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OpenFlows™ Storm
Stormwater System Modeling
and Management

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OpenFlows™ Storm Comparison Checklist

	OpenFlows Storm Ultimate	OpenFlows Storm Advanced	OpenFlows Storm Standard	OpenFlows Storm Essentials
Sizing (inlets, links, ponds)	unlimited inlets unlimited links unlimited ponds	unlimited inlets ≤ 250 links unlimited ponds	≤ 50 inlets ≤ 50 links and ≤3 ponds	≤ 10 inlets and ≤ 1 pond
Interoperability				
Run OpenFlows Storm within MicroStation®*, OpenRoads™ Designer*, OpenSite® Designer*, OpenRail™ Designer*, AutoCAD*, or as stand-alone interface	◆	◆	◆	◆
Model Building and Management				
Automated catchment delineation and elevation assignment from terrain	◆	◆	◆	◆
Automated CN and rational "c" weighting from land use polygons	◆	◆	◆	◆
Seed files for new model templates	◆	◆	◆	◆
Supports with shapefiles, spreadsheets, databases, Oracle Spatial, and open database connectivity connections	◆	◆	◆	◆
Import/export of LandXML, MX Drainage, and InRoads®® data	◆	◆	◆	◆
Custom data fields with user-assigned or formula-based values	◆	◆	◆	◆
Comprehensive, unlimited scenario management	◆	◆	◆	◆
Active topology to activate or deactivate network elements	◆	◆	◆	◆
Tabular reports with global editing, sorting, filtering, and statistics	◆	◆	◆	◆
Customizable engineering libraries	◆	◆	◆	◆
Drawing review capabilities with queries to ensure network connectivity	◆	◆	◆	◆
Automatic topology review	◆	◆	◆	◆
ProjectWise® integration	◆	◆	◆	◆
Creation of model elements from CAD drawings	◆	◆	◆	◆

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	OpenFlows Storm Ultimate	OpenFlows Storm Advanced	OpenFlows Storm Standard	OpenFlows Storm Essentials
Time-series data import	◆	◆	◆	◆
Storm events scenario wizard	◆	◆	◆	◆
Import/export of SWMM and MicroDrainage model files	◆	◆	◆	
Hydraulics				
Automatic constraint-based design of gravity storm sewers	◆	◆	◆	◆
Level pool routing and interconnected pond modeling	◆	◆	◆	◆
Surface flow path tracing from terrain	◆	◆	◆	◆
HEC-22 inlet capacity and node headloss calculations	◆	◆	◆	◆
V-shaped and parabolic gutters	◆	◆	◆	◆
Detention/retention ponds and storage chamber systems	◆	◆	◆	◆
Simple and multistage detention pond outlet structures	◆	◆	◆	◆
PondMaker® capability for detention pond design flow and volume estimates, and data tracking	◆	◆	◆	◆
Pre- and post-development peak flow and volume comparison	◆	◆	◆	◆
Inline control structures and diversions** (weirs, orifices, depth-flow curves)	◆	◆	◆	◆**
Tractive stress calculation	◆	◆	◆	◆
Regular and irregular surface channel shapes	◆	◆	◆	◆
Steady state (peak flow) gradually varied flow/rational solver	◆	◆	◆	◆
Two solvers for the full set of 1D Saint-Venant equations: implicit dynamic and explicit dynamic (EPA-SWMM)	◆	◆	◆	
1D/2D hydraulic analysis for surface flood modeling	◆	◆	◆	
Critical storm analysis	◆	◆	◆	
Long-term simulations with statistical reports	◆	◆	◆	
Low-impact development control analysis	◆	◆	◆	
Evaporation definition	◆	◆	◆	
Aquifer simulation	◆	◆	◆	
Pollutant and treatment analysis	◆	◆	◆	
HDS-5 and SWMM culverts	◆	◆	◆	
Rule-based controls	◆	◆	◆	

**Diversion structures require manual rating table definition at this feature level

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Stormwater Load Allocation and Estimation	OpenFlows Storm Ultimate	OpenFlows Storm Advanced	OpenFlows Storm Standard	OpenFlows Storm Essentials
Support for synthetic design storms and gauged rainfall events	◆	◆	◆	◆
Intensity-duration-frequency curve input in tabular or equation format	◆	◆	◆	◆
Time of concentration methods: user-defined, Carter, Eagleson, Espey/Winslow, Federal Aviation Agency, Kerby/Hathaway, Kirpich (PA and TN), length/velocity, SCS Lag, TR-55 Sheet Flow, TR-55 Shallow Concentrated Flow, TR-55 Channel Flow, Friend, Kinematic Wave, Bransby-Williams, and U.K. standard	◆	◆	◆	◆
Runoff methods (all levels): Rational method peak flow calculation, SCS unit hydrograph, modified rational method, generic unit hydrograph, Santa Barbara urban hydrograph, and user-defined hydrograph	◆	◆	◆	◆
Loss methods (all levels): Constant loss rate, Green and Ampt, Horton, and SCS CN	◆	◆	◆	◆
Additional Loss Methods: Green and Ampt (modified), Horton (modified), and initial loss and constant fraction or constant loss rate	◆	◆	◆	
Inflow control center	◆	◆	◆	
Flood estimation handbook (U.K.) rainfall	◆	◆	◆	
Australian rainfall and runoff	◆	◆	◆	
Additional runoff methods: EPA SWMM, RTK unit hydrograph, time-area method, and ILSAX	◆	◆	◆	
Results Presentation				
Thematic mapping with color coding	◆	◆	◆	◆
Scenario and element comparison	◆	◆	◆	◆
Engineering profile with annotation table	◆	◆	◆	◆