Maxwell Marine Consulting Engineers, Inc.
Civil, Coastal, Marine Engineering, Environmental, Project Management, Construction Administration

Maxwell Marine Consulting Engineers, Inc. is a woman-owned, licensed and insured Florida engineering firm, specializing in providing coastal and civil engineering services, and project management services for private development. The company was formed in January 2007, and began conducting business immediately. I am the Owner/Principal in Charge, a licensed Professional Engineer with 15 years experience in the U.S., Central America, and the Caribbean, presently working on development projects in the Florida Keys, the Turks and Caicos Islands, Bahamas, Dominican Republic, and Grenada.

Maxwell Marine is multi-disciplined and specialized in a wide range of services including, but not limited to:

- ✓ Project Management/Owner Representation for Heavy Civil and Coastal Development projects.
- ✓ Civil Engineering from the initial feasibility analysis and masterplanning, to utilities and site civil design, costing and material sourcing, sediment management, through final construction plans, specifications, and permitting.
- ✓ Coastal Engineering services including hydrographic surveying, vibracoring and sediment analysis, coastal analysis and hydrodynamic modeling studies, hurricane frequency analysis, instrumentation, dredging design, beach nourishment and restoration, beach stabilization structures, erosion prevention, sediment management, marina design, and marine/waterfront structures.
- ✓ Environmental Services including Environmental Impact Assessments, Monitoring and Mitigation plans, water quality and flushing analysis modeling and computations, and water resource planning.
- ✓ Construction Administration Services for civil and coastal engineering elements of a development, preparation of tender documents and bid summaries, cost estimating, value engineering, means and methods, special inspection, site representation and reporting.

What differentiates Maxwell Marine from other “engineers”? Primarily, our sensitivity to and appreciation of preserving the environment and ecosystems, coupled with our comprehension of construction, logistics, and costing, whilst providing technical expertise and an impeccable level of service. We are committed to building and maintaining relationships with our Clients and local Governing bodies, imparting them with pioneering, value engineered solutions and a “common sense approach” for all of their civil, coastal and environmental engineering challenges.

Maxwell Marine, the new wave in coastal engineering.

Sincerely,
Maxwell Marine Consulting Engineers, Inc.

Maureen Woods, M.S., P.E.
Director of Engineering, President

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Maxwell Marine
Consulting Engineers, Inc.

Maureen Woods, M.S., P.E.

Ms. Woods is the President/Principal in Charge of Maxwell Marine Consulting Engineers, Inc., located in the Florida Keys. The firm is committed to contributing to the success of our clients by partnering with them to enhance their financial and operational performance by providing innovative solutions to their engineering challenges. Ms. Woods has 15 years experience, specializing in civil and coastal engineering disciplines, including extensive project management and construction administration experience. Project highlights include:

Experience:

Hobo's Marina Site, Key Largo, Florida
Ms. Woods is responsible for all design and permitting for this 22 slip, new marina facility, which includes modifying the existing Submerged Land Leases and dock replacement for 3 finger piers damaged during Hurricane Wilma. Ms. Woods performed the seagrass and habitat survey and mapping, research of aerial photography to determine date of filled lands, and ERP permitting with SFWMD and FDEP. The project is currently in the design phase for the new marina facilities.

South Caicos Developments, Turks and Caicos Islands, British West Indies
Ms. Woods is the Coastal Engineer of Record for this 2,500 acre development, leading the effort in developing the Comprehensive Environmental Impact Assessment (EIA) document for submission to Government for Outline Planning Permission. The document (EIA) will describe the development objectives, need for the project, baseline environmental conditions (comprehensive description of the biological resources and physical forces), flushing analysis and coastal processes, and the impacts of the project on the physical and biological resources, including mitigation measures, areas of impact, and management plans. Ms. Woods is managing the team of professionals who are contributing to the document, including Architect, Civil, MEP, Marine Benthic/Terrestrial, and Socio Economic consultants. The Project will include 3000 linear feet of beach stabilization, 1000 feet of new beach, dredging, and the creation of a mangrove preserve and lagoons.

10,000 Acre Private Development, The Bahamas
Ms. Woods is the Coastal Engineer of Record for a 10,000 acre island development. This phase included assessing low and high frequency storm impacts (and flood maps) in order to assist Owner\Developer in determining Design Flood Elevations for all upland development and overwater structures. Analysis includes wind and wave stress modeling of various level storms, performed by Ms. Woods in coordination with University of Florida Coastal Engineering Department.

