



Authorized Bentley Channel Partner

Our Registered Engineers Know Infrastructure. We have used Bentley for over 20 years!

Contact us for all of your Bentley Systems needs, Products, Sales & Training.

540-635-6742
www.harken-reidar.com
info@harken-reidar.com



PONDPACK®

DETENTION POND DESIGN & URBAN HYDROLOGY MODELING

PondPack is a versatile software program to model any project from basic site designs to complex drainage studies. The robust calculation engine simplifies detention pond design while handling the complexity of interconnected pond modeling.

Complete system analysis and interconnected pond modeling

PondPack allows users to model rainfall runoff from urban and rural watersheds to design detention and retention facilities, outlet structures, and channels.

The robust PondPack analysis engine computes outlet rating curves with tailwater effects, accounts for pond infiltration, calculates pond detention times, analyzes channels, and performs interconnected pond routing with divergent (multiple) outfalls.

In many scenarios, downstream conditions cause backwater effects that influence performance of detention pond outlet structures. A pond may discharge to another pond that is close in elevation, or to a location influenced by downstream tidal effects or flooding. With the advanced PondPack Interconnected Pond Modeling (ICPM) capabilities, these complex scenarios can be modeled with confidence.

Hydrology

PondPack can handle an unlimited number of synthetic or real storm events of any duration or distribution. Choose from a number of standard and regionalized methods such as: SCS 24-hour Type I, IA, II, and III rainfall distributions, Bulletin 70 and 71 rainfall distribution data for the Midwest U.S., gauged rainfall data, rainfall curves created from I-D-F data, I-D-F curves, and more.

For catchment runoff computations, users can choose from the SCS Runoff CN method, the Santa Barbara unit hydrograph, user defined unit hydrograph, the Modified Rational Method or Rational Q/Qp templates. Users can also add an unlimited number of user defined hydrographs throughout the watershed.

Catchment infiltration losses can be computed using the SCS Method, the Green-Ampt equation, the Horton equation, or by entering a constant infiltration rate.

PondPack also calculates the time of concentration quickly and accurately, even when there are several possible flow paths to consider.

PondPack offers engineers the choice to model infiltration from a pond to surrounding soil using a constant flow rate, or rates that vary depending on the depth of water in the pond.

Simple step-by-step pond and outlet design

PondPack® PondMaker® guides users through the confusing maze of pond design steps by providing an easy step-by-step process that gives them constant feedback on how the design is progressing.

Engineers can explicitly set the allowable pond outflow rate, or let PondMaker automatically apply pre-developed conditions for multiple storm events.

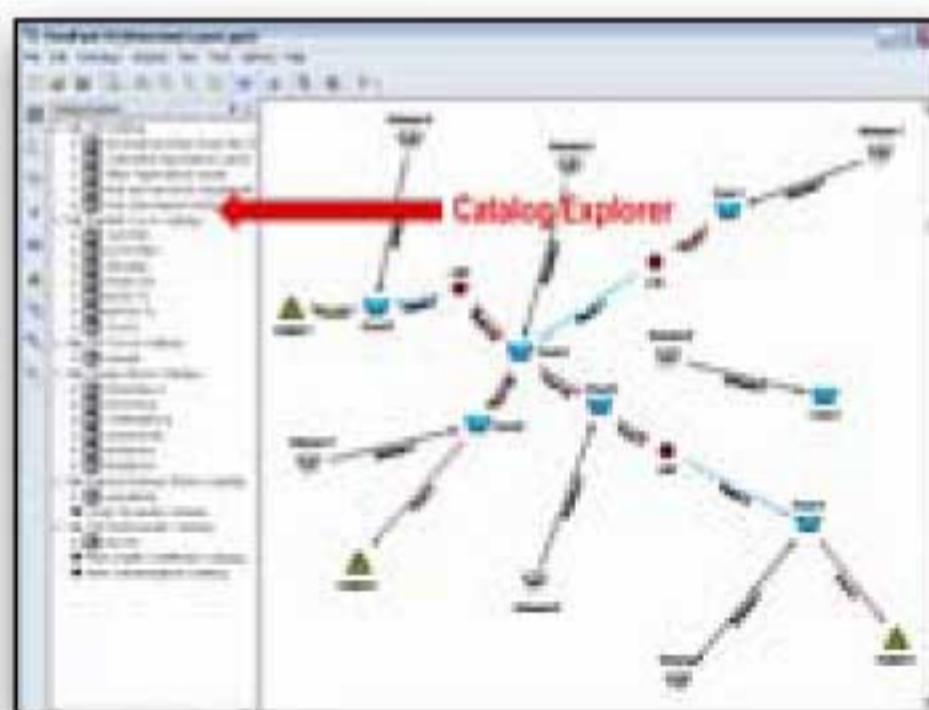
PondMaker also assists by keeping track of information such as target outflows, pond volume estimates, outlet structure design trials, peak pond outflows, and maximum water surface elevations for multiple storm events and/or multiple ponds.

