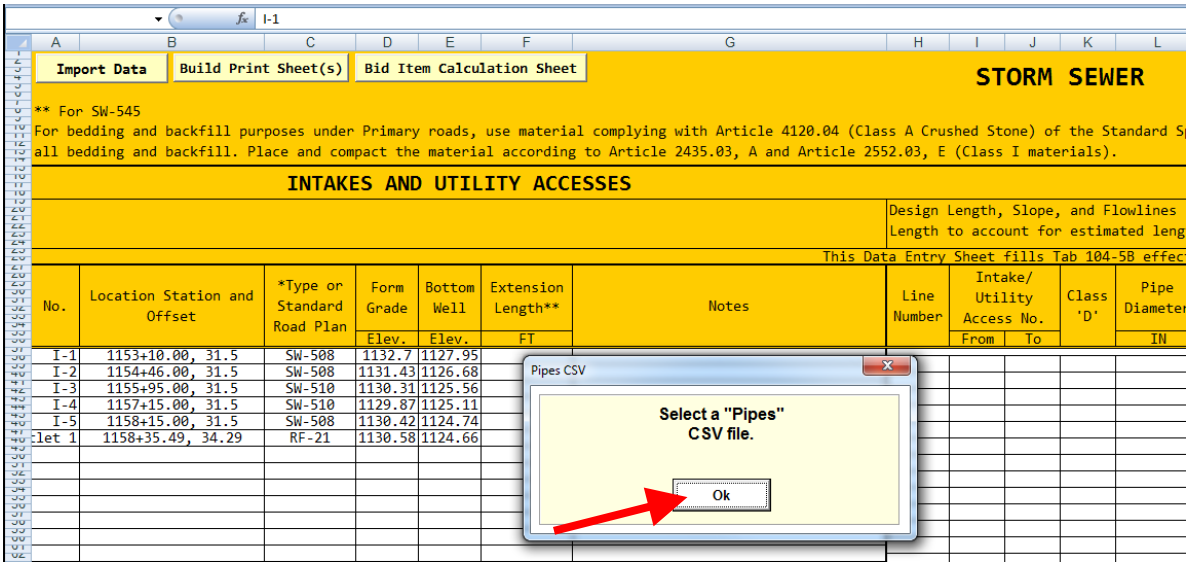
> **Note:** using Drainage Report Generate will create a .csv which includes all networks. To create a .csv for an active network, use Drainage Report Builder and toggle Include Active Network Only on.

Import .csv Files

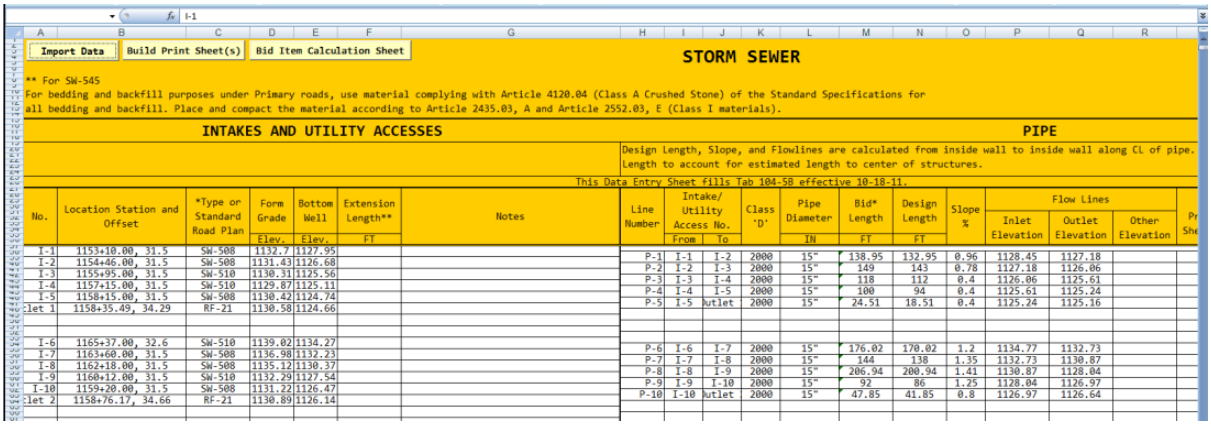
To import the.csv files into Tab 104-5B, click on Import Data. You will be prompted to select an Intakes and Utility Accesses csv file.



Click Ok and browse to the desired file. Click on Open. The Intakes and Utility Accesses columns will populate automatically and you will be prompted to select a Pipes csv file.



Click Ok and browse to the desired file. Click on Open (or click Cancel if no pipes are to be added). The Pipes columns will populate automatically. Repeat the above processes to add more intakes and utility access and more pipes.



