

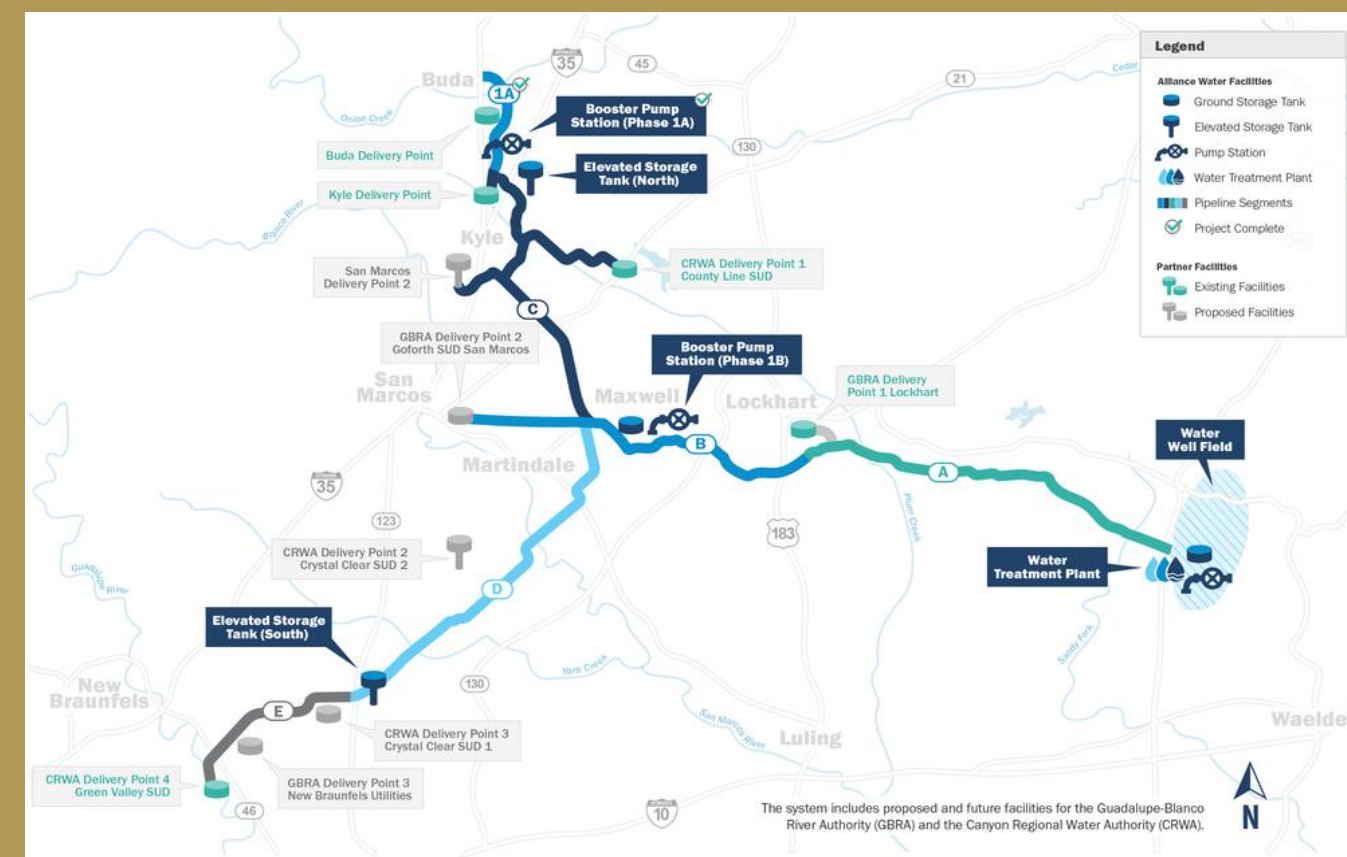
C1.04 Groundwater Treatment Plant

John Carroll, Wyatt Strength, Cameron Lavigne, Edgar Fragoso
 Sponsored By: Josh Milks & Marissa Vergara // CP&Y & STV



