



Abstract

The Statement of Qualifications (SOQ) for project management services for the Rehabilitation of Runway 8-26 at Rafael Hernández Airport, Aguadilla, Puerto Rico is required to identified experienced firms capable of managing project development. This project consists of construction of Runway 8-26 to the south, converting existing one into taxiway. For the SOQ, a multidisciplinary team of seven professionals with experience on construction management of Portland Cement Concrete pavement runways, airport safety and project controls is identified. Furthermore, four potential risks that could affect project's success and possible solutions are described. First, karstic topography characterized by depressions could be mitigated filling voids with aggregate. The challenge of drainage system located within Runway Safety Area could be lessen relocating the runway. Establishing tailored strategies for airport operations affected could minimize the impact. Finally, obtaining variations to specifications using as guide recent airport projects in the Island could alleviate limited availability of material suppliers.

Introduction

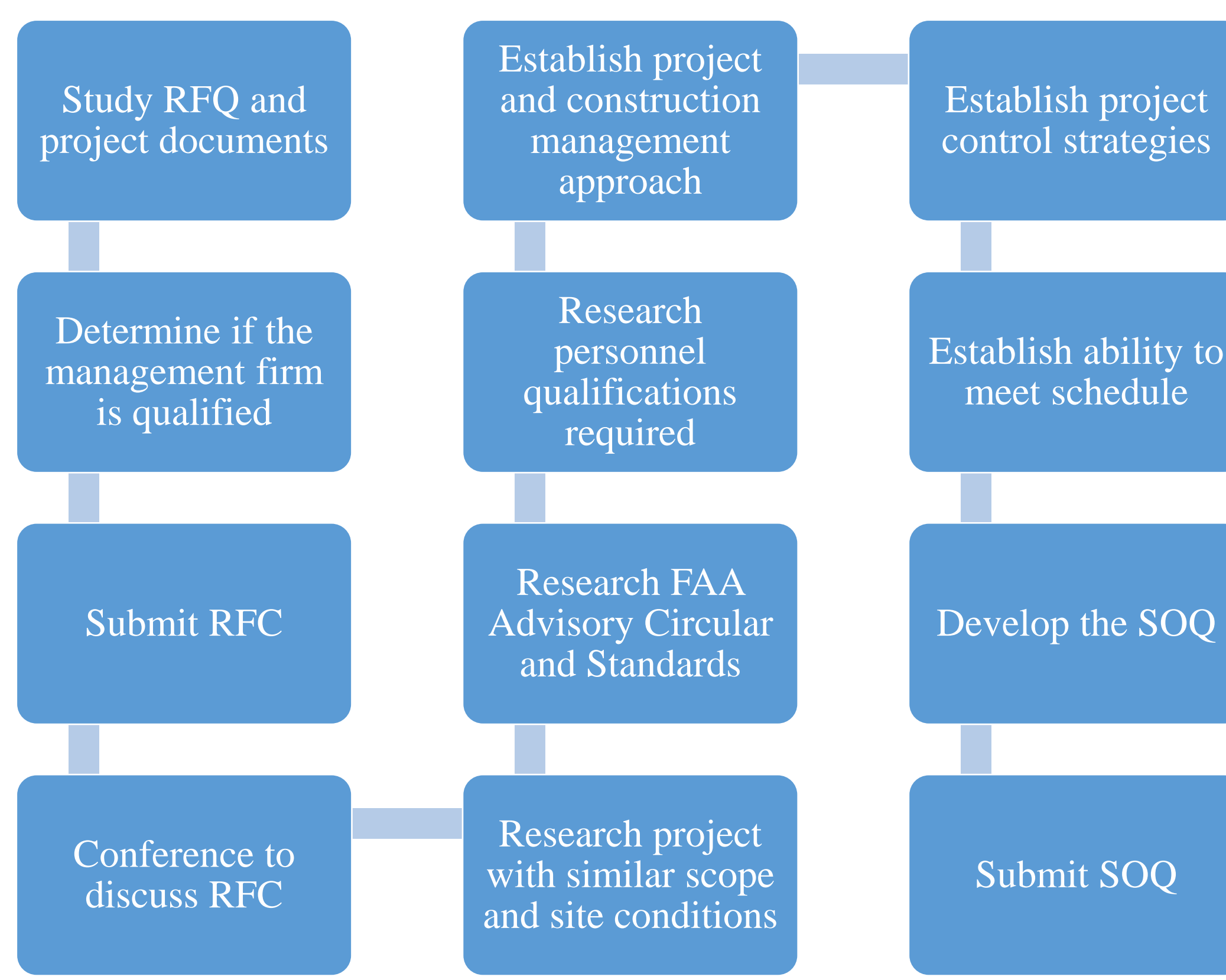
The project consists of the design and construction of Runway 8-26. The purpose of this is to have a runway with a resistant pavement and in conditions to accommodate existing and future operations at the Aguadilla Airport. This new runway will be located parallel 500ft south of the current runway. Its dimensions will be 11,000 ft long and 150 ft wide. It will be made up to Portland Cement Concrete Pavement. The current runway will be change into Taxiway. In addition, the project contemplates temporary pavement repairs, demolition, stakeout lines, signage, marking, storm drainage, erosion control, and among others. [1] This study describes the development process for a Statement of Qualifications (SOQ) for project management professional services for the Rehabilitation of Runway 8-26. The study describes the methodology for the development of the SOQ and the case analysis where the project understanding, team organization, project management approach and project control techniques are included for this specific project.