Reporting and graphing

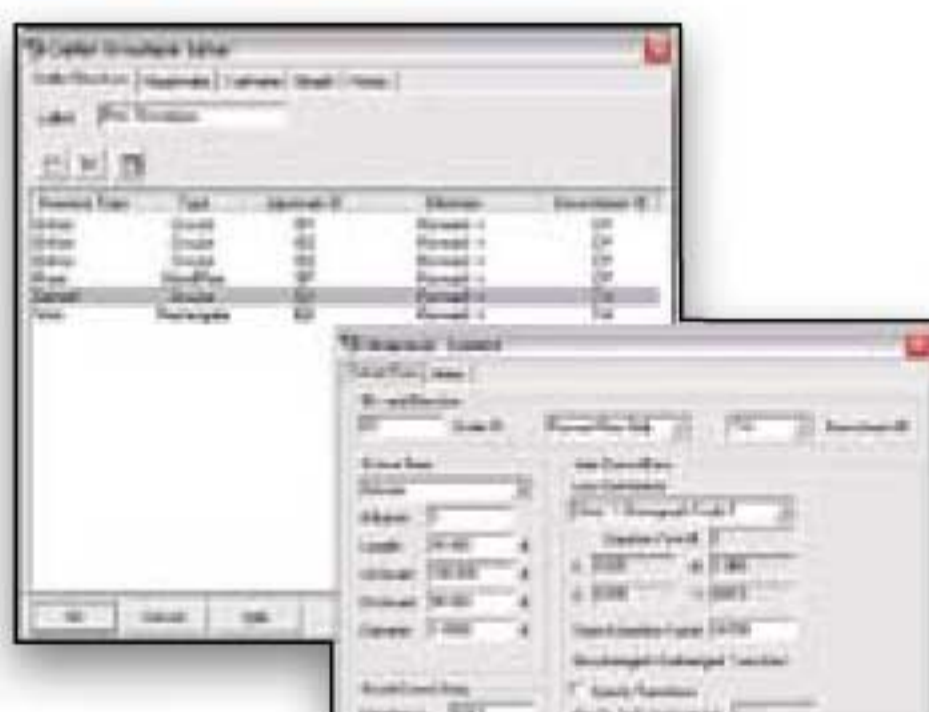
Users can automatically generate a paginated report, complete with a table of contents, index, general reference to the applied methodologies, as well as full results and input data.

PondPack also lets users quickly compare graphs for output to any drafting or word-processing program. Engineers can communicate results effectively by creating scalable color graphics for network diagrams, rainfall curves, flow hydrographs, volume, outlet, and channel rating curves, interconnected pond results, and more.

