Peter A. Brown, P.E.

Professional Engineer

Progressive Water Resources

Professional Credentials
Professional Engineer License No. 86656

Education
B.S., Environmental Engineering Sciences, University of Florida, 2011

Areas of Expertise
Environmental Resource Permitting • Water Use Permitting • Low Surface Water Modeling • Groundwater Modeling • Wellfield Management and Compliance

Project Experience

OVERVIEW – Mr. Peter Brown, P.E. has worked with several engineering firms and has an extensive knowledge in ArcGIS mapping and technical drawing utilizing AutoCAD and Civil 3D. Mr. Brown also has experience in surface water modelling using ICPR3 and ICPR4 as well as groundwater flow modelling using MODFLOW and Groundwater Vistas. Mr. Brown's background includes several years of work experience in regards to Water Use and Environmental Resource Permitting in which he has developed a comprehensive understanding of key permitting issues through interactions with clients and Water Management Districts. In addition, Mr. Brown has provided project oversight for the investigation and development of water resource supplies for large-scale agriculture projects and municipalities including:

- Geophysical logging of groundwater wells
- Precision back-plugging of wells
- Well design and construction
- Installation of pumping equipment
- Design of Limited Use Public Water Systems
- Water quality sampling
- Reservoir design

He has been involved in the development of Watershed Management Plans for the Southwest Florida Water Management District (SWFWMD), and Marion and St. Johns Counties in order to investigate their regional responses to design storms and has performed multiple re-certifications of stormwater management systems for final review by a Professional Engineer. Mr. Brown has supervised downhole investigation of wells, including detailed geophysical investigations which have served to further his understanding of groundwater flow and stratigraphy. He has supervised multiple drilling crews and has excellent field and data collection skills.

Mr. Brown has been actively involved in an ASR wellfield monitoring program for nearly four (4) years. During this time, Mr. Brown has aided in the installation of monitoring equipment and modification of well head configurations to improve access to equipment. He has also provided project management in the replacement of an ASR Well's vertical turbine pump.

Lake Stafford/Priest Prairie and Florida Ridge Watershed Management Plans (WMP) - Mr. Brown was actively involved in the drainage studies for the Lake Stafford/Priest Prairie and Florida Ridge watersheds in Marion County. For the Lake Stafford/Priest Prairie watershed, he provided research, in-depth GIS analysis, inventory of stormwater infrastructure, and produced the catchment delineations and ICPR link-node hydronetwork. The Florida Ridge WMP was a continuation of another firm's watershed evaluation in which Mr. Brown identified significant physical landscape changes that altered the routing of stormwater.

Ponte Vedra Regional Model - Mr. Brown conducted extensive research for the Ponte Vedra Regional Model in St. Johns County. This included data collection regarding surface water levels, areas of historical flooding, and tidal influences on the area of interest. In addition, he assimilated a collection of stormwater infrastructure features by reviewing hundreds of Environmental Resource Permits. He was actively involved in performing field visits to document hydraulic structures and assisted delineation of catchments and channels. Mr. Brown also aided in the production of a link-node model schematic for the Ponte Vedra Regional Model.

Gulf Gate Subdivision - Mr. Brown assisted in the model development for the proposed stormwater management system serving a single-family residential subdivision in Sarasota County. Specifically, he produced stage-storage relationships for model subbasins, input hydraulic routing data, and executed design storm simulations. In addition, he integrated the ICPR3 model results with ArcGIS to verify that no adverse offsite impacts were caused by the proposed development. He also utilized Sarasota County's DBF Comparator software to document model additions, deletions, and modifications.

Little Jones Creek Watershed Model - Mr. Brown was instrumental in updating and refining SWFWMD's Little Jones Creek ICPR4 model located in Sumter County. He collected and reviewed technical drawings and permits for new construction, primarily focusing on the Villages Development. This data was then incorporated into the Little Jones Creek ICPR4 model. He also reviewed and updated initial stages based on soils, aerial imagery, and survey information.

Mr. Brown utilized ArcHydro software to accurately characterize stage-area relationships within new subbasins. In addition, he improved connectivity within the model by incorporating several hydraulic structures and overland weirs (and associated cross sections) to more accurately reflect stormwater routing in the watershed.

Sumter Industrial Park - Mr. Brown updated the Little Jones Creek Watershed ICPR4 Model to reflect the proposed construction of a stormwater management facility that will serve a 238-acre industrial park in Sumter County. He quantified DCIA (directly connected impervious area) and developed runoff Curve Numbers for each subbasin within the development. He also input proposed hydraulic structure data into the model and executed Mean Annual, 10-year, 25-year, and 100-year design storm events. In addition, he integrated the ICPR4 model results with ArcGIS to verify that no adverse offsite impacts were caused by the proposed development.

Fruitville Commons - Mr. Brown assisted in the design and modeling of a stormwater system serving a proposed multi-use development in Sarasota County. Unique to this stormwater system was the utilization of underground storage chambers used for runoff treatment and attenuation. Mr. Brown developed hydrologic parameters (DCIA, TC, and CN) for each subbasin based on buildout of the proposed site plan. In addition, he sized and parameterized the stormwater system's pipes and underground vaults. He produced water quality treatment calculations and model simulations that reflected infiltration drawdown within each storage chamber.

Mr. Brown incorporated the project into Sarasota County's Phillippi Creek ICPR3 watershed model and executed the Mean Annual, 10-year, 25-year, and 100-year design storm events. Results for the proposed conditions simulations were compared to those for the existing conditions model and were mapped in ArcGIS to verify that no adverse impacts were caused by the project. Mr. Brown also utilized Sarasota County's DBF Comparator software to document model additions, deletions, and modifications.

Tatum Sawgrass Watershed Restoration - Mr. Brown updated SWFWMD's Myakka River ICPR4 watershed model with survey information of existing berms, channel cross sections, and pipes in the vicinity of Tatum Sawgrass. In doing so, he updated the Myakka Digital Elevation Model (DEM) using the Spatial Analyst tools included within ArcGIS and re-imported into the ICPR4 model. Mr. Brown also constructed additional channel links, channel control volumes, and pond control volumes based on the survey that was performed in support of this effort. In addition, he rebuilt the 2D honeycomb mesh network within the overland flow region to incorporate the updated terrain features into the ICPR4 model.

Mr. Brown also performed further refinement of the 1D basin and node-link network in the vicinity of Lettuce Lake. The Stage-Area relationships for each of the modified subbasins were determined using ArcHydro software while additional overland weir cross sections were developed in ICPR4. Possible watershed restoration activities (i.e. berm removal, reconnection of historic channels) that were discussed with the NRCS and SWFWMD were incorporated into the baseline model and analyzed using design storm events to assess the potential for adverse impacts to existing landowners.