

Carlson 2008 - Hydrology Overview

1. Create a new surface that combines your Existing Ground and Finished Ground surfaces (composite surface)
2. Set the Hydrology menu current
 - a. Settings> Carlson Menus> Hydrology
3. Find low points/sink holes on composite surface
 - a. Watershed> Watershed Analysis
 - b. Browse to the folder and select the TIN (.tin) file for the composite surface
 - c. In the Draw tab of the Watershed palette, uncheck all except the "Sink Locations" option
 - d. Click on the "Draw Watersheds" button to show the sink locations as a solid circle at these locations
 - e. Click on Exit to finish
4. Set the Sewer Network Settings
 - a. Network> Sewer Network Setup> Sewer Network Settings
 - b. On the General tab, set the type of sewer to Storm or Sanitary/Utility
 - c. Click on the "Select" button next to "Network File:" to assign a New sewer network file (.sew)
 - d. Click on the "Select" button next to "Surface File:" to assign a TIN file (.tin) to use to set the top elevation of structures
 - e. Select the desired option for updates when the referenced centerline or surface changes
 - f. On the Design tab, set the flow direction to either Upstream to Downstream or Downstream to Upstream
 - g. Click on the radio button for "Auto Set All Sewer Sizes" and/or "Auto Set All Invert Elevations..." if so needed
 - h. Set the option for whether or not the program is to Auto connect all structures. This option can be changed once you start connecting structures.
 - i. On the Drainage tab, set the appropriate Hydro, Computation and Rainfall methods and values
 - j. On the Pipe tab, enter settings for cover, slope, etc.
 - k. On the Display tab, specify whether slopes are to be shown in ft/ft or percentage format.
 - l. Click on OK to finish
5. Add structures
 - a. Network> Create Sewer Structure
 - b. Select the method to use to set the new structure: Pick, Number or CL. Pick is the default option, so pressing Enter uses this method.
 - c. Use your mouse and OSnaps to locate the first structure.
 - d. After locating the first structure, the Sewer Network palette will open.
 - e. In the Sewer Network palette:
 - i. Use the "Settings" button at the top to revise Sewer Network Settings
 - ii. Use the "Design" and "Analyze" buttons to apply hydrology
 - iii. Next to Structure Actions, use the Add, Edit and Remove buttons to make changes to structures or pipes
 - iv. Use the Structure tab to change settings for structures
 - v. Use the Pipe tab to change settings for pipes
 - f. Repeat to create all structures
6. Rotate structures to align with centerline
 - a. In the Structures tab of the Sewer Network palette, select the desired option next to "Symbol Rotate"
 - b. In the Structures tab, next to "Reference CL", pick the "Select" button to select a centerline

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7. Adjust Rim Elevation and Depth of structures on the Structures tab
8. Adjust Pipe sizes, inverts, material, etc. on the Pipes tab
9. If Pipes have connected to the wrong structure
 - a. Use the "Remove" button next to Structure Actions
 - b. On the Pipes tab, select the Upstream structure from the structures available in the "Available" box
10. To draw pipes in 3D in drawing
 - a. Network> Draw Sewer Network> 3D faces