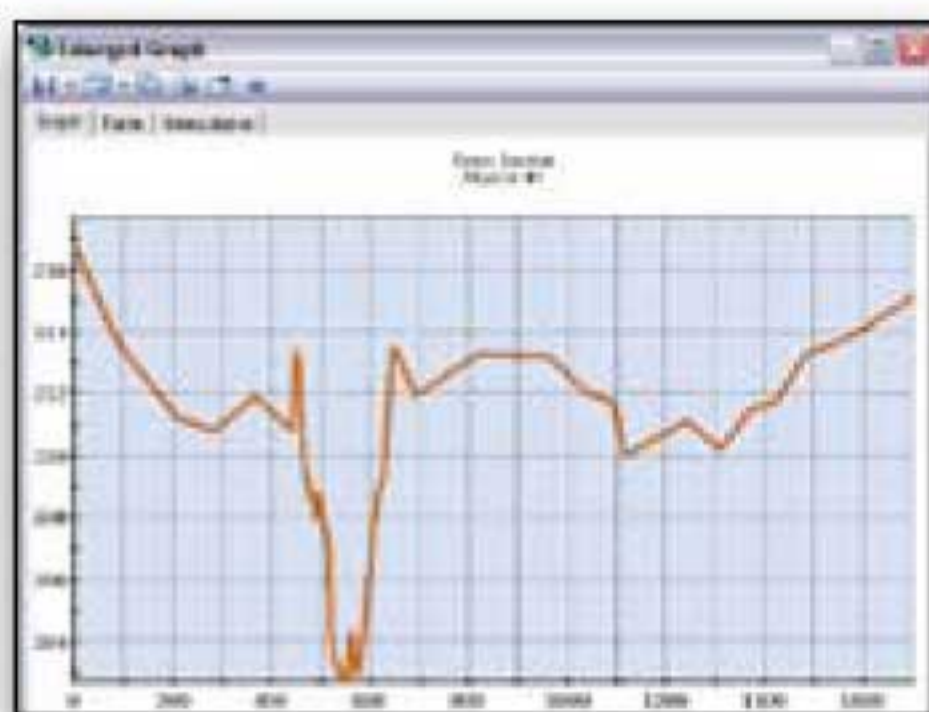
The graph manager provides a tree view of all available graphs for quick and easy access. The powerful PondPack graphing suite also provides automatic variable interpolation tools to solve for intermediate x or y data points at any specified point on a curve.



PondPack's Catalog Explorer simplifies data management with a tree view of all data. With this easy-to-use view, your data is all in one location.



PondPack uses the industry-standard Hydraulic Design Series No. 5 methods from the FHWA to automatically perform outlet calculations.



PondPack gives you a variety of options for modeling hydrologically significant channel reaches within a watershed network

PONDPACK SYSTEM REQUIREMENTS

Processor:

Pentium III at 1 GHz

Operating System:

Windows Vista, Windows XP, and Windows Server 2003

Memory:

Per minimum operating system requirements

Hard Disk:

250 MB of free storage space, with additional room for data files

Display:

800 x 600 resolution, 256 colors

ABOUT BENTLEY

Bentley Systems, Incorporated is the global leader dedicated to providing comprehensive software solutions for sustaining infrastructure. Architects, engineers, constructors, and owner-operators are indispensable in improving our world and our quality of life; the company's mission is to improve the performance of their projects and of the assets they design, build, and operate. Bentley sustains the infrastructure professions by helping to leverage information technology, learning, best practices, and global collaboration – and by promoting careers devoted to this crucial work.



About Harken-Reidar

Harken-Reidar, Inc. is a Bentley Channel Partner for the Mid-Atlantic VA, MD, DC & PA. Our sales and training staff are Registered Professional engineers who understand Civil design and plans preparation. We have 20 years of experience using GeoPak, InRoads, MicroStation and Haestad Methods software

Contact Harken-Reidar, your local Bentley dealer, integration and training center.

