

# Hydrology

## Complete Hydrologic & Hydraulic Solution

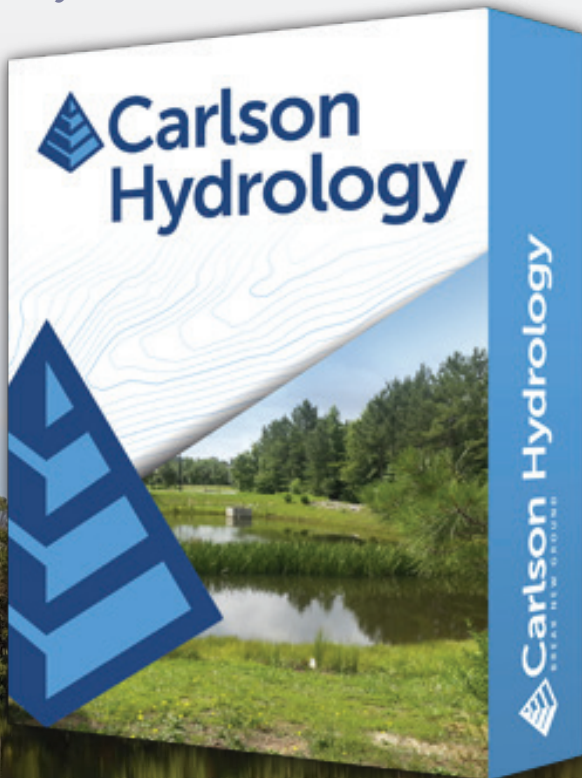
*Comprehensive, yet easy-to-master, Carlson Hydrology provides the automation to meet your hydrology needs and all in the CAD environment of polylines, text, and layers. Full 3D road and lot design feed directly into flow calculations and drainage design.*

*And all this works simply in the commonly used CAD environment of polylines, text and layers.*

### Top attributes include:

- Site Drainage-using either Rational or SCS Method
- Runoff Analysis to determine watershed area, time of concentration and peak flow rates
- Storm Drain System design and drafting
- Pond, culvert, channels, and outlet design and sizing
- Extensive libraries on rainfall, inlets, manholes, outlets

Carlson Hydrology provides a system-wide stormwater solution in 3D, offering enhanced 3D options plus a command to run multiple rain events at the same time. The software also provides warnings for collisions, excessive pipe lengths, insufficient cover, lack of slope, excessive flow rates, and more.



### Hydrology

- Site Drainage – Using either Rational or SCS Method
- Runoff Analysis – Determine Watershed Area, Time of Concentration & Peak Flow Rates

### Plus Hydraulics

- Storm Drain System Design & Drafting
- Pond Design & Sizing

Add in the ability to link with HydroCAD [Over] for its Interactive watershed modeling and you have all the tools needed to tackle any hydrology challenge.



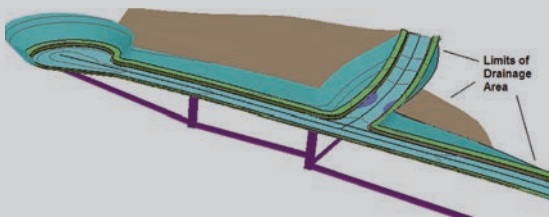
Layer-Based Runoff Calculations combine with DTM-Based Flow

### Automatically determines watershed areas and maximum length of runoff from DTM

- Tap extensive libraries on rainfall, inlets, manholes, outlets
- Calculate inlet intercepted and bypass flows, gutter spread and depth, pipe flow depth and velocity, and hydraulic and energy grade lines
- Get warnings for collisions, excessive pipe lengths, insufficient cover, lack of slope, excessive flow rates, and more
- Track runoff and analyze watershed – choose entire area or the watershed above a point such as a catch basin
- Design ponds, culverts, channels and outlet control structures
- Draft sewer pipe dynamically in plans, profiles and 3D

### Carlson Hydrology – For a system-wide stormwater solution in 3D

- Get detailed pre- and post-construction hydrologic runoff analysis and reporting
- Create advanced storm drain design
- Determine precise pond design and sizing
- Get simultaneous analysis of Hydrologic Soil Groups, Ground Covers and Watersheds
- Generate accurate Hydrographs utilizing software's distinct Subareas



Precise gutter flow depths, spread and bypass calculations

### Carlson Hydrology's Top New Features

**HydroCAD Linkage\***. Extract all the sub-area information and automatically load into HydroCAD.

**Grass Channel Design**. New command to design grass channels.

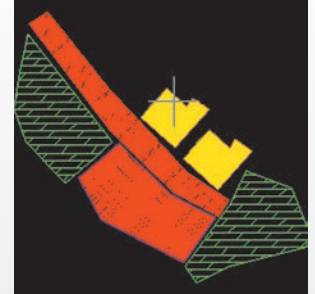
**HydroNET Explorer**. New command to build and process network of subcatchments, ponds, reaches and links. Custom report tools with option to output to PDF.

**Structure Library**. Added controls to specify connection points on box structures.

**Spreadsheet Sewer Editor**. Added support for sanitary sewer and other utility type networks.



Define Hydrologic Soil Group areas



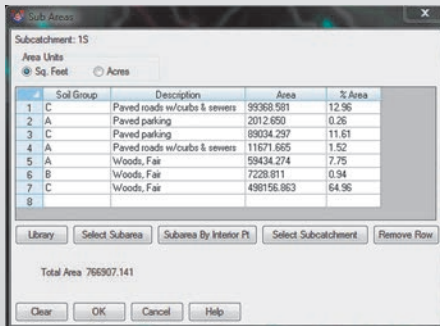
Define Ground Covers



Define Watersheds and longest flow paths

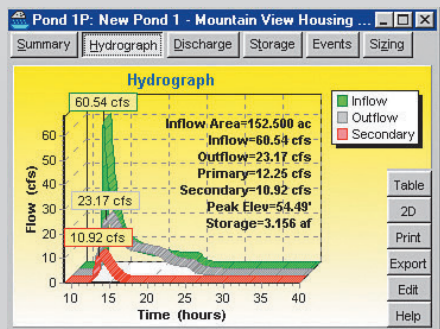


Combined, this is what you get



Soil Group	Description	Area	% Area
1 C	Paved roads w/curbs & sewers	99360.581	12.96
2 A	Paved parking	2912.659	0.28
3 C	Paved parking	89034.297	11.63
4 A	Paved roads w/curbs & sewers	11671.665	1.52
5 A	Woods, Fair	59434.274	7.75
6 B	Woods, Fair	7228.811	0.94
7 C	Woods, Fair	49856.863	64.96
8			

Update for automatic extraction of precise subcatchment sub-area data



Carlson then exports directly to a HydroCAD Project File. Get instant hydrograph generation, complete reporting, and more