Background:

Education
BS – Civil Engineering, New Jersey Institute of Technology;
MS – Ocean Engineering, Florida Institute of Technology

Registrations\ Certifications
Professional Engineer:
New Jersey, No. 42054;
Florida, No. 59849;
Cert. of Authorization:
Florida, No. 27460;
PADI - Open Water Diver & Photographer

Professional Affiliations
American Society of Civil Engineers (ASCE); Coasts, Oceans, Ports and Rivers Institute (COPRI); Florida Shore and Beach Preservation Association (FSBPA); American Shore and Beach Preservation Association (ASBPA); Association of Coastal Engineers (ACE)

Program Coordinator
11th International Congress on Marine Corrosion and Biofouling, Univ. of San Diego, July 2002

FEMA Reservist (Inactive)
Emergency Response Coastal/Civil Engineer Level III for US Natural Disasters

Beaches Resort & Spa – Post Hurricane Ike Assessment, Turks and Caicos Islands, B.W.I.
Ms. Woods managed the post-storm assessment of the resort shoreline (1,500 LF), providing coastal engineering services for beach renourishment. The Resort lost a significant amount of sand following the Hurricane Ike in September 2008. The field work included the installation of permanent benchmarks behind the dunes, a hydrographic survey of the impacted shoreline with 300 feet wide transects, and comparisons between the post-storm conditions and historical data to facilitate the placement of approximately 15,000 cubic yards of material for the construction of the new beach. Mr. Woods established the vertical datum in relation to mean low water prior to the survey, assisted in survey data reduction, design of beach templates, quantity calculations, construction drawings, and preparation of a Construction Monitoring Plan and all permitting with the Turks and Caicos Government. The new beach is a temporary measure, Maxwell Marine is undertaking a beach management plan for the Resort, with plans to design an offshore artificial reef breakwater, and is performing post construction monitoring at 6 month intervals.

South Caicos Developments, Post Hurricane Ike Assessment, TCI, B.W.I.
The assessment was necessary to assist the Developer in the determination of the storm related impacts to 3,000 linear feet of beaches, waterfront structures, in addition to a general site investigation on South Caicos following the passing of Hurricane Ike in September 2008. Maxwell Marine is currently designing dune stabilization, which will include geotubes, sand replenishment, and new vegetation for the dune losses. Monitoring will be conducted at six month intervals.

Long Bay (the Shore Club), Providenciales, Turks and Caicos Islands, B.W.I.
Ms. Woods conducted a coastal engineering analysis for a proposed beach nourishment and offshore lagoon for this residential and resort development on the south side of the island. The objective of the study was to evaluate the wind and wave climate, to conduct wave propagation modeling and to assess the potential impact to the existing beach due to the proposed offshore lagoon and breakwater. In addition, a hurricane frequency analysis was conducted to evaluate the frequencies of tropical storm and hurricane occurrences in the project vicinity, determine the long term design hurricanes, and to assess the maintenance dredging frequencies for the proposed dredged lagoon. The beach is 1,500 long, with the proposed lagoon 1000 feet wide by 100 feet wide by 5 feet deep. Ms. Woods completed all design drawings for Outline Permitting Permission, submitted to the Turks and Caicos Government. The project is currently in the permitting phase.

Dellis Cay Masterplan Development, Turks and Caicos Islands, B.W.I.
Ms. Woods is the Engineer of Record for all coastal engineering and environmental design services for this 560 acre island development project. Primary services included a sand sourcing investigation and mapping of 6 offshore areas, for the dredging of 1,500,000 cubic yards of fill material needed for both structural and beach use. Ms. Woods managed the offshore sand sampling investigation to determine dredging feasibility and sediment characteristics; a final report was issued, which included a sediment budget, logistics for dredging and spoil areas, costing, and mitigation options. Ms. Woods completed all design drawings and a Site Specific Environmental Impact Assessment for Phase I 850,000 CY; the project is in the permitting stage with TCI Government. Other design works hydrodynamic modeling and two (2) adjacent channels for existing and proposed conditions, wave/wind frequency analysis modeling for hard structures along the beaches, 6,000 linear feet of beach nourishment and dunes, jetties, groynes, a cargo and passenger arrival facility, as well as individual site specific Environmental Impact Assessments (EIA's) for these coastal improvements. Previous work included coordination and contracting site investigations (aerial photography, marine biotic surveys, topographic and hydrographic surveys) necessary for the

planning and design development phases of beaches, groyne stabilization structures, interior lakes and flushing canals. Ms. Woods was integrally involved in calibration, deployment, and monthly data collection of Nortek ADCP instrument for current and tidal data, reviewed data sets. Responsible for coordinating and establishing vertical datum based on mean sea level and data obtained via ADCP gauge and upland topographic data. Managed analysis of low and high frequency storm impacts and analysis to assist Owner\Developer in determining Design Flood Elevation for all upland and overwater structures. Developed coastal engineering sections for the Comprehensive Environmental Impact Assessment (EIA) report, and managed other engineering design disciplines contributing to the report, as required for outline permitting. The design works for this project are in progress, construction commenced in June 2008.