Corporate office: 1105 N. Royal Avenue
Front Royal, VA 22630
Offices: Pittsburgh, 130 Venango Ct.
New Kensington, PA 15068
Houston, 2201 Fountain View #F38
Houston, TX 77057
T: 540-635-6742 F: 540-635-6752
info@harken-reidar.com



Authorized Bentley Channel Partner

PONDPACK AT-A-GLANCE

Interface and graphical editing

- Stand-alone Windows interface
- Graphic element creation, edit, and deletion
- Automatic element labeling
- Dynamic zooming
- COM-compliant add-ins

Model management

- Engineering catalogs for: Curve Number (CN), rainfall curve, I-D-F curve, design storm, Rational design storm, Q/Qp template, unit hydrograph, weir depth coefficient, weir submergence
- Catalog Explorer docking view of the engineering catalogs
- Data Management Center: to calculate a pond route for a single-pond network
- Project Data Explorer docking view of the PondPack project data
- Import of PondPack Version 8 rainfall data (*.plb) files
- Global engineering-units management
- Support of ProjectWise® XM / ProjectWise® Geospatial Management
- PondMaker for step-by-step pond and outlet design

Results presentation

- Graph viewer to manage graphs
- Tables of graph data
- Interpolation of values on the graph curve based on values users provide
- Graph settings editing, saving, and loading
- Graph copy option
- Graph data export to Tab Delimited or Comma Delimited

- Automatic customizable report generation
- Report Builder: element by element, all elements, index included, summary

PondMaker – step by step pond and outlet design

- Automatic update of worksheet containing design data for multiple design trials of a single pond
- Multiple ponds design possible
- Maximum outflow rates establishment (user-defined or pre-development flows)
- Post-development pond inflows computation
- Pond size requirements estimation
- Pond geometry design (grading plan or underground storage).
- Outlet structure design
- Hydrograph routing through ponds