Import Data | Build Print Sheet(s) | Bid Item Calculation Sheet

STORM SEWER

** For SW-545
For bedding and backfill purposes under Primary roads, use material complying with Article 4120.04 (Class A Crushed Stone) of the Standard Specifications for all bedding and backfill. Place and compact the material according to Article 2435.03, A and Article 2552.03, E (Class I materials).

INTAKES AND UTILITY ACCESSES | **PIPE**

Design Length, Slope, and Flowlines are calculated from inside wall to inside wall along CL of pipe. Length to account for estimated length to center of structures.

This Data Entry Sheet fills Tab 104-58 effective 10-18-11.

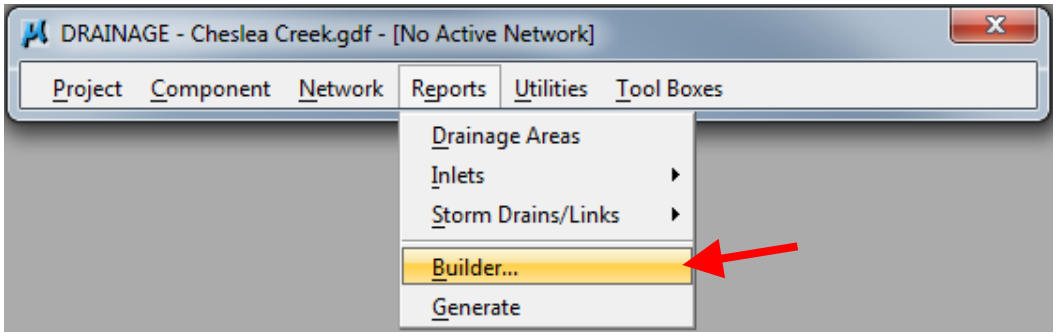
No.	Location Station and Offset	*Type or Standard Road Plan	Form Grade Elev.	Bottom Well Elev.	Extension Length** FT	Notes
I-1	1153+10.00, 31.5	SW-508	1132.7	1127.95		
I-2	1154+46.00, 31.5	SW-508	1131.43	1126.68		
I-3	1155+95.00, 31.5	SW-510	1130.31	1125.56		
I-4	1157+15.00, 31.5	SW-510	1129.87	1125.11		
I-5	1158+15.00, 31.5	SW-508	1130.42	1124.74		
let 1	1158+35.49, 34.29	RF-21	1130.58	1124.66		
I-6	1165+37.00, 32.6	SW-510	1139.02	1134.27		
I-7	1163+60.00, 31.5	SW-508	1136.98	1132.23		
I-8	1162+18.00, 31.5	SW-508	1135.12	1130.37		
I-9	1160+12.00, 31.5	SW-510	1132.29	1127.54		
I-10	1159+20.00, 31.5	SW-508	1131.22	1126.47		
let 2	1158+76.17, 34.66	RF-21	1130.89	1126.14		

Line Number	Intake/ Utility Access No. From	To	Class 'D'	Pipe Diameter IN	Bid* Length FT	Design Length FT	Slope %	Flow Lines Inlet Elevation	Outlet Elevation	Other Elevation	Pr She
P-1	I-1	I-2	2000	15"	138.95	132.95	0.96	1128.45	1127.18		
P-2	I-2	I-3	2000	15"	149	143	0.78	1127.18	1126.06		
P-3	I-3	I-4	2000	15"	118	112	0.4	1126.06	1125.61		
P-4	I-4	I-5	2000	15"	100	94	0.4	1125.61	1125.24		
P-5	I-5	outlet	2000	15"	24.51	18.51	0.4	1125.24	1125.16		
P-6	I-6	I-7	2000	15"	176.02	170.02	1.2	1134.77	1132.73		
P-7	I-7	I-8	2000	15"	144	138	1.35	1132.73	1130.87		
P-8	I-8	I-9	2000	15"	206.94	200.94	1.41	1130.87	1128.04		
P-9	I-9	I-10	2000	15"	92	86	1.25	1128.04	1126.97		
P-10	I-10	outlet	2000	15"	47.85	41.85	0.8	1126.97	1126.64		

