



# Global Engineering & Contracting, Inc.

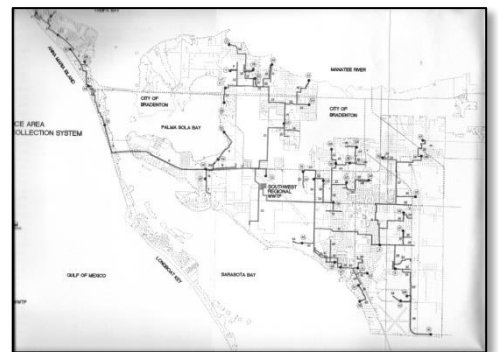
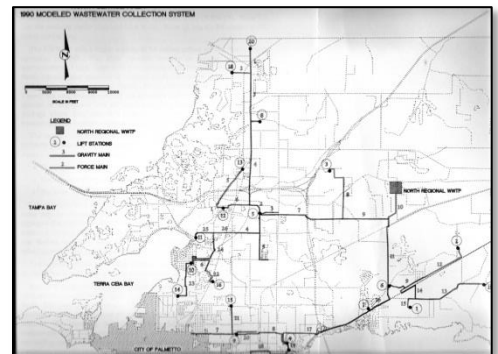
## Water, Wastewater, and Reclaimed Water Infrastructure Services & Solutions

Water Resources Infrastructure encompasses multiple utility systems critical to the success of residential, commercial and industrial developments, cities, counties and large and small towns. At Global Engineering & Contracting, Inc., we provide a combined 120 plus years of professional skills, knowledge and experience in planning, design, permitting, construction management, construction engineering inspection, project management, and operation of potable water, wastewater, and reclaimed water distribution, collection, storage, pump stations, conveyance and treatment plant systems/automation.



### Planning

From master planned development communities to city and county-wide systems, Global Engineering & Contracting, Inc. staff has been at the forefront in the use of computer hydraulic modeling software. Software such as Kypipe and Hydro-graphics in the 1980s to Cybernet, WaterCAD, and SewerCAD in conjunction with AutoCAD and WaterGEMS in the past fifteen years has been used to provide our clients with the very best solutions and alternatives in an efficient, cost-effective environment.



To serve the clients' requirements, Global Engineering & Contracting, Inc.'s staff can create models derived from conceptual layout, systems drawn on paper, to systems in Geographical Integrated System (GIS) digital maps. Whether a model includes 8-inch diameter pipes and larger (transmission systems) or every pipe in the system, the user will be able to identify results that closely match existing systems with confidence, improving design, construction and assist in minimizing operation and maintenance costs.



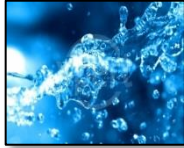
Throughout the project planning process, Global Engineering & Contracting, Inc.'s staff will provide excellent communication with the client representatives and regulatory agencies to ensure the utility master plans meet all expectations, concurrency requirements from all aspects.





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## ***Design***



Global Engineering & Contracting, Inc.'s staff has the extensive experience, skills, and knowledge that are employed on each and every project to the client's satisfaction. Each project design is prepared to utilize the latest technologies in construction to maximize efficiency and minimize cost and time.

Projects ranging from small utility mains to wastewater collection/lift station/force main systems to master pump stations with storage tanks, Global Engineering & Contracting, Inc. will provide the correct design to fully meet all project expectations, complete and prepared with contract documents and technical specifications, ready for construction. Each project design includes the processing and acquisition of all required permits from the appropriate regulatory agencies.

## ***Construction Management/Inspection***

Global Engineering & Contracting, Inc. will provide a complete array of construction management tools, skills and experience to guide the client and contractor(s) throughout the construction phases of each project to a successful conclusion. Inspection efforts ranging from full construction activities to daily or weekly periodic visits can be provided to meet the client's needs and budget. Construction management includes shop drawing review, periodic pay request processing, contractor requests for information and change orders, to final inspections, record drawing preparation, final walk-through, permit certifications and contract closeout.

