

Journeyman International – DREAM Soccer Academy Cameroon

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This project based senior project was completed through Journeyman International, an organization that pairs Architecture, Architectural Engineering and Construction Management students with projects in need of their services. This document contains the Construction Management students portion of the work. The DREAM Soccer Academy is a group of coaches and mentors that counsels and guides youth in Mamfe, Cameroon, empowering the youth through soccer. The organization is seeking to expand their operations to a housing, education and sports facility soccer. The proposed design includes two dormitories, three soccer fields, six classrooms, conference rooms, an indoor gym, cafeteria, health center, cafeteria, bleachers and a security building. Because of the size and potential issues with funding, the project was broken down into portions. This paper details the preconstruction documents that were produced by the Construction Management student and features introductory information on the schedule, takeoff, cost estimate, logistics plan, phasing plan and SWPPP.

Key Words: Journeyman International, Volunteer, Funding, Architecture, Architectural Engineer

Introduction

This project represents the opportunity to produce the construction management documents for a facility that may come to fruition. Journeyman International paired the Construction Manager with an Architect and Architectural Engineer whom spent winter and spring quarter of 2017 producing the documents contained within this report. Continuous adjustments had to be made to the design and construction management documents throughout the project process, allowing the design team to collaborate and come up with unique solutions. This process simulated the collaboration these students will navigate when they enter their respective industries.

Project Based Criteria

Journeyman International is a non-profit firm that coordinates projects in need of pre-construction design, engineering, and construction management documents with volunteers in these respective fields through interdisciplinary collaboration between these three disciplines in the CAED department. The completed pre-construction, structural and architectural documents were produced for a twelve-acre soccer facility in Mamfe, Manyu, Cameroon. Working with RRM Design Group, these students worked and collaborated for months to produce the desired design, engineering, and construction management documents that the client, DREAM Soccer Academy sought. Contained within this report are said construction management documents. The deliverables for this project include: conceptual estimates, schedule, hazard and risk assessment, material take offs, phasing plan, scope analysis, site logistics plan, soil analysis and a utilities analysis. Journeyman International will review the completed construction management documents alongside the design and structural documents. If funded, these documents will also be reviewed by a local Cameroon construction, design, and engineering professional before built.

Deliverables

Collaborating and using the design of the Architecture and Architectural Engineering students on the project, the Construction Management student produced the following deliverables: Final Estimate, Schedule, Hazard and Risk Assessment, Material Take Offs, Phasing Plan, SWPPP, Utilities Analysis,

Lessons Learned, and Future Application. The deliverables included in this paper are specific to the student seeking a BS in Construction Management from Cal Poly San Luis Obispo, and the preconstruction portion of the DREAM Soccer Academy project.

Estimates

In order to most accurately estimate the cost of the materials of each facility of the project, a general multiplier was produced. Using general costs of certain materials in Cameroon provided by the client, the quotients of the material cost in Cameroon and the United States was averaged in order to produce a multiplier by which standard costs in the United States could be manipulated to estimate the respective cost in Cameroon. With this, and historical data from Journeyman International's database, an estimate of the costs of each facility was established.

Schedule

The facilities schedule was broken down in three phases due to both the size of the project and potential for funding to come in waves. To accomplish this each building needed to be scheduled individually and then placed in groups based on importance of the building to the facility. The scope required for each building was based off of the Architecture students design.

Hazard and Risk Assessment

This portion of the construction management documents seeks to identify the risk of the DREAM Soccer Academy project and mitigate said risks. The assessment was produced through analyzing the area surrounding the construction site, responses to specific questions submitted by the client obtained from a preconstruction questionnaire, and historical data on hazards and risks in this region of Cameroon.

Material Take Offs

The Material Take Offs were produced in Bluebeam through counting and measuring the materials of the dormitory units found in the architecture and structural engineering design documents. After this, a multiplier based on the square meterage of the buildings on the campus was applied for all relevant materials in said buildings.

Safety & Phasing Plan

The Phasing plan was established based on the necessity of the building to the facility. The project was initially produced in phases due to the sheer size of the project. However, if funding is received in increments, this phasing plan will allow buildings that are more crucial to the operation of the facility to be built first, using the first portion of funding. In addition to this, the twelve-acre site must also be cleared and grubbed of large and small trees before construction can begin. During this phase, a road to the site must also be created for construction traffic to be able to reach the site. The phases of the project are as follows. Phase 0: Clear and Close Off-Site Phase 1: Dormitories, Classrooms, and Soccer Field. Phase 2: Cafeteria, Indoor Gym, and Health Center. Phase 3: Bleachers & Locker Rooms, Conference Rooms, and Security.

Storm Water Pollution Prevention Plan (SWPPP)

The SWPPP was produced through obtaining information on soil on site from the client and using EPA's reference document for small commercial construction.

Utilities Analysis

As there are no utilities connections on site, the utilities analysis was the examination of on-site possibilities and the use of the nearby Manyu River to service the buildings.

Lessons Learned

Interdisciplinary communication was at the core of this project. In coordinating efforts and priorities between the Architecture, Architectural Engineering and Construction Management student and the project representative located in Cameroon, timely communication and openness was very key. Going through key objectives during each meeting was key in order to have the Architecture or Architectural Engineering student produce the necessary information or correct certain flaws in work. This was especially true when communicating with the client in Cameroon, who would often not be contactable for weeks at a time. Empathy for the goals of the person you are communicating with and a focus on pushing for the information you need is something that can be carried on into industry.

Future Application

The skill developed in interdisciplinary communication and communication with the client is one that will transfer directly into the construction industry. Interdisciplinary communication is at the core of construction management, where individuals of different backgrounds collaborate towards a common goal.

References

SWPPP Reference Example

[EPA Example Construction SWPPP: Small Commercial Site](#)

https://www3.epa.gov/npdes/pubs/exampleswppp_smallcommercial_app.pdf

Professional Contacts

Daniel Weins – Journeyman International

DREAM Soccer Academy – Dariyu Mozali

Weather Information

Climate – Cameroon

<https://www.climatestotravel.com/climate/cameroon>

Journeyman International References

Randy Cordova – India Vocational Center

Faith Johnson – Hut2Hut Rwanda