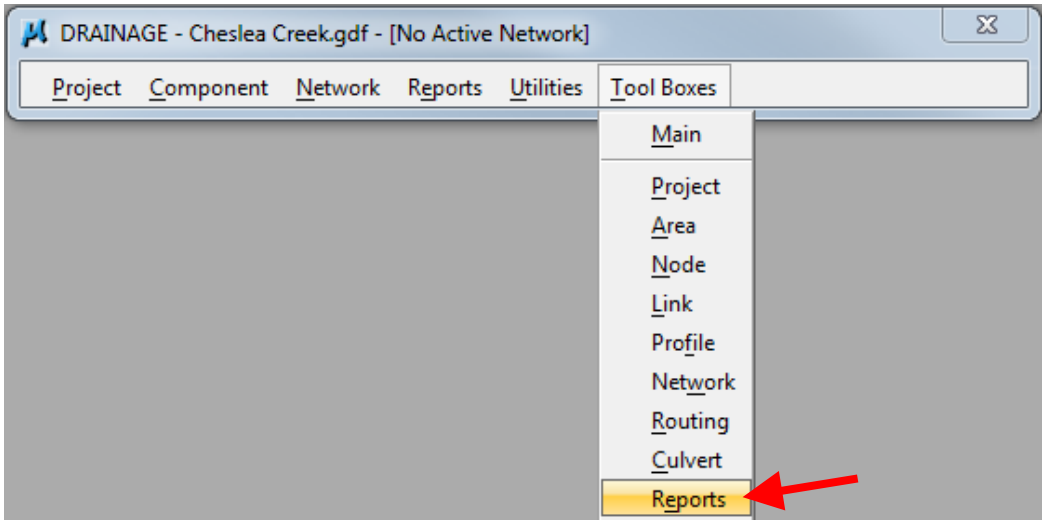
Editing a Drainage Report

Custom reports can be edited at any time. This is done through the Report Builder dialog box. Several options for opening the Report Builder dialog box are available:

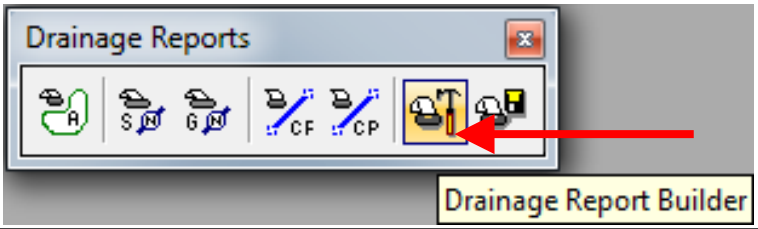
- Choosing *Builder*… option from the Reports menu in the DRAINAGE dialog box:



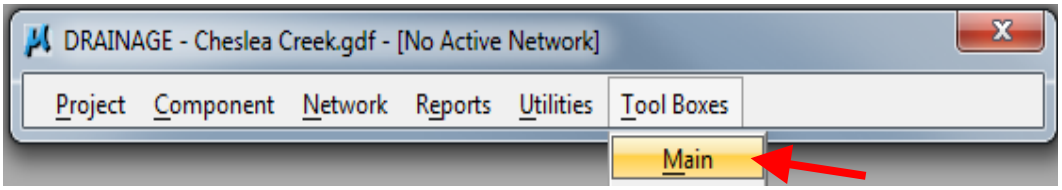
- Using the Drainage Reports toolbox accessed through the DRAINAGE dialog box:



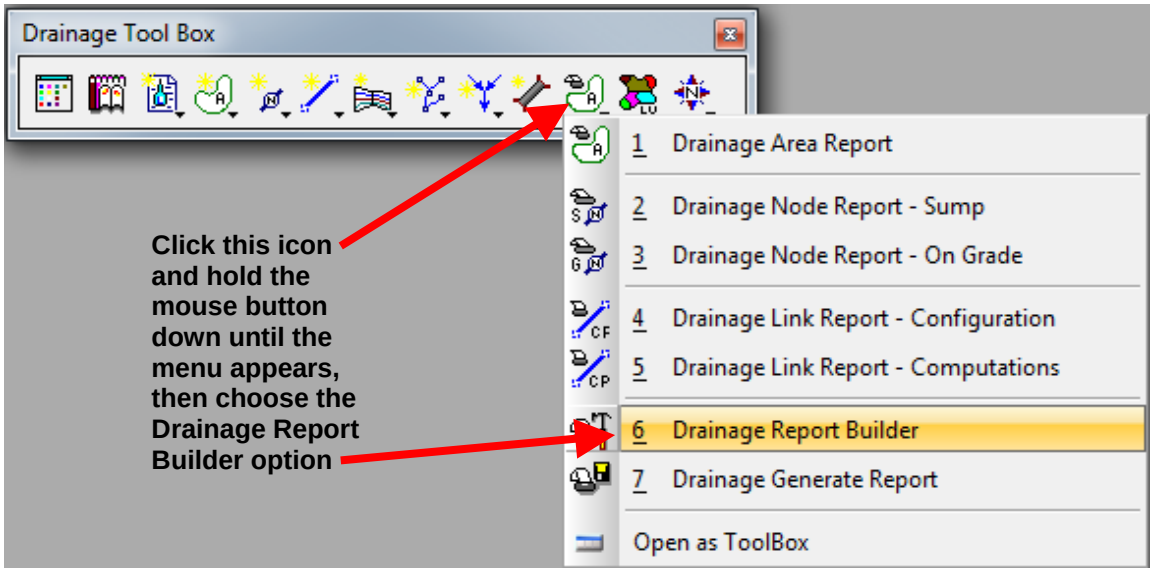
The Drainage Reports tool box will appear. Click on the Drainage Report Builder icon:



- Using the Drainage Tool box accessed through the DRAINAGE dialog box:



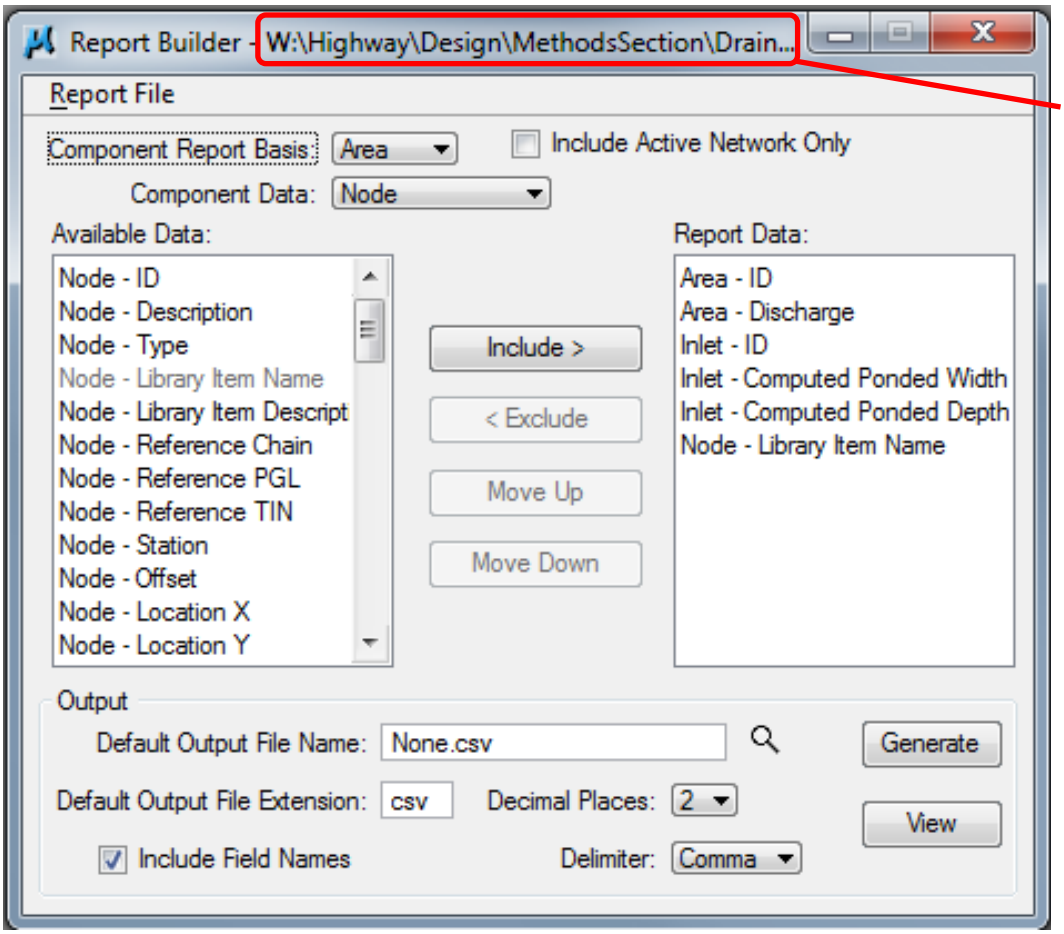
The following tool box will appear:



Once the Drainage Report Builder dialog box has been opened, designers can modify custom built reports.

Note: the Intakes and Utility Accesses.dpf and Pipes.dpf files cannot be modified unless they are saved to the project directory.

To modify a report, go to *Report File→Open*… and browse to the appropriate file. Report Data will populate with the items stored in the preference file (Drainage Information.dpf for this example).



Directory in which the .dpf file is located will appear here

Include or Exclude items, or move items up or down, as needed. To overwrite the existing file, go to *Report File→Save*. To save a new file, go to *Report File→Save As*… and choose a file name and folder.

Chronology of Changes to Design Manual Section:

004A-058 Geopak Drainage - Drainage Reports

11/30/2011	NEW
	New