## **Areas of Water, Wastewater & Reclaimed Water Infrastructure Services:**

- Potable Water/Wastewater/Reuse Water Master Planning
- Feasibility Studies
- Water/Wastewater/Reuse Water Model Analysis (WaterCAD/WaterGEMS/SewerCAD)
- Potable Water/Wastewater/Reuse Water System Engineering & Design

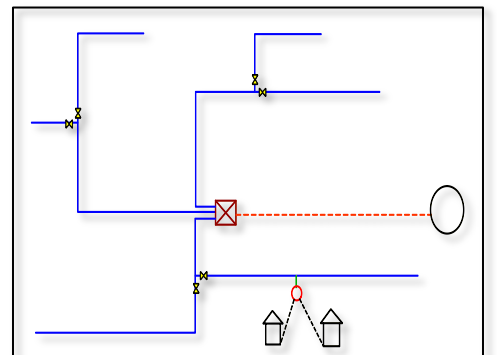






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- Wastewater Treatment Plants Permitting and Renewal
- Large Treatment Plants Design, Permitting, Construction Management, Operation and Maintenance
- Wastewater Package Plants (Design, Permitting, Permit Renewals, Construction Management and Operation)
- Decommissioning of Package Plants and Connecting Existing infrastructure to County or City System
- All Water, Wastewater and Reuse Water Regulatory Permitting
- O&M Manuals
- Water Use Permit Transfer of Ownership
- Wastewater Treatment Plants Permit Transfer of Ownership
- Structural Engineering Design & Analysis (Water and Wastewater Treatment Plants)
- Facility Assessment (Water and Wastewater Treatment Plants, Pump Stations & Storage Tanks)
- Low Pressure Wastewater System Design, Construction Management & Inspection
- Vacuum Sewer System Design, Construction Management & Inspection
- Wastewater Lift Station Design, Construction Management and Inspection
- Pump Station and Storage Tank Design (Water/Wastewater/Reuse Water)
- Pump Station Construction Management, Maintenance, Rehabilitation, & Replacement
- Inflow/Infiltration
- System Design / Build / Operate
- Commissioning/Start-up
- Rate Studies
- Supervisory Control and Data Acquisition (SCADA) or Telemetry Systems
- Site Planning and Mapping, Feasibility Studies & Due Diligence Reports, GIS Services
- Utility Program Management
- Best Management Plan
- Preventative Maintenance Plan
- Construction Management – Contract Documents & Bidding Assistance, Bid Evaluation, Cost Estimating, CPM Scheduling (Primavera & Microsoft Scheduling), and Construction Observation
- Field Services for Water, Wastewater and Reuse Water Projects





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- Municipal Development and Participation Agreements

## **Environmental Permitting**

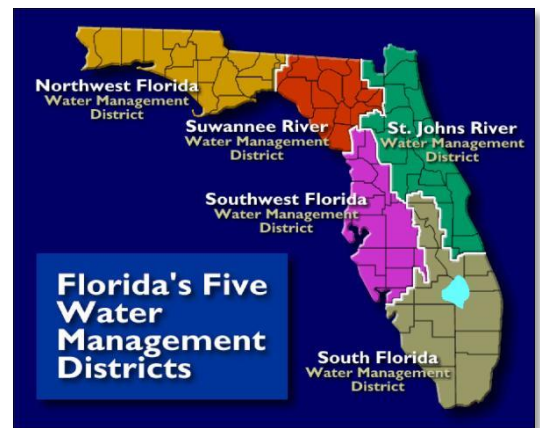
Global Engineering & Contracting's staff has designed more than 1200 miles of water, wastewater and *reuse* water lines in Florida, as well as pumping stations and major water and wastewater treatment facilities. We have an excellent relationship with the regulatory agencies which facilitates expeditious permit application approval. We will provide you with direct contact with the management for your project on a day-to-day basis. Global Engineering & Contracting, Inc. has a sterling reputation of completing every system we begin, to the complete satisfaction of the owner and operators. Sample of our experience in the area of permitting:

- Water & Wastewater Treatment Facilities Permitting
- Water Treatment Plants Operating Permits
- Wastewater Treatment Operating Permits
- Wastewater Treatment Plants Permit Renewals (Including large municipal plants as well as package plants).
- Water Use Permit & Transfer of Ownership
- Wastewater Treatment Plants Permit Transfer of Ownership
- Commissioning/Start-up of Water & Wastewater Treatment Plants
- Decommissioning of Water & Wastewater Treatment Plants and connecting to municipal infrastructure
- Water Management Districts Permitting

## **PERMITTING DOUCMENTS**



**Potable Water**  
**Wastewater**  
**Reclaimed Water**





## **Operations: Optimizing Management & Operation of Wastewater Treatment Plant.**

Operation of WWTP depends heavily on a skillful plant operator licensed by State of Florida. FDEP keeps an up to date list of all plant operators in the State of Florida on its website with designation such as Plant operators “A”, “B”, & “C”. Each plant is regulated by the FDEP and maintains a record of each wastewater treatment plant. Each plant is specified in its permit as how many hours its operator needs to spend on a daily basis at the plant and what kind of elements he or she needs to test for to meet the permit requirements. It becomes a routine process for the plant operator to go through on a daily basis. A good plant operator keeps good records of his plant’s operations and test results because it makes the life of the operator, the engineer, and FDEP staff a lot easier to find certain information regarding the plant. Keeping good records, tells a lot about the plant’s operator as well as the plant’s management. The plant operator can optimize his plant’s performance by keeping a good maintenance schedule and record of his equipment and by making sure that the plant is performing according to its recommended design values. Operators contribute a lot toward a plant’s operation with the end results noticed in the plant’s output when all parameters are measured and analyzed and meet the permit requirements. A simple example is the performance of blowers and pipes that are manifolded into different aeration tanks for the distribution of oxygen or air through pipes and diffusers. A common problem that we notice at the plants is that we detect air leaks from pipe joints and blowers, which leads to an inadequate amount of air being delivered. These elements need to be routinely checked and maintained so the mechanical equipment are continuously doing what they intended to do.



### ***Typical Operating Practice for Small to Medium WWTP Maintenance***

Typically, people rely on a failure based maintenance principal as they do not have a staff member or maintenance team available for maintaining a water and /or wastewater treatment plant around the clock, nor do they have a large budget available for the implementation of in-house preventative maintenance. This inevitably exposes owners and operators to a number of risks.



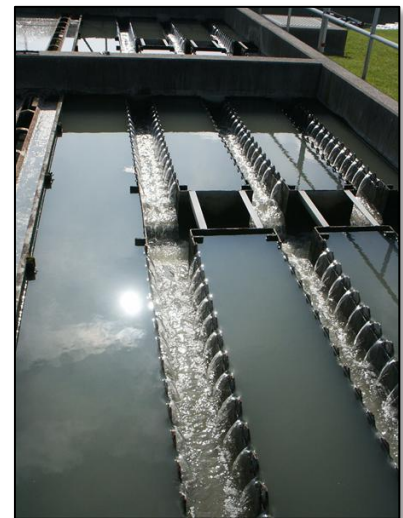
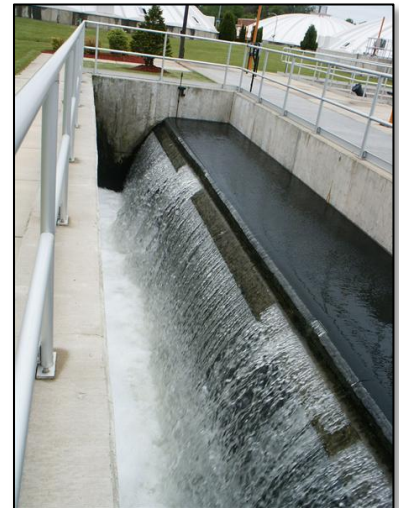


