Meadow Park Community Garden Improvements

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The San Luis Obispo Community Gardens offer space for residents to grow food at a low-cost yearly lease. Among the five Community Gardens in the city, there are over 100 plots available to purchase. These plots can vary from in-ground garden beds, off-ground raised garden beds, and ADA accessible garden beds. The goal with this project is to provide the Community Gardens with infrastructure to allow for a better garden experience and to increase the volume at which San Luis Obispo residents can utilize the gardens. Through communication with the San Luis Obispo Community Gardens, we were able to determine the most necessary improvements for the community gardens: Six Wood ADA Accessible Raised Garden Beds and one Wood 3-Bin Compost System. The garden beds are 2’x4’ and 3’ tall. The compost bin is 3’x9’ and 3’ tall and separated into three 3’x3’x3’ compartments. These garden beds and compost bins will be placed at the Meadow Park Community Garden. This project was lead by the author and assisted by members of the Cal Poly Construction Management department. This project was funded by JB Pacific.

Key Words: Raised Garden Beds, Compost Bins, Community Gardens, Wood

Introduction

While brainstorming a senior project, both through CM 460 and afterwards, I knew that I was interested in a project-based project. I was very attached to doing something that would benefit the community and wanted to do something hands-on to develop my own building skills. While initially struggling to come up with ideas for my project, I came across the idea of making garden beds for the SLO City Farm through my roommate that works at the farm. As I explored further into this opportunity, I soon learned that another Cal Poly Construction Management senior had already inquired about this project and was covering the needs the City Farm needed done. While this was somewhat of a setback, I kept exploring different parties that may need garden beds. The SLO Community Gardens came to mind as I live near the Broad Street Community Garden, and frequently drive by it. I reached out to the SLO Community Gardens Coordinator, Hadley Clegg, and she was happy to have had me reach out and was excited about the idea of a potential project with them. After some email coordination, we reached the idea of six garden beds, and a 3-Bin compost system for the Meadow Park Community Garden. After deciding on the scope of the project, I spoke with my subject matter expert, Tom Kommer, to talk through some different ideas on design, materials, and different project expectations. I also began to explore different funding avenues.
Preconstruction

Funding

This past year I’ve worked with JB Pacific over a summer Project Engineer internship and Preconstruction internship. I was able to develop a strong relationship with the company and have committed to working with them post-graduation. This placed me in a position where I was comfortable asking JB Pacific to fund my senior project, which was ultimately approved. In preparing my request for funding, I created an estimate which totaled just over $1260. This estimate was based on a design that I created and will touch on later in this report. The numbers for my project were based on prices from Home Depot for wood, fasteners, and water-based polyurethane. Included in this estimate was also a 6% contingency, which I justified for fluctuations in wood prices or changes in scope or design. The estimate can be seen below in Figure 1. This ultimately proved useful, as the total cost for the project came in just under the estimated amount.

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Figure 1. Conceptual Estimate

Design

The design for this project was based on ideas provided by the SLO Community Gardens. Hadley provided me with pictures of similar garden beds and compost bin from another community garden in SLO. With these pictures came feedback from the gardens, hoping their new ones would be more robust and longer lasting. To ensure that the garden beds lasted longer for the garden, I determined that the garden beds should be built out of larger dimensional lumber, as the previous designs were made with fence sheathing and 2”x4” pieces. In my design I incorporated 4”x4” posts and 2”x12” sides. My design and estimate also called for the garden beds and compost bins to be fastened together with nuts and bolts. Based on this estimate, I created drawings for the SLO Community Gardens and to guide me in my construction process. These drawings can be seen in figures two and three.

I ultimately changed parts of my design after consulting with some of my peers that had experience building garden beds in similar ways. They provided me with insight that nuts and bolts might loosen up over time, which would eventually become a problem for the garden. I ultimately decided on using 4” galvanized deck screws. This ended up providing me with a cheaper alternative that provided a higher quality end product. Another change that I encountered was the method of containing the bottom of the garden beds. I initially decided that placing chicken wire at the bottom of the garden beds with 2”x12” slats across the bottom. Upon arriving at Home Depot to acquire materials, I soon discovered that they did not have the right mesh sizing chicken wire in stock for me to contain soil successfully. The alternative solution that I came up with was to keep the 2”x12”
planking across the bottom and to instead staple in high strength weed fabric across the bottom of the garden beds. This would allow for the containment of the soil as well as drainage through the garden beds. The last change from my initial design was to raise the height of the garden beds from 30” to 36”. This allowed for greater ease of cuts and for the garden beds to sit an extra 6” higher. This was beneficial because the garden beds are 12” deep, so should the soil level not reach the top, users’ plants would sit higher to reach. See the below Figures 2 & 3 for the project drawings.

Figure 2. Garden Bed Drawings

Figure 3. 3-Bin Compost Bin Drawings.
Coordination

My initial contacts with the SLO Community Gardens began in early March, with my inquiries on the need for a project within their community gardens. Through emails, the above-described design was completed and various other questions about the project were answered. On May 18th, I presented my design and plan for the construction of the garden beds to Hadley and the facilities manager, Chris Woods. In this presentation I provided the design drawings, as well as a time frame for the project. My goal was to complete this project throughout one weekend, beginning Friday with acquiring material and cutting the wood to the correct dimensions, finishing cutting and start assembling on Saturday, and doing the final installations at the garden on Sunday. Other considerations I had for the project were gate access to the park to be able to transport materials to the site as easily as possible, making sure the community would be aware of my presence at the garden, as well as some final design clarifications. This meeting gave me the answers I needed, and I began the construction of my project on May 19th.