Problem

The Puerto Rico Port Authority (PRPA) is requesting Project and Construction Management services to manage the design-build joint-venture contract for Runway 8-26 Reconstruction given the complexity of the project and the need to comply with the Federal Aviation Administration (FAA) Airport Improvement Program (AIP) to secure funding. The management firms interested on participating must prepare a Statement of Qualification (SOQ) to prove qualifications and experience on projects of similar scope, complexity, and budget. The SOQ should demonstrate project understanding and special concerns, define the team organization and expertise, define the project and construction management approach, provide project control strategies, and prove the ability to meet schedules. The objective of this project is to develop the SOQ in accordance with all the requirements.

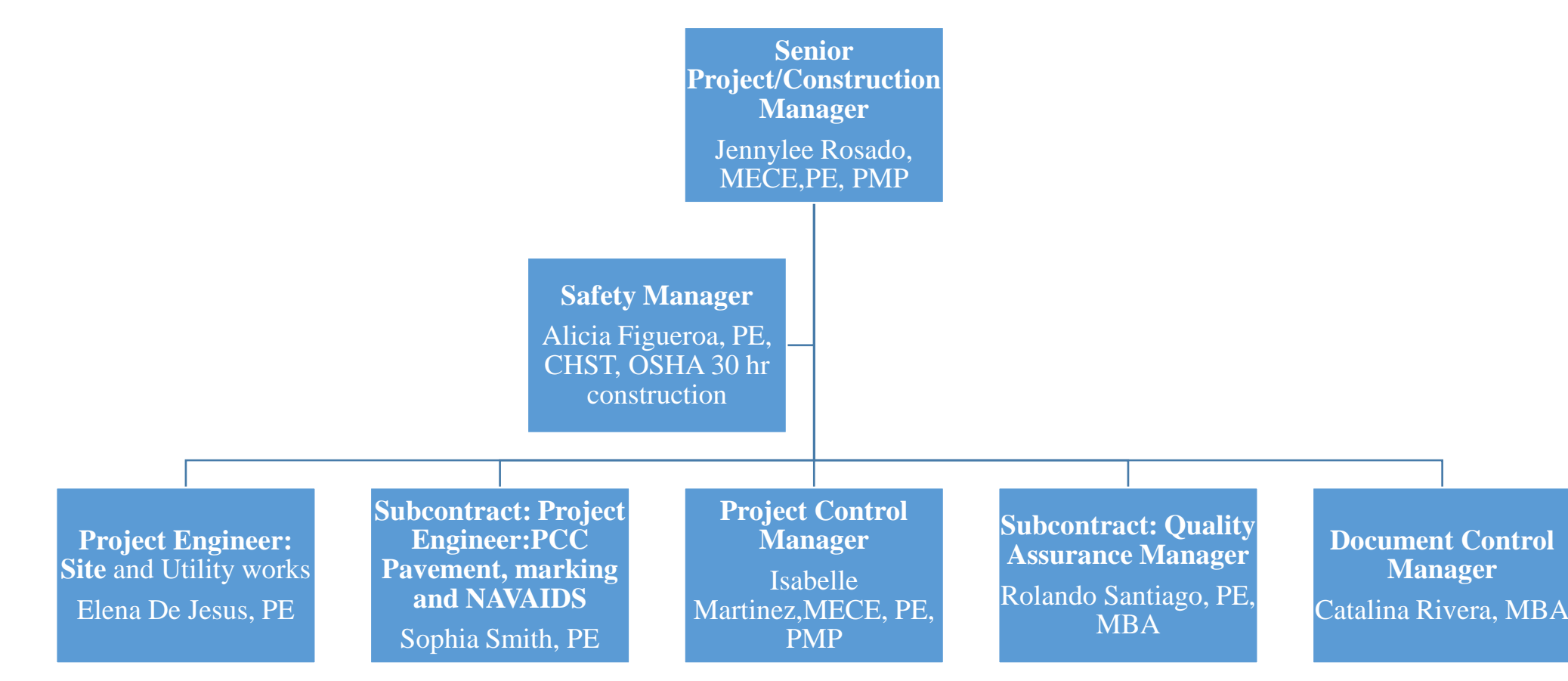
Methodology

To develop a Statement of Qualifications (SOQ) the first step is to study the Request for Qualifications (RFQ) issued by the PRPA to determine project requirements and special needs. If the management firm considers that it is qualified to participate, then, a Request for Clarification (RFC) is submitted and discussed later during a conference. Next step is the extensive research of similar projects with the following characteristics: rehabilitation of the airport runway, construction within karstic zones, drainage systems within the Runway Safety Area, and maintenance of airport operations while it is being built. Research continue with the FAA Advisory Circular and Standards and, personnel qualifications required. This will serve to foresee challenges the construction of Runway 8-26 will face. Then, a project and construction management approach is developed based on the requirements set forth in these standards and the specific characteristics of the project. This approach describes the collaboration and communications, the safety, and the quality control project management strategies. Cost and schedule control management systems are also developed to ensure the efficient delivery of the project on time and within budget. The Figure below presents a flow chart of the process for developing the SOQ.



