

## **SOME REPRESENTATIVE WORK EXPERIENCES**

### ***Research/Teaching (2016-Present) - Dept. of Civil Engineering, Higher Institute of Engineering, Shorouk Academy, Cairo, Egypt.***

- Teaching and Supervising the following courses:
  - Fluid Mechanics for second level Civil Engineering.
  - Hydraulics for second and third levels Civil Engineering.
  - Design of Irrigation Structures for third and fourth levels Civil Engineering.
  - Irrigation for second level Civil Engineering.
  - Civil Engineering Drawings for first level Civil Engineering.
- Supervising the Laboratory sessions for Civil Engineering Students.
- Supervising the graduation projects for Civil Engineering Students
- Supervising and instructing the recitation classes related to all earlier courses.
- Contributing to Departmental work-related tasks.

### ***Civil Engineering Consultant (2005-Present) – Line Design Group for Engineering Services, Tempe, Arizona, USA.***

Providing Engineering Services for the following sectors:

- Residential and Industrial Developments.
- Infrastructure Projects.
- Flood Control Projects.
- Hydraulic and Hydrology Studies.
- Water and Wastewater Contractors.

### ***Water Resources - Dam Safety Consultant Engineer (2006-2016) - Arizona Department of Water Resources, Dam Safety and Flood Mitigation, Phoenix, Arizona.***

This involves the following work tasks:

- Perform the hydraulic and hydrologic evaluation of the dams and their watersheds located in the State of Arizona utilizing a steady and unsteady flow modeling programs along with GIS data.
- Prepare an Emergency Action Plans reports for the case of dam failures which involves the delineation of floodplains and preparing the inundation maps for the following dams: Masonry #2, Howard, Grant Morris, Continental 1-2, Alpine-WWTP, Bar Boot Ranch, Cluff Ranch, Cook Reservoir, Millet Swale, Dos Logos, Graveyard Wash, Guadalupe, Judy Wash, Mexican Hay Lake, Nelson Reservoir, and others...
- Inspecting and evaluating operating dams to determine if safety deficiencies exist and guiding and approving owner's actions to correct safety deficiencies.
- Reviewing and approving applications required for proposed new dams, as well as enlargements, repairs, alterations and removal of existing dams such as Dam #7 owned by City of Phoenix.
- Monitoring and approving the construction for new dams and the enlargements, repairs, alterations and removal for existing dams such as Magma Dam owned by Graham County and Dam #7 owned by City of Phoenix.

### ***Engineer (2006) - Hydraulic Study and Analysis for Santa Vallarta Project. Ward Real Estate and Development, Queen Creek, Arizona.***

This project involved the followings:

- Analysis of the Canyon Wash to reflect changes of size of culverts.
- Analyses of the 5-weirs along the Santa Vallarta floodwall to optimize the weir sizes and enable direct flow to the channels within the drainage easements specified by Town of Queen Creek.
- Analysis and Suggestions for the transition of flow from the weir to 5-proposed channels behind the floodwalls.

### ***Project Engineer (2004) - Phoenix Goodyear Airport Water and Sewer System Improvement-Study Phase, Goodyear, Arizona - Primatech engineers and consultant***

- This project involved a pre-design assessment study, involving hydraulic and

## **EL-SAID M. AHMED PH.D., P.E.**

### **CONSULTANT REGISTRATION**

Civil Engineering/Arizona,  
USA No. 43792/2005

### **EDUCATION**

**PhD/2006/Civil and  
Environmental Engineering/  
Arizona State University,  
Arizona, USA.**

**MS/2000/ Engineering  
Hydrology/National  
University of Ireland,  
Galway, Ireland**

**BS/1998/Civil Engineering/  
Assiut University, Assiut,  
Egypt**

### **TECHNICAL EXPERTISE**

22 years of professional engineering experience working for both private and Government sectors in teaching, dam safety, Hydrology, and water and wastewater projects. Working with both steady and unsteady flow models. My experiences have included topographical survey, existing drainage and water systems evaluation, water and sewer infrastructure design, pump station design, dam safety inspections and analysis, flood management, hydraulics and hydrology analysis of river-reservoirs systems, and construction administration and inspection. Also Developed a new software model for optimal reservoir operation during flooding conditions. Proficient in modeling programs such as FLO2D, WMS, FLDWAV, HEC-1, HEC-RAS, HEC-HMS, FEQ/FEQUTL, XP-SWMM and AutoCAD