Construction

Material Procurement

Thursday afternoon I started preparing to begin bringing material home by stopping by the Simpson Strong Tie Materials Demonstration Lab (SST) on the campus of Cal Poly San Luis Obispo and going through the process with the SST Manager, Allison Wild, of checking out tools for the job. I checked out a square, a skill saw, chop saw, a drill, and impact driver to assist in constructing the garden beds and compost bins at my house. I began purchasing materials on Friday, May 19th at Home Depot. I was able to purchase and transport the 4”x4” posts, fasteners, and other necessary smaller items to my house to begin work. While this was the case, I was unable to transport some of the larger pieces of 2”x12” as I did not have a vehicle large enough. On Saturday, I borrowed a friend’s truck to transport the large 2”x12” pieces to continue cutting. After purchasing all materials, I began construction.

Construction

After purchasing the last of my materials on Saturday May 20th, I continued cutting my material to the correct lengths. This process was initially taking me a considerable amount of time and I felt that my goals for the timeline of the project were falling behind. At this point, I reached out to some of my friends within the Construction Management major to assist in my project. My friend, Sam Wong, assisted largely in the cutting of my materials. Work went much more efficiently with his assistance, as one person could focus on measuring out cuts and the other could focus on cutting. With Sam marking out cuts and myself cutting, we were able to complete the cuts in sufficient time and start assembling on Saturday. On Saturday another friend of mine, Gus Coluccio, assisted with my project. Gus and I spent Saturday May 20th prefabricating as many elements of my project as possible. We determined the best way to prefabricate portions of the project would be to construct the top box portions of the garden beds and the dividers and ends of the compost bin. This would allow me to transport the boxes to the garden to place secure the legs, secure the sides of the compost bins to the dividers and ends, and coat all parts of the project in a water-based polyurethane sealant. Please see Figures 4 and 5 below for the cutting and assembling of the project.
Figure 4. Cutting Wood to size with Sam Wong.

Figure 5. Assembling the top portion of garden beds with Gus Coluccio.
After completing the prefabrication of the top portion of the garden beds and dividers of the compost bin, I began transporting all pieces of my project to the project site on Sunday May 21st. At this point in the project, I did not receive any help, which ultimately led me to fall behind on the construction of my project. Moving the material from my house to the garden took me three trips, and a significant portion of my day. After moving all the material to the garden, I began fastening the legs of the garden beds to the top boxes. I did this efficiently by moving the box I was working on, on top of two others to secure the legs. I also sunk the screws into the box so I could quickly and easily secure the legs once in the correct spot. Completing the assembly of the garden beds took me the remainder of Sunday May 21st and the afternoon of Monday May 22nd. This process can be seen in Figure 6 and 7 below.

![Garden Bed Assembly](image)

**Figure 6. Garden bed assembly**

On Tuesday May 23rd, Sam Wong and I worked together to assemble the compost bin. The compost bin would have been difficult to assemble on my own as the ends and dividers were incredibly heavy and the side pieces were 9’ long, making them hard to handle. Sam was instrumental in helping me to construct the compost bin given the above challenges. We completed the construction of the compost bin and began coating the garden beds in water-based polyurethane. This polyurethane will improve the longevity of the project and provide an aesthetic finish. We were unable to complete the polyurethane coating, so I was set to come back on Wednesday May 24th. On Wednesday, I was joined by another peer of mine, Ethan Lin. Ethan Lin and I completed the polyurethane coating on the garden beds and the compost bin, and then moved on to stapling the heavy duty weed fabric into the garden beds. This portion of the project was fast, and we completed the construction of the project on May 24th. See Figures 8 and 9 below for the finished garden beds and compost bin.
Figure 7. Compost bin assembly

Figure 8. Finished Garden Beds

Figure 9. Finished Compost Bin
Lessons Learned

This project supplied me with extensive experience in communicating with an ownership party, procuring materials, and hands-on construction skills. One of the key lessons that I learned from this project is the required communication and coordination that is required to work with an owner of a project. I believe that a particularly challenging portion of this project was communicating primarily over email in the preconstruction phases of this project. I learned that it is particularly hard to coordinate with a client when they may have other responsibilities than answering questions related to your project. This showed in the nearly two months of email coordination that transpired through my project and my meeting with the SLO Community Gardens taking place a day before I planned to begin construction. I believe that the lesson here is recognizing that both clients and builders are extremely busy, and adequate time must be allocated prior to the project to promote a quality and efficient preconstruction process. My next lesson was in material procurement. My initial goal of transporting all my material in one day was aggressive, and I ultimately needed to take multiple trips to hardware stores to purchase material. With this, I learned that a more extensive and complete estimate is essential, and logistics of material transport are essential for every project. The last lessons that I believe I am taking away from this project are general handiwork skills that I received from cutting, assembling, and all in all constructing this project.

Conclusion

These garden beds and compost bin were ultimately a success for me and the SLO Community Gardens. The SLO Community Gardens are very pleased with the product and are excited to turn the garden beds over to people within the San Luis Obispo Community for use. This project was a success for me as it was the first service project I have completed in the role of leader and project manager (see Figure 10). I am extremely thankful for the assistance I received from Sam Wong, Gus Coluccio, and Ethan Lin on this project. I am also thankful for the advice from my SME, Tom Kommer, and the funding provided by JB Pacific. It feels incredibly rewarding to provide a quality project to the SLO Community Gardens and to the people of San Luis Obispo. I encourage future students to consider a project-based senior project and to assist the community they will be a part of during their education here in San Luis Obispo.

Figure 10. Completed project