Results and Discussion

The SOQ is focused on the firm's understanding of the project, the unique abilities, and accomplishments of the team members that qualify them to successfully manage the project. The multidisciplinary team organized for the project is comprised of seven (7) professionals with vast experience on aviation developments. In addition, it describes the firm's experience on similar projects, their project and construction management approach, their project controls strategies, and their ability to meet schedules. The SOQ consists of the following parts: Projects of Similar Scope and Complexity, Project Understanding and Special Concerns, Team Organization, Project and Construction Management Approach, Ability to Meet Schedules.



The Statement of Qualifications resulted in a team of professionals with extensive experience in aviation projects. The selected team for the project management of the Runway 8-26 Design-Build project is presented in the organizational chart above.

The team based on the Environmental Assessment and the preliminary Soil Study; to identified possible situations within the project that could complicate the progress of the work. Therefore, out work team has identified the possible situations that may affect the progress of the project. The first one, the karstic areas, different alternatives must be considered for their stabilization.[2] Therefore, possible solutions for this situation could be filling voids with aggregate or concrete, replacement of the runway base with fill material, based on the soil study, base stabilization with geogrid and involve a geotechnical engineer, a structural engineer (track weight) and a civil engineer (drainage system).[16] The second situation is related to the drainage system. The location of the pipe for the collection of rainwater is proposed within a Runway Safety Area (RSA), either the new runway or the existing one, since from center to center there is only a 500ft distance. This affects the development of the project because it does not comply with FAA standards, [3] as alternative to installing SaniTite HP pipe. This pipe is considered for its efficient installation, light, cost-effective and durable. In cases where the Runway Safety Area cannot be improved to meet FAA standards, documentation is required that addresses alternatives that were considered and which is the most feasible. [17] In addition, another situation is Maintenance of Airport Operation. For minimize operational impact through pre-meetings with the FAA ATO will support operational simulations. Identification of areas and operations affected by the constructions helps to determine potential problems (Closing, or partial closings of Runways, Taxiways and Aprons, and Displaced Thresholds) construction areas, storage areas, and access routes near runways, taxiways, and aprons. Establish of specific procedure is necessary to maintain the efficiency of airports operations such as: temporary change to runway, temporary change to air traffic control procedures, and continuous communication with all parties. [7] Lastly, building materials, supplier and construction material limitations in Puerto Rico can make it difficult to meet project design and specifications. It is recommended use as a guide, recent airport projects in Puerto Rico, so that variations to the specifications (if any) of the materials could be obtained and implement a protocol to ensure uniformity of available materials. Project and construction management approach for collaboration and communication to promote early involvement of stakeholders, methodical planification to ensure safety during construction and minimize disruptions to operations, procedures to monitor quality control throughout all project phases were developed. In addition, a cost management system to ensure compliance with Airport Improvement Program and a plan for constant monitoring of schedule and foresee potential delays were developed.

Conclusions

In conclusion, the team of professionals selected as part of the project management company that is carrying out the Statement of Qualification, meets the professional and experience requirements to carry out the development of the project. These engineers identified the risks and challenges of the project, among them were complications due to the construction of the runway in a karstic zone, soil study with limited information, drainage system within the Runway Safety Area (RSA), maintenance of operations of the airport during construction and construction materials. For each of these challenges, design or build alternatives were presented that will reduce the impact of the project, so that it can be taken into consideration during the start of the work. Each of these challenges were from the perspective of construction management, so that the interests of the owner of the work, who is the Puerto Rico Ports Authority, can be safeguarded.

Recommendations

The construction projects that are carried out have differences in design or construction or logistics. For future projects where a Statement of Qualifications is worked on, it is recommended to collect as much information about the project objectives, and design and construction plans. In addition, it is recommended to have as part of the team specialized professionals within the engineering branch that develops the project, in order to be able to identify possible risks and solutions to the project, so that the complications of the project in future stages can be minimized. For example, request more detailed geotechnical studies to be able to determine additional soil stabilization techniques. Also, to integrate professionals in the materials science and knowledgeable of products availability in the local market to identified all potential suppliers.

Acknowledgements

As part of this project, we thank Ing. Jorge Alvarez, from CH Caribe Engineers PSC/Jacobs, for the opportunity to have the Aguadilla Airport project as a master's project and for his willingness and collaboration during the process. In addition, we thank Prof. Víctor Uribe, for his mentorship and Daimarik Torres for her commitment and support.

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