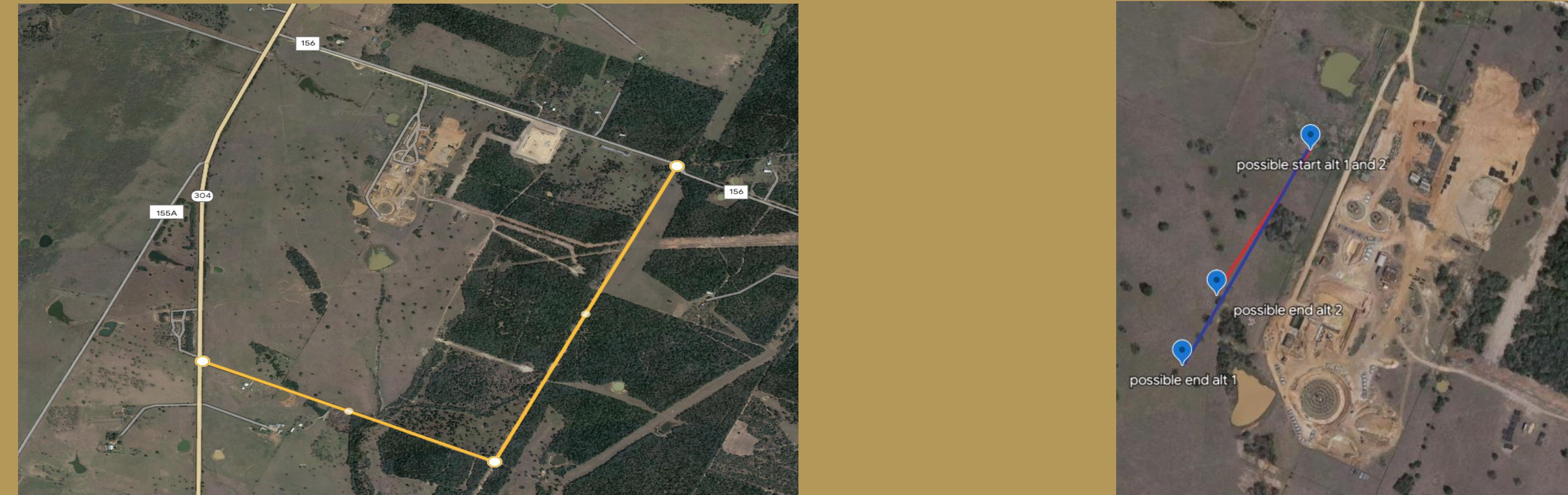
Project Overview

Site design of a sister plant expansion of the ARWA Groundwater Treatment plant for GBRA



Site Selection

Our plant is in Caldwell County about 6 miles southwest of Jeddo, TX. For the Design of the expansion plant, we chose site alternatives on the same property as the existing GWTP.



Background

The GBRA has come to an agreement with the ARWA to build an expansion on their GWTP. This GWTP when completed, will be able to deliver approximately 31 MGD. To Texas residents from New Braunfels area up to Buda.

Design Considerations

- Price
- Environmental Impact
- Hydraulic Grade Line
- Topography
- Population Growth

Design Alternatives

Alternative One: Involves the construction of a completely new sister plant to the west of the current plant.

Alternative Two: Involves the construction of the sister plant in the same location while sharing the current plant's infrastructure.

