

Project Background

Project Location and Scope



In August 2011, our team traveled to Panama with the iDesign program. We went to a rural community in the Comarca Ngobe-Bugle, Chichica. We spent one week in Chichica collecting information needed to design a footbridge.



The Tijera community, about an hour and a half hike from Chichica, is who our project will benefit most. The residents of Tijera travel to Chichica regularly. When doing so they have to cross the river named Quebrada Tinta. This river is dangerous to cross and often becomes impassable during the rainy season. A footbridge is needed to be able to cross the Quebrada Tinta safely throughout the year.

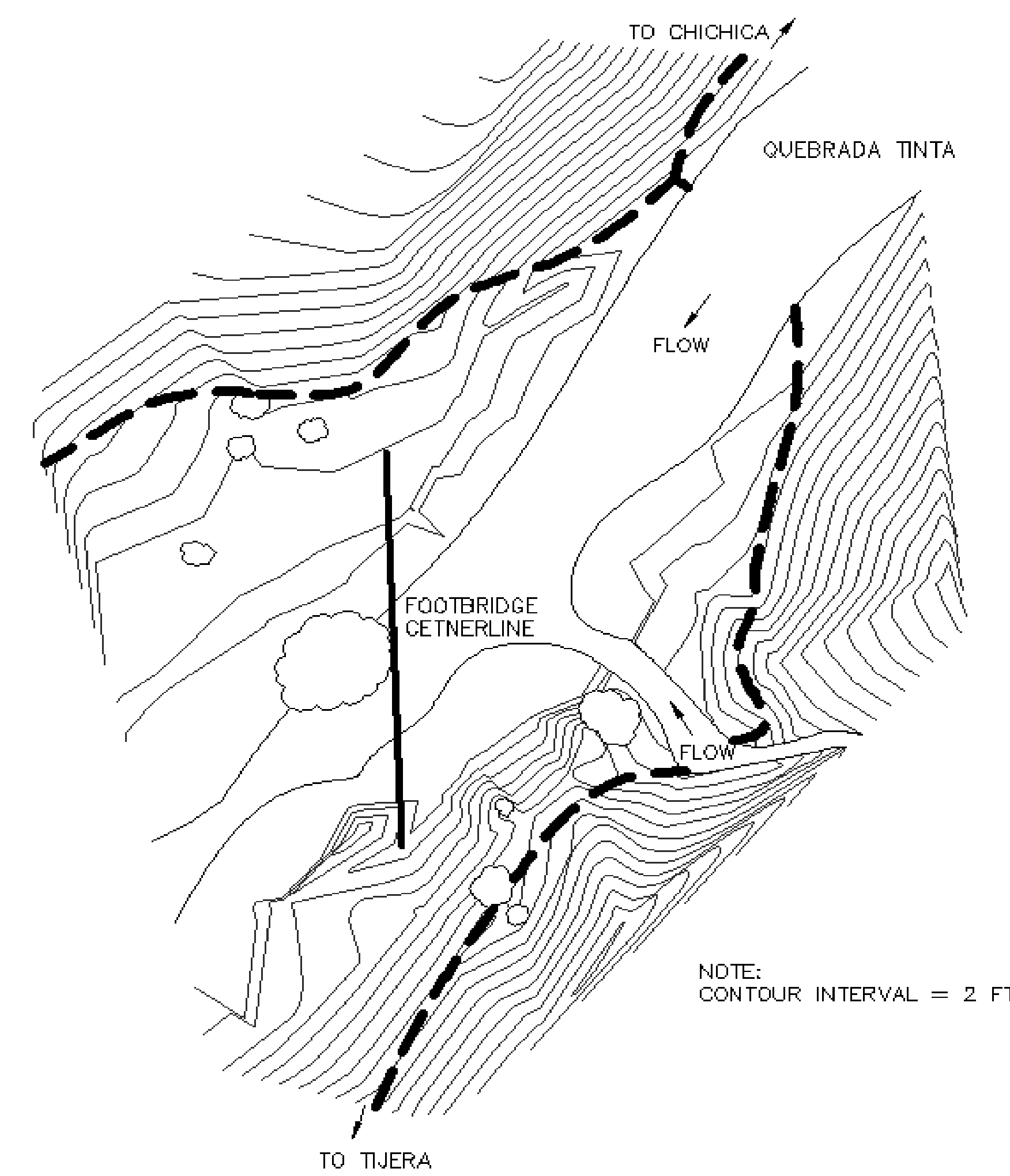
While on Site



On the assessment trip, the team actively engaged with the communities of Tijera and Chichica. The local people want a way to cross the Quebrada Tinta safely year-round. Interviews with members of the communities were performed with the help of a Peace