Dellis Cay Dredging and Beach Nourishment Project, Turks and Caicos Islands, B.W.I.
Ms. Woods was the Project Manager\Senior Design Engineer for coastal engineering and environmental design services, and construction administration and monitoring for the Government's Dellis Cay Channel dredging project, and placement of approximately 300,000 cubic yards of material on adjacent Dellis Cay. Work included design of beach templates, quantity calculations, construction drawings, preparation of a Construction Monitoring and Mitigation Plan and all permitting. Construction administration and monitoring included preparation of daily site reports, daily turbidity and water quality testing, reporting, dredging sediment management, and weekly meetings.

Third Turtle Beach Restoration and Dredging, Providenciales, Turks and Caicos, B.W.I.
Ms. Woods is the Government approved and appointed Special Inspector for the coastal engineering construction works of this private development. She is responsible for inspection of key construction events, including dredging, sheeting, groyne and beach construction in accordance with the design and specifications (by others) reporting to Government and participation in meetings with DECR, the Owner, the Engineer, and the Contractor.

100 Acre Private Development, Palmera De Cabarete, DR
Ms. Woods is responsible for coastal engineering studies and design of a seawall to support and protect the upland development from scour and wave action. Historical hurricane frequency analysis, scour, and wave load calculations were performed for the 25 year, 50 year, and 100 year storm events, including winter storms, for presentation and discussion with the Owner. The 25 year storm event was chosen as the design criteria. Structural drawings for scour protection, footings and the eleven feet high seawall were performed, with integration for upland site elements. This work is in progress.

Bonefish Point, Providenciales, Turks and Caicos Islands, B.W.I.
Ms. Woods conducted a site feasibility analysis to determine the best means for development of coastal site elements while preserving ecological elements and species. The purpose of this study was to provide the Owner\Developer with a preliminary engineering analysis, costing and recommendations for a resort development, including beach restoration project, swimming areas, access channel\marina, and interior lagoons for a 230 acre oceanfront site. To accomplish these goals, a comprehensive study was performed to obtain and evaluate on-site measurements and available data of the general physical, biological and coastal properties of the Project area. These field investigations included hydrographic surveys, review of historical aerial imagery and wind data, review of geotechnical borings and grain size analysis, sand probing to determine depth to hardbottom, biological observations, site photographs, mapping and analysis of findings. This data, along with analytical coastal engineering techniques, provided the information needed to perform a feasibility analysis for development of coastal features for this site, including potential channel dredging locations, beach restoration, sediment management, minimizing environmental impacts, permitting issues, and providing a cost

analysis for the best means of development. Ms. Woods performed all fieldwork, research, analysis, reporting, project management, cost estimating and presentations to the Developer.

400 Acre Resort Development, Turks and Caicos Islands, B.W.I.
Ms. Woods was the Project Manager\Senior Design Engineer for the development of a possible 400 acre resort destination in T. C. I. Services included management of site investigations necessary for the marine, coastal and civil aspects of site development, including oceanfront beaches, interior canals and waterways, marina and island creation. Work included coordination and contracting site investigations (aerial photography, geotechnical studies, marine and terrestrial biotic surveys, topographic and boundary surveys) necessary for the planning and design development phases of beaches, groyne stabilization structures and canals. Conducted analysis of sediment management\balancing of dredged material, management of numerical modeling for interior canals and refraction analysis for ocean front beaches\groyne placement, including historical aerial imagery, hurricane and wind data review; design of groyne structures and beaches. Performed associated cost estimates for all marine works. Design and permitting of Phase I Access Channel (dredging and sedimentation basin) for construction access to site. Integrally involved in calibration, deployment, and weekly data collection from Nortek Acoustic Doppler Current Profiler (ADCP) instrument for current and tidal data and reviewed data sets. Responsible for coordinating and establishing vertical datum based on mean sea level and data obtained via ADCP gauge and topographic data. Managed all permit planning aspects of the site development and developed permitting schedule.