- structural assessments of the water and sewer systems.
- The sewer assessment program involved hydraulic modeling, manholes inspections, sewer system cleaning and CCTV inspections, and the water system assessment involved flow calculations, hydraulic modeling, pressure analysis and condition assessment of water lines, valves, connections and fire hydrants.
- The study involved evaluation of sewer line rehabilitation/replacement techniques including CIPP lining, point repair, pipe-bursting, sliplining, shotcrete, Tite liner, tunneling and pipe jacking.
- The evaluation also identified manhole defects and evaluated manhole rehabilitation techniques including lining, Spray Wall, and Thioguard spraying with magnesium hydroxide slurry.

***Project Engineer (2005-2006) - Phoenix Goodyear Airport Water and Sewer System Improvement-Design Phase, Goodyear, Arizona - Primatech engineers and consultant***

- The design phase of this project conducted as a result of the superior quality work performed during the study phase.
- The design phase includes replacement of all water lines and some sewer segments, CIPP lining of some sewer segments, and many point repairs in the sewer lines.
- Design phase tasks included survey, design drawings, detail drawings, design report, utility coordination, cost analysis, testing, pavement replacement, and bidding and specifications documents.

***Resident Engineer (2005-2006) - Phoenix Goodyear Airport Water and Sewer System Improvement-Construction Administration and Inspection Phase, Goodyear, Arizona***

- Representing the Owner during the construction phase of this project, the tasks included three phases:
- The Pre-Construction Activities, which included Conduct a pre-construction conference, Review pre-construction contractor submittals.
- The Construction Administration and Inspection Activities, which included review Contractor submittals, Keep track of quantities of work completed, Prepare a monthly executive summary report for the Project Manager, Utilize the City's Project Management Information System (PROMIS) to manage and report on the status of the project, and Observe and document field materials and performance tests required by the specifications.
- The Project Close-Out Activities, which included Furnish the Project Manager with final quantities, Prepare a punch list and conduct a final walk-through, and Prepare record drawings from as-built red lines.

***Engineer (2004) - 23rd Avenue WWTP Influent Lines Capacity Upgrade – Phase I, Phoenix, Arizona - Primatech engineers and consultant***

- This project was to assess the condition of the existing sewer system and evaluate the flow carrying capacity of the influent lines to the 23rd Avenue wastewater treatment plant.
- The project involved sewer line cleaning, flow monitoring, field and instrumentation inspection, deposit evaluation, corrosion assessment, and hydraulic modeling. A Sonic Caliper inspection program was used to assess sediment deposits and corrosion conditions and XP-SWMM Software® was used for hydraulic modeling and flow-carrying capacity evaluation.
- The Sonic Caliper inspection program yielded deposit depth profiles along the sewer lines that were incorporated into the hydraulic model to create an accurate hydraulic assessment.
- The model was calibrated using the flow monitoring data and was used to evaluate the hydraulic performance and deficiencies of the sewer system.

***Engineer (2005) - 23rd Avenue WWTP Influent Lines Capacity Upgrade – Phase II, Phoenix, Arizona - Primatech engineers and consultant***

- This project includes a pre-design study to evaluate the condition of the 23rd Ave. WWTP influent lines and identify the necessary upgrade to improve the capacity and performance of the lines.

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**PROFESSIONAL ORGANIZATIONS**

Registered member, Syndicate of Engineers, Cairo, Egypt-21/01783

Associate member, American Society of Civil Engineering (ASCE), USA

Associate member, Association of State Dam Safety Officials, USA

**PUBLICATIONS**

Ahmed E-SMS, Mays LW, Model for determining real-time optimal dam releases during flooding conditions. Springer Science+Business Media Dordrecht, The Netherlands, 2012

Ahmed E-SMS, Ashour M, Challenges for urban water management in Cairo, Egypt: The need for sustainable solutions. Vol. 3 Urban Water Series- UNESCO-IHP. Pp 173-182. 2009

Ahmed et al., Transboundary water resources “a comparative study”: the learnt lessons to help in solving Nile basin water conflict. International Journal of Scientific & Engineering Research, Vol 10, 2019.