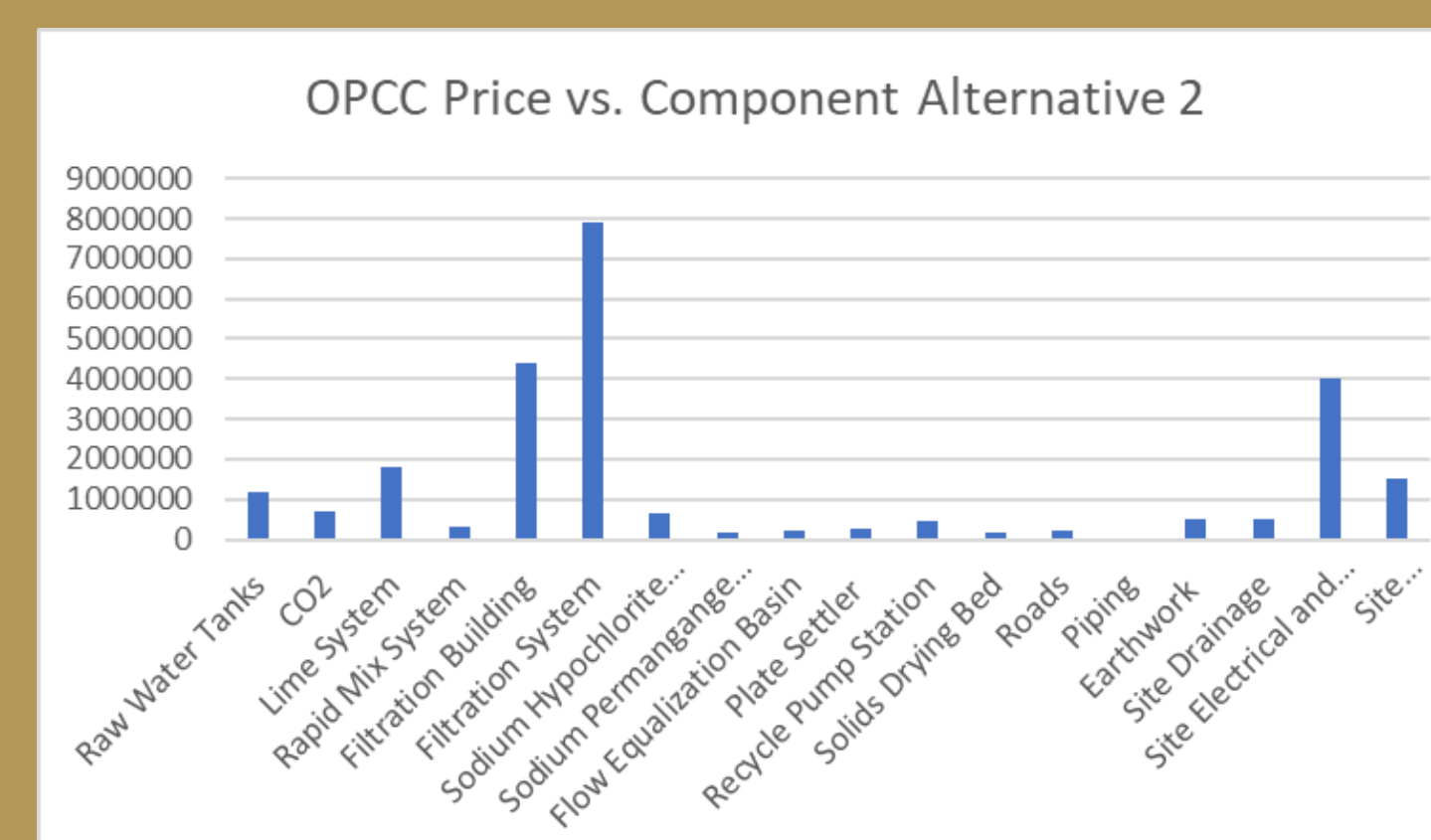
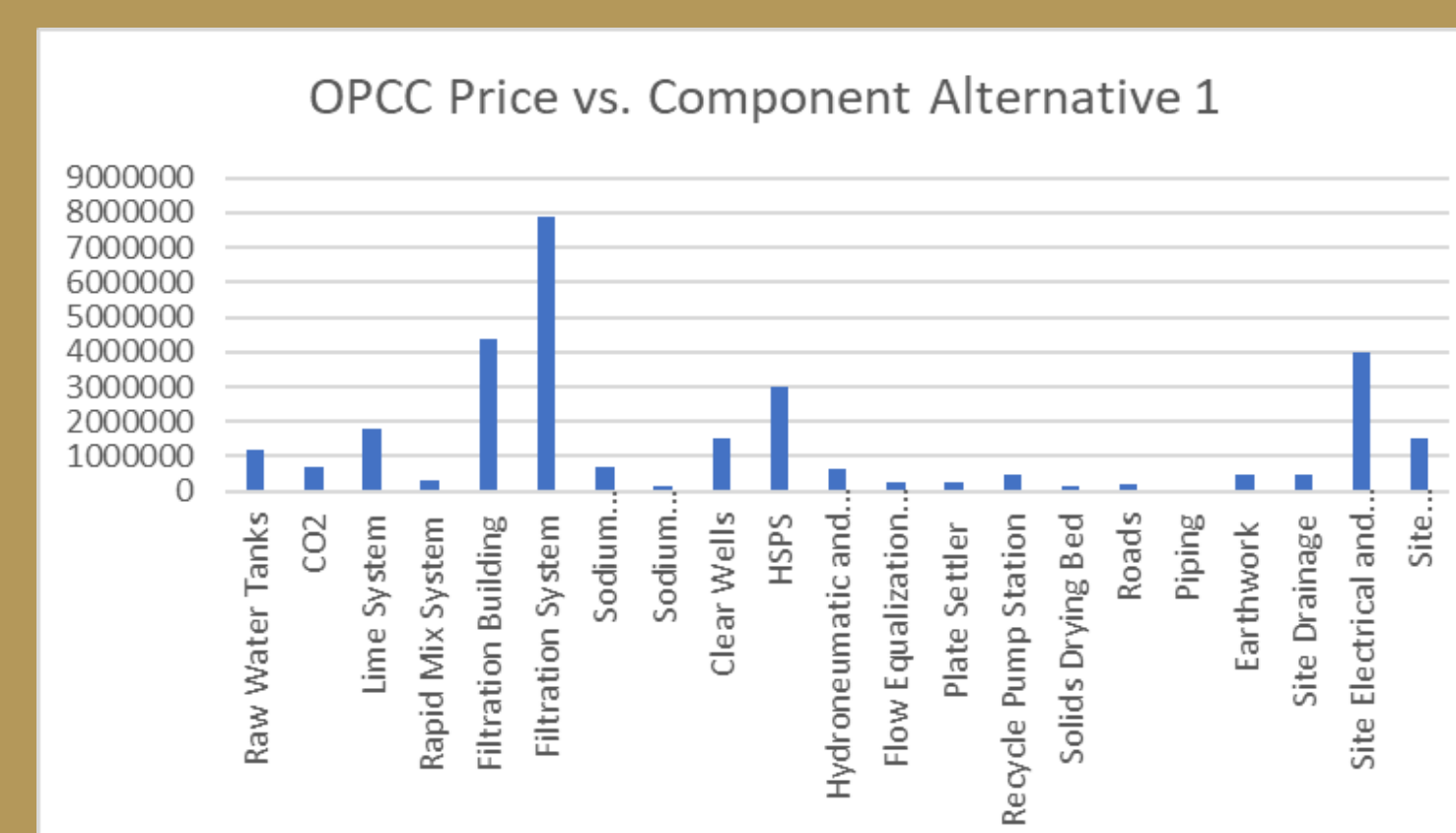
Sustainability Evaluation