Frederiksted Economic Revitalization Project, St. Croix, United States Virgin Islands
Project Manager\Lead Design Engineer for a major revitalization project in this coastal community in St. Croix. The primary goal of the project, initiated by the Virgin Islands Public Finance Authority, a design\build effort, was to ensure the return of cruise ships to this Port of Call. The scope included major improvements to the Ann Abramson Pier, the Historic Downtown\Strand Street, Veterans Park, Vincent Mason Park, Customs House Plaza, and a Public Boat Ramp Facility, including complete restoration of a waterfront park. Ms. Woods participated in Design Charrettes with local authorities, preliminary planning, and preparation of Environmental Impact Assessment report. Field studies included coordination, participating and managing site investigations (marine biotic surveys, topographic and hydrographic surveys). Coastal engineering work included design of all waterfront structural elements, including raising the elevation of the pier and seawalls (historical) within the waterfront parks (based on analysis from low and high frequency storm events), new revetment structures along landward ends of the pier, and modifications to mooring facilities on the pier. Civil engineering improvements included converting the downtown area to underground electric, widening the roadway, new drainage systems, pump station improvements, new sidewalks, lighting, landscaping and grading. Ms. Woods was also responsible for value engineering throughout the design\build process, construction administrative services, and was integrally involved in all construction material purchasing, logistics, and shipment of materials to site. Ms. Woods was also responsible for coordinating all permitting with required agencies, including the Department of Planning and Natural Resources, USVI Water and Power Authority, Virgin Islands Port Authority and the Federal Highway Authority. The project was completed within 2 years.

Marina Pez Vela, Puerto Quetzal, Guatemala
Ms. Woods was the Project Manager\Senior Design Engineer for a new 34 slip floating dock facility and marina basin, a design\build project, on this Pacific coast port facility and sport fishing destination. Services included management of site investigations necessary for the marine, coastal and civil engineering aspects of site development, including masterplanning, site and marina layout design, dredging, flushing analysis, new boat ramps, gangways, dry dock storage facility, shoreline stabilization, site circulation, fueling facilities and utility improvements

necessary for the new marina. Work included coordination and contracting site investigations (geotechnical studies, marine and terrestrial biotic surveys, hydrographic and topographic surveys). Ms. Woods conducted analysis of sediment management/balancing of dredged material, management of numerical modeling flows for marina flushing, and piling design for dock facility. Floating docks consisted of aluminum structural elements and polyethylene floats (provided by Technomarine, Canada) not only for the ideal material properties and the +2 meter tidal range, but also for ease of shipment and rapid construction. Ms. Woods was also integrally involved in all construction material purchasing, logistics, and shipment of materials to site. Design and construction was completed within six months.

Scallop Drive Marina Facility, Port Canaveral, Florida
Project Manager\Design Engineer for a new dry dock and marina facility, situated on 10 acres of waterfront property in Brevard County. The project included design of a 700 unit dry dock storage facility and amenities, a boat launching area, shoreline stabilization\retrofitting, and fixed docks. Work included coordination and contracting site investigations (marine biotic surveys, topographic and hydrographic surveys). The Project required permits from the FDEP, USACE, US Fish and Wildlife, and the Port Canaveral Authority.

Barge Canal Feasibility Study, Port Canaveral, Brevard County, Florida
Project Manager\Research Analyst for a study of all properties along the canal, prepared for Port Canaveral Authority and Commissioners. The study included identifying all leaseholders along the canal, vacant\undeveloped Port property, and the feasibility of developing those parcels in accordance with environmental, local, state and federal regulations, and the associated environmental implications of development. The study was presented to the Port Commissioners.

Nikki Beach Resort Development, Grenada

Ms. Woods is the Civil and Coastal Engineer for this 45 acre waterfront Development in Calivigny Cove. The development includes a boutique hotel, residences, recreational facilities, a 50 slip floating dock marina, overwater structures and new beaches. It will be self sustaining facility; all utilities will be provided on site.

Turks and Caicos Sporting Club, Ambergris Cay, Turks and Caicos, B.W.I.
Ms. Woods was the Project Manager\Senior Design Engineer for coastal and civil engineering aspects of development of a 90 acre resort destination on Ambergris Cay, a self sustaining community of estates and marina, during the preliminary design phase. Services included management of site investigations necessary for the deep water access channel, island utilities, and Phase I Work Camp. Work included a preliminary utility feasibility report and cost estimate, hydraulic modeling, and water tank design. Utilities for the work camp were analyzed and designed in coordination with manufacturer's specifications of package type sewage treatment plants and reverse osmosis plants.