Ahmed et al., Modelling of Climatic Change Impact on Water Balance in the Nile Delta Region . International Journal of Engineering & Techniques, Vol 5, 2019.

- The assessment involved field inspection, flow monitoring, future flow projection, and hydraulic modeling.
- I calculated existing flow rates, projected future flow conditions, and developed hydraulic model for the project area using XP-SWMM Software to evaluate the flow carrying capacity of the influent lines under the existing and future flow conditions. I also developed a storm water inflow and infiltration evaluation methodology to incorporate the impact of the 10-year, 24-hour storm water inflow and infiltration on the sewer system.
- Followed the pre-design study, The design of 22nd Avenue from the interceptor to Yuma Rd., and 15th Avenue from interceptor to Osborn Rd. have been completed. The design involved survey, geotechnical testing, coordination with utility companies and regulatory agencies, potholing, and preparation of construction drawings and specifications.

**Research/Teaching Associate (2002-2004) - Dept. of Civil and Environmental Engineering, Arizona State University, Tempe, Arizona**

- Taught and supervised the Fluid Mechanics Lab (CEE341 class) for Civil Engineering and instructed the recitation class
- Guest Speaker for the CEE440 - ENGINEERING HYDROLOGY class, and CEE541 - SURFACE WTR HYDROLOGY class.
- Built a new optimization model for reservoir system operation by interfacing the unsteady flow model FEQ/FEQUTL and the Simulated Annealing optimizer

**Research/Teaching Associate (1999-2000) - Dept. of Engineering Hydrology, National University of Ireland, Galway, Ireland**

- Taught and supervised the Fluid Mechanics class for Second level Civil Engineering Student and Third Level Industrial Engineering Students.
- Worked on an important project that involved the evaluation of the water supply system of the Town of Eniss in Ireland. The work included surveying, checking the capacity of the city's current water supply and drainage network and redesigning overloaded sections.

**Research/Teaching Associate (1998-1999 & 2001-2002) - Assiut University, Assiut, Egypt**

- Taught and supervised the Principle of Civil Engineering Drawing Class for the first and second levels Civil Engineering students.
- Taught and supervised the Engineering Geometry Class for the first level Engineering students.
- Taught and supervised the Surface Water Hydraulics Class for the second and third level Civil Engineering students.

**Special Training:**

- Safety Evaluation of Existing Dams (US Department of Interior, Bureau of Reclamation, Denver, Colorado, 2006)
- Handling Hazard Material During Construction (Goodyear Airport, City of Phoenix, Arizona, 2005).
- Hydrologic & Hydraulic Modeling Using GIS and the Watershed Modeling System (Environmental Modeling Systems, Incorporated, Tempe, Arizona, 2007)
- Two-Dimensional Flood Routing Model FLO-2D (Arizona Floodplain Management Association, Phoenix, Arizona, 2008)
- One Dimensional Flood Routing Mode HEC (Arizona Floodplain Management Association, Phoenix, Arizona, 2006)
- Air Side Construction (City of Phoenix, Goodyear Airport, 2005)
- City of Phoenix Project Management Information System (PROMIS) (City of Phoenix, 2005)

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**EL-SAID M. AHMED  
PH.D., P.E.**

**PhD** Dissertation entitled "Real-Time Optimal Operation of River Reservoir system Under Flooding Conditions", Civil and Environmental Engineering Department/ Arizona State University, AZ, 2006

**MS** Dissertation entitled "Flood Peak Attenuation on a River Reach", Hydrology Department/National University of Ireland, Galway, Ireland, 2000

Ahmed et al., *Application of Data Assimilation on Natural Flow Process*, Presented at the SIAM conference in Austin, TX, 2002.

**CONTACT INFORMATION**

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**REFERENCES**

Available upon request.