Corps volunteer in order to clearly understand the background and need for a footbridge. Based on the gathered information, the necessary data for designing a footbridge was collected during the remainder of the assessment trip. During the short period we were there we were able to perform both hydrologic and soil tests along with taking many topographical surveying points.

Footbridge Design

Site Layout

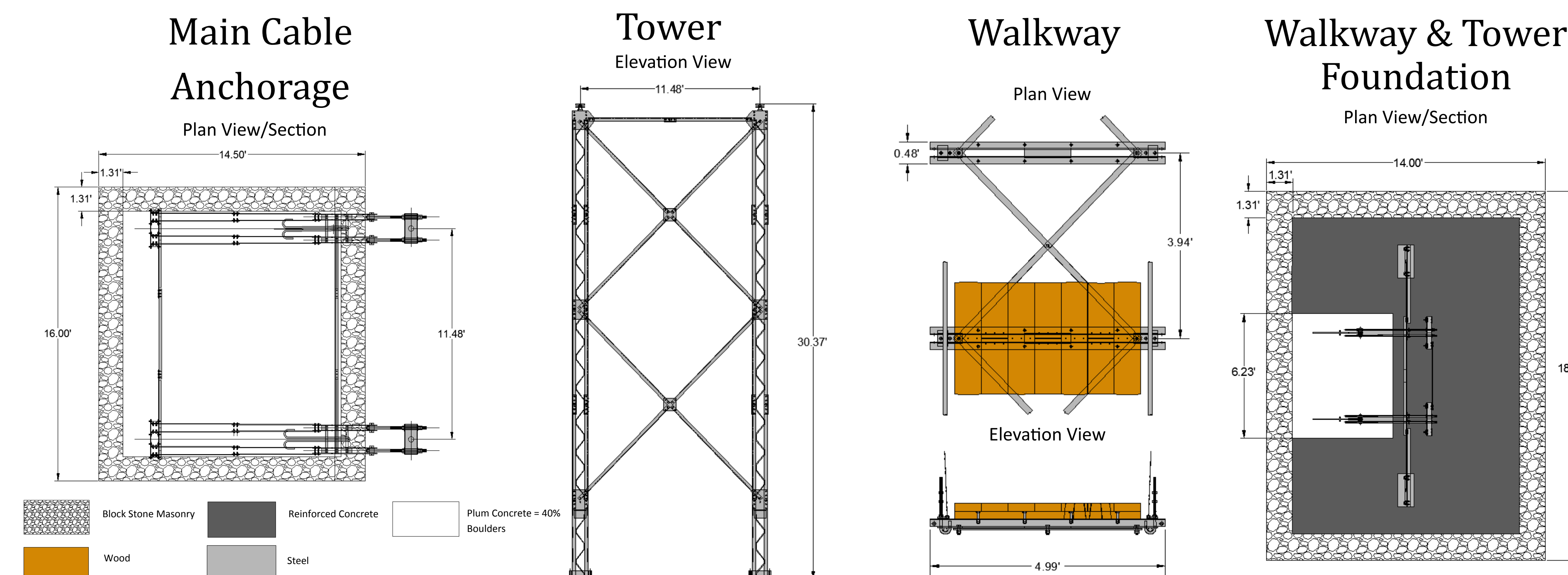
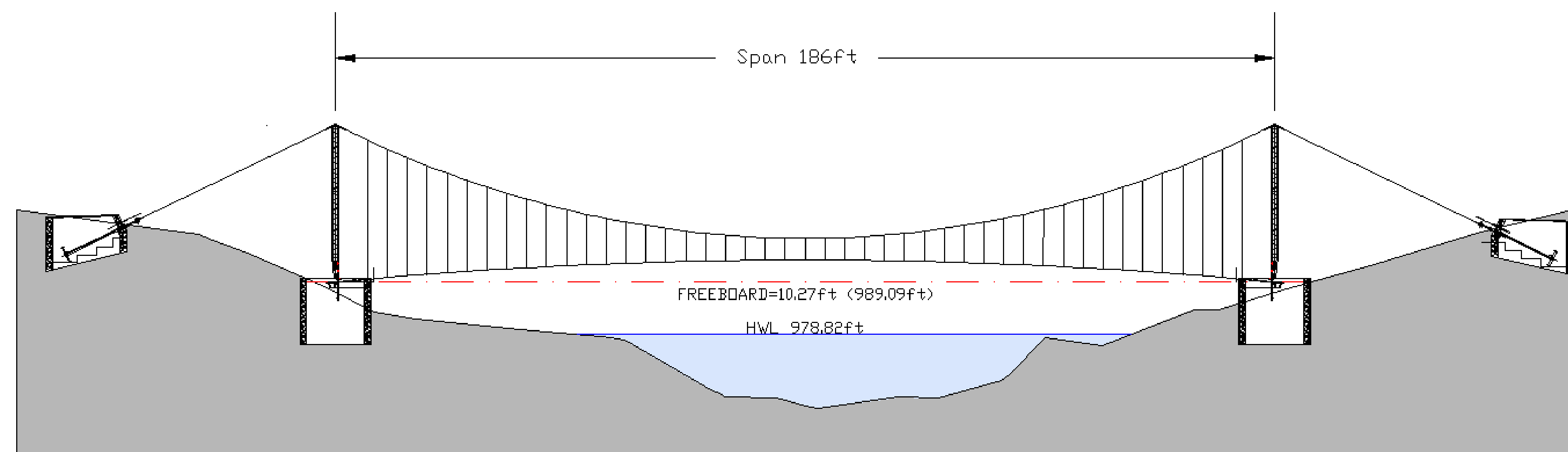