After the Envision Evaluation, we were able to secure 568 out of 936 applicable points, making a total of 61%. We used our best judgment to bring the best quality and wellbeing to the users.

PROJECT LEADER	YOUR ROLE	SUBMITTED SCORE
Cameron Lavigne	Member Project Leader	568 out of 936 points 61% Platinum

Credit Category	Applicable	Submitted	Percentage
Quality of Life	186	146	78%
Leadership	182	178	98%
Resource Allocation	184	80	43%
Natural World	194	74	38%
Climate and Resilience	190	90	47%
Total Points / %	936	568	61%

Capital and Life Cycle Costs



Item	Daily Use	Price	Yearly Price	100 Year Price
Electricity	1654.15kwh	0.161\$/kwh	2332946.994	233294699.4
Chemicals				
Sodium Permanganate	50 gal	10\$/gal	182500	18250000
Sodium Hypochlorite	500 gal	10\$/gal	1825000	182500000
Lime	2000 gal	1\$/gal	730000	73000000
CO2	4 tons	50\$/ton	730000	73000000
Labor				
Cleaning Sludge Drying Beds			10000	1000000
Operational Cost of Replacing Filter Media, per 5 Years			180000	18000000
Total 100 Year LCCA Price (\$)				599044699.4

Team Members



From left to right: John Carroll, Cameron Lavigne, Edgar Fragoso, Wyatt Strength

Second Semester Plan

In our second semester we plan to select between our two alternatives, make a site visit, and use software such as AutoCAD and GIS to virtually map our design.

Acknowledgements

We would like to thank the College of Science and Engineering and their staff, especially Dr. Guiterrez for his insight. We also want to acknowledge Josh Milks and Marissa Vergara at CP&Y an STV company for allowing us to be a part of this opportunity.