Hydraulics and calculators

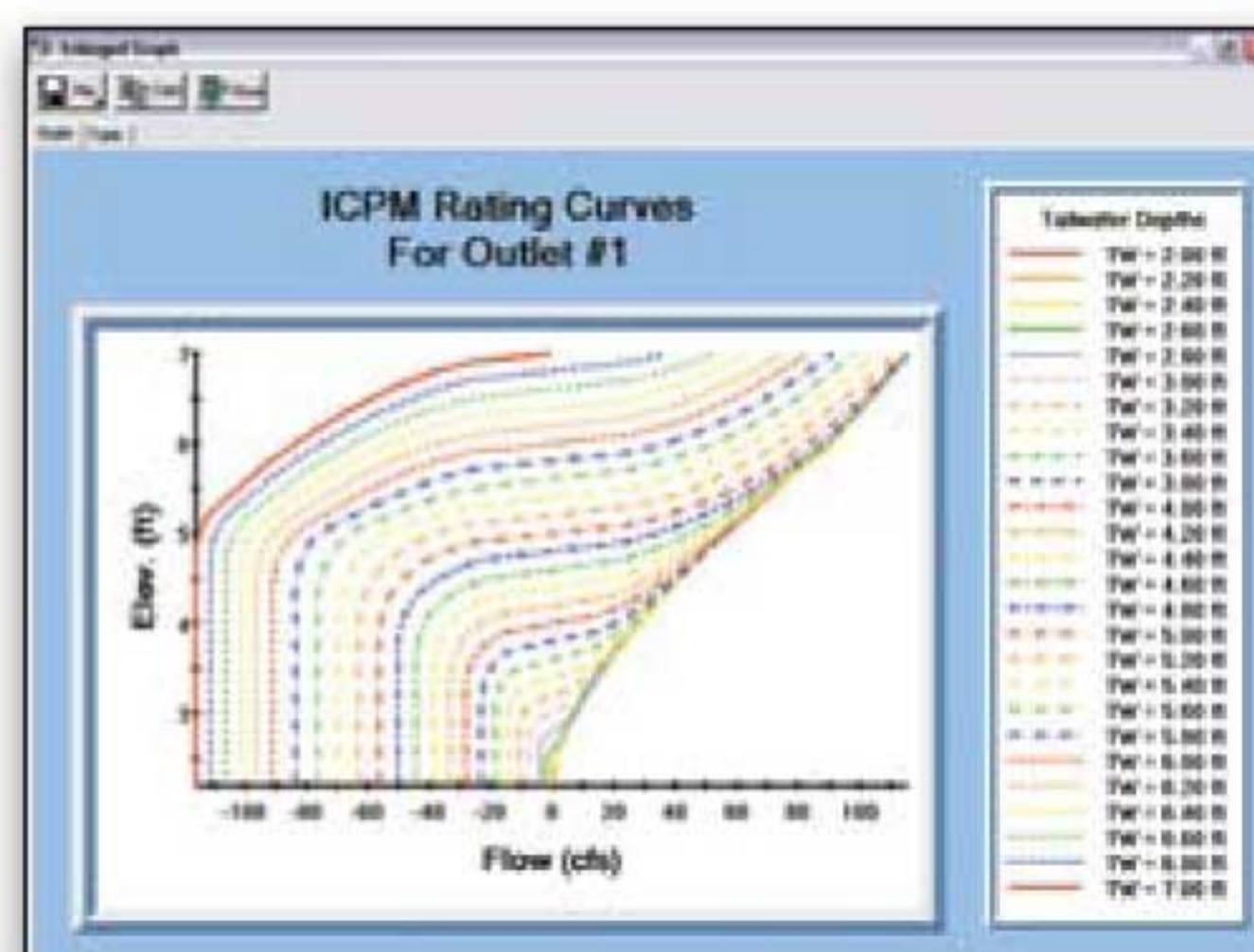
- Calculators: First Flush, Estimated Storage (Overlay Hydrographs), Minimum Drain Time, Estimate Storage (Rational Method QPeak), Estimated Storage (Peak Flows), TR-55 Tabular Method, TR-55 Graphical Peak and Storage, SCS CN Volume
- Routing methods:
 - For channels: reach routing, elevation-flow-area channels, modified Puls, Muskingum, Translation
 - For ponds: level pool routing, interconnected ponds
- Channel types: circular, rectangular, trapezoidal, parabolic, irregular
- Outlet types: user-defined rating, box culvert, circular culvert, stand

pipe, inlet box, circular orifice, orifice area, rectangular weir, V-notched weir, weir X,Y