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Nonetheless, wastewater treatment plants require maintenance to prevent leaks, overflows and odors, and to achieve the quality of wastewater treatment and the release limits required by the EPA/FDEP or local governments. Full automation will help in identifying the failure by warning the operator ahead of time. But again, it is cost prohibitive to the owner in some cases to have these kinds of automation at their plants. Therefore, routine maintenance is worth implementing on a daily basis to avoid major cost and breakdowns. Operators can apply certain principals and guidelines in their routine operation and maintenance such as:



- ✓ Identify that certain maintenance is required on specific units or equipment based on a routine schedule and operational performance.
- ✓ Assemble a checklist of routine maintenance tasks on your mechanical equipment and electrical components.
- ✓ Schedule tasks on a checklist by priority without jeopardizing the plant's operation.
- ✓ Communicate with the plant owner on a regular basis so that the required elements that need to be fixed will be taken care of by the plant's owner. If the plant's owner is kept informed with what's going on, they will account for these repairs in their budget ahead of time and will be fixed on schedule. This should be part of a Preventative Maintenance Plan so the plant's performance won't suffer.
- ✓ Manage with best management plan in mind to achieve utmost output. Operators and plant owners have the responsibility to manage and handle all maintenance work required and listed on the checklist and should follow the preventative maintenance plan on a regular basis.
- ✓ Maintain the plant equipment on a regular basis. It is important to have a good record on site of all maintenance activities including parts replacement, dates of when the repair took place and personnel.
- ✓ Keep good records of the plant daily activities such as the Monthly Operating Reports, Operating Manual, & Record Drawings on site and at the owner's office. It is the responsibility of the plant operator and the owner to maintain the plant's record on site and at management office.
- ✓ Integrate all of the above steps to help the plant's owner in preparing a Facility Assessment Management Report for FDEP/EPA on an annual basis.





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The bottom line is a Preventative Maintenance Plan in place will work as a road map for better operational performance which in turn will help in reducing the risks. Risks could come in different ways and packages and would be costly if the repairs or maintenance is neglected. When equipment breakdown occurs on site due to lack of maintenance, risk will increase and could be associated with the occurrence of wastewater spills and/or odor and that could put the operators and owners in high risk with the regulators. In addition, emergency repairs to the equipment would force the owner to hire more personnel and pay overtime to overcome the problems to get the system running again. Therefore, the cost of replacement instead of smaller repair costs would put the owner in a financial burden. Let's not forget the environmental harm if untreated wastewater finds its way into nearby water bodies and the health and safety risks posed to staff and/or the general public through the wastewater spills. This puts the plant's operator and owner in a bad predicament with the regulators. Moreover, the owner's reputation here is in jeopardy. Consequences of poor management could be high due to litigation, fines, and cleanup costs.

## **Maintenance & Schedule of Parts Replacement & Repairs**



Always refer to the plant's Operating Manual. The manual usually refers to the equipment run time or age of equipment. By scheduling maintenance services according to the manufacturer's specifications, operational and efficiencies, equipment failure can be prevented before the components are damaged. Preventative maintenance will ultimately save money and minimizes risks and has the potential to extend the life of the equipment, protect the value of the plant, and preserve the reputation of the plant's owners and operators. This program will



help the owner to develop a good reputation with the regulators through best management practice (BMP). **Global Engineering & Contracting's** staff has the experience in these areas and is ready to assist the plant owners and operators in establishing a custom tailor-made BMP for their WWTPs and with all related issues that will make their plant operation more efficient.

**Global Engineering & Contracting, Inc.** staff is highly experienced and up to date with all federal and state rules and regulations related to all water and wastewater plants, starting from design processes and permitting to construction and operation of any plant size and process. In addition, our staff is highly qualified in the state of the art plant design, processes, and automation, including Membrane Bio-Reactor (MBR), Advanced Wastewater Treatment (AWT) Process, Electrodialysis Reversal (EDR), Reverse Osmosis, and desalination, among other conventional/traditional processes. This strong experience on board in design, permitting, operation and construction Management will work as One-Stop-Shop for our clients and as a catalyst in providing an enhanced service with consistency to our clients. Our designers, operators and contractors are qualified in their domain of profession and are passionate about their work. **Our service is inspired by our engineering team and desired by our clients.**