From discussions with the residents of Tijera, it was determined that the footbridge should be made mostly out of steel. Wooden bridges are known to fall apart in the local area and they want something that is going to last. The local labor skills and available equipment had to be taken into consideration when designing the footbridge.

The bridge components were designed while referencing *Survey, Design and Construction of Trail Suspension Bridges for Remote Areas* (Krahenbuhl, J., Wagner, A., 1983). Most of the bridge will be made out of steel components and concrete. The only wood components on the bridge will be the decking.

All steel components will be fabricated in a nearby city, so they can be easily assembled on site.

Footbridge Profile



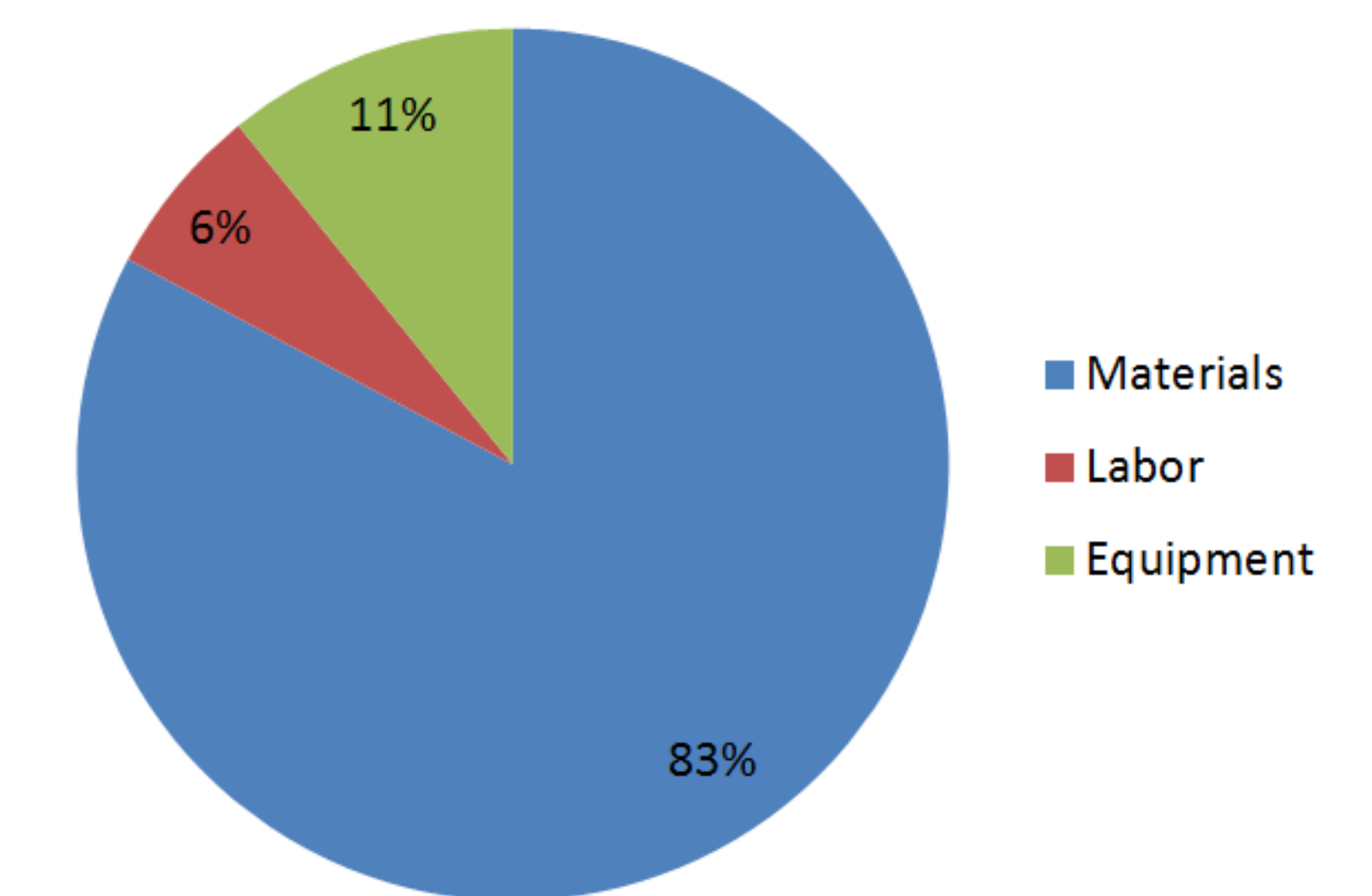
Project Implementation

Cost Estimate

A cost estimate was prepared which includes the costs of materials, labor, and equipment. Most of the labor is going to be donated by the local men. The cables needed are also expected to be donated.

Item	Total Cost	Actual Cost (Donations Subtracted)
Materials	\$40,000	\$35,000
Labor	\$22,000	\$3,000
Equipment	\$5,000	\$5,000
Total	\$67,000	\$43,000

Actual Cost Breakdown (After Donations)



Footbridge Construction

The footbridge will take 119 days (20 weeks) to construct. During construction, 10 men from the Tijera community will be available to work each day. A project manager or experienced engineer will be present during key construction operations, such as tensioning the main cables.

Implementation

Our design will be passed on to the Peace Corps volunteer in the area, along with the NGO Bridges to Prosperity, in hopes of the footbridge getting constructed. A Professional Engineer would have to approve our designs before the project could be implemented.

Acknowledgements

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