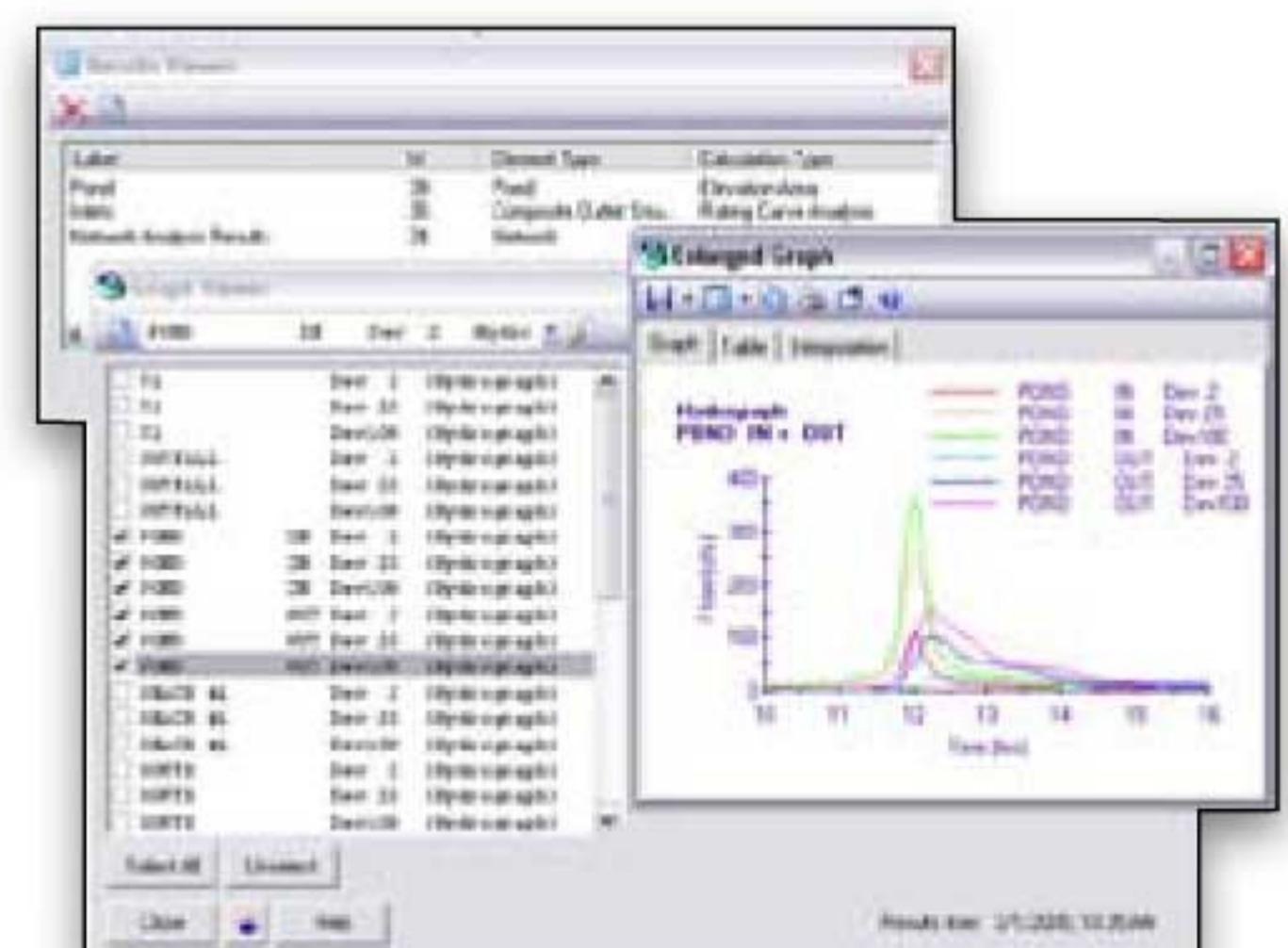
- Water quality: First Flush Volume, Minimum Drain Time, Estimating Detention Time, Peak-to-Peak Detention Time, Centroid-to-Centroid Detention Time, Average Plug Flow Detention Time

Hydrology

- Unlimited number of return events, using standard and regionalized methods: SCS 24-hour Type I, IA, II, & III rainfall distributions, Bulletin 70 and 71 rainfall distribution data for the Midwest U.S., Gauged rainfall data, I-D-F curves
- Rainfall data input: dimensionless curves with total depth, time-depth curves, user-defined Intensity-Duration-Frequency (IDF) table, IDF curve equation
- Time of concentration methods: User-Defined, Carter, Eagleson, Espey/Winslow, Federal Aviation Agency, Kerby/Hathaway, Kirpich (PA), Kirpich (TN), Length and Velocity, SCS Lag, TR-55 Sheet Flow, TR-55 Shallow Concentrated Flow, TR-55 Channel Flow
- Peak flow & hydrograph methods: SCS Graphical Peak Discharge Method, Rational Method, SCS Unit Hydrograph Method, Modified Rational Method, Santa Barbara Urban Hydrograph, user-defined unit hydrograph, user defined hydrograph.



PondPack evaluates simple to complex hydrologic networks for existing or proposed conditions, including Interconnected Ponds.



Create concise executive summaries for paper output, or burn a CD with hundreds of pages of detailed input data, intermediate calculations, and final results